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Cleaner Air Oregon Five-Year Report

Submitted to Environmental Quality Commission

DEQ

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Executive Summary

In just five years, implementation of the Cleaner Air Oregon program has made significant progress in protecting public health by regulating industrial emissions of toxic air contaminants, while continuing to issue health protective permits to new businesses locating in Oregon. Working collaboratively with varied interested parties across the state, the Department of Environmental Quality continues to address programmatic challenges to develop solutions and find efficiencies for facilities going through the program. This report outlines the lessons learned after five years of implementation and provides status updates on many aspects of the program.

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Some of the key takeaways from program implementation.

- DEQ has developed significant programmatic resources including necessary forms and fee schedules, guidance and resources for regulated sources, and educational materials for the public.
- Through the program DEQ has gained critical information on emissions of toxic air contaminants at a level of detail not possible prior to program implementation.
- DEQ has completed Risk Assessments for 35 new facilities and 7 existing facilities.
- Risk Assessments for existing facilities, in some cases, have taken much longer to complete than anticipated.
- Many facilities have installed controls or reduced emissions since the adoption of the program, leading to reductions in risk to public health.
- The program continues to prioritize transparency and public education by providing all documents related to a facility's Risk Assessment process online, along with other community resources.
- For the first time, DEQ is in the process of assessing cumulative risk from multiple facilities under the Cumulative Health Risk Pilot.

Through the work of many dedicated staff throughout the agency, the CAO program will continue the very important work of issuing air quality permits that meet health-based standards, which is now only possible because of this program.

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Introduction

This report updates the Environmental Quality Commission on DEQ's implementation of the CAO program in reducing toxic air contaminant emissions and associated health risks since rule adoption in November 2018. The report starts by presenting the program background and then a brief review of the rulemaking history and current rulemaking activities. The report then provides the status of permitted facilities in the program, along with the successes and challenges the program has had over the past five years of implementation.

The report also outlines how the program incorporates new science and advances in the protection of children's health into the Risk Assessment process. In addition, the report presents the status of the Area Risk Pilot Program, which, for the first time, allows DEQ to assess risk from multiple permitted facilities across a selected area. Finally, this report explores proposed strategies and resources that DEQ intends to utilize moving forward to increase the efficiency and effectiveness of this necessary program.

Background

From December 2013 to March 2016 the United States Forest Service conducted a survey of moss in the Portland metropolitan area to monitor for levels of selected air pollutants. The study itself found elevated levels of heavy metals in moss located in neighborhoods near glass making facilities. These results corresponded to areas previously identified by DEQ's air monitoring program and immediately prompted DEQ to locate air quality monitors in these areas in 2015. The following year, DEQ confirmed that certain heavy metal levels near these glass manufacturing facilities were high enough to pose a health risk to the community and those exposed. In reviewing the air quality permits for these glassmaking facilities, DEQ determined that, although they were emitting amounts of heavy metals sufficient to adversely affect public health, the facilities were in compliance with federal standards for Hazardous Air Pollutant emissions.

This information prompted immediate public involvement and outcry. Oregonians were concerned that harmful toxic air contaminant, or TAC, emissions could be a threat to their health, even though these emissions occurred under federal legal limits. In 2016, Governor Kate Brown responded to these concerns, and as a result, ordered DEQ and the Oregon Health Authority to establish the Cleaner Air Oregon program. This program is a health risk-based air toxics permitting program designed to fill regulatory gaps and protect public health by requiring all industrial and commercial facilities, both new and already existing, report emissions of TACs, perform a Risk Assessment, and reduce risk when it exceeds specified risk levels. DEQ undertook a comprehensive public engagement and rulemaking process and the EQC adopted the program rules in November of 2018. Since that time, DEQ has worked to implement this

program which provides, for the first time, the regulatory tools and authority to issue air quality permits that meet health-based standards, as established by the Oregon Legislature.

The Risk Assessment process is at the heart of the program. Facilities are required to submit a number of technical documents for DEQ to review and approve as part of this process: (1) Emissions Inventory; (2) Modeling Protocol; (3) Risk Assessment Work Plan; and (4) Risk Assessment. DEQ may also require additional documents based on the outcome of the Risk Assessment, which could include a demonstration that the appropriate controls are currently in place, or a Risk Reduction Plan that includes enforceable timelines to reduce risk to acceptable levels. Once DEQ has approved all the required documents, permit conditions are then established, and a Toxic Air Contaminant Permit Addendum is issued to ensure that health risk to the nearby community remains at or below health protective levels. This is the first air quality program that enables DEQ to issue air quality permits that meet state health-based standards.

Program Status Report Update

This section provides updates on core components and activities from the first five years of program implementation. Discussions of the programmatic rulemakings and why DEQ has chosen, or is required to, undertake them are presented. Then program staffing and associated challenges are presented. Elements of program development, including administrative and educational materials are also highlighted. And finally, the status of new and existing facility Risk Assessments are presented, along with discussions of the factors influencing the length of time this process can take for larger, more complex facilities.

Rulemaking History and Current Activities

In 2016, DEQ began the rulemaking process to establish the program rules. This substantial rulemaking required an extensive process which included technical advisory committee meetings, statewide public meetings to gather input used in developing the program, and multiple rules advisory committee meetings. Additionally, in the 2018 legislative session, the Oregon Legislature passed Senate Bill 1541, which required DEQ to revise some aspects of the program and reissue the rules for public comment. After two years of development and rulemaking, EQC adopted the program in November 2018, establishing Oregon's health risk-based industrial air toxics permitting program.

As outlined in the rule, the purpose of CAO is to:

- Prioritize and protect the health and well-being of all Oregonians with a special focus on sensitive populations such as children;
- Analyze public health risk due to toxic air contaminant emissions from industrial and commercial sources based on verified science and data;

- Consider similar regulations in other states and jurisdictions and use a science-based, consistent and transparent process for communicating and addressing risks from industrial and commercial emissions of toxic air contaminants, provide regulatory predictability to businesses and the communities they are a part of; and
- Reduce exposure to industrial and commercial toxic air contaminant emissions while supporting an environment where businesses and communities can thrive.

In April 2020, the EQC adopted the "Cleaner Air Oregon Hazard Index" rules. This rulemaking addressed provisions of Senate Bill 1541 that allowed DEQ to establish more protective health standards for noncancer health effects from exposure to toxic air contaminants, or TACs, that are expected to cause developmental or other severe human health impacts when inhaled. The adopted rules reduce the Risk Action Levels, or RALs, for existing sources emitting these chemicals from a noncancer Hazard Index[1], or HI, value of 5 to 3 if the chemical is expected to cause developmental or other severe human health effects. These changes mean that DEQ can require an existing facility to reduce risk from chemicals expected to cause developmental or other severe health effects to lower, more health protective levels.

In 2021, DEQ conducted the "Air Toxics Alignment Rulemaking," which aligned DEQ's two state programs that address TACs by creating a new standards division – Division 247. This new division contains a single Priority List[2] of TACs that must be reported, a table of regulatory values (Toxicity Reference Values[3], or TRVs), and outlines the periodic process to update those regulatory values based on the most up to date science. Division 247 also includes provisions related to the Air Toxics Science Advisory Committee, or ATSAC, that the agency must engage in the process to update these values. Additionally, this rulemaking updated the CAO program rules in Division 245 that: were confusing or ambiguous; led to unintended outcomes in process; or could improve program efficiency for the agency and facilities. EQC approved these rules in November 2021.

The program is required to review the TRVs every three years under the rules in Division 247 to ensure that these regulatory standards remain current with the latest science. During this process DEQ and OHA review the Priority List and TRVs. As part of this rulemaking, DEQ must convene the ATSAC, as an independent, non-decision-making body, to advise DEQ and OHA on questions and methodologies regarding the TRV review. The program is currently undertaking this process and will likely begin convening a Rulemaking Advisory Committee in late 2024.

[1] Hazard Index is used to evaluate the noncancer health effects from exposure to TACs and is taken as the sum of the ratios of the air concentrations of TACs to their Risk Based Concentrations, which are set at levels where no adverse health effects are anticipated.

[2] Priority List includes over 630 TACs that must be reported in facilities' Emissions Inventories under CAO.

[3] TRVs are the basis for the regulatory exposure concentrations under CAO.

CAO Program Staffing

In 2019 the legislature permanently authorized 10 Full Time Employee positions in the program, which are paid for by program fees. The team is currently composed of seven staff positions that work directly under the program manager – these positions include:

- CAO Program Engineer – Environmental Engineer 3
- Two (2) Project Managers – Environmental Engineer 3
- Source Test Coordinator – Natural Resources Specialist 4
- New and Small Business Technical Coordinator – Natural Resources Specialist 3
- CAO Program Coordinator – Program Analyst 3
- Area Risk Pilot Coordinator - Program Analyst 3

There are also a number of positions that are partially funded by program fees which are managed under other teams at DEQ. These positions provide critical support for the technical review of documents, as well as integration of the program with the pre-existing air quality permitting program, and include the following:

- CAO Modeler – Natural Resources 4 (Air Quality Technical Services)
- Air Toxics Emissions Inventory Specialist - Natural Resources 3 (Air Quality Technical Services)
- Risk Assessor - Natural Resources 4 (Cleanup Program)
- Three Regional Program Representatives – positions filled by Air Quality permit writers from the regions (Eastern, Northwest, and Western)

Additionally, program fees support work from Toxicologists at OHA, which are critical for providing review of regulatory values for the program, as well as communicating potential health risks to the community.

The core CAO technical staff (including the project managers, modeler, risk assessor, and source test coordinator) are primarily responsible for the review and approval of all documents related to the Risk Assessments, as well as those submitted under other program requirements. In many cases, the amount of information submitted to review and approve by the larger, more complex facilities is overwhelming for individual staff and must be divided amongst multiple technical staff – it is not uncommon for these facilities to submit hundreds of pages of information and multiple calculation spreadsheets for review. This places a significant strain on the limited technical staffing resources for the program.

In addition to the technical staffing resource limitations, the program has struggled with turnover at the management level, as well as maintaining full staffing levels. Since program adoption in 2018, the program has seen two managers vacate the position. During both interim periods the program engineer has had to provide management support, thus limiting the ability of that staff member to provide technical support to the team. CAO has also had turnover at the

project manager level which, despite recently being filled, has significantly set back the Risk Assessment process for several existing facilities going through the program.

Even with these programmatic staffing challenges, DEQ has made significant progress on standing up this complex regulatory program, which this report will outline below. DEQ also hopes to increase the technical staffing resources for the program, further discussed in the section regarding future recommendations for the program.

Program Development

Establishing and implementing a new statewide air quality permitting program that is as complex, both technically and administratively, as this program has required DEQ to develop a significant number of materials and tools for internal and external users. Additionally, community engagement and transparency were prioritized during development of the CAO rules and DEQ has also developed a number of resources to honor these programmatic goals.

The level of detail and attention that DEQ has committed to developing all these resources for facilities and community members is unprecedented for the Air Quality Division and has required significant staff time and resources. These tools and resources have been foundational to establishing and effectively implementing the program and will serve as a model for the Division moving forward to increase transparency and community engagement moving forward.

Administrative Resources

DEQ has developed several administrative forms required to provide structure to permittees and applicants navigating the program. Program fees were established during the rulemaking, but DEQ had to interpret the rules to establish several forms distinguishing the timing and amount of fees related to different applicable requirements and permitting actions occurring under CAO. DEQ also developed technical forms for the submittal of emissions information and modeling data for the program, as well as annual reporting forms. Due to the unique nature of the program within the Air Quality Division, all these administrative forms required significant staff time to research, develop, and produce and will likely continue to evolve and increase in number as the program matures.

Technical Resources

In addition to the administrative forms, DEQ has prioritized the development of technical resources and tools to assist applicants and permittees going through the program. The CAO website has resources dedicated specifically for facilities, which include a “Step-by-Step Guide” describing each technical step of the CAO process and the programmatic requirements for those steps. DEQ has included links to resources within these steps as well, including multiple “Quick Guides” related to interpreting complex technical aspects of the Risk Assessment process

(e.g., Emissions Modeling Approaches and Exposure Location Assignment), highly detailed recommended procedures documents for performing Health Risk Assessments and Air Quality Dispersion Modeling under CAO, and flowcharts outlining the CAO process and timelines for submittals. DEQ has also created "Frequently Asked Questions" for the different steps in the CAO process that address complicated or confusing aspects of the program. The FAQs also provide a resource that DEQ can continually update and revise as the program matures. These resources have served not only external parties in understanding aspects of the program but have proven critical for DEQ staff as well. CAO will continue to create and maintain these technical resources as the program continues to develop.

Small Business Resources

The CAO program is also committed to providing technical assistance to small businesses required to go through the program. To that end, CAO has developed a Small Business Technical Assistance web page with technical and administrative resources to aide these smaller facilities in understanding their requirements and fees under the program. Additionally, CAO has a dedicated Small Business Technical Assistance staff person available as a further resource who works closely with some of these small businesses to complete Emissions Inventories or even Level 1 Risk Assessments, using the "Level 1 Risk Assessment Tool" developed by the program. This assistance can significantly reduce the cost burden to these small businesses as they are able to complete the process without needing to retain the services of a consultant; however this work does require significant staff resources. Moving forward, the program will need to continually invest in staffing these resources as many of the new businesses seeking air quality permits have the potential to qualify as small businesses and may require technical assistance navigating the program.

Community Resources

As noted above, community engagement and transparency are priorities for the program. The CAO website has resources dedicated specifically to educating the public on general aspects of the program, as well as providing detailed information on facilities going through the CAO process. DEQ has also provided the history and development of the program, along with information on the past and current rulemakings. Because the program is DEQ's first health risk-based permitting program, DEQ and OHA have collaborated on developing educational materials for communicating health risk to community members (this includes both cancer and noncancer health risk). DEQ also worked closely with external interested parties on creating a Community Engagement Toolkit that the agency can use to navigate communications and engagement opportunities when educating or presenting Risk Assessment results to the different communities across the state in more meaningful and impactful ways.

DEQ has also uploaded all technical materials and formal communications related to risk assessments for each facility to the Oregon Records Management Solution, or ORMS. Further, DEQ has created an interactive map that is linked to all this information so that the public can

instantly access any of these documents to learn more about potential health risks from TAC emissions in their communities by clicking on facilities in the map. The program will continue to maintain these resources to ensure transparency for communities and the public in general.

Status of Facilities in the Program

There are four primary process steps for facilities performing a Risk Assessment under CAO which require the submittal of technical documents to DEQ for review and approval: (1) Emissions Inventory; (2) Modeling Protocol; (3) Risk Assessment Work Plan; and (4) Risk Assessment. Once the Risk Assessment is approved and the CAO process is complete (this could also require risk reductions), DEQ develops CAO permit conditions and issues a Toxics Air Contaminant Permit Addendum, or TACPA, to ensure sources meet health-based standards.

All facilities that require an air quality permit in the state are required to complete the CAO Risk Assessment process, including both new and existing facilities. However, only existing facilities have enforceable timelines for each step in the process. Figure 1 indicates the total time allotted for existing facilities to prepare and submit the technical documents to DEQ for review and approval. New facilities must submit the same technical documents, but there are no enforceable timelines. Most new facilities submit all, or most, of these documents concurrently with their application for an Air Quality operating permit.

This section presents the status of existing and new facilities in the program to date, as well as those facilities that have previously completed the process and require TACPA modifications. Additionally, Appendix A to this report provides detailed information on the status of the existing facilities currently in the CAO program.

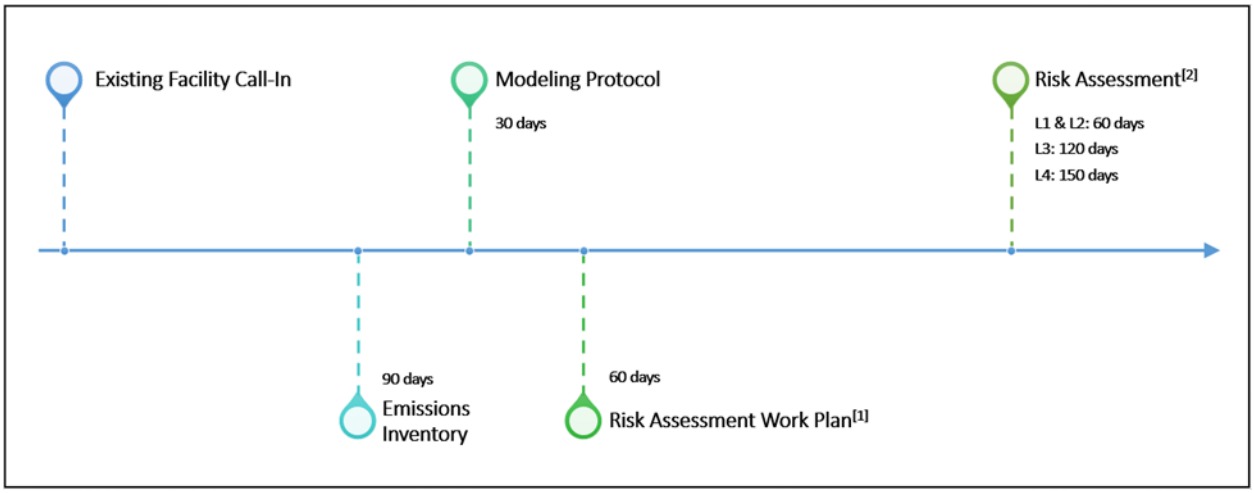


Figure 1: CAO Risk Assessment process steps for existing facilities, including submittal timelines in rule. The steps are similar for new facilities, except that there are no formal timelines for new facilities. [1] – Risk Assessment Work Plans are only required for Level 3 or 4 Risk Assessments, and the timeline is based on the date of approval of the Emissions Inventory. [2]- Risk Assessment timelines differ by Risk Assessment type and are based on the approval date of the previous approval.

Existing Facilities

In the CAO program, existing facilities are defined as those facilities that had commenced construction or submitted a complete air quality permit application that was approved by DEQ, prior to the original rule adoption in November 2018 – there are approximately 2,500 permitted facilities that meet this definition. Of these permitted facilities, there are about 350 existing facilities that are larger, more complex facilities which are permitted on Simple or Standard Air Contaminant Discharge Permits (or ACDPs), or on Title V permits. These sources are required to perform facility-specific Risk Assessments under the program. The remaining smaller existing facilities are regulated as broad categories and are permitted on either Basic or General ACDPs. These smaller sources are assessed as groups based on standardized emission limits and typically do not require individual Risk Assessments. Most program resources for existing facilities are primarily spent on the individual Risk Assessments for the larger, more complex facilities.

As noted above, Figure 1 shows the amount of time an existing facility is allotted for each submittal step in the program. Additionally, Table 1 summarizes both the total allotted time in rule for existing facilities to submit the required technical documents for the Risk Assessment process, as well as average estimates of the time DEQ has taken to review and approve these submittals. Note that Table 1 includes information on only Level 1 and Level 3 Risk Assessments, as these are the majority of assessments submitted under the program.

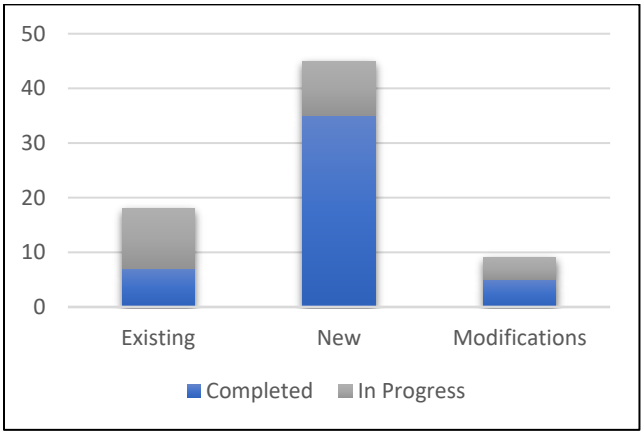
Existing facilities are allowed, by rule, either 180 or 270 days to provide information to DEQ for either the Level 1 or 3 Risk Assessment technical submittals, respectively. Estimating the review and approval time required by DEQ leads to estimated averages of 285 and 540 days for final approval of these assessments, respectively.

Risk Assessment [1]	Submittal Timelines [2]	Review & Approval [3]	Approval Estimates
Level 1	180	105	285
Level 3	270	300	570 [>2,000][4]

Table 1: This table presents estimates for the average total time for approval Level 1 and 3 Risk Assessments for existing facilities. [1] – Level 1 and 3 Risk Assessments represent the majority of assessment types submitted in the program. [2] – This is the total time, in days, allotted in rule for a facility to submit all the technical documents required for a CAO Risk Assessment. [3] – This is an estimated average total time for review and approval of the submitted documents by DEQ, which includes time for approved extension requests. [4] – The bracketed value represents an extreme case observed during implementation for approval- we have not yet received a Level 1 assessment for an existing source.

What is not included in these estimates for existing facilities is: (1) the extra time allotted to a process step when DEQ grants an extension approval to allow a facility more time to provide requested information; (2) extra time related to source testing that may be required to complete an emissions inventory for a facility; (3) delays in submitting required information to DEQ by the facility; or (4) shifting prioritization of technical staff work in the program (e.g., to approve a new facility or modification). All of this is to illustrate that existing facility Risk Assessments can, and often do, take significantly longer to review and approve than previously anticipated at the outset of the program.

As an example, Table 1 includes an extreme case with a facility that will likely have taken approximately five and half years from "call in" to approval of their final assessment. The delay for this facility is attributed to the following: (1) this facility was required to source test multiple operations which required extensive sampling designs and fabrication of novel testing equipment to ensure representative data was obtained; (2) DEQ approved multiple extension requests as the COVID pandemic affected operations at this facility, in addition to extension requests to address source testing and emissions data review; (3) the facility did not timely submit information to DEQ during the emissions inventory stage and was issued a Warning Letter with Opportunity to Correct; and (4) the facility fundamentally changed its operations during the Risk Assessment process. Ultimately, despite the extended duration of the assessment for this facility, it ceased using highly toxic materials that produced significant emissions; thus, reducing potential health risks to the neighboring community members. Although this is an extreme case, it is useful for illustrating many of the common issues that lead to longer than anticipated Risk Assessment timelines. Aside from this example case, the two most frequent causes delaying the Risk Assessment process are facilities not timely submitting complete information to DEQ for review, and extension requests that DEQ grants when warranted.



<u>Figure 2</u>: Facility status in CAO – the number of existing and new sources, as well as facilities requiring TACPA modifications, that are currently going through the Risk Assessment process versus those that have completed the process.

In order to systematically "call in" all of the approximately 350 permitted existing facilities in the state to the CAO program, DEQ developed a Prioritization Protocol for ranking facilities. This process included analyzing criteria based on estimated TAC emissions and their associated toxicity, demographic information, proximity to homes, and whether a facility had existing emissions controls installed. The result of this analysis was that DEQ established three "Prioritization Groups" – groups 1 and 2 each consist of twenty facilities, with group three including the remaining ~310 facilities. To date, DEQ has called all twenty facilities from Prioritization Group 1 into the CAO program to perform Risk Assessments. Of these, seven have completed the Risk Assessment process, eleven are still in progress, and two sources have cancelled their Air Quality operating permit and were not required to continue the process - see Figure 2. Please refer to Appendix A to this report for a detailed table of the current status for all the Prioritization Group 1 facilities. DEQ anticipates beginning to call in Prioritization Group 2 facilities in Q1-Q2' of 2024.

New Facilities

New facilities are defined in the CAO program as those facilities that had not submitted a complete application for a permit or were not constructed or operating in compliance with air quality rules, prior to rule adoption in 2018. Additionally, an existing source that relocates after rule revisions, adopted by EQC on Nov. 17, 2021, is also considered new under CAO.

New facilities are not "called in" to CAO like existing facilities, they are required to complete the CAO process as part of their air quality permitting application process. In most cases, these facilities are not as large and complex as the existing sources in the state, and therefore the review and approval of the technical submittals tends to be less resource intensive for the program. Because these facilities are not yet operational, the emissions information must be collected from available references or similar sources, and any source testing required is typically included as a permit condition to be completed after operations begin. Additionally, because most new sources are motivated to begin operations in the state, they tend to be more responsive to information requests from DEQ. All these factors serve to reduce the review and approval timelines for new facility Risk Assessments relative to existing facilities.

DEQ works diligently to prioritize new facility Risk Assessments to ensure they are able to obtain health risk-based air quality operating permits in a timely manner. Since 2019, there have been on average twelve new facility Risk Assessments per year, including up to the end of 2023. DEQ has completed 35 new facility Risk Assessments in total since implementation began, and there are currently ten facilities in progress – see Figure 2. Typical approval times for new facilities range from three to six months and depend primarily on the completeness of the submittals provided to DEQ and the response time of the facility to information requests made by the agency.

Toxic Air Contaminant Permit Addendum Modifications

Once a facility in CAO, either new or existing, completes the Risk Assessment process, DEQ may issues a Toxic Air Contaminant Permit Addendum, or TACPA, based on the resulting risk, which includes the permit conditions necessary to ensure that risk levels do not exceed the levels modeled in the facility's approved Risk Assessment. During the normal course of operations for a business, a facility may need to expand operations or add new equipment and processes; to do this, the air quality permit, including the TACPA, must be modified to include these new activities. Under CAO, a facility is required to reevaluate risk for specified changes at the facility and may be required to modify the CAO permit conditions in their TACPA. To date, we have received nine such TACPA modifications, which can require similar staffing and technical resources to review as the original, approved Risk Assessment. DEQ is currently in the process of reviewing four of these modifications and has approved five – see Figure 2.

Summary

The CAO Risk Assessment process for existing facilities, in most cases, has required more time for technical review than anticipated at the onset of program implementation. The program rules do provide enforceable timelines for existing facilities to submit information and technical documents to DEQ for review and approval; however, despite these timelines, because the facilities in Prioritization Group 1 are, in general, the larger, more complex permitted facilities in the state, this process has taken significantly longer than expected – in some cases, over five years.

In all cases, the most resource- and time-intensive step in the process is approving the emissions inventory. This is a critical step in the Risk Assessment process as it is the basis for all emissions estimates that feed into the subsequent risk calculations. Through implementation of this program we have learned the following, which lead to delays in approving emissions inventories: (1) lack of sufficient TAC emissions data for many permitted activities; (2) resource-intensive review of calculation methodologies at a level of detail not previously required for air quality permits; (3) DEQ-required source testing to obtain representative, site-specific emissions data; and (4) failure by facilities to provide timely and complete information for DEQ review.

In addition to the complexity and challenges related to obtaining representative emissions information, DEQ has granted numerous extension requests for existing facilities when good faith efforts have been made to meet a deadline, progress has been demonstrated, and a timeline for submitting the required information was provided. We have not denied these requests when those criteria have been met because the program is new, and both the agency and regulated community are still learning as the program continues to be implemented. DEQ will continue to approve extension requests in the future when needed but anticipates that they will become less frequent as the program matures.

New businesses continue to apply for air quality operating permits in Oregon and the CAO program has been successful at working closely with new facilities to meet their aspirational timelines. This is true even of larger, more complex new sources, like NEXT Renewables, which is a proposed renewable diesel refinery locating in Oregon. Additionally, the program will continue to see TACPA modifications come through, which may require similar technical resources for review and approval as the original facility assessments. These too are a priority for businesses in our state to be able to meet the challenges and growth opportunities to keep Oregon's economy healthy, while continuing to maintain health protective air quality permitting standards. Because the program prioritizes these new facilities and modifications, there are instances where the limited technical staffing resources must shift away from the existing facility technical review, which also adds to delays for these existing sources.

The program continues to learn by convening forums, with both internal and external interested parties, that work constructively to address the complex technical and administrative challenges observed thus far during implementation – many solutions have been made collectively in these forums that will reduce the time needed for review of future assessments. Additionally, DEQ intends to increase technical staffing resources for the program to aide in getting existing facilities through the program more efficiently. A more in-depth discussion of future considerations for the program are discussed in that section of the report.

Metrics and Outcomes

This section provides discussions on how effective the program has been at reducing emissions of TACs and the challenges of providing estimates of health risk reductions based on these emissions reductions. Then, the positive outcomes that the CAO program has had to the air quality permitting process are highlighted. Additionally, this section illustrates how the program collects critically important TAC emissions that the agency was unable to obtain effectively prior to adoption of CAO; this also includes a discussion on source testing to obtain site-specific emissions information. And finally, how the program has been informing and educating communities across the state is presented. This section also includes examples of "CAO in Action" in blue text boxes, which provide instances highlighting one or more of these categories.

Emissions Mitigation and Risk Reduction

Throughout the five years since the adoption of the CAO program rules, numerous facilities have reduced their emissions of TACs through the installation of pollution control devices or alternative methods (for example, substitution of toxic production materials or fuels for less toxic materials, as well as capturing fugitive emissions). These reductions in TAC emissions have led to reduced health risk from these facilities throughout Oregon.

Of the 20 existing facilities that have completed Risk Assessments, or are currently in the program, eleven of these facilities have chosen to reduce emissions since 2018; these reduction methods have included:

- Installing controls – thermal oxidizers, new baghouses or filtration devices;
- Facility improvements to provide greater capture and control of fugitive emissions;
- Switching to cleaner burning fuels;
- No longer using or replacing high-emitting equipment;
- Material substitutions to less toxic alternatives;
- Ducting high-emitting processes to existing control devices; and
- Simply limiting the operations and activities of high emitting processes.

New facilities have also worked closely with the CAO program prior to submitting Risk Assessments to understand the program requirements so that they may design their facility with emissions controls from the outset, or understand when material substitutions may be required to meet standards. Making these decisions before a facility is constructed is more cost-effective than retrofitting controls or changing production activities once the facility has already begun operations.

CAO in Action: Emergency Generators

Large facilities such as semiconductor manufacturers and data centers rely on backup generators to maintain operations in case of unexpected power outages. Prior to CAO, these generators were regulated only under federal guidelines that allowed operations of up to 100 hours per year, per generator for non-emergency purposes.

Several new facilities in CAO have been large data centers locating in Hillsboro, Oregon, leading to a high concentration of backup diesel generator emissions in the area. This community has several vulnerable populations including lower income, lower education levels, and reduced high school graduation rates. Parts of this community also have elevated rates of asthma.

Through the CAO process DEQ has worked with these facilities to obtain site-specific emissions data by requiring source testing of their engines to ensure the most representative emissions data was used in their Risk Assessments. Based on the outcome of these assessments with this new emissions data, DEQ required permit conditions to significantly limit non-emergency operating hours, below federally allowable hours, to meet the health-based standards of the program.

Establishing a direct, quantitative correlation between TAC emissions reductions and potential risk reductions attributable to the program is not currently possible. Demonstrating this relationship would require a robust analysis of emissions data that has not yet been developed by the agency. This analysis has not been prioritized to date as not all existing sources have completed Risk Assessments, which would be required to understand which emissions reductions can be correlated with CAO. Moreover, this analysis would require significant programmatic staffing resources that are not currently feasible with the existing amount of core work.

In addition to the programmatic resource constraints, other challenges to establishing a direct link between emissions reductions and actual health outcomes in a community exist, including but not limited to:

- The limited number of people living around each facility;
- Variability in mixture of TAC emissions by a facility;
- Variation in timing of emissions reductions across facilities;
- Extended length of time between exposure and diagnosis of a potentially related disease; and
- Diseases potentially attributable to TAC exposure may have many other causes.

For these reasons it is not possible at this time, to understand the quantitative and direct health effects that reductions of TAC emissions from stationary sources, which are explicitly linked to the program, have, or will have, on communities across the state. DEQ will continue to monitor these emissions reductions and in the future may be able to provide an analysis of statewide emissions reductions, and the resulting risk reductions, from implementation of the program, at such time that the agency has sufficient resources to staff this work.

Permitting Process

Prior to the establishment of the CAO program, air permitting of pollutants that cause cancer and noncancer health effects when people breathe them was based primarily on federal standards referred to as the National Emission Standards for Hazardous Air Pollutants (NESHAP). The focus of these federal standards is on controlling a select number of HAPs identified by the Environmental Protection Agency (EPA) and are categorized by specific industry type. However, these standards are generally only applicable to permitted sources that emit over 10 tons of a single HAP, or 25 tons of combined HAPs. Since the promulgation of these federal rules, toxicological information has continued to become available demonstrating that negative health effects can occur at much lower levels of exposure than were understood previously. The discrepancy between the levels of the federal standards and the potential for harm at much lower levels is referred to as the "HAP gap." Understanding that compliance with federal standards can still result in potential health risks was the primary impetus for establishing the CAO program.

The CAO program has transformed the permitting process in Oregon. Facilities are now required to provide unprecedented levels of detail during the CAO process – not only information on emissions of over 600 TACs, but on production activities and air quality modeling information as well. Once the Risk Assessment is completed, DEQ uses the information from this process to develop permit conditions to limit risk from facilities. For example, DEQ can identify emissions that are driving risk at a facility and now require emission limits for those specific activities and TACs, while also requiring periodic source testing to demonstrate compliance with these limits. Additionally, for facilities that continually change the production materials they use, or have more complicated processes, DEQ can now permit those facilities based on risk (for example,

limits on excess cancer risk per million or a Hazard Index for noncancer risk), which allows the facility more operational flexibility while ensuring health-based standards are met.

CAO in Action: Health-Based Permit Conditions

An existing metal shredding facility in Oregon was required to submit an air quality permit application. After CAO staff reviewed this application, the agency determined that the permit did not include certain Toxic Air Contaminant emissions that had the potential for extremely high-risk impacts due to their toxicity level and proximity to residences.

CAO immediately called in the facility to perform a risk assessment to understand the potential health risk, and because this facility is considered a small business, CAO staff provided technical assistance to complete the risk assessment. The findings from the risk assessment confirmed the significant risk to the surrounding community and the information was used to require operational limits be added to the facility's permit.

These revised permit conditions came directly from the requirements in the CAO process for health risk-based permitting and the authority in this program, without which DEQ would have been unable to limit operations and reduce community members' exposure to highly toxic air emissions from this facility.

In summary, the establishment of the CAO program has provided the appropriate authority to DEQ for issuing air quality permits that meet health-based standards established by the state legislature – this is a huge achievement for the air quality permitting program.

Emissions Information

As noted, the CAO program has required significant changes to the type and accuracy of data being collected for the Air Quality Division – these changes have improved air quality data related to TAC emissions in fundamental ways.

The high-resolution review and scrutiny of estimated source emissions is a key element of CAO to allow for issuing risk-based permit conditions. Past air quality permits did not include the level of detail that is required for the CAO process, which has led to greater transparency of emissions and detailed reporting on activities, materials, and mitigation methods. Standing up this level of reporting and technical review has taken years, through iterative processes working with DEQ staff and permitted facilities. This resource-intensive work has resulted in a wealth of emissions data that can be used moving forward for creating more efficient processes and an increased understanding of, not only TAC emissions, but criteria pollutants as well. In many cases, this information on emissions and their release points, as well as operations and activities, has led to refinement of permit conditions that has ultimately improved how we regulate these facilities.

Additionally, CAO requires all permitted facilities to submit a periodic, state-wide emissions inventory of their TAC emissions. These inventories provide DEQ with recurring emissions information that allows DEQ to monitor and track the location and amounts of TAC emissions,

and any changes in these amounts, across the state. This large dataset has been useful to look at emissions across facilities using similar processes and providing an opportunity for improving consistency in using the most representative emissions data available across those facilities. This data has also increased the amount and accuracy of the emissions data that DEQ reports to the Environmental Protection Agency during the triennial National Emissions Inventory, leading to more accurate emissions information nationwide. Finally, this information is critical to understanding which communities are inordinately exposed to amounts of TAC emissions and can be used as the basis to help reduce environmental burden in those communities.

Source Testing

It is not always possible to estimate emissions information when there are insufficient resources available, including agency reference materials, academic literature, or industry group studies. In this case, and for processes with TAC emissions at levels of concern, DEQ requires facilities to perform source testing to obtain site-specific emissions data for their Risk Assessment. Source testing is performed by third parties; however, the testing is observed by DEQ, and the final reported results are carefully reviewed by source testing subject matter experts at DEQ. Because of the expanded list of pollutants in the program relative to federal programs, the source testing information generated as part of the program provides a robust resource for air quality permitting, not only in Oregon, but nationwide. This data is one of the most critically important gains from implementation of the CAO program.

Informing Communities

CAO gave DEQ the tools to issue health risk-based permits to reduce harmful emissions, which has a direct impact on public health for all Oregonians, especially to the communities surrounding these permitted facilities. As discussed, transparency and community involvement are priorities in the CAO program, and there are two main mechanisms built into the program to achieve these goals: (1) transparency of process and facility data from the CAO process; and (2) educating communities on potential health risks.

The CAO program was established with the principal that everyone should be protected from, and informed of, potential health risks to themselves and their community from air quality issues related to industrial and commercial sources – this requires transparency. Therefore, the program makes all the materials related to the CAO process available to the public though the CAO website – permits, risk assessments, emissions inventories, work plans, and risk reduction plans are all available online. In addition to the technical documents, this publicly available information includes every formal communication between CAO and the facilities, including facility extension requests, CAO comment letters and approvals, as well as enforcement documents. This level of transparency allows the community to be as informed as CAO staff and encourages technical expertise outside of DEQ to consult on the process as well. In many cases, the availability of this information has facilitated public meetings where DEQ was able to

cultivate public trust in the CAO Risk Assessment process and establish confidence in the results of Risk Assessments.

CAO educates communities through both formal and informal means. The CAO process requires formal community engagement if risk exceeds specified Risk Action Levels. This provides DEQ the option to host a public meeting, which requires members from the facility to be present, where the results from the Risk Assessment are presented. Informally, CAO staff correspond and meet with concerned parties to inform on process and to respond to their concerns and questions regarding facilities operating in their community. Technical staff make themselves available for questions, and CAO also has a shared community engagement coordinator. DEQ has attended and convened several public meetings with neighborhood associations and community groups regarding specific facilities, as well as general education sessions on the CAO program. In addition to direct communications and public meetings, CAO staff have developed educational materials, many in collaboration with staff from the Oregon Health Authority (OHA), informing the general public as outlined in the materials section of this report.

CAO in Action: Addressing Risk to Environmental Justice Communities

An existing company operating two facilities in Portland proposed to consolidate their operations and relocate to a new area, making this a new facility under CAO. The company submitted a permit application and CAO risk assessment materials, and upon review, DEQ discovered that the new location would be adjacent to a vulnerable population with language isolation challenges.

The CAO review of these materials also highlighted additional toxics emissions that were not included in the previous permit, and which contributed significantly to cancer risk. Additionally, CAO staff coordinated with Hazardous and Solid Waste staff at DEQ to determine that this facility would also require a solid waste permit.

Based on the CAO analysis, DEQ reached out to local community organizations and elected officials to inform them of the proposal as well as the risk analysis, which led to discussions with the company, resulting in the decision to not relocate into this community. By empowering the local community in the decision-making process through transparency and data sharing, the CAO program was able to help serve this Environmental Justice community.

Further, communicating and educating the resulting health risks from a Risk Assessment to the public is very challenging and requires skills that were previously not required in air quality permitting. In this regard, the collaboration between DEQ and OHA has been critical for the success of this program. OHA's key roles are to: (1) provide toxicological and public health expertise in assessing health risks from industrial sources of TAC emissions; (2) advise on best practices to support DEQ in accurately and effectively communicating health risks to community members, and health risk communication support; and (3) support meaningful, responsive and equitable community outreach in the DEQ regulatory process. Additionally, CAO, in collaboration with OHA, has developed a Community Engagement Toolkit, which the agency can use to inform how best to engage with specific communities around the state and conduct public outreach. This includes understanding disproportionate burden, language access needs, and active businesses and community groups in the area.

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Cleaner Air Oregon's Cumulative Health Risk Pilot

In 2018 the Oregon Legislature adopted Senate Bill 1541, which established a number of DEQ's authorities for developing the program. One critical component of this bill authorized DEQ to conduct a pilot project to evaluate and address the cumulative risks from multiple facilities emitting TACs in a specified area. This legislation, now adopted into law, specifies the size of the area to evaluate, the population requirements for this selected area, and the levels of cumulative risk from facilities that would require action to be taken by the agency.

DEQ has been implementing the CAO program since adoption of the rules by EQC in November of 2018, focusing on the primary purpose of the program to regulate TAC emissions from individual permitted sources. In the last year, the program was able to hire the staff necessary to begin planning and implementation of the pilot program authorized under SB1541 – DEQ refers to this pilot as the Cumulative Health Risk Pilot, or CHRP. DEQ staff have developed a three-phase approach for implementing this pilot.

The first phase is developing site selection criteria and determining the location of the pilot area. To meet the requirements set by legislation and inform the location of this pilot, DEQ will use existing data from facility permits, emissions inventories, and other tools. DEQ will also consider a number of other categories of information to determine the pilot area, including demographics and environmental exposures. Additionally, DEQ hosted public listening sessions for the public to provide feedback on DEQ's site selection process. Listening sessions were held in August, September, and December of 2023. Community feedback focused on many additional considerations for pilot placement including heat vulnerability, housing quality and security, proximity to other pollution concerns, and a focus on younger populations. Staff are currently considering all the data and feedback and will inform the EQC of its proposed pilot area once all data and feedback have been considered.

DEQ will begin the second phase of the pilot by engaging with the neighborhood associations, businesses, county government, and community organizations in the selected area. DEQ will work with all interested parties in the community to educate them on the CHRP program and if the community requests, DEQ will convene public meetings to further work with the community towards creating shared goals for the project. This phase also includes significant work by DEQ to model the TAC emissions from multiple stationary sources in the selected area. This phase is

anticipated to be the longest phase of the pilot and is projected to be completed by late 2024 or early 2025.

The third phase is to review the modeled risk levels in the selected area to determine if they exceed the benchmarks provided by the legislature. At that time, DEQ will inform the interested parties in the selected area about the modeled results. If risk levels exceed the levels set by the Oregon Legislature for cancer and noncancer risk, then DEQ will undergo a rulemaking to address the risk from facilities in the area. If the levels do not meet what is provided in the law DEQ will determine next steps to reduce cumulative risk from facilities. This part of the pilot is anticipated to be completed by late summer or early fall of 2025.

We will continue to inform and receive valuable feedback from the EQC throughout this pilot project. For additional information about this project, please check the pilot's website.

Protecting Children's Health in Cleaner Air Oregon

The CAO program is designed to protect the health of communities surrounding permitted facilities in the state, especially the health of children. Children can be at a greater risk from exposure to TAC emissions than adults because children are growing and breathe more air per pound of body weight. In addition, children's natural defenses for responding to exposure to toxic chemicals are less developed – for example, certain TACs can reach the brain more easily in children than adults and TACs breathed in through the nose can more easily reach the lungs in children than adults[4]. The following are examples of how the program is currently protective of children's health:

Where and how long children are exposed to TACs – health protective assumptions.

- A CAO Risk Assessment for a residential area (a house or apartment) assumes that a child is born there and is breathing outdoor air at that location 24-hours a day for seven days a week for an entire lifetime of 70 years. Given that people move around, both within a day and throughout their lifetime, this is a conservative, or health protective, assumption of exposure.
- The CAO program also assesses risk separately where children may regularly spend time, but do not reside, such as schools and childcare locations. CAO assumes that a child

[4] U.S. Environmental Protection Agency website titled "Children are not little adults!" Date accessed: 11/22/2023. Webpage: https://www.epa.gov/children/children-are-not-little-adults.

spends eight hours a day for five days a week, for 50 weeks a year, for 12 years at these locations.

- CAO assumes that a child spends 24-hours at parks and sport facilities on the day of the year with the highest emissions.

How and when children are exposed to TACs – adjustment factors.

- CAO Risk Assessments include adjustment factors, called Multi-Pathway Adjustment Factors, or MPAFs, to account for exposure to certain chemicals beyond inhalation and is relevant to children's health. For example, MPAFs account for deposition of these chemicals into soils, where children can be exposed directly, through ingestion of soil, or indirectly by consuming foods grown in contaminated soils. Young children swallow more soil per body weight than adults because children commonly put things in their mouth that may have soil on them and spend more time closer to the ground than adults. MPAFs also account for children exposed to some TACs through breast milk. MPAFs were included in CAO Risk Assessments during CAO rule development when DEQ and OHA staff heard that accounting for exposure beyond inhalation was a priority for many community members.
- Contaminants that can cause cancer and permanently change genetic material (mutagens, or mutagenic mode of action) can have greater toxicity when people are exposed to those contaminants earlier in life[5]. To account for this in CAO, an Early Life Adjustment Factor, or ELAF, is applied, developed by the EPA, to cancer Toxicity Reference Values (TRVs – see footnote 2) that we use in the Risk Assessment for applicable TACs. Applying an ELAF weights exposures that occur in childhood more than exposures that happen later in life for estimating cancer risk.

How children's health is uniquely sensitive to TAC exposure – toxicity and regulatory levels.

- TRVs are the amount of a TAC in the ambient air that may cause health problems when inhaled. TRVs are key pieces of information necessary to calculate health risk and are used as the basis for the regulatory values in the CAO program. All TRVs are designed to protect the health of people most vulnerable to TAC health effects. Many TRVs are based on studies in children, or young or developing animals. Those that are not based on developmental studies include uncertainty factors that are meant to build in a health protective safety buffer intended to protect children and other vulnerable populations.
- The 2019 CAO Hazard Index Rulemaking resulted in more health-protective regulatory benchmarks for TACs with the potential to cause developmental or reproductive health effects that are emitted from existing facilities. For example, isophorone is a TAC that can cause developmental effects. Toxicology studies on rats and mice reported serious birth

[5]Guidelines for Carcinogen Risk Assessment. U.S. Environmental Protection Agency. Washington, D.C. 2005. Webpage: https://www.epa.gov/sites/default/files/2013-09/documents/cancer_guidelines_final_3-25-05.pdf.

defects and small fetus size when mothers were exposed to isophorone at certain amounts during pregnancy. As a result of the CAO Hazard Index Rulemaking, the regulatory benchmark for chemicals like isophorone were decreased to the lowest amount possible by statute. A lower regulatory benchmark means facilities must take action to reduce risk at lower levels of exposure, which is more health protective.

As required by rule, every three years CAO and OHA staff review all the TRVs used in the program, which are the basis for the regulatory values used to assess risk. Technical staff review the latest science and toxicological information to identify new toxicity values, and ensure that the potential for developmental health effects, among other types of health effects, are accounted for and that safety buffers are integrated to protect the health of children. Toxicologists also take a close look at the MPAFs and ELAFs to see if there is new scientific information to incorporate into these adjustment factors to protect children's health. In this way, the program will continue to ensure that the most up to date scientific information is considered when assessing risk to children's health.

Future Program Considerations

The CAO program has dedicated significant agency resources to developing programmatic materials over the past five years since implementation began. These efforts have led to the creation of technical resources and tools that both internal and external parties can use to navigate the CAO process more efficiently. During this time, the program has also managed solutions to challenging programmatic issues not explicitly addressed out the outset of program implementation, providing clarity to both internal and external parties. Additionally, the program will continue to accrue TAC emissions information, leading to a more robust data set for future Risk Assessments. All these factors combined will help to reduce the time necessary for facilities to complete the CAO process and for DEQ to issue health-protective permits in the future. However, there are considerations DEQ will pursue to continue to find efficiencies for the program:

1. **Increase technical staff resources for the program.** At the current staffing levels the program is at risk of resource constraints that could lead to increased approval timelines for Risk Assessments; most significantly, for new facilities and permitted facilities that are modifying their operations. Approving these permits and modifications is a priority for our program so that these businesses are able to begin, and maintain, their operations in Oregon.
2. **Maintain focus on developing decision-support tools and resources.** The CAO program will continue to build on the previous work related to these resources, with a focus on developing database tools for TAC emissions data, source testing information, permit conditions, and modeling parameters. CAO will also continue to develop tools for small businesses that have limited technical capacity in order to reduce the burden on these businesses and expedite their assessments.
3. **Increase administrative efficiency through Your DEQ Online.** Integrating CAO processes into DEQ's comprehensive environmental data management system, "Your DEQ Online," or YDO, will reduce administrative burden on both technical staff and the permitted facilities. In the short-term, migrating to this new system will require training and may slow work, but maintaining a commitment to YDO will ultimately create additional capacity for technical work by streamlining record-keeping, document submittals, payment processing, and other administrative workflows.
4. **Continue to prioritize transparency and community outreach.** DEQ will maintain the work of making available all technical submittals and formal communications related to Risk Assessments and the CAO process through records management. CAO will also continue to develop educational and outreach materials for members of the public so that they can better inform themselves on both the requirements and limitations of the program – this could include webinars on specific topics regulated under the program.
5. **CAO will continue to review toxicological information to ensure the program employs the most up to date science for regulating health risk.** CAO will designate resources as required to meet the program requirements for review and update of the TRVs, which is a critical task that requires significant technical resources. This includes

contracting out aspects of this review process and developing tools and resources that make toxicological information on regulated TACs readily available.

6. **Consider updates to program rules to address unanticipated outcomes, provide clarity on process, and reduce inefficiencies.** The CAO program has identified potential rule updates for a future rulemaking that will provide clarity and direction to both internal and external parties going through the program that are not currently addressed by the rule language. DEQ is also evaluating potential updates that will increase efficiency for facilities in the program while working to minimize any new program requirements.

The scope and complexity of this program is significant and has been a tremendous undertaking by the agency. The efforts to stand up CAO has required contributions from not only DEQ staff in the program, but from staff across the agency, as well as from OHA, and members of the community – from regulated facilities and consultants to environmental and neighborhood groups. It is by these collaborations and partnerships that CAO has been able to make much of the progress to date. The program will continue to engage all interested parties as the program matures in order to keep protecting the public health of Oregonians while continuing to issue health protective permits to new businesses choosing to operate in the state.

Appendix A: Existing Facility Status Table

Facility Name	Call-in Date[1]	CAO Process Step[2]	Time[3]		Comments
			[Days]	[Years]	
AmeriTies West, LLC	3/4/2019	Emissions Inventory	1,739	4.8	DEQ granted multiple extension requests and issued a Warning Letter with Opportunity to Correct for the facility failing to provide timely information. DEQ required source testing of emissions controls and storage of treated wood. Facility changed operations to substitute less toxic materials to treat wood.
Chemical Waste Management of the Northwest, Inc.	3/4/2019	Risk Assessment	1,739	4.8	DEQ granted multiple extension requests. DEQ required source testing, which required modifications to the facility. Significant time for review of the Emissions Inventory and Modeling Protocol was required due to complexity of the facility.
Columbia Steel Casting Co Inc.	3/4/2019	Risk Assessment	-	-	This facility requested to cancel their Air Quality permit on 3/15/2023 and did not complete the CAO Risk Assessment process.
ENTEK International LLC	3/4/2019	Risk Assessment - Complete	1,341	3.7	DEQ granted multiple extension requests. DEQ issued a Formal Enforcement Action for the facility failing to provide timely information, which required a Settlement Agreement to complete the Emissions Inventory. Source Risk Limits required to maintain health-based standards.
Owens-Brockway Glass Container Inc.	3/4/2019	Risk Assessment - Complete	952	2.6	DEQ granted multiple extension requests. Facility made operational changes by ceasing operations of one of the two furnaces at the facility which required revised Risk Assessment documents. Source Risk Limits required to maintain health-based standards.
Roseburg Forest Products Co. - Medford MDF	3/4/2019	Risk Assessment - Complete	1,105	3.0	DEQ granted an extension request for submittal of the Risk Assessment Work Plan. Approval of the original Risk Assessment took 664 days, but a revised Risk Assessment was required to include all required emissions from the facility. No Source Risk Limits required as the risk was below the Source Permit Level.

Collins Pine Company - Lakeview	8/26/2019	Risk Assessment - Complete	654	1.8	DEQ granted an extension request for submittal of Modeling Protocol. Source Risk Limits required to maintain health-based standards.
Oil Re-Refining Company - Klamath Falls	8/26/2019	Risk Assessment - Complete	773	2.1	DEQ granted multiple extension requests. DEQ required source testing. No Source Risk Limits required as the risk was below the Source Permit Level.
PCC Structurals, Inc. - Large Parts Campus	10/4/2019	Emissions Inventory	1,525	4.2	DEQ has granted multiple extension requests. DEQ required source testing of multiple emissions units. Significant time and resources required for this source due to the facility's complexity. Additional delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ.
Stimson Lumber Company	7/2/2020	Modeling Protocol/Risk Assessment Work Plan	1,253	3.4	DEQ issued a Formal Enforcement Action and penalty for failing to timely submit information to DEQ. Additional delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ.
Covanta Marion, Inc.	8/13/2020	Modeling Protocol/Risk Assessment Work Plan	1,211	3.3	DEQ has granted multiple extension requests. DEQ required source testing of multiple operating scenarios. Additional delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ.
Packaging Corporation of America	9/1/2020	Risk Assessment - Complete	338	0.9	Material substitution to a less toxic production material significantly reduced risk. No Source Risk Limits required as the risk was below the Source Permit Level.
EcoLube Recovery LLC	9/17/2020	Risk Assessment	1,176	3.2	DEQ has granted multiple extension requests. DEQ required source testing. Additional delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ.
Hydro Extrusion Portland, Inc.	10/15/2020	Risk Assessment - Complete	964	2.6	DEQ has granted multiple extension requests. DEQ required source testing. Source Risk Limits required to maintain health-based standards.
Hollingsworth & Vose Fiber Company	1/10/2022	Modeling Protocol/Risk Assessment Work Plan	696	1.9	DEQ granted an extension request to submit the Emissions Inventory. DEQ required source testing.

Eagle Foundry Co.	2/1/2022	Modeling Protocol/Risk Assessment Work Plan	674	1.8	DEQ has granted multiple extension requests. DEQ required source testing of multiple operating scenarios.
Wolf Steel Foundry, Inc.	2/7/2022	Emissions Inventory	-	-	This facility requested to cancel their Air Quality permit on 10/13/2023 and did not complete the CAO Risk Assessment process.
Cascade Steel Rolling Mills, Inc.	2/7/2022	Emissions Inventory	668	1.8	DEQ has granted multiple extension requests. DEQ required the facility to source test multiple emission units. Source has proposed to install emissions controls.
Georgia-Pacific Toledo LLC	3/1/2022	Emissions Inventory	646	1.8	Delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ. Additionally, the complexity of the facility has also contributed to the extended review of the Emissions Inventory.
PCC Structurals, Inc. - Small Parts Foundry	3/1/2022	Emissions Inventory	646	1.8	Delay from DEQ technical staff transition, as the previous CAO Project Manager left DEQ.

[1] – The date DEQ sent formal notice that the facility must perform a Risk Assessment – the Emissions Inventory (the first submittal required) is due 90 days form this date. [2] – There are four steps to Risk Assessments: (1) Emissions Inventory; (2) Modeling Protocol; (3) Risk Assessment Work Plan (Level 3 and 4 Risk Assessments); and (4) final Risk Assessments. [3] – This column is the amount of time in both days and years that a facility has been in the program at the indicated process step, or how long it took a facility to complete the Risk Assessment process.