Air Toxics Science Advisory Committee (ATSAC)

Meetings #5-7

Meeting Minutes

Meeting Attendees

ATSAC Members	
John Budroe	California Environmental Protection Agency (retired)
John Stanek	Environmental Protection Agency (EPA)
John Vandenberg	Duke University
Qiaoxiang (Daisy) Dong	California Environmental Protection Agency
Susan Tilton	Oregon State University
Project Team	
Apollonia Goeckner	Oregon Department of Environmental Quality (DEQ)
Dana Crosby	Oregon Health Authority (OHA)
David Farrer	Oregon Health Authority (OHA)
Holly Dixon	Oregon Health Authority (OHA)
J. R. Giska	Oregon Department of Environmental Quality (DEQ)
Kristen Martin	Oregon Department of Environmental Quality (DEQ)
Susan MacMillan	Oregon Department of Environmental Quality (DEQ)
Facilitation Team	
Ben Duncan	Kearns & West
Angela Hessenius	Kearns & West

Meeting slides can be found at https://www.oregon.gov/deq/aq/Documents/ATSACm5-7Proposals.pdf

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ATSAC Meeting #5: February 10, 2025, 10:00am-1:00 pm PT

Welcome

Ben Duncan, Kearns & West (K&W) facilitator reviewed the Zoom webinar protocols, facilitated introductions from the DEQ and OHA project team, and conducted a roll call of Air Toxics Science Advisory Committee (ATSAC) members.

JR Giska, Oregon Department of Environmental Quality (DEQ), thanked the ATSAC members for their participation and reviewed the overall toxicity reference value (TRV) review and rulemaking process. This process includes reviewing authoritative sources, developing proposals, and bringing those proposals to the ATSAC for review and discussion. JR reminded the group that the ATSAC is not a decision-making body, and that their purpose is to provide input and feedback on DEQ and OHA's proposals. The formal rules process will begin later on in the process, and this will include a public process including a rulemaking advisory committee comprised of members of the public and a public comment period.

Holly Dixon, Oregon Health Authority (OHA), reviewed the agenda for the meeting, which included 1) Welcome, 2) ATSAC Discussion, and 3) Next Steps. Holly also outlined the current series of ATSAC meetings, which includes Meeting #5, Meeting #6 (February 11), and Meeting #7 (February 19). Meeting #8 will focus on discussing diesel particulate matter and that meeting is anticipated to be scheduled in May 2025.

Holly shared that the focus of this meeting will be to discuss the ATSAC discussion questions in Document 3: ATSAC Meetings #5-7 Discussion Questions Worksheet.

Questions:

- **John Vandenberg:** Is it correct to assume that ATSAC members' written comments will be available to the public in future steps of the TRV review process?
    - **Holly:** Anything that the ATSAC members provide in written form will be compiled and that compiled document will be posted online and provided to subsequent committees. There will also likely be a document that compiles the changes that were made to the original proposals in response to the ATSAC's comments and feedback.

ATSAC Discussion

Overall Process Questions

The ATSAC members discussed the following questions:

1. Do you feel prepared to go through these discussion questions?

2. What was your experience like preparing for this review process as an ATSAC member?

3. Do you agree with DEQ's and OHA's overall process for reviewing and updating TRVs?

- **John V.:** Providing links to source materials was really helpful. There is a lot of information provided, and it is helpful to split the discussion across different sessions. The clarity of communications is very impressive, and the materials are well-organized and coherent, which makes the large volume of information easier to understand.
- **John V.:** In some cases, there was a lack of clarity around how the team is handling rounding and significant digits. The clear characterization of the approach for handling significant digits is important because the rounding leads to differences in results from doing the calculations.
    - **David Farrer (OHA):** The team's process was that they used all digits in every calculation step for the derivation process until reaching the final TRV. At the TRV step, they rounded to two significant digits.
    - **John V.:** In some cases, the TRVs are presented with one significant digit instead of two significant digits. That could be interpreted differently by different people.
    - **David:** In some cases where a TRV was adopted from another agency, if they presented a TRV with one significant digit, the team used the value as they presented it. The ones that the DEQ-OHA team derived themselves, they used the process just described.
    - **David and Holly:** The team will make their process clearer in their documentation.

- **John Budroe:** Asked for clarification on whether the ATSAC's primary charge is to review and provide feedback on the overall TRV process and how the TRVs were developed or to review all the TRVs one-by-one. With approximately 300 chemicals, it is a bit unrealistic to be able to review every TRV in the timeframe provided. A lot of discussion time could be spent on carcinogenic polycyclic aromatic hydrocarbons (PAH) relative potency factors (RPFs) because what Minnesota Department of Health has done is based on 2017 IRIS, and CalEPA also has its own RPFs for PAHs, some of which are relative to benzo(a)pyrene unit risk, but some of which are on their own. Comparing the different systems for generating RPFs could be a lot of discussion. Another topic that could take up a lot of discussion is the new World Health Organization (WHO) toxic equivalency factors (TEFs) for dioxins and furans.
    - **Holly:** The team recognizes that they have provided a lot of information to the ATSAC members, and the team has thought about how they can highlight specific items for review and acknowledge that some individual questions will require more discussion time. The overall charge of the ATSAC is to first review and provide feedback on the overall process and quality control process, and then bring attention to specific questions related to specific TRVs. Most of these questions are included in the supplemental documents provided to ATSAC members, with an emphasis on ATSAC Document 4 which covers the TRVs that list DEQ in consultation with ATSAC as the authoritative source. These questions were grouped by main themes and categories so that ATSAC members could comment on the overall process and apply that feedback to specific TRVs as needed.
    - **Holly:** The DEQ-OHA team encourages the ATSAC members to let them know if certain topics will need additional discussion time.
    - **John B.**: There will be pros and cons for each system for doing relative potencies for PAHs, and it would be helpful to discuss those differences.
    - **Holly and David:** The ATSAC will have a specific conversation on PAHs under Discussion Question #6 for Document 4. The team will make space for this conversation and go into detail on the questions that John B. has posed.
    - **JR:** The detailed conversations on specific TRVs will be especially important for the TRVs that DEQ in consultation with the ATSAC will be the authoritative source for.
- **Daisy Dong:** Shared appreciation for the amount of work that the team put in and noted that all the necessary information has been provided in the materials. There are so many chemicals that the information is overwhelming and could be presented in a more focused way. Rearranging the way that the information and data is organized could simplify the review process, support ATSAC members in working through the information and approaches in a more systematic way and help support transparency. In the future, the materials could be updated to consolidate to one document and on Excel sheet; this would also make the process of updating or making any changes easier. Another potential way to streamline the TRV review process is to allocate certain chemicals to each ATSAC committee member to divide the work among members and allow each member to focus on the chemicals that they have specific expertise in.
    - **Holly:** Thanked Daisy for these suggestions and shared that the team is open to any ideas and feedback on how they can best organize this information for future steps in the process.

- **Susan Tilton:** Appreciated the information provided and noted that the references and links included in the document were very helpful. The questions get very specific about commenting on individual TRVs, and it was difficult to make comments at that level given the number of chemicals due to time constraints, particularly for areas where there was not an overall process to be evaluated. Also appreciated that a lot of the comments received from the ATSAC so far were taken into consideration, such as providing all available TRV values from other sources in the materials, which was very helpful.
- **Susan:** The tables in Document 4 are well referenced with where information comes from, but when you look at the workbook, a lot of what is provided in Document 4 only has DEQ listed as the source. How is all the other information provided to the ATSAC going to be connected back to the workbook so that it will be possible to track the original sources of information? Is the workbook the primary document that individuals will go to for TRV values and will the public have access to the information that the ATSAC has?
    - **Holly:** Right now, Document 4 is presented as an ATSAC document. After the DEQ-OHA team receives feedback from the ATSAC, there will be documentation that will show the derivation for the TRVs where DEQ in consultation with ATSAC is the authoritative source for future committee processes.
- **Susan:** What is the process for draft or lower confidence values as new values are confirmed? Is there a cutoff date for including new information, or is this a living document that will continue to be updated as new values are confirmed, or would updates need to happen in consultation with the ATSAC?
    - **Holly:** It was challenging to prepare all of the materials for the rulemaking process and meetings with the ATSAC because the values are changing with some TRVs that are not final and are in draft. The team had to have a cutoff date in order to have final numbers to write the documents. The DEQ-OHA team incorporated all new updates to the inhalation TRVs from all authoritative sources as of August 8, 2024, which included information that was not yet final. In early December, the team checked the list of draft TRVs to see if any had been finalized. These dates are in ATSAC Document 7. The team acknowledges that these values will continue to be updated during the rulemaking process and their anticipated process is to continue monitoring and taking a close look at new TRVs and updates to TRVs and evaluate them on a case-by-case basis before the public comment period of the rulemaking.
    - **John V.:** Suggested including some information to clarify the timeframe in the overview document and consistently provide the cutoff date used in each document. Each document should include the date it was updated and make it clearer what the process was for incorporating new values, both to this point and moving forward.
    - **Holly:** The team will add the cutoff dates for the information sources used to the overview document to make that clearer and keep the version dates on all the documents that are available to the public on the website accurate.
    - **Holly:** The frequency of the overall TRV review process is specified in Oregon administrative rule and is currently a triennial review process.
    - **Daisy:** Suggested adding a column to Workbook 2 with the date so that when values are updated or finalized the team can simply change the date in that column.

- **John Stanek:** Appreciated the organization for the review; the separate documents have been helpful. Agreed with other comments about the importance of transparency and making sure that it is clear how the TRV derivations were done, especially for values that DEQ is proposing as the authoritative source.

4. Do you have any questions related to the Overview of TRV Review document (Document 1)?

- **John V.:** It would be useful to include the definitions of the chronic cancer TRV, chronic non-cancer TRV, and acute non-cancer TRV that the DEQ-OHA team is using in the overview document. There is an assumption that the values pulled from other authoritative sources are using the same definitions, and it would be helpful to include these definitions and be as clear as possible about what these terms and their interpretations mean.
    - **Holly:** The team will bring those definitions to forefront and include them in Document 1 (or as an attachment to Document 1).
- **John B.:** Agreed with John Vandenberg's comment and noted that it is important to note differences between how Oregon is defining and expressing these values compared to other sources.
- **John S.:** Suggested adding a sentence or two about data gaps, highlighting the number of reference values that are missing or for how many chemicals there was not a TRV.
- **Susan:** What were the parameters considered in the TRV selection process? Was it just the most recent value or were there other considerations and a process for determining that?
    - **Holly:** The team had originally proposed to use the most recent publication date, but during ATSAC Meeting #2, committee members shared feedback that it would be better to look at different attributes of the TRV and review the derivation process more holistically and comprehensively to choose the best option for Oregon's program. The team made a list of preferred TRV attributes for both chronic and acute, which was outlined in this document: Updates to the TRV Update and Selection Process after the ATSAC Meeting on January 20, 2023, which the team will recirculate to the ATSAC. When the team made their selections from available TRVs, the preferred attributes included whether it included a new critical study, modern point of departure (POD) methods, uncertainty factors informed by new studies, as well as publication date.

5. Do you agree that the quality control (QC) process was adequate (Document 2)?

Holly shared that this document was developed by Eastern Research Group (ERG), who DEQ and OHA contracted with to check all the work completed in developing the TRV tool. The team solicited feedback from ATSAC members on whether this quality control process was adequate and whether they had any feedback for this and future processes.

- **John V.:** What is the purpose of commenting on this document if it has been completed? What would happen if comments were made suggesting changes or revisions to this document?
    - **Holly:** Depending on what the comments are, if concerns are identified, the team will go back and look to brainstorm how those could be addressed during this rulemaking or could brainstorm for how they could change this process for the future.

- **John V.:** Is it a correct reading of the document that one ERG analyst reviewed each of the chemicals, and it was only elevated to a second reviewer if an error was identified that would impact the TRV derivation or was otherwise substantial.
    - **David:** That is correct for ERG's review process. There was also an additional step; the DEQ-OHA team conducted spot checks as they went.
    - **John V.:** Suggested that the Oregon state agencies consider creating their own document outlining the QC process that includes the ERG document as an attachment. That would allow the state to include a fuller picture of the QC design process and show the full amount of work that was completed to ensure quality. In general, the process that was described seemed appropriate but may not be a complete account of what the state did. It is also a bit unclear how the analysts decided whether an error was deemed "substantial" and therefore elevated to a second reviewer. It also may be helpful to add other information, such as rounding conventions (raised in the discussion of Overall Process Question #3).
    - **David:** The team can add more clarity to improve this document. One of the criteria for what is meant as "substantial" is if the error or discrepancy found would change the TRV value.
- **John B.:** Agreed with John V.'s comments and thought in general that the QC process was good.
- **Susan:** Did not have any concerns with the QC process. There is a portion of the QC process that is on confirmation of the hazard index designation. Is that an integral part of the TRV derivation?
    - **Holly:** The team had the contractor review some pieces of information that the state was collecting for the hazard index process which is a separate process related to the regulatory Cleaner Air Oregon program at DEQ. There is a policy where the state has to assign non-cancer TRVs a hazard index of 5 or 3, and different regulations apply depending on the hazard index. A few years ago, a technical advisory committee helped the state determine what the criteria are for the hazard index designations, including whether there are any reproductive or developmental health effects or if it is on the Oregon Department of Transportation's list. The team provided a fact sheet on the Cleaner Air Oregon's Hazard Index Rule Requirements for ATSAC members to reference. At this time, the team is not asking the ATSAC members to review these hazard index assignments since they were already reviewed by a separate technical advisory committee focused on this.
- **Daisy:** The QC process was adequate. One concern was whether any errors might have been introduced from transcribing the numbers from the original source document into the workbooks. Has the team done any QC for the Excel workbooks?
    - **JR:** The team used macros based on the same tables to create both workbooks, so that mitigates the risk of transcription errors. There were checks involved in the coding process, so the team feels confident that the values in the workbooks are correct.
    - **David:** The team also checked the workbooks for row shift errors and conducted spot checking of the workbooks.

ATSAC Workbook Questions

The ATSAC members discussed the following questions:

1. Did Workbooks 1 and 2 capture the right information?

2. Did you identify any systemic or thematic problems with either workbook that could be improved?

3. Are there any missing functionalities in Workbooks 1 or 2 that should work differently that we could improve for the next time we do TRV updates?

4. Were you able to access all the information you needed to make decisions about whether to support DEQ's proposed TRVs?

- **Daisy:** Provided suggestions to rearrange the way the information is presented in Workbook 2 to improve transparency by showing the whole process and allow the ATSAC members to follow along with the TRV calculations as they review. The columns in the workbook could be rearranged to show the critical effect (this would include the specific duration), point of departure (NOAEL or LOAEL) (including the actual POD value), time adjustment, human equivalent concentration (HEC) value, and end with uncertainty factor. If formatted this way, this would allow the ATSAC members to check that the TRV derivation calculations have been done correctly.
- **Daisy:** On the worksheet for cancer TRVs, the column is listed as a "source TRV." It would be more accurate to say, "Source Inhalation Unit Risk (IUR)" and include the IUR, since DEQ uses a one in one million definition while some sources use one in 100,000. That way, ATSAC members can support QC by checking whether the IUR is correct or not.
- **Daisy:** Suggested including the information that is provided in Workbook 1 (percent change of proposed TRV value compared to 2018 value). It would be helpful to have one central document to review so that all the information can be provided in one place. The chemicals can be sorted alphabetically but showing the percent change can help highlight which chemicals the ATSAC members should pay special attention to in their review; certain chemicals could also be highlighted for this purpose. This way, ATSAC members can review the selection criteria and understand and provide feedback on the reasons why there are any significant changes.
- **Daisy:** In the future, recommend organizing the guiding documents as different sections of the same document with each section having rules, so that it functions as a standard operating procedure (SOP). If the ATSAC members review and agree with all of the rules, then they do not need to check each TRV individually. In the workbook, there can be a column where each TRV refers to the rule that the TRV selection was based on and includes a link to that rule. In the future, if the rules are changed, the values can be updated based on the new rule. ATSAC members can also review and flag any chemicals that they think do not fit the rule that was applied. For Workbook 2, the ATSAC members cannot QC the information because the source POD is not provided (need to include the POD value in the workbook). As currently set up, Workbook 2 and Document 4 repeat the same information, rather than having one central document. Daisy offered to meet with the team outside of this meeting to further discuss how to simplify the organization of the documents. For future ATSAC members, only two documents would be needed: an SOP and a worksheet.
    - **Holly:** Appreciated this feedback on how the team can restructure the information, it is very helpful.

    - **David:** It would be helpful to send a copy of Workbook 2 with these recommended changes so the team can review how it looks.
    - **David:** A lot of the reasons for why the team selected one TRV over another are provided in Workbook 1 in the *Reason for Change* column in a short, condensed version. It might be helpful to expand that.
    - **Daisy:** Recommend having a master Excel spreadsheet with all the information, and the team could create an external version by hiding any irrelevant information. For the calculation sheets, it may also be helpful to create a password protected version so that only certain people have access to that sheet. The team can QC the master workbook to make sure all the information is accurate, and from there create any output they need.
- **Daisy:** In the materials, where it states that if the dosimetric adjustment factor (DAF) equals one there is no human equivalent concentration (HEC) adjustment; that is incorrect. As long as you use the DAF, even if it is one (e.g., RGDR = 1 or systemic effect = 1), that is an adjustment of a human equivalent concentration. If you do not use a DAF, then your interspecies uncertainty factor (UF) is ten. If a DAF is used, it does not matter if the value is one or not, it will reduce the interspecies UF. Most agencies reduce the interspecies UF for toxicokinetics all the way from three to one if there is an HEC adjustment, but OEHHA usually reduces it from three to two to cover the toxicokinetic (TK) difference.
- **Daisy:** In the materials it also states that OEHHA's REL value was used for the 1-hour POD in some cases. This is not conceptually correct. If OEHHA already adjusted their POD with uncertainty factors to calculate their REL, it is confusing to use their REL as the source POD; recommend taking the source POD and applying the UFs applied by the authoritative agency to the downstream calculation.
- **Daisy:** There is one typo in Workbook 1 on the first sheet that should be corrected where it states "acute" instead of "chronic."
- **John V.**: Shared appreciation for the effort and amount of information compiled, and shared that it was useful to have Workbooks 1 and 2. Noted that he conducted spot checks and focused mostly on cancer values. Recommended adding a date stamp to each row so it is clear when that chemical was evaluated and in case there are any updates. It would also be useful to include the inhalation unit risk value (IUR) that was used for the cancer TRVs.
- **John V.**: For many of these carcinogens, the age-dependent adjustment factors that are frequently used now were not included and not applied. The application of these age factors yields about a 60% increase in lifetime risk. From the adoption of guidelines in 2005 or 2006, the age-dependent adjustment factors have been applied in the IRIS program. In some cases, California has also applied a factor for early life exposure. It would be useful to note for which chemicals these age-dependent adjustment factors were applied to. Assuming that the State is not proactively adding age-dependent adjustment factors to the older carcinogen assessments.
    - **David:** The state applied the early life adjustment factor to chemicals with a mutagenic mode of action (not all carcinogens), including formaldehyde from the most recent IRIS assessment. There is a column in the workbook where it is noted whether carcinogenic chemicals have a mutagenic mode of action or not, but the team will think about how to mark these chemicals more clearly and consistently. The early life adjustment factors are applied when the TRVs are converted into a risk-based concentration (RBC). The

state has been saving the RBC component for the rules advisory committee, and they have other adjustments that will be applied as well, such as multi-pathway adjustment factors. It could be valuable to flag the TRVs in the workbooks for any of these adjustments that will be applied to the RBC.
    - **John V.**: This would also need to be accompanied by a document explaining what the state did and under what conditions.
    - **John V.**: Many of the carcinogens with earlier assessments also likely have a mutagenic mode of action, but this would not have been applied retroactively.
    - **John B.**: California is taking a similar approach to the early life adjustment factors where they do not apply them in the risk assessment but apply them in the risk management analysis. For example, it would be included in the guidance manual for the hotspots program along with multi-pathway and other adjustments. In contrast to Oregon, California does not apply the early life adjustment factors only to genotoxic carcinogens but rather applies them to all carcinogens.
    - **David:** Oregon applies the early life adjustment factors only to mutagenic genotoxic toxic air contaminants (TACs), which is the approach EPA also takes. This is a policy decision.
- **John V.:** Moving the workbooks into an online system that has a user-friendly, dynamic interface and is searchable for specific chemicals could be useful for the public in addition to the workbooks for future steps in the process.
- **John B.**: Agreed with Daisy's recommendation to add a column with the POD to the non-cancer TRV tabs in the workbooks, and also recommends adding a column with IUR and/slope factor for the cancer TRV tabs.
- **Susan:** Appreciated how much information is consolidated in the workbooks. Agree with other comments that it would be helpful to move any information that is currently only in Document 4 such as PODs or other factors that are used in calculations, so that all the information is in one centralized location. Used the workbooks primarily as a reference to spot check or understand a specific example in Document 4.
- **John S.**: Agree with Daisy's idea for some reorganization and restructuring. In the language within the actual documents, there seems to be some conflation between DAF language and HECs and whether or not a default of one is used.
- **Daisy:** Recommended specifying what species of animal (e.g., mice, rabbit, etc.) were used in the studies. EPA has some calculation errors for rabbit, so it might be worthwhile to check the inhalation rates for those TRVs.
    - **John V.**: Going back through and identifying the animal species could be a significant effort since it entails going back into each of the documents again. Asked if these comments need to be balanced against the need to continue moving the process forward. Some of the comments may be straightforward to address, while others would be a larger effort.
    - **Holly:** The DEQ-OHA team will likely take these comments and bucket them into two categories for changes that need to be made for this rulemaking process and other changes that the team can make for the next time they complete this review process.

- **John V.:** Agrees with that approach and shared that in his view, the materials are adequate to move the program forward and applying it. There will likely be additional improvements suggested during the public comment process and some of them will be simple and straightforward to apply whereas others will not, but it is important to avoid any significant delays to the process.

ATSAC Discussion

Questions on Document 4

Holly introduced this section and shared that these questions on Document 4 are more focused on specific TRVs and less focused on process compared to the previous discussion questions. The ATSAC discussed each of these questions one-by-one.

1. What feedback or concerns do you have about the way DEQ proposes to adjust acute TRVs for exposure time in many cases (Section 2)?

- **Daisy:** Why did the team choose to adopt OEHHA's 1-hour reference exposure level (REL) rather than OEHHA's 8-hour REL to base the duration adjustments on to calculate their 24-hour acute TRVs?
  - **David:** OEHHA's 8-hour REL is more of a chronic than an acute value. This REL is based on a scenario of eight hours of exposure every day.
  - **John B.:** That is correct, the 8-hour REL is a special case of the chronic REL designed to protect off-site workers that are exposed eight hours per day for five days per week, so it is a different application than the acute REL.
- **Daisy:** In Table 1, suggested converting at the POD level from the volumetric unit used in animal studies (e.g., ppb, ppm) to microgram per cubic meter. This provides a sense of the magnitude of the human TRV compared to the animal POD, so it is preferable to doing the conversion at the end. Also suggest adding the molecular weight for the unit conversion; this format is more clear and easier to check whether it is correct.
- **Daisy:** For bromomethane, the Haber's Law exponent "n" value was used (n=1.33), but when using Haber's Law, an empirically derived exponent "n" should not be used if the target exposure duration is outside the tested time window in the empirical study. In other words, you should not extrapolate beyond the empirical data. If it is outside that window, it may be more appropriate to use a default value of one, depending on the original source study where the 1.33 was derived.
- **Daisy:** Document 4 states that the POD = OEHHA's 1-hour REL, but this could be confusing. Would rather do the POD/UF here.
- **John V.**: Thought this section was well described. There is a foundational document about acute risk assessment methods that would be helpful to include as a reference document.
  - **John S.:** An OECD Work Group developed a guidelines document for acute risk assessment that talked a lot about duration adjustments with some case studies.
- **John V.**: Haber's Law is not actually a law because it is wrong sometimes, particularly at really short times and high concentrations, and then the factor should be a power function on the concentration which tends to drive the risks. With acute assessments in particular, the ten Berge

adjustment is appropriate to use. Consider putting "Haber's Law" in quotations since it is not actually a law.

- **Susan**: In going through the background on the types of extrapolations where Haber's Law adjustment can be applied, it discussed extrapolating from shorter exposure durations to longer exposure durations and vice versa. In Table 2, a different calculation was used. Is there a time when the scenario that was described for extrapolation from longer exposure to the shorter with an exponent of three is applied versus what is presented in Table 2, or is this because it is specifically subchronic to 24-hour acute adjustment that you adjust the days of the week?
    - **David**: Everything in Table 1 was a situation where the experimental study was looking at an exposure duration shorter than 24-hour and the team was extrapolating out to 24-hours. Everything in Table 2 is based on ATSDR's intermediate minimal risk levels (MRLs) that are applied for up to a year, usually weeks or months, so in these cases, the only adjustment made was to take out the days per week component. The hourly adjustment from six hours to 24 hours per day still makes sense, but because they apply to a single 24-hour period, the extra adjustment for additional days of the week did not apply. It is ultimately still an application of Haber's Law.
    - **Susan:** There are not examples in this case of extrapolating from a longer time period to a shorter time period.
    - **David:** There was one case when they applied that adjustment to hydrazine, and that is in Table 5.
- **John B.:** For chromium-3 water soluble compounds, the TRV was based on the ATSDR intermediate MRL. OEHHA has recent RELs for both acute and chronic, and the state used the OEHHA chronic RELs, but for the acute, the state used the ATSDR intermediate MRL instead of the OEHHA acute RELs. Why?
    - **David:** The team will look into this question and be ready to answer this question during the next meeting.

Next Steps

Holly reminded the ATSAC members that the team shared a Word Document version of Document #3 with them, so they can type their notes in that document and be prepared for the upcoming discussion questions. The team requested that the ATSAC members send a final version of their notes in that document after this series of meetings and discussions has been completed. The team will compile and organize the feedback received from ATSAC members and post that online.

Holly thanked the ATSAC members for their time and the thoughtful discussion and feedback. Ben thanked everyone for participating and adjourned the meeting.

ATSAC Meeting #6: February 11, 2025, 11:30am-2:30 pm PT

Ben welcomed the ATSAC members and reminded the group of the Zoom webinar protocols. The focus of this meeting was to continue the ATSAC discussion questions, continuing the conversation from the previous meeting.

ATSAC Discussion

Questions on Document 4

Holly shared that the group discussed the first question on Document 4 during the previous meeting and invited ATSAC members to share any additional thoughts and noted that the DEQ-OHA team had follow-up from John Budroe's question on chromium-3 water soluble compounds to share with the group.

1. What feedback or concerns do you have about the way DEQ proposes to adjust acute TRVs for exposure time in many cases (Section 2)?

- **David:** During the previous meeting, John B. had asked why the DEQ-OHA team had based their TRV off of the ATSDR value instead of the OEHHA value when the OEHHA value was recently published in 2022. Dave shared that the ATSDR value was selected because even though the OEHHA value was more recently published, it was based on a study from 1979, whereas the ATSDR value was based on a study from 1999, so the underlying science for the ATSDR value was more recent. The other reason was because if they selected the OEHHA value and applied the ten Berge adjustment to Haber's Law to extrapolate that timeframe to a 24-hour exposure, then this acute TRV would be lower than the chronic value for the same compound.
    - **John B.**: There are times when an older study can still be a more appropriate study for the situation, so that is not always the main issue. The main reason why this caught John's attention was due to the fact that the team used an intermediate subchronic study rather than an acute study, because usually it is preferential to derive from an acute value and not a subchronic value. However, John also did the derivation calculation and also found that the final acute number was lower than the chronic number, which is problematic, so agreed with the final decision.
    - **John V.:** How often does OEHHA use a value of six for the animal-human uncertainty factor instead of a three or a ten?
    - **John B.:** Not sure how often it gets used. For the older acute RELs, that uncertainty factor was not available.
    - **John B.**: For the interspecies uncertainty factor, it is likely going to be common to see the factor of six used more and more.
    - **Daisy:** Agreed with the use of the ATSDR value for different reasons. The OEHHA study was acute, but the exposure time was only 30 minutes. The ATSDR study was not acute, but it was based on a port of entry effect. It seems less uncertain to derive the value from a port of entry effect study than to extrapolate from a 30-minute exposure to a 24-hour exposure.

2. Are there any specific toxic air contaminants in section 2 to which Haber's Law should not be applied to adjust exposure time?

- **John V.:** In Table 1, is it correct that an exponent of one was used in every case?
    - **David:** There is also a 1.33 and a 1.5 exponent, though in almost all cases they used one.
- **John V.:** For Table 2, where did the team start from to apply the exposure durations? How did the team handle different exposure durations for the calculations?

- **David:** Did not adjust exposure duration down to 24 hours. Usually, almost always, was starting from the ATSDR intermediate MRL, and the only adjustment made was to take out the intermittent component or the days per week adjustment, and did not apply any other adjustment. When ATSDR does their acute MRLs, they often use studies that are at or close to a two-week exposure duration, and they do not adjust down to 24 hours. Instead of taking out the intermittent time adjustment, another way to approach this would be to calculate the total hours and then extrapolate from that total number of hours down to 24-hours.
- **John V.:** Think that the current approach is better than the alternative David described because it is probably more health-protective than to try to adjust for the total duration of exposure.
- **David:** The team listed the exposure duration in the document for information, but did not actually make any adjustments based on that exposure duration in Table 2. Can make that clearer in the documentation.
- **John V.:** Agree that the approach is right but that the language could be clearer.
- **John S.:** To clarify, the team did take the daily exposure and adjust that to 24-hours, correct?
- **David:** Yes, those adjustments were included.
- **John S.:** Has there been any consideration of qualitatively describing where the team thinks these values tend to end up with this adjustment (e.g., that they are more health protective)?
- **John. V.:** Another way to do that would be to include an example, and that could be useful to show for one of these cases.
- **Daisy:** It is conventional for most agencies to adjust the hourly exposure and then the days per week. The approach taken by the DEQ-OHA team of removing the days per week adjustment is logical. Have never seen anyone take the approach of using Haber's Law to adjust the total exposure.

- **Daisy:** Provided the following comments on Table 1:
  - The exponent "n" is only valid if the value was derived within the 24-hour period. Based on experience, you cannot use the Exponent "n" to extrapolate beyond the data point range. It is important to check the original study and if it did not cover 24-hours, it is best to use the default n=1. You cannot extrapolate beyond the exposure duration that hasn't been tested.
  - There are some places where the POD = 1-hour REL, but that is conceptually not correct. It is better to use their POD and then apply whatever uncertainty factor you have.
  - For unit conversions, it is better to put the molecular weight divided by 24.45 so that people can calculate and if you copy the molecular weight wrong it is clearer.
  - Another suggestion is standardization of the format for the next time these materials are updated. Use the POD to convert it to the concentration unit immediately. This way it is more straightforward to see the human TRV compared to the animal study.
  - For the DAF, recommend being consistent throughout and specifying what the DAF is (e.g., RDDR or RGDR).

    - For heptane, TCEQ extrapolated from 30-minute to 1-hour for their 1-hour ReV, but on page 5 the rule for POD stated "In cases where the source agency had already expanded an exposure shorter than 1 hour to 1 hour, DEQ used the 1-hour REL or ReV as the POD and made T_1 equal to 1", expecting to use POD-adj=1472.5 ppm, T_1 = 1 hour for the calculation based on this rule, yet POD=2945 ppm, T_1=0.5 ppm was used in the calculation. Just want to point out the inconsistency in following the rule in your calculation. For the unit conversion on heptane, the team did not give it the final value. They listed the molecular weight divided by the normal volume of the ideal gas.
    - If the unit conversion is not necessary because the study unit is the concentration, recommend the team removes because they do not need to use it.
- **Daisy:** Provided the following comments on Table 2:
    - Overall, agree with this approach. Most agencies, when they use subchronic values, always use two duration adjustment effects, one for the hours and one for the days per week. It makes sense to use this approach when using intermediate or subchronic values from ATSDR to calculate acute TRVs.
    - Suggested incorporating comments that ATSAC members provided during the previous meeting to include the number of significant digits, since these are values that the DEQ-OHA team calculated.
    - Provided comments on terminology. The equation for the proposed acute TRV includes "subchronic TRV" in the formula; however, TRV is a DEQ definition, so it would be more accurate to state "subchronic reference value" since these values are coming from other sources (e.g., ATSDR, OEHHA, TCEQ). The formula and the table also include "days/week," but this is also not correct because it is an adjustment factor. The true value is the days per week in the animal study divided by the days per week in the human study, so it would be better to state "days per week adjustment."
- **John V.:** Also provided comments about terminology. The PPRTVs should have a sub-chronic p-RfC. The RfC is specific to the IRIS program, not to the PPRTVs.
    - **John V.:** For diethylene glycol monobutyl ether, it states that the source of the original value is the "2009 PPRTV subchronic REL," but this should state that it should be the subchronic provisional RfC.
    - **David:** That is a typo. That should be an RfC not a PPRTV.
    - **John V.:** For Ethylene glycol monomethyl ether acetate, it just says "2011 PPRTV." Recognizing that these are links to the original documents, the consistency in terminology throughout the document could be improved and it would be helpful to be as clear as possible.
- **Susan:** In the workbooks, information on the endpoints that were used for point of departure for each chemical seem to be split across multiple columns (basis for point of departure and target organ) and it was not clear how consistently those were being used. Recommended making sure that it is clear for each data point what endpoint was used for that calculation.

3. What feedback or concerns do you have about the cases where DEQ proposes to apply toxicity information from a better studied toxic air contaminant (TAC) to a lesser studied, structurally similar TAC (Section 3)?

- **John V.:** The narratives are very helpful, it helps the reader follow the logic and understand the basis for decisions, which is appropriate.
- **John V.:** For crotonaldehyde, was confused and not able to trace this back through Workbook 2. Do not see TCEQ values listed in Workbook 2 and am unclear what DEQ's approach was.
    - **David:** The starting point for the chronic value for crotonaldehyde is the same as the starting point for acrolein. In the narrative, they are saying that they agreed with TCEQ's argument that acrolein is a good surrogate for acrolein. However, DEQ did not use TCEQ's value for acrolein, they used a different agency's value for acrolein, which is why they do not reference TCEQ in the workbook because they did not derive the value from their number, they just applied their logic.
    - **John V.**: Was confused why the TCEQ value was not listed in Workbook 2, because there are values from other agencies listed.
    - **David:** The DEQ-OHA team generally did not add TCEQ values to Workbook 2 unless that was the value they were proposing to use because it is not listed as an authoritative source.
    - **John V.:** The IRIS value in Workbook 2 is incorrect, looks like a typo.
    - **Holly:** The DEQ-OHA team will make the narrative clearer and check that the IRIS value is correct.
    - **John V.**: Agreed with the approach of using acrolein as a surrogate to derive the chronic value for crotonaldehyde. Also agreed with the approach of using the brominated analogues from PCBs for PBBs and PBDDs, which the ATSAC had previously commented on.
    - **Holly:** The DEQ-OHA team had compiled the ATSAC members' feedback provided via email on this topic and provided a link to this document.
- **Daisy:** Agree with the approach. Are all the chemicals in Document 4 also in Workbook 2?
    - **David:** Yes, all the chemicals are in Workbook 2, but the criteria for chemicals to appear in the colored tabs is that they must have a change from the previous TRV and have multiple options to choose from. If the chemicals do not meet both those criteria, then they would show up in the gray Appendix tabs.
- **Daisy:** Found one error in this section. TCEQ's chronic ReV for acrolein is not 8.1, it is 2.7.
    - **Holly:** The team will check this value.
- **John B.:** Had one comment on n-propylbenzene. In the narrative supporting information, it states that DEQ proposes to use all TRVs proposed for ethyl benzene to n-propylbenzene, but it does not include information on which endpoints are being used and which agencies' values are being referenced. It would be helpful to add the sources for each DEQ Proposed TRV Value (cancer, acute, and chronic).
    - **Holly:** The team will add that information.
- **John S.:** Agreed with the approach.
- **Susan:** Agreed with the approach and did not have any concerns about the groupings discussed in the table.

4. What feedback or concerns do you have about cases where DEQ proposes to modify TRVs by changing uncertainty factors (Section 4)?

- **John V.:** There seems to be a surgical approach to identifying other states that are not listed as authoritative sources (e.g., TCEQ, New Jersey, Minnesota). Is there a discussion anywhere or can the team provide some background on how the authoritative and non-authoritative sources fit in?
    - **Holly:** The authoritative sources are in Oregon administrative rule; these are the sources that have been reviewed and put in the TRV tool. After ATSAC Meeting #2, the DEQ-OHA team heard feedback from the ATSAC members that it would be helpful in cases where they do not have information from the authoritative sources to look at other agencies that might have developed a value. In their updates document after that meeting, they described their approach that they would look at some of these other state agencies such as TCEQ in cases where no other authoritative sources had information. The DEQ-OHA team also developed a shortlist of chemicals that Oregon was particularly interested in due to exposure or potential for health hazards, and they had their contractor Eastern Research Group (ERG) look for toxicity values that have been developed by other organizations internationally and on the federal and state level.
    - **John V.**: Does the rulemaking allow for additions outside of the authoritative sources? Also want to understand the scope of how the team looked at other sources, as it seems like it was not a national, exhaustive evaluation.
    - **David:** For the subset of chemicals that ERG searched for (PFAS chemicals plus the methylnaphthalenes were the main ones), they looked at all 50 states as well as some international sources including Australia, the European Union, and Canada. For that subset of chemicals, that was comprehensive. These results are described in this memo prepared by ERG. For chemicals that were not on that list, the main agencies that the DEQ-OHA team would check were TCEQ and Minnesota Department of Health (MDOH) if none of the authoritative sources had a value.
    - **John V.**: It would be useful to provide this documentation and would be helpful to refer to ERG's report. Adding more information would provide clarity and help the reader understand the broader context.
    - **Holly:** During the last rulemaking, one of the changes was adding DEQ in consultation with the ATSAC as an authoritative source, and that is how all of the values in Document 4 would fit into Oregon administrative rule.
    - **John V.**: When they went through this previous rulemaking process, did they receive much feedback in the public comment process about other states that should be considered authoritative sources?
    - **Holly:** Not sure if many public comments were received; that rulemaking was finished in 2021. TCEQ came up during ATSAC Meeting #2 in discussions, and after that point was included in the team's workflow.
- **Daisy:** Agreed with John V. that the team's approach could be described in more detail in the introduction. For example, explain that the ATSDR intermediate MRL was used because they could not find a chronic value.
- **Daisy:** Agree with the logic and approach to try to unify and confirm the other agencies' default uncertainty factors when using their PODs. For n-Hexane, it states that the TCEQ uncertainty factor is two and that DEQ changed this to three, which resulted in a change in the total uncertainty factor

from 180 to 300. Calculated that if the LOAEL UF was changed from two to three, the result should be 270 rather than 300. Also, stated that the proposed acute TRV equals the LOAEL divided by the UF. In this case, the LOAEL is not a correct term. In the original document, they calculated an HEC. Even though the value is the same and it is still 1,000ppm, the concept is different, because a LOAEL implies no HEC, so it might be better to use POD or HEC. Using the term LOAEL gives the wrong impression, like the raw POD was used without any adjustment, but in the original TCEQ document, they calculated the HEC and divided by the uncertainty factor of three for the interspecies.

  - **David:** For that uncertainty factor, it does calculate to 270 but rounded to 300. Need to make that explicit.
  - **Daisy:** Tend not to round the uncertainty factor. Here, the database uncertainty factor of three is not a half log, it is just three. Any approach is fine, but it is important to be consistent.
  - **John S.:** Agree that for n-hexane it should be written as a $LOAEL_{HEC}$ before the uncertainty factors or a POD_{HEC}.
- **John S.:** Looking at the narrative for acetone, for EPA, the standard for a LOAEL to NOAEL uncertainty factor is ten, not three.
  - **David:** ATSDR and IRIS will sometimes have a three if the effect is small or if they have a reason to think they are not that far from a NOAEL. ATSDR calls it a minimal LOAEL.
  - **John S.**: For EPA, it is a full ten, so that is not all authoritative sources. For EPA to use a minimal LOAEL requires a lot of documentation.
  - **Daisy:** CA DPR also uses a default of ten unless they have a very good reason to reduce it to three.
  - **John B.**: For OEHHA, they use one for a NOAEL or ten for a LOAEL for chronic RELs. For acute RELs, they use six if it is a mild effect for ten if it is a severe effect with a LOAEL.
- **David:** Would the ATSAC members recommend making a change the NOAEL uncertainty factor from two to ten?
  - **John S.:** Yes, because using a two would not be consistent with EPA's approach in developing a chronic value.
  - **John B.:** Agreed, would go with the ten.
  - **John V.:** Agreed.
  - **Susan:** Agreed.
  - **Daisy:** Suggested looking at the TCEQ study if they are relying on TCEQ to do the analysis. Most agencies default to ten, so if they used two, there is likely a reason.
  - **John V.**: TCEQ provided their rationale for using a UF_L of two on page 23 of the linked document.
- **David:** Walked through the TCEQ document for acetone. TCEQ's description of the critical effect was neurotoxicity. The argument they used was not saying the effect was not severe, but rather that if they divide the LOAEL by two, then it puts the exposure concentration in a range that has not been associated with these kinds of symptoms, presumably based on other studies. Do the ATSAC members think this is a good justification for using a number other than ten for the uncertainty factor? The DEQ-OHA team would propose a three instead of a two, but asked if the ATSAC thinks it should be a ten in this case.

    - **Daisy:** Agree with using a three. It is a human study, not an animal study. Even with an uncertainty factor of two, the concentration is less than 250ppm, which is not associated with increased symptomology, so it is the same symptoms as the LOAEL. TCEQ's value is already protective, and using a three would be even lower than that. Thought this reasoning was justified.
    - **John B.:** Would go with a ten. Do not think the TCEQ justification is sufficient. In the OEHHA non-cancer guidelines, if it is a chronic value, they always use ten.
    - **John S.:** EPA has a one or a ten. If the team wants to keep the value as a two or three, the rationale cannot cite all authoritative sources because EPA does not apply NOAEL to LOAEL that way. It is subjective symptomology.
    - **John V.**: Would be more comfortable with a ten.
    - **Susan:** Would be comfortable with a ten.
- **David:** Walked through the TCEQ document for n-hexane. The critical effect in mice for the 24-hour REV for n-hexane was developmental effects, a change in fetal weight.
    - **John S.:** The application of a three for this specific UF is not what EPA would do. They do not do adjustments from a LOAEL to a NOAEL. Whatever choice is made is fine, but the broader point of both examples is making sure the language is accurate.
    - **John B.:** If OEHHA was doing this, probably would not use a database uncertainty factor. For an acute REL, they would use a six for a mild effect or a ten for a severe effect, so the question would be whether you consider the reduction in fetal body weight to be a mild or a severe effect. Would not go with less than a six in that case and could definitely be argued into a ten. Would probably put the database at one given that they have a couple of reproductive developmental studies.
    - **John V.**: Since there are several studies, including a two-generation study and multiple species for inhalation, so they have the right route of exposure. Not sure why they used a three for the database uncertainty factor.
    - **John S.**: Could agree with the database uncertainty factor of one.
    - **John V.:** The UF for human variability (intraspecies) would be ten, the UF for interspecies of three makes sense because they are doing a dosimetric adjustment, then a UF of ten for the extrapolation from LOAEL to NOAEL, and a UF of one for the incomplete database. The total uncertainty factor would be 300 (10 x 3 x 10 x 1).
    - **Daisy:** Any way is fine, DEQ just needs to define their approach and rationale in the description. The value does not change much, the outcome is very similar. They can think about how to be more consistent.
    - **David:** Recapped feedback heard from the ATSAC: Moving the LOAEL to NOAEL adjustment factor to ten is consistent between the two cases at least. The other change in this case would be that the two-generation study means that you do not need the database uncertainty factor.

5. Do you have feedback or concerns about cases where DEQ proposes to derive TRVs by making other types of modifications to values developed by other agencies (Section 5)?

Holly and Dave shared that Section 5 is a miscellaneous section that includes all the adjustments that did not fit in the other categories.

- **Daisy:** For boron trichloride, agreed with the calculations. Suggested adjusting the way that the equation is written so that the final value is at the end and not the beginning.
- **Daisy:** For hydrazine, do not think that the duration adjustment is needed because they are using a short term, subchronic study to derive an acute value. In the workbook, the DAF is not an RGDR; they only adjusted for the inhalation rate. The study is from 1996, and the methodology is different from the recent RFC methods. They calculated the minute of ventilation divided by the body weight, which is called the inhalation rate. They did not do the RGDR, which is for a port of entry effect as well as a systemic effect. It is a regional dose, and the normalization factor is a surface area. Instead of calling it an "RGDR" in the workbook, recommend calling it a "breathing rate."
    - **John V.**: It would be useful to add the full equation here as in other examples to that it is as clear possible what was calculated.
    - **David:** The formula used was referenced; it was Equation 4 from Section 2. However, if they do not apply the weekly adjustment, then hydrazine would not need to be included in Document 4 and the workbook because they would be using ATSDR's exact value.
    - **Daisy:** The team could add hydrazine to the duration adjustment section (Section 2). Conceptually it is different from ATSDR because they are adjusting for the days per week, but because the number of days per week are the same (seven and seven), it equals one and does not change the value. Recommend taking this approach because technically the ATSDR is a short-term or intermediate value, not an acute value.
    - **John V.**: Agreed with that approach because it is more health protective.
    - **John B.**: Agreed.
    - **Susan:** Agreed with this approach and moving it to Table 2 so it is clear that duration was considered.
    - **John S.**: Agreed.

6. Do you have any feedback or concerns about DEQ using the list of relative potency factors (RPFs) provided by the Minnesota Department of Health (MDH) for carcinogenic PAHs (using the 2017 IRIS IUR for benzo[a]pyrene as the index) (Section 5 table 6)?

- **John V.:** Recommend adding benzo[a]pyrene to Table 5 with an RPF of one so it is clear that it is the basis for the other chemicals listed in the table and note that it is the index chemical.
- **Daisy:** Asked clarifying questions about the comments provided in the DEQ Notes column of Table 6 (Some of the rows in Table 6 of Document 4 include this statement in the "DEQ Notes" column: "TRV updated from 2018 value because old value used the same RPF but applied it to the outdated OEHHA IUR for benzo[a]pyrene rather than the newer 2017 IRIS IUR value"). Is the RPF the same as DEQ's 2018 value? If not, where is it from?
    - **David:** Yes, the same RPF as DEQ's 2018 value. There is not a proposed change to the RPF. The proposed change is to apply that RPF to the newer 2017 IRIS IUR value for the index chemical benzo[a]pyrene instead of OEHHA's value for benzo[a]pyrene.
    - **Daisy:** The table is confusing in the way it is written because the RPF is not new, but the other column says that MDH adopted OEHHA's RPF which gives the impression that there is a new RPF.

    - **David:** MDH's adoption of OEHHA's RPF is not a new situation since they adopted it a long time ago.
    - **Daisy:** That is what is giving the impression of a new RPF and slope effect, which is confusing.
    - **David:** PAHs are a mixture of similar chemicals that have the same mode of action in carcinogenicity and their toxicity is all relative to an index chemical (benzo[a]pyrene). The DEQ-OHA is proposing to continue using IRIS's 2017 IUR for benzo[a]pyrene, and they are proposing to use the RPFs from the MDH guidance document and apply those RPFs to the 2017 IRIS IUR for benzo[a]pyrene.
    - **Susan:** Since the RPFs did not change but DEQ is using a new source now, what source was DEQ using previously?
    - **David:** The chemicals in Table 5 that have the comment in the DEQ Notes column, what changed was that in 2018 they adopted OEHHA's IURs for those PAHs inadvertently. They are now proposing to apply the same RPFs that California and Minnesota are using and apply that to the newer 2017 IRIS IUR for benzo[a]pyrene instead of the older OEHHA IUR for benzo[a]pyrene. The DEQ-OHA team is making sure that the RPHs are all applied to the same value for the same index chemical.
- **Ben:** Asked whether the ATSAC members agreed with the overall approach taken by the DEQ-OHA team for PAHs.
    - **John V.:** Yes.
    - **John B.:** Yes.
    - **Daisy:** Yes.
    - **Susan:** Yes.
    - **John S.:** Yes.

7. Do you have feedback or concerns about any of the TRVs that DEQ is proposing to adopt without modification from non-authoritative (i.e., not EPA, ATSDR, or CalEPA) sources (Section 6, Table 7)?

David shared that any TRVs that do not come from EPA, ATSDR, or CalEPA, the authoritative source must be DEQ in consultation with the ATSAC. When the DEQ-OHA team was looking at other sources (e.g., TCEQ and MDH), in the cases the ATSAC has reviewed thus far in the document, they modified the TRVs from other sources in some ways to make it a better fit for Oregon. In these cases, the TRVs came from other non-authoritative sources and the team is proposing to adopt as presented by the other sources.

- **John B.:** Were any TRVs adopted from international sources such as EU countries?
    - **Dave:** No, there were some values that ERG found in their review from Health Canada or the EU, but between the options that were available, the options that the DEQ-OHA team chose had the most documentation or met with their criteria the best. One of the criteria was that the derivation information was public and transparent. One reason that TCEQ is referenced frequently is that they do a good job of documentation, so it is clear and easy to see how they calculated the derivations. The team also wanted TRVs that were not derived from occupational exposure limits directly or that are derived based on an LC50 or an LD50. The ones that were left were true de novo derivations from a comprehensive literature review and traditional point of departure.

- **Daisy:** It could be helpful to add more description here in this section, so the reader has more information on ERG's review and the selection criteria. Consider expanding on the justification provided on why DEQ considered these of "adequate derivation quality" so there is more clarity on why these sources were selected.
- **Daisy:** Some chemicals have two different sources for the chronic and acute TRVs. Is that because the sources did not have a value for both?
    - **David:** Yes, in many cases that happened, where an agency had an acute and not a chronic value or vice versa.
- **John V.:** For lead, the way the process works for the National Ambient Air Quality Standards (NAAQS) for lead is a quarterly average across three years, and the reason it is a long-term average and not an acute value is because of the nature of the health effects, which tend to be neurological. The NAAQS is based on a significant database and is focused on an adequate margin of safety in the Clean Air Act, whereas the air toxics are based on an ample margin of safety to reflect the greater uncertainty and nature of the health outcomes. Is there a need for an acute value for lead?
    - **David:** It is conservative and health protective because the NAAQS value is designed for three-month rolling average, and they are applying it to a 24-hour period. Oregon does have a fair number of facilities with nearby residents. The NAAQS are meant to apply to a whole airshed as opposed to a concentrated area next to a source. One reason the DEQ-OHA team intends to have this as an acute value is to have that protection for people who are living very near to a source of lead, and because they are applying it in an acute scenario, it is health protective for those residents.
    - **John V.:** That sounds very appropriate for air toxics which tend to be more locally focused, and place based.
- **John V.:** For manganese, does the 2024 DEQ Manganese Memo derive only an acute value or also a chronic value? Is the chronic value located somewhere else?
    - **David:** That document is from ATSAC Meeting #3 when the ATSAC had a whole meeting dedicated to discussing manganese. That memo is the formal writeup following those conversations. It is for the acute TRV for manganese.
    - **Holly:** This was following the petition on the acute TRV for manganese. The memo was the final compilation following the framing document and email exchanges with the ATSAC.
    - **David:** They do have a chronic value for manganese and the reason that value is not in this document is because they are using a chronic value from an authoritative source without modifications. No other source had an acute value, so the team had to derive one which the ATSAC assisted with during that meeting.
- **Susan:** In the workbooks, are the links to the sources in this table also linked to in the workbook?
    - **David:** Yes. Whenever DEQ is listed as the authoritative source in the workbooks, the team references Document 4 because that is where the modifications are discussed, but the link goes to the original source that the point of departure came from.
    - **Susan:** Having those links in the workbook as well as Document 4 is helpful.

8. Pending DEQ and OHA consideration of ATSAC comments in previous discussion questions, do you agree with the TRVs where DEQ (in consultation with ATSAC) is the proposed authoritative source?

Holly and David shared that the intent behind this question is to hear any final thoughts on the process and work put forward in this document. It is especially critical for these TRVs where DEQ in consultation with ATSAC is the authoritative source to hear affirmation from the ATSAC members to move forward with these proposed values.

Ben initiated a roundtable asking ATSAC members to affirm that pending incorporation of the guidance that the ATSAC members have provided they are confident moving forward with these values with DEQ in consultation with ATSAC as the authoritative source.

- **Daisy:** Yes.
- **Susan:** Yes.
- **John V.:** Yes.
- **John B.:** Yes.
- **John S.:** Yes.

9. What feedback do you have related to the Proposed TRVs where DEQ is the Authoritative Source document?

- **Daisy:** It could be helpful to make a table with the default settings for the different authoritative sources (EPA, OEHHA, ATSDR, and DEQ), like the one on the last page of the Manganese Framing Document. This could be helpful for the future to reference to this table to see the defaults from the main sources.
- **John V.:** Why is the authoritative source "DEQ in consultation with ATSAC" and not DEQ and OHA?
    - **J.R.:** It is because the rule is housed in the Department of Environmental Quality. All of these standards are used in DEQ. The rules specify an interagency collaboration, and the team includes staff from both DEQ and OHA, with Holly and David providing outstanding effort.

Next Steps

Holly reminded the group of the next meeting date and that the team is hoping to receive the final written answers from the ATSAC members following the third and final meetings in this series.

Holly, David, and J.R. thanked the ATSAC members for their time and contributions and Ben adjourned the meeting.

ATSAC Meeting #7: February 19, 2025, 11:00am-2:00 pm PT

Ben welcomed the ATSAC members and reminded the group of the Zoom webinar protocols. The focus of this meeting was to continue the ATSAC discussion questions, continuing the conversation from the previous meeting.

ATSAC Discussion

Questions on Document 5

Section 2: Chemical Groups that Can be Summed and Compared Directly to a TRV that Applies to the Group

1. Do you have any feedback or concerns about how we plan to organize groups of chemicals and how we plan to account for their toxicity?

2. Do you agree that these are the right compounds within each group?

- **Susan:** Does Oregon DEQ-OHA have their own process for grouping chemicals by similarity (e.g., applying OECD guidance or defining similarity in a read-across), or is DEQ-OHA relying on groupings that have been proposed by authoritative sources?
    - **David:** The latter is correct. The DEQ-OHA has not developed their own criteria for groupings; all of the proposals are similar to how other authoritative sources group compounds. OEHHA has a lot of explicit information about how they group compounds, so in most cases the DEQ-OHA team followed OEHHA's groupings.
- **Susan:** Did not have any concerns about the groupings.
- **John V.:** Did not have any issues with the groupings.
- **John V.:** Was there a reason not to include the PFAS and PFOA compounds in this section?
    - **David:** The focus of this document is cases where the grouping has an effect on TRV application. PFAS is a class of chemicals, but right now, the DEQ-OHA team is proposing that each member of that group has its own TRV; they have not found a way to apply a single TRV to all PFAS or a relative potency factor approach for PFAS.
- **John B:** Being very familiar with trimethylbenzenes, the RELs would have been very similar looking at them by each chemical and in actual use will be looking at mixed isomers, so is in complete agreement with this grouping.
- **Daisy:** Agreed with the groupings.
- **John S.:** Agreed with the groupings. For trimethylbenzenes, EPA's assessment and reference value accounted for the same groups.
- **John B.:** In general, agree with the groupings. Looking at the information for toluene diisocyanates, the language in the "Difference in approach from existing rule" column could be updated to be more accurate. ATSDR does not distinguish between isomers, and neither does OEHHA. OEHHA has the same RELs for either isomer or for mixed isomer.

Section 3: Chemical Classes with Toxicity Equivalency Factors or Relative Potency Factors

3. The World Health Organization (WHO) has a 2024 set of toxic equivalency factors (TEFs) for dioxins and furans. DEQ is currently proposing to keep using the 2010 EPA TEFs as applied by OEHHA. No other jurisdictions have adopted the new WHO TEFs to DEQ's knowledge. Should DEQ continue to apply EPA's 2010 recommended TEFs as proposed or consider proposing the 2024 WHO TEFs instead (Section 3.1)?

- **Daisy:** Would adopt the 2024 WHO TEFs. Read the article and think it reflects a more curated database and the use of Bayesian statistics, so scientifically is better than the other TEFs. If the DEQ-OHA team is concerned about whether other agencies adopted the new values, maybe they can contact EPA or OEHHA to see whether or when they adopted these values.
- **John V.**: It was not clear that the rationale is very strong to say that it has not been adopted by others. The manuscript was well done and thoughtful. They did a comparison of the former 2005 WHO values and some of the values go up and some go down. The 2024 publication provides a strong science basis for using the WHO TEFs. They went through workshops, they did a systematic review, and they brought in Bayesian approaches.
- **John B.:** Would want someone with specific expertise in Bayesian statistics to take their own independent look at the manuscript. Would like another group to review this (e.g., EPA or OEHHA), or DEQ could put their own special purpose panel on this. Would like to see a review group to look at the manuscript and make sure that it is sufficient for use.
- **Susan:** Agree that the manuscript itself is really well put together and could create a wonderful new resource that pulls together a lot of information. Approaching the question from a process standpoint and thinking about how they have approach other data that have come in for consideration and leaned more towards John B.'s conclusion to at this point maintain using the EPA TEFs until this has been reviewed and adopted through an authoritative source. It also seemed that overall, the prior values might be more protective.
- **John S.:** Do not have an opinion one way or another. Do not know if this is part of a larger project of EPA adopting these values. It probably is worth taking a further look at its applicability.
- **Daisy:** Suggested contacting EPA or OEHHA to see how they stand because the manuscript was developed by someone at EPA and in terms of Bayesian statistics, they had experts participate in the panels. They broke into three panels during the 2022 meetings with different experts. Even for California DPR, they are moving towards incorporating Bayesian statistics in their risk assessment. It could be helpful to contact EPA or OEHHA to find out about their status in adopting the new TEFs. If they are in the process of adopting it then DEQ may want to adopt them; if they are not sure whether they will adopt them, then they might want to take a more conservative approach
- **John V.**: Know and have great confidence in many of the authors of the WHO paper. In the current atmosphere that EPA is working, they are not likely to get useful information in a timely way. However, there are a few people who are experts in the field who are available. For example, Linda Birnbaum is retired as the director of NIEHS, many of her studies were referenced in the WHO document, and she has done a number of different types of reviews. Oregon could pull together a group to review that approach, consider alternative approaches, and make recommendations.
    - **David:** The DEQ-OHA team could contact someone from EPA or other authors on the paper to see what their thoughts are.

Section 4: Inorganic TACs and their Associated Compounds

1. Do you have any feedback or concerns about how we plan to organize groups of chemicals and how we plan to account for their toxicity?

2. Do you agree that these are the right compounds within each group?

4.1 Metals

- **John B.:** Might want to list the metals as "and inorganic compounds" rather than "and compounds." What happens if you have an organometallic compound? Is that going to be substantially different from an inorganic metal compound?
    - **David:** In all of these cases, the "and compounds" are referring to inorganic compounds. They could be clearer about that.
- **Daisy:** Sometimes the DEQ-OHA team adopted groupings from ATSDR and sometimes they adopted groupings from OEHHA. In cases where there are different approaches from both ATSDR and OEHHA, how did the team decide which one to use?
    - **David:** Both ATSDR and OEHHA have sometimes changed their approaches, and the changes are most frequent between whether they separate or grouped the soluble and insoluble compounds together. Both agencies have shifted sometimes as they update their documents. The DEQ-OHA team followed a similar approach as selecting TRVS based on who had the more recent publication or the most recent studies, so they were case-by-case decisions.
    - **Daisy:** This could be clearer; they could add some more information on their rationale.
    - **David:** It is in the workbooks. For several of the acute values, they also made adjustments to an intermediate ATSDR MRL, and those are also in Document 4.
- **John V.:** Do not see organic mercury anywhere.
    - **David:** Was not able to find any inhalation toxicity values for organic mercury. That is the form that builds up in fish tissue. Not sure how common it is to find organic mercury compounds in air.
    - **John B.:** Never heard of an air risk assessment for hotspots in California that had any organic mercury issues.
- **John V.:** If the DEQ-OHA team changes each of these to specify that they are referring to just the inorganic compounds, are there organic forms that are also important as air toxics?
    - **David:** The TRVs that they have are based on studies with inorganic compounds. None of the inhalation TRVs they have for these groups of metals were done using organic forms of the compounds. So, part of the question is whether or not organic metals are emitted to the air, and do they have toxicity values that would be appropriate for inhalation of organic metals?
    - **Holly:** The team will do their homework before renaming these.
- **John S.:** EPA is taking a similar approach. On a mercury salts team, the assessment plan and literature review are posted on IRIS and that might be a good resource to figure out what studies are available regarding inhalation.
- **Susan:** No additional comments.

4.2 Non-Metal Inorganic or Ionic TACs

- **John B.**: Fine with the approach.
- **John V.**: Fluoride is very complicated. The proposal is reasonable.

- **Daisy:** Did not see sulfuryl fluoride on the list. Does Oregon have sulfuryl fluoride? It is a gas that is very poisonous and used for fumigation. Because of the ban of methyl bromide, a lot of fruits imported or exported use sulfuryl fluoride as a fumigant. Worked on a reference value for sulfuryl fluoride five years ago.
    - **Daisy:** Link to the documents for sulfuryl fluoride.
    - **John B.:** It might not apply in Oregon. In California, sulfuryl fluoride for fumigation is under DPR's purview, but for spice or coffee fumigation, it becomes a hotspots use. It depends on the risk management structure in Oregon whether they will need to do a TRV for it or not.
    - **Daisy:** DPR is working on an air monitoring network to monitor pesticides in the air around the agricultural areas. They have screening levels similar to Oregon's TRVs and are working on updating them for 40 pesticides with new methodologies and new science.
    - **David:** Is the draft value for sulfuryl fluoride different enough in toxicity from the fluoride and compounds that this TRV would not be protective for sulfuryl fluoride?
    - **Daisy:** It is a risk assessment document; they reviewed the complete database. The value is finalized and has been reviewed internally and externally. The RfC is finalized, and they gave a range instead of a particular value.

Section 5: Silica

1. Do you have any feedback or concerns about how we plan to organize groups of chemicals and how we plan to account for their toxicity?

2. Do you agree that these are the right compounds within each group?

- **Susan:** Support the approach taken for crystalline and non-crystalline forms and for the consideration of smaller sized crystalline particles of four microns or less for crystalline respirable forms.
- **John B.**: Good with the approach as outlined.
- **Daisy:** Agree with the two groupings.
- **John V.**: If you have a source that is emitting the crystalline form of silica that is larger than four microns, does that mean it is not covered by this TRV? What happens if there is a size range between four and ten microns that is still respirable?
    - **Holly:** The size fraction was really prominent that applied in the TCEQ document in that size range of under four microns.
    - **John V.**: Think it would be appropriate for it to just apply to respirable forms of silica and not have the four-micron cutoff.
    - **Susan:** As long as you are not considering particles that are smaller than ten microns, using ten microns as a cutoff.
    - **John B.**: The four-micron cutoff for crystalline silica goes back to the original studies and data that the OEHHA RELs and the TCEQ numbers are based on.
    - **David:** Is the recommendation from the ATSAC to make the silica TRV applicable to particles that are ten microns or less rather than four microns or less?
    - **John B.**: OEHHA went with the same cutoff as TCEQ.

- **John S.**: Wisconsin Health Services refer to crystalline silica as less than four microns for respirable. There might be some generic definition with inhalable versus respirable. Other places also have the cutoff at four microns.
- **Daisy:** A lot of people use a computational fluid dynamics model, and they do have a distribution difference between five or ten microns.
- **David:** There is a reason why PM2.5 is regulated more stringently than PM10 in the NAAQS. There is a difference between particles that are small enough to get all the way into alveoli compared to particles that are bigger and get stuck in the nose and bronchioles.
- **John S.:** Jim Brown has a paper with a definition of 50% penetration for thoracic as being ten microns and respirable fraction (unciliated airways) of being four. It is probably related to a definition.
- **John. V:** On Group 2, the size range is ten microns or less, so it is definitely worth looking into.

Questions on Document 6

1. What feedback or concerns do you have related to the Proposed TRVs using PPRTV Values as the Authoritative Source document?

2. Is the science behind PPRTV screening values sufficiently robust to use for DEQ's air quality programs, including regulatory applications, when no other toxicity information is available?

- **John V.:** What year were these PPRTVs done?
  - **Holly:** They started developing the screening PPRTVs in 2008.
  - **John V.**: The more recent ones were well done because of the way the peer review is done. Most of those were from 2010 and later, but if they are fairly recent, then they are well done in terms of the state of the science. These all have less certainty than the other values. In the TRVs, that is not reflected, correct?
  - **Holly:** That is correct, the list of TRVs is all on the same playing field.
  - **John V.:** In the very earliest days of the PPRTV program, had less confidence in those than in more recent years. The peer review process was much more robust in the later years than in the first years.
  - **John S.**: They have added more scrutiny and discussion around scientific issues. In more recent years they have increased that by adding systematic reviews, but it has been going on for quite a number of years since they restructured the review process.
  - **John V.**: Looking at the list of PPRTVs, every one of them is more recent than 2010, so comfortable with all of those on the list. Comfortable with the ones from 2007 and 2009 as well since they reflected the 2005 cancer guidelines. The ones there were issues with were not this set of chemicals.
  - **Daisy:** It is better to have a value than no value. It is better to have something than nothing and update it later.
- **John B.:** Good with the approach.
- **Susan:** Good with the approach. Could be helpful to flag high uncertainty values. There is no other value or data available for these and some of these values have been around for a while

and that has not changed. For the process moving forward and for values that have high uncertainty, is there a way to flag these so that if additional data became available it would be considered and to recognize that these screening PPRTVs might be serving as a placeholder until further data is available. There is a lot of information in this document about the uncertainty associated with these values, and not sure if that will be reflected as these TRVs move forward.
    - **Holly:** The team will consider how to display the values and think about notes that go with them. These documents will move forward in the rulemaking process with the values in a supplemental document.
- **John V.:** The one chemical of this group that may warrant additional review is hexane because there is so much exposure to hexane through petrochemicals and gasoline, so it might be worth looking closely to see if there is any other authoritative source. That is a 2009 PPRTV which is okay, but it is surprising that there is not a better source to use.
    - **David:** A lot of authoritative sources have more solid values for non-cancer effects for hexane. It is just the cancer effects for which it is hard to find anything.

Questions on Document 7

Holly reminded the group that the DEQ-OHA team checked every TRV authoritative source information with a cutoff date of August 8, 2024, and that included TRV information that was not yet finalized. On December 2, 2024, the team checked Table 1 in this document and updated the information for TRVs that had since become final. This document was circulated to the ATSAC on January 15, 2025. The team is aware that one of the values in this value from CalEPA for isoprene is now final, so there may be others. Most of the values in this table are from ATSDR. The DEQ-OHA team had to have a cutoff date for this meeting but moving forward they plan to closely monitor any updates that come out from authoritative sources, especially for chemicals on this list. They will evaluate any updates on a case-by-case basis and may consult with the ATSAC as any chemicals progress into draft or become final during this rulemaking process.

1. Do you have any feedback or concerns about DEQ proposing to use the TRVs listed in this document (Table 1) that are not yet finalized by authoritative sources?

2. Would you propose an alternative in the case of any or all these toxic air contaminants?

- **John V.:** It appears that the public comment period has closed for all of these. Are the public comments available? It might be useful to skim the public comments and see if there is anything particularly notable that could affect the development of ATSDR's values. Think it is reasonable to use these values because they typically do not change very much, although they can.
    - **Holly:** The DEQ-OHA team has not reviewed the public comments; they were tracking what stages they were at in the process. They will try to see what documents are available and take a look.
- **Daisy:** Recommended adding a column to the Excel workbook with the dates so that whenever they are finalized, they can update the dates. Did not have any concerns with using these values. Usually, these values have already been reviewed internally.
- **John B.**: In general, have no concerns with this approach. Had a clarifying question about the preferential use of ATSDR derived acute TRVs over OEHHA derived acute TRVs. Understand that

the basis for this preference is that OEHHA uses a 1-hour acute REL while the ATSDR is a 24-hour value. The exception to that rule is sensory irritation, because if OEHHA had a 1-hour and a 24-hour REL for a chemical like acrolein where the acute REL is based on sensory irritation, then the number would be the same. Assume that the preferentiality is in rule, has the team considered making that caveat?

- **David:** The rule is not that specific; the rule says what the authoritative sources are, and the team has been using internal guidance to select between them. There are cases when the team has deviated from the default algorithm to choose an OEHHA value over ATSDR.
- **John B.**: In the Proposed TRV Update and Selection Process for ATSAC Review document, it shows the order of authoritative scientific agencies for acute non-cancer TRVs. That order of preference is not set in stone?
- **David:** Correct, that order of preference is not in rule.
- **Holly:** The team also developed an updates document following ATSAC Meeting #2 and clarified that the order of preference would just be a screening step, and that they had a preferred list of TRV attributes that they would consider for each one. It was a case-by-case basis looking at each TRV and choosing which source best matched the attributes.
- **Daisy:** Assumed that when Oregon selected the acute TRV, they went to ATSDR first, and if they did not have an acute value, used OEHHA's value with a duration adjustment, and then used ATSDR's intermediate REL.
- **David:** The team did have an algorithm that they used to go through, but that algorithm is not in rule.
- **Daisy:** Used a tiered approach for values from authoritative sources that most closely matched Oregon's 24-hour acute value. This hierarchy is not clearly specified in Document 4. The arrangement in the document by section does appear to follow this hierarchy.

General Questions

1. Did you find any errors or have feedback or concerns about the content in any of the ATSAC review materials?

2. Do you have any feedback or concerns about a specific toxic air contaminant TRV that we have not discussed or flagged anywhere else?

- **John B.:** Looking at Workbook 1, there is a column titled *Reason for Change*, and there are several entries that say, "More Recent Science," but it should be "More Recent Evaluation." While an agency may have done a more recent evaluation, there is not necessarily a substantial difference in risk assessment methodology or new data.
    - **David:** There is a distinction between when they say, "More Recent Science" and when they say, "More Recent Publication Date." "More Recent Science" means that the critical study that the value was based on is more recent, while "More Recent Publication" refers to the last time that an agency reviewed the data and made an update. It would be helpful to add a key for the different reasons for changes to describe what these notes mean in more detail.

    - **John B.:** It would be helpful to add clarification on that.
    - **Daisy:** It would be helpful to clearly define these terms.
- **Daisy:** For the three authoritative sources, their methodology is very similar, so there are not going to be inconsistencies. When there is not a value from any of the authoritative sources and they use values from other agencies such as TCEQ, there is deviation since they use different methodologies. For example, TCEQ adopted a different methodology for chemicals with an extra thoracic port of entry effect (DAF equals one instead of normalized by minute of ventilation divided by the surface area). Therefore, if a TCEQ value is adopted for a chemical with the port of entry effect, then it is inconsistent with other agencies. Did not see a case adopted from TCEQ with the port of entry effect. In the future, this could create an inconsistency in methodology.
- **Daisy:** In the worksheet, there were places where the power signs are linked together, and it is not clear that it is meant to be a power. It might be helpful to add a power sign in those cases. That could create errors in the future.
- **John V.:** What form of feedback does Oregon find most useful from the ATSAC members? Is it the written materials that members will provide subsequently or the verbal comments that the members have already provided, or a combination?
    - **Holly:** It will be a combination. The team will take the feedback that has been received and develop comprehensive meeting minutes and send those the ATSAC members for review, and those will be an important resource during the rulemaking process. The written comments will also help the team have a final summary of where ATSAC members landed after hearing everyone's discussion. The combination of the meeting minutes and the final written summaries from ATSAC members will give the team a comprehensive picture to move through the rest of the rulemaking process.
    - **John V.**: Will the meeting minutes and the individual written comments be part of the public record?
    - **Holly:** Yes. The team will compile all the written comments and those will be posted online as well as the meeting minutes, so those will all be publicly available.
    - **John V.**: The Rules Advisory Committee (RAC) and Fiscal Advisory Committee (FAC) are subsequent steps in the process. Is there anything that the ATSAC members should be clear about in their comments to make that those committees have the information that they need for this process?
    - **J.R.:** There may be potential information submitted by members of the RAC. The RAC will include a broad swath of community members including members from industry, community, environmental advocates, and other agencies; the FAC will include the same members as the RAC. They anticipate that they might receive specific comments and toxicological information on some chemicals. If the team receives that information, they will review that and may bring that back with questions to the ATSAC members. The worksheets from the ATSAC members will give the team everything they need to bring to the RAC and the FAC. A bigger portion of the RAC meeting will be on how these TRVs fit into the policy and implementation of DEQ's program. There will be technical discussion, but most of that will probably come in writing.
    - **John V.**: Would be happy to help provide a response to anything that is needed in the future.

- **John V.:** From the beginning, have been very impressed by the amount of work that the team has put in, and hope that the comments that the ATSAC has provided will not be a barrier to moving forward.
    - **David:** In the written comments, categorizing comments by which things the team should fix now before the process moves on versus what ideas and improvements should be incorporated the next time, they complete a review would be very helpful.
- **Susan:** No additional comments and thanked the team for the materials that they put together.
- **John S.**: What is the timeframe for delivering the ATSAC members' final written comments?
    - **Holly:** The target date for receiving comments is Wednesday, March 5. The team will send an email with the dates to the ATSAC members and requested that ATSAC members let them know if more time is needed to complete the written comments.

Next Steps

Holly shared that this meeting completes the current meeting series. Holly and J.R thanked the ATSAC members for their time and contributions to these meetings and shared that the DEQ-OHA team learned and benefited a lot from these discussions. The team would appreciate the ATSAC members' final written responses to the questions in Document 3 by end of day, Wednesday, March 5.

There is one specific question on 1-methylnaphthalene from state risk assessors that the team would like the ASTAC members to review and weigh in on. The team will share the email thread with the ATSAC members and asked that ATSAC members read through that and provide input in the next month.

The next ATSAC meeting will be scheduled and is anticipated to be held in May. This meeting will focus on diesel particulate matter (DPM). The ATSAC members will receive an email with instructions to access a file transfer site to provide access to some of the peer reviewed documents and materials for review.