ENVIRONMENTAL MANAGEMENT COMMISSION
AIR QUALITY COMMITTEE MEETING SUMMARY
July 7, 2021
Archdale Building-Ground Floor Hearing Room
10:30 – 11:50 A.M.

MEETING BRIEF

During the July 7, 2021 meeting, the Air Quality Committee (AQC) of the Environmental Management Commission (EMC) heard:

- Action Item: The AQC approved the NOX SIP Call Rule Amendments and RIA to be sent to the full EMC, motion passed unanimously.
- Informational Item: Update presentation on the Regional Haze State Implementation Plan (STP) where the State has achieved major visibility improvement from the start of the program and is a leader in the region.

AQC MEMBERS IN ATTENDANCE	
Ms. Shannon M. Arata, AQC Chair	Ms. Marion Deerhake
Mr. Charlie S. Carter, AQC Vice-Chair	Dr. Suzanne Lazorick
Ms. Yvonne Bailey	Ms. Maggie C. Monast
Ms. Donna Davis	

OTHERS IN ATTENDANCE	
Mr. Steve P. Keen, EMC	Mr. Mike Abraczinskas, DAQ Director
Ms. Pat Harris, EMC	Mr. Randy Strait, DAQ Planning Chief
Mr. Phillip Reynolds, EMC Counsel	DEQ Staff
	Members of the public

PRELIMINARY MATTERS

Agenda Item I-1, Call to Order and the State Government Ethics Act, N.C.G.S. §138A-15
AQC Chair Arata called the meeting to order and inquired, per General Statute §138A-15, as to whether any member knows of any known conflict of interest or appearance of conflict with respect to matters before the EMC's AQC. None stated.

Agenda Item I-2, Review and Approval of the May 12, 2021 Meeting Minutes
Chair Arata requested approval of the May 12, 2021 Meeting Minutes. Corrected the typo of a name within the minutes. Commissioner Deerhake made the motion and Commissioner Lazorick seconded the motion. The minutes were approved without a discussion by unanimous rollcall vote.

Agenda Item I-3, Review and Approval of the June 15, 2021 Special Meeting Minutes
Chair Arata requested approval of the June 15, 2021 Special Meeting Minutes. Commissioner Deerhake made the motion and Commissioner Lazorick seconded the motion. The minutes were approved without a discussion by unanimous rollcall vote.

RULEMAKING CONCEPTS

None.

ACTION ITEMS

Agenda Item III-1, Request Approval of Proposed Rule Revisions and Regulatory Impact Analysis and to Proceed to EMC for Approval to Proceed to Public Hearing on the Update to Nitrogen Oxide State Implementation Plan Rules 15A NCAC 02D .1400. (552)

Chair Arata introduced the presenter, Mr. Bradley Nelson, and requested the members of the Committee hold questions until the end of the presentation.

Description:

Mr. Bradley Nelson presented the proposed revisions to the NOx SIP Call rules in 15A NCAC 02D .1400. This includes the amendment of 02D .1401 and .1402, and the adoption of 02D .1424 and 1425. He noted that these proposed rules were approved by the AQC in their May 2021 meeting, but the Division of Air Quality (DAQ) wanted to include changes requested by the U.S. Environmental Protection Agency that were received after this meeting.

Mr. Nelson presented a summary of the history of the U.S. Environmental Protection Agency (EPA) SIP NOx Call which was promulgated in 1998, the promulgation and vacatur of the Clean Air Interstate Rule (CAIR) for NOx and SO_2, and the replacement of that rule with the Cross State Air Pollution Rule (CSAPR). While the CSAPR replaced CAIR, the NOx SIP Call budgets for electricity generating unit (EGU) sources and non-EGU sources have not been removed from the State Implementation Plan (SIP), and North Carolina needs to re-establish these NOx budgets in its State rules to comply with EPA's anti-backsliding rules. In addition, the EPA has amended the monitoring requirements for non-EGU sources to include alternatives to the 40 CFR Part 75 continuous emissions monitoring system (CEMS) requirements.

Mr. Nelson noted that in comments from the EPA on the proposed rules approved by the AQC in May 2021, the EPA requested that the DAQ include specific EPA approved monitoring requirements in 15A NCAC 02D .1424 rather than the procedures for approval. These EPA approved monitoring methods include using historical 40 CFR Part 75 data to develop factors for NOx concentration and flow rate, and the performance of EPA Methods 1-4 and 7 or 7E stack testing to develop factors for NOx concentration and flow rate. Based on these comments, the DAQ proposed removing Paragraphs (d) through (f) in 15A NCAC 02D .1424 to remove the steps to petition for alternative monitoring and replace these paragraphs with the EPA approved alternative monitoring methods.

Mr. Nelson stated that the costs to facilities for reporting these emissions was estimated to be $43,076 in the first year and $20,610, thereafter. The cost to the DAQ was determined to be $7,500 to complete permit modifications. The potential benefit for non-EGU sources that use alternative monitoring rather than 40 CFR Part 75 monitoring was calculated to be $64,817 per year if using historical data and $59,151 if using test data.

Mr. Nelson pointed out that the proposed rule text and OSBM-approved fiscal note were presented and approved by the AQC in their May 2021 meeting and the DAQ is requesting approval of the proposed revisions to the rule text and fiscal note to go before the September 2021 EMC meeting to request to proceed to public hearing.

Discussion: Mr. Nelson asked if any of the committee members had any questions.

Commissioner Deerhake asked why 15A NCAC 02D .1418 was added to the list of rules that apply statewide in 15A NCAC 02D .1402. She noted that 15A NCAC 02D .1418 applies to new sources.

Mr. Nelson responded that this rule should have been included in the previously approved rules and was omitted because of an error in the OAH formatting of the rules.

Commissioner Deerhake asked if it was the EPA's intent to allow alternative monitoring for new sources.

Mr. Nelson stated that 15A NCAC 02D .1402 is the applicability section that states which rules apply across the state. The alternative monitoring provisions in 15A NCAC 02D .1424 only apply to large non-EGU sources covered by that rule.

Commissioner Monast asked if the alternative monitoring was available for both EGUs and non-EGUs or only for non-EGUs.

Mr. Nelson stated that alternative monitoring was only available to large non-EGUs. He added that if a separate federal rule requires a large non-EGU to operate a CEMS, the facility will continue to use the CEMS**.**

Commissioner Monast asked if EGUs were required to monitor NOx emissions using a CEMS.

Mr. Nelson stated that EGUs would be using CEMS and 40 CFR Part 75 procedures.

Commissioner Monast asked for a summary of the differences between CEMS monitoring and the alternative monitoring methods.

Mr. Nelson stated that CEMS monitoring uses a monitor to measure the concentration of NOx in the stack. Then a flow meter or Method 19 is used to determine the volumetric flow rate in the stack. The NOx concentration and volumetric flow rate is then used to calculate the NOx mass emission rate. The alternative methods use either test data or historical data to estimate the volumetric flow rate and NOx concentration for various fuel types and heat inputs. The NOx concentration and volumetric flow rate can then be used to calculate the NOx mass emission rate. Mr. Nelson noted that some of the facilities were already using an alternative method to measure NOx emissions, but one of these facilities is using AP-42 emissions factors and would need to change their monitoring approach using one of the proposed alternative monitoring methods.

Commissioner Monast asked to verify that some facilities were already using alternative monitoring and that there is no change to these facilities, except for the facility using AP-42 emission factors.

Mr. Nelson confirmed that was correct but noted that there is some additional labor for these facilities to prepare a report of their emissions during the ozone season. The facility using the AP-42 emissions factors will need to use either test data or historical data to determine NOx concentrations.

Commissioner Deerhake asked if the alternative monitoring proposal was the result of an EPA amendment and what year did those amendments come out.

Mr. Nelson confirmed that the proposed alternative requirements were the result of EPA amendments in January 2020.

Discussion section was closed by **Chair Arata** thanking the speaker for the presentation.

Motion: Chair Arata opened the floor for a motion to proceed to EMC in September 2021 to request approval to Proceed to Public Hearing on Rule Revisions to 15A NCAC 02D .1400. **Commissioner Davis** made the motion to approve, and **Commissioner Bailey** seconded. The action was unanimously approved.

EMC AGENDA ITEMS

None.

INFORMATIONAL ITEMS

Agenda Item V-1, Regional Haze State Implementation Plan (STP) Update

Presented by Randy Strait, Planning Section Chief DAQ.

Description:

Mr. Randy Strait began with a brief overview of the regional haze rule and planning process, identification of the mandatory Federal Class I Areas in North Carolina, and metrics for tracking visibility impairment. Work on the Regional Haze State Implementation Plan (SIP) for this second planning period has taken over three and a half years (beginning in December 2017). The North Carolina Class I areas addressed in the SIP include the Great Smokey Mountains National Park and the Joyce Kilmer-Slickrock, Linville Gorge, Shining Rock, and Swanquarter Wilderness Areas. North Carolina and Tennessee share planning responsibilities for the Great Smokey Mountains National Park and the Joyce Kilmer-Slickrock Wilderness Area which are located in both states. The SIP for each planning period must show progress toward achieving natural conditions for the 20% "most anthropogenic impaired days" and show no worsening of visibility on 20% "clearest days".

The DAQ develops SIPs every ten years and progress reports every five years for the EPA. The SIP for the second planning period covers 2019 through 2028 and the DAQ will submit the final SIP to EPA this Fall after addressing comments received during the public comment period. North Carolina participates with fellow Southeastern State and Local Air Planning Agencies and Tribal Authorities through the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) planning group to coordinate emissions inventory development and modeling analyses. The group used a competitive bid process to hire a contractor team to prepare model inputs and conduct the modeling which the states then used to develop their SIPs.

The monitoring data comes from the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network. Generally, one monitor is located in each Class I area. However, the monitor for the Great Smokey Mountains National Park is used as a surrogate for tracking visibility for the

Joyce Kilmer-Slickrock Wilderness Area which does not have a monitor. The IMPROVE monitors are operated every third day and measure particulate matter (PM) species that scatter light which interferes with visibility. Of particular importance in our state is ammonium sulfate, ammonium nitrate, and organic carbon. Sulfur dioxide (SO2) reacts with ammonia to form ammonium sulfate and nitrogen oxides (NOx) react with ammonia to form ammonium nitrate. Ammonia will react with SO2 before NOx, thus, as the proportion of SO2 to NOx decreases more ammonia is available to react with NOx. In recent years, an increase in ammonium nitrate has been observed in some Class I areas; however, ammonium sulfate continues to be the dominant PM species contributing to visibility impairment during the first and current planning periods. For the next planning period, the DAQ will work with the Federal Land Managers (FLM) and other states to understand source contributions to the ammonium nitrate fraction for Class I areas in North Carolina.

Mr. Strait explained that North Carolina has achieved significant improvement in visibility from reductions in SO2 and NOx emissions over the past two decades. Data show about a 65% reduction in SO2 emissions from 2011 to 2017 and are projected to decrease by an additional 8% by 2028. The major SO2 sources are the electricity generation and industrial sectors that burn coal and oil. For NOx, there is a 37% reduction from 2011 to 2017, and these emissions are projected to decrease by an additional 25% 2028. Highway and off-highway vehicles as well as stationary sources that burn fossil fuel are the primary sources of NOx emissions. Data indicate SO2 emissions from coal combustion has been the primary contributing factor for visibility impairment during the first and second planning period. The significant improvement to visibility has primarily come from the reduction of SO2 emissions associated with controls and/or reduction in the use of point source coal combustion.

VISTAS started with an EPA modeling platform with a 2011 base year projected to 2028. When VISTAS started the regional haze modeling work this was the latest available modeling platform available to the States. For point sources, North Carolina replaced EPA's 2028 point source emissions by applying growth and control factors the 2016 base year emissions, and accounting for facility closures. Projected 2028 emissions for the other sectors were not changed. The model performance was acceptable and reviewed by EPA. Mr. Strait presented "Uniform Rate of Progress Glide Path" charts for each Class I area comparing monitoring data through 2018 and modeled 2028 progress goals to the glide path (from 2000 – 2064) for each Class I area. The charts illustrate the significant progress that has already been achieved and the modeled 2028 progress goals indicate that North Carolina is on track to be fifteen to twenty-five years ahead of the glide path for each area. This is because of the Clean Smokestacks Act (CSA) along with other State and Federal air quality rules and industry trends.

Mr. Strait discussed the approach used to identify point source facilities for further analysis. We started with an Area of Influence (AoI) metric to determine each point source facility's potential contribution to visibility impairment in each Class I area in the modeling domain. The calculation divides a facility's total SO2 and NOx emissions by the distance to each Class I area and applies a weighting factor that considers wind patterns and the concentration of ammonium sulfate and nitrate observed at the IMPROVE monitor. The thousands of facilities in the modeling domain were then ranked for each Class I area to identify the facilities with the highest contributions. Source apportionment modeling (using Particulate Source Apportionment Technology or PSAT) was then conducted for the facilities with the highest contributions (≥3% for sulfate and nitrate combined) to a given Class I area. Use of source apportionment modeling is regarded as a more accurate tool than the AoI method for understanding source contributions because it does a better job with modeling meteorology, but it is also more expensive. Therefore, the AoI method was used to narrow the list of facilities for further analysis of source contributions to visibility impairment in Class I areas. Source apportionment modeling was also conducted on statewide SO2 and NOx emissions

for all sectors combined, statewide emissions for electricity generating unit (EGU) and non-EGU facilities, and boundary conditions (i.e., emissions associated with sources outside of the modeling domain).

After reviewing the source apportionment modeling results for point source contributions to Class I areas in North Carolina, the DAQ selected facilities with ≥1.00 contribution for sulfate and ≥1.00 contribution for nitrate for a reasonable progress/four-factor analysis. This threshold identified a total of 16 facilities with ≥1.00 contribution (3 facilities in North Carolina, 7 facilities in 5 VISTAS States, and 9 facilities in 5 non-VISTAS States). No point sources within North Carolina were contributing over the 1% threshold to any Class I area outside of the state. The three North Carolina facilities identified for a four-factor analysis include Blue Ridge Paper Products for its sulfate contribution to the Shining Rock Wilderness Area, and Domtar Paper Company and PCS Phosphate for their sulfate contribution to the Swanquarter Wilderness Area. Both Blue Ridge Paper Products and PCS Phosphate installed SO2 controls from 2017-2019 that significantly reduced SO2 emissions and the four-factor analysis did not identify any additional technically feasible or cost-effective controls to further reduce SO2 emissions. The four-factor analysis for Domtar Paper Company also did not identify cost-effective controls to further reduce SO2 emissions.

Mr. Strait concluded saying, the SIP update demonstrates significant improvement ahead of schedule for visibility in the state. While ammonium sulfate continues to be the dominant species contributing to visibility impairment in North Carolina's Class I areas, IMPROVE monitoring data for 2017 and 2018 show increases in the relative share of total visibility impairment for some Class I areas. The source apportionment modeling for 2028 shows that mobile sources and point sources outside of North Carolina are likely contributing to the nitrate fraction; however, further research is needed to understand the source contributions for the next SIP.

The pre-draft SIP was reviewed by the FLMs and were complimentary of the work. The National Park Service and U.S. Forest Service had two main comments. One, they would have preferred more sources to undergo the four-factor analysis for NOx controls, specifically the Duke Energy Marshall facility for NOx controls. Second the prescribed burning for ecosystem management will increase in the future and the U.S. Forest Service would like the agency to consider an adjustment to the glide path to account for this activity as allowed by the regional haze rule.

The tentative schedule for posting the draft SIP for public comment (45 days) is the week of July 19 and submittal of the final SIP to EPA by October 29, 2021.

[Note: The day after the AQC meeting EPA Headquarters released additional guidance regarding regional haze SIPs. The DAQ delayed release of the draft SIP for public comment in order to consider the additional guidance. The DAQ now plans to release the SIP for a 45-day comment period by the end of August.]

Discussion:

Commissioner Bailey stated she had no questions but wanted to express appreciation for the well thought out graphs within the presentation.

Commissioner Davis commended the improvement in visibility and asked if the Department has any concern regarding the linear rate [seen in glide path graphs] in emissions reductions slowing down or having a diminishing return for air quality improvement? She asked if the Department expects a continued linear decline.

Mr. Strait responded by acknowledging the concern for the progress to potentially slow down. This will be an ongoing process of tracking the emissions and addressing source sector contributions to impairments.

Director Abraczinskas noted the 2028 projections are likely higher than the more refined modeling analysis, but we are showing on the graphs the more conservative analysis.

Mr. Strait pointed out current carbon reduction programs being discussed are not included in this analysis, but would likely benefit visibility, so while the 2028 projections are accurate for purposes of this update, there is more to consider outside the scope of this analysis for a complete picture. If the benefits are realized and calculated in the future, our state would take credit for those improvements.

Commissioner Lazorick appreciated the presentation and learning a new term, deciview.[1] She noted the picture showing the 30-mile visibility improvement in the mountains said everything about the progress of the program.

Commissioner Monast mentioned her work in the past with reduced haze economic analyses. **Commissioner Monast** said she received a letter from 22 stakeholder groups echoing the concern from the National Park Service (number of sources for the four-factor analysis), as well as other concerns. She noted the period to respond to comments and submit the update to the EPA is less than two months. With these known technical questions and concerns will this be a meaningful public comment period? How does the Department plan to handle the comments that are received?

Mr. Strait acknowledged the concerns expressed by the National Park Service from their review and that an adjustment to the submission date to EPA may have to be made to account for public comments depending on how many are received. This is a fair point; the target date is not fixed, and the Department will respond to all comments received.

Commissioner Monast continued asking about the additional evaluation of more sources for the four-factor analysis and when does the next planning period start and which group will perform those additional evaluations?

Mr. Strait explained the third planning period will be from 2029 to 2038; however, a progress report is due in 2025, so the monitoring data from 2020 will be included and analyzed. This is an iterative process and looking at the data is a priority in understanding the trends for regional haze. The Department is committed to working with the FLMs on these concerns and will continue the dialogue moving forward.

Commissioner Monast explained the focus groups often responded with concern over the health benefits from air quality improvement is even more important than the visibility improvements.

Commissioner Deerhake let the Committee know she had several questions. To follow-up from the question from Commissioner Davis, she would like to see more analysis completed to investigate whether the decline in emissions will change in slope and level off with current air quality rules.

Mr. Strait explained the planning period is what is required for this update.

[1]As defined in 40 CFR 51.301 (Definitions) of the regional haze rule, "deciview" is the unit of measurement on the deciview index scale for quantifying in a standard manner human perceptions of visibility. "Deciview index" means a value for a day that is derived from calculated or measured light extinction, such that uniform increments of the index correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to very obscured. The deciview index is calculated based on the following equation (for the purposes of calculating deciview using IMPROVE data, the atmospheric light extinction coefficient must be calculated from aerosol measurements and an estimate of Rayleigh scattering): Deciview index = 10 ln (bext/10 Mm-1), bext = the atmospheric light extinction coefficient, expressed in inverse megameters (Mm-1).

Director Abraczinskas added the margin of error for projecting past the horizon year set for the planning period gets large, and even larger projecting further and further out. Based on this analysis and similar ones done for the National Ambient Air Quality Standards (NAAQS), projections are conservative and overestimate the emissions of future years. Specifically, the power sector (SO_2) is anticipating major transformation, and just recently are benefits from the new engine standards being felt due to motor fleet turnover (NOx).

Commissioner Deerhake expressed she would like to have seen incorporated in the emissions graphs the dates of implementation of certain air quality programs, rules, and the 2011 Tennessee Valley Authority (TVA) settlement. The role of instate and out-of-state sources should be depicted by adding this information to those graphs. Beyond that, speaking on the issue of reduced ammonia emissions (from LADCO & CENSARA sources) as a transport issue.[2] Agricultural burning, not just prescribed forest burns, can contribute to ammonia emissions and **Commissioner Deerhake** encouraged the Department to look into that as part of the analysis for the next report. Ammonia emissions from animal operations may become more impactful as SO_2 emissions go down, especially from deposition. It will be important for fine PM formation to consider these agricultural sources of ammonia emissions. The Smithfield studies performed by NC State University (circa 2003) identify this as a potential problem. **Commissioner Deerhake** asks for more detail why the Department used Comprehensive Air Quality Model with extensions (CAMx) instead of Community Multiscale Air Quality Modeling System (CMAQ)? Is CMAQ modeling not appropriate?

Mr. Strait responded the source tagging feature of CAMx made it more useful; CMAQ could have been used but didn't have the source tagging capability.

Commissioner Deerhake asked on slide #34 if the facilities could be listed and ranked for sulfate and nitrate contribution? Can a snapshot be included here?

Mr. Strait explained there were tens of thousands of facilities and the list generated would be too immense to include in this presentation. These spreadsheets are available for each Class I area on the Metro 4/SESARM website.[3]

Commissioner Deerhake asked why was the decision made to combine sulfate and nitrate emissions?

Mr. Strait responded both these pollutants are associated with fuel combustion and they did not want to leave anything out.

Commissioner Deerhake expressed support for the National Park Service comment stating more sources needed to undergo the four-factor analysis. Also, the update criteria provide a choice to look at individual sources or groups of sources, mobile sources, and area sources. All we are seeing is point sources analyzed.

Mr. Strait responded that the analysis started at the county level for all sectors, and it was determined SO_2 was the major contributing species, so the choice was made to look at point sources for this reason.

Commissioner Deerhake continued by asking why the Department did not consider combining the sources into groups, for example combining all coal EGUs into a source grouping?

Mr. Strait said during the FLM consultation this issue was discussed. Even for the EGU's that fell below the threshold each source was considered, but it was determined for SO_2 the sources were all well

[2] https://www.epa.gov/visibility/visibility-regional-planning-organizations
[3] https://www.metro4-sesarm.org/content/task-5-area-influence-analysis

controlled. When it came down to NOx emissions the point came up about the coal boilers equipped with NOx combustion controls and selective noncatalytic reduction (SNCR) at the Duke Energy facility. Currently, the combined NOx control efficiency for these units is about 60-65% percent effective.

Commissioner Deerhake asked what is the Division's response to the interest groups' desire for more sources to undergo this analysis?

Director Abraczinskas responded by acknowledging **Commissioner Monast** comments, where the National Parks Conservation Association lead the drafting of the comments contained in the letter referenced. The Division has had a good dialogue with this conservation group, and it is important to clearly communicate the process and methodology of this highly technical analysis the Division has undertaken. Working through these details is something the Division wants to continue with during this public comment period. The Division does not want to take a step backwards in depth of analysis, and so we will continue to take the time to explain this modeling. The Division analyzed various scenarios and no perceptible improvement to visibility could be achieved even using hypothetical scenarios. Hopefully this information will inform their next set of comments submitted.

Commissioner Deerhake continued by confirming if one of the compounds in Selective Catalytic Reduction control technology is ammonia?

Director Abraczinskas confirmed "yes" it is.

Commissioner Deerhake asked further if the Division took into account these ammonia emissions?

Director Abraczinskas confirmed a total in-depth full inventory is included in the analysis. So far as a sensitivity analysis, this update relied on previous work completed for the first update (VISTAS 1) showing there was no sensitivity to reducing ammonia emissions when it comes to improving visibility. This will be something to keep in mind and consider moving forward in this iterative process.

Commissioner Deerhake asked about what role instate versus out of state sources contribute to visibility impairment?

Director Abraczinskas confirmed there are 16 out of state sources that contributed to more than 1% impairment to visibility compared to just three sources within our state. North Carolina has always had the approach sooner was better when it came to protecting human health by implementation of the NAAQS. This says a lot about North Carolina reaping the co-benefits from implementing these health-based standards.

Commissioner Deerhake asked how do we use this and the VISTAS collaboration to negotiate with those states besides a SIP Call?

Director Abraczinskas responded for this process a letter was sent to each of the jurisdictions where those facilities are located stating a four-factor analysis is warranted. It will be up to EPA in reviewing the SIPs from those jurisdictions.

Commissioner Deerhake proposed a date on Friday before a holiday weekend for the public comment period close is a poor choice. September 2nd through 7th is Labor Day [Rosh Hashanah] weekend.

Mr. Strait responded the date will be set to accommodate the holiday weekend. These dates are preliminary for planning purposes to notify the public of the anticipated timeframe.

Commissioner Deerhake asked if this SIP submission is an action item for the Commission or if this is just for informational purposes?

Director Abraczinskas confirmed this is for informational purposes. This was a resource heavy undertaking by the Division and demonstrates the real tangible benefits of our air quality programs to the state and citizens.

Chair Arata asked a follow up question for the Director, even if an entire source group was eliminated would there be no change to the overall modeling, is this true for coal EGUs?

Director Abraczinskas confirmed this is true even looking at the snippet of data presented today. For example, the 94% reduction of SO_2 emissions from Blue Ridge Paper resulted in less than one deciview at the nearest monitor (Great Smokey Mountains) and only a half deciview at the other (Shining Rock). This is a snapshot of what a 5,000-ton reduction will get at very close monitors, so you can imagine what is possible to achieve for sources even further away. Modeling spreadsheets included in the update have all these details.

Chair Arata asked about slide #33 the remaining useful life of the units in the four-factor analysis, asking whether replacement is considered?

Mr. Strait responded the Division has been in contact with EPA regarding the four-factor analyses. The facilities completed their draft four-factor analyses prior to EPA revising the scrubber chapter in its cost manual. The facilities have revised their four-factor analyses using the revised cost manual chapter that EPA completed earlier this year. In addition, one of the comments from the EPA was to use the current discount rate of 3.25% for the capital recovery factor. The other EPA comment was related to the useful life; facilities should use 30 years in their calculations instead of 15 (20) years for the control equipment. The four-factor analyses have been revised to address EPA's comments.

Chair Arata asked a related question about source retirement on slide #55. Is useful life the same as retirement?

Mr. Strait explained when looking at projections, only retirements the Division is sure of through things like consent decrees are included.

Commissioner Carter had no comments or questions, he complimented the presentation.

Commissioner Keen asked a question about the future research about the increased nitrate concentrations as noted on slide #56. Is this related to the previous questions by **Commissioner Deerhake** related to agricultural emissions? Is there a model for that? What are other states looking at doing? What studies are needed to analyze ammonia emissions separately?

Mr. Strait responded the starting point will be to look at the shift in season for the most impaired days according to the data beginning with the 2016-year data set to the current year. Then the Division can run the HYSPLIT model for each year for those days. This would help understand wind patterns to determine possible sources. Are the emissions coming from the power sector, industrial facilities, mobile sources, instate, or out-of-state? These are the sort of preliminary questions to consider. Modeling is very expensive, and this has been a part of the discussion with EPA to find funding for this research which is needed.

Discussion section was closed by **Chair Arata** thanking Mr. Strait for the presentation.

Agenda Item V-2, Director's Remarks (Mike Abraczinskas, DAQ)

The Director thanked the staff for the Regional Haze work, especially Randy Strait for his leadership within the Division and the VISTAS Group. This approach is being emulated by other regions and is leading in its technical depth. Other states are looking to the North Carolina SIP submission as a guiding document.

CLOSING REMARKS AND MEETING ADJOURNMENT

Chair Arata thanked the speakers for the presentations and noted the next meeting of the AQC is scheduled for September 8, 2021. **Chair Arata** adjourned the meeting.