August 21, 2024

**Subject: Golden Spread Electric Cooperative, Inc. Air Quality Analysis Protocol**

Permit Application Number: 109148
New Source Review (NSR) Project Number: 376406
Air Dispersion Modeling Team (ADMT) Project Number: 9314
County: Hale

I have reviewed the Prevention of Significant Deterioration (PSD) and minor NSR Air Quality Analysis (AQA) Protocol for Golden Spread Electric Cooperative, Inc. located in Abernathy, Hale County, Texas, dated July 2024 and my comments are provided below.

**1 Executive Summary** – The purpose of any AQA for permitting is for the applicant to make a demonstration that their operation, as represented, would not cause or contribute to a National Ambient Air Quality Standard (NAAQS) or PSD Increment violation or adversely affect public health and welfare. The representation made in the demonstration is typically a worst-case representation of the operation. All representations must be supported with technical justifications. Though assumptions and selections can be made using general guidance, these assumptions and selections must be justified why the particular guidance is appropriate to a specific case. A statement that the guidance has been followed or referencing discussions with TCEQ staff is not sufficient justification.

For some sections of the protocol, it appears that discussions of results associated with CO is documented, despite not triggering PSD review. If the applicant chooses to address both minor NSR and PSD pollutants in the AQA report, then an EMEW should not be submitted. Otherwise, please note that the TCEQ Electronic Modeling Evaluation Workbook (EMEW) alone should be populated with information related to the minor NSR pollutants.

**2 Plot Plan** – The plot plan should include the site property line, site fence line, locations of production activities, locations of emission sources represented in the AQA, and the locations of any buildings or structures represented in the AQA. The plot plan provided appears complete. Include this with the final modeling submittal.

**3 Area Map** – The area map should include information outlined in Appendix P of the Air Quality Modeling Guidelines (APDG 6232). The Area Map provided appears to be complete. Include this with the final modeling submittal.

**4.1 PSD Analyses** – When conducting the PSD Significance analyses, consider all new and increased emissions from the site related to the project, including emissions associated with all planned maintenance, start-up, and shut down (MSS) activities. For pollutants that exceed the associated de minimis levels, conduct a NAAQS analysis that considers all allowable emissions at the site, including emissions associated with all planned MSS activities, permit-by-rules (PBRs), and emissions from off-property sources and activities. For applicable pollutants, conduct a PSD Increment analysis that considers all Increment consuming sources.

The protocol notes that preliminary modeling indicates that the maximum predicted concentrations are less than the applicable significant impact levels (SILs) for all pollutants and averaging times. If the preliminary results change and the model predictions for any pollutant and averaging time is greater than or equal to an applicable de minimis level, include a discussion on how site-wide emissions and off-property sources will be addressed in a revised protocol, as well as the monitor selected for the background concentration. Provide the justification for the selected monitor and include the monitoring concentrations that would be used. Justification should include more than just proximity of the monitor to the project site or containing sufficient data to meet the completeness criteria. The justification for the monitor should include an analysis of the area surrounding the project site relative to the monitor site with respect to nearby sources of emissions.

**4.2 Texas State Standards Analysis** – See EMEW section below for comments on the $SO_2$ State Property Line (SPL) evaluation.

When conducting the Health Effects analysis, consider all new and increased emissions from the site related to the project. For all health effects pollutants evaluated, provide the corresponding Chemical Abstract Service (CAS) numbers, as applicable, with the AQA.

If the GLCmax[1] or GLCni[2] is located at a transient receptor and the analysis goes to the Toxicology Effects Evaluation Tier III (refer to Appendix D of the Modeling and Effects Review Applicability (MERA) guidance), provide the highest GLCmax or GLCni at a non-transient receptor in addition to the transient GLCmax or GLCni.

**5 Model Selection** – The version of AERMOD proposed to be used, 23132, is the most current version of the model. This is acceptable.

**5.1 Meteorological Inputs** – Include the meteorological data files associated with the modeling analyses in the final AQA, including any concatenated files that may be used. In addition, provide the AERSURFACE files with the AQA associated with the modeling analyses. The justification for selecting the arid option within AERSURFACE is reasonable. Include this documentation in the final modeling submittal.

Please note only one year of meteorological data (2020) is needed for State Health Effects analyses.

The protocol indicates the most recent version of AERSURFACE (20060) and the most recent available land cover data (2021) will be used in the analysis. This is reasonable. Include these files with the final modeling submittal. The protocol indicates that the surface roughness was determined to be exactly 0.100, the threshold value between the low and medium roughness. In the final modeling submittal, justification should be provided documenting why the low roughness dataset was selected over the medium roughness data set.

**5.2 Building Wake Effects (Downwash)** – Provide all structure heights used in the downwash analysis and any computer assisted drawing files with the AQA.

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[1] Maximum ground level concentration
[2] Non-industrial ground level concentration

Ensure that all Good Engineering Practice (GEP) heights used in BPIP PRIME are justified according to Guideline for Determination of Good Engineering Practice Stack Height:

https://www.epa.gov/sites/default/files/2020-09/documents/gep.pdf

For structures not included in the downwash analysis or for air quality analyses conducted without consideration of downwash, please provide technical justification for supporting this approach. Please note that piping fugitives should not be included as a downwash structure unless sufficient justification can be provided.

**5.5 Receptor Grids** – The receptor grid modeled should capture an appropriate maximum ground level concentration and exceedances for all pollutants, operating scenarios, and review types. The discussion here and the area map provided with the protocol indicate the difference between the property line and the fence line for the project site. Please note ambient air begins at the fence line for PSD analyses and at the property line for minor NSR analyses; conduct the modeling accordingly.

If it is determined that a full impacts analysis is required for $PM_{2.5}$, then the estimated secondary $PM_{2.5}$ impacts should be considered in the determination of the area of impact (AOI) receptors for the $PM_{2.5}$ full impacts analyses. When determining significant receptors to include in the cumulative analysis, add the contributions associated with the secondary $PM_{2.5}$ impacts to the modeling results associated with the direct $PM_{2.5}$ emissions on a receptor-by-receptor basis. Then identify receptors with total predictions greater than or equal to the SIL and use these receptors in the cumulative modeling analyses. Note that this demonstration will need to be conducted for both the NAAQS and Increment analyses.

**5.6 $NO_2$ to $NO_x$ Ratio –** Please be aware if Ambient Ratio Method (ARM2) is used, there are model limitations when using the ARM2 option and source groups. If source groups are to be used, model each source group in a separate run. If a Tier III method is used, a revised protocol must be submitted that includes the methodology proposed along with full documentation and technical justification for the associated model input parameters.

**6.2.2 Off Property Sources** – The protocol notes that the cumulative analysis, if it becomes necessary, will include any off-property retrieval and an updated protocol will be submitted at that time. If an off-property inventory becomes necessary, note that retrievals of off-property sources are obtained from the TCEQ's Air Permits Allowable Database (APAD). The procedure to request modeling retrievals is in the following links:

https://www.tceq.texas.gov/downloads/permitting/air/modeling/guidance/modeling-retrieval-request.pdf

http://www.tceq.texas.gov/assets/public/permitting/air/Modeling/guidance/modeling-retrieval-factsheet.pdf

The APAD Model Request Form document can be obtained from the following web page:

https://www.tceq.texas.gov/assets/public/permitting/air/Modeling/guidance/modeling-retrieval-request-form.docx

In addition, if the applicant is aware of data not contained in the retrieval, such as recently issued permitted facilities, the data should be included as applicable. Please note than an emission rate of zero indicates that actual emissions were reported for the emission point

number, but there is no record of an allowable emission rate. It is the applicant's responsibility to correct any data error and provide any supplementary data that may be necessary in performing the air quality analysis. Any corrections to the data must be accompanied with documentation that air permits division staff can validate. Please provide all files received from APAD with the AQA.

**7.1.1 Representative $PM_{2.5}$ Monitor** – The proposed monitor appears reasonable. Provide monitor data and full justification for the monitor selection together with the final modeling submittal.

**8.1.2 MERP Emission Rate and Source Height –** The $NO_X$ and $SO_2$ tpy increases documented in the first paragraph of this section differ from those used in the MERPs calculations that follow. This should be clarified in the final modeling submittal.

**8.3 PSD Significance Analysis** – For the preliminary impact analysis, in general, report the maximum predicted high, first high (H1H) concentration for each pollutant. The results of the modeling for the $PM_{2.5}$ and 1-hr $NO_2$ NAAQS analyses should be presented as the highest five-year average of the maximum modeled $PM_{2.5}$ and 1-hr $NO_2$ concentrations predicted each year at each receptor, consistent with EPA guidance.

Though the analysis of CO is documented in the EMEW, be aware that the form of the modeled concentration for de minimis 8-hr CO documented in the protocol is not accurate. The correct form of the preliminary impact modeling for CO is the maximum high, first high (H1H) from all receptors across the meteorological data set.

Be aware of model limitations when using a concatenated meteorological data set with multiple averaging times in the same model run. For example, when modeling $NO_2$ with a concatenated five-year meteorological data set in AERMOD and both the 1-hr and annual averaging times are selected, AERMOD will compute five-year average concentrations for both averaging times. This is not appropriate for the $NO_2$ annual averaging time.

**9 PSD Additional Impacts Analysis -** TCEQ follows 40 Code of Federal Regulations § 52.21(p) which requires the TCEQ to provide written notice of any permit application for a proposed major stationary source which may affect a Class I area to the Federal Land Manager and the Federal official charged with direct responsibility for management of any lands within any such area. EPA, through applicable guidance, has interpreted the meaning of the term "may affect" to include all major source or major modifications which propose to locate within 100 kilometers (km) of a Class I area. The applicant may contact the applicable Federal Land Manager to discuss any potential Class I analyses for air quality related values.

**10 Source Parameters and Emissions** – Include this full documentation for each source characterization as well as complete technical justification for the associated source parameters in the AQA.

In addition, ADMT has conducted a review of the initial Electronic Modeling Evaluation Workbook (EMEW) for Golden Spread Electric Cooperative Inc. provided July 2024. Based on

the review, ADMT has the following comments that should be addressed in the final modeling submittal. Note: if ADMT did not comment on a section of the workbook, then the applicant's approach is considered reasonable.

1. **General**

   *Administrative Information:*

   Include NSR Project No. 376406 for the Facility Information's Project Number in the final submittal.

   Additionally, update the Modeling Date in the final submittal.

2. **Model Options –** The protocol notes that the low roughness meteorological dataset will be used while the EMEW notes that the medium roughness meteorological dataset will be used. Address this discrepancy in this final modeling submittal.

**Deliverables** – All modeling and downwash input and output files should be sent electronically via email, FTP, or CD/DVD. Electronic copies of the modeling report, plot plan, and maps are also preferred.

If you have any questions, please contact Robert Scalise at (512) 239-1215 or by email at robert.scalise@tceq.texas.gov.