



United States Department of the Interior

NATIONAL PARK SERVICE

Interior Regions 3, 4, 5

601 Riverfront Drive

Omaha, NE 68102

1.A.2. (MWR-NRSS)

February 2, 2024

North Dakota Department of Environmental Quality (NDDEQ)

Division of Air Quality

4201 Normandy Street, 2nd Floor.

Bismarck, ND 58503-1324

Attn: David Stroh, Manager, Permit Program

Via email: AirQuality@nd.gov

Re: Comments on Permit to Construct for modification and facility expansion of the existing American Crystal Sugar Company's Drayton Plant, draft Permit to Construct No. ACP-18197 v1.0

Dear Mr. Stroh:

Thank you for the opportunity to provide comments on the draft construction permit for American Crystal Sugar Company's Drayton Plant. American Crystal Sugar Company (ACS) proposes to modify its Drayton, North Dakota sugar beet processing plant located 296 kilometers west of Voyageurs National Park (NP). Voyageurs National Park is a Class I area administered by the National Park Service. The primary purpose of the permit modification is to support an approximate 20 percent increase in production and includes the replacement of Pulp Dryer No. 2 with a larger coal-fired pulp dryer and the addition of a new natural gas-fired package boiler. The ACS-Drayton plant ranked #77 for visibility impacts at Voyageurs NP and is also in the top 80% of all facilities responsible for impacts to visibility at the park. The proposed facility expansion will further increase these impacts.

We agree with the North Dakota Department of Environmental Quality (NDDEQ) that the proposal represents a major modification and is subject to the Prevention of Significant Deterioration regulations. We have evaluated the December 2022 Best Available Control Technology (BACT) analysis submitted by ACS and have the following comments and suggestions associated with the new Pulp Dryer No. 2.

Regarding BACT for particulate matter less than 10 micron in diameter (PM₁₀) emissions, ACS determined that addition of a wet electrostatic precipitators (WESP) to control PM₁₀ emission was technically feasible and could reduce emissions by 95% at an annual cost of \$1,810,100. However, ACS underestimated the amount of PM₁₀ that could be removed. In Table 5 of its Air

Quality Effect Analysis, NDDEQ shows 258.5 tons per year of potential PM₁₀ emissions from Pulp Dryer #2. A 95% reduction in those PM₁₀ emission would be about 246 tons/yr., and the resulting cost-effectiveness would be about \$7,400/ton, which we consider reasonable.

We appreciate the opportunity to comment on this draft permit and look forward to continuing to work with NDDEQ to improve and protect air quality and visibility in NPS Class I areas. If you have questions, don't hesitate to contact me or David Pohlman, Regional Air Resources Coordinator at 651-491-3497, david_pohlman@nps.gov.

Sincerely,

Nancy Finley
Associate Regional Director
Natural Resource Stewardship and Science

cc:

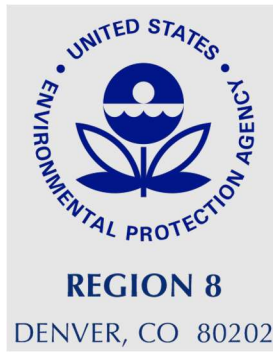
Li-Ming He, Ph.D., Supervisory Natural Resources Manager, Interior Regions 3, 4, 5

David Pohlman, Air Resources Specialist, Interior Regions 3, 4, 5

Bob DeGross, Superintendent, Voyageurs National Park

Kirsten King, Lead, NPS Air Resources Division (ARD)

Holly Salazer, Lead, NPS Policy, Planning, and Permit Review Branch, ARD



February 9, 2024

Ref: 8ARD-PM

Mr. David Stroh
Manager, Permit Program
Division of Air Quality
North Dakota Department of Environmental Quality
4201 Normandy Street
Bismark, North Dakota 58503

Re: Comments on American Crystal Sugar – Drayton PSD Permit

Dear David Stroh:

The Environmental Protection Agency Region 8 has completed its review of the American Crystal Sugar Company – Drayton Plant’s (ACS – Drayton) proposed Prevention of Significant Deterioration (PSD) New Source Review (NSR) permit. The public comment period for the ACS - Drayton permit runs from January 11th, 2024, through February 10th, 2024. The attached comments cover the body of the permit, as well as comments related to the air quality modeling analysis completed for the proposed permit.

This permit action has been assigned to Mr. Donald Law. If you have any questions, or if you’d like to schedule a meeting to discuss this matter further, please contact him at Law.Donald@epa.gov or (303) 312-7015. We look forward to hearing from you and working with you on this permit.

Sincerely,

 Recoverable Signature

X Adrienne Sandoval

Signed by: Environmental Protection Agency

Adrienne Sandoval
Director
Air and Radiation Division

Comments on American Crystal Sugar – Drayton Processing Plant

- 1) The draft permit requires the facility to install and operate a wet scrubber to control the pulp dryer No. 2, promill direct-fired triple-pass rotary dryer (emission unit 27 and emission point 26) and lime mixing tanks (emission unit 5 and 24, emission point 5). The draft permit does not include design and operating parameters to ensure performance and practical enforceability of the permit conditions. EPA recommends that the permit include primary indicators of wet scrubber performance, such as pressure differential, liquid flow rate, and scrubber liquid outlet concentration. The less significant indicators of gaseous pollutant control efficiency for wet scrubbers are gas flow rate, neutralizing chemical feed rate, and scrubber outlet gas temperature. Parameters to monitor as an alternative to scrubber liquid outlet concentration include scrubber liquid pH, scrubber liquid specific gravity, and scrubber makeup/blowdown rates. The permit should also include appropriate monitoring, recordkeeping and reporting of the wet scrubber parameters to ensure practical enforceability of the permit limits.
- 2) The draft permit requires the facility to install and operate a baghouse on the sugar dryer/granulator (emission unit 29, emission point 28) to control Particulate Matter (PM) and PM with a diameter of 10 microns or less (PM₁₀) emissions. The draft permit does not include design and operating parameters to ensure performance and practical enforceability of the permit conditions. EPA recommends that the baghouse conditions include indicators, such as the use of a bag leak detection system and/or monitoring the pressure drop of the baghouse. The permit should also include appropriate monitoring, recordkeeping and reporting of the baghouse parameters to ensure practical enforceability of the permit limits.
- 3) The December 2022 application for the modification describes the modification being done under phases from 2024 through 2027 (page 10 of the application, table 2.2- Schedule of Construction). On page 11 of 15 of the draft permit, the permit requires initial testing within 180 days after completion of this permit action. However, considering the “phased modification,” it may be necessary to conduct testing prior to 2027 based on what projects are completed to assure continued compliance with the permit. EPA recommends including additional testing conditions to address the phases of construction for this modification and a notification requirement from the facility to the permitting authority when each of the phases of construction are completed. If the planned project is expected to exceed 18 months, EPA recommends that the permitting authority re-evaluate BACT for those emission units/points that have not begun construction.
- 4) The permit does not define the term “low sulfur coal” and does not specify the fuel testing, recordkeeping and reporting of the received coal in the fuel restrictions section of permit condition B (page 9 of 15, Condition B, Fuel Restrictions, 2). EPA recommends defining low

sulfur coal and specifying the fuel testing, recordkeeping and reporting of the use of low sulfur coal to ensure its sulfur content and practical enforceability of the 3.0 lb SO₂ per MMBtu limit.

- 5) The air quality modeling uses National Weather Service (NWS) datasets from 2009 to 2013 that was processed with AERMET version 15181. EPA's Guideline on Air Quality Models (Appendix W) and the Memorandum on the Use of ASOS meteorological data in AERMOD dispersion modeling¹ recommends the use of the most recent five years of NWS meteorological data with the most recent model version at the time when the air quality modeling commences. This air quality modeling guidance also recommends the use of Automated Surface Observing System (ASOS) data, if available, to reduce the number of calms and missing winds for input into the dispersion model, AERMOD. Based on the information included in the Air Quality Impact Analysis (AQIA) report, it appears that the air quality modeling may have been able to use more recent meteorological data (e.g., between 2017 and 2021), use a more recent version of AERMET (e.g., version 22112), and incorporate ASOS data into the post-processing of the meteorological dataset. EPA recommends adding information to the AQIA report that demonstrates that the older meteorological dataset represents the current spatial and temporal (i.e., year-to-year variations) conditions and contains minimal calms and missing winds (i.e., meets quality assurance benchmarks) to sufficiently characterize the transport and dispersion conditions in the project area. EPA also recommends adding information to the AQIA report that illustrates that the older model version does not impact the model performance. Model Change Bulletins are available on EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) website², and provide information on the model updates and whether more recent model versions could impact the model performance.

- 6) The air quality modeling uses fixed background concentrations based on monitoring data that is not clearly defined in the AQIA report. Background concentrations predict the total air quality concentration by representing the pollutant concentrations that are not included in the air quality modeling. Appendix W recommends using the most recent quality assured air quality monitoring data collected in the vicinity (i.e., monitor closest to and upwind) of the project to determine the background concentration. For many cases, the best starting point is to use of the current design value for the applicable National Ambient Air Quality Standards (NAAQS) as a uniform monitored background contribution across the project area. However, Appendix W and EPA's Memorandum on the Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events³ outline additional methods for determining representative background concentrations. Given that the predicted air quality concentrations for the particulate matter pollutants (i.e., PM_{2.5} and PM₁₀) are more than 90% of the NAAQS with large background contributions, EPA recommends adding information to the AQIA report on the monitoring data used to determine the background concentrations, including the monitor names, dates, and calculations.

¹ Use of ASOS meteorological data in AERMOD dispersion modeling, March 2013, https://www.epa.gov/sites/default/files/2020-10/documents/20130308_met_data_clarification_0.pdf

² EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) website: <https://www.epa.gov/scram>

³ Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events, April 2019, <https://www.epa.gov/air-quality-analysis/clarification-memo-additional-methods-determinations-and-analyses-modify-air>

- 7) The air quality modeling includes the 392 million British thermal units per hour (MMBtu/hr) coal-fired boiler (noted as EU 1 in the permit application and EP1 in the modeling files) for the 1-hour SO₂ NAAQS analysis. The emission rate included in the modeling files for the boiler and listed in Table 13 of the AQIA is 45.98 gram per second (g/s). An emission rate of 45.98 g/s corresponds to an hourly emission rate of 364.9 pounds per hour (lb/hr) or an annual emission rate of 1,598 tons per year (tpy). According to Table 5 of the Air Quality Effect Analysis (AQEA) report, this appears to be the boiler's SO₂ potential to emit (PTE) on an annual basis. However, draft condition II.A of the AQEA appears to establish an SO₂ emission limitation of 3.0 lb/MMBtu. At the boiler's nominal heat input capacity, this corresponds to an hourly SO₂ emission rate of 1,176 lb/hr (= 392 MMBtu/hr x 3.0 lb/MMBtu), an emission rate that is higher than the modeled SO₂ emission rate. Appendix W, section 8.2.2(c), requires regulatory modeling to use emissions input data specified in Table 8-2. Specifically, the modeled emission rate should be based on a maximum allowable emission limit or federally enforceable permit limit applicable to the unit. To ensure there is sufficient information in the record to support the modeled SO₂ emission rate (i.e., 45.98 g/s) used in the NAAQS analysis, EPA recommends providing the information and calculations used to determine the boiler's SO₂ emission rate, and verifying that the modeled emission rate is consistent with the modeled emission input requirements established in section 8.2.2(c) and Table 8-2 of Appendix W.
- 8) The air quality modeling also includes the 392 MMBtu/hr coal-fired boiler in the 1-hour NO₂ NAAQS analysis. The modeled NO_x emission rate for the boiler is 25.01 g/s, which corresponds to the annual NO_x PTE of 869.4 tpy (or an hourly emission rate of 204.6 lb/hr) as listed in the Table 5 of the AQEA report. From our review of the draft permit, it is unclear whether the short-term modeled NO_x emission rate is based on a unit-specific emission factor or other unit-specific emission limitation that corresponds with the allowable hourly emissions associated with the unit's stated PTE. EPA recommends adding the information and calculations used to determine the boiler's NO_x modeled emission rate for the 1-hour NO₂ NAAQS analysis to resolve uncertainty and to ensure a more complete permit record.