Air Quality Effects Analysis (AQEA)
for
Twin State Environmental
Richardton Facility

Lat/Long: 46.8778/-102.3341
Richardton, North Dakota 58652

Associated with Permit No.:

ACP-18325 v1.0

North Dakota Department of Environmental Quality

Division of Air Quality

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1. Project Description

Twin State Environmental (TSE) submitted a permit to construct application to the North Dakota Department of Environmental Quality – Division of Air Quality (Department) on December 4, 2025. The application was for the construction of a new railcar cleaning facility (Project). Upon completion of the Project, the Twin State Environmental Richardton Facility (TSERS or facility) will be operational and located in Stark County, North Dakota. TSERS is not affiliated with any activities that Transportation Logistics LLC performs at the overall site.

The facility will receive emptied railcars that contain a wide range of residual materials which must be cleaned prior to returning the railcars back in service. The residual materials in the emptied railcars will include volatile liquids and vapors (e.g., hydrocarbons and ammonia), non-volatile liquids (e.g., vegetable oil), and railcars containing residual particulate matter (e.g., solid fertilizer). Railcars received under pressure (i.e., 14.7 to 114.7 psia) will be depressurized by routing the vapors to a flare, purged with nitrogen to remove remaining material vapors, and cleaned with wash water. Non-pressurized railcars (i.e., 1 to 14.7 psia) containing volatile liquids and gases follow the same process as pressurized railcars. Solids railcars containing only residual particulate matter will simply be opened to atmosphere and then cleaned mechanically and/or with wash water.

TSE proposed the construction and operation of the following emission units at the facility. A process flare (EP 1) will be used to destroy volatile materials from various railcars (EUs 1 through 1c). Initially, TSE will install one natural gas fired boiler rated at 2 MMBtu/hr and is authorized to install up to four units of the same size for a combined maximum heat rating of 8 MMBtu/hr (EU 4). These boilers will be used to heat wash water at the facility. Particulate matter (PM) resulting from atmospheric solids railcars (EU 3) will be vented to the atmosphere. Four wash tanks (EU 2) will hold the wash water and detergent used to clean the railcars and will also store smaller amounts of biodiesel solvent and chemical liquid heels from various railcars. Wash tank liquids are periodically loaded into railcars or transport trucks and removed from the site.

2. Permit Description

This facility will be a synthetic minor source of air pollution, as the facility is adopting federally enforceable operational limits on the amount and type of railcars that may be cleaned each year to limit criteria air pollutants and hazardous air pollutants (HAP) emitted from the facility. These emissions are limited to below major source thresholds for the prevention of significant deterioration (PSD), HAP major, and Title V programs.

After a complete review of the proposed Project indicating that the facility is expected to comply with applicable federal and state air pollution rules and regulations, the Department will make a recommendation on PTC issuance for Twin State Environmental – Richardton following the completion of a 30-day public comment period.

ACP-18325 v1.0 Table 1-1 lists the emissions units associated with the TSERS upon Project Completion.

3. Facility Emission Profile

For all emission units associated with the Project, Table 1 lists the potential to emit (PTE) for all criteria air pollutants and selected HAP. Table 1 abbreviations are as follows: filterable and condensable particulate matter (PM), PM with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), PM with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), oxides of nitrogen (NO_X), carbon monoxide (CO), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) as defined in Section 112(b) of the Clean Air Act.

Table 1 – Project PTE Summary. All units are in tons per year (tpy). [A]

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	CO	NO_X	SO_2	VOCs	PM_{TOT}	Total HAPs	1,3 Butadiene (Largest HAP)
Process flare [A]	1, 1a, 1b, 1c	1	24.3	5.4	0.6	48.5	0.0	15.0	9.9
Wash Tanks and Loading [B]	2	2	0.0	0.0	0.0	5.3	0.0	2.7	0.0
Atmospheric solids railcars	3	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Up to four natural gas-fired boilers rated 2 MMBtu/hr each (8 MMBtu/hr cumulative maximum)	4	4	2.9	3.4	0.0	0.2	0.3	0.0	0.0
Total (without Fugitives):			**27.2**	**8.8**	**0.6**	**54.0**	**0.3**	**17.7**	**9.9**
Total (with Fugitives):			**27.2**	**8.8**	**0.6**	**54.0**	**0.3**	**17.7**	**9.9**

[A] PTE calculated based on the chemical with the highest hourly and annual emission rates to ensure emission limits will not be exceeded when a mix of chemical vapors route to the flare during operation over time.

[B] PTE calculated based on operating 325 tank turnovers per year combined for all four 4,000-gallon tanks.

Table 2 details Title V applicability and shows changes in facility PTE resulting from the Project. Since emissions are below the applicable thresholds, as demonstrated below, the facility is considered a minor source with respect to PSD and Title V, and an area source of HAP.

Table 2 – Title V Applicability. All units are in tpy. [A]

	NO_X	**CO**	**SO_2**	**VOCs**	**PM_{TOT}**	**Total HAP**	**1,3 Butadiene (Largest HAP)**
Project/Facility PTE [A]	8.8	27.2	0.6	54.0	0.3	17.7	9.9
PSD Major Source Thresholds [B]	250	250	250	250	250	N/A	N/A
PSD Major Source?	**No**	**No**	**No**	**No**	**No**	N/A	N/A
Title V Threshold	100	100	100	100	100	25	10
Title V Major Source?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[A] Fugitive emissions were not included for the purposes of determining PSD major source applicability because the facility is not a listed source category per 40 CFR 52.21(b)(1)(iii).

[B] The PSD Major source threshold is 250 TPY because the source is not a listed source category per 40 CFR 52.21(b)(1)(i)(A) and (B).

4. Rules Analysis

This section details the potential applicability and expected compliance status of each rule under the North Dakota Administrative Code (NDAC) 33.1-15—Air Pollution Control Rules.

A. NDAC 33.1-15-01 – General Provisions:

This chapter covers the following topics: entry onto premises - authority, variances, circumvention, severability, land use plans and zoning regulations (only to provide air quality information), measurement of air contaminants, shutdown and malfunction of an installation - requirements for notification, time schedule for compliance, prohibition of air pollution, confidentiality of records, enforcement, and compliance certifications.

Applicability and Expected Compliance

Based on the review of the information provided, the facility will comply with all applicable sections of this rule.

B. NDAC 33.1-15-02 – Ambient Air Quality Standards:

This chapter requires that the facility complies with the North Dakota and Federal Ambient Air Quality Standards (AAQS) and the "Criteria Pollutant Modeling Requirements for a Permit to Construct" guidelines.[1]

Applicability and Expected Compliance

The facility is not subject to PSD nor does the facility's PTE trigger the modeling thresholds listed in the "Criteria Pollutant Modeling Requirements for a Permit to Construct", therefore, preconstruction modeling for this facility was not required. Based on the facility PTE compliance with the ambient air quality standards is expected to be maintained.

C. NDAC 33.1-15-03 – Restriction of Emission of Visible Air Contaminants:

This chapter requires all non-flare emission sources at new facilities to comply with an opacity limit of 20% except for one six-minute period per hour when 40% opacity is permissible. For all flare emission sources, the limits are 20% and 60% respectively. Fugitive emissions must not exceed 40% for more than one six-minute period per hour. The chapter establishes exceptions to opacity requirements and that compliance shall be determined using EPA Reference Method 9 or 22.

Applicability and Expected Compliance

Based on Department experience with non-flare sources such as the boiler(s) (EU 4), the facility is expected to comply with the 20% opacity limit. The flare (EU 1) is not subject to 40 CFR§60.18(c) through (f); however, TSE indicated that the flare would be operated

[1] See October 6, 2014, Criteria Pollutant Modeling Requirements for a Permit to Construct. Available at: https://www.deq.nd.gov/publications/AQ/policy/Modeling/Criteria_Modeling_Memo.pdf

in compliance with 40 CFR§60.18(c) through (f). Therefore, the flare is expected to operate with no visible emissions during normal operation but will be subject to the NDAC opacity limit of 20% except for one six-minute period per hour when 60% opacity is permissible.

D. NDAC 33.1-15-04 – Open Burning:

No person may cause, conduct, or permit open burning of refuse, trade waste, or other combustible material—as part of a salvage operation or otherwise—except as provided under NDAC 33.1-15-04-02 or 33.1-15-10-02.

Applicability and Expected Compliance

No open burning operations are permitted unless approved in advance by the Department.

E. NDAC 33.1-15-05 – Emissions of Particulate Matter Restricted:

This chapter establishes particulate matter emission limits, restrictions, and measurement methods for industrial processes, fuel burning equipment used for indirect heating (where emissions do not interact with process materials), waste incinerators, and crematoriums.

Applicability and Expected Compliance

Since the boiler(s) (EU 4) are used for indirect heating and are fired on pipeline quality natural gas, the particulate matter limits in this chapter do not apply. It should be noted that combustion of pipeline quality natural gas in the units is expected to result in extremely low particulate matter emissions that are well below the allowable levels established by this chapter.

The particulate matter emissions from the railcars (EU 3) are expected to be below the maximum allowable rates established by this chapter.

F. NDAC 33.1-15-06 – Emissions of Sulfur Compounds Restricted:

This chapter applies to any installation in which SO_2 emissions are substantially due to the sulfur content of burned fuel used primarily to produce heat. This chapter establishes requirements for measurement methods, continuous emission monitoring, reporting, and recordkeeping. This chapter is not applicable to installations which are subject to an SO_2 emission limit under NDAC 33.1-15-12 (NSPS, see Section 4.L) or which burn pipeline quality natural gas.

Applicability and Expected Compliance

The facility will not emit any sulfur compounds which result from industrial process equipment, nor will the facility operate any fuel burning equipment used for indirect heating. The boiler(s) (EU 4) are exempt from this chapter because they are fired on pipeline quality natural gas. The sulfur dioxide (SO_2) emissions from the flare (EP 1) controlled cleaning of railcars are not expected to exceed the applicable SO_2 Ambient Air Quality Standards of NDAC 33.1-15-02, therefore, the requirements of NDAC 33.1-15-06-02 are satisfied.

G. NDAC 33.1-15-07 – Control of Organic Compounds Emissions:

This chapter establishes requirements for the construction of organic compound facilities related to closed-vent systems, control devices, and seals. This chapter requires organic compound vapors to be controlled by a continuously burning pilot flare or other equally effective control device. This chapter also requires hydrogen sulfide (H_2S) to be controlled effectively.

Applicability and Expected Compliance

The wash tanks (EU 2) are not subject to the requirements of this chapter because the biodiesel solvent and chemical liquid heels are not petroleum products and water is not to be separated from them. Each wash tank will have a storage capacity greater than 1,000 gallons but are not considered volatile organic compounds storage tanks and are therefore not required to be equipped with submerged fill pipes. However, each wash tank will operate with a submerged fill pipe.

The wash tank loadout operations will be less than 20,000 gallons per day on an annual average basis, therefore the requirements of this chapter do not apply. Any rotating pump handling VOC liquids will be equipped and operated with properly maintained seals.

For the facility flare (EP 1), the facility will comply with this chapter by equipping and operating an automatic igniter or a continuous burning pilot. Additionally, the flare will control organic compounds generated from purging and venting the railcars and resulting from process operations.

H. NDAC 33.1-15-08 – Control of Air Pollution from Vehicles and Other Internal Combustion Engines:

This chapter restricts the operation of internal combustion engines which emit, from any source, unreasonable and excessive smoke, obnoxious or noxious gas, fumes or vapor. This chapter also prohibits the removal or disabling of motor vehicle pollution control devices.

Applicability and Expected Compliance

The facility is subject to this chapter and is expected to comply with all applicable requirements should vehicles or other internal combustion engines be used.

I. NDAC 33.1-15-09 – [repealed]

J. NDAC 33.1-15-10 – Control of Pesticides:

This chapter provides restrictions on pesticide use, disposal, and the proper handling of empty pesticide containers.

Applicability and Expected Compliance

The facility is subject to this chapter and is expected to comply with all applicable requirements should pesticides be used.

K. NDAC 33.1-15-11 – Prevention of Air Pollution Emergency Episodes:

When an air pollution emergency episode is declared by the Department, the facility shall comply with the requirements in Chapter 33.1-15-11 of the North Dakota Air Pollution Control (NDAPC) rules.

L. NDAC 33.1-15-12 – Standards of Performance for New Stationary Sources (40 CFR 60):

This chapter adopts most of the New Source Performance Standards (NSPS) and appendices under 40 CFR 60 as of July 1, 2019, to which the facility is subject:

Applicability and Expected Compliance

The facility does not appear to have any applicable requirements under this chapter. NSPS Dc is not applicable because the boiler(s) (EU 4) will have a combined rating of up to 8 MMBtu/hr.

M. NDAC 33.1-15-13 – Emission Standards for Hazardous Air Pollutants (40 CFR 61):

This chapter adopts most of the National Emission Standards for Hazardous Air Pollutants (NESHAP) and appendices under 40 CFR 61 as of July 2, 2010.

Applicability and Expected Compliance

The facility does not appear to have any applicable requirements under this chapter.

N. NDAC 33.1-15-14 – Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate:

This chapter designates air contaminant sources that are required to obtain a Permit to Construct (PTC) and a Permit to Operate (PTO) and the requirements for permits of various types, including public comment.

Applicability and Expected Compliance

The facility has submitted an application for a PTC and has met all requirements necessary to obtain a PTC. The facility will be considered a synthetic minor source via federally enforceable restrictions limiting the number and type of railcars which can be cleaned per year. These operational restrictions mean the facility will be a synthetic minor source of air pollution, as the emissions are limited to below major source thresholds for both the prevention of significant deterioration (PSD) and Title V programs.

The permit must undergo public comment per NDAC 33.1-15-14-06.5.a.

Once the facility completes construction and meets the PTC, a facility inspection will be performed by the Department. Pending a satisfactory facility inspection, the facility will be issued a permit to operate by the Department.

O. NDAC 33.1-15-15 – Prevention of Significant Deterioration of Air Quality (40 CFR 52.21):

This chapter adopts the federal provisions of the PSD program (40 CFR 52.21) as of January 1, 2019. A facility is subject to PSD review if it is classified as a "major stationary source" or undergoes a "major modification" as defined by 40 CFR 52.21(b)(1-2). Major stationary sources are either: (1) facilities which fall under one of the specified source categories and the PTE exceeds 100 tpy of any NSR pollutant or, (2) facilities that do not fall under a specified category and the PTE exceeds 250 tpy of any NSR pollutant.

Applicability and Expected Compliance

This facility is not classified as a "major stationary source" under 40 CFR 52.21(b)(1)(i)(a) and is therefore only subject to PSD review if emissions of a regulated new source review (NSR) pollutant[2] exceed 250 tpy (excluding fugitive emissions). The PTE for this facility, as shown in Table 1, is below the 250 tpy threshold and therefore not subject to PSD review.

P. NDAC 33.1-15-16 – Restriction of Odorous Air Contaminants:

This chapter restricts the discharge of objectionable odorous air contaminants which measure seven odor concentration units or greater outside the property boundary. This chapter addresses emissions of H_2S. This chapter also establishes the method of measurement using certified inspectors, scentometers, and other approved instruments.

Applicability and Expected Compliance

The facility will use the process flare (EP 1) to combust residual railcar materials including ammonia, sulfur compounds, and VOC vapors with an estimated 98% destruction efficiency. Based on the proposed processes and planned operations, the facility is expected to comply with this chapter.

Q. NDAC 33.1-15-17 – Restriction of Fugitive Emissions:

This chapter restricts PM and gaseous fugitive emissions that would violate Chapters 2 (AAQS), 3 (visible emissions), 15 (PSD), 16 (odor), or 19 (visibility), providing suggested abatement measures.

Applicability and Expected Compliance

The facility will be required to take reasonable precautions to prevent fugitive emissions in violation of the above referenced NDAC chapters.

R. NDAC 33.1-15-18 – Stack Heights:

This chapter restricts the use of stack heights above good engineering practices (GEP) and dispersion techniques to affect pollutant concentrations in the ambient air as defined by 40

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[2] See 40 CFR 52.21(b)(50). Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21#p-52.21(b)(50)

CFR 51.100(hh-kk). Stack heights in exceedance of GEP are permissible if they undergo a demonstration study which is made available for review by the Department and the public.

Applicability and Expected Compliance

Since facility PTE is below the lower threshold outlined in Department modeling guidance,[1] there are no stack height requirements beyond those required by this chapter.

S. NDAC 33.1-15-19 – Visibility Protection:

This chapter requires new major stationary sources or major modifications[3] to demonstrate the emissions will not cause or contribute to adverse impact on visibility in federal Class I areas. This chapter establishes requirements for visibility impact analysis, visibility models, notification, review by federal land managers, public participation, and visibility monitoring.

Applicability and Expected Compliance

The facility is not a new major stationary source and therefore is not subject to the requirements of this chapter. Given the minor source levels of the visibility impairing air pollutants, such as NO_X, SO_2, and $PM_{2.5}$, it is expected that the facility will not adversely contribute to visibility impairment within the three units of the Theodore Roosevelt National Park (nearest federal Class I areas) or at the Lostwood National Wildlife Refuge.

T. NDAC 33.1-15-20 – Control of Emissions from Oil and Gas Well Production Facilities:

This chapter regulates emissions from oil and gas well production facilities, requiring operators to register new wells and report gas composition changes. It establishes PSD applicability for major sources and mandates compliance with air quality standards for pollutants like sulfur dioxide and hydrogen sulfide.

Applicability and Expected Compliance

The facility is not an oil or gas well facility and is therefore not subject to the requirements of this chapter.

U. NDAC 33.1-15-21 – Acid Rain Program:

This chapter adopts the acid rain provisions under 40 CFR 72, 75, & 76 and appendices as of January 1, 2012.

Applicability and Expected Compliance

This chapter adopts the acid rain provisions of the Clean Air Act specified under 40 CFR Parts 72-78. The facility is not subject to the acid rain provision as they are not an electric utility.

[3] Chapter 19 applies to a "new major stationary source" or "major modification" as defined in NDAC 33.1-15-15-01.

V. NDAC 33.1-15-22 – Emissions Standards for Hazardous Air Pollutants for Source Categories [40 CFR 63 a.k.a. MACT (Maximum Achievable Control Technology)]:

This chapter adopts most of the MACT standards and appendices under 40 CFR 63 as of July 1, 2019.

Applicability and Expected Compliance

The facility's potential HAP emissions are less than 10 tons/year of any single HAP and are less than 25 tons/year of any combination of HAPs, so the facility is an area (minor) source of HAPs. As outlined in ACP-18325 v 1.0 Permit Condition 2.C.2, the facility will be taking a synthetic minor limit of the number of railcars in 1,3 butadiene service to remain an area source of HAPs. As shown in Table 1, total potential HAPs from the facility are approximately 17.7 tons/year. The greatest single potential HAP is 1,3 butadiene at 9.96 tons/year. As a result, this facility is not subject to the requirements of this chapter.

W. NDAC 33.1-15-23 – Fees:

This chapter establishes a filing fee of $325 for PTC applications, plus any additional fees based on actual processing costs assessed upon issuance of the draft PTC. This chapter also requires an annual PTO fee for Title V major and minor sources and well registrations.

Applicability and Expected Compliance

The applicant has paid the $325 filing fee and may be required to pay the additional fees associated with the permit processing.

X. NDAC 33.1-15-24 – Standards for Lead-Based Paint Activities:

This chapter establishes standards and requirements for the accreditation, notification, and fees of procedures, training programs, certification, and licensing for individuals and firms engaged in lead-based paint activities.

Applicability and Expected Compliance

The facility will not perform any lead-based paint activities and is therefore not subject to this chapter.

Y. NDAC 33.1-15-25 – Regional Haze Requirements (40 CFR 51.308):

This chapter establishes requirements for stationary sources (which were in existence between 1962 and 1977) which have the potential to "contribute to visibility impairment" in Class I Federal areas, as defined by 40 CFR 51.301, to implement best available retrofit technology. In addition, existing stationary sources or groups of sources are required to implement emission reduction measures to make reasonable progress toward North Dakota's reasonable progress goals established in accordance with 40 CFR 51.308 at the discretion of the Department.

Applicability and Expected Compliance

The facility is a new source and based on low PTE of visibility impairment pollutants is not expected to contribute to visibility impairment. Therefore, the facility is not subject to the requirements of this chapter.