AIR QUALITY EFFECTS ANALYSIS
FOR
PERMIT TO CONSTRUCT
ACP-18217 v1.0

Applicant:

City of West Fargo
810 – 12th Avenue North
West Fargo, North Dakota 58078

Facility Location:

West Fargo Inert Landfill
806 – 26th Street NW
West Fargo, North Dakota 58078
Lat:/Long: 46.88615/-96.95168
NE ¼, Sec. 2, T139N, R50W
Cass County

Introduction:

The North Dakota Department of Environmental Quality (Department) – Division of Air Quality received an application from the City of West Fargo on January 23, 2024, for the West Fargo Inert Landfill (facility). The application was for the installation and operation of an air curtain incinerator (ACI) unit to be located in Cass County, North Dakota.

Table 1 lists the emissions units associated with the West Fargo Inert Landfill.

Table 1 - Source-wide Permitted Equipment

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
ACI rated up to 13 tons/hr (NSPS CCCC)	1 [A]	1	None
ACI Diesel-Fired Engine (NSPS IIII & MACT ZZZZ) Make: HATZ, Model 4H50TIC	2 [A, B]	2	Diesel Oxidation Catalyst

[A] ACI is a combined unit that includes a diesel-fired engine.
[B] Certified Tier 4 Engine, per 40 CFR 60, Subpart IIII.

Facility Wide Emissions Profile
Potential to Emit (PTE)

Table 2 - Unrestricted PTE (tons per year) [A]

Emission Unit Description	EU	CO	NO_X	SO_2	VOCs	All PM	Total HAPs
ACI Unit	1 [B]	148.04	56.94	5.69	--	62.63	--
ACI Diesel-Fired Engine	2 [B]	2.67	2.51	0.66	--	0.02	--
Total (with Fugitives) [C]:		**150.71**	**59.55**	**6.35**	**0.00**	**62.65**	**0.00**

[A] Abbreviations:
Total PM: filterable and condensable particulate matter
PM10: particulate matter with an aerodynamic diameter less than or equal to 10 microns (≤10 μm) including PM2.5
PM2.5: particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (≤2.5 μm)
SO2: sulfur dioxide
NOX: oxides of nitrogen
CO: carbon monoxide
VOCs: volatile organic compounds

[B] Calculations based on EPA Tier 4 emission standards for diesel engines between 37 and 56 kW and AP 42 Table 3.3-1.

[C] Emissions for the ACI unit and ACI engine are calculated at the maximum throughput rate assuming 8,760 hours/year of operation. This is assumed to be a conservative estimate of emissions with actual emissions expected to be much lower.

As shown in Table 2, if the facility was to operate 8,760 hours per year, the greatest criteria pollutant would be CO at approximately 151 tons per year (tpy) with all other criteria pollutants below 65 tpy. Total combined HAP emissions were not calculated but are expected to be negligible based on Department experience with similar units.

Calculations have been provided in the permit application received on January 23, 2024. The Department has reviewed these calculations and believes they accurately represent the facility emissions.

Upon installation and commencement of operations of the ACI, the facility will become a Title V source based on facility subjectivity to New Source Performance Standard 40 CFR 60, Subpart CCCC.

Rules Analysis
Potentially Applicable Rules and Expected Compliance Status

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

Multiple topics are included in the General Provisions chapter: 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:

The facility must comply with the North Dakota and Federal Ambient Air Quality Standards (AAQS). In addition to these standards, compliance with 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 sources from new facilities to comply with an opacity limit of 20% except for one six-minute period per hour when 40% opacity is permissible. Lastly, this chapter restricts opacity of fugitive emissions transported off property to 40% except for one six-minute period per hour when 60% opacity is permissible. This chapter also contains exceptions under certain circumstances and provides the method of measurement to determine compliance with the referenced limits.

Applicability and Expected Compliance

The facility has two fuel-burning units (EUs 1 and 2) subject to this chapter. Opacity requirements for each applicable unit are listed in Permit to Construct No. ACP-18217 v1.0. Based on the fuels used, visible air emissions are expected to be well below the ≤10% opacity

[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

for start-up conditions and ≤35% opacity for other than start-up conditions limits established by 40 CFR 60, Subpart CCCC, see Condition 3 of ACP-18217 v1.0.

D. NDAC 33.1-15-04 – Open Burning:

No person may dispose of refuse and other combustible material by open burning, or cause, allow, or permit open burning of refuse and other combustible material, except as provided for in Section 33.1-15-04-02 or 33.1-15-10-02, and no person may conduct, cause, or permit the conduct of a salvage operation by open burning.

Applicability and Expected Compliance

The facility is subject to this chapter and will comply with all open burning regulations.

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

This chapter establishes particulate matter emission limits for industrial process equipment and fuel burning equipment used for indirect heating.

Applicability and Expected Compliance

Since the fuel burning equipment is not used for indirect heating and the ACI unit combusts tree debris, clean wood and the engine is diesel-fired, the particulate matter limits in this chapter do apply. It should be noted that combustion of the above material is expected to result in extremely low particulate matter emissions that are well below the allowable levels established by this chapter.

The facility will not emit any particulate matter which results from industrial process equipment, nor will the facility operate any fuel burning equipment used for indirect heating.

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

This chapter applies to any installation in which fuel is burned and the SO_2 emissions are substantially due to the sulfur content of the fuel; and in which the fuel is burned primarily to produce heat. This chapter is not applicable to installations which are subject to an SO_2 emission limit under Chapter 33.1-15-12, Standards for Performance for New Stationary Sources, or installations which burn pipeline quality natural gas.

Applicability and Expected Compliance

The facility will not emit any SO_2 emissions which results from industrial process equipment, nor will the facility operate any fuel burning equipment used for indirect heating.

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

This chapter establishes requirements for organic compound facilities and the disposal of organic compounds.

Applicability and Expected Compliance

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

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 engine (EU 2) is also subject to opacity requirements under NDAC 33.1-15-03-02 and subject to the requirements of NSPS Subpart IIII and MACT Subpart ZZZZ. As a result of expected compliance with these provisions, the engine is not expected to emit any unreasonable and excessive smoke, obnoxious or noxious gases, fumes, or vapor.

I. NDAC 33.1-15-09 – [repealed]

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

This chapter provides restrictions on pesticide use and restrictions on the disposal of surplus pesticides and 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 Code of Federal Regulations Part 60 (40 CFR Part 60)]:

This chapter adopts most of the Standards of Performance for New Stationary Sources (NSPS) under 40 CFR Part 60. The City of West Fargo Inert Landfill is subject to the following subparts under 40 CFR Part 60 which have been adopted by North Dakota:

Subpart A – General Provisions

Subpart A contains general requirements for plan reviews, notification, recordkeeping, performance tests, reporting, monitoring and general control device requirements.

Applicability and Expected Compliance

The facility will comply with the general provisions of Subpart A through submission of timely notifications, performance testing, reporting, and following the general control device and work practice requirements under Subpart A. In addition, any changes to the facility after it is built will be evaluated with respect to this subpart as well as others.

Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Units

This subpart applies to new commercial and industrial solid waste incineration (CISWI), constructed after June 4, 2010, and modified or reconstructed after August 7, 2013.

Applicability and Expected Compliance

The ACI unit is subject to this Subpart. Only 100% wood waste, 100% clean lumber and/or yard waste (including compost free of plastic) shall be burned. Burning preservative treated wood, rubber (tires), asphalt shingles, and other materials that generate hazardous air pollutants is strictly prohibited (EU 1). The unit is also subject to the opacity limits of ≤35% within the 1st 30-minutes of operation (start-up) and ≤10% other than start-up.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII establishes emissions standards (NO_X, CO, VOC) and compliance schedules for all new, modified and reconstructed stationary compression ignition (CI) internal combustion engines (ICE):

- constructed (ordered) after July 11, 2005, and manufactured after April 1, 2006, (July 1, 2006, for fire pump engines), or
- modified or reconstructed after July 11, 2005.
- Except for engines > 30 liters per cylinder (l/cyl) displacement, performance testing is not required - you achieve compliance by:
    - purchasing a new engine that has been certified by EPA, and
    - installing, configuring, operating, and maintaining the engine per the manufacturer's instructions.

Applicability and Expected Compliance

This engine (EU 2) is an EPA certified engine and has no testing requirements. The facility will be required to comply with 40 CFR 60.4204.

Table 3 - NSPS IIII Applicable Requirements:

Emission Unit Description	EU	Requirements
ACI Engine	2	Certified Engine, Tier 4 • Operate/maintain engine & control device per manufacturer's instructions or owner-developed maintenance plan. • May use oil analysis program instead of prescribed oil change frequency. • Engines must have an hour meter and record of the hours of operation. • Keep records of maintenance. • Reporting and ULSD for emergency engines used for local reliability.

M. NDAC 33.1-15-13 – Emission Standards for Hazardous Air Pollutants [40 Code of Federal Regulations Part 61 (40 CFR Part 61)]

This chapter adopts most of the National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR Part 61.

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 requires the facility to obtain a Permit to Construct and a Permit to Operate.

Applicability and Expected Compliance

The facility has submitted an application for a permit to construct and has met all requirements necessary to obtain a permit to construct. The facility will become a future Title V source by rule upon completion of this permit action.

The permit must undergo a thirty-day public comment period required per NDAC 33.1-15-14-02.6.a.(2) since NSPS CCCC does not exempt the ACI from the requirement to obtain a Title V permit to operate.

Once the facility completes construction and meets the permit to construct requirements, a facility inspection will be performed by the Department. Pending a satisfactory facility inspection, the facility will apply for a Title V permit to operate from 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 prevention of significant deterioration of air quality (PSD) program. A facility is subject to PSD review if it is classified as a "major stationary source" under Chapter 33.1-15-15.

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 2, are 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 measures seven odor concentration units or greater outside the property boundary.

Applicability and Expected Compliance

Based on Department experience with similar units the facility is expected to comply with this chapter.

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

This Chapter restricts fugitive emissions from particulate matter or other visible air contaminates and gaseous emissions that would violate Chapter 2 (ambient air quality standards), Chapter 15 (PSD), Chapter 16 (odor), or Chapter 19 (visibility).

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). This chapter also restricts the use of dispersion techniques to affect the concentration of a pollutant in the ambient air.

Applicability and Expected Compliance

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

S. NDAC 33.1-15-19 – Visibility Protection

This chapter applies to new major stationary sources as defined in Section 33.1-15-15-01.

[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)

Applicability and Expected Compliance

The facility is an existing minor source and will become a Title V major stationary source by rule upon completion of this permit action. Given the minor source levels of the visibility impairing air pollutants it is expected that the facility will not adversely contribute to visibility impairment within the three units of the Theodore Roosevelt National Park, the Lostwood National Wildlife Refuge, or at the Voyageurs National Park in Minnesota.

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

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 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.

V. NDAC 33.1-15-22 – Emissions Standards for Hazardous Air Pollutants for Source Categories [40 Code of Federal Regulations Part 63 (40 CFR Part 63)]

This chapter adopts the 40 CFR Part 63 regulations which regulate hazardous air pollutants (HAPs) from regulated source categories. Typically, these standards apply to major sources of air pollution that are a regulated source category. In addition to the major source requirements, some of the regulations have "area source" standards (for non-major sources). Some of the area source standards have not been adopted by the Department and compliance will be determined by the United States Environmental Protection Agency (USEPA) (i.e. 40 CFR 63, Subpart ZZZZ area source provisions have not been adopted by the Department).

Applicability

Total combined HAP emissions were not calculated but are expected to be negligible based on the Department's experience with similar units.

Subpart A – General Provisions

Subpart A contains general requirements for prohibited activities and circumvention, preconstruction review and notification, standards and maintenance requirements, performance tests, monitoring, recordkeeping, reporting, and control device work practice requirements.

Applicability and Expected Compliance

The facility will comply with the general provisions of Subpart A through submission of timely notifications, performance testing, monitoring, recordkeeping, reporting, and following the control device work practice requirements under Subpart A.

Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Applicability and Expected Compliance

The facility's diesel-fired engine (EU 2) is subject to the requirements under this subpart. The requirements of Subpart ZZZZ for the engine are met by complying with the requirements of NDAC 33.1-15-12 [40 CFR 60], Subpart IIII.

W. NDAC 33.1-15-23 – Fees

This chapter requires a filing fee of $325 for permit to construct applications, plus any additional fees based on actual processing costs. The additional fees based on processing costs will be assessed upon issuance of the draft permit to construct. The annual operating permit fee is also applicable.

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

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

Y. NDAC 33.1-15-25 – Regional Haze Requirements

This chapter is specific to existing stationary sources or groups of sources which have the potential to "contribute to visibility impairment" as defined in Section 33.1-15-25-01.2. Existing stationary sources or groups of sources determined to contribute to visibility impairment may be required to implement emissions reduction measures to help the Department make reasonable progress toward North Dakota's reasonable progress goals established in accordance with 40 CFR 51.308.

Applicability and Expected Compliance

The facility will become a major Title V source by rule upon completion of this permit action. Based on low PTE of visibility impairment pollutants, the facility is not expected to contribute to visibility impairment. Therefore, the facility is not subject to the requirements of this chapter.

Summary:

A complete review of the proposed project indicates that the facility is expected to comply with the applicable federal and state air pollution rules and regulations. The Department will make a final recommendation on the issuance of a permit to construct for the City of West Fargo Inert Landfill following completion of a 30-day public comment period. The public comment period will run from May 10, 2024, through June 8, 2024.

Update post comment period:
[Reserved]

Date of Draft Analysis: May 10, 2024
Date of Final Analysis: [Reserved]

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