


STATEMENT OF BASIS FOR A PROPOSED PERMIT TO CONSTRUCT AN AIR CONTAMINANT SOURCE

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LLCHD Air Quality Program Source Number:	00235
LLCHD Air Quality Program Construction Permit Number:	233
Proposed Effective Date of Permit:	07 – 12 – 2024 <small>MM – DD – YYYY</small>

The Lincoln-Lancaster County Health Department (LLCHD) has made the preliminary determination to issue a permit to construct / reconstruct / modify an air contaminant source to the following:

Permit Holder Name:	City of Lincoln – Transportation and Utilities Department
Address:	5101 North 48th Street
City, State, ZIP:	Lincoln, Nebraska 68504

The proposed permit allows for construction/reconstruction/modification at the following source:

Facility Site Name:	North 48th Street Solid Waste Management Facility
Facility Address:	5101 North 48th Street
City, County, State, ZIP:	Lincoln, Nebraska 68504
Facility NAICS:	562212: Solid Waste Landfill

In accordance with requirements set forth under Article 2, Section 14 of the Lincoln-Lancaster County Air Pollution Control Programs Regulations and Standards (LLCAPPRS), the LLCHD may not issue a construction permit until the public has been given the opportunity to comment on the draft permit.

Within the 30-day public comment period, any interested person, agency, group, or affected state may request or petition the Director of the LLCHD for a public hearing. All requests for public hearing must be made in writing, and must state the nature of the issues to be raised and all arguments and factual grounds supporting their position. If a public hearing is granted by the Director, the hearing will be advertised by public notice at least 30 days prior to its occurrence.

A final determination on this permit will be made following the opportunity of the public to review and comment on the draft permit, and any/all comments received have been addressed.

The conclusion of this document will include a recommendation to either approve or deny the issuance of a construction permit for this source.

Table of Contents

Definitions	2
Abbreviations, Symbols, and Units of Measure.....	3
Section 1 – Introduction.....	4
Section 2 – Permitting History	4
Section 3 – Emission Unit Characterization	4
Section 4 – Emission Characterization	6
Section 5 – Applicable Regulations & Requirements.....	11
Section 6 – Discussion of Proposed Permit Requirements.....	12
Section 7 – Summary of Permit Conditions Enforceable by Agency	16
Section 8 – Compliance Assurance Monitoring	16
Section 9 – Pollution Prevention Opportunities	16
Section 10 – Environmental Justice Considerations	16
Section 11 – Air Quality Program Recommendation	17
Section 12 – Public Participation.....	17

Definitions

Unless otherwise defined, or a different meaning is clearly required by context, the terms used in this permit shall be as defined in Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS) Article 2, Section 1 (Definitions), or as defined in Attachment A to this document.

Abbreviations, Symbols, and Units of Measure

Abbreviations, symbols, and units of measure used in this document shall be as follows:

AP-42	Compilation of Air Pollutant Emission Factors, Vol. I, Stationary Point & Area Sources	MW	Megawatt
BACT	Best Available Control Technology	NAAQS	National Ambient Air Quality Standards
bhp	Brake horsepower	NESHAP	National Emission Standards for Hazardous Air Pollutants
BMP	Best Management Practice	NO ₂	Nitrogen dioxide
Btu	British thermal unit	NO _x	Nitrogen oxides
bu	Bushel	NSPS	New Source Performance Standard
CAA	Clean Air Act	NSR	New Source Review
CDT/CST	Central Daylight Time/Central Standard Time	PAL	Plant-wide applicability limit
CE	Control equipment	Pb	Lead (chemical abbreviation)
CEM	Continuous emissions monitor	PEMS	Predictive Emissions Monitoring System
CEMS	Continuous emissions monitoring system	PM	Particulate matter
cf or ft ³	Cubic feet	PM ₁₀	Particulate matter with and aerodynamic diameter equal to or less than 10 microns
CFR	Code of Federal Regulations	PM _{2.5}	Particulate matter with and aerodynamic diameter equal to or less than 2.5 microns
CO	Carbon monoxide	ppb	Parts per billion
CO ₂	Carbon dioxide	ppm	Parts per million
CO ₂ e	CO ₂ equivalent	ppmv	Parts per million by volume
C.P.	Construction permit	ppmvd	Parts per million by volume, dry basis
CPMS	Continuous Parametric Monitoring System	PSD	Prevention of Significant Deterioration of Air Quality
dscf	Dry standard cubic feet	PTE	Potential to emit
dscfm	Dry standard cubic feet per minute	RVP	Reid vapor pressure
EMIS	Emergency Management Information System	RATA	Relative Accuracy Test Audit
EP	Emission point	RMP	Risk Management Plan
ESP	Electrostatic precipitator	RTO	Regenerative thermal oxidizer
EU	Emission unit	§	Section
FID#	Facility Identification Number	scf	Standard cubic feet
FDCP	Fugitive dust control plan	SDS	Safety Data Sheet
FGR	Flue gas recirculation	SIC	Standard Industrial Classification
FIP	Federal Implementation Plan	SIP	State Implementation Plan
FR	Federal Register	SO ₂	Sulfur dioxide
ft	Feet	SO _x	Sulfur oxides
FTIR	Fourier Transform Infrared	TDS	Total dissolved solids
GHGs	Greenhouse gases	TO	Thermal oxidizer
gpm	gallons per minute	TO/HRSG	Thermal oxidizer with heat recovery steam generator
H ₂ S	Hydrogen sulfide	tpy	Tons per year
HAP	Hazardous air pollutant	TRS	Total reduced sulfur
hp	Horsepower	TSP	Total suspended particulate matter
hr	Hour	ULNB	Ultra low-NO _x burner
kW	Kilowatt	ULSD	Ultra low-sulfur diesel (maximum sulfur content of 15 ppm)
kWh	Kilowatt-hour	UST	Underground storage tank
lb	Pound	US EPA	United States Environmental Protection Agency
LDAR	Leak detection and repair	UTM	Universal Transverse Mercator
LLCAPPRS	Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards	VHAP	Volatile hazardous air pollutant
LLCHD	Lincoln-Lancaster County Health Department	VMT	Vehicle miles traveled
LNB	Low-NO _x burner	VOC	Volatile organic compound
MACT	Maximum Achievable Control Technology		
Mgal	One thousand gallons		
MMBtu	One million British thermal units		
MMscf	One million standard cubic feet		

Section 1 – Introduction

1.01 – Description of Project

The City of Lincoln, Nebraska Transportation and Utilities Department (LTU) has submitted an application to install and operate a new wood pyrolysis unit to convert clean wood and brush material to biochar for beneficial use. This unit will be installed at the ‘North 48th Street Solid Waste Management Facility’ (North 48th Street SWMF).

This permit will be a ‘minor New Source Review’ (minor NSR) permit, as this permitting action does not trigger any ‘Prevention of Significant Deterioration of Air Quality’ (PSD) applicability thresholds. The facility’s potential to emit will be lower than construction permit thresholds set forth in Article 2, Section 17, paragraph (A)(1) of the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS). However, the source shall be responsible for identifying and maintaining compliance with all applicable provisions, if any, established in 40 CFR Part 60 and as may be identified in the owner’s/operator’s operating permit.

Section 2 – Permitting History

2.01 – Proposed Construction Permit #233

This permit is for the installation of a wood pyrolysis unit. There is no relevant permitting history specific to the pyrolysis unit being installed. This document serves as the factual and legal basis for the proposed issuance of Construction Permit #233 to the LTU North 48th Street SWMF. The sections that follow provide more information on the source, the nature of emissions from the proposed construction, evaluation of the potential to emit, and a discussion of conditions set forth in the draft permit.

Section 3 – Emission Unit Characterization

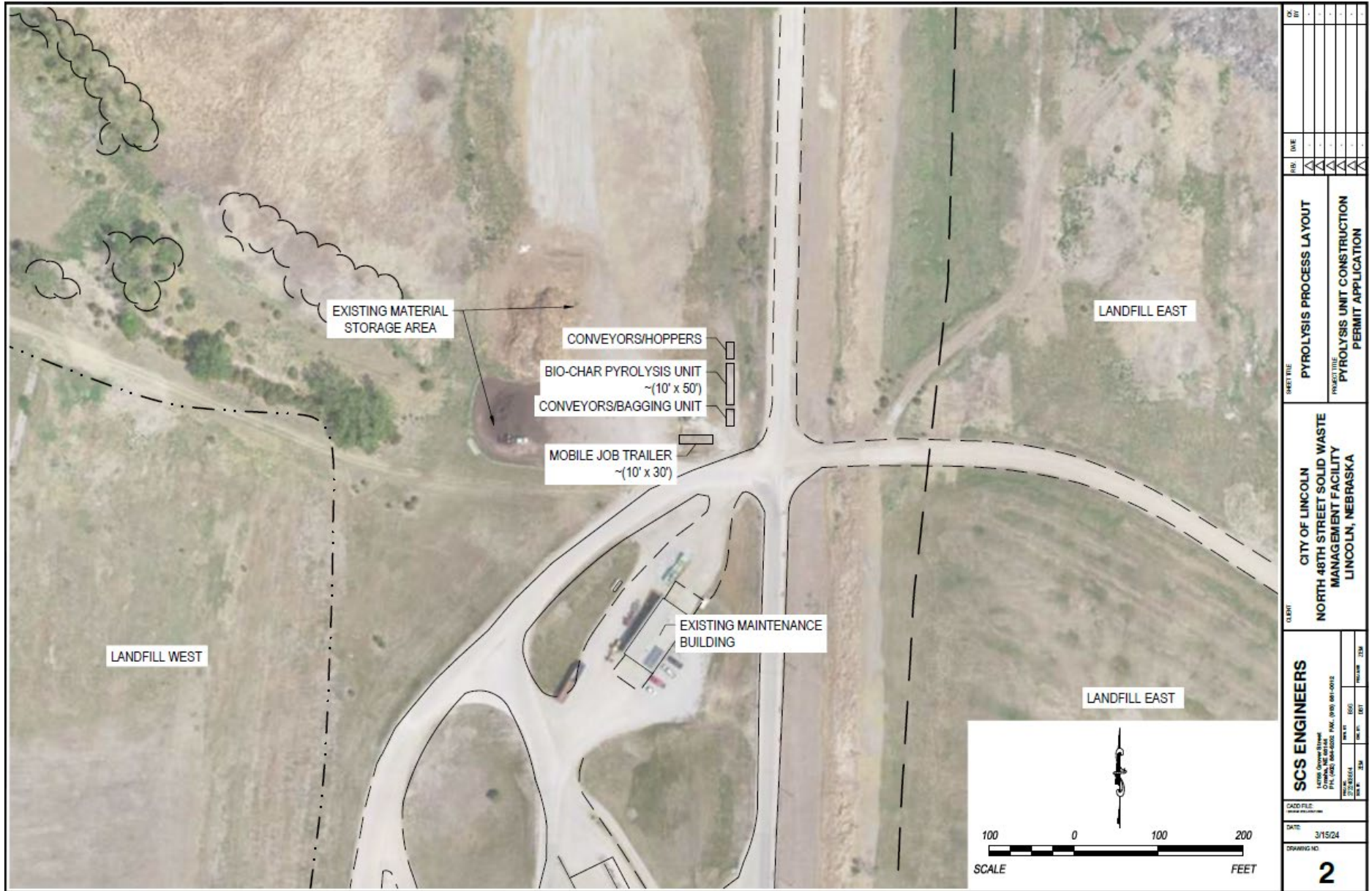
3.01 – Permitted Emission Units

This permit allows for the construction and operation of the following emission unit(s) in accordance with the conditions and requirements established in the proposed permit.

Emission Unit (EU)	SCC Code	Emission Point Description	Emission Segment Description
006-01	5-04-105-38	Pyrolysis Rotary Drum Biomass Carbonization Unit w/ Afterburner	Propane Combustion
006-02	5-04-105-38	Pyrolysis Rotary Drum Biomass Carbonization Unit w/ Afterburner	Clean Wood Pyrolysis

3.02 – Source Location & Layout

The following image reflects the proposed location of the new wood pyrolysis unit on the site.



Section 4 – Emission Characterization

4.01 – Emission Calculation Factors and Methods

The emission factors, methods, and procedures for performing emission calculations are based on information provided in LTU’s approved application. LTU will be required to utilize such factors and methods to provide the emissions information required for the annual emissions inventory. LTU used manufacturer data and emission factors from the US Environmental Protection Agency’s (US EPA) Compilation of Air Pollutant Emission Factors (AP-42) to calculate emissions for the respective units.

4.02 – Maximum Potential to Emit (MPTE)

4.02.01 – MPTE: Criteria Pollutants, Greenhouse Gases, & Total Hazardous Air Pollutants (HAPs)

The following table reflects the maximum potential emissions of criteria pollutants, as well as GHGs and total HAPs associated with the construction and operation of this emission unit.

Emission Unit (EU)	SCC Code	Maximum Annual Process Rate	PM ₁₀ (lbs)	PM _{2.5} (lbs)	NO _x (lbs)	SO ₂ (lbs)	VOC (lbs)	CO (lbs)	CO ₂ e (lbs)	LEAD (lbs)	Total HAP (lbs)
006-01	5-04-105-38	915.00 gals	641	641	11,900	13.7	915	6,860	1.17E+07	-	-
006-02	5-04-105-38	3,109.8 tons	5,440	5,440	6,250	1,350	2,950	162	1.28E+08	-	1,057.82
Total Emissions (pounds/year)			6,081	6,081	18,150	1,363.7	3,865	7,022	1.397E+08	-	1,057.82
Total Emissions (tons/year)			3.04	3.04	9.08	0.68	1.93	3.51	69,850	-	0.53

4.02.02 – MPTE: Individual Hazardous Air Pollutants (HAPs)

The following table reflects the maximum potential emissions of individual HAPs associated with the construction and operation of this emission unit. Emissions are provided in units of pounds per year.

HAP Name	CAS #	Emissions (lbs)	Emissions (tons)
Acetaldehyde	75-07-0	4.51E+01	2.26E-02
Acetophenone	98-86-2	1.74E-04	8.70E-08
Acrolein	107-02-8	2.17E+02	1.09E-01
Benzene	71-43-2	2.28E+02	1.14E-01
Bis(2-ethylexyl)phthalate	117-81-7	2.55E-03	1.28E-06
Carbon tetrachloride	56-23-5	2.45E+00	1.22E-03
Chlorine	7782-50-5	4.29E+01	2.15E-02
Chlorobenzene	108-90-7	1.79E+00	8.97E-04
Chloroform	67-66-3	1.52E+00	7.61E-04
Chloromethane	74-87-3	1.25E+00	6.25E-04

HAP Name	CAS #	Emissions (lbs)	Emissions (tons)
Dichloromethane	75-09-2	1.58E+01	7.88E-03
1,2-Dichloropropane	78-87-5	2.72E+00	1.36E-03
2,4-Dinitrophenol	51-28-5	9.78E-03	4.89E-06
Formaldehyde	50-00-0	2.39E+02	1.20E-01
Naphthalene	91-20-3	5.27E+00	2.64E-03
4-Nitrophenol	100-02-7	5.98E-03	2.99E-06
Pentachlorophenol	87-86-5	2.77E-03	1.39E-06
Phenol	108-95-2	2.77E+00	1.39E-03
Propionaldehyde	123-38-6	1.74E+00	8.70E-04
Styrene	100-42-5	1.03E+02	5.16E-02
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	4.67E-07	2.34E-10
Toluene	108-88-3	5.00E+01	2.50E-02
2,4,6-Trichlorophenol	88-06-2	1.20E-03	5.98E-07
Vinyl Chloride	75-01-4	9.78E-01	4.89E-04
o-Xylene	95-47-6	1.36E+00	6.79E-04
Antimony	-	4.29E-01	2.15E-04
Arsenic	-	1.20E+00	5.98E-04
Beryllium	-	5.98E-02	2.99E-05
Cadmium	-	2.23E-01	1.11E-04
Chromium	-	1.14E+00	5.71E-04
Cobalt	-	3.53E-01	1.77E-04
Lead	-	2.61E+00	1.30E-03
Manganese	-	8.70E+01	4.35E-02
Mercury	-	1.90E-01	9.51E-05
Nickel	-	1.79E+00	8.97E-04
Selenium	-	1.52E-01	7.61E-05

4.02.03 – Maximum Potential to Emit – Permit Threshold Evaluation

The following table summarizes the source’s potential to emit and compares it to applicable Class I and Class II operating permit thresholds.

Criteria Pollutant	Emissions (tpy)	Class II Permitting Threshold	Meet or Exceed?	Class I Permitting Threshold	Meet or Exceed?
PM ₁₀	3.04	≥ 15 tpy	No	≥ 100 tpy	No
PM _{2.5}	3.04	N/A	N/A	N/A	N/A
NO _x	9.08	≥ 40 tpy	No	≥ 100 tpy	No
SO _x	0.68	≥ 40 tpy	No	≥ 100 tpy	No
VOC	1.93	≥ 40 tpy	No	≥ 100 tpy	No
CO	3.51	≥ 50 tpy	No	≥ 100 tpy	No
CO _{2e}	69,850	N/A	N/A	N/A	N/A
Lead	-	≥ 0.6 tpy	No	≥ 5 tpy	No
Hazardous Air Pollutant	Emissions (tpy)	Class II Permitting Threshold	Meet or Exceed?	Class I Permitting Threshold	Meet or Exceed?
Greatest Single HAP	0.12	≥ 2.5 tpy	No	≥ 10.0 tpy	No
Total Combined HAPs	0.53	≥ 10.0 tpy	No	≥ 25.0 tpy	No

4.03 – Limited/Controlled Potential to Emit (LCPTE)

4.03.01 – LCPTE: Criteria Pollutants, Greenhouse Gases, & Total Hazardous Air Pollutants

The following table reflects the potential emissions for criteria pollutants, as well as GHGs and total HAPs associated with the construction of this facility after the incorporation of applicant-elected limitations on production, throughput, emissions, and/or emission controls as identified in Section 6 of the approved application.

Emission Unit (EU)	SCC Code	Maximum Annual Process Rate	PM ₁₀ (lbs)	PM _{2.5} (lbs)	NO _x (lbs)	SO ₂ (lbs)	VOC (lbs)	CO (lbs)	CO _{2e} (lbs)	LEAD (lbs)	Total HAP (lbs)
006-01	5-04-105-38	915.00 gals	641	641	11,900	13.7	18.3	6,860	1.17E+07	-	-
006-02	5-04-105-38	3109.8 tons	5,440	5,440	6,250	1,350	59.1	162	1.28E+08	-	114.43
Total Emissions (pounds/year)			6,081	6,081	18,150	1,363.7	77.4	7,022	1.397E+08	-	114.43
Total Emissions (tons/year)			3.04	3.04	9.08	0.68	0.04	3.51	69,850	-	0.057

4.03.02 – LCPTE: Individual Hazardous Air Pollutants

The following table reflects the maximum potential emissions of individual HAPs associated with the construction of this emission unit after the incorporation of applicant-elected limitations on production, throughput, emissions, and/or emission controls as identified in Section 6 of the approved application. Emissions are provided in units of pounds per year.

HAP Name	CAS #	Emissions (lbs)	Emissions (tons)
Acetaldehyde	75-07-0	9.02E-01	4.51E-04
Acetophenone	98-86-2	3.48E-06	1.74E-09
Acrolein	107-02-8	4.35E+00	2.17E-03
Benzene	71-43-2	4.57E+00	2.28E-03
Bis(2-ethylexyl)phthalate	117-81-7	5.11E-05	2.55E-08
Carbon tetrachloride	56-23-5	4.89E-02	2.45E-05
Chlorine	7782-50-5	8.59E-01	4.29E-04
Chlorobenzene	108-90-7	3.59E-02	1.79E-05
Chloroform	67-66-3	3.04E-02	1.52E-05
Chloromethane	74-87-3	2.50E-02	1.25E-05
Dichloromethane	75-09-2	3.15E-01	1.58E-04
1,2-Dichloropropane	78-87-5	5.44E-02	2.72E-05
2,4-Dinitrophenol	51-28-5	1.96E-04	9.78E-08
Formaldehyde	50-00-0	4.78E+00	2.39E-03
Naphthalene	91-20-3	1.05E-01	5.27E-05
4-Nitrophenol	100-02-7	1.20E-04	5.98E-08
Pentachlorophenol	87-86-5	5.54E-05	2.77E-08
Phenol	108-95-2	5.54E-02	2.77E-05
Propionaldehyde	123-38-6	3.48E-02	1.74E-05
Styrene	100-42-5	2.07E+00	1.03E-03
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	9.35E-09	4.67E-12
Toluene	108-88-3	1.00E+0	5.00E-04
2,4,6-Trichlorophenol	88-06-2	2.39E-05	1.20E-08
Vinyl Chloride	75-01-4	1.96E-02	9.78E-06
o-Xylene	95-47-6	2.72E-02	1.36E-05
Antimony	-	4.29E-01	2.15E-04
Arsenic	-	1.20E+00	5.98E-04
Beryllium	-	5.98E-02	2.99E-05
Cadmium	-	2.23E-01	1.11E-04
Chromium	-	1.14E+00	5.71E-04
Cobalt	-	3.53E-01	1.77E-04
Lead	-	2.61E+00	1.30E-03
Manganese	-	8.70E+01	4.35E-02
Mercury	-	1.90E-01	9.51E-05
Nickel	-	1.79E+00	8.97E-04
Selenium	-	1.52E-01	7.61E-05

4.03.03 – Limited/Controlled Potential to Emit – Permit Threshold Evaluation

Criteria Pollutant	Emissions (tpy)	Class II Permitting Threshold	Meet or Exceed?	Class I Permitting Threshold	Meet or Exceed?
PM ₁₀	3.04	≥ 15 tpy	No	≥ 100 tpy	No
PM _{2.5}	3.04	N/A	N/A	N/A	N/A
NO _x	9.075	≥ 40 tpy	No	≥ 100 tpy	No
SO _x	0.68	≥ 40 tpy	No	≥ 100 tpy	No
VOC	0.04	≥ 40 tpy	No	≥ 100 tpy	No
CO	3.51	≥ 50 tpy	No	≥ 100 tpy	No
CO _{2e}	69,850	N/A	N/A	N/A	N/A
Lead	-	≥ 0.6 tpy	No	≥ 5 tpy	No
Hazardous Air Pollutant	Emissions (tpy)	Class II Permitting Threshold	Meet or Exceed?	Class I Permitting Threshold	Meet or Exceed?
Greatest Single HAP	0.002	≥ 2.5 tpy	No	≥ 10.0 tpy	No
Total Combined HAPs	0.057	≥ 10.0 tpy	No	≥ 25.0 tpy	No

4.04 – Permit Threshold Evaluation

As reflected in the table in Section 4.03.03 above, emissions from this source are not of sufficient quantities to require a construction permit in accordance with Article 2, Section 17 of the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPPRS). However, a construction permit is being issued for this unit to establish federally-enforceable requirements to restrict the type of materials to be processed through the proposed emission unit.

4.05 – Ambient Air Quality Modeling Analysis

The LLCHD applies the Nebraska Department of Environment and Energy’s (NDEE) ‘PSD and Minor Source Modeling’ guidance when determining whether air dispersion modeling is required to demonstrate compliance with National Ambient Air Quality Standards (NAAQS). As stated on page 3 of the document, air dispersion modeling is required when the significant net emissions increase equals or exceeds the Significant Emission Rate (SER) listed in Table 1 of the guidance document. For PM₁₀, the SER is 15 tons per year, while the SER for PM_{2.5} is 10 tons per year. As reflected in Section 4.03.03, the net emissions increase associated with this facility is lower than both of the SERs for PM₁₀ and PM_{2.5}. As such, air dispersion modeling was not required for this project.

Section 5 – Applicable Regulations & Requirements

5.01 – Applicable Regulations under the LLCAPCPRS

The following sections (§) of the LLCAPCPRS are requirements of the proposed permit:

Table 1-A: Applicable Regulations of the LLCAPCPRS

Article 1: Administration and Enforcement	
§1	Intent
§2	Unlawful Acts – Permits Required
§3	Violations – Hearings – Orders
§4	Appeal Procedure
§5	Variance
§6	Fees
§7	Compliance – Actions to Enforce – Penalties for Non-Compliance
§8	Procedure for Abatement
§9	Severability
Article 2: Regulations and Standards	
§1	Definitions
§4	Ambient Air Quality Standards
§6	Emissions Reporting – When Required
§14	Permits – Public Participation
§16	Stack Heights – Good Engineering Practice (GEP)
§17	Construction Permits – When Required
§18	New Source Performance Standards (NSPS)
§20	Particulate Limitations and Standards
§22	Incinerator Emission Standards
§29	Operating and Construction Permit Emission Fees
§33	Time Schedule for Compliance
§34	Emission Source Testing and Monitoring
§35	Compliance – Exceptions Due to Startup Shutdown or Malfunction
§36	Control Regulation Circumvention – When Excepted
§37	Compliance – Responsibility of Owner/Operator Pending Review by Director
§38	Emergency Episodes – Occurrence, Control and Contingency Plans
Appendices	
I	Emergency Emission Reduction Regulations
II	Hazardous Air Pollutants Sorted by Pollutant Name
III	Hazardous Air Pollutants Sorted by CAS Number

5.02 – Applicable Federal Regulations

The following Federal Regulations, including those not currently delegated to the LLCHD or not yet included in the LLCAPCPRS, are requirements of the proposed permit:

Table 1-B: Applicable Federal Regulations

40 CFR Part 60: New Source Performance Standards (NSPS)	
<i>Subpart</i>	<i>Subpart Subject</i>
A	NSPS General Provisions

5.03 – Non-Applicable Regulations under the LLCAPCPRS

The following sections of the LLCAPCPRS are not requirements of the proposed permit:

Table 1-C: LLCAPCPRS Regulations not Incorporated in Permit

Article 2: Regulations and Standards	
§2	Major Sources – Defined
§5	Operating Permits – When Required
§7	Operating Permits – Application
§8	Operating Permits – Content
§9	General Permits
§10	Operating Permits for Temporary Sources
§11	Emergency Operating Permits – Defense
§12	Operating Permit Renewal and Expiration
§13	Class I Operating Permit – EPA Review – Affected States Review
§15	Permit Modifications – Reopening for Cause
§19	Prevention of Significant Deterioration (PSD) of Air Quality
§21	Compliance Assurance Monitoring (CAM)
§23	National Emission Standards for Hazardous Air Pollutants (NESHAPs)
§24	Sulfur Compound Emissions Standards for Existing Sources
§25	Nitrogen Oxides Emissions Standards for Existing Sources
§26	Acid Rain
§27	Hazardous Air Pollutants – Maximum Achievable Control Technology (MACT)
§28	Hazardous Air Pollutants – Source Category Emissions Standards
§32	Duty to Prevent Escape of Visible Airborne Dust
§3, §30, §31	Reserved

5.04 – Non-Applicable Regulations under the NDEE Title 129 Air Quality Regulations

The following regulation(s) set forth under Title 129 of the Nebraska Administrative Code (Nebraska Air Quality Regulations) are not requirements of the proposed permit:

Table 1-D: Non-Applicable State Air Quality Regulations

Regulation	Regulation Title
Chapter 4	Prevention of Significant Deterioration of Air Quality

5.05 – Applicable Lincoln Municipal Code (LMC) Chapter(s)

Table 1-E: Applicable Lincoln Municipal Code (LMC) Chapter(s)

Chapter	Chapter Title
8.06	Air Pollution

Section 6 – Discussion of Proposed Permit Requirements

The following conditions of the proposed permit contain monitoring, reporting, notification, and record keeping requirements. A brief description of these conditions is provided below:

6.01 – General Conditions

The LLCHD has developed standard and general conditions that apply to most all sources of air pollution that are required to obtain an air quality construction permit. These conditions include requirements that apply to a wide variety of sources of air pollutants. These conditions are not typically subject to frequent change and provide a level of consistency for this portion of the permit regardless of the source. This standardization helps maintain consistency between permitting actions and reduces or eliminates the need for additional review, comment, or changes to this

portion of the permit during the permitting process. There will not be an in-depth discussion of these requirements, except to note the following General Conditions specifically related to monitoring, reporting, notification, and record-keeping:

- VI – Fees
- XI – Annual Emission Reporting
- XII(E) – Notification of Source Modifications
- XV(E) – Permit Copy Maintenance and Retention
- XXVII(G) – ‘Credible Evidence Rule’
- XIX – Startup, Shutdown, and Malfunction (SSM) Provisions
- XXIV(E) – Record Keeping and Retention

6.02 – Specific Conditions

The following are specific conditions of the proposed construction permit.

- XXV. – Source-Wide Requirements. These conditions apply to the facility and to any emission units identified specifically under the requirements of this condition.

- (A) Operating Requirements, Throughput Limits, and/or Work Practice Standards.

The requirements set forth under this condition serve to:

- ensure the pyrolysis unit and processes materials meeting the definition of ‘clean cellulosic biomass’ (see additional discussion in Section 6.03);
- incorporate applicable throughput limits to ensure that the maximum burning capacity rate is not exceeded;
- ensure that emission units are operated in such a manner that their contributions to air pollution are minimized and recognize that it is the responsibility of the source to implement operating and maintenance procedures according to good air pollution control practices; and
- incorporate any elections made in the approved application by reference.

- (B) Emission Limits and Emission Control Requirements.

The requirements set forth under this condition serve to:

- incorporate applicable emission limits as specified in LLCAPCPRS Article 2, Section 22;
- incorporate applicable emission limits as specified in LLCAPCPRS Article 2, Section 20; and
- incorporate a maximum opacity limit for visible emissions of particulate matter from the permitted emission unit(s).

- (C) Monitoring Keeping Requirements.

The requirements set forth under this condition serve to:

- ensure that the source performs adequate routine observations of particulate matter in the air and initiates corrective action if necessary.

(D) Record Keeping Requirements.

The requirements set forth under this condition serve to:

- ensure that the source maintains records adequate to demonstrate intent to comply with manufacturer instructions; and
- ensure that the owner/operator maintains records adequate to demonstrate that permitted emission unit(s) are operated and maintained in a manner that is consistent with operation of a 'biochar' pyrolysis unit (burning only clean cellulosic biomass).

(E) Reporting Requirements.

The requirements set forth under this condition serve to:

- reiterate the requirement that the owner/operator is to submit an annual emission inventory; and
- require the owner/operator to notify the Department of any visible emissions observed leaving the premises and/or EPA Test Method 9 observations results in greater than twenty percent (20%) opacity.

(F) Other Requirements.

The requirements set forth under this condition serve to:

- ensure that the Department is aware of any changes at this source that would result in significant changes to actual emissions as well as the source's potential to emit, including changes to application materials; and
- ensure timely compliance with any requirements that would require additional emission controls or monitoring, beyond what has been established in the proposed permit.

(G) Requirements of the New Source Performance Standards set forth in Title 40, Part 60 of the Code of Federal Regulations (40 CFR Part 60).

The requirements set forth under this condition serve to incorporate applicable requirements of 40 CFR Part 60 as may identified in the source operating permit.

6.03 – Discussion of New Source Performance Standard (NSPS) Non-Applicability

The LLCHD has determined that, if operated in compliance with the conditions set forth in the proposed permit, the requirements set forth in 40 CFR Part 60, Subparts AAAA, CCCC, and EEEE do not apply to this unit. The justification for such findings is as follows:

- Subpart AAAA: This subpart does not apply as the material to be processed in the biochar pyrolysis unit does not meet the definition of 'municipal solid waste' as defined in 40 CFR 60 Subpart AAAA §60.1465, and the capacity of the unit is less than 35 tons per day (40 CFR 60 Subpart AAAA §60.1010(b)).
- Subpart CCCC: This subpart does not apply for the following reasons:
 - The chipped/shredded/ground woody material to be processed in the biochar pyrolysis unit does not meet the definition of 'municipal solid waste' (MSW) as defined in 40 CFR 60 Subpart CCCC §60.2265. To be considered MSW under Subpart CCCC, the material first needs to meet the definition of 'solid waste' as defined in 40 CFR 60 Subpart CCCC §60.2265, which refers to 'solid waste' as defined in 40 CFR Part 241 §241.2 (which further refers to 40 CFR Part 258 §258.2). The material to be processed is a clean wood product that meets the definition of 'clean cellulosic biomass' set forth in 40 CFR Part 241 §241.2.

In accordance with the definition of ‘clean cellulosic biomass’ in Part 241, residuals akin to traditional cellulosic biomass are not considered a secondary material or solid waste unless discarded. The North 48th Street SWMF does receive tree limbs, branches, trimmings, stumps, etc. from the public. However, they generally do not receive material that has already been chipped or shredded, and such materials would be poorly suited for further processing through a chipper/shredder/grinder. The North 48th Street SWMF personnel process received woody materials into chipped/shredded/ground wood, and in doing so, create a reclaimed (chipped/shredded/ground) clean woody material that has beneficial uses (e.g., landscaping material, compost additive, soil stabilization, etc.), and that is significantly different in physical composition from the woody materials received at this site. The Department has determined that the reclaimed clean woody material meets the definition of clean cellulosic biomass, and is therefore not considered to be ‘solid waste’.

- Subpart EEEE: This subpart does not apply for the following reasons:
 - The chipped/shredded wood material to be processed in the biochar pyrolysis unit does not meet the definition of ‘municipal solid waste’ (MSW) as defined in 40 CFR 60 Subpart EEEE §60.2977. While the definition of MSW does include “wood”, material to be processed in the biochar pyrolysis unit is not ‘refuse’ as specified in §60.2977, and it is not ‘collected’ from general public or from residential, commercial, institutional, and industrial sources as ‘refuse’. The material to be processed is a clean wood product that meets the definition of ‘clean cellulosic biomass’ set forth in 40 CFR Part 241 §241.2. In accordance with that definition, the material is not considered a secondary material or solid waste, as the chipped/shredded wood is not a ‘discarded’ material.
 - The chipped/shredded wood material to be processed in the biochar pyrolysis unit does not meet the definition of an ‘institutional waste incineration unit’ as defined in 40 CFR 60 Subpart EEEE §60.2977, as the North 48th Street SWMF is not responsible for generating the material that will be processed in the biochar pyrolysis unit.
 - In the promulgation of 40 CFR 60 Subpart EEEE (EPA Publication of NSPS for ‘Other Solid Waste Incineration’ (OSWI) units at 40 CFR 60, Subpart EEEE at 70 FR 74870 (EPA-HQ-OAR-2003-0156 – FRL-8005-5)), in Section IV. item A.3., EPA noted in response to comments received on the proposed rule that it could not identify any ‘wood waste incinerators’ upon which a basis to regulate them as a subcategory of ‘other solid waste incinerators’ (OSWI) could be established. EPA stated that, *“Because we are unable to locate such units and have no data on them, we are not, and indeed cannot regulate them at this time. ... Therefore, because we are unable to locate any such units and have no data on how such hypothetical units, if used in the future, may operate, we are not including agricultural waste, construction or demolition, or wood waste incinerators as subcategories of OSWI.”* As EPA recognized that units processing only ‘wood waste’ for incineration/pyrolysis would correctly be regulated as a separate OSWI subcategory, and not as municipal waste combustion units, the biochar pyrolysis unit would be more appropriately regulated as a ‘wood waste incinerator’ had EPA established such an OSWI category, or in the event that they eventually do so.

6.04 – Permit Attachments

Attachment A: Visible Emissions Monitoring Procedure – This attachment provides visible emissions monitoring procedures and record keeping requirements for source implementation in demonstrating compliance with the emission control requirements as established in Condition XXV(B)(3) of the permit.

Section 7 – Summary of Permit Conditions Enforceable by Agency

- (1) LLCHD (Local) – All conditions indicated in this permit.
- (2) EPA (Federal) – All conditions indicated in this permit.

Section 8 – Compliance Assurance Monitoring

The Compliance Assurance Monitoring (CAM) requirements set forth under 40 CFR Part 64 only applies to operating permit actions, and thus is not an applicable requirement under this permit.

Section 9 – Pollution Prevention Opportunities

The Department encourages the owner/operator to continually examine its operations for pollution prevention opportunities. The Department’s Technical Assistance Program can provide resources to aid the facility in exploring available pollution prevention options.

Section 10 – Environmental Justice Considerations

The Department utilized the U.S. EPA’s Environmental Justice Screening Tool (EJSCREEN) to determine if there are environmental justice concerns in the area surrounding this facility. The U.S. EPA’s *‘Technical Guidance for Assessing Environmental Justice in Regulatory Analysis’* (June 2016) states that, “When using EJSCREEN, the 80th percentile is a suggested starting point for the purpose of identifying geographic areas in the United States that may warrant further consideration, analysis, or outreach. That is, if any of the EJ indexes for the areas under consideration are at or above the 80th percentile nationally, then further review may be appropriate.”

For urban areas, the Department analyzes a 1-mile radius around the center of the regulated facility. The EJSCREEN analysis performed by LLCHD personnel for this permitting action indicated that, in the 1-mile radius surrounding the approximate center of the facility, there is an affected population of approximately 1,000 people. For the affected population, the following ‘Pollution and Sources’ and ‘Supplemental Indexes’ indicators equaled or exceeded the 80th percentile nationally.

- Hazardous Waste Proximity
- Underground Storage Tanks
- Wastewater Discharge

For that population, all ‘Environmental Justice Indexes’ and all ‘Socioeconomic Indicators’ were lower than the 80th percentile nationally.

As a result, the Department encourages the owner/operator to continually evaluate how to effectively provide meaningful engagement to the public on the following, as needed:

- Information regarding any on-site storage of hazardous waste (if any).
- Information regarding any underground storage tanks maintained on-site (if any).
- Information regarding the company’s efforts to control and/or reduce emissions of regulated air pollutants, which may include any emission controls utilized and/or any limitations on emissions or throughputs employed.
- Guidance on how to obtain copies of operating and construction permits, as well as any associated public document, for public review and comment.

The Department does not have any specific recommendations pertaining to meaningful public engagement on matters relating to wastewater discharge, as these issues are outside the scope of NSR permitting action.

Section 11 – Air Quality Program Recommendation

The Department proposes approval of a construction permit for this facility. Enforceable permit conditions have been provided in the draft permit. A final determination on this permit will be made following the opportunity of the public to comment on the draft permit, and any comments received have been addressed.

Section 12 – Public Participation

The following notice is scheduled for publication in the **June 11, 2024** edition of the Lincoln Journal Star, which is a newspaper of general circulation in Lancaster County, Nebraska.

This notice, along with the draft permit, statement of basis, and permit application will also be made available on the Lincoln-Lancaster County Health Department (LLCHD) Air Quality Program website at the following URL:

<https://www.lincoln.ne.gov/City/Departments/Health-Department/Environmental/Air#section-6>

NOTICE OF INTENT TO ISSUE PERMIT

LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT (LLCHD)

- A. In accordance with Article 2, Section 14 of the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS), the LLCHD gives notice of the preliminary determination to approve the following permitting action(s) for the source identified in item 'B' below. The 30-day public comment period commences June 11, 2024 and ends on July 11, 2024.
 - 1. Proposed issuance of a minor new source review (minor NSR) construction permit.
- B. Issuance of the proposed permit allows for construction at the subject emission source within Federal, State and Local requirements. Provided below are the name, address, and the North America Industry Classification System (NAICS) code describing the nature of business at the subject emission source:
 - 1. Permit Holder Name: City of Lincoln – Transportation and Utilities Department
 - 2. Source Name: North 48th Street Solid Waste Management Facility
 - 3. Source Location: 5101 North 48th Street Lincoln, Nebraska 68504
 - 4. NAICS Code(s): 562212 – Solid Waste Landfill
- C. The construction of this facility will result in potential emissions that are less than construction permit thresholds, however, the proposed construction permit will establish federally enforceable limitations on the type of material(s) that the owner/operator will be allowed to utilize in the permitted unit, as well as requirements to utilize emission control equipment.
- D. The proposed permit will allow for emissions of the following regulated air pollutants in the associated quantities. All quantities are in units of tons per year (tpy).

Particulate matter <10 micrometers in diameter (PM ₁₀)	3.04 tpy
Particulate matter <2.5 micrometers in diameter (PM _{2.5})	3.04 tpy
Nitrogen Oxides (NO _x)	9.08 tpy
Sulfur Oxides (SO _x)	0.68 tpy
Volatile Organic Compounds (VOCs)	0.04 tpy
Carbon Monoxide (CO)	3.51 tpy
Lead (Pb)	0.00 tpy
Greenhouse Gases (as CO ₂ equivalents)	69,850.00 tpy

Total Combined Hazardous Air Pollutants (HAPs) 0.06 tpy

- E. Lancaster County is an 'attainment/unclassifiable' area for all pollutants subject to the National Ambient Air Quality Standards (NAAQS), meaning air quality in Lancaster County meets or is cleaner than the national standards. This permitting action is not expected to change that status.
- F. The proposed permit, statement of basis, permit application, and a copy of this public notice document are available online at: <http://lincoln.ne.gov>, keyword search "air". Those materials are also available for inspection during business hours at the office of the LLCHD at 3131 O Street, Lincoln, NE 68510. Telephone inquiries regarding this public notice may be directed to the Air Quality Program at (402) 441-8040. If alternate formats of materials are needed, please notify the Department by calling (402) 441-8040 or (402) 441-6284 for TDD users.
- G. Within the 30-day public comment period, any interested person, agency, or group may submit comments on the proposed permit(s), or request or petition the Director of the LLCHD for a public hearing in accordance with item 'H' below. Comments on the proposed permit(s) may be mailed to the attention of the Air Quality Program Supervisor at the address provided in item 'F' above, or submitted via e-mail to health@lincoln.ne.gov using the subject line 'Comment on Air Quality Permit'. Individuals commenting via e-mail are asked to provide their home address and phone number for follow-up correspondence.
- H. Requests for public hearing must be made in writing, and must state the nature of the issues to be raised and all arguments and factual grounds supporting their position. If a public hearing is granted by the Director, the hearing will be advertised by public notice at least 30 days prior to its occurrence.
- I. The LLCHD does not discriminate on the basis of race, color, national origin, disability, age, or sex in administration of its programs or activities, and LLCHD does not intimidate or retaliate against any individual or group because of their participation in or opposition to actions protected or prohibited by 40 CFR Part 7, or for the purpose of interfering with any right or privilege guaranteed by 40 CFR Part 7.