Nebraska Public Power District
Always there when you need us

April 15, 2016

Tracy Wharton
Nebraska Department of Environmental Quality
1200 'N' Street, Suite 400
Lincoln, NE 68509

RE: Sheldon Station Construction Permit Modification & 1-Hour SO_2 NAAQS Dispersion Modeling Report
Facility ID #33563

Dear Ms. Wharton:

Please find enclosed the modified construction permits and air dispersion modeling report for Sheldon Station for compliance with the SO_2 1-Hour National Ambient Air Quality Standard (NAAQS). The modified construction permits were issued by Lincoln-Lancaster County Health Department (LLCHD) on April 15, 2016 and incorporate operational requirements and stack height modifications for Sheldon Stations Unit #1 and #2. The air dispersion modeling was conducted using the stack heights as described in the modified construction permits. The air dispersion modeling data was emailed to you on April 15, 2016 in addition to the modeling files also being included on the enclosed CD. NPPD requests that the NDEQ submit this information to the EPA on or before April 19, 2016 for consideration in the designations for the 1-hour SO_2 NAAQS that the EPA has committed to issuing by July 2, 2016.

If you have any questions please feel free to call me at 402-563-5355

Sincerely,

Joe L. Citta Jr.
Corporate Environmental Manager

Enclosure: Modified Construction Permit for Sheldon Station Unit #1
Modified Construction Permit for Sheldon Station Unit #2
Sheldon Station 1-Hour SO2 NAAQS Dispersion Modeling Report
Air Dispersion Modeling files on CD

Cc w/o enc. : Jim Macy, NDEQ
Shelley Schneider, NDEQ
Chris Schroeder, LLCHD

General Office
1414 15th Street / PO Box 499 / Columbus, NE 68602-0499
***Telephone:** (402) 564-8561 / **Fax:** (402) 563-5527*
www.nppd.com

Nebraska Public Power District

Sulfur Dioxide 1-Hour NAAQS Designations Modeling (REVISED)

for

Sheldon Station (Facility ID #33563)
Hallam, Nebraska

For submittal to:

Lisa Alam
c/o Records Management
Nebraska Department of Environmental Quality
Suite 400, The Atrium
1200 N Street
P.O. box 98922
Lincoln, Nebraska 69509-8922

Prepared by:

HDR Engineering, Inc.

April 2016

INTRODUCTION

This modeling report summarizes dispersion modeling of Sheldon Station to demonstrate attainment with the sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) for the 1-hour averaging period, which is equal to 75 parts per billion (ppb) or approximately 196.5 micrograms per cubic meter ($\mu g/m^3$). This modeling has been completed for submission to the Nebraska Department of Environmental Quality (NDEQ) for review and approval.

The modeling in this report demonstrates compliance with the SO_2 1-hour NAAQS by inclusion of stack height increases for the Unit 1 and 2 boiler stacks. NPPD is in the process of increasing the Unit 1 stack height from 174 feet to 224 feet above local ground level, and the Unit 2 stack from 174 feet to 210 feet above local ground level. Note that while the de minimis good engineering practice (GEP) stack height is 65 meters (213 feet), the new (modeled) heights of the stacks are well below the calculated GEP height of 335.6 feet (102.3 meters) for each stack.

This modeling demonstrates compliance with the NAAQS, based on use of actual hourly emissions inputs for the 2012-2014 period modeled (the same emission data used in the prior, September 2015 submittal).

MODELING PROTOCOL

The dispersion modeling results summarized in this report were obtained using the EPA's AERMOD dispersion modeling system, using the modeling procedures and data as described in a modeling protocol developed in collaboration with NDEQ, as provided in Attachment 1 to this report, with one exception. The exception is that for this updated analysis, the latest version of the AERMOD model (Version 15181) has been used to produce concentration results. In addition to this report, this submittal to NDEQ includes a "zipped" file containing the data files as follows:

AERMOD input and output files

Building Profile Input Program "PRIME" (BPIPPRIME) input & output files

The meteorological input data and raw terrain data to develop receptor inputs are not being re-transmitted with this report, because these data have not changed from the prior modeling of SO_2 for Sheldon Station, submitted to NDEQ in September 2015.

MODEL INPUTS

This modeling report contains figures detailing the modeled sources, receptors, background SO_2 concentration and meteorological data locations, and the resulting 1-hour SO_2 modeled impacts. The SO_2 modeling was conducted in accordance to the attached detailed dispersion modeling protocol.

Figure 1 displays the source locations of the two point sources included in the model, which are the coal-fired boiler stacks for Sheldon Station Unit 1 and Unit 2.

Figure 1: Source Locations

Figure 2 displays the receptor locations as specified in the attached dispersion modeling protocol in accordance with NDEQ guidance.

Figure 2: Receptor Locations

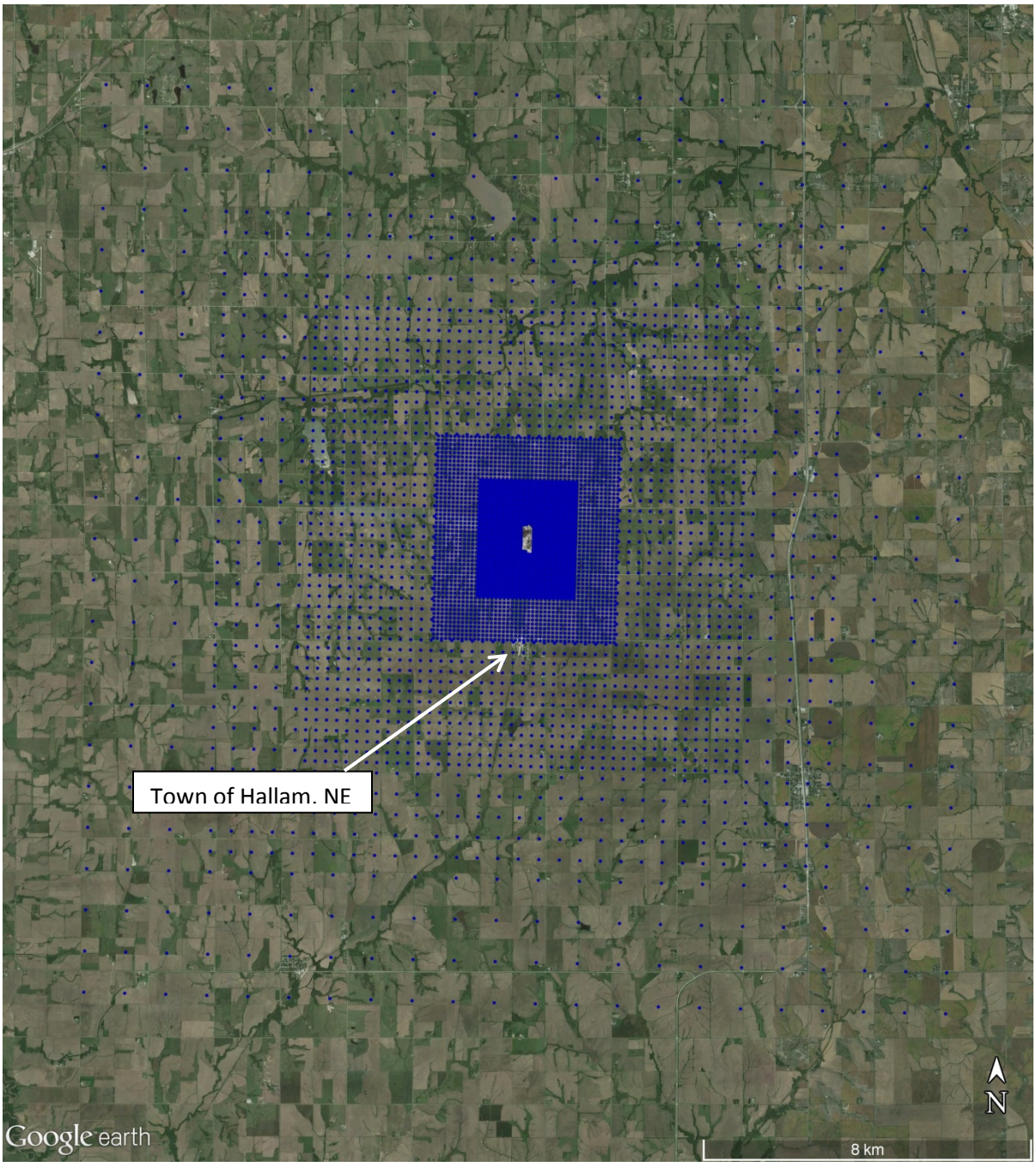
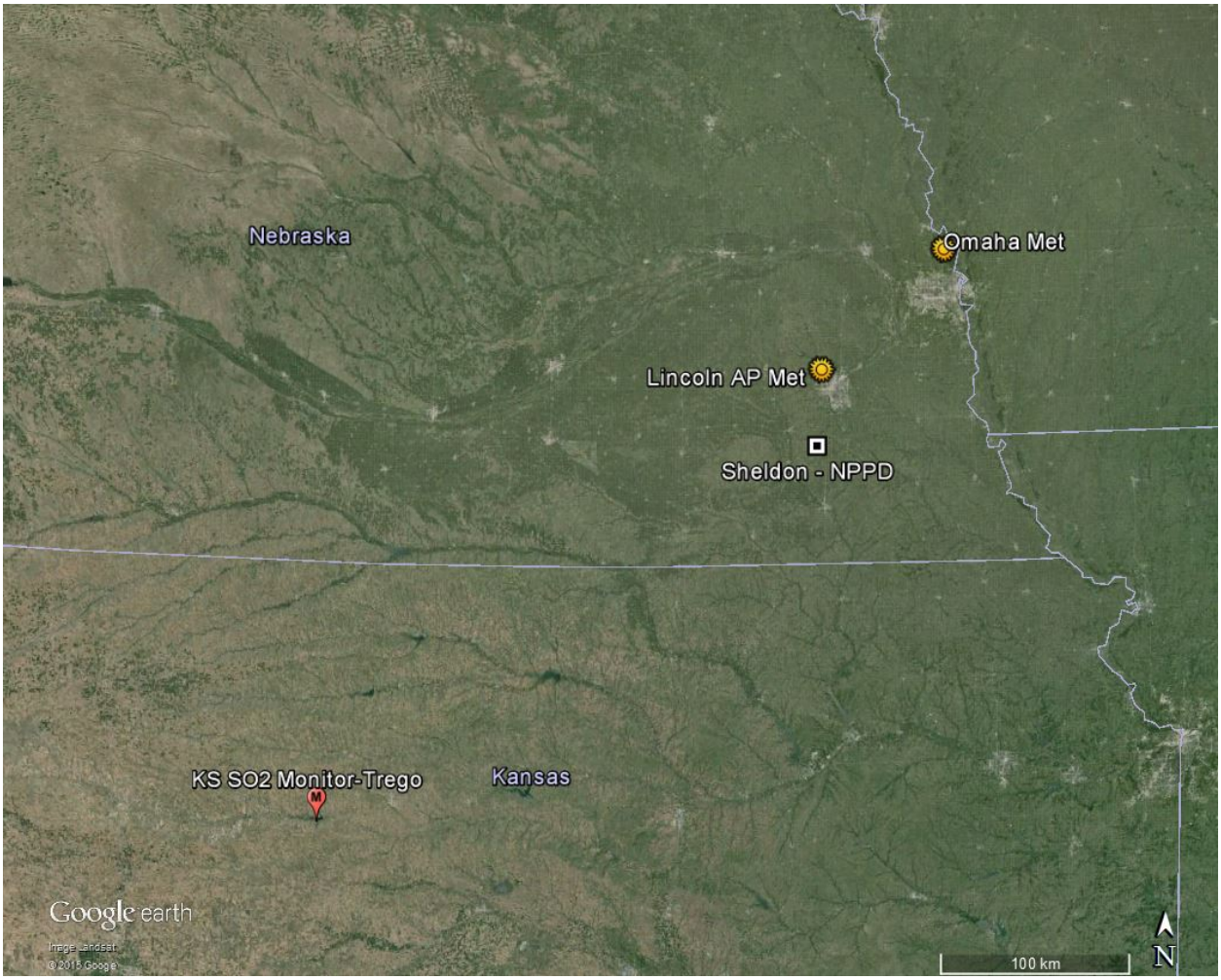


Figure 3 displays the Sheldon Station location in relation to the background SO_2 monitor location (Trego County, Kansas) and meteorological data stations for surface data (Lincoln, Nebraska) and upper-air data (Omaha, Nebraska).

Figure 3: Site, Monitor, and Meteorological Station Locations.



The stack parameter inputs for Sheldon Station Units 1 & 2 are provided in Table 1. The stack temperature and velocity are placeholder design values. Actual temperature and velocity data were input to the AERMOD model on an hourly basis with an hourly emission file that contains emission rates, stack temperatures and exit velocities for both stacks for each hour of the model simulation, which spanned the years 2012-2014. Note that the stack heights listed represent extensions from the current 174 feet (53 meters) stacks on both units. The Unit 1 stack will be raised to at least 224 feet (68.275 meters) and the Unit 2 stack will be raised to at least 210 feet above local ground level.

Table 1: Source Input Data for Modeling Analysis

Source ID	UTM Coordinates X (m)	UTM Coordinates Y (m)	Base Elevation (m)	Stack Height (m)	Stack Temperature (Deg. K)	Stack Exit Velocity (m/s)	Stack Diameter (m)
Unit 1	687597.9	4492175.0	438.9	68.275	452	26.88	3.54
Unit 2	687585.2	4492213.3	438.9	64.008	450	26.81	3.54

The hourly emissions data file input to AERMOD was based on continuous emissions and stack parameter monitoring data, which have been collected and reported consistent with Acid Rain program monitoring procedures as provided in 40 CFR 75. The hourly emissions data file (including stack exhaust temperature and velocity data) is provided electronically in the ZIP file accompanying this report.

MODEL RESULTS

Modeled design impact for the 3-year average (2012-2014) 1-hour SO_2 concentration is shown in Table 2 and presented visually in Figure 4. The 4th high 3-year average concentration is compared with the 1-hour SO_2 NAAQS of 75 parts per billion (ppb) or approximately 196.5 micrograms per cubic meter (µg/m^3). The background 1-hour SO_2 concentration of 9 µg/m^3 was added to the modeled concentration to provide a comparison of total concentration with the NAAQS, as shown in Table 2.

Table 2: Modeled Impacts (with background of 9 µg/m^3)

Pollutant	Avg. Period	Scenario	UTM Coordinates Easting (m)	UTM Coordinates Northing (m)	Modeled Concentration (µg/m^3)	Modeled Plus Background (µg/m^3)	NAAQS (µg/m^3)
SO_2	1-hour	U 1 @ 224' U2 @ 210'	688150	4491700	161.8	170.8	196.5

Figure 4: Modeled Result vs. SO_2 Standard (values in µg/m^3)

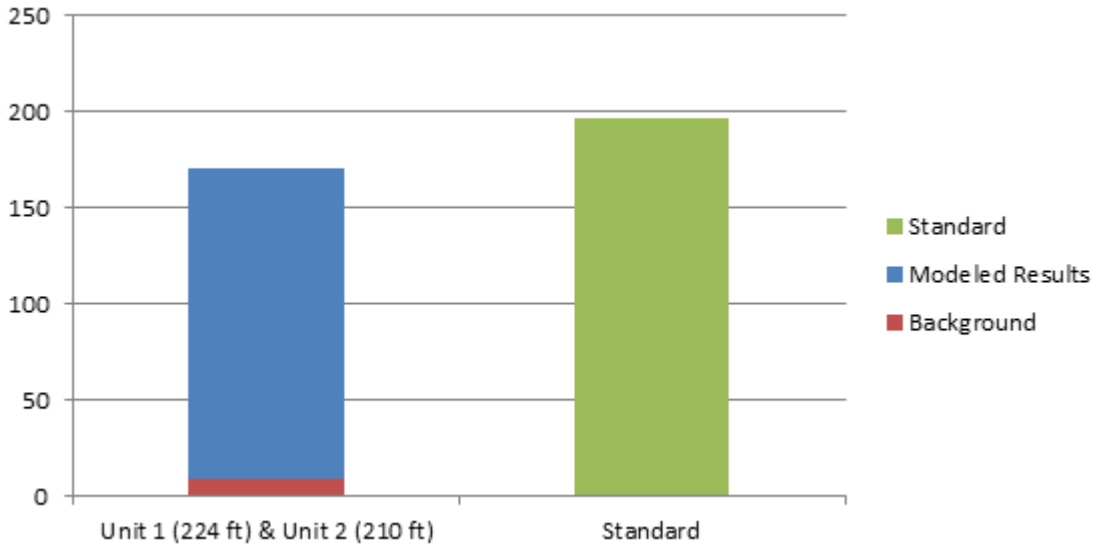
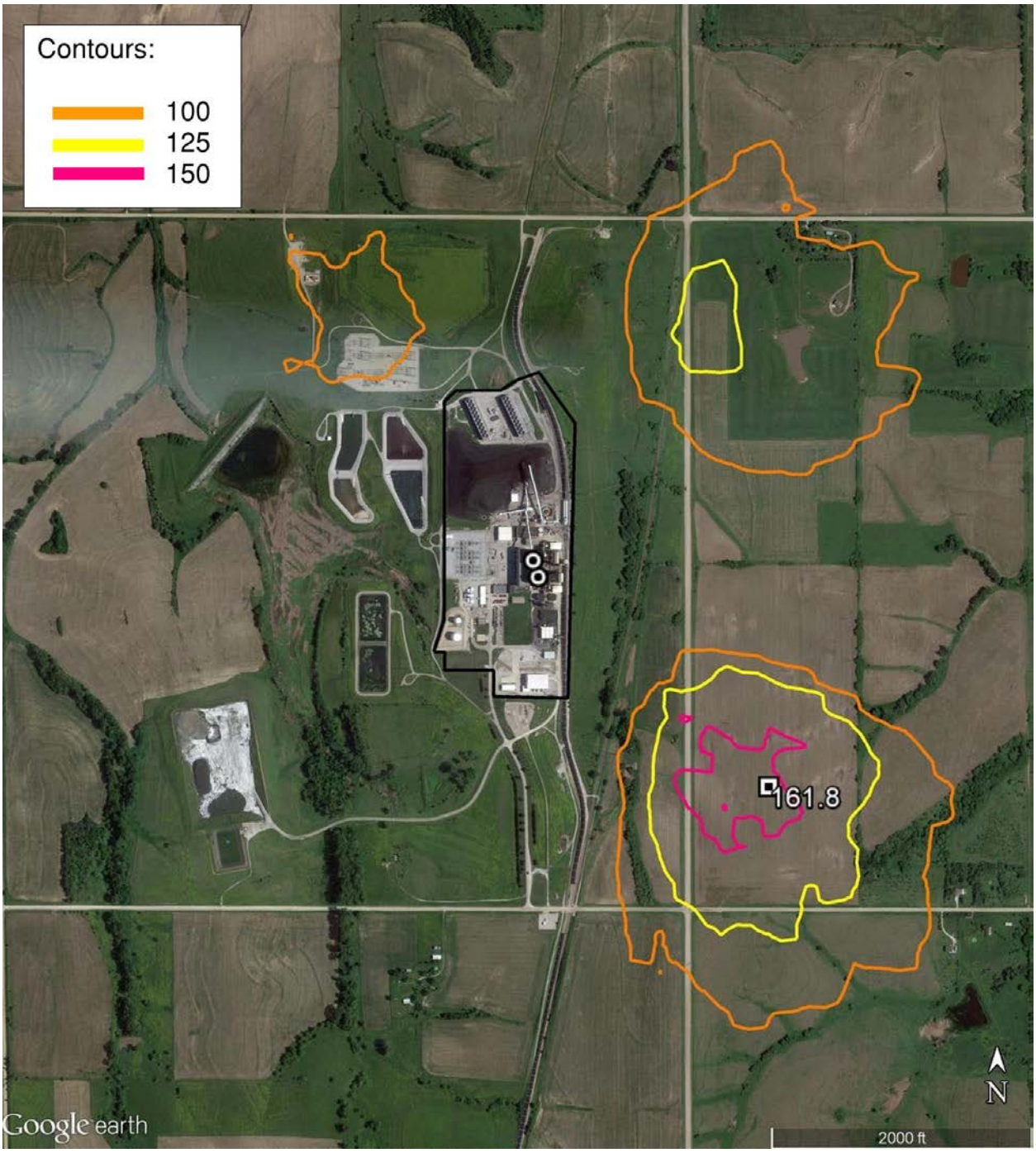


Figure 5 is a contour plot of the modeled 1-hour design concentrations (not including background), for the extended new stack heights of Units 1 and 2. These plotted data represent the average of the daily maximum 4th high values over the 3 years of meteorological data. The contour levels are: Orange: 100 µg/m^3, Yellow: 125 µg/m^3, and Pink: 150 µg/m^3.

The location of the maximum 4th high 3-year average modeled concentration (without background) is displayed for reference in the plot. This maximum modeled impact was only a few hundred meters southeast of the boiler stacks.

Figure 5: Contour Plot of SO_2 1-Hour (4^{th} high daily max.) Modeled Concentrations ($\mu g/m^3$)



CONCLUSION

This modeling analysis shows that by increasing the Unit 1 and 2 stack heights to 224 feet and 210 feet above ground, respectively, the design maximum SO_2 impact from Sheldon Station, when added to the estimated background concentration of 9 µg/m^3, would comply with the SO_2 1-hour NAAQS of 196.5 µg/m3 (75 ppb).

Sulfur Dioxide 1-Hour NAAQS Designations Modeling Protocol
Nebraska Public Power District, Sheldon Station (Facility ID #33563)
Hallam, NE
July 15, 2015

INTRODUCTION

This modeling protocol addresses proposed dispersion modeling for the Nebraska Public Power District (NPPD) Sheldon Station, in Lancaster County, near Hallam, Nebraska. The protocol summarizes the information that will be used to conduct dispersion modeling with respect to the National Ambient Air Quality Standard (NAAQS) for 1-hour average sulfur dioxide (SO_2) concentration, which is equal to 75 parts per billion (ppb) or approximately 196.5 micrograms per cubic meter ($\mu g/m^3$)

This protocol has been prepared for 1-hour SO_2 State Implementation Plan (SIP) dispersion modeling and is being submitted to the Nebraska Department of Environmental Quality (NDEQ) for review and approval. The results of the dispersion modeling analysis will be used by the NDEQ to formulate recommendations to EPA on the NAAQS attainment/nonattainment area designations for SIP purposes. EPA will review and use this information, along with any available monitoring data, to propose and finalize attainment/nonattainment designations for affected areas with respect to the 1-hour SO_2 NAAQS.

MODELING SOFTWARE

The following EPA modeling software will be used for this analysis.

- AERMOD (Version 14134)
- BPIP-Prime (Version 04274)
- AERMAP (Version 11103)

The AERMOD model will be executed using the rural dispersion mode, given the predominantly rural character of the land surrounding the subject facility.

METEOROLOGICAL DATA

Meteorological data for this analysis will be provided by NDEQ in preprocessed format, based on the most recent versions of AERMET (Version 14134), AERMINUTE (Version 14337), and AERSURFACE (Version 13016).

The surface meteorological will be from Lincoln, Nebraska and the upper air data will be from Omaha, Nebraska, which are considered representative of the Hallam area. This analysis will use three years of meteorological data for the years 2012 through 2014.

POLLUTANT AND AVERAGING PERIOD

The AERMOD model will be executed for SO_2 for 1-hour averages. By selecting SO_2 as the pollutant and 1-hour as the averaging period, AERMOD will automatically average the results over the three years of meteorology. The model result for comparison with the 1-hour SO_2 NAAQS of 196.5 $\mu g/m^3$ (75 parts per billion) will be the maximum of the 3-year average of the 4^{th} highest (99th

percentile) daily 1-hour maximum concentration, as automatically output by AERMOD from the multiyear (3-year) model run.

POINT SOURCES

Emission points to be modeled for Sheldon Station will include only the Unit 1 and 2 coal boiler stacks. The NDEQ and EPA have reviewed the other emissions sources in the region and determined that there are no nearby sources with large enough emissions to be included in a modeling analysis together with Sheldon Station. Thus, total impact for comparison with the NAAQS will consist of Unit 1 for Scenario 1, and Unit 1 and Unit 2 combined for Scenario 2, plus the background concentration (see below). The AERMOD output will be set up to produce source contributions for each unit, plus the total ("ALL" source group) concentrations.

The actual, hourly SO_2 emissions measured by the continuous emissions monitoring system (CEMS) on the Unit 1and 2 stacks will be used for this analysis, by using the optional hourly emissions input file for input to AERMOD. The single hourly emissions file will correspond with the same period of record represented by the three year period of meteorological data (2012-2014) input to AERMOD.

In addition to hourly SO_2 emissions in grams/second, the hourly emissions file will include hourly average stack gas exhaust temperature and exhaust gas exit velocity. These additional hourly parameters will be based on measurements recorded by the same CEMS systems being used to track hourly SO_2 emissions for each stack, in accordance with the routine monitoring requirements under 40 CFR 60 (New Source Performance Standards) and 40 CFR 75 (Continuous Emission Monitoring under the Acid Rain program).

In addition to the stack heights and the hourly emissions and stack parameters described above, the only other stack parameters needed by AERMOD are the stack exit diameters. The stack diameters to be input for Units 1 and 2 will be identical at 11.6 feet (3.536 m), based on the current design of these stacks.

BUILDING DOWNWASH INPUTS

The AERMOD input will include building downwash parameters calculated using the EPA's Building Profile Input Program "PRIME" (BPIPPRIME) software (Version 04274). The BPIPPRIME input and output (I/O) files will be provided along with all the other modeling I/O files on CD with the final modeling report.

TERRAIN ELEVATIONS

Terrain data will be processed to determine receptor elevations and "hill heights" for input to AERMOD using AERMAP, Version 11103. The AERMAP input will include terrain elevation data from the National Elevation Dataset (NED). The NED data available on-line in 1 arc-second spacing from the US Geological Survey will be used for this analysis. The receptor grid (extent defined below) will include receptors only in UTM Zone 14. The NED data for this analysis will be based on North American Datum (NAD) 83 for horizontal locations and NAD88 for vertical locations (elevations).

The NED terrain file downloaded from the USGS will be provided on CD along with all other model I/O files.

RECEPTOR GRID

Given there will be no nearby facilities included in this analysis, the receptor grid can be focused on just Sheldon Station. The receptor grid will include the following spacing on the fence lines and at downwind distances from the nearest fence lines.

- 50 meter spacing on the fence line
- 50 meter spacing from the fence to 1 kilometer from the fence
- 100 meter spacing from 1 kilometer to 2 kilometers from the fence
- 250 meter spacing from 2 kilometer to 5 kilometers from the fence
- 500 meter spacing from 5 kilometer to 7 kilometers from the fence
- 1000 meter spacing from 7 to 10 kilometers from the fence

The extent of this receptor grid is shown in the figure at the end of this protocol, and based on prior modeling experience, is expected to encompass areas of maximum 1-hour SO_2 concentration.

Any hot spots in the 250 meter and coarser receptor spacing will be refined by performing a separate model run centered on the hot spot, with a 1000-meter by 1000-meter grid of 50-meter spacing centered on the highest impact receptor from the initial model run.

BACKGROUND CONCENTRATION

The background 1-hour SO_2 concentration will be based on data from the rural monitor located at Cedar Bluff Reservoir (EPA Site ID number 201950001) in Trego County in western Kansas. This monitor is far from any nearby large SO_2 sources, so is representative of background concentrations in rural areas of Nebraska exclusive of nearby major source impacts.

Given that there are apparent monitor operational problems evidenced in the data for the most recent year of complete data, 2014, the background concentration will be based on the next most recent three years of available data, those being 2011-2013. The table below shows the calculated average of the 99th percentile daily maximum 1-hour value as 8.7 µg/m^3 across the three years. Therefore, a background 1-hour SO_2 concentration of 9 µg/m^3 will be used for this analysis.

	Daily Maximum 1-hour, 99th Percentile	
Year	**(ppm)**	**(µg/m^3)**
2011	3	7.9
2012	4	10.5
2013	3	7.9
Average	**3.3**	**8.7**

MODELING REPORT

A final modeling report will be submitted to NDEQ for review, describing modeling procedures (attaching this protocol), mitigation features (design changes), if any, proposed by the utility, and including all model and preprocessor input and output files on CD/DVD, with the exception of the meteorological data preprocessing files given that the NDEQ performed the meteorological data preprocessing. The data on CD/DVD will include all the hourly emissions (CEM) data files used to input actual emissions to AERMOD.

The modeling report will contain graphics displaying, at a minimum,

- source locations,
- receptor locations,
- meteorological data locations,
- background monitor location,
- contour plots displaying modeled design values (for general receptor grid and any refined grid model runs), and
- a bar chart showing background plus source impact for comparison with the NAAQS.

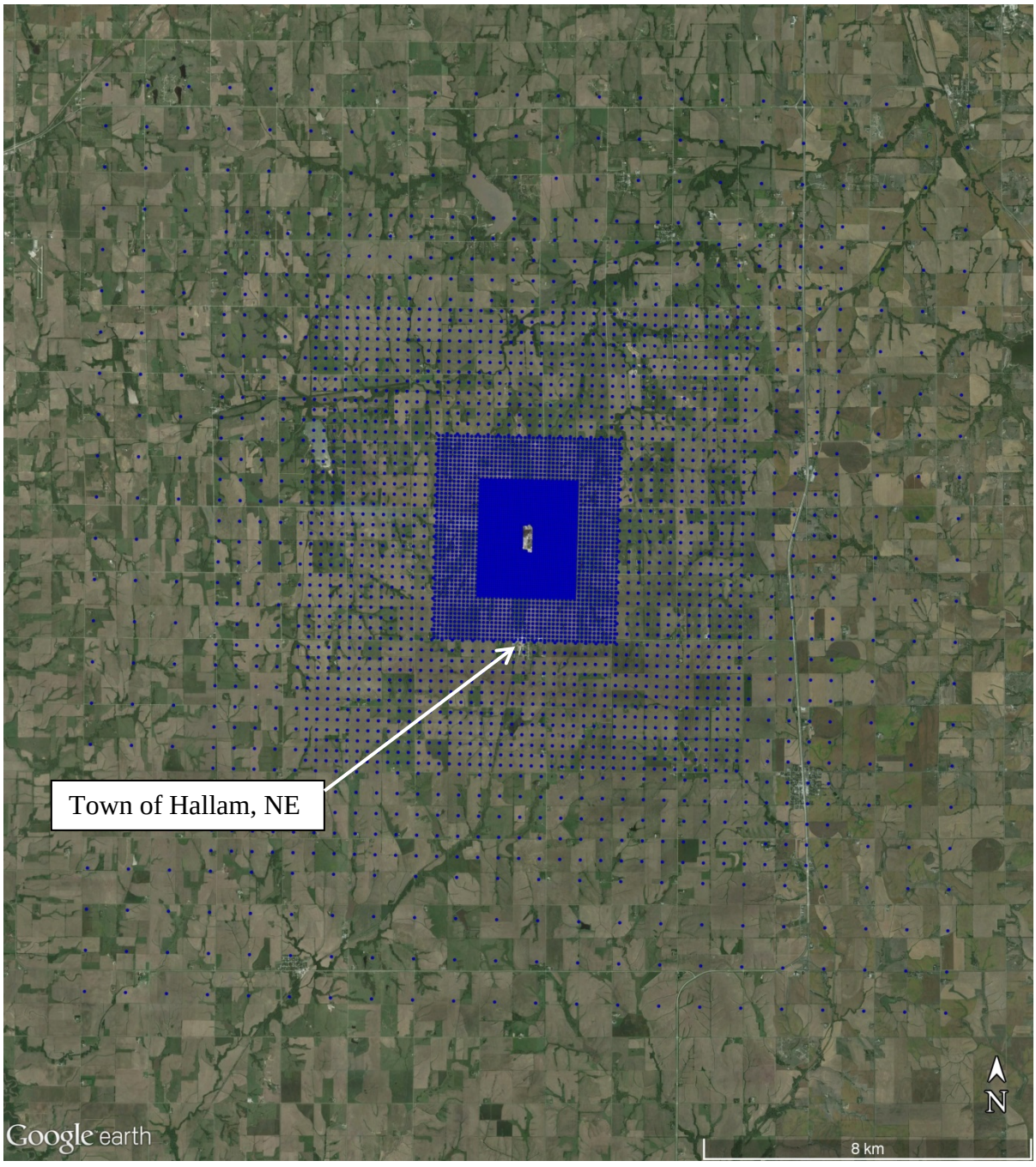
A copy of the final modeling files used to support the analysis will be provided on CD/DVD to:

Lisa Alam
c/o Records Management
Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
P.O. Box 98922
Lincoln, Nebraska 68509-8922

The data and graphics files included on the CD/DVD will include as a minimum:

- AERMOD input and output files (source and receptor input data file, hourly emissions file, output listing file, and output graphics/plot file)
- Contour plot and bar chart graphics file(s)
- Source location graphic file (*.kml) from Google Earth
- Source, met data and background monitor location map/graphic
- AERMAP terrain data processor input file
- Preprocessed meteorological data (*.sfc and *.pfl) files provided by NDEQ
- BPIP-PRIME preprocessor input and output files

Receptor Grid for Sheldon Station SO_2 Dispersion Modeling



A PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT TO CONSTRUCT / RECONSTRUCT / MODIFY AN AIR CONTAMINANT SOURCE

Lincoln-Lancaster County Health Department

Environmental Public Health Division
Air Quality Program
3140 N Street
Lincoln, Nebraska 68510

Phone: (402) 441-8040 Fax: (402) 441-3890

Judith A. Halstead, MS
Health Director

Scott E. Holmes, REHS, MS
Environmental Public Health Division Manager

Chris Schroeder, MCRP
Air Quality Program Supervisor

LLCHD Air Quality Program Source Number:	**00005**
LLCHD Air Quality Program Construction Permit Number:	**136A**
Effective Date of Permit:	**04 – 15 – 2016** MM – DD – YYYY

A Permit to Construct / Reconstruct / Modify an Air Contaminant Source is Hereby Issued to:

Permit Holder Name:	**Nebraska Public Power District (NPPD)**
Address:	**1414 15th Street**
City, County, State, ZIP:	**Columbus, Platte County, Nebraska 68602**

This Construction / Reconstruction / Modification Permit is Issued to the Following Source:

Facility Site Name:	**NPPD Sheldon Station**
Facility Address:	**4500 West Pella Road**
City, County, State, ZIP:	**Lincoln, Lancaster County, Nebraska 68368**
Facility NAICS:	**221112: Fossil Fuel Electric Power Generation**

Environmental Public Health Division / Air Quality Program Recommendation:

Permit Writer:	☒ **Approve Issuance** ☐ **Deny Issuance**	PERMIT WRITER APPROVAL
Air Quality Program Supervisor:	☒ **Approve Issuance** ☐ **Deny Issuance**	SUPERVISOR APPROVAL
Environmental Public Health Division Manager:	☒ **Approve Issuance** ☐ **Deny Issuance**	MANAGER APPROVAL for Scott E. Holmes

Health Director / Air Pollution Control Officer Authorization:

Pursuant to the delegation contract signed by the Director of the Nebraska Department of Environmental Quality (NDEQ) on April 1, 1986, the undersigned hereby executes this document on behalf of the Director of the NDEQ.

ACTION TAKEN: ☒ **Approve Issuance** ☐ **Deny Issuance**	4-15-16 **Date**	Judith A Halstead **Judith A. Halstead, MS** **Health Director**

Permitted Emission Unit(s):

This permit allows the owner/operator to construct/reconstruct/modify the following emission unit(s):

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
2-1	1-01-002-23	Unit #2 – External Combustion Boiler and Associated Equipment	Coal
2-2	1-01-006-01	Unit #2 – External Combustion Boiler and Associated Equipment	Natural Gas

Introduction – Source Description

The Nebraska Public Power District (NPPD) Sheldon Station, located at 4500 West Pella Road, Hallam, Nebraska is an electricity generating station. The existing facility consists of the following emissions units:

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
1-1	1-01-002-23	Unit #1 – External Combustion Boiler and Associated Equipment	Coal
1-2	1-01-006-01	Unit #1 – External Combustion Boiler and Associated Equipment	Natural Gas
1-3	N/A	Unit #1 – External Combustion Boiler and Associated Equipment	Coal/TDF/Scrap Rubber
2-1	1-01-002-23	Unit #2 – External Combustion Boiler and Associated Equipment	Coal
2-2	1-01-006-01	Unit #2 – External Combustion Boiler and Associated Equipment	Natural Gas
2-3	N/A	Unit #2 – External Combustion Boiler and Associated Equipment	Coal/TDF/Scrap Rubber
3-1	2-01-002-01	Unit #3 – Combustion Turbine A and Associated Equipment	Natural Gas
3-2	2-01-001-01	Unit #3 – Combustion Turbine A and Associated Equipment	Fuel Oil
4-1	2-01-002-01	Unit #4 – Combustion Turbine B and Associated Equipment	Natural Gas
4-2	2-01-001-01	Unit #4 – Combustion Turbine B and Associated Equipment	Fuel Oil
5-1	1-01-006-02	Auxiliary Boiler #1	Natural Gas
6-1	1-01-006-02	Auxiliary Boiler #2	Natural Gas
11-1	3-05-010-08	Track Hopper Building	Coal Unloading
12-1	3-05-010-11	Track Hopper to Belt Conveyor #1	Coal Transfer
13-1	3-05-010-11	Belt Conveyor #1 to Belt Conveyor #2	Coal Transfer
14-1	3-05-010-11	Belt Conveyor #2 to Active Coal Pile	Coal Transfer
14a-1	3-05-010-11	Low-BTU Coal Pile to Reclaim Hoppers #1-4	Coal Transfer
15-1	3-05-010-11	Reclaim Hoppers #1-4 to Belt Conveyor #3	Coal Transfer
16-1	3-05-010-11	High BTU Coal Pile to Reclaim Hopper #5	Coal Transfer
17-1	3-05-010-11	Reclaim Hopper #5 to Belt Conveyor #6	Coal Transfer
18-1	3-05-010-11	Belt Conveyor #6 to Crusher House	Coal Transfer
19-1	3-05-010-11	Belt Conveyor #3 to Crusher House	Coal Transfer
20-1	3-05-010-10	Crusher House	Coal Crushing

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
21-1	3-05-010-11	Crusher House to Belt Conveyor #4	Coal Transfer
22-1	3-05-010-11	Belt Conveyor #4 to Belt Conveyor #5	Coal Transfer
23a-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1a	Coal Transfer
23b-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1b	Coal Transfer
23c-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1c	Coal Transfer
24a-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2a	Coal Transfer
24b-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2b	Coal Transfer
24c-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2c	Coal Transfer
26-1	3-05-101-99	Lime Silo – Loading	Lime Transfer
27-1	3-05-101-99	Fly Ash from Boilers to Silo (Bin Vent Filter Exhaust)	Fly Ash Transfer
27a-1	3-05-101-99	Fly Ash Filter Separator UCC C (baghouse) via Vacuum Pump B	Fly Ash Transfer
27b-1	3-05-101-99	Fly Ash Filter Separator UCC B (ESP) via Vacuum Pump C	Fly Ash Transfer
27c-1	3-05-101-99	Fly Ash Filter Separators UCC B or UCC C via Vacuum Pump A	Fly Ash Transfer
28-1	3-05-101-99	Fly Ash from Silo & Precipitator to Truck	Fly Ash Transfer
29-1	3-05-101-99	Fly/Bottom Ash from Truck to Ash Landfill	Fly/Bottom Ash Transfer
30-1	3-05-010-43	Coal Storage Pile – Live	Coal Storage
31-1	3-05-010-43	Coal Storage Pile – Standby	Coal Storage
32-1	3-05-010-43	Ash Landfill	Bottom Ash
33-1	3-05-020-11	Haul Roads – Unpaved	Roadway Traffic
34-1	3-05-020-11	Haul Roads – Paved	Roadway Traffic
43-1	3-85-001-01	Cooling Tower #1	Mechanical Draft
44-1	3-85-001-01	Cooling Tower #2	Mechanical Draft
46-1	2-02-003-01	Honda GX 240 Air Compressor (8 hp - 0.020 MMbtu/hr)	Gasoline
47-1	2-02-001-02	Emergency Generator (650 hp - 4.55 MMbtu/hr)	Diesel
48-1	2-02-001-02	Fire Pump 1 (274 hp - 0.96 MMBtu/hr)	Diesel
49-1	2-02-001-02	Fire Pump 2 (274 hp - 0.96 MMBtu/hr)	Diesel

Introduction – Description of Modification

The original Construction Permit #136 allowed the owner/operator to conduct the "LOI Reduction Project" on Sheldon Station Unit #2. The modification included the following elements: 1) installation of an over-fire-air (OFA) system, 2) forced draft fan modifications, 3) primary air system modifications, 4) new cyclone burners, 5) new slag tank vent piping, and 6) modifications of boiler control system to incorporate control of the OFA system. The intent of that modification was to reduce emissions of nitrogen oxides (NO_X) from Unit #2. However, the reduction in NO_X emissions was expected to result in an increase in emissions of carbon monoxide (CO). Because this source is a major source for the purposes of PSD, that modification was subject to the PSD provisions.

This modified permit, being issued as Construction Permit #136A, is being issued to establish a minimum stack height for the stack associated with Sheldon Station Unit #2, as well as additional applicable requirements that have been requested by the owner/operator. This construction permit supersedes the previously-issued Construction Permit #136.

Facility Regulatory Classification

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with LLCAPCPRS Article 2, Section 2, paragraph (B), as well as 40 CFR Part 70 §70.2.
- The facility is a major stationary source for the purposes of the Prevention of Significant Deterioration (PSD) of Air Quality in accordance with Lincoln-Lancaster County Health Department Air Pollution Control Program Regulations and Standards (LLCAPCPRS) Article 2, Section 2, paragraph (H)(1).
- The modification allowed by this permit will result in increased emissions of carbon monoxide (CO). The increase in CO emissions is a significant increase in accordance with the prevention of significant deterioration of air quality (PSD) requirements set forth under LLCAPCPRS Article 2, Section 19, as well as 40 CFR Part 52, §52.21. The modification allowed by this permit will not result in the increased emissions of any other regulated pollutants or hazardous air pollutants.
- This permit allows for construction/reconstruction/modification of units that are subject to the following applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations (40 CFR 60):
  - Subpart A: General Provisions
- This permit allows for construction/reconstruction/modification of units that are subject to the following applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations (40 CFR 63):
  - Subpart A: General Provisions
  - Subpart UUUUU: National Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units

Public Participation

- Pursuant to the provisions set forth in Article 2, Section 15, paragraph (C)(2) and (C)(6) of the LLCAPCPRS, construction permit modifications that qualify as a “minor permit modification” do not require a public comment period. As such, this permit is being issued without public participation.

Permitting Authority

- The permitting authority for this project is the Air Quality Program in the Environmental Public Health Division of the Lincoln-Lancaster County Health Department (LLCHD). All documents related to applications for permits to construct/reconstruct/modify or operate any emissions unit or source shall be submitted to the LLCHD at the following address.

Lincoln-Lancaster County Health Department
c/o Air Quality Program
3140 ‘N’ Street
Lincoln, NE 68510

Compliance Authorities

- All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the following:

Lincoln-Lancaster County Health Department
c/o Air Quality Program
3140 ‘N’ Street
Lincoln, NE 68510

- If required or requested by the EPA, the owner/operator shall submit reports, tests, and/or notifications to the following:

US EPA Region 7
APCO–Nebraska Air Compliance Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

Definitions

- Unless otherwise defined, or a different meaning is clearly required by context, the words and phrases, as used in this operating permit, the LLCAPCPRS, and the related appendices shall have the meanings set forth in LLCAPCPRS Article 2, Section 1 (Definitions).

General Conditions

I. The owner/operator shall maintain compliance with all applicable regulations and requirements set forth in the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS), the Lancaster County Air Pollution Control Resolution(Lancaster County Resolution R-13-0073), as well as any applicable federal regulations and standards.

II. In accordance with LLCAPCPRS Article 1, Section 1 (Intent), holding of this permit does not relieve the owner/operator from the responsibility to comply with all applicable portions of the LLCAPCPRS and any other requirements under Local, State, or Federal law. Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard.

III. In accordance with paragraph (C) of LLCAPCPRS Article 1, Section 2 (Unlawful Acts – Permits Required), it is unlawful to:

(A) Construct or operate an air pollution source without first obtaining a permit required under the LLCAPCPRS;

(B) Violate any term or condition of this permit or any emission limit set in this permit; or

(C) Violate any emission limit or standard established in the LLCAPCPRS.

IV. Violations, hearings, and orders shall be conducted in accordance with LLCAPCPRS Article 1, Section 3 (Violations – Hearings – Orders).

V. Appeals shall be conducted in accordance with LLCAPCPRS Article 1, Section 4 (Appeal Procedure).

VI. In accordance with LLCAPCPRS Article 1, Section 5 (Variance), any person who owns or is in control of any plant, building, structure, process, or equipment may apply to the Director for a variance from rules or regulations. Any person who is applying for, or has obtained a variance must comply with all applicable requirements of Article 1, Section 5 of the LLCAPCPRS.

VII. The following provisions of LLCAPCPRS Article 1, Section 6 (Fees) are applicable requirements of this permit:

(A) Paragraph (A) – In accordance with paragraph (A)(1) of Section 6, any person who owns or operates a source as defined in Article 2, Section 1 of the LLCAPCPRS and is required to obtain a Class I or Class II operating permit in accordance with Article 2, Section 5 of the LLCAPCPRS, or is required to obtain a construction permit in accordance with Article 2, Section 17 of the LLCAPCPRS, must pay annual emission fees as specified in paragraph (A) of Section 6.

(B) Paragraph (D) – In accordance with paragraph (D)(1) of Section 6, any person or source required to obtain a construction permit under Article 2, Section 17 (with the exception of a construction permit obtained in accordance with Article 2, Section 17, paragraph (O)) shall pay a permit fee for activities included under paragraphs (D)(1)(a) through (D)(1)(f) of Section 6. The permit fee shall be charged at the rate specified in paragraph (D)(1) of Section 6. Any person required to submit fees pursuant to Section 6 shall submit the fees to the Director of the Department by check or other authorized transfer payable to the Lincoln-Lancaster County Health Department. The fees shall be due and payable within thirty (30) days after issuance of the permit.

(C) Paragraph (H) – All money collected from the fees, provided for herein, shall be payable to the Lincoln-Lancaster County Health Department and shall be credited to the Air Pollution Control Fund.

VIII. The following provisions of LLCAPCPRS Article 1, Section 7 (Compliance – Actions to Enforce – Penalties for Non-Compliance) are applicable requirements of this permit:

(A) Paragraph (A) – The County Attorney or Attorney General may institute enforcement proceedings pursuant to Neb. Rev. Stat., §81-1504(23) Neb. Rev. Stat. §81-1508(4), or Nebr. Rev. Stat. §81-1528(2) against any person who fails to comply with the requirements of the LLCAPCPRS. Nothing in the LLCAPCPRS shall preclude the control of air pollution by resolution, ordinance, or rule, regulation, or standard not in actual conflict with the state air pollution control regulations. (Ref: Neb. Rev. Stat. §71-1631(15))

(B) Paragraph (B) – Any person who fails to comply with the requirements of the LLCAPCPRS or who fails to perform any duty imposed by the LLCAPCPRS shall be subject to a civil penalty of not more than ten thousand dollars ($10,000) per day per violation.

(C) Paragraph (C) – Any person who knowingly and willfully fails to comply with the requirements of the LLCAPCPRS or who knowingly and willfully fails to perform any duty imposed by the LLCAPCPRS shall be subject to felony prosecution under Neb. Rev. Stat. §81-1508(f) including a fine of not more than ten thousand dollars ($10,000) per day per violation, and up to a maximum six (6) month term of imprisonment.

(D) Paragraph (D) – Enforcement proceedings may include injunctive relief in court to restrain any violation that creates an imminent and substantial endangerment to the public health or to the environment.

IX. In accordance with LLCAPCPRS Article 1, Section 8 (Procedure for Abatement), if the Director has determined a violation of the Air Pollution Control Program after any hearing required hereunder or if the Director has probable cause to believe a violation has occurred, the Director shall refer the matter to the County Attorney.

X. In accordance with LLCAPCPRS Article 1, Section 9 (Severability), if any clause, paragraph, or section of the LLCAPCPRS shall be held invalid, it shall be conclusively presumed that the City and County would have enacted the remainder of the LLCAPCPRS not directly related to such clause, paragraph, or section.

XI. The owner/operator shall maintain compliance with the requirements set forth in LLCAPCPRS Article 2, Section 4 (Ambient Air Quality Standards).

XII. In accordance with LLCAPCPRS Article 2, Section 6 (Emissions Reporting – When Required), the owner/operator shall submit completed emission inventory forms for the preceding calendar year to the Department by March 31 of each year. The inventory shall include all emissions associated with the emission units for which this permit is issued. The inventory form shall be certified in accordance with LLCAPCPRS Article 2, Section 7, paragraph (H).

XIII. The following provisions of LLCAPCPRS Article 2, Section 15 (Permit Modifications – Reopening For Cause) are applicable requirements of this permit:

(A) Paragraph (C)(2) – Subject to the approval of the Director, the terms of a construction permit may be modified without public review through the substitution of alternative provisions, provided the following conditions are met:

(1) No emission limit in the original construction permit is exceeded;

(2) No applicable requirement included in an operating permit to which the source is subject is violated;

(3) No emissions limit, equipment or operational standard applicable to the source will be exceeded;

(4) No emissions limit, equipment or operational standard assumed to avoid a classification that would render the source subject to an otherwise applicable requirement will be exceeded; and

(5) The nature of the constructed facility will be consistent with that described in the original public notice materials.

(B) Paragraph (G) – The owner/operator may make changes to a permitted facility without a permit revision if the change is not a modification under LLCAPCPRS Article 2, Sections 18, 23, 27, or 28, the change does not require a construction permit under LLCAPCPRS Article 2, Sections 17 or 19, and the change is allowed under the applicable provisions of paragraphs (G)(1) or (G)(2) of Section 15.

(C) Paragraph (H) – No permit revisions shall be required under any State-approved programs providing for economic incentives, marketable permits, emissions trading or other similar programs or processed for changes that are provided for in the permit.

XIV. In accordance with paragraph (A) of LLCAPCPRS Article 2, Section 16 (Stack Heights – Good Engineering Practice), the degree of emissions limitation required of any source for control of any air pollutant shall not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in paragraph (B) of Section 16.

XV. The following provisions of LLCAPCPRS Article 2, Section 17 (Construction Permits – When Required) are applicable requirements of this permit:

(A) Paragraph (A) – No person shall cause the construction, reconstruction, or modification of any source specified in paragraphs (A)(1)-(4) of Section 17 without first having obtained a construction permit from the Department in the manner prescribed by the LLCAPCPRS.

(B) Paragraph (C) – The owner or operator of any source required to obtain a construction permit under the LLCAPCPRS shall submit an application on forms provided by the Department.

(C) Paragraph (N) – Modification of the Construction Permit. The purpose of this section is to provide a means to address unforeseen situations which may develop in the process of constructing or modifying an emission source subject to this section. Modification of the construction permit shall be performed as follows:

(1) Subject to the approval of the Director, the terms of a construction permit may be modified without public review through the substitution of alternative provisions, provided the conditions set forth in Condition XIII(A) of this permit are met.

(2) Modifications meeting the conditions of Condition XIII(A) of this permit shall be processed as follows:

(a) The owner or operator shall submit a request for modification of a construction permit as provided in LLCAPCPRS Article 2, Section 15, paragraph (C)(3) and provide such additional information as may be required to determine if the conditions of Condition XIII(A) of this permit have been met;

(b) The Department shall review the request and determine whether or not a modification of the construction permit is required. The applicant shall not proceed with the project until a determination is made by the Director.

(3) Proposed modifications to a construction permit which do not meet the conditions of Condition XIII(A) of this permit must be processed through the full construction permit process as provided in paragraphs (C) through (M) of Section 17.

XVI. The following provisions of LLCAPCPRS Article 2, Section 32 (Dust – Duty to Prevent Escape Of) are applicable requirements of this permit:

(A) Paragraph (A) – The source shall not cause or permit fugitive particulate matter to become airborne in such quantities and concentrations that it remains visible in the ambient air beyond the premise where it originates.

(B) Paragraph (B) – The source shall not cause or permit a road, driveway, or open area to be used without applying all such reasonable measures to prevent particulate matter from becoming airborne so that it remains visible beyond the premises where it originates. Such reasonable measures include but are not limited to: paving or frequent cleaning of roads, driveways, and parking lots; application of water or chemical dust suppressants; and the planting and maintenance of vegetative ground cover.

XVII. The following provisions of LLCAPCPRS Article 2, Section 33 (Compliance – Time Schedule For) are applicable requirements of this permit:

(A) Paragraph (A) – Except as otherwise noted in specific emission control regulations, compliance with the LLCAPCPRS shall be according to the schedule provided under paragraphs (A)(1)-(3) of Section 33.

(B) Paragraph (B) – Compliance schedules requiring more than twelve (12) months to conform with applicable rules and regulations to meet National Primary and Secondary Ambient Air Quality Standards will be accomplished in progressive steps. A report will be made in writing to the Director within five (5) days after each step is completed.

(C) Paragraph (C) – Failure to meet time schedules approved in accordance with paragraphs (A)(1)-(2) of Section 33 shall constitute a violation of the LLCAPCPRS unless a request to amend the time schedule is received at least thirty (30) days before the end of any specified period approved for a particular activity. Such a request to amend the schedule shall contain the same type of information as required for the initial request for variance as described in paragraph (A)(3) of Section 33.

XVIII. The following provisions of LLCAPCPRS Article 2, Section 34 (Emission Sources – Testing and Monitoring) are applicable requirements of this permit:

(A) Paragraph (A) – The Department may require any person responsible for the operation of an emission source to make or have tests made to determine the rate of contaminant emissions from the source whenever it has reason to believe, on the basis of estimates of potential contaminant emissions rates from the source and due consideration of probable efficiency of any existing control device, or visible emission determinations made by an official observer, that existing emissions exceed the limitations required in the LLCAPCPRS. Such tests may also be required pursuant to verifying that any newly installed control device meets performance specifications. Should the Department determine that the test did not represent normal operating conditions or emissions, additional tests may be required. Such a requirement shall be considered as an order and subject to all administrative and legal requirements specified.

(B) Paragraph (B) – Required tests shall be conducted in accordance the test methods and procedures established in paragraphs (B)(1)-(7) of Section 34.

(C) Paragraph (C) – The owner or operator of a source shall provide notice to the Department at least thirty (30) days prior to testing to afford the Department an opportunity to have an observer present. The Department may, in writing, approve a notice of less than thirty (30) days. If the testing is pursuant to an underlying requirement contained in a federal rule, the notice provisions of the underlying requirement shall apply.

(D) Paragraph (F) – The Director may require the owner or operator of any other emission source which is subject to the provisions of these regulations to install, use and maintain such stationary monitoring equipment as is required to demonstrate continuing compliance with any applicable emissions limitations, and to maintain records and make reports regarding such measured emissions to the Department in a manner and on a schedule to be determined by the Director.

(E) Paragraph (H) – Notwithstanding any other provisions of LLCAPCPRS, the following methods may be used to determine compliance with applicable requirements:

(1) A monitoring method approved for the source and incorporated in an operating permit pursuant to LLCAPCPRS Article 2, Section 8;

(2) Any compliance test method specified in the State Implementation Plan (SIP);

(3) Any test or monitoring method approved for the source in a permit issued pursuant to LLCAPCPRS Article 2, Sections 17, 19, or 27;

(4) Any test or monitoring method provided for in the LLCAPCPRS; or

(5) Any other test, monitoring, or information gathering method that produces information comparable to that produced by any method described in paragraphs (1) through (4) of this condition.

XIX. The following provisions of LLCAPCPRS Article 2, Section 35 (Compliance – Exceptions Due to Startup, Shutdown, or Malfunction) are applicable requirements of this permit:

(A) Paragraph (A) – Upon receipt of a notice of excess emissions issued by the Department, the owner/operator may provide information showing that the excess emissions were the result of a malfunction, start-up, or shutdown.

(B) Paragraph (B) – The information provided by the source operator under paragraph (A) of this condition shall include, at a minimum, the information specified in paragraphs (B)(1)-(9) of Section 35.

(C) Paragraph (C) – The owner/operator shall submit the information specified in paragraph (B) of this condition no later than fifteen (15) days after receipt of the notice of excess emissions.

(D) Paragraph (D) – The owner/operator shall notify the Director, in writing, whenever a planned start-up or shut down may result in excess emissions. This notice shall be mailed, no later than ten (10) days prior to such action and shall include, but not be limited to, the information specified in paragraphs (D)(1)-(10) of Section 35.

(E) Paragraph (E) – The owner/operator shall notify the Director, in writing, whenever emissions due to malfunctions, unplanned shutdowns or ensuing start-ups are, or may be, in excess of applicable emission control regulations for one hour or more. Such notification shall be mailed within forty-eight (48) hours of the beginning of each period of excess emissions and shall include, but not be limited to, the information required in paragraph (D) of Section 35.

XX. In accordance with LLCAPCPRS Article 2, Section 37 (Compliance – Responsibility of Owner/ Operator Pending Review by Director), application for review of plans or advice furnished by the Director will not relieve the owner or operator of a new or modified stationary source of legal compliance with any provision of the LLCAPCPRS, or prevent the Director from enforcing or implementing any provision of the LLCAPCPRS.

XXI. In accordance with LLCAPCPRS Article 2, Section 38 (Emergency Episodes – Occurrence and Control: Contingency Plans), if and when the Director declares an air pollution emergency episode as defined in Section 38, the source shall immediately take all applicable required actions listed in LLCAPCPRS Appendix I until the Director declares the air pollution episode terminated.

XXII. Any modification of the operational and/or construction permit application documents must have prior approval from the Department. The source shall provide all necessary information to validate the modification, including, but no limited to, additional engineering, modeling, and ambient air quality studies.

XXIII. Approval to construct, reconstruct and/or modify the source will become invalid if a continuous program of construction is not commenced within eighteen (18) months after the date of issuance of the construction permit; if construction is discontinued for a period of eighteen (18) months or more; or if construction is not completed within a reasonable period of time. The conditions set forth in this permit shall remain applicable requirements until such time that all permitted emission units are removed from the source, or until the owner/operator requests that the permit be nullified and all permitted emission units are rendered inoperable.

XXIV. The owner/operator of the source shall notify the Department of the actual date of anticipated initial startup of each independently operable emission unit, process, or group of equipment or emission units, and said notification shall be postmarked not more than sixty (60) days nor less than thirty (30) days prior to such date.

XXV. The owner/operator must maintain a copy of the permit and of the letter of transmittal on-site. A copy of the permit must also be kept on file at the company's main or corporate office. A copy of the permit must be placed on file at each of the aforementioned locations no later than fourteen (14) calendar days after the date of receipt of the letter of transmittal.

XXVI. In accordance with the Section 4 of the Lancaster County Air Pollution Control Resolution (Lancaster County Resolution R-13-0073), upon presentation of credentials and other documents as may be required by law, the owner/operator shall allow the LLCHD or an authorized representative to perform the following:

(A) Enter and inspect or cause to be inspected, during reasonable hours, any building, facility, or place, except a building designed for and used exclusively for a private residence, as the Director deems necessary to determine compliance with the provisions of the LLCAPCPRS and to require the submission of air contaminant emission information in connection with such inspections, tests, and studies.

(B) Have access to existing and available records relating to emissions or discharges, which cause or contribute to air pollution or the monitoring of such emissions or discharges;

(C) Issue, modify, or revoke orders prohibiting or abating discharges of air pollutants, or requiring the construction of control systems or any parts thereof or the modification, extension, or adoption of other remedial measures to prevent, control, or abate air pollution.

(D) Conduct tests and take samples of air contaminants, fuel, process materials, or any other substance which affects or may affect discharges or emissions of air contaminants from any source, giving the owner or operator a receipt for the sample obtained.

(E) Issue, continue in effect, revoke, modify, or deny permits, under such conditions as the Director may prescribe and consistent with the Clean Air Act and the LLCAPCPRS.

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Specific Conditions

XXVII. This permit authorizes the owner/operator to install and operate equipment and systems associated with the "LOI Reduction Project" for Emission Unit 2 (Sheldon Station Unit #2). The owner/operator shall install and operate equipment and systems associated with the "LOI Reduction Project" for Emission Unit 2 (EU-2) in accordance with the approved application and the following conditions, which have been determined to meet the requirements for Best Available Control Technology (BACT) pursuant to Article 2, Section 19 of the LLCAPCPRS and 40 CFR Part 52 §52.21:

(A) Operational Requirements.

(1) All combustion controls shall be fully functional during operation of EU-2 except as allowed during emission unit startup and shutdown periods.

(B) Emission Limits.

(1) The owner/operator shall limit the emissions of carbon monoxide (CO) from EU-2 to no more than 1.26 pounds per million British thermal unit (lbs/MMBtu) based on a 30-day rolling average, except during periods of startup and shutdown. Malfunctions shall be addressed according to the procedures in Article 2, Section 35 of the LLCAPCPRS. For the purpose of this condition, the 30-day rolling average CO emission rate shall be calculated in accordance with the procedures established in paragraph (D)(1)(c) of this condition.

(C) Emission Testing Requirements.

(1) Relative Accuracy Test Audits (RATA) shall be performed in accordance with the following:

(a) 40 CFR 60 – Appendix B – Performance Specification 4

(b) Test Protocol: At least 45 days prior to the date of testing, the owner/operator shall develop a formal "Test Protocol" which shall be submitted to and approved by the Department prior to commencement of testing. This "Test Protocol" shall include, as a minimum, the following items:

(i) A test plan detailing the methods and procedures that will be used for testing;

(ii) A test schedule describing the tentative agenda as to when testing will occur;

(iii) A description as to how testing will determine compliance with the permit conditions along with a copy of the permit.

(c) Pre-Test Notification: The owner/operator shall notify the Department of the intent to perform a RATA as required in paragraph (F)(5) of this condition.

(d) Final Test Report: The owner/operator shall submit the results of each RATA as required in paragraph (F)(6) of this condition. The Final Test Report shall be certified by the tester and shall include, at a minimum, the following:

(i) An executive summary.

(ii) A description of the source testing conditions, including, but not limited to, the following:

1. Actual achieved firing rate (i.e. MMBtu/hr);
2. Quantity of fuel consumed (ton/hr);
3. Heating value of the fuel;
4. Ambient atmospheric conditions; and
5. Any other information that may be relevant to the test.

(iii) Copies of all data sheets from the test run(s).

(iv) A description and explanation of any erroneous data or unusual circumstance(s) and the cause for such situation.

(v) A final conclusion section describing the outcome of the testing.

(2) The owner/operator shall conduct all testing required by this permit in accordance with the requirements set forth in Condition XVIII of this permit.

(3) The owner/operator shall notify the Department of the intent to conduct any performance tests as required in paragraph (F)(5) of this condition.

(4) The owner/operator shall report the results of all performance tests required by this permit as required in paragraph (F)(6) of this condition.

(D) Monitoring Requirements.

(1) The owner/operator shall calculate the CO emission rates in accordance with the following requirements:

(a) Hourly average CO emission rates shall be calculated as follows:

(i) The continuous emissions monitoring system (CEMS) associated with EU-2 shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) Except during periods of CEMS malfunction or calibration, the CEMS shall be utilized to collect CO emission data at all times EU-2 is combusting fuel.

(iii) The owner/operator shall utilize data collected by the CEMS to calculate 1-hour average CO emission rates, in units of pounds of CO per million British thermal units (lbs/MMBtu), in accordance with the applicable procedures set forth under 40 CFR Part 60 §60.13 paragraph (h).

(iv) Data for startup and shutdown shall not be used to calculate the hourly average CO emissions.

(b) Daily average CO emission rates shall be calculated as follows:

(i) Daily average CO emission rates shall be calculated using only data from days for which at least one (1) hour of valid CO emission data was collected and calculated in accordance with paragraph (D)(1)(a) above. One (1) valid hour of CO emission data can constitute a daily average.

(ii) The owner/operator shall divide the sum of the hourly averages by the number of hours in which an hourly average was obtained in accordance with paragraph (D)(1)(a) above.

(c) Thirty (30) day rolling average CO emission rates shall be calculated as follows:

(i) The 30-day rolling average shall be calculated using only data from days for which a daily average CO emission rate was calculated in accordance with paragraph (D)(1)(b) above.

(ii) The owner/operator shall sum the daily average CO emission rate for each operating day with the daily average CO emission rates for the previous 29 operating days (total of 30 consecutive operating days) and divide the resulting total by 30.

(d) Annual average CO emission rates shall be calculated as follows:

(i) The annual average CO emission rate shall be calculated no later than January 15th of each year, and shall be calculated for the previous calendar year (January 1 through December 31).

(ii) The owner/operator shall sum the hourly average CO emission rates, calculated according to paragraph (D)(1)(a) above, for the previous calendar year. The owner/operator shall then divide the sum of the hourly averages by the number of hours for which an hourly average was obtained in accordance with paragraph (D)(1)(a) above.

(2) No later than 180 days following the completion of all elements of the OFA installation project and resuming normal operation of EU-2, the owner/operator shall demonstrate initial compliance with the CO emission limit set forth in paragraph

(B)(1) of this condition by utilizing the continuous emission monitoring system (CEMS) associated with EU-2. The CEMS shall be maintained as follows:

(a) The CEMS shall be certified in accordance with 40 CFR 60 – Appendix B – Performance Specification 4.

(b) Daily calibrations on the CEMS shall be conducted in accordance with 40 CFR Part 60 §60.13 paragraph (d)(1).

(3) If the annual average CO emission rate for EU-2, calculated in accordance with paragraph (D)(1)(d) of this condition, is less than 90% of the emission limit set forth in paragraph (B)(1) of this condition, the owner/operator shall monitor CO emissions from EU-2 with a CEMS meeting the specifications established in paragraphs (D)(4)(a) and (D)(4)(b) of this condition, or with a CEMS that shall be certified and operated in accordance with the following requirements:

(a) The CEMS shall be operated in accordance with 40 CFR 60 –Appendix B – Performance Specification 4.

(b) Daily calibrations on the existing CEMS shall be conducted in accordance with 40 CFR Part 60 §60.13 paragraph (d)(1).

(c) A relative accuracy test audit (RATA) shall be performed on the existing CEMS each year in accordance with the requirements set forth in paragraph (C)(1) of this condition.

(4) If the annual average CO emission rate for EU-2, calculated in accordance with paragraph (D)(1)(d) of this condition, exceeds 90% of the emission limit set forth in paragraph (B)(1) of this condition, the owner/operator shall monitor CO emissions from EU-2 with a CEMS that shall be certified and operated in accordance with paragraphs (D)(4)(a) and (D)(4)(b) below. The CEMS shall be installed, certified, and operational no later than June 15th following the year in which the CO emission rate exceeds 90% of the emission limit set forth in paragraph (B)(1) of this condition. Prior to installation and certification of the new CEMS, the owner/operator shall continue to monitor the CO emissions using a CEMS meeting the specifications set forth in paragraph (D)(2) of this condition.

(a) 40 CFR 60 – Appendix B – Performance Specification 4

(b) 40 CFR 60 – Appendix F

(E) Record Keeping Requirements.

(1) The owner/operator shall keep records in accordance with the requirements set forth in 40 CFR Part 60 §60.7 paragraph (f).

(2) The owner/operator shall maintain records of all required monitoring information, which shall include the following:

(a) The date and place as defined in the permit, and time of sampling or measurements;

(b) The date(s) analyses were performed;

(c) The company or entity that performed the analyses;

(d) The analytical techniques or methods used;

(e) The results of such analyses; and

(f) The operating conditions existing at the time of sampling or measurement.

(3) The owner/operator shall retain records of all required monitoring data, reports, and support information required by this permit for a period of at least 60 months from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. These records shall be readily accessible and made available for inspection upon request by the Department.

(F) Reporting Requirements.

(1) The owner/operator shall notify the Department if any 30-day rolling average exceeds the CO emission limit set forth in paragraph (B)(1) of this condition. The notification shall be submitted to the Department in writing no later than 30 days after the exceedance.

(2) The owner/operator shall notify the Department if the monitor downtime exceeds the 5% of the operating time for EU-2 during any calendar quarter. The notification shall be submitted to the Department in writing no later than 30 days after the end of the calendar quarter.

(3) No later than January 30th of each year, the owner/operator shall submit a report to the Department containing the following:

(a) A statement of the emission limit set forth in paragraph (B)(1) of this condition.

(b) The annual average CO emission rate for the previous calendar year, calculated in accordance with paragraph (D)(1)(d) of this condition.

(4) The owner/operator shall report all criteria air pollutant and hazardous air pollutant emissions to the Department annually in accordance with the requirements set forth in Condition XI of this permit.

(5) The owner/operator shall notify the Department of the intent to conduct any RATAs or performance tests no later than 30 days prior to the scheduled date of testing.

(6) The owner/operator shall submit the result of all performance tests required by this permit to the Department within 45 days of the completion of such tests.

(G) Additional Applicable Requirements.

(1) After April 18, 2016, the owner/operator shall not operate EU-2 until such time that the stack height has been increased as specified in paragraph (G)(2) of this condition.

(2) The owner/operator shall increase the height of the stack associated with EU-2 to no less than two hundred ten feet (210 ft.) above a ground-level elevation of one thousand four hundred forty feet (1,440 ft.).

A PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT TO CONSTRUCT / RECONSTRUCT / MODIFY AN AIR CONTAMINANT SOURCE

Lincoln-Lancaster County Health Department

Environmental Public Health Division
Air Quality Program
3140 N Street
Lincoln, Nebraska 68510

Phone: (402) 441-8040 Fax: (402) 441-3890

Judith A. Halstead, MS
Health Director

Scott E. Holmes, REHS, MS
Environmental Public Health Division Manager

Chris Schroeder, MCRP
Air Quality Program Supervisor

LLCHD Air Quality Program Source Number:	**00005**
LLCHD Air Quality Program Construction Permit Number:	**158A**
Effective Date of Permit:	**04 – 15 – 2016** MM – DD – YYYY

A Permit to Construct / Reconstruct / Modify an Air Contaminant Source is Hereby Issued to:

Permit Holder Name:	**Nebraska Public Power District (NPPD)**
Address:	**1414 15th Street**
City, County, State, ZIP:	**Columbus, Platte County, Nebraska 68602**

This Construction / Reconstruction / Modification Permit is Issued to the Following Source:

Facility Site Name:	**NPPD Sheldon Station**
Facility Address:	**4500 West Pella Road**
City, County, State, ZIP:	**Lincoln, Lancaster County, Nebraska 68368**
Facility NAICS:	**221112: Fossil Fuel Electric Power Generation**

Environmental Public Health Division / Air Quality Program Recommendation:

Permit Writer:	☒ **Approve Issuance** ☐ **Deny Issuance**	PERMIT WRITER APPROVAL: Dawn R Berg
Air Quality Program Supervisor:	☒ **Approve Issuance** ☐ **Deny Issuance**	SUPERVISOR APPROVAL
Environmental Public Health Division Manager:	☒ **Approve Issuance** ☐ **Deny Issuance**	MANAGER APPROVAL

Health Director / Air Pollution Control Officer Authorization:

Pursuant to the delegation contract signed by the Director of the Nebraska Department of Environmental Quality (NDEQ) on April 1, 1986, the undersigned hereby executes this document on behalf of the Director of the NDEQ.

ACTION TAKEN:		
☒ **Approve Issuance** ☐ **Deny Issuance**	4-15-16 **Date**	Judith A Halstead **Judith A. Halstead, MS Health Director**

Permitted Emission Unit(s):

This permit allows the owner/operator to construct/reconstruct/modify the following emission unit(s):

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
1-1	1-01-002-23	Unit #1 – External Combustion Boiler and Associated Equipment	Coal
1-2	1-01-006-01	Unit #1 – External Combustion Boiler and Associated Equipment	Natural Gas

Introduction – Source Description

The Nebraska Public Power District (NPPD) Sheldon Station, located at 4500 West Pella Road, Hallam, Nebraska is an electricity generating station. The existing facility consists of the following emissions units:

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
1-1	1-01-002-23	Unit #1 – External Combustion Boiler and Associated Equipment	Coal
1-2	1-01-006-01	Unit #1 – External Combustion Boiler and Associated Equipment	Natural Gas
1-3	N/A	Unit #1 – External Combustion Boiler and Associated Equipment	Coal/TDF/Scrap Rubber
2-1	1-01-002-23	Unit #2 – External Combustion Boiler and Associated Equipment	Coal
2-2	1-01-006-01	Unit #2 – External Combustion Boiler and Associated Equipment	Natural Gas
2-3	N/A	Unit #2 – External Combustion Boiler and Associated Equipment	Coal/TDF/Scrap Rubber
3-1	2-01-002-01	Unit #3 – Combustion Turbine A and Associated Equipment	Natural Gas
3-2	2-01-001-01	Unit #3 – Combustion Turbine A and Associated Equipment	Fuel Oil
4-1	2-01-002-01	Unit #4 – Combustion Turbine B and Associated Equipment	Natural Gas
4-2	2-01-001-01	Unit #4 – Combustion Turbine B and Associated Equipment	Fuel Oil
5-1	1-01-006-02	Auxiliary Boiler #1	Natural Gas
6-1	1-01-006-02	Auxiliary Boiler #2	Natural Gas
11-1	3-05-010-08	Track Hopper Building	Coal Unloading
12-1	3-05-010-11	Track Hopper to Belt Conveyor #1	Coal Transfer
13-1	3-05-010-11	Belt Conveyor #1 to Belt Conveyor #2	Coal Transfer
14-1	3-05-010-11	Belt Conveyor #2 to Active Coal Pile	Coal Transfer
14a-1	3-05-010-11	Low-BTU Coal Pile to Reclaim Hoppers #1-4	Coal Transfer
15-1	3-05-010-11	Reclaim Hoppers #1-4 to Belt Conveyor #3	Coal Transfer
16-1	3-05-010-11	High BTU Coal Pile to Reclaim Hopper #5	Coal Transfer
17-1	3-05-010-11	Reclaim Hopper #5 to Belt Conveyor #6	Coal Transfer
18-1	3-05-010-11	Belt Conveyor #6 to Crusher House	Coal Transfer
19-1	3-05-010-11	Belt Conveyor #3 to Crusher House	Coal Transfer
20-1	3-05-010-10	Crusher House	Coal Crushing

Emission Unit (EU) #	SCC Code #	Emission Point Description	Emission Segment Description
21-1	3-05-010-11	Crusher House to Belt Conveyor #4	Coal Transfer
22-1	3-05-010-11	Belt Conveyor #4 to Belt Conveyor #5	Coal Transfer
23a-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1a	Coal Transfer
23b-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1b	Coal Transfer
23c-1	3-05-010-11	Belt Conveyor #5 to Boiler #1 Coal Bunker 1c	Coal Transfer
24a-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2a	Coal Transfer
24b-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2b	Coal Transfer
24c-1	3-05-010-11	Belt Conveyor #5 to Boiler #2 Coal Bunker 2c	Coal Transfer
26-1	3-05-101-99	Lime Silo – Loading	Lime Transfer
27-1	3-05-101-99	Fly Ash from Boilers to Silo (Bin Vent Filter Exhaust)	Fly Ash Transfer
27a-1	3-05-101-99	Fly Ash Filter Separator UCC C (baghouse) via Vacuum Pump B	Fly Ash Transfer
27b-1	3-05-101-99	Fly Ash Filter Separator UCC B (ESP) via Vacuum Pump C	Fly Ash Transfer
27c-1	3-05-101-99	Fly Ash Filter Separators UCC B or UCC C via Vacuum Pump A	Fly Ash Transfer
28-1	3-05-101-99	Fly Ash from Silo & Precipitator to Truck	Fly Ash Transfer
29-1	3-05-101-99	Fly/Bottom Ash from Truck to Ash Landfill	Fly/Bottom Ash Transfer
30-1	3-05-010-43	Coal Storage Pile – Live	Coal Storage
31-1	3-05-010-43	Coal Storage Pile – Standby	Coal Storage
32-1	3-05-010-43	Ash Landfill	Bottom Ash
33-1	3-05-020-11	Haul Roads – Unpaved	Roadway Traffic
34-1	3-05-020-11	Haul Roads – Paved	Roadway Traffic
43-1	3-85-001-01	Cooling Tower #1	Mechanical Draft
44-1	3-85-001-01	Cooling Tower #2	Mechanical Draft
46-1	2-02-003-01	Honda GX 240 Air Compressor (8 hp - 0.020 MMbtu/hr)	Gasoline
47-1	2-02-001-02	Emergency Generator (650 hp - 4.55 MMbtu/hr)	Diesel
48-1	2-02-001-02	Fire Pump 1 (274 hp - 0.96 MMBtu/hr)	Diesel
49-1	2-02-001-02	Fire Pump 2 (274 hp - 0.96 MMBtu/hr)	Diesel

Introduction – Description of Modification

The original Construction Permit #158 allowed the owner/operator to modify Sheldon Station Unit #1 by installing an over-fire-air (OFA) system in the unit. The modification included the following elements:

- Installation of an over-fire-air (OFA) system; and
- Modifications of boiler control system to incorporate control of the new OFA system.

The intent of this modification was to reduce emissions of nitrogen oxides (NO_X) from Unit #1. However, this reduction in NO_X emissions was expected to result in an increase in emissions of carbon monoxide (CO). Because this source is a major source for the purposes of PSD, this modification was subject to the PSD provisions.

This modified permit, being issued as Construction Permit #158A, is being issued to establish a minimum stack height for the stack associated with Sheldon Station Unit #1, as well as additional applicable requirements that have been requested by the owner/operator. This construction permit supersedes the previously-issued Construction Permit #158.

Facility Regulatory Classification

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with LLCAPCPRS Article 2, Section 2, paragraph (B), as well as 40 CFR Part 70 §70.2.
- The facility is a major stationary source for the purposes of the Prevention of Significant Deterioration (PSD) of Air Quality in accordance with Lincoln-Lancaster County Health Department Air Pollution Control Program Regulations and Standards (LLCAPCPRS) Article 2, Section 2, paragraph (H)(1).
- The modification allowed by this permit will result in increased emissions of carbon monoxide (CO). The increase in CO emissions is a significant increase in accordance with the prevention of significant deterioration of air quality (PSD) requirements set forth under LLCAPCPRS Article 2, Section 19, as well as 40 CFR Part 52, §52.21. The modification allowed by this permit will not result in the increased emissions of any other regulated pollutants or hazardous air pollutants.
- This permit allows for construction/reconstruction/modification of units that are subject to the following applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations (40 CFR 60):
  - Subpart A: General Provisions
- This permit allows for construction/reconstruction/modification of units that are subject to the following applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations (40 CFR 63):
  - Subpart A: General Provisions
  - Subpart UUUUU: National Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units

Public Participation

- Pursuant to the provisions set forth in Article 2, Section 15, paragraph (C)(2) and (C)(6) of the LLCAPCPRS, construction permit modifications that qualify as a “minor permit modification” do not require a public comment period. As such, this permit is being issued without public participation.

Permitting Authority

- The permitting authority for this project is the Air Quality Program in the Environmental Public Health Division of the Lincoln-Lancaster County Health Department (LLCHD). All documents related to applications for permits to construct/reconstruct/modify or operate any emissions unit or source shall be submitted to the LLCHD at the following address.

Lincoln-Lancaster County Health Department
c/o Air Quality Program
3140 ‘N’ Street
Lincoln, NE 68510

Compliance Authorities

- All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the following:

Lincoln-Lancaster County Health Department
c/o Air Quality Program
3140 ‘N’ Street
Lincoln, NE 68510

- If required or requested by the EPA, the owner/operator shall submit reports, tests, and/or notifications to the following:

US EPA Region 7
APCO–Nebraska Air Compliance Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

Definitions

- Unless otherwise defined, or a different meaning is clearly required by context, the words and phrases, as used in this operating permit, the LLCAPCPRS, and the related appendices shall have the meanings set forth in LLCAPCPRS Article 2, Section 1 (Definitions).

General Conditions

I. The owner/operator shall maintain compliance with all applicable regulations and requirements set forth in the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS), the Lancaster County Air Pollution Control Resolution (Lancaster County Resolution R-13-0073), as well as any applicable federal regulations and standards.

II. In accordance with LLCAPCPRS Article 1, Section 1 (Intent), holding of this permit does not relieve the owner/operator from the responsibility to comply with all applicable portions of the LLCAPCPRS and any other requirements under Local, State, or Federal law. Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard.

III. In accordance with paragraph (C) of LLCAPCPRS Article 1, Section 2 (Unlawful Acts – Permits Required), it is unlawful to:

(A) Construct or operate an air pollution source without first obtaining a permit required under the LLCAPCPRS;

(B) Violate any term or condition of this permit or any emission limit set in this permit; or

(C) Violate any emission limit or standard established in the LLCAPCPRS.

IV. Violations, hearings, and orders shall be conducted in accordance with LLCAPCPRS Article 1, Section 3 (Violations – Hearings – Orders).

V. Appeals shall be conducted in accordance with LLCAPCPRS Article 1, Section 4 (Appeal Procedure).

VI. In accordance with LLCAPCPRS Article 1, Section 5 (Variance), any person who owns or is in control of any plant, building, structure, process, or equipment may apply to the Director for a variance from rules or regulations. Any person who is applying for, or has obtained a variance must comply with all applicable requirements of Article 1, Section 5 of the LLCAPCPRS.

VII. The following provisions of LLCAPCPRS Article 1, Section 6 (Fees) are applicable requirements of this permit:

(A) Paragraph (A) – In accordance with paragraph (A)(1) of Section 6, any person who owns or operates a source as defined in Article 2, Section 1 of the LLCAPCPRS and is required to obtain a Class I or Class II operating permit in accordance with Article 2, Section 5 of the LLCAPCPRS, or is required to obtain a construction permit in accordance with Article 2, Section 17 of the LLCAPCPRS, must pay annual emission fees as specified in paragraph (A) of Section 6.

(B) Paragraph (D) – In accordance with paragraph (D)(1) of Section 6, any person or source required to obtain a construction permit under Article 2, Section 17 (with the exception of a construction permit obtained in accordance with Article 2, Section 17, paragraph (O)) shall pay a permit fee for activities included under paragraphs (D)(1)(a) through (D)(1)(f) of Section 6. The permit fee shall be charged at the rate specified in paragraph (D)(1) of Section 6. Any person required to submit fees pursuant to Section 6 shall submit the fees to the Director of the Department by check or other authorized transfer payable to the Lincoln-Lancaster County Health Department. The fees shall be due and payable within thirty (30) days after issuance of the permit.

(C) Paragraph (H) – All money collected from the fees, provided for herein, shall be payable to the Lincoln-Lancaster County Health Department and shall be credited to the Air Pollution Control Fund.

VIII. The following provisions of LLCAPCPRS Article 1, Section 7 (Compliance – Actions to Enforce – Penalties for Non-Compliance) are applicable requirements of this permit:

(A) Paragraph (A) – The County Attorney or Attorney General may institute enforcement proceedings pursuant to Neb. Rev. Stat., §81-1504(23) Neb. Rev. Stat. §81-1508(4), or Nebr. Rev. Stat. §81-1528(2) against any person who fails to comply with the requirements of the LLCAPCPRS. Nothing in the LLCAPCPRS shall preclude the control of air pollution by resolution, ordinance, or rule, regulation, or standard not in actual conflict with the state air pollution control regulations. (Ref: Neb. Rev. Stat. §71-1631(15))

(B) Paragraph (B) – Any person who fails to comply with the requirements of the LLCAPCPRS or who fails to perform any duty imposed by the LLCAPCPRS shall be subject to a civil penalty of not more than ten thousand dollars ($10,000) per day per violation.

(C) Paragraph (C) – Any person who knowingly and willfully fails to comply with the requirements of the LLCAPCPRS or who knowingly and willfully fails to perform any duty imposed by the LLCAPCPRS shall be subject to felony prosecution under Neb. Rev. Stat. §81-1508(f) including a fine of not more than ten thousand dollars ($10,000) per day per violation, and up to a maximum six (6) month term of imprisonment.

(D) Paragraph (D) – Enforcement proceedings may include injunctive relief in court to restrain any violation that creates an imminent and substantial endangerment to the public health or to the environment.

IX. In accordance with LLCAPCPRS Article 1, Section 8 (Procedure for Abatement), if the Director has determined a violation of the Air Pollution Control Program after any hearing required hereunder or if the Director has probable cause to believe a violation has occurred, the Director shall refer the matter to the County Attorney.

X. In accordance with LLCAPCPRS Article 1, Section 9 (Severability), if any clause, paragraph, or section of the LLCAPCPRS shall be held invalid, it shall be conclusively presumed that the City and County would have enacted the remainder of the LLCAPCPRS not directly related to such clause, paragraph, or section.

XI. The owner/operator shall maintain compliance with the requirements set forth in LLCAPCPRS Article 2, Section 4 (Ambient Air Quality Standards).

XII. In accordance with LLCAPCPRS Article 2, Section 6 (Emissions Reporting – When Required), the owner/operator shall submit completed emission inventory forms for the preceding calendar year to the Department by March 31 of each year. The inventory shall include all emissions associated with the emission units for which this permit is issued. The inventory form shall be certified in accordance with LLCAPCPRS Article 2, Section 7, paragraph (H).

XIII. The following provisions of LLCAPCPRS Article 2, Section 15 (Permit Modifications – Reopening For Cause) are applicable requirements of this permit:

(A) Paragraph (C)(2) – Subject to the approval of the Director, the terms of a construction permit may be modified without public review through the substitution of alternative provisions, provided the following conditions are met:

(1) No emission limit in the original construction permit is exceeded;

(2) No applicable requirement included in an operating permit to which the source is subject is violated;

(3) No emissions limit, equipment or operational standard applicable to the source will be exceeded;

(4) No emissions limit, equipment or operational standard assumed to avoid a classification that would render the source subject to an otherwise applicable requirement will be exceeded; and

(5) The nature of the constructed facility will be consistent with that described in the original public notice materials.

(B) Paragraph (G) – The owner/operator may make changes to a permitted facility without a permit revision if the change is not a modification under LLCAPCPRS Article 2, Sections 18, 23, 27, or 28, the change does not require a construction permit under LLCAPCPRS Article 2, Sections 17 or 19, and the change is allowed under the applicable provisions of paragraphs (G)(1) or (G)(2) of Section 15.

(C) Paragraph (H) – No permit revisions shall be required under any State-approved programs providing for economic incentives, marketable permits, emissions trading or other similar programs or processed for changes that are provided for in the permit.

XIV. In accordance with paragraph (A) of LLCAPCPRS Article 2, Section 16 (Stack Heights – Good Engineering Practice), the degree of emissions limitation required of any source for control of any air pollutant shall not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in paragraph (B) of Section 16.

XV. The following provisions of LLCAPCPRS Article 2, Section 17 (Construction Permits – When Required) are applicable requirements of this permit:

(A) Paragraph (A) – No person shall cause the construction, reconstruction, or modification of any source specified in paragraphs (A)(1)-(4) of Section 17 without first having obtained a construction permit from the Department in the manner prescribed by the LLCAPCPRS.

(B) Paragraph (C) – The owner or operator of any source required to obtain a construction permit under the LLCAPCPRS shall submit an application on forms provided by the Department.

(C) Paragraph (N) – Modification of the Construction Permit. The purpose of this section is to provide a means to address unforeseen situations which may develop in the process of constructing or modifying an emission source subject to this section. Modification of the construction permit shall be performed as follows:

(1) Subject to the approval of the Director, the terms of a construction permit may be modified without public review through the substitution of alternative provisions, provided the conditions set forth in Condition XIII(A) of this permit are met.

(2) Modifications meeting the conditions of Condition XIII(A) of this permit shall be processed as follows:

(a) The owner or operator shall submit a request for modification of a construction permit as provided in LLCAPCPRS Article 2, Section 15, paragraph (C)(3) and provide such additional information as may be required to determine if the conditions of Condition XIII(A) of this permit have been met;

(b) The Department shall review the request and determine whether or not a modification of the construction permit is required. The applicant shall not proceed with the project until a determination is made by the Director.

(3) Proposed modifications to a construction permit which do not meet the conditions of Condition XIII(A) of this permit must be processed through the full construction permit process as provided in paragraphs (C) through (M) of Section 17.

XVI. The following provisions of LLCAPCPRS Article 2, Section 20 (Particulate Limitations and Standards) are applicable requirements of this permit:

(A) Paragraph (A) – The owner/operator shall limit the emissions of particulates from any processing machine, equipment, device or other articles, or any combination thereof to no greater than the amounts set forth in Table 20-2 of Section 20 during any one (1) hour.

(B) Paragraph (B) – The owner/operator shall limit the emissions of particulate matter caused by the combustion of fuel in accordance with the limits set forth in Table 20-1 of Section 20, as they apply based on heat input rating.

(C) Paragraph (E) – The owner/operator shall not cause or allow emissions from any emission point that are of opacity equal to or greater than twenty percent (20%), as evaluated by Method 9 in Appendix A of 40 CFR 60, or recorded by a continuous opacity monitoring system operated and maintained pursuant to 40 CFR Part 60 Appendix B, except as provided for in paragraph (D) of this condition.

(D) Paragraph (F) – Emission sources subject to monitoring requirements of Article 2, Section 34, paragraph (E) of LLCAPCPRS are allowed to have one six-minute period per hour of not more than twenty-seven percent (27%) opacity. For the purpose of this permit, this exception applies to any unit equipped with a continuous opacity monitoring system (COMS) installed, calibrated, and operated in accordance with the procedures specified in 40 CFR Part 60 Appendix B.

XVII. In accordance with paragraph (A) of LLCAPCPRS Article 2, Section 24 (Sulfur Compound Emissions – Existing Sources – Emission Standards), the owner/operator shall not cause or allow emissions of sulfur oxides from any fossil fuel burning equipment in excess of two and one-half pounds per million British thermal units (2.5 lbs/MMBtu) input, maximum two (2) hour average.

XVIII. The following provisions of LLCAPCPRS Article 2, Section 32 (Dust – Duty to Prevent Escape Of) are applicable requirements of this permit:

(A) Paragraph (A) – The source shall not cause or permit fugitive particulate matter to become airborne in such quantities and concentrations that it remains visible in the ambient air beyond the premise where it originates.

(B) Paragraph (B) – The source shall not cause or permit a road, driveway, or open area to be used without applying all such reasonable measures to prevent particulate matter from becoming airborne so that it remains visible beyond the premises where it originates. Such reasonable measures include but are not limited to: paving or frequent cleaning of roads, driveways, and parking lots; application of water or chemical dust suppressants; and the planting and maintenance of vegetative ground cover.

XIX. The following provisions of LLCAPCPRS Article 2, Section 33 (Compliance – Time Schedule For) are applicable requirements of this permit:

(A) Paragraph (A) – Except as otherwise noted in specific emission control regulations, compliance with the LLCAPCPRS shall be according to the schedule provided under paragraphs (A)(1)-(3) of Section 33.

(B) Paragraph (B) – Compliance schedules requiring more than twelve (12) months to conform with applicable rules and regulations to meet National Primary and Secondary Ambient Air Quality Standards will be accomplished in progressive steps. A report will be made in writing to the Director within five (5) days after each step is completed.

(C) Paragraph (C) – Failure to meet time schedules approved in accordance with paragraphs (A)(1)-(2) of Section 33 shall constitute a violation of the LLCAPCPRS unless a request to amend the time schedule is received at least thirty (30) days before the end of any specified period approved for a particular activity. Such a request to amend the schedule shall contain the same type of information as required for the initial request for variance as described in paragraph (A)(3) of Section 33.

XX. The following provisions of LLCAPCPRS Article 2, Section 34 (Emission Sources – Testing and Monitoring) are applicable requirements of this permit:

(A) Paragraph (A) – The Department may require any person responsible for the operation of an emission source to make or have tests made to determine the rate of contaminant emissions from the source whenever it has reason to believe, on the basis of estimates of potential contaminant emissions rates from the source and due consideration of probable efficiency of any existing control device, or visible emission determinations made by an official observer, that existing emissions exceed the limitations required in the LLCAPCPRS. Such tests may also be required pursuant to verifying that any newly installed control device

meets performance specifications. Should the Department determine that the test did not represent normal operating conditions or emissions, additional tests may be required. Such a requirement shall be considered as an order and subject to all administrative and legal requirements specified.

(B) Paragraph (B) – Required tests shall be conducted in accordance the test methods and procedures established in paragraphs (B)(1)-(7) of Section 34.

(C) Paragraph (C) – The owner or operator of a source shall provide notice to the Department at least thirty (30) days prior to testing to afford the Department an opportunity to have an observer present. The Department may, in writing, approve a notice of less than thirty (30) days. If the testing is pursuant to an underlying requirement contained in a federal rule, the notice provisions of the underlying requirement shall apply.

(D) Paragraph (F) – The Director may require the owner or operator of any other emission source which is subject to the provisions of these regulations to install, use and maintain such stationary monitoring equipment as is required to demonstrate continuing compliance with any applicable emissions limitations, and to maintain records and make reports regarding such measured emissions to the Department in a manner and on a schedule to be determined by the Director.

(E) Paragraph (H) – Notwithstanding any other provisions of LLCAPCPRS, the following methods may be used to determine compliance with applicable requirements:

(1) A monitoring method approved for the source and incorporated in an operating permit pursuant to LLCAPCPRS Article 2, Section 8;

(2) Any compliance test method specified in the State Implementation Plan (SIP);

(3) Any test or monitoring method approved for the source in a permit issued pursuant to LLCAPCPRS Article 2, Sections 17, 19, or 27;

(4) Any test or monitoring method provided for in the LLCAPCPRS; or

(5) Any other test, monitoring, or information gathering method that produces information comparable to that produced by any method described in paragraphs (1) through (4) of this condition.

XXI. The following provisions of LLCAPCPRS Article 2, Section 35 (Compliance – Exceptions Due to Startup, Shutdown, or Malfunction) are applicable requirements of this permit:

(A) Paragraph (A) – Upon receipt of a notice of excess emissions issued by the Department, the owner/operator may provide information showing that the excess emissions were the result of a malfunction, start-up, or shutdown.

(B) Paragraph (B) – The information provided by the source operator under paragraph (A) of this condition shall include, at a minimum, the information specified in paragraphs (B)(1)-(9) of Section 35.

(C) Paragraph (C) – The owner/operator shall submit the information specified in paragraph (B) of this condition no later than fifteen (15) days after receipt of the notice of excess emissions.

(D) Paragraph (D) – The owner/operator shall notify the Director, in writing, whenever a planned start-up or shut down may result in excess emissions. This notice shall be mailed, no later than ten (10) days prior to such action and shall include, but not be limited to, the information specified in paragraphs (D)(1)-(10) of Section 35.

(E) Paragraph (E) – The owner/operator shall notify the Director, in writing, whenever emissions due to malfunctions, unplanned shutdowns or ensuing start-ups are, or may be, in excess of applicable emission control regulations for one hour or more. Such notification shall be mailed within forty-eight (48) hours of the beginning of each period of excess emissions and shall include, but not be limited to, the information required in paragraph (D) of Section 35.

XXII. In accordance with LLCAPCPRS Article 2, Section 37 (Compliance – Responsibility of Owner/ Operator Pending Review by Director), application for review of plans or advice furnished by the Director will not relieve the owner or operator of a new or modified stationary source of legal compliance with any provision of the LLCAPCPRS, or prevent the Director from enforcing or implementing any provision of the LLCAPCPRS.

XXIII. In accordance with LLCAPCPRS Article 2, Section 38 (Emergency Episodes – Occurrence and Control: Contingency Plans), if and when the Director declares an air pollution emergency episode as defined in Section 38, the source shall immediately take all applicable required actions listed in LLCAPCPRS Appendix I until the Director declares the air pollution episode terminated.

XXIV. Any modification of the operational and/or construction permit application documents must have prior approval from the Department. The source shall provide all necessary information to validate the modification, including, but no limited to, additional engineering, modeling, and ambient air quality studies.

XXV. Approval to construct, reconstruct and/or modify the source will become invalid if a continuous program of construction is not commenced within eighteen (18) months after the date of issuance of the construction permit; if construction is discontinued for a period of eighteen (18) months or more; or if construction is not completed within a reasonable period of time. The conditions set forth in this permit shall remain applicable requirements until such time that all permitted emission units are removed from the source, or until the owner/operator requests that the permit be nullified and all permitted emission units are rendered inoperable.

XXVI. The owner/operator of the source shall notify the Department of the actual date of anticipated initial startup of each independently operable emission unit, process, or group of equipment or emission units, and said notification shall be postmarked not more than sixty (60) days nor less than thirty (30) days prior to such date.

XXVII. The owner/operator must maintain a copy of the permit and of the letter of transmittal on-site. A copy of the permit must also be kept on file at the company's main or corporate office. A copy of the permit must be placed on file at each of the aforementioned locations no later than fourteen (14) calendar days after the date of receipt of the letter of transmittal.

XXVIII. In accordance with the Section 4 of the Lancaster County Air Pollution Control Resolution (Lancaster County Resolution R-13-0073), upon presentation of credentials and other documents as may be required by law, the owner/operator shall allow the LLCHD or an authorized representative to perform the following:

(A) Enter and inspect or cause to be inspected, during reasonable hours, any building, facility, or place, except a building designed for and used exclusively for a private residence, as the Director deems necessary to determine compliance with the provisions of the LLCAPCPRS and to require the submission of air contaminant emission information in connection with such inspections, tests, and studies.

(B) Have access to existing and available records relating to emissions or discharges, which cause or contribute to air pollution or the monitoring of such emissions or discharges;

(C) Issue, modify, or revoke orders prohibiting or abating discharges of air pollutants, or requiring the construction of control systems or any parts thereof or the modification, extension, or adoption of other remedial measures to prevent, control, or abate air pollution.

(D) Conduct tests and take samples of air contaminants, fuel, process materials, or any other substance which affects or may affect discharges or emissions of air contaminants from any source, giving the owner or operator a receipt for the sample obtained.

(E) Issue, continue in effect, revoke, modify, or deny permits, under such conditions as the Director may prescribe and consistent with the Clean Air Act and the LLCAPCPRS.

Specific Conditions

XXIX. This permit authorizes the owner/operator to install and operate an over-fire-air (OFA) system for Emission Unit 1 (Sheldon Station Unit #1). The owner/operator shall install the OFA system and operate Emission Unit 1 (EU-1) in accordance with the approved application and the following conditions, which have been determined to meet the requirements for Best Available Control Technology (BACT) pursuant to Article 2, Section 19 of the LLCAPCPRS and 40 CFR Part 52 §52.21:

(A) Operational Requirements.

(1) All combustion controls shall be fully functional during operation of EU-1 except as allowed during emission unit startup and shutdown periods.

(B) Emission Limits.

(1) The owner/operator shall limit the emissions of carbon monoxide (CO) from EU-1 to no more than 1.26 pounds per million British thermal unit (lbs/MMBtu) based on a 30-day rolling average, except during periods of startup and shutdown. For the purpose of this condition, the 30-day rolling average CO emission rate shall be calculated in accordance with the procedures established in paragraph (D)(1)(c) of this condition.

(2) The owner/operator shall maintain compliance with all particulate emission limits set forth in Condition XVI of this permit.

(3) The owner/operator shall maintain compliance with the sulfur oxide emission limit set forth in Condition XVII of this permit.

(C) Emission Testing Requirements.

(1) Relative Accuracy Test Audits (RATA) shall be performed in accordance with the following:

(a) 40 CFR 60 – Appendix B – Performance Specification 4

(b) Test Protocol: At least 45 days prior to the date of testing, the owner/operator shall develop a formal "Test Protocol" which shall be submitted to and approved by the Department prior to commencement of testing. This "Test Protocol" shall include, as a minimum, the following items:

(i) A test plan detailing the methods and procedures that will be used for testing;

(ii) A test schedule describing the tentative agenda as to when testing will occur;

(iii) A description as to how testing will determine compliance with the permit conditions along with a copy of the permit.

(c) Pre-Test Notification: The owner/operator shall notify the Department of the intent to perform a RATA as required in paragraph (F)(5) of this condition.

(d) Final Test Report: The owner/operator shall submit the results of each RATA as required in paragraph (F)(6) of this condition. The Final Test Report shall be certified by the tester and shall include, at a minimum, the following:

(i) An executive summary.

(ii) A description of the source testing conditions, including, but not limited to, the following:

1. Actual achieved firing rate (i.e. MMBtu/hr);
2. Quantity of fuel consumed (ton/hr);
3. Heating value of the fuel;
4. Ambient atmospheric conditions; and
5. Any other information that may be relevant to the test.

(iii) Copies of all data sheets from the test run(s).

(iv) A description and explanation of any erroneous data or unusual circumstance(s) and the cause for such situation.

(v) A final conclusion section describing the outcome of the testing.

(2) The owner/operator shall conduct all testing required by this permit in accordance with the requirements set forth in Condition XX of this permit.

(3) The owner/operator shall notify the Department of the intent to conduct any performance tests as required in paragraph (F)(5) of this condition.

(4) The owner/operator shall report the results of all performance tests required by this permit as required in paragraph (F)(6) of this condition.

(D) Monitoring Requirements.

(1) The owner/operator shall calculate the CO emission rates in accordance with the following requirements:

(a) Hourly average CO emission rates shall be calculated as follows:

(i) The continuous emissions monitoring system (CEMS) associated with EU-1 shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) Except during periods of CEMS malfunction or calibration, the CEMS shall be utilized to collect CO emission data at all times EU-1 is combusting fuel.

(iii) The owner/operator shall utilize data collected by the CEMS to calculate 1-hour average CO emission rates, in units of pounds of CO per million British thermal units (lbs/MMBtu), in accordance with the applicable procedures set forth under 40 CFR Part 60 §60.13 paragraph (h).

(iv) Data for startup and shutdown shall not be used to calculate the hourly average CO emissions.

(b) Daily average CO emission rates shall be calculated as follows:

(i) Daily average CO emission rates shall be calculated using only data from days for which at least one (1) hour of valid CO emission data was collected and calculated in accordance with paragraph (D)(1)(a) above. One (1) valid hour of CO emission data can constitute a daily average.

(ii) The owner/operator shall divide the sum of the hourly averages by the number of hours in which an hourly average was obtained in accordance with paragraph (D)(1)(a) above.

(c) Thirty (30) day rolling average CO emission rates shall be calculated as follows:

(i) The 30-day rolling average shall be calculated using only data from days for which a daily average CO emission rate was calculated in accordance with paragraph (D)(1)(b) above.

(ii) The owner/operator shall sum the daily average CO emission rate for each operating day with the daily average CO emission rates for the previous 29 operating days (total of 30 consecutive operating days) and divide the resulting total by 30.

(d) Annual average CO emission rates shall be calculated as follows:

(i) The annual average CO emission rate shall be calculated no later than January 30th of each year, and shall be calculated for the previous calendar year (January 1 through December 31).

(ii) The owner/operator shall sum the hourly average CO emission rates, calculated according to paragraph (D)(1)(a) above, for the previous calendar year. The owner/operator shall then divide the sum of the hourly averages by the number of hours for which an hourly average was obtained in accordance with paragraph (D)(1)(a) above.

(2) No later than 180 days following the completion of all elements of the OFA installation project and resuming normal operation of EU-1, the owner/operator shall demonstrate initial compliance with the CO emission limit set forth in paragraph (B)(1) of this condition by utilizing the continuous emission monitoring system (CEMS) associated with EU-1. The CEMS shall be maintained as follows:

(a) The CEMS shall be certified in accordance with 40 CFR 60 – Appendix B – Performance Specification 4.

(b) Daily calibrations on the CEMS shall be conducted in accordance with 40 CFR Part 60 §60.13 paragraph (d)(1).

(3) If the annual average CO emission rate for EU-1, calculated in accordance with paragraph (D)(1)(d) of this condition, is less than 90% of the emission limit set forth in paragraph (B)(1) of this condition, the owner/operator shall monitor CO emissions from EU-1 with a CEMS meeting the specifications established in paragraphs (D)(4)(a) and (D)(4)(b) of this condition, or with a CEMS that shall be certified and operated in accordance with the following requirements:

(a) The CEMS shall be operated in accordance with 40 CFR 60 –Appendix B – Performance Specification 4.

(b) Daily calibrations on the existing CEMS shall be conducted in accordance with 40 CFR Part 60 §60.13 paragraph (d)(1).

(c) A relative accuracy test audit (RATA) shall be performed on the existing CEMS each year in accordance with the requirements set forth in paragraph (C)(1) of this condition.

(4) If the annual average CO emission rate for EU-1, calculated in accordance with paragraph (D)(1)(d) of this condition, exceeds 90% of the emission limit set forth in paragraph (B)(1) of this condition, the owner/operator shall monitor CO emissions from EU-1 with a CEMS that shall be certified and operated in accordance with paragraphs (D)(4)(a) and (D)(4)(b) below. The CEMS shall be installed, certified, and operational no later than June 15th following the year in which the CO emission rate exceeds 90% of the emission limit set forth in paragraph (B)(1) of this condition. Prior to installation and certification of the new CEMS, the owner/operator shall continue to monitor the CO emissions using a CEMS meeting the specifications set forth in paragraph (D)(2) of this condition.

(a) 40 CFR 60 – Appendix B – Performance Specification 4

(b) 40 CFR 60 – Appendix F

(E) Record Keeping Requirements.

(1) The owner/operator shall keep records in accordance with the requirements set forth in 40 CFR Part 60 §60.7 paragraph (f).

(2) The owner/operator shall maintain records of all required monitoring information, which shall include the following:

(a) The date and place as defined in the permit, and time of sampling or measurements;

(b) The date(s) analyses were performed;

(c) The company or entity that performed the analyses;

(d) The analytical techniques or methods used;

(e) The results of such analyses; and

(f) The operating conditions existing at the time of sampling or measurement.

(3) The owner/operator shall retain records of all required monitoring data, reports, and support information required by this permit for a period of at least 60 months from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation, and copies of all reports

required by the permit. These records shall be readily accessible and made available for inspection upon request by the Department.

(F) Reporting Requirements.

(1) The owner/operator shall notify the Department if any 30-day rolling average exceeds the CO emission limit set forth in paragraph (B)(1) of this condition. The notification shall be submitted to the Department in writing no later than 30 days after the exceedance.

(2) The owner/operator shall notify the Department if the monitor downtime exceeds the 5% of the operating time for EU-1 during any calendar quarter. The notification shall be submitted to the Department in writing no later than 30 days after the end of the calendar quarter.

(3) No later than January 30th of each year, the owner/operator shall submit a report to the Department containing the following:

(a) A statement of the emission limit set forth in paragraph (B)(1) of this condition.

(b) The annual average CO emission rate for the previous calendar year, calculated in accordance with paragraph (D)(1)(d) of this condition.

(4) The owner/operator shall report all criteria air pollutant and hazardous air pollutant emissions to the Department annually in accordance with the requirements set forth in Condition XI of this permit.

(5) The owner/operator shall notify the Department of the intent to conduct any RATAs or performance tests no later than 30 days prior to the scheduled date of testing.

(6) The owner/operator shall submit the result of all performance tests required by this permit to the Department within 60 days of the completion of such tests.

(G) Additional Applicable Requirements.

(1) After April 18, 2016, the owner/operator shall not operate EU-1 until such time that the stack height has been increased as specified in paragraph (G)(2) of this condition.

(2) The owner/operator shall increase the height of the stack associated with EU-1 to no less than two hundred twenty-four feet (224 ft.) above a ground-level elevation of one thousand four hundred forty feet (1,440 ft.) by July 2, 2016, subject to delays beyond the reasonable control of the owner/operator.