Texas Commission on Environmental Quality
INTEROFFICE MEMORANDUM

TO: Office of Chief Clerk DATE: June 8, 2015

FROM: Amy L. Browning
Staff Attorney
Environmental Law Division

SUBJECT: Backup Documents Filed for Consideration of Hearing Requests at Agenda
Applicant: Navasota North Country Peakers Operating Company I, LLC, Van Alstyne Energy Center
Proposed Permit No.: 121051 and PSDTX1418
Program: Air

Docket No.: TCEQ Docket No. 2015-0566-AIR

Enclosed please find a copy of the following documents for inclusion in the background material for this permit application:

- Final Draft Permit, including any special provisions or conditions
- Maximum Allowable Emission Rate Table (MAERT)
- The preliminary determination summary for the draft permit
- The summary of the technical review of the permit application
- The modeling audit memorandum
- The compliance summary of the applicant

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
AIR QUALITY PERMIT

A Permit Is Hereby Issued To
Navasota North Country Peakers Operating Company I LLC
Authorizing the Construction and Operation of
Van Alstyne Energy Center
Located at **Van Alstyne, Grayson County, Texas**
Latitude 33° 24′ 58″ Longitude −96° 32′ 25″

Permits: 121051 and PSDTX1418

Issuance Date : _____

Expiration Date: _____ _____
For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code 116.116 (30 TAC 116.116)]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC 116.120(a), (b) and (c)]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC 116.115(b)(2)(B)(iii)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC 116.115(b)(2)(C)]

6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction; comply with any additional recordkeeping requirements specified in special conditions attached to the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC 116.115(b)(2)(E)]
8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC 116.115(b)(2)(F)]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification for upsets and maintenance in accordance with 30 TAC 101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules, regulations, and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to a condition of "air pollution" as defined in Texas Health and Safety Code (THSC) 382.003(3) or violate THSC 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit.

Special Conditions

Permit Numbers 121051 and PSDTX1418

Emission Rates and Permit Representations

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and those sources are limited to the emission limits and other conditions specified in that attached table. This permit authorizes planned maintenance, startup, and shutdown (MSS) activities which comply with the emission limits in the maximum allowable emission rates table (MAERT).

2. Emission limits are based upon representations in the permit application received June, 23 2014, as subsequently updated.

Federal Applicability

3. The sources identified in this condition are subject to and shall comply with applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), New Source Performance Standards (NSPS) as follows:

Source	Emission Point Number (EPN)	Subpart	Standards of Performance for:
Combustion Turbines (CTs)	CTG-1, CTG-2, CTG-3	KKKK	Stationary Gas Turbines
Fire Water Pump Engine	FP-1	IIII	Stationary Compression-Ignition Internal Combustion Engines
All of the above sources		A	General Conditions

The sources identified in this condition are subject to and shall comply with applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations in 40 CFR Part 63), National Emission Standards for Hazardous Air Pollutants for Source Categories as follows:

Source	Emission Point Number (EPN)	Subpart	Standards of Performance for:
Fire Water Pump Engine	FP-1	ZZZZ	Stationary Reciprocating Internal Combustion Engines
		A	General Conditions

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Operating Limitations, Performance Standards, and Fuel Specifications

4. This permit authorizes three natural gas-fired CTs identified as Emission Point Numbers (EPNs) CTG-1, CTG-2 and CTG-3 to operate in simple cycle, and one emergency fire water pump engine (EPN FP-1). Each CT shaft drives an electric generator. The CTs may employ evaporative cooling for power enhancement.

   A. This permit authorizes construction and operation of CT model: GE 7FA.04 (General Electric);

   B. The CTs are authorized to operate in normal operation, defined as operation that is not MSS operation.

   C. The CTs are authorized for planned MSS operations as follows:

      (1) startup, as defined in Special Condition No. 9C.;

      (2) shutdown, as defined in Special Condition No. 9D.; and

      (3) planned maintenance, subject to the conditions of this permit and the representations in the permit application.

   D. The 300-horsepower (hp) emergency fire water pump engine is limited to 100 hours of non-emergency operation per year, on a rolling 12-month basis.

5. Fuel Specifications

   A. Fuel for the CTs shall be limited to firing pipeline-quality, sweet natural gas containing no more than 0.5 grain total sulfur per 100 dry standard cubic feet (dscf).

   B. The emergency fire water pump engine must use diesel fuel containing no more than 0.0015 percent (%) sulfur by weight.

   C. Upon request by the Executive Director of the TCEQ or any air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel-fired in the CTs and fire water pump, or shall allow air pollution control agency representatives to obtain a sample for analysis.

6. Emissions from CTG-1, CTG-2 and CTG-3 while operating in normal operation shall not exceed the following concentrations in parts per million by volume, dry basis (ppmvd) at 15% oxygen (O_2). Compliance with the NO_x and CO concentration limits shall be demonstrated on a three-hour rolling average using the continuous emissions monitoring systems (CEMS) required by Special Condition No. 13.

Pollutant	Concentration
Nitrogen oxides	9.0
Carbon monoxide (CO)	9.0

7. Each CTG (EPNs CTG-1, CTG-2 and CTG-3) is limited to no more than 2,500 hours of operation per rolling 12-month period.

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8. During normal operation, opacity of emissions from the CTG-1, CTG-2 and CTG-3 exhaust stacks shall not exceed 5% averaged over a six-minute period. During planned MSS activities, the opacity shall not exceed 15%. Each determination shall be made by first observing for visible emissions while the facility is operating. Visible emission observations shall be made at least 15 feet and no more than 0.25 mile from the emission point. If visible emissions are observed from a stack, then opacity shall be determined in accordance with 40 CFR Part 60, Appendix A, Test Method 9. The opacity test must be performed by a certified opacity reader. Contributions from uncombined water shall not be included in determining compliance with this condition.

   Visible emission observations shall be performed and recorded once per quarter. If the opacity exceeds 5% during normal operation or 15% during MSS activities, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation.

Routine Maintenance, Startup and Shutdown

9. The emissions from planned MSS activities related to CTG-1, CTG-2 and CTG-3 are reflected in the MAERT. These emissions will be minimized by the following:

   A. Facility and air pollution control equipment will be operated in a manner consistent with good practices for minimizing emissions.

   B. The duration of operation in MSS mode will be minimized and the applicable emissions monitoring systems will be kept in operation.

   C. Startup.

      (1) A single startup event for each CT shall not exceed 120 minutes except for those startup events that are also planned maintenance activities under Special Condition No. 9E(2).

      (2) A startup event is defined as the period that begins when fuel flow is initiated in the CT as indicated by flame detection and ends when the normal operating low-NO_x combustion mode is achieved plus 15 minutes.

   D. Shutdown.

      (1) A single shutdown event for each CT shall not exceed 60 minutes.

      (2) A shutdown event is defined as the time period that begins when the CT drops out of the normal operating low-NO_x combustion mode following an instruction to shut down, and ends when flame is no longer detected in the CT combustors. A shutdown event will also end if the CT is instructed to return to normal operating low-NO_x combustion operating mode and subsequently achieves normal operating low-NO_x combustion mode.

   E. Maintenance.

      (1) Maintenance activities authorized in this permit for the CTs are identified as any of the following:

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(a) CEMs maintenance and calibration.

(b) Dry low NO_x (DLN) burner tuning sessions. Tuning sessions are scheduled events and would occur after the completion of initial construction, a combustor change-out, a major repair, maintenance to a combustor, or other similar circumstances.

(c) Rotor maintenance, including rotor burn-in.

(2) Combustion tuning/optimization and rotor burn-in of the CT is limited to 20 hours per event.

F. The MSS activities identified in 9C, 9D, and 9E of this Special Condition are authorized provided that the mass emission rates in pounds per hour (lbs/hr) do not exceed those specified in the MAERT.

Initial Determination of Compliance

10. Sampling ports and platforms shall be incorporated into the design of all exhaust stacks according to the specifications set forth in the attachment entitled "Chapter 2, Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director.

11. The holder of this permit shall perform stack sampling and other testing as required to establish the actual quantities of air contaminants being emitted into the atmosphere from EPNs CGT-1, CGT-2, and CGT-3 to determine initial compliance with all emission limits established in this permit. Sampling shall be conducted in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual and in accordance with the appropriate EPA Reference Methods to be determined during the pretest meeting.

Fuel sampling using the methods and procedures of 40 CFR § 60.4415 may be conducted in lieu of stack sampling for sulfur dioxide (SO_2) or the permit holder may be exempted from fuel monitoring of SO_2 as provided under 40 CFR § 60.4365(a). If fuel sampling is used, compliance with NSPS Subpart KKKK, SO_2 limits shall be based on 100 percent conversion of the sulfur in the fuel to SO_2. Any deviations from those procedures must be approved by the Executive Director of the TCEQ prior to sampling. The TCEQ Executive Director or his designated representative shall be afforded the opportunity to observe all such sampling.

The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense.

A. The TCEQ Dallas/Fort Worth Regional Office shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

B. The notice shall include:

(1) Date for pretest meeting.

(2) Date sampling will occur.

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(3) Name of firm conducting sampling.

(4) Type of sampling equipment to be used.

(5) Method or procedure to be used in sampling.

(6) Procedure used to determine turbine loads during and after the sampling period.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports. A written proposed description of any deviation from sampling procedures specified in permit conditions, or the TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures. Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Air, Air Permits Division. Test waivers and alternate or equivalent procedure proposals for NSPS testing which must have EPA approval shall be submitted to the EPA and copied to TCEQ Regional Director.

C. Air contaminants and diluents to be sampled and analyzed from each stack include (but are not limited to) NO_x, CO, $PM/PM_{10}/PM_{2.5}$ (EPA Reference Method 5 including back half may be used), volatile organic compounds, SO_2, and O_2.

D. Each CTG shall be tested at or above 90% of the maximum turbine load for the given atmospheric conditions at the time of testing. Each tested turbine load shall be identified in the sampling report. The permit holder shall present at the pretest meeting the manner in which stack sampling will be executed in order to demonstrate compliance with emission standards found in 40 CFR Part 60, Subpart KKKK, Table 1.

E. Sampling as required by this condition shall occur within 60 days after achieving the nominal power output at which the turbine will be operated, but no later than 180 days after initial start-up of the combustion turbine. Additional sampling may be required by TCEQ or EPA.

F. Within 60 days after the completion of the testing and sampling required herein, three copies of the sampling reports shall be distributed as follows:

(1) One copy to the TCEQ Dallas/Fort Worth Regional Office.

(2) One copy to the EPA Region 6 Office, Dallas.

Continuous Determination of Compliance

12. The permit holder shall install, calibrate, and maintain a CEMS to measure and record the in-stack concentration of NO_x, CO, and O_2 from each CT stack, EPNs CTG-1, CTG-2 and CTG-3.

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A. The NO_x and O_2 CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 2 and 3, 40 CFR Part 60, Appendix B. The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, 5.2.3 and any CEMS downtime shall be reported to the TCEQ Dallas/Fort Worth Regional Director, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the TCEQ Dallas/Fort Worth Regional Director. Compliance with the CEMS requirements of 40 CFR Part 60 can be demonstrated by meeting the applicable requirements of 40 CFR Part 75 provided that the holder of this permit demonstrates compliance with all applicable 40 CFR Part 60 emission standards.

B. The CO CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable performance specifications in 40 CFR Part 60, Performance Specification No. 4. The CEMS shall meet the applicable quality assurance requirements specified in 40 CFR Part 60, Appendix F, except that cylinder gas audits (CGA) conducted in all four quarters may be used in lieu of the annual relative accuracy test audit. Quarterly CGAs shall be conducted at least 60 days apart. A CGA is not required in any quarter in which the CT operates less than 168 hours.

C. Relative accuracy exceedances (as specified in 40 CFR 60, Appendix F), CGA exceedances of ±15% accuracy, and any CEMS downtime shall be reported to the TCEQ Dallas/Fort Worth Regional Director, and necessary corrective action shall be taken. Supplemental stack sampling may be required at the discretion of the TCEQ Dallas/Fort Worth Regional Director.

D. If any emission monitor fails to meet specified performance, it shall be repaired or replaced immediately. If repair or replacement is not immediately feasible, the monitor shall be repaired or replaced no later than seven days after the failure is first detected by an employee at the site, unless written permission is obtained from the TCEQ which allows for longer repair/replacement time. The holder of this permit shall develop an operation and maintenance program (including stocking necessary spare parts) to ensure that the continuous monitors are available as required. A monitor with downtime due to breakdown or repair of more than 10% of the facility operating time for any calendar year will be considered as a defective monitor and the monitor must be replaced within two weeks after exceeding the 10% threshold.

E. The monitoring data shall be reduced to hourly average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of lbs/hr at least once every day.

F. The monitoring data and quality-assurance data shall be maintained by the source. The data from the CEMS will be used to determine compliance with the conditions of this permit. During periods where the CEMS data is unavailable or not quality

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assured, compliance may alternatively be determined by using manufacturer emission factors or valid and representative data previously measured and recorded by the unit's CEMS under similar operating conditions.

G. The TCEQ Regional Office in Fort Worth shall be notified at least 30 days prior to any relative accuracy test audit (RATA) in order to provide them the opportunity to observe the testing.

13. The holder of this permit shall either measure, or develop a program to calculate, the total mass flow rate through the stacks to ensure continuous compliance with the emission limitations specified in the MAERT. The permit holder shall calculate hourly mass emissions in lbs/hr using the measured or calculated exhaust flow rate and the measured concentrations of NO_x and CO from the CEMS required in Special Condition No. 12. The hourly calculated values will be cumulatively added during each hour of the month and stored on a computer hard drive or other TCEQ-accepted computer media. Records of this information shall also be available in a form suitable for inspection.

14. The permit holder shall monitor fuel consumption from CTG-1, CTG-2, and CTG-3 individually and continuously, using monitoring devices that are accurate to ±2.0% of the unit's maximum flow and maintain, calibrate, and operate the devices in accordance with the manufacturer's specifications. The devices shall be calibrated in accordance with the manufacturer's recommendations or at least annually.

15. After the initial demonstration of compliance, ongoing compliance with the VOC and PM tons per year emission rates in the MAERT shall be demonstrated by calculating rolling 12-month annual emissions from emission factors (lb/MMBtu, HHV) obtained from the results of the sampling required by Special Condition No. 11 and the monthly total heat input (MMBtu, HHV) from natural gas fuel.

Recordkeeping Requirements

16. The following records shall be kept at the plant for the life of the permit. All records required in this permit shall be made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction.

A. A copy of this permit.

B. Permit application received June 23, 2014 and supplemental information.

C. A complete copy of the testing reports and records of the initial performance testing completed pursuant to Special Condition No. 11 to demonstrate initial compliance.

D. Stack sampling results or other air emissions testing (other than CEMS data) that may be conducted on units authorized under this permit after the date of issuance of this permit.

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17. The following records, written or electronic, shall be maintained at the plant site on a five-year rolling basis and be made readily available at the request of personnel from the TCEQ or any air pollution control agency with jurisdiction:

    A. Records to show compliance with relevant requirements of applicable federal NSPS standards as required by Special Condition No. 3.

    B. Records of natural gas fuel usage and the sulfur content according to the fuel suppliers for the CTs to show compliance with Special Condition Nos. 3, 5, and 7.

    C. Records of hours of operation to show compliance with Special Condition No. 7.

    D. Records of visible emission observations and if required, opacity readings, as specified in Special Condition No. 8.

    E. Records of NO_x, CO, and O_2 CEMS emissions data to demonstrate compliance with the emission rates listed in the MAERT.

    F. Raw data files of all CEMS data including calibration checks and adjustments and maintenance performed on these systems.

    G. Records of the hours of operation and sulfur content of diesel fuel fired in the firewater pump engine, pursuant to Special Condition Nos. 4 and 5.

    H. For records of planned MSS:

        (1) Date, time, and duration of the event; and

        (2) Emissions from the event.

    I. Records required by 30 TAC § 116.115(b)(2)(E) in addition to records required in this condition to show compliance with emission limitations in this permit.

Reporting

18. The holder of this permit shall submit to the TCEQ Dallas/Fort Worth Regional Office and the Air Enforcement Branch of the EPA in Dallas semiannual reports as described in 40 CFR § 60.7. Such reports are required for each emission unit which is required to be continuously monitored pursuant to this permit.

Date: _____dated____

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Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 121051 and PSDTX1418

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
CTG1	Simple cycle CT Model - GE 7FA.04	NO_x	65.6	84.1
		NO_x MSS (5)	80.3	--
		CO	33.1	113.4
		CO MSS (5)	219. 4	--
		VOC	5.1	13.9
		VOC MSS (5)	28.1	--
		SO_2	2.8	3.3
		PM	8.6	10.8
		PM_{10}	8.6	10.8
		$PM_{2.5}$	8.6	10.8
		H_2SO_4 (6)	0.2	0.3
CTG2	Simple cycle CT Model - GE 7FA.04	NO_x	65.6	84.1
		NO_x MSS (5)	80.3	--
		CO	33.1	113.4
		CO MSS (5)	219.4	--
		VOC	5.1	13.9
		VOC MSS (5)	28.1	--
		SO_2	2.8	3.3
		PM	8.6	10.8
		PM_{10}	8.6	10.8
		$PM_{2.5}$	8.6	10.8
		H_2SO_4 (6)	0.2	0.3

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
CTG3	Simple cycle CT Model - GE 7FA.04	NO_x	65.6	84.1
		NO_x MSS (5)	80.3	--
		CO	33.1	113.4
		CO MSS (5)	219.4	--
		VOC	5.1	13.9
		VOC MSS (5)	28.1	--
		SO_2	2.8	3.3
		PM	8.6	10.8
		PM_{10}	8.6	10.8
		$PM_{2.5}$	8.6	10.8
		H_2SO_4 (6)	0.2	0.3
FP-1	Firewater Pump Engine (Normal and MSS Operation)	NOx	1.4	0.35
		CO	1.7	0.43
		VOC	0.6	0.15
		SO2	0.003	<0.01
		PM	0.10	0.02
		PM10	0.10	0.02
		PM2.5	0.10	0.02
NG1	Natural Gas Piping Fugitives (7)	VOC	0.04	0.2
DE1	Diesel Fuel Storage Tank (Normal and MSS Operation)	VOC	0.03	<0.01

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) NO_x - total oxides of nitrogen
CO - carbon monoxide

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Emission Sources - Maximum Allowable Emission Rates

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
H_2SO_4 - sulfuric acid

(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. Annual limits include normal and planned MSS emissions.
(5) Emission limits applicable during planned MSS activities. Hourly emissions of NO_x, CO, and VOC are the only emissions that are higher than emissions during normal operations. During CT MSS, normal operations emission limits apply to all pollutants not shown with separate MSS limits. The MSS hourly emission limits apply to any clock hour during which the CT has any operation in MSS mode.
(6) $PM/PM_{10}/PM_{2.5}$ includes H_2SO_4.
(7) Fugitive emission rates are estimates and are enforceable through compliance with the applicable special conditions and permit application representations.

Date: _____

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Preliminary Determination Summary

Navasota North Country Peakers Operating Company I, L.L.C.
Permit Numbers 121051 and PSDTX1418

I. Applicant

Navasota North Country Peakers Operating Company I, L.L.C.
403 Corporate Wood Dr
Magnolia, Texas 77354-2758

II. Project Location

Van Alstyne Energy Center
Driving directions are as follows: from US 75 in Van Alstyne turn east onto Van Alstyne Pkwy and go 0.6 miles then turn south onto Waco St and go 0.1 miles then turn east onto Jefferson St and go 0.2 miles then turn south onto Sherman Rd and go 0.4 miles then turn east on Ballard Rd and go 1.6 miles.
Grayson County
Van Alstyne, Texas 75495

III. Project Description

Navasota North Country Peakers Operating Company I, L.L.C. proposes to install three new natural gas fired combustion turbine generators (CTGs). The CTGs will be the General Electric 7FA (nominal 183 MW each) operating as peaking units in simple cycle mode.

IV. Emissions

The proposed facility will emit the following pollutants:

Air Contaminant	Proposed Allowable Emission Rates (tpy)
NO_x	252.7
CO	340.6
VOC	42.1
SO_2	9.9
PM	32.4
PM_{10}	32.4
$PM_{2.5}$	32.4
H_2SO_4	0.9

The emission factors used in the emission rate calculations for startup and shutdown (SS) activities were provided by the turbine and associated equipment

vendors. Hourly and annual emission limitations are included on the Maximum Allowable Emission Rate Table (MAERT) separately if emissions were higher than non-SS emissions on an hourly basis.

V. Federal Applicability

The site is located in an attainment county (Grayson County, city of Van Alstyne). The proposed source is a new major source at a greenfield site. The emissions of nitrogen oxides (NOx) and carbon monoxide (CO) were both above 250 tpy making the project a major source by itself. The remaining criteria pollutants were compared to the significant emission rate for each pollutant where volatile organic compounds (VOC), and particulate matter (PM) including particulate matter less than 10 microns and less than 2.5 microns in diameter (PM10/PM2.5) also triggered a PSD review. The project emissions were above the Prevention of Significant Deterioration (PSD) major modification significance level; therefore, PSD review was triggered for these pollutants and full modeling and impacts analyses were performed. Sulfur dioxide (SO2) and sulfuric acid mist (H2SO4) were below the significant emission rate. The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD review. These totals include SS emissions.

Pollutant	Project Emissions (tpy)	Major Mod Trigger (tpy)	PSD Triggered Y/N
NOx	252.7	40	Y
CO	340.6	100	Y
VOC	42.1	40	Y
SO2	9.9	40	N
PM	32.4	25	Y
PM10	32.4	15	Y
PM2.5	32.4	10	Y
H2SO4	0.9	7	N

VI. Control Technology Review

In addition to a review of control technology for steady state operations, the best available control technology (BACT) analysis includes startup and shutdown emissions and the numerical emission limits in the draft permit reflect this analysis. Although the units may not meet the ppm by volume dry (ppmvd) limits during startup and shutdown, they will meet the mass emission limits (pounds per hour and tons per year) unless a separate limit was established, and

startup and shutdown events will be limited by Special Condition No. 9. Typical startup and shutdown of the turbine are conducted in accordance with manufacturer's recommendations to minimize emissions and maximize efficiencies.

As part of the BACT review process, the Texas Commission on Environmental Quality (TCEQ) evaluates information from the Environmental Protection Agency's (EPA's) RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and the TCEQ's continuing review of emissions control developments.

CTGs

Nitrogen Oxides (NO_x):
Each CTG is gas fired and equipped with dry low-NO_x burners (DLN) to control NO_x emissions to 9.0 ppmvd at 15% O_2 during steady state operations. DLN is a combustion zone technology that pre-mixes fuel and air to reduce thermal NO_x formation without the need for water or steam injection. Since the CTGs are each limited to 2500 hours per year of operation, based on a rolling 12-month period, installing a selective catalytic reduction unit (SCR) would not be economically reasonable. Recently issued permits in Texas for peaking turbines include Tradinghouse (issued 2/7/14), Guadalupe Power Partners (issued 10/2/2013) and DeCordova (8/29/2013). The permits have a NO_x concentration limit of 9 ppmvd at 15% O_2. Therefore, the use of DLN to control NO_x emissions to 9.0 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Carbon Monoxide (CO):
With DLN (designed to increase oxidation of CO to CO_2) and operating the CTGs according to good combustion practices, CO emissions will be controlled to 9.0 ppmvd at 15% O_2. Since the CTGs are restricted to the annual operating hours specified in the paragraph above for NO_x, installing an oxidation catalyst would not be economically feasible. Recently issued peaking turbine permit in Texas have been issued at 9 ppmvd at 15% O_2. Therefore, the use of DLN and good combustion practices to control CO emissions to 9.0 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Volatile Organic Compounds (VOCs):
Through maintenance of optimum combustion conditions and practices and firing the CTGs with pipeline-quality natural gas, VOC emissions will be controlled to 2.0 ppmvd at 15% O_2 during steady state operations. This meets BACT.

Particulate Matter ($PM/PM_{10}/PM_{2.5}$):
The CTGs will be fired with pipeline-quality natural gas. Pipeline-quality natural gas has very low ash and sulfur contents. This meets BACT.

Sulfur Compounds (SO_2/H_2SO_4):
Emissions of SO_2 and H_2SO_4 from the CTGs will occur from the oxidation of sulfur in the natural gas during combustion, with the majority of the sulfur converted to SO_2 and a small fraction converting to H_2SO_4. The CTGs will be fired with pipeline-quality natural gas with a sulfur content not exceeding 0.5 grain sulfur per 100 dry standard cubic feet, which will minimize the formation of SO_2 and H_2SO_4. This meets BACT.

Turbine Planned Maintenance, Startup, and Shutdown (MSS):
During periods of planned MSS, control devices and process equipment are operated outside the optimal range they were designed to work most effectively, and it is technically infeasible to meet the primary BACT emission rates.

Therefore, secondary BACT limits are necessary during these periods to minimize emissions. BACT will be achieved by minimizing the duration of the MSS events (consistent with standard operating procedures) to minimize the amount of time the equipment is outside the optimal performance mode and meeting the emission limitations on the MAERT.

Also, planned MSS activities must be performed using good air pollution control practices and safe operating practices to minimize emissions.

<u>Emergency Engine</u>

A firewater pump is proposed. BACT will be achieved through the installation of an engine which meets the requirements of 40 CFR 60, Subpart IIII. The engines will fire ultra low sulfur diesel fuel, containing no more than 15 parts per million (ppm) sulfur by weight. The firewater pump is limited to 100 hours per year of non-emergency operation per year. The diesel fuel tank will be submerged fill.

<u>Fugitive Emissions</u>

The fugitive emissions include VOC from the natural gas fuel lines (EPN NG1). Given the nature and quantity of the emissions, no control is BACT.

VII. Air Quality Analysis

The air quality analysis (AQA), as supplemented by the ADMT, is acceptable for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for annual NO_2 and all averaging times of CO, PM_{10}, and $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with EPA guidance for $PM_{2.5}$[2], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. If monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the $PM_{2.5}$ De Minimis level, then the proposed project with predicted impacts below the De Minimis level would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and does not require a full impacts analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

The applicant did not provide sufficient justification for using the $PM_{2.5}$ De Minimis levels for the increment analysis. However, the ADMT reviewed the TCEQ air permit database to identify potential nearby increment affecting sources. The ADMT identified one increment affecting source. Based on the air permit data, the addition of this source to the modeled emission inventory would not cause an exceedance of the $PM_{2.5}$ increments.

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

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[1] www.epa.gov/nsr/documents/20100629no2guidance.pdf
[2] www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m^3)

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
PM_{10}	24-hr	1.195	5
PM_{10}	Annual	0.02	1
$PM_{2.5}$ (NAAQS)	24-hr	0.9	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.02	0.3
$PM_{2.5}$ (Increment)	24-hr	1.195	1.2
$PM_{2.5}$ (Increment)	Annual	0.02	0.3
NO_2	1-hr	29	7.5
NO_2	Annual	0.3	1
CO	1-hr	265	2000
CO	8-hr	141	500

The 24-hr $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the maximum predicted 24-hr concentrations determined for each receptor across five years of meteorological data. The annual $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the predicted annual concentrations determined for each receptor across five years of meteorological data. The 1-hr NO_2 GLCmax is the highest five-year average of the predicted daily maximum 1-hr concentrations determined for each receptor across five years of meteorological data. The GLCmax for all other pollutants and averaging times are the maximum predicted concentrations associated with five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursor emissions (NO_x and SO_2). The project will result in a proposed increase of NO_x emissions greater than 40 tons per year (tpy) and a proposed increase of SO_2 emissions less than 40 tpy.

Since the project SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rate (SER) for SO_2, significant secondary $PM_{2.5}$ formation due to the proposed SO_2 emissions is not expected. The applicant used the EPA interpollutant trading (offset) ratios for $PM_{2.5}$ to demonstrate that

secondary $PM_{2.5}$ formation due to the proposed NO_x emissions would not be significant. Using the offset ratios, the applicant determined that the proposed NO_x emissions of 252.8 tpy would be equivalent to 1.26 tpy of $PM_{2.5}$ emissions. The proposed direct $PM_{2.5}$ emissions (32.2 tpy) are more than 20 times the equivalent $PM_{2.5}$ emissions. Secondary $PM_{2.5}$ formation occurs as a result of chemical transformations that occur in the atmosphere gradually over time and only a portion of the NO_x emissions would be affected. Furthermore, secondary $PM_{2.5}$ formation from NO_x is unlikely to overlap in time or space with nearby maximum primary $PM_{2.5}$ impacts associated with the project sources. The applicant concluded that the impact of the secondary $PM_{2.5}$ emissions from the project would be much less that the impacts resulting from direct $PM_{2.5}$ emissions, and the total impacts would be well below the NAAQS and increments.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2, CO, and PM_{10} are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Significance (µg/m^3)
PM_{10}	24-hr	1.195	10
NO_2	Annual	0.3	14
CO	8-hr	141	575

The GLCmax are the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 484391002 located at 3317 Ross Ave., Fort Worth, Tarrant County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (23.3 µg/m^3). The three-year average (2011-2013) of the annual concentrations was used for the annual value (10.5 µg/m^3). The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site. In addition, the applicant

reviewed data from other $PM_{2.5}$ monitors in the area and found that the concentrations were comparable.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLCmax] (µg/m^3)	Standard (µg/m^3)
NO_2	1-hr	13.6	57.1	70.7	188

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile, or high, eighth high, of the annual distribution of the predicted daily maximum 1-hr concentrations determined for each receptor.

A background concentration for NO_2 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the maximum daily 1-hr concentrations was used for the 1-hr value. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	482311006	8-hr	69	75

A background concentration for O_3 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. A three-year average (2012-2014) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

EPA Region 6 has previously recommended a conservative analysis based on the NO_2 modeling to estimate the potential impacts on ozone levels. Considering that it takes time for the NO_2 emissions to react to generate ozone, an evaluation of maximum estimated NO_2 concentrations at a distance of 10-to-11 kilometers (km) downwind from the project source could be used to estimate the potential ozone impacts. EPA Region 6 has recommended that emission sources would have an average ozone yield of up to 2-3 ozone molecules per NO_2 molecule. The applicant used AERMOD to calculate a maximum 8-hr NO_x concentration of 0.84 parts per billion (ppb) at a distance of 10 km. Assuming 90% conversion of NO_x to NO_2 and an ozone yield of three ozone molecules per molecule of NO_2, the 8-hr maximum predicted increase of ozone would be 2.3 ppb. Adding 2.3 ppb to the 8-hr ozone background of 69 ppb will result in a total 8-hr ozone concentration less than the 8-hr ozone NAAQS of 75 ppb.

D. Increment Analysis

The De Minimis analysis modeling results indicate that annual NO_2 and all averaging times of PM_{10} and $PM_{2.5}$ are below the respective de minimis concentrations and do not require a PSD increment analysis. PSD increments do not exist for CO and 1-hr NO_2.

Please refer to the De Minimis Analysis section above for a discussion on the justification of the $PM_{2.5}$ increment de minimis levels.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 240 km from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.1 $\mu g/m^3$ occurred approximately 50 meters from the property line towards the south. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the

receptor grid, 50 km from the proposed sources, in the direction of the Caney Creek Wilderness Class I area is 0.0003 µg/m^3. The Caney Creek Wilderness Class I area is an additional 190 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of two km from the proposed sources in the direction of Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 238 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

F. Minor Source NSR and Air Toxics Review

Table 5. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	1	1021
H_2SO_4	1-hr	0.5	50
H_2SO_4	24-hr	0.1	15

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 6. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	1	7.8
SO_2	3-hr	1	25
SO_2	24-hr	1	5

[3] www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
SO_2	Annual	0.2	1

The GLCmax are the maximum predicted concentrations associated with one year of meteorological data. The applicant used the maximum predicted 1-hr concentration to compare to the 3-hr and 24-hr De Minimis levels. The ADMT used the maximum predicted 24-hr concentration to compare to the annual De Minimis level.

VIII. Conclusion

Navasota North Country Peakers Operating Company I, L.L.C. has demonstrated that this project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The proposed facilities and controls represent BACT. The modeling analysis indicates that the proposed project will not violate the NAAQS, cause an exceedance of the increment, or have any adverse impacts on soils, vegetation, or Class I Areas. In addition, the modeling predicted no exceedance of ESLs at all receptors for non-criteria contaminants evaluated.

The Executive Director of the TCEQ proposes a preliminary determination of issuance of this permit for Navasota North Country Peakers Operating Company I, L.L.C. to construct the Van Alstyne Energy Center as proposed.

Construction Permit
Source Analysis & Technical Review

Company	**Navasota North Country Peakers Operating Company I LLC**	Permit Number	**121051 & PSDTX1418**
City	**Van Alstyne**	Project Number	**212820 & 212823**
County	**Grayson**	Account Number	**N/A**
Project Type	**Initial**	Regulated Entity Number	**RN107425340**
Project Reviewer	**Sean O'Brien**	Customer Reference Number	**CN604608786**
Site Name	**Van Alstyne Energy Center**		

Project Overview

Navasota North Country Peakers Operating Company I, L.L.C. proposes to install three new natural gas fired combustion turbine generators (CTGs). The CTGs will be the General Electric 7FA (nominal 183 MW each) operating as peaking units in simple cycle mode. Also the applicant proposes to install a firewater pump engine and a diesel fuel tank.

Emission Summary

Air Contaminant	Proposed Allowable Emission Rates (tpy)
NO_x	252.7
CO	340.6
VOC	42.1
SO_2	9.9
PM	32.4
PM_{10}	32.4
$PM_{2.5}$	32.4
H_2SO_4	0.9

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	**12/17/2014**
Compliance period:	**9/1/2009-8/31/2014**
Site rating & classification:	**Unclassified**
Company rating & classification:	**Unclassified**
If the rating is 50<RATING<55, what was the outcome, if any, based on the findings in the formal report:	**n/a**
Has the permit changed on the basis of the compliance history or rating?	**No**

Public Notice Information - 30 TAC Chapter 39 Rules

Rule Citation	Requirement	
39.403	Date Application Received:	**June 23, 2014**
	Date Administratively Complete:	**July 1, 2014**
	Small Business Source?	**No**
	Date Leg Letters mailed:	**July 1, 2014**
39.603	Date Published:	**7/11/2014**

Rule Citation	Requirement	
	Publication Name:	***Van Alstyne Leader* and *Herald Democrat***
	Pollutants:	**sulfuric acid, hazardous air pollutants including but not limited to lead, organic compounds, carbon monoxide, sulfur dioxide, nitrogen oxides, and particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less**
	Date Affidavits/Copies Received:	**7/25/2014**
	Is bilingual notice required?	**No, no bilingual program required**
	Date Certification of Sign Posting / Application Availability Received:	**8/14/2014**
39.604	Public Comments Received?	**Yes**
	Hearing Requested?	**Yes**
	Meeting Request?	**Yes**
	Date Meeting Held:	**1/13/2015**
	Date Response to Comments sent to OCC:	**4/13/2015**
	Request(s) withdrawn?	**No**
	Date Withdrawn:	**n/a**
	Consideration of Comments:	**filed**
	Is 2nd Public Notice required?	**Yes**
39.419	Date 2nd Public Notice/Preliminary Decision Letter Mailed:	**12/22/2014**
39.413	Date Cnty Judge, Mayor, and COG letters mailed:	**12/22/2014**
	Date Federal Land Manager letter mailed:	**n/a**
39.605	Date affected states letter mailed:	**12/22/2014**
39.603	Date Published:	**12/26/2014**
	Publication Name:	***Van Alstyne Leader* and *Herald Democrat***
	Pollutants:	**sulfuric acid, hazardous air pollutants including but not limited to lead, organic compounds, carbon monoxide, sulfur dioxide, nitrogen oxides, and particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less**
	Date Affidavits/Copies Received:	**1/22/2015**
	Is bilingual notice required?	**No, no bilingual program required**
	Language:	**n/a**
	Date Published:	**n/a**
	Publication Name:	***n/a***
	Date Affidavits/Copies Received:	**n/a**
	Date Certification of Sign Posting / Application Availability Received:	**2/5/2015**
	Public Comments Received?	**Yes**

Rule Citation	Requirement	
	Meeting Request?	**Yes**
	Date Meeting Held:	**Meeting held 1/13/2015**
	Hearing Request?	**Yes**
	Date Hearing Held:	
	Request(s) withdrawn?	**No**
	Date Withdrawn:	**n/a**
	Consideration of Comments:	**filed**
39.421	Date RTC, Technical Review & Draft Permit Conditions sent to OCC:	**4/13/2015**
	Request for Reconsideration Received?	**No**
	Final Action:	
	Are letters Enclosed?	

Construction Permit & Amendment Requirements - 30 TAC Chapter 116 Rules

Rule Citation	Requirement	
116.111(a)(2)(G)	Is the facility expected to perform as represented in the application?	**Yes**
116.111(a)(2)(A)(i)	Are emissions from this facility expected to comply with all TCEQ air quality Rules & Regulations, and the intent of the Texas Clean Air Act?	**Yes**
116.111(a)(2)(B)	Emissions will be measured using the following method:	**CEMS for NOx and CO. Emission calcs based on fuel flow for other pollutants**
	Comments on emission verification:	
116.111(a)(2)(D)	Subject to NSPS?	**Yes**
	Subparts **A** & **IIII, KKKK**	
116.111(a)(2)(E)	Subject to NESHAP?	**No**
	Subparts &	
116.111(a)(2)(F)	Subject to NESHAP (MACT) for source categories?	**Yes**
	Subparts **A** & **ZZZZ**	
116.111(a)(2)(H)	**Nonattainment review applicability:** N/A – located in attainment county	
116.111(a)(2)(I)	**PSD review applicability:** Yes, PSD triggered for NOx, CO, VOC, PM, PM10, and PM2.5.	
116.111(a)(2)(L)	Is Mass Emissions Cap and Trade applicable to the new or modified facilities?	**No**
	If yes, did the proposed facility, group of facilities, or account obtain allowances to operate:	**n/a**
116.140 - 141	Permit Fee: $ **75,000** Fee certification:	**WRS0008395**

Title V Applicability - 30 TAC Chapter 122 Rules

Rule Citation	Requirement
122.10(14)	**Title V applicability:** The site is a major source and will be required to get a SOP.
122.602	**Periodic Monitoring (PM) applicability:** Periodic monitoring is applicable because the site is a major source subject to 30 TAC Chapter 122. Periodic monitoring in the form of quarterly visible emissions/opacity observations; maintaining records of the hours of operation of the fire water pump; continuous monitoring of natural gas consumption for the CTGs; and continuous emissions monitoring of NOx and CO for the CTGs are used to demonstrate compliance with the permit limits.

122.604 **Compliance Assurance Monitoring (CAM) applicability:**
The site has no control devices; therefore, CAM is not applicable.

Request for Comments

Received From	Program/Area Name	Reviewed By/Date	Comments
Region:	**4**		
City:	**Van Alstyne**		
County:	**Grayson**		
ADMT:		**Matt Kovar & Javier Rosa / 12/18/2014**	
EB&T:			
Toxicology:			
Compliance:			
Legal:			
Comment resolution and/or unresolved issues:			

Process/Project Description

Navasota North Country Peakers Operating Company I, L.L.C. proposes to install three new natural gas fired combustion turbine generators (CTGs). The CTGs will be the General Electric 7FA (nominal 183 MW each) operating as peaking units in simple cycle mode. Also the applicant proposes to install a firewater pump engine and a diesel fuel tank.

Pollution Prevention, Sources, Controls and BACT- [30 TAC 116.111(a)(2)(C)]

In addition to a review of control technology for steady state operations, the best available control technology (BACT) analysis includes startup and shutdown emissions and the numerical emission limits in the draft permit reflect this analysis. Although the units may not meet the ppm by volume dry (ppmvd) limits during startup and shutdown, they will meet the mass emission limits (pounds per hour and tons per year) unless a separate limit was established, and startup and shutdown events will be limited by Special Condition No. 9. Typical startup and shutdown of the turbine are conducted in accordance with manufacturer's recommendations to minimize emissions and maximize efficiencies.

As part of the BACT review process, the Texas Commission on Environmental Quality (TCEQ) evaluates information from the Environmental Protection Agency's (EPA's) RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and the TCEQ's continuing review of emissions control developments.

<u>CTGs</u>

Nitrogen Oxides (NO_x):
Each CTG is gas fired and equipped with dry low-NO_x burners (DLN) to control NO_x emissions to 9.0 ppmvd at 15% O_2 during steady state operations. DLN is a combustion zone technology that pre-mixes fuel and air to reduce thermal NO_x formation without the need for water or steam injection. Since the CTGs are each limited to 2500 hours per year of operation, based on a rolling 12-month period, installing a selective catalytic reduction unit (SCR) would not be economically reasonable. Recently issued permits in Texas for peaking turbines include Tradinghouse (issued 2/7/14), Guadalupe Power Partners (issued 10/2/2013) and DeCordova (8/29/2013). The permits have a NO_x concentration limit of 9 ppmvd at 15% O_2. Therefore, the use of DLN to control NO_x emissions to 9.0 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Carbon Monoxide (CO):
With DLN (designed to increase oxidation of CO to CO_2) and operating the CTGs according to good combustion practices, CO emissions will be controlled to 9.0 ppmvd at 15% O_2. Since the CTGs are restricted to the annual operating hours

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Through maintenance of optimum combustion conditions and practices and firing the CTGs with pipeline-quality natural gas, VOC emissions will be controlled to 2.0 ppmvd at 15% O_2 during steady state operations. This meets BACT.

Particulate Matter ($PM/PM_{10}/PM_{2.5}$):
The CTGs will be fired with pipeline-quality natural gas. Pipeline-quality natural gas has very low ash and sulfur contents. This meets BACT.

Sulfur Compounds (SO_2/H_2SO_4):
Emissions of SO_2 and H_2SO_4 from the CTGs will occur from the oxidation of sulfur in the natural gas during combustion, with the majority of the sulfur converted to SO_2 and a small fraction converting to H_2SO_4. The CTGs will be fired with pipeline-quality natural gas with a sulfur content not exceeding 0.5 grain sulfur per 100 dry standard cubic feet, which will minimize the formation of SO_2 and H_2SO_4. This meets BACT.

Turbine Planned Maintenance, Startup, and Shutdown (MSS):
During periods of planned MSS, control devices and process equipment are operated outside the optimal range they were designed to work most effectively, and it is technically infeasible to meet the primary BACT emission rates.

Therefore, secondary BACT limits are necessary during these periods to minimize emissions. BACT will be achieved by minimizing the duration of the MSS events (consistent with standard operating procedures) to minimize the amount of time the equipment is outside the optimal performance mode and meeting the emission limitations on the MAERT.

Also, planned MSS activities must be performed using good air pollution control practices and safe operating practices to minimize emissions.

Emergency Engine

A fire water pump is proposed. BACT will be achieved through the installation of an engine which meets the requirements of 40 CFR 60, Subpart IIII. The engines will fire ultra low sulfur diesel fuel, containing no more than 15 parts per million (ppm) sulfur by weight. The firewater pump is limited to 100 hours per year of non-emergency operation per year. The diesel fuel tank will be submerged fill.

Fugitive Emissions

The fugitive emissions include VOC from the natural gas fuel lines (EPN NG1). Given the nature and quantity of the emissions, no control is BACT

Impacts Evaluation - 30 TAC 116.111(a)(2)(J)

Was modeling conducted?	**Yes**	Type of Modeling:	**AERMOD**
Will GLC of any air contaminant cause violation of NAAQS?			**No**
Is this a sensitive location with respect to nuisance?			**No**
[§116.111(a)(2)(A)(ii)] Is the site within 3000 feet of any school?			**No**
Additional site/land use information: rural			

Summary of Modeling Results

The air quality analysis (AQA), as supplemented by the ADMT, is acceptable for all review types and pollutants. The results are summarized below.

De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for annual NO_2 and all averaging times of CO, PM_{10}, and $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with EPA guidance for $PM_{2.5}$[2], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. If monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the $PM_{2.5}$ De Minimis level, then the proposed project with predicted impacts below the De Minimis level would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and does not require a full impacts analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

The applicant did not provide sufficient justification for using the $PM_{2.5}$ De Minimis levels for the increment analysis. However, the ADMT reviewed the TCEQ air permit database to identify potential nearby increment affecting sources. The ADMT identified one increment affecting source. Based on the air permit data, the addition of this source to the modeled emission inventory would not cause an exceedance of the $PM_{2.5}$ increments.

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m^3)

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
PM_{10}	24-hr	1.195	5
PM_{10}	Annual	0.02	1
$PM_{2.5}$ (NAAQS)	24-hr	0.9	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.02	0.3
$PM_{2.5}$ (Increment)	24-hr	1.195	1.2
$PM_{2.5}$ (Increment)	Annual	0.02	0.3

1 www.epa.gov/nsr/documents/20100629no2guidance.pdf

2 www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
NO_2	1-hr	29	7.5
NO_2	Annual	0.3	1
CO	1-hr	265	2000
CO	8-hr	141	500

The 24-hr $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the maximum predicted 24-hr concentrations determined for each receptor across five years of meteorological data. The annual $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the predicted annual concentrations determined for each receptor across five years of meteorological data. The 1-hr NO_2 GLCmax is the highest five-year average of the predicted daily maximum 1-hr concentrations determined for each receptor across five years of meteorological data. The GLCmax for all other pollutants and averaging times are the maximum predicted concentrations associated with five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursor emissions (NO_x and SO_2). The project will result in a proposed increase of NO_x emissions greater than 40 tons per year (tpy) and a proposed increase of SO_2 emissions less than 40 tpy.

Since the project SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rate (SER) for SO_2, significant secondary $PM_{2.5}$ formation due to the proposed SO_2 emissions is not expected. The applicant used the EPA interpollutant trading (offset) ratios for $PM_{2.5}$ to demonstrate that secondary $PM_{2.5}$ formation due to the proposed NO_x emissions would not be significant. Using the offset ratios, the applicant determined that the proposed NO_x emissions of 252.8 tpy would be equivalent to 1.26 tpy of $PM_{2.5}$ emissions. The proposed direct $PM_{2.5}$ emissions (32.2 tpy) are more than 20 times the equivalent $PM_{2.5}$ emissions. Secondary $PM_{2.5}$ formation occurs as a result of chemical transformations that occur in the atmosphere gradually over time and only a portion of the NO_x emissions would be affected. Furthermore, secondary $PM_{2.5}$ formation from NO_x is unlikely to overlap in time or space with nearby maximum primary $PM_{2.5}$ impacts associated with the project sources. The applicant concluded that the impact of the secondary $PM_{2.5}$ emissions from the project would be much less that the impacts resulting from direct $PM_{2.5}$ emissions, and the total impacts would be well below the NAAQS and increments.

Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2, CO, and PM_{10} are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Significance (µg/m^3)
PM_{10}	24-hr	1.195	10
NO_2	Annual	0.3	14
CO	8-hr	141	575

The GLCmax are the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 484391002 located at 3317 Ross Ave., Fort Worth, Tarrant County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (23.3 µg/m^3). The three-year average (2011-2013) of the annual concentrations was used for the annual value (10.5 µg/m^3). The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site. In addition, the applicant reviewed data from other $PM_{2.5}$ monitors in the area and found that the concentrations were comparable.

National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLCmax] (µg/m^3)	Standard (µg/m^3)
NO_2	1-hr	13.6	57.1	70.7	188

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile, or high, eighth high, of the annual distribution of the predicted daily maximum 1-hr concentrations determined for each receptor.

A background concentration for NO_2 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the maximum daily 1-hr concentrations was used for the 1-hr value. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	482311006	8-hr	69	75

A background concentration for O_3 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. A three-year average (2012-2014) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

EPA Region 6 has previously recommended a conservative analysis based on the NO_2 modeling to estimate the potential impacts on ozone levels. Considering that it takes time for the NO_2 emissions to react to generate ozone, an evaluation of maximum estimated NO_2 concentrations at a distance of 10-to-11 kilometers (km) downwind from the project source could be used to estimate the potential ozone impacts. EPA Region 6 has recommended that emission sources would have an average ozone yield of up to 2-3 ozone molecules per NO_2 molecule. The applicant used AERMOD to calculate a maximum 8-hr NO_x concentration of 0.84 parts per billion (ppb) at a distance of 10 km. Assuming 90% conversion of NO_x to NO_2 and an ozone yield of three ozone molecules per molecule of NO_2, the 8-hr maximum predicted increase of ozone would be 2.3 ppb. Adding 2.3 ppb to the 8-hr ozone background of 69 ppb will result in a total 8-hr ozone concentration less than the 8-hr ozone NAAQS of 75 ppb.

Increment Analysis

The De Minimis analysis modeling results indicate that annual NO_2 and all averaging times of PM_{10} and $PM_{2.5}$ are below the respective de minimis concentrations and do not require a PSD increment analysis. PSD increments do not exist for CO and 1-hr NO_2.

Please refer to the De Minimis Analysis section above for a discussion on the justification of the $PM_{2.5}$ increment de minimis levels.

Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 240 km from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.1 µg/m^3 occurred approximately 50 meters from the property line towards the south. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, 50 km from the proposed sources, in the direction of the Caney Creek Wilderness Class I area is 0.0003 µg/m^3. The Caney Creek Wilderness Class I area is an additional 190 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of two km from the proposed sources in the direction of Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 238 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

Minor Source NSR and Air Toxics Review

Table 5. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	1	1021
H_2SO_4	1-hr	0.5	50
H_2SO_4	24-hr	0.1	15

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

3 www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

Table 6. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
SO_2	1-hr	1	7.8
SO_2	3-hr	1	25
SO_2	24-hr	1	5
SO_2	Annual	0.2	1

The GLCmax are the maximum predicted concentrations associated with one year of meteorological data. The applicant used the maximum predicted 1-hr concentration to compare to the 3-hr and 24-hr De Minimis levels. The ADMT used the maximum predicted 24-hr concentration to compare to the annual De Minimis level.

Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?	**Yes**
Company representative(s):	**Chandler Morris**
Contacted Via:	**Email**
Date of contact:	**12/10/2014**
Other permit(s) or permits by rule affected by this action:	**No**
List permit and/or PBR number(s) and actions required or taken:	

Project Reviewer Date Team Leader/Section Manager/Backup Date

TCEQ Interoffice Memorandum

To: Sean O'Brien
Combustion/Coatings Section

Thru: Daniel Menendez, Team Leader
Air Dispersion Modeling Team (ADMT)

From: Matthew Kovar and Javier Rosa
ADMT

Date: December 18, 2014

Subject: Air Quality Analysis Audit – Navasota North Country Peakers Operating Company LLC (RN107425340)

1. Project Identification Information

Permit Application Number: 121051
NSR Project Number: 212820
ADMT Project Number: 4451
NSRP Document Number: 524027
County: Grayson
ArcReader Published Map: \\tceq4apmgisdata\GISWRK\APD\MODEL PROJECTS\4451\4451.pmf

Air Quality Analysis: Submitted by ECT, October 2014, on behalf of Navasota North Country Peakers Operating Company LLC. Revised modeling was submitted December 2014.

2. Report Summary

The air quality analysis (AQA), as supplemented by the ADMT, is acceptable for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for annual NO_2 and all averaging times of CO, PM_{10}, and $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA

[1] www.epa.gov/nsr/documents/20100629no2guidance.pdf

believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with EPA guidance for $PM_{2.5}$[2], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. If monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the $PM_{2.5}$ De Minimis level, then the proposed project with predicted impacts below the De Minimis level would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and does not require a full impacts analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

The applicant did not provide sufficient justification for using the $PM_{2.5}$ De Minimis levels for the increment analysis. However, the ADMT reviewed the TCEQ air permit database to identify potential nearby increment affecting sources. The ADMT identified one increment affecting source. Based on the air permit data, the addition of this source to the modeled emission inventory would not cause an exceedance of the $PM_{2.5}$ increments.

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	1.195	5
PM_{10}	Annual	0.02	1
$PM_{2.5}$ (NAAQS)	24-hr	0.9	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.02	0.3
$PM_{2.5}$ (Increment)	24-hr	1.195	1.2
$PM_{2.5}$ (Increment)	Annual	0.02	0.3
NO_2	1-hr	29	7.5

[2] www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
NO_2	Annual	0.3	1
CO	1-hr	265	2000
CO	8-hr	141	500

The 24-hr $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the maximum predicted 24-hr concentrations determined for each receptor across five years of meteorological data. The annual $PM_{2.5}$ (NAAQS) GLCmax is the highest five-year average of the predicted annual concentrations determined for each receptor across five years of meteorological data. The 1-hr NO_2 GLCmax is the highest five-year average of the predicted daily maximum 1-hr concentrations determined for each receptor across five years of meteorological data. The GLCmax for all other pollutants and averaging times are the maximum predicted concentrations associated with five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursor emissions (NO_x and SO_2). The project will result in a proposed increase of NO_x emissions greater than 40 tons per year (tpy) and a proposed increase of SO_2 emissions less than 40 tpy.

Since the project SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rate (SER) for SO_2, significant secondary $PM_{2.5}$ formation due to the proposed SO_2 emissions is not expected. The applicant used the EPA interpollutant trading (offset) ratios for $PM_{2.5}$ to demonstrate that secondary $PM_{2.5}$ formation due to the proposed NO_x emissions would not be significant. Using the offset ratios, the applicant determined that the proposed NO_x emissions of 252.8 tpy would be equivalent to 1.26 tpy of $PM_{2.5}$ emissions. The proposed direct $PM_{2.5}$ emissions (32.2 tpy) are more than 20 times the equivalent $PM_{2.5}$ emissions. Secondary $PM_{2.5}$ formation occurs as a result of chemical transformations that occur in the atmosphere gradually over time and only a portion of the NO_x emissions would be affected. Furthermore, secondary $PM_{2.5}$ formation from NO_x is unlikely to overlap in time or space with nearby maximum primary $PM_{2.5}$ impacts associated with the project sources. The applicant concluded that the impact of the secondary $PM_{2.5}$ emissions from the project would be much less that the impacts resulting from direct $PM_{2.5}$ emissions, and the total impacts would be well below the NAAQS and increments.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2, CO, and PM_{10} are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m³)	Significance (µg/m³)
PM_{10}	24-hr	1.195	10
NO_2	Annual	0.3	14
CO	8-hr	141	575

The GLCmax are the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 484391002 located at 3317 Ross Ave., Fort Worth, Tarrant County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (23.3 µg/m^3). The three-year average (2011-2013) of the annual concentrations was used for the annual value (10.5 µg/m^3). The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site. In addition, the applicant reviewed data from other $PM_{2.5}$ monitors in the area and found that the concentrations were comparable.

C. National Ambient Air Quality Standard (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
NO_2	1-hr	13.6	57.1	70.7	188

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile, or high, eighth high, of the annual distribution of the predicted daily maximum 1-hr concentrations determined for each receptor.

A background concentration for NO_2 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. The three-year average (2011-2013) of the 98th percentile of the annual distribution of the maximum daily 1-hr concentrations was used for the 1-hr value. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	482311006	8-hr	69	75

A background concentration for O_3 was obtained from the EPA AIRS monitor 482311006 located at 824 Sayle St., Greenville, Hunt County. A three-year average (2012-2014) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis. The use of this monitor is reasonable based on the applicant's review of countywide emissions and population and a qualitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

EPA Region 6 has previously recommended a conservative analysis based on the NO_2 modeling to estimate the potential impacts on ozone levels. Considering that it takes time for the NO_2 emissions to react to generate ozone, an evaluation of maximum estimated NO_2 concentrations at a distance of 10-to-11 kilometers (km) downwind from the project source could be used to estimate the potential ozone impacts. EPA Region 6 has recommended that emission sources would have an average ozone yield of up to 2-3 ozone molecules per NO_2 molecule. The applicant used AERMOD to calculate a maximum 8-hr NO_x concentration of 0.84 parts per billion (ppb) at a distance of 10 km. Assuming 90% conversion of NO_x to NO_2 and an ozone yield of three ozone molecules per molecule of NO_2, the 8-hr maximum predicted increase of ozone would be 2.3 ppb. Adding 2.3 ppb to the 8-hr ozone background of 69 ppb will result in a total 8-hr ozone concentration less than the 8-hr ozone NAAQS of 75 ppb.

D. Increment Analysis

The De Minimis analysis modeling results indicate that annual NO_2 and all averaging times of PM_{10} and $PM_{2.5}$ are below the respective de minimis concentrations and do not require a PSD increment analysis. PSD increments do not exist for CO and 1-hr NO_2.

Please refer to the De Minimis Analysis section above for a discussion on the justification of the $PM_{2.5}$ increment de minimis levels.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 240 km from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.1 µg/m^3 occurred approximately 50 meters from the property line towards the south. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, 50 km from the proposed sources, in the direction of the Caney Creek Wilderness Class I area is 0.0003 µg/m^3. The Caney Creek Wilderness Class I area is an additional 190 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of two km from the proposed sources in the direction of Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 238 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

F. Minor Source NSR and Air Toxics analysis

Table 5. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	1	1021
H_2SO_4	1-hr	0.5	50
H_2SO_4	24-hr	0.1	15

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 6. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	1	7.8
SO_2	3-hr	1	25
SO_2	24-hr	1	5
SO_2	Annual	0.2	1

The GLCmax are the maximum predicted concentrations associated with one year of meteorological data. The applicant used the maximum predicted 1-hr concentration to compare to the 3-hr and 24-hr De Minimis levels. The ADMT used the maximum predicted 24-hr concentration to compare to the annual De Minimis level.

3. Model Used and Modeling Techniques

AERMOD (Version 14134) was used in a refined screening mode.

The applicant represented four turbine operational scenarios in the modeling analysis for the combustion turbine generators (CTGs): normal maximum load of 100 percent, maximum load of 100 percent with CTG inlet air evaporative cooling, mid-point load of 75 percent, and minimum steady-state load of 50 to 60 percent. Startup/shutdown operations were also evaluated for NO_x and CO. Each operational scenario included the highest emissions and the lowest stack exit temperature/velocity associated with the scenario. The results associated with the operational scenario with the maximum predicted concentration were reported in Tables 1, 2, 3, 5, and 6.

A. Land Use

Medium roughness and elevated terrain were used in the modeling analysis. These selections are consistent with the AERSURFACE analysis, topographic map, DEMs, and aerial photography. The selection of medium roughness is reasonable.

[3] www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

B. Meteorological Data

Surface Station and ID: Denton, TX (Station #: 03991)
Upper Air Station and ID: Fort Worth, TX (Station #: 03990)
Meteorological Dataset: 2012 for State Property Line analysis;
2008-2012 for all other analyses
Profile Base Elevation: 195.7 meters

A profile base elevation of 10.06 meters was used in the modeling analysis. This will not significantly affect the modeling results.

C. Receptor Grid

The grid modeled was sufficient in density and spatial coverage to capture representative maximum ground-level concentrations.

D. Building Wake Effects (Downwash)

Input data to Building Profile Input Program Prime (Version 04274) are consistent with the plot plan and modeling report.

4. Modeling Emissions Inventory

The modeled emission point source parameters and rates were generally consistent with the modeling report. The source characterization used to represent the sources was appropriate.

For EPNs CTG-1 - CTG-3 for the low and 75 percent load scenarios, the stack exit velocities were modeled at lower values. This is conservative.

NO_x to NO_2 conversion factors of 0.8 and 0.75 were applied to the predicted 1-hr and annual NO_x concentrations, respectively, which is consistent with guidance for combustion sources.

The modeled 1-hr NO_x and CO emission rates for EPNs CTG-1 – CTG-3 in the startup/shutdown operational scenario were based on 47.8 minutes at base load and 12.2 minutes in startup/shutdown mode.

The modeled NO_x emission rates for EPNs CTG-1 – CTG-3 included the emissions for one startup and shutdown (each turbine) over an 8-hr period for the ozone analysis.

The applicant evaluated the firewater pump engine (EPN FP-1) based on EPA guidance for intermittent sources. The applicant modeled this source using an annual average emission rate for the 1-hr NO_2 NAAQS analysis. According to the applicant, the firewater pump engine is an intermittent source: it will be tested

once per week for approximately one hour or less and no more than 100 hours per year.

The modeled emission rates for EPN FP-1 were based on one hour of operation in a 24-hr period for the $PM_{10}/PM_{2.5}$ analyses.

Except as noted above, maximum allowable hourly emission rates were used for the short-term averaging time analyses, and annual average emission rates were used for the annual averaging time analyses.

The TCEQ is committed to accessibility.
To request a more accessible version of this report, please contact the TCEQ Help Desk at (512) 239-4357.

Compliance History Report

PUBLISHED Compliance History Report for CN604608786, RN107425340, Rating Year 2014 which includes Compliance History (CH) components from September 1, 2009, through August 31, 2014.

Customer, Respondent, or Owner/Operator:	CN604608786, Navasota North Country Peakers Operating Company I LLC	**Classification:** UNCLASSIFIED	**Rating:** -----
Regulated Entity:	RN107425340, VAN ALSTYNE ENERGY CENTER	**Classification:** UNCLASSIFIED	**Rating:** -----
Complexity Points:	9	**Repeat Violator:** NO	
CH Group:	06 - Electric Power Generation		
Location:	FR US 75 IN VAN ALSTYNE TURN E ON VAN ALSTYNE PKWY FOR 0.6 MI TURN S ON WACO ST FOR 0.1 MI TURN E ONTO JEFFERSON ST FOR 0.2 MI TURN S ON SHERMAN RD FOR 0.4 MI TURN E ON BALLARD RD FOR 1.6 MI GRAYSON, TX, GRAYSON COUNTY		
TCEQ Region:	REGION 04 - DFW METROPLEX		

ID Number(s):

AIR NEW SOURCE PERMITS PERMIT 121051
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1418
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX119

Compliance History Period: September 01, 2009 to August 31, 2014 **Rating Year:** 2014 **Rating Date:** 09/01/2014

Date Compliance History Report Prepared: May 27, 2015

Agency Decision Requiring Compliance History: Permit - Issuance, renewal, amendment, modification, denial, suspension, or revocation of a permit.

Component Period Selected: September 01, 2009 to August 31, 2014

TCEQ Staff Member to Contact for Additional Information Regarding This Compliance History.

Name: Mr. Sean O'Brien **Phone:** (512) 239-1137

Site and Owner/Operator History:

1) Has the site been in existence and/or operation for the full five year compliance period? NO
2) Has there been a (known) change in ownership/operator of the site during the compliance period? NO
3) If **YES** for #2, who is the current owner/operator? N/A
4) If **YES** for #2, who was/were the prior owner(s)/operator(s)? N/A
5) If **YES**, when did the change(s) in owner or operator occur? N/A

Components (Multimedia) for the Site Are Listed in Sections A - J

A. Final Orders, court judgments, and consent decrees:
N/A

B. Criminal convictions:
N/A

C. Chronic excessive emissions events:
N/A

D. The approval dates of investigations (CCEDS Inv. Track. No.):
N/A

E. Written notices of violations (NOV) (CCEDS Inv. Track. No.):
A notice of violation represents a written allegation of a violation of a specific regulatory requirement from the commission to a regulated entity. A notice of violation is not a final enforcement action, nor proof that a violation has actually occurred.

N/A

F. Environmental audits:
N/A

G. Type of environmental management systems (EMSs):
N/A

H. Voluntary on-site compliance assessment dates:
N/A

I. Participation in a voluntary pollution reduction program:
N/A

J. Early compliance:
N/A

Sites Outside of Texas:
N/A