

APPENDIX H
AIR PERMIT FOR THERESA STREET WWTF



CITY OF LINCOLN NEBRASKA

MAYOR COLEEN J. SENG

lincoln.ne.gov

Lincoln-Lancaster County
Health Department
Bruce D. Dart, MS, Health Director
3140 "N" Street
Lincoln, Nebraska 68510-1514
402-441-8000
TDD: 402-441-6284
fax: 402-441-8323
health@ci.lincoln.ne.us



December 30, 2005

Mr. Randy L. Wilson, P.E., Superintendent of Water Pollution Control
Lincoln Wastewater System
Theresa Street Plant
2400 Theresa Street
Lincoln, NE 68521

Dear Mr. Wilson:

Enclosed is the Class II Specific Operating Permit, which replaces the previous Class I (Title V) Operating Permit for the Theresa Street Wastewater Treatment Plant, and the amended construction permit, No. 115A, for the two engines. Both permits have an effective date of January 1, 2006 and the operating permit has an expiration date of January 1, 2011. The Lincoln-Lancaster County Health Department (LLCHD) did not receive any comments regarding issuance of these permits during the 30-day public comment period, which ended on December 27, 2005.

The major changes in these permits are as follows:

- 1) The Class II permit restricts emissions of the individual criteria air pollutants, except lead (which is restricted to less than 2.5 tpy), to less than 100 tpy. The previous Class I permit restricted these emissions to less than 250 tpy in each case. Hazardous air pollutants (HAPS) are now restricted to less than 10 tpy for individual HAPS and to less than 25 tpy for total HAPS. No such restriction for HAPS existed in the Class I permit.
- 2) The Class II permit, as compared to the Class I permit, does not require submittal of either the Annual Compliance Certification or the six-month monitoring and deviation reports, however, the Class II permit does require submittal of six-month compliance reports per condition XIX.(D).
- 3) The amended construction permit, No. 115A, allows for an increase in the annual average KW output for the combined engines from 720 to 800.
- 4) The amended construction permit requires that calculation of CO, NO_x, and SO₂ emissions from the engines be based on the results of emission testing conducted in July 2005. For the most part the engines were tested using the best power mode of operation. In the event engines are operated in the best economy mode, CO and NO_x emissions will be calculated according to the procedure provided For Digester Gas in condition 5 b) of permit No. 115A.

The recordkeeping and reporting requirements for the operating permit are established in condition XIX.(D) and those for the construction permit in conditions 5 g) and 5 h). The records submitted will be for both six and

twelve month periods that includes the annual (calendar year) emission inventory.

The LLCHD is also enclosing a billing for \$1200 which is the fee for revision of the original construction permit issued for the enginators. This fee is required by Article 2, Section 30 of the LLCAPCPRS. The number of hours involved in the preparation of the permit revision and other related documents was 16. The per hour fee is \$75 in accordance with Section 30, paragraph (A). $\$75/\text{hr} \times 16 \text{ hrs} = \1200 . Payment to the Business Office of the LLCHD is due within 30 days of the date of permit receipt.

Contact me if you have any questions regarding these permits.

Sincerely,



Gary Walsh
Environmental Engineer

Enclosures: Class II Specific Operating Permit - Theresa Street WWTP
 Construction Permit No. 115A for Enginators
 Billing Statement

tscIIpmt,constpmt115Acvrltr.wpd

**PERMIT TO OPERATE A CLASS II AIR CONTAMINANT SOURCE
IS HEREBY ISSUED TO**

CITY OF LINCOLN
COUNTY-CITY BUILDING
PUBLIC WORKS AND UTILITIES DEPARTMENT
555 SOUTH 10TH STREET
LINCOLN, NE 68508

FOR THE OPERATION OF

THERESA STREET WASTEWATER TREATMENT PLANT

LOCATION OF OPERATION

2400 THERESA STREET
LINCOLN, NE

Pursuant to Section 14 of the Lincoln-Lancaster County Air Pollution Control Regulations and Standards (LLCAPCPRS), the public has been notified by prominent advertisement of this proposed permit for operation of an air contaminant source, and the thirty (30) day period allowed for comments has elapsed. This Operating Permit approves the operation of the Theresa Street Waste Water Treatment Plant.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard.

DEFINITIONS

NOTE: The following definitions are those either found in the LLCAPCPRS or offer a further explanation to definitions of the LLCAPCPRS.

Act means the Clean Air Act, as amended, 42 U.S.C. 7401, et seq.

Administrator means the Administrator of the United States Environmental Protection Agency (EPA) or his or her designee.

Applicable requirement includes requirements that have been promulgated or approved by EPA through rulemaking at the time of permit issuance including those that have future-effective compliance dates.

Class II source means any source subject to the Class II permitting requirements of Article 2, Section 5 of the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS). Any source or emissions unit that has the potential to emit the following pollutants in the following ranges is a Class II source:

(1) PM_{10} > 15 tpy but < 100 tpy; (2) SO_2 > 40 tpy but < 100 tpy; (3) NO_x > 40 tpy but < 100 tpy; (4) VOC > 40 tpy but < 100 tpy; (5) CO > 50 tpy but < 100 tpy; (6) Lead > 0.6 tpy but < 5 tpy; (7) Individual hazardous air pollutant > 2.5 tpy but < 10 tpy; (8) Total hazardous air pollutants > 10 tpy but < 25 tpy. Note: This is generally the case unless there is a specific federal rule that requires a source to obtain a title V (Class I) permit despite the fact that the source has emissions that would classify them as a minor source (Class II).

Director means the Health Director of the Lincoln-Lancaster County Health Department (LLCHD) or any representatives, agents or employees of the Health Director.

Emergency means any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

Emissions unit means any part or activity of a stationary facility that emits or would have the potential to emit any regulated air pollutant or any pollutant listed in Appendix II of LLCAPCPRS. This term is not meant to alter or affect the definition of the term "unit" for purposes of LLCAPCPRS Section 26.

Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening.

Minor source means any source that is not defined as a major source in Article 2 Section 2 of the LLCAPCPRS. Generally speaking, a minor source is one that is classified as a Class II source.

Permit modification means a revision to a Class I or Class II operating permit that meets the requirements of LLCAPCPRS Section 15.

Permit revision means any Class I or Class II operating permit modification or administrative permit amendment.

Permitting authority means the Lincoln-Lancaster County Health Department.

Potential to emit means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source. This term does not alter or affect the use of this term for any other purposes of the LLCAPCPRS, or the term "capacity factor" used in LLCAPCPRS Section 26.

Regulated air pollutant means the following:

- (1) Nitrogen oxides or any volatile organic compounds as defined in LLCAPCPRS Article 2, Section 1;
- (2) Any pollutant for which a national ambient air quality standard has been promulgated;
- (3) Any pollutant that is subject to any standard in Article 2, Section 18 of the LLCAPCPRS; and
- (4) Any pollutant subject to a standard or other requirements established in Article 2, Section 23 of the LLCAPCPRS relating to hazardous air pollutants, including the following:

- (a) Any pollutant subject to requirements under Section 112(j) of the Act; and
- (b) Any pollutant for which the requirements relating to construction, reconstruction, and modification in Section 112(g) of the Act have been met, but only with respect to the individual source subject to these requirements.

Renewal means the process by which a permit is reissued at the end of its term.

Responsible official means that for a municipality, State, Federal or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA).

Stationary source means any building, structure, facility, or installation that emits or may emit any regulated air pollutant or any pollutant subject to regulation under LLCAPCPRS.

End of Definitions

This permit is issued with the following conditions:

- I. This permit is not transferable to another source or location. (LLCAPCPRS, Article 2, Section 17)
- II. Holding of this permit does not relieve the permittee from the responsibility to comply with all applicable portions of the LLCAPCPRS and any other requirements under Local, State, or Federal law. (LLCAPCPRS, Article 1)
- III. The permittee shall allow, in accordance with LLCAPCPRS, Article 2, Section 8 (O) and the LMC, Title 8, Chapter 8.06, Section 8.06.030(b)(1), (13), (18), and (20), the Lincoln-Lancaster County Health Department (LLCHD), EPA, or an authorized representative, upon presentation of credentials to exercise the power and duty:
 - (A) Enter upon the permittee's premises at reasonable times where a source subject to this permit is located or emissions-related activity is conducted, for the purpose of ensuring compliance with the permit or applicable requirements;
 - (B) Have access to and copy, at reasonable times, any records, for the purpose of assuring compliance with the permit or applicable requirements;
 - (C) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations, for the purpose of assuring compliance with the permit or applicable requirements;
 - (D) Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
- IV. Applicable regulations:
 - (A) LLCAPCPRS particularly and the Lincoln Municipal Code (LMC), but not limited to the following sections:

LLCAPCPRS, Article 1 - Federally Enforceable

Section 6 - Annual Fees

LLCAPCPRS, Article 2 - Federally Enforceable

- Section 1 - Definitions
- Section 2 - Definition of Major Source
- Section 4 - Ambient Air Quality Standards
- Section 5 - Operating Permits - When Required
- Section 6 - Emissions Reporting - When Required
- Section 7 - Operating Permits - Application
- Section 8 - Operating Permit - Content
- Section 11 - Emergency Operating Permits - Defense
- Section 12 - Operating Permit Renewal and Expiration
- Section 14 - Permits - Public Participation
- Section 15 - Operating Permit Modifications - Reopening for Cause
- Section 16 - Stack Heights - Good Engineering Practice (GEP)
- Section 17 - Construction Permits - When Required
- Section 20 - Particulate Emissions - Limitations and Standards
- Section 23 - Hazardous Air Pollutants - Emission Standards
- Section 24 - Sulfur Compound Emissions - Existing Sources -
Emission Standards
- Section 30 - Construction Permit Fee
- Section 32 - Dust - Duty to Prevent Escape of
- Section 34 - Emission Sources - Testing - Monitoring
- Section 35 - Compliance - Exceptions Due to Startup Shutdown
or Malfunction
- Section 36 - Control Regulations - Circumvention - When Excepted
- Section 38 - Emergency Episodes - Occurrence and Control -
Contingency Plans

LMC, Title 8, Chapter 8.06 - Federally Enforceable

- Section 8.06.030 Director Powers and Duties
- Section 8.06.140 Open Burning
- Section 8.06.145 Open Burning Permits
- Section 8.06.150 Air Pollution Nuisances Prohibited

LMC, Title 8, Chapter 8.06 - Non Federally Enforceable

- Section 8.06.130 Odor Nuisances Prohibited

- V. This permit is issued for a fixed term of five (5) years. A renewal application shall be submitted to the Department a minimum of six (6) months and a maximum of eighteen (18) months before permit expiration. (LLCAPCPRS, Article 2, Sections 7(B)(6) and 8(c)(1))
- VI. The permittee must comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the LLCAPCPRS and the Act and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (LLCAPCPRS, Article 2, Section 8(G)(1))
- VII. It shall not be a defense for a permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (LLCAPCPRS, Article 2, Section 8(G)(2))

- VIII. This permit may be modified; revoked, reopened, and reissued; or terminated for cause in accordance with the provisions of the LLCAPCPRS. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (LLCAPCPRS, Article 2, Section 8(G)(3))
- IX. Conditions under which this permit will be reopened, revoked and reissued or terminated during its term for cause, include but are not limited to:
- (A) Additional applicable requirements under the Act or the LLCAPCPRS, which become applicable to this source with a remaining permit term of three (3) or more years. (LLCAPCPRS, Article 2, Section 15(F)(1)(a))
- X. This permit may be revoked during its term for cause, including but not limited to: (LLCAPCPRS, Article 2, Section 15(F)(2))
- (A) The existence at the facility of unresolved noncompliance with applicable requirements or a term or condition of the permit, and refusal of the permittee to agree to an enforceable schedule of compliance to resolve the noncompliance;
 - (B) The submittal by the permittee of false, incomplete, or misleading information to the Department or EPA;
 - (C) A determination by the Director that the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a modification of the permit; or
 - (D) The failure of the permittee to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the EPA.
- XI. The permit does not convey any property rights of any sort, or any exclusive privilege. (LLCAPCPRS, Article 2, Section 8(G)(4))
- XII. The permittee shall furnish to the Department, within the time specified by the Department, any information requested by the Department in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of records required to be kept in accordance with the permit or, for information claimed to be confidential, the permittee may furnish such records along with a claim of confidentiality pursuant to Nebraska Statute 84-712.05 (LLCAPCPRS, Article 2, Section 8(G)(5))
- XIII. The provisions of this permit supersede the provisions of any previously issued operating permit. Construction permits that are issued become applicable requirements of this permit. (LLCAPCPRS, Article 2, Section 8(G)(6))
- XIV. The unchallenged permit requirements shall remain valid in the event of a challenge to any portion of the permit. (LLCAPCPRS, Article 2, Section 8(F))
- XV. The permittee shall maintain records that will allow the Department to assess compliance with the terms and conditions of this permit and any construction permit(s) that is an applicable requirement of this permit. Reports that are required by the applicable requirements of this permit, including any construction permit(s), shall be

submitted in accordance with the schedule established in this permit.
(LLCAPCPRS, Article 2, Section 8(O))

- XVI. Any deviation resulting from emergency or upset conditions shall be reported within two working days of the date on which the permittee first becomes aware of the deviation, if the permittee wishes to assert the affirmative defense authorized under Section 11 of the LLCAPCPRS. (LLCAPCPRS, Article 2, Section 11(C)(4))
- XVII. The permittee shall submit completed emission inventory forms for the preceding calendar year to the Department by March 31 of each year. (LLCAPCPRS, Article 2, Section 6)
- XVIII. The permittee shall submit fees, due July 1 of each year, based on the actual emission tonnages, up to and including 4,000 tons per year for each regulated pollutant, as established in the emission inventory for the previous calendar year. (LLCAPCPRS, Article 1, Section 6)
- XIX. Terms and conditions of this permit are in accordance with the requirements of the LLCAPCPRS, Article 2, Section 8(O). The specific applicable requirement which is the basis for each specific permit condition is listed with each permit condition. In all cases, the authority for each term and condition will be the LLCAPCPRS, Article I, Section 1 or the LMC, Title 8, Chapter 8.06.

The specific conditions of this permit are:

- (A) The annual total facility emissions limits are listed as follows and shall be maintained every year this permit is valid. These limits are for any-consecutive 12 month period with records and compliance maintained and based on rolling 12 month periods. Emissions shall be calculated annually for the previous 12, rolling 12 month periods. Emissions that are part of the emission inventory report will be for the previous calendar year as described in XIX (E):
- PM₁₀, SO₂, NO_x, VOC, and CO less than 100 tons per year (tpy) each
 - Lead less than 2.5 tpy
 - Individual hazardous air pollutant less than 10 tpy
 - Total hazardous air pollutants less than 25 tpy
- (B) The permittee shall limit carbon monoxide (CO) and nitrogen oxide (NO_x) emissions to less than 100 tons per year. Limiting these emissions from the engines shall be accomplished by means of the following measures:
- 1) The average output for both internal combustion co-gen engines combined shall be limited to no greater than 800 kilowatts based on a twelve month rolling average. (Construction permit No. 115A, condition 5a).
 - 2) The cogen engines shall have their CO and NO_x emissions limited to those levels indicated in Attachments 1 and 2 of construction permit No. 115A (as referenced in condition 5b)) when operating in the **best power** mode of operation, or, when operating in the **best economy** mode of operation, at the levels found during the testing conducted on 8/14/03, and in the case of engine 1102, at the CO level found during the testing conducted on 7/14/05.
 - 3) The use of pipeline quality natural gas shall be limited in accordance with the requirements of condition 5c), construction permit No. 115A.

Note: Construction permit No. 115A is Attachment A to this permit.

- (C) Three options for monitoring kilowatt output from the co-gen engines will be acceptable. (a) Two kilowatt output readings can be recorded each hour for each day. These readings can then be averaged each day and subsequently averaged for each month and recorded on the appropriate forms. (b) Monthly average kilowatt output reports generated by Lincoln Electric System can be recorded on the appropriate forms. (c) Options a and b above can be combined to determine average kilowatt output and recorded on the appropriate forms.
- (D) The permittee shall submit The Average Monthly Generator Output Reporting Form and the Report of Recordkeeping (Attachment B) every six months. (LLCAPCPRS, Article 2, Section 8 (O)). The reports will be due on January 30 and July 30 and shall contain the following data for the previous six months:

- (a) The volume of waste water treated each month during the reporting period (in millions of gallons).
- (b) The rolling 12 month average volume of digester gas and natural gas burned in the co-gen engines (in millions of cubic feet) shall be reported separately in accordance with condition 5g) of construction permit No. 115A.
- (c) The rolling 12 month total volume of digester gas and natural gas combusted at the treatment plant (in mmcf for each fuel).
- (d) The rolling 12 month average number of hours of engine operation (combined) in accordance with condition 5g) of construction permit No. 115A.
- (e) The rolling 12 month average kilowatt (KW) output for the engines (combined) in accordance with condition 5g) of construction permit No. 115A.

A minimum of 80% of the daily data must be used to calculate the Note: average monthly kilowatt output. In the event that greater than 20% of the data is missing due to malfunction or other reason, the permittee must submit a notification within five days of the discovery of lost data outlining the reason for the data loss. Additionally, a plan detailing the steps that will be taken to remedy the malfunction must also be submitted.

- (f) The following information shall be reported to the LLCHD no later than 90 days after the end of each calendar year for the previous **calendar** year:
- (1) The annual average KW output for the engines (combined);
 - (2) The total annual hours of engine operation (combined);
 - (3) The total annual consumption of digester gas (in mmcf) for the engines (combined);
 - (4) The total annual consumption of natural gas (in mmcf) for the engines (combined) and for the entire facility;
 - (5) The total volume of wastewater treated (in millions of gallons); and
 - (6) The actual annual emissions of air pollutants (in tpy) associated with the specific facilities described below in (E)(1) through (4) using the calculation method presented for each of the pollutants.

lbs/yr/2000 = tpy Xylene

All VOC and HAPS listed are required to be included in the annual emissions inventory. Actual emissions of the individual HAPS have been estimated to be greater than required reportable thresholds.

- (F) The effective date and time of this Class II operating permit is **January 1, 2006 @ 12:01a.m.** The expiration date and time of this Class II permit is **January 1, 2011 @ 12:01 a.m.**
- (G) Renewal applications must be submitted within 18 months but no later than 6 months before the expiration date, or anytime on or after **July 1, 2009 up through July 1, 2010.**

Air Quality Program Recommendation
[Signature] Approve _____ Disapprove _____

July 21, 2006
Date

[Signature]

Bruce D. Dart, PhD, Health Director
Lincoln-Lancaster County Health Department

Attachment A Construction permit No. 115A
Attachment B Average Monthly Generator Output Reporting Form, Report of Recordkeeping

theresastclassIIpmtamended.wpd



**LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT
DIVISION OF ENVIRONMENTAL HEALTH**

CONSTRUCTION PERMIT No. 115A

PERMIT TO CONSTRUCT/MODIFY/RECONSTRUCT

Is HEREBY ISSUED TO:

THE CITY OF LINCOLN, NE DEPARTMENT OF PUBLIC WORKS,
THERESA STREET WASTEWATER TREATMENT PLANT FOR
MODIFICATION OF TWO STATIONARY INTERNAL COMBUSTION
ENGINES (RATED AT 818 HP, 5.04 MBTU/HR EACH), FUELED
WITH DIGESTER/NATURAL GAS, AND ASSOCIATED ELECTRICAL
GENERATION EQUIPMENT (TWO GENERATORS - 450 KW EACH)

LOCATED AT
2400 THERESA STREET
LINCOLN, NEBRASKA

Pursuant to Article 2, Section 14 of the Lincoln-Lancaster County Air Pollution Control Program Regulations and Standards (LLCAPCPRS), the public has been notified by prominent advertisement of this proposed modification and the 30 day period allowed for comments has elapsed.

THE VALIDITY OF THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. The owner/operator shall notify the Lincoln-Lancaster County Health Department (LLCHD) of the start-up date of the engines with modifications (new engine settings).
2. The permit is not transferable to another party or location.
3. Modifications (new engine settings) must commence within 18 months after the date of this issuance of this permit.
4. The holding of this permit does not relieve the owner/operator of the responsibility to comply with all applicable portions of the LLCAPCPRS.

Applicable Regulations (Article 2):

Section 6 Emissions Reporting -- When Required

Section 17 Construction Permits -- When Required

Section 20 Particulate Emissions -- Limitations and Standards

Section 24 Sulfur Compound Emissions -- Existing Sources -- Emission Standards

Section 34 Emission Sources -- Testing -- Monitoring

Section 35 Compliance -- Exception Due to Startup, Shutdown or Malfunction

5. a) The owner/operator shall limit the combined annual average electrical output for the two engines to no greater than 800 KW (kilowatts). Compliance shall be based on

the rolling average KW output for any period of 12 consecutive months. Records of the rolling 12 month average KW outputs, average hours of combined engine operation, and average digester gas and natural gas use shall be maintained on a monthly basis and shall be made available to representatives of the LLCHD upon request. **Note:** The information required to be recorded by this condition shall be based on monthly data that is derived from daily averages.

b) Potential and actual emissions of PM₁₀, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compounds shall be limited to less than 100 tons per year (tpy) for each of these air pollutants. Additionally, potential and actual emissions of lead and individual hazardous air pollutants shall be limited to less than 2.5 tpy, and total emissions of hazardous air pollutants shall be limited to less than 10 tpy. The < 100 tpy limits shall apply to the entire wastewater treatment facility which includes the two engines. The < 2.5 tpy (individual) and <10 tpy (total) hazardous air pollutant emission limits shall apply only to the engines. The individual and total hazardous air pollutant emissions for the entire facility are limited to less than 10 tpy and to less than 25 tpy, respectively. Compliance with these limits shall be determined on a rolling 12 month basis.

Emissions from the engines shall be calculated in the following manner:

For Digester Gas

CO From Attachment 1 obtain the average lbs/hr emission for the combined engines that is based on the 12 month average KW output for these engines. Determine the average hours of operation for both engines during the 12 month period (from condition a)).

(Average lbs/hr of CO) x (Average 12 month hours of operation) = lbs/yr CO; lbs/yr CO/2000 = tpy CO tpy = tons per year

NOx Use the same procedure described for CO to obtain the average lbs/hr for NOx (See Attachment 2) and the average number of hours of operation during the 12 month period.

(Average lbs/hr of NOx) x (Average 12 month hours of operation) = lbs/yr NOx; lbs/yr NOx/2000 = tpy NOx

SO₂ Use the same procedure described for CO to obtain the average lbs/hr for SO₂ (See Attachment 3) and the average number of hours of operation during the 12 month period.

(Average lbs/hr of SO₂) x (average 12 month hours of operation) = lbs/yr SO₂; lbs/yr SO₂/2000 = tpy SO₂.

Note: With the exception of SO₂, in the event engines should be operated in the **best economy mode**, the results of NOx emission testing conducted on 8/14/03 shall be used to calculate tpy emissions. The results of the CO emission testing conducted on 8/14/03

shall be used to calculate **best economy mode** CO emissions (in tpy) for engine 1101 and the CO emission testing conducted on 7/14/05 for engine 1102 shall be used to calculate these emissions for this engine.

PM₁₀ The amount of digester gas (in cubic feet) consumed by the engines during the 12 month period multiplied by 600 btu/cf (heat content of digester gas) = total btus/yr.
Total btus/yr divided by 1×10^6 = mmbtu/yr
(mmbtu/yr) x (0.0573 lbs/mmbtu) = lbs/yr PM₁₀; lbs/yr PM₁₀/2000 = tpy PM₁₀

VOC (nonmethane TOC) Use the procedure described for PM10 to determine total btus/yr (in mmbtu/yr).
(mmbtu/yr) x (0.2 lbs/mmbtu) = lbs/yr VOC; lbs/yr VOC/2000 = tpy VOC

For Natural Gas

Determine the total natural gas use for both engines during the 12 month period and calculate the total btus/yr (in mmbtu/yr) by using a heat content of 1,000 btu/cf. Source of emission factors for CO, NO_x, SO₂, and VOC is Section 3.4, Table 3.4-1, of AP-42, Fifth Edition. Source of PM₁₀ emission factor is FIRE, Version 6.24.

CO

(mmbtu/yr) x (1.16 lbs/mmbtu) = lbs/yr CO; lbs/yr CO/2000 = tpy CO

NO_x

(mmbtu/yr) x (2.7 lbs/mmbtu) = lbs/yr NO_x; lbs/yr NO_x/2000 = tpy NO_x

SO₂ Assume the sulfur content of natural gas is 0.07%

(mmbtu/yr) x (0.895(0.07) lbs/mmbtu) = lbs/yr SO₂; lbs/yr SO₂/2000 = tpy SO₂

PM₁₀

(mmbtu/yr) x (0.0573 lbs/mmbtu) = lbs/yr PM₁₀; lbs/yr PM₁₀/2000 = tpy PM₁₀

VOC (nonmethane TOC)

(mmbtu/yr) x (0.2 lbs/mmbtu) = lbs/yr VOC; lbs/yr VOC/2000 = tpy VOC

Combine the emissions (both engines) for each fuel type for each pollutant to obtain the total 12 month average emissions for each of the five pollutants. Example: CO emissions digester gas + CO emissions natural gas = total 12 month average CO emissions.

c) The fuels for the two internal combustion engines shall be limited to digester gas and pipeline quality natural gas. Digester gas shall be the primary fuel. The entire plant is limited to use of no greater than 100 mmcf/yr of natural gas on a rolling 12 month basis. The quantity of natural gas combusted in the engines during any period of 12 consecutive months shall be limited to the extent that plant-wide emissions of

individual criteria air pollutants do not equal or exceed 100 tpy.

d) Particulate emissions from the engines shall not exceed 0.496 lbs/mmBtu/hr as established at Article 2, Section 20, paragraph (C) of the LLCAPCPRS. Visible emissions from the engines shall not equal or exceed 20% opacity as established at Article 2, Section 20, paragraph (E) of the LLCAPCPRS. The methodology described in paragraph (E) of Section 20 shall be used to evaluate visible emissions.

e) Sulfur oxide emissions from the engines shall not exceed 2.5 lbs/mmBtu/hr, 2-hour average, as established at Article 2, Section 24, paragraph (A) of the LLCAPCPRS.

f) In accordance with Article 2, Section 34 of the LLCAPCPRS, the owner/operator shall have the engines tested for emissions of nitrogen oxides (NO_x) and carbon monoxide (CO) while combusting digester gas under the following circumstances: (1) Whenever changes in carburetor settings are made that do not represent the settings currently used for the **best power** and the **best economy modes** of operation; or (2) Whenever deemed necessary by the Health Director for any other reason. Testing for pollutants other than CO and NO_x may also be required by the Director when deemed necessary. Testing shall be conducted in accordance with acceptable methods for these air pollutants as provided at 40 CFR Part 60 Appendix A. A report detailing the results of this testing shall be submitted to the LLCHD within 45 days after completion of the tests. Results of the testing shall be expressed in the following units: (1) grams/bhp-hr; and (2) lbs/hr. Until the time the results of this testing are available and have been accepted, emissions of CO and NO_x shall be calculated using the emissions test results for engine 1101 as indicated in Attachments 1 and 2. After this time, the results of emissions testing shall be used to calculate these emissions. In the event testing reveals emissions that will not provide for compliance with the < 100 tpy limit for the pollutants indicated in 5b), further engine adjustments and/or the establishment of a more restrictive 12 month average KW output limit shall be required to ensure compliance with the emissions limit. If additional engine adjustments are required, additional emissions testing shall be conducted within 180 days after engine setting adjustments have been completed to assess whether compliance with the < 100 tpy emissions limit has been achieved.

g) Records of the rolling 12 month average KW outputs for the engines (combined) shall be submitted to the LLCHD semiannually no later than 30 days after the end of each six-month reporting period. The reporting periods shall be January 1 through June 30 and July 1 through December 31. Additionally, the following information shall be reported for each six-month period: (1) The rolling 12 month average hours of combined engine operation; and (2) The rolling 12 month average digester gas and natural gas use (in mmcf) for combined engine operation. Digester gas and natural gas use shall be reported separately.

Note: There will be six rolling 12 month periods to report on in each six-month report. The following records shall be maintained on a **monthly** basis during a calendar year

(January 1 through December 31):

- 1) The average KW outputs for the engines (combined);
- 2) The total hours of operation for the engines (combined);
- 3) The total consumption of digester gas (in mmcf) for the engines (combined); and
- 4) The total consumption of natural gas (in mmcf) for the engines (combined) and for the entire facility.

All records shall be retained by the owner/operator for a period of five years.

The following information shall be reported to the LLCHD no later than 90 days after the end of each calendar year for the previous calendar year:

- 1) The annual (12 month calendar year) average KW output for the engines (combined);
- 2) The total annual hours of engine operation (combined);
- 3) The total annual consumption of digester gas (in mmcf) for the engines (combined);
- 4) The total annual consumption of natural gas (in mmcf) for the engines (combined) and for the entire facility.

Note: This information is used in conjunction with the annual emission inventory.

h) The owner/operator shall report the actual emissions of PM₁₀, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compounds annually (for the most recent calendar year) to the LLCHD in accordance with Article 2, Section 6 of the LLCAPCPRS.

i) The owner/operator shall comply with the startup, shutdown, and malfunction provisions of Article 2, Section 35 of the LLCAPCPRS. In accordance with Section 35, paragraph (E), of the LLCAPCPRS, a written notification of a malfunction shall be mailed to the Health Director within 48 hours of the beginning of the period of excess emission. The notification shall include but not be limited to, the information required in paragraph (D) of Section 35.

j) No modifications to the engines, such as changes in the carburetors, that could affect the nature or the quantity of air pollutants emitted shall be made without the written approval of the LLCHD. Changes in mode of operation between **best power** and **best economy** may be made without the approval of the LLCHD, however, the Department shall be notified of this change within 15 days after the change has been made.

k) Any control or monitoring equipment that may be necessary for compliance with the LLCAPCPRS or any similar requirements of the federal EPA shall be installed within the time period or by the date specified in the applicable rule or regulation.

l) The owner/operator shall allow entry into the wastewater treatment plant by authorized representatives of the LLCHD as may be required for the purpose of conducting inspections and tests, collecting samples, reviewing records, and performing

any other related activities in order to assess compliance with applicable regulations.

m) Condition XXII(B)(1), the 672 KW output limit, and (B)(2), operation of engines at "maximum power" adjustment, of the operating permit issued June 10, 1998, condition XII(B)(1), the 720 KW output limit, and (B)(2), the cogen engines shall utilize carburetor settings that will ensure compliance with the limits established in construction permit No. 115, condition 5b), and the report of recordkeeping in condition XXII(D)(b), (c), and (d) of the modified operating permit issued August 1, 2003, and construction permit No. 115 are superseded by the requirements of this construction permit.

Air Quality Program Recommendation

RT/SW Approve _____ Disapprove _____

January 1, 2006

Date

Bruce Dart

Bruce D. Dart, PhD

Health Director

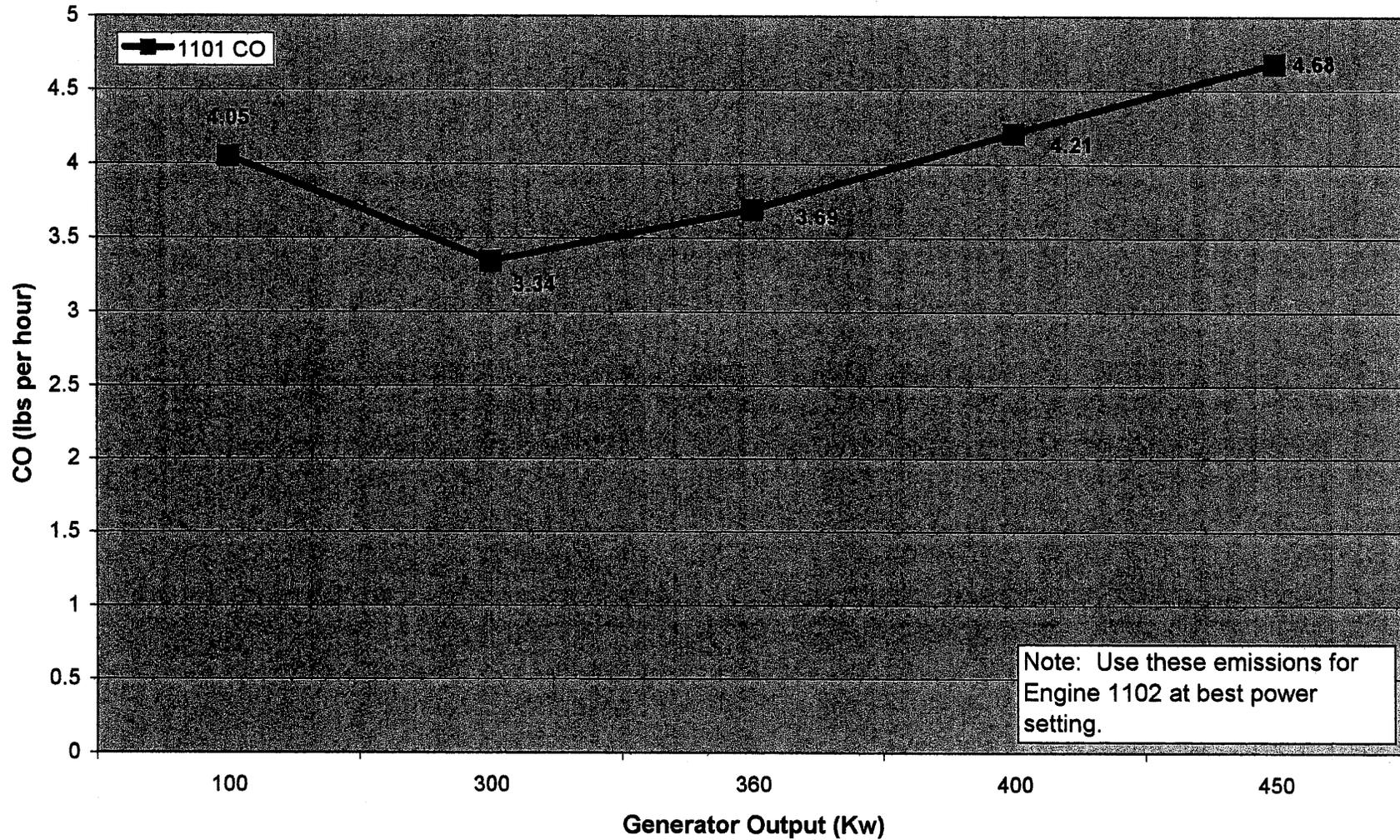
Attachment 1: Theresa St. WWTP CoGen Engine 1101 CO Emissions - Best Power Setting

Attachment 2: Theresa St. WWTP CoGen Engine NOx Emissions - Best Power Setting

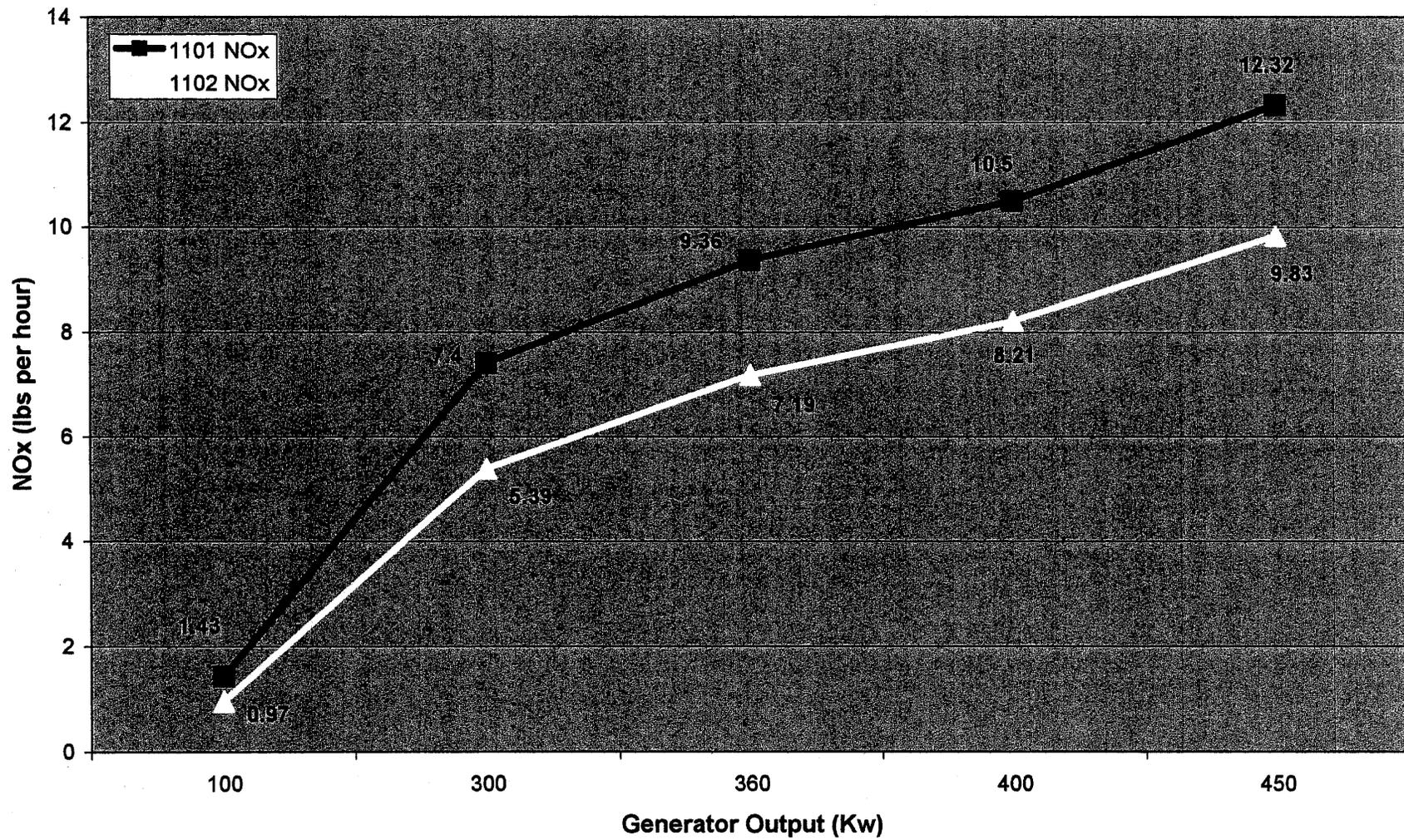
Attachment 3: Theresa St. WWTP CoGen SO2 Emissions - Best Power/Best Economy Settings

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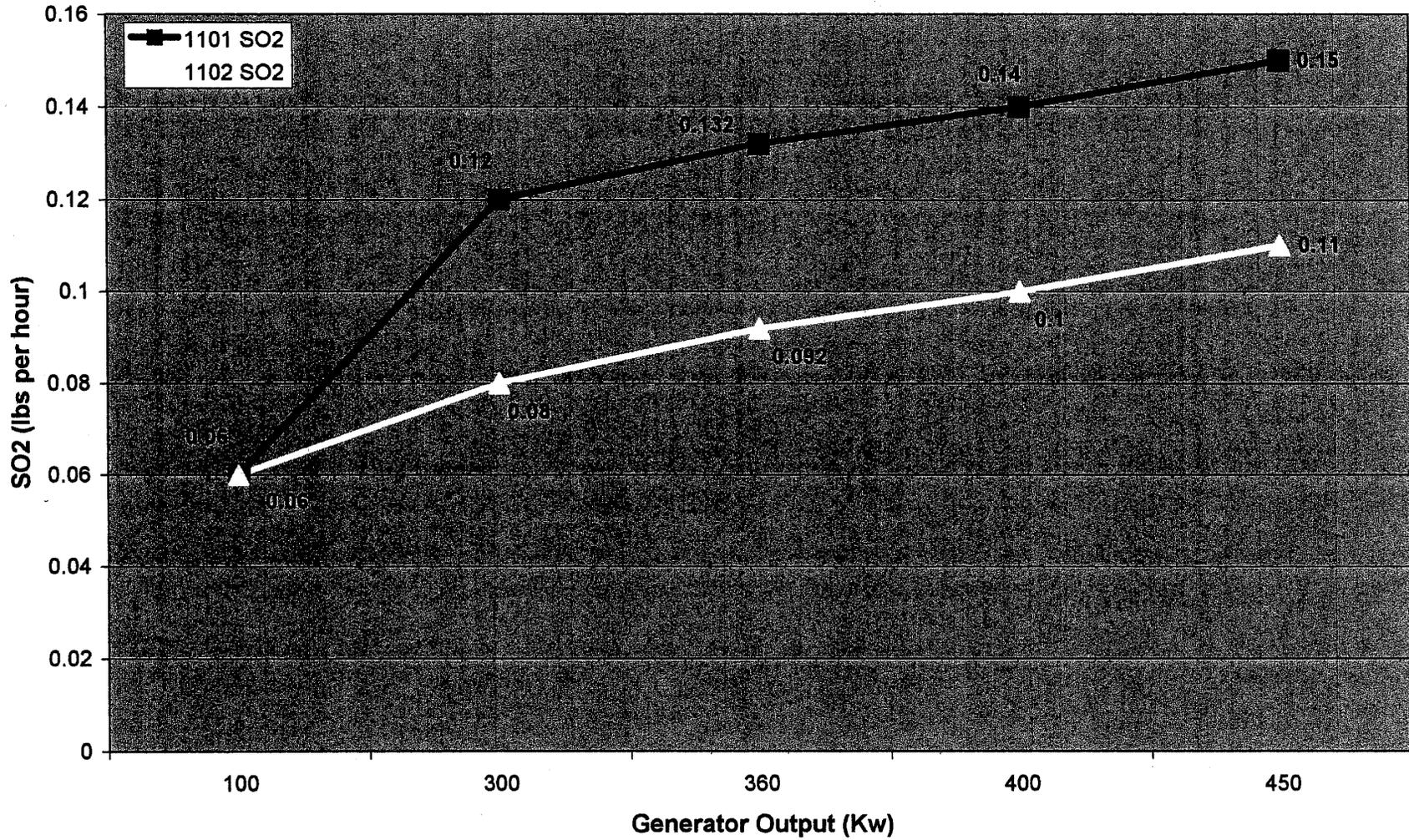
Attachment 1: Theresa St. WWTP CoGen Engine 1101 CO Emissions - Best Power Setting



Attachment 2: Theresa St. WWTP CoGen Engine NOx Emissions - Best Power Setting



Attachment 3: Theresa St. WWTP CoGen SO2 Emissions - Best Power/Best Economy Settings



ATTACHMENT B

GENERATOR OUTPUT REPORTING FORMS

AVERAGE MONTHLY GENERATOR OUTPUT REPORTING FORM

Provide the following information (average monthly kw) for
the calendar year (Jan - Dec)
for combined enginotor operation

JANUARY	_____
FEBRUARY	_____
MARCH	_____
APRIL	_____
MAY	_____
JUNE	_____
JULY	_____
AUGUST	_____
SEPTEMBER	_____
OCTOBER	_____
NOVEMBER	_____
DECEMBER	_____

12 MONTH CALENDAR YEAR AVERAGE KW

REPORT OF RECORDKEEPING

The following data is required for the previous six months (the reporting periods Jan-June and July-Dec) and is due July 30 and January 30 each year this permit is valid.

- A. The volume of waste water treated each month during the reporting period(in millions of gallons).

- B. The rolling 12 month average volume of digester gas and natural gas burned in the co-gen engines (millions of cubic feet burned of each fuel), based on monthly averages, for each of the six rolling 12 month periods during the reporting period. Digester gas _____; Natural gas _____
