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James J. Kelley
Vice President

File#:
Log#: TXX-04062

March 12, 2004

Ms. Margaret Hoffman
Executive Director
Texas Commission on Environmental Quality

Attention:

Permits Administrative Review (PAR) Section
TCEQ
MC 161
P.O. Box 13087
Austin, Texas 78711-3087

Subject: TXU Generation Company LP
Comanche Peak Steam Electric Station
Permit Renewal Application for Auxiliary Boiler
TCEQ Air Permit Number 19225
TCEQ Account No. SL-0009-E
CN600135511/RN103044053

Dear Sir/Madam:

On behalf of TXU Generation Company LP, enclosed please find a permit renewal application for Texas Commission on Environmental Quality (TCEQ) Air Permit No. 19225. The application is being submitted to authorize the continued operation of the Auxiliary Boiler at the Comanche Peak Steam Electric Station near Glen Rose in Somervell County, Texas.

In a letter from Mr. David Howell dated 1/22/04, the deadline for submittal of this permit renewal application was extended until 3/15/04.

The following information is included in this Permit Renewal Application.

- *Form PI-1R – Air Quality Permit Renewal Application*
- *Process/Project Description*
- *Process Flow Diagram*
- *Area Map*
- *Plot Plan*
- *Table 1(a) - Emission Sources*
- *Table 2 – Material Balance*
- *Table 30-R – Estimated Emissions and Fee Certification for Permit Renewals*
- *Emission Rate Calculations*
- *Copy of current Maximum Allowable Emission Rate table for TCEQ Air Permit No. 19225 (dated October 28, 1996)*

The permit renewal application fee of \$1,240.50 for the application has been sent in a separate submittal to the TCEQ cashier.

If you have any questions regarding the information presented in the enclosed permit renewal application, please contact Paul Coon at (214) 812-8409.

Sincerely,


James J. Kelley, Jr.


By: Gerald R. Johnson

cc: Mr. Tony Walker
TCEQ Region 4, Dallas-Fort Worth

bcc: Dick Robertson
Paul Coon (→ Air Staff)
Randy Morrison
Bruce Turner
Steve Ellis
Connie Wilkerson
Gayle Peck

File: Comanche Peak Steam Electric Station
Auxiliary Boiler
2004 Permit Renewal Application
TCEQ Account No. SL-0009-E; Permit No. 19225



Texas Commission on Environmental Quality
Form PI-1R
General Application for Air Permit Renewals

Update: The TCEQ requires that a Core Data Form be submitted on all incoming applications unless a Regulated Entity and Customer Reference Number has been issued by the TCEQ and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or go to the TCEQ Web site at www.tnrc.state.tx.us/permitting/projects/cr.

I. APPLICANT INFORMATION			
A. Company or Other Legal Name: TXU Generation Company LP			
Texas Secretary of State Charter/Registration Number (if applicable):			
B. Company Official Contact Name and Title: Gerald R. Johnson, Generation Environmental Manager			
Mailing Address: Energy Plaza, 1601 Bryan Street			
City: Dallas	State: Texas	Zip Code: 75201	
Telephone: 214-812-8476	Fax: 214-812-4395	E-mail:	
C. Technical Contact Name and Title: Paul H. Coon, Air Permitting Coordinator			
Company: TXU Energy			
Mailing Address: Energy Plaza, 1601 Bryan Street			
City: Dallas	State: Texas	Zip Code: 75201	
Telephone: 214-812-8409	Fax: 214-812-4395	E-mail: p.coon@txu.com	
D. Facility Location Information:			
Street Address: FM 56, 4.5 miles north from Glen Rose, Texas.			
If no street address, provide (in writing) clear driving directions to the site:			
City: Glen Rose	County: Somervell	Zip Code: 76043	
E. TCEQ Account Identification Number: SL-0009-E			
F. Is a TCEQ Core Data Form (TCEQ Form No. 10400) attached?			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
G. TCEQ Customer Reference Number (leave blank if unknown): CN600135511			
H. TCEQ Regulated Entity Number (leave blank if unknown): RN103044053			
II. IMPORTANT GENERAL INFORMATION			
A. Is confidential information submitted with this application?			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," is each "confidential" page marked "CONFIDENTIAL" in large red letters?			<input type="checkbox"/> YES <input type="checkbox"/> NO
B. Name of State Senator and district number for this facility site: Senator Kip Averitt, Senate District 22			
Name of State Representative and district number for this facility site: Representative Arlene Wohlgemuth, House District 58			
III. FACILITY AND SOURCE INFORMATION			
A. Site Name: Comanche Peak Steam Electric Station			
B. Area Name/Type of Facility: Auxiliary Boiler		<input checked="" type="checkbox"/> PERMANENT	<input type="checkbox"/> PORTABLE
C. Principal Company Product or Business: Electric Power Generation			
Primary Standard Industrial Classification (SIC) Code: 4911			



Texas Commission on Environmental Quality
Form PI-1R
General Application for Air Permit Renewals

IV. TYPE OF PERMIT RENEWAL AND ASSOCIATED ACTIONS	
A. Permit Number: 19225	Permit Expiration Date: 4/28/04
B. Permit Type (check <u>all</u> that apply):	
<input checked="" type="checkbox"/> State Permit	<input type="checkbox"/> Electric Generating Facility Permit
<input type="checkbox"/> Flexible Permit	<input type="checkbox"/> Voluntary Emission Reduction Permit
<input type="checkbox"/> Multiple Plant Permit	<input type="checkbox"/> Grandfathered Facility Permit
<input type="checkbox"/> Special Permit	<input type="checkbox"/> Other: _____
C. Have permit revisions or alterations occurred since originally issued or last renewed? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
If "YES," list dates of approval: Permit Alteration - 10/28/96	
D. Have permit amendments occurred since originally issued or last renewed? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
If "YES," list dates of approval: 7/25/89	
E. Are there any permit alterations or amendments pending before the TCEQ? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "YES," list actions and dates of submittals:	
F. Are there other actions associated with facilities covered under this permit? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "YES," list actions and dates of submittals or approvals:	
G. Are there any associated federal Prevention of Significant Deterioration (PSD), Nonattainment (NA) or major source hazardous pollutants Federal Clean Air Act § 112(g) permits? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "YES," list all associated federal permit numbers and issue or modification dates:	
H. Are there any Permits by Rule (PBR) or standard permits associated with this permit? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "YES," list all associated registration numbers and issue dates:	
I. Are there any grandfathered facilities to be incorporated into this permit? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "YES," attach information on any changes to emissions under this permit:	
J. Is this facility located at a site required to obtain a federal operating permit under 30 TAC Chapter 122? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If "NO," go to Section V.	
Is a site operating permit (SOP) or general operating permit (GOP) review pending for this source, area, or site? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Is an SOP or GOP issued for this source, area, or site? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
List SOP or GOP number(s):	
V. PERMIT FEE INFORMATION	
Fee Paid for this application: \$ 1,240.50	
Is a Table 30-R entitled, "Estimated Emissions and Fee Certification" attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Is a copy of the required fee based on annual emission rates attached to the original submittal of this application? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	



Texas Commission on Environmental Quality
Form PI-1R
General Application for Air Permit Renewals

VI. PUBLIC NOTICE INFORMATION		
A. Responsible Person:		
Name and Title: Christopher B. Hansen, Environmental Specialist Staff		
Mailing Address: Energy Plaza, 1601 Bryan Street		
City: Dallas	State: Texas	Zip Code: 75201
Telephone: 214-812-5401	Fax: 214-812-4395	E-mail: chris.hansen@txu.com
B. Technical Contact:		
Name and Title: Paul H. Coon, Air Permitting Coordinator		
Mailing Address: Energy Plaza, 1601 Bryan Street		
City: Dallas	State: Texas	Zip Code: 75201
Telephone: 214-812-8409	Fax: 214-812-4395	E-mail: p.coon@txu.com
C. Application in Public Place:		
Name of public place: Somervell County Courthouse		
Physical Address: 107 NE Vernon Street	City: Glen Rose County: Somervell	
Has the public place granted authorization to place the application for public viewing and copying? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
D. Small Business Classification:		
Does this company (including parent companies and subsidiary companies) employ 100 or fewer persons?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the site a major source under 30 TAC Chapter 122, Federal Operating Permit Program?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Are the site emissions of any individual air contaminant greater than 50 tpy?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Are the site emissions of all air contaminants combined greater than 75 tpy?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
E. Bilingual notice confirmation:		
Is a bilingual program required by the Texas Education Code in the School District?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Are the children who attend either the elementary school or the middle school nearest to the facility eligible to be enrolled in a bilingual program provided by the district?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," which language is required by the bilingual program?		
VII. TECHNICAL INFORMATION		
A. Is a current area map attached?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Are any schools located within 3,000 feet of this facility?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
B. Is a plot plan of the facility property attached?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
C. Is a process flow diagram and a process description attached?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D. Maximum Operating Schedule: Hours/Day <u>24</u> Days/Week <u>7</u> Weeks/Year <u>52</u>		
Does this facility operate seasonally?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," please describe:		

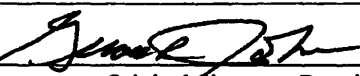


Texas Commission on Environmental Quality
Form PI-1R
General Application for Air Permit Renewals

VII. TECHNICAL INFORMATION (continued)	
E. Are maximum emissions data and calculations attached?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
1. Is a Table 1(a) entitled, "Emission Point Summary Table," attached?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
2. Is a Table 2 entitled, "Material Balance Table," attached?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
3. Are equipment, process, or control device tables attached?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
4. Are routine maintenance, start-up, or shutdown emissions included?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
VIII. STATE REGULATORY REQUIREMENTS <i>Applicants must be in compliance with all applicable state regulations to obtain permit renewal.</i>	
A. Is the facility being operated in accordance with all requirements, limits, and conditions of the current permit, including representations in the initial application and any subsequent alterations, amendments, or other authorizations?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Describe potential or pending authorizations(s):	
B. Is the facility able to measure emissions of significant air contaminants?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Are details attached?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
C. Are all facility emission controls economically reasonable and technically practicable considering the age of the facility?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D. Is the facility subject to any requirements of 30 TAC Chapter 115?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," attach required compliance documentation and list the rules.	
E. Is the facility subject to any requirements in 30 TAC Chapter 117?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," attach required compliance documentation and list the rules.	
F. Is this facility located at a site within the Houston/Galveston nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Does the facility at this site have an uncontrolled design capacity to emit 10 tpy or more of NO _x ?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is this site subject to 30 TAC Chapter 101, Subchapter H, Division 3 (Mass Emissions Cap and Trade)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Does this action make the site subject to 30 TAC § 101[H][3]?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Does this action require the site to obtain additional emission allowances?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IX. FEDERAL REGULATORY REQUIREMENTS <i>Applicants must be in compliance with all applicable federal regulations to obtain permit renewal. If any of the following questions are answered "YES," the applicant must complete, attach, and indicate the applicability of the following federal regulatory requirements, and include compliance information.</i>	
A. Does a Title 40 Code of Federal Regulations Part 60, (40 CFR Part 60) New Source Performance Standard (NSPS) apply to the facility in this application?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
B. Does 40 CFR Part 61, National Emissions Standard for Hazardous Air Pollutants (NESHAP) apply to the facility in this application?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
C. Does a 40 CFR Part 63, Maximum Achievable Control Technology (MACT) standard apply to the facility in this application?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO



Texas Commission on Environmental Quality
Form PI-1R
General Application for Air Permit Renewals

COPIES OF THIS APPLICATION		
A.	Has the required fee been sent separately with a copy of this Form PI-1R to the TCEQ Revenue Section? (MC 214, P.O. Box 13088, Austin, Texas 78711-3088).	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
B.	Is the Core Data Form, Form PI-1R, and all attachments being sent to the TCEQ in Austin?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
	OPTIONAL: Has an extra copy of the Core Data Form, Form PI-1R and all attachments been sent to the TCEQ in Austin?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If "YES," please mark this application as "COPY."		
C.	Is a copy of the Core Data Form, the Form PI-1R, and all attachments being sent to the appropriate TCEQ regional office? (Excluding Core Data Form)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D.	Is a copy of the Core Data Form, the Form PI-1R, and all attachments being sent to each appropriate local air pollution control program(s)? N/A	<input type="checkbox"/> YES <input type="checkbox"/> NO
List all local air pollution control program(s):		
SIGNATURE		
<i>The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7, Texas Clean Air Act (TCAA), as amended, or any of the air quality rules and regulations of the Texas Commission on Environmental Quality or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. I further state that I have read and understand TWC §§ 7.177-7.183, which defines CRIMINAL OFFENSES for certain violations, including intentionally or knowingly making or causing to be made false material statements or representations in this application, and TWC § 7.187, pertaining to CRIMINAL PENALTIES.</i>		
NAME: <u>Gerald R. Johnson</u>	SIGNATURE: <u></u> Original Signature Required	DATE: <u>7/1/06</u>

PROCESS/PROJECT DESCRIPTION

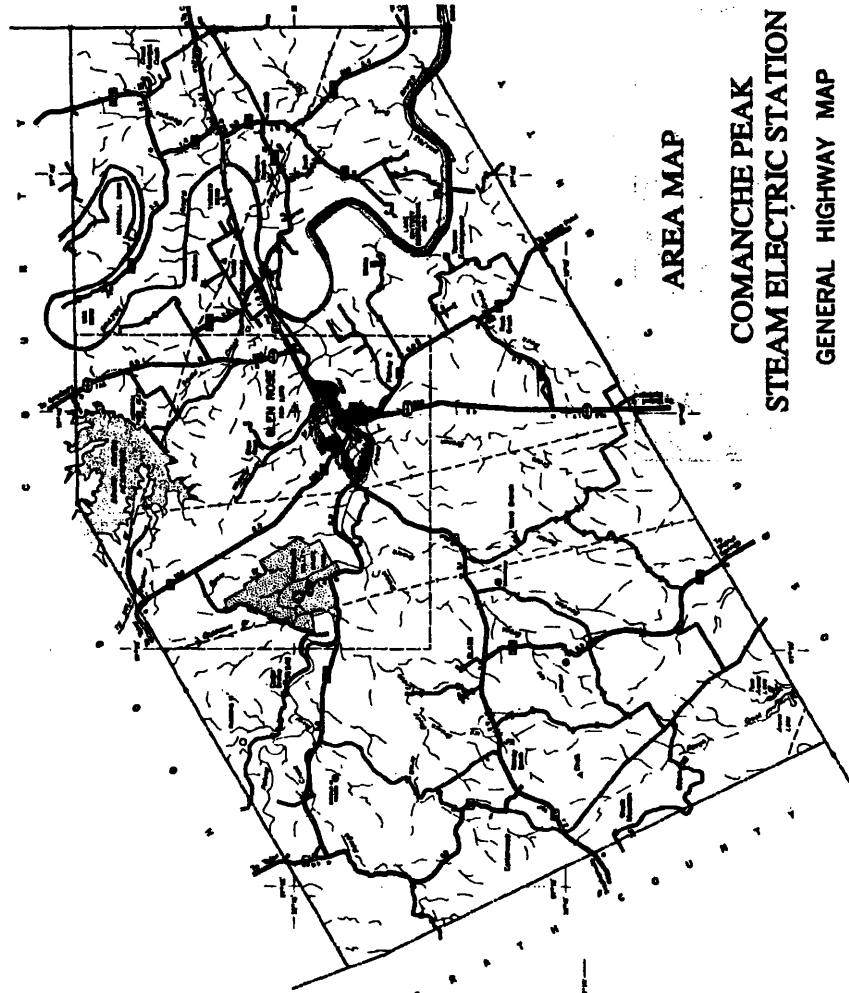
TXU operates an auxiliary boiler at the Comanche Peak Steam Electric Station (SES) near Glen Rose, Somervell County, Texas. The auxiliary boiler is used to supply steam on a backup basis for startup of either the main or auxiliary steam turbines. Operation of the auxiliary boiler is currently authorized under Texas Commission on Environmental Quality (TCEQ) Air Permit No. 19225.

The auxiliary boiler has an approximate firing rate of 93 MMBtu/hr and is fired on No. 2 diesel fuel. The current permit establishes auxiliary boiler emission limits for carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter (PM), sulfur dioxide (SO₂), and volatile organic compounds (VOCs).

The auxiliary boiler is equipped with low-NO_x burners that limit NO_x emissions to 0.16 lb/MMBtu. The low-NO_x burners along with the firing of high quality No. 2 diesel fuel and proper combustion techniques will continue to be employed as Best Available Control Technology (BACT).

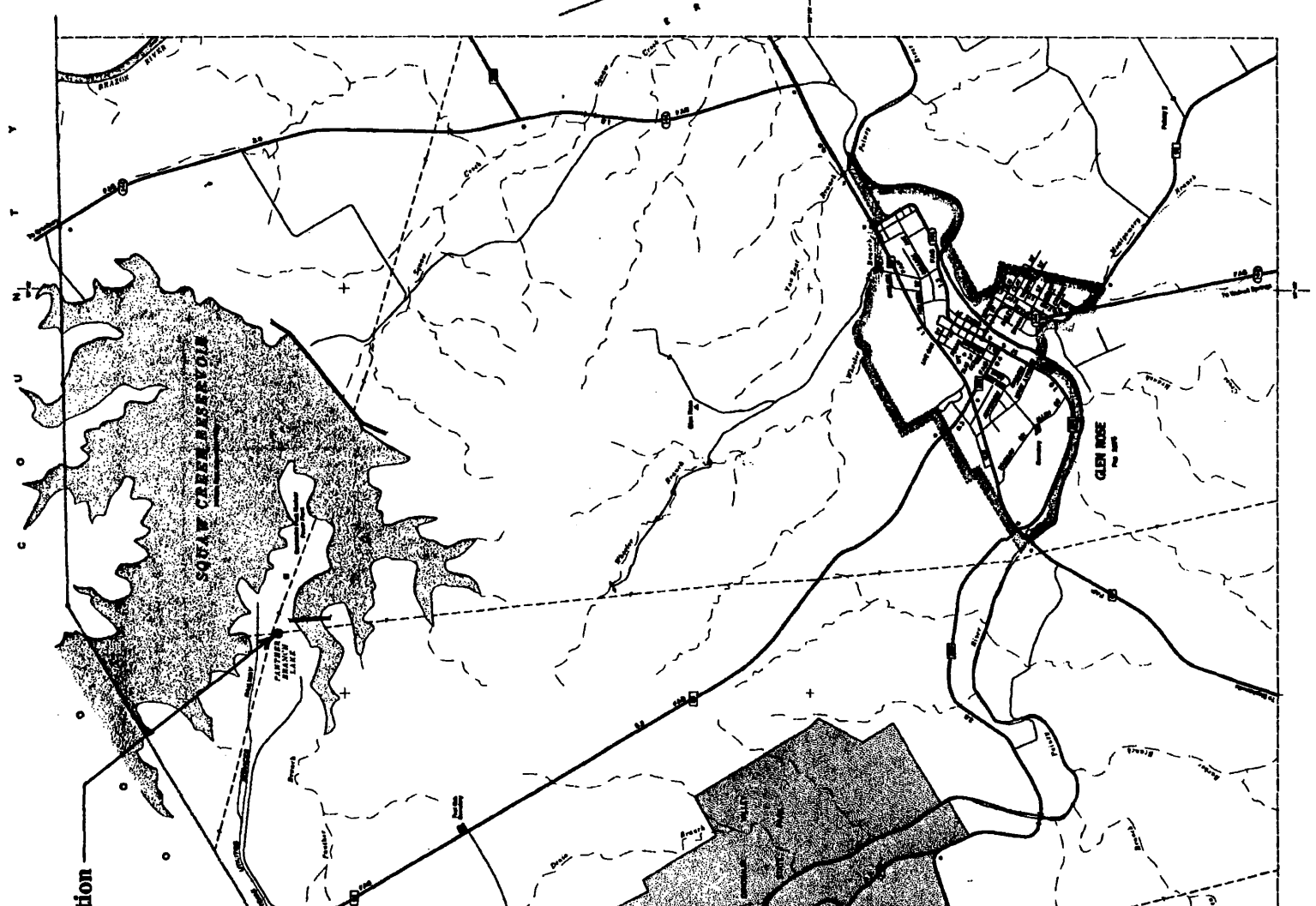
It should be noted that the MAER table for Permit No. 19225 also lists six (6) emergency generators and two (2) diesel fire pumps. These eight sources are currently authorized under old Standard Exemption 5 and are listed in the MAER table in order to establish federally enforceable limitations on hours of operation and to document that emission levels are below major source levels that trigger prevention of significant deterioration and Title V requirements.

(Unpublished) (Scale 1:50,000)
 1. Major roads
 2. Minor roads
 3. Railroads
 4. Water bodies
 5. Contour lines
 6. Elevation
 7. Township and Range
 8. Section numbers
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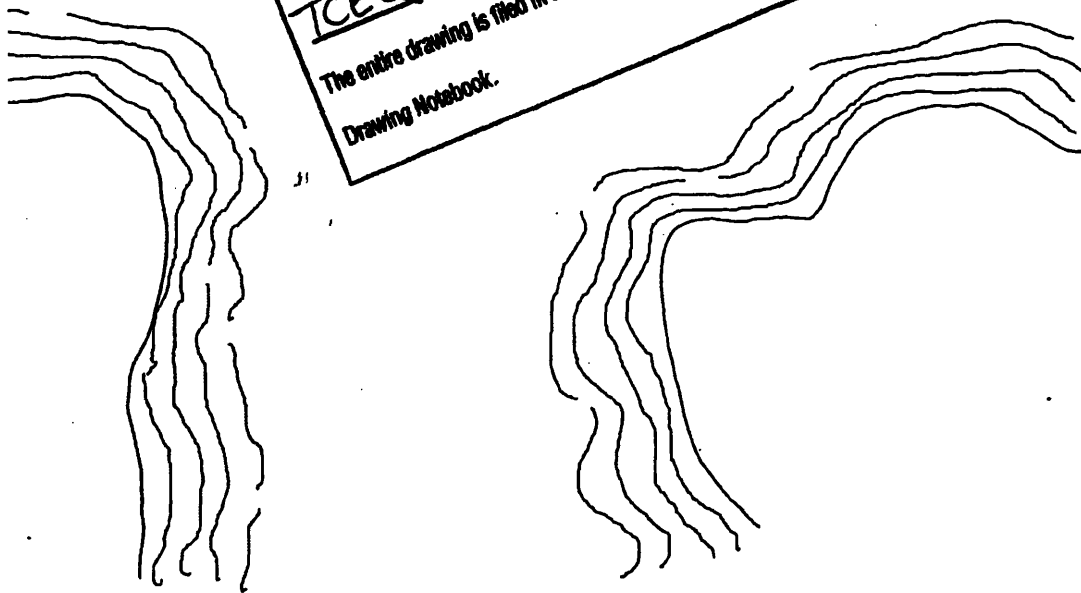
COMANCHE PEAK
 STEAM ELECTRIC STATION
 GENERAL HIGHWAY MAP
 SOMERVELL COUNTY
 TEXAS

PREPARED BY THE
 STATE DEPARTMENT OF HIGHWAYS
 AND PUBLIC TRANSPORTATION
 TRANSPORTATION PLANNING DIVISION
 IN COOPERATION WITH THE
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 1976
 HIGHWAYS REVISION TO JUNE 1, 1966
 FOR THE YEAR 1976



RESERVOIR

This drawing was incorporated in correspondence to
TCEQ dated 3/12/04
The entire drawing is filed in the Air Permit Correspondence
Drawing Notebook.



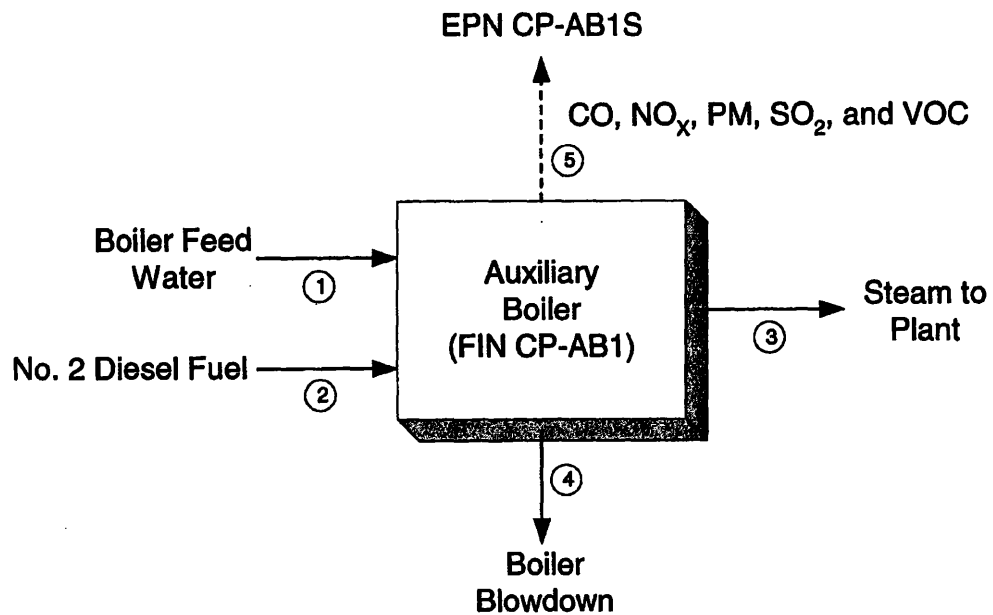
TU ELECTRIC
COMANCHE PEAK SES

AIR EMISSIONS INVENTORY
PLOT PLAN

NO. SK-719-1006	SH. 01	REV. 1
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COMANCHE PEAK STEAM ELECTRIC STATION

PROCESS FLOW DIAGRAM



① Circled numbers correspond to numbers on Table 2 - Material Balance.

TABLE 2

MATERIAL BALANCE

This material balance table is used to quantify possible emissions of air contaminants and special emphasis should be placed on potential air contaminants, for example: If feed contains sulfur, show distribution to all products. Please relate each material (or group of materials) listed to its respective location in the process flow diagram by assigning point numbers (taken from the flow diagram) to each material.

LIST EVERY MATERIAL INVOLVED IN EACH OF THE FOLLOWING GROUPS	Point No. from Flow Diagram	Process Rate (lbs/hr or SCFM) standard conditions: 70°F 14.7 PSIA. Check appropriate column at right for each process.			
			Measurement	Estimation	Calculation
1. Raw Materials - Input Boiler Feed Water	1	75,000 lb/hr		X	
2. Fuels - Input No. 2 Diesel Fuel	2	5,116 lb/hr (710.5 gal/hr)		X	
3. Products & By-Products - Output Steam	3	75,000 lb/hr		X	
4. Solid Wastes - Output					
5. Liquid Wastes - Output Boiler Blowdown	4	750 lb/hr (90 gal/hr)		X	
6. Airborne Waste (Solid) - Output PM	5	8.3 lb/hr		X	X
7. Airborne Wastes (Gaseous) - Output VOC NO _x SO ₂ CO	5 5 5 5	0.5 lb/hr 14.8 lb/hr 51.2 lb/hr 14.8 lb/hr		X X X X	X X X X



Texas Commission on Environmental Quality
Table 30-R
Estimated Emissions and Fee Certification for Permit Renewals
Title 30 Texas Administrative Code § 116.313

Renewal Fees - Each permit renewal requires an application fee that is based upon the amount of annual allowable emissions represented in the application. The total emissions must include those represented in any permit by rule (PBR) or standard permits rolled into the renewal. The following table may be used to calculate renewal fees.

To calculate the fee, multiply the number of tons in excess of the minimum limit of the appropriate category by the incremental fee, then add this amount to the base fee. For example, if total emissions of all air contaminants are 50 tons per year, the total fee would be \$1,993 (base fee of \$1,265, plus incremental fee of \$28 x 26 tons or \$728).

RENEWAL FEE TABLE

TONS PER YEAR (TPY)	INCREMENTAL FEE	NUMBER OF TONS	BASE FEE	TOTAL FEE
tpy is equal to or less than 5 tpy	N/A		\$600	
tpy is greater than 5 tpy but less than or equal to 24 tpy	\$35/ton	23.3	\$600	1,240.50
tpy is greater than 24 but less than or equal to 99 tpy	\$28/ton		\$1,265	
tpy is greater than 99 tpy but less than or equal to 651 tpy	\$12/ton		\$3,365	
tpy is greater than 651 tpy	N/A		\$10,000	
			TOTAL	1,240.50

$$\begin{array}{ccccccc} (\$ \underline{35} & \times & \underline{18.3} & + & \$ \underline{600} & = & \$ \underline{1,240.50} \\ \text{(Incremental Fee)} & & \text{(Number of tpy over the} & & \text{(Base Fee)} & & \text{(Total Fee)} \\ & & \text{minimum limit)} & & & & \end{array}$$

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which this application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7, Texas Clean Air Act (TCAA), as amended, or any of the air quality rules and regulations of the Texas Commission on Environmental Quality or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. I further state that I have read and understand TWC §§ 7.177-7.183, which defines CRIMINAL OFFENSES for certain violations, including intentionally or knowingly making or causing to be made false material statements or representations in this application, and TWC § 7.187, pertaining to CRIMINAL PENALTIES

Signature: [Signature]

Title: Generation Environmental Manager

Company: TXU Generation Company LP

Date: 3/11/04

Permit renewal application fee (from table above) = \$ 1,240.50

TXU GENERATION COMPANY LP

SUMMARY OF HOURLY AND ANNUAL CO, NO_x, PM, SO₂, AND VOC EMISSION RATES FOR THE AUXILIARY BOILER
AT THE COMANCHE PEAK STEAM ELECTRIC STATION

Unit	EPN	FIN	CO		NO _x		PM		SO ₂		VOC	
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
Auxiliary Boiler	CP-AB1S	CP-AB1	14.73	3.68	14.73	3.68	8.29	2.07	51.16	12.79	0.46	0.12

TXU GENERATION COMPANY LP

Calculation of CO, NO_x, PM, SO₂ and VOC Emission Rates for the Auxiliary Boiler at the Comanche Peak Steam Electric Station (SES)

Objective: Calculate the maximum hourly and annual average CO, NO_x, PM, SO₂ and VOC emission rates for the Auxiliary Boiler at the Comanche Peak SES.

Inputs/Assumptions:

The firing rate (FR) of the auxiliary boiler: 92.08395 MMBtu/hr

The annual operating hours (AOH) of the boiler: 500 hrs/year

Emission rates (ER):

CO	0.16 lb/MMBtu	(Vendor)
NO _x	0.16 lb/MMBtu	(Vendor)
PM	0.09 lb/MMBtu	(Vendor)
VOC	0.005 lb/MMBtu	(Vendor)

Sulfur content (S) of fuel oil 0.5 (% by weight)

Heat content (H) of fuel oil 18,000 Btu/lb

Calculations:

1. Calculate the maximum hourly and annual CO emission rates for the Auxiliary Boiler:

Hourly

E _{COH} =	FR	MMBtu/hr	X	ER	lb/MMBtu
E _{COH} =	92.08395	MMBtu/hr	X	0.16	lb/MMBtu
E _{COH} =	14.73 lb CO/hr				

Annual

E _{COA} =	E _{COH}	lb/hr	X	AOH	hrs/year	/	2000	lb/Ton
E _{COA} =	14.73	lb/hr	X	500	hrs/year	/	2000	lb/Ton
E _{COA} =	3.68 Tons CO/yr							

2. Calculate the maximum hourly and annual NO_x emission rates for the Auxiliary Boiler:

Hourly

E _{NOXH} =	FR	MMBtu/hr	X	ER	lb/MMBtu
E _{NOXH} =	92.08395	MMBtu/hr	X	0.16	lb/MMBtu
E _{NOXH} =	14.73 lb NO_x/hr				

Annual

E _{NOXA} =	E _{NOXH}	lb/hr	X	AOH	hrs/year	/	2000	lb/Ton
E _{NOXA} =	14.73	lb/hr	X	500	hrs/year	/	2000	lb/Ton
E _{NOXA} =	3.68 Tons NO_x/yr							

3. Calculate the maximum hourly and annual PM emission rates for the Auxiliary Boiler:

Hourly

E _{PMH} =	FR	MMBtu/hr	X	ER	lb/MMBtu
E _{PMH} =	92.08395	MMBtu/hr	X	0.09	lb/MMBtu
E _{PMH} =	8.29 lb PM/hr				

Annual

E _{PMA} =	E _{PMH}	lb/hr	X	AOH	hrs/year	/	2000	lb/Ton
E _{PMA} =	8.29	lb/hr	X	500	hrs/year	/	2000	lb/Ton
E _{PMA} =	2.07 Tons PM/yr							

* Annual emission rates are based upon 500 full load operating hours per year, or 46,042 MMBtu/yr. Actual operating hours may exceed 500 hours, provided total heat input does not exceed 46,042 MMBtu/yr during any 12-month period.

TXU GENERATION COMPANY LP

**Calculation of CO, NO_x, PM, SO₂, and VOC Emission Rates for the Auxiliary Boiler at the
Comanche Peak Steam Electric Station (SES)**

Calculations (continued):

4. Calculate the maximum hourly and annual VOC emission rates for the Auxiliary Boiler:

Hourly

$$\begin{aligned}
 E_{VOC} &= FR && \text{MMBtu/hr} && \times && ER && \text{lb/MMBtu} \\
 E_{VOC} &= 92.08395 && \text{MMBtu/hr} && \times && 0.005 && \text{lb/MMBtu} \\
 E_{VOC} &= \boxed{0.46 \text{ lb VOC/hr}}
 \end{aligned}$$

Annual

$$\begin{aligned}
 E_{VOCa} &= E_{VOC} && \text{lb/hr} && \times && AOH && \text{hrs/year} && / && 2000 && \text{lb/Ton} \\
 E_{VOCa} &= 0.46 && \text{lb/hr} && \times && 500 && \text{hrs/year} && / && 2000 && \text{lb/Ton} \\
 E_{VOCa} &= \boxed{0.12 \text{ Tons VOC/yr}}
 \end{aligned}$$

5. Calculate the maximum hourly and annual SO₂ emission rates for the Auxiliary Boiler:

Hourly

$$\begin{aligned}
 E_{SO_2H} &= FR \times 10^6 && \text{Btu/hr} && \times && S && (\%) && / && H && \text{Btu/lb} \\
 &&& \times && 2 && \text{moles SO}_2/\text{mole S} \\
 E_{SO_2H} &= 92,083,950 && \text{Btu/hr} && \times && 0.005 && (\%) && / && 18,000 && \text{Btu/lb} \\
 &&& \times && 2 && \text{moles SO}_2/\text{mole S} \\
 E_{SO_2H} &= \boxed{51.16 \text{ lb SO}_2/\text{hr}}
 \end{aligned}$$

Annual

$$\begin{aligned}
 E_{SO_2A} &= E_{SO_2H} && \text{lb/hr} && \times && AOH && \text{hrs/year} && / && 2000 && \text{lb/Ton} \\
 E_{SO_2A} &= 51.16 && \text{lb/hr} && \times && 500 && \text{hrs/year} && / && 2000 && \text{lb/Ton} \\
 E_{SO_2A} &= \boxed{12.79 \text{ Tons SO}_2/\text{yr}}
 \end{aligned}$$

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit No. 19225

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. 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 *	
			lb/hr	TPY
Case I: Auxiliary Boiler				
CP-AB1S	Auxiliary Boiler	VOC	0.5	<1.0
		NO _x	14.8	3.7
		SO ₂	51.2	12.8
		PM	8.3	2.1
		CO	14.8	3.7
Case II: Emergency Generators (4)(5)				
CP-EDG1S	Emergency Generator No. 1	VOC	1.3	<1.0
		NO _x	278.5	20.9
		SO ₂	36.2	2.8
		PM	4.3	<1.0
		CO	23.6	1.8
CP-EDG2S	Emergency Generator No. 2	VOC	1.3	<1.0
		NO _x	278.5	20.9
		SO ₂	36.2	2.8
		PM	4.3	<1.0
		CO	23.6	1.8
CP-EDG3S	Emergency Generator No. 3	VOC	1.3	<1.0
		NO _x	278.5	20.9
		SO ₂	36.2	2.8
		PM	4.3	<1.0
		CO	23.6	1.8
CP-EDG4S	Emergency Generator No. 4	VOC	1.3	<1.0
		NO _x	278.5	20.9
		SO ₂	36.2	2.8
		PM	4.3	<1.0
		CO	23.6	1.8

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY
Case III: Emergency Generators (4)				
CP-EDG5S	Emergency Generator No. 5	VOC	0.1	<1.0
		NO _x	9.1	1.2
		SO ₂	2.7	<1.0
		PM	0.6	<1.0
		CO	2.1	<1.0
CP-EDG6S	Emergency Generator No. 6	VOC	0.4	<1.0
		NO _x	5.2	<1.0
		SO ₂	0.8	<1.0
		PM	0.4	<1.0
		CO	1.2	<1.0
Case IV: Emergency Fire Pumps (4)(6)				
CP-DFP1S	Diesel Fire Pump No. 1	VOC	1.6	<1.0
		NO _x	19.1	1.0
		SO ₂	3.0	<1.0
		PM	1.4	<1.0
		CO	4.2	<1.0
CP-DFP2S	Diesel Fire Pump No. 2	VOC	1.6	<1.0
		NO _x	19.1	1.0
		SO ₂	3.0	<1.0
		PM	1.4	<1.0
		CO	4.2	<1.0

- (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) VOC - volatile organic compounds as defined in General Rule 101.1
 - NO_x - total oxides of nitrogen
 - SO₂ - sulfur dioxide
 - PM - particulate matter
 - CO - carbon monoxide

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

- (4) These emergency generators are exempt under Texas Natural Resource Conservation Commission Standard Exemption 5. Inclusion of these emissions sources is to establish federally enforceable limitations on hours of operation and to document that emission levels are below significance levels for prevention of significant deterioration.
- (5) The four Emergency Generators (EPNs CP-EDG1S, CP-EDG2S, CP-EDG3S, and CP-EDG4S) will operate no more than a combined total of 600 hours per year. Annual emissions shown for each of the subject emergency generators are based upon 150 hours of operation per year, but could vary according to load distribution.
- (6) The two Diesel Fire Pumps (EPNs CP-DFP1S and CP-DFP2S) will operate not more than a combined total of 200 hours per year. Annual emissions shown for each of the subject fire pumps are based on 100 hours of operation per year, but could vary.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Case I:

___Hrs/day ___Days/week ___Weeks/year or 500 Hrs/year

Case II:

___Hrs/day ___Days/week ___Weeks/year or 600 Hrs/year (combined total for four units)

Case III:

___Hrs/day ___Days/week ___Weeks/year or 250 Hrs/year

Case IV:

___Hrs/day ___Days/week ___Weeks/year or 200 Hrs/year (combined total for two units)

Dated 10-28-96


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