

A Central and South West Company Orange Cogeneration Facility 1901 Clear Springs Road Post Office Box 782 Bartow, Florida 33831-0782

Telephone (863) 534-1141 Facsimile (863) 533-4152

RECEIVED

SEP 06 2002

BUREAU OF AIR REGULATION

August 26, 2002

Mr. Scott M. Sheplak, P.E. Administrator – Title V Section Bureau of Air Regulation Florida Department of Environmental Protection Twin Towers Office Building Tallahassee, Florida 32399-2400

Re: Orange Cogeneration Facility

Facility ID: 1050231; ORIS Code: 54365

DEP's Request for Additional Information (RAI), July 24, 2002

Dear Mr. Sheplak:

In response to the above RAI, our engineer has prepared the calculations addressing the increases in emissions associated with the requested minor modification. Our engineer's certification and calculations are enclosed as Attachment 1 to this letter. In addition, we are not requesting any changes to the Designated Representative at this time.

As you may be aware, the Orange Cogeneration Facility's combustion turbines (CTs) were subject to a BACT determination that included a phased-in BACT emission limitation on oxides of nitrogen (NO_x) that required several extensions of the compliance deadline. In 2001 we achieved compliance with the 15 ppmvd NO_x limitation, and in 2002, during routine mapping of the CTs, we noted that our maximum heat input rate was slightly (<3%) higher than the permitted level. We recognize that this was a short-term maximum achieved during the winter season and that on an annual average we could not operate at this maximum rate.

In reviewing the requested calculations, our engineer noted several PSD issues that need to be addressed and discussed with the Department. These include the following:

- The facility has operated less than 2 years since achieving compliance with the phased-in BACT limitation;
- The increase, in whole or part, appears to be associated with the emission reduction efforts in achieving the phased-in BACT limitations,

Mr. Scott M. Sheplak, P.E. Florida Department of Environmental Protection August 26, 2002 Page Two

- As a power generating facility, does WEPCO applicability apply, meaning a current actual to future actual emissions evaluation; and
- Use of a short-term maximum heat input for a CT when an annual average is more appropriate.

These issues have been discussed with the Department's NSR Section for initial guidance and we recognize that additional discussions may be necessary. Based on our engineer's calculations, increases associated with current actual to future actual emissions would not result in a significant net increase. Current actual to future allowable emissions indicate significant increases in most of the regulated PSD pollutants as would be expected.

It is requested that the modification be processed as a minor modification as addressed in the renewal application based on the PSD issues noted above. Should there be any additional questions please feel free to contact Ms. Gwynne Johnson at 863-534-1141, ext. 28 or our engineer, Mr. Darrel J. Graziani, P.E. at 772-781-3413.

Sincerely,

Don Walters Plant Manager

Designated Representative

an Watter

DW/kc

cc: Wade Smith, OCLP

Enclosure:

Six (6) copies of Owners & Engineers

Certification and Calculations

Owner/Authorized Representative or Responsible Official

1. J	Name and	Title of Owner	/Authorized Re	presentative of	r Res	ponsible C	fficial:
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Allan Wade Smith, General Manager

Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: Orange Cogeneration L.P., Inc.

Street Address: 1125 US 98 South, Suite 100

City: Lakeland

State: FL

Zip Code: 33801

Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone:

(863) 682 - 6338

Fax: (863) 683 - 8257

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative *(check here [X], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.

Signature

Date

8/29/0>

Professional Engineer Certification

Professional Engineer Name: Darrel James Graziani

Registration Number: 44685

Professional Engineer Mailing Address:

Organization/Firm: Foster Wheeler Environmental Corporation

Street Address: 749 South Federal Highway, Suite 100

City: Stuart

State: FL

Zip Code: 34994-2936

Professional Engineer Telephone Numbers:

Telephone:

(772) 781 - 3413

Fax: (772) 781 - 3411

^{*} Attach letter of authorization if not currently on file.

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [X], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

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Danell Gray	8.20.2002
Signature William	Date
o (seal)	
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Attach any exception to certification statement.

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Summary Table

Estimated Emissions (TPY)

	PSD	Current	Future	Adjusted	Maximum
Pollutant	Permit	Actuals	Actuals	Allowables	Allowables
Nitrogen Oxides	194.00	97.65	107.15	178.28	182.50
Carbon Monoxide	254.00	53.90	59.31	216.57	221.69
Particulate Matter	43.80	2.88	3.15	43.80	43.80
PM10	21.02	1.38	1.51	21.02	21.02
Volatile Organic Compounds	34.80	4.22	5.01	41.25	42.23
Sulfur Dioxide	9.74	1.66	1.82	3.18	3.26
Sulfuric Acid Mist	0.74	0.12	0.13	0.22	0.23

Permit (PA) - Currently Permitted Allowable Emissions.

Current Actuals (CA) - Calendar Years 2000 and 2001 Averages. For NOx and CO emissions include startup, Future Actuals (FA) - Based on CY 2000 & CY 2001 Averages

Adjusted Allowables (AA) - Based on an annual average operation at 368.3 mmBu and 8760 hrs/yr.

Maximum Allowables (MA) - Based on operation at 377 mmBtu/hr and 8,760 hrs/yr

Estimated Emission Increases (TPY)

-	CA-FA	CA-MA	PA-AA	PA-MA
Pollutant	Increases	Increases	Increases	Increases
Nitrogen Oxides	9.50	84.85	(15.72)	(11.50)
Carbon Monoxide	5.41	167.79	(37.43)	(32.31)
Particulate Matter	0.27	40.92	0.00	0.00
PM10	0.13	19.64	0.00	0.00
Volatile Organic Compounds	0.79	38.00	6.45	7.43
Sulfur Dioxide	0.16	1.60	(6.56)	(6.48)
Sulfuric Acid Mist	0.01	0.11	(0.52)	(0.51)

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Summary Table

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: PSD Permit Limitations

Operating Restrictions

Maximum Heat Input: Hours of Operation:

368.3 mmBtu/hr 8760 hrs/yr

Ref.: December 28, 1999 Permit Modification, DEP File No. 1050:

Ref: Permit No. AC53-233851B (PSD-FL-206B)

Fuels:

Natural Gas

Biogas

Emission Limitations (per CT)

Nitrogen Oxides 15 ppmvd@ 159 Ref: BACT, corrected to ISO Conditions

> 22.1 lbs/hr **97 TPY**

Carbon Monoxide 30 ppmvd **BACT**

27.8 lbs/hr

127 TPY

Particulate Matter BACT 5 Lb/hr

21.9 TPY

Volatile Organic Compounds 10 ppmvd **BACT**

3.98 lbs/hr

17.4 TPY

Sulfur Dioxide Baseline 1.11 Lb/hr

4.87 TPY

Sulfuric Acid Mist Baseline 0.085 Lb/hr

0.37 TPY

File: July 24, 2002 RAI Response Calculations.xls

Page 2 of 6 Sheet: Permit Limits 8/19/2002

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Calendar Year 200 & 2001 Actual Emissions

Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2	•	
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG			NG	NG		
Usagė:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	SCF/Btu	8710	8710	8710	SCF/Btu
	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Emissions Data	TPY	TPY	Average		TPY	TPY	Average	
Nitrogen Oxides	41.5	52.7	47.1		47	54.1	50.55	
Carbon Monoxide	18.8	35.4	27.1		28	25.6	26.8	
Particulate Matter	1.48	1.37	1.43		1.458	1.443	1.451	
PM10	0.71	0.66	0.685		0.70	0.69	0.696	
Volatile Organic Compounds	1.67	1.55	1.61		2.63	2.60	2.61	
Sulfur Dioxide	0.87	0.79	0.83		0.84	0.82	0.83	
Sulfuric Acid Mist	0.06	0.06	0.06		0.06	0.06	0.06	
Emissions Totals	EAOR Dat	a CTs						-
Nitrogen Oxides	97.65	u 0.0						
Carbon Monoxide	53.90							
Particulate Matter	2.88			•				
PM10	1.38							
Volatile Organic Compounds	4.22							
Sulfur Dioxide	1.66							
Sulfuric Acid Mist	0.12							
QA/QC'ed Emissions Data								
Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG		•	NG	NG		-
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
-	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
	344							
Heat Input:	344 8710	8710	8710	DSCF/mmBtu	8710	8710	8710	DSCF/mmBtu
Heat Input: F-Factor: Stack Flow	8710	8710		DSCF/mmBtu DSCF/hr @15% O2				DSCF/mmBtu DSCF/hr @15% (

	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Pollutant	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Nitrogen Oxides	16.53	22.65	19.59	lb/hr	19.01	22.12	20.57	lb/hr
	13.04	17.53	15.28	ppmvd	15.32	17.37	16.34	ppmvd
Carbon Monoxide	7.49	15.21	11.35	lb/hr	11.33	10.47	10.90	lb/hr
	9.72	19.39	14.56	ppmvd	15.02	13.53	14.28	ppmvd
Particulate Matter	0.59	0.59	0.59	lb/hr	0.59	0.59	0.59	lb/hr
	0.0017	0.0017	0.0017	lb/mmBtu	0.0018	0.0017	0.0017	lb/mmBtu
PM10	0.28	0.28	0.28	lb/hr	0.28	0.28	0.28	lb/hr
	0.00082	0.00081	0.0008	lb/mmBtu	0.00084	0.00082	0.0008	lb/mmBtu
Volatile Organic Compounds	0.666	0.666	0.6660	lb/hr	1.063	1.063	1.0630	lb/hr
	0.482	0.482	0.4820	ppmvd	1.508	1.508	1.5080	ppmvd
Sulfur Dioxide	0.35	0.34	0.34	ib/hr	0.34	0.33	0.34	lb/hr
	0.0010	0.0010	0.0010	lb/mmBtu	0.0010	0.0010	0.0010	lb/mmBtu
Sulfuric Acid Mist	0.024	0.024	0.0240	lb/hr	0.024	0.023	0.0236	lb/hr

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Actual Emissions

oubject: I didic Actual Emissio	113				
Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation:	4837	hrs/yr		4918	hrs/yr
Fuels:	NG	111 37 y 1		NG	ти эт ут
Usage:	1776	mmSCF/yr		1774.45	mmSCF/yr
Usage.	0.37	mmSCF/hr		0.36	mmSCF/hr
Heat Content:	928	Btu/SCF/III		928	Btu/SCF
Heat Input:	377	mmBtu/hr	D4	377	mmBtu/hr
F-Factor:	8710	DSCF/mml		8710	DSCF/mmBtu
Stack Flow	1.163E+07	' DSCF/hr @	y15% O2	1.163E+07	' DSCF/hr @15% O2
Pollutant	CT #1	CT #2			
Nitrogen Oxides	51.34	55.81	TPY		
_	21.23	22.70	lb/hr	•	
	15.28	16.34	ppmvd		
Carbon Monoxide	29.70	29.61	TPY		
	12.28	12.04	lb/hr		
	14.56	14.28	ppmvd		
Particulate Matter	1.55	1.60	TPY		
	0.64	0.65	lb/hr		
	0.0017	0.0017	lb/mmBtu		
PM10	0.74	0.77	TPY		
	0.31	0.31	lb/hr		
	0.00082	0.00083	lb/mmBtu		
Volatile Organic Compounds	1.55	3.46	TPY		
tolumo organio componito	0.64	1.41	lb/hr		
	0.48	1.063	ppmvd		
Sulfur Dioxide	0.90	0.92	TPY	•	4
Gallar Broxido	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.06	0.06	TPY		
Canalia Mara Milot	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	107.15				
Carbon Monoxide	59.31				
Particulate Matter	3.15				
PM10	1.51				
Volatile Organic Compounds	5.01				
Sulfur Dioxide	1.82				
Sullui Dioxide	1.02				

File: July 24, 2002 RAI Response Calculations.xls

0.1270518

Sheet: Future Actuals

Sulfuric Acid Mist

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Future Allowable Emissions

Operating Data Parameter	EAOR Dat	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG			NG	
Usage:	3558.75	mmSCF/yr		3558.75	mmSCF/yr
_	0.41	mmSCF/hr		0.41	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	SCF/mmBt	u	8710	SCF/mmBtu
Stack Flow	1.163E+07	DSCF/hr		1.163E+07	DSCF/hr
Pollutant	CT #1	CT #2			
Nitrogen Oxides	91.25	91.25	TPY		
	20.83	20.83	lb/hr		
	15.00	15.00	ppmvd		
Carbon Monoxide	110.84	110.84	TPY		
	25.31	25.31	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01326	0.01326	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00637	0.00637	lb/mmBtu		
Volatile Organic Compounds	21.11	21.11	TPY		
	4.82	4.82	lb/hr	ر	
	10	10	ppmvd		
Sulfur Dioxide	1.63	1.63	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	182.50				
Carbon Monoxide	221.69				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	42.225775				
Sulfur Dioxide	3.26				
Sulfuric Acid Mist	0.2281852				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Allowables

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions - Holding Gas Usage Constant

•	5 5				
Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation: Fuels:	8760 NG	hrs/yr		8760 NG	hrs/yr
Usage:	3476.625	mmSCF/yr		3476.625	mmSCF/yr
	0.40	mmSCF/hr		0.40	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	368	mmBtu/hr		368	mmBtu/hr
F-Factor:	8710	SCF/mmBt	้น	8710	SCF/mmBtu
Stack Flow	1.136E+07			1.136E+07	
Pollutant	CT #1	CT #2			
Nitrogen Oxides	89.14	89.14	TPY		
	20.35	20.35	; lb/hr		
•	15.00	15.00	ppmvd		
Carbon Monoxide	108.28	108.28	TPY		
	24.72	24.72	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90 *	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01358	0.01358	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00652	0.00652	lb/mmBtu		
Volatile Organic Compounds	20.63	20.63	TPY		
	4.71	4.71	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.59	1.59	TPY		
	0.36	0.36	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	178.28				
Carbon Monoxide	216.57				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	41.251334				
Sulfur Dioxide	3.18				

0.2229194

File: July 24, 2002 RAI Response Calculations.xls

Sulfuric Acid Mist

Sheet: New Allowables

Owner/Authorized Representative or Responsible Official

1.	Name and	Title of O	wner/Authorized	Representative	or Res	ponsible	Official:
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Allan Wade Smith, General Manager

Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: Orange Cogeneration L.P., Inc.

Street Address: 1125 US 98 South, Suite 100

City: Lakeland

State: FL

Zip Code: 33801

Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone:

(863) 682 - 6338

Fax: (863) 683 - 8257

4. Owner/Authorized Representative or Responsible Official Statement:

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Signature

2/29/02

Professional Engineer Certification

Professional Engineer Name: Darrel James Graziani

Registration Number: 44685

Professional Engineer Mailing Address:

Organization/Firm: Foster Wheeler Environmental Corporation

Street Address: 749 South Federal Highway, Suite 100

City: Stuart

State: FL

Zip Code: 34994-2936

Professional Engineer Telephone Numbers:

Telephone:

(772) 781 - 3413

Fax: (772) 781 - 3411

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4. Professional Engineer Statement:

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- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

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Treate Illings	
WILL WAR M	8-50-5005
Signature	Date

Affach any exception to certification statement.

DEP Form No. 62-210.900(1) - Form

Effective: 2/11/99

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Summary Table

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Particulate Matter	43.80	2.88	3.15	43.80	43.80
PM10	21.02	1.38	1.51	21.02	21.02
Volatile Organic Compounds	34.80	4.22	5.01	41.25	42.23
Sulfur Dioxide	9.74	1.66	1.82	3.18	3.26
Sulfuric Acid Mist	0.74	0.12	0.13	0.22	0.23

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Current Actuals (CA) - Calendar Years 2000 and 2001 Averages. For NOx and CO emissions include startup, Future Actuals (FA) - Based on CY 2000 & CY 2001 Averages

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Maximum Allowables (MA) - Based on operation at 377 mmBtu/hr and 8,760 hrs/yr

Estimated Emission Increases (TPY)

	CA-FA	CA-MA	PA-AA	PA-MA
Pollutant	Increases	Increases	Increases	Increases
Nitrogen Oxides	9.50	84.85	(15.72)	(11.50)
Carbon Monoxide	5.41	167.79	(37.43)	(32.31)
Particulate Matter	0.27	40.92	0.00	0.00
PM10	0.13	19.64	0.00	0.00
Volatile Organic Compounds	0.79	38.00	6.45	7.43
Sulfur Dioxide	0.16	1.60	(6.56)	(6.48)
Sulfuric Acid Mist	0.01	0.11	(0.52)	(0.51)

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Summary Table

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: PSD Permit Limitations

Operating Restrictions

Maximum Heat Input: 368.3 mmBtu/hr

Hours of Operation: 8760 hrs/yr Ref: Permit No. AC53-233851B (PSD-FL-206B)

Ref.: December 28, 1999 Permit Modification, DEP File No. 1050:

Fuels: Natural Gas

Biogas

Emission Limitations (per CT)

15 ppmvd@ 159 Ref: BACT, corrected to ISO Conditions **Nitrogen Oxides**

> 22.1 lbs/hr 97 TPY

Carbon Monoxide 30 ppmvd **BACT**

> 27.8 lbs/hr 127 TPY

Particulate Matter 5 Lb/hr **BACT**

21.9 TPY

Volatile Organic Compounds 10 ppmvd **BACT**

3.98 lbs/hr

17.4 TPY

Sulfur Dioxide 1.11 Lb/hr Baseline

4.87 TPY

Sulfuric Acid Mist 0.085 Lb/hr **Baseline**

0.37 TPY

File: July 24, 2002 RAI Response Calculations.xls

Page 2 of 6 Sheet: Permit Limits 8/19/2002

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Calendar Year 200 & 2001 Actual Emissions

•								
Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG			NG	NG		
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	SCF/Btu	8710	8710	8710	SCF/Btu
	EAOR Dat				EAOR Dat			
Emissions Data	TPY	TPY	Average		TPY	TPY	Average	
Nitrogen Oxides	41.5	52.7	47.1		47	54.1	50.55	
Carbon Monoxide	18.8	35.4	27.1		28	25.6	26.8	
Particulate Matter	1.48	1.37	1.43		1.458	1.443	1.451	
PM10	0.71	0.66	0.685		0.70	0.69	0.696	
Volatile Organic Compounds	1.67	1.55	1.61		2.63	2.60	2.61	
Sulfur Dioxide	0.87	0.79	0.83		0.84	0.82	0.83	
Sulfuric Acid Mist	0.06	0.06	0.06		0.06	0.06	0.06	
Emissions Totals	EAOR Dat	a CTs						
Nitrogen Oxides	97.65							
Carbon Monoxide	53.90					•		
Particulate Matter	2.88							
PM10	1.38							
Volatile Organic Compounds	4.22							
Sulfur Dioxide	1.66							
Sulfuric Acid Mist	0.12							
OA/OC'ed Emissions Data								
QA/QC'ed Emissions Data	EAOD Do	o CT #1			EAOD Dot	o CT #2		
Operating Data	EAOR Dat		Averen		EAOR Dat		Average	
Operating Data Parameter	CY 2000	CY 2001	Average	broke	CY 2000	CY 2001	Average	bretur
Operating Data Parameter Hours of Operation:	CY 2000 5020	CY 2001 4654	Average 4837	hrs/yr	CY 2000 4944	CY 2001 4892	Average 4918	hrs/yr
Operating Data Parameter Hours of Operation: Fuels:	CY 2000 5020 NG	CY 2001 4654 NG	4837	•	CY 2000 4944 NG	CY 2001 4892 NG	4918	•
Operating Data Parameter Hours of Operation:	CY 2000 5020 NG 1826.9	CY 2001 4654 NG 1725.1	4837 1776	mmSCF/yr	CY 2000 4944 NG 1761.1	CY 2001 4892 NG 1787.8	4918 1774.45	mmSCF/yr
Operating Data Parameter Hours of Operation: Fuels: Usage:	CY 2000 5020 NG 1826.9 0.36	CY 2001 4654 NG 1725.1 0.37	4837 1776 0.37	mmSCF/yr mmSCF/hr	CY 2000 4944 NG 1761.1 0.36	CY 2001 4892 NG 1787.8 0.37	4918 1774.45 0.36	mmSCF/yr mmSCF/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content:	CY 2000 5020 NG 1826.9 0.36 946	CY 2001 4654 NG 1725.1 0.37 946	4837 1776 0.37 946	mmSCF/yr mmSCF/hr Btu/SCF	CY 2000 4944 NG 1761.1 0.36 946	CY 2001 4892 NG 1787.8 0.37 946	4918 1774.45 0.36 946	mmSCF/yr mmSCF/hr Btu/SCF
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input:	CY 2000 5020 NG 1826.9 0.36 946 344	CY 2001 4654 NG 1725.1 0.37 946 351	4837 1776 0.37 946 347	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr	CY 2000 4944 NG 1761.1 0.36 946 337	CY 2001 4892 NG 1787.8 0.37 946 346	4918 1774.45 0.36 946 341	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor:	CY 2000 5020 NG 1826.9 0.36 946 344 8710	CY 2001 4654 NG 1725.1 0.37 946 351 8710	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710	CY 2001 4892 NG 1787.8 0.37 946 346 8710	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input:	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor:	CY 2000 5020 NG 1826.9 0.36 946 344 8710	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor:	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2	4918 - 1774.45 0.36 946 341 8710 1.053E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017	4918 - 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28	mmSCF/yr mmSCF/hr Btw/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28	4918 - 1774.45 - 0.36 - 946 - 341 - 8710 - 1.053E+07 Average - 20.57 - 16.34 - 10.90 - 14.28 - 0.59 - 0.0017 - 0.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Date CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082	4918 - 1774.45 - 0.36 - 946 - 341 - 8710 - 1.053E+07 Average - 20.57 - 16.34 - 10.90 - 14.28 - 0.59 - 0.0017 - 0.28 - 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063	4918 - 1774.45 - 0.36 - 946 - 341 - 8710 - 1.053E+07 Average - 20.57 - 16.34 - 10.90 - 14.28 - 0.59 - 0.0017 - 0.28 - 0.0008 - 1.0630	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482 0.35	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482 0.34	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.06660 0.4820 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr ppmvd	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508 0.34	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508 0.33	4918 - 1774.45 - 0.36 - 946 - 341 - 8710 - 1.053E+07 Average - 20.57 - 16.34 - 10.90 - 14.28 - 0.59 - 0.0017 - 0.28 - 0.0008 - 1.0630 - 1.5080 - 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr ppmvd
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660 0.4820	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr pb/mmBtu Ib/hr ppmvd Ib/hr ppmvd	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508	4918 - 1774.45 - 0.36 - 946 - 341 - 8710 - 1.053E+07 Average - 20.57 - 16.34 - 10.90 - 14.28 - 0.59 - 0.0017 - 0.28 - 0.0008 - 1.0630 - 1.5080	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr@15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr pb/mmBtu lb/hr ppmvd lb/hr ppmvd

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Actual Emissions

Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
	4007	h		4040	han han
Hours of Operation:	4837	hrs/yr		4918	hrs/yr
Fuels:	NG			NG	
Usage:	1776	mmSCF/yr		1774.45	mmSCF/yr
	0.37	mmSCF/hr		0.36	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	DSCF/mm		8710	DSCF/mmBtu
Stack Flow	1.163E+07	DSCF/hr @	915% O2	1.163E+07	DSCF/hr @15% O2
Pollutant	CT #1	CT #2			
Nitrogen Oxides	51.34	55.81	TPY		
Nitrogen Oxides		22.70			
	21.23		lb/hr		
Obart on Managerial	15.28	16.34	ppmvd		
Carbon Monoxide	29.70	29.61	TPY		
	12.28	12.04	lb/hr		
B 4 14 14 4	14.56	14.28	ppmvd		
Particulate Matter	1.55	1.60	TPY		
	0.64	0.65	lb/hr		
	0.0017	0.0017	lb/mmBtu		
PM10	0.74	0.77	TPY		
	0.31	0.31	lb/hr		
	0.00082	0.00083	lb/mmBtu		
Volatile Organic Compounds	1.55	3.46	TPY		
	0.64	1.41	lb/hr		
	0.48	1.063	ppmvd		
Sulfur Dioxide	0.90	0.92	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.06	0.06	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	107.15				
Carbon Monoxide	59.31				
Particulate Matter	3.15				
PM10	1.51				
Volatile Organic Compounds	5.01				
Sulfur Dioxide	1.82				

File: July 24, 2002 RAI Response Calculations.xls

0.1270518

Sheet: Future Actuals

Sulfuric Acid Mist

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions

Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG	•		NG	•
Usage:	3558.75	mmSCF/yr		3558.75	mmSCF/yr
_	0.41	mmSCF/hr		0.41	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	SCF/mmBt	u	8710	SCF/mmBtu
Stack Flow	1.163E+07	DSCF/hr		1.163E+07	DSCF/hr
Pollutant	CT #1	CT #2			
Nitrogen Oxides	91.25	91.25	TPY		
•	20.83	20.83	lb/hr		
	15.00	15.00	ppmvd		
Carbon Monoxide	110.84	110.84	TPY		
	25.31	25.31	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01326	0.01326	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00637	0.00637	lb/mmBtu		
Volatile Organic Compounds	21.11	21.11	TPY		
	4.82	4.82	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.63	1.63	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals				•	
Pollutant	TPY				
Nitrogen Oxides	182.50				
Carbon Monoxide	221.69				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	42.225775				
Sulfur Dioxide	3.26				
Sulfuric Acid Mist	0.2281852				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Allowables

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions - Holding Gas Usage Constant

Operating Data Parameter	EAOR Data - CT #1		EAOR Data - CT #2		
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG	•		NG	•
Usage:	3476.625	mmSCF/yr		3476.625	mmSCF/yr
_	0.40	mmSCF/hr		0.40	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	368	mmBtu/hr		368	mmBtu/hr
F-Factor:	8710	SCF/mmBt	tu	8710	SCF/mmBtu
Stack Flow	1.136E+07	DSCF/hr		1.136E+07	DSCF/hr
D. U. d d	OT #4	OT #0			
Pollutant	CT #1	CT #2			
Nitrogen Oxides	89.14	89.14	TPY		
	20.35	20.35	lb/hr		
	15.00	15.00	ppmvd		
Carbon Monoxide	108.28	108.28	TPY		
1	24.72	24.72	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01358	0.01358	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00652	0.00652	lb/mmBtu		
Volatile Organic Compounds	20.63	20.63	TPY		
	4.71	4.71	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.59	1.59	TPY		
	0.36	0.36	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	178.28				
Carbon Monoxide	216.57				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	41.251334				
Sulfur Dioxide	3.18				
Culturia Asid Mist	0.10				

0.2229194

File: July 24, 2002 RAI Response Calculations.xls

Sulfuric Acid Mist

Sheet: New Allowables

Owner/Authorized Representative or Responsible Official

1.	Name and	Title of C	wner/Authorized	Representative	or Res	ponsible	Official:
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Allan Wade Smith, General Manager

Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: Orange Cogeneration L.P., Inc.

Street Address: 1125 US 98 South, Suite 100

City: Lakeland

State: FL

Zip Code: 33801

Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone:

(863) 682 - 6338

Fax: (863) 683 - 8257

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative *(check here [X], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.

Signature

Professional Engineer Certification

Professional Engineer Name: Darrel James Graziani

Registration Number: 44685

Professional Engineer Mailing Address:

City: Stuart

Organization/Firm: Foster Wheeler Environmental Corporation

Street Address: 749 South Federal Highway, Suite 100

State: FL

Zip Code: 34994-2936

Professional Engineer Telephone Numbers:

Telephone:

(772) 781 - 3413

Fax: (772) 781 - 3411

^{*} Attach letter of authorization if not currently on file.

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [X], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

"Material Control of the Control of	F
	8-20-2002
Signature	Date
A A A A A A A A A A A A A A A A A A A	

Affach any exception to certification statement.

DEP Form No. 62-210.900(1) - Form

Effective: 2/11/99

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Summary Table

Estimated Emissions (TPY)

	PSD	Current	Future	Adjusted	Maximum
Pollutant	Permit	Actuals	Actuals	Allowables	Allowables
Nitrogen Oxides	194.00	97.65	107.15	178.28	182.50
Carbon Monoxide	254.00	53.90	59.31	216.57	221.69
Particulate Matter	43.80	2.88	3.15	43.80	43.80
PM10	21.02	1.38	1.51	21.02	21.02
Volatile Organic Compounds	34.80	4.22	5.01	41.25	42.23
Sulfur Dioxide	9.74	1.66	1.82	3.18	3.26
Sulfuric Acid Mist	0.74	0.12	0.13	0.22	0.23

Permit (PA) - Currently Permitted Allowable Emissions.

Current Actuals (CA) - Calendar Years 2000 and 2001 Averages. For NOx and CO emissions include startup, Future Actuals (FA) - Based on CY 2000 & CY 2001 Averages

Adjusted Allowables (AA) - Based on an annual average operation at 368.3 mmBu and 8760 hrs/yr.

Maximum Allowables (MA) - Based on operation at 377 mmBtu/hr and 8,760 hrs/yr

Estimated Emission Increases (TPY)

	CA-FA	CA-MA	PA-AA	PA-MA
Pollutant	Increases	Increases	Increases	Increases
Nitrogen Oxides	9.50	84.85	(15.72)	(11.50)
Carbon Monoxide	5.41	167.79	(37.43)	(32.31)
Particulate Matter	0.27	40.92	0.00	0.00
PM10	0.13	19.64	0.00	0.00
Volatile Organic Compounds	0.79	38.00	6.45	7.43
Sulfur Dioxide	0.16	1.60	(6.56)	(6.48)
Sulfuric Acid Mist	0.01	0.11	(0.52)	(0.51)

File: July 24, 2002 RAI Response Calculations.xls

Page 1 of 6 Sheet: Summary Table 8/19/2002

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: PSD Permit Limitations

Operating Restrictions

Maximum Heat Input:

368.3 mmBtu/hr

Ref.: December 28, 1999 Permit Modification, DEP File No. 1050:

Hours of Operation: 8760 hrs/yr Ref: Permit No. AC53-233851B (PSD-FL-206B)

Fuels:

Natural Gas

Biogas

Emission Limitations (per CT)

Nitrogen Oxides 15 ppmvd@ 159 Ref: BACT, corrected to ISO Conditions

22.1 lbs/hr

97 TPY

Carbon Monoxide 30 ppmvd **BACT**

27.8 lbs/hr

127 TPY

Particulate Matter 5 Lb/hr **BACT**

21.9 TPY

Volatile Organic Compounds 10 ppmvd **BACT**

3.98 lbs/hr

17.4 TPY

Sulfur Dioxide 1.11 Lb/hr Baseline

4.87 TPY

Sulfuric Acid Mist Baseline 0.085 Lb/hr

0.37 TPY

File: July 24, 2002 RAI Response Calculations.xls

Page 2 of 6 Sheet: Permit Limits 8/19/2002

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Calendar Year 200 & 2001 Actual Emissions

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Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG		•	NG	NG		
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
-	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
ricat content.	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	SCF/Btu	8710	8710	8710	SCF/Btu
i a actor.	*		07 10	3017Btd			0, 10	00.75.2
	EAOR Dat				EAOR Dat			
Emissions Data	TPY	TPY	Average		TPY	TPY	Average	
Nitrogen Oxides	41.5	52.7	47.1		47	54.1	50.55	
Carbon Monoxide	18.8	35.4	27.1		28	25.6	26.8	
Particulate Matter	1.48	1.37	1.43		1.458	1.443	1.451	
PM10	0.71	0.66	0.685		0.70	0.69	0.696	
Volatile Organic Compounds	1.67	1.55	1.61		2.63	2.60	2.61	
Sulfur Dioxide	0.87	0.79	0.83		0.84	0.82	0.83	
Sulfuric Acid Mist	0.06	0.06	0.06		0.06	0.06	0.06	
Emissions Totals	EAOR Dat	a CTs						
Nitrogen Oxides	97.65		•					
Carbon Monoxide	53.90							
Particulate Matter	2.88							
PM10	1.38							
Volatile Organic Compounds	4.22							
Sulfur Dioxide	1.66							
Sulfuric Acid Mist	0.12							
	0.12							
QA/QC'ed Emissions Data								
	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
QA/QC'ed Emissions Data		a - CT #1 CY 2001	Average		CY 2000	CY 2001	Average	
QA/QC'ed Emissions Data Operating Data	EAOR Dat		Average 4837	hrs/yr			Average 4918	hrs/yr
QA/QC'ed Emissions Data Operating Data Parameter	EAOR Dat	CY 2001		hrs/yr	CY 2000	CY 2001	•	hrs/yr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation:	EAOR Dat CY 2000 5020	CY 2001 4654		hrs/yr mmSCF/yr	CY 2000 4944	CY 2001 4892	•	hrs/yr mmSCF/yr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels:	EAOR Date CY 2000 5020 NG	CY 2001 4654 NG	4837	•	CY 2000 4944 NG	CY 2001 4892 NG	4918	•
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels:	EAOR Dat CY 2000 5020 NG 1826.9	CY 2001 4654 NG 1725.1	4837 1776	mmSCF/yr	CY 2000 4944 NG 1761.1	CY 2001 4892 NG 1787.8	4918 1774.45	mmSCF/yr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage:	EAOR Dat CY 2000 5020 NG 1826.9 0.36	CY 2001 4654 NG 1725.1 0.37	4837 1776 0.37	mmSCF/yr mmSCF/hr	CY 2000 4944 NG 1761.1 0.36	CY 2001 4892 NG 1787.8 0.37	4918 1774.45 0.36	mmSCF/yr mmSCF/hr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content:	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946	CY 2001 4654 NG 1725.1 0.37 946	4837 1776 0.37 946	mmSCF/yr mmSCF/hr Btu/SCF	CY 2000 4944 NG 1761.1 0.36 946	CY 2001 4892 NG 1787.8 0.37 946	4918 1774.45 0.36 946	mmSCF/yr mmSCF/hr Btu/SCF
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input:	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710	CY 2001 4654 NG 1725.1 0.37 946 351 8710	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710	CY 2001 4892 NG 1787.8 0.37 946 346 8710	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor:	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat input: F-Factor: Stack Flow	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710 1.053E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat input: F-Factor: Stack Flow Pollutant	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 :a - CT #1 CY 2001	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001	4918 1774.45 0.36 946 341 8710 1.053E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat input: F-Factor: Stack Flow	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 (a - CT #1 CY 2001 22.65	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53	4837 1776 0.37 946 · 347 8710 1.072E+07 Average 19.59 15.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12 17.37	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat input: F-Factor: Stack Flow Pollutant	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 ta - CT #2 CY 2001 22.12 17.37 10.47	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 ta - CT #2 CY 2011 22.12 17.37 10.47 13.53	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2 - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 2 - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 2a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	EAOR Dat CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2 - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr lb/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 (a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 2a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr lb/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 22.65 17.53 15.21 19.39 0.0017 0.28 0.00081 0.666	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 2a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr lb/mmBtu lb/hr
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660 0.4820	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr ib/mmBtu Ib/hr ib/mmBtu Ib/hr ppmvd	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 2 - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr lb/mmBtu lb/hr ppmvd
QA/QC'ed Emissions Data Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	EAOR Date CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Date CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482 0.35	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482 0.34	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660 0.4820 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr ib/mmBtu lb/hr ppmvd	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508 0.34	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 (a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508 0.33	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2 lb/hr ppmvd lb/hr lb/hr lb/hr lb/hr lb/hr lb/hr lb/hr ppmvd lb/hr ppmvd lb/hr lb/hr ppmvd lb/hr lb/hr ppmvd lb/hr

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Sheet: Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Actual Emissions

Subject: Future Actual Emissions								
Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2			
Hours of Operation:	4837	hrs/yr		4918	hrs/yr			
Fuels:	NG			NG				
Usage:	1776	mmSCF/yr		1774.45	mmSCF/yr			
3	0.37	mmSCF/hr		0.36	mmSCF/hr			
Heat Content:	928	Btu/SCF		928	Btu/SCF			
Heat Input:	377	mmBtu/hr		377	mmBtu/hr			
F-Factor:	8710	DSCF/mml	Btu	8710	DSCF/mmBtu			
Stack Flow		DSCF/hr @			DSCF/hr @15% O2			
	1.1002 01	200.7 @	y.070 0 2		200,711 @ 10,7002			
Dall dans	OT #4	OT 40						
Pollutant	CT #1	CT #2						
Nitrogen Oxides	51.34	55.81	TPY					
	21.23	22.70	lb/hr					
	15.28	16.34	ppmvd					
Carbon Monoxide	29.70	29.61	TPY					
	12.28	12.04	lb/hr					
	14.56	14.28	ppmvd					
Particulate Matter	1.55	1.60	TPY					
	0.64	0.65	lb/hr					
	0.0017	0.0017	lb/mmBtu					
PM10	0.74	0.77	TPY					
	0.31	0.31	lb/hr					
	0.00082	0.00083	lb/mmBtu	•				
Volatile Organic Compounds	1.55	3.46	TPY					
	0.64	1.41	lb/hr					
	0.48	1.063	ppmvd					
Sulfur Dioxide	0.90	0.92	TPY					
•	0.37	0.37	lb/hr					
	0.0010	0.0010	lb/mmBtu					
Sulfuric Acid Mist	0.06	0.06	TPY					
	0.03	0.03	lb/hr					
	0	0	lb/mmBtu					
Future Totals								
Pollutant	TPY							
Nitrogen Oxides	107.15							
Carbon Monoxide	59.31							
Particulate Matter	3.15							
PM10	1.51							
Volatile Organic Compounds	5.01							
Sulfur Dioxide	1.82							
Sullui Dioxide	1.02							

File: July 24, 2002 RAI Response Calculations.xls

0.1270518

Sheet: Future Actuals

Sulfuric Acid Mist

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions

Operating Data Parameter	EAOR Data - CT #1		EAOR Data - CT #2		
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG	111 O/ y 1		NG	o, y.
Usage:	3558.75	mmSCF/yr		3558.75	mmSCF/yr
	0.41	mmSCF/hr		0.41	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	SCF/mmBt	u .	8710	SCF/mmBtu
Stack Flow	1.163E+07	DSCF/hr		1.163E+07	DSCF/hr
Pollutant	CT #1	CT #2			
Nitrogen Oxides	91.25	91.25	TPY		
	20.83	20.83	lb/hr		
	15.00	15.00	ppmvd		
Carbon Monoxide	110.84	110.84	TPY		
	25.31	25.31	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01326	0.01326	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00637	0.00637	lb/mmBtu		
Volatile Organic Compounds	21.11	21.11	TPY		
	4.82	4.82	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.63	1.63	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	182.50				
Carbon Monoxide	221.69				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	42.225775				
Sulfur Dioxide	3.26				
Sulfuric Acid Mist	0.2281852				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Allowables

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions - Holding Gas Usage Constant

<u>-</u>		•	•				
Operating Data Parameter	EAOR Data - CT #1			EAOR Data - CT #2			
Hours of Operation: Fuels:	8760 NG	hrs/yr		8760 NG	hrs/yr		
Usage:	3476.625	mmSCF/yr		3476.625	mmSCF/yr		
	0.40	mmSCF/hr		0.40	mmSCF/hr		
Heat Content:	928	Btu/SCF		928	Btu/SCF		
Heat Input:	368	mmBtu/hr		368	mmBtu/hr		
F-Factor:	8710	SCF/mmBt	u	8710	SCF/mmBtu		
Stack Flow	1.136E+07			1.136E+07			
Dollutont	CT #4	CT #2					
Pollutant	CT #1	CT #2	TD\				
Nitrogen Oxides	89.14	89.14	TPY				
	20.35	20.35	lb/hr				
0.1	15.00	15.00	ppmvd				
Carbon Monoxide	108.28	108.28	TPY				
	24.72	24.72	lb/hr				
Double Market	30.00	30.00	ppmvd				
Particulate Matter	21.90	21.90	TPY				
	5.00	5.00	lb/hr				
	0.01358	0.01358	lb/mmBtu				
PM10	10.51	10.51	TPY				
	2.40	2.40	lb/hr				
	0.00652	0.00652	lb/mmBtu				
Volatile Organic Compounds	20.63	20.63	TPY				
	4.71	4.71	lb/hr				
	10	10	ppmvd				
Sulfur Dioxide	1.59	1.59	TPY				
	0.36	0.36	lb/hr				
	0.0010	0.0010	lb/mmBtu				
Sulfuric Acid Mist	0.11	0.11	TPY				
	0.03	0.03	lb/hr				
•	0	0	lb/mmBtu				
Future Totals							
Pollutant	TPY						
Nitrogen Oxides	178.28						
Carbon Monoxide	216.57						
Particulate Matter	43.80						
PM10	21.02						
Volatile Organic Compounds	41.251334						
Sulfur Dioxide	3.18						
- and brokido	0.10						

0.2229194

File: July 24, 2002 RAI Response Calculations.xls

Sulfuric Acid Mist

Sheet: New Allowables

Owner/Authorized Representative or Responsible Official

 Name and Title of Owner/Authorized Representative or Responsible Official

Allan Wade Smith, General Manager

2. Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: Orange Cogeneration L.P., Inc.

Street Address: 1125 US 98 South, Suite 100

City: Lakeland

State: FL

Zip Code: 33801

Owner/Authorized Representative or Responsible Official Telephone Numbers:

(863) 682 - 6338

Fax: (863) 683 - 8257

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative *(check here [X], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.

Signature

Date

Professional Engineer Certification

Professional Engineer Name: Darrel James Graziani

Registration Number: 44685

Professional Engineer Mailing Address:

Organization/Firm: Foster Wheeler Environmental Corporation

Street Address: 749 South Federal Highway, Suite 100

Professional Engineer Telephone Numbers:

Telephone: (772) 781 - 3413

City: Stuart

State: FL

Fax: (772) 781 - 3411

Zip Code: 34994-2936

^{*} Attach letter of authorization if not currently on file.

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [X], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

min at Jariel Dia	8.20.2002
Signature () ()	Date
Attach and exception to certification statement.	

DEP Form No. 62-210.900(1) - Form

ffective: 2/11/99

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Summary Table

Estimated Emissions (TPY)

	PSD	Current	Future	Adjusted	Maximum
Pollutant	Permit	Actuals	Actuals	Allowables	Allowables
Nitrogen Oxides	194.00	97.65	107.15	178.28	182.50
Carbon Monoxide	254.00	53.90	59.31	216.57	221.69
Particulate Matter	43.80	2.88	3.15	43.80	43.80
PM10	21.02	1.38	1.51	21.02	21.02
Volatile Organic Compounds	34.80	4.22	5.01	41.25	42.23
Sulfur Dioxide	9.74	1.66	1.82	3.18	3.26
Sulfuric Acid Mist	0.74	0.12	0.13	0.22	0.23

Permit (PA) - Currently Permitted Allowable Emissions.

Current Actuals (CA) - Calendar Years 2000 and 2001 Averages. For NOx and CO emissions include startup, Future Actuals (FA) - Based on CY 2000 & CY 2001 Averages

Adjusted Allowables (AA) - Based on an annual average operation at 368.3 mmBu and 8760 hrs/yr.

Maximum Allowables (MA) - Based on operation at 377 mmBtu/hr and 8,760 hrs/yr

Estimated Emission Increases (TPY)

	CA-FA	CA-MA	PA-AA	PA-MA
Pollutant	Increases	Increases	Increases	Increases
Nitrogen Oxides	9.50	84.85	(15.72)	(11.50)
Carbon Monoxide	5.41	167.79	(37.43)	(32.31)
Particulate Matter	0.27	40.92	0.00	0.00
PM10	0.13	19.64	0.00	0.00
Volatile Organic Compounds	0.79	38.00	6.45	7.43
Sulfur Dioxide	0.16	1.60	(6.56)	(6.48)
Sulfuric Acid Mist	0.01	0.11	(0.52)	(0.51)

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Summary Table

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: PSD Permit Limitations

Operating Restrictions

Maximum Heat Input: 368.3 mmBtu/hr Ref.: December 28, 1999 Permit Modification, DEP File No. 1050:

Hours of Operation: 8760 hrs/yr Ref: Permit No. AC53-233851B (PSD-FL-206B)

Fuels: Natural Gas

Biogas

Emission Limitations (per CT)
Nitrogen Oxides 15 ppmvd@ 159 Ref: BACT, corrected to ISO Conditions

22.1 lbs/hr 97 TPY

Carbon Monoxide 30 ppmvd BACT

27.8 lbs/hr 127 TPY

Particulate Matter 5 Lb/hr BACT

21.9 TPY

Volatile Organic Compounds 10 ppmvd BACT

3.98 lbs/hr 17.4 TPY

Sulfur Dioxide 1.11 Lb/hr Baseline

4.87 TPY

Sulfuric Acid Mist 0.085 Lb/hr Baseline

0.37 TPY

File: July 24, 2002 RAI Response Calculations.xls
Sheet: Permit Limits

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Calendar Year 200 & 2001 Actual Emissions

Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	•
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG			NG	NG		
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	SCF/Btu	8710	8710	8710	SCF/Btu
EAOR Data - CT #1					EAOR Data - CT #2			
	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Emissions Data	EAOR Dat	a - CT #1 TPY	Average		EAOR Dat TPY	a - CT #2 TPY	Average	
Emissions Data Nitrogen Oxides			Average 47.1				Average 50.55	
	TPY	TPY			TPY	TPY	•	
Nitrogen Oxides	TPY 41.5	TPY 52.7	47.1		TPY 47	TPY 54.1	50.55	
Nitrogen Oxides Carbon Monoxide	TPY 41.5 18.8	TPY 52.7 35.4	47.1 27.1		TPY 47 28	TPY 54.1 25.6	50.55 26.8	
Nitrogen Oxides Carbon Monoxide Particulate Matter	TPY 41.5 18.8 1.48	TPY 52.7 35.4 1.37	47.1 27.1 1.43		TPY 47 28 1.458	TPY 54.1 25.6 1.443	50.55 26.8 1.451.	
Nitrogen Oxides Carbon Monoxide Particulate Matter PM10	TPY 41.5 18.8 1.48 0.71	TPY 52.7 35.4 1.37 0.66	47.1 27.1 1.43 0.685		TPY 47 28 1.458 0.70	TPY 54.1 25.6 1.443 0.69	50.55 26.8 1.451. 0.696	

Emissions Totals	EAOR Data CTs
Nitrogen Oxides	97.65
Carbon Monoxide	53.90
Particulate Matter	2.88
PM10	1.38
Volatile Organic Compounds	4.22
Sulfur Dioxide	1.66
Sulfuric Acid Mist	0.12

QA/QC'ed Emissions Data

Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG			NG	NG		
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
Heat Input:	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	DSCF/mmBtu	8710	8710	8710	DSCF/mmBtu
Stack Flow	1.062E+07	1.082E+07	1.072E+07	DSCF/hr @15% O2	1.040E+07	1.067E+07	1.053E+07	DSCF/hr @15% O2

	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Pollutant	CY 2000	CY 2001	Average		CY 2000	CY 2001	Average	
Nitrogen Oxides	16.53	22.65	19.59	lb/hr	19.01	22.12	20.57	lb/hr
	13.04	17.53	15.28	ppmvd	15.32	17.37	16.34	ppmvd
Carbon Monoxide	7.49	15.21	11.35	lb/hr	11.33	10.47	10.90	lb/hr
	9.72	19.39	14.56	ppmvd	15.02	13.53	14.28	ppmv d
Particulate Matter	0.59	0.59	0.59	lb/hr	0.59	0.59	0.59	lb/hr
	0.0017	0.0017	0.0017	lb/mmBtu	0.0018	0.0017	0.0017	lb/mmBtu
PM10	0.28	0.28	0.28	1b/hr	0.28	0.28	0.28	lb/hr
	0.00082	0.00081	0.0008	lb/mmBtu	0.00084	0.00082	8000.0	lb/mmBtu
Volatile Organic Compounds	0.666	0.666	0.6660	lb/hr	1.063	1.063	1.0630	lb/hr
	0.482	0.482	0.4820	ppmvd	1.508	1.508	1.5080	ppmvd
Sulfur Dioxide	0.35	0.34	0.34	lb/hr	0.34	0.33	0.34	lb/hr
	0.0010	0.0010	0.0010	lb/mmBtu	0.0010	0.0010	0.0010	lb/mmBtu
Sulfuric Acid Mist	0.024	0.024	0.0240	lb/hr	0.024	0.023	0.0236	lb/hr

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Actual Emissions

Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation:	4837	hrs/yr		4918	hrs/yr
Fuels:	NG	ili S/yi		NG	HIS/yI
Usage:	1776	mmSCF/yr		1774.45	mmSCF/yr
Usage.	0.37	mmSCF/hr		0.36	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	DSCF/mml	Rtu	8710	DSCF/mmBtu
Stack Flow		DSCF/hr @			DSCF/hr @15% O2
Guan I I Gu	111002101	500.71@	y 10 /0 0 2	11.1002.07	200.711 @ 1070 02
Pollutant	CT #1	CT #2			
Nitrogen Oxides	51.34	55.81	TPY		
	21.23	22.70	lb/hr		
	15.28	16.34	ppmvd		
Carbon Monoxide	29.70	29.61	TPY		
	12.28	12.04	lb/hr		
	14.56	14.28	ppmvd		
Particulate Matter	1.55	1.60	TPY		
	0.64	0.65	lb/hr		
	0.0017	0.0017	lb/mmBtu		
PM10	0.74	0.77	. TPY		
	0.31	0.31	lb/hr		
	0.00082	0.00083	lb/mmBtu		
Volatile Organic Compounds	1.55	3.46	TPY		
	0.64	1.41	lb/hr		•
	0.48	1.063	ppmvd		
Sulfur Dioxide	0.90	0.92	TPY		
•	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.06	0.06	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	107.15				
Carbon Monoxide	59.31				
Particulate Matter	3.15				
PM10	1.51				•
Volatile Organic Compounds	5.01				
Sulfur Dioxide	1.82				

File: July 24, 2002 RAI Response Calculations.xls

0.1270518

Sheet: Future Actuals

Sulfuric Acid Mist

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions

Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Data - CT #2			
Hours of Operation:	8760 NG	hrs/yr		8760 NG	hrs/yr		
Fuels: Usage:	3558.75	mmSCF/yr		3558.75	mmSCF/yr		
obago.	0.41	mmSCF/hr		0.41	mmSCF/hr		
Heat Content:	928	Btu/SCF		928	Btu/SCF		
Heat Input:	377	mmBtu/hr		377	mmBtu/hr		
F-Factor:	8710	SCF/mmBt	u	8710	SCF/mmBtu		
Stack Flow	1.163E+07	DSCF/hr		1.163E+07	DSCF/hr		
Pollutant	CT #1	CT #2					
Nitrogen Oxides	91.25	91.25	TPY				
	20.83	20.83	lb/hr				
	15.00	15.00	ppmvd				
Carbon Monoxide	110.84	110.84	TPY				
	25.31	25.31	lb/hr				
	30.00	30.00	ppmvd				
Particulate Matter	21.90	21.90	TPY				
	5.00	5.00	lb/hr				
D1140	0.01326	0.01326	lb/mmBtu				
PM10	10.51	10.51	TPY				
	2.40	2.40	lb/hr				
Volatila Organia Campaunda	0.00637 21.11	0.00637 21.11	lb/mmBtu TPY				
Volatile Organic Compounds	4.82	4.82	lb/hr	,			
	4.02	10	ppmvd				
Sulfur Dioxide	1.63	1.63	TPY				
Sullui Dioxide	0.37	0.37	lb/hr				
	0.0010	0.0010	lb/mmBtu				
Sulfuric Acid Mist	0.0010	0.11	TPY				
	0.03	0.03	lb/hr				
	0	0	lb/mmBtu				
Future Totals				,			
Pollutant	TPY						
Nitrogen Oxides	182.50						
Carbon Monoxide	221.69	•					
Particulate Matter	43.80						
PM10	21.02						
Volatile Organic Compounds	42.225775						
Sulfur Dioxide	3.26						
Sulfuric Acid Mist	0.2281852						

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Allowables

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions - Holding Gas Usage Constant

Operating Data Parameter	EAOR Da	ta - CT #1		EAOR Da	ta - CT #2
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG			NG	
Usage:	3476.625	mmSCF/yr		3476.625	mmSCF/yr
_	0.40	mmSCF/hr		0.40	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	368	mmBtu/hr		368	mmBtu/hr
F-Factor:	8710	SCF/mmBt	tu	8710	SCF/mmBtu
Stack Flow	1.136E+07	DSCF/hr		1.136E+07	DSCF/hr
Dallutant	CT #4	CT #2			
Pollutant	CT #1	CT #2	TDV		
Nitrogen Oxides	89.14	89.14	TPY		
	20.35	20.35	lb/hr		
Carbon Monoxide	15.00 108.28	15.00	ppmvd TPY		
Carbon Wonoxide		108.28			
	24.72	24.72	lb/hr		
Particulate Matter	30.00 21.90	30.00	ppmvd ´ TPY		
Particulate Matter	5.00	21.90 5.00	lb/hr		
	0.01358	0.01358	lb/mmBtu		
PM10	10.51	10.51	TPY		
PWHO	2.40	2.40	lb/hr		
	0.00652	0.00652	lb/mmBtu		
Volatile Organic Compounds	20.63	20.63	TPY		
Volatile Organic Compounds	4.71	4.71	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.59	1.59	TPY		
Canal Bloxide	0.36	0.36	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	178.28				
Carbon Monoxide	216.57				
Particulate Matter	43.80				
PM10	21.02				•
Volatile Organic Compounds	41.251334				
Sulfur Dioxide	3.18				
Sulfuric Acid Mist	0.2229194				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: New Allowables

ner/Authorized Representative or Response	onsible Official					
Name and Title of Owner/Authorized Representative or Responsible Official:						
Allan Wade Smith, General Manager						
-	-	ng Address:				
Street Address: 1125 US 98 South, Suite	e 100					
City: Lakeland	State: FL	Zip Code: 33801				
Owner/Authorized Representative or Resp	ponsible Official Teler	hone Numbers:				
Telephone: (863) 682 - 6338	Fax:	(863) 683 - 8257				
Owner/Authorized Representative or Resp	ponsible Official States	ment:				
official (check here [X], if so) of the Title hereby certify, based on information and this application are true, accurate and co- emissions reported in this application are air pollutant emissions units and air pollu- operated and maintained so as to comply found in the statutes of the State of Florid revisions thereof. I understand that apper	le V source addressed is belief formed after read mplete and that, to the based upon reasonable with all applicable stall and rules of the Depart, if granted by the L	n this application, whichever is applicable. I sonable inquiry, that the statements made in best of my knowledge, any estimates of le techniques for calculating emissions. The t described in this application will be ndards for control of air pollutant emissions artment of Environmental Protection and Department, cannot be transferred without				
	Name and Title of Owner/Authorized Rep Allan Wae Owner/Authorized Representative or Resp Organization/Firm: Orange Cogeneration Street Address: 1125 US 98 South, Suite City: Lakeland Owner/Authorized Representative or Resp Telephone: (863) 682 - 6338 Owner/Authorized Representative or Resp I, the undersigned, am the owner or author official (check here [X], if so) of the Title hereby certify, based on information and this application are true, accurate and compensations reported in this application are air pollutant emissions units and air pollution operated and maintained so as to comply found in the statutes of the State of Florid revisions thereof. I understand that appear authorization from the Department, and any permitted emissions unit.	Allan Wade Smith, General Owner/Authorized Representative or Responsible Official Maili Organization/Firm: Orange Cogeneration L.P., Inc. Street Address: 1125 US 98 South, Suite 100 City: Lakeland State: FL Owner/Authorized Representative or Responsible Official Teleptelphone: (863) 682 - 6338 Fax: Owner/Authorized Representative or Responsible Official State: I, the undersigned, am the owner or authorized representative*(official (check here [X], if so) of the Title V source addressed is hereby certify, based on information and belief formed after reactives application are true, accurate and complete and that, to the emissions reported in this application are based upon reasonable air pollutant emissions units and air pollution control equipment operated and maintained so as to comply with all applicable state found in the statutes of the State of Florida and rules of the Deprevisions thereof. I understand that appearit, if granted by the Lauthorization from the Department, and I will promptly notify the any permitted emissions unit.				

Professional Engineer Certification

1	D.C. I.E. 'N. D. I.I.	~	
1.	Professional Engineer Name: Darrel James (Fraziani	
	Registration Number: 44685		
2.	Professional Engineer Mailing Address:		
	Organization/Firm: Foster Wheeler Environ	mental Corporat	tion
	Street Address: 749 South Federal Highway	, Suite 100	
	City: Stuart	State: FL	Zip Code: 34994-2936
3.	Professional Engineer Telephone Numbers:		
	Telephone: (772) 781 - 3413	Fax:	(772) 781 - 3411

^{*} Attach letter of authorization if not currently on file.

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [X], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Thumburger .	
- Silver Dans Colonia	8.20.2002
Signature	Date
Z; (286gi) , 1 - 2; 2 :	
Aftach any exception to certification statement.	

4

DEP Fórm No. 62-210.900(1) - Form

Effective: 2/11/99

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V Renewal Application/Minor Modification.

Subject: Summary Table

Estimated Emissions (TPY)

	PSD	Current	Future	Adjusted	Maximum
Pollutant	Permit	Actuals	Actuals	Allowables	Allowables
Nitrogen Oxides	194.00	97.65	107.15	178.28	182.50
Carbon Monoxide	254.00	53.90	59.31	216.57	221.69
Particulate Matter	43.80	2.88	3.15	43.80	43.80
PM10	21.02	1.38	1.51	21.02	21.02
Volatile Organic Compounds	34.80	4.22	5.01	41.25	42.23
Sulfur Dioxide	9.74	1.66	1.82	3.18	3.26
Sulfuric Acid Mist	0.74	0.12	0.13	0.22	0.23

Permit (PA) - Currently Permitted Allowable Emissions.

Current Actuals (CA) - Calendar Years 2000 and 2001 Averages. For NOx and CO emissions include startup, Future Actuals (FA) - Based on CY 2000 & CY 2001 Averages

Adjusted Allowables (AA) - Based on an annual average operation at 368.3 mmBu and 8760 hrs/yr.

Maximum Allowables (MA) - Based on operation at 377 mmBtu/hr and 8,760 hrs/yr

Estimated Emission Increases (TPY)

	CA-FA	CA-MA	PA-AA	PA-MA
Pollutant	Increases	Increases	Increases	Increases
Nitrogen Oxides	9.50	84.85	(15.72)	(11.50)
Carbon Monoxide	5.41	167.79	(37.43)	(32.31)
Particulate Matter	0.27	40.92	0.00	0.00
PM10	0.13	19.64	0.00	0.00
Volatile Organic Compounds	0.79	38.00	6.45	7.43
Sulfur Dioxide	0.16	1.60	(6.56)	(6.48)
Sulfuric Acid Mist	0.01	0.11	(0.52)	(0.51)

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Summary Table 8/19/2002

Page 1 of 6

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: PSD Permit Limitations

Operating Restrictions

Maximum Heat Input:

368.3 mmBtu/hr Ref.: December 28, 1999 Permit Modification, DEP File No. 1050:

Ref: Permit No. AC53-233851B (PSD-FL-206B) Hours of Operation: 8760 hrs/yr

Fuels: **Natural Gas Biogas**

Emission Limitations (per CT)

Nitrogen Oxides 15 ppmvd@ 159 Ref: BACT, corrected to ISO Conditions

> 22.1 lbs/hr 97 TPY

Carbon Monoxide 30 ppmvd **BACT**

> 27.8 lbs/hr 127 TPY

Particulate Matter 5 Lb/hr **BACT**

21.9 TPY

Volatile Organic Compounds 10 ppmvd **BACT**

3.98 lbs/hr

17.4 TPY

Sulfur Dioxide 1.11 Lb/hr Baseline

4.87 TPY

0.085 Lb/hr Baseline **Sulfuric Acid Mist**

0.37 TPY

File: July 24, 2002 RAI Response Calculations.xls

Page 2 of 6 Sheet: Permit Limits 8/19/2002

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Calendar Year 200 & 2001 Actual Emissions

Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
Parameter	CY 2000	CY 2001	Average ,		CY 2000	CY 2001	Averáge	
Hours of Operation:	5020	4654	4837	hrs/yr	4944	4892	4918	hrs/yr
Fuels:	NG	NG			· NG	NG		
Usage:	1826.9	1725.1	1776	mmSCF/yr	1761.1	1787.8	1774.45	mmSCF/yr
	0.36	0.37	0.37	mmSCF/hr	0.36	0.37	0.36	mmSCF/hr
Heat Content:	946	946	946	Btu/SCF	946	946	946	Btu/SCF
	344	351	347	mmBtu/hr	337	346	341	mmBtu/hr
F-Factor:	8710	8710	8710	SCF/Btu	8710	8710	8710	SCF/Btu
	EAOD Dat	- CT #4			EAOR Dat	- CT #2		
Emileologo Boto	EAOR Dat		A				A	
Emissions Data	TPY	TPY	Average		TPY	TPY	Average	
Nitrogen Oxides	41.5	52.7	47.1		47	54.1	50.55	
Carbon Monoxide	18.8	35.4	27.1		28	25.6	26.8	
Particulate Matter	1.48	1.37	1.43		1.458	1.443	1.451	
PM10	0.71	0.66	0.685		0.70	0.69	0.696	
Volatile Organic Compounds	1.67	1.55	1.61		2.63	2.60	2.61	
Sulfur Dioxide	0.87	0.79	0.83		0.84	0.82	0.83	
Sulfuric Acid Mist	0.06	0.06	0.06		0.06	0.06	0.06	
Emissions Totals	EAOR Dat	a CTs						
Nitrogen Oxides	97.65							
Carbon Monoxide	53.90							
Particulate Matter	2.88							
PM10	1.38			,				
Volatile Organic Compounds	4.22							
Sulfur Dioxide	1.66							
Sulfuric Acid Mist	0.12							
QA/QC'ed Emissions Data								
QA/QC'ed Emissions Data Operating Data	EAOR Dat	a - CT #1			EAOR Dat	a - CT #2		
	EAOR Date	a - CT #1 CY 2001	Average		EAOR Dat	a - CT #2 CY 2001	Average	
Operating Data			Average 4837	hrs/yr			Average 4918	hrs/yr
Operating Data Parameter	CY 2000	CY 2001	-	hrs/yr	CY 2000	CY 2001	_	hrs/yr
Operating Data Parameter Hours of Operation: Fuels:	CY 2000 5020	CY 2001 4654	-	hrs/yr mmSCF/yr	CY 2000 4944	CY 2001 4892	_	hrs/yr mmSCF/yr
Operating Data Parameter Hours of Operation:	CY 2000 5020 NG	CY 2001 4654 NG	4837	•	CY 2000 4944 NG	CY 2001 4892 NG	4918	•
Operating Data Parameter Hours of Operation: Fuels:	CY 2000 5020 NG 1826.9	CY 2001 4654 NG 1725.1	4837 1776	mmSCF/yr	CY 2000 4944 NG 1761.1	CY 2001 4892 NG 1787.8	4918 1774.45	mmSCF/yr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content:	CY 2000 5020 NG 1826.9 0.36	CY 2001 4654 NG 1725.1 0.37	4837 1776 0.37	mmSCF/yr mmSCF/hr	CY 2000 4944 NG 1761.1 0.36	CY 2001 4892 NG 1787.8 0.37	4918 1774.45 0.36	mmSCF/yr mmSCF/hr
Operating Data Parameter Hours of Operation: Fuels: Usage:	CY 2000 5020 NG 1826.9 0.36 946	CY 2001 4654 NG 1725.1 0.37 946	4837 1776 0.37 946	mmSCF/yr mmSCF/hr Btu/SCF	CY 2000 4944 NG 1761.1 0.36 946	CY 2001 4892 NG 1787.8 0.37 946	4918 1774.45 0.36 946	mmSCF/yr mmSCF/hr Btu/SCF
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input:	CY 2000 5020 NG 1826.9 0.36 946 344 8710	CY 2001 4654 NG 1725.1 0.37 946 351 8710	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr	CY 2000 4944 NG 1761.1 0.36 946 337	CY 2001 4892 NG 1787.8 0.37 946 346 8710	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor:	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07	4837 1776 0.37 946 347 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07	4918 1774.45 0.36 946 341 8710	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2	4918 1774.45 0.36 946 341 8710 1.053E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001	4837 1776 0.37 946 347 8710 1.072E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001	4918 1774.45 0.36 946 341 8710 1.053E+07	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 2 - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd ib/hr ppmvd ib/hr ppmvd ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.17.37 10.47 13.53 0.59 0.0017	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd lb/hr ppmvd lb/hr lb/mmBtu lb/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr lb/mmBtu lb/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.091 0.0017 0.28 0.00081 0.666 0.482	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.0008 0.6660 0.4820	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd lb/hr ppmvd lb/hr ib/mmBtu lb/hr lb/mmBtu lb/hr ppmwd	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 lb/hr ppmvd lb/hr ppmvd lb/hr lb/hr lb/mmBtu lb/hr lb/mmBtu lb/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482 0.35	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482 0.34	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.008 0.6660 0.4820 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd ib/hr ppmvd ib/hr ib/mmBtu ib/hr ib/mmBtu ib/hr ppmvd ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508 0.34	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508 0.33	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2 Ib/hr ppmvd Ib/hr Ib/hr Ib/hr Ib/mmBtu Ib/hr ppmvd Ib/hr ppmvd Ib/hr
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds Sulfur Dioxide	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482 0.35 0.0010	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482 0.34 0.0010	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.6060 0.4820 0.34 0.0010	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd ib/hr ppmvd ib/hr ib/mmBtu ib/hr ib/hr ppmvd ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508 0.34 0.0010	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508 0.33 0.0010	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080 0.34 0.0010	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 Ib/hr ppmvd Ib/hr Ib/mmBtu Ib/hr Ib/mmBtu Ib/hr ppmvd Ib/hr Ib/mmBtu
Operating Data Parameter Hours of Operation: Fuels: Usage: Heat Content: Heat Input: F-Factor: Stack Flow Pollutant Nitrogen Oxides Carbon Monoxide Particulate Matter PM10 Volatile Organic Compounds	CY 2000 5020 NG 1826.9 0.36 946 344 8710 1.062E+07 EAOR Dat CY 2000 16.53 13.04 7.49 9.72 0.59 0.0017 0.28 0.00082 0.666 0.482 0.35	CY 2001 4654 NG 1725.1 0.37 946 351 8710 1.082E+07 a - CT #1 CY 2001 22.65 17.53 15.21 19.39 0.59 0.0017 0.28 0.00081 0.666 0.482 0.34	4837 1776 0.37 946 347 8710 1.072E+07 Average 19.59 15.28 11.35 14.56 0.59 0.0017 0.28 0.008 0.6660 0.4820 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @15% O2 ib/hr ppmvd ib/hr ppmvd ib/hr ib/mmBtu ib/hr ib/mmBtu ib/hr ppmvd ib/hr	CY 2000 4944 NG 1761.1 0.36 946 337 8710 1.040E+07 EAOR Dat CY 2000 19.01 15.32 11.33 15.02 0.59 0.0018 0.28 0.00084 1.063 1.508 0.34	CY 2001 4892 NG 1787.8 0.37 946 346 8710 1.067E+07 a - CT #2 CY 2001 22.12 17.37 10.47 13.53 0.59 0.0017 0.28 0.00082 1.063 1.508 0.33	4918 1774.45 0.36 946 341 8710 1.053E+07 Average 20.57 16.34 10.90 14.28 0.59 0.0017 0.28 0.0008 1.0630 1.5080 0.34	mmSCF/yr mmSCF/hr Btu/SCF mmBtu/hr DSCF/mmBtu DSCF/hr @ 15% O2 Ib/hr ppmvd Ib/hr Ib/hr Ib/hr Ib/mmBtu Ib/hr ppmvd Ib/hr ppmvd Ib/hr

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Actual Emissions

Operating Data Parameter	EAOR Data - CT #1		EAOR Data - CT #2		
Hours of Operation:	4837	hrs/yr		4918	hrs/yr
Fuels:	NG	c. y .		NG	
Usage:	1776	mmSCF/yr		1774.45	mmSCF/yr
	0.37	mmSCF/hr		0.36	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	DSCF/mm	Btu	8710	DSCF/mmBtu
Stack Flow		DSCF/hr @			DSCF/hr @15% O2
					0
Pollutant	CT #1	CT #2			
Nitrogen Oxides	51.34	55.81	TPY		
	21.23	22.70	lb/hr		
	15.28	16.34	ppmvd		
Carbon Monoxide	29.70	29.61	TPY		
	12.28	12.04	lb/hr		
	14.56	14.28	ppmvd		
Particulate Matter	1.55	1.60	TPY		;
	0.64	0.65	lb/hr		
	0.0017	0.0017	lb/mmBtu		
PM10	0.74	0.77	TPY		
	0.31	0.31	lb/hr		
	0.00082	0.00083	lb/mmBtu		
Volatile Organic Compounds	1.55	3.46	TPY		
•	0.64	1.41	lb/hr		
	0.48	1.063	ppmvd		
Sulfur Dioxide	0.90	0.92	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.06	0.06	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				
Nitrogen Oxides	107.15				
Carbon Monoxide [*]	59.31				
Particulate Matter	3.15				
PM10	1.51				
Volatile Organic Compounds	5.01				
Sulfur Dioxide	1.82				
Sulfuric Acid Mist	0.1270518				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Actuals

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions

Operating Data Parameter	EAOR Data - CT #1		EAOR Data - CT #2		
Hours of Operation:	8760	hrs/yr		8760	hrs/yr
Fuels:	NG			NG	
Usage:	3558.75	mmSCF/yr		3558.75	mmSCF/yr
	0.41	mmSCF/hr		0.41	mmSCF/hr
Heat Content:	928	Btu/SCF		928	Btu/SCF
Heat Input:	377	mmBtu/hr		377	mmBtu/hr
F-Factor:	8710	SCF/mmBt	u	8710	SCF/mmBtu
Stack Flow	1.163E+07	DSCF/hr		1.163E+07	DSCF/hr
Pollutant	CT #1	CT #2			
Nitrogen Oxides	91.25	91.25	TPY		
_	20.83	20.83	lb/hr		
	15.00	15.00	ppmvd		
Carbon Monoxide	110.84	110.84	TPY		
<i></i>	25.31	25.31	lb/hr		
	30.00	30.00	ppmvd		
Particulate Matter	21.90	21.90	TPY		
	5.00	5.00	lb/hr		
	0.01326	0.01326	lb/mmBtu		
PM10	10.51	10.51	TPY		
	2.40	2.40	lb/hr		
	0.00637	0.00637	lb/mmBtu		
Volatile Organic Compounds	21.11	21.11	TPY		
	4.82	4.82	lb/hr		
	10	10	ppmvd		
Sulfur Dioxide	1.63	1.63	TPY		
	0.37	0.37	lb/hr		
	0.0010	0.0010	lb/mmBtu		
Sulfuric Acid Mist	0.11	0.11	TPY		
	0.03	0.03	lb/hr		
	0	0	lb/mmBtu		
Future Totals					
Pollutant	TPY				,
Nitrogen Oxides	182.50				
Carbon Monoxide	221.69				
Particulate Matter	43.80				
PM10	21.02				
Volatile Organic Compounds	42.225775			•	
Sulfur Dioxide	3.26				
Sulfuric Acid Mist	0.2281852				

File: July 24, 2002 RAI Response Calculations.xls

Sheet: Future Allowables

Client: CSW Energy Operations, Inc.

Project: Orange Cogeneration Facility - Title V RenewaL Application/Minor Modification.

Subject: Future Allowable Emissions - Holding Gas Usage Constant

Operating Data Parameter					EAOR Data - CT #2		
Hours of Operation:	8760	hrs/yr	•	8760	hrs/yr		
Fuels:	NG	111 3/ y1		NG	1113/y1		
Usage:		mmSCF/yr			mmSCF/yr		
Couge.	0.40	mmSCF/hr		0.40	mmSCF/hr		
Heat Content:	928	Btu/SCF		928	Btu/SCF		
Heat Input:	368	mmBtu/hr		368	mmBtu/hr		
F-Factor:	8710	SCF/mmBt	` 11	8710	SCF/mmBtu		
Stack Flow	1.136E+07		u	1.136E+07			
					20011111		
Pollutant	CT #1	CT #2					
Nitrogen Oxides	89.14	89.14	TPY				
÷.	20.35	20.35	lb/hr				
	15.00	15.00	ppmvd.				
Carbon Monoxide	108.28	108.28	TPY				
	24.72	24.72	lb/hr		•		
	30.00	30.00	ppmvd				
Particulate Matter	21.90	21.90	TPY				
	5.00	5.00	lb/hr				
	0.01358	0.01358	lb/mmBtu				
PM10	10.51	10.51	TPY				
	2.40	2.40	lb/hr				
	0.00652	0.00652	lb/mmBtu				
Volatile Organic Compounds	20.63	20.63	TPY				
	4.71	4.71	lb/hr				
	10	10	ppmvd				
Sulfur Dioxide	1.59	1.59	TPY				
	0.36	0.36	lb/hr				
	0.0010	0.0010	lb/mmBtu				
Sulfuric Acid Mist	0.11	0.11	TPY :				
	0.03	0.03	lb/hr				
	0	0	lb/mmBtu				
Future Totals							
Pollutant	TPY						
Nitrogen Oxides	178.28						
Carbon Monoxide	216.57				•		
Particulate Matter	43.80						
PM10	21.02						
Volatile Organic Compounds	41.251334						
Sulfur Dioxide	3.18						
	0.0000404						

0.2229194

File: July 24, 2002 RAI Response Calculations.xls

Sulfuric Acid Mist

Sheet: New Allowables