

1.  RECEIVED IN  
ENFORCEMENT: 02/29/2024



**Energy Center San Francisco, LLC**  
14 Mint Plaza, Suite 200  
San Francisco, CA. 94103-1835

February 28, 2024

Director of Compliance and Enforcement  
Bay Area Air Quality Management District  
375 Beale Street, Suite 600  
San Francisco, CA 94105  
Attention: Air-3

Attn: Title V Semi-Annual Reports

Dear Sir/Madam,

Attached is the Title V Compliance Certification report from the Cordia Energy Center San Francisco, LLC. This report covers the period from August 1, 2023 to January 31, 2024. During this period, we have maintained continuous compliance with all requirements.

Sincerely,



**Marc Adler**  
Facility Manager  
949.576.7665  
[marc.adler@cordiaenergy.com](mailto:marc.adler@cordiaenergy.com)  
in @

7/20/2024 10:00 AM  
10/20/2024 10:00 AM

February 28, 2024  
Facility # B6151

Director of Compliance and Enforcement  
Bay Area Air Quality Management District  
375 Beale Street, Suite 600  
San Francisco, CA 94105

Attn: Air - 3

Subject: Title V Semi-Annual Monitoring Report for the period August 1, 2023, to January 31, 2024.

The Energy Center San Francisco herewith submits the Semi-Annual Report for Facility B6151. This report includes detailed reports and compliance reporting for the following sources for the Semi-Annual period August 1, 2023, to January 31, 2024.

S-3: Boiler 3  
Status: Full Compliance

S-4: Boiler 4  
Status: Full Compliance

S-5: Boiler 5  
Status: Full Compliance

S-6: Boiler 6  
Status: Full Compliance

S-7: Boiler 7  
Status: Full Compliance

S-9: Boiler 8  
Status: Full Compliance

S10: UST Tank #3  
Status: Full Compliance (exempt source)

S-11: UST Tank #4  
Status: Full Compliance (exempt source)

VII. APPLICABLE LIMITS & COMPLIANCE MONITORING REQUIREMENTS

**Table VII-A**  
**S-3 BOILER NO. 3 & S-4 BOILER NO. 4**

Type of limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance Status
Oxides of Nitrogen	BAAQMD 9-7-301.1	N	30 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-301.2	N	40 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.5	N	9 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.1	Y	30 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-305.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-306.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Carbon Monoxide	BAAQMD 9-7-301.4	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.5	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-305.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-306.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Opacity	BAAQMD 6-1-301	N	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
Opacity	SIP 6-301	Y	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous

**Table VII-A**  
**S-5 BOILER NO. 5 & S-6 BOILER NO. 6**

Type of limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance Status
Oxides of Nitrogen	BAAQMD 9-7-112.2	N	30 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	SIP 9-7-301.1	Y	30 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	SIP 9-7-303	Y	Weighted average of 9-7-301.1 and 9-7-302.1	SIP 9-7-501	C	Non-resettable fuel meters	Continuous
	SIP 9-7-305.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	SIP 9-7-306.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Carbon Monoxide	BAAQMD 9-7-112.2	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source test	Continuous
	BAAQMD 9-7-307.6	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	SIP 9-7-305.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	SIP 9-7-306.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Opacity	BAAQMD 6-1-301	N	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
	SIP 6-301	Y	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
FP	BAAQMD 6-1-310.3	N	0.15 grain/dscf @ 6% O <sub>2</sub>		N		Continuous
FP	SIP 6-310.3	Y	0.15 grain/dscf @ 6% O <sub>2</sub>		N		Continuous
SO <sub>2</sub>	SIP 9-1-302	Y	300 ppm (dry)		N		Continuous

**Table VII-C  
S-7 BOILER NO. 7**

Type of limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance Status
Oxides of Nitrogen	BAAQMD 9-7-301.1	N	30 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-301.2	N	40 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.4	N	15 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.1	Y	30 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-303	Y	Weighted average of 9-7-301.1 and 9-7-302.1	SIP 9-7-501	C	Non-resettable fuel meters	Continuous
Oxides of Nitrogen	SIP 9-7-305.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-306.1	Y	150 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Carbon Monoxide	BAAQMD 9-7-301.4	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.4	N	400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-305.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		P/A	Source test	Continuous
	SIP 9-7-306.2	Y	400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
Opacity	BAAQMD 6-1-301	N	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
	SIP 6-301	Y	≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous

**Table VII-D  
S-9 Boiler No. 8**

Type of limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance Status
Oxides of Nitrogen	BAAQMD 9-7-301.1		30 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-301.2		40 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.6		5 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
	SIP 9-7-301.1		30 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	BAAQMD Condition #21200, part 3		9 ppmv, dry @ 3% O <sub>2</sub> , averaged over 3 hours	BAAQMD Condition #21200, part 9	P/A	Source Test	Continuous
Carbon Monoxide	BAAQMD 9-7-301.4		400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD Condition #21200, part 10	P/A	Source Test	Continuous
	BAAQMD 9-7-307.6		400 ppmv, dry @ 3% O <sub>2</sub>	BAAQMD 9-7-403, 9-7-506	P/A	Source Test	Continuous
Carbon Monoxide	SIP 9-7-301.2		400 ppmv, dry @ 3% O <sub>2</sub>		N		Continuous
	BAAQMD Condition #21200, part 4		50 ppmv, dry @ 3% O <sub>2</sub> , averaged over 3 hours	BAAQMD Condition #21200, part 9	P/initial	Source Test	Continuous
Opacity	BAAQMD 6-1-301		≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
	SIP 6-301		≥ Ringelmann No. 1 for no more than 3 minutes in any one hour		N		Continuous
FP	BAAQMD 6-1-310.3		0.15 grain/dscf @ 6% O <sub>2</sub>		N		Continuous

**Table VII-E  
Applicable Limits and Compliance Monitoring Requirements  
S-13 STANDBY GENERATOR DIESEL ENGINE**

<b>Type of Limit</b>	<b>Citation of Limit</b>	<b>FE Y/N</b>	<b>Limit</b>	<b>Monitoring Requirement Citation</b>	<b>Monitoring Frequency (P/C/N)</b>	<b>Monitoring Type</b>	<b>Compliance Status</b>
Opacity	BAAQMD 6-1-303.1	N	≥ Ringelmann No. 2 for no more than 3 minutes in any hour		N		Continuous
	SIP 6-303.1	Y	≥ Ringelmann No. 2 for no more than 3 minutes in any hour		N		Continuous
FP	BAAQMD 6-1-310.3	N	0.15 grain/dscf @ 6% O <sub>2</sub>		N		Continuous
	SIP 6-310.3	Y	0.15 grain/dscf @ 6% O <sub>2</sub>		N		Continuous
SO <sub>2</sub>	BAAQMD 9-1-301	N	GLC <sup>1</sup> of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N		Continuous
	BAAQMD 9-1-304	N	Fuel sulfur content limit of 0.5% by weight		N		Continuous
	SIP 9-1-301	Y	GLC <sup>1</sup> of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N		Continuous
	SIP 9-1-304	Y	Fuel sulfur content limit of 0.5% by weight		N		Continuous
Hours of Operation	BAAQMD condition #22820, part 1		20 hours per year discretionary operation	BAAQMD condition #22820, part 3	C	Totalizing counter	Continuous



**QLN- Gas Setting Data.....DJ Engineering Services 415-290-4915**

Jobsite: Clearway, S.F. CA  
 Burner #: Coen 20D-12753-2-000  
 Core 1113-411-B322..2hole  
 Inner/axial Spuds: 1113-420-C.209. qty(4) inserts  
 Outer/radial 1113-420-154170.3hole

Register size: QLN-3.0  
 Fired Vessel: D Boiler, Keeler  
 Unit capacity: 55,000-PPH  
 Unit ID: #3, guidepipe in view 9 3/16"  
 Date: July..3.,2023  
 Service rep: Dean Jansen

**B3 GAS**

NOx permit 9ppm/15ppm

	1.5	2	22	3	33	4	45	5	57	6	69	7	7.5		
AC Screw <i>inner screws</i>															
Controller output MC1	10%	16%	27%		39%		51%		62%		74%		80%		
Air Ports		Closed	"	"	"	"	"	"	"	"	"	"	"		Closed
Windbox press., "w.c.	0.6	0.8	1.6		3.2		6		8.7		11.6		11.6		
Furnace press., "w.c.	0	0	0.2		0.4		0.9		1.4		1.9		1.9		
delta P, "w.c. **	0.6	0.8	1.4		2.8		5.1		7.3		9.7		9.7		
Outlet Press., "wc	-0.3	-0.2	0		0.4		0.9		1.5		2.1		2.1		
Outlet damper position	100%	100%	100%		100%		100%		100%		100%		100%		100%
FD fan Stm Turbine RPM	up		1760				1713		1677		1663		1624		
FD fan Stm Turbine RPM	dwn	1711	1740		1715		1715		1695		1680				
Urea flow, GPH	0.12	0.11	0.11		0.11		0.12		0.11		0.13		0.12		
Steam flow, kpph***	13.6	16.1	22.2		29.7		38.5		45.9		50.3		52		
Steam drum press psi	123	123	124		125		126		129		129		128		
Gas supply train, psi	19.8	19.9	19.9		20		20.1		20.3		20.4		20.4		
Core press., "wc/psi	11.0"wc	12.0"wc	0.74		1.2		2.29		3.56		3.65		4		
Inner press., "wc/psi	2.3	2.4	3.4		5		9.2		13.5		14		15		
Outer press., "wc/psi	6.0"wc	12.0"wc	1.2		3.2		5.2		7.5		11.3		11.4		
Gas flow, kscfh	14.8	17	23.9		33.6		44.4		53.7		60.3		61.5		
Stack temp., deg F	381	390	427		461		505		541		563		569		
O2% plant going up		6.3	4		3.6		3.7		3.7		3.4		3.8		
O2% Plant going down	7.4%	5.9	4.2		3.5		3.5		3.4		3.6		3.8		
O2 %, dry, E4500	6.9	6.3	4.8		3.8		3.7		3.6		3.9		4.2		
NOx, ppm, raw, E4500	3.2	2.8	1.4		1.1		0.7		0.5		0.5		0.4		
CO, ppm, raw, E4500	0	0	33		119		135		150		115		87		
Excess air, % **	43.77	38.33	26.50		19.76		19.13		18.51		20.40		22.36		
NOx, ppm, @ 3% O2 **	<b>4.09</b>	<b>3.43</b>	<b>1.56</b>		<b>1.15</b>		<b>0.73</b>		<b>0.52</b>		<b>0.53</b>		<b>0.43</b>		
CO, ppm, @ 3% O2 **	0.00	0.00	36.69		124.57		140.49		155.20		121.09		93.25		
NOx, #/MMBtu **	0.005	0.004	0.002		0.001		0.001		0.001		0.001		0.001		
CO, #/MMBtu **	0.000	0.000	0.027		0.091		0.102		0.113		0.088		0.068		
O2 %, dry, E4500 upstrm	6.5	5.6	4.6		4		3.9		3.8		4.1		4.3		
NOx, ppm, raw, E4500	23.7	21.1	20		19.6		22		23		20		18.8		
CO, ppm, raw, E4500	0	0	2		18		15		18		18		22		
Flame description and comments		Orange flame on refractory tiles at 9,11,1, and 3:00. #4 out of service.	Orange flame on refractory tiles at 11,1, and 3:00. Flame is centered in furnace.		Flame licking side walls, uniform looking flame. At 32%, half screw, roller is not on screw head. 33% ok		#4 not in service		Blue in slots, refractory tiles at 9,11,1,3 and 5:00 red hot.		Uniform, blue base. Well contained, Smooth		#4 O2 reads 4.2%, when not in service, outlet press 0.1"wc, windbox -2.5"wc. Refractory tiles at 9,1,3 and 5:00 red hot.		
Other comments	Tune decreasing load. Permit NOx 9ppm, 15ppm load following. Load limit today 80% 4blr not in service and draft damper closed, common flue 3 & 4 blr. Splitter plate in outlet duct. Plant limits low fire to 10% master setting. Draft control in auto SP -0.5"wc Outer bray valve wide open. Boiler tangent tube construction affecting CO #s														

\*\* Calculated field

Emissions sample port common to both boilers 3 & 4 and downstream of SCR

QLN- Gas Setting Data.....DJ Engineering Services 415-290-4915

Jobsite: Clearway, S.F. CA Register size: QLN-3.0  
 Burner #: Coen 20D-12753-2-000 Fired Vessel: D Boiler, Keeler  
 Core 1113-411-B322..2hole Unit capacity: 55,000-PPH  
 Inner/axial Spuds: 1113-420-C.209 . qty(4) inserts Unit ID: #4, guidepipe in view 9 7/16"  
 Outer/radial 1113-420-154170..3hole Date: Oct..26..2023 **B4 GAS**  
 Service rep: Dean Jansen NOx permit 9ppm/15ppm

	1.5	2	21	3	35	4	48	5	61	6	75	7	7.5	9
AC Screw/Quad.. Inner														
Controller output MC1	5%	12%	27%	42%	53%	67%	82%	86%	100%					
Air Ports	Closed	"	"	"	"	"	"	"	"	"	Closed			
Windbox press., "w.c.	0	0.2	1.2	3.9	6.5	10.4	13.4	14.5						
Furnace press., "w.c.														
delta P, "w.c. **														
Outlet Press., "wc	-0.6	-0.5	-0.1	0.4	1	1.7	2.1	2.3						
Outlet damper position	100%	100%	100%	100%	100%	100%	100%	100%						
FD fan VFD RPM	1790	1789	1786	1784	1784	1792	1792	1792						
Urea flow lbs/hr	0.33	0.32	0.32	0.33	0.31	0.33	0.33	0.33						
Steam flow, kpph***	11.6	13.4	20.8	33.5	40.5	48.5	55.6	54.9						
Steam drum press psi	124	119	121	125	126	131	132	132						
Gas supply train, psi	19	19	19	19	19	19	19	18.9						
Core press., "wc/psi	0.63	0.7	1.2	2.6	4.5	6	7.4	7.9						
Inner press., "wc/psi	1.43	1.66	2.74	5.5	8.92	11.52	13.7	14.47						
Outer press., "wc/psi	1.1	1.3	2	4.2	6.2	10	13	13.5						
Gas flow, kscfh	27.3	28.5	34.1	42.3	47.4	52.2	55.4	56.1						
Stack temp., deg F	372	381	421	488	536	588	622	630						
O2 plant decreasing load	6.6	6.5	5.2	4.1	3.9	3.9	3.9	3.9						
O2 plant increasing load				4.1	3.9	3.9	3.9	3.9						
O <sub>2</sub> %, dry, E4500	8.4	8.2	5.8	4.2	3.7	3.7	3.8	3.7						
NOx, ppm, raw, E4500	2	2.9	3.7	2.9	2.2	1.4	0.7	0.8						
CO, ppm, raw, E4500	0	0	9	60	61	64	63	73						
Excess air, % **	59.62	57.30	34.13	22.36	19.13	19.13	19.76	19.13						
NOx, ppm, @ 3% O <sub>2</sub> **	2.86	4.09	4.39	3.11	2.29	1.46	0.73	0.83						
CO, ppm, @ 3% O <sub>2</sub> **	0.00	0.00	10.67	64.31	63.48	66.60	65.95	75.97						
NOx, #/MMBtu **	0.003	0.005	0.005	0.004	0.003	0.002	0.001	0.001						
CO, #/MMBtu **	0.000	0.000	0.008	0.047	0.046	0.049	0.048	0.055						
O <sub>2</sub> %, dry, E4500 upstrm	6.4	6.3	4.9	3.8	3.7	3.6	3.7	3.6						
NOx, ppm, raw, E4500	34.9	31.2	25	24.4	25.7	24.5	22.6	22.9						
CO, ppm, raw, E4500	0	0	7	36	46	57	53	62						
Flame description and comments	3 boiler off. Plant limits low fire at 5% on the master. Orange flame on all refractory tiles. B3 off O2 reads 20.9% Orange flame on all tiles, more on top. 3 boiler off O2 reads 20.9% Flames anchored on tiles at 9 & 11:00. bir off O2 now 20.7% Uniform flame pattern. Refractory wedges at 5 and 7:00 are dark. B3 off and O2 reads 19.5% Blue slots with orange streaks on refractory tiles. #3 off O2 reads 6.9% Uniform flame pattern. Hot refractory tiles at 3, 9, 11 and 1:00. #3 off line O2 reads 3.3% Hot refractory tiles at 3, 9 and 11:00. #3 off line O2 reads 3.3% Pale blue, combustion is smooth. #3 off line O2 reads 3.4%. 86% Max attainable load for today.													
Other comments	Good O2 repeatability due to a good operating FD fan discharge damper. Boiler tangent tube construction affecting CO#.s. Permit NOx 9ppm, 15ppm load following. With B3 off, B3 reads 3.4% O2 when 4 boiler is at loads between 61% and 100%. This year a Splitter plate was installed in 3 & 4 boiler outlet duct up to SCR. Outer bray valve wide open.													

\*\* Calculated field

Emissions sample port for both 3 & 4 is common downstream of SCR.

**Gas Setting Data.....DJ Engineering Services 415-290-4915**

Nameplate Model Todd Variflame

Jobsite: Clearway Energy, SF

Fired Vessel: "A" type Union Iron Works

Job #: CSI 091996B

Unit capacity: 50,000pph

FGR? (Y/N) Y, Induced

Unit ID: Boiler 5

FD Fan RPM Steam turbine drive

Date: Oct...25...2023

Service rep: Dean Jansen

**B5**

	1	16	2	31	3	44	4	57	5	69	5.5	72	6	79	6.5	83	7	8	
Fuel valve screw, increasing																			
Master output, decreasing	0%	17%	31%	45%	58%	64%	70%	75%	78%	100%									
Windbox press., "w.c.	0.2	0.6	1.1	2	3.6	4.7	5.6	6.5	7	8.5									
Furnace press., "w.c.*	0	0.2	0.3	0.6	1.3	1.7	2	2.4	2.5	3.3									
delta P, "w.c. **	0.2	0.4	0.8	1.4	2.3	3	3.6	4.1	4.5	5.2									
Outlet press., "wc	-0.1	0.1	0.2	0.4	0.9	1.2	1.4	1.6	1.7	2.3									
Gas supply, psi xmtr	12.17	12.16	12.14	12.17	12.22	12.11	12.17	12.14	12.16	12.15									
Gas @ burner., "wc	3.0"wc	5.0"wc	12"wc	25"wc	44"wc	58"wc	69"wc	81"wc	91"wc	108"wc									
Gas flow, Kscfh	0	3.2	9.4	17	22.7	26.8	29.9	32.1	34.2	36.8									
FD fan RPM <u>OUT of SERVICE</u>																			
Steam drum pressure	122	122	123	122	124	125	125	125	126	126									
Steam flow, kpph	7.6	9.2	13.6	19.4	23.9	27.4	30.6	32.1	34	37.5									
O2 %, Plant, (above outlet dmpr)	13.7	12.9	11.5	9.3	8.7	8.4	8.3	8.4	8.2	7.9									
O <sub>2</sub> %, dry, E4500**	5.1	5.7	5	4.2	4.2	4.3	4.2	4.2	4	3.8									
NO <sub>x</sub> , ppm, raw, E4500**	36	24	26.6	26.2	26.5	26.4	26.5	27.3	27.6	26.9									
CO, ppm, raw, E4500**	66	34	1	14	29	41	58	65	96	143									
Excess air, % **	28.69	33.32	27.95	22.36	22.36	23.03	22.36	22.36	21.05	19.76									
NO <sub>x</sub> , ppm, @ 3% O <sub>2</sub> **	<b>40.78</b>	<b>28.26</b>	<b>29.95</b>	<b>28.08</b>	<b>28.40</b>	<b>28.47</b>	<b>28.40</b>	<b>29.26</b>	<b>29.23</b>	<b>28.16</b>									
CO, ppm, @ 3% O <sub>2</sub> **	74.77	40.04	1.13	15.01	31.08	44.21	62.17	69.67	101.68	149.69									
NO <sub>x</sub> , #MMBtu **	0.049	0.034	0.036	0.034	0.034	0.034	0.034	0.035	0.035	0.034									
CO, #MMBtu **	0.055	0.029	0.001	0.011	0.023	0.032	0.045	0.051	0.074	0.109									
Stack temp., deg F	351	368	394	432	466	485	499	512	522	536									
Windbox O2%	20.8	19.1	19.3	19	19.1	19.2	19.1	19.1	19	18.9									
Comb air temp., deg F	71	71	71	71	70	70	70	69	69	68									
Draft Setpoint	0.1	0.1	0.2	0.4	0.9	1.2	1.4	1.6	1.7	2.3									
% CV uptake damper	21	24.3	38.9	45.2	49.2	51.4	53.1	54.4	56	55.9									
Flame description and comments	Yellow center ball. <b>#6 boiler out of service. Draft damper does not stroke below 21%</b> Stable flame snappy yellow tails Blue base with yellow tails Blue flame nodes with orange flecks. Stable 3 blue nodes, hot front wall. AC valve screw interference Quiet Blue base red hot front wall. Flame 1/2 furnace length. Flame licking boiler tubes AC valve screw interference. Blue flame Tuning the boiler while decreasing load. Blue base, red hot front wall. Compact flame. Flame length 60% furnace length. Quiet																		
Other comments	Sample port below outlet damper, right side. Plant measures O2 above the outlet damper, (mix of 5 & 6 flue gas). <b>#6 boiler out of service.</b> Draft effects #5 boiler O2 and FGR rate. If the draft set point is positive then more FGR will come to the FD fan inlet lowering NOx. Meeting emissions with the draft control in auto.																		

\*\* Calculated field

**Gas Setting Data.....DJ Engineering Services 415-290-4915**

Jobsite: Clearway Energy, SF  
 Model #: Alzeta  
 Zurn S/N 98180

Register size: Premix. Ceramic fiber mat  
 Fired Vessel: "O" type Keystone boiler  
 Unit capacity: 125mmbtu/hr  
 Unit ID: #7...guidepipe in view 10"

Efficiency Execution Condensing Economizer

Date: 11..1..2023

**B6- GAS**

FD Fan on electric motor

Service rep: Dean Jansen

	1	2	12	3	23	4	34	5	45	6	56	7	70	8	83	9	9.5
AC Screw/Quad																	
Master output	0%	5%	17%		28%	39%		50%		63%		75%		89%		100%	
Windbox press., "w.c.	0.9	1.4	2.9		4.9	6.9		8.8		10.7		12.3		13.5		14	
Furnace press., "w.c.*	-0.3	-0.1	0.5		1.4	2.3		3.1		4		4.6		5		5.5	
delta P, "w.c. **	1.2	1.5	2.4		3.5	4.6		5.7		6.7		7.7		8.5		8.5	
Outlet press.Dwstr of danper., "wc		-0.4								-0.6							
Outlet damper position	100%		100%							100%				100%		100%	
Fan drive RPM	1796	1795	1794		1794	1793		1791		1790		1789		1789		1789	
Gas supply PRV outlet, psi	10.8	10.8	10.8		10.8	10.8		10.8		10.8		10.8		10.8		10.8	
Gas @ burner.,/psig	3.0"wc	6"wc	16"wc		26"wc	38"wc		49"wc		59"wc		67"wc		72"wc		78"wc	
Gas flow, kscfh	17.1	19.4	29		37	44.9		50.9		55.8		58.9		61.6		64.1	
Steam Pressure	123	122	124		125	126		127		127		126		127		128	
Steam Flow, kpph	19.4	23.7	36.5		46.3	55.6		61.7		68.8		72.1		73.8		78.2	
O2 %, plant	7.54	8.61	8.02		8.01	7.76		7.76		7.8		7.79		7.42		7.09	
O <sub>2</sub> %, dry, E4500**	8.4	9.5	9		8.9	8.8		8.7		8.7		8.7		8.7		8.3	
NO <sub>x</sub> , ppm, raw, E4500**	8.8	4	4.6		4.5	4.7		4.7		4.5		4.2		4.2		6	
CO, ppm, raw, E4500**	0	1	0		0	0		0		0		0		0		0	
Excess air, % **	59.62	73.88	67.07		65.78	64.51		63.26		63.26		63.26		63.26		58.45	
NO <sub>x</sub> , ppm, @ 3% O <sub>2</sub> **	12.60	6.28	6.92		6.71	6.95		6.90		6.60		6.16		6.16		8.52	
CO, ppm, @ 3% O <sub>2</sub> **	0.00	1.57	0.00		0.00	0.00		0.00		0.00		0.00		0.00		0.00	
NO <sub>x</sub> , #/MMBtu **	0.015	0.008	0.008		0.008	0.008		0.008		0.008		0.007		0.007		0.010	
CO, #/MMBtu **	0.000	0.001	0.000		0.000	0.000		0.000		0.000		0.000		0.000		0.000	
Stack temp., deg F	377	386	410		433	453		470		483		492		498		502	
Burner internal temp	134	128	124		122	121		120		119		118		125		117.3	
Flame strength	17	14	18		23	25		25		24		26		20		18	
Flame description and comments	Equal amounts of orange and blue on mat	Bottom of mat orange rest blue, red hot front wall. Blue halo off of mat				Bottom of mat orange rest blue, red hot front wall.				Blue mat, red hot front wall. Few flame wisps off of mat		Mat sagging at the end on the left side facing the burner		Blue mat, red hot front wall. Flame wisps off of mat		Same as previous load	
Other comments	5 boiler out of service during tuning of #6. #6 shares outlet duct with #5 boiler. No draft controls on #6 boiler, outlet damper is fixed open at 100%. FD air fan running on electric motor. Emissions sample line in the outlet duct upstream of the outlet damper. Plant O2 measures downstream of outlet damper.																

\*\* Calculated field

**Gas Setting Data.....DJ Engineering Services 415-290-4915**

Jobsite: Clearway Energy, SF  
 Model #: CSI NB110521

Fired Vessel: "A" type boiler  
 Unit capacity: 125mmbtu/hr

Comb. Engrng Cotract # 90073

Unit ID: #7...guidepipe in view 10"

Efficiency Execution Condensing Economizer

Date: 6..29..2023

**B7- GAS**

FD Fan on Electric Motor

Service rep: Dean Jansen

	0%	1	2.5	18%	3	28%	4	40%	5	55%	6	65%	7	75%	8	83%	9	10
Maxon Screw/Quad																		
Master output	0%	17% dwn	23%	34%	45% dwn	60% up	70%	80%	87%	100%								
Windbox press., "w.c.	0.2	1.4	1.9	3.1	4.4	5.5	6.3	7	7.3									
Furnace press., "w.c.*	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.6									
delta P, "w.c. **	0.1	1.3	1.7	2.9	4.1	5.1	5.8	6.4	6.7									
Outlet press., "wc	0.02	0	0.01	-0.01	0	0.01	0.05	0.08	0.08									
Outlet damper position	100%		100%		100%		100%		100%									
Fan drive RPM	1798	1795	1795	1794	1793	1793	1792	1790	1791									
FGR fan on/off	off	on	on		on		on		on		on		on		on			
Gas supply PRV outlet, psi	8.5	8.6	8.6	8.7	8.8	8.8	8.9	9	9									
Gas @ burner./psig	0.11	0.65	0.81	1.29	1.84	2.4	2.71	3.13	3.44									
Gas flow, kscfh	17.3	43.1	48.2	61.8	74.5	83.1	91.5	98.9	104									
Steam Pressure	124	127	128	131	134	136	138	141	143									
Steam Flow, kpph	14.7	42.4	45.4	58.3	72.1	79	88.1	96.1	100									
Urea loop Casc or manual	water	C/45.4%	C/45.1%	C/44.5%	C/44.1%	C/46.6%	C/44.2%	C/43.9%	C/43.2%									
Urea pump skid left	purge	0.271	0.325	0.408	0.425	0.428	0.425	0.478										
Urea pump skid right		0.294	0.319	0.402	0.414	0.415	0.42	0.467										
Urea flow GPH SCR display		0.695	0.776	0.965	0.999	0.921	1.007	1.122	1.212									
Urea Press. psi SCR display		8.87	8.81	8.52	8.44	8.71	8.52	8.31	8.14									
SCR DP "wc	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75									
O2 %, plant	7.77	3.65	3.86	3.06	2.89	2.73	2.68	2.67	2.5									
O <sub>2</sub> %, dry, E4500**	7.8	4.2	4.5	3.7	3.5	3.3	3.5	3.4	3.1									
NOx, ppm, raw, E4500**	6.2	2	1.8	1.9	2.2	1.2	1.1	1.6	2									
CO, ppm, raw, E4500**	2	2	1	1	1	5	5	9	26									
Excess air, % **	52.85	22.36	24.40	19.13	17.89	16.68	17.89	17.28	15.49									
NOx, ppm, @ 3% O <sub>2</sub> **	8.47	2.14	1.96	1.98	2.26	1.22	1.13	1.64	2.01									
CO, ppm, @ 3% O <sub>2</sub> **	2.73	2.14	1.09	1.04	1.03	5.09	5.14	9.21	26.15									
NOx, #MMBtu **	0.010	0.003	0.002	0.002	0.003	0.001	0.001	0.002	0.002									
CO, #MMBtu **	0.002	0.002	0.001	0.001	0.001	0.004	0.004	0.007	0.019									
Stack temp., deg F	362	414	422	446	467	482	495	507	515									
Windbox O2%	20.9	19.5	19.6	19.3	19.2	19.3	19.6	19.8										
O <sub>2</sub> %, dry, E4500***	8.5	4.4	4.9	4.2	3.9	3.7	3.6	3.6	3.4									
NOx, ppm, raw, E4500***	61	28	27	28	30	29	32	36	37									
CO, ppm, raw, E4500***	0	0	0	0	0	1	3	4	28									
Excess air, % ***	60.82	23.71	27.22	22.36	20.40	19.13	18.51	18.51	17.28									
NOx, ppm, @ 3% O <sub>2</sub> ***	88.06	30.38	30.21	30.01	31.59	30.18	33.11	37.25	37.85									
CO, ppm, @ 3% O <sub>2</sub> ***	0.00	0.00	0.00	0.00	0.00	1.04	3.10	4.14	28.64									
Flame description and comments	<p>FGR fan off. SCR injects water below 390degf inlet temp. Bright Yellow flame</p> <p>FGR fan on. Heavier yellow tails in the core. Going down in load</p> <p>Heavier yellow tails in the core</p> <p>Uniform, yellow flecks in a blue hollow, yellow tails penetrating the core.</p> <p>Uniform, yellow flecks in a blue hollow around throat</p> <p>Uniform, yellow flecks in a blue hollow around throat. Incandescent furnace.</p> <p>O2 repeating. Uniform, quiet, yellow flecks, blue hollow open center.</p> <p>Load vs Maxon gas valve screw not repeating</p>																	
Other comments	<p>Max load today is 87%. ** Downstream of SCR *** Upstream of SCR at boiler outlet transmitter.</p> <p>FD air fan on electric motor. Fan inlet clean, not blocked. Load limited 87% due to FW flow</p> <p>Urea temperature permissive is set at an inlet temp of at 390degf. Fixed outlet damper full open.</p> <p>FGR fan "ON" at 19%, "OFF" at 16% on master. Flue lined up to condensing economizer</p>																	

\*\* Calculated field

**DeltaNOx ULN- Gas Setting Data.....DJ Engineering Services 415-290-4915**

Jobsite: Clearway, S.F. CA  
 Burner #: Coen 20D-12798-1  
 Core CF gun 1117-129-01  
 Inner/axial Spuds: 1113-717-547149  
 Outer/radial 1113-805-.332

Register size: DeltaNOx  
 Fired Vessel: O type Boiler, Nebraska  
 Unit capacity: 120,000-PPH, derated, 99mmbtu/hr  
 Unit ID: #8  
 Date: 11..16..23 **B8 GAS**  
 Service rep: Dean Jansen NOx permit 9ppm/15ppm

Outer AC Screw/Quad	1	2	3	3.5	4	4.5	5	5.5	6	6.5	7	8
Controller output MC1		9%	15%	19%	23%	28%	34%	39%	44%	50%	56%	62%
Augmenting air, "w.c.		1.7	2.4	2.3	2.9	3.1	3.4	3.7	5.1	6.9		
Windbox press., "w.c.		0.25	0.6	0.8	1.4	1.9	2.4	3	4.7	6.1	mano	
Outlet Press., "wc		-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27		
Outlet damper position		25.6%			38.2%	43.2%	42.1%	45.1%	49.3%	56.5%		
Steam flow, kpph***		0	11.6	18.6	23.1	26.3	31.9	35.5	42.8	53.3		
Steam drum press psi		123	124	124	124	125	125	126	126	129		
Gas supply train, psi		22.3	22.2	22.1	22.1	22.1	22.1	22.1	22	22		
Core press., "wc/psi		5.3"wc	5.7"wc	6.8"wc	6.3"wc	7.7"wc	8.8"wc	8.1"wc	9.5"wc	23"wc		
Inner press., "wc/psi		12"wc	15"wc	33"wc	45"wc	56"wc	2.99	3.79	5.64	7.72		
Outer press., "wc/psi		14"wc	28"wc	36"wc	44"wc	64"wc	2.35	2.87	3.68	5.57		
Gas flow, kscfh		19.9	24.1	30.3	34.6	39.5	42.7	47.6	57	68.8		
Stack temp., deg F												
Plant O2		5.7	5.1	3.3	3.2	3.1	2.9	3	3	3.1		
O2 setpoint		4.6	3.6	3.3	3.1	3	3	3	3	3		
O2 output %		50	50	35.6	49.6	61.9	59.9	71	31.7	30.4		
O <sub>2</sub> %, dry, E4500		6.3	5.7	3.7	3.5	3.3	3	3.2	2.9	3.2		
NOx, ppm, raw, E4500		17	13.1	13.1	12.7	12.6	13.2	12.4	11	10.2		
CO, ppm, raw, E4500		12	11	20	13	30	28	13	22	13		
Excess air, % **		38.33	33.32	19.13	17.89	16.68	14.91	16.08	14.33	16.08		
NOx, ppm, @ 3% O <sub>2</sub> **		<b>20.84</b>	<b>15.43</b>	<b>13.63</b>	<b>13.06</b>	<b>12.81</b>	<b>13.20</b>	<b>12.54</b>	<b>10.94</b>	<b>10.32</b>		
CO, ppm, @ 3% O <sub>2</sub> **		14.71	12.95	20.81	13.37	30.51	28.00	13.15	21.88	13.15		
NOx, #MMBtu **		0.025	0.018	0.016	0.016	0.015	0.016	0.015	0.013	0.012		
CO, #MMBtu **		0.011	0.009	0.015	0.010	0.022	0.020	0.010	0.016	0.010		
Core position		3.7	3.7	10	12.2	13.7	14.6	14.6	24.8	32.1		
J.S. fuel position		13.4	21.7	27.3	31.6	36.5	42.3	47.3	53.4	61		
Inlet vane position		27.9	35	37.1	39.8	42.8	44	44	44.7	54.4		
Inlet box position		27.5	33	38.7	44.3	51.8	55.4	58.3	66.2	75.5		
FGR damper position		62.7	67.7	67.1	67.8	69.4	70.3	70.1	75.3	80.3		
Windbox O2%		16.4	16.5	15.8	15.8	15.8	15.8	15.9	15.7	15.8		
Flame description and comments		O2 trim disabled below 15% load. Slight high frequency vibration. More vibration at 5% load. Bright center star. Stable and quiet	Bright yellow star at the burner core. Blue inners. Quiet	Filled in yellow center. 8 blue nodes and 8 hot streaks on throat. Smooth Rear of boiler quiet	Smooth 8 streaks on throat. Orange center. All inners lit Back of boiler platform just starting to rattle	4 small hot streaks on throat. 7 inners lit	O2 lower going down in load. Some back of boiler platform rattle	Max load attainable today is 50%				
Other comments	Found draft s.p. @ -0.5"wc, set draft today at -0.27"wc to ensure FGR flow. O2 trim in Auto. At 0% to 5% load high frequency rumble. Core air fan inlet cleaned core/aug air impacts CO. Between loads 40 and 45% A/F ratio does not repeat, O2 lower going down in load. Plant limits boiler output at 62% on the master. Max attainable load today is 50%. Tuning includes adjusting inlet vane curve/table											

\*\* Calculated field

BACHARACH, INC.  
PCA 3  
SN: SR1023

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 11:17:25 AM  
Date: 08/04/23

1:17:48 AM  
8/04/23

Fuel  
NGAS

O <sub>2</sub>	9.4 %
CO	32 ppm
Eff	99.0 %
CO <sub>2</sub>	6.5 %
T-Stk	84 °F
T-Air	79.8 °F
EA	72.5 %
CO (3)	49 ppm
NO	1 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	2 ppm
SO <sub>x</sub> (3)	*** ppm

7.7 %  
23 ppm  
99.2 %  
7.5 %  
84 °F  
80.0 °F  
51.5 %  
32 ppm  
1 ppm  
0 ppm  
1 ppm  
\*\*\* ppm  
1 ppm  
0 ppm  
2 ppm  
\*\*\* ppm

Draft Reading  
-0.45 inwc

Comments:

B7 45% 68.7 KPPH

PH

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 11:17:25 AM  
Date: 08/04/23

Fuel  
NGAS

O <sub>2</sub>	9.4 %
CO	32 ppm
Eff	99.0 %
CO <sub>2</sub>	6.5 %
T-Stk	84 °F
T-Air	79.8 °F
EA	72.5 %
CO (3)	49 ppm
NO	1 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	2 ppm
SO <sub>x</sub> (3)	*** ppm

Draft Reading  
-0.45 inwc

Comments:

B7 45% 68.7 KPPH

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 11:17:46 AM  
Date: 08/04/23

Fuel  
NGAS

O <sub>2</sub>	7.7 %
CO	23 ppm
Eff	99.2 %
CO <sub>2</sub>	7.5 %
T-Stk	84 °F
T-Air	80.0 °F
EA	51.5 %
CO (3)	32 ppm
NO	1 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	2 ppm
SO <sub>x</sub> (3)	*** ppm

Draft Reading  
-0.42 inwc

Comments:

B3 23% 19 KPPH

B4 off

BACHARACH, INC.  
PCA 3  
SN: SR1023

BACHARACH, INC.  
PCA 3  
SR1023

Time: 08:58:56 AM  
Date: 08/18/23

23 AM  
23

	Fuel	NGAS
O <sub>2</sub>	8.8 %	4.6 %
CO	24 ppm	1 ppm
Eff	99.8 %	100.0 %
CO <sub>2</sub>	6.8 %	9.2 %
T-Stk	76 °F	72 °F
T-Air	73.0 °F	75.8 °F
EA	65.3 %	24.9 %
CO (3)	36 ppm	1 ppm
NO	0 ppm	0 ppm
NO <sub>2</sub>	1 ppm	0 ppm
NO <sub>x</sub>	1 ppm	1 ppm
SO <sub>2</sub>	*** ppm	*** ppm
NO (3)	0 ppm	0 ppm
NO <sub>2</sub> (3)	1 ppm	1 ppm
NO <sub>x</sub> (3)	1 ppm	*** ppm
SO <sub>2</sub> (3)	*** ppm	*** ppm

Fuel  
NGAS

Draft Reading  
-0.40 inwc

Draft Reading  
-0.65 inwc

Comments:

*B3 off*  
*B4 35.8% 28.6 ppm*

*27.76.6 ppm*

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 08:58:56 AM  
Date: 08/18/23

Fuel  
NGAS

O <sub>2</sub>	8.8 %
CO	24 ppm
Eff	99.8 %
CO <sub>2</sub>	6.8 %
T-Stk	76 °F
T-Air	73.0 °F
EA	65.3 %
CO (3)	36 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	0 ppm
NO <sub>2</sub> (3)	1 ppm

BACHARACH, INC.  
PCA 3  
SN: SR1023

BACHARACH  
ARACH, INC.  
PCA 3  
SR1023

Time: 08:56:57 AM  
Date: 08/30/23

05:29 AM  
10/23

	Fuel NGAS
O <sub>2</sub>	7.0 %
CO	23 ppm
EFF	88.6 %
CO <sub>2</sub>	7.9 %
T-Stk	76 °F
T-Air	71.8 °F
EA	44.7 %
CO(3)	30 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO(3)	0 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

Fuel NGAS
5.4 %
1 ppm
100.0 %
8.8 %
73 °F
26.9 °F
1 ppm
0 ppm
0 ppm
1 ppm
*** ppm
0 ppm
0 ppm
1 ppm
*** ppm

Draft Reading  
-0.68 inwc

Draft Reading  
-0.44 inwc

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 08:56:57 AM  
Date: 08/30/23

Fuel  
NGAS

Comments:

*B3 off*  
*B4 35.3% 27.3 kppm*

*27.76.8 kppm*

O <sub>2</sub>	7.0 %
CO	23 ppm
EFF	88.6 %
CO <sub>2</sub>	7.9 %
T-Stk	76 °F
T-Air	71.8 °F
EA	44.7 %
CO(3)	30 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO(3)	0 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

Draft Reading  
-0.68 inwc

BACHARACH, INC.  
PCA 3  
SN: SR1023

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 08:54:18 AM  
Date: 09/14/23

AM

Fuel  
NGAS

Fuel  
NGAS

O <sub>2</sub>	8.7 %	5.6 %
CO	20 ppm	0 ppm
Eff	99.9 %	100.0 %
CO <sub>2</sub>	6.9 %	8.6 %
T-Stk	75 °F	73 °F
T-Air	70.0 °F	76.2 °F
EA	63.5 %	32.6 %
CO (3)	29 ppm	0 ppm
NO	0 ppm	0 ppm
NO <sub>2</sub>	0 ppm	0 ppm
NO <sub>x</sub>	1 ppm	0 ppm
SO <sub>2</sub>	*** ppm	*** ppm
NO (3)	1 ppm	0 ppm
NO <sub>2</sub> (3)	0 ppm	0 ppm
NO <sub>x</sub> (3)	1 ppm	0 ppm
SO <sub>2</sub> (3)	*** ppm	*** ppm

Draft Reading  
-0.68 inwc

Draft Reading  
inwc

Comments

B3 OFF  
B4 33% 25.7 kpph

17 kpph

BACHARACH, INC.  
PCA 3  
SN: SR1023

Time: 08:54:18 AM  
Date: 09/14/23

Fuel  
NGAS

O <sub>2</sub>	8.7 %
CO	20 ppm
Eff	99.9 %
CO <sub>2</sub>	6.9 %
T-Stk	75 °F
T-Air	70.0 °F
EA	63.5 %
CO (3)	29 ppm
NO	0 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

Draft Reading

**BACHARACH**  
BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 02:19:44 PM  
Date: 09/28/23

Fuel  
NGAS

O <sub>2</sub>	7.5 %
CO	33 ppm
Eff	99.3 %
CO <sub>2</sub>	7.6 %
T-Stk	84 °F
T-Air	76.4 °F
EA	49.8 %
CO (15)	14 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (15)	0 ppm
NO <sub>2</sub> (15)	0 ppm
NO <sub>x</sub> (15)	0 ppm
SO <sub>2</sub> (15)	*** ppm

Comments:

*Cogan 1*

*Cogan 2 off.  
Not in service*

**BACHARACH**

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 02:19:44 PM  
Date: 09/28/23

Fuel  
NGAS

O <sub>2</sub>	7.5 %
CO	33 ppm
Eff	99.3 %
CO <sub>2</sub>	7.6 %
T-Stk	84 °F
T-Air	76.4 °F
EA	49.8 %
CO (15)	14 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	1 ppm
NO (15)	*** ppm
NO <sub>2</sub> (15)	0 ppm
NO <sub>x</sub> (15)	0 ppm
SO <sub>2</sub> (15)	0 ppm
	*** ppm

Comments:

*Cogan 1*

BRACH  
BRACH, INC.  
PCA 3  
SN: SR1023

CH. 180  
A 3  
R1023

Time: 12:14:32 PM  
Date: 10/05/23

J PM  
1

Fuel  
NGAS

re:  
IAS

O <sub>2</sub>	9.2 %	6.9 %
CO	21 ppm	1 ppm
EFF	89.6 %	100.0 %
CO <sub>2</sub>	6.6 %	7.9 %
T-Stk	80 °F	69 °F
T-Air	73.3 °F	75.0 °F
EA	70.5 %	43.4 %
CO(3)	32 ppm	1 ppm
NO	0 ppm	1 ppm
NO <sub>2</sub>	1 ppm	0 ppm
NO <sub>x</sub>	1 ppm	1 ppm
SO <sub>2</sub>	1 ppm	1 ppm
NO(3)	0 ppm	1 ppm
NO <sub>2</sub> (3)	1 ppm	1 ppm
NO <sub>x</sub> (3)	1 ppm	1 ppm
SO <sub>2</sub> (3)	1 ppm	1 ppm

Draft Reading  
-0.64 inwc

Site:  
Date:

Comments:

B3 off

9.5 KPPH

B4 30% 23.4 KPPH

BRACH

CH. 180  
A 3  
SN: SR1023

Time: 12:14:32 PM  
Date: 10/05/23

Fuel  
NGAS

O <sub>2</sub>	9.2 %
CO	21 ppm
EFF	89.6 %
CO <sub>2</sub>	6.6 %
T-Stk	80 °F
T-Air	73.3 °F
EA	70.5 %
CO(3)	32 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	1 ppm
NO(3)	0 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	1 ppm

Draft Reading  
-0.64 inwc

Comments:

B2 off

t. 230-2  
11:05:10

v2 20  
10/21/23 10 57 23

2nd

3.0 %  
11.7 %

77.5 °F  
7.3 %  
2 ppm  
3 ppm  
1 ppm  
1 ppm  
5.0 %  
100.0 %  
47.7 %  
7.52 %  
- ppm  
78.4 °F

B3 10.2% 14.7 KPPM  
B4 OFF

v2 20

2nd

3.0 %  
11.7 %

77.5 °F  
7.3 %  
2 ppm  
3 ppm  
1 ppm  
1 ppm  
5.0 %  
100.0 %  
47.7 %  
7.52 %  
- ppm  
78.4 °F

B3 10.2% 14.7



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:46:54 PM  
Date: 10/27/23

Fuel  
NGAS

O <sub>2</sub>	5.4 %	
CO	18 ppm	
Eff	99.5 %	4.5 %
CO <sub>2</sub>	8.8 %	1 ppm
T-Stk	82 °F	100.0 %
T-Air	76.6 °F	9.3 %
EA	30.9 %	72 °F
CO (3)	21 ppm	79.0 °F
NO	1 ppm	24.4 %
NO <sub>2</sub>	1 ppm	1 ppm
NO <sub>x</sub>	2 ppm	1 ppm
SO <sub>2</sub>	*** ppm	1 ppm
NO (3)	2 ppm	1 ppm
NO <sub>2</sub> (3)	1 ppm	*** ppm
NO <sub>x</sub> (3)	3 ppm	1 ppm
SO <sub>2</sub> (3)	*** ppm	1 ppm
		*** ppm

Comments:

B7 25% 20KPH  
B4 off



1, INC.

3  
008

PM

1  
S



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:48:54 PM  
Date: 10/27/23

Fuel  
NGAS

O <sub>2</sub>	5.4 %	
CO	18 ppm	
Eff	99.5 %	
CO <sub>2</sub>	8.8 %	
T-Stk	82 °F	
T-Air	76.6 °F	
EA	30.9 %	
CO (3)	21 ppm	
NO	1 ppm	
NO <sub>2</sub>	2 ppm	
NO <sub>x</sub>	*** ppm	
SO <sub>2</sub>	2 ppm	
NO (3)	1 ppm	
NO <sub>2</sub> (3)	3 ppm	
NO <sub>x</sub> (3)	*** ppm	
SO <sub>2</sub> (3)		

Comments:

B7 25% 20KPH  
B4 off



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:51:51 PM  
Date: 10/27/23

Fuel  
NGAS

O <sub>2</sub>	4.5 %	
CO	1 ppm	
Eff	100.0 %	
CO <sub>2</sub>	9.3 %	
T-Stk	72 °F	
T-Air	79.0 °F	
EA	24.4 %	
CO (3)	1 ppm	
NO	1 ppm	
NO <sub>2</sub>	1 ppm	
NO <sub>x</sub>	1 ppm	
SO <sub>2</sub>	*** ppm	
NO (3)	1 ppm	
NO <sub>2</sub> (3)	1 ppm	
NO <sub>x</sub> (3)	1 ppm	
SO <sub>2</sub> (3)	*** ppm	

Comments:

B7 63% 78 KPH



BACHARACH, INC.  
PCA 3  
SN: UU1008



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:53:54 PM  
Date: 11/09/23

Fuel  
NGAS

Time: 01:45:12 PM  
Date: 11/09/23

	Fuel	3.5 %
	NGAS	2 ppm
		100.0 %
		9.8 %
		72 °F
		79.4 °F
		17.7 %
O <sub>2</sub>	5.5 %	2 ppm
CO	42 ppm	1 ppm
Eff	99.5 %	0 ppm
CO <sub>2</sub>	8.7 %	1 ppm
T-Stk	82 °F	1 ppm
T-Air	75.4 °F	1 ppm
EA	32.2 %	1 ppm
CO (3)	49 ppm	0 ppm
NO	1 ppm	1 ppm
NO <sub>2</sub>	1 ppm	1 ppm
NO <sub>x</sub>	2 ppm	1 ppm
SO <sub>2</sub>	*** ppm	*** ppm
NO (3)	1 ppm	
NO <sub>2</sub> (3)	1 ppm	
NO <sub>x</sub> (3)	2 ppm	
SO <sub>2</sub> (3)	*** ppm	

7.78 KPPH

Comments:

P3 25% 20 KPPH  
P4 OFF



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:45:12 PM  
Date: 11/09/23

Fuel  
NGAS

O <sub>2</sub>	5.5 %
CO	42 ppm
Eff	99.5 %
CO <sub>2</sub>	8.7 %
T-Stk	82 °F
T-Air	75.4 °F
EA	32.2 %
CO (3)	49 ppm
NO	1 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	2 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	2 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

P3 25% 20 KPPH  
P4 OFF



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 01:53:54 PM  
Date: 11/09/23

Fuel  
NGAS

O <sub>2</sub>	3.5 %
CO	2 ppm
Eff	100.0 %
CO <sub>2</sub>	9.8 %
T-Stk	72 °F
T-Air	79.4 °F
EA	17.7 %
CO (3)	2 ppm
NO	1 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

P7 63% 18 KPPH

BACHARACH

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 07:32:05 AM  
Date: 11/22/23

Fuel  
NGAS

O <sub>2</sub>	5.0 %
CO	34 ppm
Eff	98.9 %
CO <sub>2</sub>	9.0 %
T-Stk	72 °F
T-Air	86.5 °F
EA	27.9 %
CO (3)	38 ppm
NO	3 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	3 ppm
SO <sub>2</sub>	*** ppm
NO (3)	3 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	4 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

B3 38% 20.8 KPPH

B4 39.1% 32.9 KPPH

BACHARACH

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 07:40:00 AM  
Date: 11/22/23

Fuel  
NGAS

O <sub>2</sub>	3.7 %
CO	1 ppm
Eff	100.0 %
CO <sub>2</sub>	9.7 %
T-Stk	82 °F
T-Air	70.7 °F
EA	19.1 %
CO (3)	1 ppm
NO	1 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 07:32:05 AM  
Date: 11/22/23

Fuel  
NGAS

O <sub>2</sub>	5.0 %
CO	34 ppm
Eff	98.9 %
CO <sub>2</sub>	9.0 %
T-Stk	72 °F
T-Air	86.5 °F
EA	27.9 %
CO (3)	38 ppm
NO	3 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	3 ppm
SO <sub>2</sub>	*** ppm
NO (3)	3 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	4 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

B3 38% 20.8 KPPH

B4 39.1% 32.9 KPPH

BACHARACH

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 07:40:00 AM  
Date: 11/22/23

Fuel  
NGAS

O <sub>2</sub>	3.7 %
CO	1 ppm
Eff	100.0 %
CO <sub>2</sub>	9.7 %
T-Stk	82 °F
T-Air	70.7 °F
EA	19.1 %
CO (3)	1 ppm
NO	1 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (3)	1 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	1 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

B7 60% 76.3 KPPH



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 02:23:32 PM  
Date: 11/20/23

Fuel  
NGAS

O <sub>2</sub>	13.9 %
CO	21 ppm
Eff	98.0 %
CO <sub>2</sub>	4.0 %
T-Stk	84 °F
T-Air	79.3 °F
EA	174.9 %
CO (15)	17 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (15)	0 ppm
NO <sub>2</sub> (15)	0 ppm
NO <sub>x</sub> (15)	0 ppm
SO <sub>2</sub> (15)	*** ppm

Comments:

Cogen 1

Cogen 2 off.  
Not in service.



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 02:23:32 PM  
Date: 11/20/23

Fuel  
NGAS

O <sub>2</sub>	13.9 %
CO	21 ppm
Eff	98.0 %
CO <sub>2</sub>	4.0 %
T-Stk	84 °F
T-Air	79.3 °F
EA	174.9 %
CO (15)	17 ppm
NO	0 ppm
NO <sub>2</sub>	1 ppm
NO <sub>x</sub>	1 ppm
SO <sub>2</sub>	*** ppm
NO (15)	0 ppm
NO <sub>2</sub> (15)	0 ppm
NO <sub>x</sub> (15)	0 ppm
SO <sub>2</sub> (15)	*** ppm

Comments:

Cogen 1

**BACHARACH**

BACHARACH, INC.  
PCA 3  
SN: UU1008

**BACHARACH**

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 10:33:29 AM  
Date: 12/20/23

10:42:39 AM  
12/20/23

Fuel  
NGAS

Fuel  
NGAS

		3.2 %	
		10 ppm	
O <sub>2</sub>	10.1 %	100.0 %	
CO	13 ppm	10.0 %	
Eff	99.9 %	64 °F	
CO <sub>2</sub>	6.1 %	71.3 °F	
T-Stk	72 °F	16.4 %	
T-Air	88.7 °F	10 ppm	
EA	82.6 %	0 ppm	
CO(3)	22 ppm	0 ppm	
NO	1 ppm	0 ppm	
NO <sub>2</sub>	0 ppm	0 ppm	
NO <sub>x</sub>	2 ppm	*** ppm	
SO <sub>2</sub>	*** ppm	0 ppm	
NO(3)	2 ppm	0 ppm	
NO <sub>2</sub> (3)	1 ppm	0 ppm	
NO <sub>x</sub> (3)	3 ppm	*** ppm	
SO <sub>2</sub> (3)	*** ppm	*** ppm	

Comments:

B3 off  
B4 23% 21KPPH

6 78KPPH

**BACHARACH**

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 10:33:29 AM  
Date: 12/20/23

Fuel  
NGAS

O <sub>2</sub>	10.1 %
CO	13 ppm
Eff	99.9 %
CO <sub>2</sub>	6.1 %
T-Stk	72 °F
T-Air	88.7 °F
EA	82.6 %
CO(3)	22 ppm
NO	1 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	2 ppm
SO <sub>2</sub>	*** ppm
NO(3)	2 ppm
NO <sub>2</sub> (3)	1 ppm
NO <sub>x</sub> (3)	3 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

B3 off  
B4 23% 21KPPH

**BACHARACH**

BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 10:42:39 AM  
Date: 12/20/23

Fuel  
NGAS

O <sub>2</sub>	3.2 %
CO	10 ppm
Eff	100.0 %
CO <sub>2</sub>	10.0 %
T-Stk	64 °F
T-Air	71.3 °F
EA	16.4 %
CO(3)	10 ppm
NO	0 ppm
NO <sub>2</sub>	0 ppm
NO <sub>x</sub>	0 ppm
SO <sub>2</sub>	*** ppm
NO(3)	0 ppm
NO <sub>2</sub> (3)	0 ppm
NO <sub>x</sub> (3)	0 ppm
SO <sub>2</sub> (3)	*** ppm

Comments:

B7 54% 78KPPH





BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 09:41:37 AM  
Date: 12/08/23

Fuel  
NGAS

O<sub>2</sub> 12.5 %  
CO 45 ppm  
Eff 99.8 %  
CO<sub>2</sub> 4.7 %  
T-Stk 78 °F  
T-Air 72.7 °F  
EA 132.9 %  
CO (3) 97 ppm  
NO 0 ppm  
NO<sub>2</sub> 1 ppm  
NO<sub>x</sub> 1 ppm  
SO<sub>2</sub> \*\*\* ppm  
NO (3) 1 ppm  
NO<sub>2</sub> (3) 1 ppm  
NO<sub>x</sub> (3) 2 ppm  
SO<sub>2</sub> (3) \*\*\* ppm



BACHARACH, INC.  
PCA 3  
SN: UU1008

09:47:13 AM  
12/08/23

Fuel  
NGAS

4.3 %  
4 ppm  
100.0 %  
9.4 %  
62 °F  
75.5 °F  
23.2 %  
4 ppm  
2 ppm  
0 ppm  
2 ppm  
\*\*\* ppm  
2 ppm  
0 ppm  
2 ppm  
\*\*\* ppm

nts:

Comments:

B3 20% 10.0 KPAH  
B4 27.9% 21.8 KPAH

02% 85.3 KPAH

O<sub>2</sub> 12.5 %  
CO 45 ppm  
Eff 99.8 %  
CO<sub>2</sub> 4.7 %  
T-Stk 78 °F  
T-Air 72.7 °F  
EA 132.9 %  
CO (3) 97 ppm  
NO 0 ppm  
NO<sub>2</sub> 1 ppm  
NO<sub>x</sub> 1 ppm  
SO<sub>2</sub> \*\*\* ppm  
NO (3) 1 ppm  
NO<sub>2</sub> (3) 1 ppm  
NO<sub>x</sub> (3) 2 ppm  
SO<sub>2</sub> (3) \*\*\* ppm

Comments:

B3 20% 10.0 KPAH  
B4 27.9% 21.8 KPAH



BACHARACH, INC.  
PCA 3  
SN: UU1008

Time: 09:47:13 AM  
Date: 12/08/23

Fuel  
NGAS

O<sub>2</sub> 4.3 %  
CO 4 ppm  
Eff 100.0 %  
CO<sub>2</sub> 9.4 %  
T-Stk 62 °F  
T-Air 75.5 °F  
EA 23.2 %  
CO (3) 4 ppm  
NO 2 ppm  
NO<sub>2</sub> 0 ppm  
NO<sub>x</sub> 2 ppm  
SO<sub>2</sub> \*\*\* ppm  
NO (3) 2 ppm  
NO<sub>2</sub> (3) 0 ppm  
NO<sub>x</sub> (3) 2 ppm  
SO<sub>2</sub> (3) \*\*\* ppm

Comments:

B7 02% 85.3 KPAH