

ภาคผนวก ค-1

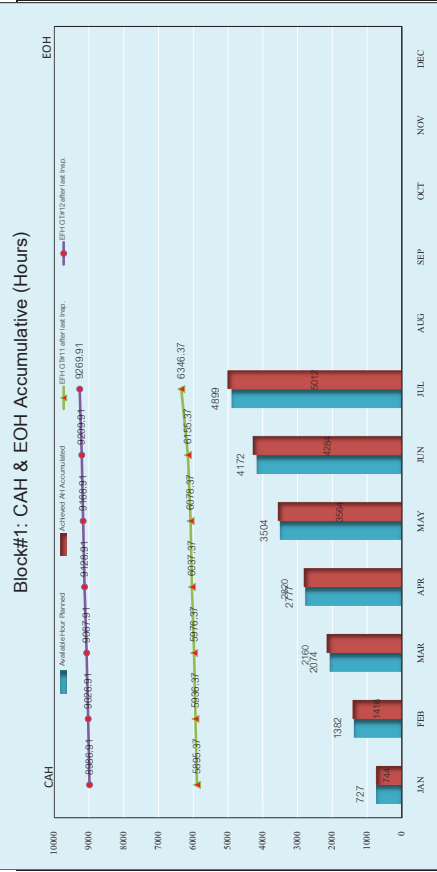
ปริมาณการผลิตกระแสไฟฟ้า ปริมาณการใช้เชื้อเพลิง
และปริมาณการระบายน้ำทิ้งลงสู่บ่อกักน้ำทิ้ง
(Wastewater Holding basin)

RATCHABURI POWER MONTHLY PERFORMANCE REPORT

Block#1: Contract Available Hour Monthly (Hours)

Legend: Operating Hour (Blue), Contract Available Hour Planned (Green), CAH Achieved AH (Red)

Month	Operating Hour	Contract Available Hour Planned	CAH Achieved AH
JAN	744	744	744
FEB	672	672	672
MAR	744	744	744
APR	744	744	744
MAY	744	744	744
JUN	744	744	744
JUL	744	744	744
AUG	744	744	744
SEP	744	744	744
OCT	744	744	744
NOV	744	744	744
DEC	744	744	744



แก้ไขครั้งที่ 01

บริษัท เจริญ

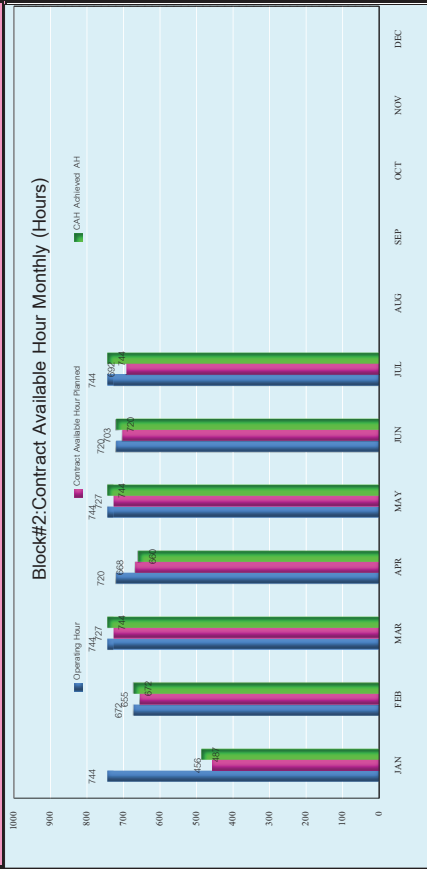
Remark:

Plant & Balance of Plant Condition Summary

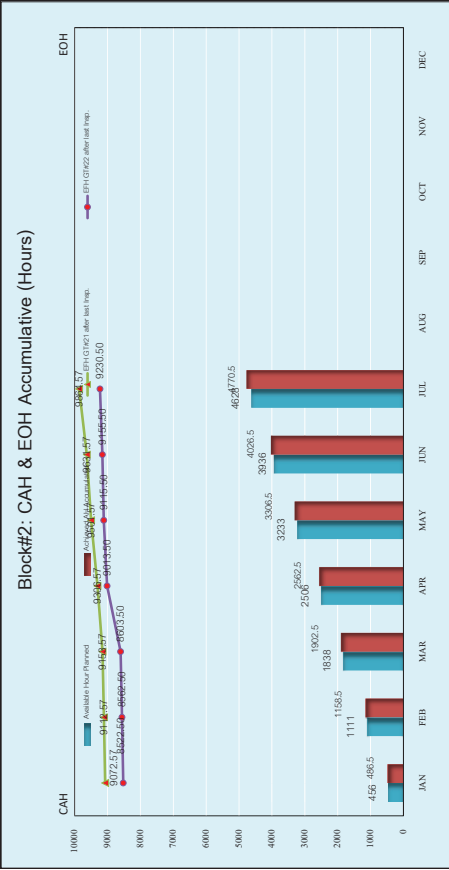
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	3.06	3.86	14
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	0.70	4.10	14
3	Condenser Inlet Temp.	C	29.38	33.35	
4	Condenser Outlet Temp.	C	33.44	41.98	Diff. <9 -10 C
5	Sum of current CT fan	A	1,267.72	2,867.49	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.09	0.26	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.13	0.65	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	0.09	0.10	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	0.09	0.10	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	0.09	0.10	0.18
12	Close Cooling water Inlet Temp.	C	31.44	39.55	42
13	Close Cooling water Outlet Temp.	C	30.39	36.57	38
14	Service Water Conductivity	uS/cm	269.05	271.40	300
15	Circulating water Conductivity	uS/cm	1,324.00	1,324.00	<1600
16	Boiler Make up WTR Conductivity	uS/cm	0.84	0.87	-
17	Cond. water CEP Conductivity	uS/cm	16.43	17.70	-
18	Treated waste WTR Conductivity	uS/cm	1,363.00	1,389.00	2,000
19	Service Water pH	pH	7.61	7.61	-
20	Circulating water pH	pH	8.26	8.39	8.0-8.5
21	Cond. water CEP pH	pH	9.88	9.89	9.3-10.2
22	Treated waste WTR pH	pH	7.30	7.47	6.5-8.5
23	Turbidity of CW Basin	NTU	5.06	5.73	20
HRSG #11 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NOx	ppm	61.72	79.94	96 (152)
25	SOx	ppm	3.34	4.78	18 (18.8)
26	CO	ppm	5.89	8.21	690 (690)
27	Opacity	%	2.00	4.94	20 (20)
HRSG #12 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NOx	ppm	52.03	66.40	96 (152)
29	SOx	ppm	1.79	2.40	18 (18.8)
30	CO	ppm	3.95	6.77	690 (690)
0	Opacity	%	1.72	2.84	20 (20)

สำเนาเรียน : ชรค., อด-บพ., ช.อด-บพ., นวบ-บพ., มปป.บพ., มาพ.บพ., มพ.บ.บพ.,

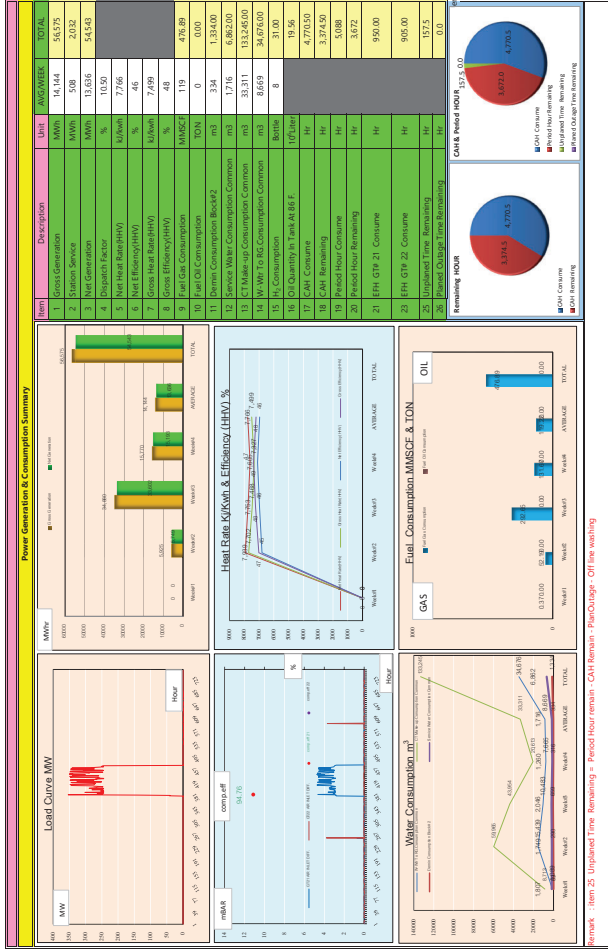
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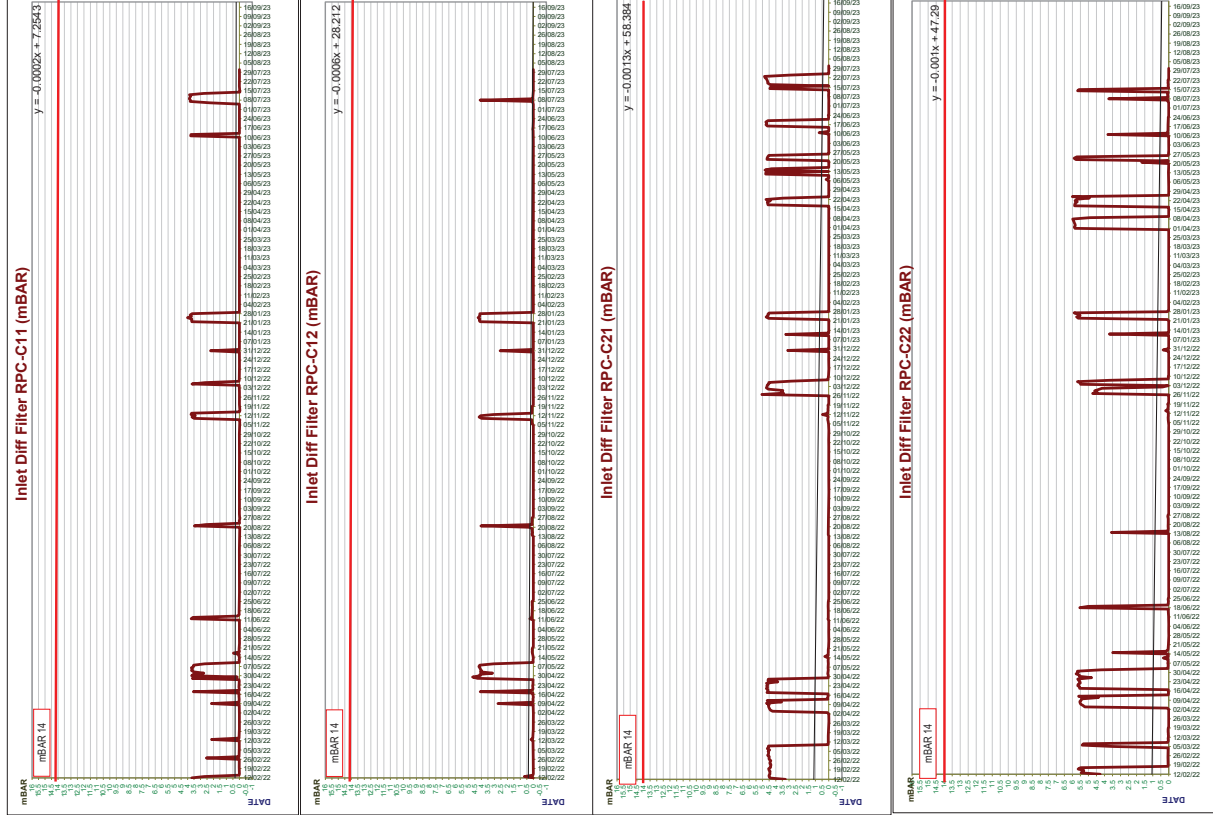


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
HOURS													
Operating Hour	744	672	744	720	744	720	744						5088
Contract Available Hour Planned	456	655	727	668	727	703	692						4628
CAH Activated AH	486.5	672	744	660	744	720	744						4770.5
EPH GT421	158	40	41	153	195	330	233						960
EPH GT422	197	40	41	410	102	40	75						905



		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Accumulative Hour													
Operating Hour		744	1416	2160	2880	3624	4344	5088					
Available Hour Planned		456	1111	1038	2506	3233	3936	4628					
CAH Achieved AH		486.5	1188.5	1902.5	2562.5	3306.5	4270.5	4770.5					
EPH GT421		9069.616	90709.16	90750.16	90903.16	91098.16	91228.16	91461.16					
EPH GT421 after last Insp.		90725.7	91125.7	91535.7	93065.7	95015.7	96845.7						
EPH GT422		89548.71	89588.71	89629.71	90039.71	90147.71	90181.71	90266.71					
EPH GT422 after last Insp.		85223.50	85662.50	86033.50	90135.50	91153.50	91555.50	92035.50					





Remark:	Replace Air inlet filter GTH1 (20 Nov 2019) , Brand : Freudenberg (Class E11) , Pre-Filter Brand : Freudenberg (Class F7)
	Replace Air inlet filter GTH2 (18 Apr 2018) , Brand : Donaldson ; Class E120 ; Pre-Filter Brand : Freudenberg (Class F7) on 1 Jan 2021
	Replace Air inlet filter GTH2 (20 Feb 2020) , Brand : Freudenberg (Class E11) , Pre-Filter Brand : Freudenberg (Class F7)
	Replace Air inlet filter GTH2 (17 Apr 2021) , Brand : Nordic ; (HEPA) ; Class E11 ; Pre-Filter Brand : Freudenberg (Class F7) on 28 Jul 2021

Plant & Balance of Plant Condition Summary				
Item	Description	Unit	AVERAGE	MAX
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	3.39	4.80
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	0.25	5.68
3	Condenser Inlet Temp.	C	28.47	33.19
4	Condenser Outlet Temp.	C	31.31	41.54
5	Sum of current CT fan	A	883.57	2,867.49
6	CT make up pump A Diff. Pressure (common)	BAR	0.07	0.49
7	CT make up pump B Diff. Pressure (common)	BAR	0.07	0.65
8	CT make up Cleaning Strainer	Time		0.00
9	Auxiliary CWP A Diff. Pressure	BAR	0.06	0.07
10	Auxiliary CWP B Diff. Pressure	BAR	0.06	0.07
11	Auxiliary CWP C Diff. Pressure	BAR	0.06	0.07
12	Close Cooling water Inlet Temp.	C	32.51	40.94
13	Close Cooling water Outlet Temp.	C	29.98	36.32
14	Service Water Conductivity	uS/cm	265.43	266.70
15	Circulating water Conductivity	uS/cm	1,302.50	1,324.00
16	Boiler Make up WTR Conductivity	uS/cm	0.90	0.92
17	Cond.water CEP Conductivity	uS/cm	15.66	15.69
18	Treated waste WTR Conductivity	uS/cm	1,345.50	1,389.00
19	Service Water pH	pH	7.63	7.61
20	Circulating water pH	pH	8.30	8.41
21	Cond.water CEP pH	pH	9.81	9.83
22	Treated waste WTR pH	pH	7.29	7.47
23	Turbidity of CW Basin	NTU	5.30	6.94
HRSG #21 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX
24	NO _x	ppm	67.23	89.40
25	SO _x	ppm	1.05	2.19
26	CO	ppm	2.26	6.95
27	Opacity	%	2.13	3.19
HRSG #22 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX
28	NO _x	ppm	64.33	79.90
29	SO _x	ppm	0.55	2.17
30	CO	ppm	7.02	8.96
0	Opacity	%	1.12	3.24

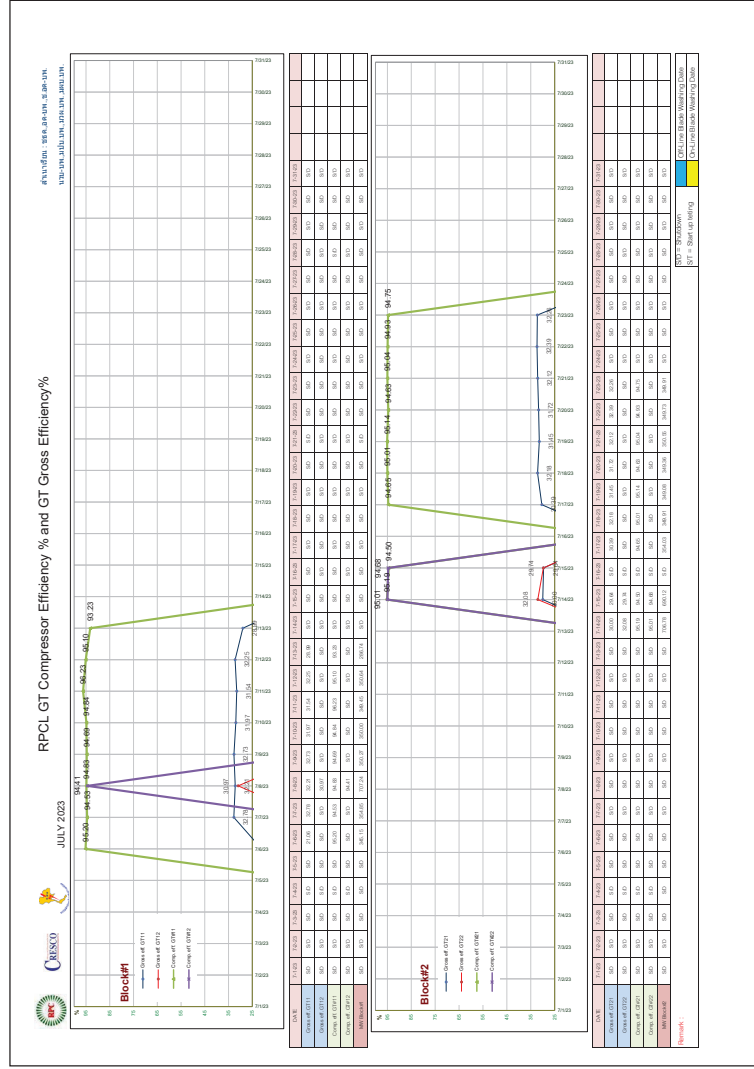
Remark :

Remark:

ITEM	DESCRIPTION	CODE	UNIT	Performance									
				RP-C11	RP-C12	RP-C10	RP-CC1	RP-C21	RP-C22	RP-C20	RP-CC2	Total Plant	
1	Gross Efficiency	-	%	31.92	31.20	-	48.52	-	30.32	-	44.48	48.32	
2	Net Efficiency (DCS)	-	%	30.05	30.91	-	46.46	-	30.05	-	42.83	46.28	
3	Net Efficiency (Reve Meter & PTT)	-	%	30.55	31.42	-	47.23	-	30.27	-	43.15	47.03	
4	Gross Heat Rate	-	kJ/MWh	11,277.20	11,538.32	-	7,749.36	-	11,872.98	-	8,092.76	7,450.58	
5	Net Heat Rate (DCS)	-	kJ/MWh	11,979.85	11,648.60	-	7,418.90	-	11,981.15	-	8,405.69	7,778.37	
6	Net Heat Rate (Reve Meter & PTT)	-	kJ/MWh	11,784.96	11,459.10	-	7,622.25	-	11,891.59	-	8,342.95	7,654.91	
7	Gross Maximum Capacity	GMC	MW	245.80	245.80	275.20	766.80	245.80	245.80	275.20	766.80	1,533.60	
8	Net Contracted Capacity	NCC	MW	224.39	224.39	251.23	700.00	224.39	224.39	251.23	700.00	1,400.00	
9	Gross Generation	GG	MWh	47,225.28	10,796.93	30,542.64	88,564.84	0.00	282.41	1,399.25	4,222.50	92,787.34	
10	Output Factor	OF	%	81.41	76.13	46.83	48.73	0.00	74.59	32.12	34.79	-	
11	Net Generation	NG	MWh	44,455.41	10,694.72	30,399.81	84,811.86	0.00	2,797.92	1,396.07	4,065.31	88,877.17	
12	Net Generation (Reve Meter)	NG	MWh	44,873.97	10,796.41	30,686.03	85,610.37	0.00	2,797.47	1,395.85	4,064.66	89,075.03	
13	Dilatch Factor	DF	%	26.88	6.47	16.42	16.44	-	1.68	0.75	0.78	8.61	
14	Station Service Power	-	MWh	2,769.86	102.21	-	3,811.32	0.00	25.49	-	215.53	4026.85	
15	Station Service Power Percentage	-	%	5.87	0.95	-	4.30	-	0.90	-	5.10	4.34	
16	Period Hour	PH	Hr	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00	-	
17	Available Hour	AH	Hr	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00	-	
18	Availability Factor	AF	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-	
19	Service Hour	SH	Hr	236.00	57.70	237.00	237.00	0.43	15.40	15.83	15.83	252.83	
20	Service Factor	SF	%	31.72	7.76	31.85	31.85	0.06	2.07	2.13	2.13	-	
21	Planned Outage Hour	POH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
22	Planned Outage Factor	POF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
23	Unplanned Outage Hour	UOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
24	Unplanned Outage Factor	UOF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
25	Maintenance Outage Hour	MOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
26	Forced Outage Hour	FOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
27	Equivalent Unit Derrated Hour	EUDH	Hr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
28	Equivalent Available Hour	EAH	Hr	744.000	744.000	744.000	744.000	744.000	744.000	744.000	744.000	744.000	
29	Equivalent Available Factor	EAF	%	-	-	-	100.00	-	-	-	100.00	-	
30	Contract Available Factor (for EGAT PA)	-	%	-	-	-	100.00	-	-	-	100.00	-	
31	Reliability Factor	RF	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-	
32	Contract Operating Hour	EOH	Hr	297.00	116.00	-	-	41.00	55.00	-	-	-	
33	Contract Available Hour	CAH	Hr	-	-	-	744.00	-	-	-	744.00	-	
34	Fuel Gas Consumption	-	MMSCF	603.49	141.17	-	744.66	0.74	37.99	-	38.72	763.38	
35	Fuel Oil Consumption	-	Ton	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00	
36	Energy Consumption	-	MMBtu	504,777.97	118,077.55	-	622,856	615.51	31,773.01	-	33,389	655,244	
37	Fuel Gas Energy Consumption (PTT)	MMBtu	-	501,241.45	117,250.28	-	618,492	610.81	31,530.46	-	32,141	650,633	
38	Gross Fuel Cost Rate	-	Back/MWh	3.51	3.59	-	2.31	3.69	2.31	-	2.52	2.32	
39	Net Fuel Cost Rate	-	Back/MWh	3.73	3.62	-	2.31	3.73	2.61	-	2.61	2.42	
40	Gross Fuel Gas Cost Rate	-	Back/MWh	-	-	-	2.31	-	2.52	2.32	-	-	
41	Net Fuel Gas Cost Rate	-	Back/MWh	-	-	-	2.41	-	2.61	-	2.42	-	
42	Gross Fuel Oil Cost Rate	-	Back/MWh	-	-	-	-	-	-	-	-	-	
43	Net Fuel Oil Cost Rate	-	Back/MWh	-	-	-	-	-	-	-	-	-	
44	Net MWh sent out (revenue meter)	-	MWh	-	-	-	85,610.37	-	-	-	4,064.66	89,675.03	
45	Net MWh import (revenue meter)	-	MWh	-	-	-	8,614.16	-	-	-	60.44	8,674.60	
46	Net MWh import (revenue meter)	-	MWh	-	-	-	453.11	-	-	-	1,110.89	1,564.00	

Remark : -Item 28 Calculated Block % Contract Available Factor = $(CAH / PH) * 100$ Used for EGAT PA.
 - Dispatch factor calculation revised using net MWh from data GVR instead of net MWh from DCS and weight for each GT and ST (since Jan. 2013)
 Reference : Operation and Maintenance Agreement Schedule 8, appendix 3

Efficiency Engineer





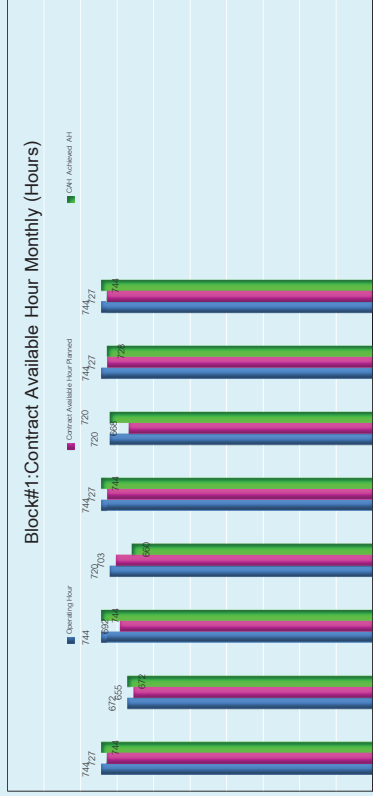
Monthly Report
Ratchaburi Power - Block #1

FROM PLANNING MANAGER
Mr Surachet Saranasulawatt

AUGUST
2023

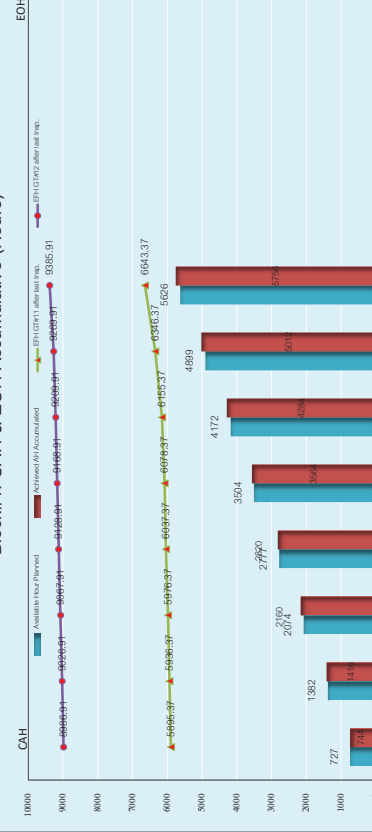
Report Period: 01/08/2023 - 31/08/2023

Contract Available Hours & Equivalent Operating Hours Summary



HOURS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour	744	672	744	720	744	720	744	744	727	727	727	5832
Contract Available Hour Planned	727	655	692	703	727	668	727	727				5636
CAH Achieved AH	744	672	744	660	744	720	728	744				5736
EFH GT#11	184	41	40	61	41	77	191	297				932
EFH GT#12	180	40	41	61	40	41	60	116				579

Block#1: CAH & EOH Accumulative (Hours)



Accumulative Hours	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour	744	1416	2160	2880	3624	4344	5088	5832				
Available Hour Planned	727	1382	2074	2777	3504	4172	4899	5626				
CAH Achieved AH	744	1416	2160	2820	3564	4284	5012	5756				
EFH GT#11	82488.78	82529.78	82569.78	82630.78	82671.78	82732.78	82793.78	82854.78				
EFH GT#11 after last Insp.	59953.37	59963.37	59973.37	59983.37	59993.37	60003.37	60013.37	60023.37				
EFH GT#12	86353.09	86393.09	86433.09	86473.09	86513.09	86553.09	86593.09	86633.09				
EFH GT#12 after last Insp.	8965.91	9026.91	9087.91	9148.91	9209.91	9270.91	9331.91	9392.91				

Reference : RPCL 7 Years Planned Review, 02/2017, (20 Jul 2017)

Remark :

วันที่ออกรายงาน

วันที่รับส่งข้อมูล

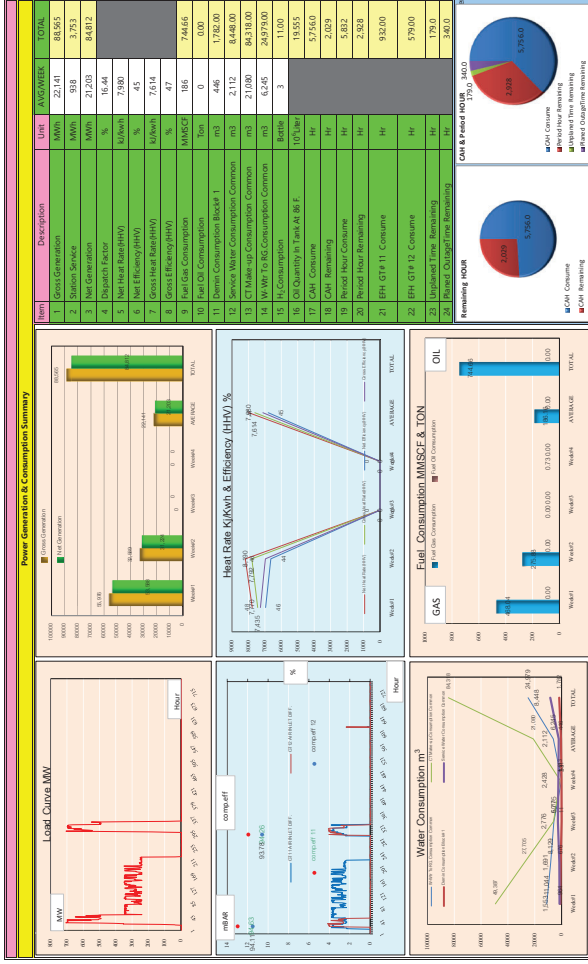


Monthly Report
Ratchaburi Power - Block #1

FROM PLANNING MANAGER
Mr Surachet Saranasulawatt

AUGUST 2023

Report Period: 01/08/2023 - 31/08/2023



Remark: Item 25: Unplanned Time Remaining - Period Hour remain - CAH Remain - PlanChange - Off line waiting

วันที่ออกรายงาน

วันที่รับส่งข้อมูล



Monthly Report
Ratchaburi Power Block #1

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

AUG 2023

Plant & Balance of Plant Condition Summary

Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	2.99	3.85	14
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	1.53	4.16	14
3	Condenser Inlet Temp.	C	29.87	34.20	
4	Condenser Outlet Temp.	C	34.05	42.93	Diff. <9 -10 C
5	Sum of current CT fan	A	1,259.60	2,872.38	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.04	0.68	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.07	0.33	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	0.08	0.10	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	0.09	0.10	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	0.08	0.10	0.18
12	Close Cooling water Inlet Temp.	C	32.41	40.68	42
13	Close Cooling water Outlet Temp.	C	31.29	37.77	38
14	Service Water Conductivity	uS/cm	256.60	261.80	300
15	Circulating water Conductivity	uS/cm	1,343.67	1,379.00	<1600
16	Boiler Make up WTR Conductivity	uS/cm	0.83	0.89	-
17	Cond.water CEP Conductivity	uS/cm	16.59	17.64	-
18	Treated waste WTR Conductivity	uS/cm	1,296.00	1,395.00	2,000
19	Service Water pH	pH	7.80	7.82	-
20	Circulating water pH	pH	639.33	1,296.00	8.0-8.5
21	Cond water CEP pH	pH	9.71	9.73	9.3-10.2
22	Treated waste WTR pH	pH	7.40	7.60	6.5-8.5
23	Turbidity of CW Basin	NTU	4.29	4.63	20
HRSG #11 Emission Value @ 7%O2 1 atm, 25 C.					
24	NO _x	ppm	61.52	85.50	CRITICAL
25	SO _x	ppm	3.47	4.29	96 (152)
26	CO	ppm	5.71	9.24	18 (18.8)
27	Opacity	%	2.16	5.43	690 (690)
HRSG #12 Emission Value @ 7%O2 1 atm, 25 C.					
28	NO _x	ppm	43.86	71.69	20 (20)
29	SO _x	ppm	1.65	2.44	CRITICAL
30	CO	ppm	2.70	6.45	96 (152)
0	Opacity	%	1.67	3.63	18 (18.8)

ค่ามาตรฐาน : NO_x 80-100, SO_x 10-20, CO 10-20, WTR 100-150, pH 7.0-9.0, Cond. 100-200, Turbidity 5.0

Remark :

หน้าเอกสาร

หน้ากระดาษที่ 01

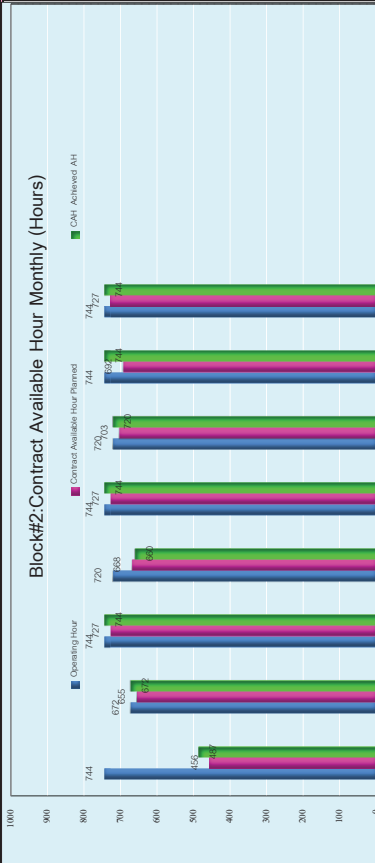


Monthly Report
Ratchaburi Power : Block #2

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

AUGUST
2023

Contract Available Hours & Equivalent Operating Hours Summary



HOURS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN AUG
Operating Hour	744	672	744	720	744	720	744	744	744				5882
Contract Available Hour Planned	456	655	727	668	727	703	692	727					5355
CAH Achieved AH	486.5	672	744	660	744	720	744	744					5514.5
EFH GT#21	158	40	41	153	195	130	233	41					991
EFH GT#22	197	40	41	410	102	40	75	55					960

Block#2: CAH & EOH Accumulative (Hours)



Accumulative Hours	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour	744	1416	2160	2880	3624	4344	5088	5832				
Available Hour Planned	456	1111	1838	2506	3233	3936	4628	5355				
CAH Achieved AH	486.5	1198.5	1902.5	2562.5	3306.5	4026.5	4770.5	5514.5				
EFH GT#21	90659.16	90709.16	90750.16	90903.16	91098.16	91228.16	91461.16	91502.16				
EFH GT#21 after last Insp.	9072.57	9122.57	9153.57	9306.57	9501.57	9631.57	9844.57	9905.57				
EFH GT#22	89548.71	89588.71	89629.71	90039.71	90141.71	90567.1	90811.71	90856.71				
EFH GT#22 after last Insp.	8522.50	8562.50	8603.50	9013.50	9115.50	9155.50	9205.50	9285.50				

Reference : RPCL 7 Years Planned Review 02017 (20 Jul 2017)

หน้ากระดาษที่ 01



Monthly Report
Ratchaburi Power Block #2

FROM: PLANNING MANAGER
Mr.Surachet Saranasuksawat

AUG 2023

Plant & Balance of Plant Condition Summary					
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	0.01	0.01	14
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	0.69	6.09	14
3	Condenser Inlet Temp.	C	28.20	30.42	Diff. <9 -10 C
4	Condenser Outlet Temp.	C	29.22	38.72	
5	Sum of current CT fan	A	237.79	2,600.16	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.01	0.01	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.05	0.36	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	0.06	0.07	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	0.06	0.07	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	0.06	0.07	0.18
12	Close Cooling water Inlet Temp.	C	31.36	36.32	42
13	Close Cooling water Outlet Temp.	C	29.15	32.40	38
14	Service Water Conductivity	uS/cm	244.40	244.40	300
15	Circulating water Conductivity	uS/cm	1,240.00	1,240.00	<1600
16	Boiler Make up WTR Conductivity	uS/cm	0.87	0.87	-
17	Cond.water CEP Conductivity	uS/cm	16.07	16.07	-
18	Treated waste WTR Conductivity	uS/cm	1,513.00	1,513.00	2,000
19	Service Water pH	pH	7.63	7.63	-
20	Circulating water pH	pH	8.41	8.41	8.0-8.5
21	Cond.water CEP pH	pH	9.83	9.83	9.3-10.2
22	Treated waste WTR pH	pH	6.85	6.85	6.5-8.5
23	Turbidity of CW Basin	NTU	4.00	4.00	20
HRSG #21 Emission Value @ 7%O ₂ 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	S/D	S/D	96 (152)
25	SO _x	ppm	S/D	S/D	18 (18.8)
26	CO	ppm	S/D	S/D	690 (690)
27	Opacity	%	S/D	S/D	20 (20)
HRSG #22 Emission Value @ 7%O ₂ 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	62.33	71.39	96 (152)
29	SO _x	ppm	0.40	0.89	18 (18.8)
30	CO	ppm	9.50	10.00	690 (690)
0	Opacity	%	1.76	3.47	20 (20)

สถานะระบบ : 956H, 30P-UP, 50GR-UP, 821U-UP, 441BU, 474M, 44BU, 44UP.

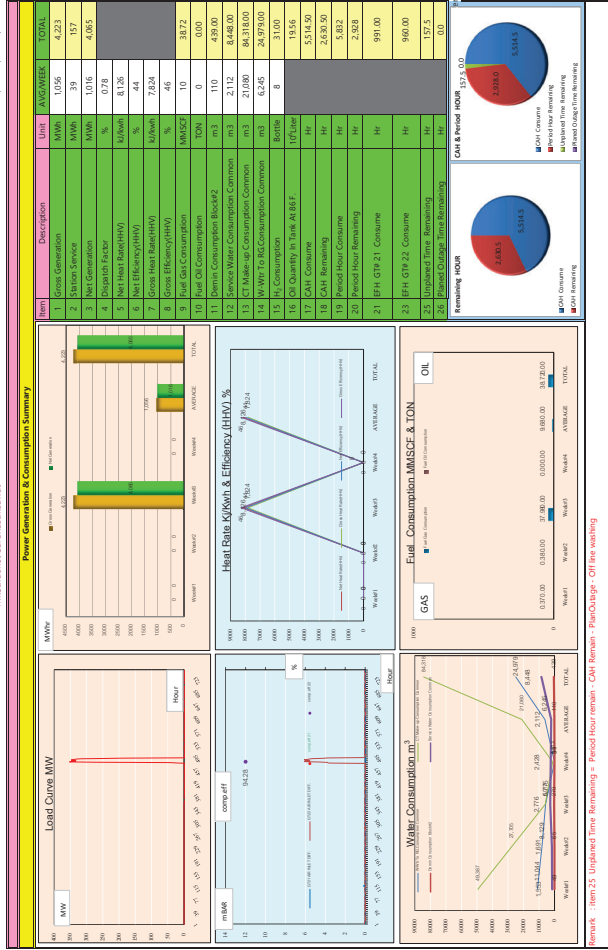
Remark :

FROM: PLANNING MANAGER
Mr.Surachet Saranasuksawat

AUG 2023

Monthly Report
Ratchaburi Power Block #2

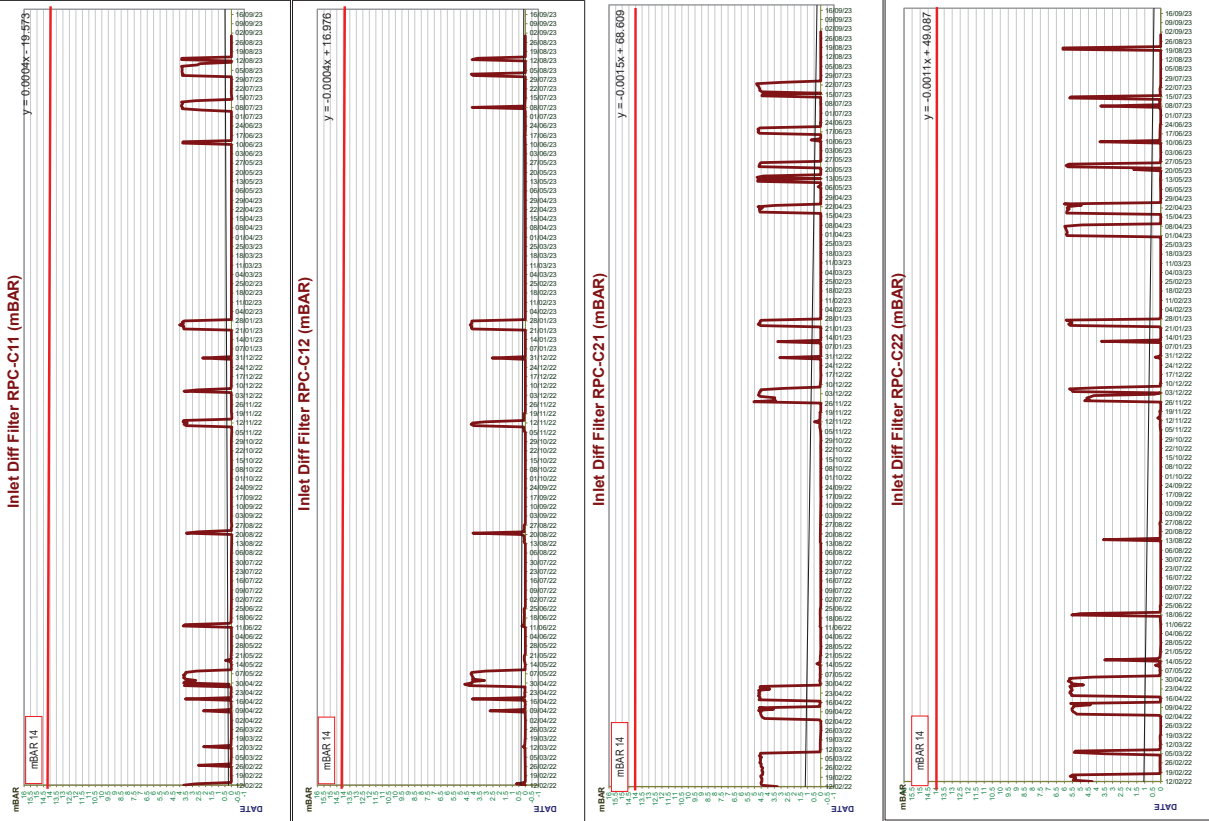
สถานะระบบ : 956H, 30P-UP, 50GR-UP, 821U-UP, 441BU, 474M, 44BU, 44UP.



สถานะระบบ :

GT AIR INLET FILTER

חברת: פילטרים, תל אביב, ישראל
מחלקה: פיתוח, תל אביב, ישראל



Remark : Replace Air Inlet filter GT411 (20 Nov 2019) , Brand : Freudenberg (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7)
Replace Air Inlet filter GT412 (19 Apr 2019) , Brand : Donaldson ; (Class E12D) ; Pre-Filter Brand : Freudenberg (Class F7) on 1 Jan 2021
Replace Air Inlet filter GT421 (20 Feb 2020) , Brand : Freudenberg (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7)
Replace Air Inlet filter GT422 (17 Apr 2021) , Brand : Nordic ; (HEPA) ; (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7) on 29 Jul 2020

RATCHABURI POWER MONTHLY PERFORMANCE REPORT

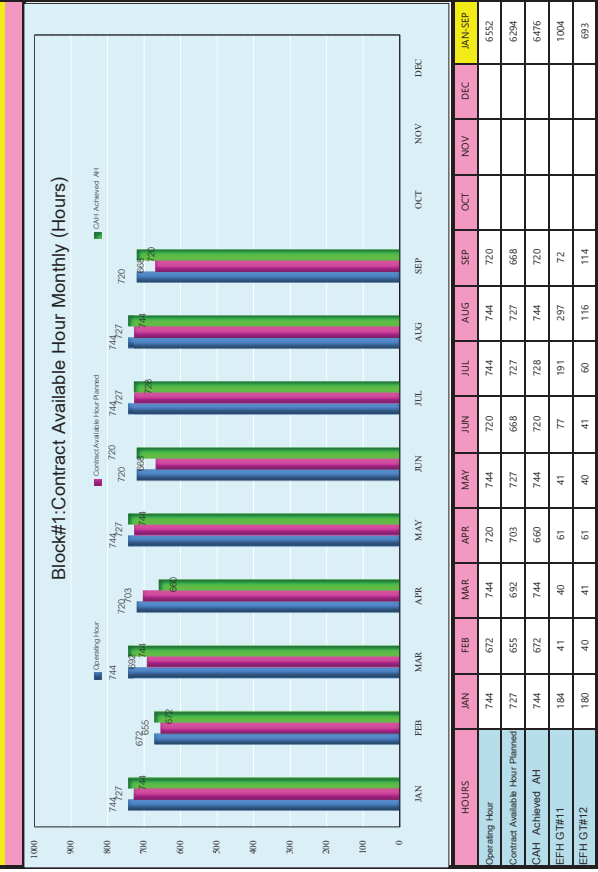
Monthly: Sep-23												
Duration: 1-Sep-23												
ITEM	DESCRIPTION	CODE	UNIT	RP-C11	RP-C12	RP-C10	RP-C11	RP-C12	RP-C10	RP-C11	RP-C12	30-Sep-23
1	Gross Efficiency	-	%	28.13	29.28	-	44.51	-	-	-	-	43.85
2	Net Efficiency (DCS)	-	%	25.72	28.97	-	42.39	-	-	-	-	41.76
3	Net Efficiency (Reve. Meter & PTT)	-	%	26.72	30.09	-	44.03	-	-	-	-	43.38
4	Gross Heat Rate	-	kJ/kWh	12,790.25	12,293.20	-	8,087.47	-	-	-	-	8,209.59
5	Net Heat Rate (DCS)	-	kJ/kWh	13,996.37	12,425.89	-	8,493.07	-	-	-	-	8,621.32
6	Net Heat Rate (Reve. Meter & PTT)	-	kJ/kWh	13,475.36	11,963.34	-	8,176.92	-	-	-	-	8,298.91
7	Gross Maximum Capacity	GMW	MW	245.80	245.80	275.20	766.80	245.80	275.20	766.80	766.80	1,533.60
8	Net Contracted Capacity	NGC	MW	224.39	224.39	251.23	700.00	224.39	251.23	700.00	700.00	1,400.00
9	Gross Generation	GG	MW	1,802.97	8,669.76	5,538.30	16,031.03	0.00	0.00	0.00	0.00	16,031.03
10	Output Factor	OF	%	42.77	64.78	36.76	38.22	0.00	0.00	0.00	0.00	-
11	Net Generation	NG	MW	1,648.37	8,577.19	5,535.01	15,265.44	0.00	0.00	0.00	0.00	15,265.44
12	Net Generation (Reve.Meter)	NG	MW	1,679.13	8,737.22	5,638.29	15,550.26	0.00	0.00	0.00	0.00	15,550.26
13	Dispatch Factor	DF	%	1.04	5.41	3.12	3.09	-	-	0.00	0.00	1.54
14	Station Service Power	-	MW	154.59	92.58	-	821.81	0.00	0.00	-	465.08	1286.89
15	Station Service Power Percentage	-	%	8.57	1.07	-	5.13	-	-	-	-	-
16	Period Hour	PH	Hr	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	-
17	Available Hour	AH	Hr	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	-
18	Availability Factor	AF	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-
19	Service Hour	SH	Hr	17.15	54.45	54.95	54.70	1.00	1.00	1.00	1.00	55.45
20	Service Factor	SF	%	2.38	7.56	7.63	7.60	0.14	0.14	0.14	0.14	-
21	Planned Outage Hour	POH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
22	Planned Outage Factor	POF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
23	Unplanned Outage Hour	UOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
24	Unplanned Outage Factor	UOF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
25	Maintenance Outage Hour	MOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
26	Forced Outage Hour	FOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
27	Equivalent Unit Derated Hour	EUOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Equivalent Available Hour	EAH	Hr	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00
29	Equivalent Available Factor (For EGAT PA)	EAF	%	-	-	-	100.00	-	-	100.00	-	-
30	Contract Available Hour	CAH	Hr	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-
31	Reliability Factor	RF	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-
32	Equivalent Operating Hour	EOH	Hr	72.00	114.00	-	720.00	-	-	720.00	-	-
33	Contract Available Hour	CAH	Hr	-	-	-	720.00	-	-	-	-	-
34	Fuel Gas Consumption	-	MMBSCF	26.13	120.69	-	146.81	1.11	1.11	-	2.22	149.03
35	Fuel Oil Consumption	-	Ton	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00
36	Energy Consumption	-	MMBTU	21,867.29	101,017.54	-	122,885	928.19	927.45	-	1,856	124,740
37	Fuel Gas Energy Consumption (PTT)	-	MMBTU	21,446.10	99,071.85	-	120,518	899.38	898.66	-	1,798	122,316
38	Gross Fuel Cost Rate	-	Baht/kWh	4.07	3.91	-	2.57	-	-	-	-	2.61
39	Net Fuel Cost Rate	-	Baht/kWh	4.45	3.95	-	2.70	-	-	-	-	2.61
40	Gross Fuel Gas Cost Rate	-	Baht/kWh	-	-	-	2.57	-	-	-	-	2.74
41	Net Fuel Gas Cost Rate	-	Baht/kWh	-	-	-	2.70	-	-	-	-	-
42	Gross Fuel Oil Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	-
43	Net Fuel Oil Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	-
44	Net MWh sent out (revenue meter)	-	MW	-	-	-	15,550.26	-	-	0.00	0.00	15,550.26
45	Net MWh sent out (revenue meter)	-	MW	-	-	-	1,276.09	-	-	24.02	1,300.11	-
46	Net MWh import (revenue meter)	-	MW	-	-	-	1,577.06	-	-	408.86	1,985.92	-
47	Net MWh import (revenue meter)	-	MW	-	-	-	2945.436	-	-	164.352	3,109.788	-
48	SOLAR GENERATE POWER (inverter)	-	MW	-	-	-	-	-	-	-	-	112.44
Fuel Gas Heating Value (HHVsat)				837.0155	Btu/SCF	Cost		335.62	Baht/MMBtu	112.44		
Fuel Oil Heating Value (HHV)				45895.7	kJ/kg	Cost		28.178	Baht/Liter	112.44		

Remark : Item 28 Calculated Block % Contract Available Factor = (CAH / PH) * 100 Used for EGAT PA.
 Dispatch factor calculation revised using net MWh from data OR instead of net MWh from DCS and weight for each GT and ST (since Jan. 2013)
 Reference : Operation and Maintenance Agreement Schedule 8 appendix 3

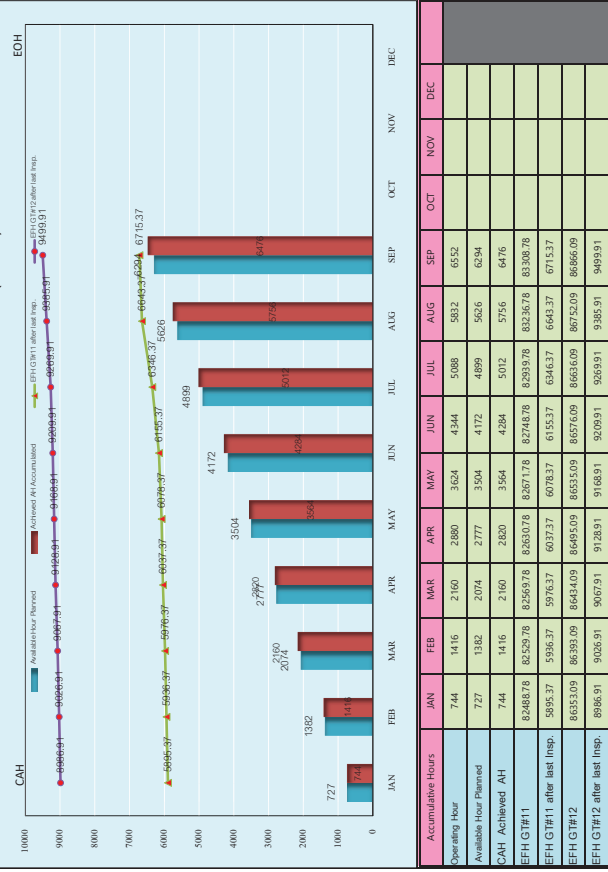
Efficiency Engineer

Reporter

Contract Available Hours & Equivalent Operating Hours Summary



Block#1: CAH & EOH Accumulative (Hours)



Reference : RPCL 7 Years Planned Review 02/2017 (20 Jul 2017)

Remark :

วันที่ 10/08/23

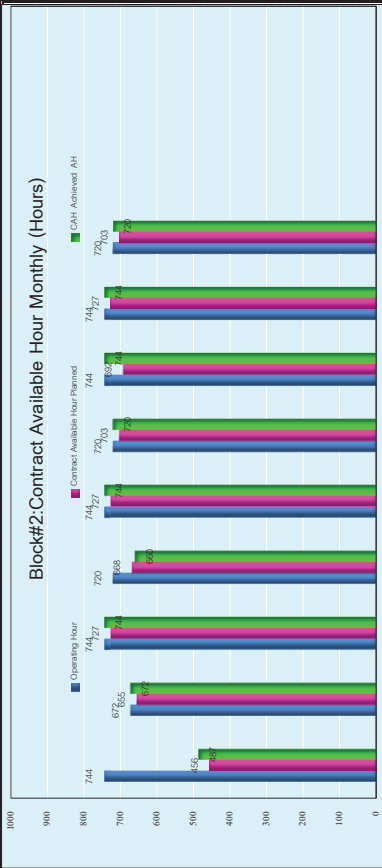
หน้า 1 จาก 1

Plant & Balance of Plant Condition Summary					
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	2.60	3.73	14
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	1.34	4.05	14
3	Condenser Inlet Temp.	C	28.43	32.69	
4	Condenser Outlet Temp.	C	30.42	40.91	Diff. <9 -10 C
5	Sum of current CT fan	A	252.83	2988.65	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.06	0.24	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.11	0.17	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	0.09	0.10	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	Stan By	Stan By	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	Stan By	Stan By	0.18
12	Close Cooling water Inlet Temp.	C	32.31	41.70	42
13	Close Cooling water Outlet Temp.	C	32.03	37.84	38
14	Service Water Conductivity	uS/cm	250.90	255.00	300
15	Circulating water Conductivity	uS/cm	N/A	N/A	<1600
16	Boiler Make up WTR Conductivity	uS/cm	N/A	N/A	-
17	Cond.water CEP Conductivity	uS/cm	N/A	N/A	-
18	Treated waste WTR Conductivity	uS/cm	7.67	7.68	2,000
19	Service Water pH	pH	N/A	N/A	-
20	Circulating water pH	pH	N/A	N/A	8.0-8.5
21	Cond.water CEP pH	pH	N/A	N/A	9.3-10.2
22	Treated waste WTR pH	pH	N/A	N/A	6.5-8.5
23	Turbidity of CW Basin	NTU	N/A	N/A	20
HRSG #11 Emission Value @ 7%O ₂ 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	53.47	69.83	96 (152)
25	SO _x	ppm	3.42	3.83	18 (18.8)
26	CO	ppm	5.81	7.38	690 (690)
27	Opacity	%	2.12	4.06	20 (20)
HRSG #12 Emission Value @ 7%O ₂ 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	47.72	75.69	96 (152)
29	SO _x	ppm	1.06	13.20	18 (18.8)
30	CO	ppm	3.88	8.25	690 (690)
0	Opacity	%	0.86	2.12	20 (20)

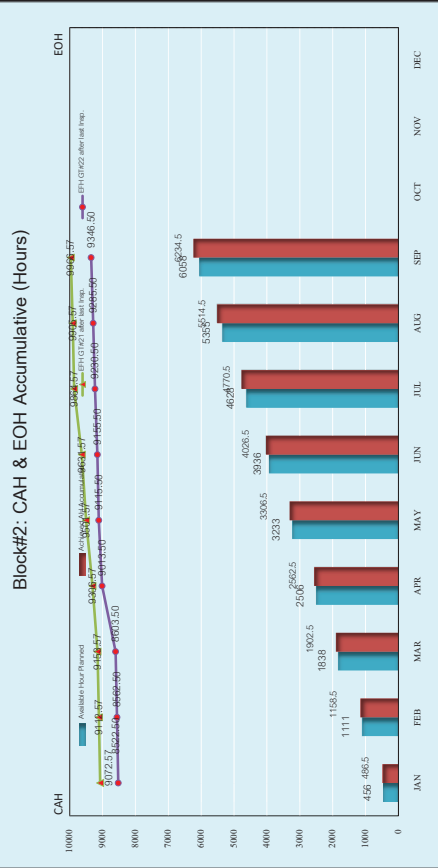
สำหรับข้อมูล : 855H, 85R-UPH, 85OR-UPH, 85TU-UPH, 85BU-UPH, 85PA-UPH, 85BU-UPH.

Remark : Item 15-23 no data from Chemical department

Contract	Available	Hours	& Equivalent	Operating	Hours	Summary
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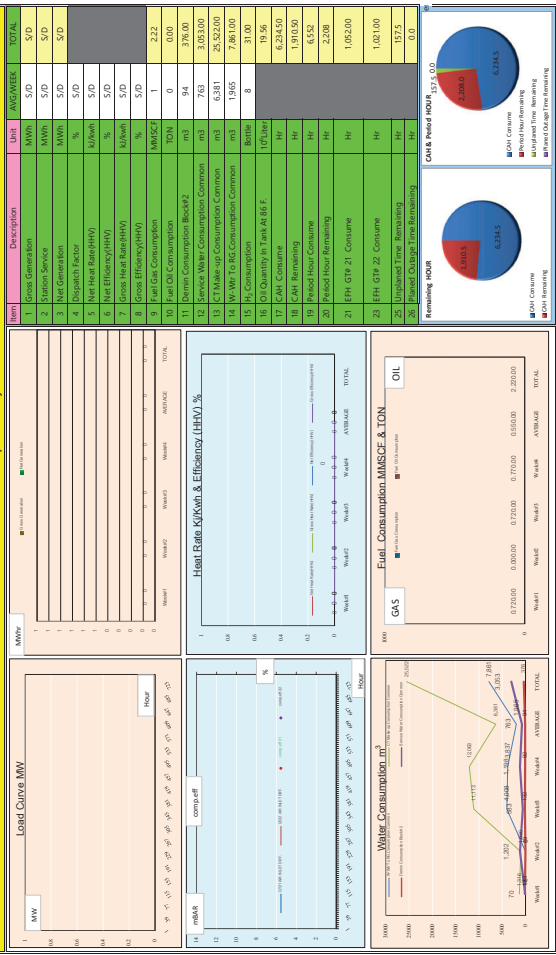


HOURS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN-SEP
Operating Hour	744	672	744	720	744	720	744	744	720				6552
Contract Available Hour Planned	456	655	727	668	727	703	692	727	703				6058
CAH Achieved AH	486.5	672	744	660	744	720	744	744	720				6234.5
EFH ST#21	158	40	41	153	195	130	233	41	61				1052
EFH ST#22	197	40	41	410	102	40	75	55	61				1021

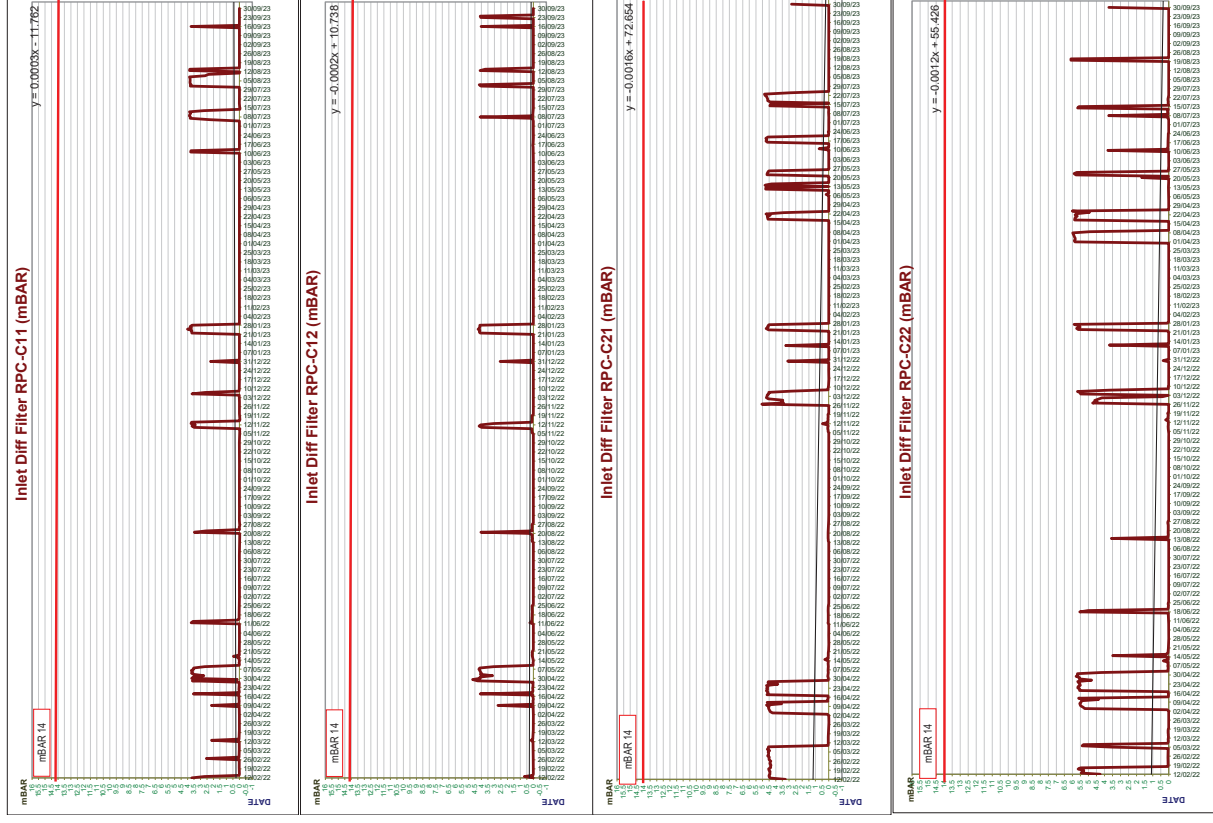


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Accumulative Hours												
Operating Hours	714	1416	2160	2880	3624	4344	5088	5832	6552			
Available Year Planned	456	1111	1838	2596	3233	3936	4628	5355	6058			
CAH Achieved	4865	11585	19025	25625	33065	40265	47705	55145	62485			
CAH Achieved / EPH GT121	9069/616	90709/616	90750/616	90902/616	91098/616	91288/616	91461/616	91502/616	91563/616			
EPH GT121 after last Insp.	9307257	9112327	9306357	9306357	9501257	9631257	966457	990557	9966357			
EPH GT122	8954871	8958871	8962971	9003971	9014171	9018171	9037271	9031171	9037271			
EPH GT122 after last Insp.	852210	846250	8603150	9013150	9115150	9155150	9235150	9288150	9344150			


Power Generation



Remark : item 25 Unplanned Time Remaining = Period Hour remain - CAH Remain - PlanOutage - Off line washing



Remark:	Replace Air inlet filter GT511 (20 Nov 2019), Band : Freudenberg (Class E11); Pre-Filer Band : Freudenberg (Class F7)
	Replace Air inlet filter GT512 (18 Apr 2018), Band : Donaldson : (Class E12) ; Pre-Filer Band : Freudenberg (Class F7) on Jan 2021
	Replace Air inlet filter GT521 (20 Feb 2020), Band : Freudenberg (Class E11); Pre-Filer Band : Freudenberg (Class F7)
	Replace Air inlet filter GT522 (17 Apr 2021), Band : Nordac : (HEPA) : (Class E11); Pre-Filer Band : Freudenberg (Class F7) on 28 Jul 2020



Monthly Report

Ratchaburi Power Block #2

FROM: PLANNING MANAGER

Mr.Surachet Saranasuksawat

SEP 2023

Plant & Balance of Plant Condition Summary					
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
3	Condenser Inlet Temp.	C	S/D	S/D	
4	Condenser Outlet Temp.	C	S/D	S/D	Diff.<9 -10 C
5	Sum of current CT fan	A	S/D	S/D	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	S/D	S/D	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	S/D	S/D	0.7
8	CT make up Cleaning Strainer	Time		S/D	2
9	Auxiliary CWP A Diff. Pressure	BAR	S/D	S/D	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	S/D	S/D	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	S/D	S/D	0.18
12	Close Cooling water Inlet Temp.	C	S/D	S/D	42
13	Close Cooling water Outlet Temp.	C	S/D	S/D	38
14	Service Water Conductivity	uS/cm	S/D	S/D	300
15	Circulating water Conductivity	uS/cm	S/D	S/D	<1600
16	Boiler Make up WTR Conductivity	uS/cm	S/D	S/D	-
17	Cond.water CEP Conductivity	uS/cm	S/D	S/D	-
18	Treated waste WTR Conductivity	uS/cm	S/D	S/D	2,000
19	Service Water pH	pH	S/D	S/D	-
20	Circulating water pH	pH	S/D	S/D	8.0-8.5
21	Cond.water CEP pH	pH	S/D	S/D	9.3-10.2
22	Treated waste WTR pH	pH	S/D	S/D	6.5-8.5
23	Turbidity of CW Basin	NTU	S/D	S/D	20
HRSG #21 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	S/D	S/D	96 (152)
25	SO _x	ppm	S/D	S/D	18 (18.8)
26	CO	ppm	S/D	S/D	690 (690)
27	Opacity	%	S/D	S/D	20 (20)
HRSG #22 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	S/D	S/D	96 (152)
29	SO _x	ppm	S/D	S/D	18 (18.8)
30	CO	ppm	S/D	S/D	690 (690)
0	Opacity	%	S/D	S/D	20 (20)

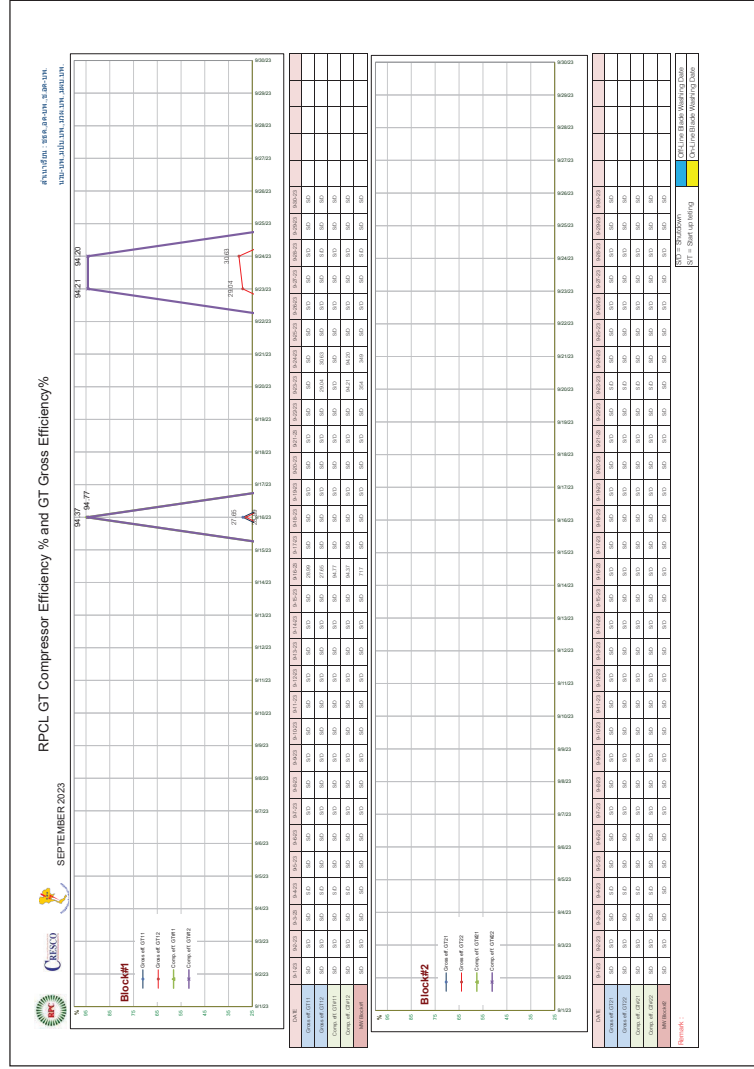
Remark:

Remark:

ITEM	DESCRIPTION	CODE	UNIT	RP-C11	RP-C12	RP-C10	RP-CC1	RP-C21	RP-C22	RP-C20	RP-CC2	Total Plant
1	Gross Efficiency	-	%	29.09	28.91	-	44.28	-	-	-	-	43.66
2	Net Efficiency (DCS)	-	%	28.70	26.94	-	42.07	-	-	-	-	41.48
3	Net Efficiency (Rev. Meter & PTT)	-	%	29.52	27.71	-	43.27	-	-	-	-	42.67
4	Gross Heat Rate	-	kJ/MWh	12,376.93	12,453.82	-	8,129.20	-	-	-	-	8,245.00
5	Net Heat Rate (DCS)	-	kJ/MWh	12,544.35	13,361.64	-	8,556.72	-	-	-	-	8,678.61
6	Net Heat Rate (Rev. Meter & PTT)	-	kJ/MWh	12,196.76	12,991.40	-	8,319.62	-	-	-	-	8,437.75
7	Gross Maximum Capacity	GMC	MW	245.80	245.80	275.20	766.80	245.80	245.80	275.20	766.80	1,533.60
8	Net Contracted Capacity	NCC	MW	224.39	224.39	251.23	700.00	224.39	224.39	251.23	700.00	1,400.00
9	Gross Generation	GG	MWh	1,421.57	5,885.15	3,873.62	11,180.34	0.00	0.00	0.00	0.00	11,180.34
10	Output Factor	OF	%	39.29	68.76	34.81	36.05	0.00	0.00	0.00	0.00	-
11	Net Generation	NG	MWh	1,402.60	5,485.50	3,856.64	10,621.74	0.00	0.00	0.00	0.00	10,621.74
12	Net Generation (Rev. Meter)	NG	MWh	1,413.94	5,529.68	3,887.84	10,707.68	0.00	0.00	0.00	0.00	10,707.68
13	Dispatch Factor	DF	%	0.94	3.67	2.30	2.28	-	-	-	-	1.08
14	Station Service Power	-	MWh	18.97	399.85	-	608.89	0.00	0.00	-	766.39	1375.27
15	Station Service Power Percentage	-	%	1.33	6.79	-	5.45	-	-	-	-	-
16	Period Hour	PH	Hr	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00	-
17	Available Hour	AH	Hr	672.00	672.00	672.00	672.00	744.00	744.00	744.00	744.00	-
18	Availability Factor	AF	%	90.32	90.32	90.32	90.32	100.00	100.00	100.00	100.00	-
19	Service Hour	SH	Hr	14.72	34.82	40.44	40.44	1.30	1.30	1.30	1.30	41.04
20	Service Factor	SF	%	1.98	4.68	5.44	5.44	0.17	0.17	0.17	0.17	-
21	Planned Outage Hour	POH	Hr	72.00	72.00	72.00	72.00	0.00	0.00	0.00	0.00	-
22	Planned Outage Factor	POF	%	9.68	9.68	9.68	9.68	0.00	0.00	0.00	0.00	-
23	Unplanned Outage Hour	UOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
24	Unplanned Outage Factor	UOF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
25	Maintenance Outage Hour	MOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
26	Forced Outage Hour	FOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
27	Equivalent Unit Deteriorated Hour	EUDH	Hr	0.011	0.011	0.013	0.035	0.000	0.000	0.000	0.000	0.035
28	Equivalent Available Hour	EAH	Hr	671.989	671.989	671.987	671.965	744.000	744.000	744.000	744.000	707.983
29	Equivalent Available Factor	EAF	%	-	-	-	90.32	-	-	-	100.00	-
30	Contract Available Factor (For EGAT PA)	-	%	-	-	-	90.32	-	-	-	100.00	-
31	Reliability Factor	RF	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-
32	Equivalent Operating Hour	EOH	Hr	49.00	99.00	-	40.00	40.00	40.00	-	-	-
33	Contract Available Hour	CAH	Hr	-	-	-	672.00	-	-	-	744.00	-
34	Fuel Gas Consumption	-	MMSCF	19.93	83.01	-	102.94	0.73	0.74	-	1.47	104.40
35	Fuel Oil Consumption	-	Ton	0.00	0.00	-	-	0.00	0.00	-	0.00	0.00
36	Energy Consumption	-	MMBTU	16,676.50	69,457.94	-	86,144	611.71	615.43	-	1,227	87,372
37	Fuel Gas Energy Consumption (PTT)	-	MMBTU	16,345.60	68,089.53	-	84,435	597.62	601.26	-	1,199	85,634
38	Gross Fuel Cost Rate	-	Baht/MWh	4.21	4.23	-	2.76	-	-	-	2.80	2.80
39	Net Fuel Cost Rate	-	Baht/MWh	4.27	4.54	-	2.91	-	-	-	2.95	2.95
40	Gross Fuel Gas Cost Rate	-	Baht/MWh	-	-	-	2.76	-	-	-	2.80	2.80
41	Net Fuel Gas Cost Rate	-	Baht/MWh	-	-	-	2.91	-	-	-	2.95	2.95
42	Gross Fuel Oil Cost Rate	-	Baht/MWh	-	-	-	-	-	-	-	-	-
43	Net Fuel Oil Cost Rate	-	Baht/MWh	-	-	-	-	-	-	-	-	-
44	Net MWh sent out (revenue meter)	-	MWh	-	-	-	10,707.68	-	-	-	0.00	10,707.68
45	Net MWhM sent out (revenue meter)	-	MWhM	-	-	-	288.00	-	-	-	22.45	311.45
46	Net MWhM import (revenue meter)	-	MWhM	-	-	-	1,303.77	-	-	-	716.10	2,019.87

Remark: --Item 28 Calculated Block % Contract Available Factor = (CAH / PH) *100 Used for EGAT PA.
 - Dispatch factor calculation revised using net MWh from data GVR instead of net MWh from BCS and weight for each GT and ST (since Jan. 2013).
 Reference : Operation and Maintenance Agreement Schedule 8, appendix 3

Efficiency Engineer





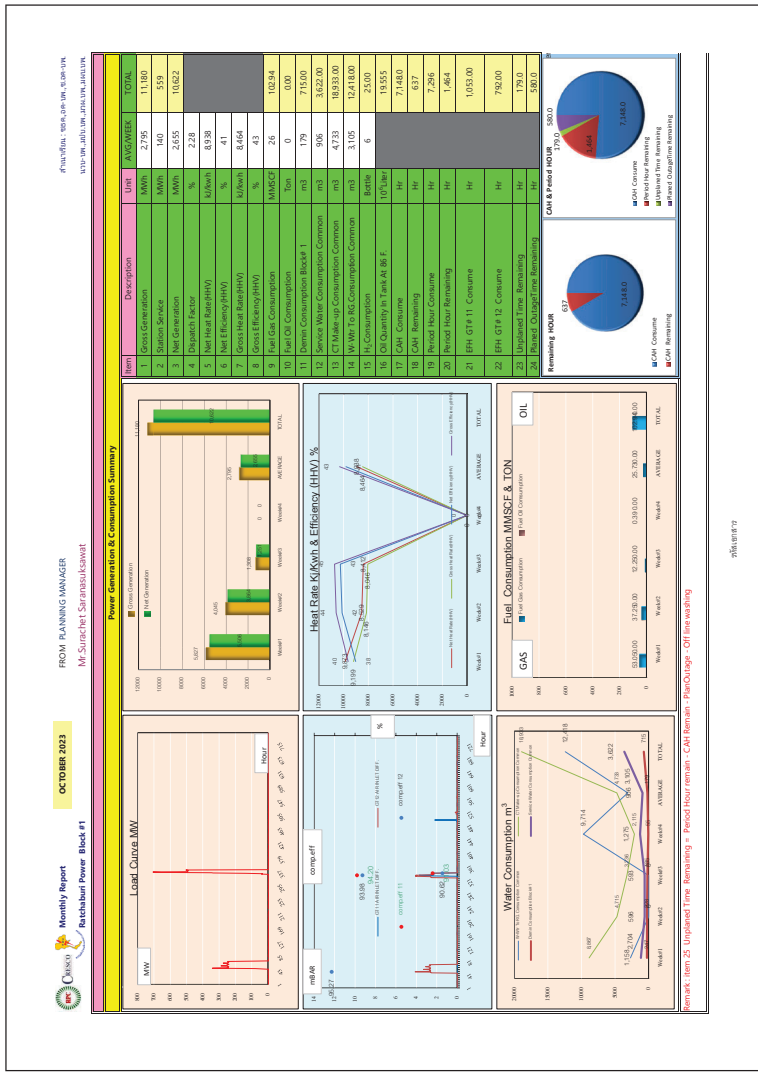
FROM PLANNING MANAGER
Patchaburi Power - Block #1

OCTOBER
2023

FROM PLANNING MANAGER
M. Surachet Saranasulawatt

if you're here, you're also here, so don't you.
it's not you, it's the way you're doing it.

Contract Available Hours & Equivalent Operating Hours Summary





Monthly Report
Ratchaburi Power Block #1

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

Plant & Balance of Plant Condition Summary					OCTOBER 2023
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	2.02	3.71	14
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	1.03	4.12	14
3	Condenser Inlet Temp.	C	28.50	31.80	
4	Condenser Outlet Temp.	C	29.97	40.53	
5	Sum of current CT fan	A	218.77	3,087.52	Diff.<9 -10 C
6	CT make up pump A Diff. Pressure (common)	BAR	0.17	0.47	3,798
7	CT make up pump B Diff. Pressure (common)	BAR	0.09	0.42	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	0.09	0.10	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	0.09	0.10	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	0.08	0.09	0.18
12	Close Cooling water Inlet Temp.	C	29.66	38.09	42
13	Close Cooling water Outlet Temp.	C	29.38	35.18	38
14	Service Water Conductivity	uS/cm	260.70	270.70	300
15	Circulating water Conductivity	uS/cm	1,257.00	1,257.00	<1600
16	Boiler Make up WTR Conductivity	uS/cm	0.80	0.80	-
17	Cond.water CEP Conductivity	uS/cm	15.32	15.32	-
18	Treated waste WTR Conductivity	uS/cm	N/A	N/A	2,000
19	Service Water pH	pH	7.76	7.79	-
20	Circulating water pH	pH	8.19	8.19	8.0-8.5
21	Cond water CEP pH	pH	9.81	9.81	9.3-10.2
22	Treated waste WTR pH	pH	N/A	N/A	6.5-8.5
23	Turbidity of CW Basin	NTU	5.89	5.89	20
HRSG #11 Emission Value @ 7%O2 1 atm, 25 C.					CRITICAL
24	NO _x	ppm	56.30	79.09	96 (152)
25	SO _x	ppm	3.08	4.28	18 (18.8)
26	CO	ppm	5.98	8.51	690 (690)
27	Opacity	%	2.10	4.78	20 (20)
HRSG #12 Emission Value @ 7%O2 1 atm, 25 C.					CRITICAL
28	NO _x	ppm	43.04	79.09	96 (152)
29	SO _x	ppm	0.75	4.28	18 (18.8)
30	CO	ppm	3.27	8.51	690 (690)
0	Opacity	%	0.71	3.44	20 (20)

ค่ามาตรฐาน : NO_x 96ppm, SO_x 18ppm, CO 690ppm, Opacity 20% (20%)

Remark : No treated waste water transfer to RG

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หน้าจอสอง

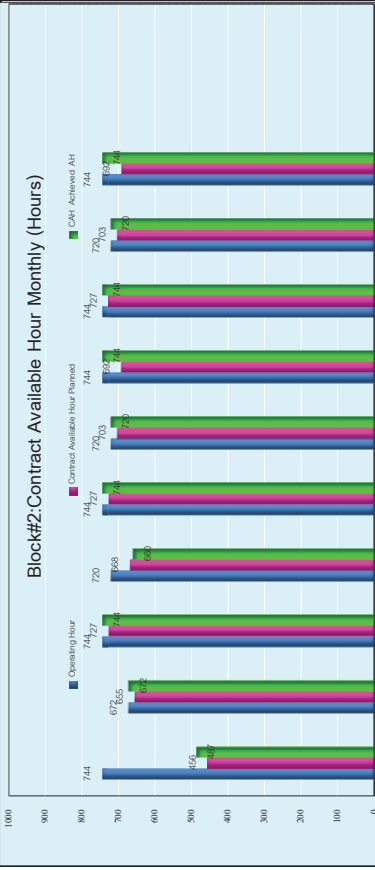


Monthly Report
Ratchaburi Power : Block #2

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

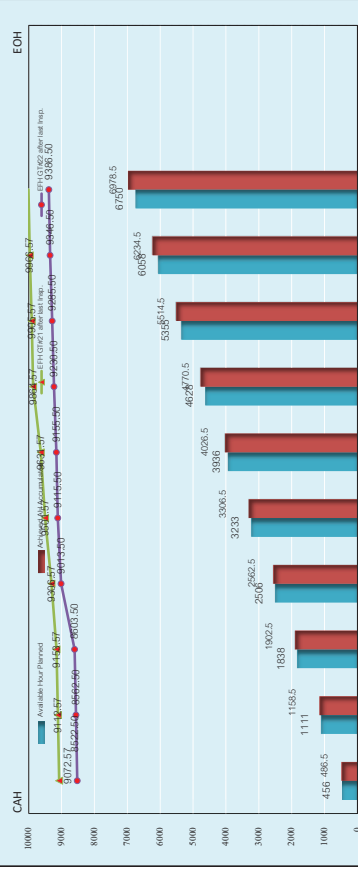
FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

Contract Available Hours & Equivalent Operating Hours Summary



HOURS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN-OCT
Operating Hour	744	744	744	744	744	744	744	744	744	744	744	744	7286
Contract Available Hour Planned	456	456	456	456	456	456	456	456	456	456	456	456	6750
CAH Achieved AH	486.5	486.5	486.5	486.5	486.5	486.5	486.5	486.5	486.5	486.5	486.5	486.5	6878.5
EFH GT#21	158	40	41	153	195	130	233	41	61	40			1092
EFH GT#22	197	40	41	410	102	40	75	55	61	40			1061

Block#2: CAH & EOH Accumulative (Hours)



Accumulative Hours	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour	744	1488	2232	2976	3720	4464	5208	5952	6696	7440	8184	8928
Available Hour Planned	456	912	1368	1824	2280	2736	3192	3648	4104	4560	5016	5472
CAH Achieved AH	486.5	973	1459.5	1946	2432.5	2919	3405.5	3892	4378.5	4865	5351.5	5838
EFH GT#21	158	316	474	632	790	948	1106	1264	1422	1580	1738	1896
EFH GT#21 after last Insp.	158	316	474	632	790	948	1106	1264	1422	1580	1738	1896
EFH GT#22	197	394	591	788	985	1182	1379	1576	1773	1970	2167	2364
EFH GT#22 after last Insp.	197	394	591	788	985	1182	1379	1576	1773	1970	2167	2364

Reference : RPCL 7 Years Planned Review 02017 (20 Jul 2017)

หน้าจอสอง

หน้าจอสอง

OCTOBER 2023

Plant & Balance of Plant Condition Summary					
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
3	Condenser Inlet Temp.	C	S/D	S/D	
4	Condenser Outlet Temp.	C	S/D	S/D	Diff. <9 -10 C
5	Sum of current CT fan	A	S/D	S/D	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	S/D	S/D	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	S/D	S/D	0.7
8	CT make up Cleaning Strainer	Time		S/D	2
9	Auxiliary CWP A Diff. Pressure	BAR	S/D	S/D	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	S/D	S/D	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	S/D	S/D	0.18
12	Close Cooling water Inlet Temp.	C	S/D	S/D	42
13	Close Cooling water Outlet Temp.	C	S/D	S/D	38
14	Service Water Conductivity	uS/cm	S/D	S/D	300
15	Circulating water Conductivity	uS/cm	S/D	S/D	<1600
16	Boiler Make up WTR Conductivity	uS/cm	S/D	S/D	-
17	Cond.water CEP Conductivity	uS/cm	S/D	S/D	-
18	Treated waste WTR Conductivity	uS/cm	S/D	S/D	2,000
19	Service Water pH	pH	S/D	S/D	-
20	Circulating water pH	pH	S/D	S/D	8.0-8.5
21	Cond.water CEP pH	pH	S/D	S/D	9.3-10.2
22	Treated waste WTR pH	pH	S/D	S/D	6.5-8.5
23	Turbidity of CW Basin	NTU	S/D	S/D	20
HRSG #21 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	S/D	S/D	96 (152)
25	SO _x	ppm	S/D	S/D	18 (18.8)
26	CO	ppm	S/D	S/D	690 (690)
27	Opacity	%	S/D	S/D	20 (20)
HRSG #22 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	S/D	S/D	96 (152)
29	SO _x	ppm	S/D	S/D	18 (18.8)
30	CO	ppm	S/D	S/D	690 (690)
0	Opacity	%	S/D	S/D	20 (20)

สถานะข้อมูล : 956H, 98P, 10W, 950R-10W, 921U-10W, 941U, 10W, 947M, 10W, 948U, 10W.

Remark :

RATCHABURI POWER MONTHLY PERFORMANCE REPORT

Monthly: Nov-23												30-Nov-23
Duration:												Total Plant
ITEM	DESCRIPTION	CODE	UNIT	RP-C11	RP-C12	RP-C10	RP-C11	RP-C12	RP-C10	RP-C12	RP-C10	RP-C12
1	Gross Efficiency	-	%	19.64	2.00	-	22.92	30.73	31.36	-	47.79	45.50
2	Net Efficiency (DCS)	-	%	17.18	1.83	-	20.27	28.71	30.63	-	46.47	44.06
3	Net Efficiency (Reve. Meter & PTT)	-	%	18.00	1.92	-	21.24	29.14	31.09	-	47.17	44.80
4	Gross Heat Rate	-	kJ/kWh	18,332.11	180,210.10	-	15,708.83	11,713.87	11,478.94	-	7,533.27	7,911.79
5	Net Heat Rate (DCS)	-	kJ/kWh	20,956.51	196,546.28	-	17,798.07	12,537.59	11,754.46	-	7,748.96	8,170.37
6	Net Heat Rate (Reve. Meter & PTT)	-	kJ/kWh	19,999.42	187,569.98	-	16,947.06	12,352.70	11,581.13	-	7,632.72	8,035.96
7	Gross Maximum Capacity	GMC	MW	245.80	245.80	275.20	766.80	245.80	245.80	275.20	766.80	1,533.60
8	Net Contracted Capacity	NC	MW	224.39	224.39	251.23	700.00	224.39	224.39	251.23	700.00	1,400.00
9	Gross Generation	GG	MWh	614.42	8.48	191.36	814.25	5,492.80	5,402.24	5,876.54	16,772.79	17,587.04
10	Output Factor	OF	%	24.04	0.86	6.69	10.21	75.75	74.50	72.39	74.15	-
11	Net Generation	NG	MWh	537.47	7.77	188.62	720.29	5,131.93	5,275.61	5,852.01	16,310.15	17,030.43
12	Net Generation (Reve. Meter)	NG	MWh	552.47	7.99	193.89	740.38	5,148.06	5,292.20	5,870.42	16,361.43	17,101.82
13	Dispatch Factor	DF	%	1.29	0.02	0.40	0.56	3.19	3.28	3.25	3.25	2.69
14	Station Service Power	-	MWh	76.94	0.70	-	144.25	360.88	126.63	-	512.93	657.17
15	Station Service Power Percentage	-	%	12.52	8.31	-	17.72	6.57	2.34	-	3.06	3.74
16	Period Hour	PH	Hr	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	-
17	Available Hour	AH	Hr	191.00	187.00	191.00	189.00	720.00	720.00	720.00	720.00	-
18	Availability Factor	AF	%	26.53	25.97	26.53	26.25	100.00	100.00	100.00	100.00	-
19	Service Hour	SH	Hr	10.40	4.00	10.40	10.40	29.50	29.50	29.50	29.50	39.90
20	Service Factor	SF	%	1.44	0.56	1.44	1.44	4.10	4.10	4.10	4.10	-
21	Planned Outage Hour	POH	Hr	508.00	508.00	508.00	508.00	0.00	0.00	0.00	0.00	-
22	Planned Outage Factor	POF	%	70.56	70.56	70.56	70.56	0.00	0.00	0.00	0.00	-
23	Unplanned Outage Hour	UOH	Hr	21.00	25.00	21.00	23.00	0.00	0.00	0.00	0.00	-
24	Unplanned Outage Factor	UOF	%	2.92	3.47	2.92	3.19	0.00	0.00	0.00	0.00	-
25	Maintenance Outage Hour	MOH	Hr	21.00	25.00	21.00	23.00	0.00	0.00	0.00	0.00	-
26	Forced Outage Hour	FOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
27	Equivalent Unit Derated Hour	EUOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Equivalent Available Hour	EAH	Hr	191.00	187.00	191.00	189.00	720.00	720.00	720.00	720.00	454.50
29	Equivalent Available Factor (For EGAT PA)	EAF	%	-	-	-	26.25	-	-	-	100.00	-
30	Contract Available Factor (For EGAT PA)	CAF	%	-	-	-	26.25	-	-	-	100.00	-
31	Reliability Factor	RF	%	33.12	13.79	33.12	31.14	100.00	100.00	100.00	100.00	-
32	Equivalent Operating Hour	EOH	Hr	30.00	22.00	-	-	48.00	67.00	-	-	-
33	Contract Available Hour	CAH	Hr	-	-	-	189.00	-	-	-	720.00	-
34	Fuel Gas Consumption	-	MMBtu	12.72	1.72	-	14.44	72.64	70.01	-	142.65	157.10
35	Fuel Oil Consumption	-	Ton	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00
36	Energy Consumption	-	MMBtu	10,675.80	1,447.65	-	12,123	60,984.41	58,776.03	-	119,760	131,884
37	Fuel Gas Energy Consumption (PTT)	-	MMBtu	10,472.48	1,420.08	-	11,893	60,274.05	58,091.39	-	118,965	130,258
38	Gross Fuel Cost Rate	-	Btu/kWh	5.33	52.43	-	4.57	3.41	3.34	-	2.19	2.30
39	Net Fuel Cost Rate	-	Btu/kWh	6.10	57.18	-	5.17	3.65	3.42	-	2.25	2.38
40	Gross Fuel Gas Cost Rate	-	Btu/kWh	-	-	-	4.57	-	-	-	2.19	2.30
41	Net Fuel Gas Cost Rate	-	Btu/kWh	-	-	-	5.17	-	-	-	2.25	2.38
42	Gross Fuel Oil Cost Rate	-	Btu/kWh	-	-	-	-	-	-	-	-	-
43	Net Fuel Oil Cost Rate	-	Btu/kWh	-	-	-	-	-	-	-	-	-
44	Net MWh sent out (revenue meter)	-	MWh	-	-	-	740.38	-	-	-	16,361.43	17,101.82
45	Net MWh sent out (revenue meter)	-	MWh	-	-	-	213.70	-	-	-	1,101.53	1,315.22
46	Net MWh import (revenue meter)	-	MWh	-	-	-	735.56	-	-	-	1,066.26	1,801.82
47	Net MWh import (revenue meter)	-	MWh	-	-	-	569.865	-	-	-	1,904.865	2,474.73
48	SOLAR GENERATE POWER (inverter)	-	MWh	-	-	-	-	-	-	-	-	100.57
Fuel Gas Heating Value (HHVsat)												
Btu/SCF												
839,5124												
45899.7												
kWh												
306.94												
28.178 Btu/kWh												
Cost												
569.865												
1904.865												
2474.73												

Remark : Item 28 Calculated Block % Contract Available Factor = (CAH / PH) * 100 Used for EGAT PA.
Dispatch factor calculation revised using net MWh from data OR instead of net MWh from DCS and weight for each GT and ST (since Jan. 2013)
Reference : Operation and Maintenance Agreement Schedule 8, appendix 3

Efficiency Engineer

Reporter

Reference : RPCL 7 Years Planned Review 02/2017 (20 Jul 2017)

Remark :

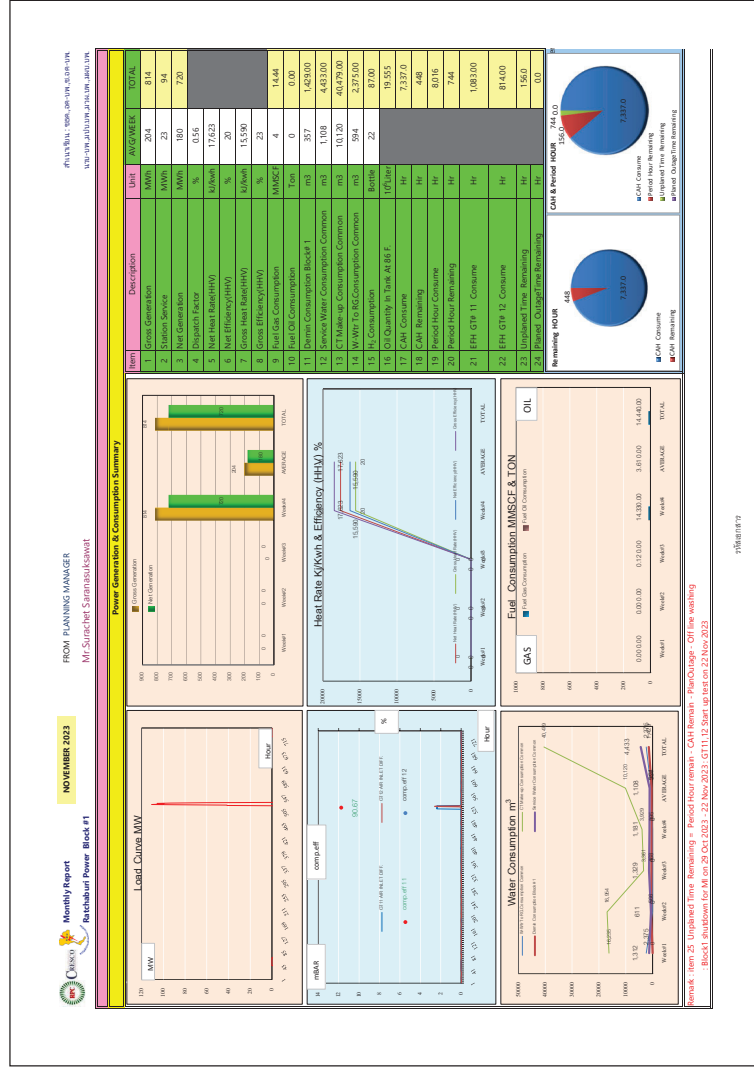
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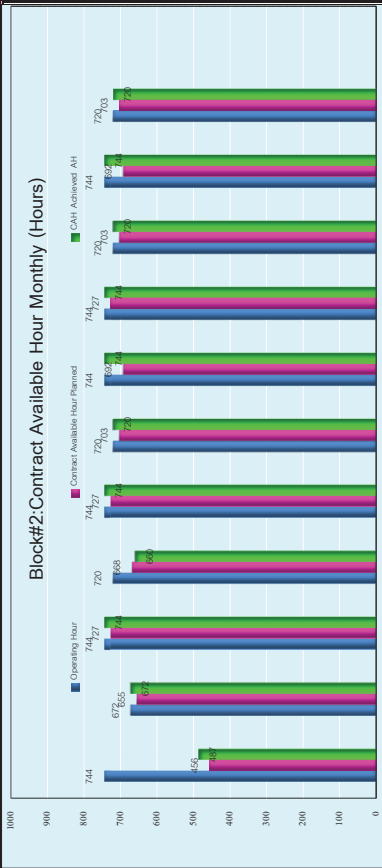
Plant & Balance of Plant Condition Summary

Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	1.83	2.40	14
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	1.35	2.59	14
3	Condenser Inlet Temp.	C	25.49	28.90	Diff.<9 -10 C
4	Condenser Outlet Temp.	C	27.66	36.10	
5	Sum of current CT fan	A	804.71	2,415.53	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.00	0.06	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.00	0.00	0.7
8	CT make up Cleaning Strainer	Time		S/D	2
9	Auxiliary CWP A Diff. Pressure	BAR	Stan By	Stan By	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	Stan By	Stan By	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	0.08	0.09	0.18
12	Close Cooling water Inlet Temp.	C	28.10	34.61	42
13	Close Cooling water Outlet Temp.	C	27.26	32.03	38
14	Service Water Conductivity	uS/cm	287.40	287.40	300
15	Circulating water Conductivity	uS/cm	N/A	N/A	<1600
16	Boiler Make up WTR Conductivity	uS/cm	N/A	N/A	-
17	Cond.water CEP Conductivity	uS/cm	N/A	N/A	-
18	Treated waste WTR Conductivity	uS/cm	N/A	N/A	2,000
19	Service Water pH	pH	7.63	7.63	-
20	Circulating water pH	pH	N/A	N/A	8.0-8.5
21	Cond.water CEP pH	pH	N/A	N/A	9.3-10.2
22	Treated waste WTR pH	pH	N/A	N/A	6.5-8.5
23	Turbidity of CW Basin	NTU	N/A	N/A	20
HRSG #11 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	N/A	N/A	96 (152)
25	SO _x	ppm	N/A	N/A	18 (18.8)
26	CO	ppm	N/A	N/A	690 (690)
27	Opacity	%	N/A	N/A	20 (20)
HRSG #12 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	N/A	N/A	96 (152)
29	SO _x	ppm	N/A	N/A	18 (18.8)
30	CO	ppm	N/A	N/A	690 (690)
0	Opacity	%	N/A	N/A	20 (20)

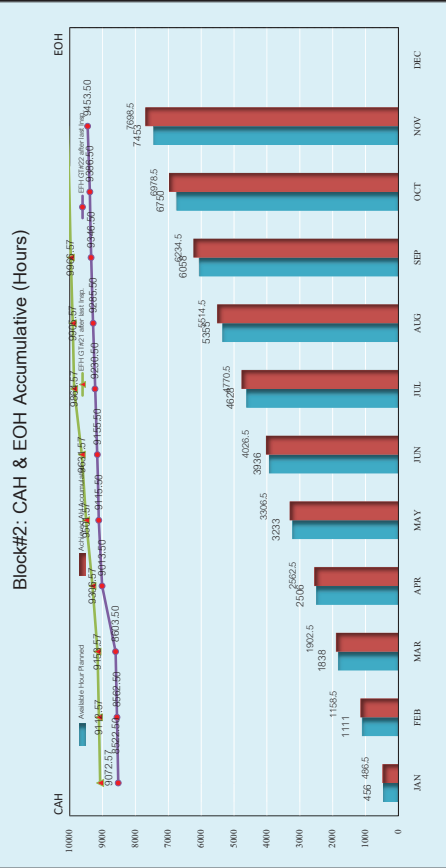
REMARK: Block1 shutdown for MI on 29 Oct 2023 - 22 Nov 2023 : GT11,12 Start up test on 22 Nov 2023
: ITEM 15-23 No data from Chemical department



Contract Available Hours & Equivalent Operating Hours Summary

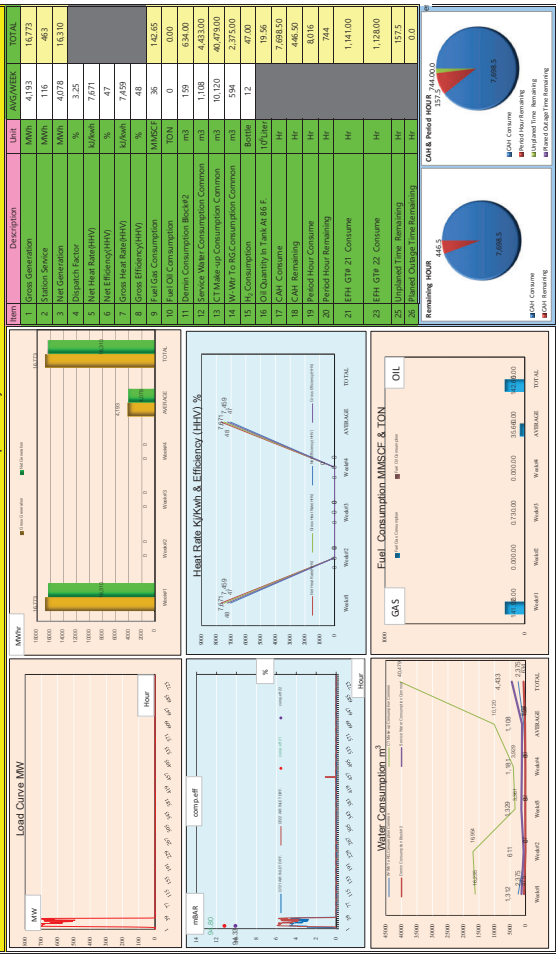


HOURS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN-NOV
Operating Hour	744	672	744	720	744	720	744	744	720	744	720	726	8016
Contract Available Hour Planned	456	655	727	668	727	703	692	727	703	692	703		7453
CAH Achieved AH	485	672	744	660	744	720	744	744	720	744	720		7686.5
EFH GT121	40	41	153	195	130	233	41	61	40	49	49		1141
EFH GT22	97	40	41	410	102	40	75	55	61	40	67		1128

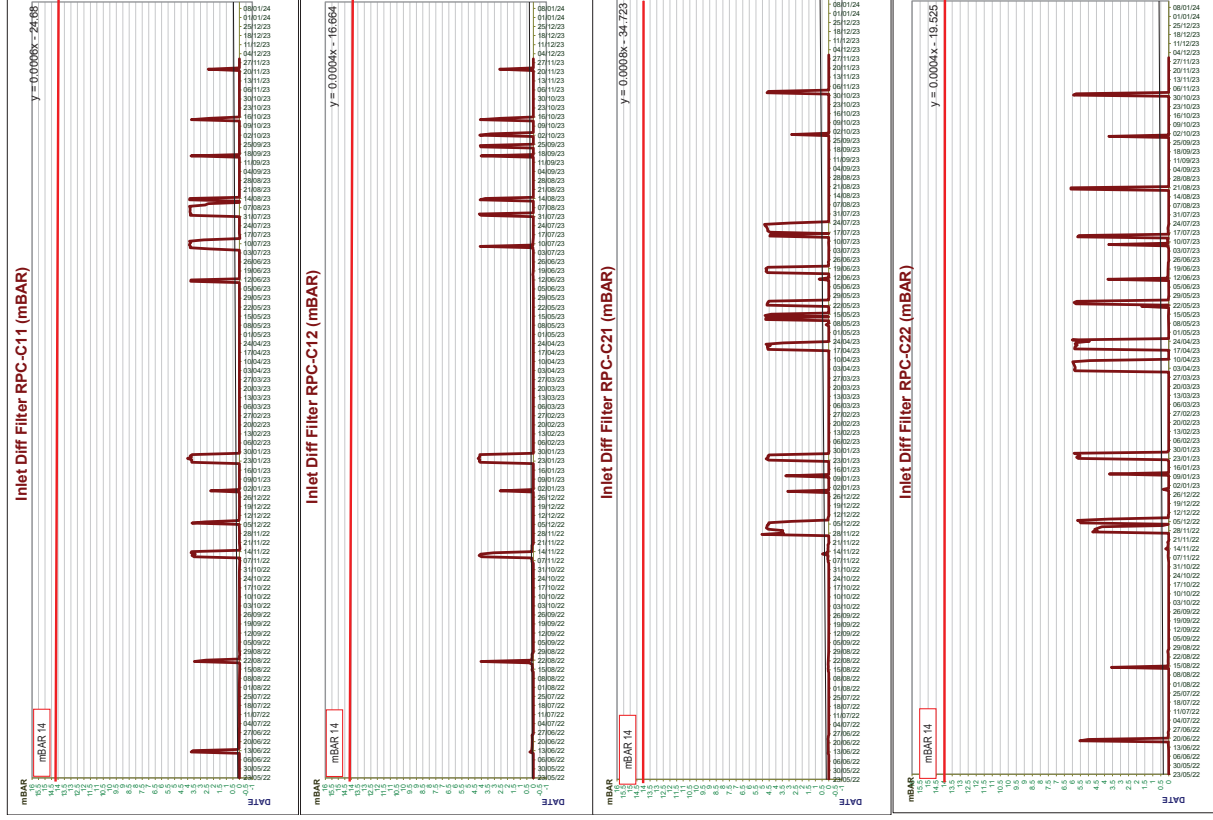


	Accumulative Hours	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour		744	1416	2160	2880	3624	4344	5088	5832	6552	7296	8016	
Available Hour Planned		456	1111	1838	2506	3233	3936	4628	5355	6058	6790	7432	
CAH Achieved AH		4865	11585	19025	25625	33065	40265	47705	55145	62345	69785	76985	
EPH GT21		906516	9070916	9075016	9080316	9109816	9127816	9146116	9160216	9156316	9180316	9165216	
EPH GT21 after last Insp.		907257	911257	9136257	9306357	943157	963157	986457	990557	996657	1000657	1005557	
EPH GT22		8948471	8958071	8962971	9003971	9014171	9018171	9025671	9031171	9037271	9041271	9047971	
EPH GT22 after last Insp.		8502240	8562540	8602340	8673340	9115540	9155540	9230340	9285540	9346040	9386540		


Power Generation



Remark : item 25 Unplanned Time Remaining = Period Hour remain - CAH Remain - PlanOutage - Off line washing



Remark:	Replace Air Inlet filter GT111 (20 Nov 2019) , Brand : Freudenberg (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7)
	Replace Air Inlet filter GT112 (18 Apr 2018) , Brand : Donaldson ; (Class E12D) ; Pre-Filter Brand : Freudenberg (Class F7) on 1 Jan 2021
	Replace Air Inlet filter GT121 (20 Feb 2020) , Brand : Freudenberg (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7)
	Replace Air Inlet filter GT122 (10 Apr 2021) , Brand : Nordo ; (HEPA) ; (Class E11) ; Pre-Filter Brand : Freudenberg (Class F7) on 28 Jul 2020



Monthly Report

Ratchaburi Power Block #2

FROM: PLANNING MANAGER

Mr.Surachet Saranasuksawat

NOVEMBER 2023

Plant & Balance of Plant Condition Summary					
Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	3.07	4.66	14
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	0.95	5.94	14
3	Condenser Inlet Temp.	C	28.38	33.13	
4	Condenser Outlet Temp.	C	29.93	41.35	Diff.<9 -10 C
5	Sum of current CT fan	A	521.34	3,087.83	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	0.20	0.59	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	0.39	0.63	0.7
8	CT make up Cleaning Strainer	Time		0.00	2
9	Auxiliary CWP A Diff. Pressure	BAR	Stan By	Stan By	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	0.06	0.07	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	Stan By	Stan By	0.18
12	Close Cooling water Inlet Temp.	C	32.23	41.19	42
13	Close Cooling water Outlet Temp.	C	29.88	36.38	38
14	Service Water Conductivity	uS/cm	266.40	266.40	300
15	Circulating water Conductivity	uS/cm	1,298.00	1,360.00	<1600
16	Boiler Make up WTR Conductivity	uS/cm	0.86	0.86	-
17	Cond.water CEP Conductivity	uS/cm	16.13	16.13	-
18	Treated waste WTR Conductivity	uS/cm	1,513.00	1,513.00	2,000
19	Service Water pH	pH	7.63	7.63	-
20	Circulating water pH	pH	8.38	8.39	8.0-8.5
21	Cond.water CEP pH	pH	9.82	9.82	9.3-10.2
22	Treated waste WTR pH	pH	7.64	7.64	6.5-8.5
23	Turbidity of CW Basin	NTU	7.65	7.80	20
HRSG #21 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	63.29	78.61	96 (152)
25	SO _x	ppm	1.33	3.30	18 (18.8)
26	CO	ppm	3.27	9.79	690 (690)
27	Opacity	%	0.57	2.76	20 (20)
HRSG #22 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	65.82	79.70	96 (152)
29	SO _x	ppm	0.45	1.34	18 (18.8)
30	CO	ppm	8.73	9.99	690 (690)
0	Opacity	%	1.03	3.08	20 (20)

Remark:

Remark:



RATCHABURI POWER MONTHLY PERFORMANCE REPORT

Monthly: Dec-23
Duration: 1-Dec-23

ITEM	DESCRIPTION	CODE	UNIT	RP-C11	RP-C12	RP-C10	RP-CCL	RP-C21	RP-C22	RP-C20	RP-C23	31-Dec-23	Total Plant
1	Gross Efficiency	-	%	-	-	-	-	-	-	-	-	-	-
2	Net Efficiency (DCS)	-	%	-	-	-	-	-	-	-	-	-	-
3	Net Efficiency (Reve. Meter & PTT)	-	%	-	-	-	-	-	-	-	-	-	-
4	Gross Heat Rate	-	kJ/kWh	-	-	-	-	-	-	-	-	-	-
5	Net Heat Rate (DCS)	-	kJ/kWh	-	-	-	-	-	-	-	-	-	-
6	Net Heat Rate (Reve. Meter & PTT)	-	kJ/kWh	-	-	-	-	-	-	-	-	-	-
7	Gross Maximum Capacity	GMC	MW	245.80	245.80	275.20	766.80	245.80	245.80	275.20	766.80	1,533.60	1,533.60
8	Net Contracted Capacity	NGC	MW	224.39	224.39	251.23	700.00	224.39	224.39	251.23	700.00	1,400.00	1,400.00
9	Gross Generation	GG	MWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Output Factor	OF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Net Generation	NG	MWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Net Generation (Reve. Meter)	NG	MWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Dispatch Factor	DF	%	-	-	-	-	-	-	-	-	-	-
14	Station Service Power	-	MWh	0.00	0.00	-	1,663.27	0.00	0.00	-	580.88	2,244.15	2,244.15
15	Station Service Power Percentage	-	%	-	-	-	-	-	-	-	-	-	-
16	Period Hour	PH	Hr	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00	744.00
17	Available Hour	AH	Hr	443.00	453.00	453.00	448.00	446.50	446.50	446.50	446.50	446.50	446.50
18	Availability Factor	AF	%	59.54	60.89	60.89	60.22	60.01	60.01	60.01	60.01	60.01	60.01
19	Service Hour	SH	Hr	1.75	1.55	1.75	1.40	1.60	1.50	2.10	1.85	3.00	3.00
20	Service Factor	SF	%	0.24	0.21	0.24	0.19	0.22	0.20	0.28	0.25	0.25	0.25
21	Planned Outage Hour	POH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	Planned Outage Factor	POF	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Unplanned Outage Hour	UOH	Hr	301.00	291.00	291.00	296.00	297.50	297.50	297.50	297.50	297.50	297.50
24	Unplanned Outage Factor	UOF	%	40.46	39.11	39.11	39.78	39.99	39.99	39.99	39.99	39.99	39.99
25	Maintenance Outage Hour	MOH	Hr	301.00	291.00	291.00	296.00	297.50	297.50	297.50	297.50	297.50	297.50
26	Forced Outage Hour	FOH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Equivalent Unit Derated Hour	ELUDH	Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Equivalent Available Hour	EAH	Hr	443.00	453.00	453.00	448.00	446.50	446.50	446.50	446.50	446.50	446.50
29	Equivalent Available Factor (For EGAT PA)	EAF	%	-	-	-	60.22	-	-	60.01	-	-	-
30	Contract Available Hour	CAH	Hr	-	-	-	60.22	-	-	60.01	-	-	-
31	Reliability Factor	RF	%	0.58	0.53	0.60	0.47	0.53	0.50	0.70	0.62	-	-
32	Equivalent Operating Hour	EOH	Hr	60.00	60.00	-	-	81.00	61.00	-	-	-	-
33	Contract Available Hour	CAH	Hr	-	-	-	448.00	-	-	-	-	-	-
34	Fuel Gas Consumption	-	MMSCF	1.21	1.37	-	2.58	1.09	1.08	-	2.17	4.75	4.75
35	Fuel Oil Consumption	-	Ton	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00	0.00
36	Energy Consumption	-	MMBTU	1,020.70	1,149.62	-	2,170	915.22	909.79	-	1,825	3,995	3,995
37	Fuel Gas Energy Consumption (PTT)	-	MMBTU	781.09	879.75	-	1,661	838.57	833.60	-	1,672	3,333	3,333
38	Gross Fuel Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	#DIV/0!	#DIV/0!
39	Net Fuel Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	#DIV/0!	#DIV/0!
40	Gross Fuel Gas Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	#DIV/0!	#DIV/0!
41	Net Fuel Gas Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	#DIV/0!	#DIV/0!
42	Gross Fuel Oil Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	-	-
43	Net Fuel Oil Cost Rate	-	Baht/kWh	-	-	-	-	-	-	-	-	-	-
44	Net MWh sent out (revenue meter)	-	MWh	-	-	-	0.00	-	-	-	0.00	0.00	0.00
45	Net MVAh sent out (revenue meter)	-	MVAh	-	-	-	1.65	-	-	-	27.70	29.34	29.34
46	Net MWh Import (revenue meter)	-	MWh	-	-	-	1,612.99	-	-	-	530.59	2,143.58	2,143.58
47	Net MVAh Import (revenue meter)	-	MWh	-	-	-	1217.668	-	-	-	273.131	1491.199	1491.199
48	SOLAR GENERATE POWER (Inverter)	-	MMBTU	840.9557	-	-	-	-	-	-	-	306.94	306.94
49	Fuel Gas Heating Value (HHVsat)	-	kJ/kg	45955.7	-	-	-	-	-	-	-	28,176	28,176
50	Fuel Oil Heating Value (HHV)	-	kJ/kg	-	-	-	-	-	-	-	-	-	-

Remark: - Item 28 Calculated Block % Contract Available Factor = (CAH / PH) * 100 Used for EGAT PA.
- Dispatch factor calculation revised using net MWh from data GKI instead of net MWh from DCS and weight for each GT and ST (since Jan. 2013)

Reference: - Operation and Maintenance Agreement Schedule 8, appendix 3

Efficiency Engineer

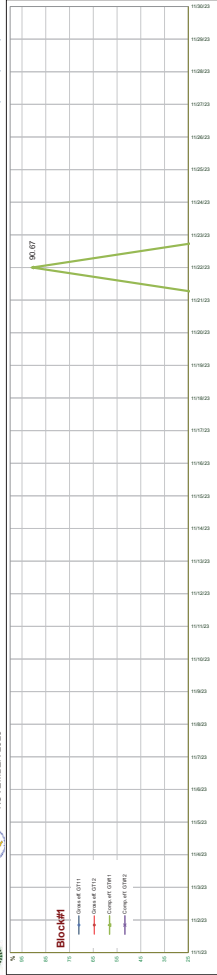
Reporter

Block1
Block2

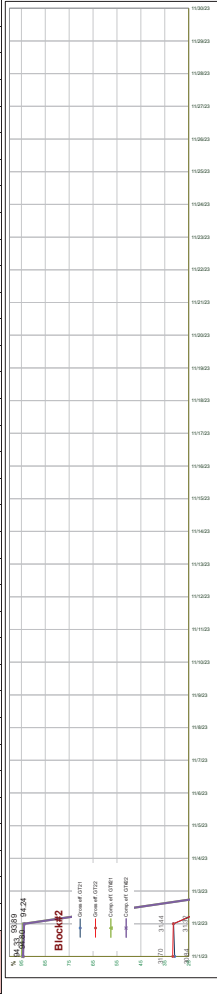
RPOL GT Compressor Efficiency % and GT Gross Efficiency %

NOVEMBER 2023

CRESCO



DATE	11/01	11/02	11/03	11/04	11/05	11/06	11/07	11/08	11/09	11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17	11/18	11/19	11/20	11/21	11/22	11/23	11/24	11/25	11/26	11/27	11/28	11/29	11/30
Block1	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07
Block2	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07



DATE	11/01	11/02	11/03	11/04	11/05	11/06	11/07	11/08	11/09	11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17	11/18	11/19	11/20	11/21	11/22	11/23	11/24	11/25	11/26	11/27	11/28	11/29	11/30
Block1	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07
Block2	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07

Remark: - Block1 shutdown for minor 29 Oct 2023 - 22 Nov 2023 (GT1 & 2 shut on 29 Nov 2023)
- Comp. eff. 23 at 2 no data on 29 Nov 2023



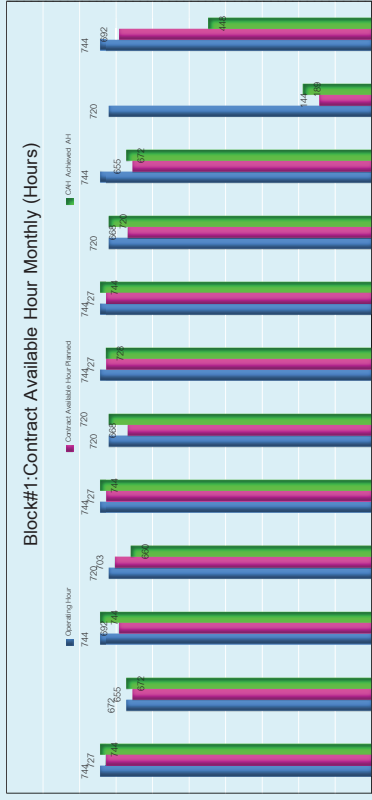
FROM PLANNING MANAGER
M. Surachet Saranasulawatt

DECEMBER
2023

FROM PLANNING MANAGER
M. Surachet Saranasulawatt

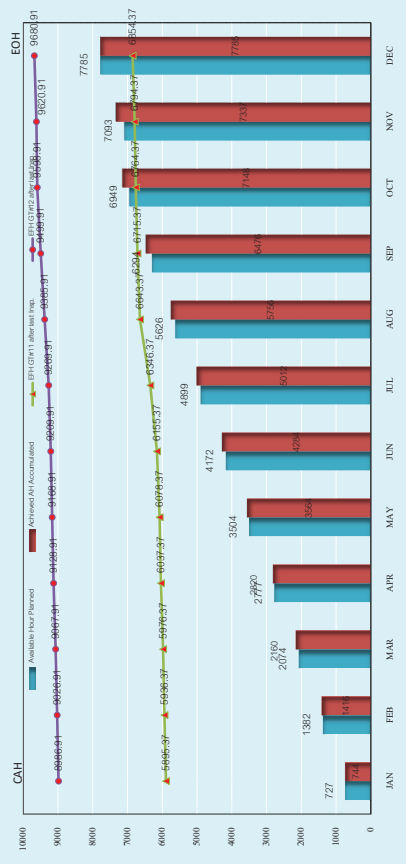
FROM PLANNING MANAGER
M. Surachet Saranasulawatt

Contract Available Hours & Equivalent Operating Hours Summary



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN-NOV
HOURS													
Operating Hour	744	672	744	720	744	720	744	724	720	744	720	744	8760
Contract Available Hour Planned	727	655	692	703	727	668	727	668	727	668	655	144	692
CAH Achieved AH	744	672	744	660	744	720	728	744	720	672	189	448	7785
EFH GT#11	184	41	40	61	41	77	191	297	72	49	30	60	1143
EFH GT#12	180	40	41	61	40	41	60	116	114	99	32	60	874

Block#1: CAH & EOH Accumulative (Hours)



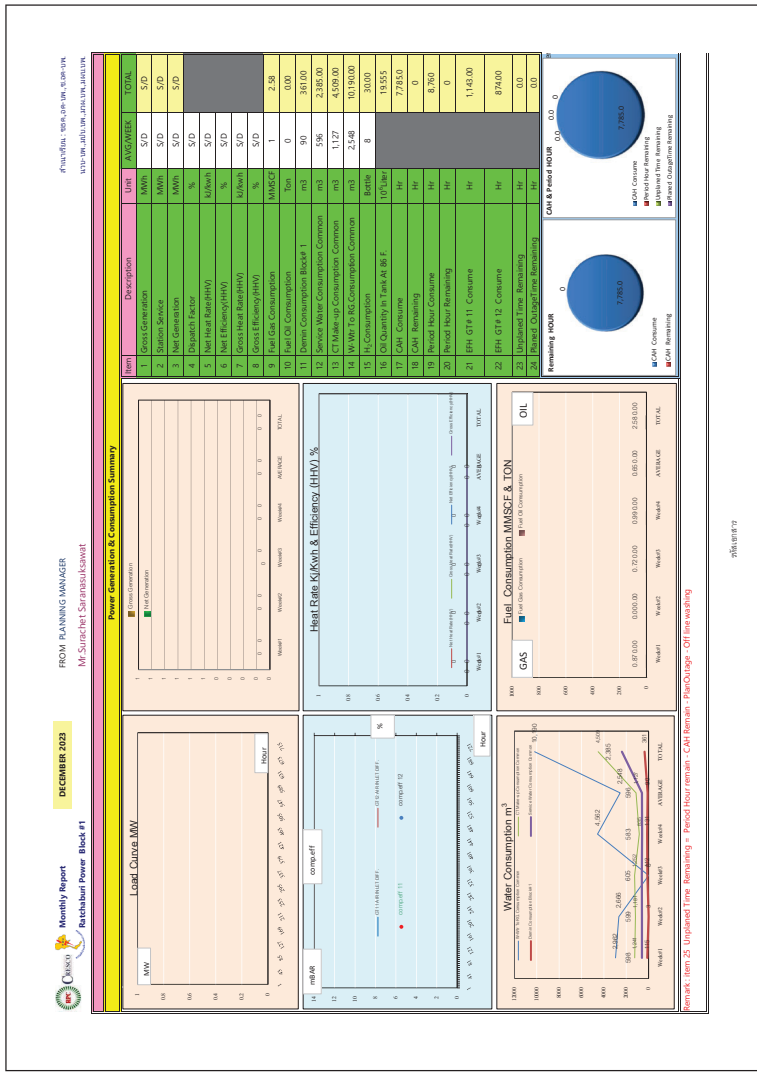
Accumulative Hours	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Operating Hour	744	1416	2160	2880	3624	4344	5088	5832	6552	7296	8016	8760
Available Hour Planned	727	1382	2074	2777	3504	4172	4899	5626	6294	6949	7785	
CAH Achieved AH	744	1416	2160	2820	3544	4284	5012	5756	6476	7148	7337	7785
EFH GT#11	8248.878	82529.78	82569.78	82630.78	82671.78	82748.78	82935.78	83236.78	83308.78	83387.78	83447.78	
EFH GT#11 after last Insp.	5993.37	5936.37	5973.37	6073.37	6153.37	6346.37	6463.37	6715.37	6794.37	6794.37	6794.37	6794.37
EFH GT#12	8633.309	86393.09	86434.09	86495.09	86535.09	86576.09	86636.09	86752.09	86866.09	86987.09	87047.09	
EFH GT#12 after last Insp.	9865.91	9026.91	9067.91	9128.91	9168.91	9209.91	9259.91	9315.91	9385.91	9499.91	9598.91	9603.91

Reference : RPCL 7 Years Planned Review 02017-02017

Remark :

วันที่ 01/12/23

หน้า 01





Monthly Report
Ratchaburi Power Block #1

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

Plant & Balance of Plant Condition Summary				
Item	Description	Unit	AVERAGE	MAX
1	GT#11 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D
2	GT#12 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D
3	Condenser Inlet Temp.	C	S/D	S/D
4	Condenser Outlet Temp.	C	S/D	S/D
5	Sum of current CT fan	A	S/D	S/D
6	CT make up pump A Diff. Pressure (common)	BAR	S/D	S/D
7	CT make up pump B Diff. Pressure (common)	BAR	S/D	S/D
8	CT make up Cleaning Strainer	Time		
9	Auxiliary CWP A Diff. Pressure	BAR	S/D	S/D
10	Auxiliary CWP B Diff. Pressure	BAR	S/D	S/D
11	Auxiliary CWP C Diff. Pressure	BAR	S/D	S/D
12	Close Cooling water Inlet Temp.	C	S/D	S/D
13	Close Cooling water Outlet Temp.	C	S/D	S/D
14	Service Water Conductivity	uS/cm	S/D	S/D
15	Circulating water Conductivity	uS/cm	S/D	S/D
16	Boiler Make up WTR Conductivity	uS/cm	S/D	S/D
17	Cond.water CEP Conductivity	uS/cm	S/D	S/D
18	Treated waste WTR Conductivity	uS/cm	S/D	S/D
19	Service Water pH	pH	S/D	S/D
20	Circulating water pH	pH	S/D	S/D
21	Cond water CEP pH	pH	S/D	S/D
22	Treated waste WTR pH	pH	S/D	S/D
23	Turbidity of CW Basin	NTU	S/D	S/D
HRSG #11 Emission Value @ 7%O ₂ 1 atm, 25 C.				MAX
24	NO _x	ppm	S/D	S/D
25	SO _x	ppm	S/D	S/D
26	CO	ppm	S/D	S/D
27	Opacity	%	S/D	S/D
HRSG #12 Emission Value @ 7%O ₂ 1 atm, 25 C.				MAX
28	NO _x	ppm	S/D	S/D
29	SO _x	ppm	S/D	S/D
30	CO	ppm	S/D	S/D
0	Opacity	%	S/D	S/D

ค่ามาตรฐาน : NO_x 400-ppm, SO_x 400-ppm, CO 400-ppm, WTR 400-ppm, WTR 400-ppm.

Remark :

หน้าเอกสาร

หน้ากระดาษที่ 01



Monthly Report
Ratchaburi Power : Block #2

FROM PLANNING MANAGER
Mr.Surachet Saranasuksawat

DECEMBER
2023

Contract Available Hours & Equivalent Operating Hours Summary



หน้าเอกสาร

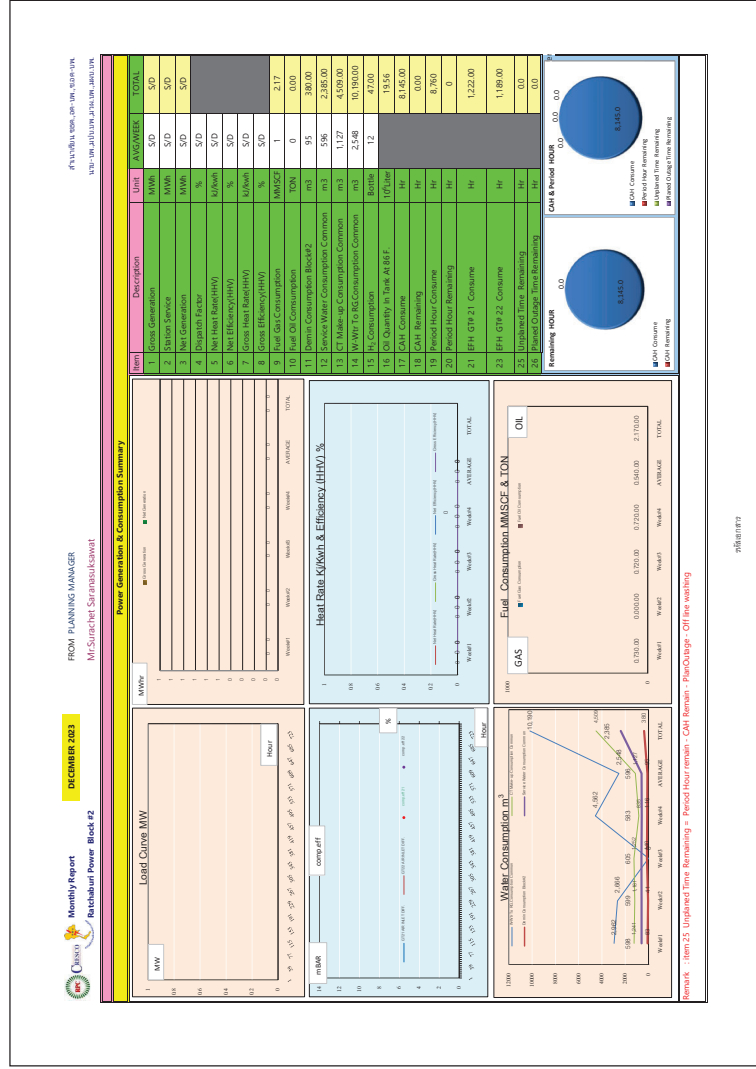
หน้ากระดาษที่ 01

Plant & Balance of Plant Condition Summary

Item	Description	Unit	AVERAGE	MAX	CRITICAL
1	GT#21 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
2	GT#22 Diff. Pressure Inlet Air Filter	mBAR	S/D	S/D	14
3	Condenser Inlet Temp.	C	S/D	S/D	Diff.<9 -10 C
4	Condenser Outlet Temp.	C	S/D	S/D	
5	Sum of current CT fan	A	S/D	S/D	3,798
6	CT make up pump A Diff. Pressure (common)	BAR	S/D	S/D	0.7
7	CT make up pump B Diff. Pressure (common)	BAR	S/D	S/D	0.7
8	CT make up Cleaning Strainer	Time		S/D	2
9	Auxiliary CWP A Diff. Pressure	BAR	S/D	S/D	0.18
10	Auxiliary CWP B Diff. Pressure	BAR	S/D	S/D	0.18
11	Auxiliary CWP C Diff. Pressure	BAR	S/D	S/D	0.18
12	Close Cooling water Inlet Temp.	C	S/D	S/D	42
13	Close Cooling water Outlet Temp.	C	S/D	S/D	38
14	Service Water Conductivity	uS/cm	S/D	S/D	300
15	Circulating water Conductivity	uS/cm	S/D	S/D	<1600
16	Boiler Make up WTR Conductivity	uS/cm	S/D	S/D	-
17	Cond.water CEP Conductivity	uS/cm	S/D	S/D	-
18	Treated waste WTR Conductivity	uS/cm	S/D	S/D	2,000
19	Service Water pH	pH	S/D	S/D	-
20	Circulating water pH	pH	S/D	S/D	8.0-8.5
21	Cond.water CEP pH	pH	S/D	S/D	9.3-10.2
22	Treated waste WTR pH	pH	S/D	S/D	6.5-8.5
23	Turbidity of CW Basin	NTU	S/D	S/D	20
HRSG #21 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
24	NO _x	ppm	S/D	S/D	96 (152)
25	SO _x	ppm	S/D	S/D	18 (18.8)
26	CO	ppm	S/D	S/D	690 (690)
27	Opacity	%	S/D	S/D	20 (20)
HRSG #22 Emission Value @ 7%O2 1 atm, 25 C.			AVERAGE	MAX	CRITICAL
28	NO _x	ppm	S/D	S/D	96 (152)
29	SO _x	ppm	S/D	S/D	18 (18.8)
30	CO	ppm	S/D	S/D	690 (690)
0	Opacity	%	S/D	S/D	20 (20)

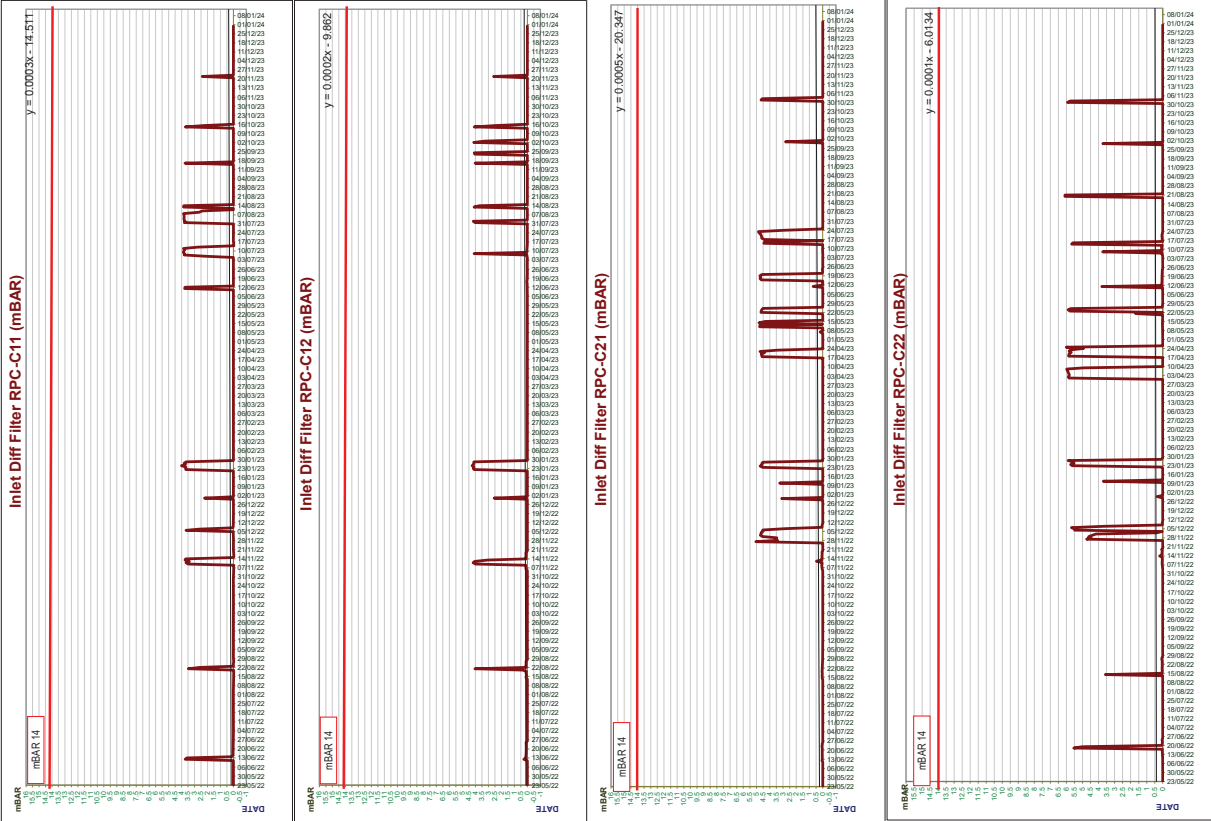
สำเนาเรียน : ชมค.อศ-บพ.,ช่อค-บพ.,วณ-บพ.,มป.บพ.,มท,มว,มพ.,

Remark:



GT AIR INLET FILTER

חברת: פילטרים, תל אביב, ישראל
מחלקה: פיתוח, תל אביב, ישראל

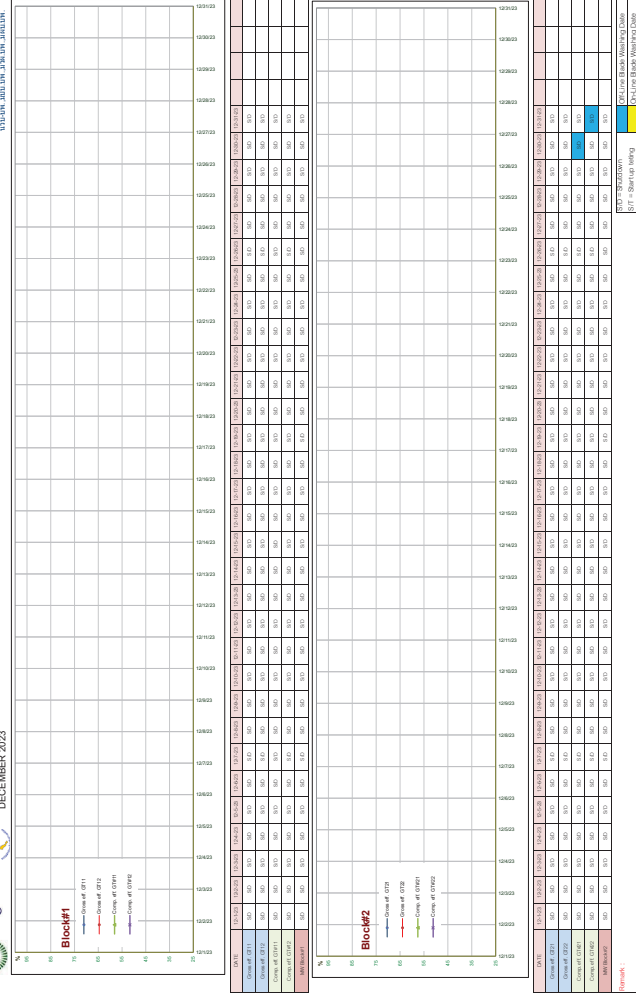


Remark :
Replace Air Inlet filter GT#11 (20 Nov 2019) . Brand : Freudenberg (Class E11); Pre-Filter Brand : Freudenberg (Class F7)
Replace Air Inlet filter GT#12 (19 Apr 2019) . Brand : Donaldson; (Class E1D); Pre-Filter Brand : Freudenberg (Class F7) on 1 Jan 2021
Replace Air Inlet filter GT#21 (20 Feb 2020) . Brand : Freudenberg (Class E11); Pre-Filter Brand : Freudenberg (Class F7)
Replace Air Inlet filter GT#22 (17 Apr 2021) . Brand : Nordic (HEPA); (Class E11); Pre-Filter Brand : Freudenberg (Class F7) on 28 Jul 2020



RPCL GT Compressor Efficiency % and GT Gross Efficiency%

חברת: פילטרים, תל אביב, ישראל
מחלקה: פיתוח, תל אביב, ישראל



ภาคผนวก ค-2

ปริมาณกระแสไฟฟ้าจากแผงเซลล์แสงอาทิตย์ชนิดติดตั้งบนหลังคา

Total Generated Power From Inverter Y2023 (kWh) : Rooftop

		31	28	31	30	31	30	31	31	30	31	30	31
Location	Inverter no.	January	February	March	April	May	June	July	August	September	October	November	December
Warehouse	Inverter 1 (100 kW)	14156.92	14433.32	17448.94	15620.55	16970.95	14570.21	14544.04	14187.67	13619.32	12720.35	13865.24	14093.50
	Inverter 2 (60 kW)	7997.64	8161.43	9898.02	8842.05	9615.04	8232.71	8211.13	8028.49	7664.45	7237.43	7858.54	7976.06
	Inverter 3 (100 kW)	11714.58	12128.51	15272.04	14151.32	15490.24	13334.81	13342.89	13028.51	11293.20	10742.35	11631.88	11568.62
Laydown	Inverter 1 (60 kW)	7705.82	8140.64	10098.39	9120.26	10051.16	8738.38	8641.02	8401.62	7927.99	7382.47	7688.33	7577.30
	Inverter 2 (60 kW)	7012.51	7597.75	9761.60	9168.37	10428.17	9119.13	8934.14	8517.93	7810.85	7086.36	7131.83	6840.60
	Inverter 3 (60 kW)	6476.33	6999.29	8944.03	8368.50	9401.80	8259.74	8174.27	7845.83	7267.28	6622.14	6660.85	6341.27
	Inverter 4 (60 kW)	6700.63	7249.73	9357.39	8748.40	9919.39	8743.29	8591.86	8216.89	7544.36	6897.65	6880.43	6515.56
Container	Inverter 1 (60 kW)	6123.85	6471.51	8135.64	7459.34	8289.22	7226.26	7139.02	6928.45	6475.88	5976.38	6158.32	6006.98
Canteen	Inverter 1 (60 kW)	8443.10	8349.98	10589.02	9496.59	10278.14	8759.62	8728.58	8530.03	8162.34	7592.37	8198.65	8362.02
Admin	Inverter 1 (100 kW)	13571.87	14261.84	17793.83	16399.51	18306.40	15992.57	15806.63	15214.29	14166.35	13020.28	13503.59	13407.42
Carpark	Inverter 1 (60 kW)	5607.71	6124.89	7783.67	7345.31	8271.18	7136.95	6979.03	6743.17	6211.12	5602.72	5603.13	5443.59
Security	Inverter 1 (36 kW)	4744.59	4864.19	5972.12	5217.06	5717.69	4842.10	4888	4746.78	4529.93	4234.26	4575.62	4651.43
Multi-Purpose	Inverter 1 (40 kW)	5681.15	5922.46	7362.82	6807.46	7443.91	6557.64	6510.65	6285.27	5892.11	5447.51	5639.99	5630.09
Total (kWh)		105,936.70	110,705.54	138,417.51	126,744.72	140,183.29	121,513.41	120,491.26	116,674.93	108,565.18	100,562.27	105,396.40	104,414.44

Assumption Solar Production in Peak Period

(5days/week).....factor 5/7

75669	79075	98870	90532	100131	86795	86065	83339	77547	71830	75283	74582
30268	31630	39548	36213	40052	34718	34426	33336	31019	28732	30113	29833
4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025
2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859
1.5492	1.5492	1.5492	1.5492	0.9119	0.9119	0.9119	0.9119	0.2048	0.2048	0.2048	0.2048

Assumption Solar Production in Peak Period

(2days/week).....factor 2/7

Backup Power in **Peak Period** ...Baht/unit

Backup Power in **Off-Peak Period** ...Baht/unit

FT RateBaht/unit

Monthly_Cost Saving in Peak Period....Baht	427,659	446,910	558,782	511,659	502,096	435,226	431,565	417,896	334,016	309,394	324,267	321,246
Monthly_Cost Saving in Off-Peak Period...Baht	125,160	130,794	163,534	149,743	140,095	121,437	120,416	116,602	86,564	80,183	84,037	83,254
Total Monthly Cost Saving (Before adjusting with plant service factor)	552,819	577,704	722,316	661,403	642,192	556,663	551,981	534,498	420,580	389,577	408,304	404,500
Capacity factors of the solar PV energy (%)	14.53%	16.81%	18.98%	17.96%	19.23%	17.22%	16.53%	16.00%	15.39%	13.79%	14.94%	14.32%
RPCL GTCC Service factor - Blk1	18.88%	0.00%	0.00%	0.00%	0.00%	0.97%	11.36%	19.42%	4.24%	2.89%	0.00%	0.00%
RPCL GTCC Service factor - Blk2	13.71%	0.00%	0.00%	31.32%	10.15%	6.11%	12.30%	0.94%	0.00%	0.00%	3.68%	0.00%
Higher Service Factor	18.88%	0.00%	0.00%	31.32%	10.15%	6.11%	12.30%	19.42%	4.24%	2.89%	3.68%	0.00%
RPCL GTCC Heat Rate (Btu/kWh)	7,049	0	0	7,112	7,216	7,391	7,267	7,240	7,697	7,835	7,202	0.00
NG Commodity Price (Baht per mmBtu)	478.67	503.52	504.53	449.97	347.27	344.22	328.11	335.62	306.94	306.94	306.94	306.94
GTCC Variable Cost (Baht/kWh)	3.37	0.00	0.00	3.20	2.51	2.54	2.4	2.4	2.4	2.4	2.2	0.0
Saving deduction due GTCC running	11,392	0	0	24,330	8,921	4,586	9,743	14,641	2,238	1,382	2,033	0
Total Monthly Cost Saving (After adjusting with plant service factor)	541,427	577,704	722,316	637,073	633,271	552,077	542,238	519,857	418,342	388,195	406,271	404,500

Total Generated Power From Inverter Y2023 (kWh) : On Ground													
Location	Inverter no.	31 January	28 February	31 March	30 April	31 May	30 June	31 July	31 August	30 September	31 October	30 November	31 December
Solar on Ground	Inverter 1 (185 kW)	29101.20	27185.50	31904.61	28882.81	30387.35	25603.06	24894.37	25177.36	24426.00	22953.74	24939.80	25897.52
	Inverter 2 (185 kW)	28233.07	26365.42	31161.76	28414.83	30027.95	25184.54	24438.81	24633.49	23882.84	22365.86	24067.27	24812.64
	Inverter 3 (185 kW)	28617.61	26545.68	31112.23	28156.38	29541.14	24814.72	24060.27	24231.25	23567.15	22131.73	24116.78	24925.54
	Inverter 4 (185 kW)	27787.45	26066.30	30615.73	28063.42	29565.33	24823.62	24108.35	24200.87	23328.61	21730.98	23338.27	23956.16
	Inverter 5 (185 kW)	28653.69	27559.59	33361.88	30556.51	32243.13	24720.74	25822.24	26250.07	25245.42	23633.42	25352.17	25723.18
	Inverter 6 (185 kW)	31578.42	29616.17	34459.22	31166.16	32466.16	27330.21	26528.95	26891.45	26261.83	24859.20	27245.04	28627.24
	Inverter 7 (185 kW)	31415.17	29527.99	34465.25	31166.05	32457.11	27329.30	26510.5	26849.39	26222.95	24783.98	27177.73	28357.52
Total (kWh)		205,386.61	192,866.65	227,080.68	206,406.16	216,688.17	179,806.19	176,363.49	178,233.88	172,934.80	162,458.91	176,237.06	182,299.80

Assumption Solar Production in Peak Period
(5days/week).....factor 5/7

146705	137762	162200	147433	154777	128433	125974	127310	123525	116042	125884	130214
58682	55105	64880	58973	61911	51373	50390	50924	49410	46417	50353	52086

Assumption Solar Production in Peak Period
(2days/week).....factor 2/7

Backup Power in **Peak Period...**Baht/unit
Backup Power in **Off-Peak Period ...**Baht/unit
FT Rate **.....**Baht/unit

4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025	4.1025
2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859	2.5859
1.5492	1.5492	1.5492	1.5492	0.9119	0.9119	0.9119	0.9119	0.2048	0.2048	0.2048	0.2048

Monthly Cost Saving in Peak Period....Baht	829,131	778,589	916,708	833,247	776,115	644,014	631,684	638,383	532,059	499,828	542,218	560,871
Monthly Cost Saving in Off-Peak Period...Baht	242,655	227,864	268,286	243,860	216,552	179,693	176,253	178,122	137,888	129,535	140,521	145,355
Total Monthly Cost Saving (Bafore adjusting with plant service factor)	1,071,787	1,006,453	1,184,995	1,077,107	992,667	823,708	807,936	816,505	669,947	629,363	682,740	706,227
Capacity factors of the solar PV energy (%)	18.58%	29.29%	31.14%	29.25%	29.72%	25.48%	24.19%	24.45%	24.51%	22.28%	24.98%	25.00%
RPCL GTCC Service factor - Blk1	18.88%	0.00%	0.00%	0.00%	0.00%	0.97%	11.36%	19.42%	4.24%	2.89%	0.00%	0.00%
RPCL GTCC Service factor - Blk2	13.71%	0.00%	0.00%	31.32%	10.15%	6.11%	12.30%	0.94%	0.00%	0.00%	3.68%	0.00%
Higher Service Factor	18.88%	0.00%	0.00%	31.32%	10.15%	6.11%	12.30%	19.42%	4.24%	2.89%	3.68%	0.00%
RPCL GTCC Heat Rate (Btu/kWh)	7,049	0.00	0.00	7111.74	7216.39	7391.03	7266.96	7240.40	7696.93	7834.84	7202.07	0.00
NG Commodity Price (Baht per mmBtu)	478.67	503.52	504.53	449.97	347.27	344.22	328.11	335.62	306.94	306.94	306.94	306.94
GTCC Variable Cost (Baht/kWh)	3.37	0.00	0.00	3.20	2.51	2.54	2.4	2.4	2.4	2.4	2.2	0.0
Saving deduction due GTCC running	22,086	0	0	39,621	13,789	6,786	14,261	22,366	3,565	2,233	3,400	0
Total Monthly Cost Saving (After adjusting with plant service factor)	1,049,700	1,006,453	1,184,995	1,037,486	978,878	816,922	793,675	794,139	666,382	627,131	679,340	706,227

ภาคผนวก ค-3

ข้อมูลปริมาณพลังงานไฟฟ้าที่ผลิตได้จากแผงประจำเดือน
และรายงานข้อมูลความเข้มของแสงอาทิตย์รายวัน (kWh/m²/d)



บริษัท ราชบุรีเพาวเวอร์ จำกัด
Ratchaburi Power Co., Ltd.

1828 ถนนสุขุมวิท แขวงพรหมนงค์ เขตปทุมวัน กรุงเทพฯ 10260 โทร : 0-2311-5111 โทรสาร : 0-2332-3882
1828 Sukhumvit Road, Phra Khanong Tai, Phra Khanong, Bangkok 10260 Tel : 0-2311-5111 Fax : 0-2332-3882

เลขที่ RPCL-S-006/2024

วันที่ 17 มกราคม 2567

เรื่อง ขอนำส่งข้อมูลปริมาณไฟฟ้าที่ผลิตได้จากแผงประจำเดือนและรายงานข้อมูลความเข้มของแสงอาทิตย์

เรียน เลขาธิการสำนักงานคณะกรรมการกำกับกิจการพลังงาน

สิ่งที่ส่งมาด้วย 1.ข้อมูลพลังงานไฟฟ้าที่ผลิตได้จากแผงประจำเดือน
2.ข้อมูลความเข้มแสงอาทิตย์รายวัน และข้อมูลปริมาณกำลังไฟฟ้าสูงสุด

ตามที่บริษัท ราชบุรีเพาวเวอร์ จำกัด ได้รับการเห็นชอบการขอเปลี่ยนแปลงรายละเอียดโครงการในรายงานประเมินผลกระทบสิ่งแวดล้อม โครงการขยายโรงไฟฟ้าราชบุรี (ครั้งที่2) ในหัวข้อที่ 5.6 มาตรการด้านการศึกษาประสิทธิภาพโครงการ โดยมาตรการป้องกันและแก้ไขผลกระทบสิ่งแวดล้อมระบุ “จัดทำและนำส่งข้อมูลซึ่งแสดงข้อมูลปริมาณกำลังไฟฟ้าสูงสุด และปริมาณพลังงานไฟฟ้าที่ส่งเข้าสู่ระบบโครงข่ายไฟฟ้า และข้อมูลปริมาณพลังงานไฟฟ้าที่ได้ผลิตได้จากแผงประจำเดือนรวมถึงรายงานข้อมูลความเข้มของแสงอาทิตย์รายวัน (kWh/m²/d) ให้สำนักงานคณะกรรมการกำกับกิจการพลังงานทราบทุก 6 เดือน ตลอดระยะเวลาดำเนินการ”

บัดนี้ บริษัทฯได้รวบรวมข้อมูลดังกล่าวแล้วเสร็จ จึงขอนำส่งรายงานดังกล่าว มายังสำนักคณะกรรมการกำกับกิจการพลังงาน เพื่อพิจารณาต่อไป (สิ่งที่ส่งมาด้วย 1 และ 2)

จึงเรียนมาเพื่อโปรดพิจารณา

ขอแสดงความนับถือ

(นายบุญชัย เลิศถาวรธรรม)

กรรมการผู้จัดการ

รายงานปริมาณพลังงานไฟฟ้าที่ผลิตได้จากแผง

ลำดับ	เดือน	รายงานปริมาณพลังงานไฟฟ้าที่ผลิต (kWh)
1	กรกฎาคม	297,254
2	สิงหาคม	295,302
3	กันยายน	281,882
4	ตุลาคม	263,373
5	พฤศจิกายน	281,987
6	ธันวาคม	287,062

รายงานประจำเดือน กรกฎาคม 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/m ²)	Peak Power (kW)
2023-07-01	1,486.215	5.664	1,121.257
2023-07-02	1,486.215	3.609	1,273.813
2023-07-03	1,486.215	4.948	1,217.547
2023-07-04	1,486.215	3.478	1,004.657
2023-07-05	1,486.215	4.901	1,277.397
2023-07-06	1,486.215	5.783	1,264.250
2023-07-07	1,486.215	5.759	1,131.457
2023-07-08	1,486.215	5.092	1,254.315
2023-07-09	1,486.215	3.960	1,154.792
2023-07-10	1,486.215	4.677	0.027
2023-07-11	1,486.215	4.745	1,157.439
2023-07-12	1,486.215	5.693	1,256.585
2023-07-13	1,486.215	5.512	1,295.000
2023-07-14	1,486.215	5.888	1,283.960
2023-07-15	1,486.215	5.699	1,221.506
2023-07-16	1,486.215	3.779	1,000.534
2023-07-17	1,486.215	4.260	1,276.231
2023-07-18	1,486.215	4.536	1,095.679
2023-07-19	1,486.215	4.133	1,174.702
2023-07-20	1,486.215	4.299	1,294.998
2023-07-21	1,486.215	3.764	1,030.902
2023-07-22	1,486.215	4.075	1,041.056
2023-07-23	1,486.215	4.489	1,129.637
2023-07-24	1,486.215	4.154	1,255.832
2023-07-25	1,486.215	4.991	1,287.715
2023-07-26	1,486.215	5.055	1,209.567
2023-07-27	1,486.215	5.881	1,295.000
2023-07-28	1,486.215	4.393	1,157.359
2023-07-29	1,486.215	4.519	1,220.086
2023-07-30	1,486.215	3.701	1,089.102
2023-07-31	1,486.215	3.676	1,289.204

รายงานประจำเดือน สิงหาคม 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/m ²)	Peak Power (kW)
2023-08-01	1,486.215	4.486	1,227.847
2023-08-02	1,486.215	2.745	961.213
2023-08-03	1,486.215	3.401	1,293.365
2023-08-04	1,486.215	5.275	1,290.104
2023-08-05	1,486.215	5.137	1,252.791
2023-08-06	1,486.215	4.878	1,255.850
2023-08-07	1,486.215	4.156	1,251.749
2023-08-08	1,486.215	4.142	1,295.000
2023-08-09	1,486.215	5.542	1,254.726
2023-08-10	1,486.215	5.204	1,281.419
2023-08-11	1,486.215	4.813	1,282.843
2023-08-12	1,486.215	4.142	1,289.978
2023-08-13	1,486.215	5.471	1,295.000
2023-08-14	1,486.215	4.536	1,291.766
2023-08-15	1,486.215	3.842	1,220.031
2023-08-16	1,486.215	4.119	945.073
2023-08-17	1,486.215	5.284	1,291.112
2023-08-18	1,486.215	6.934	1,172.474
2023-08-19	1,486.215	6.732	1,216.037
2023-08-20	1,486.215	4.684	1,251.013
2023-08-21	1,486.215	3.849	1,144.818
2023-08-22	1,486.215	4.413	1,258.436
2023-08-23	1,486.215	4.344	1,294.200
2023-08-24	1,486.215	4.217	1,295.000
2023-08-25	1,486.215	4.616	1,292.832
2023-08-26	1,486.215	4.479	1,281.796
2023-08-27	1,486.215	6.007	1,294.130
2023-08-28	1,486.215	5.676	1,294.760
2023-08-29	1,486.215	3.822	1,250.352
2023-08-30	1,486.215	4.270	1,252.274
2023-08-31	1,486.215	4.640	1,272.142

รายงานประจำเดือนกันยายน 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/㎡)	Peak Power (kW)
2023-09-01	1,486.215	4.309	1,294.117
2023-09-02	1,486.215	5.337	1,270.804
2023-09-03	1,486.215	5.823	1,228.692
2023-09-04	1,486.215	4.709	1,292.546
2023-09-05	1,486.215	5.480	1,257.262
2023-09-06	1,486.215	4.328	1,246.389
2023-09-07	1,486.215	4.063	1,192.412
2023-09-08	1,486.215	4.516	1,284.394
2023-09-09	1,486.215	5.185	1,295.000
2023-09-10	1,486.215	3.248	1,033.674
2023-09-11	1,486.215	4.118	1,294.298
2023-09-12	1,486.215	3.821	1,160.999
2023-09-13	1,486.215	3.975	1,258.205
2023-09-14	1,486.215	4.494	1,278.660
2023-09-15	1,486.215	3.801	970.703
2023-09-16	1,486.215	4.781	1,262.080
2023-09-17	1,486.215	4.125	1,282.306
2023-09-18	1,486.215	3.662	1,289.099
2023-09-19	1,486.215	5.851	1,212.309
2023-09-20	1,486.215	7.010	1,222.161
2023-09-21	1,486.215	6.805	1,242.518
2023-09-22	1,486.215	6.222	1,269.838
2023-09-23	1,486.215	4.469	1,283.091
2023-09-24	1,486.215	4.003	1,260.715
2023-09-25	1,486.215	5.757	1,206.424
2023-09-26	1,486.215	4.302	1,198.685
2023-09-27	1,486.215	3.646	1,137.150
2023-09-28	1,486.215	4.297	1,295.000
2023-09-29	1,486.215	4.675	1,263.895
2023-09-30	1,486.215	4.424	1,287.712

รายงานประจำเดือนตุลาคม 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/㎡)	Peak Power (kW)
2023-10-01	1,486.215	4.754	1,143.992
2023-10-02	1,486.215	4.951	1,292.408
2023-10-03	1,486.215	6.159	1,224.993
2023-10-04	1,486.215	3.659	1,284.326
2023-10-05	1,486.215	4.598	1,278.102
2023-10-06	1,486.215	4.141	1,271.503
2023-10-07	1,486.215	4.303	1,262.537
2023-10-08	1,486.215	3.937	1,182.017
2023-10-09	1,486.215	5.818	1,262.785
2023-10-10	1,486.215	3.877	1,195.032
2023-10-11	1,486.215	2.876	1,263.155
2023-10-12	1,486.215	3.901	1,261.460
2023-10-13	1,486.215	4.088	1,265.723
2023-10-14	1,486.215	6.173	1,283.729
2023-10-15	1,486.215	5.079	1,245.647
2023-10-16	1,486.215	3.559	881.207
2023-10-17	1,486.215	4.363	1,209.241
2023-10-18	1,486.215	4.241	1,260.504
2023-10-19	1,486.215	5.793	1,248.252
2023-10-20	1,486.215	4.929	1,275.597
2023-10-21	1,486.215	2.861	1,189.155
2023-10-22	1,486.215	4.300	1,294.522
2023-10-23	1,486.215	4.797	1,255.735
2023-10-24	1,486.215	4.774	1,246.986
2023-10-25	1,486.215	3.890	1,237.006
2023-10-26	1,486.215	3.941	1,294.387
2023-10-27	1,486.215	3.708	1,289.527
2023-10-28	1,486.215	5.465	1,233.269
2023-10-29	1,486.215	4.849	1,287.022
2023-10-30	1,486.215	2.388	1,293.945
2023-10-31	1,486.215	1.977	576.745

รายงานประจำเดือนพฤศจิกายน 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/㎡)	Peak Power (kW)
2023-11-01	1,486.215	5.963	1,271.934
2023-11-02	1,486.215	5.403	1,270.668
2023-11-03	1,486.215	5.911	1,188.363
2023-11-04	1,486.215	4.228	1,187.896
2023-11-05	1,486.215	4.085	1,222.747
2023-11-06	1,486.215	6.501	1,223.393
2023-11-07	1,486.215	6.300	1,255.994
2023-11-08	1,486.215	6.235	1,253.111
2023-11-09	1,486.215	3.611	1,105.284
2023-11-10	1,486.215	3.194	1,235.399
2023-11-11	1,486.215	3.861	1,292.273
2023-11-12	1,486.215	3.986	1,191.475
2023-11-13	1,486.215	3.753	1,211.671
2023-11-14	1,486.215	2.802	1,246.489
2023-11-15	1,486.215	4.253	1,212.517
2023-11-16	1,486.215	5.047	1,229.410
2023-11-17	1,486.215	4.760	1,295.000
2023-11-18	1,486.215	6.092	1,184.549
2023-11-19	1,486.215	5.140	1,295.000
2023-11-20	1,486.215	6.625	1,181.560
2023-11-21	1,486.215	6.526	1,170.414
2023-11-22	1,486.215	6.423	1,139.005
2023-11-23	1,486.215	5.625	1,293.315
2023-11-24	1,486.215	6.515	1,160.842
2023-11-25	1,486.215	6.368	1,142.615
2023-11-26	1,486.215	3.996	1,249.623
2023-11-27	1,486.215	3.266	1,053.298
2023-11-28	1,486.215	4.053	914.665
2023-11-29	1,486.215	3.263	1,099.104
2023-11-30	1,486.215	5.311	1,061.778

รายงานประจำเดือน ธันวาคม 2566

Statistical Period	Total String Capacity (kWp)	Global Irradiation (kWh/㎡)	Peak Power (kW)
2023-12-01	1,486.215	5.174	1,289.381
2023-12-02	1,486.215	4.512	1,242.479
2023-12-03	1,486.215	5.217	1,235.016
2023-12-04	1,486.215	3.624	1,278.798
2023-12-05	1,486.215	4.032	1,279.801
2023-12-06	1,486.215	5.471	1,177.485
2023-12-07	1,486.215	4.266	1,144.557
2023-12-08	1,486.215	4.458	1,232.924
2023-12-09	1,486.215	5.422	1,183.546
2023-12-10	1,486.215	6.026	1,164.487
2023-12-11	1,486.215	5.131	1,135.627
2023-12-12	1,486.215	4.796	1,122.330
2023-12-13	1,486.215	4.466	1,081.990
2023-12-14	1,486.215	4.891	1,069.691
2023-12-15	1,486.215	5.701	1,154.991
2023-12-16	1,486.215	4.853	1,141.027
2023-12-17	1,486.215	5.590	1,181.059
2023-12-18	1,486.215	6.304	1,106.295
2023-12-19	1,486.215	6.246	1,125.173
2023-12-20	1,486.215	6.001	1,168.510
2023-12-21	1,486.215	6.314	1,118.575
2023-12-22	1,486.215	6.334	1,145.428
2023-12-23	1,486.215	6.350	1,164.326
2023-12-24	1,486.215	3.058	847.693
2023-12-25	1,486.215	5.282	1,225.011
2023-12-26	1,486.215	4.525	1,170.506
2023-12-27	1,486.215	6.260	1,111.255
2023-12-28	1,486.215	6.317	1,122.054
2023-12-29	1,486.215		0.000
2023-12-30	1,486.215	4.677	1,471.119
2023-12-31	1,486.215	5.999	1,100.106

ภาคผนวก ง

โครงการศึกษาเพื่อสำรวจและวิเคราะห์สาเหตุและ
ปัจจัยที่ทำให้เกิดโอโซนในพื้นที่โดยรอบโรงไฟฟ้าราชบุรี



บริษัท ราชบุรีเพาเวอร์ จำกัด

Ratchaburi Power Co.,Ltd.

รายงานฉบับสมบูรณ์

โครงการศึกษาเพื่อสำรวจและวิเคราะห์สาเหตุและปัจจัยที่ทำให้เกิดโอโซน
ในพื้นที่โดยรอบโรงไฟฟ้าราชบุรีและพื้นที่จังหวัดราชบุรี



บริษัท ซีคอต จำกัด

กรกฎาคม 2551

ภาคผนวก จ-1

ผลการตรวจวัดคุณภาพอากาศ
แบบอัตโนมัติอย่างต่อเนื่อง (CEMs)

STANDARD GAS FOR CEMs REMAINING REPORT

Report CEM: Jul-23
HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	2.19	19/7/2023 15:00	1,049.47	0.83	0.02	1.49							18.88
NO _x 7%O ₂	ppm.	79.33	18/7/2023 14:00	1,542.25	61.74	46.97	74.54						96	152
CO 7%O ₂	ppm.	6.85	22/7/2023 08:00	849.20	1.32	0.03	2.77						690	690
Opacity	%	2.82	15/7/2023 05:00	838.67	1.63	1.31	1.78							
O ₂	%	13.99	22/7/2023 12:00	836.38	13.76	13.46	13.91							
Flow	1000M ³ /Hr	1,636.32	22/7/2023 04:00		1,240.15	802.51	1,585.83							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	0.76	15/7/2023 04:00	940.29	0.55	0.38	0.74							18.88
NO _x 7%O ₂	ppm.	79.40	14/7/2023 22:00	1,669.74	64.95	51.19	78.55						96	152
CO 7%O ₂	ppm.	7.59	15/7/2023 04:00	940.29	6.84	6.16	7.43						690	690
Opacity	%	2.05	14/7/2023 16:00	812.12	1.18	0.65	1.80							
O ₂	%	13.81	14/7/2023 20:00	1,400.35	13.72	13.58	13.80							
Flow	1000M ³ /Hr	1,669.74	14/7/2023 22:00		1,289.01	812.12	1,665.05							

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

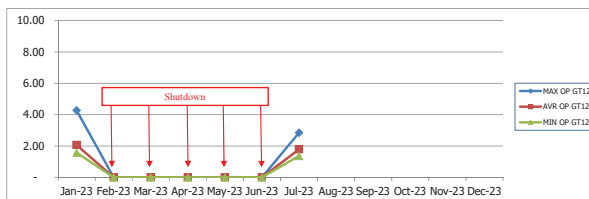
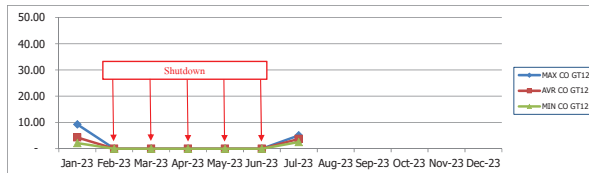
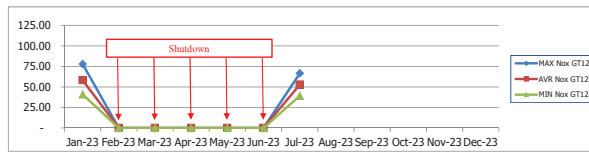
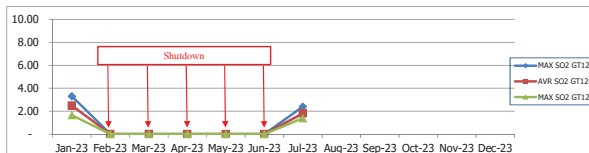
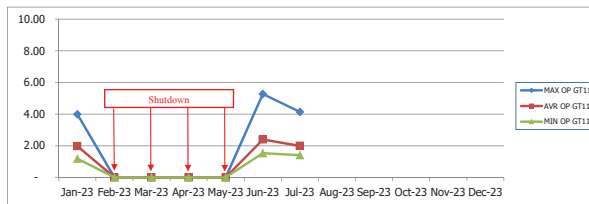
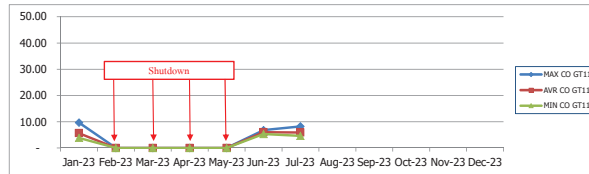
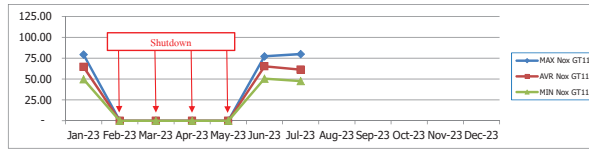
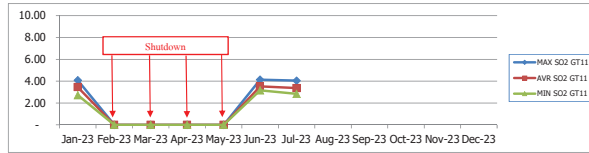
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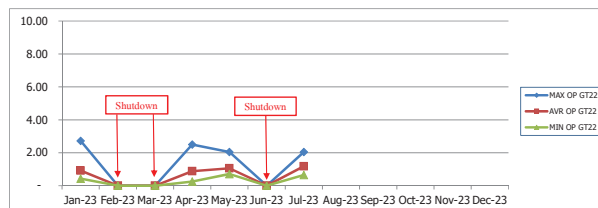
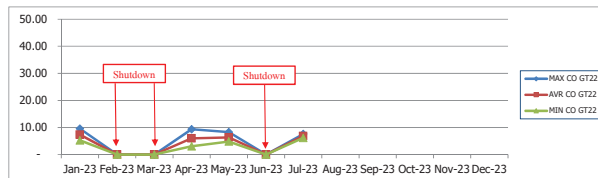
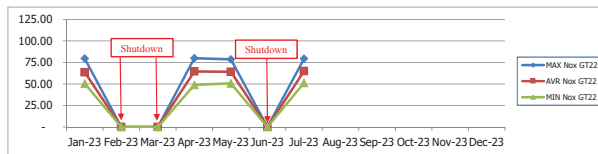
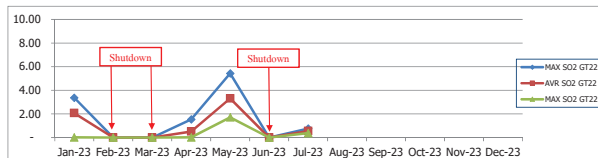
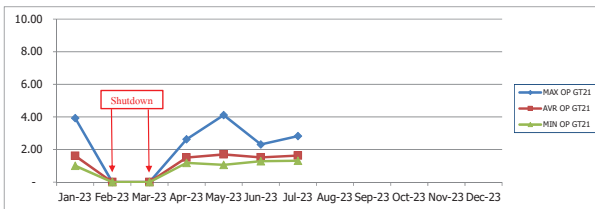
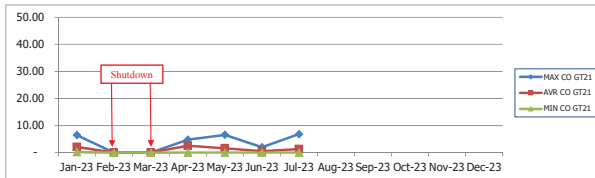
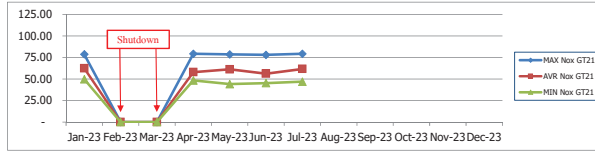
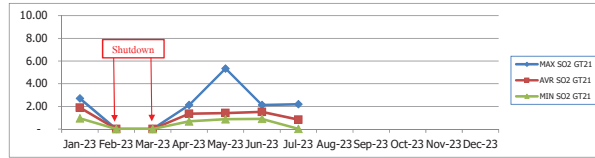
Maintenance Statistic of Environment Protection Equipment

Month: Jul-23

CEMS HRSG11							CEMS HRSG12							CEMS HRSG21							CEMS HRSG22							Waste Water Control									
No. of PM	No. of CM		No. of IM		Exceed Standard		No. of PM	No. of CM		No. of IM		Exceed Standard		No. of PM	No. of CM		No. of IM		Exceed Standard		No. of PM	No. of CM		No. of IM		Exceed Standard		No. of PM	No. of CM	No. of IM	Exceed Standard						
4					-		4					-		4					-		4					-		1									
Cause of Failure (No. of Incident)							Cause of Failure (No. of Incident)							Cause of Failure (No. of Incident)							Cause of Failure (No. of Incident)							Cause of Failure (No. of Incident)									
Part Damage					-		Part Damage					-		Part Damage					-		Part Damage					-		Part Damage			-						
Site Conditions					-		Site Conditions					-		Site Conditions					-		Site Conditions					-		Site Conditions			-						
Human Error					-		Human Error					-		Human Error					-		Human Error					-		Human Error			-						
Calibration							Calibration							Calibration							Calibration							Calibration									
Parameter	Zero Error (% of FS)					Span Error (% of FS)		Parameter	Zero Error (% of FS)					Span Error (% of FS)		Parameter	Zero Error (% of FS)					Span Error (% of FS)		Parameter	Zero Error (% of FS)					Span Error (% of FS)		Parameter	As Found		As Left		
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.1				Cal.2	Cal.1	Cal.2	Cal.3	Cal.4				Cal.1	Cal.2	Cal.1	Cal.2	Cal.3				Cal.4	Cal.1	Cal.2										
Nox	-	0.16	-	0.08	0.08	0.33	Nox	-	0.25	-	0.08	1.25	1.75	Nox	-0.16	-	0.08	-	0.08	0.58	Nox	0.75	-	0.50	-	0.92	0.75	Ph Sludge	Cal.1	Cal.2	Cal.1	Cal.2					
SOx	-	0.02	-	0.00	1.12	1.29	SOx	-	-0.08	-	-0.08	1.86	0.32	SOx	-0.20	-	-0.11	-	0.53	0.88	SOx	-0.06	-	-0.02	-	1.03	0.47		81.40	90.30	91.80	95.42					
CO	-	0.11	-	0.00	0.15	0.28	CO	-	0.00	-	-0.11	0.43	0.76	CO	-0.21	-	-0.21	-	0.21	0.76	CO	-0.22	-	-0.22	-	1.01	1.23										
O2	-	-0.21	-	-0.08	0.00	0.04	O2	-	-0.26	-	-0.56	0.04	0.13	O2	0.52	-	-0.26	-	0.13	0.39	O2	-0.17	-	0.04	-	0.08	0.04										
Remark																																					

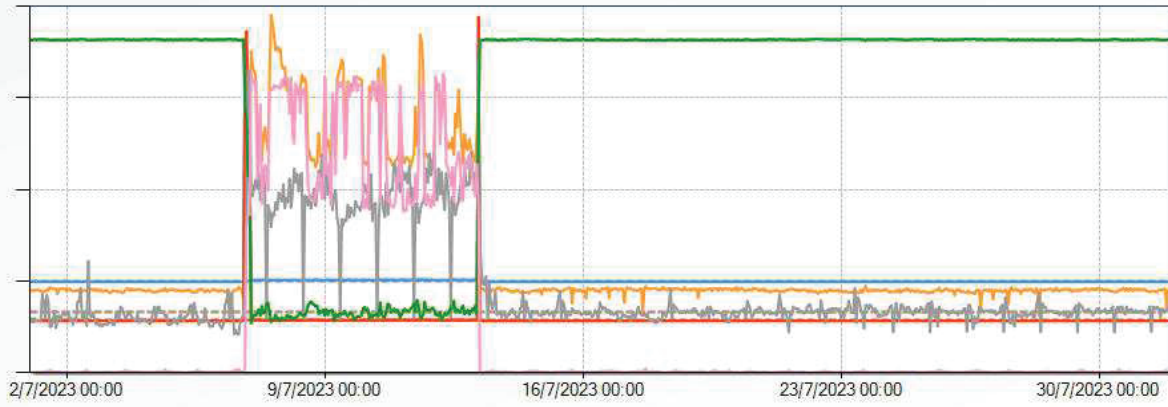
* :Re-Calibrate (Zero Diff' >±1%) (Span Diff' >±2%)





GT11

Hourly Trend

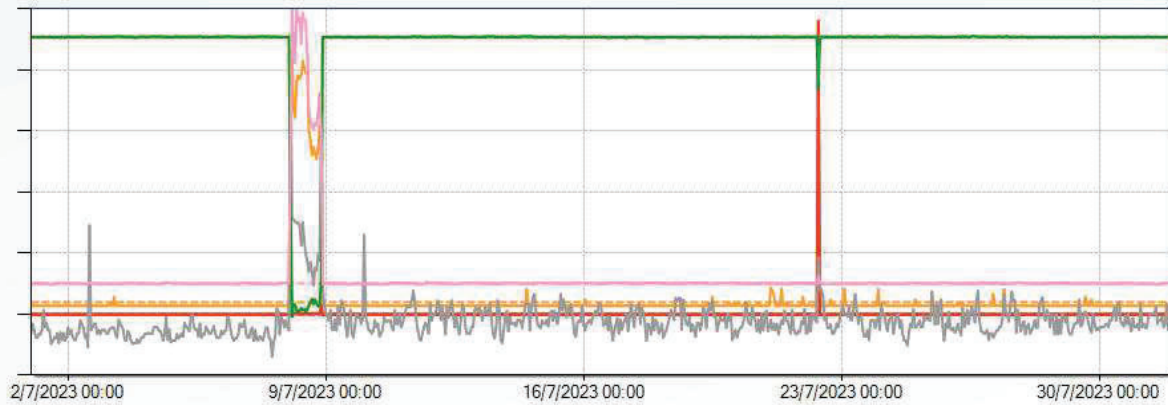


From 1-Jul-2023 00:00 to 31-Jul-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCA111_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCA111_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCA111_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1"/> <input type="text" value="5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT12

Hourly Trend



From 1-Jul-2023 00:00 to 31-Jul-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCA112_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-100"/> <input type="text" value="500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCA112_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCA112_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0.5"/> <input type="text" value="4"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="1500"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend

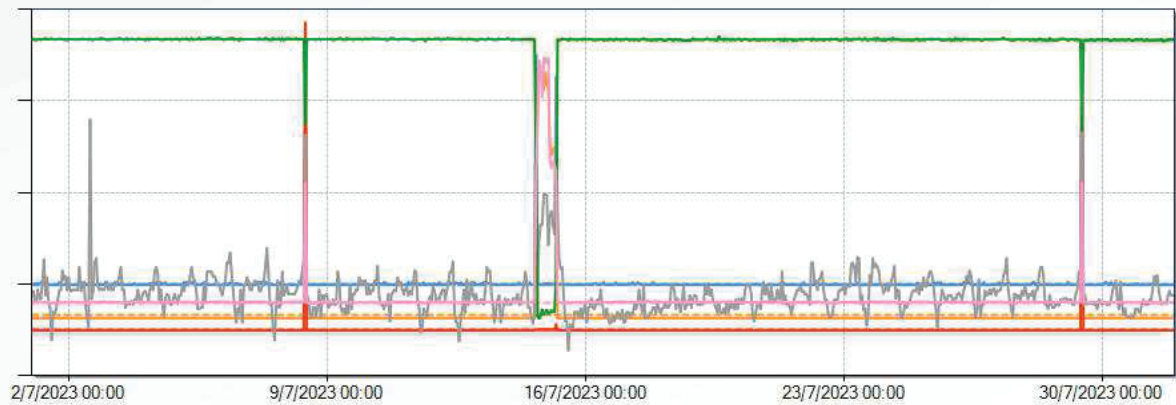


From 1-Jul-2023 00:00 to 31-Jul-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCA121_21 - SO ₂ (7% O ₂)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCA121_02 - NO _x (7% O ₂)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCA121_31 - CO (7% O ₂)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O ₂	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm ³ /h

GT22

Hourly Trend



From 1-Jul-2023 00:00 to 31-Jul-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
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<input checked="" type="checkbox"/> 22RCA122_02 - NO _x (7% O ₂)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCA122_31 - CO (7% O ₂)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="2.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O ₂	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm ³ /h

Calibrate and Maintenance Continuouse Emission Monitor				page 1
Monthly Report				Jul-23
D/M/Y	CEMs	Description	Remark	
4/7/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRS G11 Shutdown	PM 66033873	
	12	Inspection & calibrate Zero Skip : No calibrate because HRS G12 Shutdown	PM 66033884	
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66033895	
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66033906	

Calibrate and Maintenance Continuouse Emission Monitor				page 2
Monthly Report				Jul-23
D/M/Y	CEMs	Description	Remark	
11/7/2023	11	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every mounth	PM 66037740	
	12	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every mounth	PM 66037755	
	21	Inspection & calibrate Zero Skip : No calibrate because HRS G11 Shutdown	PM 66037770	
	22	Inspection & calibrate Zero Skip : No calibrate because HRS G12 Shutdown	PM 66037781	

Calibrate and Maintenance Continuouse Emission Monitor				page 3
Monthly Report				Jun-23
D/M/Y	CEMs	Description	Remark	
18/7/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRS G11 Shutdown	PM 66038265	
	12	Inspection & calibrate Zero Skip : No calibrate because HRS G12 Shutdown	PM 66038276	
	21	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every mounth	PM 66038287	
	22	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every mounth	PM 66038302	

Calibrate and Maintenance Continuouse Emission Monitor				page 4
Monthly Report				Jul-23
D/M/Y	CEMs	Description	Remark	
25/7/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66039217	
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66039228	
	21	Inspection & calibrate Zero Skip : No calibrate because HRS G11 Shutdown	PM 66039239	
	22	Inspection & calibrate Zero Skip : No calibrate because HRS G12 Shutdown	PM 66039250	



STANDARD GAS FOR CEMs REMAINING REPORT

Aug-23

STANDARD		Full condition			HRSG 11					HRSG 12					HRSG 21					HRSG 22					TOTAL			
					(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status				
								Cylinder Number					Spare Standard gas					Cylinder Number					Spare Standard gas			Cylinder Number	Spare Standard gas	Cylinder Number
		GAS	(Psi)	Time	Liter	Estimated Reorder due date			Estimated Reorder due date			Estimated Reorder due date			Estimated Reorder due date			Estimated Reorder due date			Estimated Reorder due date			Estimated Reorder due date				GAS
CEM ₃	N ₂	2000	35	31	350	5	5.43	31-Dec-27 5139950Y Apr-23	Spare 4621318Y 14-Apr-30	2320	71	35.96	14-Apr-30 4621276Y Aug-24		680	16	10.54	31-Dec-27 5662912Y Jul-23	Spare 5139943Y 28-Dec-30	1960	59	30.38	14-Apr-30 5662952Y May-24					82.31
			56	50																								
	NO _x	2000	34	31	680	10	10.54	26-Oct-28 CC739905 Jul-23	Spare D920684 28-Feb-26	2180	39.6	33.79	82/2/2026 D920685 Oct-24		2000	36	31.00	21-Feb-26 D271320 Aug-24		2050	37	31.78	21-Feb-26 D271360 Sep-24					107.11
	SO ₂	2000	22	31	650	6	10.08	6-Dec-29 EB0146949 May-23	Spare D898039 21-Mar-31	1740	21	26.97	21-Mar-31 D898040 Dec-23		290	1	4.50	6-Dec-29 EB0146959 Feb-23	Spare D898048 21-Mar-31	1210	13	18.76	26-Jan-31 CC757452 Aug-23	PO Inprogress REF. PR 1000387767				
CO	2000	34	31	1640	29	25.42	25-Jan-30 CC456000 Apr-24	Spare CC91752 3-Jan-31	1980	35.6	30.69	16-Nov-29 CC746718 Jul-24		2040	36.8	31.62	3-Jan-31 CC472026 Aug-24		1790	31.8	27.75	16-Nov-29 CC746735 May-24					115.48	
		55	50																									
O ₂	2000	34	47	640	9	15.04	20-Mar-25 SN599 Jul-23	Spare 1491885 4-Feb-31	1320	22	31.02	20-Oct-28 447627 Feb-24		1490	26	35.02	20-Oct-28 6547 Mar-24		580	8	13.63	19-Oct-28 CC739904 Jun-23	Spare 379505 12-Jul-31					94.71

*Note : Normal Pressure is 2000 PSI.

N2: Calibrate 1 time / 1 week NO_x,SO₂,CO,O₂ : Calibrate 1 time / 2 week *EPD:Expired date , CN:Cylinder Number , ES PE:Estimated Recorder Due Date

Spare Standard Gas *N2 Has Store 31,50 Litre (4621318Y 14-APR-2030 , 5139943Y 28-DEC-2030)

*Nox Has Store 31 Litre (D920684 28-FEB-2026)

*SO2 Has Store 31 Litre (D898039 21-MAR-2031 , D898048 21-MAR-2031)

*CO Has Store 31,50 Litre (CC91752 3-JAN-2031)

*O2 Has Store 34 Litre (1491885 4-FEB-2031 , 379505 12-JUL-2031)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อันดนน)

Issue date

1-Sep-23

Report CEM: Aug-23

HRSG 11

Description	Unit / Hr.	Fuel Gas							Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Flow	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow					Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	4.05	2/8/2023 10:00	903.44	3.48	2.61	3.80								18.88
NO _x 7%O ₂	ppm.	79.91	4/8/2023 23:00	1,609.31	61.49	47.75	77.57							96	152
CO 7%O ₂	ppm.	8.41	2/8/2023 10:00	903.44	5.92	4.44	6.74							690	690
Opacity	%	5.46	2/8/2023 10:00	879.87	2.19	1.67	2.47								
O ₂	%	13.99	4/8/2023 12:00	947.62	13.71	13.27	13.90								
Flow	1000M ³ /Hr	1,637.70	4/8/2023 01:00		1,245.74	839.58	1,600.43								

HRSG 12

Description	Unit / Hr.	Fuel Gas							Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Flow	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow					Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	2.44	13/8/2023 21:00	1,543.85	1.98	1.51	2.24								18.88
NO _x 7%O ₂	ppm.	71.66	13/8/2023 14:00	1,422.32	52.05	38.82	65.30							96	152
CO 7%O ₂	ppm.	5.28	2/8/2023 07:00	825.17	3.14	1.98	4.05							690	690
Opacity	%	3.12	13/8/2023 04:00	809.14	2.02	1.63	2.29								
O ₂	%	13.99	2/8/2023 12:00	842.56	13.76	13.53	13.91								
Flow	1000M ³ /Hr	1,547.06	13/8/2023 20:00		1,154.05	809.14	1,484.16								

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อันดนน)

Report CEM: Aug-23
HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	-	1/8/2023 00:00	-	-	-	-							18.88
NO _x 7%O ₂	ppm.	-	1/8/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/8/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/8/2023 00:00	-	-	-	-							
O ₂	%	-	1/8/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/8/2023 00:00	-	-	-	-							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	0.89	20/8/2023 20:00	1,718.26	0.48	0.16	0.74							
NO _x 7%O ₂	ppm.	69.61	20/8/2023 19:00	1,685.07	62.28	46.88	68.65						96	152
CO 7%O ₂	ppm.	9.94	21/8/2023 00:00	1,656.01	9.63	9.31	9.89						690	690
Opacity	%	2.68	20/8/2023 17:00	856.98	1.65	1.43	2.05							
O ₂	%	13.64	21/8/2023 00:00	1,656.01	13.57	13.46	13.61							
Flow	1000M ³ /Hr	1,718.26	20/8/2023 20:00		1,383.47	856.98	1,684.34							

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

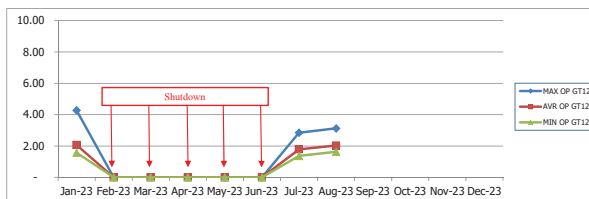
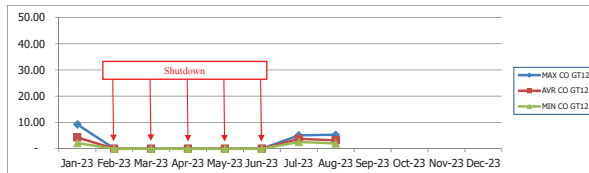
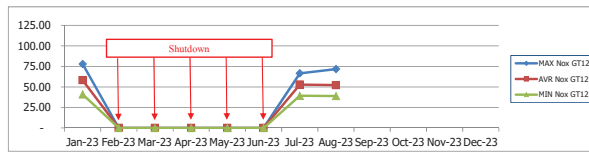
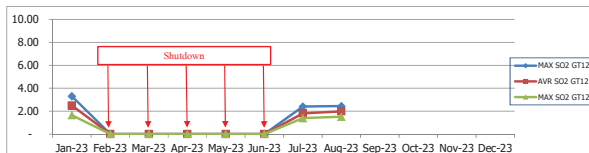
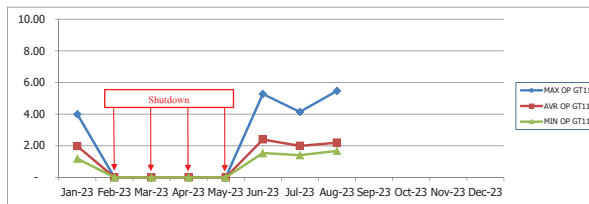
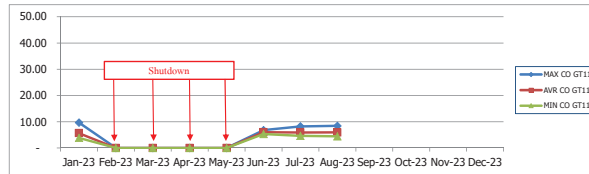
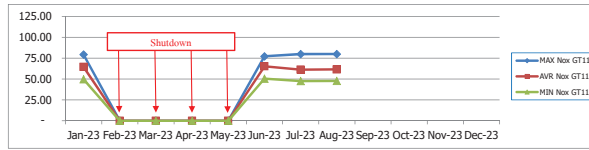
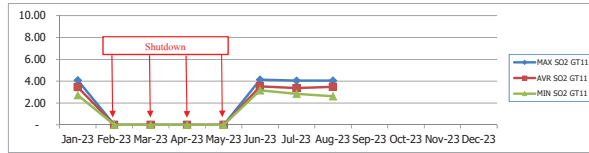
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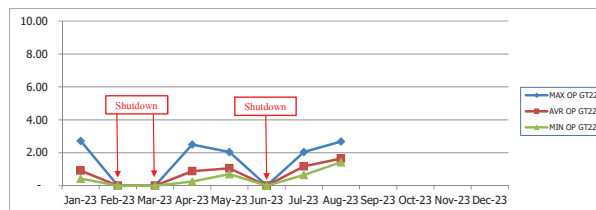
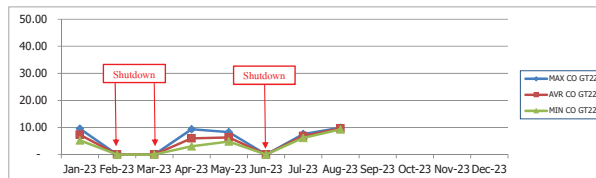
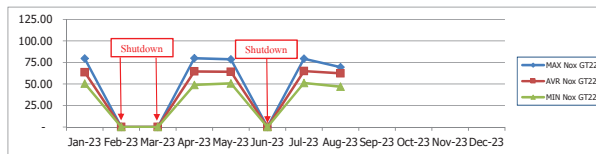
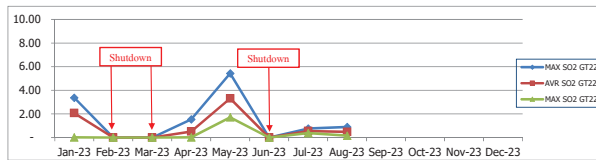
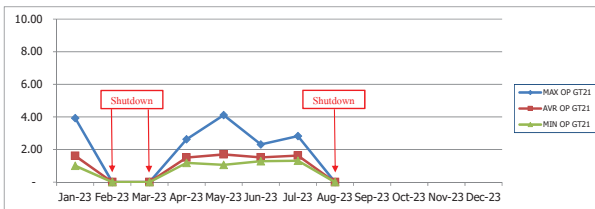
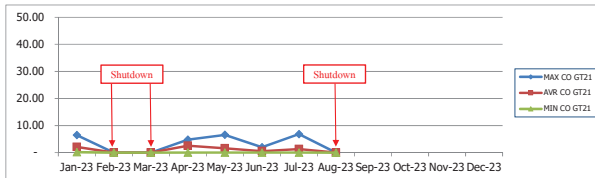
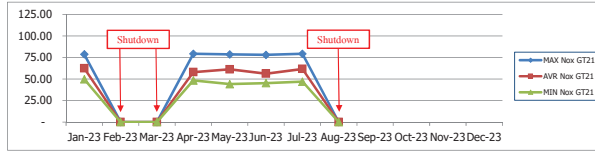
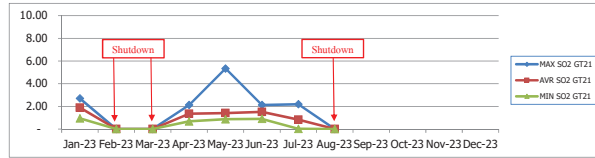
Maintenance Statistic of Environment Protection Equipment

Month: Aug-23

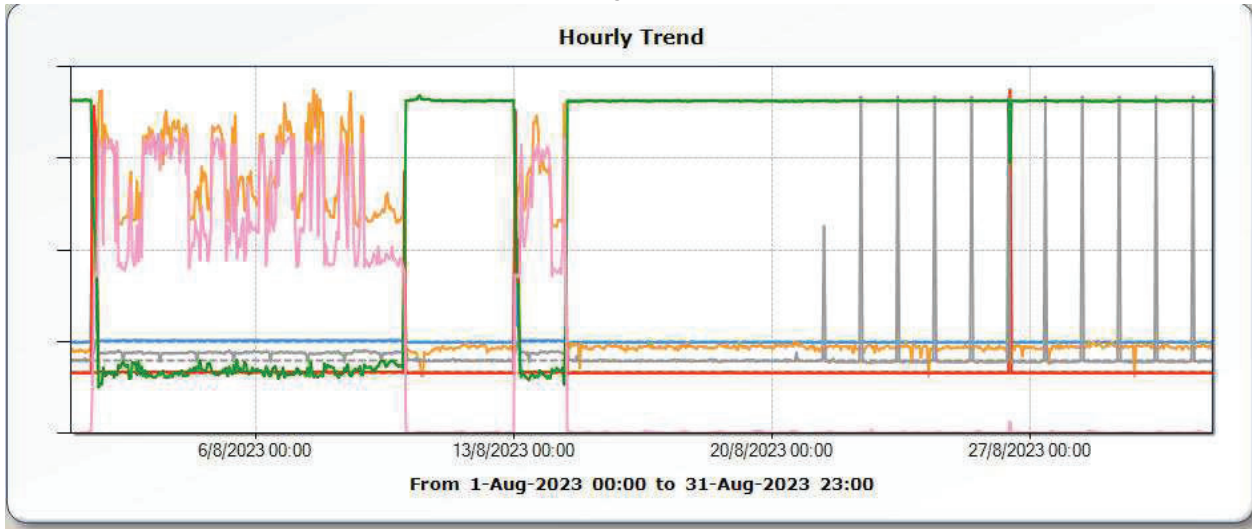
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5					-	5					-	5					-	5															
Cause of Failure (No. of Incident)					Cause of Failure (No. of Incident)					Cause of Failure (No. of Incident)					Cause of Failure (No. of Incident)					Cause of Failure (No. of Incident)													
Part Damage					-		Part Damage					-		Part Damage					-		Part Damage				-								
Site Conditions					-		Site Conditions					-		Site Conditions					-		Site Conditions				-								
Human Error					-		Human Error					-		Human Error					-		Human Error				-								
Calibration					Calibration					Calibration					Calibration					Calibration													
Parameters	Zero Error (% of FS)					Span Error (% of FS)		Parameters	Zero Error (% of FS)					Span Error (% of FS)		Parameters	Zero Error (% of FS)					Span Error (% of FS)		Parameters	As Found		As Left						
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.5	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.5	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.5	Cal.1	Cal.2		Cal.3	Cal.4	Cal.5						
Nox	0.42	0.16	-	0.08	-	0.50	0.76	Nox	-	0.16	-	-0.08	-	3.01	0.41	Nox	-0.16	-	-0.08	-	-0.08	0.58	2.01	0.33	Nox	0.58	-	-0.25	-	0.08	0.84	2.35	1.51
SOx	0.04	0.00	-	0.00	-	0.29	0.53	SOx	-	-0.02	-	-0.12	-	8.39	1.25	SOx	-0.11	-	0.00	-	-0.11	0.28	0.44	0.75	SOx	0.00	-	0.06	-	-0.04	1.64	2.70	0.31
CO	0.11	0.11	-	0.00	-	1.14	0.61	CO	-	0.00	-	0.00	-	5.64	0.43	CO	-0.21	-	-0.21	-	0.00	0.54	1.17	0.25	CO	-0.22	-	-0.11	-	0.00	1.34	0.90	1.34
O2	-0.43	0.21	-	-0.21	-	0.21	0.04	O2	-	1.17	-	-0.52	-	0.91	0.04	O2	0.43	-	0.34	-	0.39	0.30	0.21	0.08	O2	0.04	-	0.39	-	-0.56	0.13	0.30	0.04
Remark																																	

* :Re-Calibrate (Zero Diff >±1%) (Span Diff >±2%)



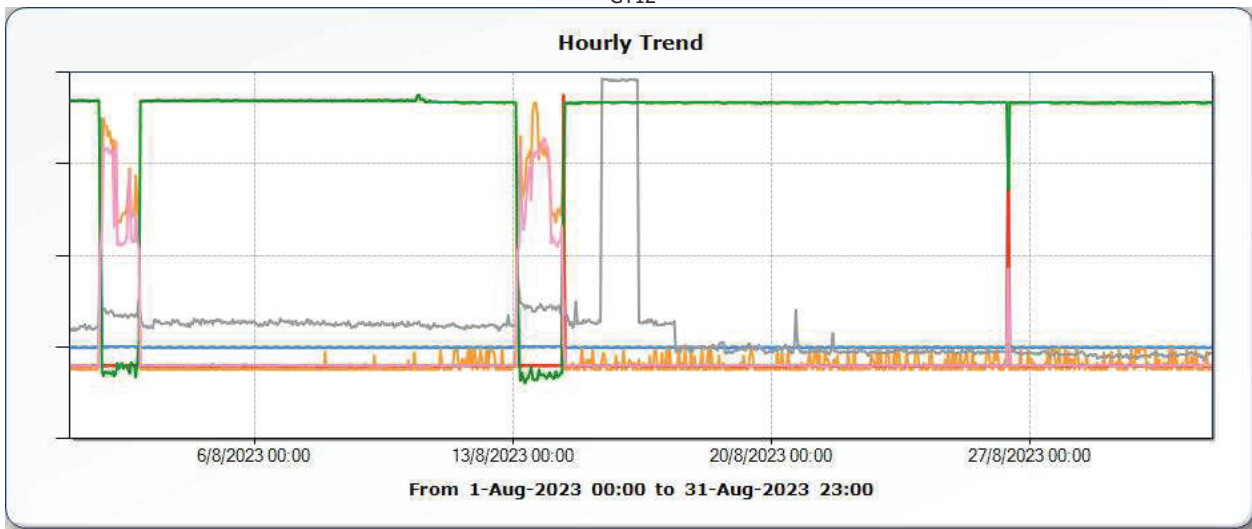


GT11



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCA111_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCA111_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCA111_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

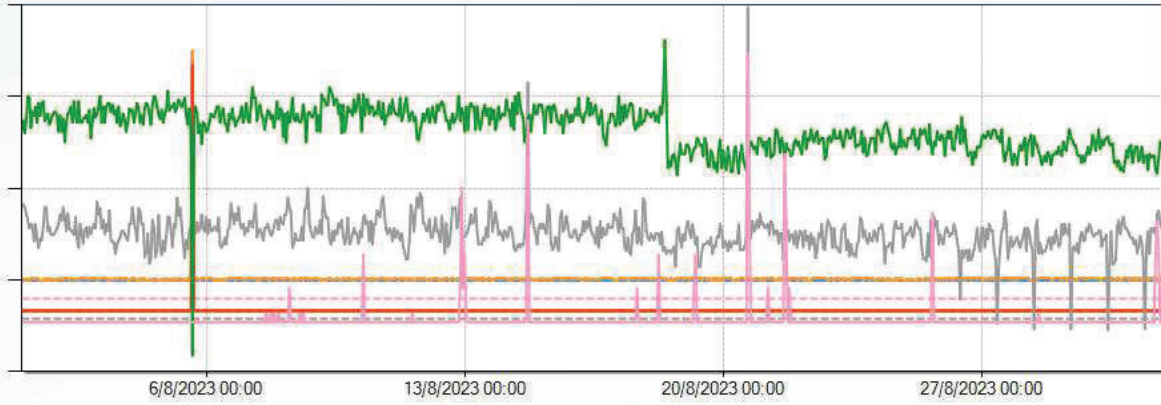
GT12



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCA112_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCA112_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCA112_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-5"/> <input type="text" value="15"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend

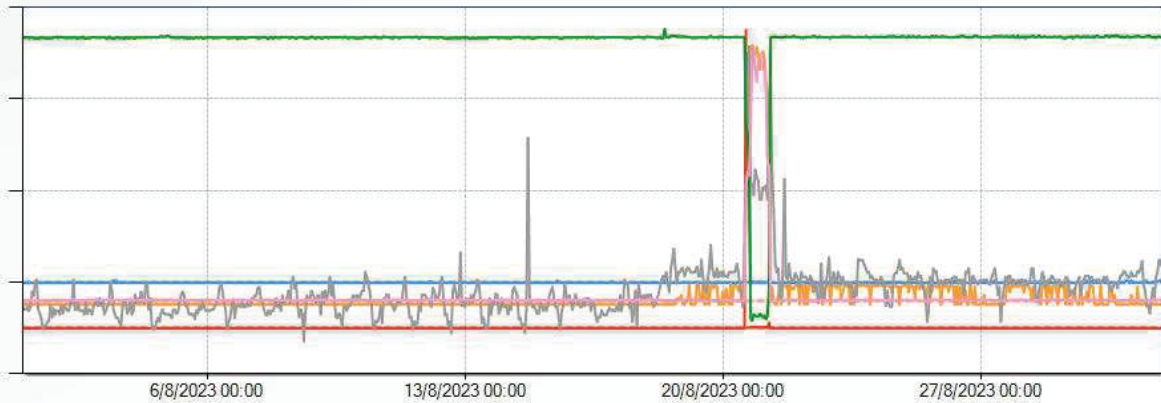


From 1-Aug-2023 00:00 to 31-Aug-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCA121_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCA121_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCA121_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-10000"/> <input type="text" value="50000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-0.5"/> <input type="text" value="3"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="20.9"/> <input type="text" value="21.3"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-2"/> <input type="text" value="8"/> set	<input type="text"/>	KNm3/h

GT22

Hourly Trend



From 1-Aug-2023 00:00 to 31-Aug-2023 23:00


<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 22RCA122_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCA122_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCA122_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="3"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

Calibrate and Maintenance Continuouse Emission Monitor			page 1
Monthly Report			Aug-23
D/M/Y	CEMs	Description	Remark
1/8/2023	11	Inspection & calibrate Zero Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66039772
	12	Inspection & calibrate Zero Skip : No calibrate because HRS5G12 Shutdown	PM 66039783
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66039794
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66039805

Calibrate and Maintenance Continuouse Emission Monitor			page 2
Monthly Report			Aug-23
D/M/Y	CEMs	Description	Remark
8/8/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri filter holder cap 9024000300 Replace Pri filter Element Cap 9024000400 Peplace Sec filter Element (GC-90) 9057000200 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replace Pri filter O-ring 9057004700 Replace Pump diaphragm Assembly 9057003200 HORIBA-Sampling;Electronic cooler;Clean radiating Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66040396
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri filter holder cap 9024000300 Replace Pri filter Element Cap 9024000400 Peplace Sec filter Element (GC-90) 9057000200 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replace Pri filter O-ring 9057004700 Replace Pump diaphragm Assembly 9057003200 HORIBA-Sampling;Electronic cooler;Clean radiating Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66040415
	21	Inspection & calibrate Zero Skip : No calibrate because HRS5G21 Shutdown	PM 66040434
	22	Inspection & calibrate Zero Skip : No calibrate because HRS5G22 Shutdown	PM 66040445

Calibrate and Maintenance Continuouse Emission Monitor			page 3
Monthly Report			Aug-23
D/M/Y	CEMs	Description	Remark
15/8/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRS5G11 Shutdown	PM 66044192
	12	Inspection & calibrate Zero Skip : No calibrate because HRS5G12 Shutdown	PM 66044203
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri filter holder cap 9024000300 Replace Pri filter Element Cap 9024000400 Peplace Sec filter Element (GC-90) 9057000200 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replace Pri filter O-ring 9057004700 Replace Pump diaphragm Assembly 9057003200 HORIBA-Sampling;Electronic cooler;Clean radiating Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66044214
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri filter holder cap 9024000300 Replace Pri filter Element Cap 9024000400 Peplace Sec filter Element (GC-90) 9057000200 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replace Pri filter O-ring 9057004700 Replace Pump diaphragm Assembly 9057003200 HORIBA-Sampling;Electronic cooler;Clean radiating Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66044233

Calibrate and Maintenance Continuouse Emission Monitor			page 4
Monthly Report			Aug-23
D/M/Y	CEMs	Description	Remark
22/8/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66045007
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66045018
	21	Inspection & calibrate Zero Skip : No calibrate because HRS5G21 Shutdown	PM 66045029
	22	Inspection & calibrate Zero Skip : No calibrate because HRS5G22 Shutdown	PM 66045040

	Calibrate and Maintenance Continuous Emission Monitor		page 5
	Monthly Report		Aug-23
D/M/Y	CEMs	Description	Remark
29/8/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRSG11 Shutdown	PM 66046056
	12	Inspection & calibrate Zero Skip : No calibrate because HRSG12 Shutdown	PM 66046067
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66046078
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66046089



STANDARD GAS FOR CEMs REMAINING REPORT

Sep-23

STANDARD		Full condition			HRSG 11						HRSG 12						HRSG 21						HRSG 22						TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
					(Psi)	Time	Liter	Expired date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date	Order status / Spare Standard gas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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*Note : Normal Pressure is 2000 PSI.

N2: Calibrate 1 time / 1 week NO_x, SO₂, CO, O₂ : Calibrate 1 time / 2 week *EPD:Expired date , CN:Cylinder Number , ES PE:Estimated Recorder Due Date

Spare Standard Gas *N2 Has Store 31,50 Litre (5139943Y 28-DEC-2030)
 *Nox Has Store 31 Litre (D920684 28-FEB-2026)
 *SO2 Has Store 31 Litre (D898039 21-MAR-2031)
 *CO Has Store 31,50 Litre (CC91752 3-JAN-2031)
 *O2 Has Store 34 Litre (1491885 4-FEB-2031 , 379505 12-JUL-2031)

Recorded By



(นายขวัญ บุญเพ็ญ)

Approved By



(นายสวัสดิ์ อ้นดนา)

Issue date

3-Oct-23

Report CEM₅ Sep-23

HRSG 11

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Standard	
		Values	Day	Flow				Values	Day	Flow			Fuel Gas	Fuel Oil
SO ₂ 7%O ₂	ppm.	3.67	16/9/2023 16:00	950.36	3.40	2.86	3.67							18.88
NO _x 7%O ₂	ppm.	65.66	16/9/2023 10:00	849.88	54.19	48.55	65.44						96	152
CO 7%O ₂	ppm.	6.50	16/9/2023 15:00	930.91	5.75	5.01	6.39						690	690
Opacity	%	4.06	16/9/2023 15:00	844.39	2.20	1.34	3.41							
O ₂	%	13.89	16/9/2023 14:00	909.62	13.69	13.46	13.88							
Flow	1000M ³ /Hr	1,587.34	16/9/2023 12:00		1,010.73	824.71	1,512.52							

HRSG 12

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Standard	
		Values	Day	Flow				Values	Day	Flow			Fuel Gas	Fuel Oil
SO ₂ 7%O ₂	ppm.	1.99	16/9/2023 23:00	863.62	1.06	0.33	1.49							18.88
NO _x 7%O ₂	ppm.	75.69	16/9/2023 13:00	1,473.13	48.55	39.68	68.13						96	152
CO 7%O ₂	ppm.	6.15	16/9/2023 12:00	1,459.85	3.52	1.85	4.60						690	690
Opacity	%	2.34	24/9/2023 23:00	851.03	0.84	0.34	1.11							
O ₂	%	14.00	16/9/2023 18:00	881.01	13.91	13.70	13.99							
Flow	1000M ³ /Hr	1,484.12	24/9/2023 11:00		1,006.56	812.58	1,460.54							

* Air Control Standard of (EIA)

Recorded By



(นายวิญญู บุญเพ็ญ)

Approved By



(นายสวัสดิ์ อ้นคณนา)

Report CEM₅ Sep-23

HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Standard	
		Values	Day	Flow				Values	Day	Flow			Fuel Gas	Fuel Oil
SO ₂ 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-							18.88
NO _x 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/9/2023 00:00	-	-	-	-							
O ₂	%	-	1/9/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/9/2023 00:00		-	-	-							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Standard	
		Values	Day	Flow				Values	Day	Flow			Fuel Gas	Fuel Oil
SO ₂ 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-							18.88
NO _x 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/9/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/9/2023 00:00	-	-	-	-							
O ₂	%	-	1/9/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/9/2023 00:00		-	-	-							

* Air Control Standard of (EIA)

Recorded By



(นายวิญญู บุญเพ็ญ)

Approved By



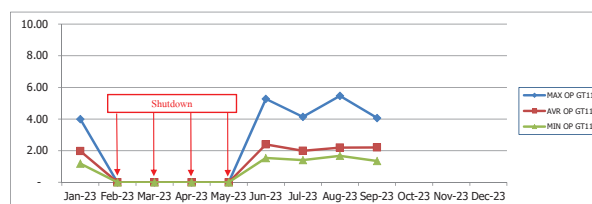
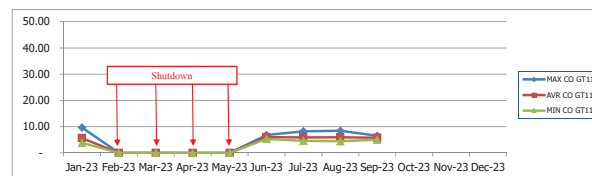
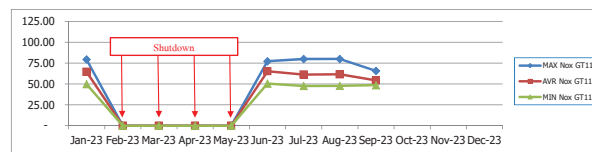
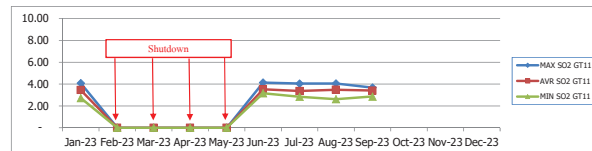
(นายสวัสดิ์ อ้นคณนา)

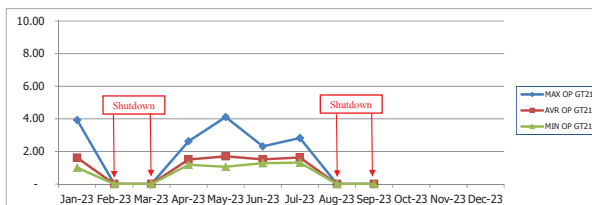
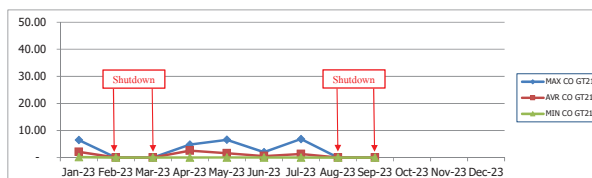
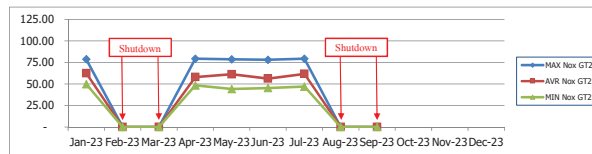
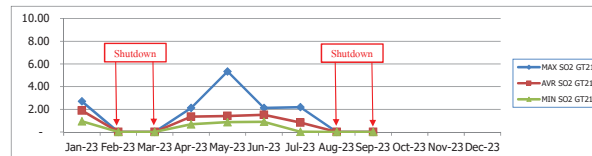
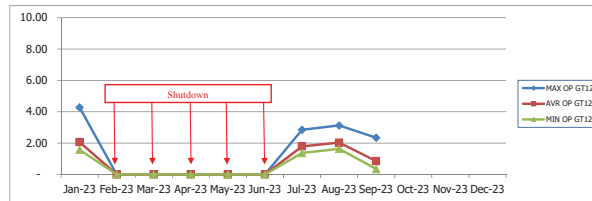
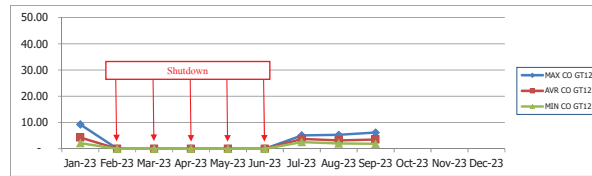
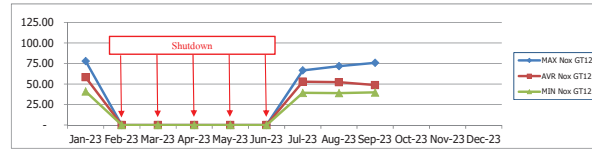
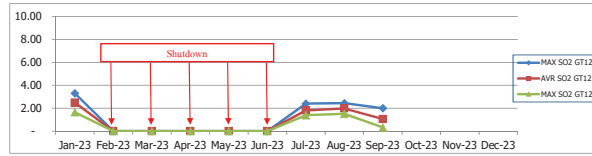
Maintenance Statistic of Environment Protection Equipment

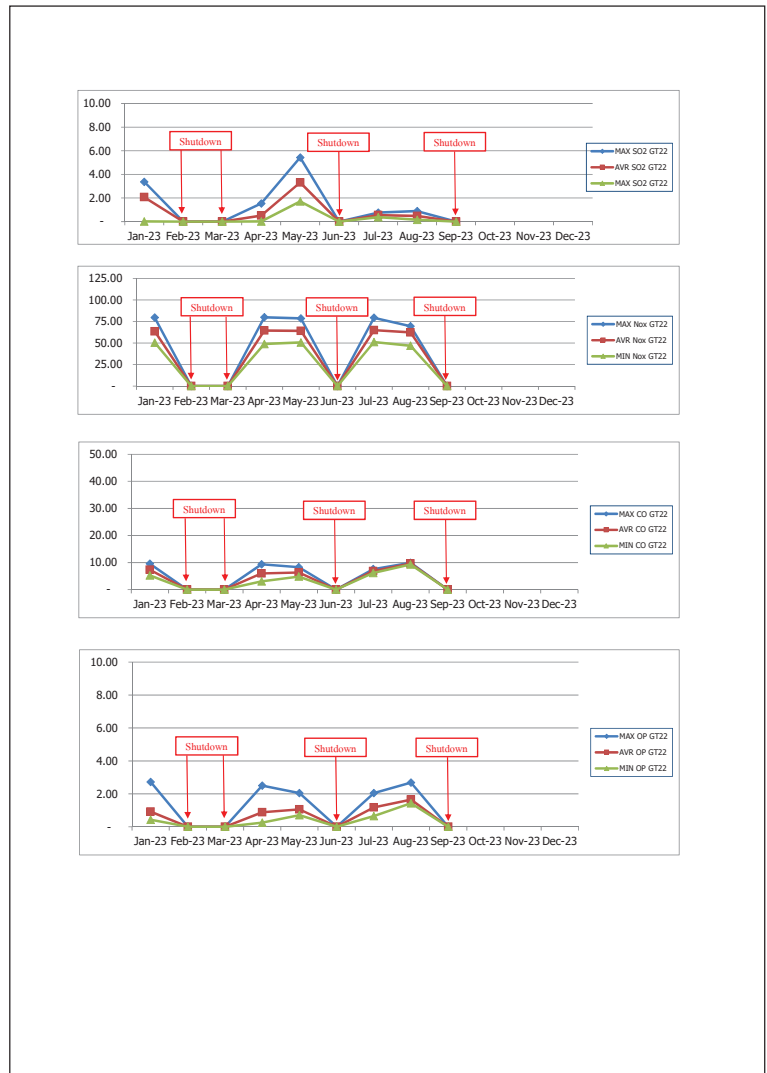
Month: Sep-23

CEMS HRSG11				CEMS HRSG12				CEMS HRSG21				CEMS HRSG22				Waste Water Control											
No. of PM	No. of CM	No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard								
4			-	4			-	4			-	4			-	1											
Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)											
Part Damage				Part Damage				Part Damage				Part Damage				Part Damage											
Site Conditions				Site Conditions				Site Conditions				Site Conditions				Site Conditions											
Human Error				Human Error				Human Error				Human Error				Human Error											
Calibration				Calibration				Calibration				Calibration				Calibration											
Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	As Found		As Left			
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.1	Cal.2	Cal.1	Cal.2
Nox	0.08	-	0.16	-	0.59	0.67	Nox	-0.33	-	-0.08	-	0.33	0.08	Nox	-	-0.33	-	-0.25	0.42	0.67	Nox	-	0.50	-	0.58	1.17	1.76
SOx	0.02	-	0.00	-	1.07	0.35	SOx	-0.12	-	-0.08	-	0.99	2.48	SOx	-	-0.17	-	-0.06	0.02	0.02	SOx	-	-0.06	-	-0.06	0.06	0.18
CO	0.00	-	0.00	-	0.72	0.28	CO	-0.11	-	0.00	-	0.32	0.98	CO	-	0.00	-	0.00	1.13	0.91	CO	-	0.00	-	0.00	1.23	1.56
O2	-0.43	-	-0.30	-	0.04	0.13	O2	-2.73	-	0.69	-	2.56	0.08	O2	-	-0.86	-	0.08	0.17	0.08	O2	-	-0.34	-	-0.52	0.08	0.08
Remark																											

* :Re-Calibrate (Zero Diff >±1%) (Span Diff >±2%)







GT11

Hourly Trend

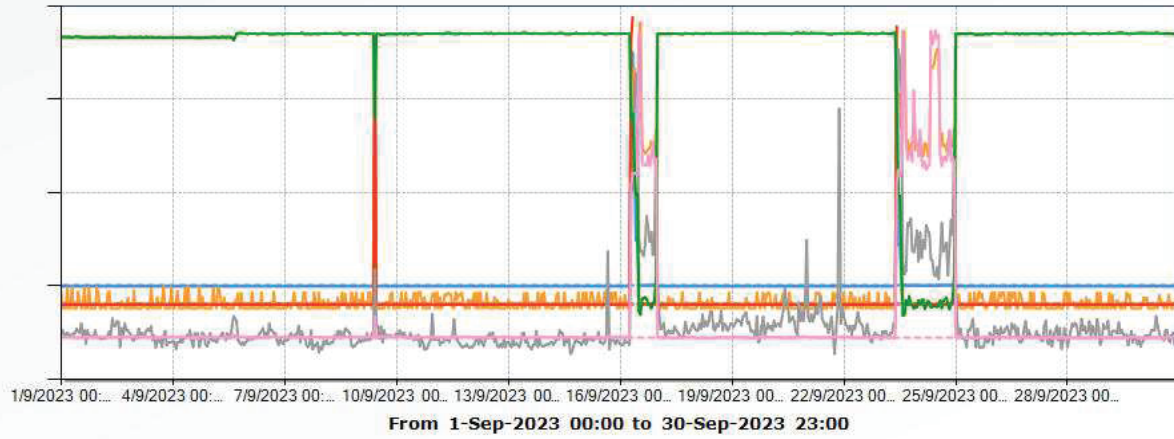


From 1-Sep-2023 00:00 to 30-Sep-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCAI11_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT12

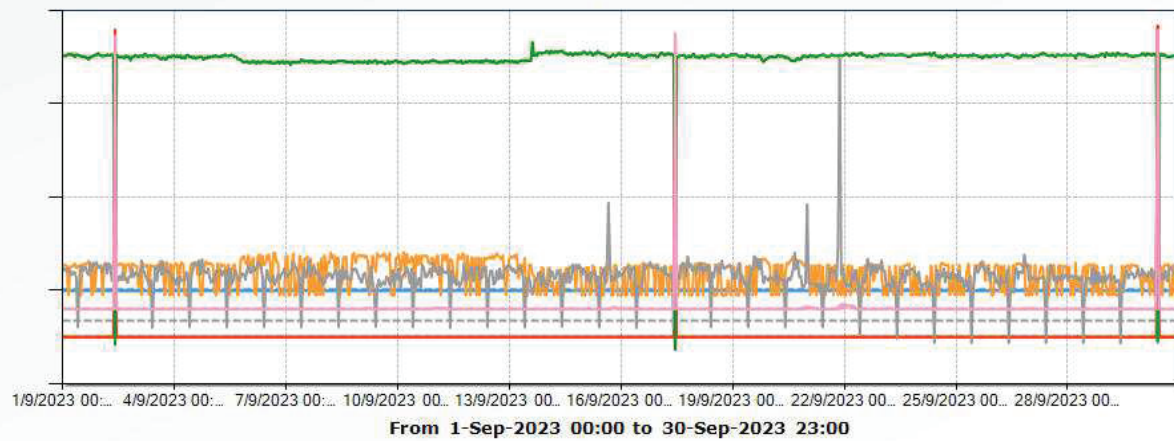
Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCAI12_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1"/> <input type="text" value="4"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="1600"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCAI21_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="60"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1"/> <input type="text" value="5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="800"/> set	<input type="text"/>	KNm3/h

GT22

Hourly Trend



From 1-Sep-2023 00:00 to 30-Sep-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 22RCAI22_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="60"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="4"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="1000"/> set	<input type="text"/>	KNm3/h

Calibrate and Maintenance Continuouse Emission Monitor				page 1
Monthly Report				Sep-23
D/M/Y	CEMs	Description	Remark	
5/9/2023	11	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every month	PM 66046488	
		Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every month	PM 66046503	
	21	Inspection & calibrate Zero Skip : No calibrate because HRSG 21 Shutdown	PM 66046518	
	22	Inspection & calibrate Zero Skip : No calibrate because HRSG 22 Shutdown	PM 66046529	

Calibrate and Maintenance Continuouse Emission Monitor				page 2
Monthly Report				Sep-23
D/M/Y	CEMs	Description	Remark	
12/9/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRSG 11 Shutdown	PM 66050426	
	12	Inspection & calibrate Zero Skip : No calibrate because HRSG 12 Shutdown	PM 66050437	
	21	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every month	PM 66050448	
	22	Inspection & calibrate Zero and span Replace Secondary filter element (GC-90) 9057000200 Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler Press the test key and check LED Indicator of smoke Check the Buzzer/Check alarm at DCS of smoke Test smoke detector in shellter every month	PM 66050463	

Calibrate and Maintenance Continuouse Emission Monitor				page 3
Monthly Report				Sep-23
D/M/Y	CEMs	Description	Remark	
19/9/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66051092	
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66051103	
	21	Inspection & calibrate Zero Skip : No calibrate because HRSG21 Shutdown	PM 66051114	
	22	Inspection & calibrate Zero Skip : No calibrate because HRSG22 Shutdown	PM 66051125	

Calibrate and Maintenance Continuouse Emission Monitor				page 4
Monthly Report				Sep-23
D/M/Y	CEMs	Description	Remark	
26/9/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRSG11 Shutdown	PM 66051477	
	12	Inspection & calibrate Zero Skip : No calibrate because HRSG12 Shutdown	PM 66051488	
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66051499	
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66051510	



STANDARD GAS FOR CEMs REMAINING REPORT

Oct-23

STANDARD		Full condition			HRSG 11					HRSG 12					HRSG 21					HRSG 22					TOTAL	
					(Psi)	Time	Liter	Expired date / Cylinder Number Estimated Reorder due date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date / Cylinder Number Estimated Reorder due date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date / Cylinder Number Estimated Reorder due date	Order status / Spare Standard gas	(Psi)	Time	Liter	Expired date / Cylinder Number Estimated Reorder due date	Order status / Spare Standard gas	GAS	
																									GAS	HRSG
CEMs	N ₂	2000	35	31	2060	62	31.93	14-Apr-30 4621318Y Aug-24	Spare	2200	67	34.10	14-Apr-30 5662912Y Sep-24	Spare	580	13	8.99	31-Dec-27 5662912Y Aug-23	Spare	5139943Y 28-Dec-30	1880	56	29.14	14-Apr-30 5662952Y Jun-24		104.16
		2000	34	31	540	7	8.37	26-Oct-28 CC739905 Aug-23	Spare	2080	37.6	32.24	82/2/2026 D920685 Nov-24		1920	34	29.76	21-Feb-26 D271320 Oct-24		1980	36	30.69	21-Feb-26 D271360 Oct-24		101.06	
		2000	22	31	400	3	6.20	6-Dec-29 EB0146949 May-23	Spare	1590	19	24.65	21-Mar-31 D898040 Jan-24		1900	23	29.45	21-Mar-31 D898048 Mar-24		1000	11	15.50	26-Jan-31 CC757452 Sep-23	Spare	D824444 18-Oct-31	75.80
		2000	34	31	1500	26	23.25	25-Jan-30 CC456000 Apr-24	Spare	1840	32.8	28.52	16-Nov-29 CC746718 Aug-24		1920	34.4	29.76	3-Jan-31 CC472026 Sep-24		1660	29.2	25.73	16-Nov-29 CC746735 Jun-24		107.26	
		2000	34	47	550	7	12.93	20-Mar-25 SN599 Aug-23	Spare	1250	21	29.38	20-Oct-28 447627 Mar-24		1420	24	33.37	20-Oct-28 6547 May-24		450	5	10.58	19-Oct-28 CC739904 Jul-23	Spare	379505 12-Jul-31	86.25

*Note : Normal Pressure is 2000 PSI.

N2: Calibrate 1 time / 1 week NO_x, SO₂, CO, O₂ : Calibrate 1 time / 2 week *EPD:Expired date , CN:Cylinder Number , ES PE:Estimated Recorder Due Date

Spare Standard Gas *N2 Has Store 31,50 Litre (5139943Y 28-DEC-2030)
 *NO_x Has Store 31 Litre (D920684 28-FEB-2026)
 *SO₂ Has Store 31 Litre (D898039 21-MAR-2031 , D824444 18-OCT-2031)
 *CO Has Store 31,50 Litre (CC91752 3-JAN-2031)
 *O₂ Has Store 34 Litre (1491885 4-FEB-2031 , 379505 12-JUL-2031)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อ้นคนนา)

Issue date

2-Nov-23

Report CEM₅ Oct-23
HRSG 11

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	3.32	15/10/2023 02:00	904.82	2.98	2.23	3.15							18.88
NO _x 7%O ₂	ppm.	78.75	14/10/2023 20:00	1,598.56	57.80	51.00	73.16						96	152
CO 7%O ₂	ppm.	7.06	14/10/2023 21:00	914.89	5.82	4.04	6.61						690	690
Opacity	%	2.08	14/10/2023 21:00	883.76	1.80	1.31	2.08							
O ₂	%	13.83	14/10/2023 21:00	914.89	13.70	13.51	13.80							
Flow	1000M ³ /Hr	1,598.56	14/10/2023 20:00		1,019.84	816.93	1,462.69							

HRSG 12

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	1.51	3/10/2023 13:00	894.75	0.95	0.38	1.45							18.88
NO _x 7%O ₂	ppm.	74.08	14/10/2023 18:00	1,436.51	48.13	39.86	62.18						96	152
CO 7%O ₂	ppm.	7.31	2/10/2023 23:00	1,507.46	3.75	2.45	4.61						690	690
Opacity	%	3.04	2/10/2023 22:00	804.11	0.84	0.05	1.13							
O ₂	%	13.97	3/10/2023 00:00	870.48	13.82	13.48	13.95							
Flow	1000M ³ /Hr	1,507.46	2/10/2023 23:00		960.74	804.11	1,424.33							

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อันดนน)

Report CEM₅ Oct-23
HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-							18.88
NO _x 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/10/2023 00:00	-	-	-	-							
O ₂	%	-	1/10/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/10/2023 00:00		-	-	-							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-							18.88
NO _x 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/10/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/10/2023 00:00	-	-	-	-							
O ₂	%	-	1/10/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/10/2023 00:00		-	-	-							

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

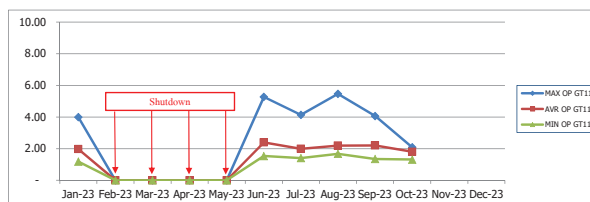
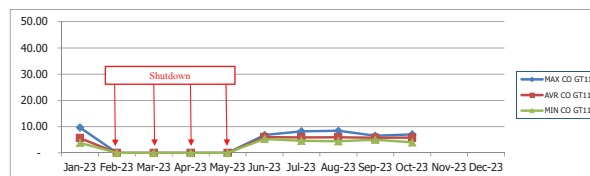
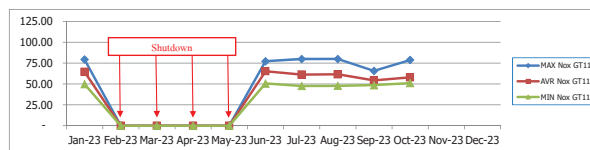
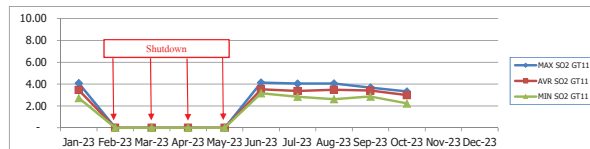
(นายสวัสดิ์ อันดนน)

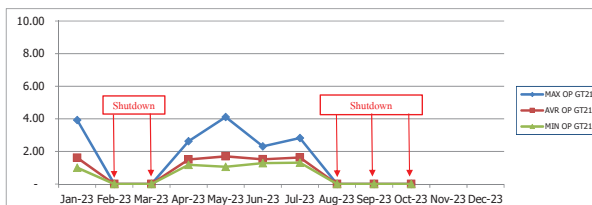
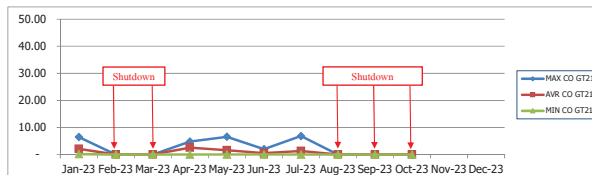
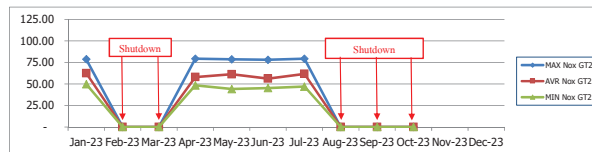
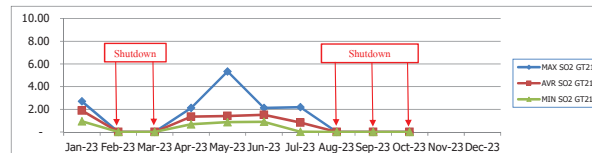
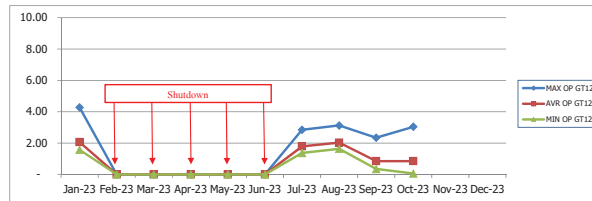
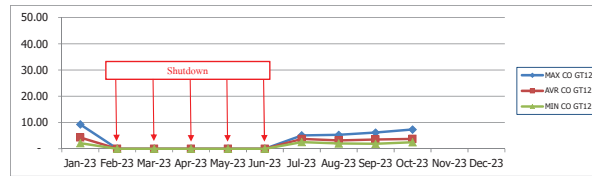
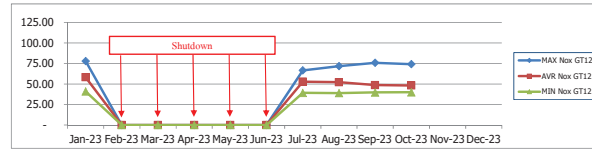
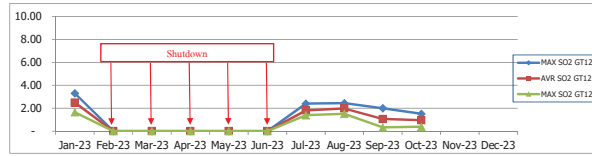
Maintenance Statistic of Environment Protection Equipment

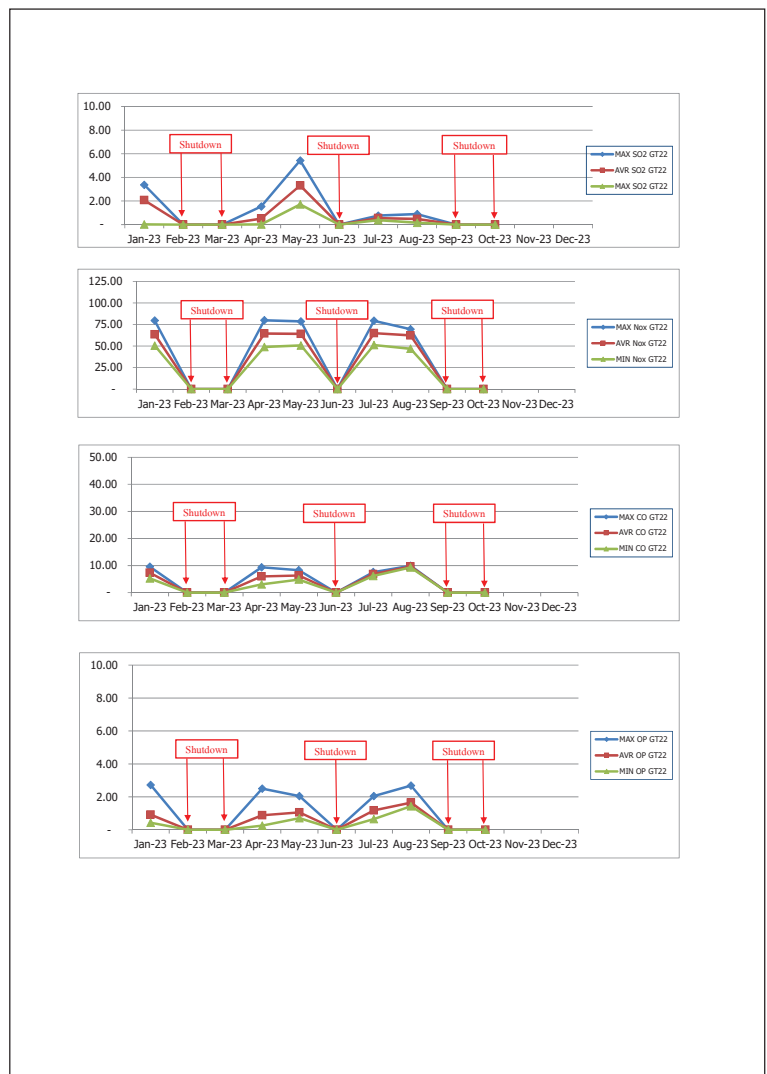
Month: Oct-23

CEMS HRSG11				CEMS HRSG12				CEMS HRSG21				CEMS HRSG22				Waste Water Control																			
No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard																	
5				-	5				-	5				-	5			-																	
Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)																			
Part Damage				-				Part Damage				-				Part Damage				-															
Site Conditions				-				Site Conditions				-				Site Conditions				-															
Human Error				-				Human Error				-				Human Error				-															
Calibration				Calibration				Calibration				Calibration				Calibration																			
Parameters	Zero Error (% of FS)					Span Error (% of FS)			Parameters	Zero Error (% of FS)					Span Error (% of FS)			Parameters	Zero Error (% of FS)					Span Error (% of FS)			Parameters	As Found		As Left					
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.5	Cal.1	Cal.2	Cal.3		Cal.1	Cal.2	Cal.3	Cal.1	Cal.2	Cal.3	Cal.1	Cal.2		Cal.3	Cal.4	Cal.5	Cal.1	Cal.2												
Nox	0.08	-	0.08	-	0.25	0.76	0.93	1.01	Nox	-0.16	-	-0.08	-	-0.08	0.58	0.58	0.75	Nox	-	-0.25	-	-0.25	-	0.33	0.67	Nox	-	0.50	-	0.50	-	1.59	1.34		
SOx	0.02	-	-0.02	-	-0.02	0.76	0.85	0.85	SOx	-0.12	-	-0.01	-	-0.01	-	-0.15	1.16	1.36	1.47	SOx	-	-0.06	-	-0.15	-	0.08	0.06	SOx	-	0.00	-	-0.06	-	0.15	0.31
CO	0.00	-	-0.11	-	-0.11	0.39	0.50	0.50	CO	0.00	-	0.00	-	-0.11	0.87	0.65	0.65	CO	-	0.00	-	0.00	-	0.91	1.13	CO	-	0.00	-	0.00	-	1.45	1.34		
O2	-0.34	-	-0.30	-	-0.21	0.13	0.08	0.04	O2	0.13	-	-0.65	-	-0.21	0.47	0.39	0.34	O2	-	-0.04	-	0.00	-	0.26	0.17	O2	-	0.69	-	-0.13	-	1.22	0.17		
Remark																																			

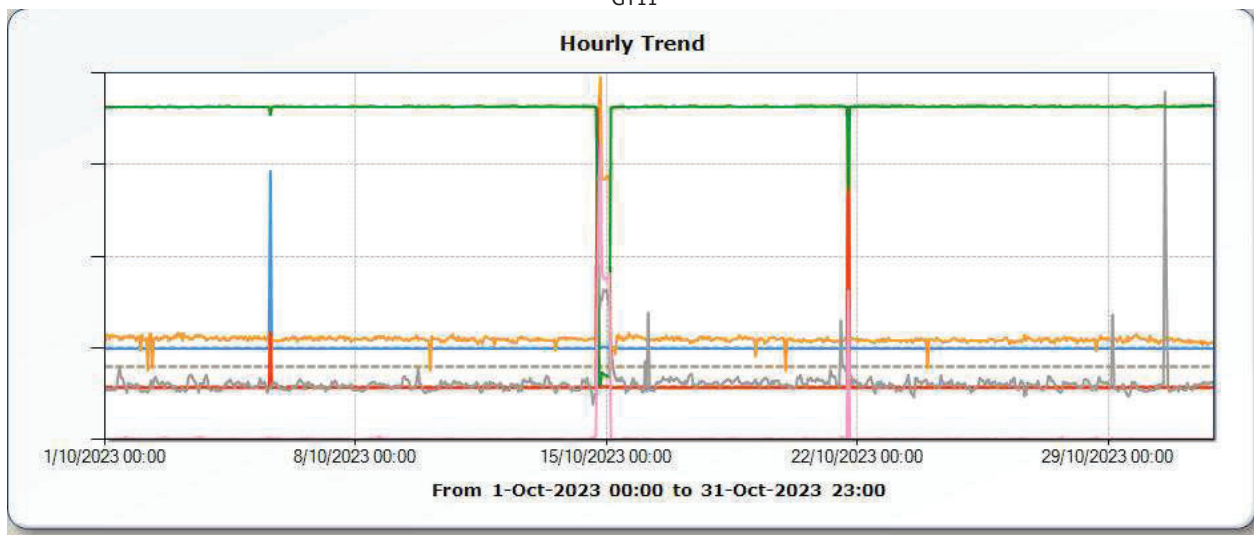
* :Re-Calibrate (Zero Diff >±1%) (Span Diff >±2%)







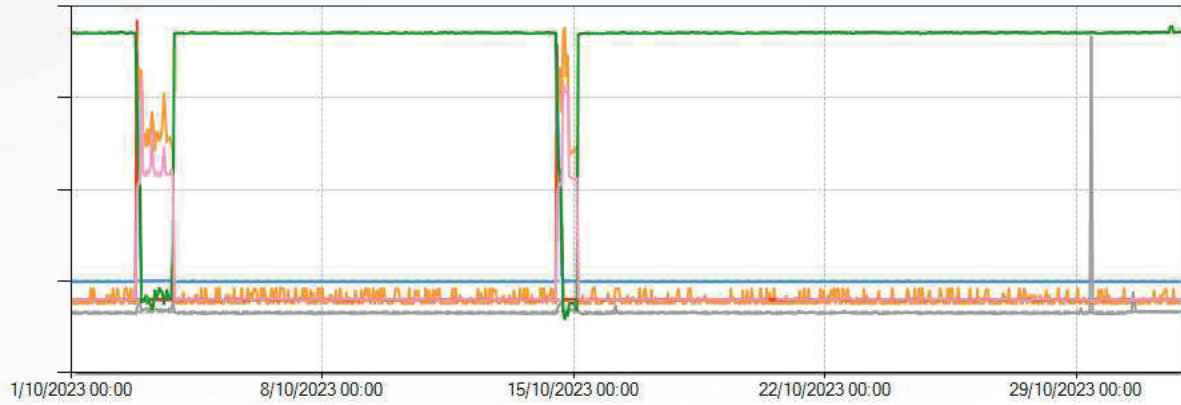
GT11



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCAl1_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAl1_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAl1_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-2"/> <input type="text" value="8"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT12

Hourly Trend

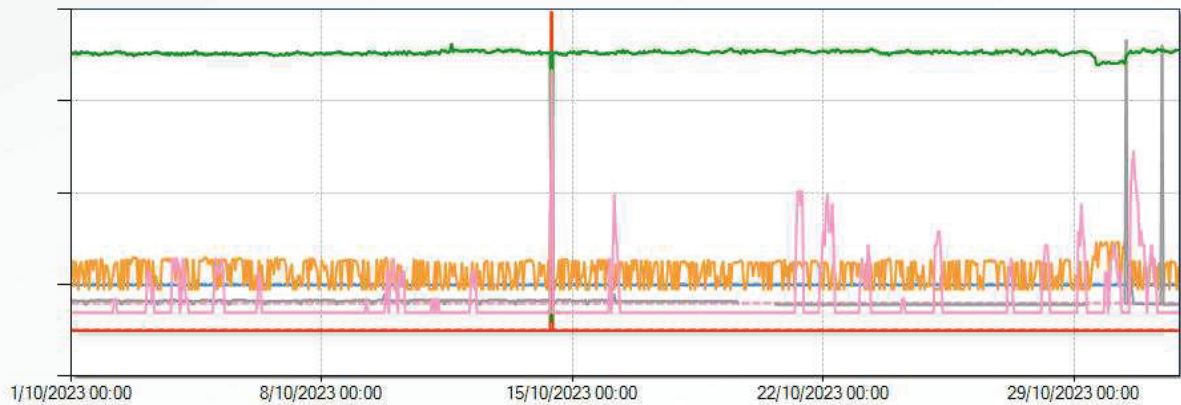


From 1-Oct-2023 00:00 to 31-Oct-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCAI12_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend

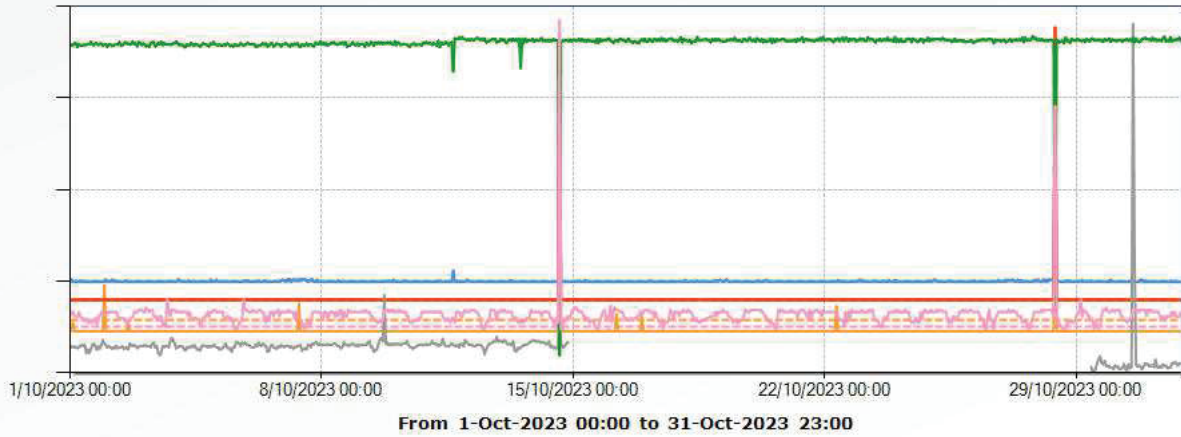


From 1-Oct-2023 00:00 to 31-Oct-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCAI21_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="60"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-5"/> <input type="text" value="20"/> set	<input type="text"/>	KNm3/h

GT22

Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 22RCAI22_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-5"/> <input type="text" value="30"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="10"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="140"/> set	<input type="text"/>	KNm3/h

Calibrate and Maintenance Continuouse Emission Monitor			page 1
Monthly Report			Oct-23
D/M/Y	CEMs	Description	Remark
3/10/2023	11	Inspection & calibrate Zero and span Replace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66052826
	12	Inspection & calibrate Zero and span Replace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66052843
	21	Inspection & calibrate Zero Skip : No calibrate because HRSG21 Shutdown	PM 66052860
	22	Inspection & calibrate Zero Skip : No calibrate because HRSG22 Shutdown	PM 66052871

Calibrate and Maintenance Continuouse Emission Monitor			page 2
Monthly Report			Oct-23
D/M/Y	CEMs	Description	Remark
10/10/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRSG 11 Shutdown	PM 66056313
	12	Inspection & calibrate Zero Skip : No calibrate because HRSG 12 Shutdown	PM 66056324
	21	Inspection & calibrate Zero and span Replace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66056335
	22	Inspection & calibrate Zero and span Replace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of electric cooler	PM 66056352

Calibrate and Maintenance Continuouse Emission Monitor			page 3
Monthly Report			Oct-23
D/M/Y	CEMs	Description	Remark
17/10/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66057318
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66057329
	21	Inspection & calibrate Zero Skip : No calibrate because HRSG21 Shutdown	PM 66057340
	22	Inspection & calibrate Zero Skip : No calibrate because HRSG22 Shutdown	PM 66057351

Calibrate and Maintenance Continuouse Emission Monitor			page 4
Monthly Report			Oct-23
D/M/Y	CEMs	Description	Remark
24/10/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRSG11 Shutdown	PM 66058264
	12	Inspection & calibrate Zero Skip : No calibrate because HRSG12 Shutdown	PM 66058275
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66058286
	22	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66058297

Calibrate and Maintenance Continuouse Emission Monitor			page 5
Monthly Report			Oct-23
D/M/Y	CEMs	Description	Remark
31/10/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri Filter Holder Cap 9024000300 Replace Pri Filter Element Cap 9024000400 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replaace Sec filter element (GC-90)9057000200 Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66059235
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confrim flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary fiter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri Filter Holder Cap 9024000300 Replace Pri Filter Element Cap 9024000400 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replaace Sec filter element (GC-90)9057000200 Check the water system drain seprator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66059251
	21	Inspection & calibrate Zero Skip : No calibrate because HRSG11 Shutdown	PM 66059267
	22	Inspection & calibrate Zero Skip : No calibrate because HRSG12 Shutdown	PM 6609278



STANDARD GAS FOR CEMs REMAINING REPORT

Nov-23

STANDARD		Full condition			HRSG 11					HRSG 12					HRSG 21					HRSG 22					TOTAL	
					(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status		
								Cylinder Number					Spare Standard gas					Cylinder Number					Spare Standard gas			Cylinder Number
		GAS	(Psi)	Time	Liter	Estimated Reorder due date				Estimated Reorder due date						Estimated Reorder due date						Estimated Reorder due date				
CEM ₃	N ₂	2000	35	31	2040	61	31.62	14-Apr-30 4621318Y Sep-24		Spare	2180	66	33.79	14-Apr-30 4621276Y Oct-24		540	11	8.37	31-Dec-27 5662912Y Aug-23	Spare 5139943Y 28-Dec-30	1820	54	28.21	14-Apr-30 5662952Y Jul-24		101.99
			56	50			26-Oct-28 CC739905 Aug-23	D920684 28-Feb-26	2040	36.8	31.62	82/2/2026 D920685 Dec-24		1900	34	29.45	21-Feb-26 D271320 Oct-24		1980	36	30.69	21-Feb-26 D271360 Nov-24		99.20		
	NO _x	2000	34	31	480	6	7.44																			
			56	50			21-Mar-31 D898039 May-24		1520	18	23.56	21-Mar-31 D898040 Jan-24		1820	22	28.21	21-Mar-31 D898048 Mar-24		1000	11	15.50	26-Jan-31 CC757452 Oct-23	Spare D824444 18-Oct-31	99.51		
	CO	2000	34	31	1440	25	22.32	25-Jan-30 CC456000 May-24	CC91752 3-Jan-31	1800	32	27.90	16-Nov-29 CC746718 Aug-24		1880	33.6	29.14	3-Jan-31 CC472026 Sep-24		1660	29.2	25.73	16-Nov-29 CC746735 Jul-24		105.09	
55			50			20-Mar-25 SN599 Sep-23	Spare 1491885 4-Feb-31	1220	20	28.67	20-Oct-28 447627 Apr-24		1380	24	32.43	20-Oct-28 6547 May-24		450	5	10.58	19-Oct-28 CC739904 Aug-23	Spare 379505 12-Jul-31	83.90			

*Note : Normal Pressure is 2000 PSI.

N₂: Calibrate 1 time / 1 week NO_x,SO₂,CO,O₂: Calibrate 1 time / 2 week *EPD:Expired date, CN:Cylinder Number, ES PE:Estimated Recorder Due Date

Spare Standard Gas *N₂ Has Store 31,50 Litre (5139943Y 28-DEC-2030)
*Nox Has Store 31 Litre (D920684 28-FEB-2026)
*SO₂ Has Store 31 Litre (D824444 18-OCT-2031)
*CO Has Store 31,50 Litre (CC91752 3-JAN-2031)
*O₂ Has Store 34 Litre (1491885 4-FEB-2031, 379505 12-JUL-2031)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อ้นคณนา)

Issue date

1-Dec-23

Report CEM_s Nov-23

HRSG 11

Description	Unit / Hr.	Fuel Gas						Fuel Oil						Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil	
		Values	Day	Flow				Values	Day	Flow					
SO ₂ 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-								18.88
NO _x 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-							96	152
CO 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-							690	690
Opacity	%	-	1/11/2023 00:00	-	-	-	-								
O ₂	%	-	1/11/2023 00:00	-	-	-	-								
Flow	1000M ³ /Hr	-	1/11/2023 00:00		-	-	-								

HRSG 12

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard		
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil	
		Values	Day	Flow				Values	Day	Flow					
SO ₂ 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-							18.88	
NO _x 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-							96	152
CO 7%O ₂	ppm.	-	1/11/2023 00:00	-	-	-	-							690	690
Opacity	%	-	1/11/2023 00:00	-	-	-	-								
O ₂	%	-	1/11/2023 00:00	-	-	-	-								
Flow	1000M ³ /Hr	-	1/11/2023 00:00		-	-	-								

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อ้นคณนา)

Report CEM₅ Nov-23

HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	1.82	1/11/2023 11:00	1,519.36	1.31	0.98	1.53							18.88
NO _x 7%O ₂	ppm.	76.94	1/11/2023 16:00	1,565.83	62.68	50.33	70.95							96 152
CO 7%O ₂	ppm.	7.58	2/11/2023 02:00	854.92	3.06	1.79	3.84							690 690
Opacity	%	2.44	1/11/2023 06:00	849.43	0.56	0.04	1.14							
O ₂	%	13.98	1/11/2023 17:00	1,060.68	13.80	13.61	13.90							
Flow	1000M ³ /Hr	1,611.15	2/11/2023 06:00		1,256.47	810.75	1,570.40							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard		
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil	
		Values	Day	Flow				Values	Day	Flow					
SO ₂ 7%O ₂	ppm.	0.75	1/11/2023 14:00	1,587.11	0.43	0.09	0.69							96	152
NO _x 7%O ₂	ppm.	79.70	1/11/2023 14:00	1,587.11	65.62	54.15	72.69							690	690
CO 7%O ₂	ppm.	9.66	1/11/2023 08:00	1,646.39	8.78	7.61	9.58								
Opacity	%	1.99	1/11/2023 06:00	878.72	1.00	0.71	1.18								
O ₂	%	13.93	1/11/2023 11:00	1,688.97	13.71	13.51	13.86								
Flow	1000M ³ /Hr	1,688.97	1/11/2023 11:00		1,390.71	878.72	1,671.23								

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

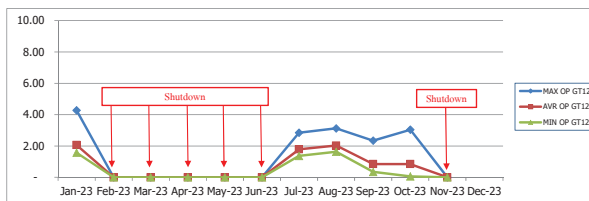
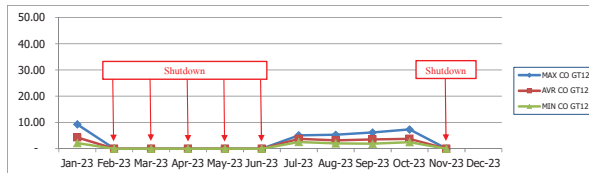
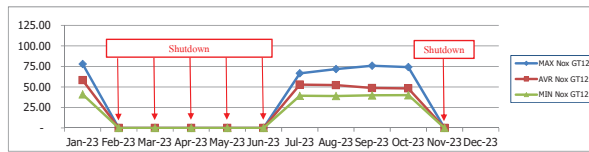
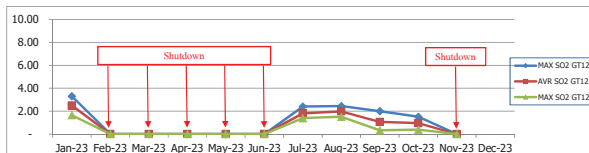
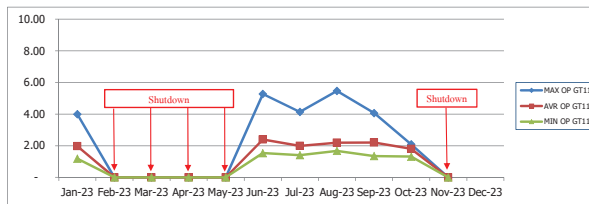
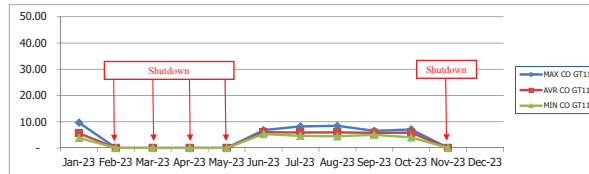
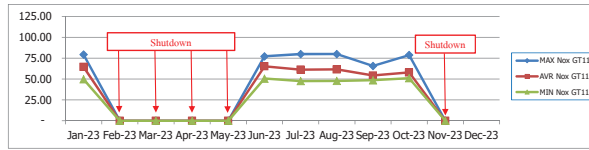
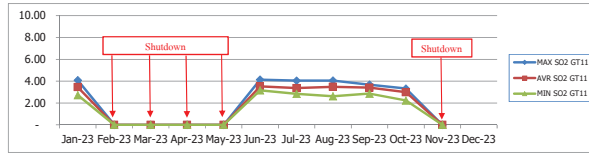
(นายสวัสดิ์ อันดนา)

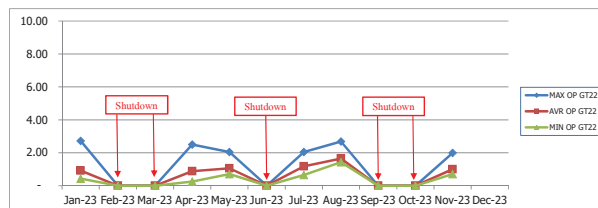
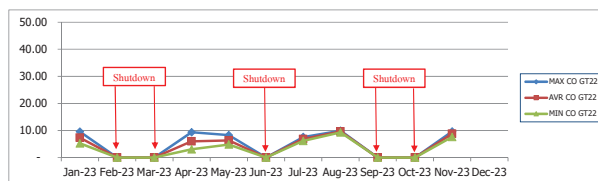
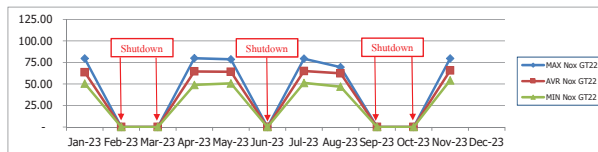
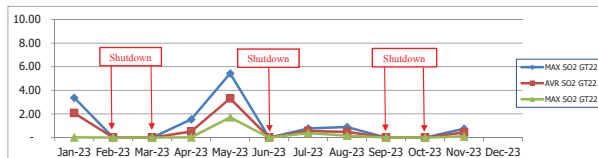
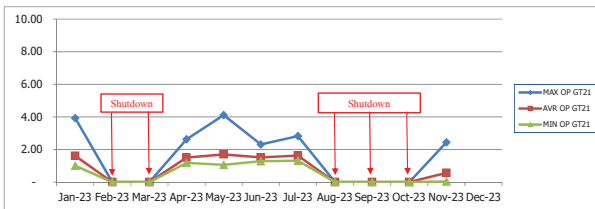
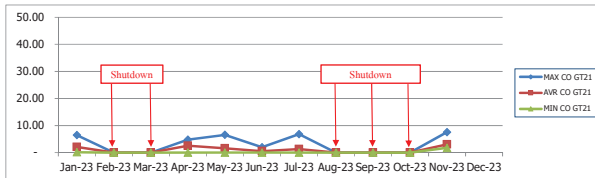
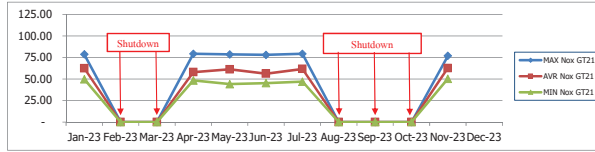
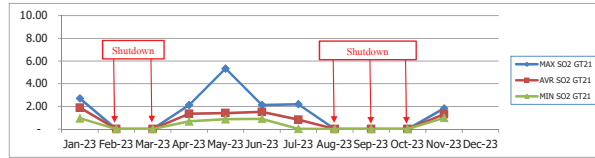
Maintenance Statistic of Environment Protection Equipment

Month: Nov-23

CEMS HRSG11				CEMS HRSG12				CEMS HRSG21				CEMS HRSG22				Waste Water Control											
No. of PM	No. of CM	No. of IM		No. of Exceed Standard	No. of PM	No. of CM	No. of IM		No. of Exceed Standard	No. of PM	No. of CM	No. of IM		No. of Exceed Standard	No. of PM	No. of CM	No. of IM		No. of Exceed Standard								
4				-	4				-	4				-	4				-								
Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)											
Part Damage				-	Part Damage				-	Part Damage				-	Part Damage				-								
Site Conditions				-	Site Conditions				-	Site Conditions				-	Site Conditions				-								
Human Error				-	Human Error				-	Human Error				-	Human Error				-								
Calibration				Calibration				Calibration				Calibration				Calibration											
Parameter	Zero Error (% of FS)			Span Error (% of FS)		Parameter	Zero Error (% of FS)			Span Error (% of FS)		Parameter	Zero Error (% of FS)			Span Error (% of FS)		Parameter	Zero Error (% of FS)			Span Error (% of FS)					
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.1		Cal.2	Cal.1	Cal.2	Cal.3	Cal.4		Cal.1	Cal.2	Cal.1	Cal.2	Cal.3		Cal.4	Cal.1	Cal.2						
Nox	-	-0.08	-	-1.69	0.50	1.27	Nox	-	-0.25	-	-0.33	0.25	0.50	Nox	-0.16	-	-0.08	-	0.42	0.42	Nox	-	-	-	-	-	-
SOx	-	-0.06	-	-0.04	1.18	3.39	SOx	-	-0.10	-	-0.02	2.27	0.12	SOx	-0.12	-	-0.12	-	0.36	0.21	SOx	-	-	-	-	-	-
CO	-	-0.11	-	-0.66	0.04	0.28	CO	-	0.00	-	-0.11	0.93	0.12	CO	0.00	-	0.00	-	1.02	1.02	CO	-	-	-	-	-	-
O2	-	-0.34	-	0.13	0.26	0.08	O2	-	1.60	-	-2.04	1.39	2.34	O2	0.21	-	0.21	-	0.21	0.34	O2	-	-	-	-	-	-
Remark																											

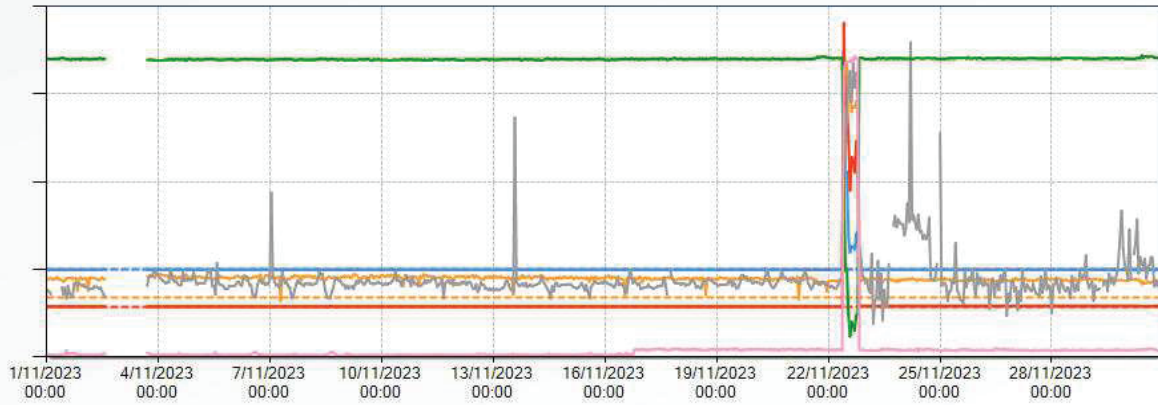
* :Re-Calibrate (Zero Diff' >±1%) (Span Diff' >±2%)





GT11

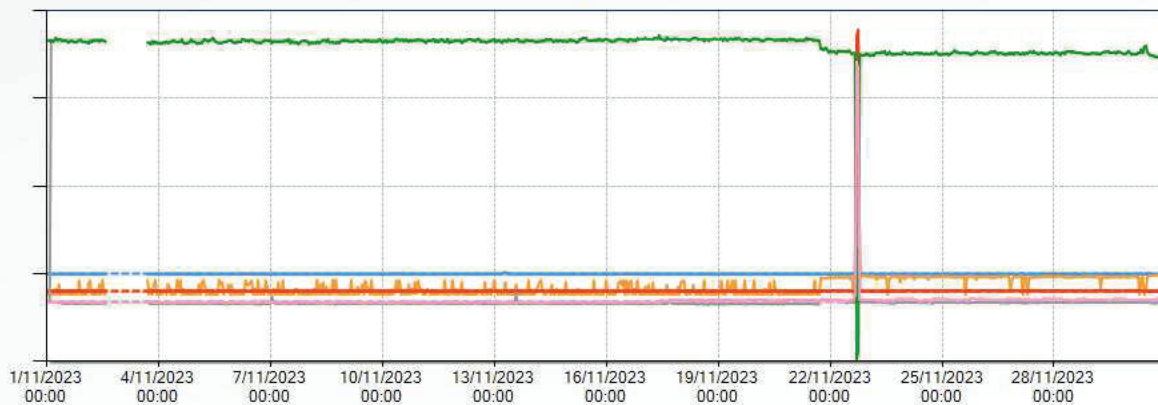
Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCAI11_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-2"/> <input type="text" value="6"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="16"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="1000"/> set	<input type="text"/>	KNm3/h

GT12

Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCAI12_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="19"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="1000"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend

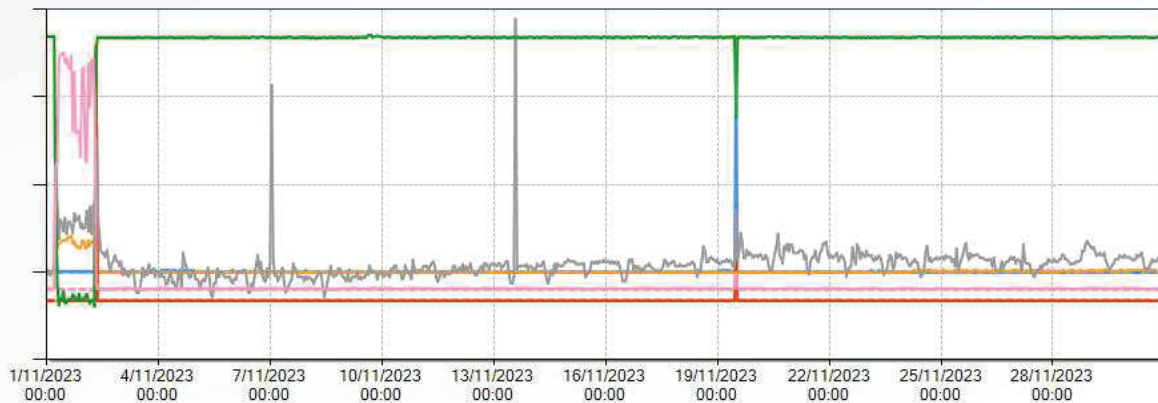


From 1-Nov-2023 00:00 to 30-Nov-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCAI21_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

GT22

Hourly Trend



From 1-Nov-2023 00:00 to 30-Nov-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 22RCAI22_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-5000"/> <input type="text" value="25000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1"/> <input type="text" value="4"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="12"/> <input type="text" value="22"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2000"/> set	<input type="text"/>	KNm3/h

Calibrate and Maintenance Continuouse Emission Monitor				page 1
Monthly Report				Nov-23
D/M/Y	CEMs	Description	Remark	
7/11/2023	11	Inspection & calibrate Zero Skip : No calibrate because MI block 1	PM 66059748	
	12	Inspection & calibrate Zero Skip : No calibrate because MI block 1	PM 66059759	
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Pri Filter Holder Cap 9024000300 Replace Pri Filter Element Cap 9024000400 Inspc.Heated tube (piping) and probe Cabinet;Vent filter:clean if dirty replace if deteriorated Replace Sec filter element (GC-90)9057000200 Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66059770	
	22	Inspection & calibrate Zero Skip : No calibrate because O2 can't calibrate zero	PM 66059786	

Calibrate and Maintenance Continuouse Emission Monitor				page 2
Monthly Report				Nov-23
D/M/Y	CEMs	Description	Remark	
14/11/2023	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66063808	
	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66063819	
	21	Inspection & calibrate Zero Skip : No calibrate because HRS21 Shutdown	PM 66063830	
	22	Inspection & calibrate Zero Skip : No calibrate because HRS22 Shutdown	PM 66063841	

Calibrate and Maintenance Continuouse Emission Monitor				page 3
Monthly Report				Nov-23
D/M/Y	CEMs	Description	Remark	
21/11/2023	11	Inspection & calibrate Zero Skip : No calibrate because HRS21 Shutdown	PM 66064365	
	12	Inspection & calibrate Zero Skip : No calibrate because HRS22 Shutdown	PM 66064376	
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66064387	
	22	Inspection & calibrate Zero Skip : No calibrate because O2 can't calibrate zero	PM 66064398	

Calibrate and Maintenance Continuouse Emission Monitor				page 4
Monthly Report				Nov-23
D/M/Y	CEMs	Description	Remark	
28/11/2023	11	Inspection & calibrate Zero and span Replaace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66065150	
	12	Inspection & calibrate Zero and span Replaace Sec filter element (GC-90)9057000200 Insp.Analyzer;Sample gas flow:confirm flow rate of 0 Insp.Sampling System Secondary filter 1,2 Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System;Mist catcher;Check for dirt If the residual pressure is below approximately 1 Mpa Replace Sec filter element (PA-5L)9057000300 Replace Mist Catcher (MC-050A)9057003300 Check the water system drain separator Replace Pri filter element 9024000100 Clean filter of cem system (Opacity) Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2% Confirm the temperature of eletric cooler	PM 66065167	
	21	Inspection & calibrate Zero Skip : No calibrate because HRS21 Shutdown	PM 66065184	
	22	Inspection & calibrate Zero Skip : No calibrate because HRS22 Shutdown	PM 66065195	



STANDARD GAS FOR CEMs REMAINING REPORT

Dec-23

STANDARD		Full condition			HRSG 11					HRSG 12					HRSG 21					HRSG 22					TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
					(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status	(Psi)	Time	Liter	Expired date	Order status																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Cylinder Number	Spare Standard gas	Cylinder Number				Spare Standard gas	Cylinder Number				Spare Standard gas	Cylinder Number				Spare Standard gas	Cylinder Number				Spare Standard gas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		Estimated Reorder due date	Estimated Reorder due date	Estimated Reorder due date				Estimated Reorder due date	Estimated Reorder due date				Estimated Reorder due date	Estimated Reorder due date				Estimated Reorder due date	Estimated Reorder due date				Estimated Reorder due date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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*Note : Normal Pressure is 2000 PSI.

N₂: Calibrate 1 time / 1 week NO_x,SO₂,CO,O₂ : Calibrate 1 time / 2 week *EPD:Expired date , CN:Cylinder Number , ES PE:Estimated Recorder Due Date

Spare Standard Gas *N₂ Has Store 31,50 Litre (5139943Y 28-DEC-2030)
*Nox Has Store 31 Litre (D920684 28-FEB-2026)
*SO₂ Has Store 31 Litre (D824444 18-OCT-2031)
*CO Has Store 31,50 Litre (CC91752 3-JAN-2031)
*O₂ Has Store 34 Litre (1491885 4-FEB-2031 , 379505 12-JUL-2031)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อ้นดนน)

Issue date

2-Jan-24

Report CEM_s Dec-23

HRSG 11

Description	Unit / Hr.	Fuel Gas						Fuel Oil						Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil	
		Values	Day	Flow				Values	Day	Flow					
SO ₂ 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-							96	152
NO _x 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-							690	690
CO 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-								
Opacity	%	-	1/12/2023 00:00	-	-	-	-								
O ₂	%	-	1/12/2023 00:00	-	-	-	-								
Flow	1000M ³ /Hr	-	1/12/2023 00:00		-	-	-								

HRSG 12

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard		
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas	Fuel Oil	
		Values	Day	Flow				Values	Day	Flow					
SO ₂ 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-								
NO _x 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-							96	152
CO 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-							690	690
Opacity	%	-	1/12/2023 00:00	-	-	-	-								
O ₂	%	-	1/12/2023 00:00	-	-	-	-								
Flow	1000M ³ /Hr	-	1/12/2023 00:00		-	-	-								

* Air Control Standard of (EIA)

Recorded By

(นายวิญญู บุญเพ็ญ)

Approved By

(นายสวัสดิ์ อ้นดนน)

Report CEM₅ Dec-23

HRSG 21

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas Fuel Oil	
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						18.88	
NO _x 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/12/2023 00:00	-	-	-	-							
O ₂	%	-	1/12/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/12/2023 00:00	-	-	-	-							

HRSG 22

Description	Unit / Hr.	Fuel Gas						Fuel Oil					Air Control Standard	
		Maximum			Average Values	Minimum Values	%tile 90 Values	Maximum			Average Values	Minimum Values	Fuel Gas Fuel Oil	
		Values	Day	Flow				Values	Day	Flow				
SO ₂ 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						18.88	
NO _x 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						96	152
CO 7%O ₂	ppm.	-	1/12/2023 00:00	-	-	-	-						690	690
Opacity	%	-	1/12/2023 00:00	-	-	-	-							
O ₂	%	-	1/12/2023 00:00	-	-	-	-							
Flow	1000M ³ /Hr	-	1/12/2023 00:00	-	-	-	-							

* Air Control Standard of (EIA)

Recorded By



(นายวรัญญู บุญเพ็ญ)

Approved By



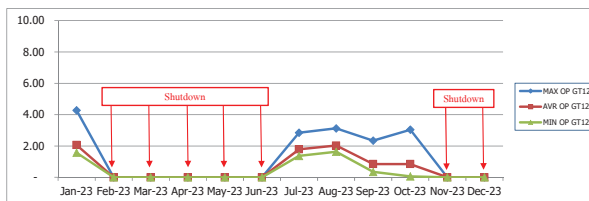
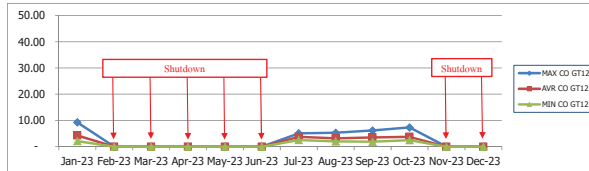
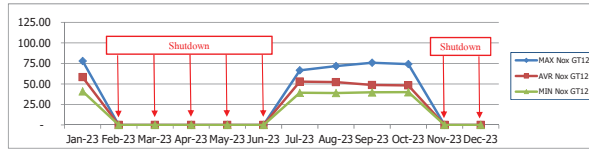
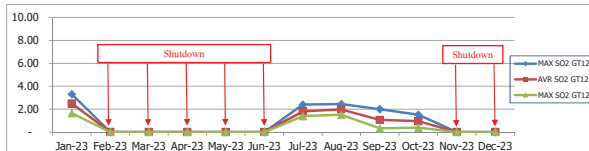
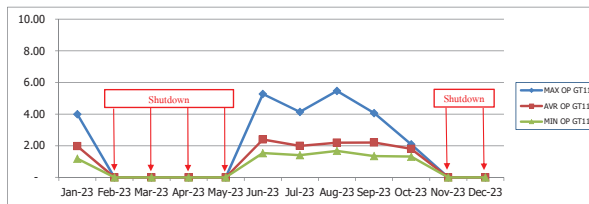
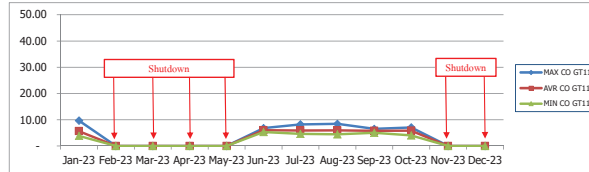
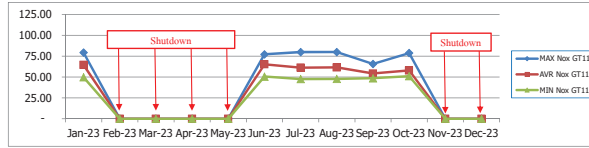
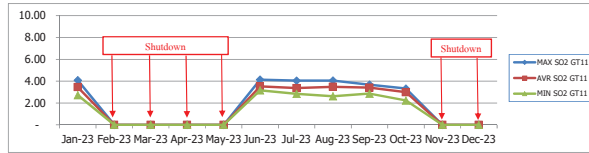
(นายสวัสดิ์ อันดนา)

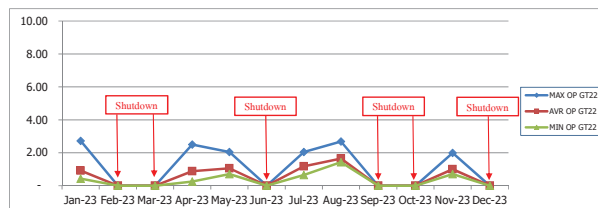
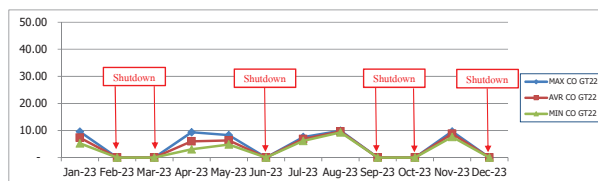
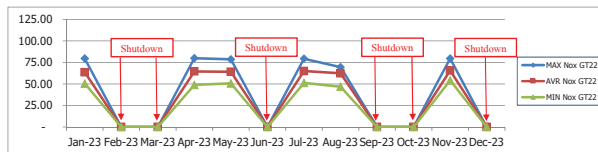
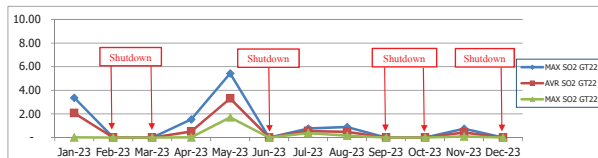
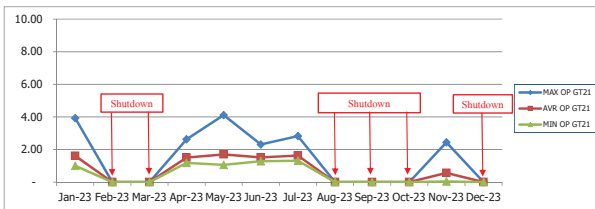
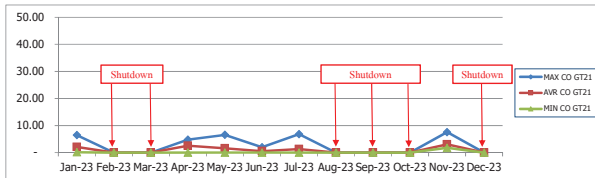
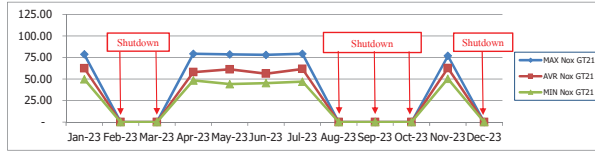
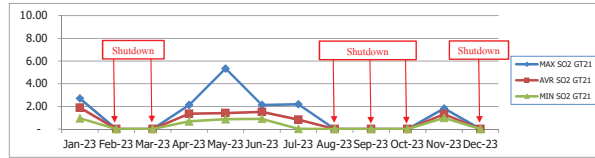
Maintenance Statistic of Environment Protection Equipment

Month: Dec-23

CEMS HRSG11				CEMS HRSG12				CEMS HRSG21				CEMS HRSG22				Waste Water Control																
No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM		No. of IM	No. of Exceed Standard	No. of PM	No. of CM	No. of IM	No. of Exceed Standard														
4				-	4				-	4				-	4				-													
Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)				Cause of Failure (No. of Incident)																
Part Damage				-	Part Damage				-	Part Damage				-	Part Damage				-													
Site Conditions				-	Site Conditions				-	Site Conditions				-	Site Conditions				-													
Human Error				-	Human Error				-	Human Error				-	Human Error				-													
Calibration				Calibration				Calibration				Calibration				Calibration																
Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	Zero Error (% of FS)				Span Error (% of FS)		Parameter	As Found		As Left								
	Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.3	Cal.4	Cal.1	Cal.2		Cal.1	Cal.2	Cal.1	Cal.2	Cal.1	Cal.2					
Nox	-	0.08	-	0.25	0.42	0.16	Nox	-	-0.25	-	-0.33	0.25	0.08	Nox	-0.16	-	-0.25	-	0.25	0.33	Nox	-	-	-	-	-	-	Ph Shape	97.20	90.10	98.90	91.95
SOx	-	-0.04	-	-0.02	0.49	0.64	SOx	-	0.00	-	0.08	0.17	0.97	SOx	-0.06	-	-0.08	-	0.12	0.28	SOx	-	-	-	-	-	-					
CO	-	-0.66	-	-0.66	0.37	0.06	CO	-	-0.11	-	-0.11	0.20	0.45	CO	0.00	-	0.00	-	1.23	1.13	CO	-	-	-	-	-	-					
O2	-	0.21	-	0.13	0.26	0.13	O2	-	-0.08	-	-0.26	0.04	0.13	O2	0.04	-	0.30	-	0.26	0.26	O2	-	-	-	-	-	-					
Remark																																

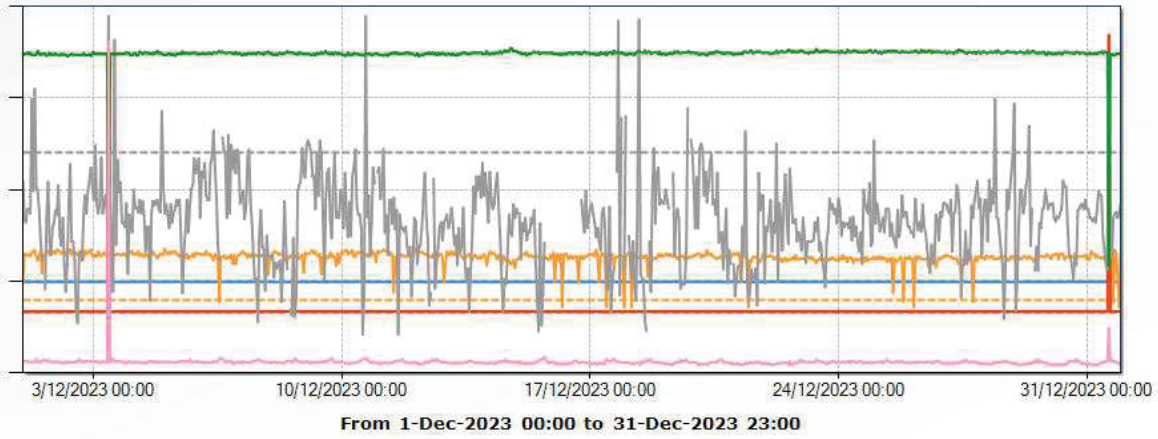
* :Re-Calibrate (Zero Diff >±1%) (Span Diff >±2%)





GT11

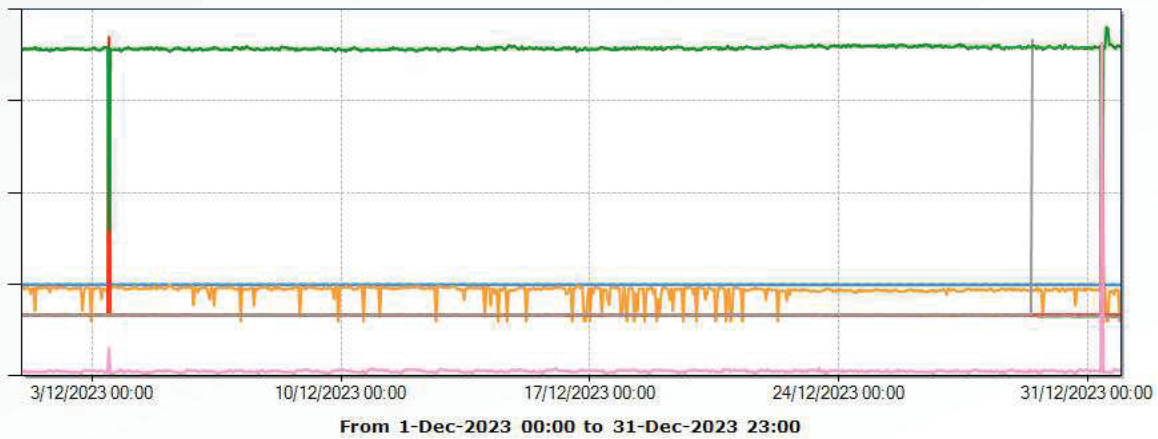
Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 11RCAI11_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-10"/> <input type="text" value="40"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11RCAI11_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="2500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 11HNE01CO101_A1 - HRSG11 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1.5"/> <input type="text" value="1"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11CNA00GH001_A4 - HRSG11 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 11HNE01CO103_A1 - HRSG11 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="600"/> set	<input type="text"/>	KNm3/h

GT12

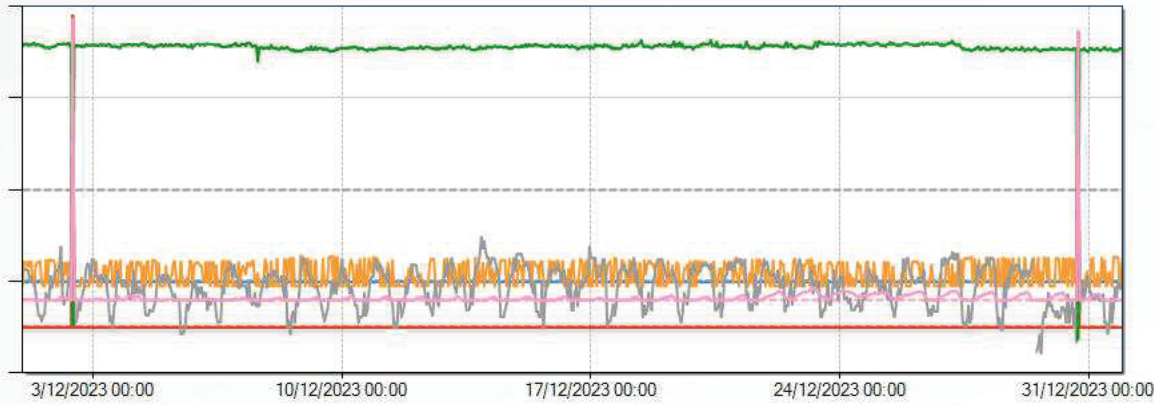
Hourly Trend



<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 12RCAI12_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-10"/> <input type="text" value="50"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12RCAI12_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="5000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 12HNE01CO101_A1 - HRSG12 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="100"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12CNA00GH001_A4 - HRSG12 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 12HNE01CO103_A1 - HRSG12 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="0"/> <input type="text" value="800"/> set	<input type="text"/>	KNm3/h

GT21

Hourly Trend

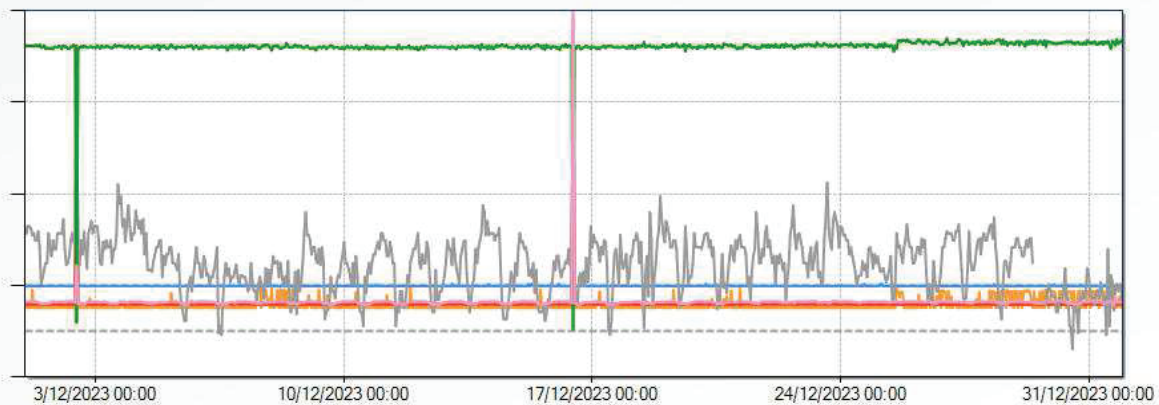


From 1-Dec-2023 00:00 to 31-Dec-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 21RCAI21_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="60"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21RCAI21_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-500"/> <input type="text" value="3500"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 21HNE01CO101_A1 - HRSG21 EXHASUT GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1"/> <input type="text" value="1"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21CNA00GH001_A4 - HRSG21 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 21HNE01CO103_A1 - HRSG21 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="800"/> set	<input type="text"/>	KNm3/h


GT22


Hourly Trend





From 1-Dec-2023 00:00 to 31-Dec-2023 23:00

<input type="checkbox"/> Enable Multiple Y-Axis	Set Point	Axis-Y Min / Max	Cursor Value	Unit
<input checked="" type="checkbox"/> 22RCAI22_21 - SO2 (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="600"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_02 - NOx (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-20"/> <input type="text" value="80"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22RCAI22_31 - CO (7% O2)	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-1000"/> <input type="text" value="4000"/> set	<input type="text"/>	ppm
<input checked="" type="checkbox"/> 22HNE01CO101_A1 - HRSG22 EXHAUST GAS OPACITY	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-0.2"/> <input type="text" value="1.4"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22CNA00GH001_A4 - HRSG22 EXHAUST GAS O2	<input checked="" type="checkbox"/> 0 set	<input type="text" value="18.5"/> <input type="text" value="21.5"/> set	<input type="text"/>	%
<input checked="" type="checkbox"/> 22HNE01CO103_A1 - HRSG22 EXHAUST GAS FLOW	<input checked="" type="checkbox"/> 0 set	<input type="text" value="-200"/> <input type="text" value="800"/> set	<input type="text"/>	KNm3/h

	Calibrate and Maintenance Continuous Emission Monitor			Dec-23	Monthly Report	D/M/Y
	CEMS	Description	Remark	11	Inspection & calibrate Zero	Inspection & calibrate Zero
	12	Skip : No calibrate because HRSG11 Shutdown	Skip : No calibrate because HRSG12 Shutdown	12	Inspection & calibrate Zero	Skip : No calibrate because HRSG12 Shutdown
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	21	Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2
		Replace Sec filter element (GC-90)9057000200 Insp.Sampling System Mist catcher;Check for dirt	Replace Sec filter element (PA-5L)9057000300 Insp.Sampling System Mist catcher (MC-050A)9057003300 Clean filter of cem system (Opacity) Check the water system drain separator Replace Pti filter element 9024000100		Check the water system drain separator Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2%	Confirm the temperature of electric cooler Inspection & calibrate Zero
	22	Skip : No calibrate because O2 can't calibrate zero	Inspection & calibrate Zero	22	Skip : No calibrate because O2 can't calibrate zero	Inspection & calibrate Zero

	Calibrate and Maintenance Continuous Emission Monitor			Dec-23	Monthly Report	D/M/Y
	CEMS	Description	Remark	11	Inspection & calibrate Zero	Inspection & calibrate Zero
	12	Skip : No calibrate because HRSG11 Shutdown	Skip : No calibrate because HRSG12 Shutdown	12	Inspection & calibrate Zero	Skip : No calibrate because HRSG12 Shutdown
	21	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	21	Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2
		Replace Sec filter element (GC-90)9057000200 Insp.Sampling System Mist catcher;Check for dirt	Replace Sec filter element (PA-5L)9057000300 Clean filter of cem system (Opacity) Check the water system drain separator Replace Pti filter element 9024000100		Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2%	Confirm the temperature of electric cooler Inspection & calibrate Zero
	22	Skip : No calibrate because O2 can't calibrate zero	Inspection & calibrate Zero	22	Skip : No calibrate because O2 can't calibrate zero	Inspection & calibrate Zero

	Calibrate and Maintenance Continuous Emission Monitor			Dec-23	Monthly Report	D/M/Y
	CEMS	Description	Remark	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0
	12	Skip : No calibrate because HRSG21 Shutdown	Skip : No calibrate because HRSG22 Shutdown	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0
	21	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	21	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2
		Replace Sec filter element (GC-90)9057000200 Insp.Sampling System Mist catcher;Check for dirt	Replace Sec filter element (PA-5L)9057000300 Clean filter of cem system (Opacity) Check the water system drain separator Replace Pti filter element 9024000100		Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2%	Confirm the temperature of electric cooler Inspection & calibrate Zero
	22	Skip : No calibrate because HRSG21 Shutdown	Inspection & calibrate Zero	22	Skip : No calibrate because HRSG22 Shutdown	Inspection & calibrate Zero

	Calibrate and Maintenance Continuous Emission Monitor			Dec-23	Monthly Report	D/M/Y
	CEMS	Description	Remark	11	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0
	12	Skip : No calibrate because HRSG21 Shutdown	Skip : No calibrate because HRSG22 Shutdown	12	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0	Inspection & calibrate Zero and span Insp.Analyzer;Sample gas flow;confirm flow rate of 0
	21	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	21	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2	Inspection & calibrate Zero Insp.Drain trap 1;Replace Primary filter element Insp.Sampling System Secondary filter 1,2
		Replace Sec filter element (GC-90)9057000200 Insp.Sampling System Mist catcher;Check for dirt	Replace Sec filter element (PA-5L)9057000300 Clean filter of cem system (Opacity) Check the water system drain separator Replace Pti filter element 9024000100		Check the hose dew inflow measuring system Calibration opacity when GT shutdown in case >0.2%	Confirm the temperature of electric cooler Inspection & calibrate Zero
	22	Skip : No calibrate because HRSG21 Shutdown	Inspection & calibrate Zero	22	Skip : No calibrate because HRSG22 Shutdown	Inspection & calibrate Zero