OSIsoft®
USERS CONFERENCE
2009
SAN FRANCISCO

From 43 Gas Lamps to 20 Million Customers in 142 Years

How Infrastructure Drives Innovation and Growth

Presented by John Thompson and John Clarke of Southern California Gas Company

Southern California Gas Company

A Sempra Energy utility®

Empowering Business in Real Time

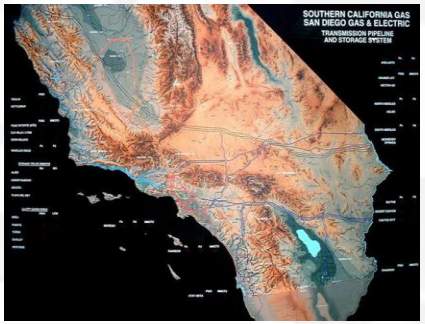
PI Infrastructure for the Enterprise

Sempra Energy

- Number 232 on the Fortune 500
- 2007 revenues $11.5 billion
- 13,500 employees & 29 million customers
- Sempra Global
  - Sempra Generation
  - Sempra Pipelines & Storage
  - Sempra LNG
- Sempra Utilities
  - San Diego Gas & Electric (SDG&E)
  - Southern California Gas (SoCalGas)

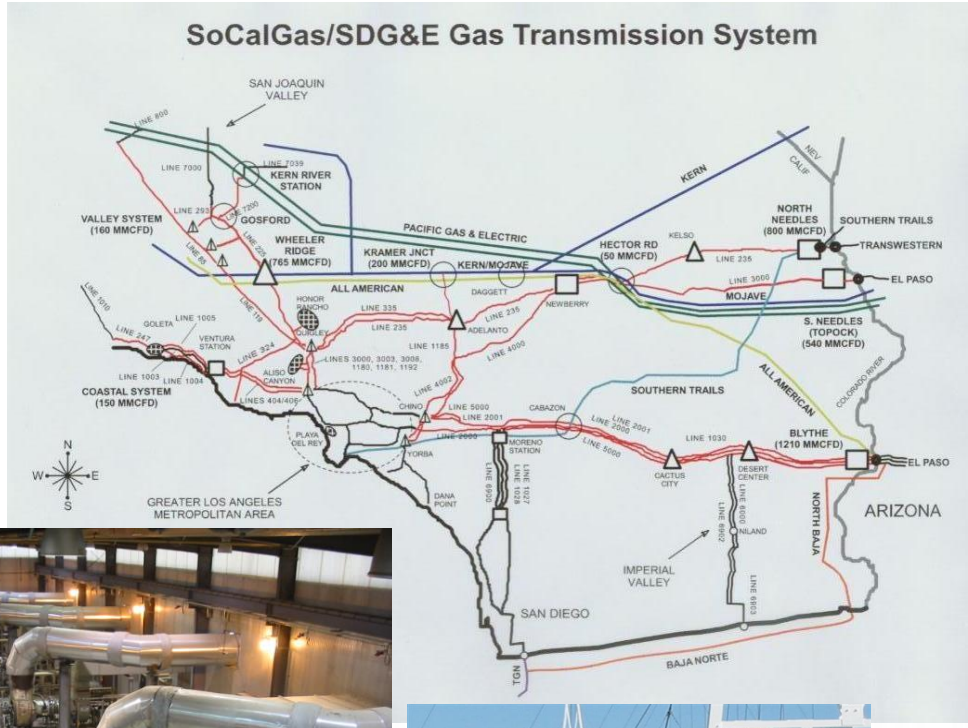
SoCalGas - Distribution

- Began in 1867 as LA Gas Company (street lights)
- Now largest US natural gas distribution utility
- 23,000 square mile service territory
- 20.3 million customers
- 5.7 million gas meters
- 45,000+ miles of pipe



SoCalGas - Transmission

- Operate and maintain 3500 miles of transmission pipeline
- Serve 179 Non-Core customers
- Receive deliveries from 65 independent gas producers



SoCalGas - Storage

- 131 BCF or 4% of National total
- Largest Storage in Western US
- 4 Storage Fields
- 100,000 total horsepower

Typical Storage Facility - Aliso Canyon

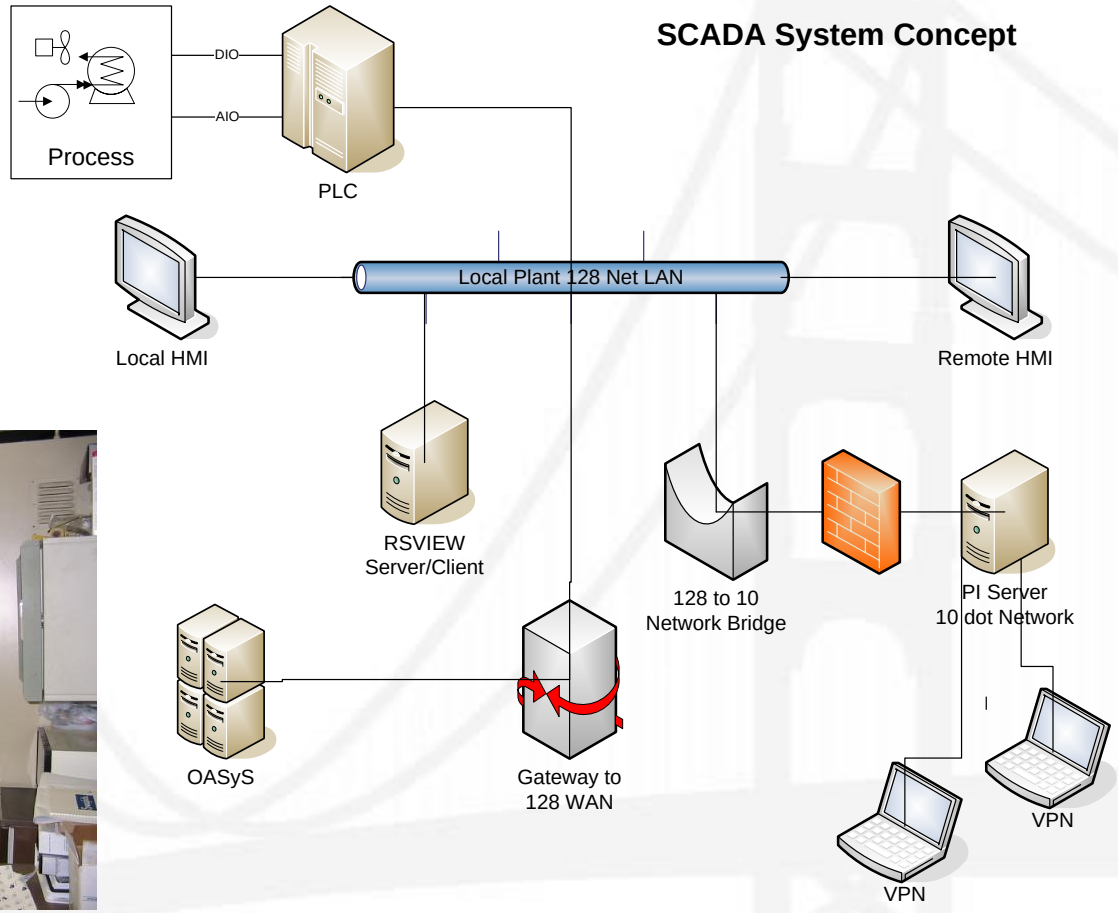
- Discovered oil and gas field in 1938
- 3000 acres and 113 wells
- Converted to gas storage in 1972
- 84 BCF cushion & 76 BCF working
- 40,000 horsepower injection

PI Scope/Scale

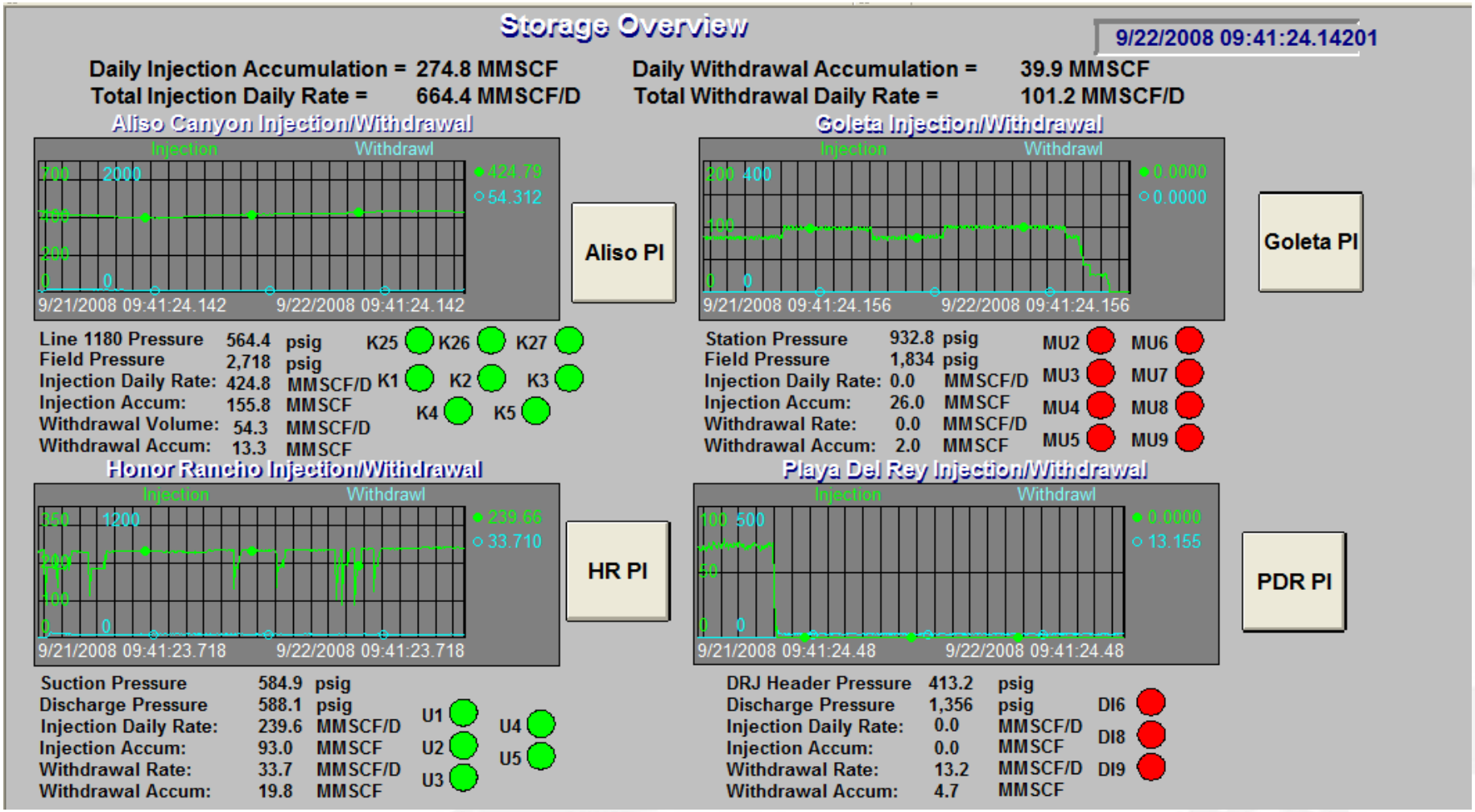
- 6 servers - 1 at each field on SCADA and 2 CEMS
- Collection connected to the facility SCADA (I-FIX)
- Approximately 8000 tags across the four fields
- Archives established in late 2005 and early 2006
- Bridges the more secure SCADA network to the more accessible CORP network including VPN

PI Powers Our Users

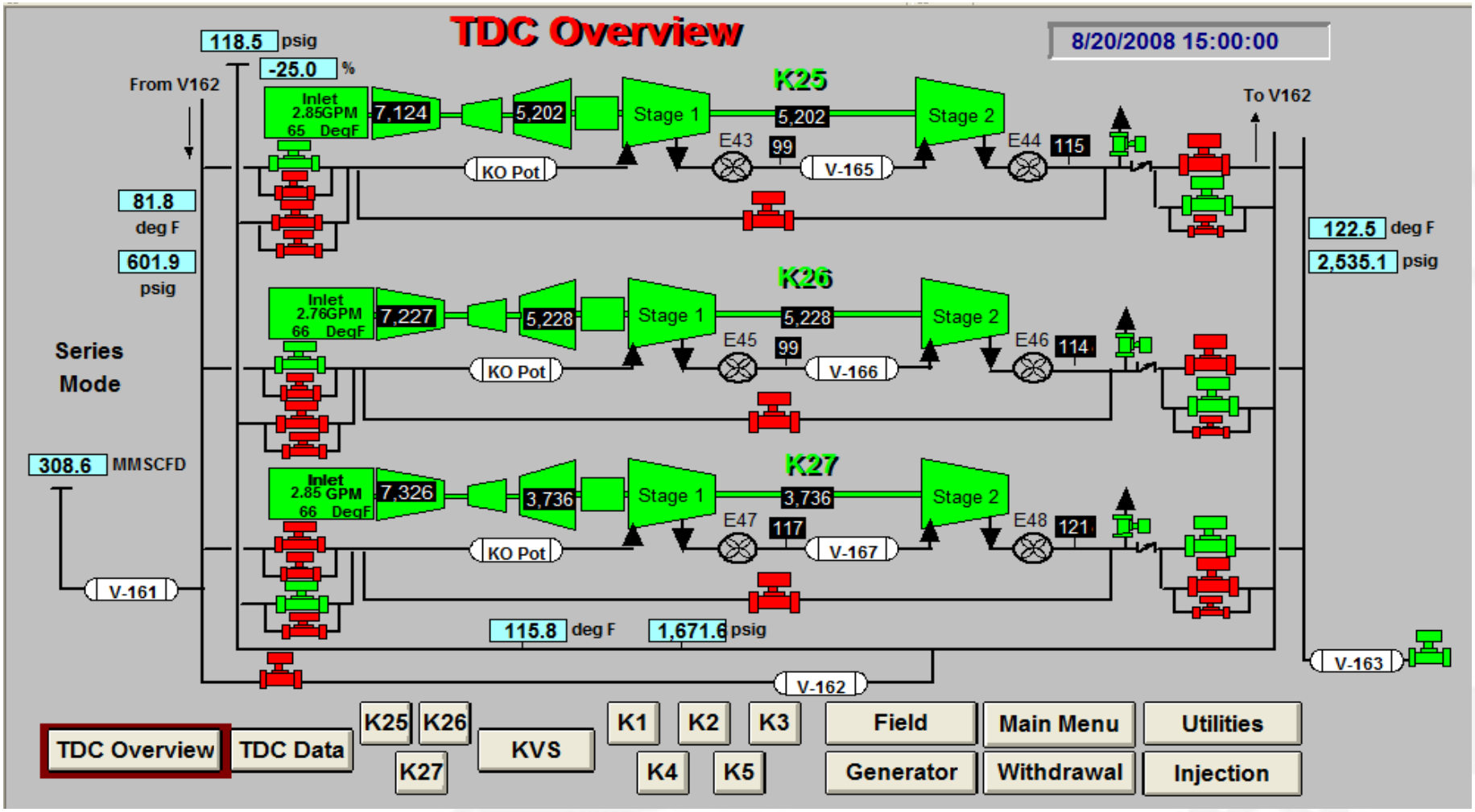
- SCADA system is more secure
- PI bridges data to corporate network
- VPN access



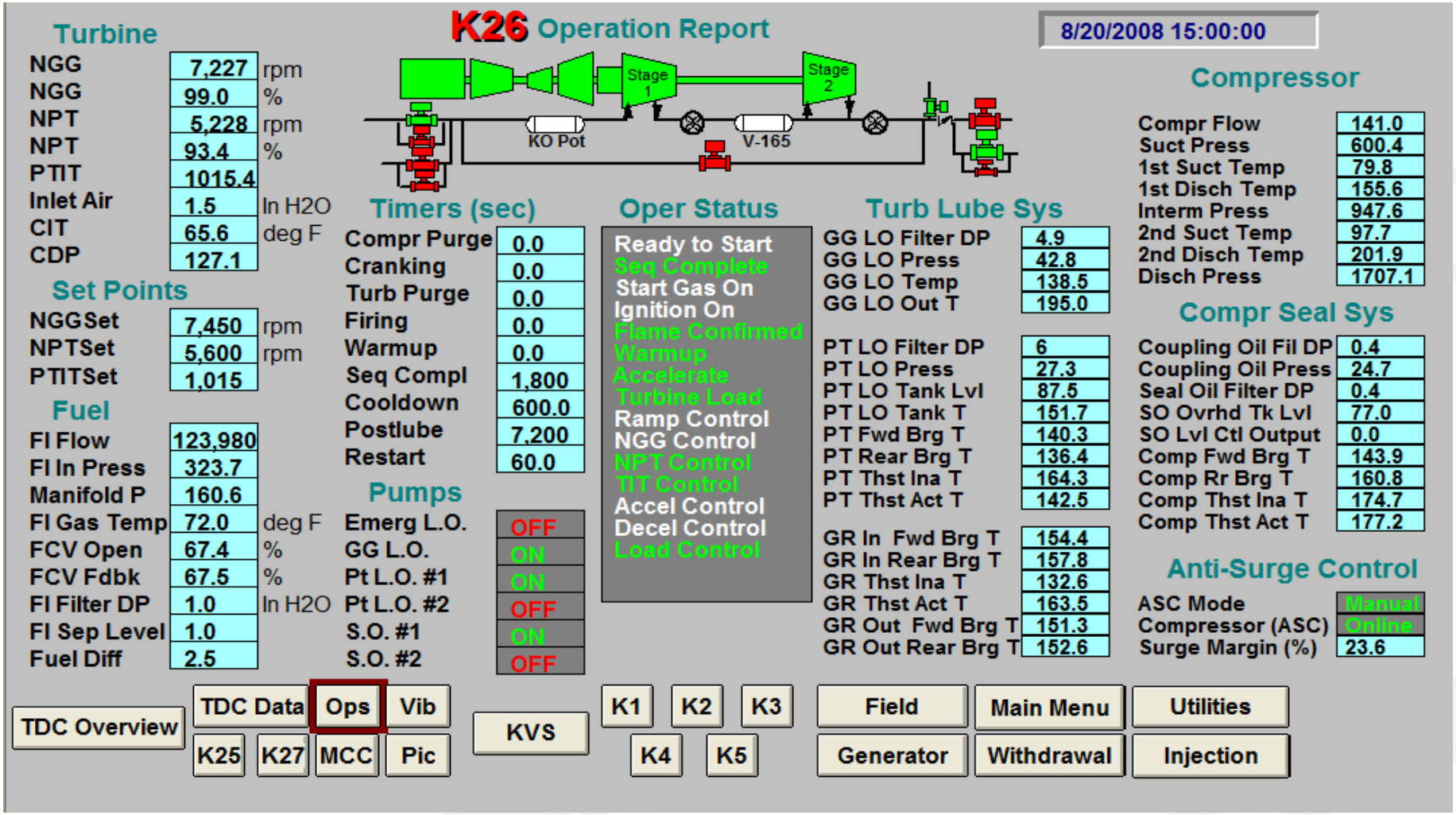
All Storage Overview



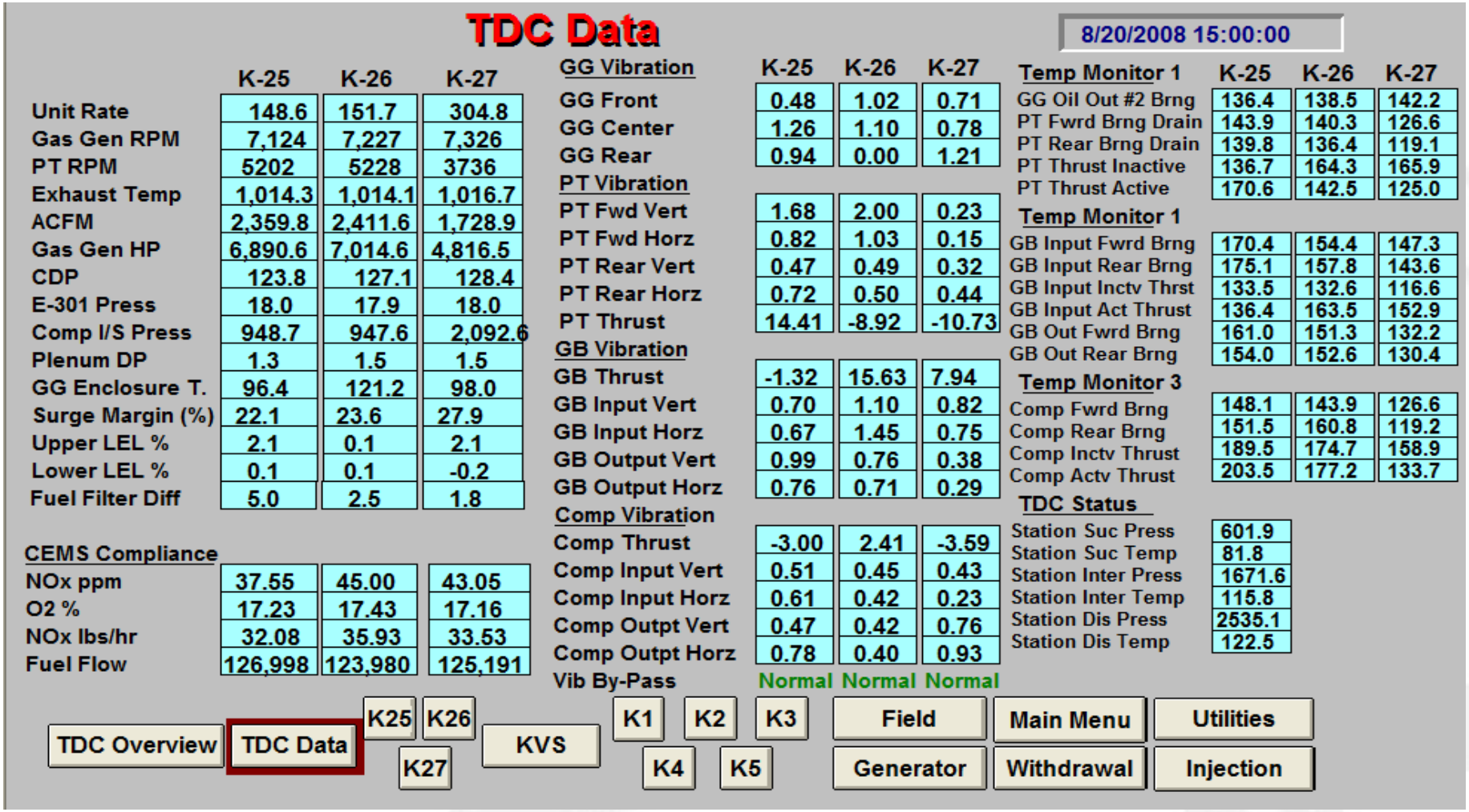
Aliso Turbine Driven Compressors



Single TDC Unit



TDC Summary Detail

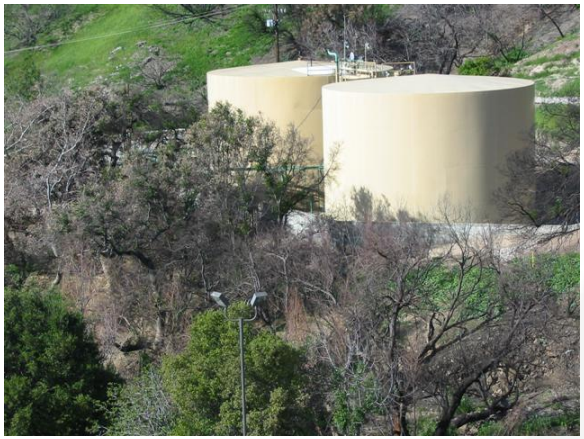


Air Quality

- Federal – Title V & MACT
- CA State – CARB (air toxics AB2588)
- SCAQMD – Most stringent in nation!
- Greenhouse Gases

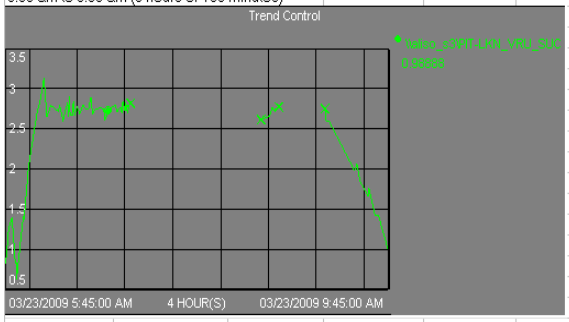
Environmental Compliance

- Multi-Jurisdiction
- Monitoring
- Recordkeeping
- Reporting



03/23/2009 5:45				
03/23/2009 9:45	PIT-LKN_VRU_SUC	PT-PGP_VRU_SUC	PT-SGP_SZ_VRU_SUC1	PT-SGP_VRU_SUC1
Varec Max	2.94	8.65	13.84	3.46

Limekiln (Process 12, System 4)
6:06 am to 9:06 am (3 hours or 180 minutes)



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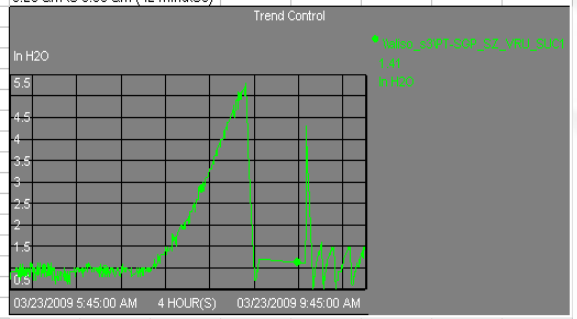

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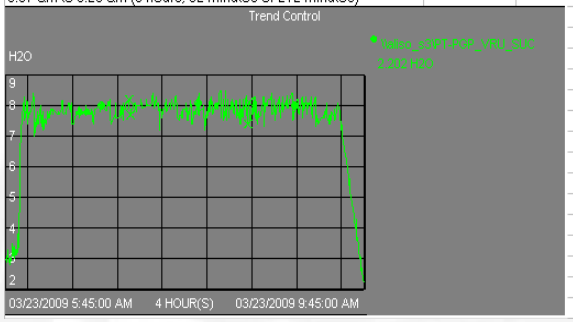

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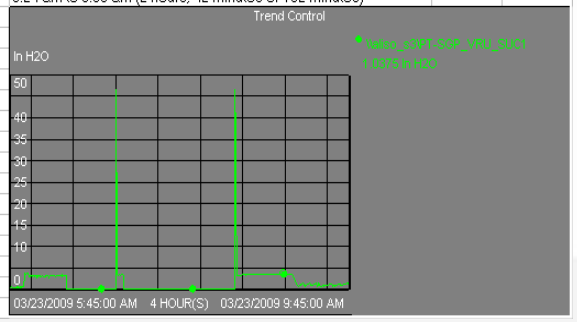
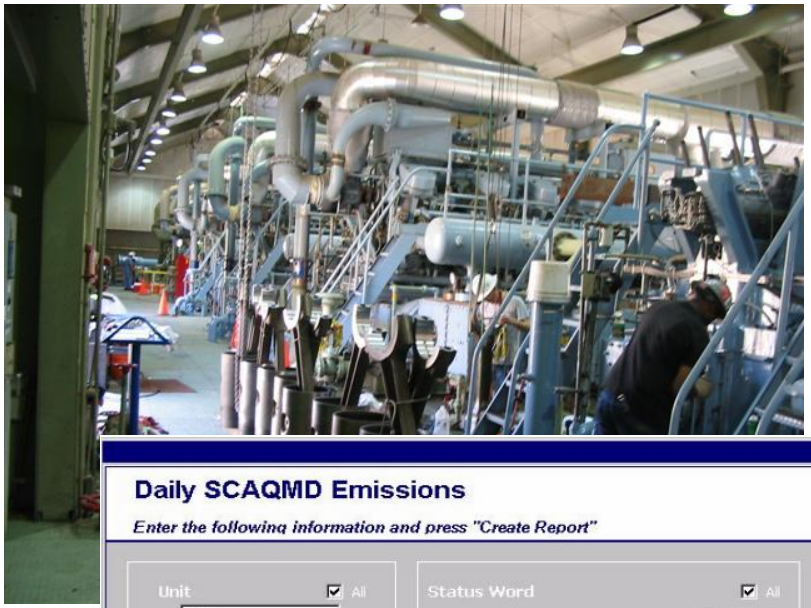


CEMS Process Description



Daily CEMS Reporting

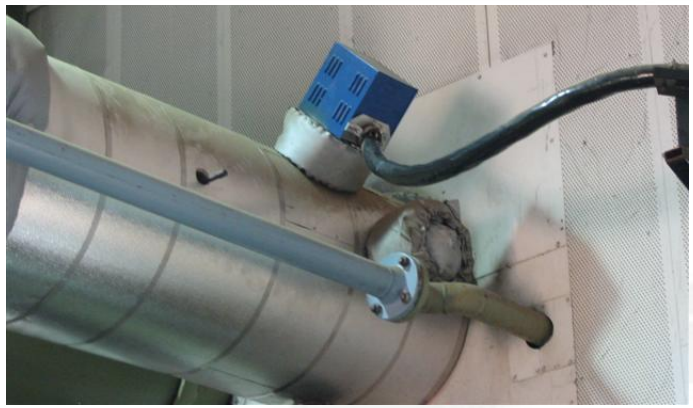
Daily SCAQMD Emissions — EXELE Information Systems, Inc. — New Report — Aliso

Report Date: 09/12/02 11:46:04
Unit Selection: All

Emission: NOx
Time Frame: Current Week
Start Date: 9/8/2002
End Date: 9/11/2002
Period Days: 4.00

Sort Order: Date

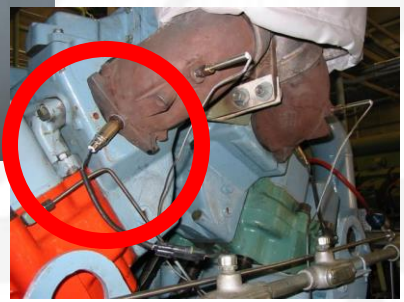
Date	Unit	ID	Emission	Total Pounds	Packed Status Word: Valid Data Status	Daily Calib Status	Offline Status	Alternate Data Acquisition	Out-of-Control Status	Fuel Switch	Values Reported at 10%	Values Reported Below 10%	Source Not Operating
					<-	-	-	-	All	-	-	-	->
08-Sep-2002	K1	D8	NOx	64.27	X	X						X	
08-Sep-2002	K2	D6	NOx	67.90	X	X						X	
08-Sep-2002	K3	D9	NOx	67.90	X	X						X	
08-Sep-2002	K4	D10	NOx	67.90	X	X						X	
08-Sep-2002	K5	D7	NOx	67.97	X	X						X	
08-Sep-2002	K25	D14	NOx	67.97	X	X						X	
08-Sep-2002	K26	D15	NOx	67.97	X	X						X	
08-Sep-2002	K27	D16	NOx	67.90	X	X						X	
09-Sep-2002	K1	D8	NOx	46.15	X	X						X	
09-Sep-2002	K2	D6	NOx	58.13		X			X			X	
09-Sep-2002	K3	D9	NOx	68.45	X	X						X	
09-Sep-2002	K4	D10	NOx	68.45	X	X						X	
09-Sep-2002	K5	D7	NOx	68.44	X	X						X	
09-Sep-2002	K25	D14	NOx	68.62	X	X						X	



Continuous Process Monitoring System - CPMS

- Contrast with Continuous Emissions Monitoring
- Instead of measuring emissions constantly
- Monitor the ***process*** of the emission control system
  - Catalyst
  - AFRC

500KW Generators
Rich Burn Catalyst with AFRC



Adaptive Control Fuel Supplement

PI ProcessBoo

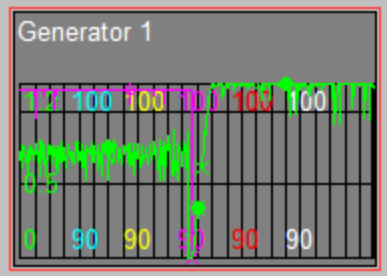
File Edit View

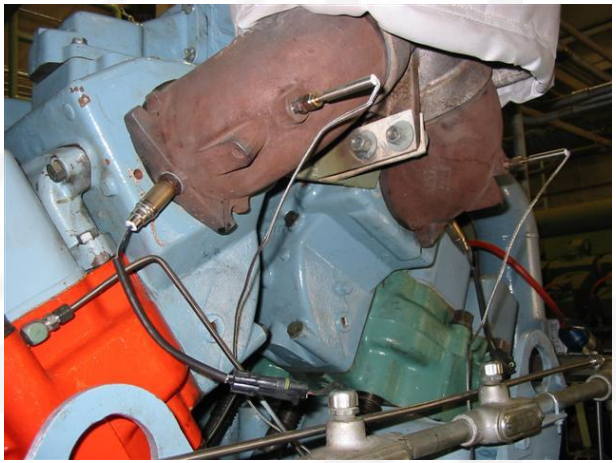
100

1110.2

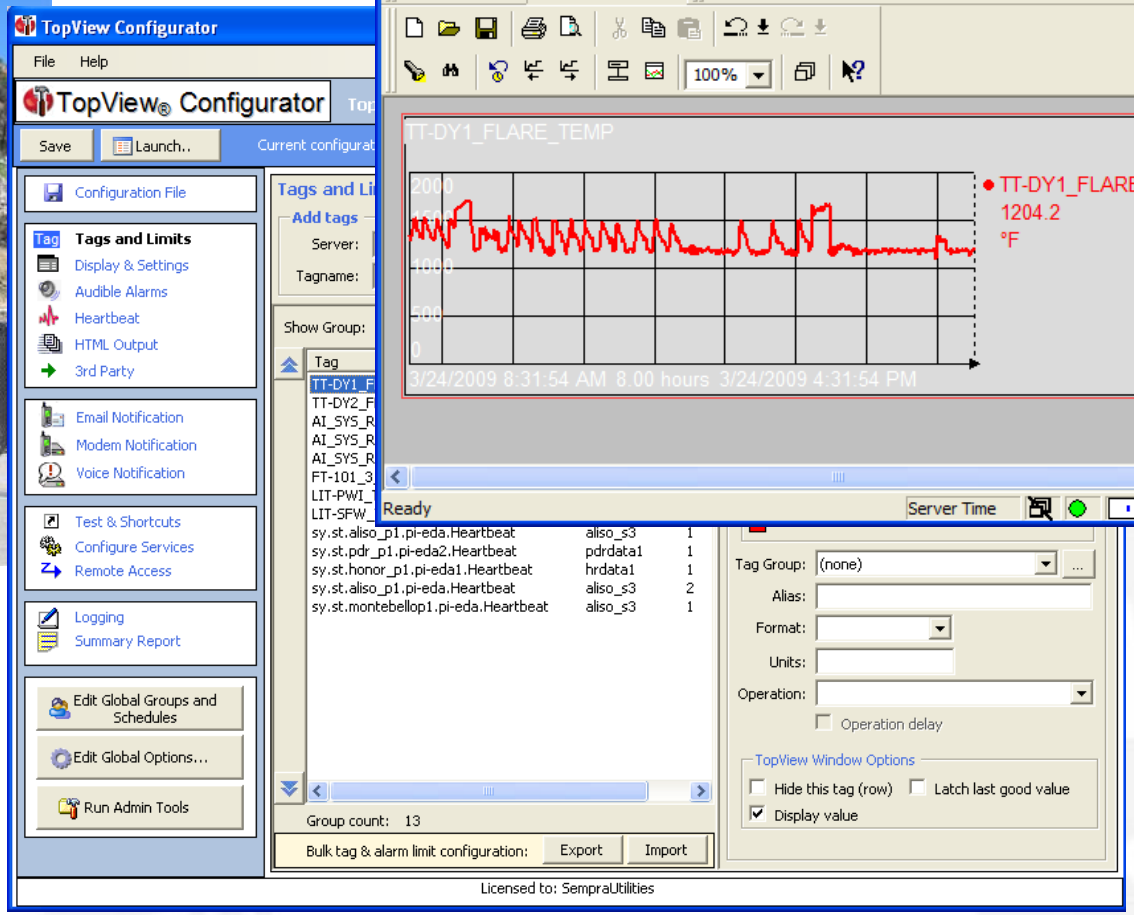
Generator 1

EGO 3 Voltage	0.754	Volts
EGO 3 Health	99.61	%
Valve Driver 1 Amps	0.195	Amps
Valve Driver 2 Amps	0.195	Amps
Map 1 Voltage	0.588	Volts
Adaptive Control Vv	1.697	Volts
Cat Diff Temp	47.0	Deg F





Flare Stack


TopView Configurator
File Help
TopView® Configurator
Save
Launch..
Configuration File
Tags and Limits
Display & Settings
Audible Alarms
Heartbeat
HTML Output
3rd Party
Email Notification
Modem Notification
Voice Notification
Test & Shortcuts
Configure Services
Remote Access
Logging
Summary Report
Edit Global Groups and Schedules
Edit Global Options...
Run Admin Tools
Tags and Limits
Add tags
Server:
Tagname:
Show Group:
Tag
sy.st.aliso_p1.pi-eda.Heartbeat aliso_s3 1
sy.st.pdr_p1.pi-eda2.Heartbeat pdrdata1 1
sy.st.honor_p1.pi-eda1.Heartbeat hrdata1 1
sy.st.aliso_p1.pi-eda.Heartbeat aliso_s3 2
sy.st.montebellop1.pi-eda.Heartbeat aliso_s3 1
Group count: 13
Bulk tag & alarm limit configuration: Export Import
Tag Group: (none)
Alias:
Format:
Units:
Operation:
Operation delay
TopView Window Options
Hide this tag (row)
Latch last good value
Display value
Licensed to: SempraUtilities
PI ProcessBook - [Flare Stack*]
File Edit View Insert Tools Draw Arrange Window Help
100%
TT-DY1_FLARE_TEMP
TT-DY1_FLARE_TEMP
1204.2
°F
3/24/2009 8:31:54 AM 8.00 hours 3/24/2009 4:31:54 PM
Ready
Server Time
CAP

Flare Stack

Microsoft Excel - JT.xls

File Edit View Insert Format Tools Data Window PI Help Adobe PDF

50%

Reply with Changes... End Review...

A1 fx 2008 CH4 Emissions (lbs)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	2008 CH4 Emissions (lbs)															
2	AQMD Unit ID:	Facility ID:	Type:	January	February	March	April	May	June	July	August	September	October	November	December	Total
3	C-93	Dehy 1 Flare	Process	4.33	3.70	0.85	0.80	0.77	0.84	0.91	1.11	1.01	0.68	0.96	2.67	18.6
4	C-98	Dehy 2 Flare	Process	2.20	1.06	0.39	0.21	0.19	0.14	0.00	0.09	0.18	0.16	0.16	1.43	6.2
5	D-1	G2	Large	176	179	193	398	610	283	541	296	597	596	260	334	4,463
6	D-2	G4	Large	170	170	200	346	303	593	514	273	468	596	208	420	4,263
7	D-3	G1	Large	0	44	285	374	446	514	494	562	662	531	585	311	4,809
8	D-4	G3	Large	233	188	269	334	366	496	493	112	123	131	208	10	2,962
9	D-6	K-2	Major	29	1,825	3,231	8,012	12,558	10,467	10,956	6,363	10,648	10,562	7,839	1,328	83,819
10	D-7	K-5	Major	34	1,826	3,280	7,977	12,933	10,084	10,783	5,968	10,591	9,552	7,988	1,391	82,408
11	D-8	K-1	Major	28	1,757	3,137	8,040	12,789	10,759	11,579	6,511	9,968	10,421	6,062	0	81,050
12	D-9	K-3	Major	27	1,864	3,119	7,927	12,502	10,740	11,244	6,453	10,536	10,152	7,535	1,373	83,472
13	D-10	K-4	Major	0	0	0	6,795	13,395	10,933	10,274	6,614	10,844	10,690	8,022	1,409	78,975
14	D-14	K-25	Major	0	15	274	573	693	612	709	220	541	559	254	46	4,496
15	D-15	K-26	Major	0	8	264	558	609	574	680	214	529	537	245	45	4,261
16	D-16	K-27	Major	0	5	206	377	669	605	686	214	522	539	240	44	4,108
17	D-83	H-6	Process	1.85	1.08	0.25	0.00	0.16	0.21	0.28	0.28	0.39	0.12	0.04	0.53	5.2
18	D-84	H-20	Process	0.72	0.26	0.05	0.20	0.12	0.06	0.00	0.04	0.03	0.00	0.00	0.31	1.8
19	D-175	H416	Process	4.69	2.91	0.10	0.04	0.00	0.00	0.00	0.16	0.00	0.01	0.17	0.18	8.3
20	D-176	H417	Process	0.37	0.00	0.00	0.01	0.00	0.00	0.00	0.10	0.11	0.01	0.00	2.81	3.4
21	D-177	H418	Process	4.33	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	2.01	8.2
22	E-173 (M24)	AC	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
23	E-15	Air Compressor	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
24	E-16	Generator	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
25	E-18	Air Compressor	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
26	E-18B	Air Compressor	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
27	E-22	Trash Pump	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
28	E-23	Trash Pump	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
29	E-24	Trash Pump	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
30	E-25	Steam Cleaner	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
31	E-27	Welder	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
32	E-28	Light Plant	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
33	E-29	Generator	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
34	E-30	Welder	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
35	E-31	Air Compressor	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
36	E-32	Generator	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
37	E-33	Pressure Washer	R219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
38	Totals:															
39	Major			117	7,301	13,512	40,258	66,147	54,774	56,910	32,557	54,178	53,012	38,185	5,636	422,588
40	Large			578	581	947	1,452	1,725	1,887	2,042	1,244	1,851	1,854	1,261	1,075	16,497
41	Process			18.48	10.84	1.64	1.26	1.25	1.25	1.19	1.78	1.76	0.97	1.34	9.94	51.70
42	R219	Gasoline		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43		Diesel		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44		Nat. Gas		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	Major, Large, Process, Natural Gas all in MMSCF															
46	Gasoline, Diesel in gallons															
47																

Tank Blanket Gas Systems

- Tank safety
- No vapor release

Tank Vapor Recovery Unit

SCAQMD Rule 463 requires vapor control system

Tank VRU Reporting in PI

- Outage of more than 3 hours
- Reported only 42 minutes of emissions

03/23/2009 5:45				
03/23/2009 9:45	PIT-LKN_VRU_SUC	PT-PGP_VRU_SUC	PT-SGP_SZ_VRU_SUC1	PT-SGP_VRU_SUC1
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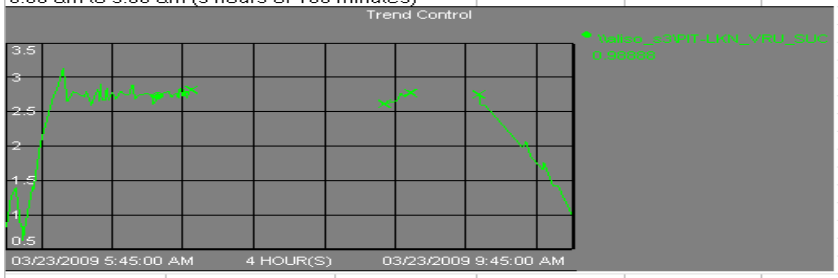

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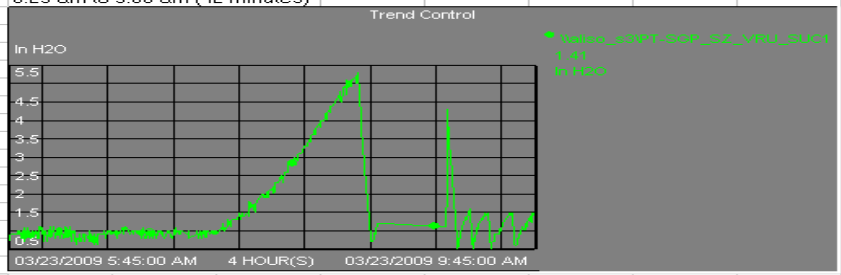

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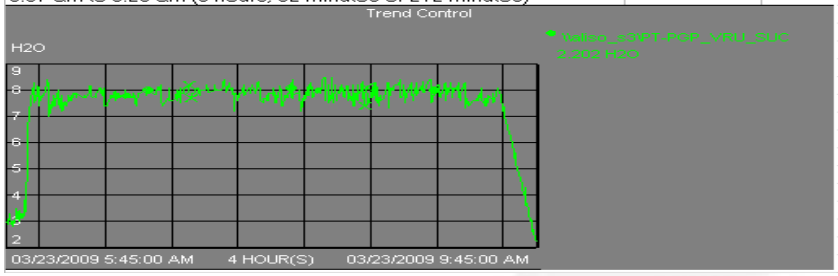

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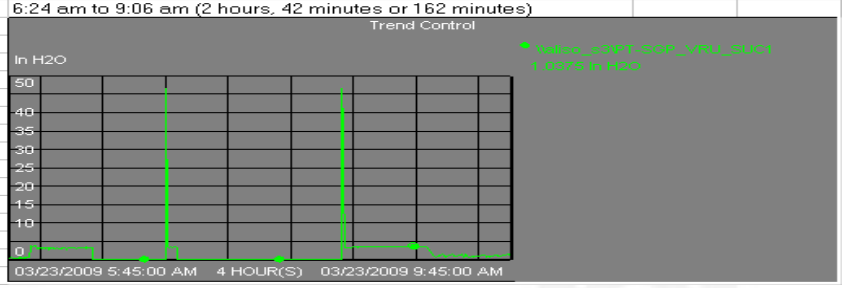


RECLAIM Rule 219

	A	B	C	D	E	F
1	2008 CO2 Emissions (lbs)					
2	AQMD Unit ID:	Facility ID:	Type:	January	February	March
15	D-15	K-26	Major	0	98,684	3,375,547
16	D-16	K-27	Major	0	69,113	2,639,550
17	D-83	H-6	Process	96,274	56,349	13,120
18	D-84	H-20	Process	37,588	13,418	2,701
19	D-175	H416	Process	244,634	151,862	5,328
20	D-176	H417	Process	19,283	2	0
21	D-177	H418	Process	225,835	95,620	0
22	E-173 (M24)	AC	R219	64,400	46,711	13,942
23	E-15	Air Compressor	R219	1,302	22	897
24	E-16	Generator	R219	143	0	18
25	E-18	Air Compressor	R219	1,109	292	11,618
26	E-18B	Air Compressor	R219	16,188	320	13,096
27	E-22	Trash Pump	R219	0	0	0
28	E-23	Trash Pump	R219	0	0	0
29	E-24	Trash Pump	R219	3,129	3,054	1,046
30	E-25	Steam Cleaner	R219	649	0	0
31	E-27	Welder	R219	5,869	123	4,269
32	E-28	Light Plant	R219	-1	4	113
33	E-29	Generator	R219	0	0	0
34	E-30	Welder	R219	11,904	125	3,404
35	E-31	Air Compressor	R219	1	2	0
36	E-32	Generator	R219	0	0	0
37	E-33	Pressure Washer	R219	0	0	0
38						
39		*Major*		10,320	997,616	10,645,707
40		*Large*		276,570	278,036	452,744
41		*Process*		964,375	565,436	85,566
42	*R219*	*Gasoline*		5,685	3,369	13,578
43		*Diesel*		34,610	572	20,881
44		*Nat. Gas*		64,400	46,711	13,942
45	Major, Large, Process, Natural Gas all in MMSCF					
46	Gasoline, Diesel in gallons					

Routine Reporting with PI

- Well Logging
- Title V
- MACT
- 1110.2
- RECLAIM
- Greenhouse Gases

MACT Reporting with PI

Semi-Annual in compliance with 40 CFR Part 63 Subpart ZZZZ

- Compliance Criteria = NO / yes
  - Deviations from any emission or operating limitation
  - Was CPM out of control or inoperative
  - Any Startup, Shutdown or malfunctions events

MACT Report Summary

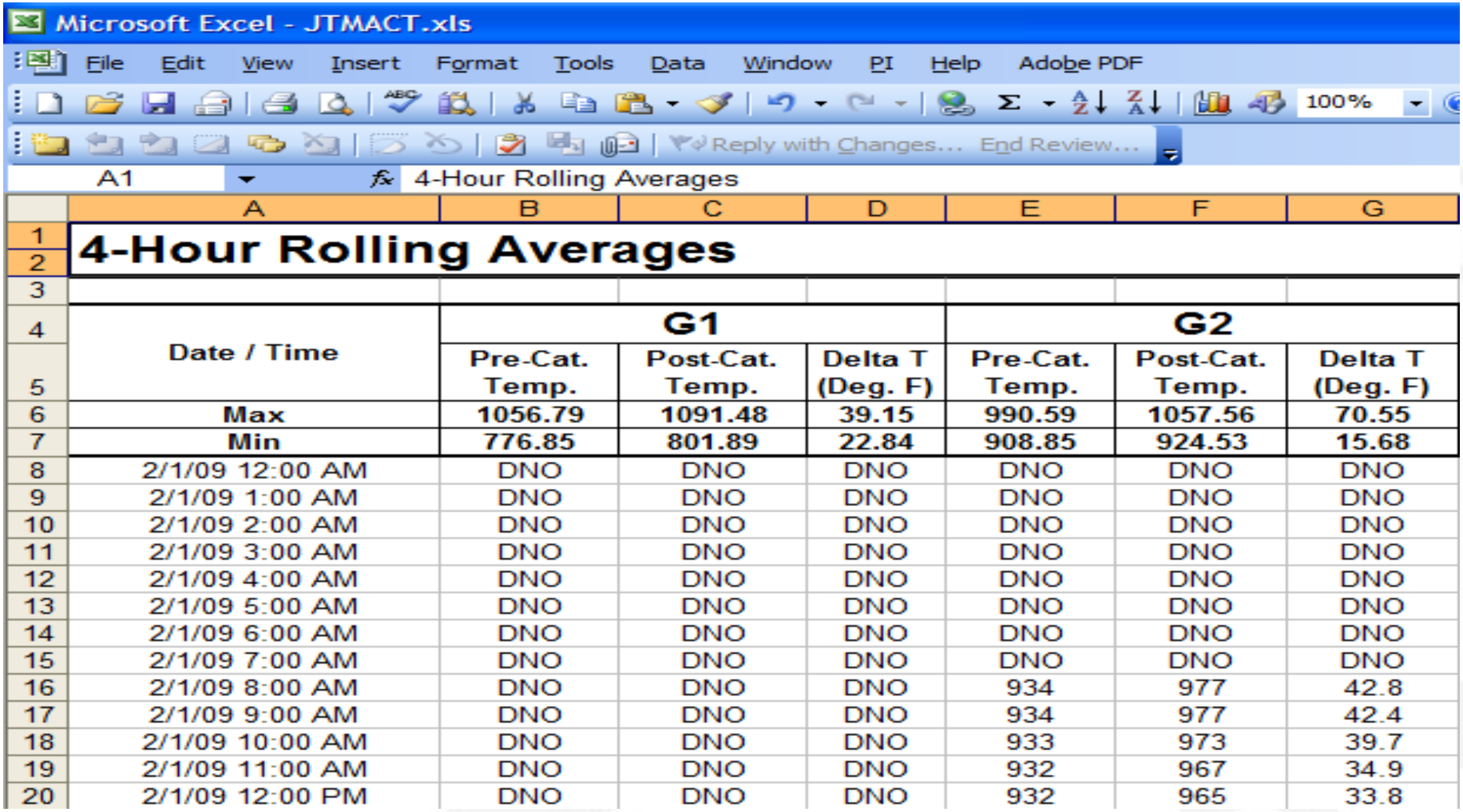
Microsoft Excel - JTMACT.xls

File Edit View Insert Format Tools Data Window PI Help Adobe PDF

A1 February 2009

	A	B	C	D	E	F	G	H	I
1	**February 2009**								
2									
3	Unit ID	Device ID	Max KW	Max Temp (inlet)	Max Temp (outlet)	Max (DP)	Tested DP	***Difference***	Max (DT)
4	G1	D3	732.08	1069.83	1102.96	1.13	1.0	***0.1***	41.1
5	G2	D1	850.55	999.74	1067.07	0.87	0.9	***0.0***	71.4
6	G3	D4	922.96	963.00	1112.10	0.67	1.3	***-0.6***	9.9
7	G4	D2	925.85	1024.13	1056.72	1.70	1.1	***0.6***	38.4
8	G3 - Out of Service								
9	For Monthly Data:								
10	January 31, 2009								
11	March 1, 2009								
12	For Averages:								
13	1/31/2009 21:00								
14	3/1/09 1:00 AM								
15									
16									

4 Hour Averages



4-Hour Rolling Averages

Date / Time	G1			G2		
	Pre-Cat. Temp.	Post-Cat. Temp.	Delta T (Deg. F)	Pre-Cat. Temp.	Post-Cat. Temp.	Delta T (Deg. F)
Max	1056.79	1091.48	39.15	990.59	1057.56	70.55
Min	776.85	801.89	22.84	908.85	924.53	15.68
2/1/09 12:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 1:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 2:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 3:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 4:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 5:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 6:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 7:00 AM	DNO	DNO	DNO	DNO	DNO	DNO
2/1/09 8:00 AM	DNO	DNO	DNO	934	977	42.8
2/1/09 9:00 AM	DNO	DNO	DNO	934	977	42.4
2/1/09 10:00 AM	DNO	DNO	DNO	933	973	39.7
2/1/09 11:00 AM	DNO	DNO	DNO	932	967	34.9
2/1/09 12:00 PM	DNO	DNO	DNO	932	965	33.8

1 Hour Averages

	A	B	C	D	E	F	G	H	I	J
1		G1		G2		G3		G4		
2	Date / Time	Pre-Cat. Temp.	Post-Cat. Temp.	Pre-Cat. Temp.	Post-Cat. Temp.	Pre-Cat. Temp.	Post-Cat. Temp.	Pre-Cat. Temp.	Post-Cat. Temp.	
3	Max	1057.53	1092.90	998.00	1065.27	954.75	957.75	1021.56	1054.05	1/31/2009 21:00
4	Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3/1/2009
5										
6	1/31/09 9:00 PM	DNO	DNO	936.76	984.02	DNO	DNO	941.87	971.69	31-Jan-09 21:00:00:00
7	1/31/09 10:00 PM	DNO	DNO	932.35	978.54	DNO	DNO	944.15	975.48	31-Jan-09 22:00:00:00
8	1/31/09 11:00 PM	DNO	DNO	935.64	997.95	DNO	DNO	941.34	973.64	31-Jan-09 23:00:00:00
9	2/1/09 12:00 AM	DNO	DNO	DNO	DNO	DNO	DNO	951.49	980.83	01-Feb-09 00:00:00:00
10	2/1/09 1:00 AM	DNO	DNO	DNO	DNO	DNO	DNO	958.23	993.77	01-Feb-09 01:00:00:00
11	2/1/09 2:00 AM	DNO	DNO	933.56	977.15	DNO	DNO	939.36	971.59	01-Feb-09 02:00:00:00
12	2/1/09 3:00 AM	DNO	DNO	DNO	DNO	DNO	DNO	949.81	978.47	01-Feb-09 03:00:00:00
13	2/1/09 4:00 AM	DNO	DNO	DNO	DNO	DNO	DNO	957.48	993.10	01-Feb-09 04:00:00:00
14	2/1/09 5:00 AM	DNO	DNO	934.40	971.17	DNO	DNO	940.66	973.57	01-Feb-09 05:00:00:00
15	2/1/09 6:00 AM	DNO	DNO	934.75	979.61	DNO	DNO	942.03	974.94	01-Feb-09 06:00:00:00
16	2/1/09 7:00 AM	DNO	DNO	934.55	984.26	DNO	DNO	942.39	975.74	01-Feb-09 07:00:00:00
17	2/1/09 8:00 AM	DNO	DNO	933.41	973.16	DNO	DNO	939.33	972.24	01-Feb-09 08:00:00:00
18	2/1/09 9:00 AM	DNO	DNO	934.08	969.34	DNO	DNO	939.13	969.54	01-Feb-09 09:00:00:00
19	2/1/09 10:00 AM	DNO	DNO	930.02	964.01	DNO	DNO	935.72	966.58	01-Feb-09 10:00:00:00
20	2/1/09 11:00 AM	DNO	DNO	931.28	961.77	DNO	DNO	937.87	968.49	01-Feb-09 11:00:00:00
21	2/1/09 12:00 PM	DNO	DNO	930.69	966.02	DNO	DNO	939.65	972.10	01-Feb-09 12:00:00:00
22	2/1/09 1:00 PM	DNO	DNO	932.85	968.19	DNO	DNO	942.67	973.14	01-Feb-09 13:00:00:00
23	2/1/09 2:00 PM	DNO	DNO	934.97	972.08	DNO	DNO	943.96	973.44	01-Feb-09 14:00:00:00
24	2/1/09 3:00 PM	DNO	DNO	933.83	979.76	DNO	DNO	944.28	974.12	01-Feb-09 15:00:00:00
25	2/1/09 4:00 PM	DNO	DNO	935.02	976.06	DNO	DNO	944.54	974.04	01-Feb-09 16:00:00:00
26	2/1/09 5:00 PM	DNO	DNO	934.61	976.25	DNO	DNO	943.92	973.13	01-Feb-09 17:00:00:00
27	2/1/09 6:00 PM	DNO	DNO	937.25	986.61	DNO	DNO	944.32	974.59	01-Feb-09 18:00:00:00
28	2/1/09 7:00 PM	DNO	DNO	938.88	983.61	DNO	DNO	944.82	974.31	01-Feb-09 19:00:00:00

MACT Individual Generator

	A	B	C	D	E	F	G	H	I	J	K	L
1	January 31, 2009											
2	March 1, 2009	GEN #2 SYNCBUS TOTAL POWER (KW)	GEN #2 PRE CATALYST TEMPERATURE.	GEN #2 POST CATALYST TEMPERATURE.	Delta T	Gen#2 Catalyst Differential Press Xmitter	Performance Test Delta P	Difference	Max			
3		AI_GN2_SYNC_PWR_KW	AI_GN2_TE-PRECAT	AI_GN2_TE-POSTCAT	Deg. F	PDIT-3932_GN2						
4												71.4
5	31-Jan-09 20:00:00:00	170.76	938.64	995.21	-56.57	0.61	0.9	0.29	0.95			
6	31-Jan-09 20:15:00:150	167.37	934.95	985.26	-50.31	0.59	0.9	0.31				
7	31-Jan-09 20:30:00:300	168.56	939.04	991.82	-52.78	0.58	0.9	0.32				Delta T
8	31-Jan-09 20:45:00:450	169.75	936.11	972.42	-36.31	0.60	0.9	0.30				
9	31-Jan-09 21:00:00:00	164.22	936.95	986.58	-49.63	0.59	0.9	0.31	167	937	984	47.3
10	31-Jan-09 21:15:00:150	169.28	935.48	981.45	-45.97	0.59	0.9	0.31	168	937	983	46.2
11	31-Jan-09 21:30:00:300	161.35	935.64	981.12	-45.49	0.57	0.9	0.33	166	936	980	44.3
12	31-Jan-09 21:45:00:450	153.29	926.08	965.16	-39.09	0.57	0.9	0.33	162	934	979	45.0
13	31-Jan-09 22:00:00:00	161.90	932.20	986.41	-54.21	0.58	0.9	0.32	161	932	979	46.2
14	31-Jan-09 22:15:00:150	171.52	934.07	994.62	-60.55	0.60	0.9	0.30	162	932	982	49.8
15	31-Jan-09 22:30:00:300	165.72	935.48	1000.08	-64.60	0.59	0.9	0.31	163	932	987	54.6
16	31-Jan-09 22:45:00:450	175.50	938.29	998.09	-59.80	0.60	0.9	0.30	169	935	995	59.8
17	31-Jan-09 23:00:00:00	163.91	934.73	999.02	-64.28	0.58	0.9	0.32	169	936	998	62.3
18	31-Jan-09 23:15:00:150	170.49	935.87	992.15	-56.27	0.59	0.9	0.31	169	936	997	61.2
19	31-Jan-09 23:30:00:300	161.59	935.19	991.12	-55.93	0.57	0.9	0.33	168	936	995	59.1
20	31-Jan-09 23:45:00:450	169.60	935.52	987.78	-52.26	0.59	0.9	0.31	166	935	993	57.2
21	01-Feb-09 00:00:00:00	49.51	801.90	895.92	-94.02	0.23	0.9	0.67	4	DNO	DNO	DNO
22	01-Feb-09 00:15:00:150	69.75	683.29	745.07	-61.78	0.21	0.9	0.69	3	DNO	DNO	DNO
23	01-Feb-09 00:30:00:300	158.85	915.64	940.57	-24.93	0.55	0.9	0.35	2	DNO	DNO	DNO
24	01-Feb-09 00:45:00:450	168.32	929.61	959.55	-29.95	0.57	0.9	0.33	1	DNO	DNO	DNO
25	01-Feb-09 01:00:00:00	161.05	931.36	975.94	-44.58	0.57	0.9	0.33	1	DNO	DNO	DNO
26	01-Feb-09 01:15:00:150	169.03	934.43	977.87	-43.44	0.58	0.9	0.32	164	928	963	35.7
27	01-Feb-09 01:30:00:300	161.23	933.69	977.57	-43.89	0.57	0.9	0.33	165	932	973	40.5

Reporting Greenhouse Gases?

- Anticipating Federal, State and Local rules
- We already can and do make reports
- When the data is in PI It's a SIMPLE 3-step process

Greenhouse Gases with PI

1. PI tracks equipment (e.g., Generator) operation
2. Combine the fuel usage data
3. Apply emissions factors

Greenhouse Totals

	A	B	C	D	E	F	G	H	I	
1							2008 CO2 Emissions (lbs)			
2	AQMD Unit ID:	Facility ID:	Type:	January	February	March	April	May	June	
3	C-93	Dehy 1 Flare	Process	225,867	193,125	44,222	41,902	40,160	43,740	
4	C-98	Dehy 2 Flare	Process	114,893	55,060	20,196	10,804	10,047	7,091	
5	D-1	G2	Large	83,982	85,400	92,513	190,513	291,565	135,397	2
6	D-2	G4	Large	81,386	81,440	95,631	165,456	145,152	283,643	2
7	D-3	G1	Large	3	21,043	136,171	179,050	213,403	245,992	2
8	D-4	G3	Large	111,199	90,152	128,429	159,527	174,820	237,444	2
9	D-6	K-2	Major	2,508	160,611	284,362	705,024	1,105,103	921,124	9
10	D-7	K-5	Major	3,016	160,693	288,648	701,950	1,138,135	887,425	9
11	D-8	K-1	Major	2,457	154,634	276,044	707,494	1,125,409	946,791	1
12	D-9	K-3	Major	2,338	164,067	274,504	697,547	1,100,133	945,127	9
13	D-10	K-4	Major	0	0	0	597,972	1,178,766	962,103	9
14	D-14	K-25	Major	0	189,813	3,507,053	7,325,865	8,861,724	7,826,006	9
15	D-15	K-26	Major	0	98,684	3,375,547	7,142,092	7,787,413	7,335,609	8
16	D-16	K-27	Major	0	69,113	2,639,550	4,828,393	8,553,548	7,741,862	8
17	D-83	H-6	Process	96,274	56,349	13,120	0	8,578	11,152	
18	D-84	H-20	Process	37,588	13,418	2,701	10,260	6,243	3,344	
19	D-175	H416	Process	244,634	151,862	5,328	2,115	2	5	
20	D-176	H417	Process	19,283	2	0	308	0	1	
21	D-177	H418	Process	225,835	95,620	0	250	0	0	
22	E-173 (M24)	AC	R219	64,400	46,711	13,942	6,994	8,253	986	
23	E-15	Air Compressor	R219	1,302	22	897	4,287	138	457	

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