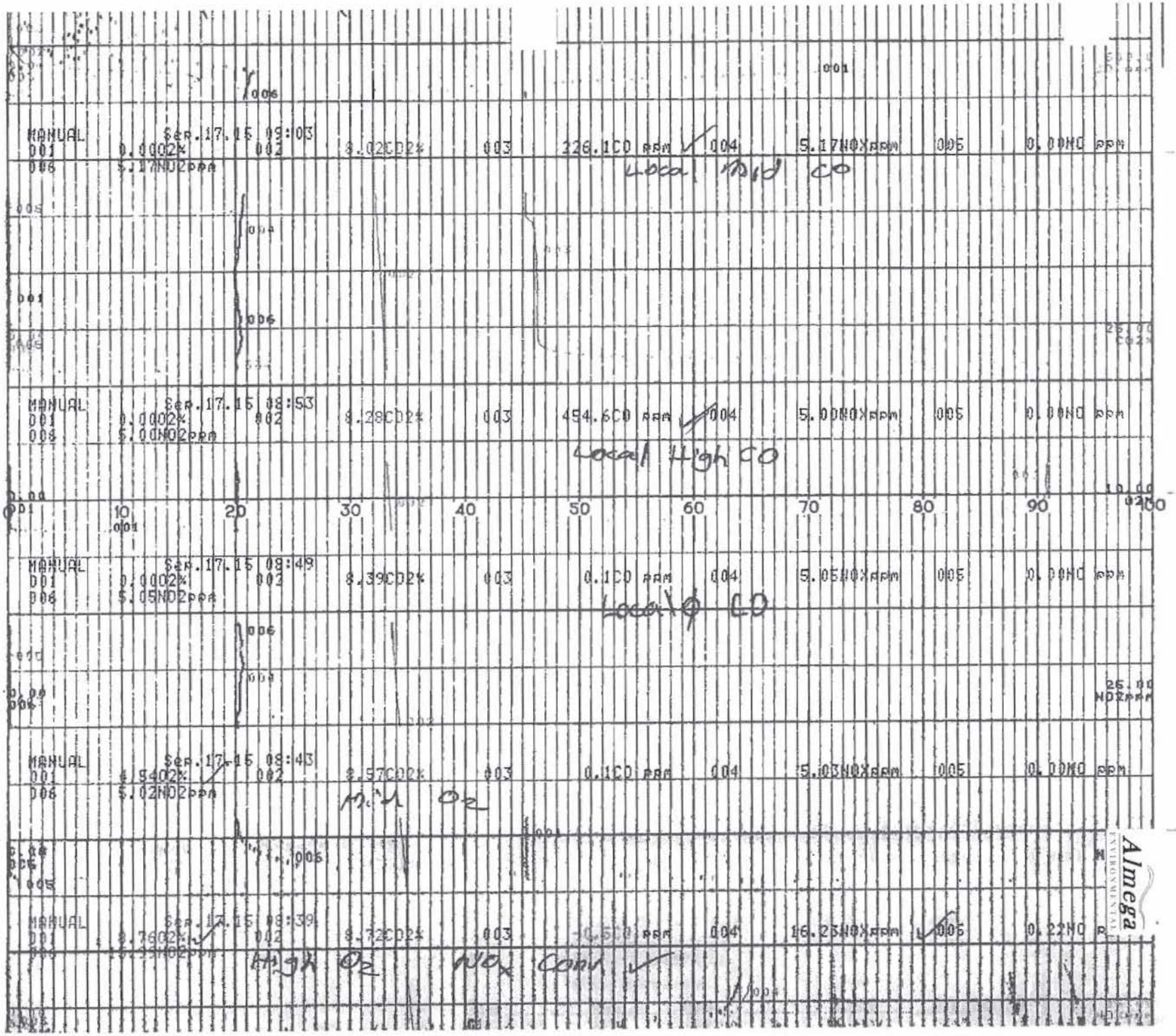
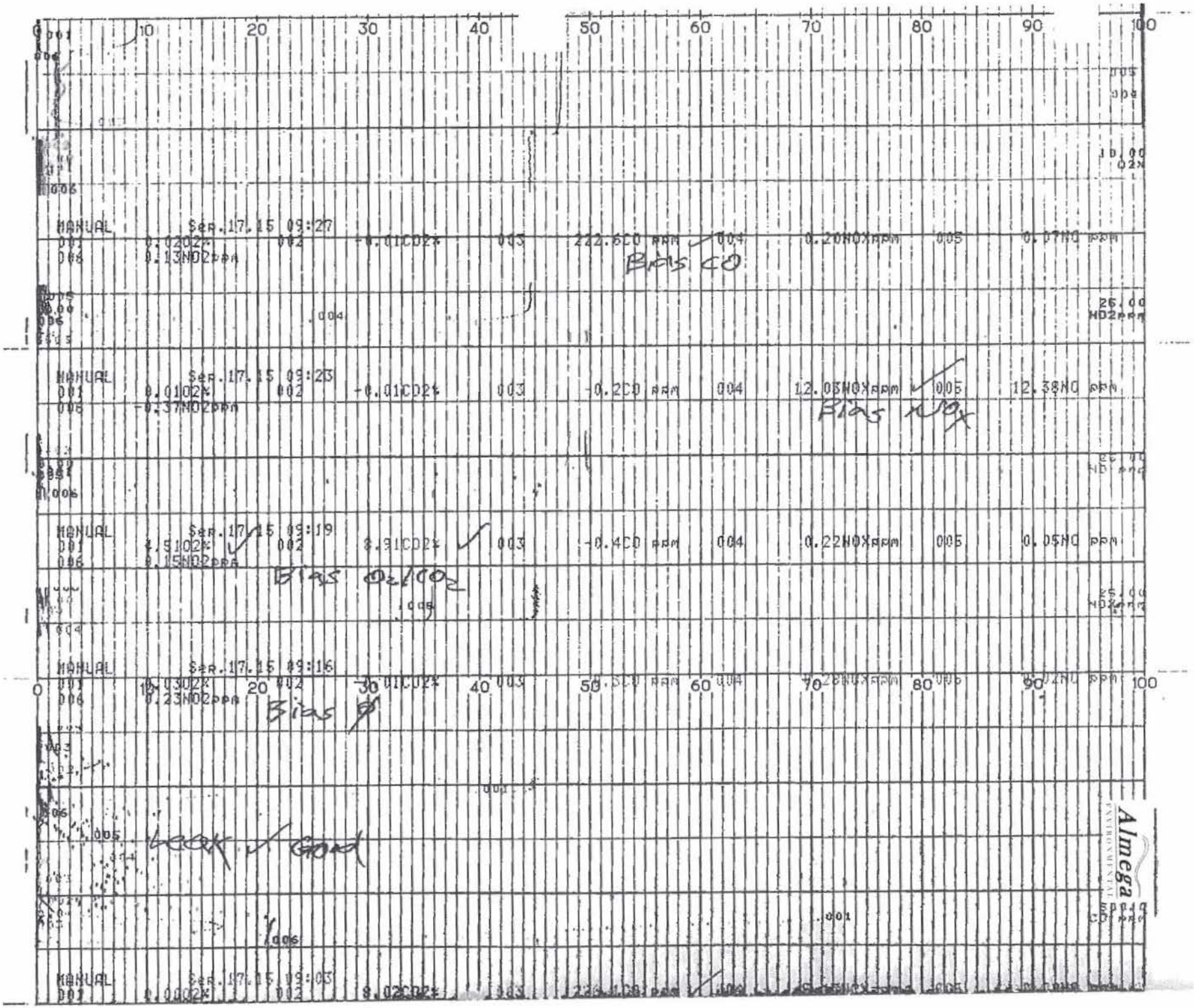
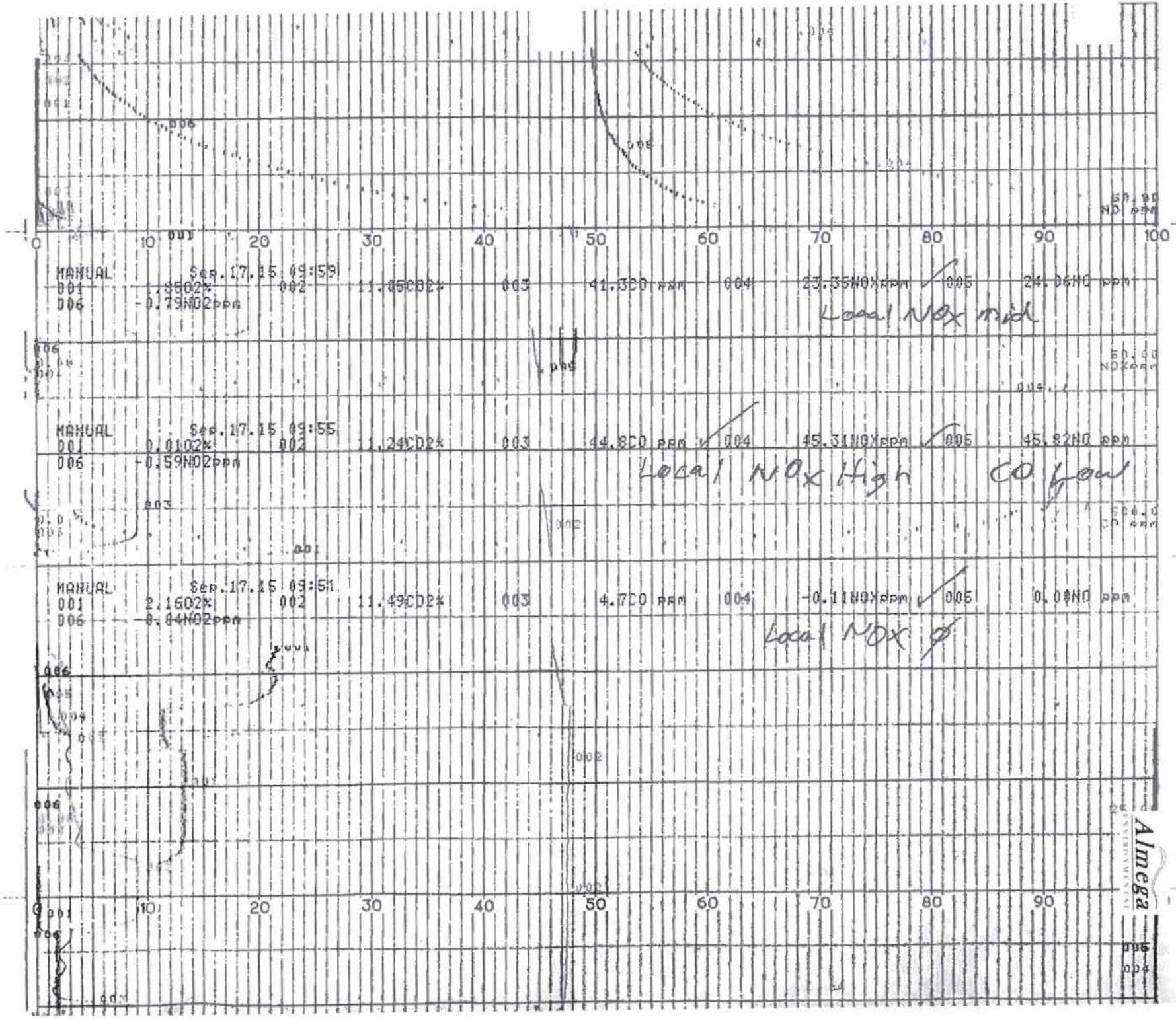
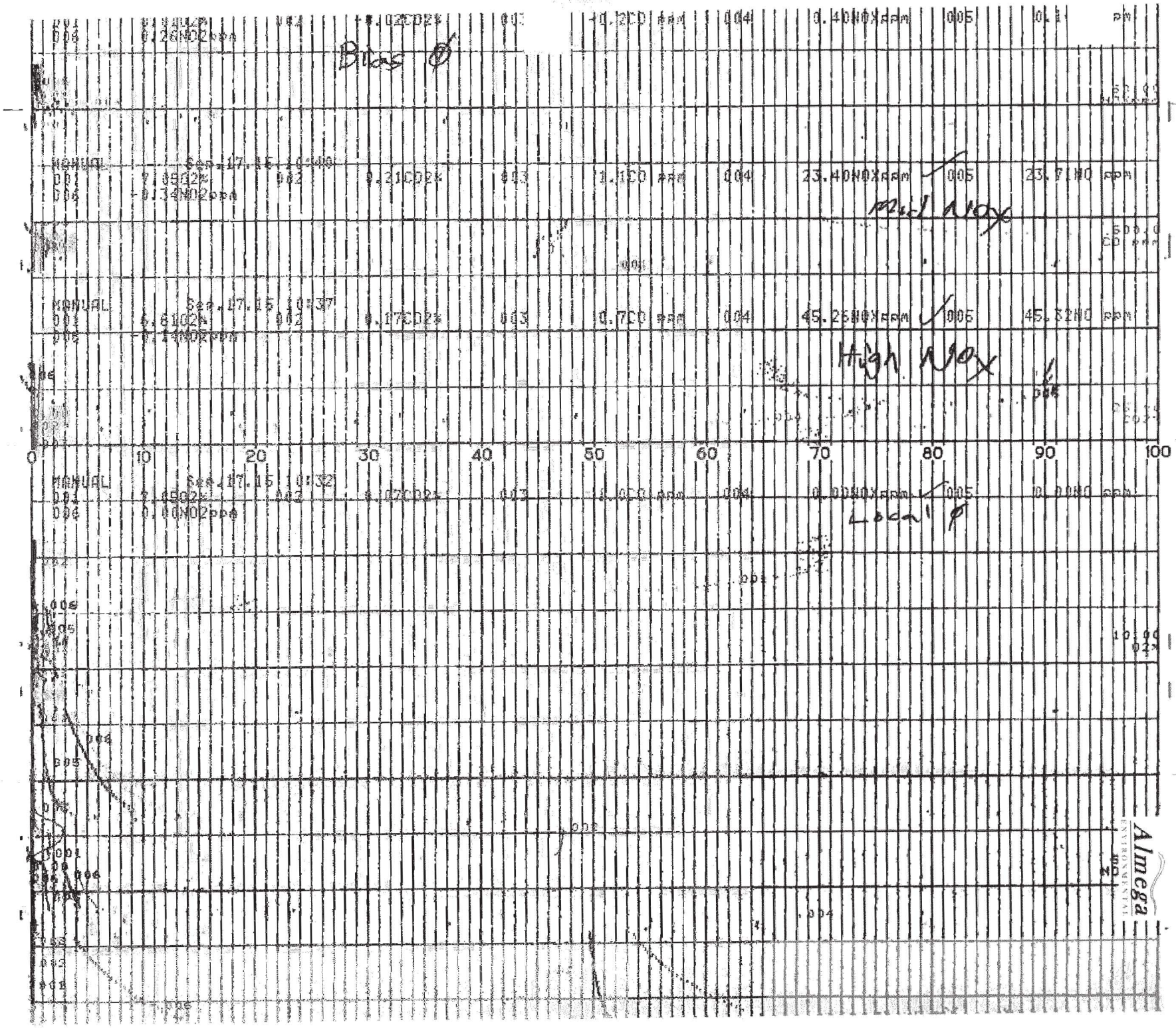
DOCKETED

Docket Number:	12-AFC-02C
Project Title:	Huntington Beach Energy Project - Compliance
TN #:	210620-2
Document Title:	Resubmission of Data Responses Set 1, Updated Response to Data Requests 4-6, Part 2
Description:	N/A
Filer:	Cindy Salazar
Organization:	CH2M HILL
Submitter Role:	Applicant Consultant
Submission Date:	3/4/2016 5:12:20 PM
Docketed Date:	3/7/2016


MANUAL Ser.17.15 09:03
D01 0.0002% D02 8.02CO2% D03 326.1CO ppm D04 5.17NOXppm D05 0.00NO ppm
D06 5.17NO2ppm
Local high CO
MANUAL Ser.17.15 08:53
D01 0.0002% D02 8.28CO2% D03 454.6CO ppm D04 5.00NOXppm D05 0.00NO ppm
D06 5.00NO2ppm
Local High CO
10 20 30 40 50 60 70 80 90 100
MANUAL Ser.17.15 08:49
D01 0.0002% D02 8.39CO2% D03 0.1CO ppm D04 5.05NOXppm D05 0.00NO ppm
D06 5.05NO2ppm
Local CO
MANUAL Ser.17.15 08:43
D01 4.9402% D02 8.57CO2% D03 0.1CO ppm D04 5.03NOXppm D05 0.00NO ppm
D06 5.02NO2ppm
High O2
MANUAL Ser.17.15 08:39
D01 2.7602% D02 8.32CO2% D03 -0.5CO ppm D04 16.23NOXppm D05 0.22NO ppm
High O2 NOx conv
Almega


MANUAL Sep.17.15 09:27
001 0.02O2% 002 -0.01CO2% 003 222.6CO ppm 004 0.20NOXppm 005 0.07NO ppm
006 0.13NO2ppm
Bias CO
MANUAL Sep.17.15 09:23
001 0.01O2% 002 -0.01CO2% 003 -0.2CO ppm 004 12.03NOXppm 005 12.38NO ppm
006 -0.37NO2ppm
Bias NOx
MANUAL Sep.17.15 09:19
001 4.51O2% 002 8.91CO2% 003 -0.4CO ppm 004 0.22NOXppm 005 0.05NO ppm
006 0.15NO2ppm
Bias O2/CO2
MANUAL Sep.17.15 09:16
001 0.03O2% 002 -0.01CO2% 003 -0.3CO ppm 004 0.28NOXppm 005 0.02NO ppm
006 0.23NO2ppm
Bias Ø
Leak ✓ Good
MANUAL Sep.17.15 09:03
001 0.00O2% 002 8.02CO2% 003 226.1CO ppm 004 0.00NOXppm 005 0.00NO ppm
Almega ENVIRONMENTAL


MANUAL Sep.17.15 09:59
001 1.85O2% 002 11.05CO2% 003 41.3CO ppm 004 23.35NOXppm 005 24.06NO ppm
006 -0.79NO2ppm
Local NOx mid
MANUAL Sep.17.15 09:55
001 0.01O2% 002 11.24CO2% 003 44.8CO ppm 004 45.31NOXppm 005 45.82NO ppm
006 -0.59NO2ppm
Local NOx High CO low
MANUAL Sep.17.15 09:51
001 2.16O2% 002 11.49CO2% 003 4.7CO ppm 004 -0.11NOXppm 005 0.08NO ppm
006 -0.04NO2ppm
Local NOx Ø
0 10 20 30 40 50 60 70 80 90 100
Almega


Bias Ø
MANUAL Sep.17.15 10:40
23.40NOXppm
23.71NO ppm
Mid Nox
MANUAL Sep.17.15 10:37
45.26NOXppm
45.82NO ppm
High Nox
MANUAL Sep.17.15 10:32
0.00NOXppm
0.00NO ppm
Local Ø
0
10
20
30
40
50
60
70
80
90
100
Almega

Probe out of stack
Unit being adjusted.

11:06 11:01 240mm/h

MANUAL Sep.17.15 11:01
001 0.02O2% 002 -0.01CO2% 003 44.8CO ppm 004 0.20NOXppm 005 0.04NO ppm
006 0.16NO2ppm

Bias CO low

MANUAL Sep.17.15 10:56
001 0.03O2% 002 -0.01CO2% 003 243.2CO ppm 004 0.25NOXppm 005 0.10NO ppm
006 0.18NO2ppm

Bias CO mid

MANUAL Sep.17.15 10:51
001 0.01O2% 002 -0.01CO2% 003 -0.2CO ppm 004 23.05NOXppm 005 23.61NO ppm
006 -0.84NO2ppm

Bias NOx

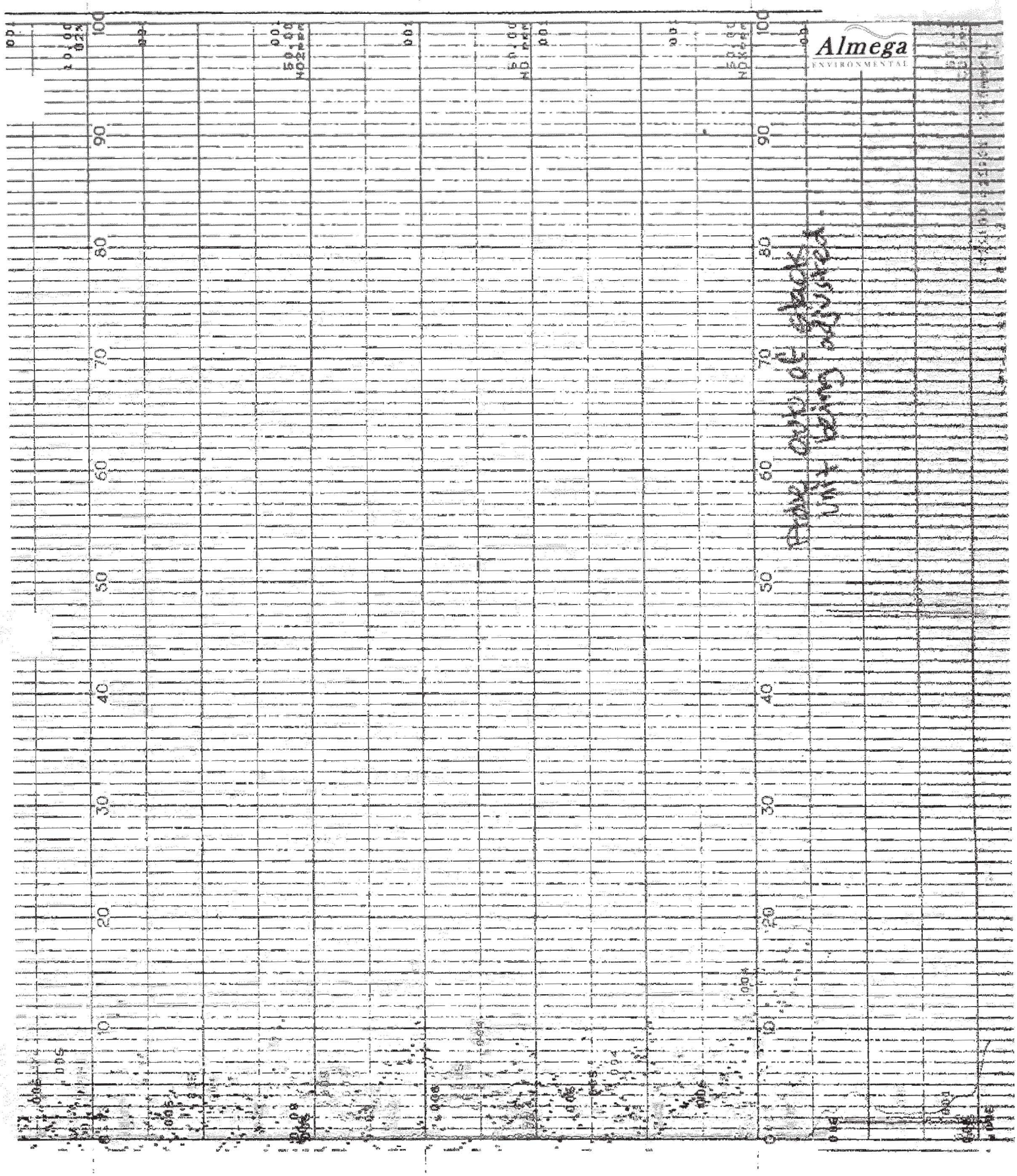
0 10 20 30 40 50 60 70 80 90 100

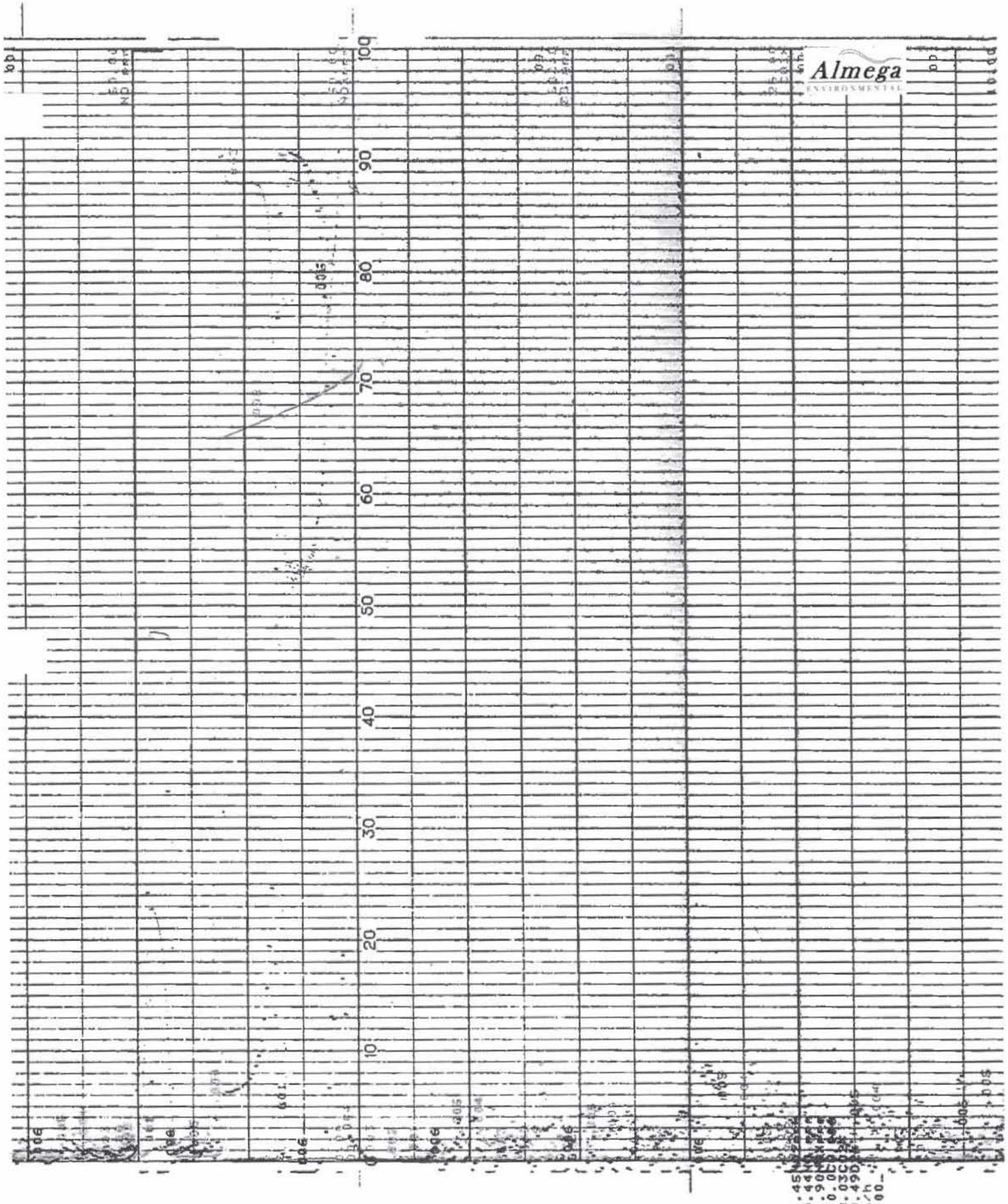
MANUAL Sep.17.15 10:47
001 4.48O2% 002 8.92CO2% 003 -0.3CO ppm 004 0.55NOXppm 005 0.14NO ppm
006 0.40NO2ppm

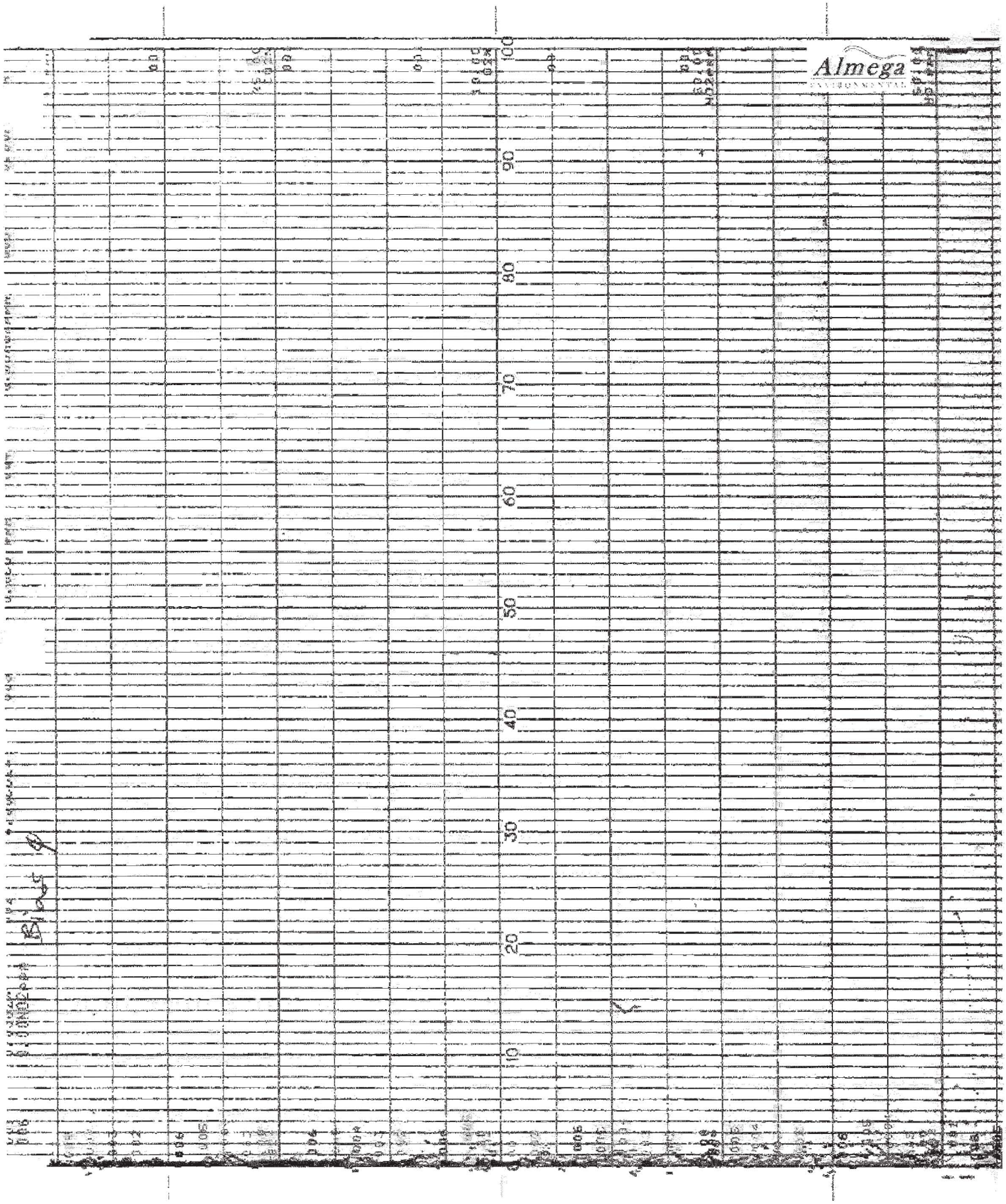
Bias O2 CO2

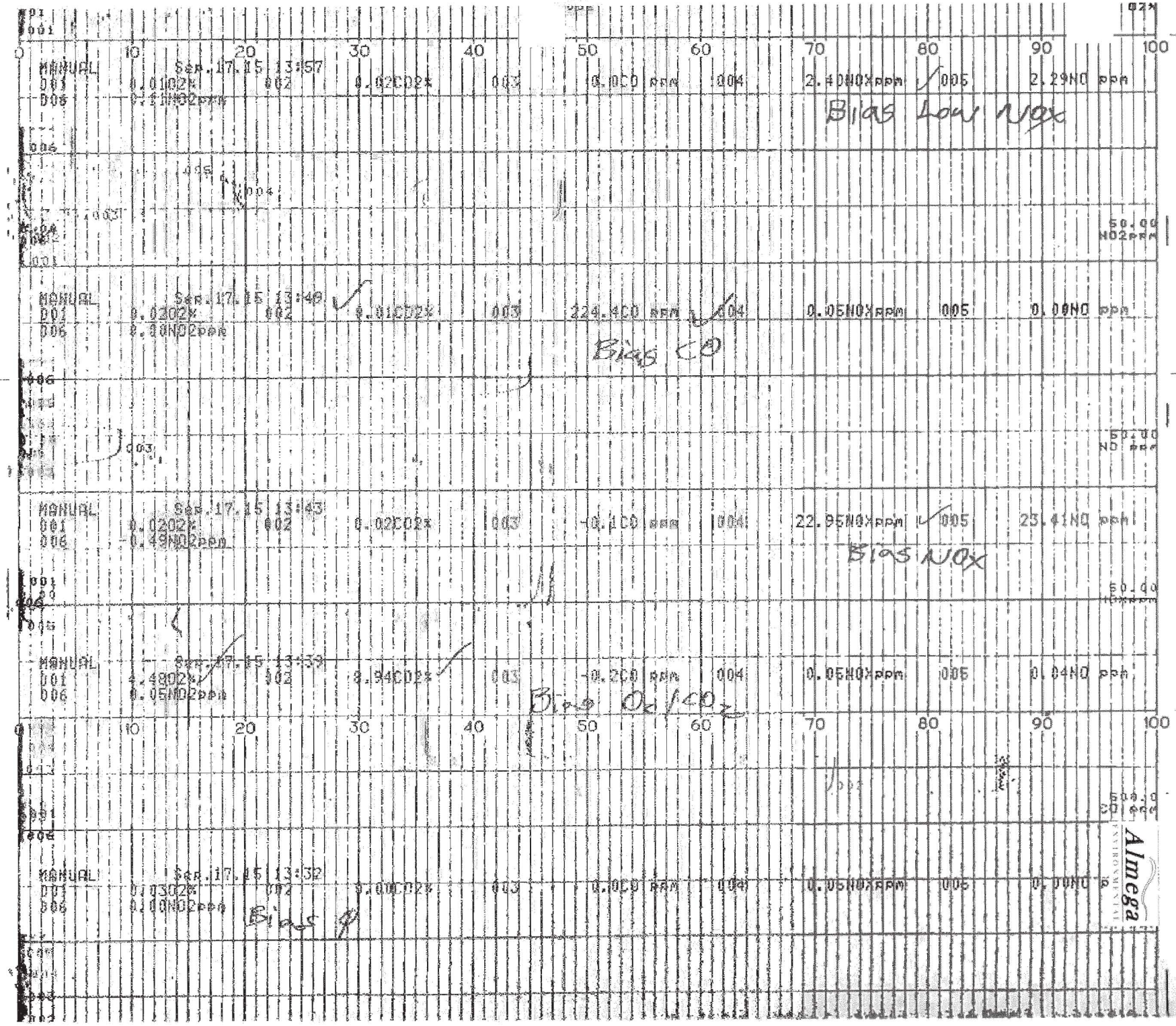
MANUAL Sep.17.15 10:44
001 2.01O2% 002 -0.02CO2% 003 -0.2CO ppm 004 0.40NOXppm 005 0.14NO ppm
006 0.26NO2ppm

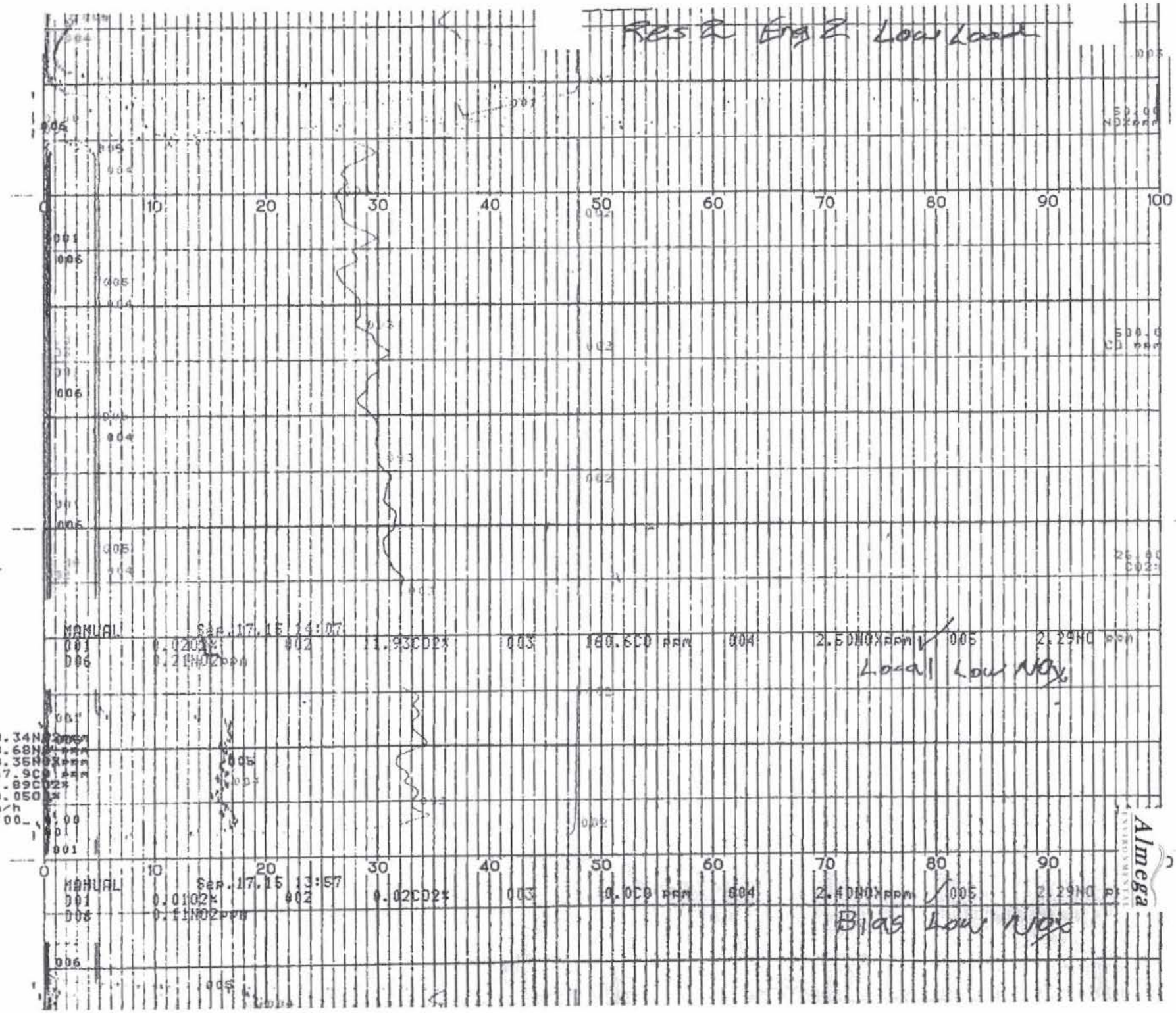
Bias Ø

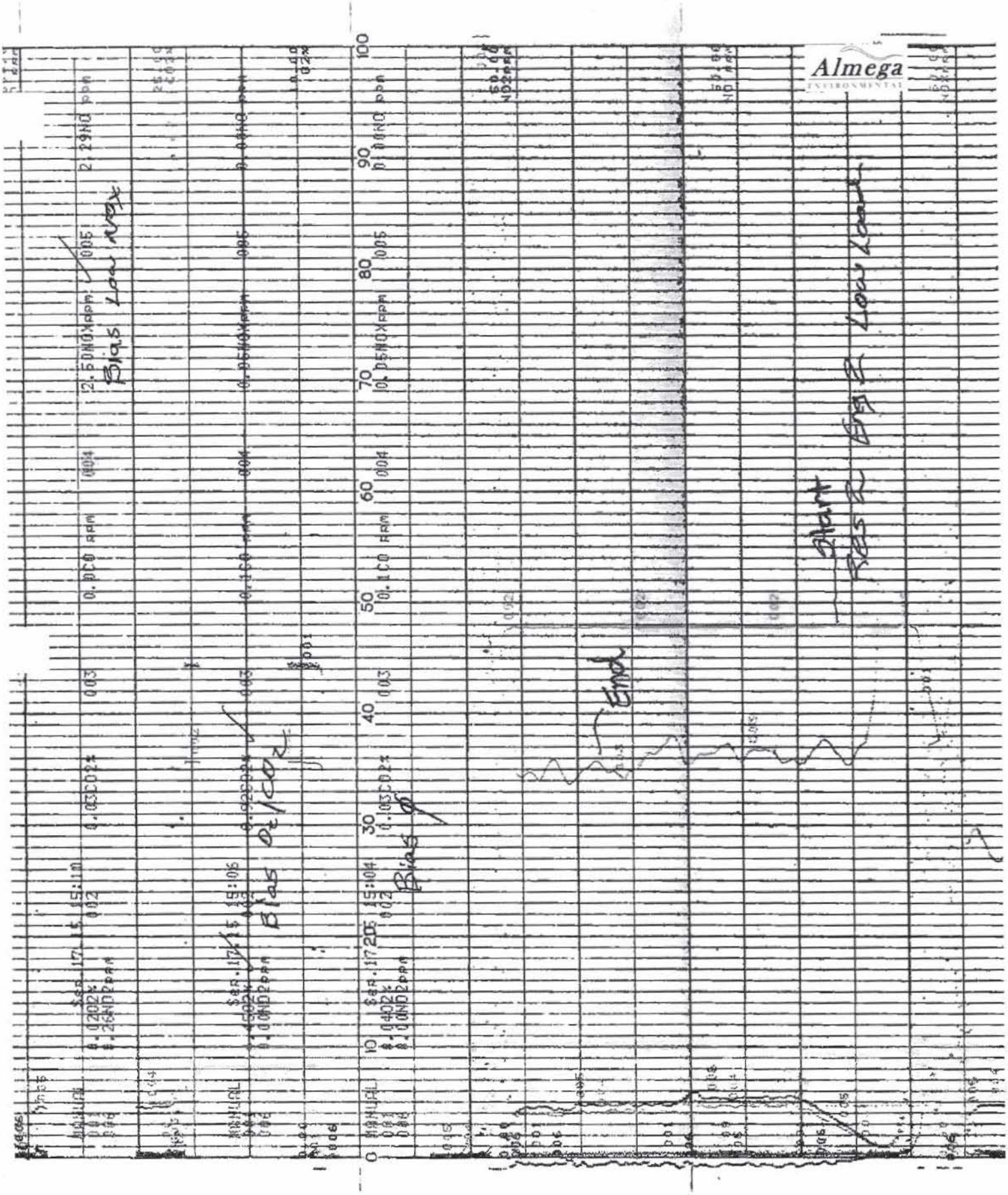

Almega
ENVIRONMENTAL
Pole cuts of stack
unit being adjusted

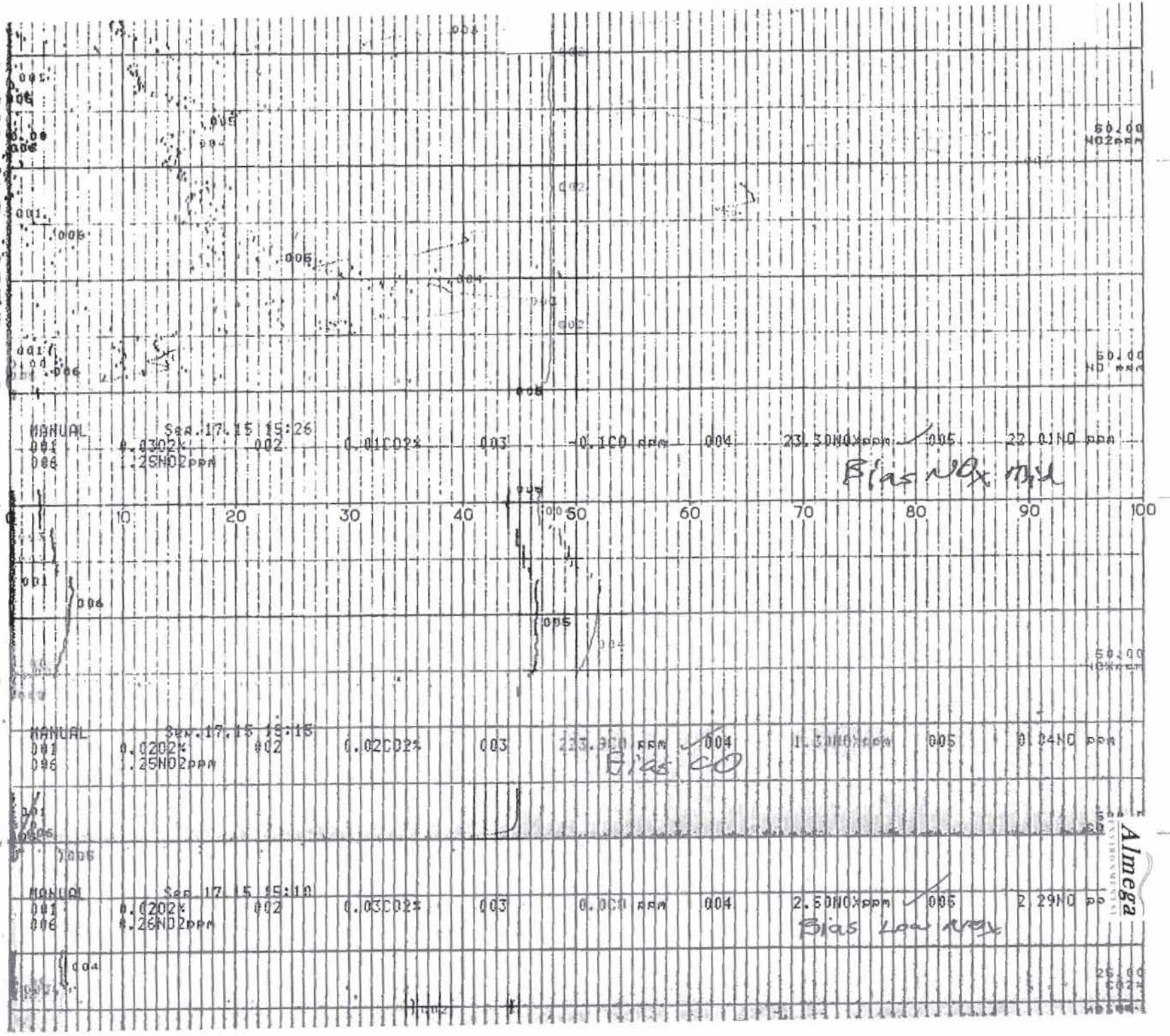

Almega
ENVIRONMENTAL
100
90
80
70
60
50
40
30
20
10
0

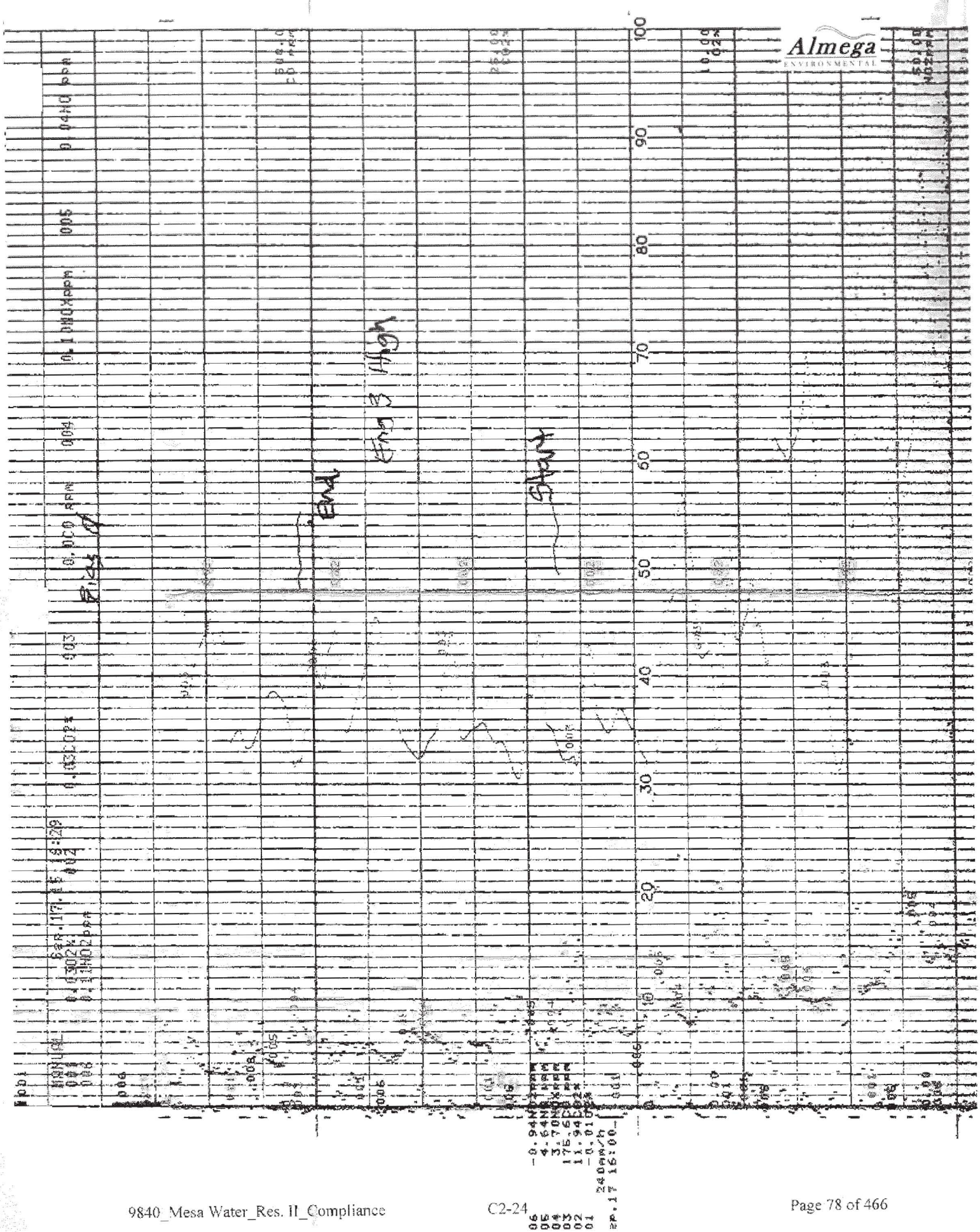

Almega
ENVIRONMENTAL
10
20
30
40
50
60
70
80
90
100

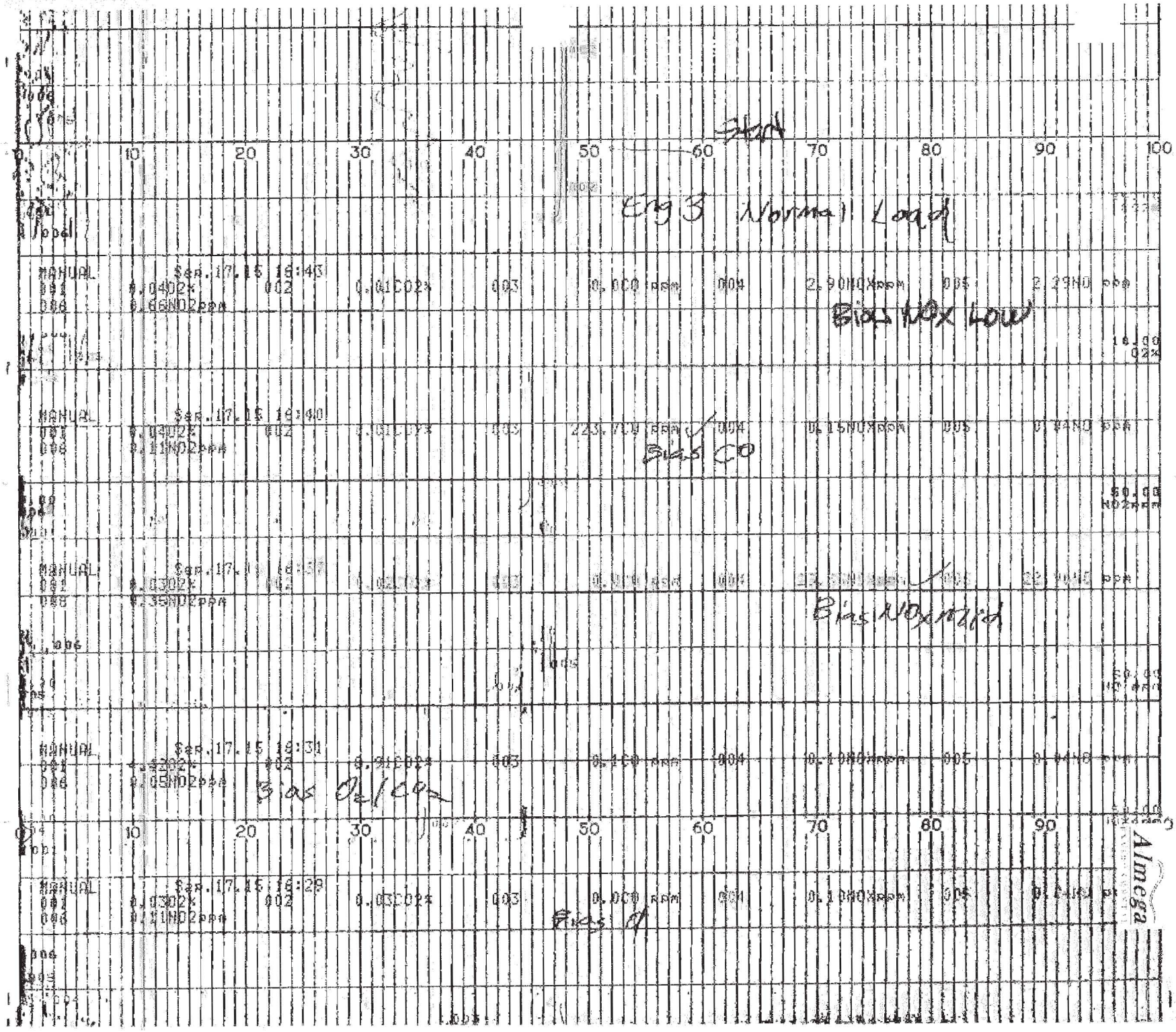

MANUAL Sep.17.15 13:57
001 0.01O2% 002 0.02CO2% 003 0.0CO ppm 004 2.40NOXppm 005 2.29NO ppm
006 0.11NO2ppm
Bias Low NOx
MANUAL Sep.17.15 13:49
001 0.02O2% 002 0.01CO2% 003 224.4CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.00NO2ppm
Bias CO
MANUAL Sep.17.15 13:43
001 0.02O2% 002 0.02CO2% 003 -0.1CO ppm 004 22.95NOXppm 005 23.41NO ppm
006 -0.49NO2ppm
Bias NOx
MANUAL Sep.17.15 13:39
001 4.48O2% 002 8.94CO2% 003 -0.2CO ppm 004 0.05NOXppm 005 0.04NO ppm
006 0.05NO2ppm
Bias O2/CO2
MANUAL Sep.17.15 13:32
001 0.03O2% 002 0.00CO2% 003 0.0CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.00NO2ppm
Bias 0
Almega

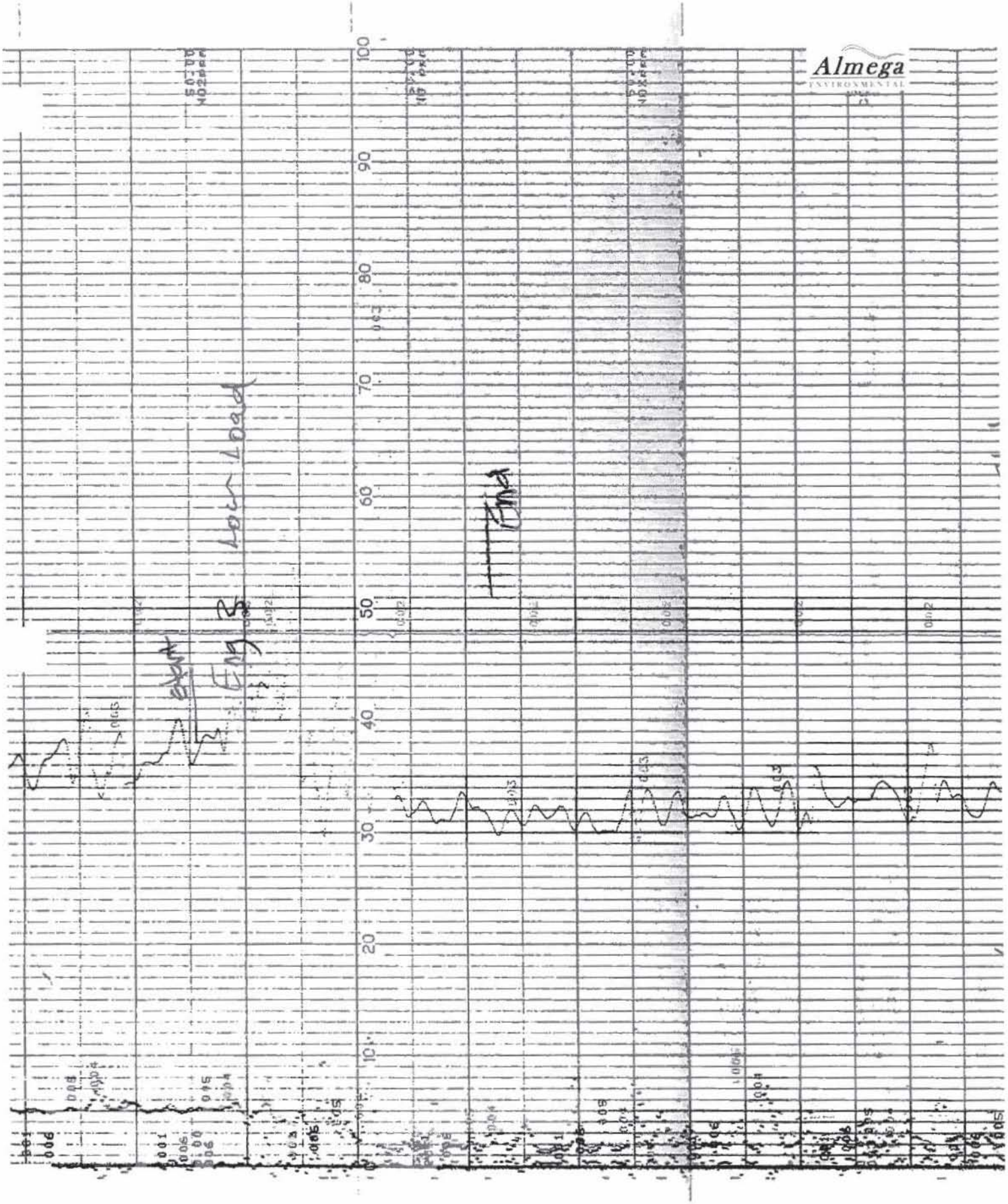

Res 2 Eng 2 Low Load
MANUAL Sep.17.15 14:07
001 0.02O2%
002 11.93CO2%
003 160.6CO ppm
004 2.50NOXppm
005 2.29NO ppm
006 0.2NO2ppm
Load Low NOx
MANUAL Sep.17.15 13:57
001 0.01O2%
002 0.02CO2%
003 0.0CO ppm
004 2.40NOXppm
005 2.29NO ppm
006 0.1NO2ppm
Bias Low NOx
Almega

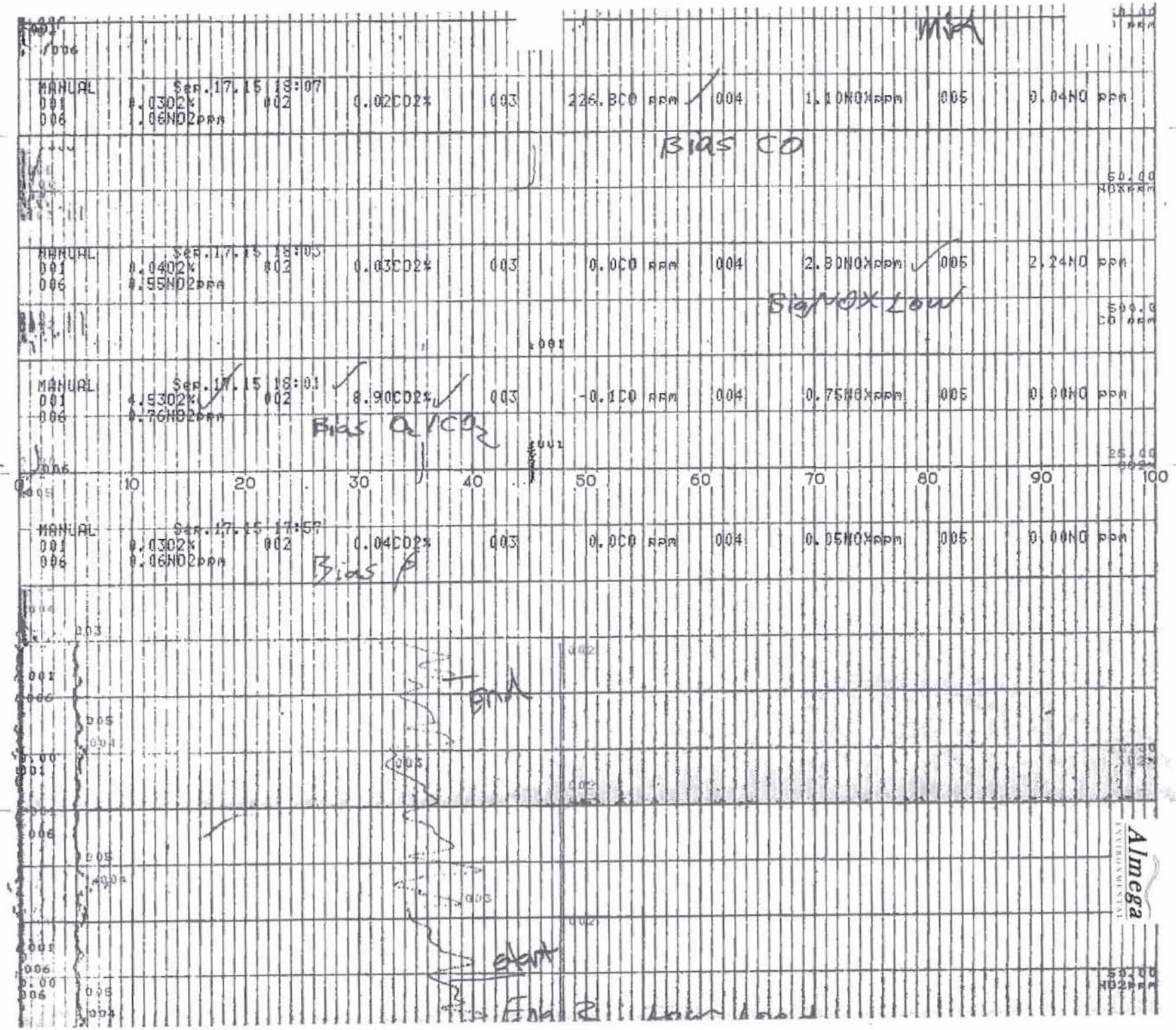

Almega
ENVIRONMENTAL
Bias Low Nox
Bias O2/CO2
Bias Ø
Start
Res 2 Eng 2 Low Load
End

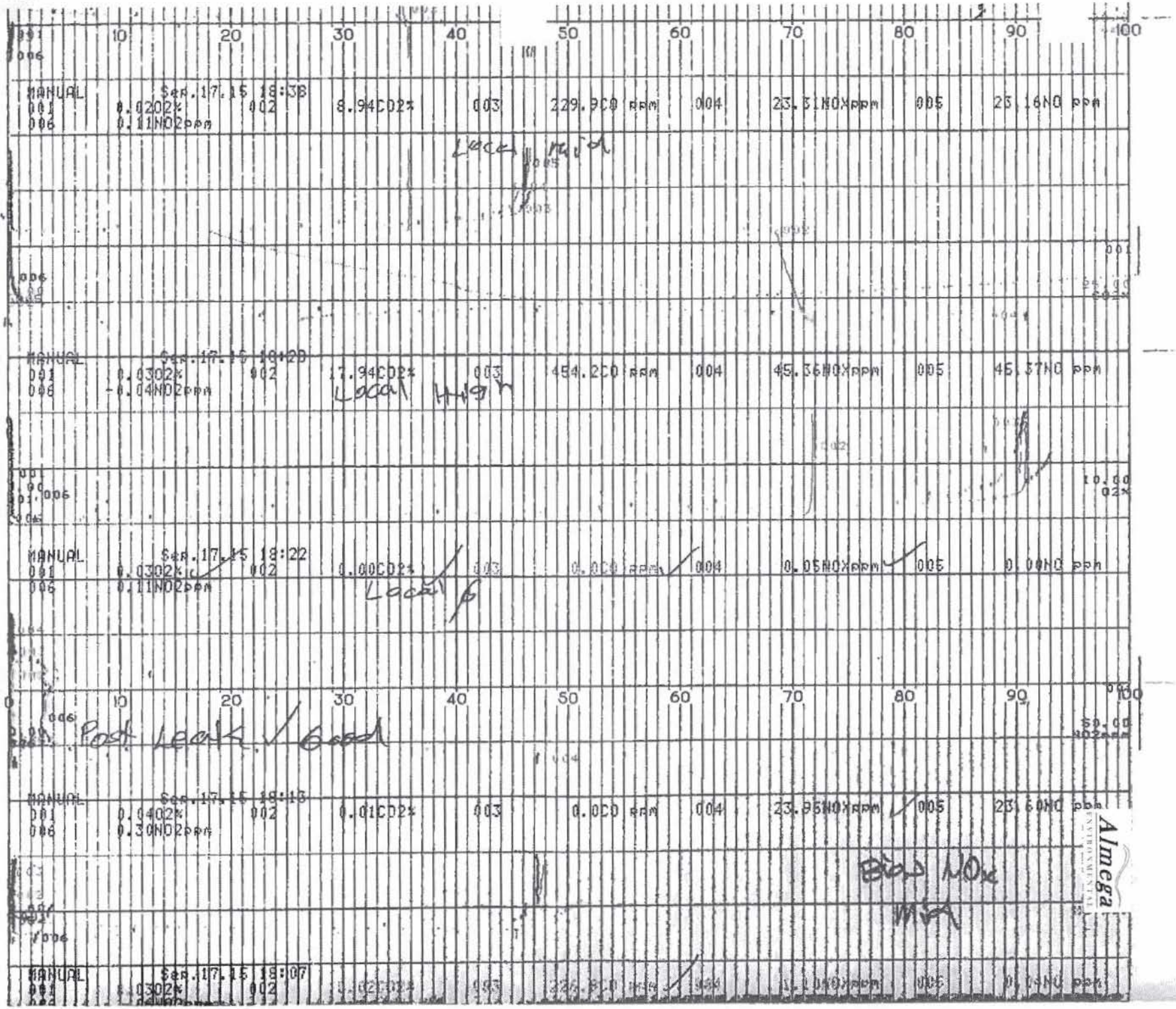

MANUAL Sep.17.15 15:26
001 0.0302%
002 0.01CO2%
003 -0.1CO ppm
004 23.30NOXppm
005 22.01NO ppm
006 .25NO2ppm
Bias NOx mid
10 20 30 40 50 60 70 80 90 100
MANUAL Sep.17.15 15:15
001 0.0202%
002 0.02CO2%
003 233.300 ppm
004
005 0.04NO ppm
006 .25NO2ppm
Bias CO
MANUAL Sep.17.15 15:10
001 0.0202%
002 0.03CO2%
003 0.0CO ppm
004 2.50NOXppm
005 2.29NO p
006 .26NO2ppm
Bias Low NOx

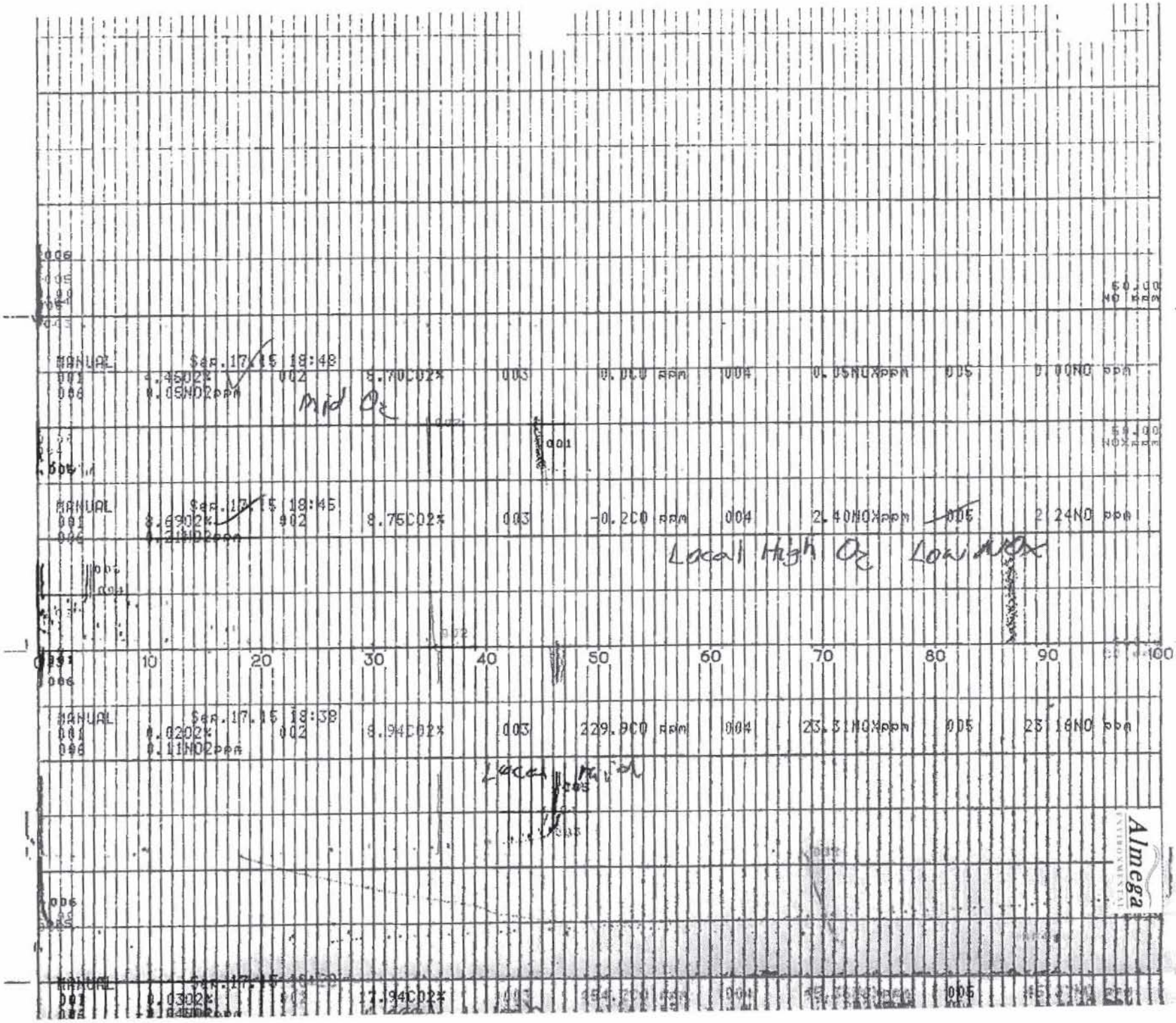

Almega
ENVIRONMENTAL
End
Eng 3 High
Start
Fig 4

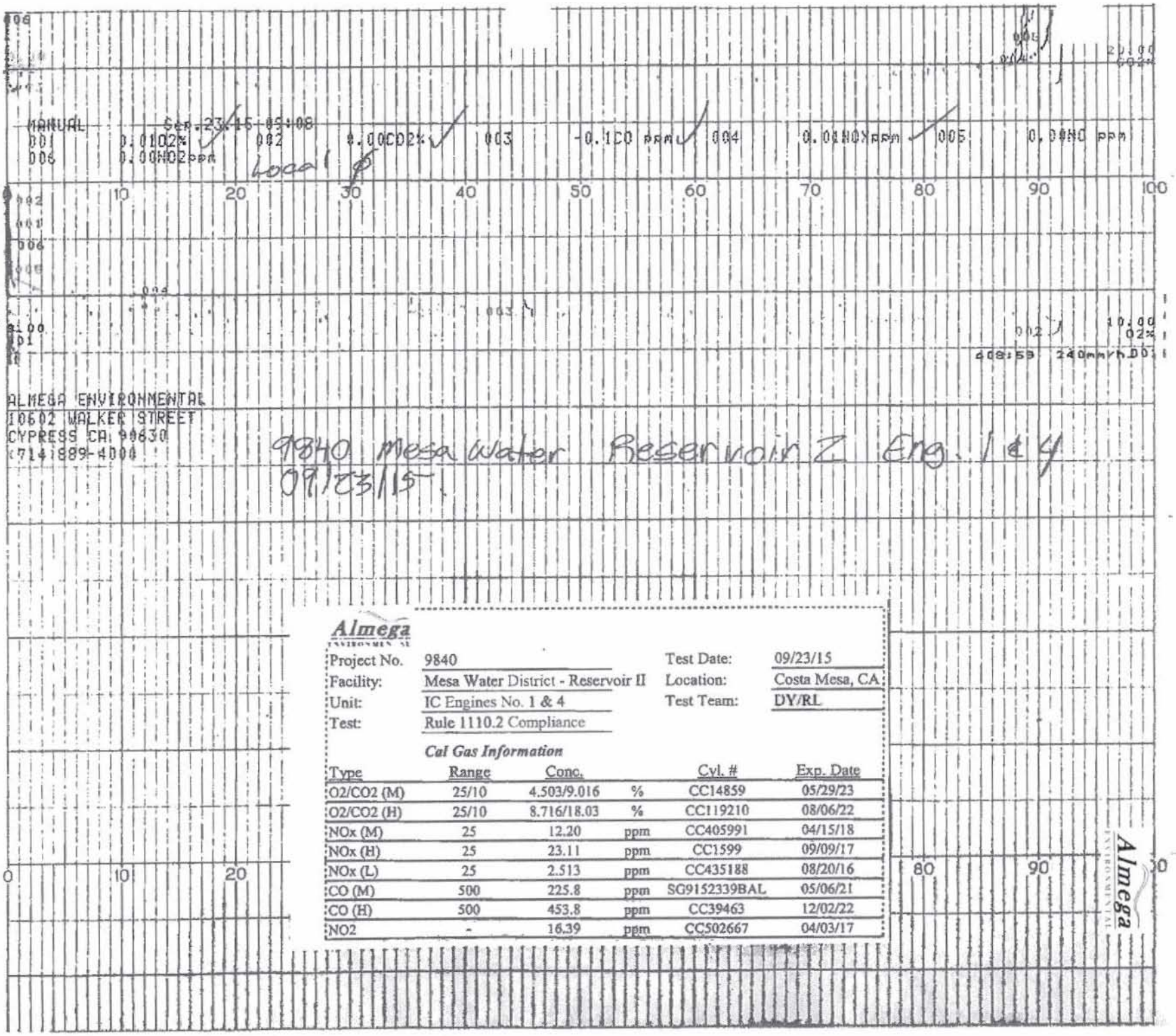

Start
Eng 3 Normal Load
MANUAL Sep.17.15 16:43
001 0.04O2% 002 0.01CO2% 003 0.0CO ppm 004 2.90NOXppm 005 2.29NO ppm
006 0.66NO2ppm
Bias NOx Low
MANUAL Sep.17.15 16:40
001 0.04O2% 002 0.01CO2% 003 223.7CO ppm 004 0.15NOXppm 005 0.04NO ppm
006 0.11NO2ppm
Bias CO
MANUAL Sep.17.15 16:37
001 0.03O2% 002 0.02CO2% 003 0.0CO ppm 004 22.9NOXppm 005 22.9NO ppm
006 0.35NO2ppm
Bias NOx Mid
MANUAL Sep.17.15 16:31
001 4.42O2% 002 0.01CO2% 003 0.1CO ppm 004 0.10NOXppm 005 0.04NO ppm
006 0.05NO2ppm
Bias O2/CO2
MANUAL Sep.17.15 16:29
001 0.03O2% 002 0.03CO2% 003 0.0CO ppm 004 0.10NOXppm 005 0.04NO ppm
006 0.11NO2ppm
Bias N
Almega


Almega
ENVIRONMENTAL
Low Load
Eng 3
Eng 4
100
90
80
70
60
50
40
30
20
10


MANUAL Sep.17.15 18:07
001 0.03O2% 002 0.02CO2% 003 226.8CO ppm 004 1.10NOXppm 005 0.04NO ppm
006 1.06NO2ppm
Bias CO
MANUAL Sep.17.15 18:03
001 0.04O2% 002 0.03CO2% 003 0.0CO ppm 004 2.80NOXppm 005 2.24NO ppm
006 0.55NO2ppm
Big NOX Low
MANUAL Sep.17.15 18:01
001 4.53O2% 002 8.90CO2% 003 -0.1CO ppm 004 0.75NOXppm 005 0.00NO ppm
006 0.76NO2ppm
Bias O2/CO2
240mm/h
ep.17 18:00
0 10 20 30 40 50 60 70 80 90 100
MANUAL Sep.17.15 17:57
001 0.03O2% 002 0.04CO2% 003 0.0CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.06NO2ppm
Bias
End
start
Almega


MANUAL Ser.17.15 18:38
001 0.02O2%
002 8.94CO2%
003 229.9CO ppm
004 23.31NOXppm
005 23.16NO ppm
006 0.11NO2ppm
Local high
MANUAL Ser.17.15 18:20
001 0.03O2%
002 17.94CO2%
003 454.2CO ppm
004 45.36NOXppm
005 45.37NO ppm
006 -0.04NO2ppm
Local high
MANUAL Ser.17.15 18:22
001 0.03O2%
002 0.00CO2%
003 0.0CO ppm
004 0.05NOXppm
005 0.00NO ppm
006 0.11NO2ppm
Local 6
Post Leak / Good
MANUAL Ser.17.15 18:13
001 0.04O2%
002 0.01CO2%
003 0.0CO ppm
004 23.95NOXppm
005 23.60NO ppm
006 0.30NO2ppm
Bad NOx
MANUAL Ser.17.15 18:07
001 0.03O2%
002
Almega


MANUAL Sep.17.15 18:48
001 4.46O2% 002 8.70CO2% 003 0.0CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.05NO2ppm
Mid O2
MANUAL Sep.17.15 18:45
001 8.69O2% 002 8.75CO2% 003 -0.2CO ppm 004 2.40NOXppm 005 2.24NO ppm
006 0.21NO2ppm
Local High O2 Low NOx
10 20 30 40 50 60 70 80 90 100
MANUAL Sep.17.15 18:38
001 0.02O2% 002 8.94CO2% 003 229.9CO ppm 004 23.31NOXppm 005 23.16NO ppm
006 0.11NO2ppm
Local Mid
MANUAL
001 0.03O2% 002 17.94CO2% 003 454.2CO ppm 004 005
Almega

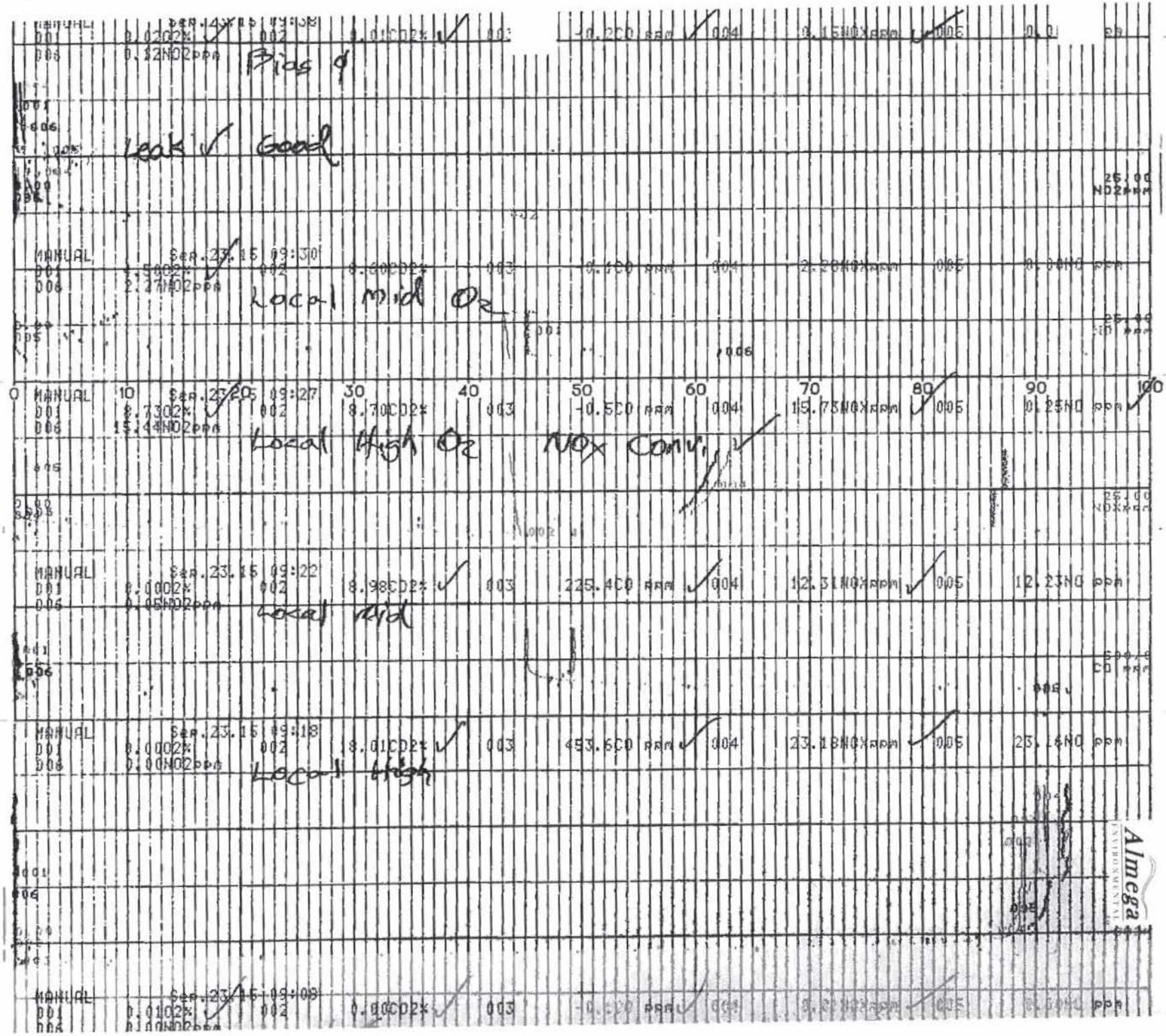


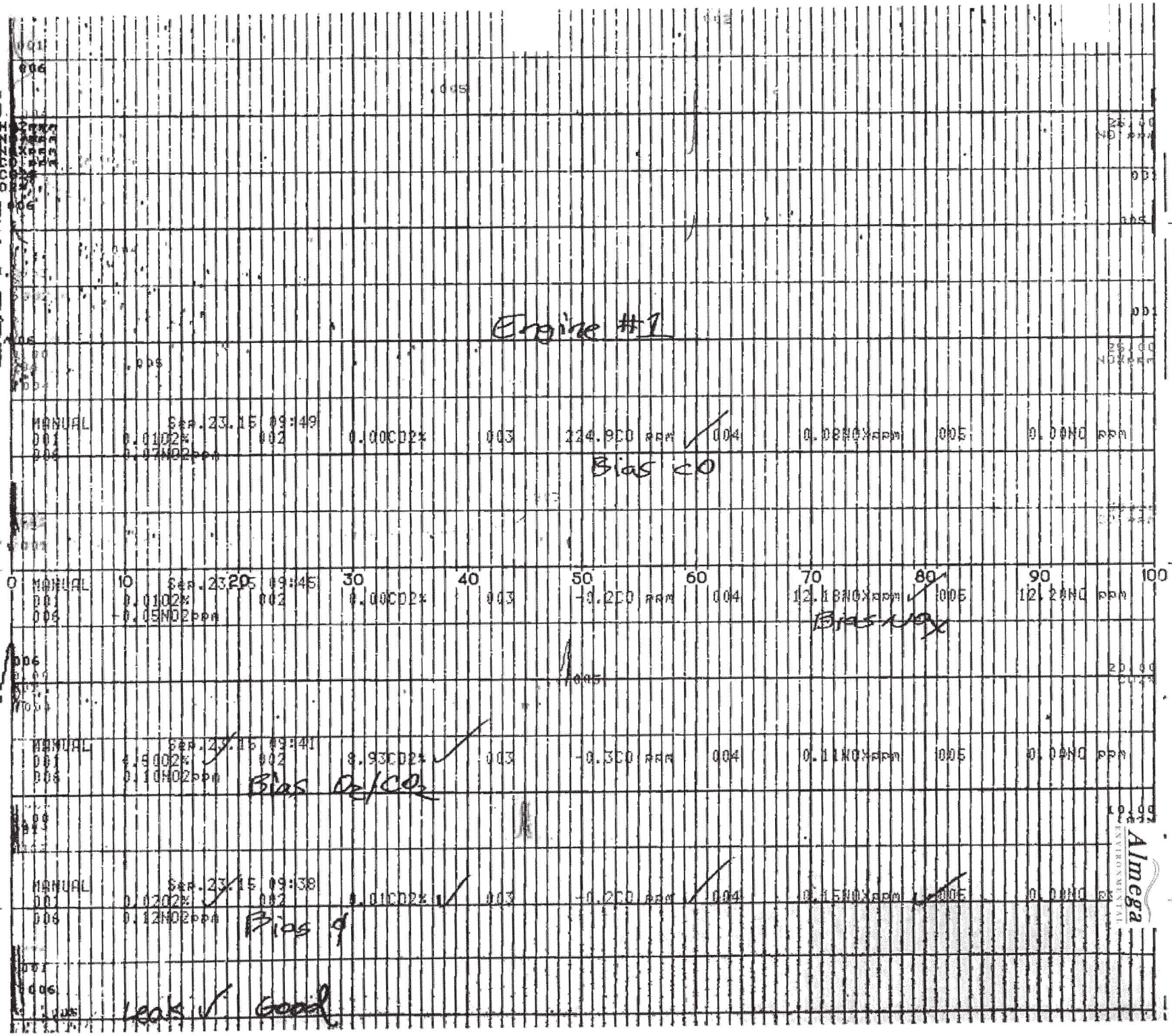
Almega

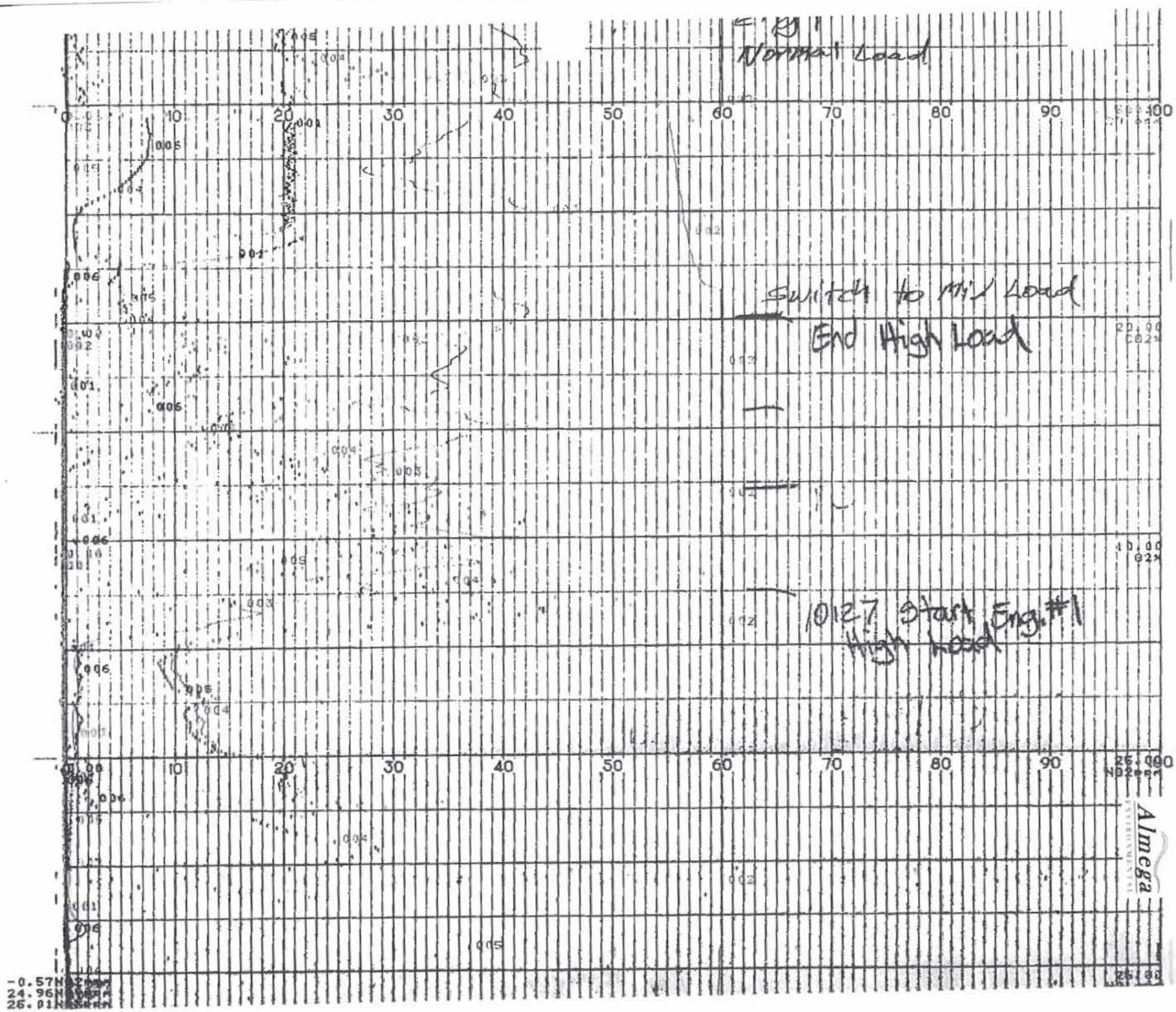
Project No.	9840	Test Date:	09/23/15
Facility:	Mesa Water District - Reservoir II	Location:	Costa Mesa, CA
Unit:	IC Engines No. 1 & 4	Test Team:	DY/RL
Test:	Rule 1110.2 Compliance		

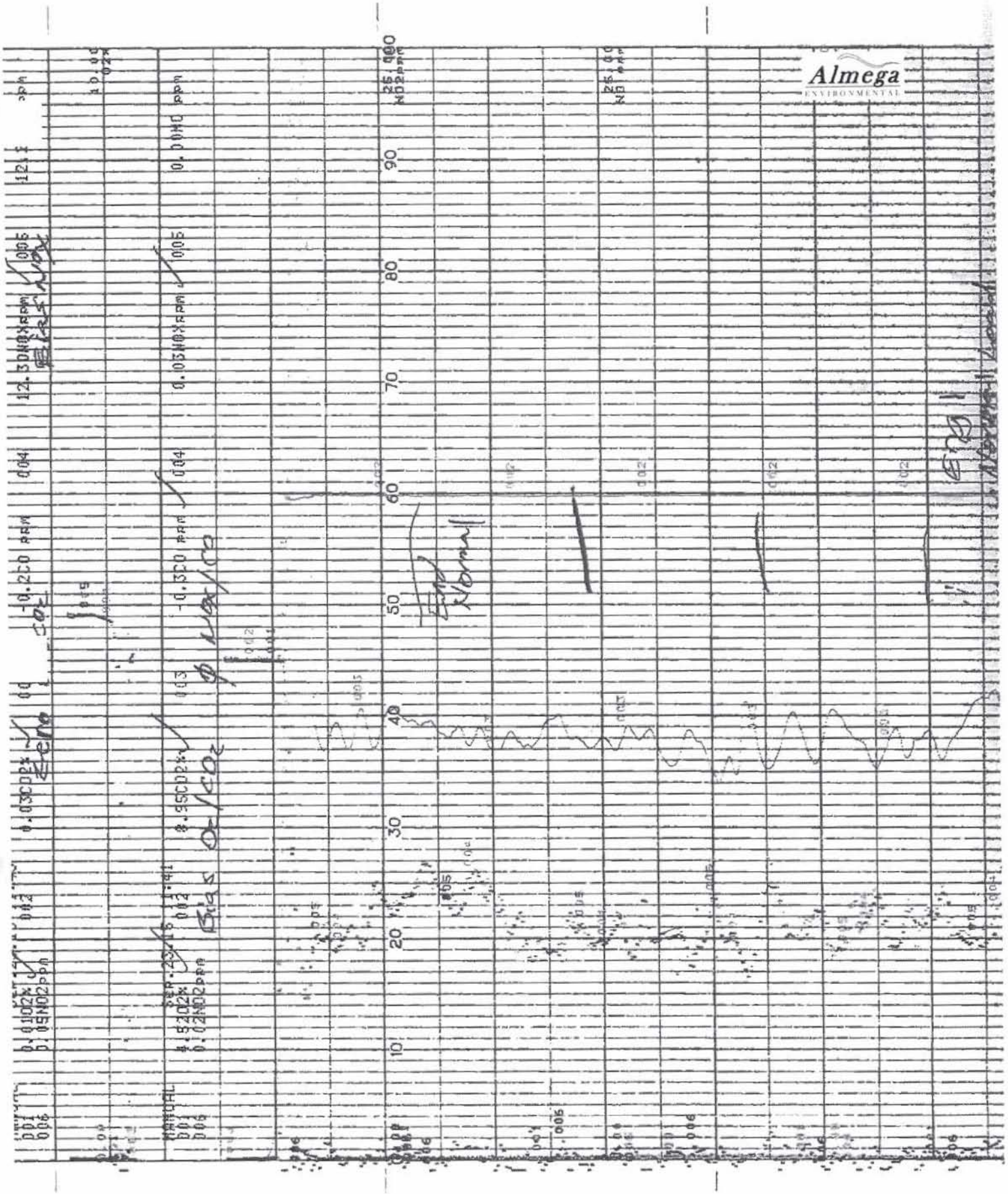
Cal Gas Information

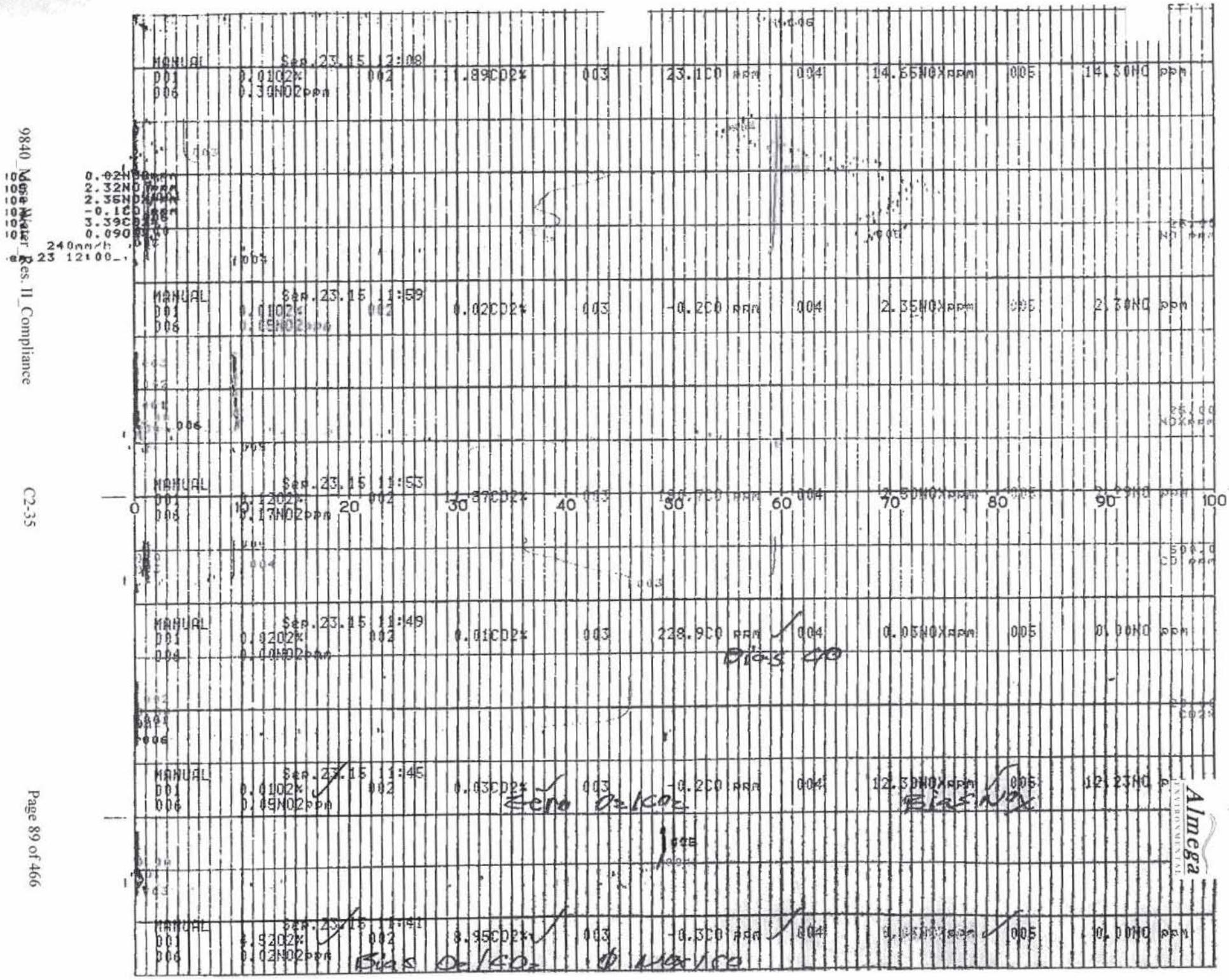
Type	Range	Conc.		Cyl. #	Exp. Date
O2/CO2 (M)	25/10	4.503/9.016	%	CC14859	05/29/23
O2/CO2 (H)	25/10	8.716/18.03	%	CC119210	08/06/22
NOx (M)	25	12.20	ppm	CC405991	04/15/18
NOx (H)	25	23.11	ppm	CC1599	09/09/17
NOx (L)	25	2.513	ppm	CC435188	08/20/16
CO (M)	500	225.8	ppm	SG9152339BAL	05/06/21
CO (H)	500	453.8	ppm	CC39463	12/02/22
NO2	-	16.39	ppm	CC502667	04/03/17

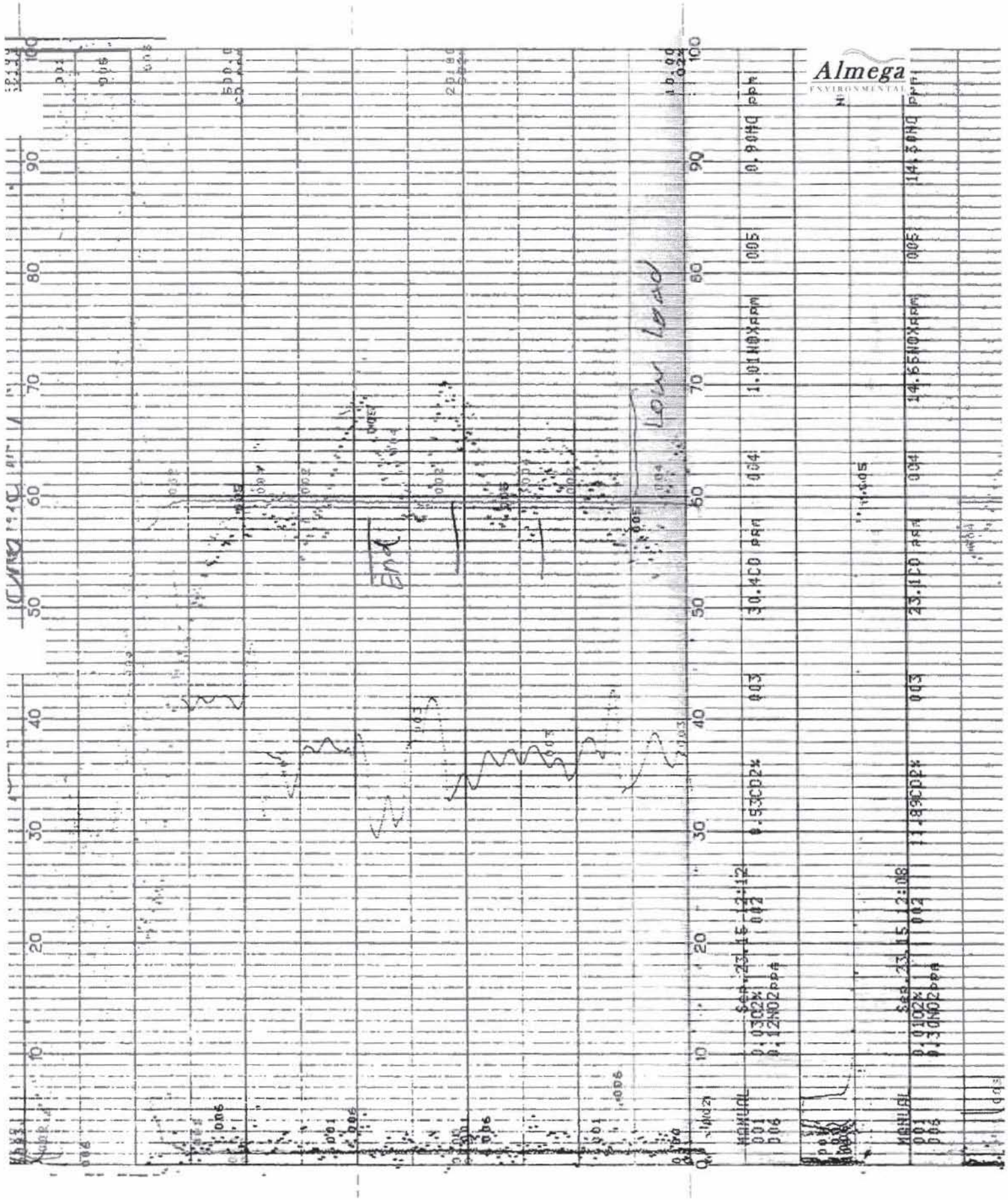

Bias ϕ
Leak ✓ Good
Local Mid O2
Local High O2 NOx Conv.
Local Mid
Local High
MANUAL Sep.23.15 09:30
MANUAL Sep.23.15 09:27
MANUAL Sep.23.15 09:22
MANUAL Sep.23.15 09:18
MANUAL Sep.23.15 09:08
0 10 20 30 40 50 60 70 80 90 100

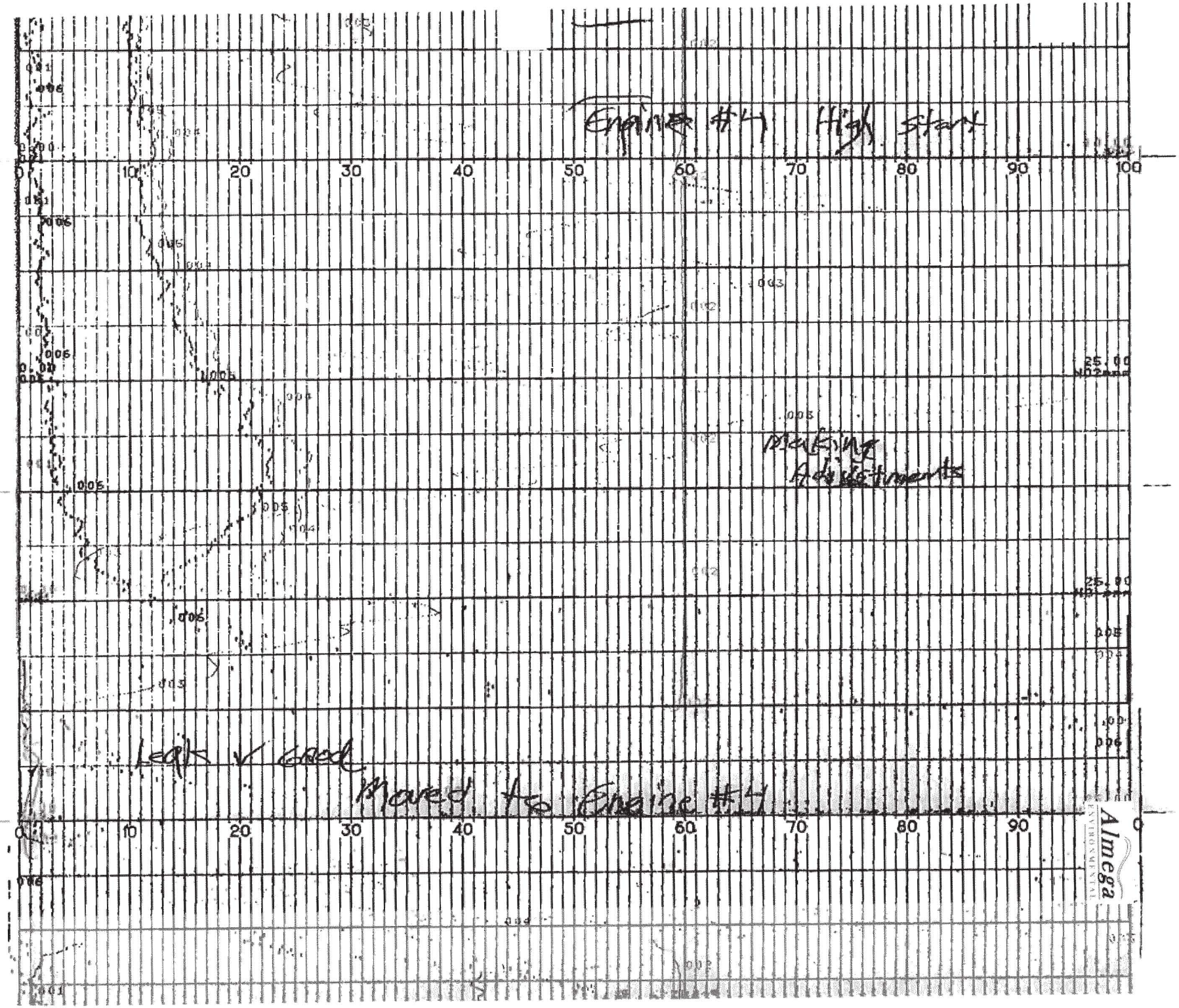

Engine #1
MANUAL Sep.23.15 09:49
001 0.01O2% 002 0.00CO2% 003 124.9CO ppm 004 0.08NOXppm 005 0.00NO ppm
006 0.07NO2ppm
Bias CO
MANUAL Sep.23.15 09:45
001 0.01O2% 002 0.00CO2% 003 -0.2CO ppm 004 12.18NOXppm 005 12.20NO ppm
006 -0.05NO2ppm
Bias NOx
MANUAL Sep.23.15 09:41
001 4.90O2% 002 8.93CO2% 003 -0.3CO ppm 004 0.11NOXppm 005 0.00NO ppm
006 0.10NO2ppm
Bias O2/CO2
MANUAL Sep.23.15 09:38
001 0.02O2% 002 0.01CO2% 003 -0.2CO ppm 004 0.15NOXppm 005 0.00NO ppm
006 0.12NO2ppm
Bias 0
Leak ✓ Good
Almega ENVIRONMENTAL

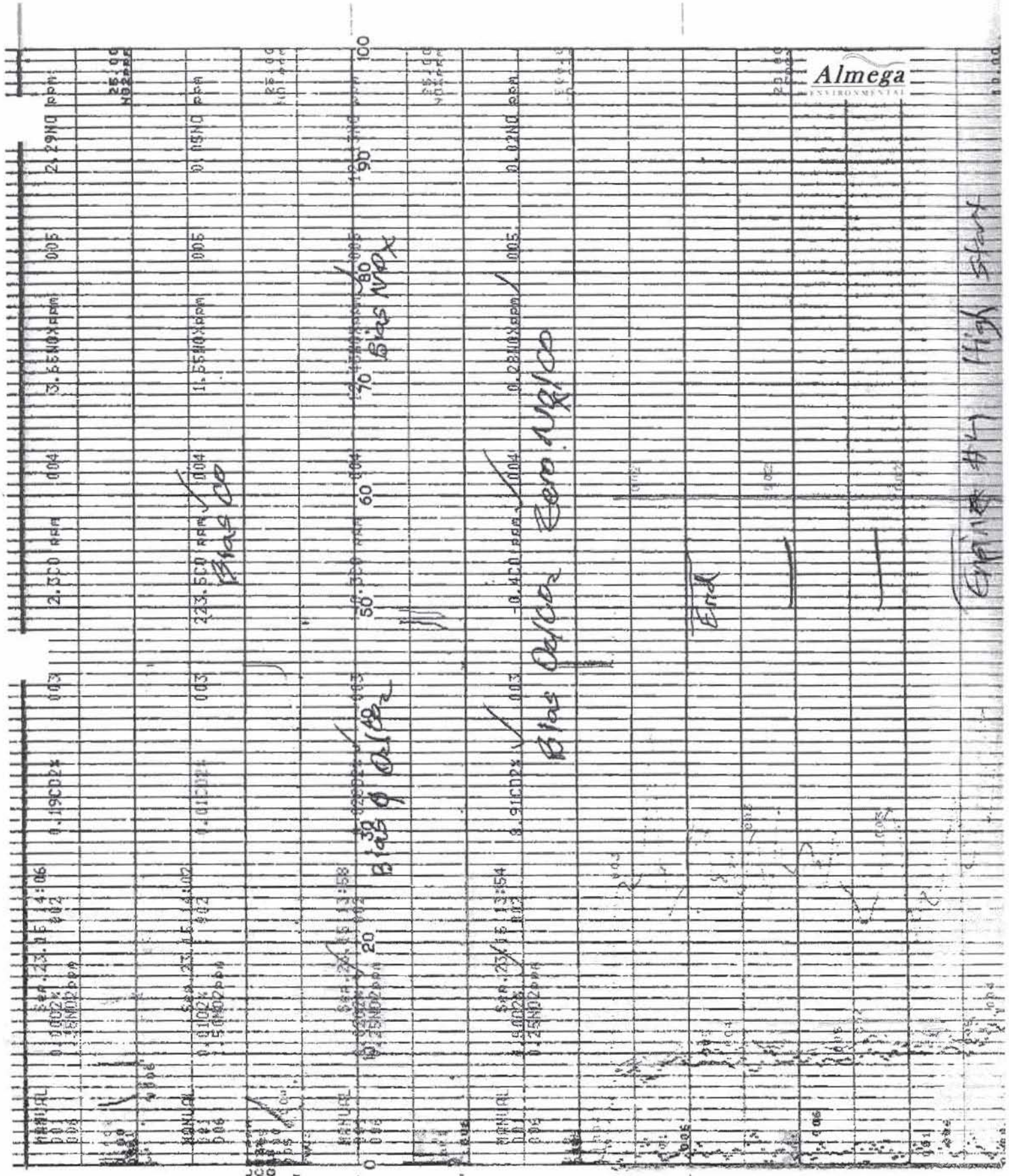

Normal Load
Switch to Mid Load
End High Load
10127 Start Eng. #1
High Load
Almega

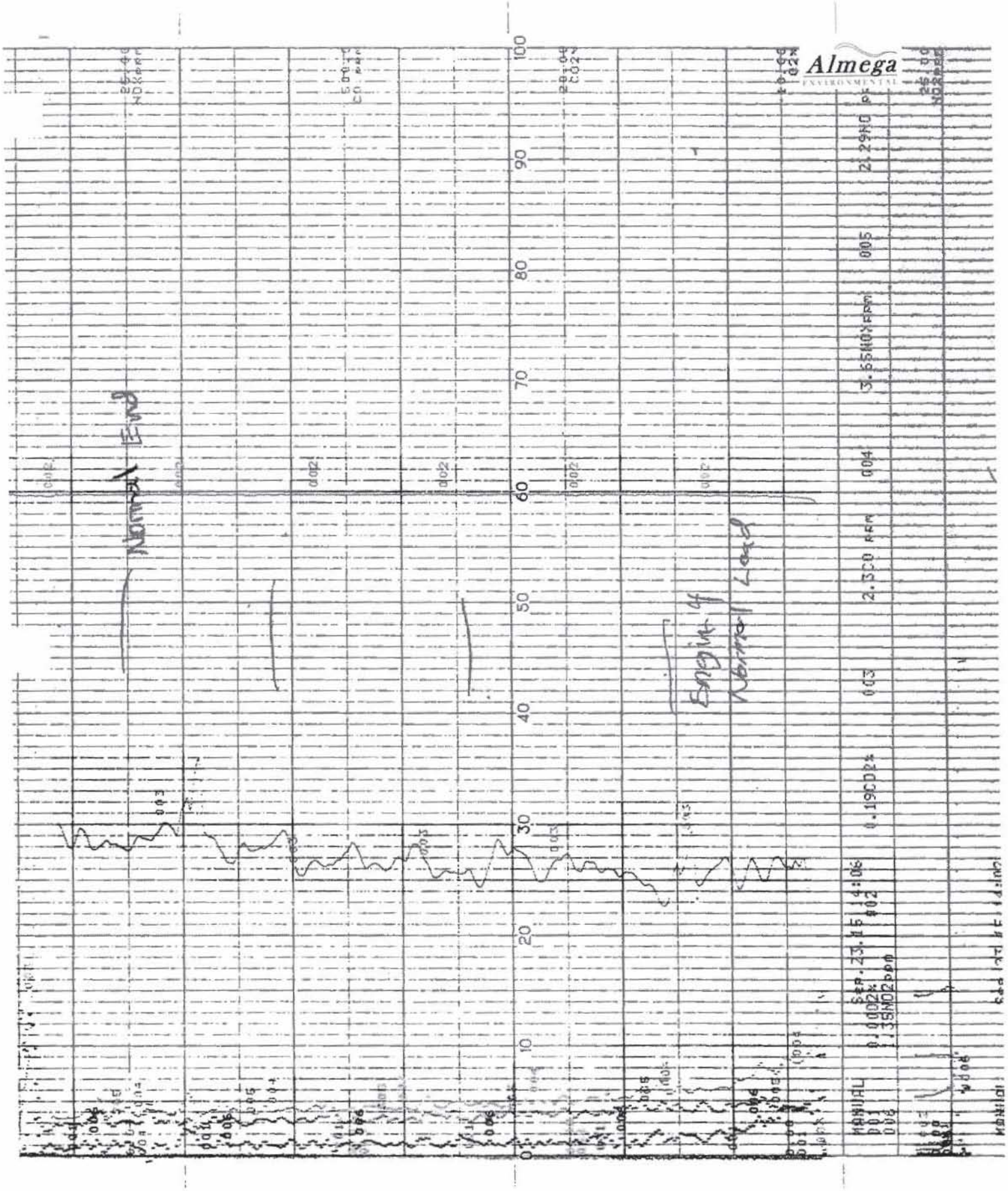

Almega
ENVIRONMENTAL
Bias Nox
Zero
Bias O2/CO2
End Normal
End Normal Load

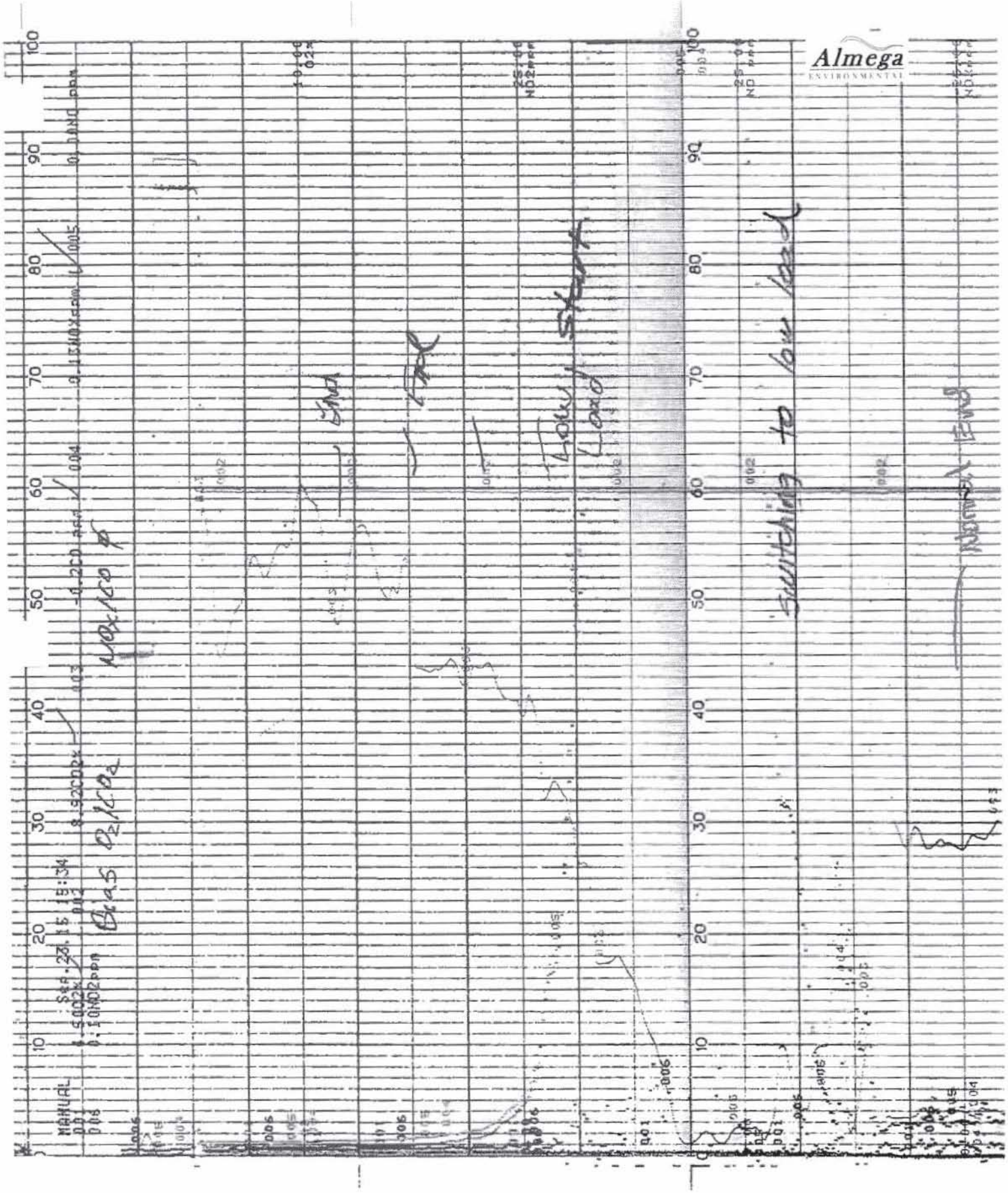

MANUAL Sep.23.15 12:08
001 0.01O2% 002 11.89CO2% 003 23.1CO ppm 004 14.65NOXppm 005 14.30NO ppm
006 0.30NO2ppm
MANUAL Sep.23.15 11:59
001 0.01O2% 002 0.02CO2% 003 -0.2CO ppm 004 2.35NOXppm 005 2.30NO ppm
006 0.05NO2ppm
MANUAL Sep.23.15 11:53
001 0.12O2% 002 11.87CO2% 003 180.7CO ppm 004 2.50NOXppm 005 2.29NO ppm
006 0.17NO2ppm
MANUAL Sep.23.15 11:49
001 0.02O2% 002 0.01CO2% 003 228.9CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.00NO2ppm
Bias CO
MANUAL Sep.23.15 11:45
001 0.01O2% 002 0.03CO2% 003 -0.2CO ppm 004 12.30NOXppm 005 12.23NO ppm
006 0.05NO2ppm
Zero O2/CO2
Bias NOx
MANUAL Sep.23.15 11:41
001 4.52O2% 002 8.95CO2% 003 -0.3CO ppm 004 0.05NOXppm 005 0.00NO ppm
006 0.02NO2ppm
Bias O2/CO2 Ø NOx/CO
0 10 20 30 40 50 60 70 80 90 100
Almega

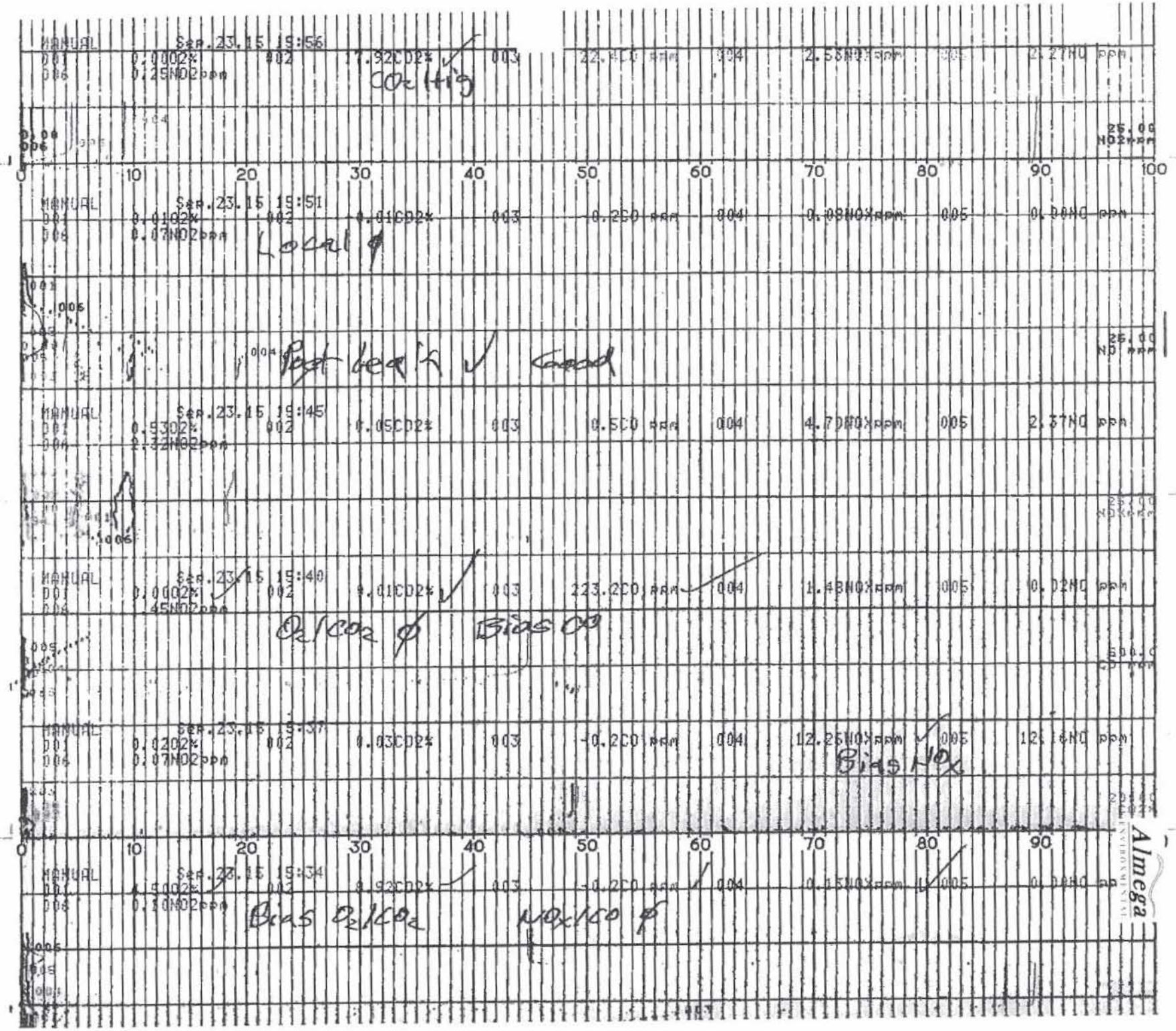

Almega
ENVIRONMENTAL
Low Load
End
MANUAL Sep.23.15 12:12
001 0.03O2% 002 0.53CO2% 003 30.4CO ppm 004 1.01NOXppm 005 0.90NO ppm
006 0.12NO2ppm
MANUAL Sep.23.15 12:08
001 0.01O2% 002 11.89CO2% 003 23.1CO ppm 004 14.65NOXppm 005 14.30NO ppm
006 0.30NO2ppm

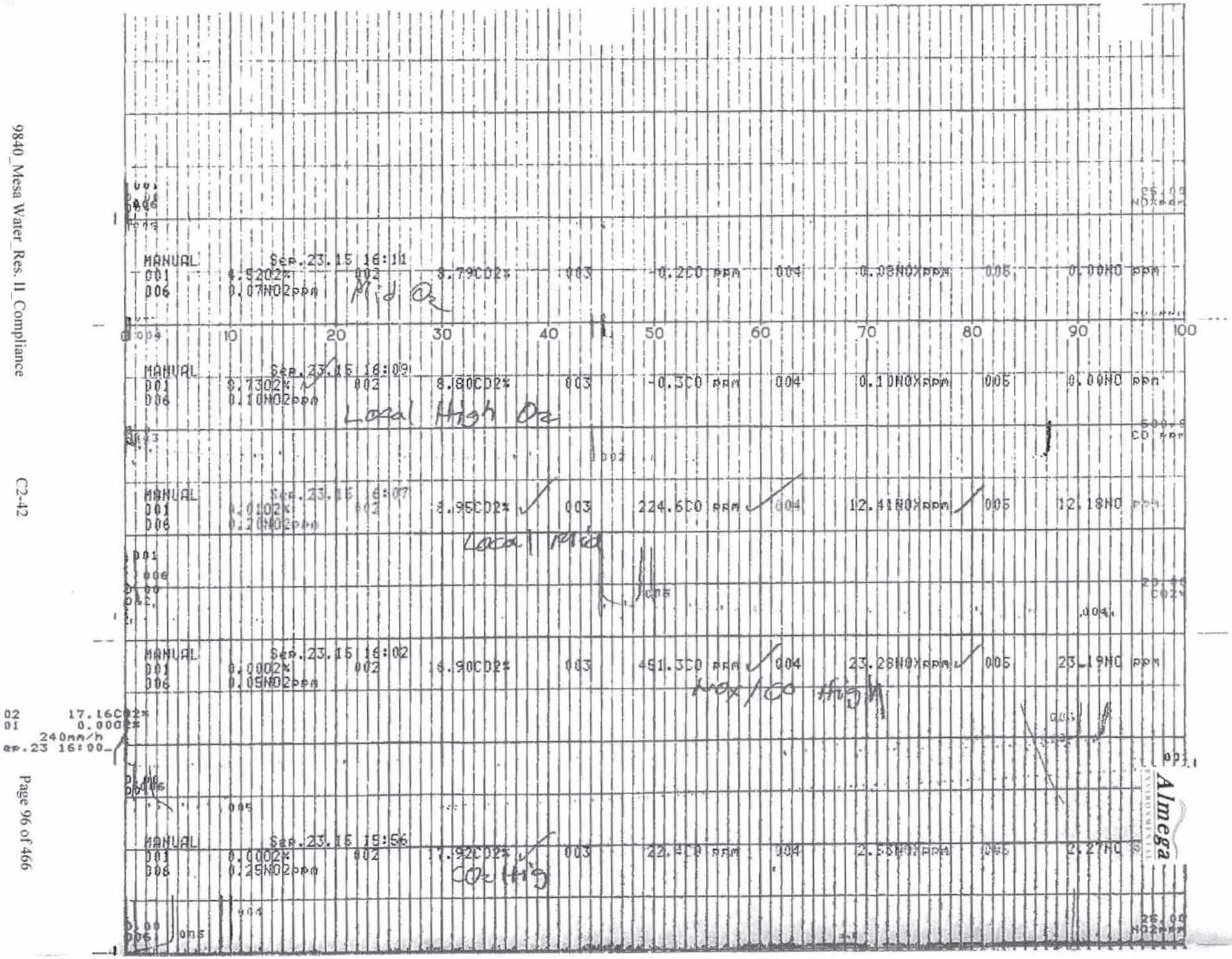

Engine #4 High Start
Making Adjustments
Leak ✓ Good
Moved to Engine #4
0
10
20
30
40
50
60
70
80
90
100
25.00
Almega
ENVIRONMENTAL


Almega
ENVIRONMENTAL
Bias CO
Bias NOx
Bias O2/CO2
Bias O2/CO2 Zero NOx/CO
End
Engine #4 High start


Almega
ENVIRONMENTAL
Normal End
Engine 4
Normal Load
MANUAL
Sep.23.15 14:06
0.19CO2%
2.3CO ppm
3.65NOXppm
2.29NO
1.35NO2ppm


Almega
ENVIRONMENTAL
Switching to low load
Low Load
Normal End
Gas O2/CO2
NOx/CO


MANUAL Sep.23.15 19:56
001 0.00O2% 002 17.92CO2% 003 22.4CO ppm 004 2.53NOXppm 005 2.27NO ppm
006 0.25NO2ppm
CO2 Hig
MANUAL Sep.23.15 19:51
001 0.01O2% 002 0.01CO2% 003 -0.2CO ppm 004 0.08NOXppm 005 0.00NO ppm
006 0.07NO2ppm
Local ϕ
Post leak ✓ Good
MANUAL Sep.23.15 19:45
001 0.53O2% 002 0.05CO2% 003 0.5CO ppm 004 4.70NOXppm 005 2.37NO ppm
006 2.32NO2ppm
MANUAL Sep.23.15 19:40
001 0.00O2% 002 0.01CO2% 003 223.2CO ppm 004 1.48NOXppm 005 0.02NO ppm
006 .45NO2ppm
O2/CO2 ϕ Bias CO
MANUAL Sep.23.15 19:37
001 0.02O2% 002 0.03CO2% 003 -0.2CO ppm 004 12.25NOXppm 005 12.16NO ppm
006 0.07NO2ppm
Bias NOx
MANUAL Sep.23.15 19:34
001 4.50O2% 002 0.92CO2% 003 -0.2CO ppm 004 0.15NOXppm 005 0.00NO ppm
006 0.10NO2ppm
Bias O2/CO2 NOx/CO ϕ
0 10 20 30 40 50 60 70 80 90 100
Almega


MANUAL Sep.23.15 16:11
001 4.52O2%
002 8.79CO2%
003 -0.2CO ppm
004 0.08NOXppm
005 0.00NO ppm
006 0.07NO2ppm
Mid O2
10 20 30 40 50 60 70 80 90 100
MANUAL Sep.23.15 16:09
001 5.73O2%
002 8.80CO2%
003 -0.3CO ppm
004 0.10NOXppm
005 0.00NO ppm
006 0.10NO2ppm
Local High O2
MANUAL Sep.23.15 16:07
001 0.01O2%
002
003 8.95CO2%
003 224.6CO ppm
004 12.41NOXppm
005 12.18NO ppm
006 0.20NO2ppm
Local High
MANUAL Sep.23.15 16:02
001 0.00O2%
002 16.90CO2%
003 451.3CO ppm
004 23.28NOXppm
005 23.19NO ppm
006 0.05NO2ppm
Max/CO High
02 17.16CO2%
01 0.00O2%
240mm/h
ep.23 16:00
MANUAL Sep.23.15 15:56
001 0.00O2%
002 17.92CO2%
003 22.4CO ppm
004 2.55NOXppm
005 2.27NO ppm
006 0.25NO2ppm
CO2 Hig
Almega

Appendix C3

CEMS –DAS One-Minute Data

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	10:37:59	327.67	7.83	12.71	2.91	0.00	
9/16/2015	10:38:59	0.18	0.03	10.40	1.66	0.03	Pre Internal Calibration
9/16/2015	10:39:59	0.00	0.02	0.82	0.14	0.00	
9/16/2015	10:40:59	-0.01	0.01	0.00	0.05	0.00	
9/16/2015	10:41:59	-0.01	0.01	0.00	-0.02	0.00	Zero
9/16/2015	10:42:59	0.02	10.79	121.18	4.68	5.08	
9/16/2015	10:43:59	-0.01	17.97	437.99	22.17	21.96	
9/16/2015	10:44:59	-0.01	17.99	450.83	22.79	23.03	
9/16/2015	10:45:59	-0.01	17.99	451.46	23.03	23.07	
9/16/2015	10:46:59	-0.01	17.99	453.87	23.17	23.12	High
9/16/2015	10:47:59	0.03	11.77	397.89	20.89	21.29	
9/16/2015	10:48:59	-0.02	8.95	236.73	12.43	12.41	
9/16/2015	10:49:59	-0.01	8.96	229.48	12.30	12.14	
9/16/2015	10:50:59	-0.02	8.95	229.72	12.28	12.15	Mid
9/16/2015	10:51:59	5.53	8.90	158.15	11.50	11.10	
9/16/2015	10:52:59	8.69	8.87	6.20	12.55	1.01	
9/16/2015	10:53:59	8.73	8.82	-0.20	15.71	0.25	
9/16/2015	10:54:59	8.82	8.80	-0.38	15.87	0.23	
9/16/2015	10:55:59	8.79	8.79	-0.34	15.98	0.22	
9/16/2015	10:56:59	8.80	8.78	-0.26	16.05	0.22	
9/16/2015	10:57:59	8.80	8.76	-0.37	16.10	0.22	High O2
9/16/2015	10:58:59	7.48	8.76	-0.40	15.93	0.22	NOx Converter Check
9/16/2015	10:59:59	4.56	8.75	-0.22	6.92	--	
9/16/2015	11:00:59	4.57	8.75	-0.07	3.38	--	
9/16/2015	11:01:59	4.57	8.75	-0.05	2.85	--	
9/16/2015	11:02:59	4.57	8.74	0.00	2.77	--	Mid O2
9/16/2015	11:03:59	188.19	3.25	0.10	2.84	--	
9/16/2015	11:04:59	327.67	0.08	0.70	1.11	--	
9/16/2015	11:05:59	327.67	0.07	0.74	0.54	--	
9/16/2015	11:06:59	327.67	0.07	0.48	0.41	--	
9/16/2015	11:07:59	327.67	0.10	0.87	0.31	--	Leak Check
9/16/2015	11:08:59	327.67	0.08	1.20	0.43	--	
9/16/2015	11:09:59	327.67	0.10	0.40	0.32	--	
9/16/2015	11:10:59	327.67	0.10	1.34	0.32	--	
9/16/2015	11:11:59	327.67	0.07	0.75	0.19	--	
9/16/2015	11:12:59	11.19	11.36	108.52	0.70	--	
9/16/2015	11:13:59	0.57	8.31	185.74	1.41	--	System Calibraiton
9/16/2015	11:14:59	0.01	0.04	24.48	0.37	--	
9/16/2015	11:15:59	0.01	0.02	0.05	0.11	--	
9/16/2015	11:16:59	0.01	0.01	-0.25	0.10	--	Bias Zero
9/16/2015	11:17:59	0.00	2.83	4.48	0.14	--	
9/16/2015	11:18:59	4.21	8.70	28.44	1.08	--	

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	11:19:59	4.54	8.90	0.14	0.06	--	Bias O2/CO2
9/16/2015	11:20:59	3.60	7.76	-0.12	0.16	--	
9/16/2015	11:21:59	0.01	0.05	3.35	7.93	--	
9/16/2015	11:22:59	0.01	0.02	0.04	11.83	--	
9/16/2015	11:23:59	0.01	0.01	-0.15	11.90	--	Bias NOx
9/16/2015	11:24:59	0.01	0.80	10.53	11.73	--	
9/16/2015	11:25:59	0.01	0.01	196.63	2.51	--	
9/16/2015	11:26:59	0.01	0.01	225.94	0.05	--	
9/16/2015	11:27:59	0.01	0.01	226.18	0.04	--	Bias CO
9/16/2015	11:28:59	0.00	2.11	225.86	0.04	--	
9/16/2015	11:29:59	-0.02	11.86	139.55	1.93	--	
9/16/2015	11:30:59	-0.02	11.90	124.33	4.38	--	
9/16/2015	11:31:59	-0.04	11.92	126.56	3.23	--	
9/16/2015	11:32:59	-0.04	11.92	130.78	2.45	--	
9/16/2015	11:33:59	-0.04	11.93	134.36	4.13	--	
9/16/2015	11:34:59	-0.04	11.93	154.82	1.99	--	
9/16/2015	11:35:59	-0.05	11.94	142.34	1.84	--	
9/16/2015	11:36:59	-0.04	11.93	143.51	3.07	--	
9/16/2015	11:37:59	-0.04	11.92	143.48	2.22	--	
9/16/2015	11:38:59	-0.04	11.93	134.35	2.59	--	
9/16/2015	11:39:59	-0.04	11.93	148.24	1.69	--	
9/16/2015	11:40:59	-0.05	11.93	141.01	1.91	--	
9/16/2015	11:41:59	-0.04	11.93	133.67	2.07	--	
9/16/2015	11:42:59	-0.04	11.93	159.61	1.55	--	
9/16/2015	11:43:59	-0.04	11.94	136.66	3.34	--	
9/16/2015	11:44:59	-0.04	11.94	150.65	1.60	--	
9/16/2015	11:45:59	-0.05	11.93	117.28	3.34	--	
9/16/2015	11:46:59	-0.05	11.95	139.22	4.19	--	
9/16/2015	11:47:59	-0.05	11.96	136.90	2.42	--	
9/16/2015	11:48:59	-0.05	11.95	128.67	2.40	--	Local Low NOx
9/16/2015	11:49:59	-0.03	10.87	134.48	2.15	--	
9/16/2015	11:50:59	-0.01	0.11	44.21	2.41	--	
9/16/2015	11:51:59	-0.01	0.05	0.34	2.34	--	
9/16/2015	11:52:59	-0.01	0.03	-0.13	2.31	--	Bias Low NOx
9/16/2015	11:53:59	-0.02	4.31	14.03	2.29	--	
9/16/2015	11:54:59	-0.05	11.89	127.60	1.84	--	
9/16/2015	11:55:59	-0.05	11.91	144.14	1.24	--	
9/16/2015	11:56:59	-0.05	11.92	130.57	1.43	--	
9/16/2015	11:57:59	-0.05	11.93	137.29	1.92	--	
9/16/2015	11:58:59	-0.05	11.93	136.24	1.71	--	
9/16/2015	11:59:59	-0.05	11.94	144.31	1.51	--	
9/16/2015	12:00:59	-0.05	11.93	153.93	1.41	--	
9/16/2015	12:01:59	-0.05	11.93	162.82	1.64	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	12:02:59	-0.05	11.94	138.34	1.52	--	
9/16/2015	12:03:59	-0.05	11.93	137.21	2.08	--	
9/16/2015	12:04:59	-0.05	11.93	138.17	2.03	--	
9/16/2015	12:05:59	-0.05	11.93	136.71	1.61	--	
9/16/2015	12:06:59	-0.05	11.93	152.13	1.17	--	**Engine #2 - High (980 rpm)**
9/16/2015	12:07:59	-0.05	11.94	143.54	1.68	--	**Start Port-A/PT-1**
9/16/2015	12:08:59	-0.05	11.94	133.40	1.78	--	
9/16/2015	12:09:59	-0.05	11.93	131.70	1.61	--	
9/16/2015	12:10:59	-0.04	11.92	149.69	2.15	--	
9/16/2015	12:11:59	-0.05	11.93	153.25	0.67	--	
9/16/2015	12:12:59	-0.05	11.94	141.12	1.00	--	**This data (12:07-12:16)**
9/16/2015	12:13:59	-0.05	11.93	135.25	1.10	--	**is not included for the**
9/16/2015	12:14:59	-0.05	11.91	142.66	1.33	--	**average calculation and**
9/16/2015	12:15:59	-0.05	11.92	124.05	1.82	--	**thus reporting the**
9/16/2015	12:16:59	-0.01	11.91	156.91	0.93	--	**emissions.**
9/16/2015	12:17:59	0.11	11.91	145.58	1.41	--	
9/16/2015	12:18:59	0.11	11.91	139.59	2.19	--	
9/16/2015	12:19:59	1.61	11.88	149.66	1.26	--	**Ambient intrusion**
9/16/2015	12:20:59	4.78	11.86	127.14	0.50	--	
9/16/2015	12:21:59	0.66	11.88	126.36	1.53	--	
9/16/2015	12:22:59	0.27	11.90	147.51	1.46	--	
9/16/2015	12:23:59	0.31	11.90	159.60	1.72	--	
9/16/2015	12:24:59	0.15	11.91	137.99	1.01	--	**End Port-A**
9/16/2015	12:25:59	0.13	11.92	140.05	1.05	--	
9/16/2015	12:26:59	0.24	11.90	164.82	1.25	--	
9/16/2015	12:27:59	322.34	0.88	74.30	0.39	--	
9/16/2015	12:28:59	327.67	0.17	2.94	0.04	--	
9/16/2015	12:29:59	327.67	0.13	1.25	0.03	--	
9/16/2015	12:30:59	327.67	0.17	1.70	-0.02	--	
9/16/2015	12:31:59	327.67	0.18	3.43	-0.03	--	
9/16/2015	12:32:59	327.67	0.20	4.79	0.14	--	
9/16/2015	12:33:59	327.67	0.20	5.81	0.32	--	**Switch Port**
9/16/2015	12:34:59	327.67	0.23	6.58	0.46	--	
9/16/2015	12:35:59	327.67	0.24	7.16	0.58	--	
9/16/2015	12:36:59	327.67	0.24	7.62	0.68	--	
9/16/2015	12:37:59	327.67	0.25	7.95	0.78	--	
9/16/2015	12:38:59	327.67	0.26	8.16	0.84	--	
9/16/2015	12:39:59	327.67	0.27	7.12	0.77	--	
9/16/2015	12:40:59	5.98	11.14	86.45	0.89	--	
9/16/2015	12:41:59	-0.03	11.85	176.09	1.53	--	
9/16/2015	12:42:59	-0.03	11.88	155.04	1.10	--	
9/16/2015	12:43:59	-0.04	11.90	166.99	1.40	--	**Start Port-B/PT-1**
9/16/2015	12:44:59	-0.05	11.93	160.79	1.14	--	

Almega ENVIRONMENTAL

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	12:45:59	-0.05	11.93	157.76	0.78	--	
9/16/2015	12:46:59	-0.05	11.93	148.81	0.70	--	PT-2
9/16/2015	12:47:59	-0.05	11.94	141.19	0.88	--	
9/16/2015	12:48:59	-0.05	11.93	171.65	1.20	--	
9/16/2015	12:49:59	-0.05	11.94	175.65	0.61	--	PT-3
9/16/2015	12:50:59	-0.05	11.94	160.66	0.92	--	
9/16/2015	12:51:59	-0.05	11.93	152.30	0.74	--	
9/16/2015	12:52:59	-0.05	11.94	149.96	0.96	--	PT-4
9/16/2015	12:53:59	-0.05	11.94	149.67	0.80	--	
9/16/2015	12:54:59	-0.05	11.94	156.93	0.85	--	
9/16/2015	12:55:59	-0.05	11.94	161.24	0.79	--	PT-5
9/16/2015	12:56:59	-0.05	11.95	164.75	0.65	--	
9/16/2015	12:57:59	-0.05	11.95	149.86	1.14	--	
9/16/2015	12:58:59	-0.05	11.96	162.31	0.91	--	PT-6
9/16/2015	12:59:59	-0.05	11.95	167.40	0.98	--	
9/16/2015	13:00:59	-0.05	11.94	160.59	1.16	--	End Port-B
9/16/2015	13:01:59	-0.05	11.95	164.54	1.27	--	
9/16/2015	13:02:59	-0.05	11.95	172.06	1.17	--	
9/16/2015	13:03:59	-0.01	0.90	74.73	0.48	--	
9/16/2015	13:04:59	-0.02	0.05	0.96	-0.04	--	System Calibraiton
9/16/2015	13:05:59	-0.02	0.03	-0.07	-0.06	--	
9/16/2015	13:06:59	-0.02	0.03	-0.10	-0.05	--	Bias Zero
9/16/2015	13:07:59	-0.02	0.03	-0.10	-0.05	--	
9/16/2015	13:08:59	-0.01	0.02	-0.11	-0.05	--	
9/16/2015	13:09:59	2.51	5.08	1.18	-0.01	--	
9/16/2015	13:10:59	4.48	8.91	1.47	-0.04	--	
9/16/2015	13:11:59	4.48	8.92	-0.27	-0.06	--	
9/16/2015	13:12:59	4.48	8.92	-0.30	-0.08	--	
9/16/2015	13:13:59	4.48	8.93	-0.31	-0.08	--	Bias O2/CO2
9/16/2015	13:14:59	3.96	8.25	-0.17	-0.07	--	
9/16/2015	13:15:59	0.00	0.07	2.47	1.39	--	
9/16/2015	13:16:59	-0.01	0.03	0.06	2.16	--	
9/16/2015	13:17:59	-0.01	0.02	-0.12	2.17	--	
9/16/2015	13:18:59	-0.01	0.02	-0.10	2.17	--	
9/16/2015	13:19:59	-0.01	0.02	-0.10	2.18	--	Bias NOx Low
9/16/2015	13:20:59	-0.02	10.39	62.04	3.21	--	
9/16/2015	13:21:59	-0.01	0.28	42.75	8.77	--	
9/16/2015	13:22:59	-0.01	0.02	2.31	12.05	--	
9/16/2015	13:23:59	-0.01	0.01	-0.08	12.08	--	Bias NOx Mid
9/16/2015	13:24:59	0.00	0.11	6.89	12.08	--	
9/16/2015	13:25:59	-0.01	0.01	191.01	4.13	--	
9/16/2015	13:26:59	-0.01	0.01	225.07	-0.04	--	Bias CO

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	13:27:59	-0.01	0.01	225.61	-0.05	--	
9/16/2015	13:28:59	-0.02	6.27	200.10	0.44	--	
9/16/2015	13:29:59	-0.03	11.88	124.34	6.38	--	
9/16/2015	13:30:59	-0.03	11.90	122.67	6.60	--	
9/16/2015	13:31:59	-0.03	11.90	103.20	7.21	--	
9/16/2015	13:32:59	-0.03	11.91	112.52	8.25	--	
9/16/2015	13:33:59	-0.03	11.91	115.64	7.41	--	
9/16/2015	13:34:59	-0.03	11.92	116.11	7.43	--	
9/16/2015	13:35:59	-0.04	11.92	119.20	7.08	--	
9/16/2015	13:36:59	-0.04	11.93	115.06	7.24	--	
9/16/2015	13:37:59	-0.04	11.93	111.17	7.47	--	
9/16/2015	13:38:59	-0.03	11.93	105.44	7.43	--	
9/16/2015	13:39:59	-0.04	11.92	105.26	8.24	--	
9/16/2015	13:40:59	-0.03	11.93	100.48	9.51	--	
9/16/2015	13:41:59	-0.04	11.93	112.81	9.68	--	
9/16/2015	13:42:59	-0.04	11.93	100.83	9.96	--	
9/16/2015	13:43:59	-0.04	11.93	98.15	9.62	--	
9/16/2015	13:44:59	-0.03	11.94	113.18	8.95	--	
9/16/2015	13:45:59	-0.03	11.94	107.25	9.13	--	
9/16/2015	13:46:59	-0.04	11.93	111.36	8.99	--	Engine #2 - Normal (890 rp
9/16/2015	13:47:59	-0.03	11.94	104.37	8.95	--	Start Port-A/PT-1
9/16/2015	13:48:59	-0.03	11.93	112.21	8.50	--	
9/16/2015	13:49:59	-0.03	11.93	97.83	8.76	--	
9/16/2015	13:50:59	-0.03	11.93	129.57	8.44	--	
9/16/2015	13:51:59	-0.03	11.93	109.36	8.16	--	
9/16/2015	13:52:59	-0.03	11.93	112.51	8.88	--	PT-2
9/16/2015	13:53:59	-0.03	11.94	111.75	9.19	--	
9/16/2015	13:54:59	-0.04	11.93	108.30	9.49	--	
9/16/2015	13:55:59	-0.03	11.94	111.50	9.82	--	
9/16/2015	13:56:59	-0.03	11.94	117.19	9.08	--	
9/16/2015	13:57:59	-0.03	11.93	109.93	9.12	--	PT-3
9/16/2015	13:58:59	-0.03	11.93	124.09	7.77	--	
9/16/2015	13:59:59	-0.04	11.93	96.20	8.60	--	
9/16/2015	14:00:59	-0.04	11.94	101.69	9.79	--	
9/16/2015	14:01:59	-0.04	11.94	105.73	10.31	--	
9/16/2015	14:02:59	-0.03	11.92	120.06	9.76	--	PT-4
9/16/2015	14:03:59	-0.03	11.92	119.77	8.76	--	
9/16/2015	14:04:59	-0.03	11.93	125.19	8.36	--	
9/16/2015	14:05:59	-0.04	11.92	116.08	8.38	--	
9/16/2015	14:06:59	-0.03	11.93	125.00	8.50	--	
9/16/2015	14:07:59	-0.03	11.94	116.82	8.45	--	PT-5
9/16/2015	14:08:59	-0.03	11.94	114.34	8.62	--	
9/16/2015	14:09:59	-0.03	11.94	118.37	8.60	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	14:10:59	-0.03	11.94	107.69	8.95	--	
9/16/2015	14:11:59	-0.03	11.94	113.14	9.53	--	
9/16/2015	14:12:59	-0.03	11.93	115.57	8.68	--	PT-6
9/16/2015	14:13:59	-0.03	11.93	111.14	8.53	--	
9/16/2015	14:14:59	-0.03	11.93	119.35	8.55	--	
9/16/2015	14:15:59	-0.03	11.93	105.95	9.30	--	
9/16/2015	14:16:59	-0.03	11.94	116.09	9.69	--	End Port-A
9/16/2015	14:17:59	-0.03	11.94	117.28	8.64	--	
9/16/2015	14:18:59	98.59	8.74	93.28	8.13	--	Switch Port
9/16/2015	14:19:59	-0.02	11.91	110.02	7.97	--	
9/16/2015	14:20:59	-0.02	11.92	123.57	8.11	--	
9/16/2015	14:21:59	-0.03	11.92	107.52	8.48	--	Start Port-B/PT-1
9/16/2015	14:22:59	-0.03	11.92	112.32	8.77	--	
9/16/2015	14:23:59	-0.03	11.91	106.86	9.21	--	
9/16/2015	14:24:59	-0.03	11.92	110.61	9.33	--	
9/16/2015	14:25:59	-0.03	11.92	112.97	8.98	--	
9/16/2015	14:26:59	-0.03	11.92	116.22	8.63	--	PT-2
9/16/2015	14:27:59	-0.03	11.92	112.07	7.97	--	
9/16/2015	14:28:59	-0.03	11.93	121.08	8.39	--	
9/16/2015	14:29:59	-0.03	11.93	125.18	7.89	--	
9/16/2015	14:30:59	-0.03	11.93	113.66	8.00	--	
9/16/2015	14:31:59	-0.03	11.93	111.53	8.29	--	PT-3
9/16/2015	14:32:59	-0.03	11.93	105.33	9.10	--	
9/16/2015	14:33:59	-0.03	11.93	112.84	9.10	--	
9/16/2015	14:34:59	-0.03	11.93	115.78	8.58	--	
9/16/2015	14:35:59	-0.03	11.93	113.12	8.15	--	
9/16/2015	14:36:59	-0.03	11.93	113.83	8.80	--	PT-4
9/16/2015	14:37:59	-0.03	11.93	116.23	8.43	--	
9/16/2015	14:38:59	-0.03	11.93	118.14	8.28	--	
9/16/2015	14:39:59	-0.03	11.93	117.63	8.10	--	
9/16/2015	14:40:59	-0.03	11.93	114.53	7.82	--	
9/16/2015	14:41:59	-0.03	11.92	101.73	8.61	--	PT-5
9/16/2015	14:42:59	-0.03	11.93	115.15	8.94	--	
9/16/2015	14:43:59	-0.03	11.93	121.56	8.46	--	
9/16/2015	14:44:59	-0.03	11.93	108.97	8.44	--	
9/16/2015	14:45:59	-0.03	11.92	102.29	9.19	--	
9/16/2015	14:46:59	-0.03	11.92	101.03	9.74	--	PT-6
9/16/2015	14:47:59	-0.03	11.92	120.16	9.32	--	
9/16/2015	14:48:59	-0.03	11.93	110.50	8.31	--	
9/16/2015	14:49:59	-0.03	11.92	105.08	8.90	--	
9/16/2015	14:50:59	-0.03	11.92	105.93	9.41	--	End Port-B
9/16/2015	14:51:59	22.03	11.34	106.33	9.96	--	
9/16/2015	14:52:59	43.97	0.16	42.45	4.47	--	System Calibraiton

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	14:53:59	-0.01	0.05	0.66	-0.06	--	
9/16/2015	14:54:59	-0.01	0.04	0.01	-0.08	--	Bias Zero
9/16/2015	14:55:59	1.36	2.25	-0.05	-0.08	--	
9/16/2015	14:56:59	4.50	8.89	-0.02	-0.08	--	
9/16/2015	14:57:59	4.50	8.92	-0.19	-0.08	--	
9/16/2015	14:58:59	4.51	8.92	-0.20	-0.08	--	Bias O2/CO2
9/16/2015	14:59:59	3.26	6.21	-0.21	-0.08	--	
9/16/2015	15:00:59	0.00	0.05	-0.07	8.88	--	
9/16/2015	15:01:59	-0.01	0.03	-0.02	12.16	--	Bias NOx Mid
9/16/2015	15:02:59	0.23	0.03	3.60	12.21	--	
9/16/2015	15:03:59	218.85	0.06	68.91	6.80	--	
9/16/2015	15:04:59	65.82	0.04	1.48	1.78	--	
9/16/2015	15:05:59	0.00	0.01	-0.05	2.24	--	
9/16/2015	15:06:59	-0.01	0.02	-0.20	2.20	--	Bias NOx Low
9/16/2015	15:07:59	0.25	0.01	3.91	2.20	--	
9/16/2015	15:08:59	-0.01	0.00	187.19	0.55	--	
9/16/2015	15:09:59	-0.01	0.00	228.98	-0.07	--	
9/16/2015	15:10:59	-0.01	0.01	229.35	-0.08	--	
9/16/2015	15:11:59	-0.01	0.00	229.19	-0.08	--	
9/16/2015	15:12:59	-0.01	0.00	229.28	-0.08	--	Bias CO
9/16/2015	15:13:59	109.55	0.03	213.42	-0.08	--	
9/16/2015	15:14:59	327.67	0.09	24.84	0.20	--	
9/16/2015	15:15:59	317.07	0.10	4.97	0.69	--	
9/16/2015	15:16:59	54.99	0.00	12.56	0.20	--	Post Internal Calibration
9/16/2015	15:17:59	-0.01	0.00	0.14	-0.13	--	
9/16/2015	15:18:59	-0.01	0.00	-0.04	-0.13	--	Zero
9/16/2015	15:19:59	0.24	11.16	113.49	3.09	--	
9/16/2015	15:20:59	-0.02	17.91	438.87	21.91	--	
9/16/2015	15:21:59	-0.02	17.93	451.47	23.45	--	
9/16/2015	15:22:59	-0.02	17.94	451.27	23.57	--	
9/16/2015	15:23:59	-0.02	17.95	450.87	23.60	--	High
9/16/2015	15:24:59	0.08	13.21	381.24	20.84	--	
9/16/2015	15:25:59	-0.02	8.95	233.04	3.08	--	
9/16/2015	15:26:59	-0.02	8.94	227.87	2.40	--	
9/16/2015	15:27:59	-0.02	8.94	227.96	2.37	--	
9/16/2015	15:28:59	-0.02	8.94	227.87	2.37	--	
9/16/2015	15:29:59	-0.02	8.94	227.73	2.38	--	Mid/Low NOx
9/16/2015	15:30:59	3.46	14.76	160.69	2.36	--	
9/16/2015	15:31:59	7.26	17.94	21.99	2.17	--	
9/16/2015	15:32:59	8.39	17.71	7.15	11.84	--	
9/16/2015	15:33:59	8.75	17.54	0.63	12.40	--	
9/16/2015	15:34:59	8.75	17.39	-0.30	12.45	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Engine No.2
Date/Time	9/16/2015 10:36
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOX	NO	
9/16/2015	15:35:59	8.74	17.27	-0.34	12.44	--	High O2/Mid NOx
9/16/2015	15:36:59	5.84	17.14	-0.36	11.09	--	
9/16/2015	15:37:59	4.49	17.03	-0.15	1.88	--	
9/16/2015	15:38:59	4.48	16.94	0.00	1.31	--	
9/16/2015	15:39:59	4.59	16.84	-0.03	1.43	--	Mid O2
9/16/2015	15:40:59	0.30	2.43	0.03	0.98	--	
9/16/2015	15:41:59	-0.03	0.03	0.07	0.03	--	
9/16/2015	15:42:59	0.75	0.04	0.01	-0.05	--	
9/16/2015	15:43:59	4.82	0.18	0.97	0.06	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	8:13:57	99.48	3.39	62.85	5.22	0.00	
9/17/2015	8:14:57	-0.03	0.02	2.64	0.56	0.00	
9/17/2015	8:15:57	-0.03	0.00	0.00	0.09	0.00	
9/17/2015	8:16:57	-0.03	-0.01	0.00	0.04	0.00	
9/17/2015	8:17:57	-0.02	0.00	0.00	0.01	0.00	
9/17/2015	8:18:57	0.01	-0.01	0.00	0.00	0.00	
9/17/2015	8:19:57	0.01	-0.01	0.00	-0.01	0.00	
9/17/2015	8:20:57	0.01	-0.02	0.00	-0.01	0.00	
9/17/2015	8:21:57	0.01	-0.01	0.00	-0.03	0.00	**Pre Internal Calibration**
9/17/2015	8:22:57	0.01	-0.02	0.00	-0.02	0.00	
9/17/2015	8:23:57	0.00	-0.02	0.00	0.00	0.00	**Zero**
9/17/2015	8:24:57	0.26	11.74	117.13	3.90	1.27	
9/17/2015	8:25:57	0.00	17.90	443.86	21.43	17.79	
9/17/2015	8:26:57	0.00	17.99	455.46	23.09	22.52	
9/17/2015	8:27:57	0.00	18.03	454.54	23.35	23.06	
9/17/2015	8:28:57	0.00	18.04	452.32	23.24	23.22	
9/17/2015	8:29:57	0.00	18.04	452.98	23.35	23.32	
9/17/2015	8:30:57	0.00	18.05	453.47	23.42	23.38	**High**
9/17/2015	8:31:57	0.02	12.87	417.84	22.30	22.30	
9/17/2015	8:32:57	0.00	8.99	242.68	13.53	12.53	
9/17/2015	8:33:57	0.00	8.98	230.54	12.45	12.39	
9/17/2015	8:34:57	0.01	8.99	231.09	12.47	12.39	
9/17/2015	8:35:57	0.00	8.99	231.24	12.46	12.42	**Mid**
9/17/2015	8:36:57	5.23	8.92	172.50	11.70	11.30	
9/17/2015	8:37:57	8.86	8.84	8.44	12.81	0.99	
9/17/2015	8:38:57	8.79	8.80	-0.32	16.02	0.23	
9/17/2015	8:39:57	8.76	8.76	-0.50	16.18	0.22	**High O2 / NOx Conv. Chk.**
9/17/2015	8:40:57	6.38	8.70	-0.41	14.88	0.20	
9/17/2015	8:41:57	4.53	8.67	-0.19	6.75	--	
9/17/2015	8:42:57	4.53	8.63	0.01	5.29	--	
9/17/2015	8:43:57	4.53	8.58	0.04	5.05	--	**Mid O2**
9/17/2015	8:44:57	2.15	8.55	0.12	5.03	--	
9/17/2015	8:45:57	0.00	8.51	0.12	5.07	--	
9/17/2015	8:46:57	0.00	8.49	-0.20	5.08	--	**CO Internal Calibration**
9/17/2015	8:47:57	0.00	8.45	-0.28	5.12	--	
9/17/2015	8:48:57	0.01	8.42	0.02	5.12	--	**Zero CO**
9/17/2015	8:49:57	0.01	8.39	0.09	5.08	--	
9/17/2015	8:50:57	0.12	8.37	143.45	5.01	--	
9/17/2015	8:51:57	0.00	8.34	444.72	5.03	--	
9/17/2015	8:52:57	0.01	8.32	453.86	5.04	--	
9/17/2015	8:53:57	0.01	8.29	454.28	5.02	--	**High CO**
9/17/2015	8:54:57	0.11	8.27	375.50	5.01	--	

Almega ENVIRONMENTAL

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	8:55:57	0.00	8.24	235.28	5.08	--	
9/17/2015	8:56:57	0.00	8.21	231.29	5.10	--	
9/17/2015	8:57:57	0.00	8.19	231.18	5.07	--	
9/17/2015	8:58:57	0.00	8.16	231.22	5.02	--	
9/17/2015	8:59:57	0.00	8.14	230.92	4.98	--	
9/17/2015	9:00:57	0.00	8.11	230.63	5.04	--	
9/17/2015	9:01:57	0.00	8.09	230.14	5.08	--	
9/17/2015	9:02:57	0.00	8.06	227.61	5.11	--	
9/17/2015	9:03:57	0.00	8.04	226.08	5.15	--	Mid CO
9/17/2015	9:04:57	0.68	8.01	186.62	5.21	--	
9/17/2015	9:05:57	7.41	4.92	72.33	5.31	--	
9/17/2015	9:06:57	10.49	0.07	9.26	3.27	--	
9/17/2015	9:07:57	10.49	0.07	0.79	2.14	--	
9/17/2015	9:08:57	10.49	0.06	0.34	2.68	--	
9/17/2015	9:09:57	10.49	0.07	0.29	2.77	--	
9/17/2015	9:10:57	10.49	0.05	0.30	2.37	--	
9/17/2015	9:11:57	9.44	0.06	0.69	1.44	--	
9/17/2015	9:12:57	0.30	0.00	0.98	1.00	--	
9/17/2015	9:13:57	3.75	0.03	0.10	0.31	--	
9/17/2015	9:14:57	0.21	0.03	-0.03	1.21	--	System Calibration
9/17/2015	9:15:57	0.02	-0.01	-0.06	0.56	--	
9/17/2015	9:16:57	0.02	-0.01	-0.23	0.29	--	Bias Zero
9/17/2015	9:17:57	0.32	0.63	-0.28	0.25	--	
9/17/2015	9:18:57	4.49	8.88	0.03	0.33	--	
9/17/2015	9:19:57	4.51	8.92	-0.29	0.24	--	Bias O2/CO2
9/17/2015	9:20:57	3.34	7.00	-0.37	2.89	--	
9/17/2015	9:21:57	0.02	0.03	-0.01	19.79	--	
9/17/2015	9:22:57	0.02	0.00	-0.12	11.97	--	
9/17/2015	9:23:57	0.02	0.00	-0.25	12.01	--	Bias NOx
9/17/2015	9:24:57	0.03	0.72	0.06	12.14	--	
9/17/2015	9:25:57	0.02	0.00	161.13	7.28	--	
9/17/2015	9:26:57	0.01	-0.01	222.25	0.29	--	
9/17/2015	9:27:57	0.01	-0.01	222.48	0.20	--	Bias CO
9/17/2015	9:28:57	0.01	-0.01	222.39	0.17	--	
9/17/2015	9:29:57	0.02	-0.02	222.32	0.15	--	
9/17/2015	9:30:57	0.02	-0.01	222.09	0.14	--	
9/17/2015	9:31:57	0.17	11.39	89.81	19.48	--	
9/17/2015	9:32:57	0.17	11.80	7.93	25.01	--	
9/17/2015	9:33:57	0.17	11.82	10.87	25.01	--	
9/17/2015	9:34:57	0.17	11.83	10.39	25.01	--	NOx off range
9/17/2015	9:35:57	0.19	11.84	14.18	25.01	--	
9/17/2015	9:36:57	0.01	11.84	37.33	25.01	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	9:37:57	0.01	11.84	45.02	25.01	--	
9/17/2015	9:38:57	0.01	11.84	44.96	25.01	--	
9/17/2015	9:39:57	0.41	11.85	44.53	25.01	--	
9/17/2015	9:40:57	1.28	11.86	25.49	25.01	--	
9/17/2015	9:41:57	1.31	11.86	18.21	25.01	--	
9/17/2015	9:42:57	1.32	11.86	16.75	25.01	--	
9/17/2015	9:43:57	1.32	11.85	14.41	25.01	--	
9/17/2015	9:44:57	1.32	11.87	13.13	25.01	--	
9/17/2015	9:45:57	1.32	11.87	14.23	25.01	--	
9/17/2015	9:46:57	1.19	11.89	14.03	24.45	--	
9/17/2015	9:47:57	1.13	11.89	12.99	1.13	--	
9/17/2015	9:48:57	1.40	11.83	10.43	0.57	--	
9/17/2015	9:49:57	2.08	11.69	6.80	0.36	--	
9/17/2015	9:50:57	1.90	11.60	6.88	-0.04	--	Pre
9/17/2015	9:51:57	2.13	11.53	7.82	-0.05	--	Zero
9/17/2015	9:52:57	1.09	11.45	11.12	14.03	--	
9/17/2015	9:53:57	0.00	11.40	43.47	44.40	--	
9/17/2015	9:54:57	0.00	11.35	44.93	46.04	--	
9/17/2015	9:55:57	0.00	11.28	44.81	45.28	--	High NOx / Low CO
9/17/2015	9:56:57	0.00	11.22	44.80	42.31	--	
9/17/2015	9:57:57	0.00	11.18	44.68	21.13	--	
9/17/2015	9:58:57	0.00	11.12	44.65	23.35	--	
9/17/2015	9:59:57	0.57	11.07	44.25	23.35	--	Mid NOx
Reconfigured Emissions Logger to Read New NOx Range (0-50 ppm).						--	
9/17/2015	10:09:58	0.01	0.01	-0.20	27.57	--	
9/17/2015	10:10:58	0.02	0.39	-0.18	27.52	--	
9/17/2015	10:11:58	0.01	0.20	0.82	36.14	--	
9/17/2015	10:12:58	0.01	0.00	0.02	3.65	--	
9/17/2015	10:13:58	0.16	-0.01	-0.23	2.33	--	
9/17/2015	10:14:58	0.01	-0.01	-0.18	1.87	--	
9/17/2015	10:15:58	0.13	9.78	3.31	-0.09	--	
9/17/2015	10:16:58	0.11	8.80	12.99	28.31	--	
9/17/2015	10:17:58	0.01	0.03	5.76	25.81	--	
9/17/2015	10:18:58	0.01	0.01	-0.04	4.82	--	
9/17/2015	10:19:58	0.01	0.00	-0.20	3.81	--	
9/17/2015	10:20:58	0.01	0.00	-0.20	3.13	--	
9/17/2015	10:21:58	0.01	-0.01	-0.20	2.61	--	
9/17/2015	10:22:58	0.01	-0.01	-0.20	2.18	--	
9/17/2015	10:23:58	2.74	0.01	-0.20	1.16	--	
9/17/2015	10:24:58	6.85	0.03	-0.01	0.91	--	
9/17/2015	10:25:58	0.02	-0.01	-0.07	1.39	--	
9/17/2015	10:26:58	5.34	0.02	-0.17	0.55	--	
9/17/2015	10:27:58	3.05	0.01	0.00	1.07	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	10:28:58	0.29	-0.01	-0.15	0.86	--	
9/17/2015	10:29:58	2.28	0.00	0.20	0.23	--	
9/17/2015	10:30:58	6.39	0.01	0.72	-0.04	--	NOx internal cal
9/17/2015	10:31:58	6.96	0.03	0.81	-0.03	--	0-50 ppm range
9/17/2015	10:32:58	6.97	0.06	0.99	0.00	--	Zero
9/17/2015	10:33:58	6.94	0.08	1.00	0.00	--	
9/17/2015	10:34:58	6.88	0.11	0.98	17.04	--	
9/17/2015	10:35:58	7.31	0.12	0.83	43.12	--	
9/17/2015	10:36:58	6.71	0.14	0.80	45.14	--	
9/17/2015	10:37:58	6.57	0.16	0.71	45.05	--	High
9/17/2015	10:38:58	7.96	0.17	0.70	36.99	--	
9/17/2015	10:39:58	10.49	0.19	0.99	23.15	--	
9/17/2015	10:40:58	7.96	0.20	1.30	23.42	--	Mid
9/17/2015	10:41:58	8.92	0.13	0.94	21.56	--	
9/17/2015	10:42:58	5.79	0.03	0.30	2.71	--	System Calibration
9/17/2015	10:43:58	0.04	-0.01	-0.09	0.58	--	
9/17/2015	10:44:58	0.03	-0.02	-0.20	0.42	--	Bias Zero
9/17/2015	10:45:58	0.35	0.08	-0.20	0.37	--	
9/17/2015	10:46:58	4.47	8.79	-0.07	0.41	--	
9/17/2015	10:47:58	4.48	8.91	-0.23	0.55	--	Bias O2/CO2
9/17/2015	10:48:58	4.08	7.12	-0.30	0.54	--	
9/17/2015	10:49:58	0.03	0.03	-0.16	17.80	--	
9/17/2015	10:50:58	0.02	0.01	-0.13	23.02	--	
9/17/2015	10:51:58	0.02	0.00	-0.20	23.01	--	Bias NOx
9/17/2015	10:52:58	0.10	-0.01	7.24	23.04	--	
9/17/2015	10:53:58	0.02	-0.01	189.10	5.45	--	
9/17/2015	10:54:58	0.02	-0.01	221.60	0.29	--	
9/17/2015	10:55:58	0.02	-0.01	222.66	0.25	--	Bias CO Mid
9/17/2015	10:56:58	3.05	0.01	215.30	0.25	--	
9/17/2015	10:57:58	10.49	0.13	33.98	2.84	--	
9/17/2015	10:58:58	7.51	0.08	7.32	5.13	--	
9/17/2015	10:59:58	0.03	-0.01	43.25	1.07	--	
9/17/2015	11:00:58	0.02	-0.02	44.80	0.20	--	Bias CO Low
9/17/2015	11:01:58	0.10	6.22	42.84	14.28	--	
9/17/2015	11:02:58	0.16	11.81	23.13	50.01	--	
9/17/2015	11:03:58	0.16	11.81	18.36	50.01	--	
9/17/2015	11:04:58	0.16	11.82	12.92	50.01	--	
9/17/2015	11:05:58	0.16	11.83	11.91	50.01	--	NOx off Range
9/17/2015	11:06:58	0.16	11.84	11.68	50.01	--	
9/17/2015	11:07:58	0.15	11.84	12.40	50.01	--	
9/17/2015	11:08:58	0.15	11.84	17.81	50.01	--	
9/17/2015	11:09:58	0.16	11.84	19.76	50.01	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	11:10:58	4.83	7.08	12.56	50.01	--	
9/17/2015	11:11:58	10.49	0.10	4.75	26.02	--	Unit being adjusted
9/17/2015	11:12:58	10.49	0.07	0.19	9.61	--	
9/17/2015	11:13:58	10.49	0.07	0.10	8.90	--	Probe out of stack
9/17/2015	11:14:58	10.49	0.07	0.12	7.90	--	
9/17/2015	11:15:58	10.49	0.06	0.38	5.65	--	
9/17/2015	11:16:58	10.49	0.06	0.19	4.82	--	
9/17/2015	11:17:58	10.49	0.05	0.08	3.69	--	
9/17/2015	11:18:58	10.49	0.05	0.00	2.96	--	
9/17/2015	11:19:58	10.49	0.05	0.00	2.76	--	
9/17/2015	11:20:58	10.49	0.08	0.06	3.42	--	
9/17/2015	11:21:58	10.49	0.06	0.10	3.78	--	
9/17/2015	11:22:58	10.49	0.05	0.03	2.61	--	
9/17/2015	11:23:58	10.49	0.04	0.00	2.72	--	
9/17/2015	12:24:58	10.49	0.04	0.04	0.76	--	
9/17/2015	12:25:58	5.42	0.00	0.09	0.52	--	
9/17/2015	12:26:58	0.02	-0.02	-0.07	0.00	--	
9/17/2015	12:27:58	1.12	1.87	-0.05	0.00	--	
9/17/2015	12:28:58	9.97	17.96	0.55	0.00	--	
9/17/2015	12:29:58	9.45	17.82	0.83	0.32	--	
9/17/2015	12:30:58	9.49	17.49	0.45	15.46	--	
9/17/2015	12:31:58	6.65	17.25	1.09	42.34	--	
9/17/2015	12:32:58	5.37	17.03	0.89	43.97	--	
9/17/2015	12:33:58	4.42	16.86	12.88	44.53	--	
9/17/2015	12:34:58	0.01	16.69	370.24	17.39	--	
9/17/2015	12:35:58	0.01	16.54	439.64	4.71	--	
9/17/2015	12:36:58	0.01	16.37	440.29	3.32	--	
9/17/2015	12:37:58	6.82	8.49	332.31	2.82	--	
9/17/2015	12:38:58	10.49	0.09	13.31	1.01	--	
9/17/2015	12:39:58	10.49	0.09	0.51	0.97	--	
9/17/2015	12:40:58	2.30	9.54	51.20	29.07	--	
9/17/2015	12:41:58	5.89	5.89	90.44	49.33	--	
9/17/2015	12:42:58	10.49	0.11	5.84	2.77	--	
9/17/2015	12:43:58	10.49	0.09	0.53	0.62	--	
9/17/2015	12:44:58	10.49	0.11	0.62	0.69	--	
9/17/2015	12:45:58	10.49	0.12	1.00	0.85	--	
9/17/2015	12:46:58	10.49	0.08	0.89	0.97	--	
9/17/2015	12:47:58	10.49	0.08	0.60	0.45	--	
9/17/2015	12:48:58	10.49	0.08	0.53	0.46	--	
9/17/2015	12:49:58	10.49	0.10	0.55	0.64	--	
9/17/2015	12:50:58	10.49	0.08	0.79	0.67	--	
9/17/2015	12:51:58	10.49	0.08	0.66	0.55	--	
9/17/2015	12:52:58	10.49	0.07	0.56	0.71	--	

Almega ENVIRONMENTAL

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	12:53:58	10.49	0.07	0.57	0.42	--	
9/17/2015	12:54:58	10.49	0.07	0.54	0.29	--	
9/17/2015	12:55:58	10.49	0.08	0.53	0.41	--	
9/17/2015	12:56:58	10.49	0.08	0.49	0.30	--	
9/17/2015	12:57:58	10.49	0.08	0.66	0.58	--	
9/17/2015	12:58:58	10.49	0.07	0.60	0.46	--	
9/17/2015	12:59:58	10.49	0.09	0.54	0.29	--	
9/17/2015	13:00:58	10.49	0.07	0.55	0.66	--	
9/17/2015	13:01:58	10.49	0.07	0.50	0.45	--	
9/17/2015	13:02:58	10.49	0.06	0.43	0.40	--	
9/17/2015	13:03:58	10.49	0.06	0.46	0.22	--	
9/17/2015	13:04:58	10.49	0.10	0.69	0.59	--	
9/17/2015	13:05:58	10.49	0.08	0.76	0.31	--	
9/17/2015	13:06:58	10.49	0.05	0.48	0.19	--	
9/17/2015	13:07:58	10.49	0.07	0.33	0.15	--	
9/17/2015	13:08:58	10.49	0.07	0.54	0.29	--	
9/17/2015	13:09:58	10.49	0.06	0.50	0.28	--	
9/17/2015	13:10:58	10.49	0.07	0.51	0.30	--	
9/17/2015	13:11:58	10.49	0.07	0.52	0.87	--	
9/17/2015	13:12:58	10.49	0.06	0.56	0.27	--	
9/17/2015	13:13:58	10.49	0.07	0.49	0.16	--	
9/17/2015	13:14:58	10.49	0.08	0.54	0.33	--	
9/17/2015	13:15:58	10.49	0.09	0.75	0.33	--	
9/17/2015	13:16:58	10.49	0.08	0.67	0.23	--	
9/17/2015	13:17:58	10.49	0.09	0.71	0.21	--	
9/17/2015	13:18:58	10.49	0.09	0.80	0.32	--	
9/17/2015	13:19:58	10.49	0.08	0.82	0.25	--	
9/17/2015	13:20:58	10.49	0.07	0.69	0.19	--	
9/17/2015	13:21:58	10.49	0.09	0.61	0.14	--	
9/17/2015	13:22:58	10.49	0.07	0.78	0.44	--	
9/17/2015	13:23:58	10.49	0.09	0.78	0.23	--	
9/17/2015	13:24:58	10.49	0.06	0.71	0.14	--	
9/17/2015	13:25:58	10.49	0.07	0.53	0.10	--	
9/17/2015	13:26:58	10.49	0.08	0.53	0.21	--	
9/17/2015	13:27:58	10.49	0.06	0.66	0.17	--	
9/17/2015	13:28:58	10.49	0.08	0.57	0.25	--	
9/17/2015	13:29:58	10.49	0.07	0.65	0.18	--	
9/17/2015	13:30:58	1.12	0.01	1.15	0.13	--	System Calibration
9/17/2015	13:31:58	0.03	0.00	0.12	0.05	--	
9/17/2015	13:32:58	0.03	0.00	-0.02	0.05	--	Bias Zero
9/17/2015	13:33:58	0.03	0.01	-0.03	0.05	--	
9/17/2015	13:34:58	0.03	0.00	-0.01	0.05	--	
9/17/2015	13:35:58	7.43	13.27	0.04	0.07	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	13:36:58	8.66	17.90	-0.27	0.05	--	
9/17/2015	13:37:58	6.09	12.44	-0.50	0.05	--	
9/17/2015	13:38:58	4.49	8.94	-0.34	0.05	--	
9/17/2015	13:39:58	4.49	8.94	-0.20	0.05	--	Bias O2/CO2
9/17/2015	13:40:58	1.28	2.62	-0.16	5.10	--	
9/17/2015	13:41:58	0.02	0.04	-0.02	22.54	--	
9/17/2015	13:42:58	0.02	0.03	-0.08	22.86	--	
9/17/2015	13:43:58	0.05	0.02	-0.09	22.96	--	Bias NOx
9/17/2015	13:44:58	0.02	0.02	30.85	10.36	--	
9/17/2015	13:45:58	0.54	0.02	44.59	0.07	--	
9/17/2015	13:46:58	10.49	0.07	16.54	0.08	--	
9/17/2015	13:47:58	2.58	0.02	93.26	0.08	--	
9/17/2015	13:48:58	0.03	0.01	221.28	0.05	--	
9/17/2015	13:49:58	0.03	0.01	224.33	0.05	--	Bias CO
9/17/2015	13:50:58	0.02	0.01	224.39	0.05	--	
9/17/2015	13:51:58	10.12	0.10	97.64	0.17	--	
9/17/2015	13:52:58	7.73	3.37	11.62	0.61	--	
9/17/2015	13:53:58	0.05	11.87	159.27	8.62	--	
9/17/2015	13:54:58	0.05	11.47	175.34	9.60	--	
9/17/2015	13:55:58	0.02	0.09	66.90	5.09	--	
9/17/2015	13:56:58	0.02	0.02	0.74	2.40	--	
9/17/2015	13:57:58	0.02	0.02	-0.02	2.40	--	Bias Low NOx
9/17/2015	13:58:58	0.02	0.68	0.20	2.40	--	
9/17/2015	13:59:58	0.03	11.84	121.07	6.00	--	
9/17/2015	14:00:58	0.03	11.90	167.61	8.37	--	
9/17/2015	14:01:58	0.02	11.91	166.15	7.93	--	
9/17/2015	14:02:58	0.03	11.91	162.30	8.12	--	
9/17/2015	14:03:58	0.02	11.92	159.52	8.23	--	
9/17/2015	14:04:58	0.02	11.92	169.15	8.26	--	
9/17/2015	14:05:58	0.02	11.93	165.77	8.11	--	
9/17/2015	14:06:58	0.02	11.94	166.49	3.08	--	
9/17/2015	14:07:58	0.02	11.94	162.58	2.50	--	Local Low NOX
9/17/2015	14:08:58	0.02	11.95	160.07	2.50	--	
9/17/2015	14:09:58	0.02	11.95	156.24	2.50	--	
9/17/2015	14:10:58	0.02	11.95	152.66	2.50	--	
9/17/2015	14:11:58	0.02	11.94	155.66	2.50	--	
9/17/2015	14:12:58	0.02	11.94	156.34	2.50	--	
9/17/2015	14:13:58	0.02	11.94	152.92	2.50	--	
9/17/2015	14:14:58	0.02	11.95	154.19	2.49	--	
9/17/2015	14:15:58	0.02	11.94	150.31	2.49	--	
9/17/2015	14:16:58	0.02	11.95	149.23	2.50	--	
9/17/2015	14:17:58	0.02	11.94	149.27	2.50	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	14:18:58	0.02	11.95	143.29	2.50	--	
9/17/2015	14:19:58	0.02	11.95	143.79	2.50	--	
9/17/2015	14:20:58	0.02	11.95	148.11	2.50	--	
9/17/2015	14:21:58	0.02	11.95	152.12	2.48	--	
9/17/2015	14:22:58	0.02	11.95	145.95	2.50	--	
9/17/2015	14:23:58	0.02	11.94	140.98	2.50	--	
9/17/2015	14:24:58	0.02	11.94	140.64	2.48	--	
9/17/2015	14:25:58	0.02	11.95	133.64	2.50	--	
9/17/2015	14:26:58	0.02	11.96	136.38	2.48	--	
9/17/2015	14:27:58	0.02	11.96	142.66	2.47	--	
9/17/2015	14:28:58	0.02	11.95	141.28	2.49	--	
9/17/2015	14:29:58	0.02	11.95	133.32	2.50	--	
9/17/2015	14:30:58	0.02	11.95	132.42	2.46	--	
9/17/2015	14:31:58	0.02	11.96	134.63	2.50	--	
9/17/2015	14:32:58	0.02	11.95	143.86	2.60	--	
9/17/2015	14:33:58	0.87	11.43	263.31	5.69	--	
9/17/2015	14:34:58	3.63	9.51	519.15	41.73	--	
9/17/2015	14:35:58	4.46	9.16	522.87	50.02	--	
9/17/2015	14:36:58	0.22	11.92	522.86	29.55	--	
9/17/2015	14:37:58	0.03	11.95	519.02	1.50	--	
9/17/2015	14:38:58	0.03	11.95	261.52	0.53	--	**Engine 2**
9/17/2015	14:39:58	0.03	11.94	184.61	0.77	--	**Low Load @ 800 RPM**
9/17/2015	14:40:58	0.03	11.95	179.57	1.21	--	**Test Start/TP-1**
9/17/2015	14:41:58	0.03	11.95	186.47	1.60	--	
9/17/2015	14:42:58	0.03	11.94	179.84	2.04	--	
9/17/2015	14:43:58	0.03	11.94	178.33	2.33	--	
9/17/2015	14:44:58	0.03	11.94	182.20	2.32	--	
9/17/2015	14:45:58	0.03	11.94	183.16	2.39	--	**TP-2**
9/17/2015	14:46:58	0.03	11.94	181.38	2.35	--	
9/17/2015	14:47:58	0.03	11.94	184.32	2.33	--	
9/17/2015	14:48:58	0.03	11.94	181.02	2.35	--	
9/17/2015	14:49:58	0.03	11.95	181.24	2.39	--	
9/17/2015	14:50:58	0.03	11.94	186.81	2.07	--	**TP-3**
9/17/2015	14:51:58	0.03	11.94	180.95	2.04	--	
9/17/2015	14:52:58	0.03	11.93	173.77	2.11	--	
9/17/2015	14:53:58	0.03	11.94	173.51	2.10	--	
9/17/2015	14:54:58	0.03	11.94	177.31	2.05	--	**End**
9/17/2015	14:55:58	0.03	11.94	172.13	2.04	--	
9/17/2015	14:56:58	0.03	11.94	174.39	1.94	--	
9/17/2015	14:57:58	0.03	11.93	173.71	1.94	--	
9/17/2015	14:58:58	0.03	11.94	172.67	1.97	--	
9/17/2015	14:59:58	1.23	11.27	325.45	1.71	--	
9/17/2015	15:00:58	1.57	5.85	501.71	15.93	--	

Almega ENVIRONMENTAL

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	15:01:58	0.03	0.07	165.94	0.42	--	System Calibration
9/17/2015	15:02:58	0.03	0.05	1.58	0.05	--	
9/17/2015	15:03:58	0.03	0.04	0.10	0.05	--	Bias Zero
9/17/2015	15:04:58	0.24	0.35	0.08	0.05	--	
9/17/2015	15:05:58	4.39	8.78	2.34	0.15	--	
9/17/2015	15:06:58	4.44	8.91	0.16	0.05	--	Bias O2/CO2
9/17/2015	15:07:58	4.44	8.92	-0.10	0.00	--	
9/17/2015	15:08:58	0.69	1.49	1.85	21.30	--	
9/17/2015	15:09:58	0.03	0.04	0.53	2.49	--	
9/17/2015	15:10:58	0.03	0.03	0.00	2.48	--	Bias NOx Low
9/17/2015	15:11:58	0.32	0.03	12.82	2.50	--	
9/17/2015	15:12:58	0.03	0.03	198.49	0.63	--	
9/17/2015	15:13:58	0.03	0.02	223.66	0.75	--	
9/17/2015	15:14:58	0.03	0.02	223.91	1.13	--	Bias CO
9/17/2015	15:15:58	0.03	0.02	217.02	1.90	--	
9/17/2015	15:16:58	0.03	0.01	34.23	19.93	--	
9/17/2015	15:17:58	0.03	0.01	0.21	25.46	--	
9/17/2015	15:18:58	0.03	0.01	-0.03	25.73	--	
9/17/2015	15:19:58	0.03	0.01	-0.03	25.91	--	
9/17/2015	15:20:58	0.03	0.01	-0.10	25.97	--	
9/17/2015	15:21:58	0.03	0.01	-0.05	25.94	--	
9/17/2015	15:22:58	0.03	0.01	-0.10	24.88	--	
9/17/2015	15:23:58	0.03	0.01	-0.10	24.52	--	
9/17/2015	15:24:58	0.03	0.01	-0.10	24.00	--	
9/17/2015	15:25:58	0.03	0.00	-0.10	23.32	--	
9/17/2015	15:26:58	0.03	0.00	-0.10	23.32	--	Bias NOx Mid
9/17/2015	15:27:58	0.02	2.63	1.20	22.93	--	
9/17/2015	15:28:58	-0.01	11.87	52.71	10.45	--	
9/17/2015	15:29:58	-0.01	11.91	67.10	6.99	--	
9/17/2015	15:30:58	-0.01	11.91	127.23	7.14	--	
9/17/2015	15:31:58	-0.01	11.92	161.94	12.25	--	
9/17/2015	15:32:58	-0.01	11.92	218.12	12.56	--	
9/17/2015	15:33:58	-0.01	11.92	174.61	17.32	--	
9/17/2015	15:34:58	-0.01	11.93	143.41	16.87	--	
9/17/2015	15:35:58	-0.01	11.93	190.48	10.19	--	
9/17/2015	15:36:58	-0.01	11.92	244.08	10.51	--	
9/17/2015	15:37:58	-0.01	11.92	319.81	8.32	--	
9/17/2015	15:38:58	-0.01	11.92	327.54	8.67	--	
9/17/2015	15:39:58	-0.01	11.92	407.63	7.54	--	
9/17/2015	15:40:58	-0.01	11.92	408.72	7.36	--	
9/17/2015	15:41:58	-0.01	11.92	396.07	7.60	--	
9/17/2015	15:42:58	-0.01	11.93	289.51	9.33	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	15:43:58	-0.01	11.90	342.43	8.82	--	
9/17/2015	15:44:58	-0.01	11.89	520.43	6.20	--	
9/17/2015	15:45:58	-0.01	11.93	328.72	8.12	--	
9/17/2015	15:46:58	0.00	11.95	172.95	9.02	--	
9/17/2015	15:47:58	-0.01	11.94	226.43	5.07	--	
9/17/2015	15:48:58	0.00	11.93	327.72	5.02	--	
9/17/2015	15:49:58	0.00	11.93	304.20	5.41	--	
9/17/2015	15:50:58	-0.01	11.94	267.21	7.81	--	
9/17/2015	15:51:58	-0.01	11.94	228.45	5.89	--	
9/17/2015	15:52:58	0.00	11.94	226.01	6.11	--	
9/17/2015	15:53:58	0.00	11.94	205.54	6.81	--	
9/17/2015	15:54:58	0.00	11.94	207.38	5.71	--	
9/17/2015	15:55:58	0.00	11.93	264.89	3.97	--	
9/17/2015	15:56:58	0.00	11.93	243.47	4.77	--	
9/17/2015	15:57:58	0.00	11.94	171.51	8.11	--	
9/17/2015	15:58:58	0.00	11.94	168.94	4.55	--	
9/17/2015	15:59:58	-0.01	11.95	181.46	3.46	--	
9/17/2015	16:00:58	-0.01	11.93	178.06	3.67	--	
9/17/2015	16:01:58	-0.01	11.93	195.98	4.16	--	Engine 3
9/17/2015	16:02:58	-0.01	11.94	161.22	5.13	--	High Load @ 981 RPM
9/17/2015	16:03:58	-0.01	11.94	173.58	3.90	--	Test Start/TP-1
9/17/2015	16:04:58	-0.01	11.95	203.61	2.94	--	
9/17/2015	16:05:58	-0.01	11.95	162.34	3.96	--	
9/17/2015	16:06:58	-0.01	11.94	167.36	3.15	--	
9/17/2015	16:07:58	0.00	11.95	175.34	4.08	--	
9/17/2015	16:08:58	-0.01	11.94	173.58	3.16	--	TP-2
9/17/2015	16:09:58	-0.01	11.94	206.77	2.43	--	
9/17/2015	16:10:58	-0.01	11.95	176.04	3.03	--	
9/17/2015	16:11:58	-0.01	11.95	163.70	3.77	--	
9/17/2015	16:12:58	-0.01	11.95	176.67	2.60	--	
9/17/2015	16:13:58	-0.01	11.94	214.68	2.10	--	TP-3
9/17/2015	16:14:58	-0.01	11.94	205.97	2.67	--	
9/17/2015	16:15:58	-0.01	11.94	182.62	3.77	--	
9/17/2015	16:16:58	-0.01	11.93	209.47	2.60	--	
9/17/2015	16:17:58	-0.01	11.94	198.94	3.32	--	Test End
9/17/2015	16:18:58	-0.01	11.95	164.13	3.87	--	
9/17/2015	16:19:58	-0.01	11.94	189.46	2.06	--	
9/17/2015	16:20:58	-0.01	11.94	179.79	2.46	--	
9/17/2015	16:21:58	-0.01	11.95	169.90	2.53	--	
9/17/2015	16:22:58	-0.01	11.94	193.02	2.83	--	
9/17/2015	16:23:58	0.00	11.94	217.22	1.59	--	
9/17/2015	16:24:58	-0.01	11.94	203.86	2.11	--	
9/17/2015	16:25:58	0.01	11.04	488.25	1.37	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	16:26:58	0.04	0.10	207.71	0.44	--	
9/17/2015	16:27:58	0.03	0.06	2.37	0.10	--	System Calibration
9/17/2015	16:28:58	0.04	0.04	0.10	0.10	--	
9/17/2015	16:29:58	0.04	0.03	0.00	0.10	--	Bias Zero
9/17/2015	16:30:58	3.88	7.65	3.15	0.12	--	
9/17/2015	16:31:58	4.43	8.91	0.72	0.10	--	Bias O2/CO2
9/17/2015	16:32:58	3.15	6.83	18.03	0.38	--	
9/17/2015	16:33:58	0.04	0.06	22.68	15.77	--	
9/17/2015	16:34:58	0.03	0.03	0.22	21.62	--	
9/17/2015	16:35:58	0.03	0.10	0.34	23.31	--	
9/17/2015	16:36:58	0.04	0.02	0.84	23.33	--	
9/17/2015	16:37:58	0.04	0.05	5.21	23.33	--	Bias NOx Mid
9/17/2015	16:38:58	0.03	0.02	185.64	6.87	--	
9/17/2015	16:39:58	0.04	0.02	223.53	0.15	--	
9/17/2015	16:40:58	0.04	0.02	223.74	0.15	--	Bias CO
9/17/2015	16:41:58	0.04	0.04	188.53	0.40	--	
9/17/2015	16:42:58	0.04	0.01	12.32	2.60	--	
9/17/2015	16:43:58	0.04	0.01	0.06	2.84	--	Bias NOx Low
9/17/2015	16:44:58	0.04	0.35	0.04	3.02	--	
9/17/2015	16:45:58	0.00	11.79	122.86	2.57	--	
9/17/2015	16:46:58	0.00	11.88	173.03	2.23	--	
9/17/2015	16:47:58	0.00	11.89	168.23	2.05	--	
9/17/2015	16:48:58	0.00	11.90	167.16	1.72	--	Engine 3
9/17/2015	16:49:58	0.00	11.90	178.83	1.55	--	Normal Load @ 890 RPM
9/17/2015	16:50:58	0.00	11.90	170.30	1.50	--	Test Start/TP-1
9/17/2015	16:51:58	0.00	11.91	159.52	1.78	--	
9/17/2015	16:52:58	0.00	11.92	164.70	1.66	--	
9/17/2015	16:53:58	0.00	11.92	169.69	1.69	--	
9/17/2015	16:54:58	0.00	11.92	178.84	1.69	--	
9/17/2015	16:55:58	0.00	11.93	157.37	2.33	--	
9/17/2015	16:56:58	0.00	11.93	168.30	1.53	--	
9/17/2015	16:57:58	0.00	11.92	169.59	1.70	--	
9/17/2015	16:58:58	0.00	11.92	164.56	1.64	--	
9/17/2015	16:59:58	0.00	11.92	163.26	1.34	--	
9/17/2015	17:00:58	0.00	11.92	170.92	1.38	--	TP-2
9/17/2015	17:01:58	0.00	11.93	156.95	2.60	--	
9/17/2015	17:02:58	0.00	11.93	167.47	1.55	--	
9/17/2015	17:03:58	0.00	11.93	156.60	2.40	--	
9/17/2015	17:04:58	0.00	11.92	165.87	1.61	--	
9/17/2015	17:05:58	0.00	11.93	156.02	1.53	--	
9/17/2015	17:06:58	0.00	11.93	161.33	1.23	--	
9/17/2015	17:07:58	0.00	11.92	157.77	1.18	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	17:08:58	0.00	11.93	162.69	1.26	--	
9/17/2015	17:09:58	0.00	11.94	157.33	1.55	--	
9/17/2015	17:10:58	0.00	11.93	162.50	1.98	--	TP-3
9/17/2015	17:11:58	0.00	11.93	160.87	2.77	--	
9/17/2015	17:12:58	0.00	11.93	150.89	0.95	--	
9/17/2015	17:13:58	0.00	11.93	153.61	0.95	--	
9/17/2015	17:14:58	0.00	11.94	154.42	2.48	--	
9/17/2015	17:15:58	0.00	11.93	159.56	1.02	--	
9/17/2015	17:16:58	0.00	11.92	159.37	0.84	--	
9/17/2015	17:17:58	0.00	11.93	155.77	1.61	--	
9/17/2015	17:18:58	0.00	11.93	154.92	1.33	--	
9/17/2015	17:19:58	0.00	11.93	156.92	1.06	--	Test End
9/17/2015	17:20:58	0.00	11.93	163.89	1.09	--	
9/17/2015	17:21:58	0.00	11.93	158.46	1.02	--	
9/17/2015	17:22:58	0.00	11.93	157.38	1.38	--	
9/17/2015	17:23:58	0.00	11.94	160.30	1.38	--	
9/17/2015	17:24:58	0.00	11.91	207.18	1.14	--	
9/17/2015	17:25:58	0.00	11.93	353.01	1.12	--	
9/17/2015	17:26:58	0.00	11.92	283.28	2.50	--	
9/17/2015	17:27:58	0.01	11.92	196.01	1.56	--	
9/17/2015	17:28:58	0.01	11.93	170.23	1.96	--	
9/17/2015	17:29:58	0.01	11.93	178.81	2.09	--	
9/17/2015	17:30:58	0.01	11.93	232.86	2.07	--	
9/17/2015	17:31:58	0.01	11.94	223.86	2.25	--	
9/17/2015	17:32:58	0.01	11.94	214.93	2.95	--	
9/17/2015	17:33:58	0.02	11.93	214.69	2.54	--	
9/17/2015	17:34:58	0.01	11.93	194.66	2.72	--	Engine 3
9/17/2015	17:35:58	0.02	11.93	191.23	2.60	--	Low Load @ 800 RPM
9/17/2015	17:36:58	0.01	11.93	187.20	2.52	--	Test Start/TP-1
9/17/2015	17:37:58	0.01	11.93	191.50	2.66	--	
9/17/2015	17:38:58	0.01	11.93	181.30	2.57	--	
9/17/2015	17:39:58	0.02	11.94	174.16	2.79	--	
9/17/2015	17:40:58	0.02	11.94	184.36	2.65	--	
9/17/2015	17:41:58	0.02	11.94	172.97	2.96	--	TP-2
9/17/2015	17:42:58	0.02	11.94	190.62	2.64	--	
9/17/2015	17:43:58	0.02	11.94	186.28	2.55	--	
9/17/2015	17:44:58	0.02	11.93	180.44	2.46	--	
9/17/2015	17:45:58	0.02	11.93	175.69	2.46	--	
9/17/2015	17:46:58	0.02	11.93	180.04	2.57	--	TP-3
9/17/2015	17:47:58	0.02	11.93	169.00	2.52	--	
9/17/2015	17:48:58	0.02	11.94	164.12	2.67	--	
9/17/2015	17:49:58	0.02	11.93	185.10	2.57	--	
9/17/2015	17:50:58	0.02	11.94	180.15	2.59	--	Test End

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	17:51:58	0.02	11.93	173.29	2.43	--	
9/17/2015	17:52:58	0.02	11.92	177.33	2.55	--	
9/17/2015	17:53:58	0.02	11.93	183.20	2.45	--	
9/17/2015	17:54:58	0.04	9.49	171.00	2.46	--	
9/17/2015	17:55:58	0.04	0.09	29.92	0.66	--	System Calibration
9/17/2015	17:56:58	0.05	0.05	0.36	0.07	--	
9/17/2015	17:57:58	0.05	0.05	0.02	0.05	--	Bias Zero
9/17/2015	17:58:58	1.52	2.02	0.00	0.05	--	
9/17/2015	17:59:58	4.53	8.88	0.06	0.53	--	
9/17/2015	18:00:58	4.52	8.90	-0.08	0.82	--	Bias O2/CO2
9/17/2015	18:01:58	4.28	7.77	-0.10	0.70	--	
9/17/2015	18:02:58	0.05	0.07	-0.06	2.37	--	
9/17/2015	18:03:58	0.04	0.04	0.00	2.83	--	Bias NOx Low
9/17/2015	18:04:58	1.90	0.04	31.58	2.54	--	
9/17/2015	18:05:58	0.04	0.03	212.79	0.64	--	
9/17/2015	18:06:58	0.04	0.02	226.92	0.71	--	
9/17/2015	18:07:58	0.04	0.02	227.02	0.96	--	Bias CO
9/17/2015	18:08:58	0.34	0.02	212.76	1.24	--	
9/17/2015	18:09:58	0.04	0.01	25.53	19.58	--	
9/17/2015	18:10:58	0.04	0.01	0.16	24.42	--	
9/17/2015	18:11:58	0.04	0.01	-0.05	23.83	--	Bias NOx Mid
9/17/2015	18:12:58	0.04	0.01	0.00	23.94	--	
9/17/2015	18:13:58	2.57	0.02	-0.05	23.96	--	
9/17/2015	18:14:58	10.49	0.07	0.28	6.99	--	
9/17/2015	18:15:58	10.49	0.07	0.75	1.63	--	
9/17/2015	18:16:58	10.49	0.07	0.65	1.63	--	
9/17/2015	18:17:58	10.49	0.07	0.42	1.77	--	
9/17/2015	18:18:58	10.49	0.07	0.61	1.63	--	Post Internal Calibration
9/17/2015	18:19:58	1.99	0.01	1.07	0.87	--	
9/17/2015	18:20:58	0.04	0.00	0.09	0.14	--	
9/17/2015	18:21:58	0.03	0.00	0.00	0.09	--	Zero
9/17/2015	18:22:58	0.15	12.15	131.60	7.51	--	
9/17/2015	18:23:58	0.03	17.91	442.70	41.60	--	
9/17/2015	18:24:58	0.03	17.93	453.78	44.36	--	
9/17/2015	18:25:58	0.03	17.93	454.24	45.02	--	
9/17/2015	18:26:58	0.03	17.94	454.32	44.88	--	
9/17/2015	18:27:58	0.03	17.94	454.20	45.33	--	High
9/17/2015	18:28:58	1.01	17.86	436.26	45.38	--	
9/17/2015	18:29:58	5.20	17.63	259.22	9.87	--	
9/17/2015	18:30:58	8.75	17.49	199.76	0.30	--	
9/17/2015	18:31:58	10.48	17.35	162.10	0.16	--	
9/17/2015	18:32:58	10.49	17.24	125.94	0.11	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II, Engine No.2 & 3
Date	9/17/2015
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx ppm	NO	
9/17/2015	18:33:58	8.20	14.86	101.76	0.09	--	
9/17/2015	18:34:58	0.03	8.95	208.82	17.06	--	
9/17/2015	18:35:58	0.03	8.96	229.67	22.58	--	
9/17/2015	18:36:58	0.03	8.94	229.84	22.93	--	
9/17/2015	18:37:58	0.03	8.95	229.99	23.28	--	Mid
9/17/2015	18:38:58	0.03	8.94	229.86	23.35	--	
9/17/2015	18:39:58	0.03	8.94	229.30	23.43	--	
9/17/2015	18:40:58	4.32	8.90	186.10	20.56	--	
9/17/2015	18:41:58	8.70	8.83	12.57	5.27	--	
9/17/2015	18:42:58	8.70	8.81	-0.01	1.51	--	
9/17/2015	18:43:58	8.69	8.78	-0.17	3.19	--	
9/17/2015	18:44:58	8.68	8.77	-0.17	2.40	--	High O2/Low NOx
9/17/2015	18:45:58	7.09	8.75	-0.18	2.41	--	
9/17/2015	18:46:58	4.48	8.73	-0.05	0.55	--	
9/17/2015	18:47:58	4.47	8.72	0.00	0.05	--	
9/17/2015	18:48:58	4.49	8.71	0.00	0.05	--	Mid O2
9/17/2015	18:49:58	0.33	1.65	0.12	0.02	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	8:59	197.92	0.01	1.19	0.19	0.01	
09/23/15	9:00	132.54	13.12	38.99	0.09	0.00	
09/23/15	9:01	99.38	13.64	286.34	6.56	3.69	
09/23/15	9:02	153.53	5.38	121.40	5.02	4.08	
09/23/15	9:03	0.00	0.02	10.47	0.51	0.00	
09/23/15	9:04	-0.01	0.01	0.25	0.08	0.00	
09/23/15	9:05	-0.01	0.00	-0.09	0.06	0.00	Pre Internal Calibration
09/23/15	9:06	-0.01	-0.01	-0.10	0.04	0.00	
09/23/15	9:07	0.00	0.00	-0.07	0.01	0.00	
09/23/15	9:08	0.00	0.00	-0.08	0.01	0.00	Zero
09/23/15	9:09	0.02	12.77	129.95	3.30	7.16	
09/23/15	9:10	0.00	18.38	432.48	20.99	21.29	
09/23/15	9:11	0.00	18.39	442.61	22.04	22.57	
09/23/15	9:12	0.00	18.41	442.65	22.23	22.72	
09/23/15	9:13	0.00	18.41	443.48	22.67	22.94	
09/23/15	9:14	0.00	18.04	443.67	23.23	23.16	
09/23/15	9:15	0.00	18.03	446.14	23.15	23.08	
09/23/15	9:16	0.00	18.02	453.83	23.14	23.09	
09/23/15	9:17	-0.01	18.03	453.57	23.15	23.14	
09/23/15	9:18	-0.01	18.03	453.60	23.19	23.15	High
09/23/15	9:19	0.02	11.77	396.56	21.42	19.45	
09/23/15	9:20	-0.01	8.98	236.24	12.86	12.08	
09/23/15	9:21	-0.01	8.97	225.46	12.32	12.25	
09/23/15	9:22	-0.01	8.98	225.52	12.32	12.26	Mid
09/23/15	9:23	15.89	8.91	173.37	10.75	11.40	
09/23/15	9:24	8.62	8.83	9.55	12.93	1.73	
09/23/15	9:25	8.65	8.80	-0.25	15.26	0.25	
09/23/15	9:26	8.73	8.77	-0.48	15.49	0.25	
09/23/15	9:27	8.73	8.72	-0.50	15.67	0.25	Local O2 High
09/23/15	9:28	6.17	8.69	-0.44	13.69	0.19	NOx Converter Check
09/23/15	9:29	4.51	8.66	-0.25	1.68	--	
09/23/15	9:30	4.51	8.62	-0.19	1.96	--	Local O2 Mid
09/23/15	9:31	199.41	4.26	0.09	2.27	--	
09/23/15	9:32	232.52	0.08	0.58	0.66	--	
09/23/15	9:33	158.51	0.07	0.79	0.47	--	
09/23/15	9:34	114.75	3.52	106.88	1.55	--	
09/23/15	9:35	0.25	0.06	436.25	1.04	--	
09/23/15	9:36	0.02	0.01	19.90	0.19	--	
09/23/15	9:37	0.02	0.01	0.13	0.17	--	System Calibration
09/23/15	9:38	0.01	0.01	-0.08	0.15	--	Bias Zero
09/23/15	9:39	55.67	1.55	-0.13	0.13	--	
09/23/15	9:40	4.51	8.91	0.44	0.13	--	
09/23/15	9:41	4.51	8.93	-0.23	0.10	--	Bias O2/CO2

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	9:42	36.18	6.01	0.06	0.12	--	
09/23/15	9:43	0.02	0.03	2.06	9.80	--	
09/23/15	9:44	0.01	0.01	-0.04	12.04	--	
09/23/15	9:45	0.01	0.01	-0.20	12.13	--	Bias NOx
09/23/15	9:46	0.14	0.00	22.54	11.79	--	
09/23/15	9:47	0.01	0.00	206.40	1.78	--	
09/23/15	9:48	0.01	0.00	224.71	0.10	--	
09/23/15	9:49	0.01	0.00	224.71	0.08	--	Bias CO
09/23/15	9:50	88.82	0.02	203.67	0.11	--	
09/23/15	9:51	232.52	0.08	19.63	1.73	--	
09/23/15	9:52	295.95	0.06	0.98	3.74	--	
09/23/15	9:53	317.10	0.07	0.61	2.18	--	
09/23/15	9:54	295.95	0.06	0.63	3.10	--	
09/23/15	9:55	317.10	0.07	0.60	1.99	--	
09/23/15	9:56	295.95	0.10	0.67	5.35	--	
09/23/15	9:57	327.67	0.06	0.61	2.22	--	
09/23/15	9:58	98.86	8.09	0.56	11.37	--	
09/23/15	9:59	54.86	10.05	0.02	25.01	--	
09/23/15	10:00	327.67	0.11	-0.04	11.18	--	
09/23/15	10:01	327.67	0.07	0.41	0.99	--	
09/23/15	10:02	327.67	0.14	0.42	1.19	--	
09/23/15	10:03	22.26	11.01	0.37	16.86	--	
09/23/15	10:04	0.01	11.93	-0.23	8.10	--	
09/23/15	10:05	0.01	11.94	0.31	7.54	--	
09/23/15	10:06	0.00	11.96	0.72	14.80	--	
09/23/15	10:07	-0.02	11.98	4.41	0.03	--	
09/23/15	10:08	-0.02	11.97	5.42	0.01	--	
09/23/15	10:09	-0.02	11.98	1.14	4.51	--	
09/23/15	10:10	-0.02	11.98	0.89	22.95	--	
09/23/15	10:11	-0.02	11.98	1.20	9.01	--	
09/23/15	10:12	-0.02	11.98	1.32	6.75	--	
09/23/15	10:13	-0.02	11.98	1.57	5.12	--	
09/23/15	10:14	-0.02	11.98	1.64	6.25	--	
09/23/15	10:15	-0.02	11.97	2.02	5.73	--	
09/23/15	10:16	-0.02	11.97	2.23	5.13	--	
09/23/15	10:17	-0.02	11.97	2.81	5.04	--	
09/23/15	10:18	-0.02	11.98	3.32	3.44	--	
09/23/15	10:19	-0.03	11.97	2.51	3.12	--	
09/23/15	10:20	-0.03	11.97	2.78	3.04	--	
09/23/15	10:21	-0.03	11.97	5.34	3.09	--	
09/23/15	10:22	-0.03	11.97	4.41	2.58	--	
09/23/15	10:23	-0.03	11.97	3.46	2.50	--	
09/23/15	10:24	-0.03	11.97	9.15	3.40	--	Engine #1

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	10:25	-0.03	11.97	60.61	7.84	--	**High Load @ 979 RPM**
09/23/15	10:26	-0.03	11.97	87.21	11.52	--	**Test Start/TP-1**
09/23/15	10:27	-0.03	11.96	135.07	9.04	--	
09/23/15	10:28	-0.03	11.96	139.04	10.25	--	
09/23/15	10:29	-0.03	11.96	166.68	5.87	--	
09/23/15	10:30	-0.03	11.96	189.04	6.33	--	
09/23/15	10:31	-0.03	11.96	163.51	8.41	--	**TP-2**
09/23/15	10:32	-0.03	11.97	152.90	7.37	--	
09/23/15	10:33	-0.03	11.97	168.24	5.81	--	
09/23/15	10:34	-0.03	11.97	145.13	6.36	--	
09/23/15	10:35	-0.03	11.97	153.87	4.64	--	
09/23/15	10:36	-0.03	11.96	195.02	3.16	--	**TP-3**
09/23/15	10:37	-0.03	11.97	175.24	4.61	--	
09/23/15	10:38	-0.03	11.97	151.53	4.37	--	
09/23/15	10:39	-0.03	11.97	170.50	2.59	--	
09/23/15	10:40	-0.03	11.97	175.28	2.71	--	
09/23/15	10:41	-0.03	11.98	166.55	2.97	--	**Test End**
09/23/15	10:42	-0.03	11.97	192.62	1.86	--	
09/23/15	10:43	-0.03	11.96	208.38	1.40	--	
09/23/15	10:44	-0.03	11.88	267.08	1.42	--	
09/23/15	10:45	-0.01	11.57	524.99	1.15	--	
09/23/15	10:46	1.22	11.44	524.99	1.00	--	
09/23/15	10:47	1.97	11.36	524.99	0.20	--	
09/23/15	10:48	2.01	11.29	440.20	0.19	--	
09/23/15	10:49	2.05	11.25	209.37	0.43	--	
09/23/15	10:50	2.03	11.19	167.39	1.10	--	
09/23/15	10:51	2.06	11.13	142.96	1.59	--	
09/23/15	10:52	2.06	11.09	160.00	1.85	--	
09/23/15	10:53	2.06	11.05	172.20	1.91	--	
09/23/15	10:54	1.23	11.53	310.93	2.08	--	
09/23/15	10:55	0.01	11.94	238.24	5.24	--	
09/23/15	10:56	0.01	11.94	186.07	5.68	--	
09/23/15	10:57	0.01	11.94	197.91	6.47	--	
09/23/15	10:58	0.01	11.94	207.55	5.20	--	
09/23/15	10:59	0.01	11.94	199.52	5.05	--	
09/23/15	11:00	0.01	11.94	186.61	5.36	--	**Engine#1**
09/23/15	11:01	0.01	11.94	188.30	5.71	--	**Normal Load @ 885 RPM**
09/23/15	11:02	0.01	11.94	186.39	5.29	--	**Test Start/TP-1**
09/23/15	11:03	0.02	11.94	188.85	5.11	--	
09/23/15	11:04	0.02	11.94	180.92	5.38	--	
09/23/15	11:05	0.01	11.94	185.80	5.37	--	
09/23/15	11:06	0.01	11.94	195.10	5.20	--	
09/23/15	11:07	0.02	11.94	196.19	4.88	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	11:08	0.02	11.95	182.35	5.46	--	
09/23/15	11:09	0.02	11.95	197.62	5.10	--	
09/23/15	11:10	0.02	11.95	181.60	6.00	--	
09/23/15	11:11	0.02	11.94	186.59	5.52	--	
09/23/15	11:12	0.02	11.94	189.46	4.51	--	TP-2
09/23/15	11:13	0.02	11.94	175.19	5.20	--	
09/23/15	11:14	0.02	11.94	182.17	5.30	--	
09/23/15	11:15	0.02	11.94	189.97	4.74	--	
09/23/15	11:16	0.02	11.94	178.55	5.16	--	
09/23/15	11:17	0.02	11.94	189.59	4.96	--	
09/23/15	11:18	0.02	11.94	191.28	4.81	--	
09/23/15	11:19	0.02	11.93	187.48	5.25	--	
09/23/15	11:20	0.02	11.93	188.03	4.96	--	
09/23/15	11:21	0.02	11.94	187.59	5.02	--	
09/23/15	11:22	0.02	11.93	193.89	5.07	--	TP-3
09/23/15	11:23	0.02	11.93	196.16	4.71	--	
09/23/15	11:24	0.02	11.93	186.62	4.98	--	
09/23/15	11:25	0.02	11.93	190.09	4.82	--	
09/23/15	11:26	0.02	11.94	185.38	5.86	--	
09/23/15	11:27	0.02	11.94	190.74	6.36	--	
09/23/15	11:28	0.02	11.93	191.76	5.93	--	
09/23/15	11:29	0.02	11.94	191.84	6.02	--	
09/23/15	11:30	0.02	11.93	196.30	6.42	--	
09/23/15	11:31	0.02	11.94	198.03	5.96	--	Test End
09/23/15	11:32	0.02	11.94	200.27	5.79	--	
09/23/15	11:33	0.02	11.95	190.20	5.91	--	
09/23/15	11:34	0.02	11.94	193.64	5.03	--	
09/23/15	11:35	0.02	11.94	192.60	4.90	--	
09/23/15	11:36	0.02	11.93	204.07	5.05	--	
09/23/15	11:37	0.06	11.89	456.72	4.30	--	
09/23/15	11:38	2.40	10.09	214.26	8.98	--	
09/23/15	11:39	4.50	8.95	8.86	0.53	--	System Calibration
09/23/15	11:40	4.50	8.95	-0.21	0.06	--	
09/23/15	11:41	4.50	8.95	-0.30	0.03	--	Bias O2/CO2
09/23/15	11:42	2.62	5.38	0.32	0.53	--	Zero NOx/CO
09/23/15	11:43	0.01	0.05	1.65	11.12	--	
09/23/15	11:44	0.01	0.04	-0.15	12.26	--	
09/23/15	11:45	0.01	0.03	-0.25	12.28	--	Bias NOx
09/23/15	11:46	0.02	0.16	28.14	11.99	--	Zero O2/CO2
09/23/15	11:47	0.01	0.02	212.08	1.16	--	
09/23/15	11:48	0.01	0.02	228.86	0.03	--	Bias CO
09/23/15	11:49	0.01	0.01	229.05	0.03	--	
09/23/15	11:50	0.04	2.40	228.99	0.09	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	11:51	0.12	11.85	209.88	2.29	--	
09/23/15	11:52	0.12	11.87	183.94	2.50	--	
09/23/15	11:53	0.12	11.88	176.01	2.93	--	
09/23/15	11:54	0.01	0.80	104.80	7.88	--	
09/23/15	11:55	0.01	0.06	2.39	2.42	--	
09/23/15	11:56	0.01	0.03	0.41	2.38	--	
09/23/15	11:57	0.01	0.02	0.03	2.36	--	
09/23/15	11:58	0.01	0.01	-0.15	2.36	--	
09/23/15	11:59	0.01	0.02	-0.20	2.35	--	
09/23/15	12:00	0.12	11.24	112.79	11.02	--	
09/23/15	12:01	0.13	11.84	188.48	17.53	--	
09/23/15	12:02	0.13	11.85	192.47	17.36	--	
09/23/15	12:03	0.13	11.87	189.90	18.15	--	
09/23/15	12:04	0.16	11.88	206.25	17.47	--	
09/23/15	12:05	0.01	11.90	56.10	16.35	--	
09/23/15	12:06	0.01	11.90	23.32	14.91	--	
09/23/15	12:07	0.01	11.90	23.10	14.03	--	
09/23/15	12:08	0.08	9.94	62.03	14.96	--	
09/23/15	12:10	0.02	0.58	61.32	5.64	--	
09/23/15	12:10	0.02	0.56	31.76	0.90	--	
09/23/15	12:11	0.02	0.56	30.61	0.92	--	
09/23/15	12:12	0.02	0.53	30.36	1.02	--	
09/23/15	12:13	0.12	11.11	124.54	10.25	--	
09/23/15	12:14	0.12	11.86	181.93	16.04	--	
09/23/15	12:15	0.12	11.87	188.12	14.37	--	**Engine #1 Low Load**
09/23/15	12:16	0.12	11.88	178.86	14.38	--	**@ 810 RPM**
09/23/15	12:17	0.12	11.88	176.37	14.60	--	**Test Start/TP-1**
09/23/15	12:18	0.12	11.88	195.39	15.19	--	
09/23/15	12:19	0.12	11.88	188.94	15.28	--	
09/23/15	12:20	0.11	11.88	176.14	15.97	--	
09/23/15	12:21	0.12	11.88	180.16	15.93	--	
09/23/15	12:22	0.12	11.88	185.28	15.20	--	**TP-2**
09/23/15	12:23	0.11	11.88	182.59	15.19	--	
09/23/15	12:24	0.12	11.88	181.57	14.79	--	
09/23/15	12:25	0.12	11.88	178.46	15.93	--	
09/23/15	12:26	0.13	11.88	171.98	16.85	--	
09/23/15	12:27	0.13	11.87	175.57	17.30	--	**TP-3**
09/23/15	12:28	0.13	11.88	204.21	15.72	--	
09/23/15	12:29	0.12	11.88	187.27	15.01	--	
09/23/15	12:30	0.12	11.88	157.70	15.88	--	
09/23/15	12:31	0.12	11.87	152.73	16.39	--	**Test End**
09/23/15	12:32	0.12	11.88	185.91	17.57	--	
09/23/15	12:33	0.11	11.88	185.82	16.41	--	

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	12:34	0.12	11.89	187.94	14.82	--	
09/23/15	12:35	0.11	11.88	183.48	14.45	--	
09/23/15	12:36	0.11	11.89	172.04	14.88	--	
09/23/15	12:37	0.11	11.89	176.44	14.93	--	
09/23/15	12:38	0.11	11.89	217.26	15.21	--	
09/23/15	12:39	0.11	11.89	206.59	14.78	--	
09/23/15	12:40	0.11	11.89	208.51	14.15	--	Moved to Engine #4
09/23/15	12:41	0.10	11.89	206.52	13.01	--	
09/23/15	12:42	0.12	11.88	228.62	11.43	--	
09/23/15	12:43	0.23	11.74	514.95	7.98	--	
09/23/15	12:44	3.95	9.49	525.00	5.20	--	
09/23/15	12:45	6.27	8.00	524.99	18.58	--	
09/23/15	12:46	194.83	5.14	525.00	25.01	--	
09/23/15	12:47	189.95	5.35	524.99	25.01	--	
09/23/15	12:48	195.16	5.51	515.86	25.01	--	
09/23/15	12:49	226.99	1.83	257.31	25.01	--	
09/23/15	12:50	248.38	0.08	6.90	25.01	--	
09/23/15	12:51	280.09	0.14	1.11	24.55	--	
09/23/15	12:52	301.24	0.24	2.79	12.30	--	
09/23/15	12:53	311.81	0.32	4.52	4.30	--	
09/23/15	12:54	327.67	0.26	6.97	11.02	--	
09/23/15	12:55	327.67	0.12	4.74	25.01	--	
09/23/15	12:56	306.53	0.09	2.42	24.71	--	
09/23/15	12:57	137.00	6.84	1.20	23.07	--	
09/23/15	12:58	0.04	11.91	35.81	25.01	--	
09/23/15	12:59	0.04	11.92	77.52	25.01	--	
09/23/15	13:00	0.02	11.94	87.19	25.01	--	
09/23/15	13:01	-0.01	11.96	126.10	25.01	--	
09/23/15	13:02	-0.01	11.96	155.90	24.60	--	
09/23/15	13:03	-0.02	11.97	177.52	13.54	--	
09/23/15	13:04	-0.02	11.96	92.56	7.14	--	
09/23/15	13:05	-0.02	11.96	27.62	5.34	--	
09/23/15	13:06	-0.02	11.96	31.11	5.59	--	
09/23/15	13:07	-0.02	11.95	62.79	5.93	--	
09/23/15	13:08	-0.02	11.95	103.00	6.28	--	
09/23/15	13:09	-0.02	11.94	166.62	6.34	--	
09/23/15	13:10	-0.02	11.94	215.83	6.53	--	
09/23/15	13:11	-0.01	11.94	248.29	6.46	--	
09/23/15	13:12	-0.01	11.94	267.18	6.34	--	
09/23/15	13:13	-0.02	11.93	276.79	5.84	--	
09/23/15	13:14	-0.01	11.92	423.07	5.85	--	
09/23/15	13:15	-0.02	11.94	339.40	5.62	--	
09/23/15	13:16	-0.02	11.94	195.50	4.89	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	13:17	-0.02	11.94	180.69	4.51	--	
09/23/15	13:18	-0.01	11.93	246.33	4.44	--	
09/23/15	13:19	-0.02	11.93	275.47	4.22	--	
09/23/15	13:20	-0.02	11.94	256.82	3.98	--	
09/23/15	13:21	-0.02	11.93	281.22	3.77	--	
09/23/15	13:22	-0.02	11.92	292.46	3.62	--	
09/23/15	13:23	-0.02	11.93	231.19	3.55	--	
09/23/15	13:24	-0.02	11.93	236.04	3.33	--	
09/23/15	13:25	-0.02	11.91	310.41	3.21	--	
09/23/15	13:26	-0.02	11.91	340.94	3.24	--	
09/23/15	13:27	-0.02	11.88	337.36	3.16	--	
09/23/15	13:28	-0.02	11.82	524.99	3.06	--	
09/23/15	13:29	0.09	11.90	400.03	3.42	--	
09/23/15	13:30	-0.02	11.92	178.32	3.20	--	
09/23/15	13:31	-0.02	11.93	142.19	3.06	--	**Engine #4 High Load**
09/23/15	13:32	-0.02	11.93	150.70	2.85	--	**@ 976 RPM**
09/23/15	13:33	-0.02	11.93	119.48	3.01	--	**Test Start/TP-1**
09/23/15	13:35	-0.02	11.93	112.29	2.95	--	
09/23/15	13:35	-0.02	11.93	138.81	2.70	--	
09/23/15	13:36	-0.03	11.93	141.88	2.80	--	
09/23/15	13:37	-0.03	11.93	111.27	2.83	--	
09/23/15	13:38	-0.02	11.93	121.49	2.65	--	**TP-2**
09/23/15	13:39	-0.03	11.93	135.90	2.60	--	
09/23/15	13:40	-0.03	11.93	138.38	2.61	--	
09/23/15	13:41	-0.02	11.93	135.49	2.55	--	
09/23/15	13:42	-0.03	11.93	139.75	2.67	--	
09/23/15	13:43	-0.03	11.93	134.57	2.65	--	**TP-3**
09/23/15	13:44	-0.02	11.93	129.18	2.65	--	
09/23/15	13:45	-0.02	11.92	130.50	2.47	--	
09/23/15	13:46	-0.02	11.93	135.39	2.52	--	
09/23/15	13:47	-0.02	11.93	139.36	2.50	--	**Test End**
09/23/15	13:48	-0.02	11.94	118.73	2.54	--	
09/23/15	13:49	-0.02	11.93	163.22	2.26	--	
09/23/15	13:50	-0.02	11.93	128.74	2.34	--	
09/23/15	13:51	1.86	10.67	114.12	2.13	--	
09/23/15	13:52	4.49	8.92	12.39	0.57	--	
09/23/15	13:53	4.49	8.92	-0.26	0.31	--	**System Calibration**
09/23/15	13:54	4.50	8.92	-0.40	0.30	--	**Bias O2/CO2**
09/23/15	13:55	2.58	5.31	0.22	1.28	--	**Zero NOx/CO**
09/23/15	13:56	0.02	0.05	1.55	11.76	--	
09/23/15	13:57	0.02	0.03	-0.19	12.38	--	
09/23/15	13:58	0.02	0.03	-0.30	12.42	--	**Bias NOx**
09/23/15	13:59	0.02	0.18	32.02	11.48	--	**Zero O2/CO2**

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	14:00	0.01	0.02	209.50	1.29	--	
09/23/15	14:01	0.01	0.01	223.11	1.22	--	
09/23/15	14:02	0.01	0.01	223.27	1.47	--	Bias CO
09/23/15	14:03	0.02	0.41	199.22	1.80	--	
09/23/15	14:04	0.01	0.22	19.38	3.76	--	
09/23/15	14:05	0.01	0.22	2.62	3.69	--	
09/23/15	14:06	0.02	0.61	2.44	3.64	--	
09/23/15	14:07	-0.02	11.85	92.48	2.67	--	
09/23/15	14:08	-0.02	11.90	131.39	2.15	--	
09/23/15	14:09	-0.02	11.91	131.93	1.97	--	
09/23/15	14:10	-0.02	11.92	129.21	1.96	--	
09/23/15	14:11	-0.02	11.92	125.26	1.70	--	
09/23/15	14:12	-0.02	11.92	132.70	1.54	--	
09/23/15	14:13	-0.02	11.92	125.28	1.49	--	
09/23/15	14:14	-0.02	11.92	135.68	1.47	--	Engine #4 Normal Load
09/23/15	14:15	-0.02	11.93	120.77	1.48	--	@
09/23/15	14:16	-0.02	11.93	120.62	1.54	--	Test Start/TP-1
09/23/15	14:17	-0.02	11.93	126.34	1.40	--	
09/23/15	14:18	-0.02	11.93	128.00	1.30	--	
09/23/15	14:19	-0.02	11.93	130.20	1.31	--	
09/23/15	14:20	-0.02	11.92	130.65	1.24	--	
09/23/15	14:21	-0.02	11.92	134.66	1.27	--	
09/23/15	14:22	-0.02	11.93	127.23	1.20	--	
09/23/15	14:23	-0.02	11.93	132.35	1.22	--	
09/23/15	14:24	-0.02	11.93	137.67	1.23	--	
09/23/15	14:25	-0.02	11.92	136.41	1.14	--	
09/23/15	14:26	-0.02	11.92	124.69	1.14	--	TP-2
09/23/15	14:27	-0.01	11.93	127.82	1.20	--	
09/23/15	14:28	-0.01	11.93	127.22	1.12	--	
09/23/15	14:29	-0.01	11.93	134.27	1.23	--	
09/23/15	14:30	-0.01	11.92	136.04	1.05	--	
09/23/15	14:31	-0.01	11.92	130.92	1.06	--	
09/23/15	14:32	-0.01	11.92	131.14	1.11	--	
09/23/15	14:33	-0.01	11.92	137.98	1.04	--	
09/23/15	14:34	-0.01	11.92	133.47	1.04	--	
09/23/15	14:35	-0.01	11.92	131.92	1.13	--	
09/23/15	14:36	-0.01	11.92	128.64	1.02	--	TP-3
09/23/15	14:37	-0.01	11.92	142.74	1.04	--	
09/23/15	14:38	-0.01	11.92	139.87	1.03	--	
09/23/15	14:39	-0.01	11.91	138.74	0.95	--	
09/23/15	14:40	-0.01	11.92	134.13	1.05	--	
09/23/15	14:41	-0.01	11.91	141.77	1.08	--	
09/23/15	14:42	-0.01	11.92	164.49	1.08	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	14:43	-0.01	11.92	150.68	1.09	--	
09/23/15	14:44	-0.01	11.92	147.29	0.99	--	
09/23/15	14:45	-0.01	11.92	142.90	0.98	--	Test End
09/23/15	14:46	-0.01	11.92	138.87	1.01	--	
09/23/15	14:47	-0.01	11.91	140.75	0.97	--	
09/23/15	14:48	-0.01	11.92	141.77	1.09	--	
09/23/15	14:49	-0.01	11.92	142.21	0.86	--	
09/23/15	14:50	0.00	11.90	339.06	0.84	--	
09/23/15	14:51	0.01	11.90	271.84	1.72	--	
09/23/15	14:52	0.01	11.91	22.74	3.70	--	
09/23/15	14:53	0.02	11.91	88.43	2.10	--	
09/23/15	14:54	0.02	11.90	48.58	1.81	--	
09/23/15	14:55	0.02	11.91	22.45	5.68	--	
09/23/15	14:56	0.02	11.90	41.00	8.15	--	
09/23/15	14:57	0.02	11.90	13.21	15.16	--	
09/23/15	14:58	0.02	11.91	11.86	23.50	--	
09/23/15	15:00	0.02	11.90	10.68	25.01	--	
09/23/15	15:00	0.02	11.89	6.86	25.01	--	
09/23/15	15:01	0.02	11.91	7.78	25.01	--	
09/23/15	15:02	0.02	11.92	8.86	25.01	--	
09/23/15	15:03	0.02	11.91	37.65	25.01	--	
09/23/15	15:04	0.02	11.91	62.86	25.01	--	
09/23/15	15:05	0.02	11.91	84.13	25.01	--	
09/23/15	15:06	0.02	11.91	87.40	25.01	--	
09/23/15	15:07	0.02	11.91	112.57	20.34	--	
09/23/15	15:08	0.02	11.92	146.46	10.17	--	Engine #4 Low Load
09/23/15	15:09	0.02	11.91	165.00	4.81	--	@
09/23/15	15:10	0.02	11.92	188.85	2.73	--	Test Start/TP-1
09/23/15	15:11	0.02	11.91	201.52	1.30	--	
09/23/15	15:12	0.03	11.91	208.83	0.90	--	
09/23/15	15:13	0.02	11.91	219.44	0.63	--	
09/23/15	15:14	0.03	11.91	213.99	0.53	--	
09/23/15	15:15	0.02	11.91	220.35	0.47	--	TP-2
09/23/15	15:16	0.03	11.91	217.52	0.41	--	
09/23/15	15:17	0.02	11.91	240.46	0.39	--	
09/23/15	15:18	0.02	11.91	255.24	0.35	--	
09/23/15	15:19	0.02	11.92	262.56	0.35	--	
09/23/15	15:20	0.03	11.92	279.56	0.33	--	TP-3
09/23/15	15:21	0.02	11.91	247.71	0.33	--	
09/23/15	15:22	0.02	11.91	271.67	0.33	--	
09/23/15	15:23	0.02	11.91	296.59	0.30	--	
09/23/15	15:24	0.02	11.91	277.55	0.30	--	Test End
09/23/15	15:25	0.02	11.91	265.98	0.30	--	

Reference Method CEMS DAS Data

Almega ENVIRONMENTAL

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	15:26	0.02	11.91	264.74	0.30	--	
09/23/15	15:27	0.02	11.91	244.15	0.30	--	
09/23/15	15:28	0.02	11.91	236.05	0.30	--	
09/23/15	15:29	4.64	14.58	218.72	0.27	--	
09/23/15	15:30	8.69	17.88	9.93	0.13	--	
09/23/15	15:31	8.69	17.89	-0.49	0.13	--	System Calibration
09/23/15	15:32	4.81	9.80	5.46	0.13	--	
09/23/15	15:33	4.50	8.93	1.10	0.13	--	Bias O2/CO2
09/23/15	15:34	3.20	6.58	0.33	0.13	--	Zero NOx/CO
09/23/15	15:35	0.02	0.06	3.20	9.64	--	
09/23/15	15:36	0.02	0.04	0.03	12.27	--	
09/23/15	15:37	0.14	0.41	1.77	12.28	--	Bias NOx
09/23/15	15:38	0.02	0.03	173.49	3.79	--	
09/23/15	15:39	0.02	0.02	222.80	0.44	--	
09/23/15	15:40	0.01	0.01	223.14	1.14	--	Bias CO
09/23/15	15:41	0.59	0.12	190.88	2.15	--	Zero O2/CO2
09/23/15	15:42	0.47	0.10	14.76	4.53	--	
09/23/15	15:43	0.50	0.07	1.32	4.54	--	
09/23/15	15:44	0.50	0.06	0.82	4.63	--	
09/23/15	15:45	0.52	0.05	0.45	4.74	--	
09/23/15	15:46	175.15	0.50	1.07	4.88	--	
09/23/15	15:47	306.53	0.78	9.27	4.28	--	
09/23/15	15:48	274.35	0.67	9.33	1.38	--	
09/23/15	15:49	0.05	0.01	4.55	0.47	--	
09/23/15	15:50	0.01	0.01	-0.01	0.15	--	Post Internal Calibration
09/23/15	15:51	0.01	-0.01	-0.20	0.10	--	Zero
09/23/15	15:52	0.11	12.58	2.68	0.42	--	
09/23/15	15:53	0.01	17.89	20.66	2.50	--	
09/23/15	15:54	0.01	17.91	22.40	2.52	--	
09/23/15	15:55	0.01	17.92	22.40	2.53	--	CO2 High
09/23/15	15:56	2.81	17.72	20.46	2.14	--	
09/23/15	15:57	6.86	17.51	13.25	0.19	--	
09/23/15	15:58	94.42	17.36	11.91	0.20	--	
09/23/15	15:59	0.17	17.23	256.16	11.00	--	
09/23/15	16:00	0.01	17.11	448.26	22.92	--	
09/23/15	16:01	0.01	17.00	450.99	23.17	--	NOx/ CO High
09/23/15	16:02	0.37	15.81	447.99	23.29	--	
09/23/15	16:03	0.02	8.94	265.55	15.34	--	
09/23/15	16:04	0.01	8.94	225.11	12.42	--	
09/23/15	16:05	0.01	8.94	224.79	12.41	--	
09/23/15	16:06	0.00	8.94	224.76	12.41	--	Local Mid
09/23/15	16:07	5.99	8.86	148.84	10.48	--	
09/23/15	16:08	8.72	8.82	4.78	0.28	--	High O2

Reference Method CEMS DAS Data

Client	Mesa Water
Location	Costa Mesa, CA
Unit	Reservoir II- Eng. 1 & 4
Date/Time	09/23/15
Job Number	9840

Date	Time	O2%	CO2%	CO ppm	NOx	NO	
09/23/15	16:09	7.70	8.80	-0.38	0.11	--	
09/23/15	16:10	4.51	8.80	-0.32	0.09	--	Mid O2

APPENDIX D

VOC, as TGNMO

Appendix D1

VOC, as TGNMO – Results and Calculations

Almega
ENVIRONMENTAL

SOURCE TEST RESULTS

Facility: Mesa Water
City: Costa Mesa CA
Source: Reservoir II - Engines 1, 2, 3

Parameter	Units	ICE 1 (09/23/15)			ICE 2 (9/16/15)			ICE 3 (9/17/15)		
		1A	1B	AVG**	1A	1B	AVG	1A	1B	AVG
Sampling Method		25.3	25.3	**25.3**	25.3	25.3	**25.3**	25.3	25.3	**25.3**
Standard Temperature	deg. F	60	60	**60**	60	60	**60**	60	60	**60**
Stack Gas Parameters										
Barometric Pressure	in. Hg	29.83	29.83	**29.83**	29.83	29.83	**29.83**	29.78	29.83	**29.81**
O_2 Content	%,dry	1.90	0.40	**0.40**	1.00	0.90	**0.95**	0.50	0.30	**0.40**
CO_2 content	%,dry	11.0	11.8	**11.8**	11.2	11.6	**11.4**	11.6	11.7	**11.7**
TGNMO, as Methane *										
CONCENTRATION measured as Methane	ppmv	30.47	42.58	**42.58**	21.43	21.58	**21.50**	34.72	38.11	**36.41**
Concentration @15%O2	ppmv corr.	9.46	12.3	**12.26**	6.35	6.37	**6.36**	10.04	10.91	**10.48**

* corrected based on carbon number: Methane = 1

** Ambient intrusion suspected for sample 1A, only result from sample 1 B is reported.

Almega
ENVIRONMENTAL

Test Data Reduction and Calculations for Method 25.3

Facility:	Mesa Water	Operator:	RL
City:	Costa Mesa CA	Entered by:	CDL
Source:	Reservoir II - Engine 1	Checked by:	SA
Location:	Exhaust Stack		

DATA ENTRY		Symbol	Units	Test No. 1A	Test No. 1B
Run Data:	Test Date	**	m/d/y	09/23/15	09/23/15
	Start Time	**	hh:mm	11:02	11:02
	End Time	**	hh:mm	11:32	11:32
Standard Temperature		**	deg. F	60	60
Standard Pressure		**	in. Hg	29.92	29.92
Molar Volume of Air at Standard Conditions		Vmol	dscM	23.68	23.68
Calculation Factor K1 for Standard Corrections		X1	deg./in. Hg	17.38	17.38
Barometric Pressure		Ps	in. Hg	29.83	29.83
Mol. Wt.:	TGNMO, as Methane *	MWi	g/g-mole	16	16
	METHANE	MW1	g/g-mole	16	16

LABORATORY DATA		Symbol	Units	1A	1B
Canister (tank):	VACUUM, Initial	P1	mm Hg	-761	-761
	VACUUM, Final	P2	mm Hg	-471	-421
	VOLUME of Gas Sample	Vtank	Liters	2.248	2.636
Concentration:	OXYGEN	O_2	%,dry	1.90	0.40
	CARBON DIOXIDE	CO_2	%,dry	11.0	11.8
	TGNMO, as Methane	Ci,t	ppmv	18.13	20.27
	METHANE	C1,t	ppmv	551	582
	ETHANE	C2,t	ppmv	4.15	4.07
Condensate:	VOLUME of Condensate Sample	Vimp	mL	2.00	2.00
	TGNMO, as Methane	Ci,c	ppmv	9.93	18.94

TEST RESULTS		Symbol	Units	1A	1B
TGNMO, as Methane *					
CONCENTRATION, measured as Methane		Ci	ppmv	28.06	39.21
	corrected for bias factor of 1.086	Ci'	ppmv	30.47	42.58
	TGNMO, as Methane *	**Ci,x**	**ppmv**	**30.47**	**42.58**
	corrected to 15% O2	Ci,corr	ppmv	9.46	12.26
	= [Ci,x]x(20.9-[O2,ref])/(20.9-[%O2])				

NOTE: * corrected based on carbon number: Methane = 1

Almega ENVIRONMENTAL

Test Data Reduction and Calculations for Method 25.3

Facility:	Mesa Water	Operator:	RL
City:	Costa Mesa CA	Entered by:	RD
Source:	Reservoir II - Engine 2	Checked by:	SA
Location:	Exhaust Stack		

DATA ENTRY		Symbol	units	Test No. 1A	Test No. 1B
Run Data:	Test Date	**	m/d/y	09/16/15	09/16/15
	Start Time	**	hh:mm	13:47	13:47
	End Time	**	hh:mm	14:47	14:47
Standard Temperature		**	deg. F	60	60
Standard Pressure		**	in. Hg	29.92	29.92
Molar Volume of Air at Standard Conditions		Vmol	dscM	23.68	23.68
Calculation Factor K1 for Standard Corrections		X1	deg./in. Hg	17.38	17.38
Barometric Pressure		Ps	in. Hg	29.83	29.83
Mol. Wt.:	TGNMO, as Methane *	MWi	g/g-mole	16	16
	METHANE	MW1	g/g-mole	16	16

LABORATORY DATA		Symbol	units	1A	1B
Canister (tank):	VACUUM, Initial	P1	mm Hg	-761	-761
	VACUUM, Final	P2	mm Hg	-199	-213
	VOLUME of Gas Sample	Vtank	Liters	4.342	4.233
Concentration:	OXYGEN	O_2	%,dry	1.00	0.90
	CARBON DIOXIDE	CO_2	%,dry	11.20	11.6
	TGNMO, as Methane	Ci,t	ppmv	11.91	9.38
	METHANE	C1,t	ppmv	75.6	78.3
	ETHANE	C2,t	ppmv	< 2.00	< 2.00
Condensate:	VOLUME of Condensate	Vimp	ml	2.00	2.00
	TGNMO, as Methane	Ci,c	ppmv	7.82	10.49

TEST RESULTS		Symbol	units	1A	1B
TGNMO, as Methane *					
CONCENTRATION, measured as Methane		Ci	ppmv	19.73	19.87
	corrected for bias factor of 1.086	Ci'	ppmv	21.43	21.58
	TGNMO, as Methane *	**Ci,x**	**ppmv**	**21.43**	**21.58**
	corrected to 15% O2 = [Ci,x]x(20.9-[O2,ref])/(20.9-[%O2])	Ci,corr	ppmv	6.35	6.37

NOTE: * corrected based on carbon number: Methane = 1

"<" or ND- "non-detect", reporting limit is reported.

Almega
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Test Data Reduction and Calculations for Method 25.3

Facility:	Mesa Water	Operator:	RL
City:	Costa Mesa CA	Entered by:	RD
Source:	Reservoir II - Engine 3	Checked by:	SA
Location:	Exhaust Stack		

DATA ENTRY		Symbol	units	Test No. 1A	1B
Run Data:	Test Date	**	m/d/y	09/17/15	09/17/15
	Start Time	**	hh:mm	16:50	16:50
	End Time	**	hh:mm	17:20	17:20
Standard Temperature		**	deg. F	60	60
Standard Pressure		**	in. Hg	29.92	29.92
Molar Volume of Air at Standard Conditions		Vmol	dscM	23.68	23.68
Calculation Factor K1 for Standard Corrections		X1	deg./in. Hg	17.38	17.38
Barometric Pressure		Ps	in. Hg	29.78	29.78
Mol. Wt.:	TGNMO, as Methane*	MWi	g/g-mole	16	16
	METHANE	MW1	g/g-mole	16	16

LABORATORY DATA		Symbol	units	1A	1B
Canister (tank):	VACUUM, Initial	P1	mm Hg	-761	-761
	VACUUM, Final	P2	mm Hg	-399	-411
	VOLUME of Gas Sample	Vtank	Liters	2.791	2.698
Concentration:	OXYGEN	O_2	%,dry	0.50	0.30
	CARBON DIOXIDE	CO_2	%,dry	11.6	11.7
	TGNMO, as Methane	Ci,t	ppmv	11.08	15.10
	METHANE	C1,t	ppmv	616	617
	ETHANE	C2,t	ppmv	5.17	4.97
Condensate:	VOLUME of Condensate Sample	Vtank	Liters	2.00	2.00
	TGNMO, as Methane	Ci,c	ppmv	20.89	19.99

TEST RESULTS		Symbol	units	1A	1B
TGNMO, as Methane*					
CONCENTRATION, measured as Methane		Ci	ppmv	31.97	35.09
	corrected for bias factor of 1.086	Ci'	ppmv	34.72	38.11
	TGNMO, as Methane*	**Ci,x**	**ppmv**	**34.7**	**38.1**
	corrected to 15% O2	Ci,corr	ppmv	10.04	10.91
	= [Ci,x]x(20.9-[O2,ref])/(20.9-[%O2])				

NOTE: * corrected based on carbon number: Methane = 1

CO/CO2/O2 Comparision for M100.1/M10.1

	Avg Test Results-Engine 1			Avg Test Results-Engine 2			Avg Test Results-Engine 3		
Comparitive Analysis	O2%	COppmv	CO2%	O2%	COppmv	CO2%	O2%	COppmv	CO2%
Method 25.3/10.1	0.40	185.8	11.80	0.95	108.5	11.40	0.40	154.5	11.65
Method 100.1	0.01	187.9	12.05	-0.016	112.3	12.06	-0.046	162.18	12.09
RPD, %	na	1.2	2.1	na	3.5	5.6	na	4.9	3.7

Note: O2 is <20% (2% of 10% span range) for Method 100.1.

Appendix D2

VOC, as TGNMO – Field Data

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VOC FIELD DATA SHEET - SCAQMD METHOD 25.3

Date: 09/23/15
Client: Mesa Water
Unit: Engine #1
Operator Name: [illegible]
Fuel: Natural Gas
Location: Outlet

Test No.: Normal Load
Barometric Pressure (in. Hg): 29.83
Pretest Leak Check: A: ✓ B: ✓
Post-test Leak check: A: ✓ B: ✓

		SAMPLE A		SAMPLE B	
		Tank # S016 Trap # 21 Control ID: 35		Tank # 777 Trap # 23 Control ID: 19	
Time 24 Hours	Start Time	Flow ml/min.	Vacuum inch Hg	Flow ml/min.	Vacuum inch Hg
0	11:02		28"		28.5"
10			24"		24"
20			21"		20"
30			17"		15"
40					
50	End Time				
60	11:32				

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Job #9840

VOC FIELD DATA SHEET - SCAQMD METHOD 25.3

Date: 9/16/15
Client: MESA WATER
Unit: ENGINE #2
Operator Name: Lyman
Fuel: NAT GAS
Location: STACK Res #2

Test No.: NORMAL LOAD
Barometric Pressure (in. Hg): 29.83
Pretest Leak Check: A: ✓ B: ✓
Post-test Leak check: A: ✓ B: ✓

		SAMPLE A		SAMPLE B	
		Tank #S-11 Trap #33 Control ID: 26		Tank #W0100 Trap #32 Control ID: 42	
Time 24 Hours	Start Time	Flow ml/min.	Vacuum inch Hg	Flow ml/min.	Vacuum inch Hg
0	1347 RL		28"	1347 RL	28"
10			24"		23"
20			18"		18"
30			14"		14"
40			8"		8"
50	End Time		6"		6"
60	1447		5"	1447	5"

30 min

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VOC FIELD DATA SHEET - SCAQMD METHOD 25.3

Date: 09/17/15 Test No.: Normal
Client: Mesa Water Barometric Pressure (in. Hg): 29.78
Unit: Res. #2 Eng. #3 Pretest Leak Check:
Operator Name: RL A: ✓ B: ✓
Fuel: Natural Gas Post-test Leak check:
Location: Outlet A: ✓ B: ✓

		SAMPLE A			SAMPLE B	
		Tank # A129 Trap # 28 Control ID: # 39			Tank # ~~A~~ 0298 Trap # 26 Control ID: # 6	
Time 24 Hours	Start Time	Flow ml/min.	Vacuum inch Hg		Flow ml/min.	Vacuum inch Hg
0	1650		28"	1650		28"
10			23"			23"
20			18"			18"
30			14"			14"
40						
50	End Time					
60	1720			1720		
	End Time			End Time		

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VOC FIELD DATA SHEET - SCAQMD METHOD 25.3

Date: 09/23/15
Client: Mesa Water
Unit: Engine #4
Operator Name: [illegible]
Fuel: Natural Gas
Location: Outlet

Test No.: Normal Load
Barometric Pressure (in. Hg): 29.83
Pretest Leak Check: ✓
A: ____ B: ✓
Post-test Leak check:
A: ✓ B: ✓

		SAMPLE A (22084) Tank #A130 Trap #25 Control ID: 4		SAMPLE B Tank #A101 Trap #24 Control ID: 23	
Time 24 Hours	Start Time	Flow ml/min.	Vacuum inch Hg	Flow ml/min.	Vacuum inch Hg
0	14:16		29"		26"
10			24"		22"
20			17"		18"
30			13"		14"
40					
50	End Time				
60	14:46				

Appendix D3

VOC, as TGNMO – Laboratory Data

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LABORATORY REPORT

Non-Methane Non-Ethane Organic compound Emissions by SCAQMD Method 25.3 (TCA/FID)

Client:	Mesa Water
Project No..	c9840
Unit Tested:	Resevoir #2 - Engine #1
Sampling Date:	23-Sep-15
Analyzed Date:	5-Oct-15
Lab No.	A 133

Client Sample ID	Lab ID	Almega Sample ID		Total* NMNEO ppm	NMNEO ppm condensable	NMNEO ppm noncondensable	CH_4 ppm	C_2H_6 ppm	CO_2 % v/v by TCD	O_2 % v/v by TCD
		Tank	Trap							
R2-E1-Out-Norm-TS016-V21	A 133 - 011 A	S016	21	**28.1**	9.93	18 1	551	4 15	11.0	1 9
R2-E1-Out-Nonn-T777-V23	A 133 - 011 B	777	23	**39.2**	18.9	20.3	582	4.07	11.8	0.4
R2-E4-Out-Norm-TA130-V25	A 133 - 021 A	A130	25	**37.1**	24.4	12.6	651	7.16	11.3	0 8
R2-E4-Out-Norm-TA101-V24	A 133 - 021 B	A101	24	**48.0**	23.2	24.8	511	5 37	9.1	4 6
Detection Limit					1	2	2	2	0.3	0 3

* NOTE - the BIAS FACTOR (of 1 086) is NOT applied in these results

ND- Not Detected

Water Blank , ppmC 0.034

TGNMNEO concentration values are reported in ppm (v/v) as Methane (carbon# = 1)

The sample cylinder is analyzed for NMNEO, CO, CH_4, CO_2 and C_2H_6. It is then directed to a separation column where all heavy organics (C_3+) separate from the light organics (CO, CO_2, CH_4 and C_2H_6). The light organics are then passed through a reduction catalyst to convert CO and CO_2 to CH_4, and are then directed to a FID for detection and quantification. The heavy organics are backflushed off the holding column, passed through an oxidation catalyst, which convert all organics to CO_2, then through a reduction catalyst to convert CO_2 to CH_4 and then to a FID for detection and quantification.

Reviewed by: DW

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CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water		Lab No.: A 133
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Engine #1		
Sampling Date:	23-Sep-15		
Date tested:	5-Oct-15		

Parameter	Symbol	Units	Run #1 A	Run #1 B
Sample ID			R2-E1-Out-Norm-TS016-V21	R2-E1-Out-Norm-T777-V23
Lab ID			A 133 - 011 A	A 133 - 011 B
Sample Tank				
Tank No			S016	777
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	21	21
Abs. Pre-test Temperature	T_{TI}	°K	294	294
Post-test Pressure	P_{TS}	mm Hg (abs)	292	342
Post-test Temperature	t_{TS}	°C	21	21
Abs. Post-test Temperature	T_{TS}	°K	294	294
Final Pressure	P_{TF}	mm Hg (abs)	926	952
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		3.20	2.81
Concentration Methane	C_{CH4}	ppm	171.91	207.17
Concentration Carbon Monoxide	C_{CO}	ppm	56.96	67.29
NMNEO (noncond)	C_{SA}	ppm	**5.66**	**7.22**
Sample Volume	Vs	L	2.248	2.636
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**550.8**	**582.0**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**182.5**	**189.0**
NMNEO (noncond)	C_{SAT}	ppm	**18.13**	**20.27**
Condensate Recovery - Trap				
Sample ID			R2-E1-Out-Norm-TS016-V21	R2-E1-Out-Norm-T777-V23
Trap No			21	23
Lab No.:			A 133 - 012 A	A 133 - 012 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	2.248	2.636
TC Concentration	C_{TC}	mg/L	39.193	66.713
IC Concentration	C_{IC}	mg/L	33.533	54.060
TOC Concentration	C_{TOC}	mg/L	5.660	12.653
NMNEO, Condensable	C_1	ppm	**9.93**	**18.94**
TNMNEOC (Csa+C_T)	C	ppmC	**28.06**	**39.21**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water	Lab No.: A 133	
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Enigne #4		
Sampling Date:	23-Sep-15		
Date tested:	5-Oct-15		

Parameter	Symbol	Units	Run #2 A	Run #2 B
Sample ID			R2-E4-Out-Norm-TA130-V25	R2-E4-Out-Norm-TA101-V24
Lab ID			A 133 - 021 A	A 133 - 021 B
Sample Tank				
Tank No			A130	A101
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	22	22
Abs. Pre-test Temperature	T_{TI}	°K	295	295
Post-test Pressure	P_{TS}	mm Hg (abs)	356	342
Post-test Temperature	t_{TS}	°C	22	22
Abs. Post-test Temperature	T_{TS}	°K	295	295
Final Pressure	P_{TF}	mm Hg (abs)	944	956
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		2.68	2.83
Concentration Methane	C_{CH4}	ppm	242.41	180.59
Concentration Carbon Monoxide	C_{CO}	ppm	54.04	44.19
NMNEO (noncond)	C_{SA}	ppm	4.71	8.78
Sample Volume	Vs	L	2.735	2.627
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**650.83**	**511.26**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**145.09**	**125.11**
NMNEO (noncond)	C_{SAT}	ppm	**12.63**	**24.84**
Condensate Recovery - Trap				
Sample ID			R2-E4-Out-Norm-TA130-V25	R2-E4-Out-Norm-TA101-V24
Trap No			25	24
Lab No.:			A 133 - 022 A	A 133 - 022 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	2.735	2.627
TC Concentration	C_{TC}	mg/L	61.913	46.427
IC Concentration	C_{IC}	mg/L	44.973	31.000
TOC Concentration	C_{TOC}	mg/L	16.940	15.427
NMNEO, Condensable	C_T	ppm	**24.432**	**23.166**
TNMNEOC (Csa+C_T)	C	ppmC	**37.07**	**48.01**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 133
Sampling Date: 23-Sep-15 | Analyzed Date: 5-Oct-15

Run #1 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 011 A	213520	213250	0.13	57.0	56.9	**57.0**	0.13
CH4	A 133 - 011 A	680344	678946	0.21	172.1	171.7	**171.9**	0.21
CO2*	A 133 - 011 A	202776	201744	0.51	3.4	3.4	**3.4**	0.51
O2*	A 133 - 011 A	117051	117806	-0.65	0.6	0.6	**0.6**	-0.64
C2H6	A 133 - 011 A	5092	5196	-2.04	1.28	1.31	**1.29**	-2.02
NMNEO	A 133 - 011 A	18786	18509	1.47	5.70	5.62	**5.66**	1.49

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 012 A	19.93	19.50	19.36	**39.19**	1.47	DF=2
IC	A 133 - 012 A	16.62	16.83	16.85	**33.53**	0.73	

Run #1 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 011 B	251860	252251	-0.16	67.2	67.3	**67.3**	-0.16
CH4	A 133 - 011 B	818796	819266	-0.06	207.1	207.2	**207.2**	-0.06
CO2*	A 133 - 011 B	245535	247459	-0.78	4.2	4.2	**4.2**	-0.78
O2*	A 133 - 011 B	27506	27300	0.75	0.1	0.1	**0.1**	0.75
C2H6	A 133 - 011 B	5754	5759	-0.09	1.45	1.45	**1.45**	-0.09
NMNEO	A 133 - 011 B	23280	24271	-4.26	7.07	7.37	**7.22**	-4.17

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 012 B	32.50	33.74	33.83	**66.71**	2.21	DF=2
IC	A 133 - 012 B	26.85	27.10	27.14	**54.06**	0.58	

Water blank

TC	0.014
IC	-0.020
TOC	**0.034**

$Conc_{CO}$ in tank = $MeanConc_{CO}$ * DF
$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
$Conc_{O2}$ in tank = $MeanConc_{O2}$ * DF
$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 133
Sampling Date: 23-Sep-15 | Analyzed Date: 5-Oct-15

Run #2 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 021 A	202304	202560	-0.13	54.0	54.1	**54.0**	-0.13
CH4	A 133 - 021 A	957576	959135	-0.16	242.2	242.6	**242.4**	-0.16
CO2*	A 133 - 021 A	248923	248235	0.28	4.2	4.2	**4.2**	0.28
O2*	A 133 - 021 A	55045	57420	-4.31	0.3	0.3	**0.3**	-4.22
C2H6	A 133 - 021 A	10898	10301	5.48	2.74	2.59	**2.67**	5.63
NMNEO	A 133 - 021 A	15405	15606	-1.30	4.7	4.7	**4.7**	-1.30

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 022 A	29.82	31.49	31.56	**61.91**	3.14	DF=2
IC	A 133 - 022 A	22.15	23.04	22.27	**44.97**	2.14	

Run #2 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 021 B	168393	162697	3.38	45.0	43.4	**44.2**	3.44
CH4	A 133 - 021 B	729381	698580	4.22	184	176.7	**181**	4.31
CO2*	A 133 - 021 B	189080	189135	-0.03	3.2	3.2	**3.2**	-0.03
O2*	A 133 - 021 B	323616	325503	-0.58	1.6	1.6	**1.6**	-0.58
C2H6	A 133 - 021 B	7245	7837	-8.17	1.82	1.97	**1.90**	-7.85
NMNEO	A 133 - 021 B	29248	28584	2.27	8.9	8.7	**8.8**	2.30

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 022 B	22.96	23.29	23.39	**46.43**	0.95	DF=2
IC	A 133 - 022 B	15.84	15.67	14.99	**31.00**	2.87	

Water blank		
TC	0.014	$Conc_{C1t}$ in tank = $MeanConc_{C1t}$ * DF
IC	-0.020	$Conc_{C1i}$ in tank = $MeanConc_{C1i}$ * DF
TOC	**0.034**	$Conc_{C1o}$ in tank = $MeanConc_{C1o}$ * DF
		$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

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SAMPLE INVENTORY REPORT

Method 25.3 Sampling Train

Project No.:	c9840	Lab No.:	A 133
Client:	Mesa Water	Sampling Date:	23-Sep-15

Laboratory ID	Client ID	Component ID	
Run #1 A			
A 133 - 011 A	R2-E1-Out-Norm-TS016-V21	Tank #	S016
A 133 - 012 A	R2-E1-Out-Norm-TS016-V21	Impinger	21
Run #1 B			
A 133 - 011 B	R2-E1-Out-Norm-T777-V23	Tank #	777
A 133 - 012 B	R2-E1-Out-Norm-T777-V23	Impinger	23
Run #2 A			
A 133 - 021 A	R2-E4-Out-Norm-TA130-V25	Tank #	A130
A 133 - 022 A	R2-E4-Out-Norm-TA130-V25	Impinger	25
Run #2 B			
A 133 - 021 B	R2-E4-Out-Norm-TA101-V24	Tank #	A101
A 133 - 022 B	R2-E4-Out-Norm-TA101-V24	Impinger	24

Lot# A133

Page _ _ _

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CHAIN OF CUSTODY RECORDS

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ATTN: _____

REPORT TO:

PO # _____

ALMEGA Environmental & Technical Services
10602 Walker St.
Cypress, CA 90630
(714) 889-4000 Fax (714) 889-7030
lab@almegaenv.com
Contact:

Turnaround Time

Standard: _____ Other: _____

Rush:
Depends on # of Samples
5 - 10 days _____
3 - 7 days _____

Job # 9940 | Unit # R-2 Eng. 1 & 4 | Client: Mesa Water | Location: Costa Mesa, CA

Samplers: (Signature)

Project Manager: D. Yonemori

Unit Information: Reservoir #2 Engines #1 & #4 Normal Load

ANALYSIS REQUESTED: M253

Return or Dispose

Sample Date	Sample Time	Sample Identification	Lab Sample #	Type Of Sample: LIQUID	GAS	SOLID	No of Containers	M253					REMARKS
09/23/15		R2-E1-Out-Norm-T5016-V21	A133 -011A/012A	✓	✓		2	✓					
|		R2-E1-Out-Norm-T777-V23	-013B/012B	✓	✓		2	✓					
|		R2-E4-Out-Norm-TA138-V25	-021A/022A	✓	✓		2	✓					Tank A130 (22084)
|		R2-E4-Out-Norm-TA101-V24	-021B/022B	✓	✓		2	✓					

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 09/23/15 Time 18:20	Date: 9/23/2015 Time: 18:30	Date: Time:	Date: Time
Relinquished by:	Received by:	Relinquished by:	Received by:
Date: Time	Date: Time:	Date: Time:	Date: Time

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Standard Receipt
Sample LOG in Checklist

Project No: c9840

Method: m 25.3

Lab ID: A133

Sampling Date: 9/23/2015

Location: Mesa Int:

Date & Time Rc'd: 9/23/2015 18:30

Location: Lab Int: JD

Arrived By: (circle) FedEx UPS (Drop Off) (Int) JD Other

Condition of Package(s): (comment): Good

Package Type: Box (Cooler) Other:

Number of Sample Container(s): 8

Correct Containers (per Method): (Y) N

Preservation: (circle) (ICE) DryICE ICEPacks None

Sample Conditions:

Sample Temp (C): 8.6

Ambient Temp (C): 21

Sample Temp (C):

Filter Condition:

PH :

Components Sealed: (Y) N

Sample Recovery Completed On: (date & time)

Recovered In: (circle) (Field) Lab Other

Silica Gel Condition:

Tedlar Bags -
Condensation: Y N

Comments:

Container(s) Requested: Glass Plastic

Additional Comments:

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LABORATORY REPORT

Non-Methane Non-Ethane Organic compound Emissions by SCAQMD Method 25.3 (TCA/FID)

Client:	Mesa Water
Project No.:	c9840
Unit Tested	Resevoir #2 - Engine #2
Sampling Date:	16-Sep-15
Analyzed Date:	21-Sep-15
Lab No	A 126

Client Sample ID	Lab ID	Almega Sample ID		Total* NMNEO ppm	NMNEO ppm condensable	NMNEO ppm noncondensable	CH_4 ppm	C_2H_6 ppm	CO_2 % v/v by TCD	O_2 % v/v by TCD
		Tank	Trap							
Res2-Eng2-Norm-A	A 126 - 011 A	S011	33	19.7	7.82	11.9	75 6	ND	11 2	1 0
Res2-Eng2-Norm-B	A 126 - 011 B	W0100	32	19.9	10.5	9.38	78.3	ND	11.6	0.9
Detection Limit					1	2	2	2	0.3	0.3

* NOTE - the BIAS FACTOR (of 1 086) is NOT applied in these results
ND-Not Detected

Water Blank , ppmC 0.079

TGNMNEO concentration values are reported in ppm (v/v) as Methane (carbon#=1)

The sample cylinder is analyzed for NMNEO, CO, CH_4, CO_2 and C_2H_6. It is then directed to a separation column where all heavy organics (C_3+) separate from the light organics (CO, CO_2, CH_4 and C_2H_6). The light organics are then passed through a reduction catalyst to convert CO and CO_2 to CH_4, and are then directed to a FID for detection and quantification. The heavy organics are backflushed off the holding column, passed through an oxidation catalyst, which convert all organics to CO_2, then through a reduction catalyst to convert CO_2 to CH_4 and then to a FID for detection and quantification.

Reviewed by: DW

Almega Environmental & Technical Services
10602 Walker Street, Cypress, CA 90630
Phone 714-889-4000 Fax 714-889-7030
www.almegaeny.com

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water		Lab No.: A 126
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Engine #2		
Sampling Date:	16-Sep-15		
Date tested:	21-Sep-15		

Parameter	Symbol	Units	Run #1 A	Run #1 B
Sample ID			Res2-Eng2-Norm-A	Res2-Eng2-Norm-B
Lab ID			A 126 - 011 A	A 126 - 011 B
Sample Tank				
Tank No			S011	W0100
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	21	21
Abs. Pre-test Temperature	T_{TI}	°K	294	294
Post-test Pressure	P_{TS}	mm Hg (abs)	562	548
Post-test Temperature	t_{TS}	°C	21	21
Abs. Post-test Temperature	T_{TS}	°K	294	294
Final Pressure	P_{TF}	mm Hg (abs)	926	928
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		1.66	1.71
Concentration Methane	C_{CH4}	ppm	45.56	45.90
Concentration Carbon Monoxide	C_{CO}	ppm	64.67	64.29
NMNEO (noncond)	C_{SA}	ppm	**7.18**	**5.50**
Sample Volume	Vs	L	4.342	4.233
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**75.6**	**78.3**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**107.3**	**109.6**
NMNEO (noncond)	C_{SAT}	ppm	**11.91**	**9.38**
Condensate Recovery - Trap				
Sample ID			Res2-Eng2-Norm-A	Res2-Eng2-Norm-B
Trap No			33	32
Lab No.:			A 126 - 012 A	A 126 - 012 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	4.342	4.233
TC Concentration	C_{TC}	mg/L	46.887	61.460
IC Concentration	C_{IC}	mg/L	38.280	50.200
TOC Concentration	C_{TOC}	mg/L	8.607	11.260
NMNEO, Condensable	C_T	ppm	**7.82**	**10.49**
TNMNEOC (Csa+C_1)	C	ppmC	**19.74**	**19.88**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 126
Sampling Date: 16-Sep-15 | Analyzed Date: 21-Sep-15

Run #1 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 011 A	243468	241030	1.00	65.0	64.3	**64.7**	1.01
CH4	A 126 - 011 A	180533	179726	0.45	45.7	45.5	**45.6**	0.45
CO2*	A 126 - 011 A	393045	392628	0.11	6.7	6.7	**6.7**	0.11
O2*	A 126 - 011 A	126064	123382	2.13	0.6	0.6	**0.6**	2.15
C2H6	A 126 - 011 A	ND	ND	ND	ND	ND	**ND**	ND
NMNEO	A 126 - 011 A	23548	23775	-0.96	7.15	7.22	**7.18**	-0.96

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 126 - 012 A	22.39	23.97	23.97	**46.89**	3.83	DF=2
IC	A 126 - 012 A	18.91	19.06	19.45	**38.28**	1.42	

Run #1 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 011 B	240642	240989	-0.14	64.2	64.3	**64.3**	-0.14
CH4	A 126 - 011 B	181172	181775	-0.33	45.8	46.0	**45.9**	-0.33
CO2*	A 126 - 011 B	401725	394024	1.92	6.9	6.8	**6.8**	1.94
O2*	A 126 - 011 B	101497	103555	-2.03	0.5	0.5	**0.5**	-2.01
C2H6	A 126 - 011 B	ND	ND	ND	ND	ND	**ND**	ND
NMNEO	A 126 - 011 B	17848	18405	-3.12	5.42	5.59	**5.50**	-3.07

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 126 - 012 B	30.37	31.02	30.80	**61.46**	1.07	DF=2
IC	A 126 - 012 B	24.96	25.14	25.20	**50.20**	0.50	

Water blank	
TC	0.069
IC	-0.010
TOC	**0.079**

$Conc_{CO}$ in tank = $MeanConc_{CO}$ * DF
$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
$Conc_{O2}$ in tank = $MeanConc_{O2}$ * DF
$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

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SAMPLE INVENTORY REPORT

Method 25.3 Sampling Train

Project No.:	c9840	Lab No.:	A 126
Client:	Mesa Water	Sampling Date:	16-Sep-15

Laboratory ID	Client ID	Component ID	
Run #1 A			
A 126 - 011 A	Res2-Eng2-Norm-A	Tank #	S011
A 126 - 012 A	Res2-Eng2-Norm-A	Impinger	33
Run #1 B			
A 126 - 011 B	Res2-Eng2-Norm-B	Tank #	W0100
A 126 - 012 B	Res2-Eng2-Norm-B	Impinger	32

Lot# A126

P: of _

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CHAIN OF CUSTODY RECORDS

INVOICE TO:

ATTN:

REPORT TO:

PO #

ALMEGA Environmental & Technical Services
10602 Walker St.
Cypress, CA 90630
(714) 889-4000 Fax (714) 889-7030
lab@almegaenv.com
Contact:

Turnaround Time
Standard: Other:
Rush:
Depends on # of Samples
5 - 10 days
3 - 7 days

Job # 9840 | Unit # Res. #2 Engine #2 | Client: Mesa Water | Location: Costa Mesa, CA

Samplers: (Signature)

Project Manager: D. Yonemori

Unit Information: Reservoir #2 Engine #2 Normal Load 890 rpm

ANALYSIS REQUESTED

Sample Date	Sample Time	Sample Identification	Lab Sample #	Type Of Sample: LIQUID	GAS	SOLID	No of Containers	253		Tank#	Trap#		Return or Dispose REMARKS
09/16/15	13:47	Res2-Eng2-Norm-A	A126 -011A/012A		✓		1	✓		S11	DW ~~26~~	33	sample @ cutlet
09/16/15	13:47	Res2-Eng2-Norm-B	-011B/012B		✓		1	✓		W0100	DW ~~42~~	32	" "

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 09/16/15 Time 17:30	Date: 9/18/15 Time: 7:47	Date: Time:	Date: Time
Relinquished by:	Received by:	Relinquished by:	Received by:
Date: Time	Date: Time:	Date: Time:	Date: Time

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Standard Receipt
Sample LOG in Checklist

Project No: c9840

Method: m25.3

Lab ID: A126

Sampling Date: 9/16, 9/17

Location: Mesa

Int:

Date & Time Rc'd: 9/17/15 7:45
9/18/15 10:11

Location: LAB

Int: DW

Arrived By: (circle) FedEx UPS Drop Off (Int) DW Other

Condition of Package(s): (comment): ✓

Package Type: Box (Cooler) Other: ✓

Number of Sample Container(s): 4, 4

Correct Containers (per Method): (Y) N ✓

Preservation: (circle) (ICE) DryICE ICEPacks None ✓

Sample Conditions:

Sample Temp (C): 5.3, 5.0

Ambient Temp (C): 22 ✓

Sample Temp (C):

Filter Condition:

PH :

Components Sealed: (Y) N ✓

Sample Recovery Completed On: (date & time)

Recovered In: (circle) (Field) Lab Other ✓

Silica Gel Condition:

Tedlar Bags -
Condensation: Y N

Comments:

Container(s) Requested: Glass Plastic

Additional Comments:

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LABORATORY REPORT

Non-Methane Non-Ethane Organic compound Emissions by SCAQMD Method 25.3 (TCA/FID)

Client:	Mesa Water
Project No.:	c9840
Unit Tested:	Resevoir #2 - Engine #3
Sampling Date:	17-Sep-15
Analyzed Date:	21-Sep-15
Lab No.	A 126

Client Sample ID	Lab ID	Almega Sample ID		Total* NMNEO ppm	NMNEO ppm condensable	NMNEO ppm noncondensable	CH_4 ppm	C_2H_6 ppm	CO_2 % v/v by TCD	O_2 % v/v by TCD
		Tank	Trap							
Res2-Eng3-Norm-A	A 126 - 021 A	A 129	28	32.0	20.9	11.1	616	5.17	11.6	0.5
Res2-Eng3-Norm-B	A 126 - 021 B	298	26	35.1	20.0	15.1	617	4.97	11.7	0.3
Detection Limit					1	2	2	2	0.3	0.3

* NOTE - the BIAS FACTOR (of 1.086) is NOT applied in these results.
ND=Not Detected

Water Blank, ppmC 0.079

TGNMNEO concentration values are reported in ppm (v/v) as Methane (carbon#= 1)

The sample cylinder is analyzed for NMNEO, CO, CH_4, CO_2 and C_2H_6. It is then directed to a separation column where all heavy organics (C_3^+) separate from the light organics (CO, CO_2, CH_4 and C_2H_6). The light organics are then passed through a reduction catalyst to convert CO and CO_2 to CH_4, and are then directed to a FID for detection and quantification. The heavy organics are backflushed off the holding column, passed through an oxidation catalyst, which convert all organics to CO_2, then through a reduction catalyst to convert CO_2 to CH_4 and then to a FID for detection and quantification.

Reviewed by: DW

Almega Environmental & Technical Services
10602 Walker Street, Cypress, CA 90630
Phone 714-889-4000 Fax 714-889-7030
www.almegaenv.com

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water		Lab No.: A 126
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Engine #3		
Sampling Date:	17-Sep-15		
Date tested:	21-Sep-15		

Parameter	Symbol	Units	Run #1 A	Run #1 B
Sample ID			Res2-Eng3-Norm-A	Res2-Eng3-Norm-B
Lab ID			A 126 - 021 A	A 126 - 021 B
Sample Tank				
Tank No			A 129	298
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	21	21
Abs. Pre-test Temperature	T_{TI}	°K	294	294
Post-test Pressure	P_{TS}	mm Hg (abs)	362	350
Post-test Temperature	t_{TS}	°C	21	21
Abs. Post-test Temperature	T_{TS}	°K	294	294
Final Pressure	P_{TF}	mm Hg (abs)	936	930
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		2.61	2.68
Concentration Methane	C_{CH4}	ppm	236.09	229.94
Concentration Carbon Monoxide	C_{CO}	ppm	58.84	57.99
NMNEO (noncond)	C_{SA}	ppm	**4.25**	**5.63**
Sample Volume	Vs	L	2.791	2.698
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**615.9**	**616.6**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**153.5**	**155.5**
NMNEO (noncond)	C_{SAT}	ppm	**11.08**	**15.10**
Condensate Recovery - Trap				
Sample ID			Res2-Eng3-Norm-A	Res2-Eng3-Norm-B
Trap No			28	26
Lab No.:			A 126 - 022 A	A 126 - 022 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	2.791	2.698
TC Concentration	C_{TC}	mg/L	68.820	46.987
IC Concentration	C_{IC}	mg/L	54.040	33.313
TOC Concentration	C_{TOC}	mg/L	14.780	13.673
NMNEO, Condensable	C_T	ppm	**20.89**	**19.99**
TNMNEOC (Csa+C_T)	C	ppmC	**31.97**	**35.09**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 126
Sampling Date: 17-Sep-15 | Analyzed Date: 21-Sep-15

Run #1 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 021 A	220747	220081	0.30	58.9	58.8	**58.8**	0.30
CH4	A 126 - 021 A	935575	931191	0.47	236.6	235.5	**236.1**	0.47
CO2*	A 126 - 021 A	262050	262047	0.00	4.5	4.5	**4.5**	0.00
O2*	A 126 - 021 A	40758	41927	-2.87	0.2	0.2	**0.2**	-2.83
C2H6	A 126 - 021 A	7897	7849	0.61	1.99	1.97	**1.98**	0.61
NMNEO	A 126 - 021 A	14255	13731	3.68	4.33	4.17	**4.25**	3.74
Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%		
Trap Analysis								
TC	A 126 - 022 A	34.85	34.81	33.57	**68.82**	2.08	DF=2	
IC	A 126 - 022 A	26.81	27.21	27.04	**54.04**	0.75		

Run #1 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 021 B	217181	217246	-0.03	58.0	58.0	**58.0**	-0.03
CH4	A 126 - 021 B	909045	909115	-0.01	229.9	230.0	**229.9**	-0.01
CO2*	A 126 - 021 B	255617	256442	-0.32	4.4	4.4	**4.4**	-0.32
O2*	A 126 - 021 B	24409	24098	1.27	0.1	0.1	**0.1**	1.28
C2H6	A 126 - 021 B	7075	7653	-8.17	1.78	1.93	**1.85**	-7.85
NMNEO	A 126 - 021 B	18248	18866	-3.39	5.54	5.73	**5.63**	-3.33
Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%		
Trap Analysis								
TC	A 126 - 022 B	23.73	23.77	22.98	**46.99**	1.88	DF=2	
IC	A 126 - 022 B	16.75	16.71	16.51	**33.31**	0.75		

Water blank		
TC	0.069	$Conc_{CO}$ in tank = $MeanConc_{CO}$ * DF
IC	-0.010	$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
TOC	0.079	$Conc_{O2}$ in tank = $MeanConc_{O2}$ * DF
		$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

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SAMPLE INVENTORY REPORT

Method 25.3 Sampling Train

Project No.:	c9840	Lab No.:	A 126
Client:	Mesa Water	Sampling Date:	17-Sep-15

Laboratory ID	Client ID	Component ID	
Run #1 A			
A 126 - 021 A	Res2-Eng3-Norm-A	Tank #	A 129
A 126 - 022 A	Res2-Eng3-Norm-A	Impinger	28
Run #1 B			
A 126 - 021 B	Res2-Eng3-Norm-B	Tank #	298
A 126 - 022 B	Res2-Eng3-Norm-B	Impinger	26

6th A126

Pa f_

Almega ENVIRONMENTAL

CHAIN OF CUSTODY RECORDS

INVOICE TO:

ATTN:

REPORT TO:

PO #

ALMEGA Environmental & Technical Services
10602 Walker St.
Cypress, CA 90630
(714) 889-4000 Fax (714) 889-7030
lab@almegaenv.com
Contact:

Turnaround Time
Standard: Other:
Rush:
Depends on # of Samples
5 - 10 days
3 - 7 days

Job # 9840 | Unit # Res. 2 Eng. 3 | Client: Mesa Water | Location: Costa Mesa

Samplers: (Signature)

Project Manager: D. Yonemori

Unit Information:

ANALYSIS REQUESTED: M25.3

Return or Dispose

Sample Date	Sample Time	Sample Identification	Lab Sample #	Type Of Sample: LIQUID	GAS	SOLID	No of Containers	M25.3					REMARKS
09/17/15	16:50	Res2-Eng3-Norm-A	A126 -021A/022A	✓	✓		2	✓					A129 / ~~39~~ 28 DY Tank/Vial
"	"	Res2-Eng3-Norm-B	-021B/022B	✓	✓		2	✓					0298 / ~~6~~ 26 DY

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 09/17/15 Time 20:00	Date: 9/18/15 Time: 10:11	Date: Time:	Date: Time
Relinquished by:	Received by:	Relinquished by:	Received by:
Date: Time	Date: Time:	Date: Time:	Date: Time

Almega ENVIRONMENTAL

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Standard Receipt
Sample LOG in Checklist

Project No: c9840

Method: m25.3

Lab ID: A126

Sampling Date: 9/16, 9/17

Location: Mesa

Int:

Date & Time Rc'd: 9/17/15 7:45
9/18/15 10:11

Location: LAB

Int: DW

Arrived By: (circle) FedEx UPS Drop Off (Int) DW Other

Condition of Package(s): (comment): - ✓

Package Type: Box (Cooler) Other: ✓

Number of Sample Container(s): 4, 4

Correct Containers (per Method): (Y) N ✓

Preservation: (circle) (ICE) DryICE ICEPacks None ✓

Sample Conditions:

Sample Temp (C): 5.3, 5.0

Ambient Temp (C): 22 ✓

Sample Temp (C):

Filter Condition:

PH :

Components Sealed: (Y) N ✓

Sample Recovery Completed On: (date & time)

Recovered In: (circle) (Field) Lab Other ✓

Silica Gel Condition:

Tedlar Bags -
Condensation: Y N

Comments:

Container(s) Requested: Glass Plastic

Additional Comments:

APPENDIX E

QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

Appendix E1

CEMS Calibration Gas Certificates

Airgas

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S Alameda Street
Los Angeles CA 90059
323-568-2208 Fax: 323-567-3686
Airgas.com

Part Number:	E03NI86E15A62Q5	Reference Number:	48-124495419-1
Cylinder Number:	CC14859	Cylinder Volume:	149.7 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32015	Valve Outlet:	580
Gas Code:	CO2,O2,BALN	Certification Date:	May 29, 2015

Expiration **Date:** May 29, 2023

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	4.500 %	4.503 %	G1	+/- 0.5% NIST Traceable	05/29/2015
CARBON DIOXIDE	9.000 %	9.016 %	G1	+/- 0.6% NIST Traceable	05/29/2015
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	11060709	CC338458	4.861 % OXYGEN/NITROGEN	+/- 0.4%	Jan 21, 2017
NTRM	12061353	CC360995	11.002 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 11, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO2	NDIR	May 28, 2015
SIEMENS OXYMAT 6	PARAMAGNETIC	May 21, 2015

Triad Data Available Upon Request

Approved for Release

Airgas

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
(323) 568-2208 Fax (323) 567-3866
www.airgas.com

Part Number:	E03NI73E15A3831	Reference Number:	48-124447160-1
Cylinder Number:	CC119210	Cylinder Volume:	156.4 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Aug 06, 2014

Expiration Date: Aug 06, 2022

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	8.750 %	8.716 %	G1	+/- 0.4% NIST Traceable	08/06/2014
CARBON DIOXIDE	18.00 %	18.03 %	G1	+/- 0.6% NIST Traceable	08/06/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	09060206	CC262089	9.861 % OXYGEN/NITROGEN	+/- 0.3%	Nov 08, 2018
NTRM	08061315	CC255254	20.09 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jun 28, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO2	NDIR	Jul 07, 2014
SIEMENS OXYMAT 6	PARAMAGNETIC	Jul 07, 2014

Triad Data Available Upon Request

Approved for Release

Airgas

NOX (NEW) 9/4/13

Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3586
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15AC493	Reference Number:	48-124389788-1
Cylinder Number:	CC435188	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32013	Valve Outlet:	660
Gas Code:	NO,BALN	Certification Date:	Aug 20, 2013

Expiration Date: Aug 20, 2016

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	2.500 PPM	2.513 PPM	G1	+/- 1.4% NIST Traceable	08/13/2013, 08/20/2013
NITRIC OXIDE	2.500 PPM	2.431 PPM	G1	+/- 1.4% NIST Traceable	08/13/2013, 08/20/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061121	CC283936	9.76 PPM NITRIC OXIDE/NITROGEN	+/- 1.4%	Jan 30, 2015
NTRM	12061121	CC283936-NOx	9.79 PPM NOx/NITROGEN	+/- 1.4%	Jan 30, 2015

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Thermo 42-iLS 1115848421 NO	Chemiluminescence	Aug 06, 2013
Thermo 42-iLS 1115848421 NOx	Chemiluminescence	Aug 06, 2013

Triad Data Available Upon Request

Notes:

Approved for Release

Page 1 of 48-124389788-1

Airgas

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles, CA 90059
(323) 568-2208 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15AC3G9	Reference Number:	48-124487259-1
Cylinder Number:	CC405991	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32015	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Apr 15, 2015

Expiration Date: Apr 15, 2018

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	12.00 PPM	12.20 PPM	G1	+/- 1.1% NIST Traceable	04/08/2015, 04/15/2015
NITRIC OXIDE	12.00 PPM	12.19 PPM	G1	+/- 1.1% NIST Traceable	04/08/2015, 04/15/2015
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13061108	CC403781	10.14 PPM NITRIC OXIDE/NITROGEN	+/- 1.0%	Feb 07, 2017
NTRM	13061108	CC403781-NOx	10.14 PPM NOx/NITROGEN	+/- 1.0%	Feb 07, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Thermo 42-ILS 1115848421 NO	Chemiluminescence	Apr 13, 2015
Thermo 42-ILS 1115848421 NOx	Chemiluminescence	Apr 13, 2015

Triad Data Available Upon Request

Approved for Release

Airgas.

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
(323) 568-2208 Fax: (323) 567-3886
www.airgas.com

Part Number:	E02NI99E15AC1S8	Reference Number:	48-124451941-1
Cylinder Number:	CC1599	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	660
Gas Code:	NO,BALN	Certification Date:	Sep 02, 2014

Expiration **Date:** Sep 09, 2017

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	23.00 PPM	23.11 PPM	G1	+/- 1.0% NIST Traceable	09/02/2014, 09/09/2014
NITRIC OXIDE	23.00 PPM	23.08 PPM	G1	+/- 0.9% NIST Traceable	09/02/2014, 09/09/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061605	CC280967	20.23 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Apr 11, 2015
NTRM	12061606	CC280967-NOx	20.28 PPM NOx/NITROGEN	+/- 0.9%	Apr 11, 2015

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Thermo 42-iLS 1115848421 NO	Chemiluminescence	Sep 06, 2014
Thermo 42-iLS 1115848421 NOx	Chemiluminescence	Sep 08, 2014

Triad Data Available Upon Request

Approved for Release

Airgas.

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
323-568-2208 Fax 323-567-3688
Airgas.com

Part Number:	E02NI99E15AC0D7	Reference Number:	48-124479424-1
Cylinder Number:	CC135694	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32015	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Mar 03, 2015

Expiration **Date:** Mar 03, 2018

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	45.00 PPM	45.20 PPM	G1	+/- 1.0% NIST Traceable	02/24/2015, 03/03/2015
NITRIC OXIDE	45.00 PPM	44.96 PPM	G1	+/- 1.0% NIST Traceable	02/24/2015, 03/03/2015
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13061216	CC403694	49.40 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Nov 19, 2019
PRM	12328	680179	10.01 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Oct 15, 2014
GMIS	1211201301	CC501041	4.950 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Dec 11, 2016

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 NO	FTIR	Feb 23, 2015
Nicolet 6700 AHR0801551 NO2	FTIR	Feb 17, 2015

Triad Data Available Upon Request

Approved for Release

Airgas

(NEL)

Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 566-2203 Fax: (323) 567-3686
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15A0496	Reference Number:	48-124373685-1
Cylinder Number:	SG9152339BAL	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32013	Valve Outlet:	350
Gas Code:	CO,BALN	Certification Date:	May 06, 2013

Expiration Date: May 06, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	225.0 PPM	225.8 PPM	G1	+/- 0.6% NIST Traceable	05/06/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12060310	CC353934	249.3 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Oct 26, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Apr 22, 2013

Triad Data Available Upon Request

Notes:

Approved for Release

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Airgas (NEW) Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15A0496	Reference Number:	48-124374584-1
Cylinder Number:	CC216	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32013	Valve Outlet:	350
Gas Code:	CO,BALN	Certification Date:	May 16, 2013

Expiration Date: May 16, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	225.0 PPM	226.2 PPM	G1	+/- 0.6% NIST Traceable	05/16/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12060311	CC353939	249.3 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Oct 26, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO HIGH	NDIR	May 06, 2013

Triad Data Available Upon Request

Notes:

Approved for Release

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Airgas

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
323-588-2208 Fax: 323-587-3688
www.airgas.com

Part Number:	E02NI99E15A0499	Reference Number:	48-124465925-1
Cylinder Number:	CC39463	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	350
Gas Code:	CO,BALN	Certification Date:	Dec 02, 2014

Expiration Date: Dec 02, 2022

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	450.0 PPM	453.8 PPM	G1	+/- 0.8% NIST Traceable	12/02/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12062425	CC366875	487.1 PPM CARBON MONOXIDE/NITROGEN	+/- 0.8%	Jun 22, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900118 CO	FTIR	Nov 21, 2014

Triad Data Available Upon Request

Approved for Release

Airgas

Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles, CA 90059
(323) 568-2206 Fax: (323) 567-3686
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15W4BQ4	Reference Number:	48-124424353-1
Cylinder Number:	CC502667	Cylinder Volume:	CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	
PGVP Number:	B32014	Valve Outlet:	660
Gas Code:	NO2,BALN	Certification Date:	Apr 03, 2014

Expiration Date: Apr 03, 2017

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NITROGEN DIOXIDE	16.50 PPM	16.39 PPM	G1	+/- 2.0% NIST Traceable	03/27/2014, 04/03/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
GMIS	1211201301	CC500610	14.91 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.6%	Dec 11, 2016
PRM	12329	726612	25.02 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.5%	Oct 15, 2014

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 NO2	FTIR	Mar 13, 2014

Triad Data Available Upon Request

Permanent Notes.OXYGEN ADDED
TO MAINTAIN STABILITY

Notes:

Approved for Release

Appendix E2

Miscellaneous QA/QC

Facility: Mesa Water
City: Costa Mesa, CA
Source: Reservoir II- Engine #1
Date: 09/23/15
Operator: DY

NO2-to-NO CONVERTER EFFICIENCY CALCULATION

NO2 CONCENTRATION (Co):	(CYL# CC502667)	16.39
AUDIT GAS WITH NO MODE (C1):		0.25
AUDIT GAS WITH NOx MODE (C2):		15.67

CALCULATIONS:

D1=|C2-C1|=	15.42
D2=|Co-C2|=	**0.72**

% CONVERTER EFFICIENCY: %CE=D1*100/Co= 94.1

Acceptance Criteria*	**(Yes/No)**
a) % Converter Efficiency > 90% :	yes
b) C1 must be < 5% of total NOx (NO+NO2)	yes

STATUS: PASS

* NO2-to-NO Conversion Efficiency must be greater than 90%.

Almega ENVIRONMENTAL

Facility:	**Mesa Water**	Run No.:	**1**
Location:	**Costa Mesa, CA**	Test Date:	**09/23/15**
Source:	**Reservoir II- Engine #1**	Test:	**NOx Converter Check**

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NO
A	ANALYTICAL RANGE	**25**
	Unit of Measurement	**ppmd**
	CALIBRATION GAS INFORMATION	
B	Zero Gas	**0.00**
C	Mid Gas Concentration	**12.19**
	Mid Gas Cylinder S/N:	CC405991
D	High Gas Concentration	**23.08**
	High Gas Cylinder S/N:	CC1599
	Primary Gas Cylinder S/N:	
	INITIAL CALIBRATION ERROR TEST	
F	Zero Gas Response	**0.00**
G	Mid Gas Response	**12.26**
H	High Gas Reponse	**23.15**

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range		
Low Gas		C'*100/A
Mid Gas	48.8	C*100/A
High Gas	92.3	D*100/A
CALIBRATION ERROR, % of Range		
Initial Zero Gas Error	0.00	(F-B)*100/A
Initial Low Gas Error		(G'-C')*100/A
Initial Mid Gas Error	0.28	(G-C)*100/A
Initial High Gas Error	0.28	(H-D)*100/A
LINEARITY, % of Range		
Initial	0.13	{(G-F)-[(H-F)*C]/D}*100/A

Facility: Mesa Water
City: Costa Mesa, CA
Source: Reservoir II- Engine #2
Date: 09/16/15
Operator: DY

NO2-to-NO CONVERTER EFFICIENCY CALCULATION

NO2 CONCENTRATION (Co):	(CYL# CC502667)	16.39
AUDIT GAS WITH NO MODE (C1):		0.22
AUDIT GAS WITH NOx MODE (C2):		16.10

CALCULATIONS:

D1=|C2-C1|=	15.88
D2=|Co-C2|=	**0.29**

% CONVERTER EFFICIENCY: %CE=D1*100/Co= 96.9

	Acceptance Criteria*	**(Yes/No)**
a)	% Converter Efficiency > 90% :	yes
b)	C1 must be < 5% of total NOx (NO+NO2)	yes

STATUS: PASS

* NO2-to-NO Conversion Efficiency must be greater than 90%.

Almega ENVIRONMENTAL

Facility:	**Mesa Water**	Run No.:	**1**
Location:	**Costa Mesa, CA**	Test Date:	**09/16/15**
Source:	**Reservoir II- Engine #2**	Test:	**NOx Converter Check**

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NO
A	ANALYTICAL RANGE	**25**
	Unit of Measurement	**ppmd**
	CALIBRATION GAS INFORMATION	
B	Zero Gas	**0.00**
C	Mid Gas Concentration	**12.190**
	Mid Gas Cylinder S/N:	CC274361
D	High Gas Concentration	**23.080**
	High Gas Cylinder S/N:	CC308608
	Primary Gas Cylinder S/N:	
	INITIAL CALIBRATION ERROR TEST	
F	Zero Gas Response	**0.00**
G	Mid Gas Response	**12.15**
H	High Gas Reponse	**23.12**

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range		
Low Gas		C'*100/A
Mid Gas	48.8	C*100/A
High Gas	92.3	D*100/A
CALIBRATION ERROR, % of Range		
Initial Zero Gas Error	0.00	(F-B)*100/A
Initial Low Gas Error		(G'-C')*100/A
Initial Mid Gas Error	-0.16	(G-C)*100/A
Initial High Gas Error	0.16	(H-D)*100/A
LINEARITY, % of Range		
Initial	-0.24	{(G-F)-[(H-F)*C]/D}*100/A

Facility: Mesa Water
City: Costa Mesa, CA
Source: Reservoir II- Engine #3
Date: 09/17/15
Operator: DY

NO2-to-NO CONVERTER EFFICIENCY CALCULATION

NO2 CONCENTRATION (Co):	(CYL# CC502667)	16.39
AUDIT GAS WITH NO MODE (C1):		0.22
AUDIT GAS WITH NOx MODE (C2):		16.18

CALCULATIONS:

D1=|C2-C1|=	15.96
D2=|Co-C2|=	**0.21**

% CONVERTER EFFICIENCY: %CE=D1*100/Co= 97.4

	Acceptance Criteria*	**(Yes/No)**
a)	% Converter Efficiency > 90% :	yes
b)	C1 must be < 5% of total NOx (NO+NO2)	yes

STATUS: PASS

* NO2-to-NO Conversion Efficiency must be greater than 90%.

Almega ENVIRONMENTAL

Facility:	**Mesa Water**	Run No.:	**1**
Location:	**Costa Mesa, CA**	Test Date:	**09/17/15**
Source:	**Reservoir II- Engine #3**	Test:	**NOx Converter Check**

TEST DATA

VARIABLE	DESCRIPTION		Pollutant 1 NO
A	ANALYTICAL RANGE		**25**
	Unit of Measurement		**ppmd**
	CALIBRATION GAS INFORMATION		
B	Zero Gas		**0.00**
C'	Low Gas Concentration		
		Low Gas Cylinder S/N:	
C	Mid Gas Concentration		**12.19**
		Mid Gas Cylinder S/N:	CC405991
D	High Gas Concentration		**23.08**
		High Gas Cylinder S/N:	CC1599
		Primary Gas Cylinder S/N:	
	INITIAL CALIBRATION ERROR TEST		
F	Zero Gas Response		**0.00**
G'	Low Gas Response		
G	Mid Gas Response		**12.42**
H	High Gas Reponse		**23.38**

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range		
Low Gas		C'*100/A
Mid Gas	48.8	C*100/A
High Gas	92.3	D*100/A
CALIBRATION ERROR, % of Range		
Initial Zero Gas Error	0.00	(F-B)*100/A
Initial Low Gas Error		(G'-C')*100/A
Initial Mid Gas Error	0.92	(G-C)*100/A
Initial High Gas Error	1.20	(H-D)*100/A
LINEARITY, % of Range		
Initial	0.29	{(G-F)-[(H-F)*C]/D}*100/A

APPENDIX F

FACILITY PROCESS DATA

EPA Method 19 - Stack Gas Flow Rate Using F-Factor

Facility: Mesa Water
Location: Costa Mesa, CA
Unit: Reservoir II- Engine #1

Parameter	units	Test Results		
		High Load	Normal Load	Low Load
TEST INFORMATION				
Test Date:		09/23/15	09/23/15	09/17/15
Start Time:	h:m	10:27	11:02	12:17
End Time:	h:m	10:41	11:31	12:31
FACILITY FUEL DATA				
Compensated Fuel Meter?	(Y/N)	n	n	n
Fuel Line Pressure, Pf	psig	5.9	5.9	6.0
Fuel Line Temperature, Tf	deg.F	88.4	88.8	89.2
Uncorrected Fuel Flow Rate	cfm	27.7	21.7	16.0
Corrected Fuel Flow Rate, Qf,corr	**scfm**	**36.8**	**28.8**	**21.3**
FUEL GAS CHARACTERISTICS				
Dry CO2-based F-Factor, Fc	dscf/MMBtu	1,040	1,040	1,040
Heating Value, HV	Btu/scf	1,050	1,050	1,050
STACK GAS MEASUREMENTS				
Stack Gas CO2 Concentration, CO2	%	12.08	12.05	12.00
CALCULATED DATA				
Firing Rate (Heat Input), FR	**MMBtu/hr**	**2.32**	**1.81**	**1.34**
Stack Gas Flow Rate, Qsd	**dscfm**	**332**	**261**	**194**

Comments: Qf,corr = 520 / 14.7 * (14.7+Pf) / (460+Tf) *cfm

FR = Qf, corr*60*HV/1000000

$Q_{sd} = F_c (H/60)(100/CO_2)$

Fuel flow rate (cfm) was quantified by timing a rotating test dial for over one minute.

EPA Method 19 - Stack Gas Flow Rate Using F-Factor

Facility: Mesa Water
Location: Costa Mesa, CA
Unit: Reservoir II- Engine #2

Parameter	units	Test Results		
		High Load	**Normal Load**	**Low Load**
TEST INFORMATION				
Test Date:		09/16/15	09/16/15	09/17/15
Start Time:	h:m	12:43	13:47	14:40
End Time:	h:m	13:00	14:50	14:54
FACILITY FUEL DATA				
Compensated Fuel Meter?	(Y/N)	n	n	n
Fuel Line Pressure, Pf	psig	6.00	6.00	6.00
Fuel Line Temperature, Tf	deg.F	84.7	86.7	89.5
Uncorrected Fuel Flow Rate	cfm	28	22	17
Corrected Fuel Flow Rate, Qf,corr	**scfm**	**37.6**	**29.5**	**22.7**
FUEL GAS CHARACTERISTICS				
Dry CO2-based F-Factor, Fc	dscf/MMBtu	1,040	1,040	1,040
Heating Value, HV	Btu/scf	1,050	1,050	1,050
STACK GAS MEASUREMENTS				
Stack Gas CO2 Concentration, CO2	%	12.08	12.06	12.07
CALCULATED DATA				
Firing Rate (Heat Input), FR	**MMBtu/hr**	**2.37**	**1.86**	**1.43**
Stack Gas Flow Rate, Qsd	**dscfm**	**340**	**267**	**205**

Comments: Qf,corr = 520 / 14.7 * (14.7+Pf) / (460+Tf) *cfm

FR = Qf, corr*60*HV/1000000

$Q_{sd} = F_c (H/60)(100/CO_2)$

Fuel flow rate (cfm) was quantified by timing a rotating test dial for over one minute.

EPA Method 19 - Stack Gas Flow Rate Using F-Factor

Facility: Mesa Water
Location: Costa Mesa, CA
Unit: Reservoir II- Engine #3

Parameter	units	Test Results		
		High Load	Normal Load	Low Load
TEST INFORMATION				
Test Date:		09/17/15	09/17/15	09/17/15
Start Time:	h:m	16:03	16:50	17:36
End Time:	h:m	16:17	17:19	17:50
FACILITY FUEL DATA				
Compensated Fuel Meter?	(Y/N)	n	n	n
Fuel Line Pressure, Pf	psig	6.0	6.0	6.0
Fuel Line Temperature, Tf	deg.F	92.5	90.9	90.8
Uncorrected Fuel Flow Rate	cfm	28.0	22.0	17.0
Corrected Fuel Flow Rate, Qf,corr	**scfm**	**37.1**	**29.2**	**22.6**
FUEL GAS CHARACTERISTICS				
Dry CO2-based F-Factor, Fc	dscf/MMBtu	1,040	1,040	1,040
Heating Value, HV	Btu/scf	1,050	1,050	1,050
STACK GAS MEASUREMENTS				
Stack Gas CO2 Concentration, CO2	%	12.10	12.09	12.10
CALCULATED DATA				
Firing Rate (Heat Input), FR	**MMBtu/hr**	**2.34**	**1.84**	**1.42**
Stack Gas Flow Rate, Qsd	**dscfm**	**335**	**264**	**204**

Comments: Qf,corr = 520 / 14.7 * (14.7+Pf) / (460+Tf) *cfm

FR = Qf, corr*60*HV/1000000

$Q_{sd} = F_c (H/60)(100/CO_2)$

Fuel flow rate (cfm) was quantified by timing a rotating test dial for over one minute.

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Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #1 High Load

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer: WAUKESHA
S/N: C-10769/1
Permit Number: G4002
Horespower: Rated: 369 Tested: NA

Engine Type: (X) Rich Burn
( ) Lean Burn
( ) 2 Stroke
( ) 4 Stroke
( ) Other Specify:

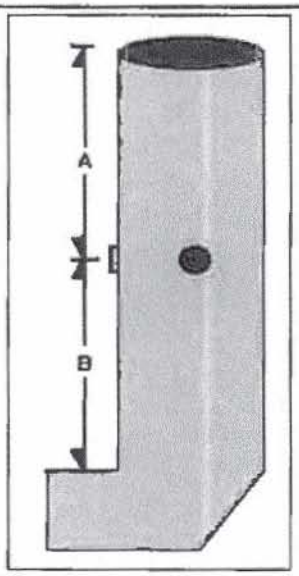
(X) Turbo / Supercharged
( ) Clean Burn
( ) EGR Equipped
( ) PSC System

Engine Elapsed Time (hrs): 18176.6
Fuel Type: Natural Gas
Hours since last Test: ~~16427~~ sp 1750

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: ~~8~~ 8"
"A" Distance: 6"
"B" Distance: 18"
Port Size: 1"
M or F: F
Offset: 1.5"



Engine Load: High

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	18176.5	18176.6	18176.6	
Engine RPM:	979	979	980	
LB/RB Target ~~AFRC~~ set point:	1.041	1.041	1.041	
LB sensor ~~AFRC~~ output :	1.043	1.042	1.040	
Catalyst Inlet Temp.:	1030	1033	1035	
Catalyst Outlet Temp.:	1045	1045	1048	
Gas Meter Temp.	88.1	87.9	89.1	
Fuel usage (scfm)	27 cfm	28 cfm	28 cfm	
LB VDC O_2 mV	0.803	0.811	0.783	
Notes: ~~(psi) Fuel Press~~	5.9	5.9	5.9	

Start 20580.xx
End ~~20590.xx~~

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Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #1 Normal Load

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer: WAUKESHA
S/N: C-10769/1
Permit Number: G41002
Horespower: Rated: 369 Tested: N/A

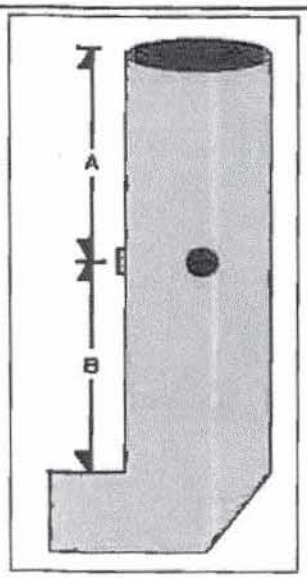
Engine Type: (X) Rich Burn (X) Turbo / Supercharged
( ) Lean Burn ( ) Clean Burn
( ) 2 Stroke ( ) EGR Equipped
( ) 4 Stroke ( ) PSC System
( ) Other Specify:

Engine Elapsed Time (hrs): 18177.7
Fuel Type: Natural Gas
Hours since last Test: ~~16427~~ 1750
SA

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: 8"
"A" Distance: 6"
"B" Distance: 18"
Port Size: 1"
M or E:
Offset: 1.5"



Engine Load: Normal

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	18177.2	18177.4	18177.7	
Engine RPM:	885	886	885	
LB/RB (phi) ~~AFRC~~ set point:	1.041	1.041	1.041	
Target LB sensor (phi) ~~AFRC~~ output :	1.039	1.042	1.040	
Catalyst Inlet Temp.:	981	980	979	
Catalyst Outlet Temp.:	998	996	997	
Gas Meter Temp.	89.1	89.0	88.3	
Fuel usage (scfm)	20	23	22	
Notes: LB VDC O2 mV	0.806	0.802	0.810	
(psi) Fuel Press	5.9	5.9	5.9	

Start 20581XXX
Finish 20581XXX

Almega ENVIRONMENTAL

Almega ENVIRONMENTAL

Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #1 Low

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer: Waukesha
S/N: C-107691 1
Permit Number: G4002
Horespower: 369 Rated: Tested:

Engine Type: (X) Rich Burn
( ) Lean Burn
( ) 2 Stroke
( ) 4 Stroke
( ) Other Specify:

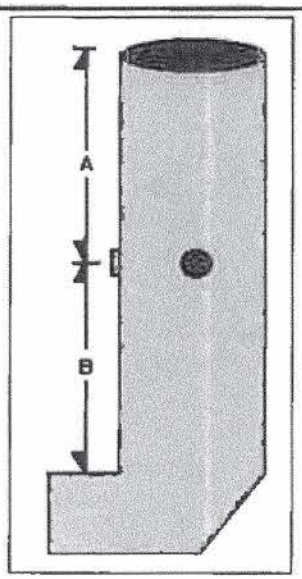
(X) Turbo / Supercharged
( ) Clean Burn
( ) EGR Equipped
( ) PSC System

Engine Elapsed Time (hrs): 18178.7
Fuel Type: Natural Gas
Hours since last Test: ~~16427~~ CA

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: 8"
"A" Distance: 6 ~~+8~~"
"B" Distance: 18"
Port Size: 1"
M or F:
Offset: 2.5"



Engine Load: Low

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	18178.5	18178.6	18178.7	
Engine RPM:	811	803	809	
LB/RB target AFRC set point:	1.037	1.037	1.037	
LB sensor AFRC output :	1.036	1.037	1.039	
Catalyst Inlet Temp.:	906	903	905	
Catalyst Outlet Temp.:	927	927	935	
Gas Meter Temp.	88.4	89.1	90.2	
Fuel usage (scfm)	15	17	16	
Notes: LB VDC O2 mV	0.806	0.808	0.791	
psi Fuel Press	59	59	59	

Start 20582xxx
End 20582xxx

ENG. #2 High PORT A

Almega ENVIRONMENTAL

Project # _____ Client _____ Contact ENG #2

Scope of Work _____ MAX LOAD

ENG. HOURS By _____ Date _____ Sheet _____ of _____

18366 – 18367.1 PORT A & B

1207 FUEL USAGE: START INITIAL 21532.

1224 MID: _____ 28 cfm

1300 ——→ STOP: N/A

ENGINE RPM: 977 RPM
978
979

O2 MV. 0.787 VDC
0.789
0.786

SCR TEMP IN 981.6 OUT 1010.1
982.9 1011.8
982.9 1011.5

TIMER START STOP
85
84
85

7.30-8:00

Eng #2

Almega ENVIRONMENTAL

Project # Mid Load Client Contact Almega ENVIRONMENTAL

Scope of Work (29.83)

By Date Sheet of

Eng. hours: PORT A & B

Fuel Usage: START

Mid 22 cfm

STOP

Eng. RPM: START 885

Mid 886

STOP 886

O2 mv. START 0.76

Mid 0.76

STOP 0.77

SCR Temp START in 923.1 Out 961.9

Mid in 921.1 Out 961.9

STOP 921.0 962.4

Gas Meter Temp START 86°F

mid 85°F

STOP 89°F

Gas Press 6 psi

Eng. #2 LOW LOAD ~~1400-14~~ 1440-1455

Almega ENVIRONMENTAL

Project # _____ Client _____ Contact _____

Scope of Work LB sensor ~~AFR~~ - failing - 1.029 700 RPM / 800 RPM

By LB/sensor ~~AFR~~ - After - 1.035 Date _____ Sheet _____ of _____

ENG hours: 18375.8 - 18376.0 PORT A-B

Fuel	START	PIC	
	Mid		
	STOP	PIC	
Eng. RPM	START	~~[illegible]~~	800
	Mid		
	STOP	~~[illegible]~~	801
O2 MV	START	~~[illegible]~~	0.795
	Mid		
	STOP	~~.783~~	0.790
SCR Temp	START	IN ~~[illegible]~~ 841.9	OUT ~~[illegible]~~ 892.6
	Mid		
	STOP	~~845.8~~ 842.3	~~893.4~~ 894.8
GAS Meter	START	~~90~~	90
	Mid		
	STOP	~~90~~	89

Almega ENVIRONMENTAL

Project # 9840 Client Mesa Water Contact Almega ENVIRONMENTAL / Bob

Scope of Work

By D. Yonemori Date 09/17/15 Sheet ____ of ____

Engine #2 Low Load Reservoir #2

1) 14:40 - 14:44 34°
2) 14:45 - 14:49 35°
3) 14:50 - 14:54 34°

17 cubic ft. / min, Gas Flow Rate

Barometric - 29.78 inHg
Humidity - 61%
Temperature - 75°F
Gas Meter Press - 6psi

Eng # 3
High load.

Almega ENVIRONMENTAL

Project # _____ Client _____ Contact _____

Scope of Work _____

By _____ Date _____ Sheet _____ of _____

Eng. hours: 19770.8 Started @ 1603 - 1617
19771.1

Eng. RPM: START: 981
STOP: 981

O2 mV START: .795
STOP: .785

NSCR Temp: IN OUT
START 1032.6 1040.1
STOP 1034.1 1041.9

Gas Meter Temp:
START 93° f
Gas Press. 6 psi STOP. 92° f

Almega ENVIRONMENTAL

Project # 9840 Client Mesa Water Contact Almega Bob

Scope of Work

By D. Yonemori Date 09/17/15 Sheet ____ of ____

Engine #3 Reservoir #2 Normal Load

Eng. RPM	O2 mV	NSCR IN	NSCR OUT	Gas meter Temp.
890	0.79	980.9	989.1	90.4
890	0.81	980.9	987.5	91.4
890	0.80	980.6	987.8	91.0

Engine #3 Reservoir #2 Low Load

Eng. RPM	O2 mV	NSCR IN	NSCR OUT	Gas meter Temp
801	0.79	910.4	922.6	90.6
800	0.80	909.8	920.4	91.0

Almega ENVIRONMENTAL

Project # 9840 Client Mesa Water Contact Almega ENVIRONMENTAL Bob

Scope of Work

By D. Yonemori Date 09/17/15 Sheet ____ of ____

Engine #3 High Load Reservoir #2

1) 16:03 - 16:07 34° 28 ft³/min.
2) 16:08 - 16:12 35°
3) 16:13 - 16:17 35° Gas Flow Rate

Engine #3 Normal Load Reservoir #2

1) 16:50 - 16:59 35° 22 ft³/min.
2) 17:00 - 17:09 34°
3) 17:10 - 17:19 34° Gas Flow Rate

Engine #3 Low Load Reservoir #2

1) 17:36 - 17:40 35° 17 ft³/min
2) 17:41 - 17:45 35°
3) 17:46 - 17:50 35° Gas Flow Rate

Gas Press. 6psi

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ENVIRONMENTAL

Almega
ENVIRONMENTAL

Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #4 High Load

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer:
S/N:
Permit Number:
Horespower: Rated: Tested:

Engine Type: (X) Rich Burn
( ) Lean Burn
( ) 2 Stroke
( ) 4 Stroke
( ) Other Specify:

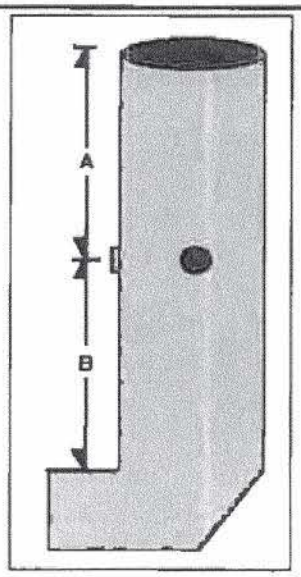
(X) Turbo / Supercharged
( ) Clean Burn
( ) EGR Equipped
( ) PSC System

Engine Elapsed Time (hrs):
Fuel Type: Natural Gas
Hours since last Test:

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: ~~6~~ 8"
"A" Distance: 6"
"B" Distance: 18"
Port Size: 1"
M or F:
Offset: 1-5"



Engine Load: High

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	17601.9	17602.0		
Engine RPM:	976	976	976	
LB/RB ~~AFRC~~ Target set point:	1,040	1,040	1,040	
LB Tensor ~~AFRC~~ output :	1,039	1,039	1,040	
Catalyst Inlet Temp.:	987	988	989	
Catalyst Outlet Temp.:	1015	1016	1017	
Gas Meter Temp.	87.4	87.4	87.9	
Fuel usage (scfm)	28	30	30	
O_2 (mV)	0.802	0.810	0.799	
Gas Press (psi)	5.9	5.9	5.9	

Notes:

Start - 20473xxx
End - 20473xxx

Almega
ENVIRONMENTAL

Almega
ENVIRONMENTAL

Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #4 Normal Load

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer:
S/N:
Permit Number:
Horespower: Rated: Tested:

Engine Type: (X) Rich Burn
( ) Lean Burn
( ) 2 Stroke
( ) 4 Stroke
( ) Other Specify:

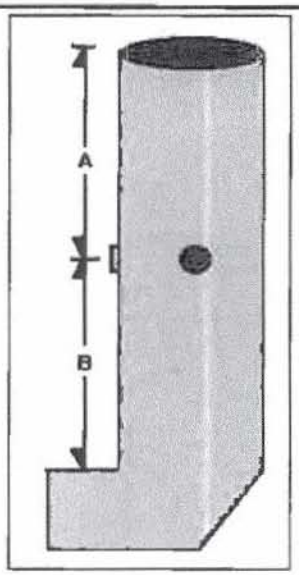
(X) Turbo / Supercharged
( ) Clean Burn
( ) EGR Equipped
( ) PSC System

Engine Elapsed Time (hrs):
Fuel Type: Natural Gas
Hours since last Test:

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: 8"
"A" Distance: 6"
"B" Distance: 18"
Port Size: 1"
M or F
Offset: 1.5"



Engine Load: Normal

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	17602.6	17602.9	17603.1	
Engine RPM:	975	976	975	
LB/LO Target AFRC set point:	1.039	1.039	1.039	
LB sensor AFRC output :	1.036	1.041	1.037	
Catalyst Inlet Temp.:	992	992	992	
Catalyst Outlet Temp.:	1018	1018	1018	
Gas Meter Temp.	88.7	89.0	89.1	
Fuel usage (scfm)	25	27	27	
Noles: O2 (mV)	0.799	0.790	0.790	
Gas press (psi)	5.9	5.9	5.9	

Start - 20474 xxx
End - 20475 xxx

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Almega
ENVIRONMENTAL

Internal Combustion Engine Data Sheet

Client : Mesa Water District
Site : Costa Mesa, CA
Unit : Reservoir II- Engine #4 Low

Date : 9/23/2015
Job # : 9840
Lab # :

Manufacturer:
S/N:
Permit Number:
Horespower: Rated: Tested:

Engine Type: (X) Rich Burn
( ) Lean Burn
( ) 2 Stroke
( ) 4 Stroke
( ) Other Specify:

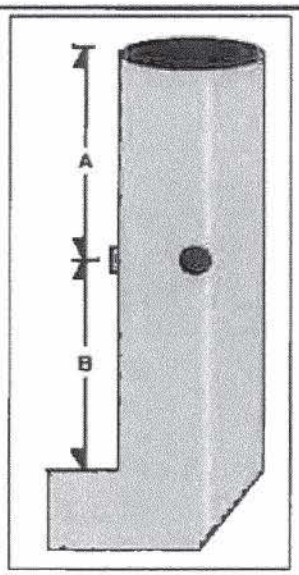
(X) Turbo / Supercharged
( ) Clean Burn
( ) EGR Equipped
( ) PSC System

Engine Elapsed Time (hrs):
Fuel Type: Natural Gas
Hours since last Test:

Control Device Data

Type:
Make:
Model:
S / N:
Hours:

Stack Diameter: 8"
"A" Distance: 6"
"B" Distance: 18"
Port Size: 1"
M or F:
Offset: 1.5"



Engine Load: Low

Engine Parameter	Start	Mid	Stop	Average
Engine Hours:	17603.5	17603.6	17603.7	
Engine RPM:	882	884	883	
LB/RB Tanjer ~~AFRC~~ set point:	~~1.039~~ 1.040	~~1.03~~ 1.040	1.040	
LB sensor ~~AFRC~~ output :	1.039	1.039	1.040	
Catalyst Inlet Temp.:	937	936	936	
Catalyst Outlet Temp.:	970	966	966	
Gas Meter Temp.	88.5	89.0	88.4	
Fuel usage (scfm)	21	22	22	
O_2 (mV)	0.812	0.811	0.815	
Gas ~~Press~~ (psi)	5.9	5.9	5.9	

Notes:

Start - 20476XXX
End - 20476XXX

CEMS Conditioner temp.

Almega ENVIRONMENTAL

Project # 9840 Client Mesa Water Contact

Scope of Work 1110.2

By D. Yoremori Date 09/23/15 Sheet 1 of 1

Reservoir #2 Engine #1

High Load (15 min.)		Mid (30 min)		Low (15 min.)	
1) 10:20-10:24	34°	1) 11:02-11:11	35°	1) 12:17-12:21	35°
2) 10:25-10:29	35°	2) 11:12-11:21	34°	2) 12:22-12:26	35°
3) 10:30-10:34	34°	3) 11:22-11:31	34°	3) 12:27-12:31	34°

Reservoir #2 Engine #4

High Load (15 min.)		Mid (30 min.)		Low (15 min.)	
1) 13:33-13:37	35°	1) 14:16-14:25	35°	1) 15:10-15:14	36°
2) 13:38-13:42	34°	2) 14:26-14:35	36°	2) 15:15-15:19	35°
3) 13:43-13:47	35°	3) 14:36-14:45	36°	3) 15:20-15:24	35°

	Manufacturer	Hp	S/N
Engine #1	Waukesha	369	C-10769 / 1
Engine #2	" "	"	C-10769 / 2
Engine #3	" "	"	C-10769 / 3
Engine #4	" "	"	C-10769 / 4

09/16/15 Reservoir #2 CEMS Conditioner

Almega ENVIRONMENTAL

Project # 9840 Client Mesa Water Contact Almega P.

Scope of Work

By D. Yonemori Date 09/16/15 Sheet 1 of

Engine #2 High Load 980 rpm

Port A			
	1	12:07 - 12:09	34°
	2	12:10 - 12:12	34°
	3	12:13 - 12:15	35°
	4	12:16 - 12:18	34°
	5	12:19 - 12:21	35°
	6	12:22 - 12:24	35°

Port B			
	1	12:43 - 12:45	34°
	2	12:46 - 12:48	35°
	3	12:49 - 12:51	35
	4	12:52 - 12:54	34°
	5	12:55 - 12:57	34°
	6	12:58 - 13:00	34°

Engine #2 Mid Load 890 rpm

Port A			
	1	13:47 - 13:51	34°
	2	13:52 - 13:56	34°
	3	13:57 - 14:01	34°
	4	14:02 - 14:06	35°
	5	14:07 - 14:11	34°
	6	14:12 - 14:16	34°

Port B			
	1	14:21 - 14:25	34°
	2	14:26 - 14:30	34°
	3	14:31 - 14:35	35°
	4	14:36 - 14:40	34°
	5	14:41 - 14:45	34°
	6	14:46 - 14:50	34°

Barometric - 29.83 inHg
Humidity - 63 %
Temperature - 73° F

Almega
ENVIRONMENTAL

Reservoir #2 Environmental Test Conditions Engine #1

Run 1 - Normal				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	11:02	75°F	70%	29.83
	11:15	75°F	70%	29.83
	11:30	75°F	70%	29.83

Run 1 - High				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	1020-1035	75°F	~~75%~~ 68%	29.83
		75%	~~75%~~ 68%	29.83
		75°F	68%	29.83

Run 1 - Low				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	12:17	77	65%	29.83
	12:23	77	65%	29.83
	12:31	78	65%	29.83

Reservoir #2 Environmental Test Conditions Engine # –

Almega ENVIRONMENTAL

Run 1 - Normal Mid				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/16/15	13:47	73°F	63 %	29.83 inHg
	14:00	73 °F	63 %	29.83 inHg
	14:16	73 °F	63 %	29.83 inHg

Run 1 - High				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/16/15	12:07	73	63	29.83
	12:17	73	63	29.83
	12:24	73	63	29.83

Run 1 - Low				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/17/15	14:40	75	61	29.78
	14:47	75	61	29.78
	14:54	75	61	29.78

Reservoir #2

Engine #2

Almega ENVIRONMENTAL

Environmental Test Conditions

Run 1 - Normal				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/17/15	16:50	75	61	29.78
	17:05	75	61	29.78
	17:19	75	61	29.78

Run 1 - High				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/17/15	16:03	75	61	29.78
	16:10	75	61	29.78
	16:17	75	61	29.78

Run 1 - Low				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/17/15	17:36	75	61	29.78
	17:42	75	61	29.78
	17:50	75	61	29.78

Almega
ENVIRONMENTAL

Reservoir #2 Environmental Test Conditions Engine #4

Run 1 - Normal				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	14:16	81 °F	61%	29.83
	14:35	81 °F	61%	29.83
	14:45	82 °F	61%	29.83

Run 1 - High				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	13:33	80	64%	29.83
	13:42	81	64%	29.83
	13:47	80	64%	29.83

Run 1 - Low				
Date	Time	Ambient Temp.	Relative Humidity	Barometric Pressure
09/23/15	15:10	81°	62 %	29.83
	15:19	82°	62 %	29.83
	15:24	81°	62 %	29.83

APPENDIX G

SCAQMD PERMITS TO OPERATE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

Almega ENVIRONMENTAL
A/N 499279

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner or Operator: MESA CONSOLIDATED WATER DISTRICT
1965 PLACENTIA AVE, ATTN: WATER OPER ASSISTANT
COSTA MESA, CA 92627-3420

ID 98380

Res 2

Equipment Location: 2340 ORANGE AVE, COSTA MESA, CA 92627

Equipment Description :

INTERNAL COMBUSTION ENGINE, WAUKESHA, MODEL NO. 2895G, SERIAL NO. C-10769/1, NATURAL GAS/LPG FIRED, SPARK IGNITED, FOUR CYCLE, SIX CYLINDERS, RICH BURN, NATURALLY ASPIRATED, RATED AT 369 BHP, WITH A NON-SELECTIVE CATALYTIC REDUCTION CONVERTER, JOHNSON MATTHEY, MODEL NO. ES-ASA(1000), AND AN AIR/FUEL RATIO CONTROLLER, COMPLIANCE CONTROLS, MODEL MECR-11-FT-60, DRIVING A WATER PUMP.

Conditions :

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS ENGINE SHALL NOT BE OPERATED UNLESS ITS EXHAUST IS VENTED TO THE AIR POLLUTION CONTROL DEVICE, THE NON-SELECTIVE CATALYTIC CONVERTER (NSCR), WHICH IS IN FULL OPERATION AND WHICH IS IN GOOD OPERATING CONDITION AT ALL TIMES.

4. THIS ENGINE SHALL NOT BE OPERATED WITHOUT THE USE OF AN AIR TO FUEL RATIO CONTROLLER WHICH SHALL BE MAINTAINED AND KEPT IN PROPER OPERATING CONDITIONS AT ALL TIMES AS SPECIFIED BY THE MANUFACTURER.

5. THIS ENGINE SHALL BE OPERATED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF RULE 1110.2 – AMENDED 2/1/2008, WHETHER OR NOT EXPLICITLY STATED IN THIS PERMIT.

6. THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	33

ORIGINAL

NITROGEN OXIDES (NOX)	12
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

7. EFFECTIVE 7/1/2011, THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	30
NITROGEN OXIDES (NOX)	11
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

8. THE OPERATOR SHALL INSTALL AND MAINTAIN AN EXHAUST GAS OXYGEN SENSOR THAT MONITORS THE EXHAUST GAS OXYGEN CONCENTRATION. THE DISPLAY OF THE EXHAUST GAS OXYGEN CONCENTRATION SHALL BE READ IN MILLIVOLTS (MV). THE EXHAUST GAS OXYGEN SENSOR MV OUTPUT SHALL BE MAINTAINED AS PER THE MANUFACTURER'S SPECIFICATION FOR THE MV READING TO ENSURE A PROPER AIR TO FUEL MIXTURE.

THE OXYGEN SENSOR SHALL BE REPLACED AFTER EVERY 2,000 OPERATING HOURS OR WHEN AN "OXYGEN SENSOR FAILURE" WARNING FROM THE ENGINE CONTROL SYSTEM IS RECEIVED, WHICHEVER IS EARLIER. ONCE THE NEW OXYGEN SENSOR IS INSTALLED, THE EXHAUST OXYGEN SET POINT SHALL BE RECHECKED AND RESET AS NECESSARY BY MEASURING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

ORIGINAL

9. THE OPERATOR OR CONTRACTOR-IN-CHARGE OF EQUIPMENT OPERATION SHALL INSPECT AND CLEAN OR, IF NECESSARY, REPLACE THE CATALYST EVERY 8,000 OPERATING HOURS. RECORDS OF THE CATALYST CLEANING OR REPLACEMENT SHALL BE MAINTAINED AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

10. THE OPERATOR OR CONTRACTOR IN CHARGE SHALL MAINTAIN ACCURATE MAINTENANCE RECORDS OF THE DATE OF CATALYST CLEANING OR REPLACEMENT, OXYGEN SENSOR REPLACEMENT, THE TOTAL HOUR READING ON THE TOTAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME, OXYGEN SENSOR READING IN MILLIVOLTS OR PERCENT OXYGEN AND THE CORRESPONDING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

11. THE OPERATOR SHALL SUBMIT AN INSPECTION AND MONITORING (I&M) PLAN PURSUANT TO RULE 1110.2 (E)(4) AND (F)(1)(D) – AMENDED 2/1/2008. THE OPERATOR SHALL IMPLEMENT THE APPROVED I&M PLAN OR THE I&M PLAN AS SUBMITTED IF THE PLAN IS NOT YET APPROVED BY 12/1/2008.

    THE OPERATOR SHALL ENSURE THAT THE EMISSIONS FROM THE ENGINE WILL CONTINUE TO COMPLY WITH THE LIMITS IN CONDITION NOS. 6 & 7 THROUGH MONITORING THAT SHALL INCLUDE BUT NOT BE LIMITED TO, THE FOLLOWING PROCEDURE:

    PERIODIC TESTING OF NOX AND CO EMISSIONS USING A PORTABLE ANALYZER. EMISSION READINGS SHALL BE TAKEN AT THE POST-CATALYST EXHAUST EVERY MINUTE FOR 15 MINUTES. THE TESTS SHALL BE CONDUCTED WHEN THE ENGINE IS OPERATING AT NORMAL CONDITION AND SHALL BE DONE AT LEAST ONCE EVERY WEEK OR EVERY 150 HOURS OF ENGINE OPERATION WHICHEVER OCCURS LATER. THE TESTS SHALL BE CONDUCTED BY THE OPERATOR WHO HAS COMPLETED AN AQMD TRAINING PROGRAM AND RECEIVED A CERTIFICATION ISSUED BY THE DISTRICT.

    IF THE ENGINE IS IN COMPLIANCE FOR THREE CONSECUTIVE EMISSIONS CHECKS, WITHOUT ANY ADJUSTMENTS TO THE OXYGEN SENSOR SET POINTS, THEN THE ENGINES NOX AND CO EMISSIONS MAY BE CHECKED MONTHLY OR EVERY 750 HOURS OF ENGINE OPERATION WHICHEVER IS LATER, UNTIL THERE IS A NONCOMPLIANT EMISSIONS CHECK OR THE OXYGEN SENSOR IS REPLACED.

    THE OPERATOR SHALL MAINTAIN RECORDS TO VERIFY COMPLIANCE WITH THIS CONDITION.

12. THIS EQUIPMENT SHALL COMPLY WITH MONITORING, TESTING AND RECORD KEEPING REQUIREMENTS OF RULE 1110.2(F)(1) AS OUTLINED BELOW:

ORIGINAL

A. THE ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER (DISPLAY READING SHALL BE READILY AVAILABLE) TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.

B. CONDUCT SOURCE TESTING FOR NOX, CO AND VOC REPORTED AS CARBON (CONCENTRATION IN PPM BY VOLUME, CORRECTED TO 15% OXYGEN ON A DRY BASIS) AT LEAST ONCE EVERY TWO YEARS, OR EVERY 8760 OPERATING HOURS, WHICHEVER OCCURS FIRST. THE SOURCE TEST FREQUENCY MAY BE REDUCED TO ONCE EVERY THREE YEARS IF THE ENGINE HAS OPERATED LESS THAN 2000 HOURS SINCE THE LAST SOURCE TEST.

C. THE SOURCE TEST SHALL BE CONDUCTED FOR A MINIMUM OF 60 MINUTES. TESTING SHALL BE DONE FOR AT LEAST 30 MINUTES DURING NORMAL OPERATION (ACTUAL DUTY CYCLE). IN ADDITION, TESTING SHALL BE DONE FOR NOX AND CO EMISSIONS FOR AT LEAST 15 MINUTES AT: AN ENGINE'S PEAK LOAD, OR THE MAXIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST, AND: AT ACTUAL MINIMUM LOAD, EXCLUDING IDLE, OR THE MINIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST.

D. THE OPERATOR SHALL ONLY USE A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS, THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2(F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF THE SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.

E. MAINTAIN A MONTHLY OPERATING ENGINE LOG THAT INCLUDES:

I. TOTAL HOURS OF OPERATION
II. TYPE OF GASEOUS FUEL
III. FUEL CONSUMPTION (CUBIC FEET OF GAS) AND,
IV. CUMULATIVE HOURS OF OPERATION SINCE THE LAST SOURCE TEST REQUIRED IN SUBPARAGRAPH (F)(1)(C) OF RULE 1110.2 – AMENDED 2/1/2008.

THE LOG SHALL BE AVAILABLE FOR INSPECTION AT ANY TIME.

13. THE OPERATOR SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF RULE 1110.2(F)(1)(H)(I) THROUGH (III) PERTAINING TO ANY EQUIPMENT BREAKDOWN THAT RESULTS IN EMISSIONS IN EXCESS OF RULE OR PERMIT EMISSION LIMITS.

ORIGINAL

14. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED AT THE FACILITY FOR A MINIMUM OF FIVE YEARS AND SHALL BE MADE AVAILABLE TO ANY DISTRICT PERSONNEL UPON REQUEST.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Dorris M.Bailey/MS10
8/5/2009

ORIGINAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

P
P Almega
G ENVIRONMENTAL
A/N 499280

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner or Operator: MESA CONSOLIDATED WATER DISTRICT
1965 PLACENTIA AVE, ATTN: WATER OPER ASSISTANT
COSTA MESA, CA 92627-3420

ID 98380

Res 2

Equipment Location: 2340 ORANGE AVE, COSTA MESA, CA 92627

Equipment Description :

INTERNAL COMBUSTION ENGINE, WAUKESHA, MODEL NO. 2895G, SERIAL NO. C-10769/4, NATURAL GAS/LPG FIRED, SPARK IGNITED, FOUR CYCLE, SIX CYLINDERS, RICH BURN, NATURALLY ASPIRATED, RATED AT 369 BHP, WITH A NON-SELECTIVE CATALYTIC REDUCTION CONVERTER, JOHNSON MATTHEY, MODEL NO. ES-ASA(1000), AND AN AIR/FUEL RATIO CONTROLLER, COMPLIANCE CONTROLS, MODEL MECR-11-FT-60, DRIVING A WATER PUMP.

Conditions :

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS ENGINE SHALL NOT BE OPERATED UNLESS ITS EXHAUST IS VENTED TO THE AIR POLLUTION CONTROL DEVICE, THE NON-SELECTIVE CATALYTIC CONVERTER (NSCR), WHICH IS IN FULL OPERATION AND WHICH IS IN GOOD OPERATING CONDITION AT ALL TIMES.

4. THIS ENGINE SHALL NOT BE OPERATED WITHOUT THE USE OF AN AIR TO FUEL RATIO CONTROLLER WHICH SHALL BE MAINTAINED AND KEPT IN PROPER OPERATING CONDITIONS AT ALL TIMES AS SPECIFIED BY THE MANUFACTURER.

5. THIS ENGINE SHALL BE OPERATED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF RULE 1110.2 – AMENDED 2/1/2008, WHETHER OR NOT EXPLICITLY STATED IN THIS PERMIT.

6. THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	33

ORIGINAL

NITROGEN OXIDES (NOX)	12
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

7. EFFECTIVE 7/1/2011, THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	30
NITROGEN OXIDES (NOX)	11
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

8. THE OPERATOR SHALL INSTALL AND MAINTAIN AN EXHAUST GAS OXYGEN SENSOR THAT MONITORS THE EXHAUST GAS OXYGEN CONCENTRATION. THE DISPLAY OF THE EXHAUST GAS OXYGEN CONCENTRATION SHALL BE READ IN MILLIVOLTS (MV). THE EXHAUST GAS OXYGEN SENSOR MV OUTPUT SHALL BE MAINTAINED AS PER THE MANUFACTURER'S SPECIFICATION FOR THE MV READING TO ENSURE A PROPER AIR TO FUEL MIXTURE.

THE OXYGEN SENSOR SHALL BE REPLACED AFTER EVERY 2,000 OPERATING HOURS OR WHEN AN "OXYGEN SENSOR FAILURE" WARNING FROM THE ENGINE CONTROL SYSTEM IS RECEIVED, WHICHEVER IS EARLIER. ONCE THE NEW OXYGEN SENSOR IS INSTALLED, THE EXHAUST OXYGEN SET POINT SHALL BE RECHECKED AND RESET AS NECESSARY BY MEASURING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

ORIGINAL

9. THE OPERATOR OR CONTRACTOR-IN-CHARGE OF EQUIPMENT OPERATION SHALL INSPECT AND CLEAN OR, IF NECESSARY, REPLACE THE CATALYST EVERY 8,000 OPERATING HOURS. RECORDS OF THE CATALYST CLEANING OR REPLACEMENT SHALL BE MAINTAINED AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

10. THE OPERATOR OR CONTRACTOR IN CHARGE SHALL MAINTAIN ACCURATE MAINTENANCE RECORDS OF THE DATE OF CATALYST CLEANING OR REPLACEMENT, OXYGEN SENSOR REPLACEMENT, THE TOTAL HOUR READING ON THE TOTAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME, OXYGEN SENSOR READING IN MILLIVOLTS OR PERCENT OXYGEN AND THE CORRESPONDING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

11. THE OPERATOR SHALL SUBMIT AN INSPECTION AND MONITORING (I&M) PLAN PURSUANT TO RULE 1110.2 (E)(4) AND (F)(1)(D) – AMENDED 2/1/2008. THE OPERATOR SHALL IMPLEMENT THE APPROVED I&M PLAN OR THE I&M PLAN AS SUBMITTED IF THE PLAN IS NOT YET APPROVED BY 12/1/2008.

    THE OPERATOR SHALL ENSURE THAT THE EMISSIONS FROM THE ENGINE WILL CONTINUE TO COMPLY WITH THE LIMITS IN CONDITION NOS. 6 & 7 THROUGH MONITORING THAT SHALL INCLUDE BUT NOT BE LIMITED TO, THE FOLLOWING PROCEDURE:

    PERIODIC TESTING OF NOX AND CO EMISSIONS USING A PORTABLE ANALYZER. EMISSION READINGS SHALL BE TAKEN AT THE POST-CATALYST EXHAUST EVERY MINUTE FOR 15 MINUTES. THE TESTS SHALL BE CONDUCTED WHEN THE ENGINE IS OPERATING AT NORMAL CONDITION AND SHALL BE DONE AT LEAST ONCE EVERY WEEK OR EVERY 150 HOURS OF ENGINE OPERATION WHICHEVER OCCURS LATER. THE TESTS SHALL BE CONDUCTED BY THE OPERATOR WHO HAS COMPLETED AN AQMD TRAINING PROGRAM AND RECEIVED A CERTIFICATION ISSUED BY THE DISTRICT.

    IF THE ENGINE IS IN COMPLIANCE FOR THREE CONSECUTIVE EMISSIONS CHECKS, WITHOUT ANY ADJUSTMENTS TO THE OXYGEN SENSOR SET POINTS, THEN THE ENGINES NOX AND CO EMISSIONS MAY BE CHECKED MONTHLY OR EVERY 750 HOURS OF ENGINE OPERATION WHICHEVER IS LATER, UNTIL THERE IS A NONCOMPLIANT EMISSIONS CHECK OR THE OXYGEN SENSOR IS REPLACED.

    THE OPERATOR SHALL MAINTAIN RECORDS TO VERIFY COMPLIANCE WITH THIS CONDITION.

12. THIS EQUIPMENT SHALL COMPLY WITH MONITORING, TESTING AND RECORD KEEPING REQUIREMENTS OF RULE 1110.2(F)(1) AS OUTLINED BELOW:

ORIGINAL

A. THE ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER (DISPLAY READING SHALL BE READILY AVAILABLE) TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.

B. CONDUCT SOURCE TESTING FOR NOX, CO AND VOC REPORTED AS CARBON (CONCENTRATION IN PPM BY VOLUME, CORRECTED TO 15% OXYGEN ON A DRY BASIS) AT LEAST ONCE EVERY TWO YEARS, OR EVERY 8760 OPERATING HOURS, WHICHEVER OCCURS FIRST. THE SOURCE TEST FREQUENCY MAY BE REDUCED TO ONCE EVERY THREE YEARS IF THE ENGINE HAS OPERATED LESS THAN 2000 HOURS SINCE THE LAST SOURCE TEST.

C. THE SOURCE TEST SHALL BE CONDUCTED FOR A MINIMUM OF 60 MINUTES. TESTING SHALL BE DONE FOR AT LEAST 30 MINUTES DURING NORMAL OPERATION (ACTUAL DUTY CYCLE). IN ADDITION, TESTING SHALL BE DONE FOR NOX AND CO EMISSIONS FOR AT LEAST 15 MINUTES AT: AN ENGINE'S PEAK LOAD, OR THE MAXIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST, AND: AT ACTUAL MINIMUM LOAD, EXCLUDING IDLE, OR THE MINIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST.

D. THE OPERATOR SHALL ONLY USE A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS, THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2(F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF THE SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.

E. MAINTAIN A MONTHLY OPERATING ENGINE LOG THAT INCLUDES:

I. TOTAL HOURS OF OPERATION
II. TYPE OF GASEOUS FUEL
III. FUEL CONSUMPTION (CUBIC FEET OF GAS) AND,
IV. CUMULATIVE HOURS OF OPERATION SINCE THE LAST SOURCE TEST REQUIRED IN SUBPARAGRAPH (F)(1)(C) OF RULE 1110.2 – AMENDED 2/1/2008.

THE LOG SHALL BE AVAILABLE FOR INSPECTION AT ANY TIME.

13. THE OPERATOR SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF RULE 1110.2(F)(1)(H)(I) THROUGH (III) PERTAINING TO ANY EQUIPMENT BREAKDOWN THAT RESULTS IN EMISSIONS IN EXCESS OF RULE OR PERMIT EMISSION LIMITS.

ORIGINAL

14. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED AT THE FACILITY FOR A MINIMUM OF FIVE YEARS AND SHALL BE MADE AVAILABLE TO ANY DISTRICT PERSONNEL UPON REQUEST.

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EXECUTIVE OFFICER

Dorris M. Bailey

By Dorris M.Bailey/MS10
8/5/2009

ORIGINAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

Page Almega
Perm ENVIRONMENTAL
G4004
A/N 499281

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner
or Operator:

ID 98380

MESA CONSOLIDATED WATER DISTRICT
1965 PLACENTIA AVE, ATTN: WATER OPER ASSISTANT
COSTA MESA, CA 92627-3420

Res 2

Equipment Location: 2340 ORANGE AVE, COSTA MESA, CA 92627

Equipment Description :

INTERNAL COMBUSTION ENGINE, WAUKESHA, MODEL NO. 2895G, SERIAL NO. C-10769/2, NATURAL GAS/LPG FIRED, SPARK IGNITED, FOUR CYCLE, SIX CYLINDERS, RICH BURN, NATURALLY ASPIRATED, RATED AT 369 BHP, WITH A NON-SELECTIVE CATALYTIC REDUCTION CONVERTER, JOHNSON MATTHEY, MODEL NO. ES-ASA(1000), AND AN AIR/FUEL RATIO CONTROLLER, COMPLIANCE CONTROLS, MODEL MECR-11-FT-60, DRIVING A WATER PUMP.

Conditions :

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS ENGINE SHALL NOT BE OPERATED UNLESS ITS EXHAUST IS VENTED TO THE AIR POLLUTION CONTROL DEVICE, THE NON-SELECTIVE CATALYTIC CONVERTER (NSCR), WHICH IS IN FULL OPERATION AND WHICH IS IN GOOD OPERATING CONDITION AT ALL TIMES.

4. THIS ENGINE SHALL NOT BE OPERATED WITHOUT THE USE OF AN AIR TO FUEL RATIO CONTROLLER WHICH SHALL BE MAINTAINED AND KEPT IN PROPER OPERATING CONDITIONS AT ALL TIMES AS SPECIFIED BY THE MANUFACTURER.

5. THIS ENGINE SHALL BE OPERATED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF RULE 1110.2 – AMENDED 2/1/2008, WHETHER OR NOT EXPLICITLY STATED IN THIS PERMIT.

6. THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	33

ORIGINAL

NITROGEN OXIDES (NOX)	12
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

7. EFFECTIVE 7/1/2011, THE EMISSIONS FROM THIS ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS, (EXCEPT DURING COLD START-UP, NOT TO EXCEED 20 MINUTES):

COMPOUND	PPMV @ 15% O2 (DRY)
VOLATILE ORGANINC COMPOUNDS (VOC)	30
NITROGEN OXIDES (NOX)	11
CARBON MONOXIDE (CO)	76

NOX AND CO SHALL BE AVERAGED OVER 15 MINUTES. VOC SHALL BE AVERAGED OVER THE SAMPLING TIME REQUIRED BY THE TEST METHOD.

8. THE OPERATOR SHALL INSTALL AND MAINTAIN AN EXHAUST GAS OXYGEN SENSOR THAT MONITORS THE EXHAUST GAS OXYGEN CONCENTRATION. THE DISPLAY OF THE EXHAUST GAS OXYGEN CONCENTRATION SHALL BE READ IN MILLIVOLTS (MV). THE EXHAUST GAS OXYGEN SENSOR MV OUTPUT SHALL BE MAINTAINED AS PER THE MANUFACTURER'S SPECIFICATION FOR THE MV READING TO ENSURE A PROPER AIR TO FUEL MIXTURE.

THE OXYGEN SENSOR SHALL BE REPLACED AFTER EVERY 2,000 OPERATING HOURS OR WHEN AN "OXYGEN SENSOR FAILURE" WARNING FROM THE ENGINE CONTROL SYSTEM IS RECEIVED, WHICHEVER IS EARLIER. ONCE THE NEW OXYGEN SENSOR IS INSTALLED, THE EXHAUST OXYGEN SET POINT SHALL BE RECHECKED AND RESET AS NECESSARY BY MEASURING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

ORIGINAL

9. THE OPERATOR OR CONTRACTOR-IN-CHARGE OF EQUIPMENT OPERATION SHALL INSPECT AND CLEAN OR, IF NECESSARY, REPLACE THE CATALYST EVERY 8,000 OPERATING HOURS. RECORDS OF THE CATALYST CLEANING OR REPLACEMENT SHALL BE MAINTAINED AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

10. THE OPERATOR OR CONTRACTOR IN CHARGE SHALL MAINTAIN ACCURATE MAINTENANCE RECORDS OF THE DATE OF CATALYST CLEANING OR REPLACEMENT, OXYGEN SENSOR REPLACEMENT, THE TOTAL HOUR READING ON THE TOTAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME, OXYGEN SENSOR READING IN MILLIVOLTS OR PERCENT OXYGEN AND THE CORRESPONDING NOX AND CO EMISSIONS, AND RECORDS OF ENGINE TUNE-UPS.

11. THE OPERATOR SHALL SUBMIT AN INSPECTION AND MONITORING (I&M) PLAN PURSUANT TO RULE 1110.2 (E)(4) AND (F)(1)(D) – AMENDED 2/1/2008. THE OPERATOR SHALL IMPLEMENT THE APPROVED I&M PLAN OR THE I&M PLAN AS SUBMITTED IF THE PLAN IS NOT YET APPROVED BY 12/1/2008.

    THE OPERATOR SHALL ENSURE THAT THE EMISSIONS FROM THE ENGINE WILL CONTINUE TO COMPLY WITH THE LIMITS IN CONDITION NOS. 6 & 7 THROUGH MONITORING THAT SHALL INCLUDE BUT NOT BE LIMITED TO, THE FOLLOWING PROCEDURE:

    PERIODIC TESTING OF NOX AND CO EMISSIONS USING A PORTABLE ANALYZER. EMISSION READINGS SHALL BE TAKEN AT THE POST-CATALYST EXHAUST EVERY MINUTE FOR 15 MINUTES. THE TESTS SHALL BE CONDUCTED WHEN THE ENGINE IS OPERATING AT NORMAL CONDITION AND SHALL BE DONE AT LEAST ONCE EVERY WEEK OR EVERY 150 HOURS OF ENGINE OPERATION WHICHEVER OCCURS LATER. THE TESTS SHALL BE CONDUCTED BY THE OPERATOR WHO HAS COMPLETED AN AQMD TRAINING PROGRAM AND RECEIVED A CERTIFICATION ISSUED BY THE DISTRICT.

    IF THE ENGINE IS IN COMPLIANCE FOR THREE CONSECUTIVE EMISSIONS CHECKS, WITHOUT ANY ADJUSTMENTS TO THE OXYGEN SENSOR SET POINTS, THEN THE ENGINES NOX AND CO EMISSIONS MAY BE CHECKED MONTHLY OR EVERY 750 HOURS OF ENGINE OPERATION WHICHEVER IS LATER, UNTIL THERE IS A NONCOMPLIANT EMISSIONS CHECK OR THE OXYGEN SENSOR IS REPLACED.

    THE OPERATOR SHALL MAINTAIN RECORDS TO VERIFY COMPLIANCE WITH THIS CONDITION.

12. THIS EQUIPMENT SHALL COMPLY WITH MONITORING, TESTING AND RECORD KEEPING REQUIREMENTS OF RULE 1110.2(F)(1) AS OUTLINED BELOW:

ORIGINAL

A. THE ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER (DISPLAY READING SHALL BE READILY AVAILABLE) TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.

B. CONDUCT SOURCE TESTING FOR NOX, CO AND VOC REPORTED AS CARBON (CONCENTRATION IN PPM BY VOLUME, CORRECTED TO 15% OXYGEN ON A DRY BASIS) AT LEAST ONCE EVERY TWO YEARS, OR EVERY 8760 OPERATING HOURS, WHICHEVER OCCURS FIRST. THE SOURCE TEST FREQUENCY MAY BE REDUCED TO ONCE EVERY THREE YEARS IF THE ENGINE HAS OPERATED LESS THAN 2000 HOURS SINCE THE LAST SOURCE TEST.

C. THE SOURCE TEST SHALL BE CONDUCTED FOR A MINIMUM OF 60 MINUTES. TESTING SHALL BE DONE FOR AT LEAST 30 MINUTES DURING NORMAL OPERATION (ACTUAL DUTY CYCLE). IN ADDITION, TESTING SHALL BE DONE FOR NOX AND CO EMISSIONS FOR AT LEAST 15 MINUTES AT: AN ENGINE'S PEAK LOAD, OR THE MAXIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST, AND: AT ACTUAL MINIMUM LOAD, EXCLUDING IDLE, OR THE MINIMUM LOAD THAT CAN BE PRACTICALLY ACHIEVED DURING THE TEST.

D. THE OPERATOR SHALL ONLY USE A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS, THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2(F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF THE SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.

E. MAINTAIN A MONTHLY OPERATING ENGINE LOG THAT INCLUDES:

I. TOTAL HOURS OF OPERATION
II. TYPE OF GASEOUS FUEL
III. FUEL CONSUMPTION (CUBIC FEET OF GAS) AND,
IV. CUMULATIVE HOURS OF OPERATION SINCE THE LAST SOURCE TEST REQUIRED IN SUBPARAGRAPH (F)(1)(C) OF RULE 1110.2 – AMENDED 2/1/2008.

THE LOG SHALL BE AVAILABLE FOR INSPECTION AT ANY TIME.

13. THE OPERATOR SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF RULE 1110.2(F)(1)(H)(I) THROUGH (III) PERTAINING TO ANY EQUIPMENT BREAKDOWN THAT RESULTS IN EMISSIONS IN EXCESS OF RULE OR PERMIT EMISSION LIMITS.

ORIGINAL

14. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED AT THE FACILITY FOR A MINIMUM OF FIVE YEARS AND SHALL BE MADE AVAILABLE TO ANY DISTRICT PERSONNEL UPON REQUEST.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

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EXECUTIVE OFFICER

Dorris M. Bailey

By Dorris M.Bailey/MS10
8/5/2009

ORIGINAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

Page 1
P
G
A/N 499282

Almega ENVIRONMENTAL

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

ID 98380

Legal Owner or Operator: MESA CONSOLIDATED WATER DISTRICT
1965 PLACENTIA AVE, ATTN: WATER OPER ASSISTANT
COSTA MESA, CA 92627-3420

Res 2

Equipment Location: 2340 ORANGE AVE, COSTA MESA, CA 92627

Equipment Description :

INTERNAL COMBUSTION ENGINE, WAUKESHA, MODEL NO. 2895G, SERIAL NO. C-10769/3, NATURAL GAS/LPG FIRED, SPARK IGNITED, FOUR CYCLE, SIX CYLINDERS, RICH BURN, NATURALLY ASPIRATED, RATED AT 369 BHP, WITH A NON-SELECTIVE CATALYTIC REDUCTION CONVERTER, JOHNSON MATTHEY, MODEL NO. ES-ASA(1000), AND AN AIR/FUEL RATIO CONTROLLER, COMPLIANCE CONTROLS, MODEL MECR-11-FT-60, DRIVING A WATER PUMP.

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D. THE OPERATOR SHALL ONLY USE A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS, THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2(F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF THE SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.

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ORIGINAL

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EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M.Bailey/MS10
8/5/2009

ORIGINAL

APPENDIX H

SCAQMD CHECKLIST FOR SOURCE TEST REPORTS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING FORM
CHECK LIST FOR SOURCE TEST REPORTS

Please check off all the following items to verify that the information is provided in the source test report, and then send the checklist along with the source test report.

[X] Brief description of the equipment tested.

[X] Brief process description, including maximum and normal operating temperatures, pressures, through-put, etc.

[X] Operating conditions under which test was performed.

[X] Process schematic diagram showing the ports and sampling locations, including the dimensions of the ducts/stacks at the sampling locations, along with upstream and downstream locations, and distances of flow disturbances, (e.g. elbows, tees, fans, dampers) from the sampling locations (upstream and downstream).

[X] Field and laboratory data forms, strip charts and analyses.

[X] Brief description of sampling and analytical methods for each gaseous and particulate constituent measured.

[X] Calculations for volumetric flow rates and emission rates.

[X] Description of calibration and quality assurance procedures.

[X] Determination that the testing laboratory qualifies as an "independent testing laboratory" under Rule 304 (no conflict of interest).

ATTACHMENTS

Attachment 1
Laboratory Reports and Data Packages for TGNMO per SCAQMD Method 25.3

ICE No. 1

Almega
ENVIRONMENTAL

Almega
ENVIRONMENTAL

LABORATORY REPORT

Non-Methane Non-Ethane Organic compound Emissions by SCAQMD Method 25.3 (TCA/FID)

Client:	Mesa Water
Project No.:	c9840
Unit Tested:	Resevoir #2 - Engine #1
Sampling Date:	23-Sep-15
Analyzed Date:	5-Oct-15
Lab No.	A 133

Client Sample ID	Lab ID	Almega Sample ID		Total* NMNEO ppm	NMNEO ppm condensable	NMNEO ppm noncondensable	CH_4 ppm	C_2H_6 ppm	CO_2 % v/v by TCD	O_2 % v/v by TCD
		Tank	Trap							
R2-E1-Out-Norm-TS016-V21	A 133 - 011 A	S016	21	**28.1**	9.93	18.1	551	4.15	11.0	1.9
R2-E1-Out-Norm-T777-V23	A 133 - 011 B	777	23	**39.2**	18.9	20.3	582	4.07	11.8	0.4
R2-E4-Out-Norm-TA130-V25	A 133 - 021 A	A130	25	**37.1**	24.4	12.6	651	7.16	11.3	0.8
R2-E4-Out-Norm-TA101-V24	A 133 - 021 B	A101	24	**48.0**	23.2	24.8	511	5.37	9.1	4.6
Detection Limit					1	2	2	2	0.3	0.3

* NOTE - the BIAS FACTOR (of 1.086) is NOT applied in these results

ND- Not Detected

Water Blank , ppmC 0.034

TGNMNEO concentration values are reported in ppm (v/v) as Methane (carbon#=1)

The sample cylinder is analyzed for NMNEO, CO, CH_4, CO_2 and C_2H_6. It is then directed to a separation column where all heavy organics (C_3+) separate from the light organics (CO, CO_2, CH_4 and C_2H_6). The light organics are then passed through a reduction catalyst to convert CO and CO_2 to CH_4, and are then directed to a FID for detection and quantification. The heavy organics are backflushed off the holding column, passed through an oxidation catalyst, which convert all organics to CO_2, then through a reduction catalyst to convert CO_2 to CH_4 and then to a FID for detection and quantification.

Reviewed by: DW

Almega Environmental & Technical Services
10602 Walker Street, Cypress, CA 90630
Phone 714-889-4000 Fax 714-889-7030
www.almegaenv.com

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water		Lab No.: A 133
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Engine #1		
Sampling Date:	23-Sep-15		
Date tested:	5-Oct-15		

Parameter	Symbol	Units	Run #1 A	Run #1 B
Sample ID			R2-E1-Out-Norm-TS016-V21	R2-E1-Out-Norm-T777-V23
Lab ID			A 133 - 011 A	A 133 - 011 B
Sample Tank				
Tank No			S016	777
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	21	21
Abs. Pre-test Temperature	T_{TI}	°K	294	294
Post-test Pressure	P_{TS}	mm Hg (abs)	292	342
Post-test Temperature	t_{TS}	°C	21	21
Abs. Post-test Temperature	T_{TS}	°K	294	294
Final Pressure	P_{TF}	mm Hg (abs)	926	952
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		3.20	2.81
Concentration Methane	C_{CH4}	ppm	171.91	207.17
Concentration Carbon Monoxide	C_{CO}	ppm	56.96	67.29
NMNEO (noncond)	C_{SA}	ppm	**5.66**	**7.22**
Sample Volume	Vs	L	2.248	2.636
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**550.8**	**582.0**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**182.5**	**189.0**
NMNEO (noncond)	C_{SAT}	ppm	**18.13**	**20.27**
Condensate Recovery - Trap				
Sample ID			R2-E1-Out-Norm-TS016-V21	R2-E1-Out-Norm-T777-V23
Trap No			21	23
Lab No.:			A 133 - 012 A	A 133 - 012 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	2.248	2.636
TC Concentration	C_{TC}	mg/L	39.193	66.713
IC Concentration	C_{IC}	mg/L	33.533	54.060
TOC Concentration	C_{TOC}	mg/L	5.660	12.653
NMNEO, Condensable	C_1	ppm	**9.93**	**18.94**
TNMNEOC (Csa+C_T)	C	ppmC	**28.06**	**39.21**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

V_{ID} = 23.6902 L/mole

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water		Lab No.: A 133
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Enigne #4		
Sampling Date:	23-Sep-15		
Date tested:	5-Oct-15		

Parameter	Symbol	Units	Run #2 A	Run #2 B
Sample ID			R2-E4-Out-Norm-TA130-V25	R2-E4-Out-Norm-TA101-V24
Lab ID			A 133 - 021 A	A 133 - 021 B
Sample Tank				
Tank No			A130	A101
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	22	22
Abs. Pre-test Temperature	T_{TI}	°K	295	295
Post-test Pressure	P_{TS}	mm Hg (abs)	356	342
Post-test Temperature	t_{TS}	°C	22	22
Abs. Post-test Temperature	T_{TS}	°K	295	295
Final Pressure	P_{TF}	mm Hg (abs)	944	956
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		2.68	2.83
Concentration Methane	C_{CH4}	ppm	242.41	180.59
Concentration Carbon Monoxide	C_{CO}	ppm	54.04	44.19
NMNEO (noncond)	C_{SA}	ppm	4.71	8.78
Sample Volume	Vs	L	2.735	2.627
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**650.83**	**511.26**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**145.09**	**125.11**
NMNEO (noncond)	C_{SAT}	ppm	**12.63**	**24.84**
Condensate Recovery - Trap				
Sample ID			R2-E4-Out-Norm-TA130-V25	R2-E4-Out-Norm-TA101-V24
Trap No			25	24
Lab No.:			A 133 - 022 A	A 133 - 022 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	2.735	2.627
TC Concentration	C_{TC}	mg/L	61.913	46.427
IC Concentration	C_{IC}	mg/L	44.973	31.000
TOC Concentration	C_{TOC}	mg/L	16.940	15.427
NMNEO, Condensable	C_T	ppm	**24.432**	**23.166**
TNMNEOC (Csa+C_T)	C	ppmC	**37.07**	**48.01**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 133
Sampling Date: 23-Sep-15 | Analyzed Date: 5-Oct-15

Run #1 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 011 A	213520	213250	0.13	57.0	56.9	**57.0**	0.13
CH4	A 133 - 011 A	680344	678946	0.21	172.1	171.7	**171.9**	0.21
CO2*	A 133 - 011 A	202776	201744	0.51	3.4	3.4	**3.4**	0.51
O2*	A 133 - 011 A	117051	117806	-0.65	0.6	0.6	**0.6**	-0.64
C2H6	A 133 - 011 A	5092	5196	-2.04	1.28	1.31	**1.29**	-2.02
NMNEO	A 133 - 011 A	18786	18509	1.47	5.70	5.62	**5.66**	1.49

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 012 A	19.93	19.50	19.36	**39.19**	1.47	DF=2
IC	A 133 - 012 A	16.62	16.83	16.85	**33.53**	0.73	

Run #1 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 011 B	251860	252251	-0.16	67.2	67.3	**67.3**	-0.16
CH4	A 133 - 011 B	818796	819266	-0.06	207.1	207.2	**207.2**	-0.06
CO2*	A 133 - 011 B	245535	247459	-0.78	4.2	4.2	**4.2**	-0.78
O2*	A 133 - 011 B	27506	27300	0.75	0.1	0.1	**0.1**	0.75
C2H6	A 133 - 011 B	5754	5759	-0.09	1.45	1.45	**1.45**	-0.09
NMNEO	A 133 - 011 B	23280	24271	-4.26	7.07	7.37	**7.22**	-4.17

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 012 B	32.50	33.74	33.83	**66.71**	2.21	DF=2
IC	A 133 - 012 B	26.85	27.10	27.14	**54.06**	0.58	

Water blank

TC	0.014
IC	-0.020
TOC	**0.034**

$Conc_{CO}$ in tank = $MeanConc_{CO}$ * DF
$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
$Conc_{O2}$ in tank = $MeanConc_{O2}$ * DF
$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 133
Sampling Date: 23-Sep-15 | Analyzed Date: 5-Oct-15

Run #2 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 021 A	202304	202560	-0.13	54.0	54.1	**54.0**	-0.13
CH4	A 133 - 021 A	957576	959135	-0.16	242.2	242.6	**242.4**	-0.16
CO2*	A 133 - 021 A	248923	248235	0.28	4.2	4.2	**4.2**	0.28
O2*	A 133 - 021 A	55045	57420	-4.31	0.3	0.3	**0.3**	-4.22
C2H6	A 133 - 021 A	10898	10301	5.48	2.74	2.59	**2.67**	5.63
NMNEO	A 133 - 021 A	15405	15606	-1.30	4.7	4.7	**4.7**	-1.30

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 022 A	29.82	31.49	31.56	**61.91**	3.14	DF=2
IC	A 133 - 022 A	22.15	23.04	22.27	**44.97**	2.14	

Run #2 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 133 - 021 B	168393	162697	3.38	45.0	43.4	**44.2**	3.44
CH4	A 133 - 021 B	729381	698580	4.22	184	176.7	**181**	4.31
CO2*	A 133 - 021 B	189080	189135	-0.03	3.2	3.2	**3.2**	-0.03
O2*	A 133 - 021 B	323616	325503	-0.58	1.6	1.6	**1.6**	-0.58
C2H6	A 133 - 021 B	7245	7837	-8.17	1.82	1.97	**1.90**	-7.85
NMNEO	A 133 - 021 B	29248	28584	2.27	8.9	8.7	**8.8**	2.30

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 133 - 022 B	22.96	23.29	23.39	**46.43**	0.95	DF=2
IC	A 133 - 022 B	15.84	15.67	14.99	**31.00**	2.87	

Water blank		
TC	0.014	$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
IC	-0.020	$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
TOC	**0.034**	$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
		$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

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SAMPLE INVENTORY REPORT

Method 25.3 Sampling Train

Project No.:	c9840	Lab No.:	A 133
Client:	Mesa Water	Sampling Date:	23-Sep-15

Laboratory ID	Client ID	Component ID	
Run #1 A			
A 133 - 011 A	R2-E1-Out-Norm-TS016-V21	Tank #	S016
A 133 - 012 A	R2-E1-Out-Norm-TS016-V21	Impinger	21
Run #1 B			
A 133 - 011 B	R2-E1-Out-Norm-T777-V23	Tank #	777
A 133 - 012 B	R2-E1-Out-Norm-T777-V23	Impinger	23
Run #2 A			
A 133 - 021 A	R2-E4-Out-Norm-TA130-V25	Tank #	A130
A 133 - 022 A	R2-E4-Out-Norm-TA130-V25	Impinger	25
Run #2 B			
A 133 - 021 B	R2-E4-Out-Norm-TA101-V24	Tank #	A101
A 133 - 022 B	R2-E4-Out-Norm-TA101-V24	Impinger	24

Lot# A133

Almega ENVIRONMENTAL

CHAIN OF CUSTODY RECORDS

INVOICE TO:

ATTN:

REPORT TO:

ALMEGA Environmental & Technical Services
10602 Walker St.
Cypress, CA 90630
(714) 889-4000 Fax (714) 889-7030
lab@almegaenv.com
Contact:

PO # _____

Turnaround Time
Standard: Other:
Rush:
Depends on # of Samples
5 - 10 days _____
3 - 7 days _____

Job # 9940 | Unit # RSV2 Eng. 1 & 4 | Client: Mesa Water | Location: Costa Mesa, CA

Samplers: (Signature)

Project Manager: D. Yonemori

Unit Information: Reservoir #2 Engines #1 & #4 Normal Load

ANALYSIS REQUESTED: M253

Return or Dispose

Sample Date	Sample Time	Sample Identification	Lab Sample #	Type Of Sample: LIQUID	GAS	SOLID	No of Containers	M253					REMARKS
09/23/15		R2-E1-Out-Norm-T5016-V21	A133 -011A/012A	✓	✓		2	✓					
		R2-E1-Out-Norm-T777-V23	-011B/012B	✓	✓		2	✓					
		R2-E4-Out-Norm-TA130-V25	-021A/022A	✓	✓		2	✓					Tank A130 (T2084)
		R2-E4-Out-Norm-TA101-V24	-021B/022B	✓	✓		2	✓					

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 09/23/15 Time 18:20	Date: 9/23/2015 Time: 18:30	Date: Time:	Date: Time
Relinquished by:	Received by:	Relinquished by:	Received by:
Date: Time	Date: Time:	Date: Time:	Date: Time

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Standard Receipt
Sample LOG in Checklist

Project No: c9840

Lab ID: A133

Method: m 25.3

Sampling Date: 9/23/2015

Location: Mesa Int:

Date & Time Rc'd: 9/23/2015 18:30

Location: Lab Int: JD

Arrived By: (circle) FedEx UPS (Drop Off) (Int) JD Other

Condition of Package(s): (comment): Good

Package Type: Box (Cooler) Other:

Number of Sample Container(s): 8

Correct Containers (per Method): (Y) N

Preservation: (circle) (ICE) DryICE ICEPacks None

Sample Conditions:

Sample Temp (C): 8.6

Ambient Temp (C): 21

Sample Temp (C):

Filter Condition:

PH :

Components Sealed: (Y) N

Sample Recovery Completed On: (date & time)

Recovered In: (circle) (Field) Lab Other

Silica Gel Condition:

Tedlar Bags -
Condensation: Y N

Comments:

Container(s) Requested: Glass Plastic

Additional Comments:

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CHROMATOGRAM

TEST SAMPLES

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;54;35, a 133 - 011 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 A

Injection Date: 10/5/2015 12:54 PM Calculation Date: 10/5/2015 12:48 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3586-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	54.0689	1.900	-0.030	213520	BV	2.9	
2	Methane	174.0715	2.279	-0.021	680344	VP	3.7	
3	Carbon Dioxi	28005.9785	3.393	-0.076	109476816	PB	10.1	C
4	Ethane	1.3073	7.389	-0.100	5092	BB	19.5	
5	NMOC	5.6604	12.340	0.016	18786	BB	92.2	
	Totals:	28241.0866		-0.211	110394558			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 15 microVolts LSB: 1 microVolts

Noise (used): 13 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;54;35, a 133 - 011 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 A

Almega
ENVIRONMENTAL

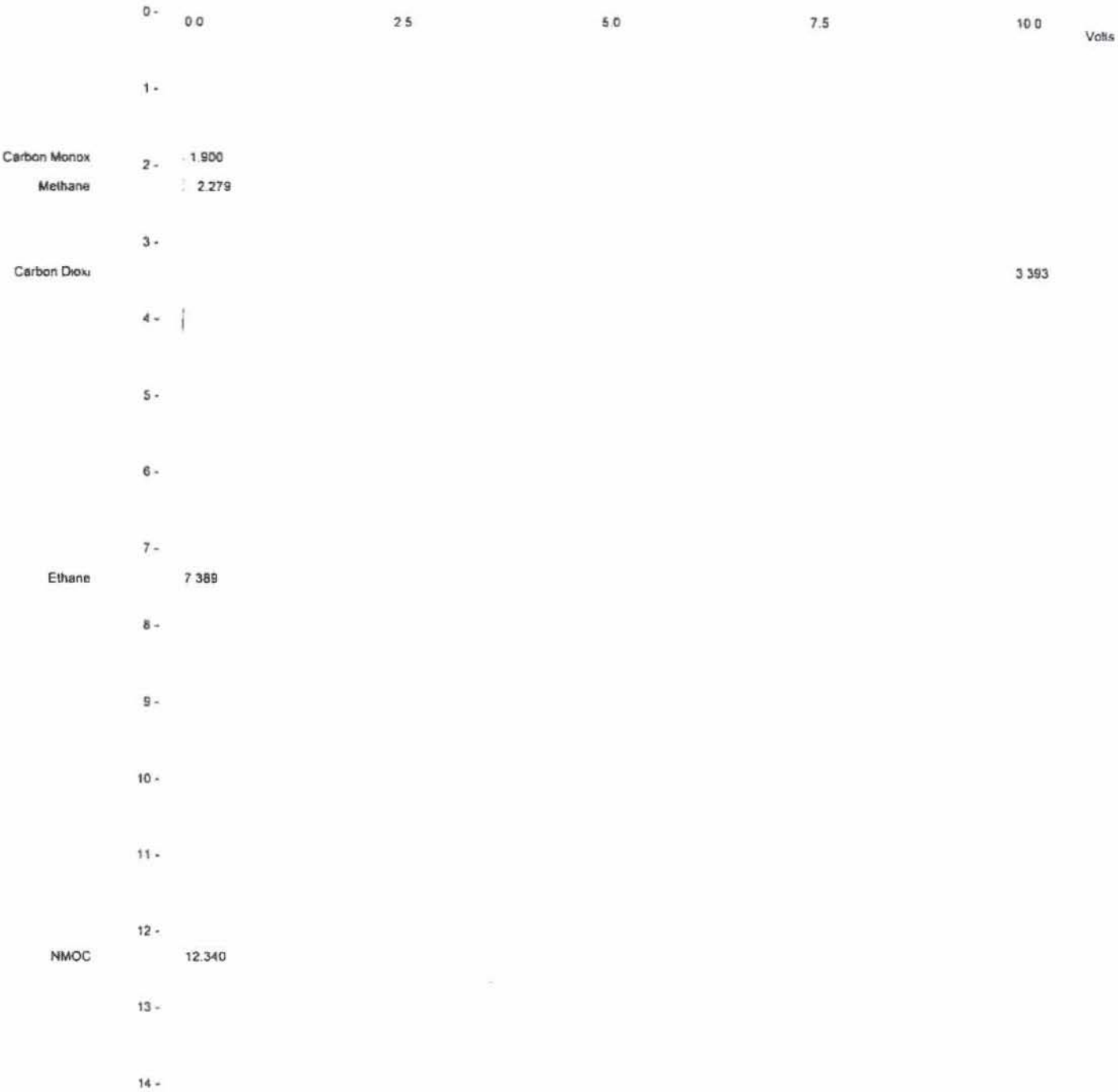
ection Date: 10/5/2015 12:54 PM Calculation Date: 10/5/2015 12:48 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D69-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 13;22;44, a 133 - 011 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 A

Injection Date: 10/5/2015 1:22 PM Calculation Date: 10/5/2015 12:48 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	54.0006	1.877	-0.053	213250	BV	2.8	
2	Methane	173.7139	2.255	-0.045	678946	VP	3.7	
3	Carbon Dioxi	27975.9902	3.373	-0.096	109359584	PB	10.1	C
4	Ethane	1.3340	7.352	-0.137	5196	TS	0.0	
5	NMOC	5.5770	12.327	0.003	18509	BB	91.0	
	Totals:	28210.6157		-0.328	110275485			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 8 Rejected Peaks: 3 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -112 microVolts LSB: 1 microVolts

Noise (used): 9 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 13;22;44, a 133 - 011 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 A

Almega
ENVIRONMENTAL

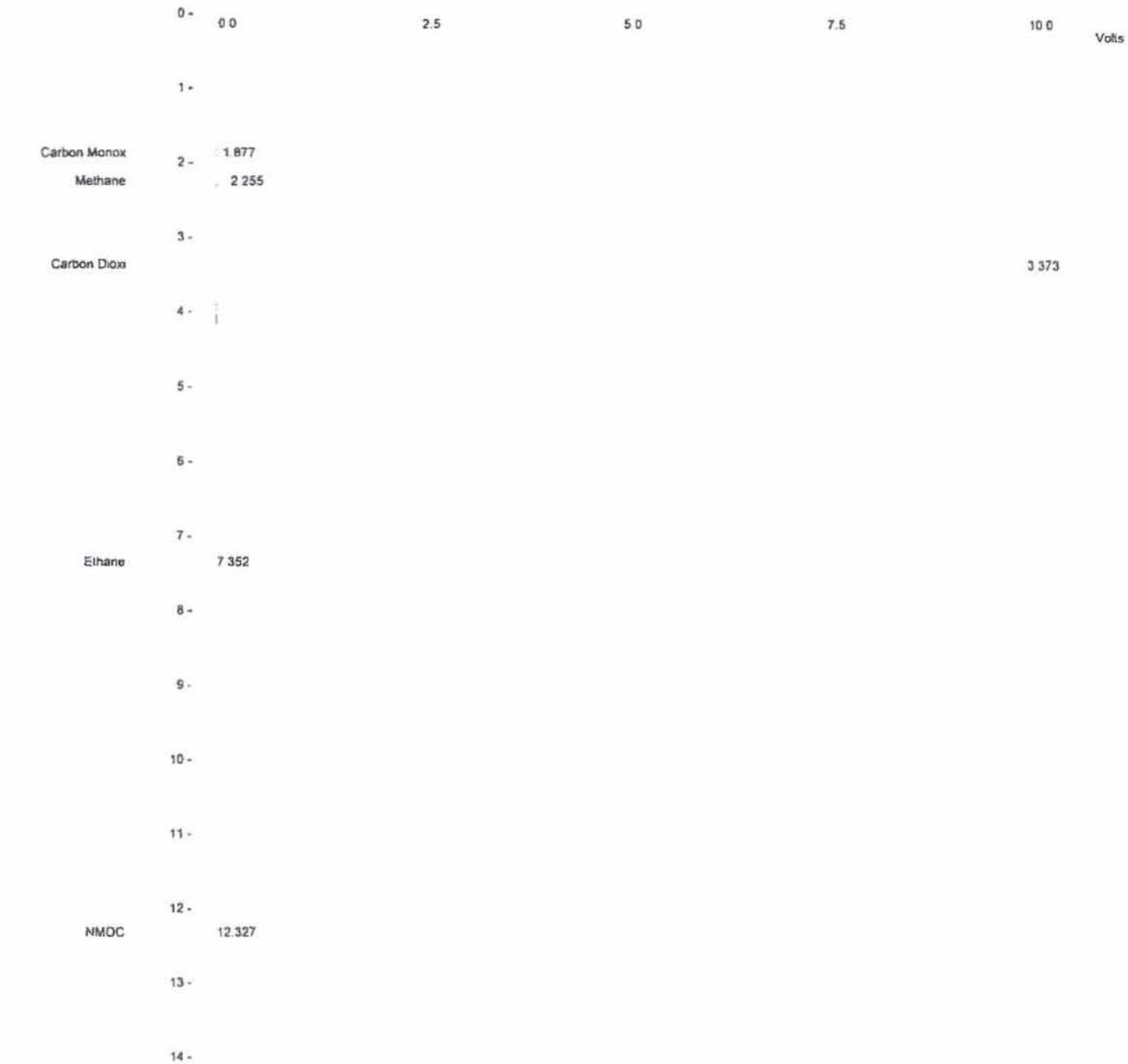
ection Date: 10/5/2015 1:22 PM Calculation Date: 10/5/2015 12:48 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 86
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 13;57;07, a 133 - 011 b.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 B

Injection Date: 10/5/2015 1:57 PM Calculation Date: 10/5/2015 2:57 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

* Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	63.7776	1.895	-0.035	251860	BV	3.0	
2	Methane	209.4955	2.272	-0.028	818796	VP	3.8	
3	Carbon Dioxi	30504.7832	3.380	-0.089	119244768	PB	11.0	C
4	Ethane	1.4775	7.357	-0.132	5754	BB	19.0	
5	NMOC	7.0146	12.247	-0.077	23280	BB	94.1	
	Totals:	30786.5484		-0.361	120344458			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -102 microVolts LSB: 1 microVolts

Noise (used): 19 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 13;57;07, a 133 - 011 b.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 B

Almega
ENVIRONMENTAL

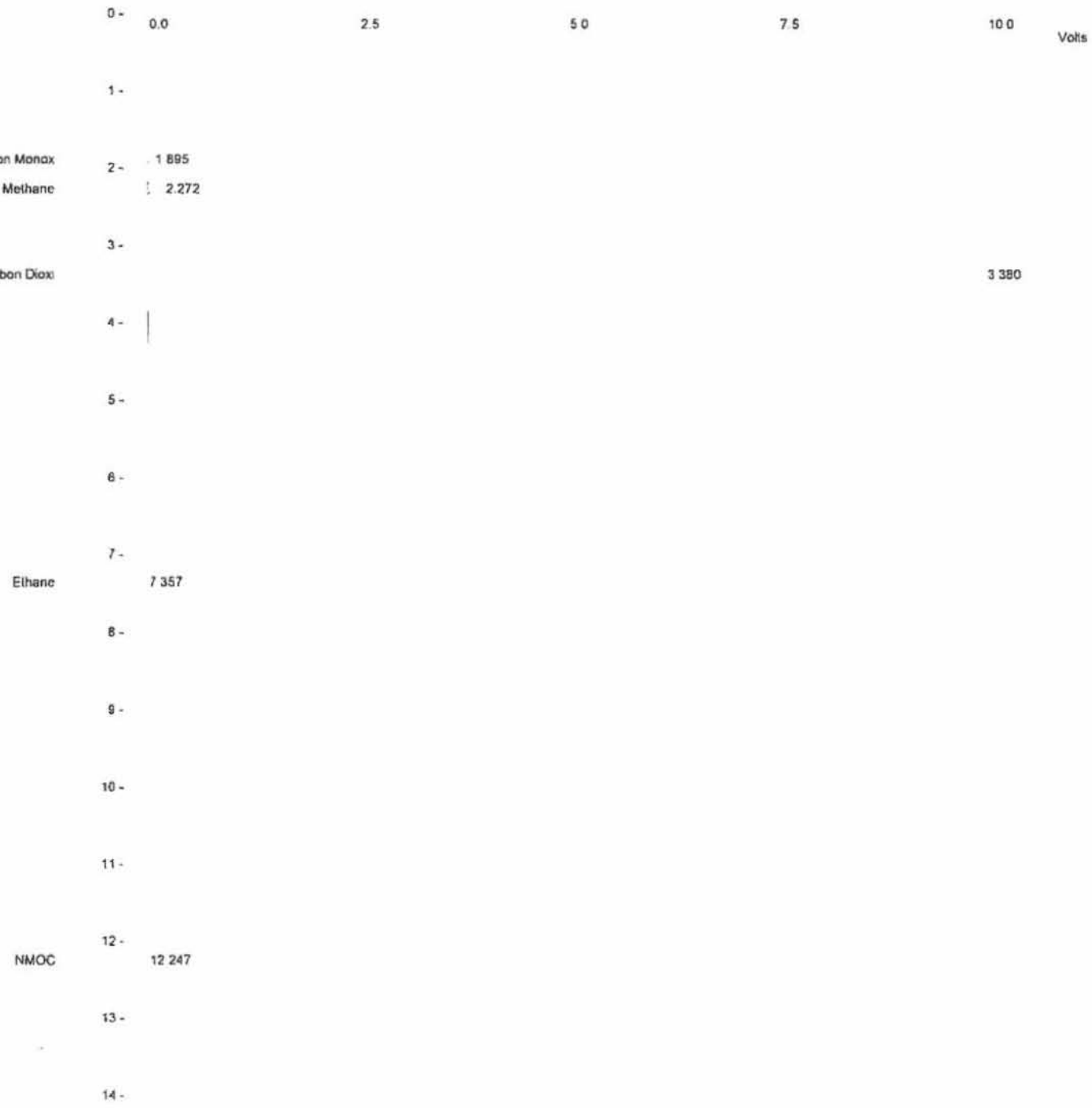
ection Date: 10/5/2015 1:57 PM Calculation Date: 10/5/2015 2:57 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3568-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Dat on Oct 05 14:57:37 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 14;23;05, a 133 - 011 b dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 B dup

Injection Date: 10/5/2015 2:23 PM Calculation Date: 10/5/2015 2:57 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	63.8765	1.904	-0.026	252251	BV	2.8	
2	Methane	209.6158	2.281	-0.019	819266	VP	3.7	
3	Carbon Dioxi	30565.2168	3.393	-0.076	119481008	PB	11.0	C
4	Ethane	1.4787	7.384	-0.105	5759	BB	18.5	
5	NMOC	7.3132	11.527	-0.797	24271	BB	93.9	
	Totals:	30847.5010		-1.023	120582555			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -51 microVolts LSB: 1 microVolts

Noise (used): 18 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

9840 Mesa Water Res II_Compliance

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Almega ENVIRONMENTAL

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 14;23;05, a 133 - 011 b dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 011 B dup

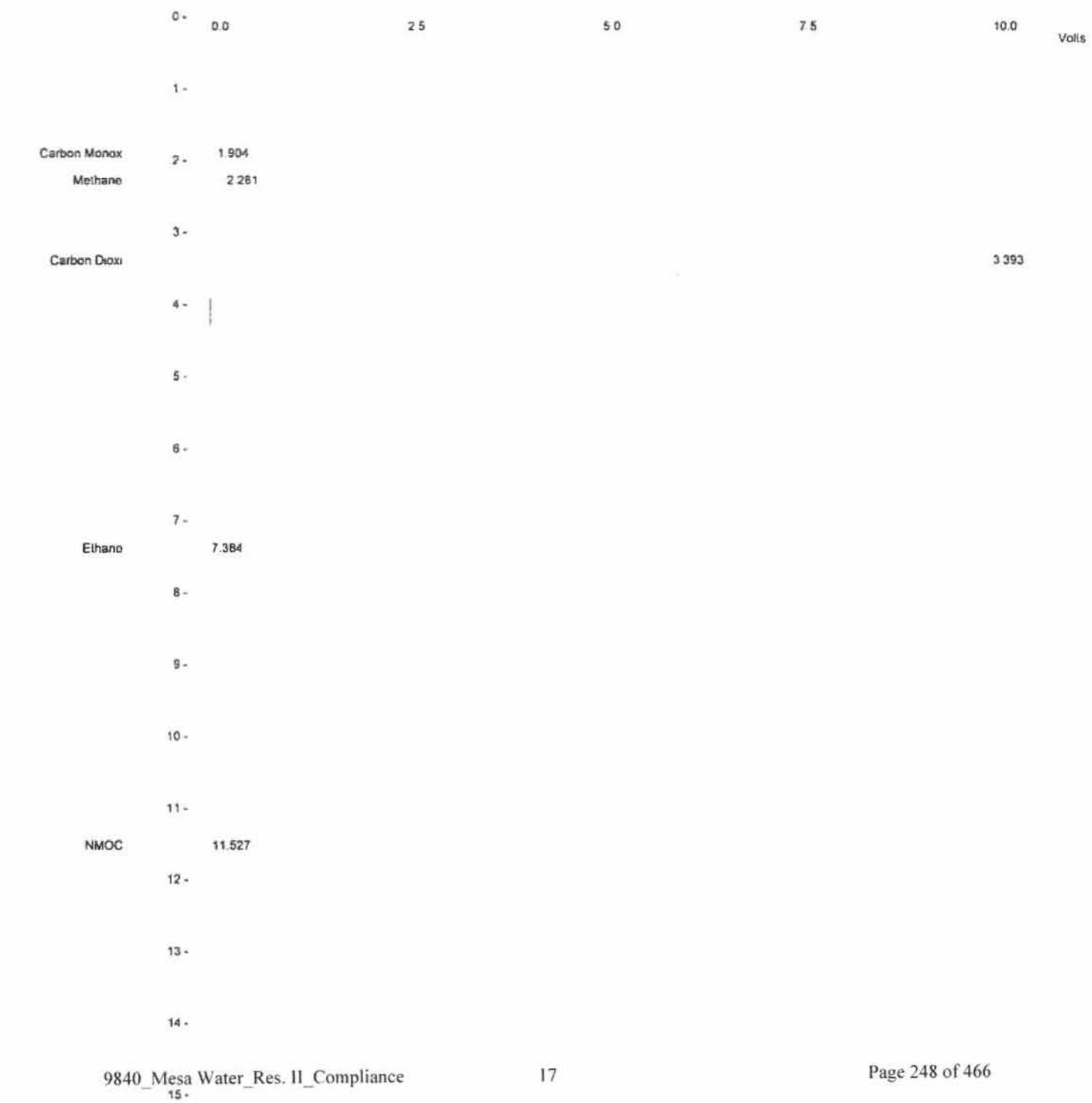
Almega
ENVIRONMENTAL

ection Date: 10/5/2015 2:23 PM Calculation Date: 10/5/2015 2:57 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 86
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

* Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Dat n Oct 05 14:55:06 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 14;47;45, a 133 - 021 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 A

Injection Date: 10/5/2015 2:47 PM Calculation Date: 10/5/2015 2:54 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	51.2286	1.903	-0.027	202304	BV	2.8	
2	Methane	245.0035	2.281	-0.019	957576	VP	3.8	
3	Carbon Dioxi	30738.2188	3.393	-0.076	120157280	PB	11.1	C
4	Ethane	2.7980	7.399	-0.090	10898	TS	0.0	
5	NMOC	4.6418	12.340	0.016	15405	BB	64.0	
	Totals:	31041.8907		-0.196	121343463			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 8 Rejected Peaks: 3 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -247 microVolts LSB: 1 microVolts

Noise (used): 12 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

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9840 Mesa Water Res II Compliance
Page 249 of 466

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 14;47;45, a 133 - 021 a.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 A

Almega
ENVIRONMENTAL

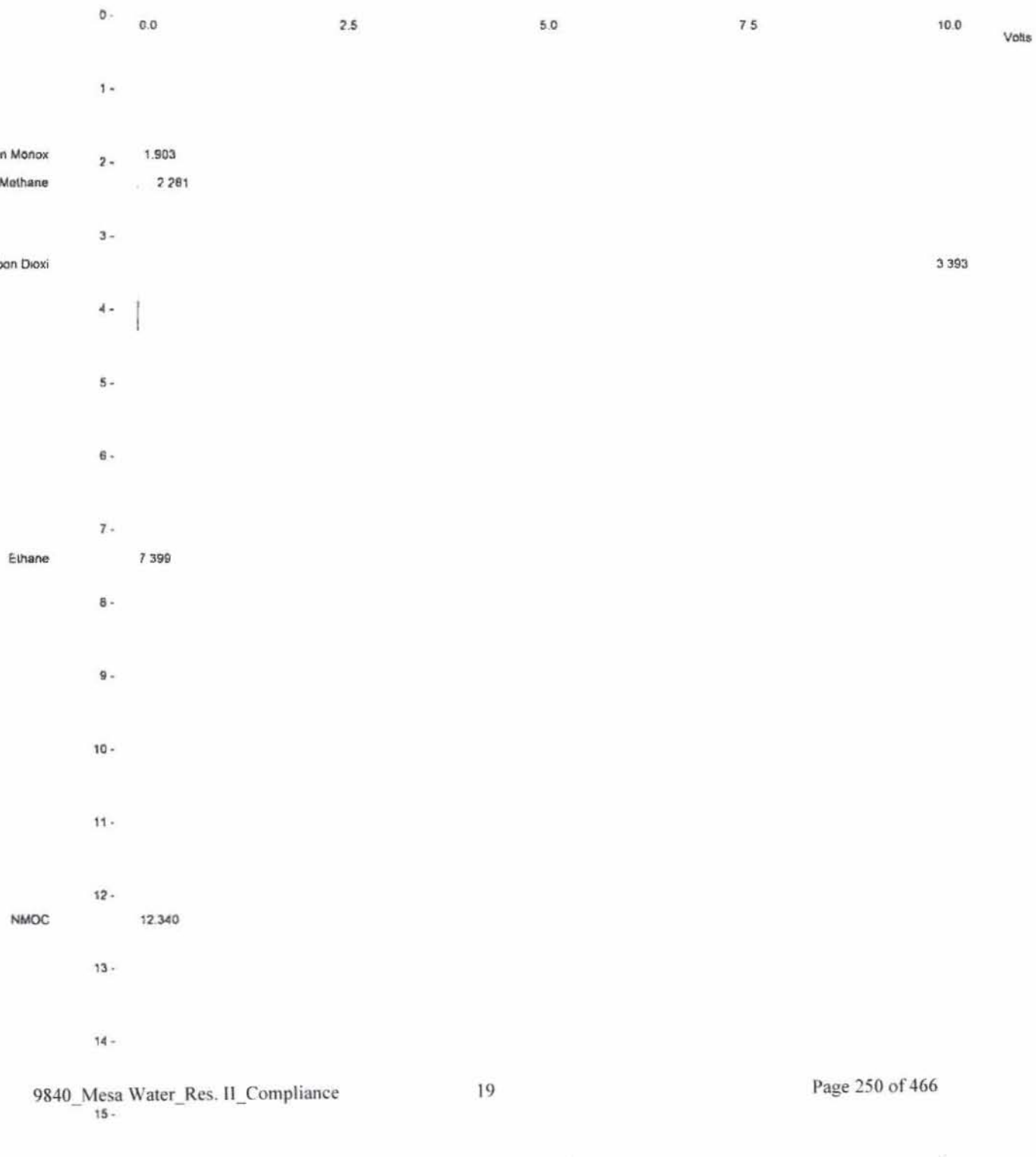
ection Date: 10/5/2015 2:47 PM Calculation Date: 10/5/2015 2:54 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21EI **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Dat m Oct 05 14:55:36 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 15;15;06, a 133 - 021 a dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 A dup

Injection Date: 10/5/2015 3:15 PM Calculation Date: 10/5/2015 2:55 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	51.2937	1.895	-0.035	202560	BV	3.0	
2	Methane	245.4024	2.273	-0.027	959135	VB	3.7	
3	Carbon Dioxi	30730.3438	3.387	-0.082	120126496	BB	11.2	C
4	Ethane	2.6449	7.387	-0.102	10301	BB	20.4	
5	NMOC	4.7022	12.327	0.003	15606	BB	66.1	
	Totals:	31034.3870		-0.243	121314098			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -34 microVolts LSB: 1 microVolts

Noise (used): 28 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

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2840 Water GC II Compliance 20

Almega ENVIRONMENTAL

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 15;15;06, a 133 - 021 a dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 A dup

Almega
ENVIRONMENTAL

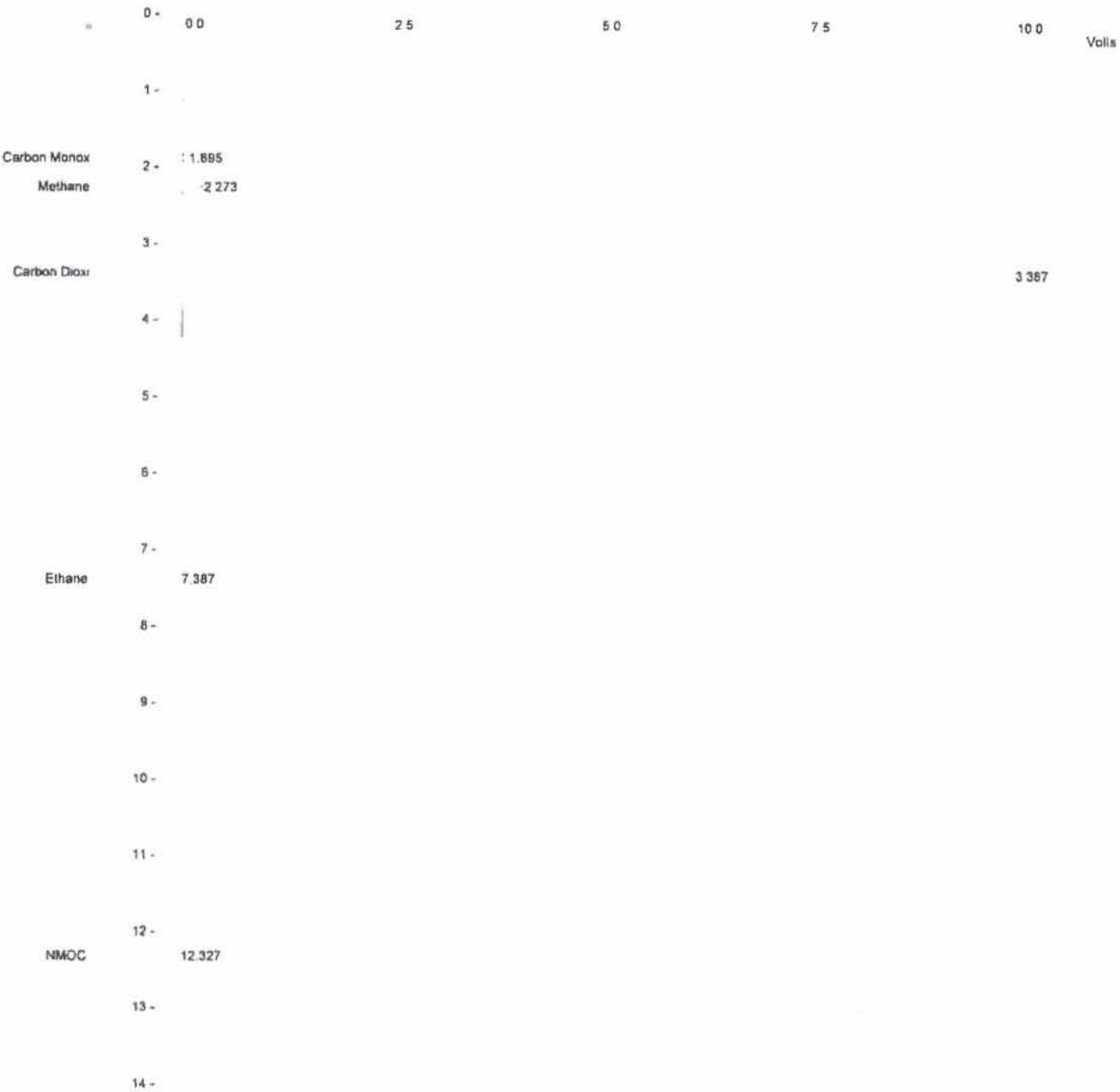
Acquisition Date: 10/5/2015 3:15 PM Calculation Date: 10/5/2015 2:55 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Date. ..: Oct 06 14:22:27 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 15;43;13, a 133 - 021 b.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 B

Injection Date: 10/5/2015 3:43 PM Calculation Date: 10/6/2015 2:22 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	42.6416	1.907	-0.023	168393	BV	3.0	
2	Methane	186.6180	2.284	-0.016	729381	VP	3.7	
3	Carbon Dioxi	26956.5156	3.397	-0.072	105374408	PB	9.7	C
4	Ethane	1.8602	7.389	-0.100	7245	BB	19.3	
5	NMOC	8.8128	11.540	-0.784	29248	BB	58.7	
	Totals:	27196.4482		-0.995	106308675			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -7 microVolts LSB: 1 microVolts

Noise (used): 51 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

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9840 Mesa Water Res II Compliance 12
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Almega ENVIRONMENTAL

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 15;43;13, a 133 - 021 b.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 B

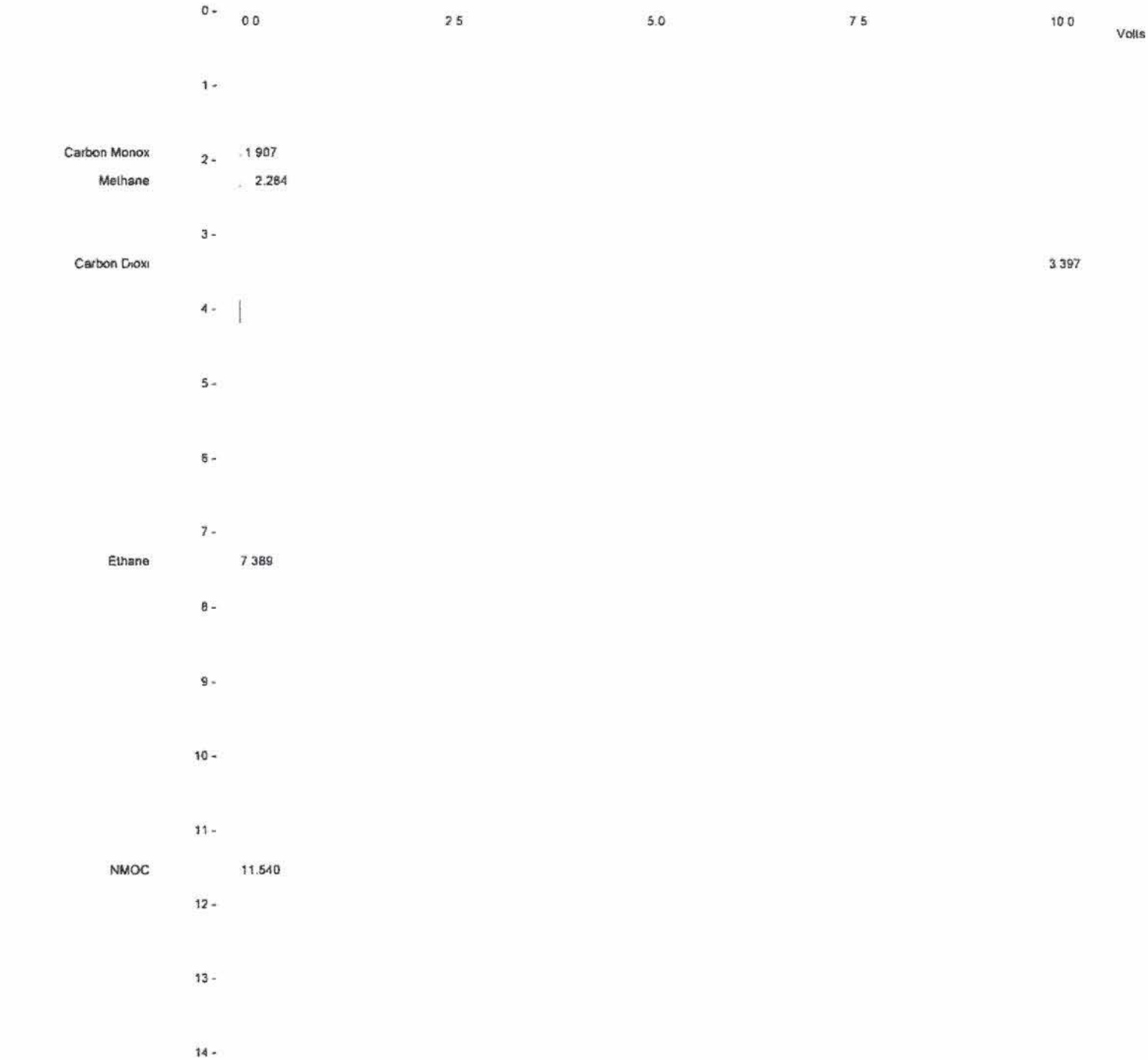
Almega
ENVIRONMENTAL

ction Date: 10/5/2015 3:43 PM Calculation Date: 10/6/2015 2:22 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Date : Oct 06 14:23:40 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 16;08;20, a 133 - 021 b dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 B dup

Injection Date: 10/5/2015 4:08 PM Calculation Date: 10/6/2015 2:22 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	41.1993	1.899	-0.031	162697	BV	2.8	
2	Methane	178.7373	2.279	-0.021	698580	VP	3.7	
3	Carbon Dioxi	26334.7500	3.392	-0.077	102943896	PB	9.5	C
4	Ethane	2.0121	7.396	-0.093	7837	BB	20.0	
5	NMOC	8.6127	12.340	0.016	28584	BB	44.9	
	Totals:	26565.3114		-0.206	103841594			

Status Codes:
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -81 microVolts LSB: 1 microVolts

Noise (used): 36 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

9840 Mesa Water Res. II_Compliance
24
Page 255 of 466

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 16;08;20, a 133 - 021 b dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : A 133 - 021 B dup

Almega
ENVIRONMENTAL

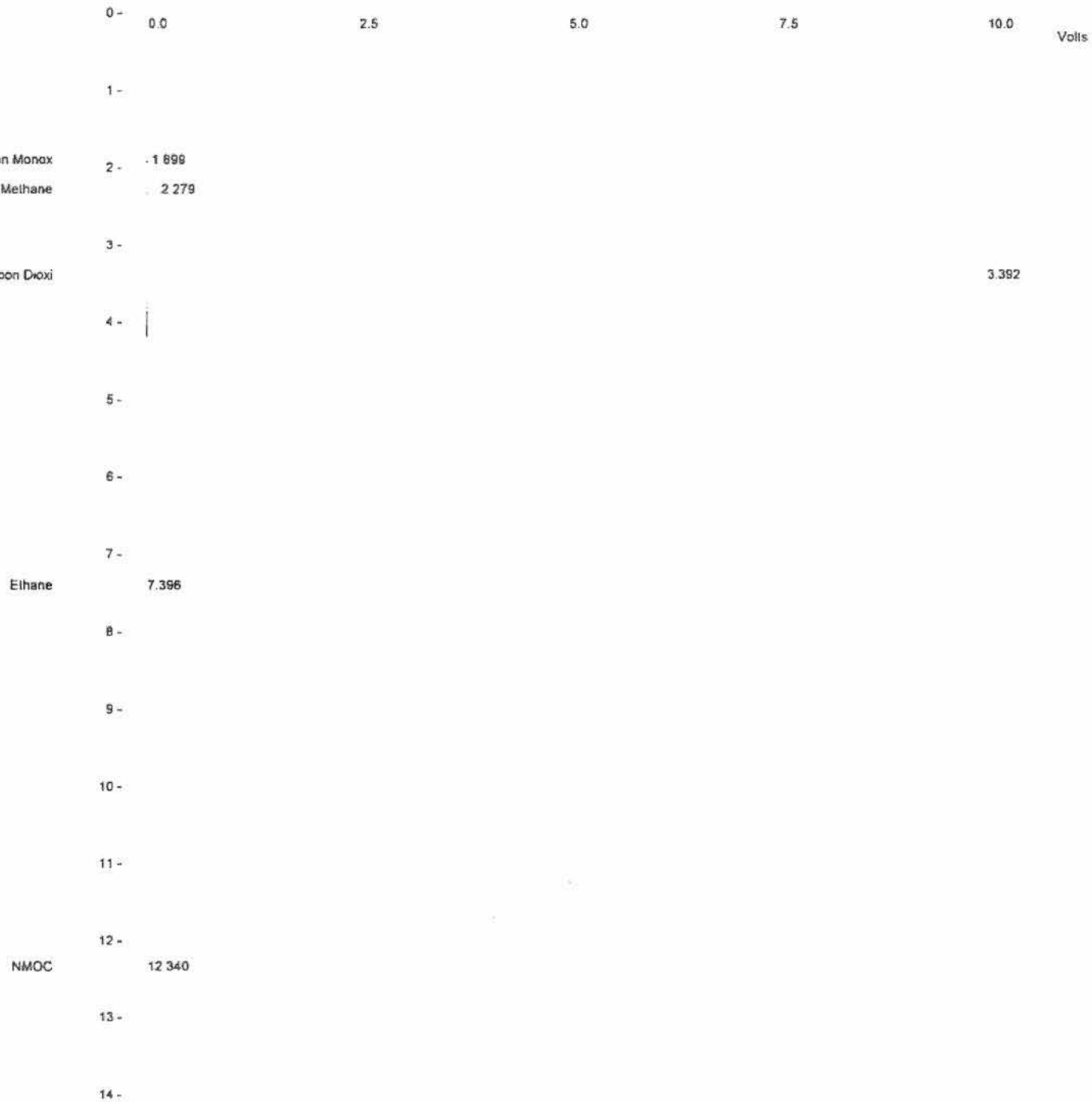
ction Date: 10/5/2015 4:08 PM Calculation Date: 10/6/2015 2:22 PM

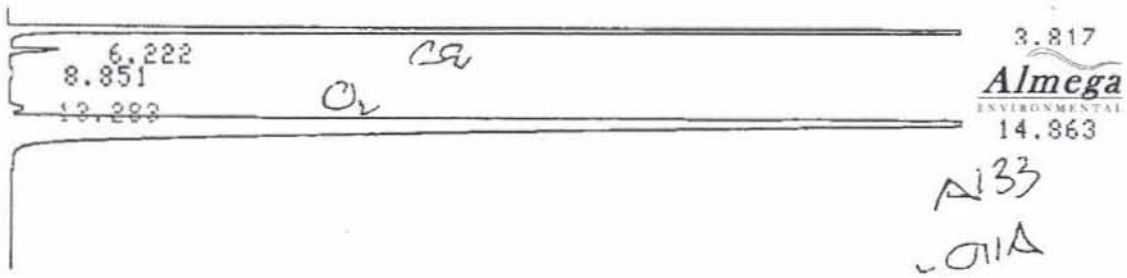
Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 4728 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00





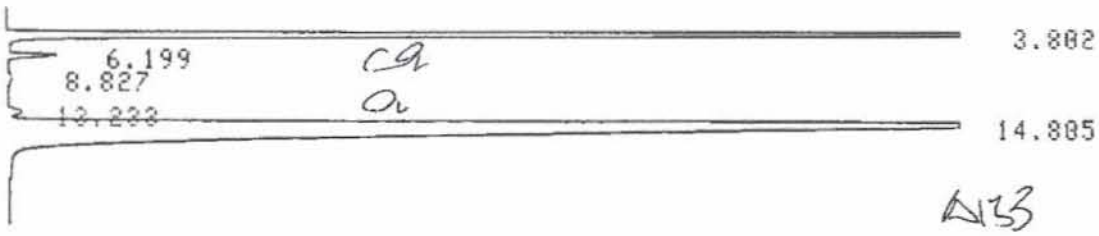
Almega ENVIRONMENTAL

A133
-011A

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 297

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.817	8209426			35.2479	
2	6.222	202776			0.8706	
3	8.851	52056			0.2235	
4	13.283	117051			0.5026	
5	14.863	14709236	V		63.1554	
	TOTAL	23290544			100	

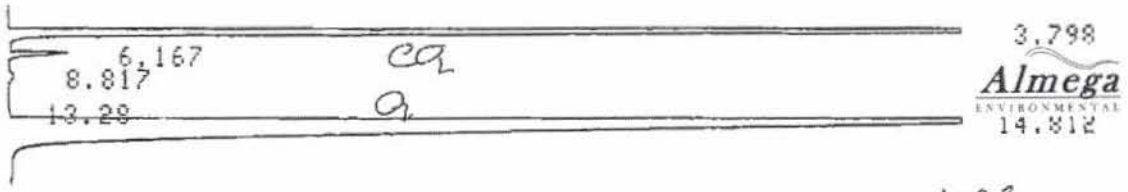


A133
-011A

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 298

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.802	8179036			35.2064	
2	6.199	201744			0.8684	
3	8.827	53303			0.2294	
4	13.233	117806			0.5071	
5	14.805	14679756	V		63.1886	
	TOTAL	23231642			100	

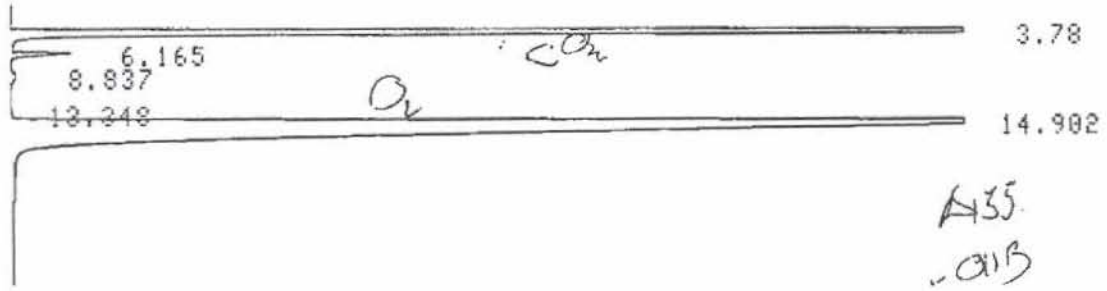


A33
-011B

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 299

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.798	8108022			35.1127	
2	6.167	245535			1.0633	
3	8.817	65877			0.2853	
4	13.28	27506			0.1191	
5	14.812	14644497	V		63.4196	
	TOTAL	23091434			100	

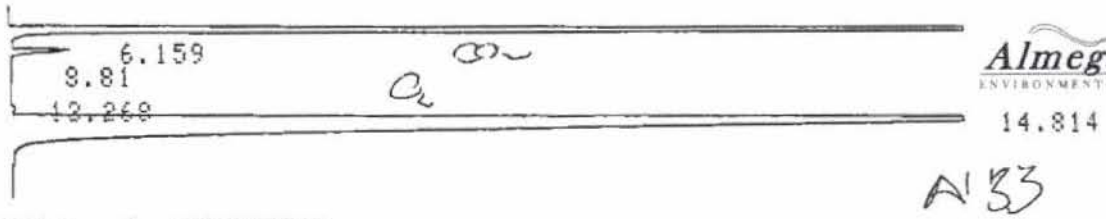


A35
-011B
JP

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 300

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.78	8174994			34.9676	
2	6.165	247459			1.0585	
3	8.837	66792			0.2857	
4	13.348	27300			0.1168	
5	14.902	14862196	V		63.5714	
	TOTAL	23378740			100	



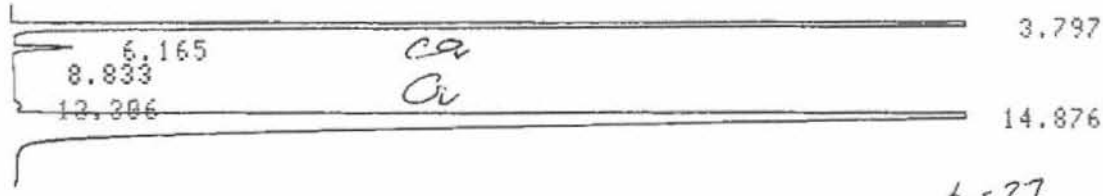
Almega ENVIRONMENTAL

A133
-021A

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 301

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.793	8049494			35.2108	
2	6.159	248923			1.0889	
3	8.81	40432			0.1769	
4	13.268	55045			0.2408	
5	14.814	14466950	V		63.2827	
	TOTAL	22860840			100	

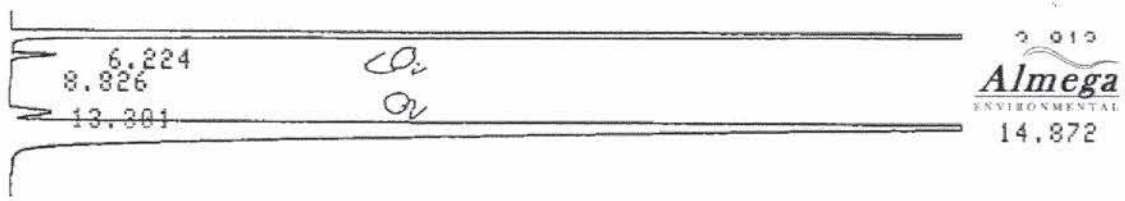


A133
-021A

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 302

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.797	8014331			34.8822	
2	6.165	248235			1.0804	
3	8.833	32582			0.1418	
4	13.306	57420			0.2499	
5	14.876	14622824	V		63.6456	
	TOTAL	22975390			100	

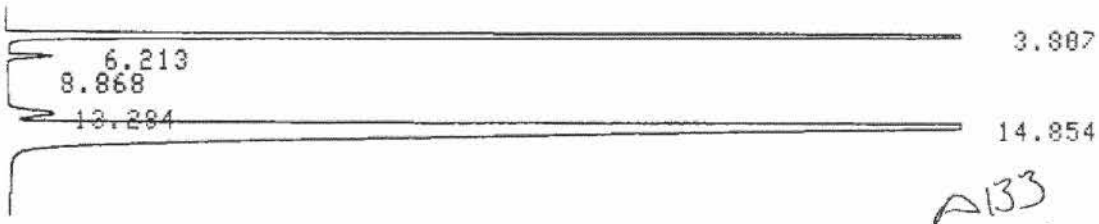


CHROMATOGRAM 1 MEMORIZED

A133
-021B

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 304

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.812	8143833			35.2728	
2	6.224	189080			0.8189	
3	8.826	25409			0.1101	
4	13.301	323613			1.4016	
5	14.872	14406180	V		62.3965	
	TOTAL	23088112			100	



A133
-021B
dup

CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 305

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.807	8140289			35.3446	
2	6.213	189135			0.8212	
3	8.868	17248			0.0749	
4	13.284	325503			1.4133	
5	14.854	14359001	V		62.3459	
	TOTAL	23031174			100	

QAQC

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 10;40;49, lab air.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : lab air

Injection Date: 10/5/2015 10:40 AM Calculation Date: 10/5/2015 12:28 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

* Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	14.2519	1.903	-0.027	56281	BV	4.9	
2	Methane	4.5005	2.303	0.003	17590	VV	4.2	
3	Carbon Dioxi	629.6254	3.453	-0.016	2461238	VB	8.0	
4	Ethane		7.489					M
5	NMOC	0.3435	12.740	0.416	1140	BB	43.1	
	Totals:	648.7213		0.376	2536249			

Status Codes:
M Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -193 microVolts LSB: 1 microVolts

Noise (used): 29 microVolts - monitored before this run

Stream: 1 Injection Number: 4 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 10;40;49, lab air.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : lab air

Almega
ENVIRONMENTAL

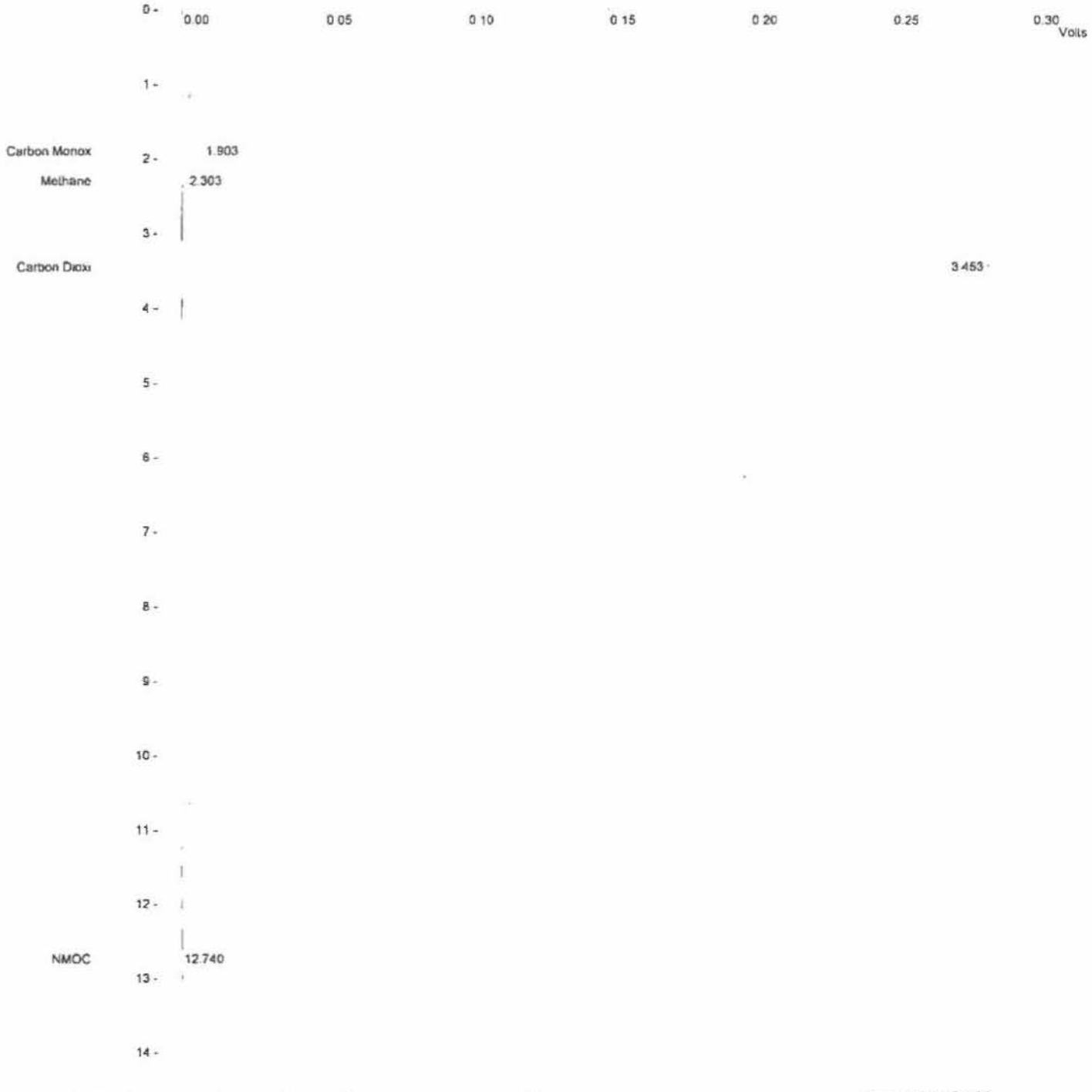
ection Date: 10/5/2015 10:40 AM Calculation Date: 10/5/2015 12:28 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 134 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Date 1 Oct 05 12:28:54 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 10;16;05, n2 blank 91188.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : ~~Lab air~~ N2 BLK 91188

Injection Date: 10/5/2015 10:16 AM Calculation Date: 10/5/2015 12:28 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	0.2917	1.895	-0.035	1152	BB	3.8	
2	Methane		2.300					M
3	Carbon Dioxi	0.9617	3.431	-0.038	3760	BB	8.9	
4	Ethane		7.489					M
5	NMOC		12.324					M
	Totals:	1.2534		-0.073	4912			

Status Codes:
M - Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 3 Rejected Peaks: 1 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -10 microVolts LSB: 1 microVolts

Noise (used): 32 microVolts - monitored before this run

Stream: 1 Injection Number: 3 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 10;16;05, n2 blank 91188.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : lab air

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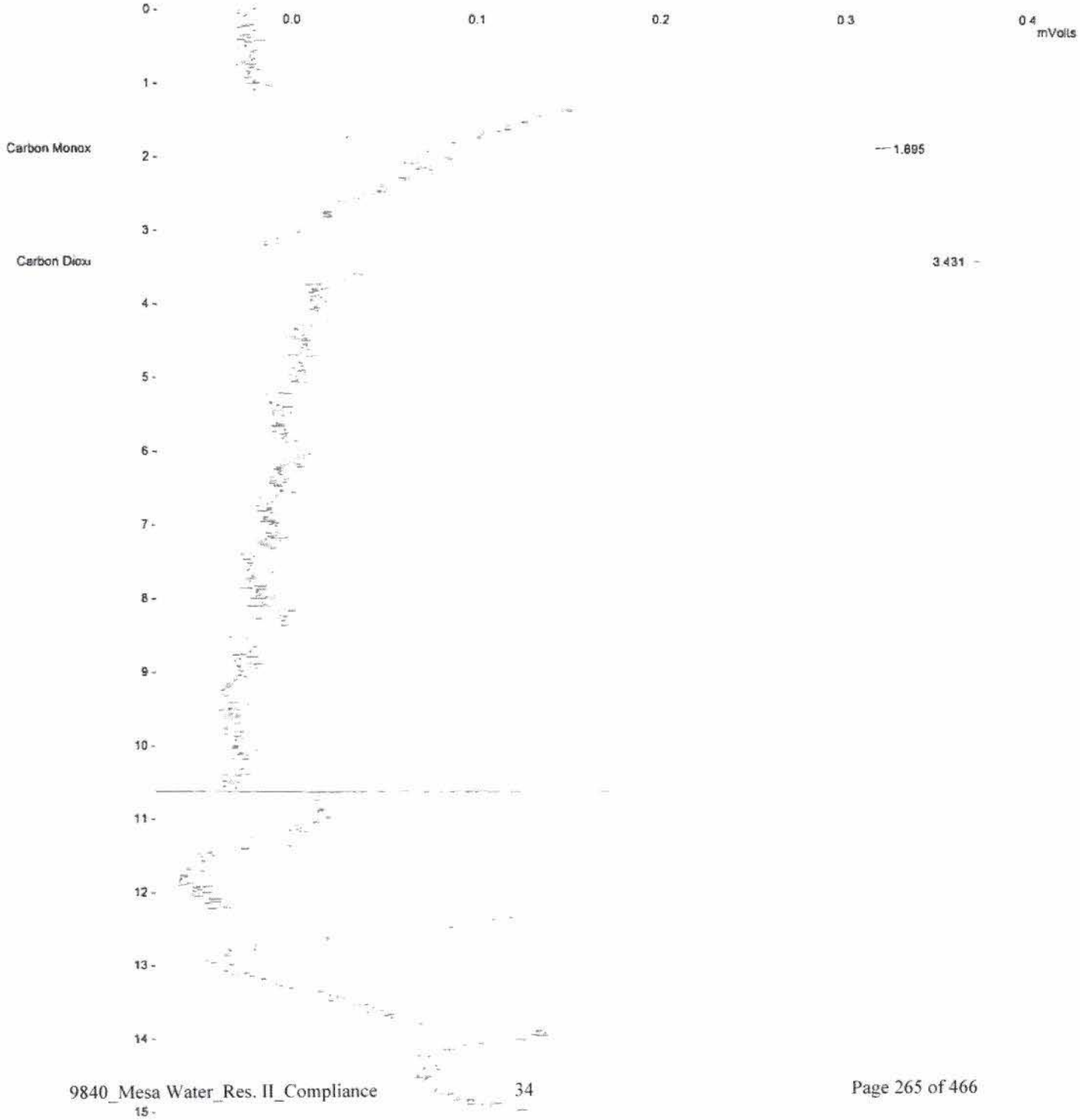
Acquisition Date: 10/5/2015 10:16 AM Calculation Date: 10/5/2015 12:28 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 86
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Dat n Oct 05 12:29:50 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 11;37;06, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : 100ppm mix

Injection Date: 10/5/2015 11:37 AM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	94.9070	1.892	-0.038	374791	BV	3.0	
2	Methane	100.7110	2.272	-0.028	393621	VB	3.8	
3	Carbon Dioxi	100.6219	3.417	-0.052	393336	BB	7.9	
4	Ethane	100.7980	7.397	-0.092	392584	BB	21.9	
5	NMOC	100.2710	12.313	-0.011	332780	BB	17.1	
	Totals:	497.3089		-0.221	1887112			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -179 microVolts LSB: 1 microVolts

Noise (used): 19 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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9040 Wastewater_Equipment_Compliance

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 11;37;06, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : 100ppm mix

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ENVIRONMENTAL

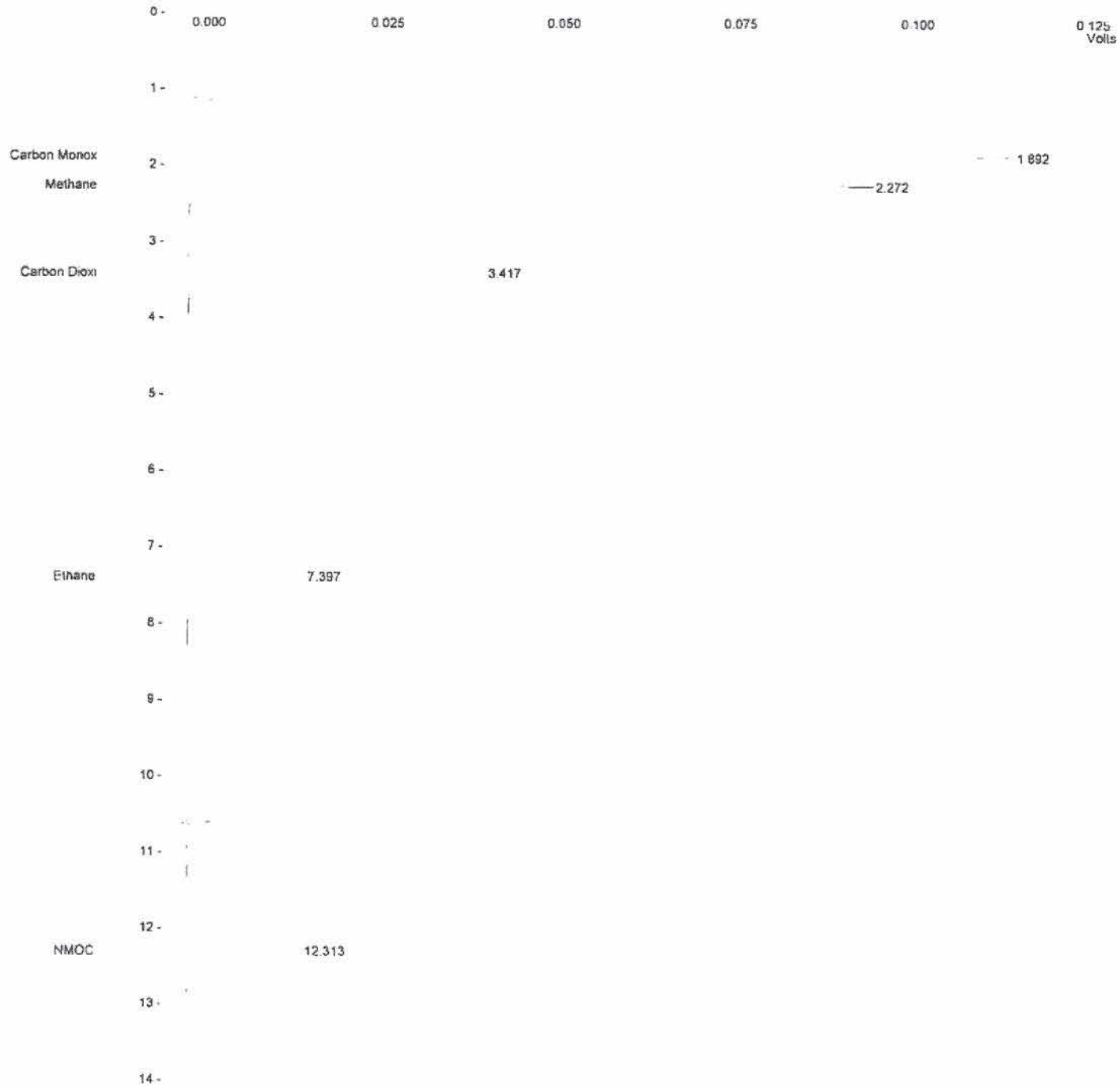
ɔction Date: 10/5/2015 11:37 AM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 55 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;02;46, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : 100ppm mix

Injection Date: 10/5/2015 12:02 PM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	94.7987	1.877	-0.053	374363	BV	2.9	
2	Methane	100.5860	2.257	-0.043	393132	VB	3.8	
3	Carbon Dioxi	100.4045	3.404	-0.065	392486	BB	7.9	
4	Ethane	101.2210	7.391	-0.098	394232	BB	21.9	
5	NMOC	100.6217	12.300	-0.024	333944	BB	17.3	
	Totals:	497.6319		-0.283	1888157			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -36 microVolts LSB: 1 microVolts

Noise (used): 32 microVolts - monitored before this run

Stream: 1 Injection Number: 3 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;02;46, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : 100ppm mix

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ENVIRONMENTAL

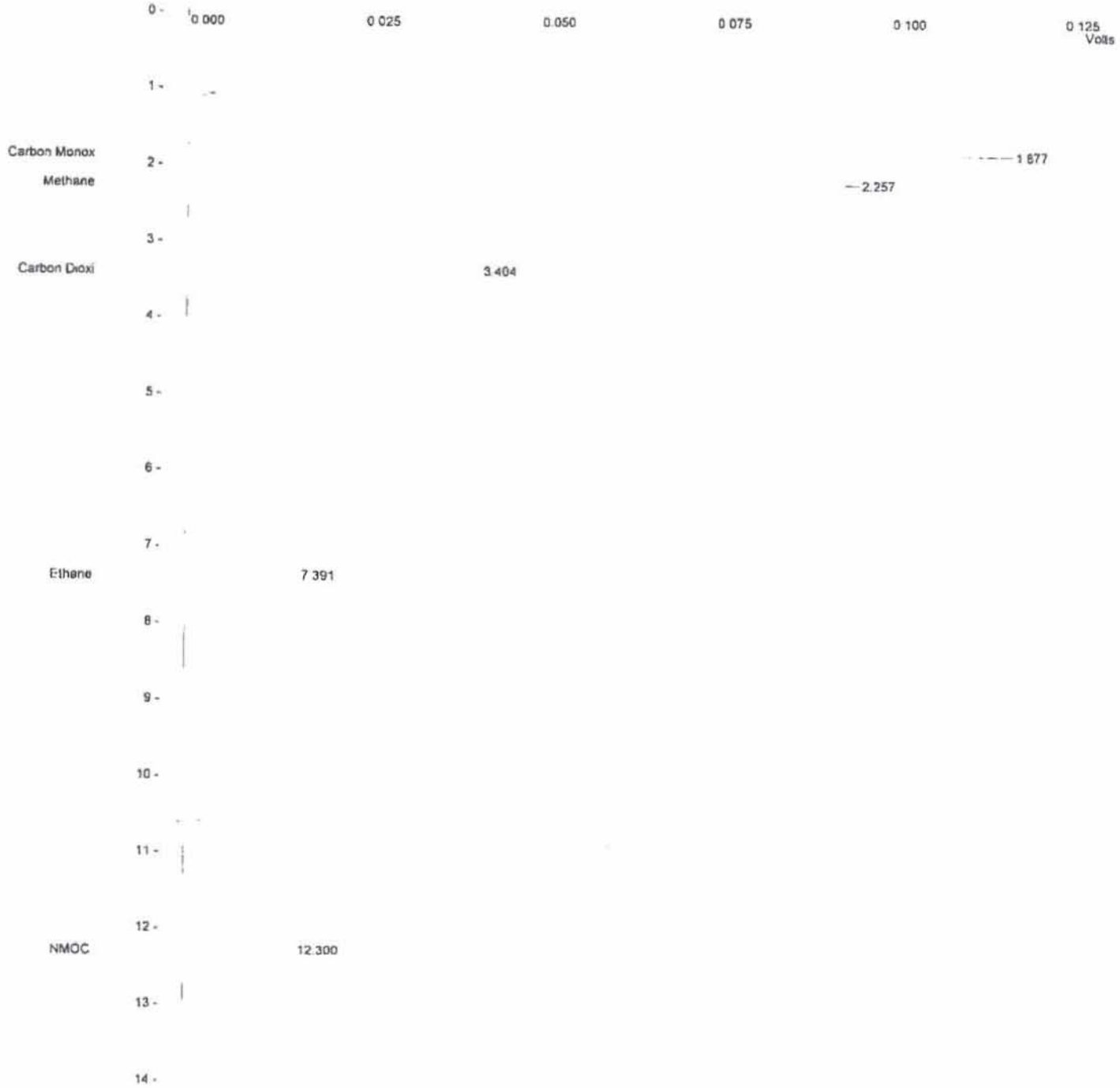
ection Date: 10/5/2015 12:02 PM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 55 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Date n Oct 05 12:29:11 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;26;26, n2 blank a129.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : n2 blank A129

Injection Date: 10/5/2015 12:26 PM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	0.4200	1.900	-0.030	1658	BB	3.8	
2	Methane		2.300					M
3	Carbon Dioxi	0.4995	3.439	-0.030	1952	BV	9.5	
4	Ethane		7.489					M
5	NMOC		12.324					M
	Totals:	0.9195		-0.060	3610			

Status Codes:
M - Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 12 Rejected Peaks: 10 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -116 microVolts LSB: 1 microVolts

Noise (used): 10 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\oct_15\10-5-2015, 12;26;26, n2 blank a129.run
Method File : c:\docume~1\douglass\locals~1\temp\~10-2-2015, 16;20;15, a 130 - 022 a dup-2.tmp
Sample ID : n2 blank A129

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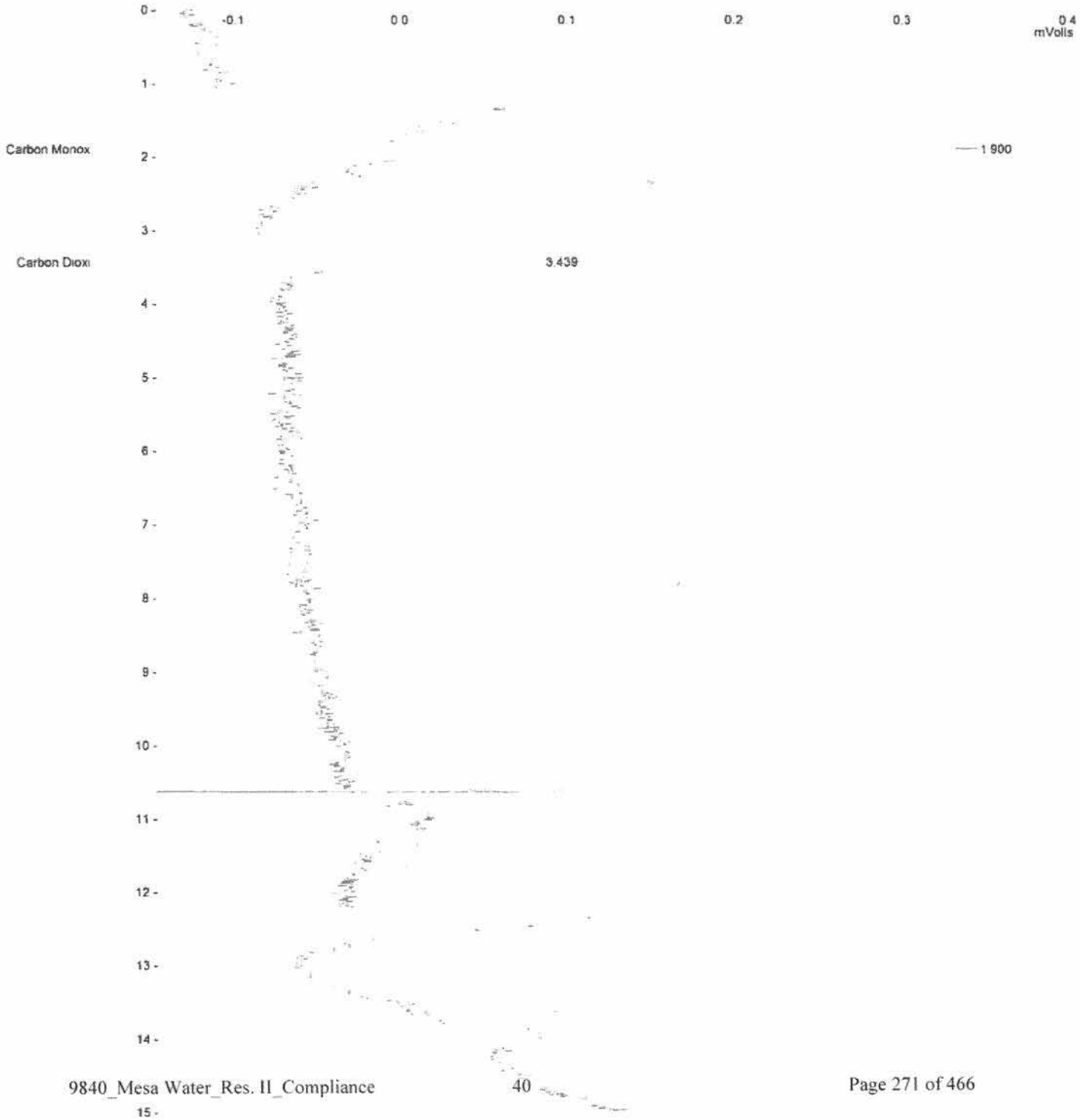
Acquisition Date: 10/5/2015 12:26 PM Calculation Date: 10/5/2015 12:29 PM

Operator : Douglass Detector Type: 0500 (10 Volts)
Workstation: Bus Address : 86
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1 Zero Offset = 5%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



10'

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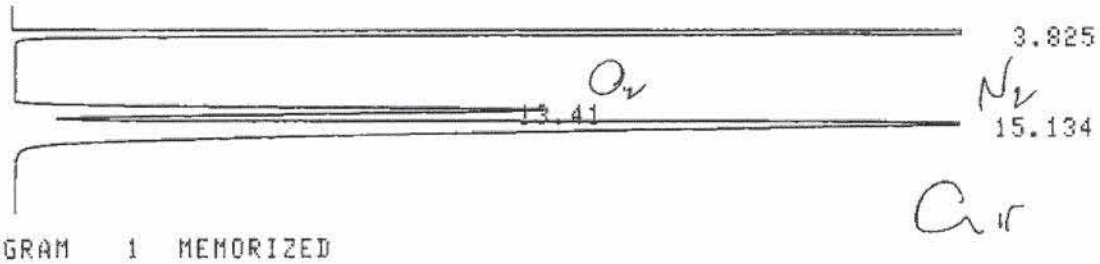
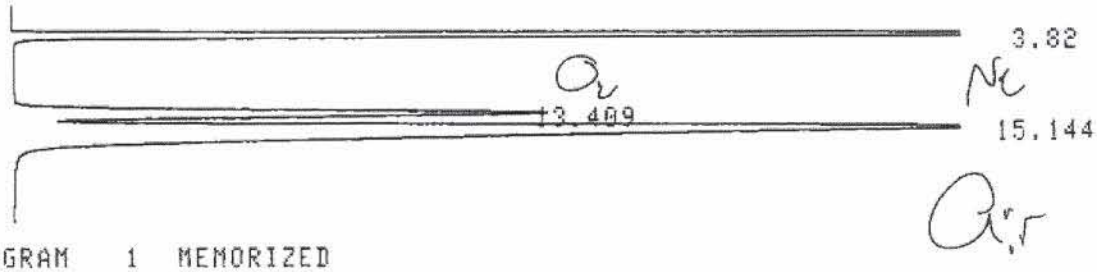
ENVIRONMENTAL



CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 293

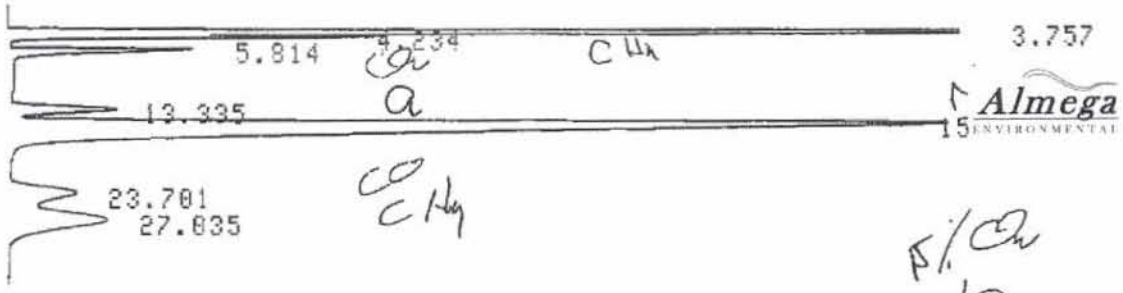
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.825	8855867			35.6367	
2	13.41	4057632			16.3282	
3	15.134	11936884	V		48.035	
	TOTAL	24850384			100	



CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 294

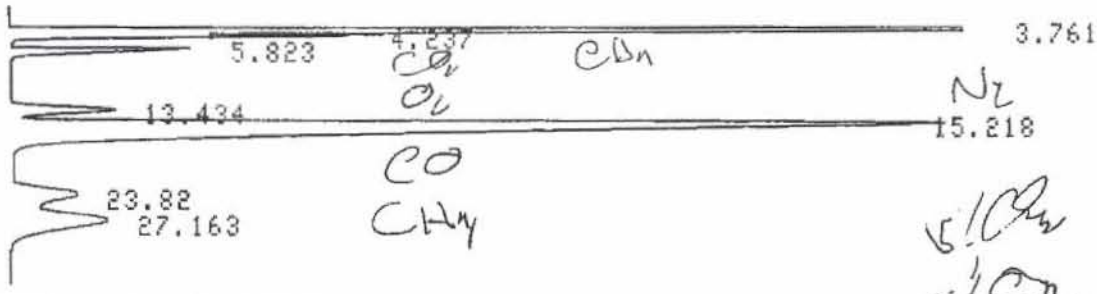
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.82	8897074			35.5217	
2	13.409	4085842			16.3128	
3	15.144	12063979	V		48.1656	
	TOTAL	25046894			100	



CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 295

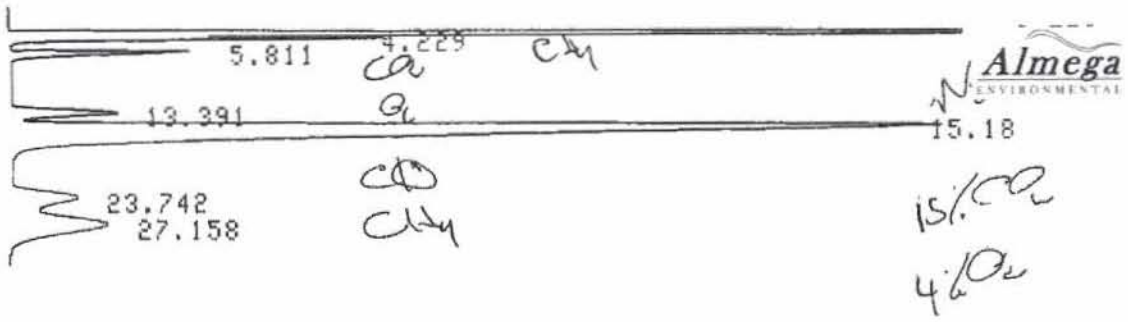
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.757	6913548			29.3885	
2	4.234	1085280	V		4.6134	
3	5.814	875724			3.7226	
4	13.335	794139			3.3758	
5	15.096	10903640	V		46.3498	
6	23.701	1039315			4.418	
7	27.035	1913025	V		8.132	
	TOTAL	23524666			100	



CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 296

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.761	6916586			29.2324	
2	4.237	1079238	V		4.5613	
3	5.823	889034	V		3.7574	
4	13.434	811631			3.4303	
5	15.218	11006006	V		46.5161	
6	23.82	1046801			4.4242	
7	27.163	1911368	V		8.0783	
	TOTAL	23660658			100	



CHROMATOGRAM 1 MEMORIZED

C-R5A CHROMATOPAC
CHANNEL NO 1 FILE 0
SAMPLE NO 0 METHOD 41
REPORT NO 306

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.752	6914854			29.3749	
2	4.229	1065426	V		4.526	
3	5.811	872827			3.7078	
4	13.391	802772			3.4102	
5	15.18	10946630	V		46.5023	
6	23.742	1029009			4.3713	
7	27.158	1908466	V		8.1073	
	TOTAL	23539980			100	

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TOC ANALYSIS

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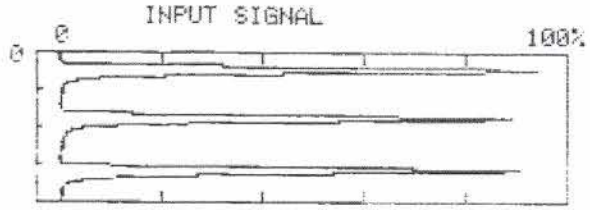
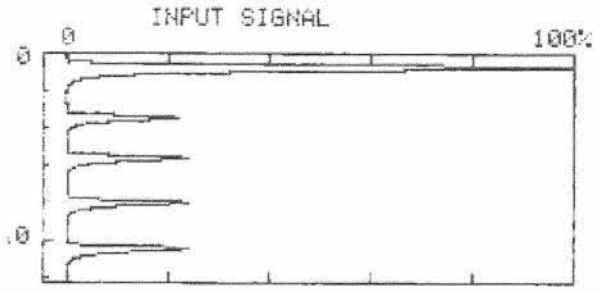


SAMPLE# 6 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	39351	19.93			
2	38524	19.50			
3	38258	19.36			
MN	38711	19.60			
SD	569	0.292			
CV	1.47 %				

COR CONC DIL 19.60 [x 1.0]
COR CONC INJ 19.60 [x 1.0]

DATE 09(SEP)-28-2015 10:55



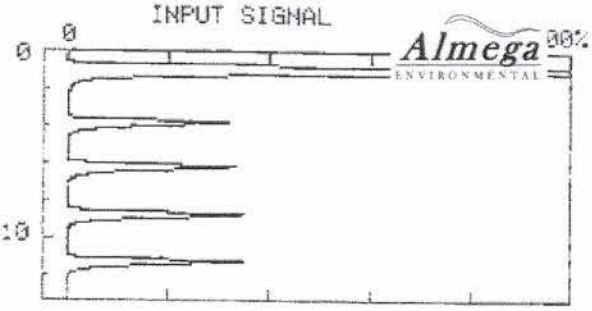
SAMPLE# 6 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	-45676	18.13	H		
2	- 8879	15.43		15	
3	9562	16.62			
4	9678	16.83			
+ 5	9691	16.85			
MN	9643	16.77			
SD	71	0.124			
CV	0.73 %				

COR CONC DIL 16.77 [x 1.0]
COR CONC INJ 16.77 [x 1.0]

SAMPLE# 6 TOC(TC-IC) 2.830 ppm

DATE 09(SEP)-28-2015 11:09

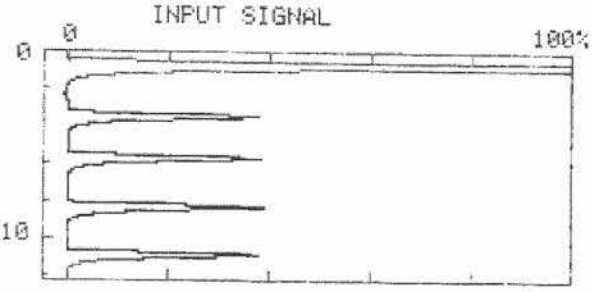


SAMPLE# 7 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	-57883	29.44	H		
2	-13690	31.62		16	
3	14067	32.50			
4	14601	33.74			
+ 5	14639	33.83			
MN	14435	33.36			
SD	319	0.746			
CV	2.21 %				

COR CONC DIL 33.36 [x 1.0]
COR CONC INJ 33.36 [x 1.0]

DATE 09(SEP)-28-2015 11:24



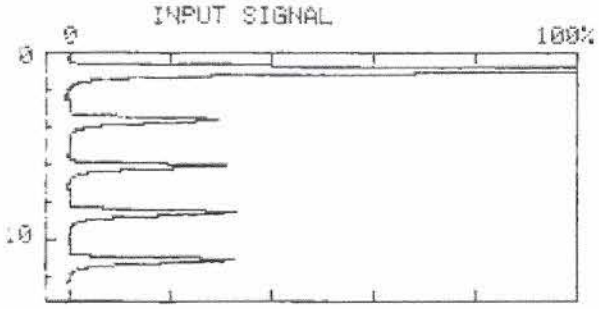
SAMPLE# 7 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	-50287	24.03	H		
2	15411	26.85		15	
3	15556	27.10			
4	15576	27.14			
+ 5	-15230	26.53			
MN	15514	27.03			
SD	90	0.157			
CV	0.58 %				

COR CONC DIL 27.03 [x 1.0]
COR CONC INJ 27.03 [x 1.0]

SAMPLE# 7 TOC(TC-IC) 6.330 ppm

DATE 09(SEP)-28-2015 11:40



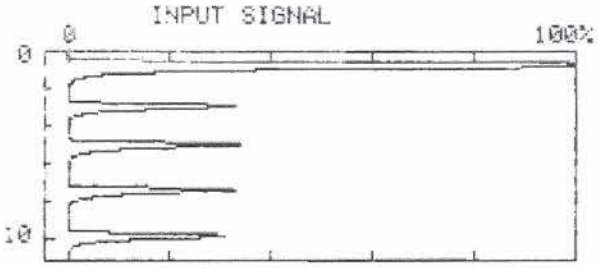
TIME [min]

SAMPLE# 8 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	PPM		C#	µl	RG
1	54240	27.57	H			
2	12626	29.14		16		
3	12921	29.82				
4	13637	31.49				
+ 5	13664	31.56				

MN 13407 30.96
SD 421 0.982
CV 3.14 %
COR CONC DIL 30.96 [x 1.0]
COR CONC INJ 30.96 [x 1.0]

DATE 09(SEP)-28-2015 11:57



TIME [min]

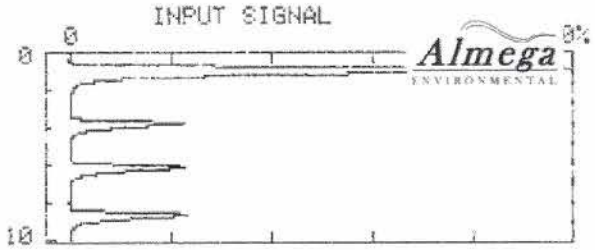
SAMPLE# 8 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	PPM		C#	µl	RG
1	56259	22.40	H			
2	12723	22.15		15		
3	13234	23.04				
4	12792	22.27				
+ 5	12202	21.24				

MN 12916 22.49
SD 277 0.484
CV 2.14 %
COR CONC DIL 22.49 [x 1.0]
COR CONC INJ 22.49 [x 1.0]

SAMPLE# 8 TOC(TC-IC) 8.470 PPM

DATE 09(SEP)-28-2015 12:11



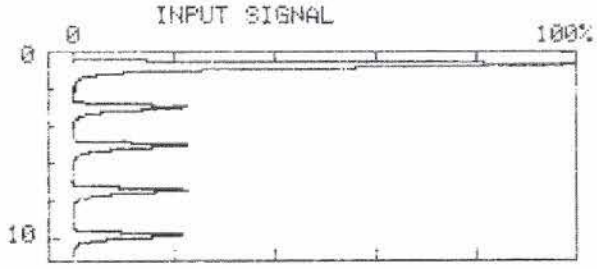
TIME [min]

SAMPLE# 9 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	PPM		C#	µl	RG
1	47870	24.30	H			
2	9978	22.96		16		
3	10119	23.29				
4	10162	23.39				

MN 10086 23.21
SD 96 0.224
CV 0.95 %
COR CONC DIL 23.21 [x 1.0]
COR CONC INJ 23.21 [x 1.0]

DATE 09(SEP)-28-2015 12:24



TIME [min]

SAMPLE# 9 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	PPM		C#	µl	RG
1	42271	16.75	H			
2	9114	15.84		15		
3	9018	15.67				
4	8630	14.99				
+ 5	8509	14.78				

MN 8920 15.50
SD 256 0.448
CV 2.87 %
COR CONC DIL 15.50 [x 1.0]
COR CONC INJ 15.50 [x 1.0]

SAMPLE# 9 TOC(TC-IC) 7.710 PPM

DATE 09(SEP)-28-2015 12:37

Almega Environmental Technical Services

Almega ENVIRONMENTAL

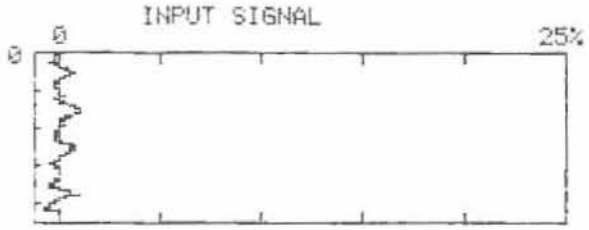
SCAQMD Method 25.3
TOC Analysis on the Trap

Calibration Curve No.: TC IC

Page: # 53

	No	Sample ID	Date	Sample Volume, ml		Dilution Factor	Concentration, ppmC		
				Initial	Final		TC	IC	TOC
	1	Blank	9/28	—	—	1	.047	-.002	.047
	2	TC std		—	—	1	5.602	.154	5.448
	3	IC std		—	—	1	2.694	2.378	.316
	4	LCS		—	—	1	3.743	.268	3.475
	5	Blank		—	—	1	.024	-.002	.034
21	6	A137-012A		2	4	2	19.60	16.77	2.830
23	7	-012B		2	4	2	33.36	27.03	6.550
25	8	-022A		2	4	2	30.96	22.49	8.470
24	9	-022B		2	4	2	23.21	15.50	7.710
	10	LCS		—	—	1	10.61	.565	10.04
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								

Comments



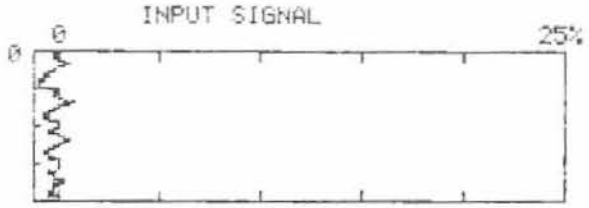
TIME [min]

SAMPLE# 1 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	485	0.013			
2	547	0.045			
3-	585	0.064			
+ 4	503	0.022			
MN	511	0.027			
SD	31	0.016			

CV 6.23 %
COR CONC DIL 0.027 [x 1.0]
COR CONC INJ 0.027 [x 1.0]

DATE 09(SEP)-28-2015 08:22



TIME [min]

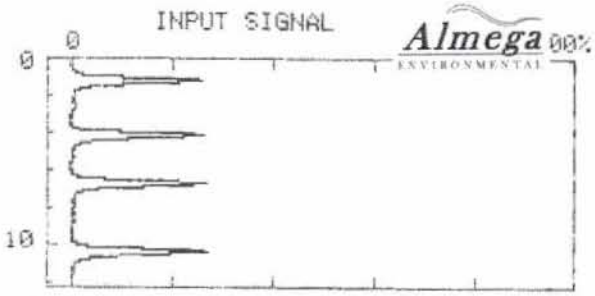
SAMPLE# 1 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	247	-0.02			
2	271	-0.01			
3-	396	0.028			
+ 4	223	-0.03			
MN	247	-0.02			
SD	24	0.009			

CV 9.71 %
COR CONC DIL -0.02 [x 1.0]
COR CONC INJ -0.02 [x 1.0]

SAMPLE# 1 TOC(TC-IC) 0.047 ppm

DATE 09(SEP)-28-2015 08:36



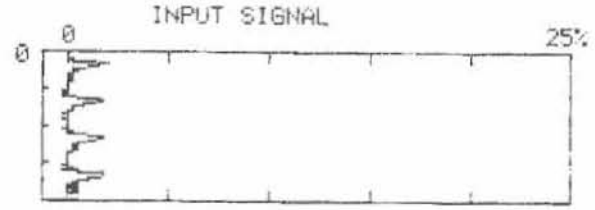
TIME [min]

SAMPLE# 2 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1-	10617	5.196			
2	11227	5.508			
3	11855	5.829			
+ 4	11149	5.468			
MN	11410	5.602			
SD	387	0.197			

CV 3.39 %
COR CONC DIL 5.602 [x 1.0]
COR CONC INJ 5.602 [x 1.0]

DATE 09(SEP)-28-2015 09:00



TIME [min]

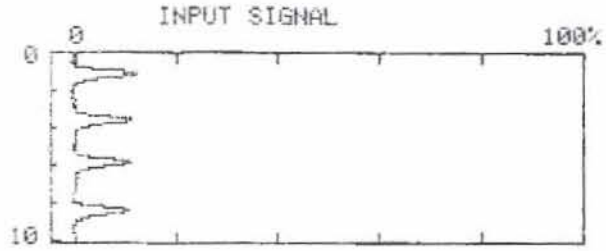
SAMPLE# 2 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	704	0.145			
2	748	0.162			
3-	580	0.098			
+ 4	732	0.156			
MN	728	0.154			
SD	22	0.008			

CV 3.05 %
COR CONC DIL 0.154 [x 1.0]
COR CONC INJ 0.154 [x 1.0]

SAMPLE# 2 TOC(TC-IC) 5.448 ppm

DATE 09(SEP)-28-2015 09:10

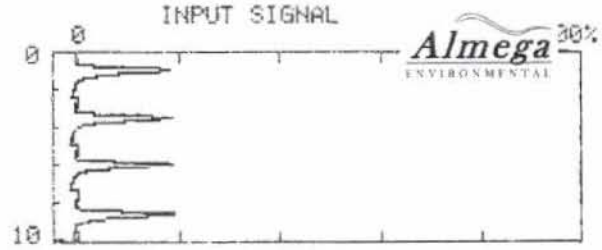


SAMPLE# 3 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1-	6369	3.025			
2	5722	2.694			
3	5633	2.649			
+ 4	5809	2.739			
MN	5721	2.694			
SD	38	0.045			
CV	1.53 %				

COR CONC DIL 2.694 [x 1.0]
COR CONC INJ 2.694 [x 1.0]

DATE 09(SEP)-28-2015 09:23

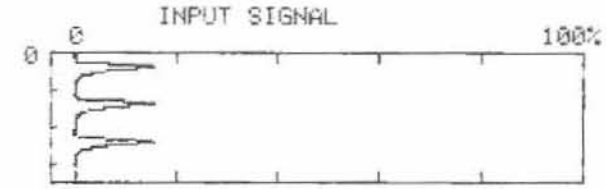


SAMPLE# 4 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	7799	3.756			
2	7750	3.731			
3-	7627	3.668			
+ 4	7774	3.743			
MN	7774	3.743			
SD	24	0.012			
CV	0.31 %				

COR CONC DIL 3.743 [x 1.0]
COR CONC INJ 3.743 [x 1.0]

DATE 09(SEP)-28-2015 09:44



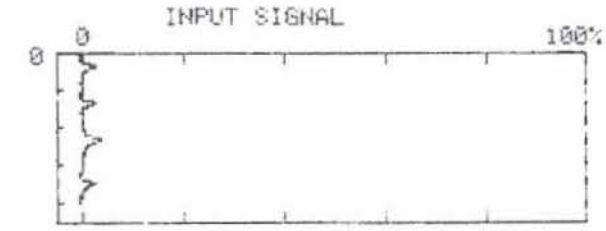
SAMPLE# 3 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	6552	2.373			
2	6606	2.394			
3	6539	2.368			
MN	6565	2.378			
SD	35	0.013			
CV	0.54 %				

COR CONC DIL 2.378 [x 1.0]
COR CONC INJ 2.378 [x 1.0]

SAMPLE# 3 TOC(TC-IC) 0.316 ppm

DATE 09(SEP)-28-2015 09:31



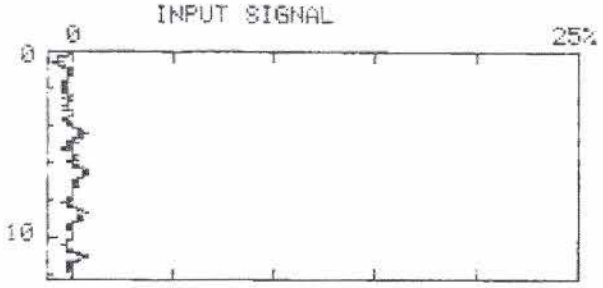
SAMPLE# 4 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	1080	0.288			
2	953	0.240			
3-	1918	0.607			
+ 4	1046	0.275			
MN	1026	0.268			
SD	65	0.025			
CV	6.4 %				

COR CONC DIL 0.268 [x 1.0]
COR CONC INJ 0.268 [x 1.0]

SAMPLE# 4 TOC(TC-IC) 3.475 ppm

DATE 09(SEP)-28-2015 09:55



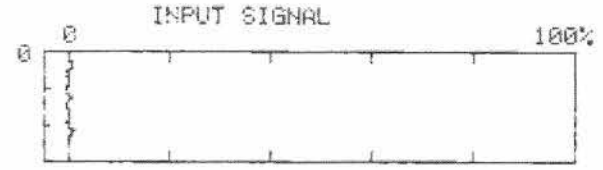
TIME [min]

SAMPLE# 5 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1-	736	0.157			
2	546	0.044			
3-	362	-0.04			
+ 4	512	0.027			
+ 5	406	-0.02			
MN	488	0.014			
SD	73	0.037			

CV 14.9 %
COR CONC DIL 0.014 [x 1.0]
COR CONC INJ 0.014 [x 1.0]

DATE 09(SEP)-28-2015 10:30



TIME [min]

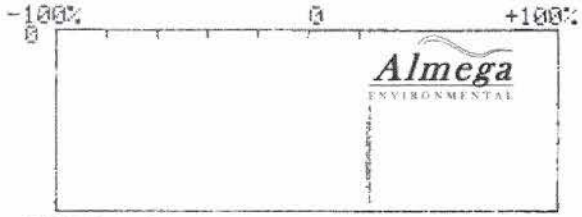
SAMPLE# 5 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	222	-0.03			
2	270	-0.02			
3	258	-0.02			
MN	250	-0.02			
SD	24	0.009			

CV 9.99 %
COR CONC DIL -0.02 [x 1.0]
COR CONC INJ -0.02 [x 1.0]

SAMPLE# 5 TOC(TC-IC) 0.034 ppm

DATE 09(SEP)-28-2015 10:37



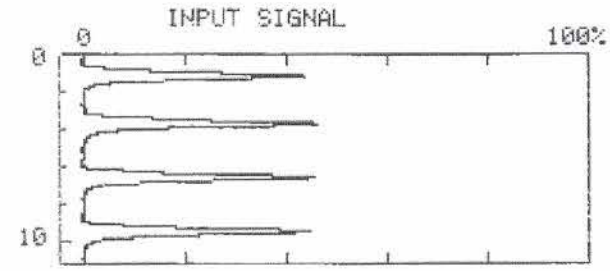
RANGE : x1
[READY]
TC FURNACE TEMP : OK 680°C
DEHUMIDIFIER TEMP : OK 1.0°C
BASELINE POSITION : OK
BASELINE FLUCTUATION: OK
BASELINE NOISE : OK

DATE 09(SEP)-28-2015 07:36

TOC-5000 DATA REPORT
DATE 09(SEP)-28-2015 13:16

SPL#	TC, ppm	RMK	IC, ppm	RMK	TOC, ppm
1	0.027	14****	-0.02	13****	0.047
2	5.602	14****	0.154	13****	5.448
3	2.694	14****	2.378	13****	0.316
4	3.743	14****	0.268	13****	3.475
5	0.014	14****	-0.02	13****	0.034
6	19.60	14****	16.77	15*H**	2.830
7	33.36	16*H**	27.03	15*H**	6.330
8	30.96	16*H**	22.49	15*H**	8.470
9	23.21	16*H**	15.50	15*H**	7.710
10	10.61	14****	0.565	13****	10.04

ANALYST :
SAMPLE :

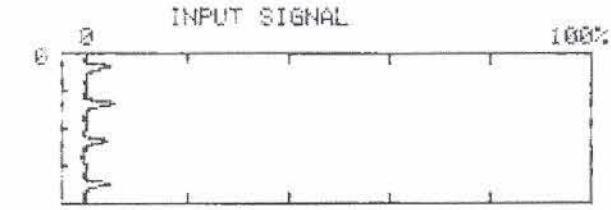


SAMPLE# 10 TC
[x 1, 27µl, C# 14, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	21082	10.55			
2-	22369	11.21			
3	21634	10.83			
+ 4	20880	10.44			
MN	21198	10.61			
SD	390	0.200			
CV	1.84 %				

COR CONC DIL 10.61 [x 1.0]
COR CONC INJ 10.61 [x 1.0]

DATE 09(SEP)-28-2015 12:56



SAMPLE# 10 IC
[x 1, 33µl, C# 13, #WASH 2, SP 0min]

#	AREA	ppm	C#	µl	RG
1	1977	0.592			
2-	2012	0.643			
3	1718	0.531			
+ 4	1828	0.573			
MN	1807	0.565			
SD	81	0.031			
CV	4.50 %				

COR CONC DIL 0.565 [x 1.0]
COR CONC INJ 0.565 [x 1.0]

SAMPLE# 10 TOC(TC-IC) 10.04 ppm

DATE 09(SEP)-28-2015 13:08

TANK PREPARATION

Almega
ENVIRONMENTAL

TANK PREPARATIONS

Client:	Mesa Water	Lab No.:	A 133
Project No.:	c9840		
Unit Tested:	Resevoir #2 - Engine #1		
Sampling Date:	23-Sep-15		
Date pressurized:	24-Sep-15		

Tank ID	Sample ID	Pre-test pressure mm Hg		Post-test pressure mm Hg	Final Pressure	Comments
		1	2			
S016	A 133 - 011 A	-758	-758	-468	166	Run #1 A
777	A 133 - 011 B	-758	-758	-418	192	Run #1 B
A130	A 133 - 021 A	-758	-758	-404	184	Run #2 A
A101	A 133 - 021 B	-758	-758	-418	196	Run #2 B

* - Post -test Pressure is less then 200 mm Hg.

CALIBRATIONS

11-Jun-15
Current

	100 ppm mix					1000 ppm mix					2000 ppm mix						
	conc	area 1	area 2	RF 1	RF 2	conc	area 1	area 2	RF 1	RF 2	conc	area 1	area 2	RF 1	RF 2	Ave	RSD
Carbon Monoxide	101 08	370255	370534	2 73E-04	2.73E-04	1000 4	3675579	3677664	2 72E-04	2 72E-04	2006 8	7837647	7847982	2 56E-04	2.56E-04	2.67E-04	0.3
Methane	101 92	404558	404178	2 52E-04	2 52E-04	1001 8	3996870	3999636	2 51E-04	2 50E-04	2010	7841024	7848899	2 56E-04	2 56E-04	2.53E-04	-4.9
Carbon Dioxide	104 3	398920	398859	2 61E-04	2.61E-04	1002	3952298	3958485	2 54E-04	2 53E-04	1999	7759139	7771729	2.58E-04	2.57E-04	2.57E-04	3.3
Ethane	97 06	401612	402485	2 42E-04	2 41E-04	1004	3918356	3915213	2 56E-04	2 56E-04	2015	7841898	7841835	2.57E-04	2 57E-04	2.52E-04	5.5
TGNMO	101 9	344008	342942	2 96E-04	2 97E-04	1002	3288823	3284294	3 05E-04	3 05E-04	2002	6488336	6473601	3.09E-04	3.09E-04	3.03E-04	14.0
	Average	387275	387116	2.63E-04	2.63E-04	Average	3766385	3767058.4	2.67E-04	2.67E-04	Average	7553609	7556809	2.67E-04	2.67E-04		
			Average	2.63E-04				Average	2.67E-04				Average	2.67E-04			
	RSD%			1.2					-0.5					0.4			

Average **2.66E-04**

RSD, %

RSD_{CO} =	4.278	r_{CO} =	0.99911
RSD_{CH4} =	0.724	r_{CH4} =	0.99997
RSD_{CO2} =	1.504	r_{CO2} =	0.99995
RSD_{C2H6} =	1.435	r_{C2H6} =	1.00000
RSD_{NMOC} =	3.459	r_{NMOC} =	0.99999

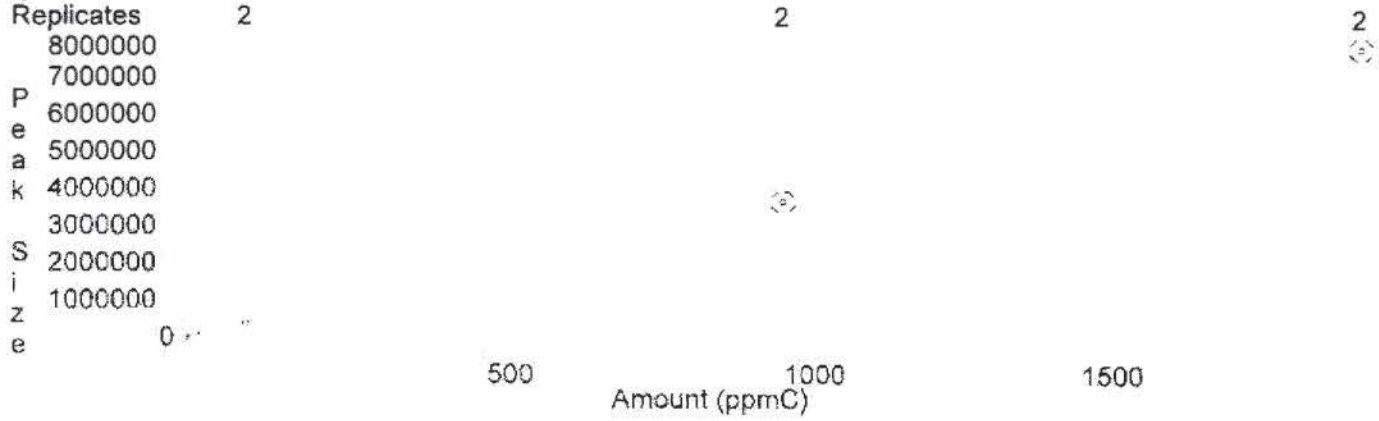
Print Date: 12 Jun 2015 10:56:50
Calibration Curves Report - Page 1
File: 6-12-2015, 11;30;17, n2 blank a111-2.mth
Detector: 800 Interface Box, Address: 88, Channel ID: 2

Almega ENVIRONMENTAL

Carbon Monoxide

External Standard Analysis
Curve Type: Linear
Origin: Force
y = +3.890797e+003x

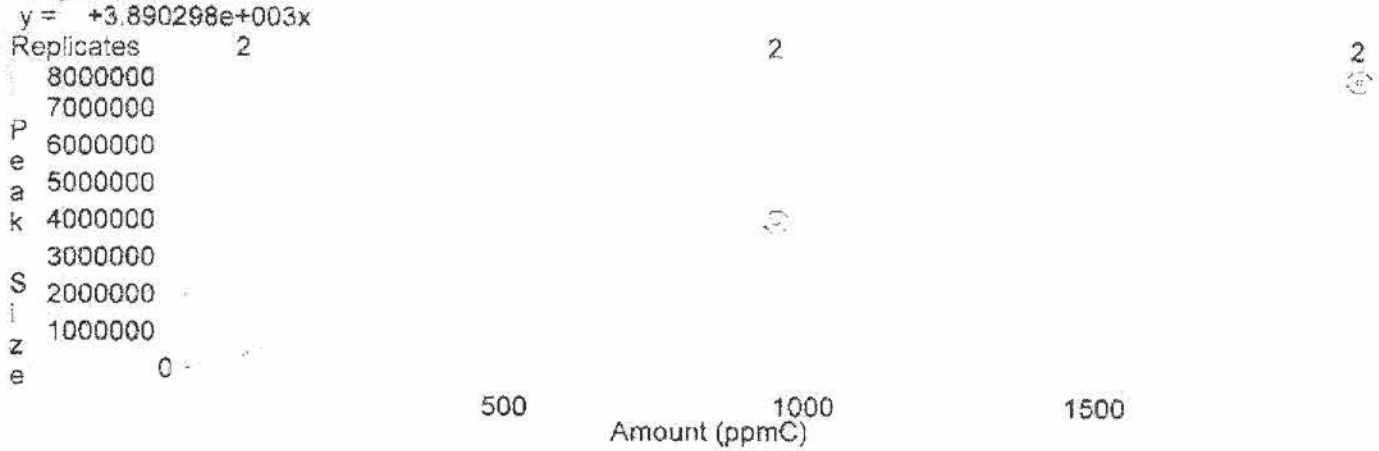
Resp. Fact. RSD: 4.278%
Coeff. Det.(r^2): 0.998216



Methane

External Standard Analysis
Curve Type: Linear
Origin: Force
y = +3.890298e+003x

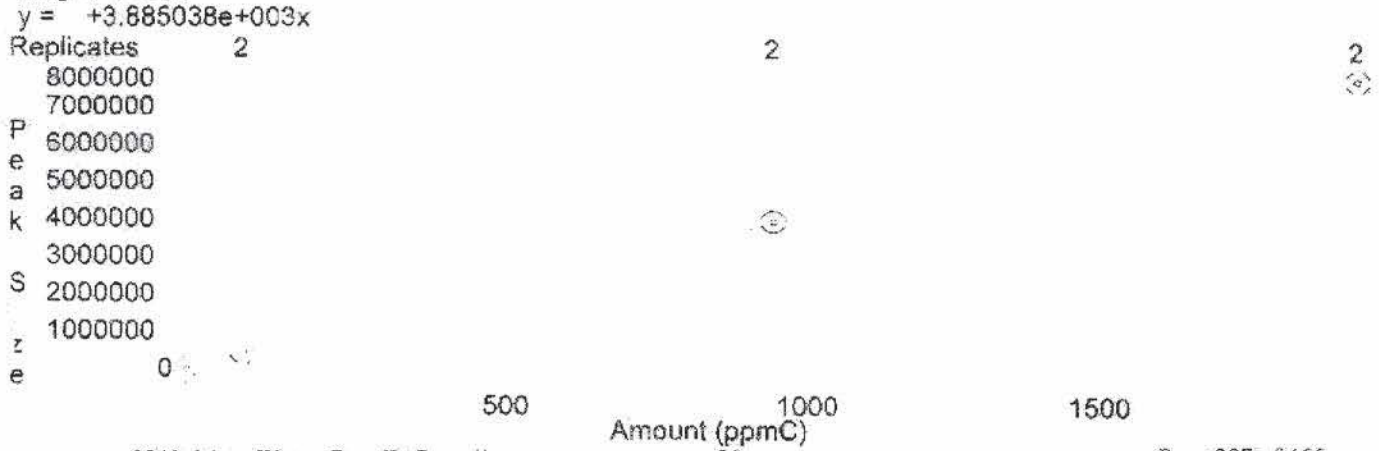
Resp. Fact. RSD: 0.7244%
Coeff. Det.(r^2): 0.999947



Carbon Dioxide

External Standard Analysis
Curve Type: Linear
Origin: Force
y = +3.885038e+003x

Resp. Fact. RSD: 1.504%
Coeff. Det.(r^2): 0.999910



Print Date: 12 Jun 2015 10:56:51
Calibration Curves Report - Page 2
File: 6-12-2015, 11;30;17, n2 blank a111-2.mth
Detector: 800 Interface Box, Address: 88, Channel ID: 2

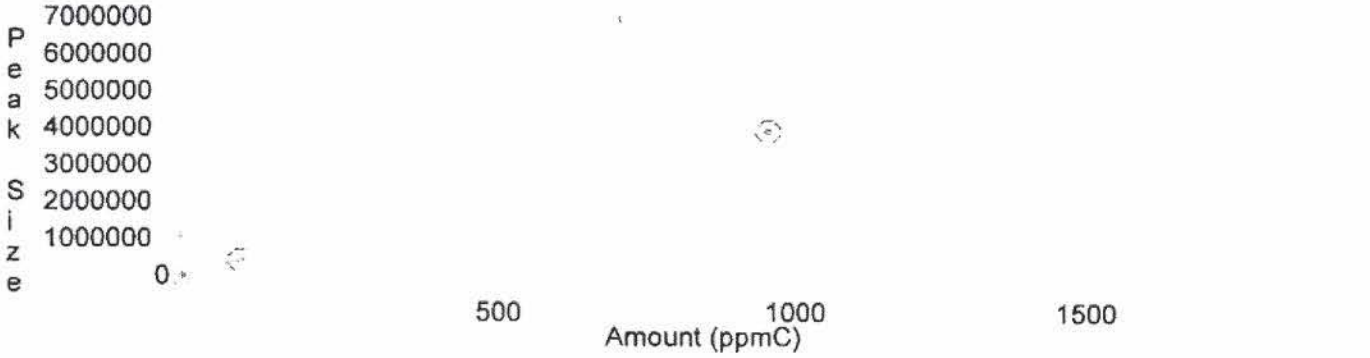
Almega ENVIRONMENTAL

Ethane

External Standard Analysis
Curve Type: Linear
Origin: Force
y = +3.872272e+003x

Resp. Fact. RSD: 1.435%
Coeff. Det.(r^2): 0.999994

Replicates 2 2 2

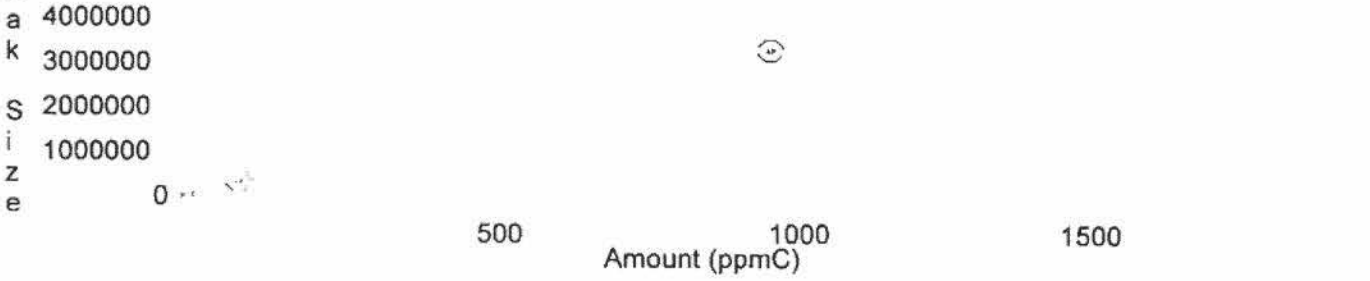


NMOC

External Standard Analysis
Curve Type: Linear
Origin: Force
y = +3.232029e+003x

Resp. Fact. RSD: 3.459%
Coeff. Det.(r^2): 0.999986

Replicates 2 2 2



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 10;31;00, lab air.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air-2.tmp
Sample ID : lab air

Injection Date: 6/11/2015 10:31 AM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

* Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	100.4453	1.889	-0.041	396662	BB	3.8	
2	Methane	1.5123	2.283	0.012	5911	TS	0.0	
3	Carbon Dioxi	496.0579	3.429	-0.040	1939116	BB	7.9	
4	Ethane		7.489					M
5	NMOC		12.324					M
	Totals:	598.0155		-0.069	2341689			

Status Codes:
M = Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 1 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -246 microVolts LSB: 1 microVolts

Noise (used): 51 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 10;31;00, lab air.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air-2.tmp
Sample ID : lab air

Almega
ENVIRONMENTAL

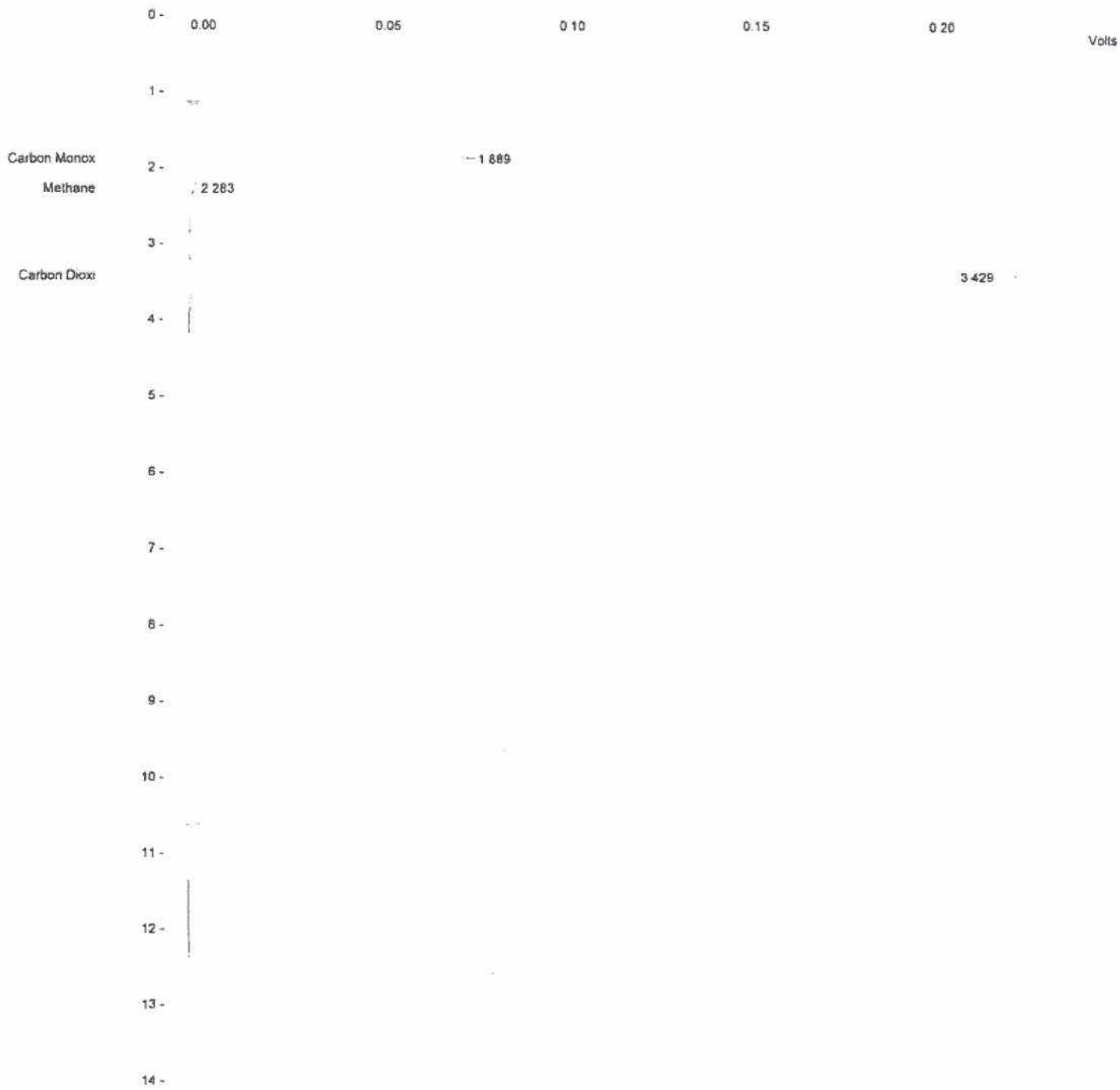
ection Date: 6/11/2015 10:31 AM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 106 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Print Date: Fri Jun 12 11:02:19 2015 Page 1 of 1

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 10;59;03, n2 blank w0100.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air-2.tmp
Sample ID : n2 blank w0100

Injection Date: 6/11/2015 10:59 AM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 - Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

* Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	0.5921	1.904	-0.026	2338	BB	3.8	
2	Methane		2.271					M
3	Carbon Dioxi	0.9205	3.435	-0.034	3598	BB	8.3	
4	Ethane		7.489					M
5	NMOC		12.324					M
	Totals:	1.5126		-0.060	5936			

Status Codes:
M - Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 3 Rejected Peaks: 1 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -259 microVolts LSB: 1 microVolts

Noise (used): 33 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 10;59;03, n2 blank w0100.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air-2.tmp
Sample ID : n2 blank w0100

Almega
ENVIRONMENTAL

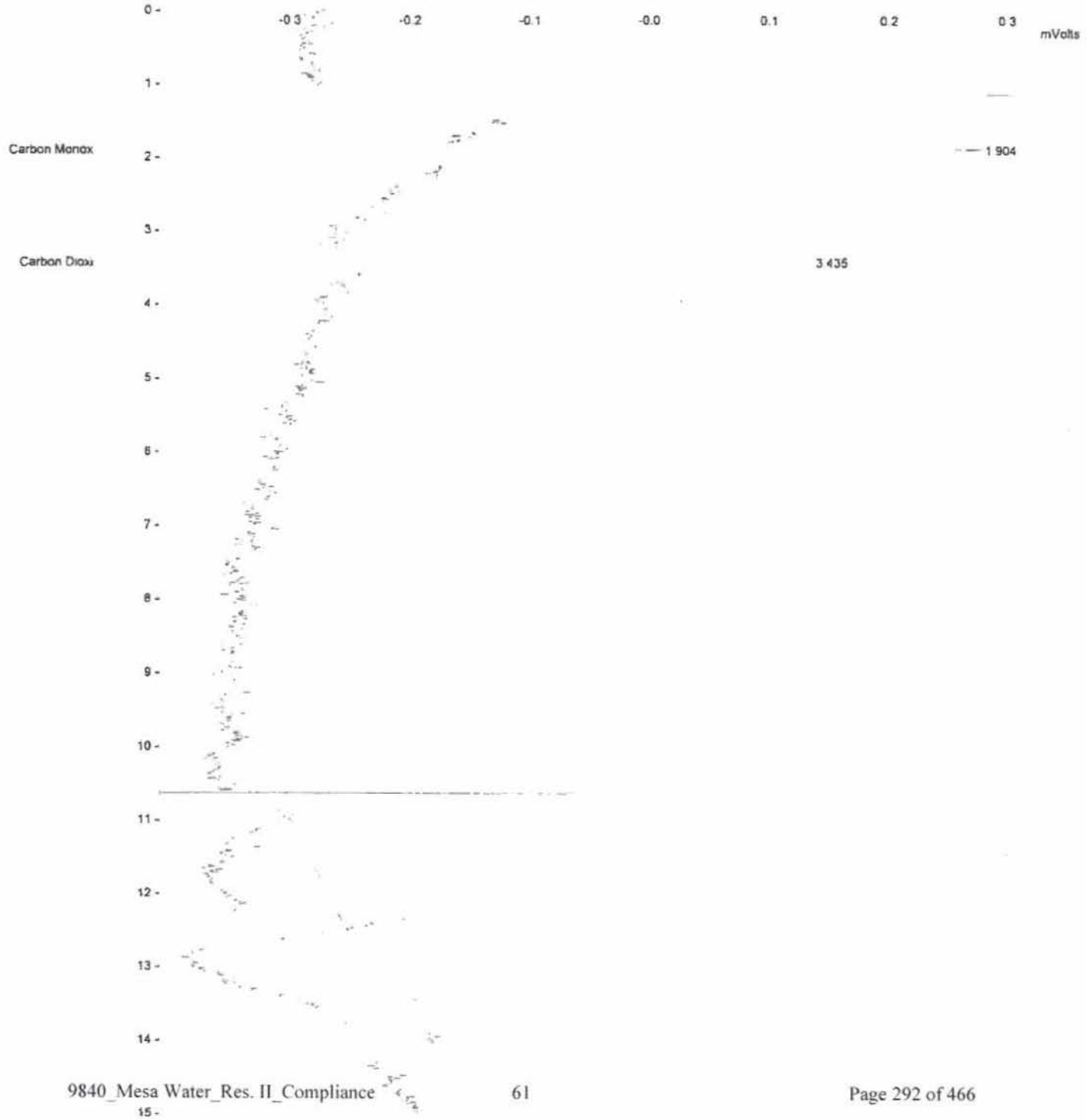
ction Date: 6/11/2015 10:59 AM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1 Zero Offset = 16%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 11;48;06, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank a111-2.tmp
Sample ID : 100ppm mix

Injection Date: 6/11/2015 11:48 AM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 3

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.923	-0.007	370255	BV	3.4	
2	Methane	2.296	-0.004	404558	VP	3.8	
3	Carbon Dioxi	3.436	-0.033	398920	PB	8.0	
4	Ethane	7.400	-0.089	401612	BB	21.8	
5	NMOC	12.335	0.011	344008	BB	17.0	
	Totals:		-0.122	1919353			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -153 microVolts LSB: 1 microVolts

Noise (used): 22 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 11;48;06, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 100ppm mix

Almega
ENVIRONMENTAL

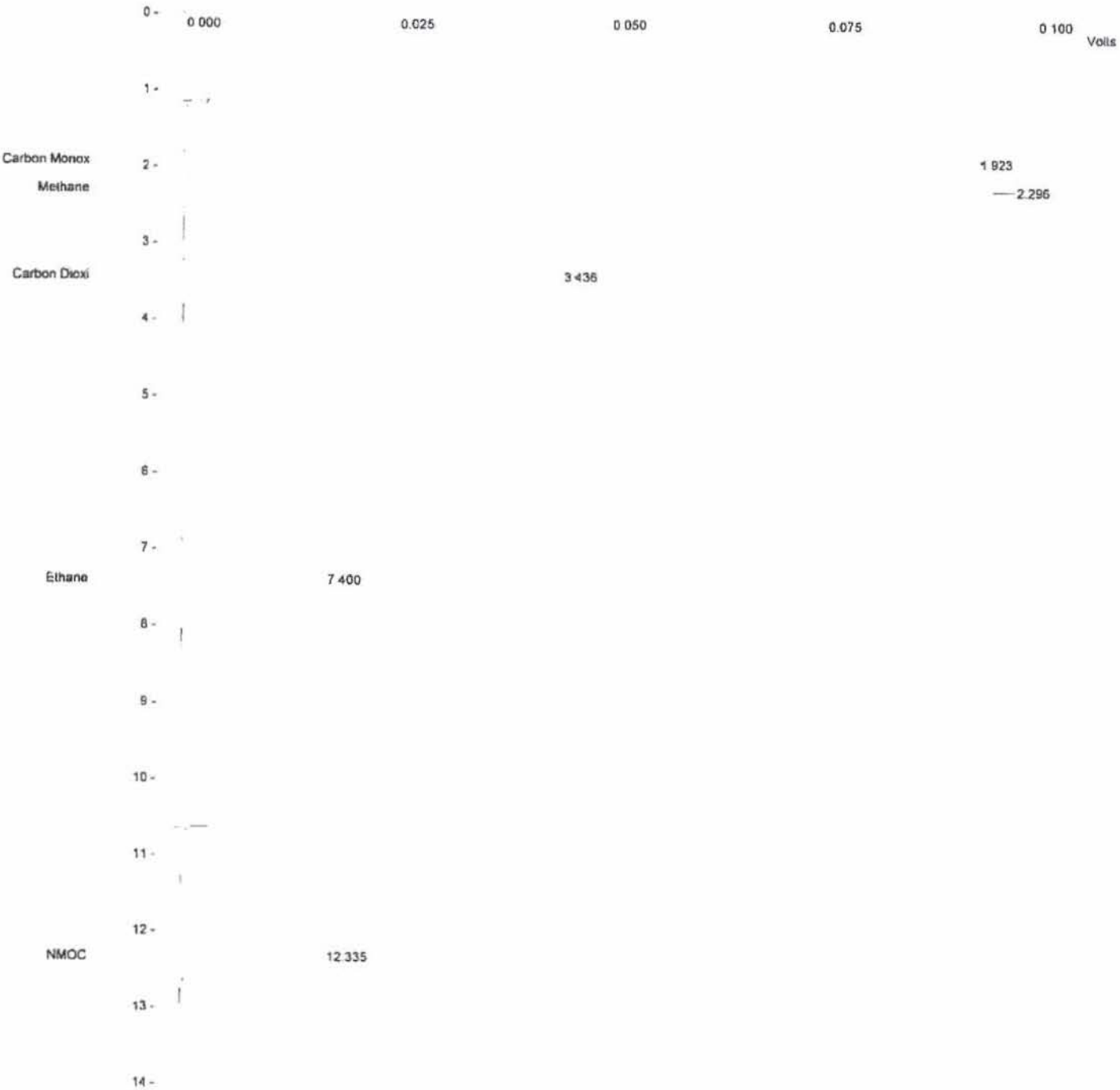
ction Date: 6/11/2015 11:48 AM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 46 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 12;14;47, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank a111-2.tmp
Sample ID : 100ppm mix

Injection Date: 6/11/2015 12:14 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 3

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.913	-0.009	370534	BV	3.3	
2	Methane	2.288	-0.008	404178	VB	3.9	
3	Carbon Dioxi	3.431	-0.005	398859	BB	8.0	
4	Ethane	7.404	0.004	402485	BB	21.8	
5	NMOC	12.333	-0.001	342942	BB	17.4	
	Totals:		-0.019	1918998			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -296 microVolts LSB: 1 microVolts

Noise (used): 36 microVolts - monitored before this run

Stream: 1 Injection Number: 3 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 12;14;47, 100ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 100ppm mix

Almega
ENVIRONMENTAL

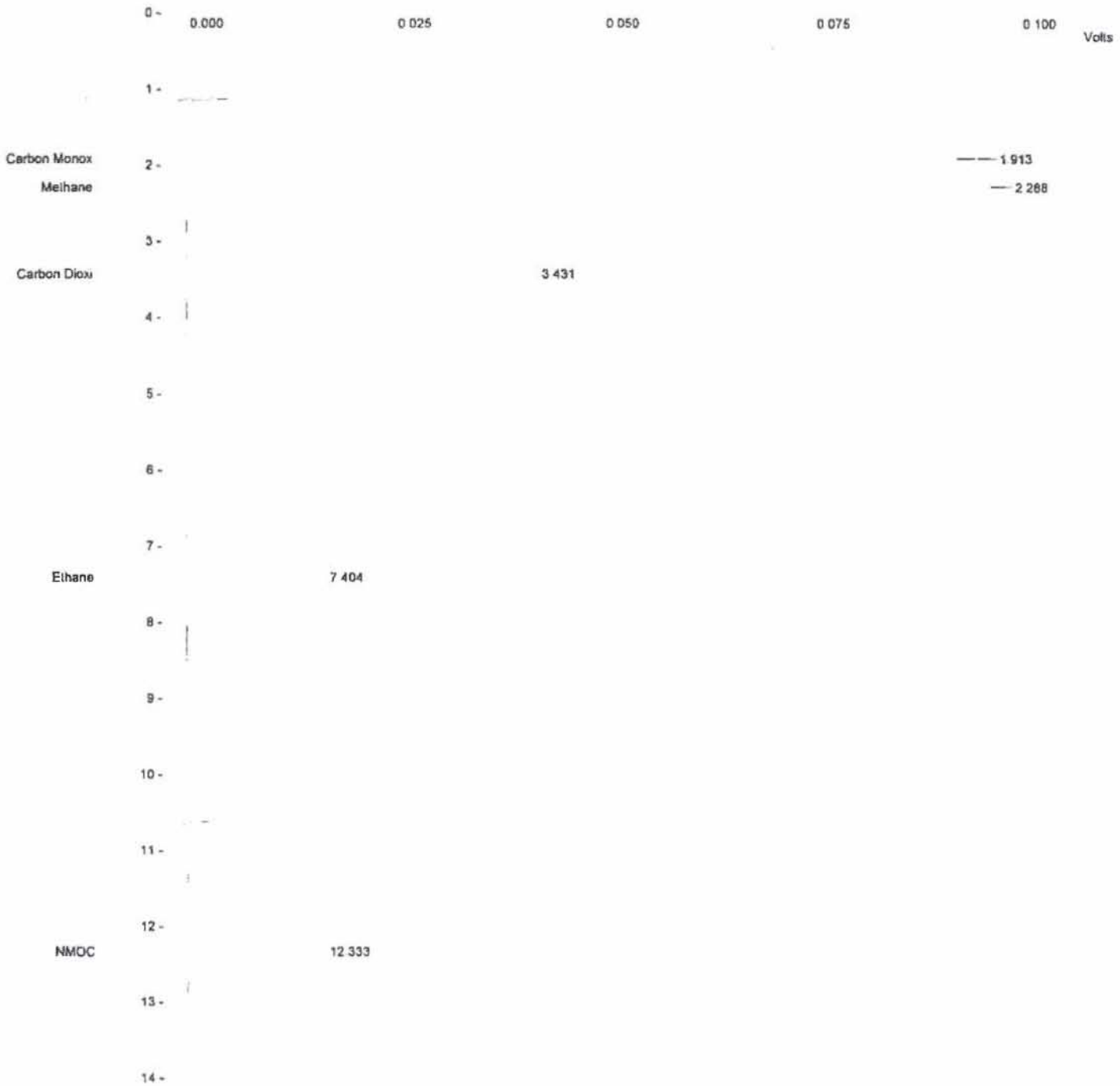
ection Date: 6/11/2015 12:14 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** D0299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 47 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 13;10;59, 1000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 1000ppm mix

Injection Date: 6/11/2015 1:10 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.933	0.020	3675579	BV	3.0	
2	Methane	2.309	0.021	3996870	VV	3.8	
3	Carbon Dioxi	3.448	0.018	3952298	VB	7.9	
4		5.632	0.000	21690	BB	15.2	
5	Ethane	7.413	0.009	3918356	BB	21.9	
6	NMOC	12.349	0.016	3288823	BB	17.1	
	Totals:		0.084	18853616			

Total Unidentified Counts : 21690 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -231 microVolts LSB: 1 microVolts

Noise (used): 41 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 13;10;59, 1000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 1000ppm mix

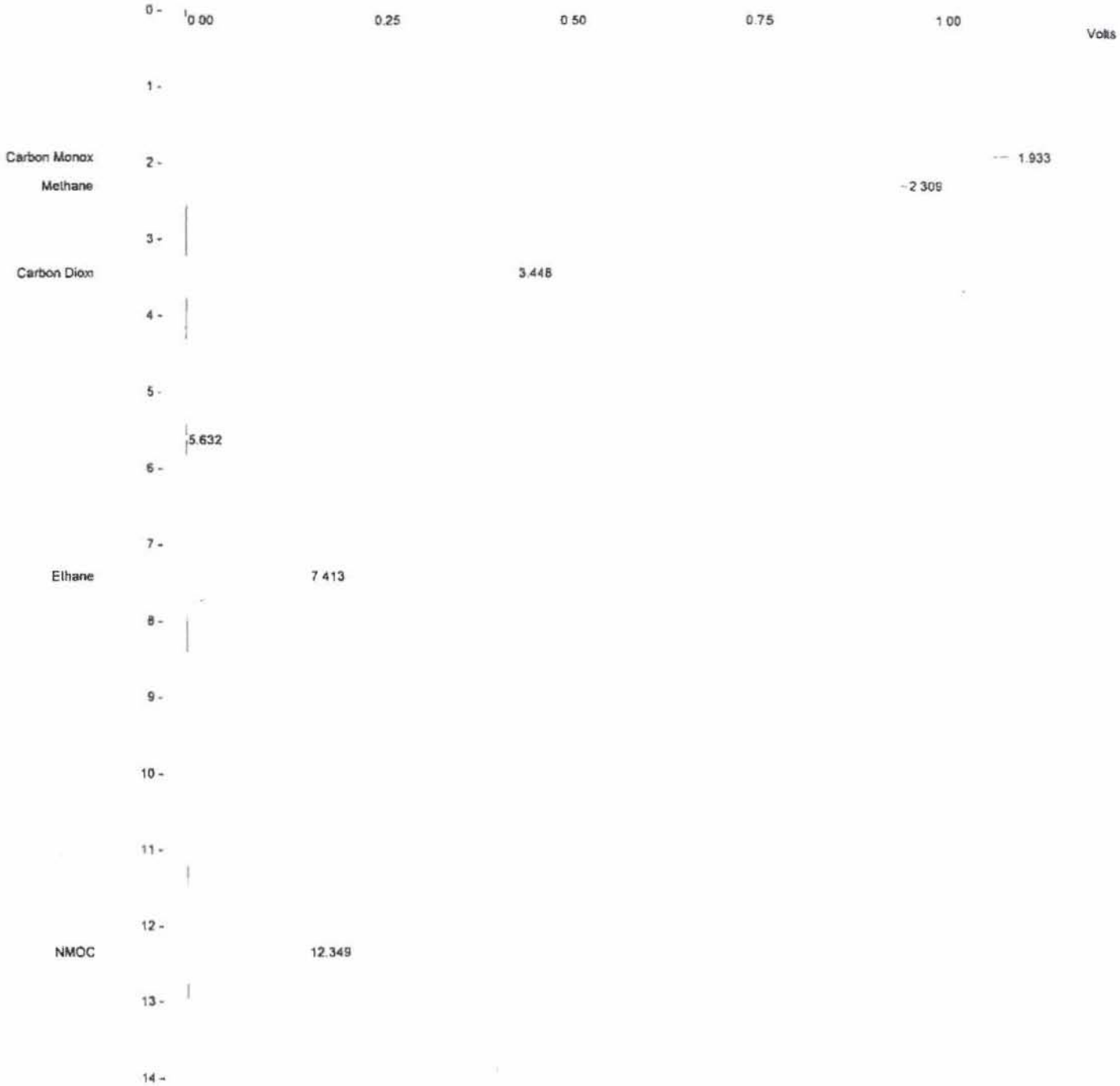
Almega
ENVIRONMENTAL

ection Date: 6/11/2015 1:10 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 88
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 526 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 13;39;09, 1000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank a111-2.tmp
Sample ID : 1000ppm mix

Injection Date: 6/11/2015 1:39 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.905	-0.028	3677664	BV	2.9	
2	Methane	2.281	-0.028	3999636	VV	3.8	
3	Carbon Dioxi	3.420	-0.028	3958485	VB	7.9	
4		5.603	0.000	22169	BB	15.4	
5	Ethane	7.384	-0.029	3915213	BB	21.8	
6	NMOC	12.323	-0.026	3284294	BB	17.2	
	Totals:		-0.139	18857461			

Total Unidentified Counts : 22169 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -351 microVolts LSB: 1 microVolts

Noise (used): 24 microVolts - monitored before this run

Stream: 1 Injection Number: 3 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june 15\6-11-2015, 13;39;09, 1000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 1000ppm mix

Almega
ENVIRONMENTAL

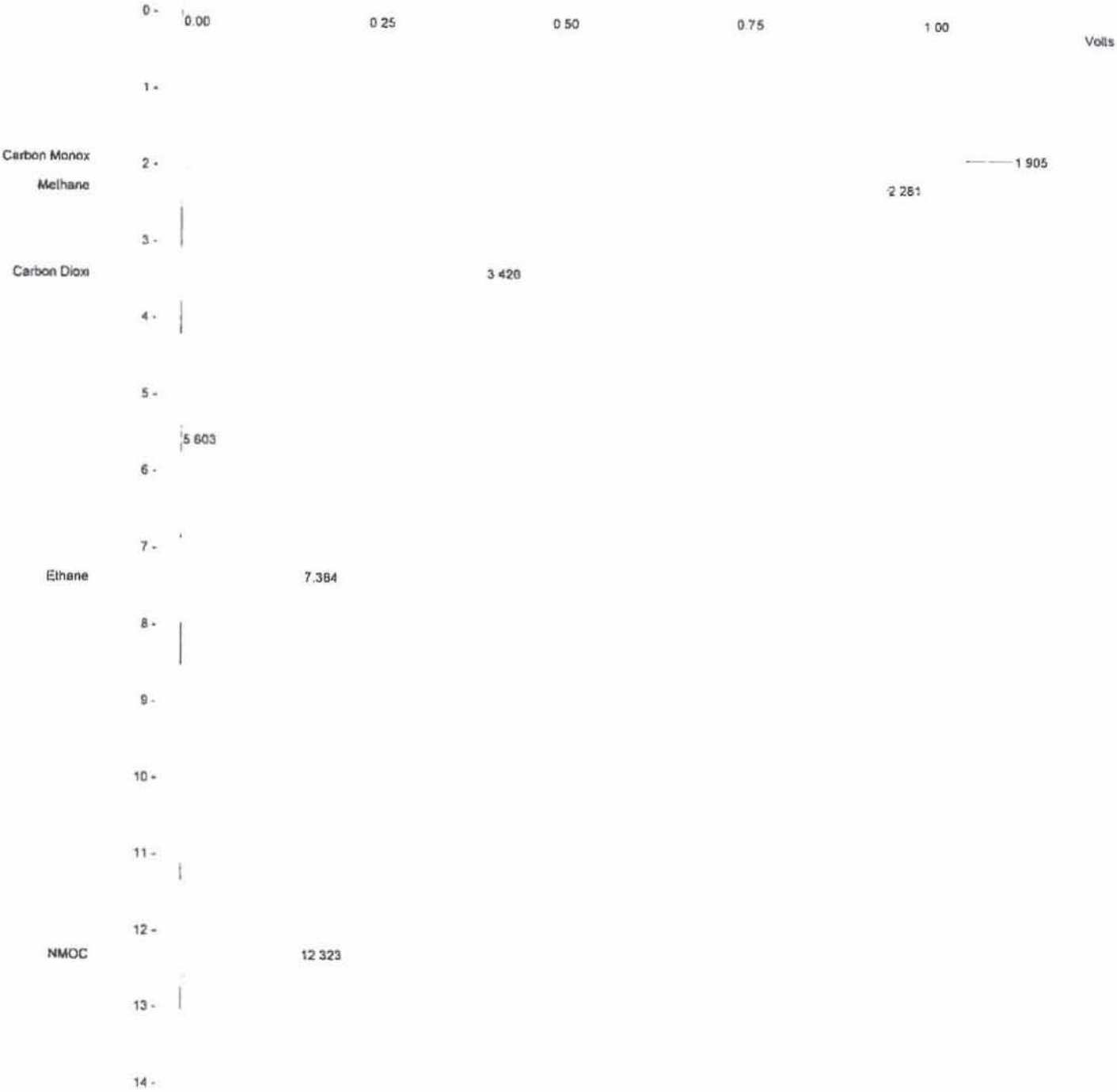
ection Date: 6/11/2015 1:39 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 533 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 14;30;32, 2000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank a111-2.tmp
Sample ID : 2000ppm mix

Injection Date: 6/11/2015 2:30 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 1

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.905	0.000	7837647	BV	2.9	
2	Methane	2.283	0.002	7841024	VV	3.8	
3	Carbon Dioxi	3.420	0.000	7759139	VB	7.9	
4	Ethane	7.383	-0.001	7841898	BB	21.8	
5	NMOC	12.325	0.003	6488336	BB	17.1	
	Totals:		0.004	37768044			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -274 microVolts LSB: 1 microVolts

Noise (used): 43 microVolts - monitored before this run

Stream: 1 Injection Number: 2 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

****

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 14;30;32, 2000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 2000ppm mix

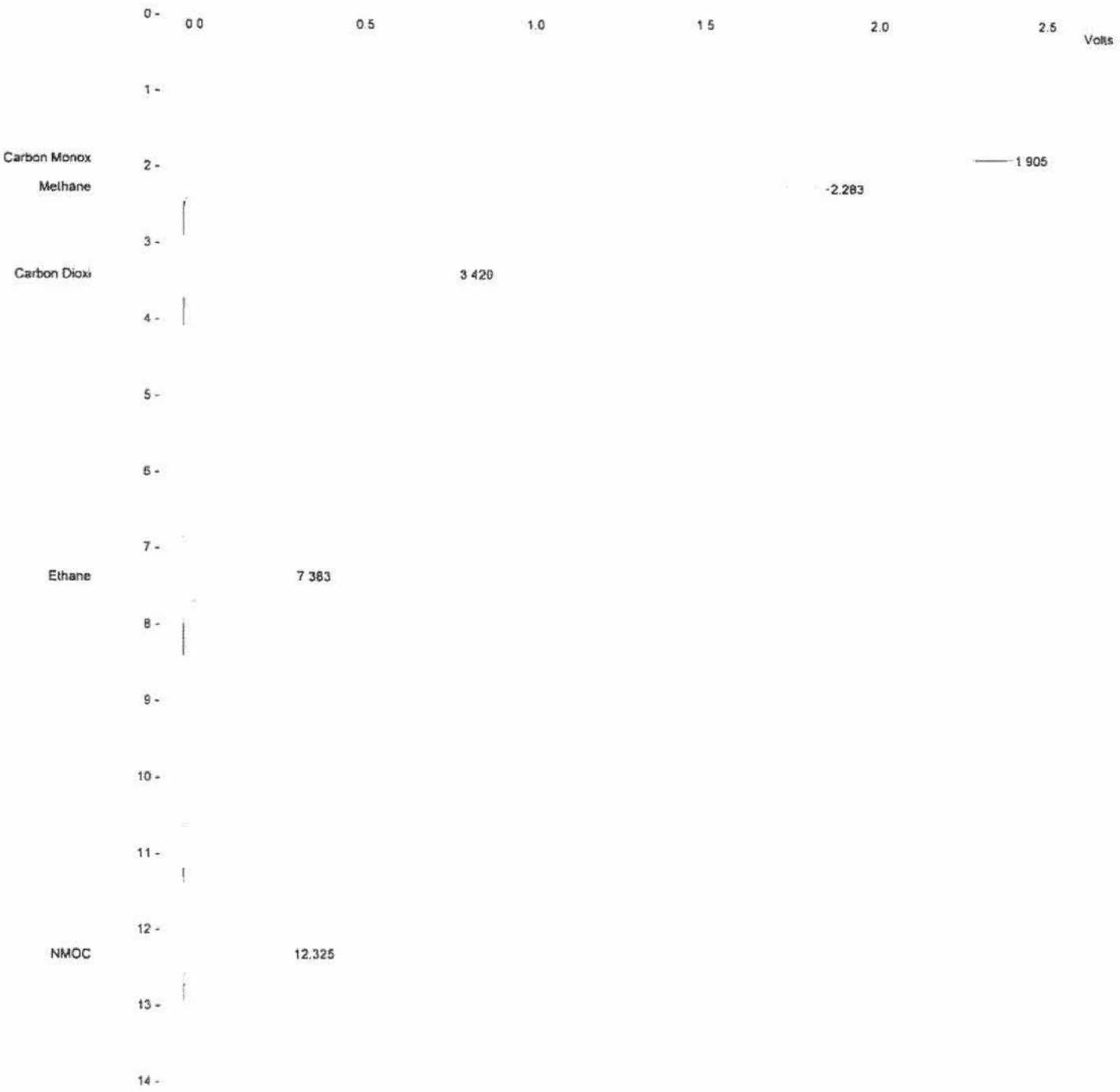
Almega
ENVIRONMENTAL

ection Date: 6/11/2015 2:30 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass Detector Type: 0800 (10 Volts)
Workstation: Bus Address : 68
Instrument : Varian Star #1 Sample Rate : 1.25 Hz
Channel : 2 = Foreflush 10 Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1150 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 14;58;40, 2000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank a111-2.tmp
Sample ID : 2000ppm mix

Injection Date: 6/11/2015 2:58 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

**Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 1

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	1.928	0.023	7847982	BV	2.9	
2	Methane	2.305	0.023	7848899	VV	3.8	
3	Carbon Dioxi	3.443	0.023	7771729	VB	7.9	
4	Ethane	7.403	0.021	7841835	BB	21.9	
5	NMOC	12.351	0.026	6473601	BB	17.2	
	Totals:		0.116	37784046			

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -293 microVolts LSB: 1 microVolts

Noise (used): 29 microVolts - monitored before this run

Stream: 1 Injection Number: 3 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 14;58;40, 2000ppm mix.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-12-2015, 11;30;17, n2 blank all1-2.tmp
Sample ID : 2000ppm mix

Almega ENVIRONMENTAL

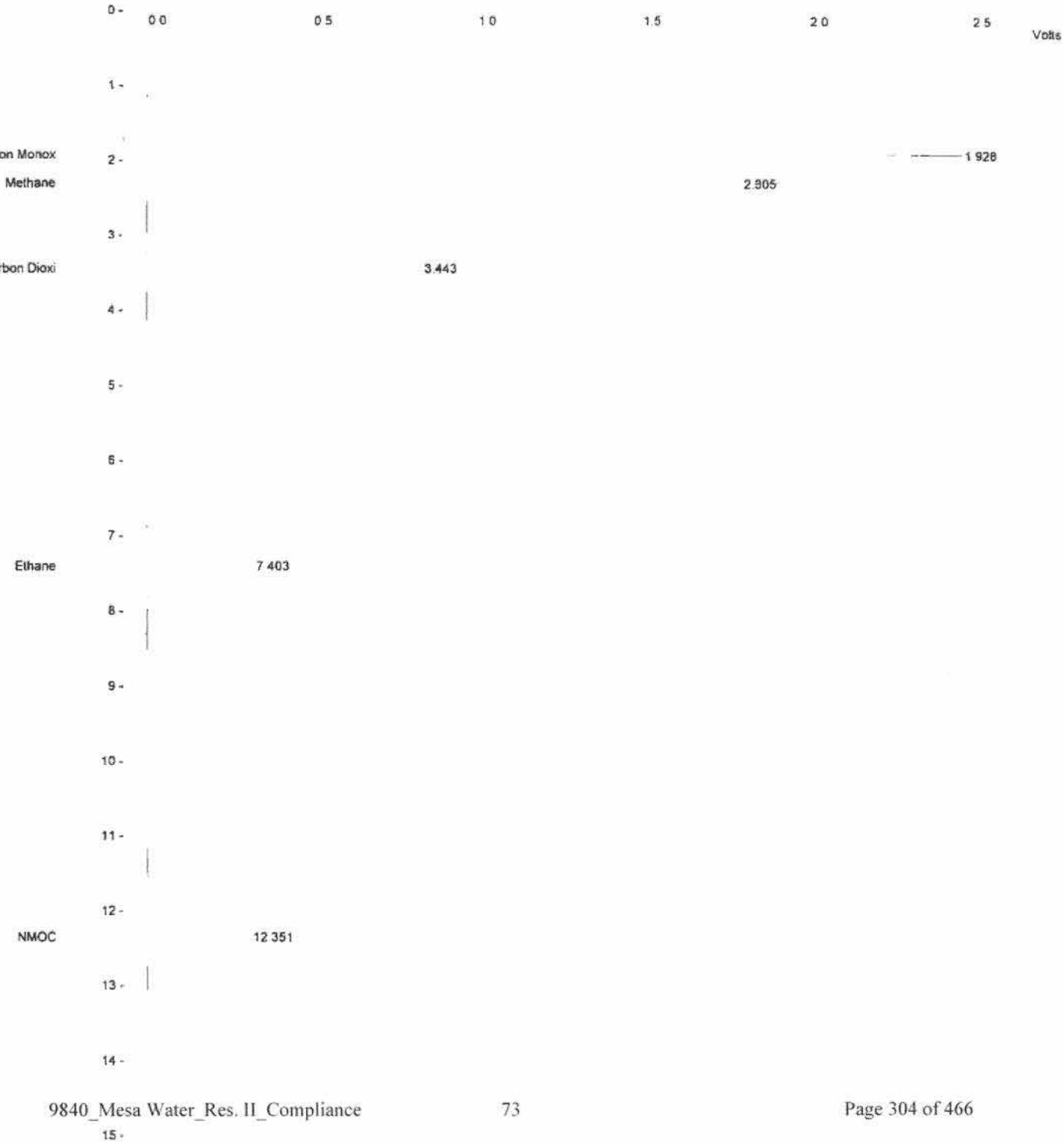
:ion Date: 6/11/2015 2:58 PM Calculation Date: 6/12/2015 10:56 AM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1170 Zero Offset = 2%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 15;28;48, n2 blank s011.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air-2.tmp
Sample ID : n2 blank s011

Injection Date: 6/11/2015 3:28 PM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	0.9257	1.904	-0.026	3656	BV	3.1	
2	Methane	0.6937	2.279	0.008	2711	VB	3.4	
3	Carbon Dioxi	0.6908	3.417	-0.052	2700	BB	8.1	
4	Ethane		7.489					M
5	NMOC		12.324					M
	Totals:	2.3102		-0.070	9067			

Status Codes:
M - Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 1 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -161 microVolts LSB: 1 microVolts

Noise (used): 26 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Original Notes:

Appended Notes:

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Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\june_15\6-11-2015, 15;28;48, n2 blank s011.run
Method File : c:\docume~1\douglass\locals~1\temp\~6-8-2015, 09;42;15, lab air~2.tmp
Sample ID : n2 blank s011

Almega
ENVIRONMENTAL

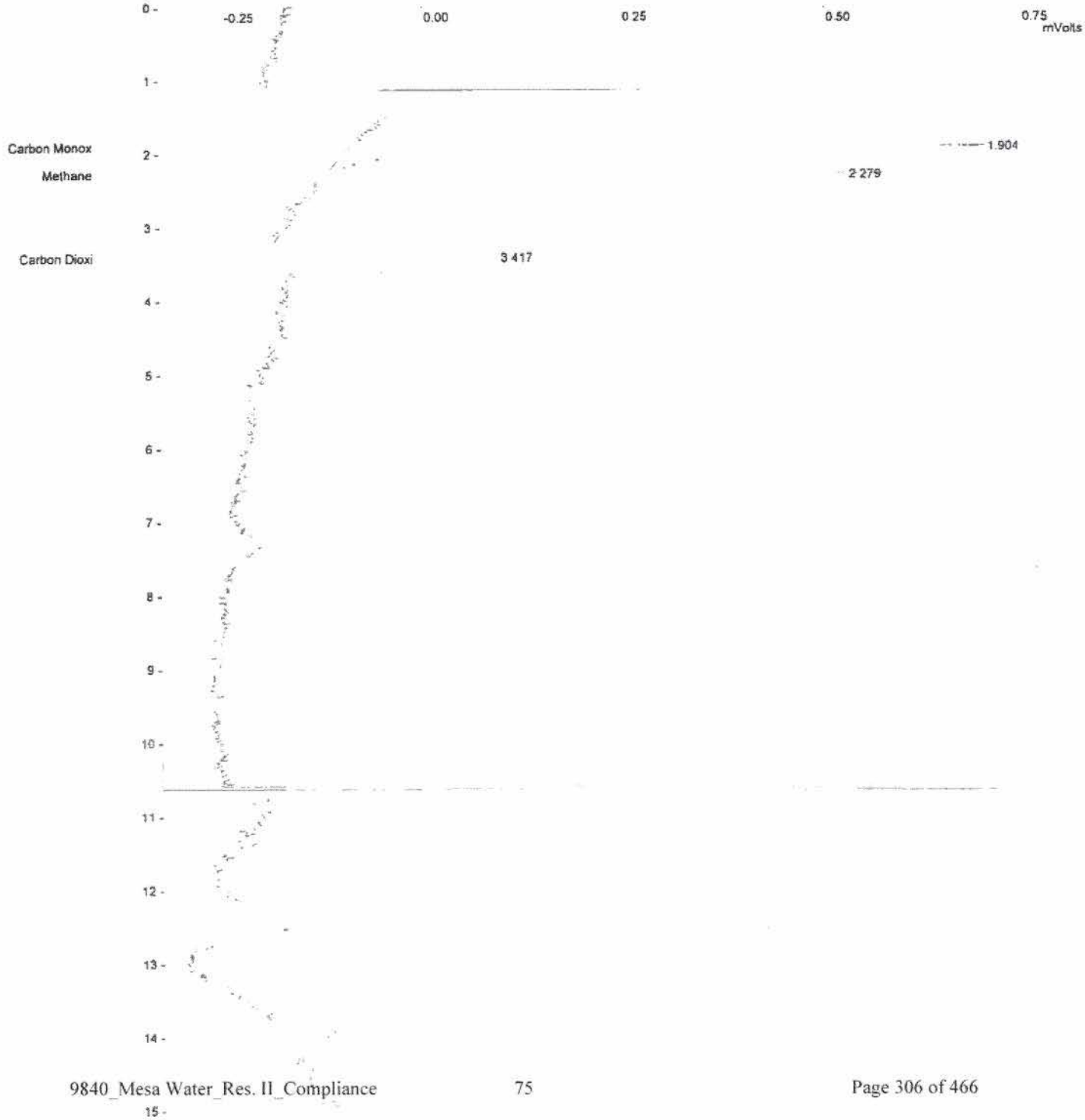
ction Date: 6/11/2015 3:28 PM Calculation Date: 6/11/2015 3:11 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 = Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Chart Speed = 1.32 cm/min Attenuation = 1 Zero Offset = 13%
Start Time = 0.000 min End Time = 15.013 min Min / Tick = 1.00



ICE No. 2

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LABORATORY REPORT

Non-Methane Non-Ethane Organic compound Emissions by SCAQMD Method 25.3 (TCA/FID)

Client:	Mesa Water
Project No..	c9840
Unit Tested	Resevoir #2 - Engine #2
Sampling Date:	16-Sep-15
Analyzed Date:	21-Sep-15
Lab No	A 126

Client Sample ID	Lab ID	Almega Sample ID		Total* NMNEO ppm	NMNEO ppm condensable	NMNEO ppm noncondensable	CH_4 ppm	C_2H_6 ppm	CO_2 % v/v by TCD	O_2 % v/v by TCD
		Tank	Trap							
Res2-Eng2-Nonn-A	A 126 - 011 A	S011	33	19.7	7.82	11.9	75 6	ND	11 2	1 0
Res2-Eng2-Nonn-B	A 126 - 011 B	W0100	32	19.9	10.5	9.38	78.3	ND	11.6	0.9
Detection Limit					1	2	2	2	0.3	0.3

* NOTE - the BIAS FACTOR (of 1 086) is NOT applied in these results

ND~Not Detected

Water Blank , ppmC 0.079

TGNMNEO concentration values are reported in ppm (v/v) as Methane (carbon#=1)

The sample cylinder is analyzed for NMNEO, CO, CH_4, CO_2 and C_2H_6. It is then directed to a separation column where all heavy organics (C_3+) separate from the light organics (CO, CO_2, CH_4 and C_2H_6). The light organics are then passed through a reduction catalyst to convert CO and CO_2 to CH_4, and are then directed to a FID for detection and quantification. The heavy organics are backflushed off the holding column, passed through an oxidation catalyst, which convert all organics to CO_2, then through a reduction catalyst to convert CO_2 to CH_4 and then to a FID for detection and quantification.

Reviewed by: DW

Almega Environmental & Technical Services
10602 Walker Street, Cypress, CA 90630
Phone 714-889-4000 Fax 714-889-7030
www.almegaenv.com

CALCULATIONS

Almega ENVIRONMENTAL

Client:	Mesa Water	Lab No.: A 126
Project No.:	c9840	
Unit Tested:	Resevoir #2 - Engine #2	
Sampling Date:	16-Sep-15	
Date tested:	21-Sep-15	

Parameter	Symbol	Units	Run #1 A	Run #1 B
Sample ID			Res2-Eng2-Norm-A	Res2-Eng2-Norm-B
Lab ID			A 126 - 011 A	A 126 - 011 B
Sample Tank				
Tank No			S011	W0100
Sample Tank Volume	V_T	L	6.000	6.000
Barometric Pressure	P_b	mm Hg	763	763
Pre-test Pressure	P_{TI}	mm Hg (abs)	2	2
Pre-test Temperature	t_{TI}	°C	21	21
Abs. Pre-test Temperature	T_{TI}	°K	294	294
Post-test Pressure	P_{TS}	mm Hg (abs)	562	548
Post-test Temperature	t_{TS}	°C	21	21
Abs. Post-test Temperature	T_{TS}	°K	294	294
Final Pressure	P_{TF}	mm Hg (abs)	926	928
Abs.Final Temperature	T_{TF}	°K	293	293
Dilution Factor	DF_T		1.66	1.71
Concentration Methane	C_{CH4}	ppm	45.56	45.90
Concentration Carbon Monoxide	C_{CO}	ppm	64.67	64.29
NMNEO (noncond)	C_{SA}	ppm	**7.18**	**5.50**
Sample Volume	Vs	L	4.342	4.233
Methane in Tank(C_{CH4}*DF_T)	C_{CH4T}	ppm	**75.6**	**78.3**
Carbon Monoxide in Tank(C_{CO}*DF_T)	C_{COT}	ppm	**107.3**	**109.6**
NMNEO (noncond)	C_{SAT}	ppm	**11.91**	**9.38**
Condensate Recovery - Trap				
Sample ID			Res2-Eng2-Norm-A	Res2-Eng2-Norm-B
Trap No			33	32
Lab No.:			A 126 - 012 A	A 126 - 012 B
Sample Impinger Volume	V_{IMP}	ml	2.0	2.0
Sample Volume	V_S	L	4.342	4.233
TC Concentration	C_{TC}	mg/L	46.887	61.460
IC Concentration	C_{IC}	mg/L	38.280	50.200
TOC Concentration	C_{TOC}	mg/L	8.607	11.260
NMNEO, Condensable	C_T	ppm	**7.82**	**10.49**
TNMNEOC (Csa+C_T)	C	ppmC	**19.74**	**19.88**

Calculations

$V_S = k_1 * V_T * (P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$k_1 = (273+15.56)/760 = 0.3799$

$C_{SAT} = DF * C_{SA}$

$C_{CH4T} = DF * C_{CH4}$

$DF = (P_{TF}/T_{TF})/(P_{TS}/T_{TS} - P_{TI}/T_{TI})$

$C_T = (C_{TOC} * V_{IMP} * V_{ID})/(V_S * A_C)$

$V_{ID} = 23.6902$ L/mole

QA/QC SUMMARY
(Repeat Analysis)

Almega ENVIRONMENTAL

Client Project No.: c9840 | Lab No.: A 126
Sampling Date: 16-Sep-15 | Analyzed Date: 21-Sep-15

Run #1 A

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 011 A	243468	241030	1.00	65.0	64.3	**64.7**	1.01
CH4	A 126 - 011 A	180533	179726	0.45	45.7	45.5	**45.6**	0.45
CO2*	A 126 - 011 A	393045	392628	0.11	6.7	6.7	**6.7**	0.11
O2*	A 126 - 011 A	126064	123382	2.13	0.6	0.6	**0.6**	2.15
C2H6	A 126 - 011 A	ND	ND	ND	ND	ND	**ND**	ND
NMNEO	A 126 - 011 A	23548	23775	-0.96	7.15	7.22	**7.18**	-0.96

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 126 - 012 A	22.39	23.97	23.97	**46.89**	3.83	DF=2
IC	A 126 - 012 A	18.91	19.06	19.45	**38.28**	1.42	

Run #1 B

Analyte	Sample ID	Area Count #1	Area Count #2	Area % diff (±20%)	Conc # 1	Conc # 2	Mean Conc ppm	% diff from Mean
Tank Analysis								
CO	A 126 - 011 B	240642	240989	-0.14	64.2	64.3	**64.3**	-0.14
CH4	A 126 - 011 B	181172	181775	-0.33	45.8	46.0	**45.9**	-0.33
CO2*	A 126 - 011 B	401725	394024	1.92	6.9	6.8	**6.8**	1.94
O2*	A 126 - 011 B	101497	103555	-2.03	0.5	0.5	**0.5**	-2.01
C2H6	A 126 - 011 B	ND	ND	ND	ND	ND	**ND**	ND
NMNEO	A 126 - 011 B	17848	18405	-3.12	5.42	5.59	**5.50**	-3.07

Analyte	Sample ID	Conc # 1	Conc # 2	Conc # 3	Mean Conc ppm	COV 10%	
Trap Analysis							
TC	A 126 - 012 B	30.37	31.02	30.80	**61.46**	1.07	DF=2
IC	A 126 - 012 B	24.96	25.14	25.20	**50.20**	0.50	

Water blank

TC	0.069
IC	-0.010
TOC	**0.079**

$Conc_{CO}$ in tank = $MeanConc_{CO}$ * DF
$Conc_{CO2}$ in tank = $MeanConc_{CO2}$ * DF
$Conc_{O2}$ in tank = $MeanConc_{O2}$ * DF
$Conc_{C2H6}$ in tank = $MeanConc_{C2H6}$ * DF

* - by GC/TCD

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SAMPLE INVENTORY REPORT

Method 25.3 Sampling Train

Project No.:	c9840	Lab No.:	A 126
Client:	Mesa Water	Sampling Date:	16-Sep-15

Laboratory ID	Client ID	Component ID	
Run #1 A			
A 126 - 011 A	Res2-Eng2-Norm-A	Tank #	S011
A 126 - 012 A	Res2-Eng2-Norm-A	Impinger	33
Run #1 B			
A 126 - 011 B	Res2-Eng2-Norm-B	Tank #	W0100
A 126 - 012 B	Res2-Eng2-Norm-B	Impinger	32

Lot# A126

P of

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CHAIN OF CUSTODY RECORDS

INVOICE TO:

ATTN:

REPORT TO:

PO #

ALMEGA Environmental & Technical Services
10602 Walker St.
Cypress, CA 90630
(714) 889-4000 Fax (714) 889-7030
lab@almegaenv.com
Contact:

Turnaround Time
Standard: Other:
Rush:
Depends on # of Samples
5 - 10 days
3 - 7 days

Job # 9840 | Unit # Res. #2 Engine #2 | Client: Mesa Water | Location: Costa Mesa, CA

Samplers: (Signature)

Project Manager: D. Yonemori

Unit Information: Reservoir #2 Engine #2 Normal Load 890 rpm

ANALYSIS REQUESTED

Return or Dispose

Sample Date	Sample Time	Sample Identification	Lab Sample #	Type Of Sample: LIQUID	GAS	SOLID	No of Containers	253		Tank#	Trap#		REMARKS
09/16/15	13:47	Res2-Eng2-Norm-A	A126 -011A/012A		✓		1	✓		511	26	33	sample @ cutlet
09/16/15	13:47	Res2-Eng2-Norm-B	-013B/012B		✓		1	✓		W0100	42	32	" "

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 09/16/15 Time 17:30	Date: 9/18/15 Time: 7:47	Date: Time:	Date: Time
Relinquished by:	Received by:	Relinquished by:	Received by:
Date: Time	Date: Time:	Date: Time:	Date: Time

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Standard Receipt
Sample LOG in Checklist

Project No: c9840

Method: m25.3

Lab ID: A126

Sampling Date: 9/16, 9/17

Location: Mesa Int:

Date & Time Rc'd: 9/17/15 7:45
9/18/15 10:11

Location: LAB Int: DW

Arrived By: (circle) FedEx UPS Drop Off (Int) DW Other

Condition of Package(s): (comment): ✓

Package Type: Box (Cooler) Other: ✓

Number of Sample Container(s): 4, 4

Correct Containers (per Method): (Y) N ✓

Preservation: (circle) (ICE) DryICE ICEPacks None ✓

Sample Conditions:

Sample Temp (C): 5.3, 5.0

Ambient Temp (C): 22 ✓

Sample Temp (C):

Filter Condition:

PH :

Components Sealed: (Y) N ✓

Sample Recovery Completed On: (date & time)

Recovered In: (circle) (Field) Lab Other ✓

Silica Gel Condition:

Tedlar Bags -
Condensation: Y N

Comments:

Container(s) Requested: Glass Plastic

Additional Comments:

CHROMATOGRAM

TEST SAMPLES

Title : SCAQMD Methods 25.x
Run File : \\almega01\fileserver\laboratory\gc chromatograms\2015\sept_15\9-21-2015, 15;27;21, a 126 - 011 a dup.run
Method File : c:\docume~1\douglass\locals~1\temp\~9-18-2015, 19;00;56, 2ppm mix-2.tmp
Sample ID : A 126 - 011 A dup

Injection Date: 9/21/2015 3:27 PM Calculation Date: 9/23/2015 2:08 PM

Operator : Douglass
Workstation:
Instrument : Varian Star #1
Channel : 2 - Foreflush 10

Detector Type: 0800 (10 Volts)
Bus Address : 88
Sample Rate : 1.25 Hz
Run Time : 15.013 min

** Star Chromatography Workstation Version 6.00 ** 00299-3588-D6B-21E1 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppmC)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Monox	61.6525	1.912	-0.018	243468	BV	2.8	
2	Methane	46.1909	2.291	-0.009	180533	VP	3.7	
3	Carbon Dioxi	36659.5977	3.393	-0.076	143304256	PB	13.4	C
4	Ethane		7.489					M
5	NMOC	7.0953	12.927	0.603	23548	BB	103.3	
	Totals:	36774.5364		0.500	143751805			

Status Codes:
M - Missing peak
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 0 Identified Peaks: 5

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -58 microVolts LSB: 1 microVolts

Noise (used): 21 microVolts - monitored before this run

Stream: 1 Injection Number: 1 Sampling Time: 0.00 min

Calib. out of range; No Recovery Action Specified

Original Notes:

c9840 Mesa

Appended Notes:

c9840 Mesa

****

9840 Mesa Water Res. II Compliance 8

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