KCAPCD

GENESIS
ENVIRONMENTAL SERVICES COMPANY

CHEVRON U.S.A. INC.
P.O. BOX 1392
BAKERSFIELD, CALIFORNIA 93302

CHEVRON U.S.A.
WARREN GAS PLANT
INTERNAL COMBUSTION ENGINE #'s 1 & 2

ANNUAL COMPLIANCE TEST
OCTOBER 1, 1991

Rec 11/6/91

PREPARED BY:
GENESIS ENVIRONMENTAL SERVICES COMPANY
1145 WEST COLUMBUS AVENUE
BAKERSFIELD, CALIFORNIA 93301

RECEIVED
NOV 05 1991
KERN COUNTY AIR
POLLUTION CONTROL DISTRICT

REPORT # 7777-0301

KCAPCD PERMIT #'s 2041060 and 2041061

TEST CONDUCTED BY KEVIN ORTON
RESULTS VERIFIED BY MICHAEL L. BAKALOR
OPERATIONS MANAGER

SUMMARY OF SOURCE TEST RESULTS

Company: Chevron U.S.A.
Test Date: 10-1-91

APCD No.2041060 (E)
Unit No.#1

EMISSIONS

POLLUTANT	Concentration gr/scf	@12%	PPMv	@15% O2	lb/hr	
Particulate						
Sulfate						
SO2 (wet)						
NOx as NO2 (dry)			44.0 47.2 --- 45.6	23.3 24.8 --- 24.1	0.37 0.39 --- 0.38	
HC(non-Cl)			177.6 192.4 --- 185.0		0.51 0.55 --- 0.53	
CO			556.5 576.2 --- 566.3		2.87 2.93 --- 2.90	

Scrubber Liquor Analysis:

Chlorides- Specific Gravity -

Comments: ANNUAL 2101; 1000 Hp PUC QUAL - TURBO CHARGER

For County Use Only:

12/12/91

SUMMARY OF SOURCE TEST RESULTS

Company: Chevron U.S.A.
Test Date: 10-1-91

APCD No.2041061 (E)
Unit No.#2

EMISSIONS

POLLUTANT	Concentration gr/scf	@12%	PPMv	@15% O2	lb/hr	
Particulate						
Sulfate						
SO2 (wet)						
NOx as NO2 (dry)			49.4 55.3 --- 52.3	26.3 29.4 --- 27.9	0.45 0.50 --- 0.47	
HC(non-C1)			171.6 96.2 159.4 --- 142.4		0.53 0.30 0.49 --- 0.41	
CO			480.0 480.0 --- 480.0		2.65 2.66 --- 2.65	

Scrubber Liquor Analysis:

Chlorides- Specific Gravity -

Comments: ANNUAL 2101; 1000 Hp PUC QUALITY GAS E W TURBO CHARGER

For County Use Only:

12/12/91

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Introduction

At the request of Mr. Stephen Miller of Chevron U.S.A., Genesis Environmental Services conducted an Annual Compliance Test on two 1000 h.p Waukasha Model 7042gl gas fired internal combustion engines. Internal Combustion Engine #'s 1, and 2 are located in Chevron's Warren Gas Plant (Sec. 32, T. s, R. 21e.)

The purpose of this test is to comply with Kern County Air Pollution Control District rules as required in KCAPCD Permit #'s 2041060 and 2041061.

The 1991 Annual Compliance Test was conducted on October 1, 1991, by Mr. Kevin Orton and Mr. Jeff Harris of Genesis Environmental Services. Chevron representative Mr. Stephen Miller was present during the test.

Table 1-1 contains a summary of test results from this test series. Figure 1-1 contains calculations used to determine the results. The following is a list of tests performed at the Warren Gas Plant.

Test Summary
Unit #'s 1 & 2
Warren Gas Plant

CONSTITUENT	METHOD	QUANTITY
NOx	CARB-100 for NOx (Teco Model 10AR)	DUPLICATE
O2	CARB-100 for O2 (Teledyne Model 326RA)	DUPLICATE
CO	CARB-100 for CO (Teco Model 48)	DUPLICATE
HC	EPA METHOD 18 (Gas Chromatograph)	*TRIPLICATE

*NOTE: HC sample #2 for Unit #1 was lost due to sample bag leak.

TABLE 1-1

Continuous Monitor Data Summary

Chevron U.S.A., Warren Gas Plant
I.C. Engine # 1
10-1-91

Test	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
1	9.8	556.5	44.0	23.3	1155.5	0.37	2.87
2	9.7	576.2	47.2	24.8	1143.9	0.39	2.93
AVG.	9.8	566.3	45.6	24.1	1149.7	0.38	2.90

Chevron U.S.A., Warren Gas Plant
I.C. Engine # 2
10-1-91

Test	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
1	9.8	480.0	49.4	26.3	1246.0	0.45	2.65
2	9.9	480.0	55.3	29.4	1244.3	0.50	2.66
AVG.	9.9	480.0	52.3	27.9	1245.2	0.47	2.65

Figure 1-1

Calculation of Results

1. $$Fd_{68} = \frac{10^6\ (3.64\%H + 1.53\%C + .57\%S + .14\%N - .46\%O)}{GCV}$$

   Where: GCV = BTU/lb

   $$Fd_{60} = \frac{520}{528} Fd$$

   Note: Fd_{68} for EPA
   Fd_{60} for KCAPCD

2. $$SDCFM = \left[\frac{(Fd)\quad(GCV)\quad(FR)}{1440}\right]\left[\frac{(20.9)}{(20.9-O_2\%)}\right]$$

   Where: GCV - 10^6 BTU/cu.ft.
   FR - Fuel Rate (cu.ft./day)

3. Corrected to 15% O_2

   $$ppm\ @\ 15\%\ O_2 = ppm\ \left[\frac{(5.9)}{(20.9 - O_2\%)}\right]$$

4. $$C_s = (ppm)\quad(X)$$

   Where: C = pollutant concentration (lbs/scf)

5. $$E = (C_s)\quad(SDCFM)\quad(60)$$

   Where: E = emission rate (lbs/hr)

Section 2.0

Continuous Emission Monitoring

SECTION 2.0

CONTINUOUS EMISSION MONITORING: NOx, CO & O_2

The analyzers utilized in the Genesis continuous monitor test trailer are presented in Table 2-2. Figure 2-1 is a schematic of the continuous monitoring systems. The protocol used to continuously monitor stack gases for NO_x, Oxygen and CO follow CARB Method 100 recommendations.

Stack gas is extracted from the stack using a 316 stainless steel probe. A stainless steel sintered filter (99 percent efficiency @ 0.6 micron particles) is attached to the inlet of the probe. From the sample probe, sample gas is transported through a heated Teflon sample line by a Teflon-lined diaphragm pump to a series of Greenburg-Smith knock-out impingers and condenser system.The clean, dry sample gas is then transported to the continuous analyzer system through a Teflon line. Prior to the analyzers another filter (Balston glass fiber filter, efficiency of 99% @ 0.3 microns) is installed. A series of flowmeters, valves, and a by-pass regulator maintain constant flow through the system at a constant pressure.

At the onset of each test series, a leak-check is performed on the continuous monitor sampling system. The sample probe is removed from the stack and the inlet is sealed. A leak free system is verified when flow through rotameters to the individual analyzers all drop to zero. A mandatory leak-check is performed at the completion of each test series.

Analyzer calibrations are performed at the start of the test run by introducing zero and span gases for each analyzer and making the necessary adjustments. EPA Protocol 1 certified calibration gas values are recorded on the strip chart and field data sheet. A calibration check is also performed at the end of each one hour test run and recorded on the strip chart. If adjustments are necessary to the analyzers they are made after documentation has been made of any zero or calibration drift. At the conclusion of the test series, a system calibration (bias check) is performed of the sample system. This is accomplished by first removing the sample probe from the stack and allowing ambient air to purge the system. After the system has been purged to verify a zero reading, a system gas which has been named against the standard EPA protocol gas is introduced at the sample nozzle. System pressure and vacuum are maintained as in normal operation during this procedure. The system gas is then allowed to flow through the sample conditioning system to the analyzers. Once a stable reading has been achieved, it is recorded and used to calculate the system efficiency which has a tolerance of 5% of the system gas introduced.

Data is recorded in 10 minute averages for each sixty minute test runs. Table 2-1 gives a summary of 10 minute averages and calculated emission factors.

TABLE 2-1a

Continuous Monitor Data Summary
Chevron U.S.A.
Warren Gas Plant Unit #1
10-1-91
Test # 1

Time	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
903	10.2	564.0	45.7	25.2	1199.9	0.40	3.00
913	9.9	560.0	44.0	23.6	1165.1	0.37	2.89
923	9.7	556.0	43.0	22.7	1146.3	0.36	2.82
933	9.7	554.0	43.5	22.9	1146.3	0.36	2.81
943	9.7	555.0	43.5	23.0	1149.4	0.36	2.83
953	9.5	550.0	44.0	22.8	1126.2	0.36	2.74
AVG.	9.8	556.5	44.0	23.3	1155.5	0.37	2.87

Table 2-1b

Continuous Monitor Data Summary
Chevron U.S.A.
Warren Gas Plant Unit #1
10-1-91
Test # 2

Time	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
1025	10.5	562.0	45.0	25.4	1228.6	0.40	3.06
1035	10.2	560.0	45.5	25.0	1197.7	0.40	2.97
1045	9.5	583.0	47.5	24.6	1126.2	0.39	2.91
1055	9.3	585.0	47.8	24.3	1106.8	0.38	2.87
1105	9.3	585.0	49.5	25.1	1102.1	0.40	2.86
1115	9.3	582.0	47.8	24.2	1102.1	0.38	2.84
AVG.	9.7	576.2	47.2	24.8	1143.9	0.39	2.93

TABLE 2-1c

Continuous Monitor Data Summary
Chevron U.S.A.
Warren Gas Plant Unit #2
10-1-91
Test # 1

Time	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
1150	10.5	480.0	47.7	26.9	1318.2	0.46	2.80
1200	9.8	480.0	48.8	25.8	1235.5	0.44	2.63
1210	9.7	480.0	49.8	26.2	1227.8	0.44	2.61
1220	9.7	480.0	49.5	26.0	1227.8	0.44	2.61
1230	9.7	480.0	49.9	26.2	1227.8	0.45	2.61
1240	9.8	480.0	50.4	26.7	1238.8	0.45	2.63
AVG.	9.8	480.0	49.4	26.3	1246.0	0.45	2.65

TABLE 2-1d

Continuous Monitor Data Summary
Chevron U.S.A.
Warren Gas Plant Unit #2
10-1-91
Test # 2

Time	% O2	CO ppm	NOx ppm	NOx @15%O2	SDCFM	NOx Lbs/hr	CO Lbs/hr
1307	10.6	480.0	53.8	30.7	1331.0	0.52	2.83
1317	10.1	480.0	54.8	30.0	1279.1	0.51	2.72
1327	9.6	480.0	54.9	28.6	1216.9	0.49	2.59
1337	9.5	480.0	56.2	29.1	1208.4	0.49	2.57
1347	9.5	480.0	55.5	28.7	1208.4	0.49	2.57
1357	9.6	480.0	56.3	29.5	1222.3	0.50	2.60
AVG.	9.9	480.0	55.3	29.4	1244.3	0.50	2.66

Table 2-2

Analyzer Specifications

NO_x CHEMILUMINESCENT ANALYZER -- THERMO ELECTRON MODEL 10AR

Response time	(0-90%)	1.5 sec-- NO mode 1.7 sec -- NO_x mode
Zero Drift		Negligible after 1/2 hour warmup
Linearity		less than 1% of full scale
Accuracy		Derived from the NO or NO_2 calibration gas, 1% of full scale
Output		0.100 mV, 0-10 mV, 0-5 V, 0-10 V

O_2 ANALYZER, FUEL TYPE -- TELEDYNE MODEL 326RA

Response Time	(0-90%)	60 seconds
Accuracy		less than 1% of scale at constant temperatures; less than 1% of scale of less than 5%of reading, whichever is greater, over the operating temp. range 0-1 V

CO INFRARED ANALYZER -- TECO MODEL 48

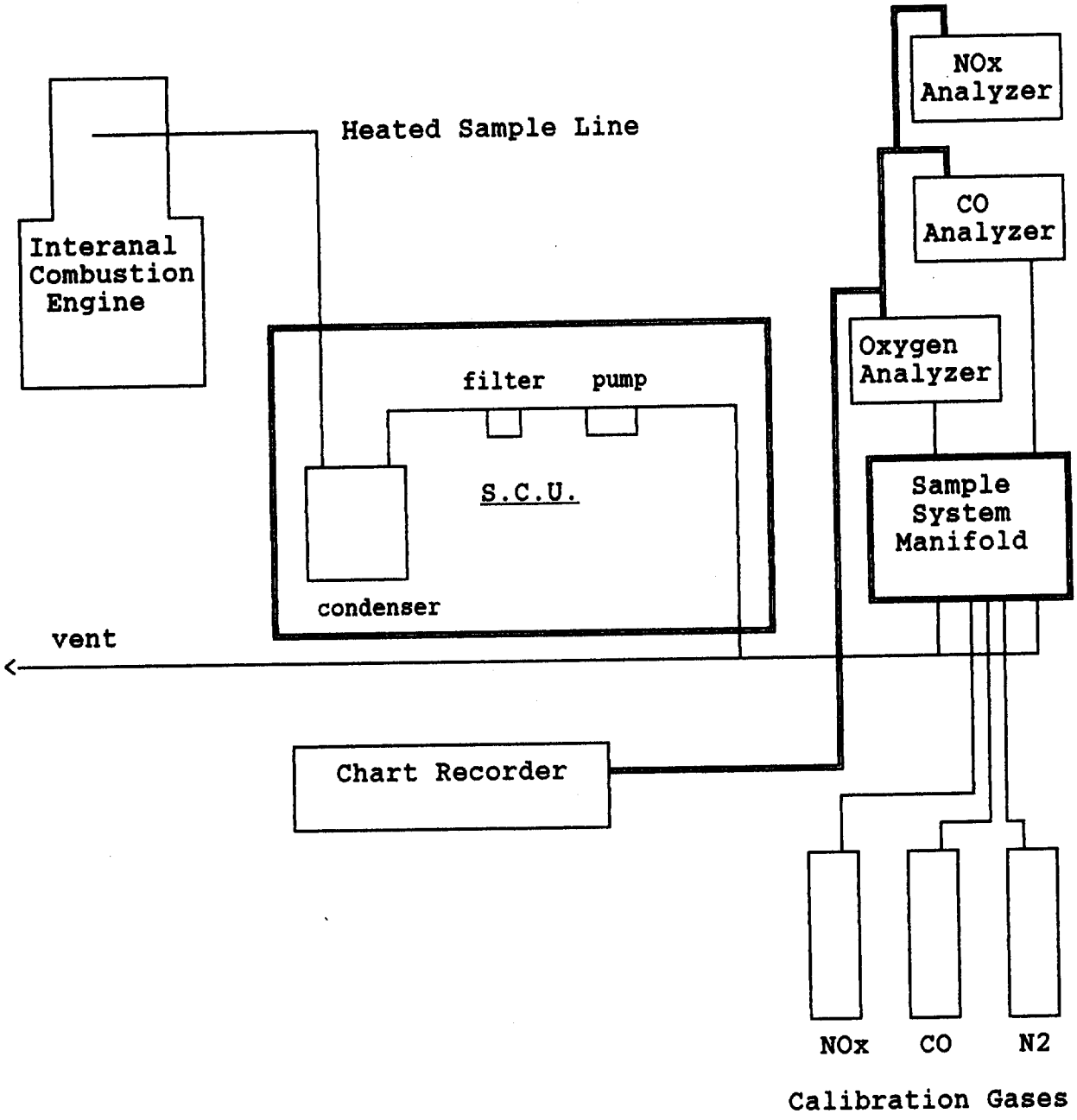
Response Time	(0-90%)	1.2 seconds
Zero Drift		less than 1% / 24 hr full scale
Span Drift		less than 1% / 24 hr full scale
Linearity		1%
Repeatability		less than 0.5% of full scale
Output		0-1 V

STRIP CHART RECORDED (4 PEN) -- Linseis Model 7045

Response Time	less than 0.35 sec.
Span -- Full Scale	1 mV through 10 V
Zero Set	Electronically adjustable full scale with 1 full scale of zero suppression
Accuracy	Plus or minus 0.35 %
Linearity	Plus or minus 0.25 %

Figure 2-1

Continuous Emission Monitoring System



Appendix A-1

Fuel Analysis

ZALCO LABORATORIES, INC.

Analytical & Consulting Services

GENESIS ENVIRONMENTAL
1145 W. Columbus Ave.
Bakersfield, CA 93301

Lab. No.: 029080_003
Received: Oct 3, 1991
Reported: Oct 3, 1991

Attention: Mike Bakalor

Sample Description: Chevron Warren Gas Plant 10/1/91

* CHROMATOGRAPHIC ANALYSIS (Z 1635) *

Components	Mole %	Wt %
Hydrogen	0.000	0.000
Carbon Dioxide	.924	2.108
Oxygen	4.177	6.931
Nitrogen	15.101	21.935
Carbon Monoxide	0.000	0.000
Hydrogen Sulfide	0.000	0.000
Methane	77.261	64.273
Ethane	1.922	2.997
Propane	.371	.848
IsoButane	.041	.122
N-Butane	.069	.209
IsoPentane	.021	.080
N-Pentane	.019	.070
Hexanes+	.096	.428
Totals =	100.000	100.000

CHONS	Wt %
CARBON	52.54
HYDROGEN	17.06
OXYGEN	8.46
NITROGEN	21.94
SULFUR	0.00
Totals	99.99
Total H/C	.32

SPECIFIC GRAVITY (Air = 1)		.6704
SPECIFIC VOLUME, cu.ft./lb	*	19.54
GROSS CALORIFIC VALUE, BTU/cu.ft.	*	822.22
GROSS CALORIFIC VALUE, BTU/cu.ft.	**	836.44
GROSS CALORIFIC VALUE, BTU/lb	**	16347.41
NET CALORIFIC VALUE, BTU/cu.ft.	**	754.03
NET CALORIFIC VALUE, BTU/lb	**	14736.84
DSCF EXHAUST PER SCF FUEL (0% Oxygen)		7.2833
COMPRESSIBILITY FACTOR 'Z' (60 F,1 ATM)		.9983
EPA 'F' Factor @ 68 F:	8665.026 DSCF / MM Btu.	
KCAPCD 'F' Factor @ 60 F:	8535.051 DSCF / MM Btu.	

* Water Saturated

** Dry Gas @ 60 F, 14.73 psia

Kathe Zimmerman
Analyst

Jim Etherton
Laboratory Director

4309 Armour Avenue Bakersfield, California 93308

(805) 395-0539 FAX (805) 395-3069

ZALCO LABORATORIES, INC.
Analytical & Consulting Services

Genesis Environmental
1145 West Columbus
Bakersfield, CA 93301

Laboratory No: 29080-3
Date Received: 10-3-91
Date Reported: 10-14-91

Attention: Mike Bakalor

Sample: Gas

Sample Description: Chevron Warren Gas Plant
Sampled by Kevin Orton on 10-1-91

Total Sulfur
(ASTM D 3246)

As H_2S, ppm (vol.)	< 1.0
As S, Grains/100 SCF*	< 0.06

* Standard cubic feet (60 °F, 14.7 psia)

Jim Etherton
Lab Operations Manager

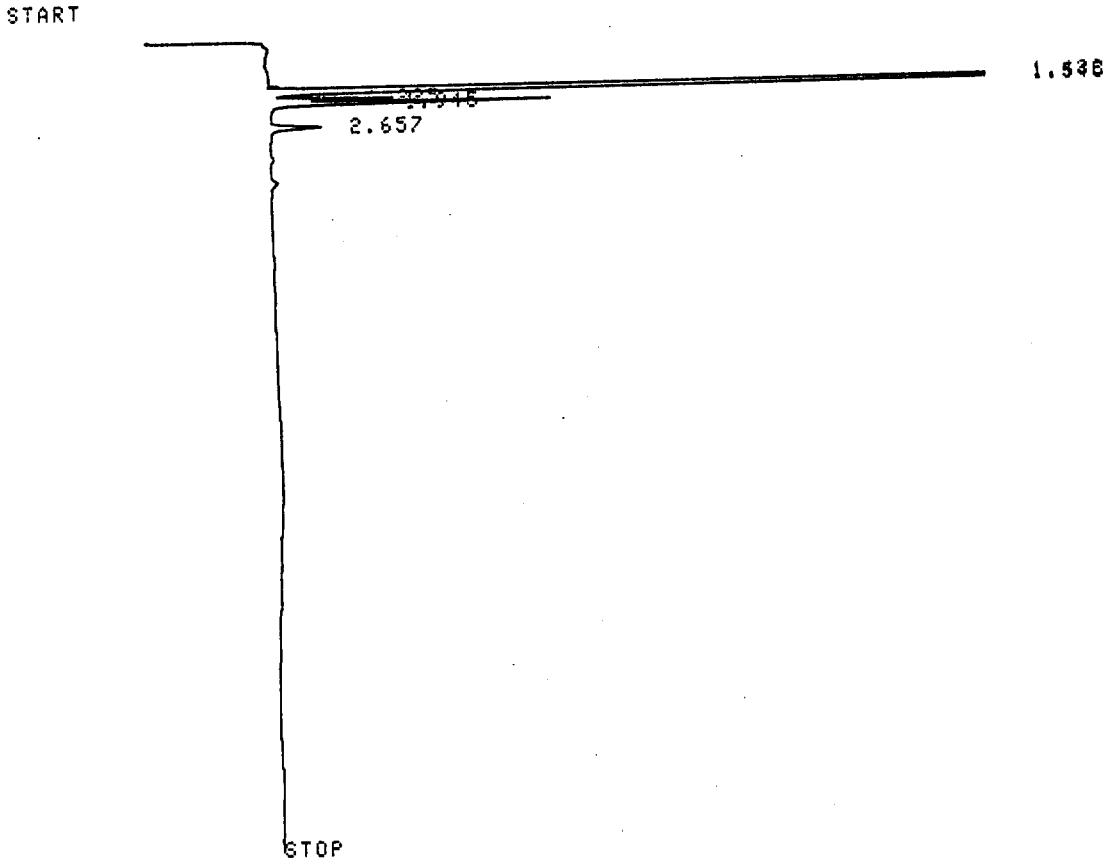
JE/tds

4309 Armour Avenue Bakersfield, California 93308
(805) 395-0539 FAX (805) 395-3069

Appendix A-2

Hydrocarbon Analysis

WAR, #1-2



CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 939

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.545	31577		1	2261.9445	METHAN
2	1.825	595	V	2	21.0811	ETHANE
3	1.945	1475	V	2	52.3114	ETHANE
4	2.657	409		3	9.9364	PROPAN
	TOTAL	34055			2345.2731	

as C_1

148.3 ppm

29.3 ppm

177.6

CHEV,WARREN,1-3
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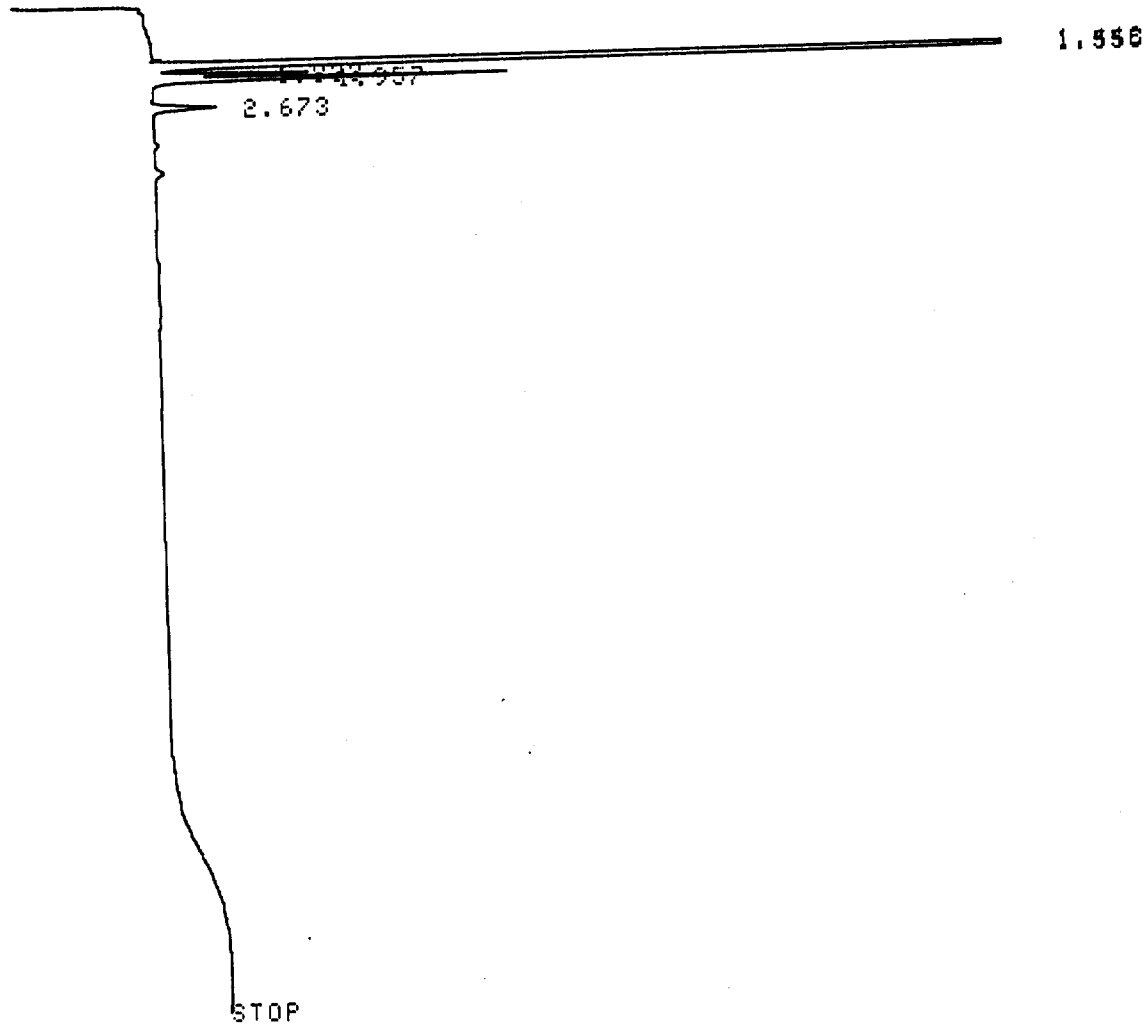


CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 940

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.555	34903		1	2500.1958	METHAN
2	1.833	642	V	2	22.7785	ETHANE
3	1.957	1602	V	2	56.8033	ETHANE
4	2.673	442		3	10.7561	PROPAN
	TOTAL	37589			2590.5334	

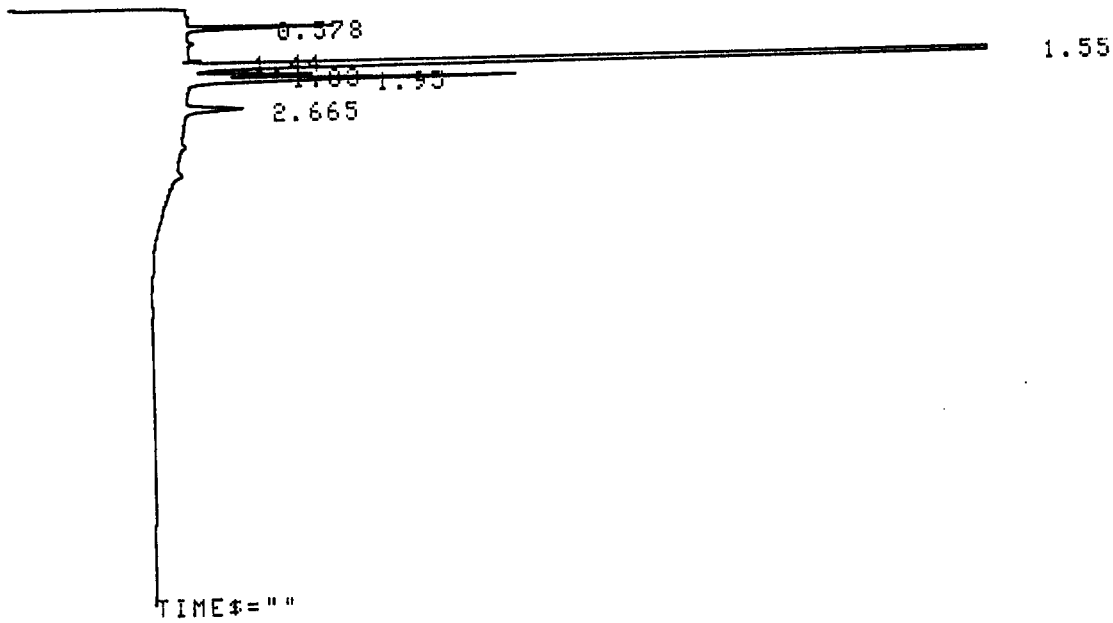
160.7
31.7
192.4
31.7

?

192.4 = 8.111×10^{-5} lbs/scf = .30 lb/hr
STACK = 600 SCFM

029

CHEV,WARREN,2-1
START

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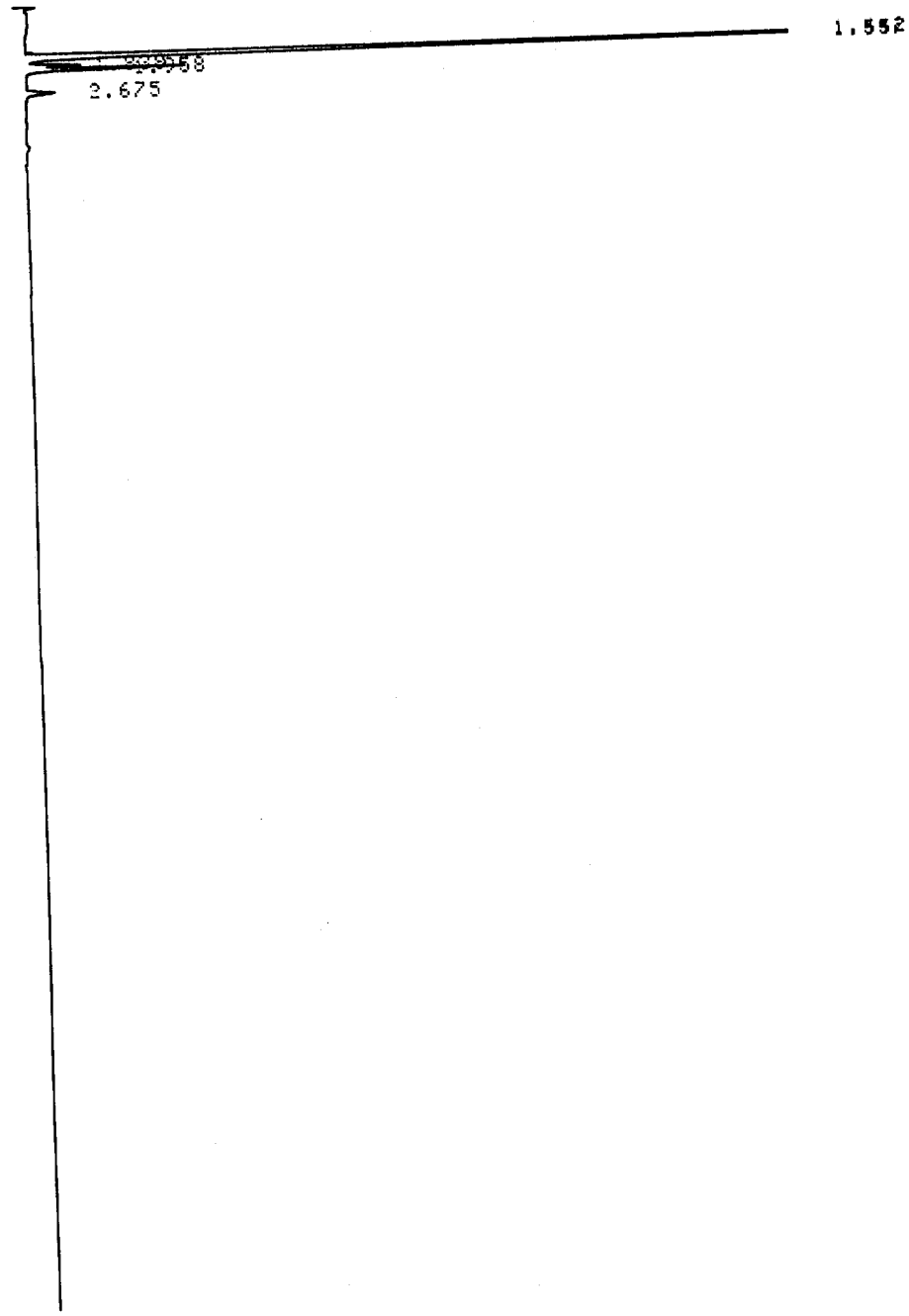
CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 941

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME		
							as C_1	
1	0.578	533						
2	1.55	31198		1	2234.841	METHAN		
3	1.83	511	V	2	18.1075	ETHANE	36.6	
4	1.95	1494	V	2	52.9649	ETHANE	107.0	
5	2.665	391		3	9.5132	PROPAN	28.0	28.0
		---			---		171.6	28.0
	TOTAL	34127			2315.4262			

030

START



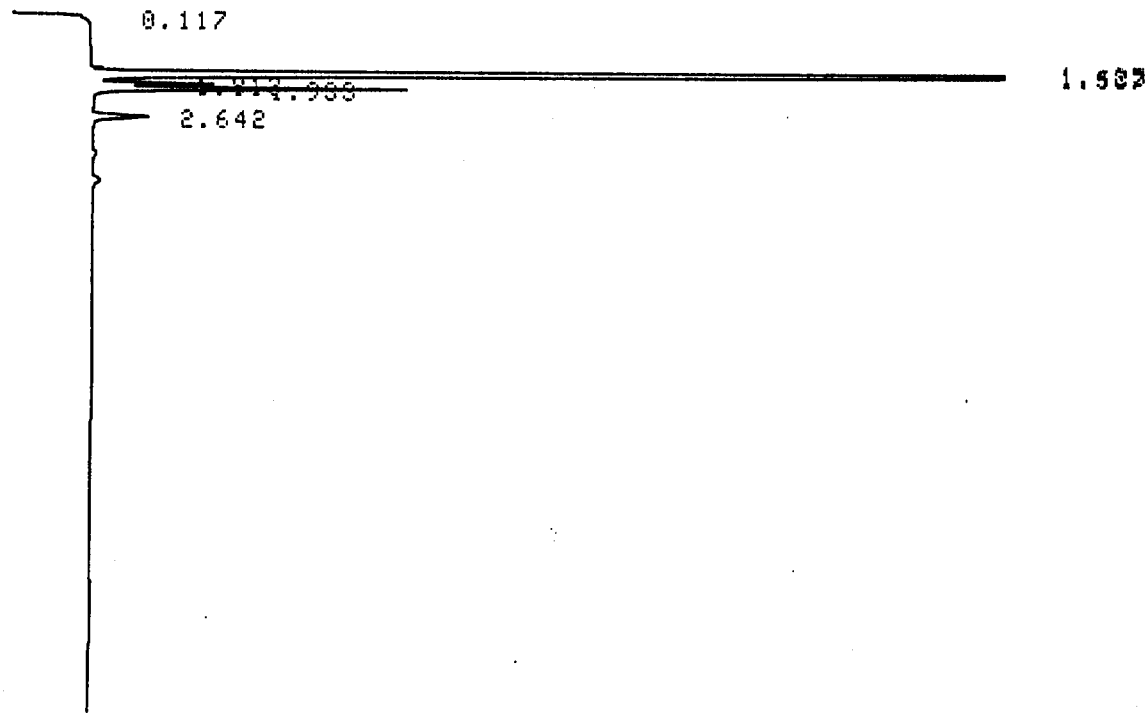
CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 942

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME	asC1
1	1.557	16674		1	1194.4154	METHAN	
2	1.838	264	V	2	9.3664	ETHANE	79.8
3	1.958	850	V	2	30.1515	ETHANE	
4	2.675	229		3	5.5605	PROPAN	16.4
	TOTAL	18017			1239.4936		96.2

031

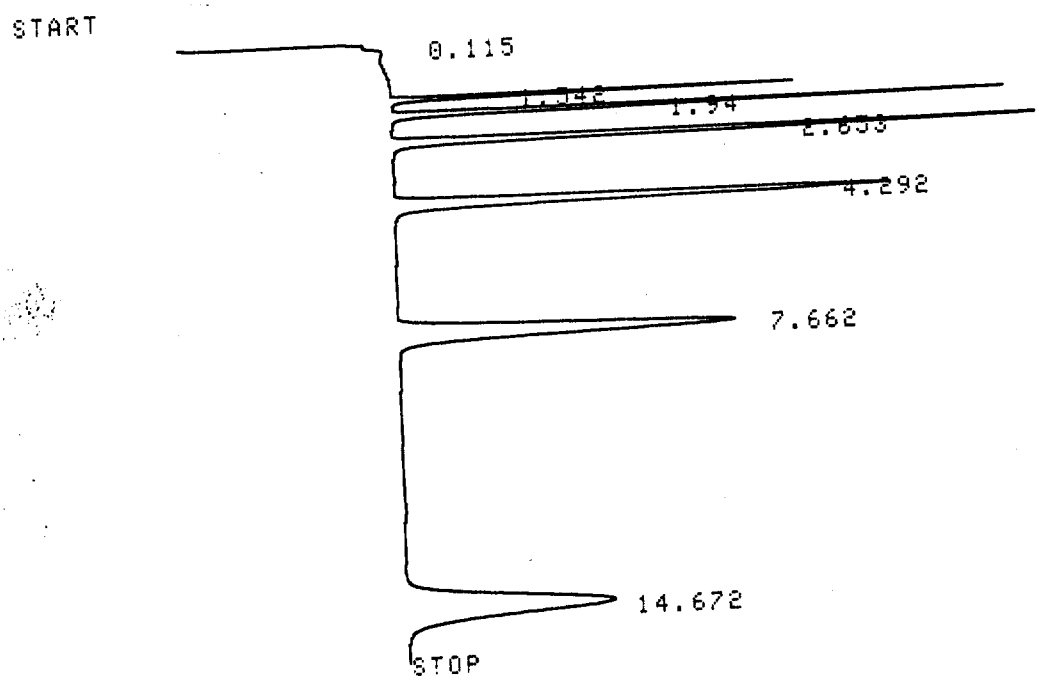
WARREN, 2-3
START



CHROMATOPAC CR601 FILE 1
SAMPLE NO 0 METHOD 44
REPORT NO 943 SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME	
1	1.537	30412	V	1	2178.5092	METHAN	$CS C_1$
2	1.813	470	V	2	16.6462	ETHANE	133.3
3	1.933	1391	V	2	49.3321	ETHANE	
4	2.642	365		3	8.8856	PROPAN	26.1
	TOTAL	32638			2253.3728		159.4

032



CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 935

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.115	416				
2	1.542	1389		1	10.0467	METHAN
3	1.94	2657	V	2	9.5057	ETHANE
4	2.653	4021		3	9.8631	PROPAN
5	4.292	5190				
6	7.662	6165				
7	14.672	6904				
	TOTAL	26741			29.4154	

LIST ID
IDENTIFICATION FILE 1
MODE# 1
WINDOW 9

IDNO	NAME	TIME	FACTOR	CONC
1	METHAN	1.52	0.00723296	99.5
2	ETHANE	1.95	0.00357761	94.2
3	PROPAN	2.77	0.00245308	97.8
4	BUTANE	4.76	0.00191169	97.8
5	PENTAN	9.04	0.00152054	93.9
6	HEXANE	18.26	0.00131975	93.3

NEW FILE ? (Y/N) Y
MODE$(1)="1 "
WINDOW(1)=9
FREE MEMORY 55 PEAKS

IDNO	NAME	TIME	FACTOR	CONC
1	METHAN	1.542	0.00723296	99.5
2	ETHANE	1.95	0.00357761	94.2
3	PROPAN	2.653	0.00245308	97.8
4	BUTANE	4.292	0.00191169	97.8
5	PENTAN	7.662	0.00152054	93.9
6	HEXANE	14.672	0.00131975	93.3
7	END			

CALIB 1
REPEAT

CHROMATOPAC CR601
SAMPLE NO 0
REPORT NO 936
STANDARD 1

FILE 1
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.115	416				
2	1.542	1389		1		METHAN
3	1.94	2657	V	2		ETHANE
4	2.653	4021		3		PROPAN
5	4.292	5190		4		BUTANE
6	7.662	6165		5		PENTAN
7	14.672	6904		6		HEXANE
	TOTAL	26741				

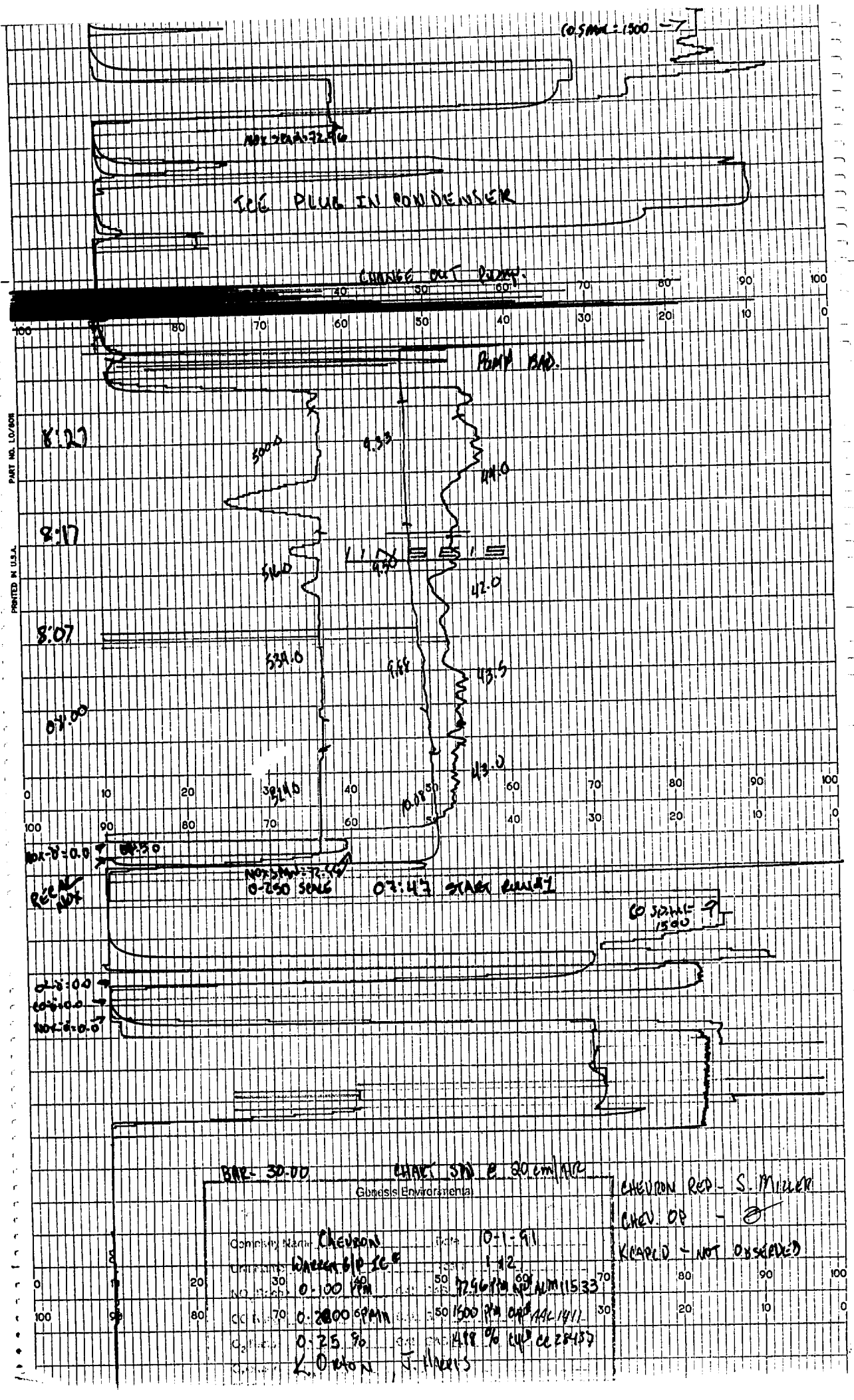
CALIBRATION MADE IN IDENTIFICATION FILE 1
MODE$ 1 WINDOW 9

IDNO	NAME	TIME	FACTOR	CONC
1	METHAN	1.54	0.0716336	99.5
2	ETHANE	1.94	0.0354537	94.2
3	PROPAN	2.65	0.0243241	97.8
4	BUTANE	4.29	0.0188439	97.8
5	PENTAN	7.66	0.0152323	93.9
6	HEXANE	14.67	0.0135145	93.3

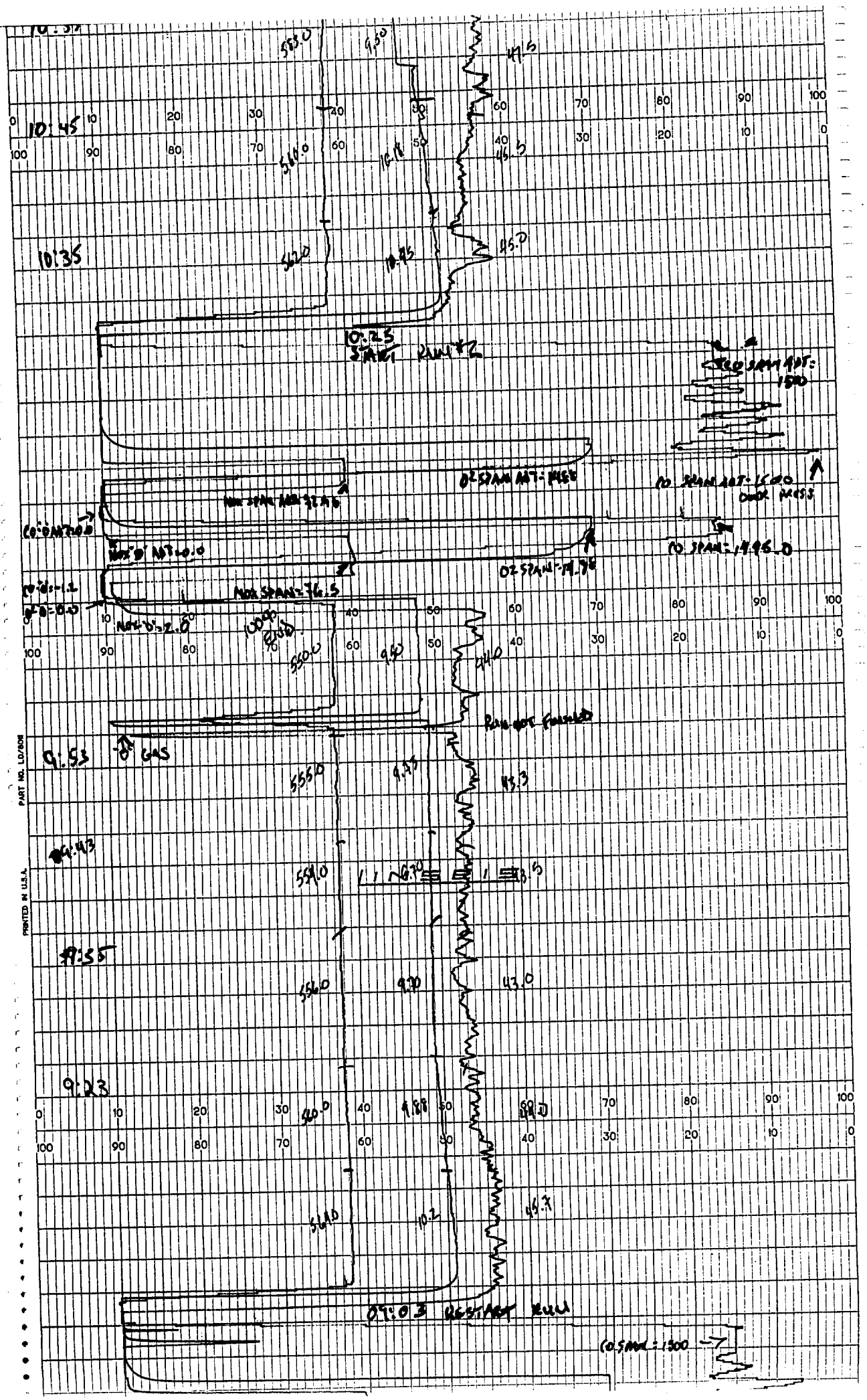
START

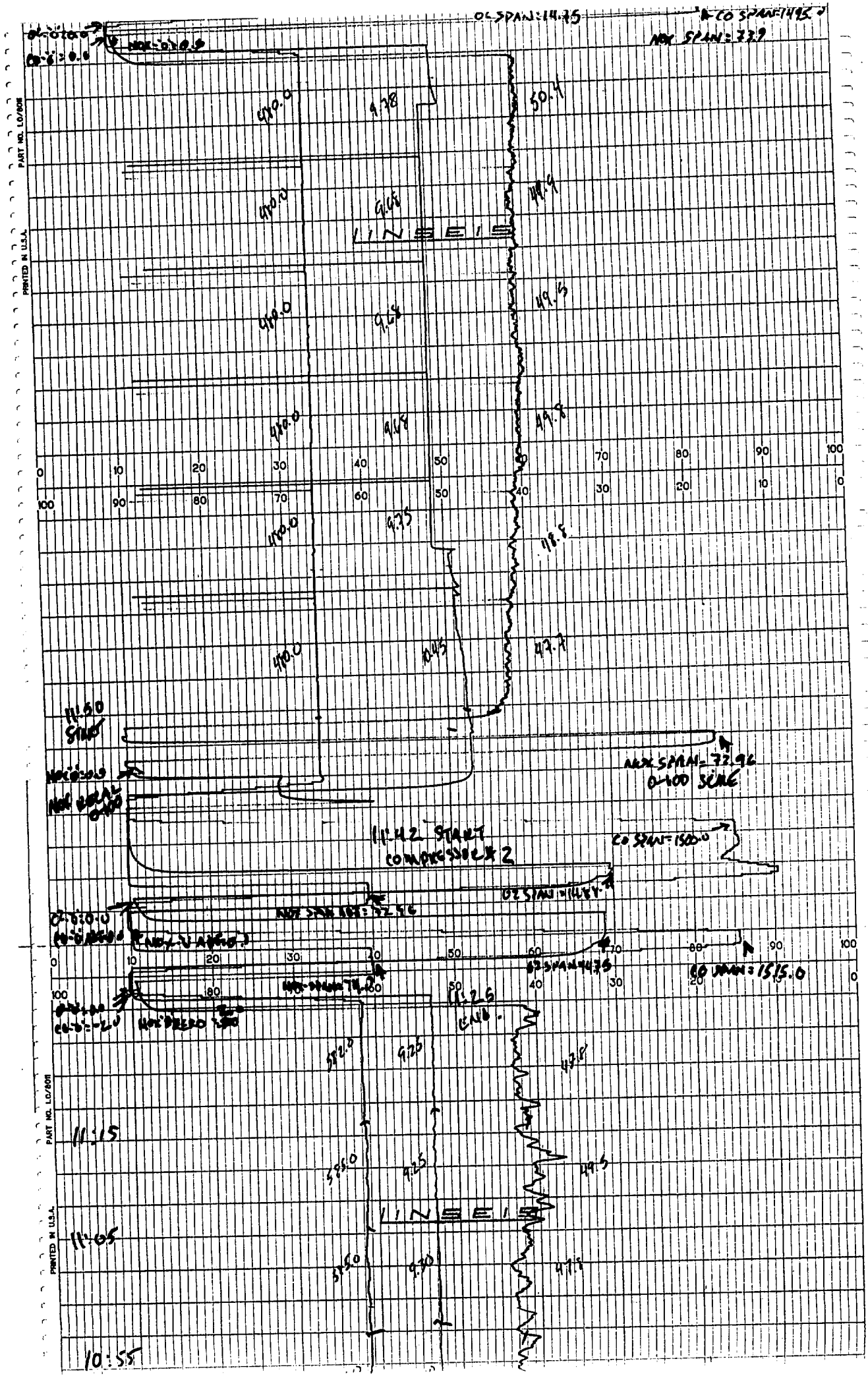
Appendix A-3

Raw Data

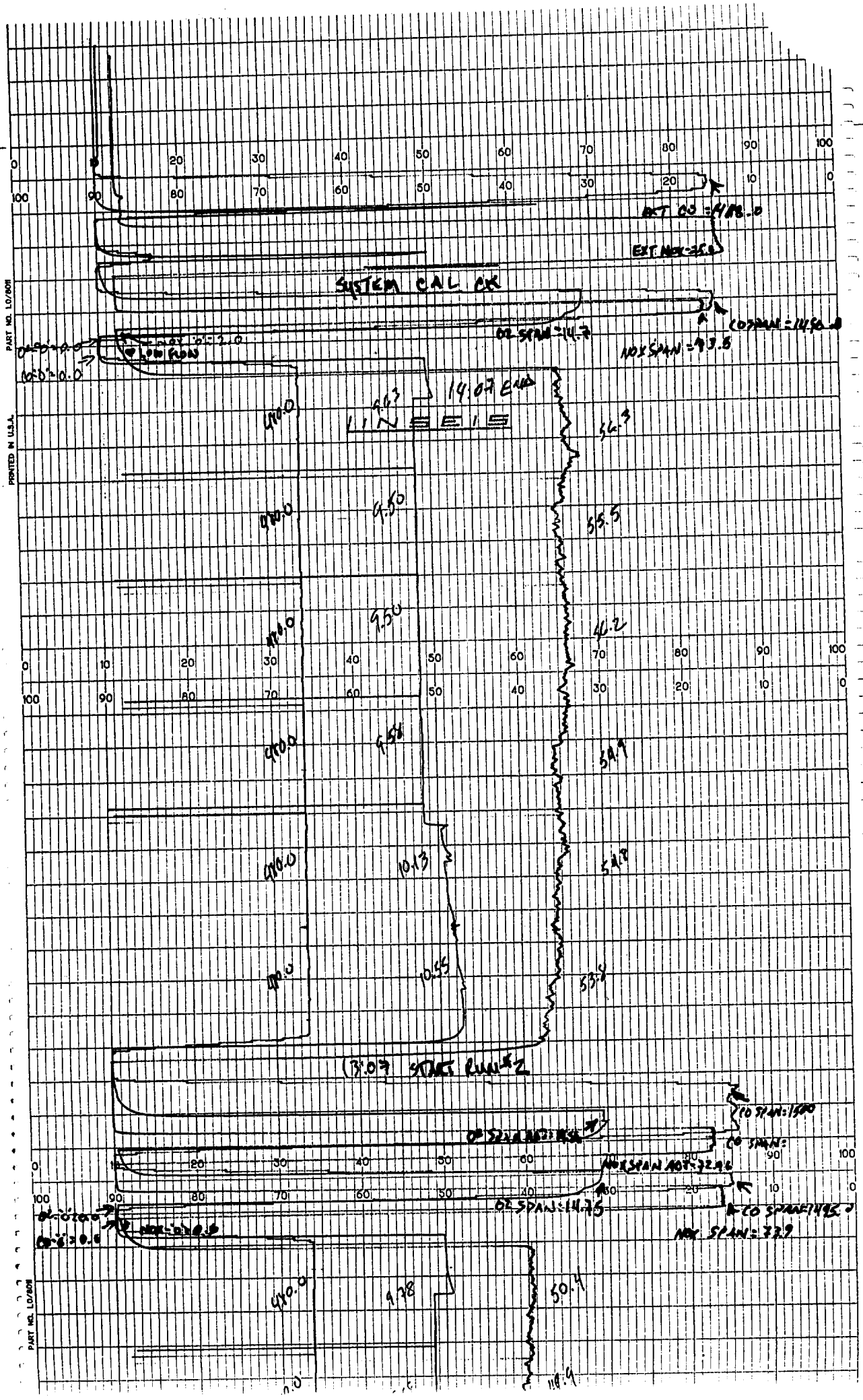


CO SPAN = 1500
NOX SPAN = 72.96
ICE PLUG IN CONDENSER
CHANGE OUT PUMP.
PUMP BAD.
8:27
8:17
8:07
07:00
500.0
9.33
44.0
516.0
9.50
42.0
534.0
9.88
43.5
43.0
10.08
NOX-0 = 0.0
RECAL NOX
NOX SPAN = 72.96
0-250 SCALE
07:47 START RUN #1
CO SPAN = 1500
O2-0 = 0.0
CO-0 = 0.0
NOX-0 = 0.0
BAR - 30.00
CHART SPD @ 20 cm/HR
Genesis Environmental
Company Name CHEVRON
Date 10-1-91
Unit Name WARREN B/P IC
Scale 1:12
NO Range 0-100 PPM
Cal Gas 72.96 PPM NO ALM 11533
CO Range 0-2000 PPM
Cal Gas 1500 PPM CO AAL 1411
O2 Range 0-25 %
Cal Gas 14.88 % CO CC 28437
Operator K. Orton, J. Harris
CHEVRON REP - S. MILLER
CHEV. OP - Ø
KCAPCD - NOT OBSERVED
PART NO. LO/8011
PRINTED IN U.S.A.


10:45
10:35
10:25
START RUN #2
9:53
9:43
9:55
9:23
09:03 RESTART RUN
CO SPAN ADJ: 1500
CO SPAN: 1496.0
MOX SPAN: 76.5
RUN NOT FINISHED
GAS
PART NO. LD/8011
PRINTED IN U.S.A.



O2 SPAN: 14.75
CO SPAN: 1495.0
NOX SPAN: 73.9
480.0
9.78
50.4
480.0
9.68
49.9
LINSEIS
480.0
9.68
49.5
480.0
9.68
49.8
480.0
9.75
48.8
480.0
10.45
47.7
11:50
START
NOX SPAN = 72.96
0-100 SCALE
11:42 START
COMPRESSOR #2
CO SPAN = 1500.0
O2 SPAN = 14.88
NOX SPAN 48.7 = 72.96
O2 SPAN 44.75
CO SPAN = 1515.0
11:26
END
582.0
9.25
47.8
11:15
585.0
9.25
49.5
LINSEIS
11:05
585.0
9.30
47.8
10:55
PART NO. LO/8011
PRINTED IN U.S.A.



SYSTEM CAL CK
EXT CO = 1488.0
EXT NOX = 75.0
CO SPAN = 1450.0
O2 SPAN = 14.7
NOX SPAN = 93.5
LOW FLOW
14:07 END
LINSEIS
480.0
9.63
56.3
9.50
55.5
9.50
56.2
9.58
54.9
10.13
54.8
10.55
53.8
13:07 START RUN #2
CO SPAN: 1500
CO SPAN:
NOX SPAN ADJ: 72.96
O2 SPAN: 14.75
CO SPAN: 1495.0
NOX SPAN: 73.9
9.78
50.4
PART NO. LO/8011
PRINTED IN U.S.A.

Company Chevron.

Station Wheelen Gas Plant Comp. #1

Date 10-1-91.

Test Run 1

Time	%O_2	%CO_2	ppm CO		ppm SO_2		ppm NO_x	
			drift not corrected	drift corrected	drift not corrected	drift corrected	drift not corrected	drift corrected
09:03	10.2	N/A	564.0		N/A	N/A	45.4	
09:13	9.88		560.0				44.0	
09:23	9.70		556.0				43.0	
09:33	9.70		554.0				43.50	
09:43	9.73		555.0				43.3	
09:53	9.50		550.0				44.0	
Mean	9.79		556.5				43.91	

Calibration	%O_2	%CO_2	ppm CO	ppm SO_2	ppm NO_x
zero reading	0.0	N/A	-1.2	N/A	2.0
span reading	14.88		1495.		46.5
span gas value	14.88 % cyl # CC28437		1500 ppm cyl # AAL 1411		42.96 cyl # AAM11533
* span drift corr. factor					
* zero drift corr. factor					

*Apply drift correction factors to the mean value only, for each test run. See calculations on next page.

Company Chevron.

Station Wilmed Gas Plant Comp. #1

Date 10-1-91.

Test Run 2.

Time	$\%O_2$	$\%CO_2$	ppm CO		ppm SO_2		ppm NO_x	
			drift not corrected	drift corrected	drift not corrected	drift corrected	drift not corrected	drift corrected
10:25	10.45	N/A	562.0		N/A	N/A	45.0	
10:35	10.18		560.0				45.50	
10:45	9.50		583.0				47.50	
10:55	9.30		585.0				49.80	
11:05	9.25		585.0				49.50	
11:15	9.25		582.0				47.80	
Mean	9.66		576.16				47.18	

Calibration	$\%O_2$	$\%CO_2$	ppm CO	ppm SO_2	ppm NO_x
zero reading	0.0	N/A	-2.0	N/A	2.0
span reading	14.95		1515.0		44.0
span gas value	14.88 % cyl # CC28437		1500 ppm cyl # AAL 1411		42.96 cyl # KM11533
* span drift corr. factor					
* zero drift corr. factor					

*Apply drift correction factors to the mean value only, for each test run. See calculations on next page.

Company Chevron.

Station Warren Gas Plant Comp. #2

Date 10-1-91.

Test Run 1

Time	%O_2	%CO_2	ppm CO		ppm SO_2		ppm NO_x	
			drift not corrected	drift corrected	drift not corrected	drift corrected	drift not corrected	drift corrected
11:50	10.45	N/A	480.0		N/A	N/A	47.7	
12:00	9.75		480.0				48.8	
12:10	9.68		480.0				49.8	
12:20	9.68		480.0				49.5	
12:30	9.68		480.0				49.9	
12:40	9.78		480.0				50.4	
Mean	9.84		480.0				49.35	

	Calibration	%O_2	%CO_2	ppm CO	ppm SO_2	ppm NO_x
	zero reading	0.0	N/A	0.0	N/A	0.5
	span reading	14.75		1495.0		73.9
	span gas value	14.88 % cyl # CC28437		1500 ppm cyl # AAL 1411		72.96 cyl # ACM11533
*	span drift corr. factor					
*	zero drift corr. factor					

*Apply drift correction factors to the mean value only, for each test run.
See calculations on next page.

Company Chevron.

Station Wilmington Gas Plant Comp. #2

Date 10-1-91.

Test Run 2.

Time	$\%O_2$	$\%CO_2$	ppm CO		ppm SO_2		ppm NO_x	
			drift not corrected	drift corrected	drift not corrected	drift corrected	drift not corrected	drift corrected
13:07	10.55.	N/A	480.0		N/A	N/A	53.8.	
13:17	10.13.		480.0				54.8.	
13:27	9.58.		480.0				54.9.	
13:37	9.50		480.0				56.2.	
13:47	9.50		480.0				55.5	
13:57	9.63		480.0				56.3.	
Mean	9.82.		480.0				55.25	

Calibration	$\%O_2$	$\%CO_2$	ppm CO	ppm SO_2	ppm NO_x
zero reading	0.0	N/A	0.0	N/A	2.0
span reading	14.7		1490.0		43.5
span gas value	14.88 % cyl # CC28437		1500 ppm cyl # AAL 1411		42.96 cyl # KM11533
* span drift corr. factor					
* zero drift corr. factor					

*Apply drift correction factors to the mean value only, for each test run. See calculations on next page.

Appendix A-4

Calibrations and Certifications

SCOTT - MARRIN, INC. 2001 THIRD ST., UNIT H RIVERSIDE, CALIFORNIA 92507

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 7173/Reanalysis

CHRONOLOGICAL RECORD OF CERTIFIED CONCENTRATIONS

CYLINDER NUMBER: CC28437

DATE	Oxygen		
09/27/88	14.87 mole-%		
01/23/89	14.89 mole-%		
03/07/91	14.88 mole-%		
AVERAGE	14.88 mole-%		

RECEIVED MAR 2 5 1991

TELEX: 510-100-8831 (ScotGas)
FAX: 714-887-0549
PHONE: 714-887-2571

Scott Specialty Gases a division of

Scott Environmental Technology Inc. 2600 CAJON BLVD., SAN BERNARDINO, CA 92405

Date: 6/26/90
Our Project No.: 0207757
Your P.O. No.: 7113

GENESIS ENVIROMENTAL
1145 W. COLUMBUS AVE.
BAKERSFIELD, CA 93301
ATTN: MIKE BAKALOR

Gentlemen:

Thank you for choosing Scott for your Specialty Gas needs. The analyses for the gases ordered, as reported by our laboratory, are listed below. Results are in volume percent, unless otherwise indicated.

ANALYTICAL REPORT

Cyl. No. AAL-8279 — Analytical Accuracy ±1%*

Component	Concentration
OXYGEN	4.000%
NITROGEN	BALANCE

*GRAVIMETRIC MASTER GASES

Cyl. No. AAL-1411 — Analytical Accuracy ±1%*

Component	Concentration
CARBON MONOXIDE	15[illegible]0 ppm
NITROGEN	BALANCE

*GRAVIMETRIC MASTER GASES

Cyl. No. ALM-2546 — Analytical Accuracy ±1%*

Component	Concentration
OXYGEN	4.000%
NITROGEN	BALANCE

*GRAVIMETRIC MASTER GASES

Cyl. No. _____ — Analytical Accuracy _____

Component	Concentration

CERTIFIED

* CERTIFIED TO HAVE BEEN BLENDED AGAINST NIST CERTIFIED WEIGHTS AND VERIFIED TO BE CORRECT BY INDEPENDENT ANALYSIS.

Analyst _____

Approved By _____

The only liability of this Company for gas which fails to comply with this analysis shall be replacement thereof by the Company without extra cost.

Scott Specialty Gases, Inc.

FAX 714-887-0549
PHONE: 714-887-2571

2600 CAJON BLVD., SAN BERNARDINO, CA 92405

Shipped From: Scott SAN BERNARDINO, CA
Date Shipped 6/19/91
Our Project No: 13684
Your P.O. No: 7187
Page 1 of 1
Expiration Date: 12/92

GENESIS ENVIRONMENTAL
MIKE BAKALOR
1145 WEST COLUMBUS AVE
BAKERSFIELD, CA 93301

CERTIFICATE OF ANALYSIS – EPA PROTOCOL GASES

Certified Per Traceability Protocol No. 1 Procedure No. G1 Cylinder No. ALM-11533 Cylinder Pressure 1900 PSIG Certified Accuracy ±1% % NBS Traceable

COMPONENTS	CERTIFIED CONC	REFERENCE STD SRM/CRM NO.	REFERENCE STD CYL. NO.	REFERENCE STD CONC.	GAS ANALYZER MAKE/MODEL/SERIAL NO.	GAS ANALYZER LAST CAL. DATE	GAS ANALYZER ANALYTICAL PRINCIPLE
NITRIC OXIDE	72.86 PPM	GMIS	ALM-13645	94.70 PPM	THERMO-ELECTRON	4/3/91	CHEMI-LUMINENSCENT
NOX	72.96 PPM	TRACEABLE TO CRM1684B			10 AR 14853-150		

BALANCE GAS NITROGEN

ANALYZER READINGS: Z = Zero Gas T = Test Gas R = Reference Gas

Component NITRIC OXIDE
First Analysis Date 6/7/91 Units mv

Z 0.00	R 94.81	T 73.05
R 94.97	Z 0.00	T 73.12
Z 0.00	T 73.24	R 95.20

Mean Test Assay 72.91 PPM

Second Analysis Date 6/14/91 Units mv

Z 0.00	R 94.80	T 72.89
R 94.76	Z -0.04	T 72.83
Z -0.02	T 72.89	R 94.78

Mean Test Assay 72.81 PPM

Component _____
Date _____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay _____

Date _____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay _____

Component _____
Date _____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay _____

Date _____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay _____

Chronology: Date _____
Assay _____

Analyst G. KING

Approved By: R Healy