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El Paso Corporation
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Emissions Test Report

Three (3) General Electric M3002-RA Gas Turbines

El Paso Natural Gas
Vail Compressor Station
South of I-10 on Rita Road
Tucson, Arizona 85706

Date: **April 22, 2003**

Prepared for: **Pima County Department of Environmental Quality**

Prepared by: **Buster Wright**
(832) 676 4442
Michael Guerra
(832) 676-4438

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El Paso Corporation
Plant Services Department
9 Greenway Plaza
Houston, TX 77046
(832) 676-1400

April 28, 2003

Mr. Richard Grimaldi
Pima County Department of Environmental Quality
130 W Congress St.
Tucson, AZ 85701-1317

Emission Test Report: EPNG Vail Compressor Station (PC DEQ Permit #425)

Dear Mr. Grimaldi:

El Paso Natural Gas, a division of El Paso Corporation, would like to submit the attached emission compliance test report for Permit No. 425 (Three (3) General Electric M3002-RA) for Pima County DEQ approval. These units are located at the Vail Compressor Station. The purpose of the test was to demonstrate compliance with the Air Quality Operating permit. Tennessee Gas Pipeline, also a subsidiary of El Paso Corporation, performed the testing on April 1, 2003. We respectfully request the timely review of this report.

If you have any questions regarding this matter, please feel free to call me at (832) 676-4438.

Thank you,

Michael Guerra
Plant Services
El Paso Corporation
Enclosure (1)

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Introduction

The Plant Services Department of El Paso Corporation conducted source emissions testing at the Vail Compressor Station in fulfillment of operating permit conditions (Permit No. 425) and to verify emissions estimates provided in the current Air Quality operating permit application. Table I presents the emission unit and emission species measured during the testing along with emission estimates. Testing was conducted in basic accordance with approved Environmental Protection Agency (EPA) test methods as described in the Code of Federal Regulations, Title 40, Part 60, Appendix A and El Paso Corp's testing protocol. Testing was performed on April 1, 2003 by Buster Wright and Michael Guerra.

Table 1. Emissions unit and requirements.

Emissions Unit	Emission Species	Applicable Estimates	Test Date
Emission Points 1-3 General Electric M3002-RA Gas Turbines	NOx CO	22 lbs/hr 5.14 lbs/hr	April 1, 2003

FACILITY INFORMATION

LOCATION: Vail Compressor Station
South of I-10 on Rita Road
Tucson, Arizona 85706

CONTACT: Ms. Anu Pundari
El Paso Natural Gas Company
5151 E. Broadway, Suite 1680
Tucson, AZ 85711
(520) 663-4222

EMISSIONS GROUP INFORMATION

LOCATION: El Paso Corporation
Mechanical Testing Group
9 Greenway
Houston, TX 77046

CONTACT: Buster Wright
Plant Services
(832) 676-4442

Michael Guerra
Plant Services
(832) 676-4438

Emissions Testing Summary

A result summary from the three tested General Electric M3002-RA Gas Turbines is shown below in Table 2. Exhaust gases were continuously sampled over three test runs to determine oxides of nitrogen, carbon monoxide, and oxygen concentrations at maximum achievable load. A detailed summary is included in the test report appendices.

The test was observed by James Jones of Pima County DEQ.

Table 2. Emissions Testing Summary

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Horsepower	4936	5408	5263	5202.33
HP speed (RPM)	6107	6294	6346	6249.00
Pressure spread (psig)	87.222	90.5	91.2	89.64
Fuel Flow (SCFM)	876.2	925.5	930	910.57
Raw NOx (ppm)	42.17	43.15	43.2	42.84
NOx (lb/hr)	19.13	20.16	20.19	19.83
Raw CO (ppm)	25.9	24.4	24.9	25.07
CO (lb/hr)	7.44	7.26	7.6	7.43
O_2 %	18.3	18.27	18.25	18.27
Ambient temperature (F)	76.55	79.93	82.16	79.55
Bar. Pressure ("Hg)	26.54	26.51	26.47	26.51
Amb. Rel. Humidity (%)	11.58	10.45	9.7	10.58
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Horsepower	4666	4925	4777	4789.33
HP speed (RPM)	4666	4925	4777	4789.33
Pressure spread (psig)	5400	5460	5457	5439.00
Fuel Flow (SCFM)	803	806	794	801.00
Raw NOx (ppm)	41.05	40.73	40.5	40.76
NOx (lb/hr)	16.64	16.58	16.35	16.52
Raw CO (ppm)	24.95	24.33	25.09	24.79
CO (lb/hr)	6.71	6.69	6.63	6.68
O_2 %	18.26	18.27	18.28	18.27
Ambient temperature (F)	87.51	86.12	84.23	85.95
Bar. Pressure ("Hg)	26.27	26.26	26.47	26.33
Amb. Rel. Humidity (%)	8.03	8.81	8.92	8.59
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Horsepower	4426	4808	5044	4759.33
HP speed (RPM)	6120	6165	6104	6129.67
Pressure spread (psig)	79.89	82.25	81.5	81.21
Fuel Flow (SCFM)	859.8	850.1	835	848.30
Raw NOx (ppm)	41.76	41.99	41.46	41.74
NOx (lb/hr)	17.77	18.31	17.95	18.01
Raw CO (ppm)	23.62	22.37	22.73	22.91
CO (lb/hr)	6.65	6.52	6.55	6.57
O_2 %	18.21	18.31	18.34	18.29
Ambient temperature (F)	76.29	74.92	73.99	75.07
Bar. Pressure ("Hg)	26.27	26.31	26.33	26.30
Amb. Rel. Humidity (%)	11.94	12.9	13.83	12.89

Emissions Sampling Process

PROCESS DESCRIPTION

The General Electric M3002-RA Gas Turbine is a natural gas-fired, regenerative cycle, two-shaft turbine. The axial flow compressor first compresses filtered, pre-heated, atmospheric air. The hot compressed air is then fired with natural gas in the combustor. The hot exhaust gases expand through two turbine stages. The high-pressure (HP) turbine drives the axial flow air compressor while the low-pressure (LP) turbine drives the centrifugal pipeline compressor. The pipeline gas compressor raises the pressure of the incoming natural gas from an initial "suction" state to a compressed "discharge" state to move it toward the final user.

EMISSIONS TEST VEHICLE

El Paso Corp has conducted emissions tests on reciprocating engines and turbines for many years. This testing experience has enabled the Plant Services Department to design and assemble an accurate and versatile emissions test vehicle (ETV). The ETV is a box trailer housing all analyzers, computers and auxiliary equipment.

A National Instruments Data Acquisition Control System (DACS) scans instrument outputs. The data is transferred to a computer for analysis and storage. The computer monitors the readings in real-time and outputs the data averages to a video monitor, a printer, writeable CD discs, and, if needed, a hard drive. In addition, six strip chart channels are available as a visual aid and back up to the data recording system. Copies of the strip chart data will be included in the final report along with the output from the printer.

All instruments and transducers used in the ETV produce a response based on a curve. The DACS samples the response (voltage) from the instruments. The computer converts the voltage into engineering units by multiplying the voltage by a slope and adding an intercept. For the analyzers, the slope and intercept are to be generated by introducing a zero concentration of span gas (zero grade air for NO_x analyzers, zero grade nitrogen for O_2 and CO analyzers) and then a known mid-level span gas. The voltage for each analyzer and transducer are recorded and used in the following formula:

$$Y = mX + b$$

Equation 1. Slope of a line.

NOMENCLATURE

b = Intercept

m = Slope

X = Analyzer or transducer voltage

Y = Engineering Units

SAMPLING SYSTEM

Continuous analyzers were used to determine the NO_x, CO, and O_2 emission concentrations. Available instrumentation and analyzers are listed in **Error! Reference source not found.**.

Exhaust gas enters the system through a stainless steel probe, a 3-way sample valve assembly, and a glass wool filter. The sample is transported via a heat-traced Teflon sample line through a stainless steel sample pump, and into a minimum contact condenser specially designed to dry the sample. The sample is then passed through 3/8" Teflon tubing to a Balston Microfibre coalescing filter and then to the sample manifold. The sample manifold is maintained at a constant pressure by means of a pressure bypass regulator. Stainless steel needle valves control the sample flow to each analyzer. A flow meter is in line at the exhaust of each analyzer to monitor exact sample flows except for the NO_x analyzer, in which case a rotometer is placed in the bypass line. These two analyzers are treated differently since they have their own sampling pumps and capillary flow controlling systems. See Figure 1 for the flow schematic.

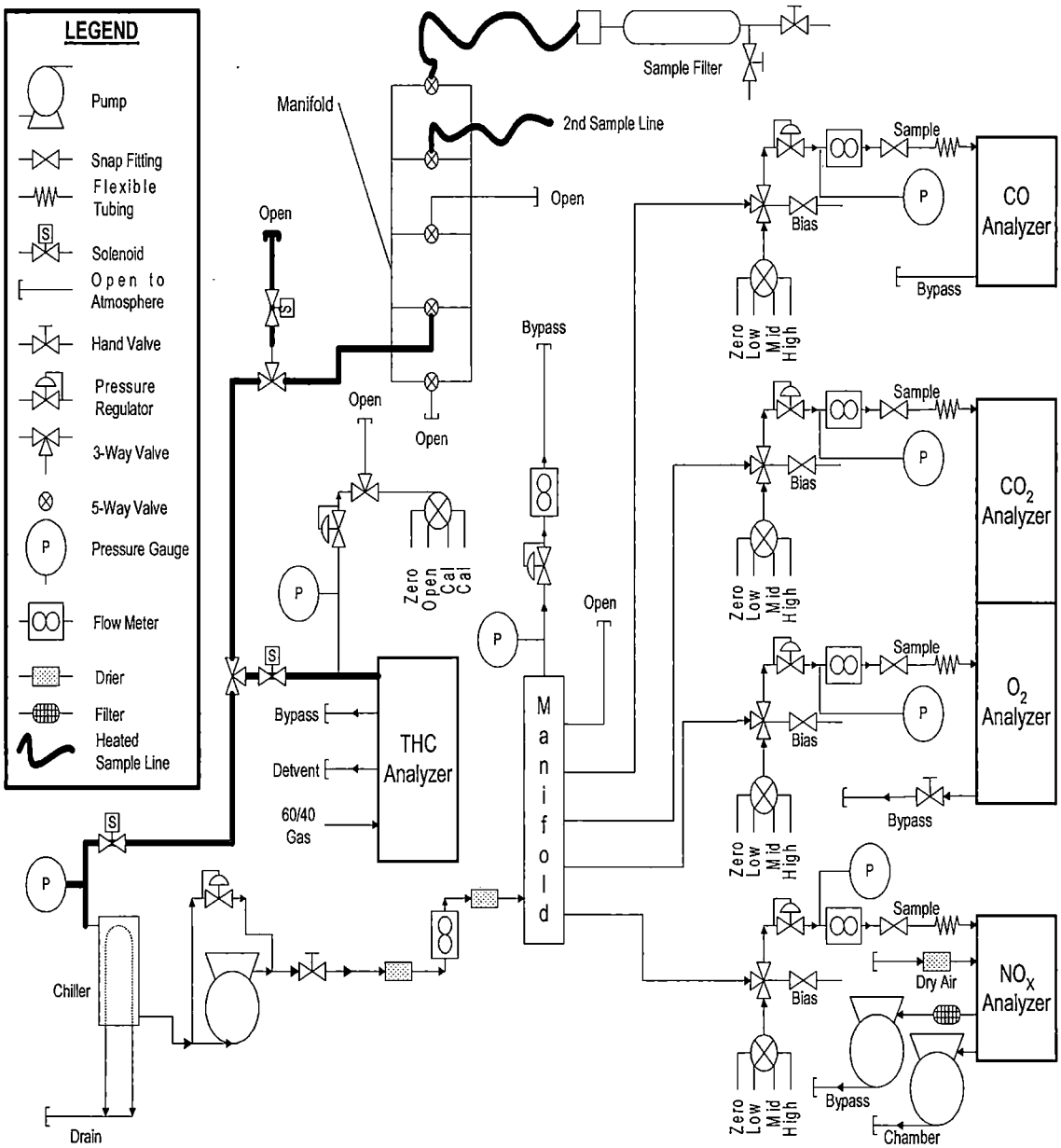

Figure 1. Sampling system flow schematic.

Table 3 Available Instrumentation and Analyzers

Parameters	Manufacturer and Model	Detection Principle	Range	Number
NO_x	TECO Model 10	Thermal reduction of NO_2 to NO. Chemiluminescent reaction of NO with O_3	Variable to 10000 ppm	2
NO_x	Thermo-Environmental Model 42H	Thermal reduction of NO_2 to NO. Chemiluminescent reaction of NO with O_3	Variable to 10000 ppm	2
CO	Thermo-Environmental Model 48	NDIR with Gas Filter Correlation	Variable to 1000 ppm	2
CO	Thermo-Environmental Model 48H	NDIR with Gas Filter Correlation	Variable to 20000 ppm	2
CO_2	Servomex Model 1400B	NDIR	0 to 25%	2
THC	Thermo-Environmental Model 51	Flame ionization (Wet Analysis)	Variable to 10000 ppm	2
O_2	Servomex Model 1400B	Paramagnetic	0 to 25%	2
Temperature	Omega Instruments Type K	Chromel-alumel thermocouple	(-328) to 2282 F	18
Temperature	Sto-Lab Model 921A	Platinum resistant temperature device	(-121) to 392 F	18
Temperature	Rosemount Model 444 and 444RL (Fuel orifice tube)	Platinum resistant temperature device	-40 to 230 F	1
Pressure	Sensotech Super TJE and Series Z	Strain gauge	0 to 1500, 1000, 300, 150, and 40 psig. 0 to 5 and 15 psid.	2
Pressure	Rosemount Models 3051CG and 3051CD (Fuel orifice tube)	Variable capacitance	0 to 150 inches of water and 0 to 2000 psig	10
Barometric Pressure	Vaisala Model PTB 100		11.6 psi - 15.37 psi	2
Wet/Dry Temperature Humidity	Vaisala Model HMP 233		10- F to 120 F	1
Frequency	Ectron Model 441A Frequency - to - Voltage		10 Hz to 225 MHz	4

GENERAL TESTING PROCEDURE

Oxides of nitrogen and carbon monoxide emissions rates were determined by following procedures prescribed in Method 20 and Method 10, respectively. Calibration and test procedures are detailed under their respective sections of the TEST SPECIFICS portion of this report.

INSTRUMENT CHECKS AND CALIBRATIONS

The following instrument checks and calibrations guarantee the integrity of our sampling system and the accuracy of our data.

EPA PROTOCOL GASES

Calibration sheets for EPA Protocol 1 calibration gases were available at the test site and are included in the APPENDICES of this test report.

INTERFERENCE RESPONSE

Vendor instrument data concerning the interference response of the NO_x analyzer are included in the APPENDICES of this test report.

RESPONSE TIME TESTS

The most recent response time tests were performed on our sample system on January 18, 2002. The slowest response time was added to the sampling time of each sampling point. The response time was tested to assure that the analyzers' response was accurate for exhaust gas entering the sample system from the sample point location.

SAMPLE LINE LEAK CHECK

The sample line was leak checked before and after the test by closing the calibration valve assembly while the sample pump was operating. Once the maximum vacuum was reached (approximately 20 inches of mercury) the valve on the pressure side of the pump was closed (See Figure 1) thus sealing off the vacuum section of the sampling system. The leak test for each unit was considered acceptable if the vacuum gauge reading drops by an amount less than 1 inch of mercury over a period of 1 minute. The leak check forms are included in the APPENDICES of this test report.

NO_2 TO NO CONVERSION EFFICIENCY

An NO_2 to NO conversion efficiency test was performed once upon arrival at the test site as required by CFR 40 Method 20 Section 4.1.4. The conversion efficiency test was performed as specified in Method 20 Section 5.6 of CFR 40. The results of the conversion efficiency test are included in the APPENDICES of this test report.

CALIBRATION AND DRIFT

Calibration gases were introduced through the calibration valve to the analyzers before the test. The analyzers' output responses were set to the appropriate levels. The O_2 and CO analyzers were "zeroed" using zero grade nitrogen and the NO_x analyzer was "zeroed" using zero air. The analyzers were then spanned by introducing the high level calibration gas to the calibration valve and the analyzers response was adjusted. After the test, calibration drift checks consisted of re-introducing the calibration gases to the analyzers through the calibration valve. The analyzers' stabilized responses were recorded. No adjustments were made during the final calibration check except those necessary to maintain proper pressure and flow

The before and after calibrations were used to determine a zero and span drift for each analyzer. The zero and span drift for each test run period were less than +/- 2 percent of the span value for the NO_x, O_2 and CO analyzers. The calibration drift check forms and data sheets for each test are included in the APPENDICES of this test report.

CALIBRATION ERROR CHECK

The zero, mid-range, and high-range gases were introduced to the NO_x, CO, and O_2 analyzers without making adjustments other than those necessary to achieve the proper flow rates. The analyzer responses were recorded. The calibration error check was considered acceptable if the responses were within +/- 2 percent of the span for any of the calibration gases. The calibration error check forms and data sheets are included in the APPENDICES of this test report. This check was performed once per each unit tested.

SYSTEM INTEGRITY CHECK

The systems integrity check was conducted once prior to and once following the test runs and consisted of first introducing the NO_x and O_2 analyzer's zero and span gases directly to the analyzer through the calibration system. The analyzers were allowed to stabilize and the response noted. The same zero and span gas was then passed through the entire sample train to the analyzer and the response noted. The resulting readings indicated any bias attributed to the sample train. The bias check was acceptable if the response of the analyzer was within +/- 5 % of the analyzers response when measured through the complete sample train. Sample system integrity check forms are included in the APPENDICES of this test report.

CHART RECORDING

A copy of the chart recordings for the tests are labeled and included in the APPENDICES of this compliance test report.

EMISSIONS TESTING

The following sections describe the actual emissions test runs.

SAMPLING LOCATION AND SET-UP

For the traverse points, a single point probe consisting of 3/8 inch stainless tubing open at one end was used. A sample location was located as close as practical to the exhaust of the turbine. Turbine geometry, stack configuration, internal baffling, and point of introduction of dilution air vary for different turbine designs. Thus, each of these factors was given special consideration in order to obtain a representative sample. Sample ports were located before the upturn elbow, in order to accommodate the configuration of the turning vanes and baffles and to permit a complete, unobstructed traverse of the stack. The sample ports were not located within 5 feet or 2 diameters (whichever is less) of the gas discharge to atmosphere.

FUEL GAS ANALYSIS

A fuel gas sample was taken during the testing. The sample was analyzed by the pipeline gas chromatograph. This analysis gave the actual specific gravity and BTU so that horsepower, fuel flow, and mass emissions could be accurately calculated. The data sheet for the analysis is included in the APPENDICES of this test report.

COMPLIANCE TEST RUNS

The exhaust gases were sampled continuously to determine NOx, CO, and O2 concentrations for three test runs at normal operating capacity (business load). The load depended on the ambient and pipeline conditions available during the test. Other important parameters such as pipeline pressures, fuel orifice differential pressure, and temperatures, compressor and turbine speeds, fuel usage were also monitored continuously.

For the turbines, the first test run was combined with a stratification traverse of the stack, using both horizontal and vertical sampling to acquire the required points along the stack cross section per Method 20. Each traverse point was sampled for three minutes or system response time plus one minute per Method 20, whichever is greater. The remaining two test runs were sampled at eight points per Method 20 for a period of 24 minutes per test run.

Fuel use for the turbine was calculated from AGA approved equations by monitoring the static and differential pressure across a fuel run orifice plate. These calculations are detailed in the CALCULATIONS section of this test report.

The data acquisition systems scanned the analyzers ten times per second during the test run. The computer averaged the outputs every two minutes. The raw data is included in the APPENDICES. A summary of the data, with each test run averaged is also given in the APPENDICES of this test report.

Calculations

MASS EMISSIONS CALCULATIONS

The F-factor Method was used to calculate the mass emission rates for NO_x and CO. A fuel specific F_d factor was used as described in EPA Method 19, "Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates from Electric Utility Steam Generators" for natural gas. Equation 2 was used to determine the emissions rates.

$$Em = Cd \times Fd \times \frac{20.9}{(20.9 - \%O_2)} \times Qh \times \frac{GCV}{10^6}$$

Equation 2. Mass emission rate.

Nomenclature:

E_m = Pollutant emission rate, lb/hr

Cd = Pollutant concentration, lb/scf

F_d = Fuel specific F-factor for dry C_d measurement, dscf per 10^6 BTU

$\%O_2$= Oxygen concentration in percent, measured on a dry basis

Q_h = Fuel rate, scfh

GCV= Heating value of the fuel, BTU/scf

The conversion factors in **Error! Reference source not found.** are to be used to correct the pollutant concentration in ppm to lb/scf:

Table 4. Unit Conversion Factors

To Convert from:	To	Multiply by:
ppm CO	lb/scf	7.268×10^{-8}
ppm NO_x	lb/scf	1.194×10^{-7}

FUEL FLOW

For fuel flow measured with an orifice plate installed on the fuel line leading to the engine, differential pressure, line pressure, and temperature was monitored and flow calculated. Equation 3, Equation 4, and Equation 5 below depict the manner in which the flow was calculated.[1]

$$C' = Fb \times Fpb \times Ftb \times Fg \times Ftf \times Fr \times Y2 \times Fpv$$

Equation 3. Orifice flow constant.

$$Qh = C' \times \sqrt{hw \times Pf}$$

Equation 4. Flow quantity (ft^3/hr).

$$Q_{tm} = Qh \div 60$$

Equation 5. Flow quantity (scfm).

Nomenclature:

Q_h=	Quantity of flow at base conditions, $ft.^3/hr$	F_{tf}=	Flowing temperature factor
Q_{tm}=	Quantity of flow at base conditions, SCFM	F_r=	Reynolds number factor
C'=	Orifice flow constant	Y_2=	Expansion factor (pressure from downstream tap)
F_b=	Basic orifice flow factor	F_{pv}=	Super compressibility factor
F_{pb}=	Pressure base factor	H_w=	Differential pressure in inches of water
F_{tb}=	Temperature base factor	P_f=	Static pressure, psia
F_g=	Specific gravity factor		

[1] Beck, H.V. Orifice Meter Constants, Handbook E-2. American Meter Company, 1955. Based on AGA Report No. 3.

Appendix A

Vail Compressor Station
General Information

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Appendix A

NO TO NO2 CONVERTER CHECK FORMS AND RAW DATA

FUEL GAS ANALYSIS

INREFERENCE RESPONSE CERTIFICATES

CHART RECORDING

NO to NO_2 Converter Check Forms and Raw Data

NO-N0$_2$ CONVERTER CHECK

STATION: Vail ANALYZER: THERMO 42 H

DATE: 4/1/2003 S/N: 42H-54607-300

		NO$_x$ ANALYZER RESPONSE	
		scan time	7:40:03
Initial NO$_x$ Response		106.84	ppm
		scan time	8:09:03
Final NO$_x$ Response		106.06	ppm
Response Difference	Pass	0.74	%

Response Difference = (Initial - Final) / Initial * 100

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:40:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	95.049	ppm	02 CO	125.932	ppm
04 NOx	106.844	ppm	01 CO2	0.087	%
00 O2	21.383	%	05 THC	0.184	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	63.988	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	18.027	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:41:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	93.413	ppm	02 CO	125.672	ppm
04 NOx	106.750	ppm	01 CO2	0.083	%
00 O2	21.385	%	05 THC	0.368	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.102	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	17.915	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:42:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	91.809	ppm	02 CO	58.702	ppm
04 NOx	106.850	ppm	01 CO2	0.122	%
00 O2	21.267	%	05 THC	0.302	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.221	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.809	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:43:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	90.292	ppm	02 CO	4.599	ppm
04 NOx	106.837	ppm	01 CO2	0.129	%
00 O2	21.037	%	05 THC	0.067	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.327	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.755	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:44:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	88.931	ppm	02 CO	3.842	ppm
04 NOx	106.589	ppm	01 CO2	0.128	%
00 O2	21.013	%	05 THC	0.052	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.436	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.775	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:45:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	87.626	ppm	02 CO	3.256	ppm
04 NOx	107.002	ppm	01 CO2	0.129	%
00 O2	21.009	%	05 THC	0.301	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.572	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.731	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:46:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	86.356	ppm	02 CO	2.833	ppm
04 NOx	106.832	ppm	01 CO2	0.126	%
00 O2	21.004	%	05 THC	0.382	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.734	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.689	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:47:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	85.082	ppm	02 CO	2.545	ppm
04 NOx	106.846	ppm	01 CO2	0.125	%
00 O2	21.001	%	05 THC	0.170	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.853	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.640	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:48:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	84.001	ppm	02 CO	2.190	ppm
04 NOx	106.834	ppm	01 CO2	0.128	%
00 O2	21.004	%	05 THC	0.020	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	64.954	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.644	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:49:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	82.751	ppm	02 CO	2.018	ppm
04 NOx	106.761	ppm	01 CO2	0.129	%
00 O2	21.004	%	05 THC	0.177	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.048	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.581	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:50:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	81.542	ppm	02 CO	2.024	ppm
04 NOx	106.829	ppm	01 CO2	0.125	%
00 O2	21.001	%	05 THC	0.367	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.146	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.629	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:51:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	80.566	ppm	02 CO	1.976	ppm
04 NOx	106.585	ppm	01 CO2	0.125	%
00 O2	21.001	%	05 THC	0.303	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.272	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	17.576	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:52:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	79.522	ppm	02 CO	2.164	ppm
04 NOx	106.917	ppm	01 CO2	0.126	%
00 O2	21.002	%	05 THC	0.066	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.407	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.447	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:53:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	78.508	ppm	02 CO	2.131	ppm
04 NOx	106.587	ppm	01 CO2	0.126	%
00 O2	21.002	%	05 THC	0.056	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.523	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.342	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:54:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	77.316	ppm	02 CO	2.191	ppm
04 NOx	106.672	ppm	01 CO2	0.128	%
00 O2	21.003	%	05 THC	0.300	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.627	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.326	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:55:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	76.305	ppm	02 CO	2.118	ppm
04 NOx	106.574	ppm	01 CO2	0.124	%
00 O2	21.002	%	05 THC	0.378	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.730	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.333	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:56:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	75.265	ppm	02 CO	2.161	ppm
04 NOx	106.578	ppm	01 CO2	0.122	%
00 O2	21.000	%	05 THC	0.171	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.843	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	17.298	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:57:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	74.317	ppm	02 CO	2.192	ppm
04 NOx	106.576	ppm	01 CO2	0.127	%
00 O2	21.005	%	05 THC	0.016	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	65.961	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	17.320	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:58:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	73.530	ppm	02 CO	2.164	ppm
04 NOx	106.589	ppm	01 CO2	0.127	%
00 O2	21.005	%	05 THC	0.178	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.095	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	17.258	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:59:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	72.519	ppm	02 CO	2.179	ppm
04 NOx	106.569	ppm	01 CO2	0.124	%
00 O2	21.002	%	05 THC	0.366	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.210	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	17.294	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:00:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	71.664	ppm	02 CO	2.165	ppm
04 NOx	106.580	ppm	01 CO2	0.124	%
00 O2	21.003	%	05 THC	0.306	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.338	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	17.149	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:01:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	70.716	ppm	02 CO	2.211	ppm
04 NOx	106.486	ppm	01 CO2	0.125	%
00 O2	21.004	%	05 THC	0.063	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.446	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	17.124	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:02:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	69.842	ppm	02 CO	2.271	ppm
04 NOx	106.246	ppm	01 CO2	0.125	%
00 O2	21.004	%	05 THC	0.054	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.559	F			
50 Barometric Press.	26.543	In_Hg	51 Relative Humidity	17.212	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:03:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	68.933	ppm	02 CO	2.291	ppm
04 NOx	106.063	ppm	01 CO2	0.127	%
00 O2	21.006	%	05 THC	0.297	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.717	F			
50 Barometric Press.	26.543	In_Hg	51 Relative Humidity	17.071	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:04:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	68.105	ppm	02 CO	2.236	ppm
04 NOx	106.052	ppm	01 CO2	0.125	%
00 O2	21.003	%	05 THC	0.376	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.855	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	16.964	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:05:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	67.552	ppm	02 CO	2.290	ppm
04 NOx	106.141	ppm	01 CO2	0.122	%
00 O2	21.001	%	05 THC	0.173	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	66.988	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	17.002	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:06:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	66.674	ppm	02 CO	2.258	ppm
04 NOx	106.054	ppm	01 CO2	0.128	%
00 O2	21.005	%	05 THC	0.013	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	67.153	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	16.854	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:07:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	65.894	ppm	02 CO	2.247	ppm
04 NOx	106.064	ppm	01 CO2	0.127	%
00 O2	21.006	%	05 THC	0.173	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	67.308	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	16.743	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:08:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	65.123	ppm	02 CO	2.314	ppm
04 NOx	106.048	ppm	01 CO2	0.124	%
00 O2	21.003	%	05 THC	0.363	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	67.450	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	16.766	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:09:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	64.411	ppm	02 CO	2.243	ppm
04 NOx	106.058	ppm	01 CO2	0.124	%
00 O2	21.003	%	05 THC	0.308	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	67.576	F			
50 Barometric Press.	26.543	In_Hg	51 Relative Humidity	16.788	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:10:03 AM

*** Convertor Check ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	63.763	ppm	02 CO	2.224	ppm
04 NOx	105.967	ppm	01 CO2	0.124	%
00 O2	21.004	%	05 THC	0.062	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	67.717	F			
50 Barometric Press.	26.543	In_Hg	51 Relative Humidity	16.905	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 1.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Filename	Date	Time	0: O2 (%)	1: CO2 (%)	2: CO (ppm	3: NO (ppm	4: NOx (pp	5: THC (pp	32: Turbo F	33: Exhaus	38: FUEL [	50: Barome	51: Relativ	52: Amb. T	65: Exhaus	66: Turbo Out T	
01074007.I	4/1/2003	9:40:07 AM	21.38	0.09	125.93	95.05	106.84	0.18	0.00	0.00	0.00	26.54	18.03	63.99	0.00	0.00	
01074107.I	4/1/2003	9:41:07 AM	21.38	0.08	125.67	93.41	106.75	0.37	0.00	0.00	0.00	26.54	17.91	64.10	0.00	0.00	
01074207.I	4/1/2003	9:42:07 AM	21.27	0.12	58.70	91.81	106.85	0.30	0.00	0.00	0.00	26.54	17.81	64.22	0.00	0.00	
01074307.I	4/1/2003	9:43:07 AM	21.04	0.13	4.60	90.29	106.84	0.07	0.00	0.00	0.00	26.54	17.76	64.33	0.00	0.00	
01074407.I	4/1/2003	9:44:07 AM	21.01	0.13	3.84	88.93	106.59	0.05	0.00	0.00	0.00	26.54	17.77	64.44	0.00	0.00	
01074507.I	4/1/2003	9:45:07 AM	21.01	0.13	3.26	87.63	107.00	0.30	0.00	0.00	0.00	26.54	17.73	64.57	0.00	0.00	
01074607.I	4/1/2003	9:46:07 AM	21.00	0.13	2.83	86.36	106.83	0.38	0.00	0.00	0.00	26.54	17.69	64.73	0.00	0.00	
01074707.I	4/1/2003	9:47:07 AM	21.00	0.12	2.54	85.08	106.85	0.17	0.00	0.00	0.00	26.54	17.64	64.85	0.00	0.00	
01074807.I	4/1/2003	9:48:07 AM	21.00	0.13	2.19	84.00	106.83	0.02	0.00	0.00	0.00	26.54	17.64	64.95	0.00	0.00	
01074907.I	4/1/2003	9:49:07 AM	21.00	0.13	2.02	82.75	106.76	0.18	0.00	0.00	0.00	26.54	17.58	65.05	0.00	0.00	
01075007.I	4/1/2003	9:50:07 AM	21.00	0.13	2.02	81.54	106.83	0.37	0.00	0.00	0.00	26.54	17.63	65.15	0.00	0.00	
01075107.I	4/1/2003	9:51:07 AM	21.00	0.13	1.98	80.57	106.59	0.30	0.00	0.00	0.00	26.54	17.58	65.27	0.00	0.00	
01075207.I	4/1/2003	9:52:07 AM	21.00	0.13	2.16	79.52	106.92	0.07	0.00	0.00	0.00	26.54	17.45	65.41	0.00	0.00	Convertor Check
01075307.I	4/1/2003	9:53:07 AM	21.00	0.13	2.13	78.51	106.59	0.06	0.00	0.00	0.00	26.54	17.34	65.52	0.00	0.00	
01075407.I	4/1/2003	9:54:07 AM	21.00	0.13	2.19	77.32	106.67	0.30	0.00	0.00	0.00	26.54	17.33	65.63	0.00	0.00	
01075507.I	4/1/2003	9:55:07 AM	21.00	0.12	2.12	76.31	106.57	0.38	0.00	0.00	0.00	26.54	17.33	65.73	0.00	0.00	
01075607.I	4/1/2003	9:56:07 AM	21.00	0.12	2.16	75.26	106.58	0.17	0.00	0.00	0.00	26.54	17.30	65.84	0.00	0.00	
01075707.I	4/1/2003	9:57:07 AM	21.00	0.13	2.19	74.32	106.58	0.02	0.00	0.00	0.00	26.54	17.32	65.96	0.00	0.00	
01075807.I	4/1/2003	9:58:07 AM	21.01	0.13	2.16	73.53	106.59	0.18	0.00	0.00	0.00	26.54	17.26	66.10	0.00	0.00	
01075907.I	4/1/2003	9:59:07 AM	21.00	0.12	2.18	72.52	106.57	0.37	0.00	0.00	0.00	26.54	17.29	66.21	0.00	0.00	
01080007.I	4/1/2003	10:00:07 AM	21.00	0.12	2.16	71.66	106.58	0.31	0.00	0.00	0.00	26.54	17.15	66.34	0.00	0.00	
01080107.I	4/1/2003	10:01:07 AM	21.00	0.13	2.21	70.72	106.49	0.06	0.00	0.00	0.00	26.54	17.12	66.45	0.00	0.00	
01080207.I	4/1/2003	10:02:07 AM	21.00	0.13	2.27	69.84	106.25	0.05	0.00	0.00	0.00	26.54	17.21	66.56	0.00	0.00	
01080307.I	4/1/2003	10:03:07 AM	21.01	0.13	2.29	68.93	106.06	0.30	0.00	0.00	0.00	26.54	17.07	66.72	0.00	0.00	
01080407.I	4/1/2003	10:04:07 AM	21.00	0.12	2.24	68.11	106.05	0.38	0.00	0.00	0.00	26.54	16.96	66.85	0.00	0.00	
01080507.I	4/1/2003	10:05:07 AM	21.00	0.12	2.29	67.55	106.14	0.17	0.00	0.00	0.00	26.54	17.00	66.99	0.00	0.00	
01080607.I	4/1/2003	10:06:07 AM	21.00	0.13	2.26	66.67	106.05	0.01	0.00	0.00	0.00	26.54	16.85	67.15	0.00	0.00	
01080707.I	4/1/2003	10:07:07 AM	21.01	0.13	2.25	65.89	106.06	0.17	0.00	0.00	0.00	26.54	16.74	67.31	0.00	0.00	
01080807.I	4/1/2003	10:08:07 AM	21.00	0.12	2.31	65.12	106.05	0.36	0.00	0.00	0.00	26.54	16.77	67.45	0.00	0.00	
01080907.I	4/1/2003	10:09:07 AM	21.00	0.12	2.24	64.41	106.06	0.31	0.00	0.00	0.00	26.54	16.79	67.58	0.00	0.00	
01081007.I	4/1/2003	10:10:07 AM	21.00	0.12	2.22	63.76	105.97	0.06	0.00	0.00	0.00	26.54	16.91	67.72	0.00	0.00	

Fuel Gas Analysis

FUEL GAS ANALYSIS

4/1/2003 9:00:00

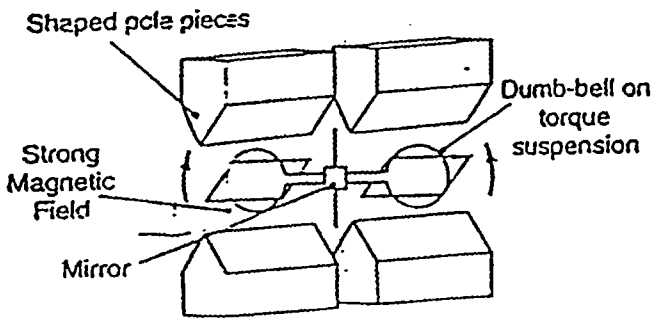
Constituent	Mole Percent
NITROGEN	1.68
CARBON DIOXIDE	0.54
METHANE	94.709
ETHANE	2.5217
PROPANE	0.3572
I-BUTANE	0.0435
N-BUTANE	0.0642
I-PENTANE	0.0213
N-PENTANE	0.0176
HEXANE +	0.0458
TOTAL	100

Interference Response Certificates

THE EFFECT OF VARIATIONS IN SAMPLE COMPOSITIONS ON SERVOMEX MAGNETO-DYNAMIC OXYGEN ANALYSERS

Servomex
LEADERS IN GAS ANALYSIS

Figure 1



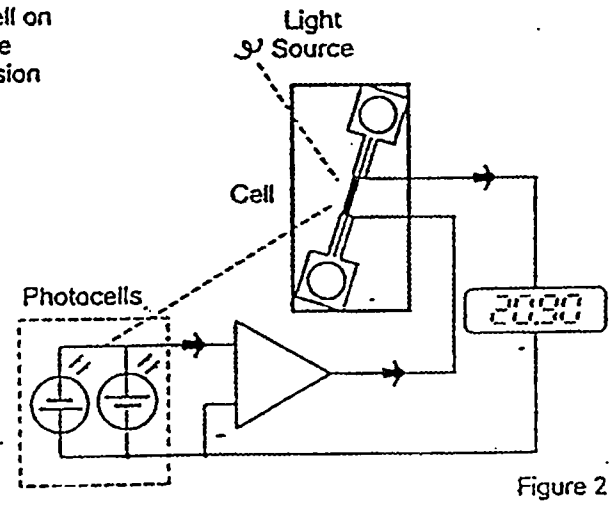


Figure 2

Oxygen is very strongly paramagnetic, ie attracted into a magnetic field. Virtually all other gases are weakly diamagnetic, i.e. repelled from a magnetic field.

In the Servomex magneto-dynamic measuring cell (Figure 1), oxygen molecules are attracted into a very strong magnetic field. This causes the deflection of a dumb-bell, mounted on a torque suspension, from its null (i.e. zero) position. This deflection is detected optically and a current is applied to a coil round the dumb-bell which restores it to the null position. The current required to do this is directly proportional to the oxygen concentration (see Figure 2).

Servomex oxygen analysers are calibrated on a scale which is normalised for nitrogen at 0 and oxygen at 100.

For the highest accuracy it is necessary to correct for the zero error of the background gas in the sample.

The paramagnetic effect varies with temperature. The following tables list measuring cell temperatures of 20°C (for analysers with unheated cells), 50°C (540 range), 60°C (1100A) and 110°C (1100H). Other values can be found by interpolation.

Assuming the following composition, and the analysis at 50°C:

10% CO_2	$-0.29 \times 10^{-2} \times 10$	$= -0.029$
5% CO	$+0.07 \times 10^{-2} \times 5$	$= +0.004$
5% n-Octane	$-2.70 \times 10^{-2} \times 5$	$= -0.135$
78% N_2	$+0.00 \times 10^{-2} \times 78$	$= 0.000$
	Effect of background gas	$= -0.160\%\ O_2$

This effect can be corrected by zeroing and spanning the analyser in the usual way and then offsetting the zero by $-(-0.16) = +0.16\%\ O_2$.

For gases not listed in the table, standard tables of volume magnetic susceptibility can be consulted and the relative magnetic susceptibility obtained from:

$$\frac{K_g - K_n}{K_o - K_n}$$

Where:

K_g = Volume magnetic susceptibility of gas

K_n = Volume magnetic susceptibilty of nitrogen

K_o = Volume magnetic susceptibility of oxygen

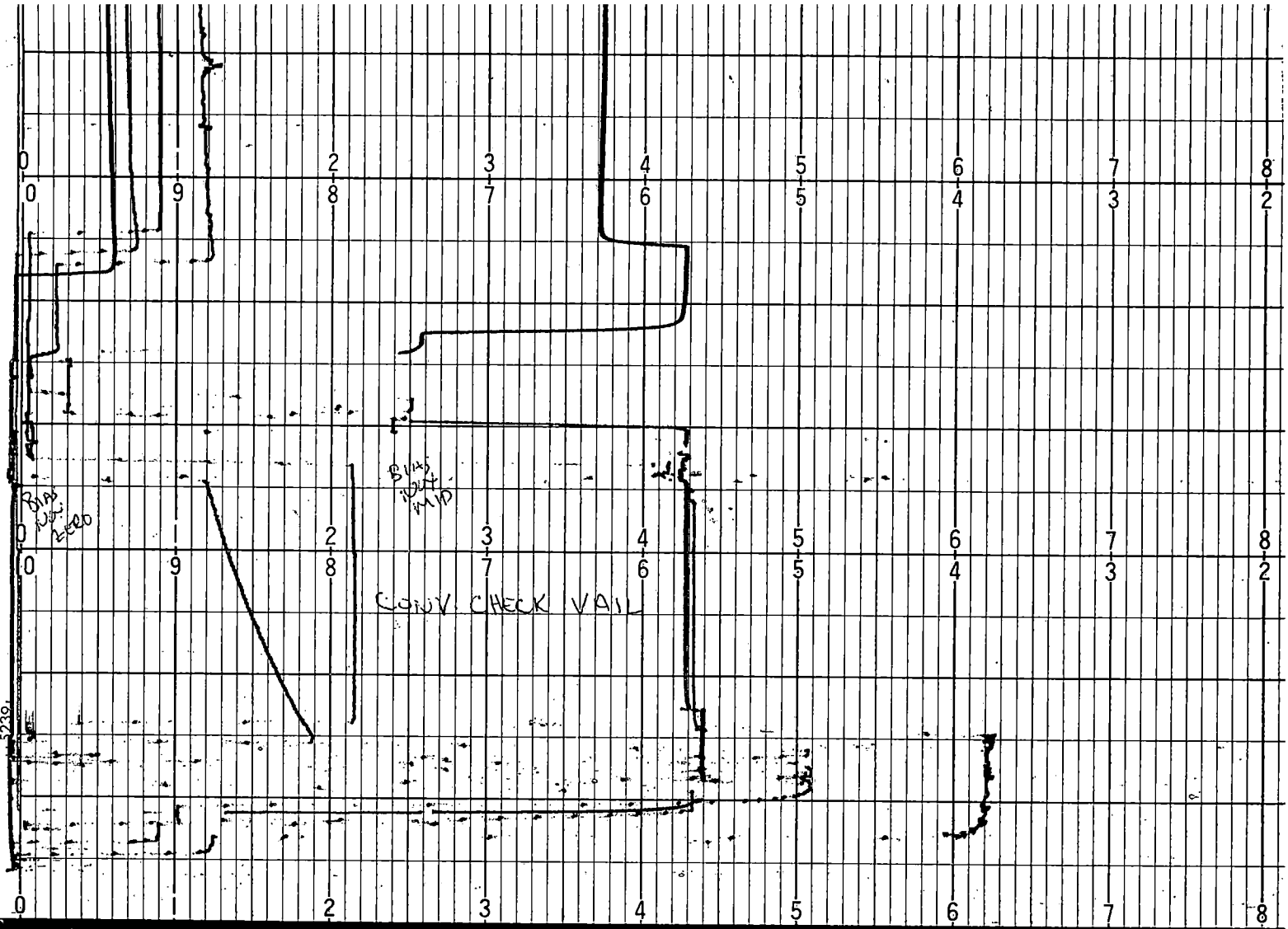
NB: Nitrogen dioxide is significantly paramagnetic. As it exists in thermal equilibrium with dinitrogen tetroxide, which is weakly diamagnetic, its effect varies markedly with temperature.

1: Volume Magnetic Susceptibility of Gases (normalised for nitrogen at 0 and oxygen at 100)

	Formula	Molar mag.susc $\times 10^{-4}$	Zero Error 20°C x 0.01%	50°C x 0.01%	60°C x 0.01%	110°C x 0.01%
:aldehyde	CH_3CHO	−22.70	−0.31	−0.34	−0.35	−0.40
:ic acid	CH_3CO_2H	−31.50	−0.56	−0.62	−0.64	−0.74
tone	CH_3COCH_3	−33.70	−0.63	−0.69	−0.71	−0.82
tylene	$HCCH$	−20.80	−0.25	−0.28	−0.29	−0.33
ylonitrile	$CH_2{=}CHCN$	−24.10	−0.35	−0.39	−0.40	−0.46
l alcohol	CH_2CHCH_2OH	−36.70	−0.71	−0.79	−0.81	−0.93
monia	NH_3	−18.00	−0.17	−0.19	−0.20	−0.23
ion	Ar	−19.60	−0.22	−0.24	−0.25	−0.29
nzene	C_6H_6	−54.84	−1.24	−1.36	−1.41	−1.52
ron chloride	BCl_3	−59.90	−1.38	−1.53	−1.57	−1.81
ron trifluoride	BF_3	−19.00	−0.20	−0.22	−0.23	−0.26
omine	Br_2	−73.50	−1.78	−1.96	−2.02	−2.32
: Butadiene	C_4H_6	−35.60	−0.68	−0.75	−0.77	−0.89
l Butadiene	C_4H_6	−30.60	−0.54	−0.59	−0.61	−0.70
Butane	C_4H_{10}	−50.30	−1.11	−1.22	−1.26	−1.45
o-Butane	$(CH_3)_2CHCH_2$	−51.70	−1.15	−1.26	−1.30	−1.50
Butene	$CH_3CH_2CH{=}CH_2$	−41.10	−0.84	−0.93	−0.96	−1.10
Butyl acetate	$CH_3COOC_4H_9$	−77.50	−1.89	−2.09	−2.15	−2.47
o-Butylene	$(CH_3)_2CH{=}CH_2$	−44.40	−0.94	−1.03	−1.06	−1.22
Butyne (Ethylacetylene)	$CH_3C_3H_2$	−43.50	−0.91	−1.00	−1.03	−1.19
arbon dioxide	CO_2	−21.00	−0.26	−0.29	−0.30	−0.34
arbon disulphide	CS_2	−42.20	−0.87	−0.96	−0.99	−1.14
arbon monoxide	CO	−9.80	0.06	0.07	0.07	0.08
arbon tetrachloride	CCl_4	−66.60	−1.58	−1.74	−1.79	−2.06
arbon tetrafluoride	CF_4	−31.20	−0.55	−0.61	−0.63	−0.72
hlorine	Cl_2	−40.50	−0.82	−0.91	−0.94	−1.08
hloro ethanol	$ClCH_2CH_2OH$	−51.40	−1.14	−1.25	−1.29	−1.49
hloroform	$CHCl_3$	−59.30	−1.37	−1.51	−1.55	−1.78
umene	$(CH_3)_2CHC_6H_5$	−89.53	−2.24	−2.47	−2.55	−2.93
yclohexane	C_6H_{12}	−68.13	−1.62	−1.79	−1.84	−2.12
yclopentane	C_5H_{10}	−59.18	0.35	0.38	0.39	0.45
yclopropane	C_3H_6	−39.90	−0.81	−0.89	−0.92	−1.05
Diacetylene	C_4H_2	−37.50	−0.74	−0.81	−0.84	−0.96
Dichloroethylene	$(CHCl)_2$	−49.20	−1.07	−1.18	−1.22	−1.40
Diethyl ether	$(C_2H_5)_2O$	−55.10	−1.25	−1.37	−1.41	−1.63
2,2 Difluoro 1 chloroethane	$CClH_2CHF_2$	−52.40	−1.17	−1.29	−1.33	−1.52
1,2 Difluoro 1,2 dichloroethylene	$CFCl{=}CFCl$	−60.00	−1.39	−1.53	−1.58	−1.81
Difluoro dichloro methane (Freon 12)	CCl_2F_2	−52.20	−1.16	−1.28	−1.32	−1.52
Dimethoxy methane	$CH_2(OCH_3)_2$	−47.30	−1.02	−1.12	−1.16	−1.33
Dimethylamine	$(CH_3)_2NH$	−39.90	−0.81	−0.89	−0.92	−1.05
Dimethylether	CH_3OCH_3	−26.30	−0.41	−0.46	−0.47	−0.54
Dimethylethylamine	$(CH_3)_2NC_2H_5$	−63.60	−1.49	−1.64	−1.69	−1.95
Enflurane (Ethrane)	$C_3H_2F_5ClO$	−80.10	−1.97	−2.17	−2.24	−2.57
Ethane	C_2H_6	−26.80	−0.43	−0.47	−0.49	−0.56
Ethanol	C_2H_5OH	−33.60	−0.62	−0.69	−0.71	−0.82
Ethyl acetate	$CH_3COOC_2H_5$	−54.20	−1.22	−1.34	−1.39	−1.59
Ethyl amine	$C_2H_5NH_2$	−39.90	−0.81	−0.89	−0.92	−1.05
Ethyl benzene	$C_6H_5C_2H_5$	−77.20	−1.88	−2.08	−2.14	−2.46
Ethyl bromide	C_2H_5Br	−54.70	−1.23	−1.36	−1.40	−1.61
Ethyl chloride	C_2H_5Cl	−46.00	−0.98	−1.08	−1.12	−1.28
Ethylene	C_2H_4	−18.90	−0.20	−0.22	−0.22	−0.26

Gas	Formula	Molar mag.susc $\times 10^{-6}$	Zero Error 20°C $\times$ 0.01%	50°C $\times$ 0.01%	60°C $\times$ 0.01%	110°C $\times$ 0.01%
Ethylene glycol	$(CH_2OH)_2$	−38.80	−0.77	−0.85	−0.88	−1.01
Ethylene oxide	$(CH_2)_2O$	−30.70	−0.54	−0.60	−0.61	−0.71
Ethyl mercaptan	$C_2H_5OSO_3H$	−47.00	−1.01	−1.11	−1.15	−1.32
Fluorochlorobromomethane	CFClBr	−58.00	−1.33	−1.46	−1.51	−1.74
Fluorodichloromethane (Freon 21)	$CHCl_2F$	−48.80	−1.06	−1.17	−1.21	−1.39
Fluroxene	$CF_3CH_2OCHCH_2$	−56.70	−1.29	−1.42	−1.47	−1.69
Freon 114	$C_2Cl_2F_4$	−77.40	−1.89	−2.08	−2.15	−2.47
Furan	C_4H_4O	−43.09	−0.90	−0.99	−1.02	−1.17
Germanium tetrachloride	$GeCl_4$	−72.00	−1.73	−1.91	−1.97	−2.26
Halothane	$C_2HBrClF_3$	−78.80	−1.93	−2.13	−2.19	−2.52
Helium	He	−1.88	0.29	0.32	0.33	0.38
n-Heptane	C_7H_{16}	−85.24	−2.12	−2.33	−2.40	−2.76
n-Hexane	C_6H_{14}	−73.60	−1.78	−1.96	−2.02	−2.32
Hydrogen	H_2	−3.98	0.23	0.26	0.26	0.30
Hydrogen bromide	HBr	−35.30	−0.67	−0.74	−0.76	−0.88
Hydrogen chloride	HCl	−22.60	−0.31	−0.34	−0.35	−0.40
Hydrogen cyanide	HCN	−14.50	−0.07	−0.08	−0.08	−0.09
Hydrogen iodide	HI	−48.20	−1.05	−1.15	−1.19	−1.37
Hydrogen selenide	H_2Se	−39.20	−0.79	−0.87	−0.89	−1.03
Hydrogen sulphide	H_2S	−25.50	−0.39	−0.43	−0.44	−0.51
Isoflurane (Forane)	$C_3H_2F_5ClO$	−80.10	−1.97	−2.17	−2.24	−2.57
Isoprene	C_5H_8	−44.80	−0.95	−1.04	−1.08	−1.24
Ketene	CH_2CO	−15.70	−0.11	−0.12	−0.12	−0.14
Krypton	Kr	−28.80	−0.49	−0.54	−0.55	−0.63
Methane	CH_4	−17.40	−0.16	−0.17	−0.18	−0.20
Methanol	CH_3OH	−21.40	−0.27	−0.30	−0.31	−0.35
Methoxyfluorane	$CHCl_2CF_2OCH_3$	−87.10	−2.17	−2.39	−2.47	−2.83
Methyl acetate	CH_3COCH_3	−42.60	−0.88	−0.97	−1.00	−1.15
Methyl cyclopentane	C_6H_{12}	−70.20	−1.68	−1.85	−1.91	−2.20
Methylene chloride	CH_2Cl_2	−46.60	−1.00	−1.10	−1.14	−1.31
Methylethlyketone	$CH_3COCH_2CH_3$	−45.50	−0.97	−1.07	−1.10	−1.26
Methyl fluoride	CH_3F	−25.50	−0.39	−0.43	−0.44	−0.51
Methyl formate	$HCOOCH_3$	−32.00	−0.58	−0.64	−0.66	−0.75
Methyl iodide	CH_3I	−57.20	−1.31	−1.44	−1.48	−1.71
Methyl iso-butyl ketone (MIBK)	$C_4H_9COCH_3$	−69.30	−1.66	−1.82	−1.88	−2.16
Methyl mercaptan	CH_3SH	−35.30	−0.67	−0.74	−0.76	−0.88
Molybdenum hexafluoride	MoF_6	−26.00	−0.40	−0.45	−0.46	−0.53
Monochlorobenzene	C_6H_5Cl	−70.00	−1.68	−1.85	−1.90	−2.19
Neon	Ne	−6.70	0.15	0.17	0.17	0.20
Nitric oxide	NO	1461.00	42.56	42.96	42.54	41.62
Nitrobenzene	$C_6H_5NO_2$	−61.80	−1.44	−1.59	−1.63	−1.88
Nitrogen	N_2	−12.00	0.00	0.00	0.00	0.00
Nitrogen dioxide	NO_2	150.00	5.00	16.00	20.00	35.00
ortho-Nitrotoluene	$C_6H_4CH_3NO_2$	−72.30	−1.74	−1.92	−1.98	−2.28
para-Nitrotoluene	$C_6H_4CH_3NO_2$	−76.90	−1.88	−2.07	−2.13	−2.45
Nitrous oxide	N_2O	−18.90	−0.20	−0.22	−0.23	−0.26
n-Nonane	C_9H_{20}	−108.13	−2.78	−3.06	−3.16	−3.63
n-Octane	C_8H_{18}	−96.63	−2.45	−2.70	−2.78	−3.19
Oxygen	O_2	3449.00	100.00	100.00	100.00	100.00
Ozone	O_3	6.70	0.54	0.60	0.61	0.71
iso-Pentane	C_5H_{12}	−64.40	−1.51	−1.67	−1.72	−1.98
n-Pentane	C_5H_{12}	−63.10	−1.48	−1.63	−1.68	−1.93

Chart Recording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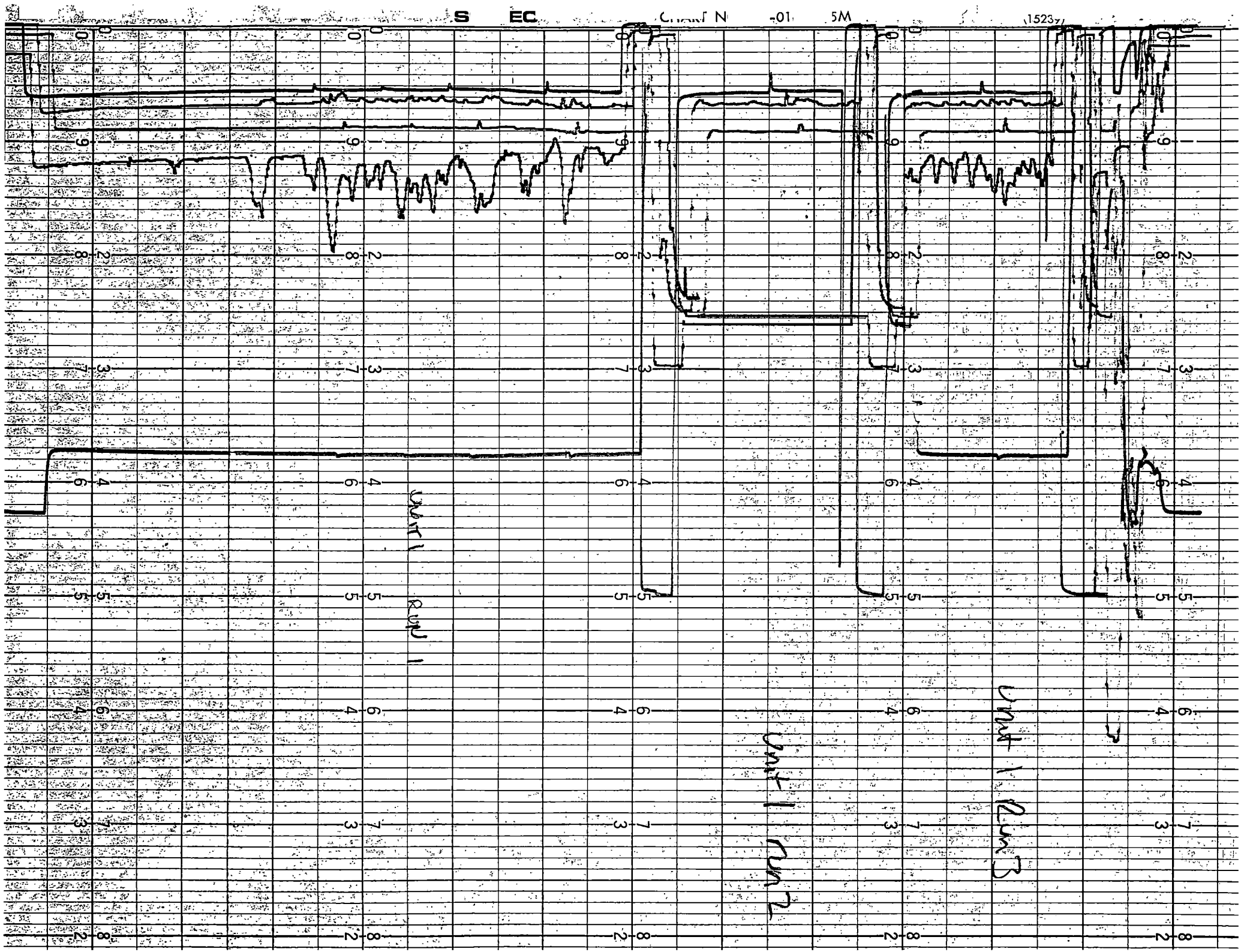
5239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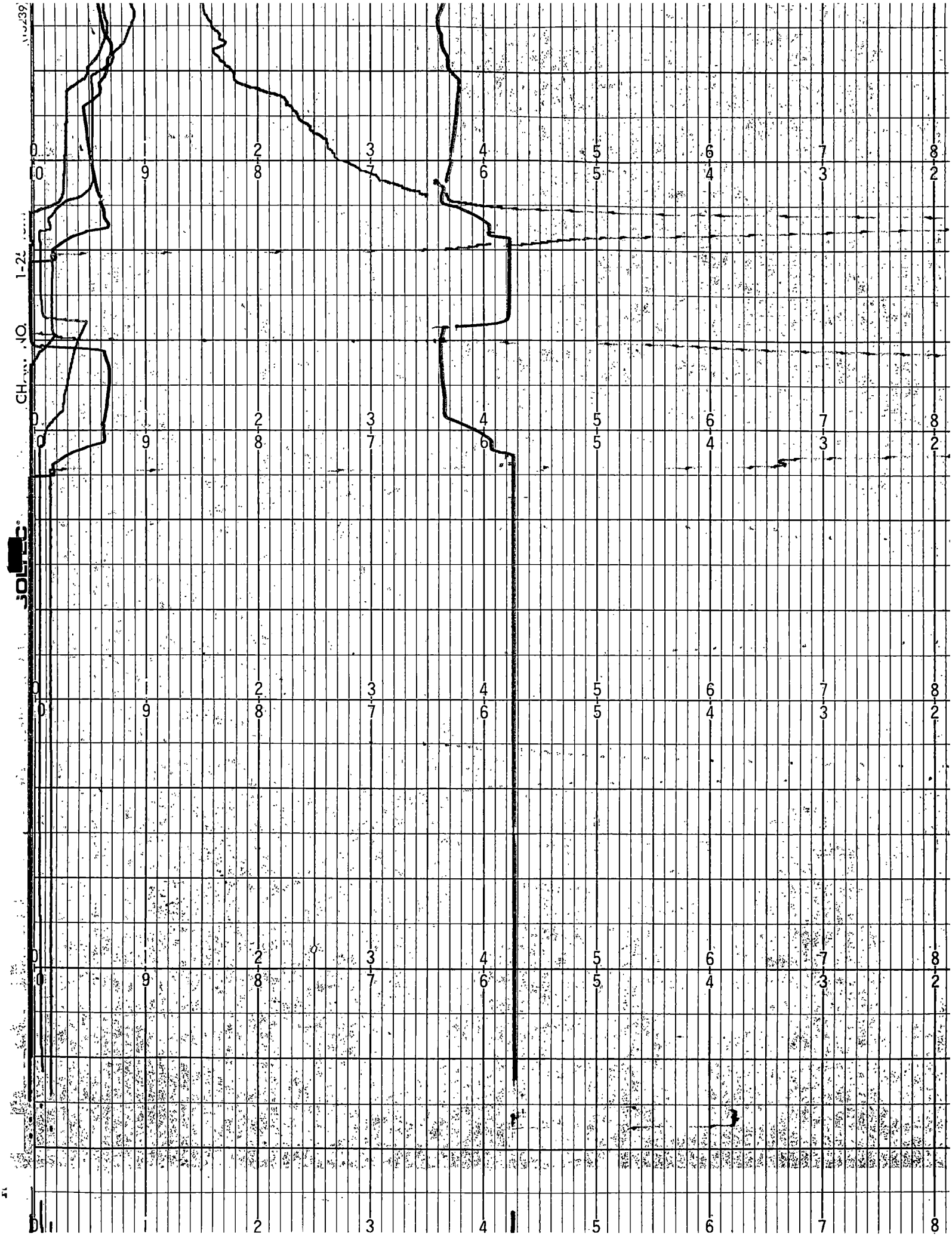
Unit 1 Run 1
Unit 1 Run 2
Unit 1 Run 3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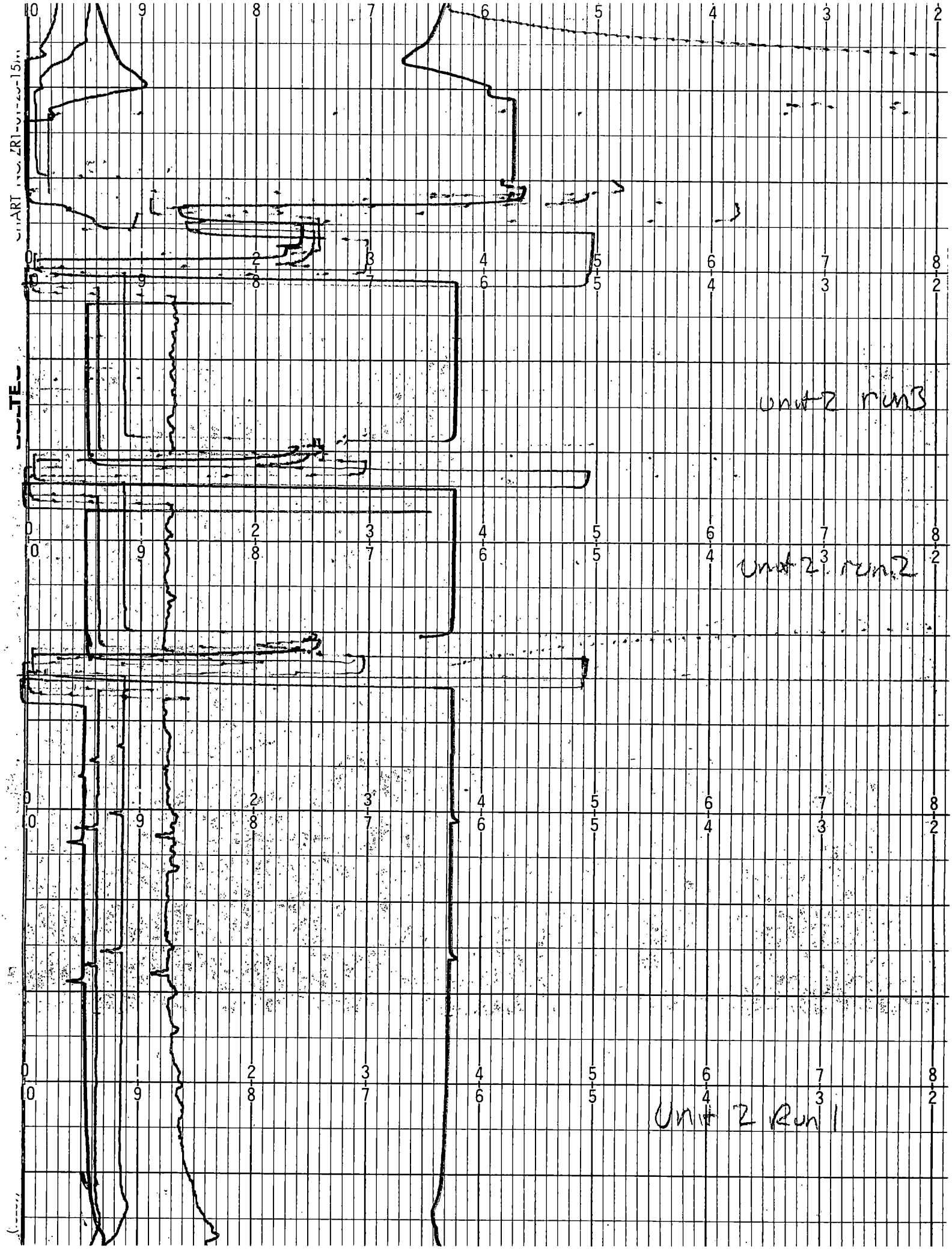
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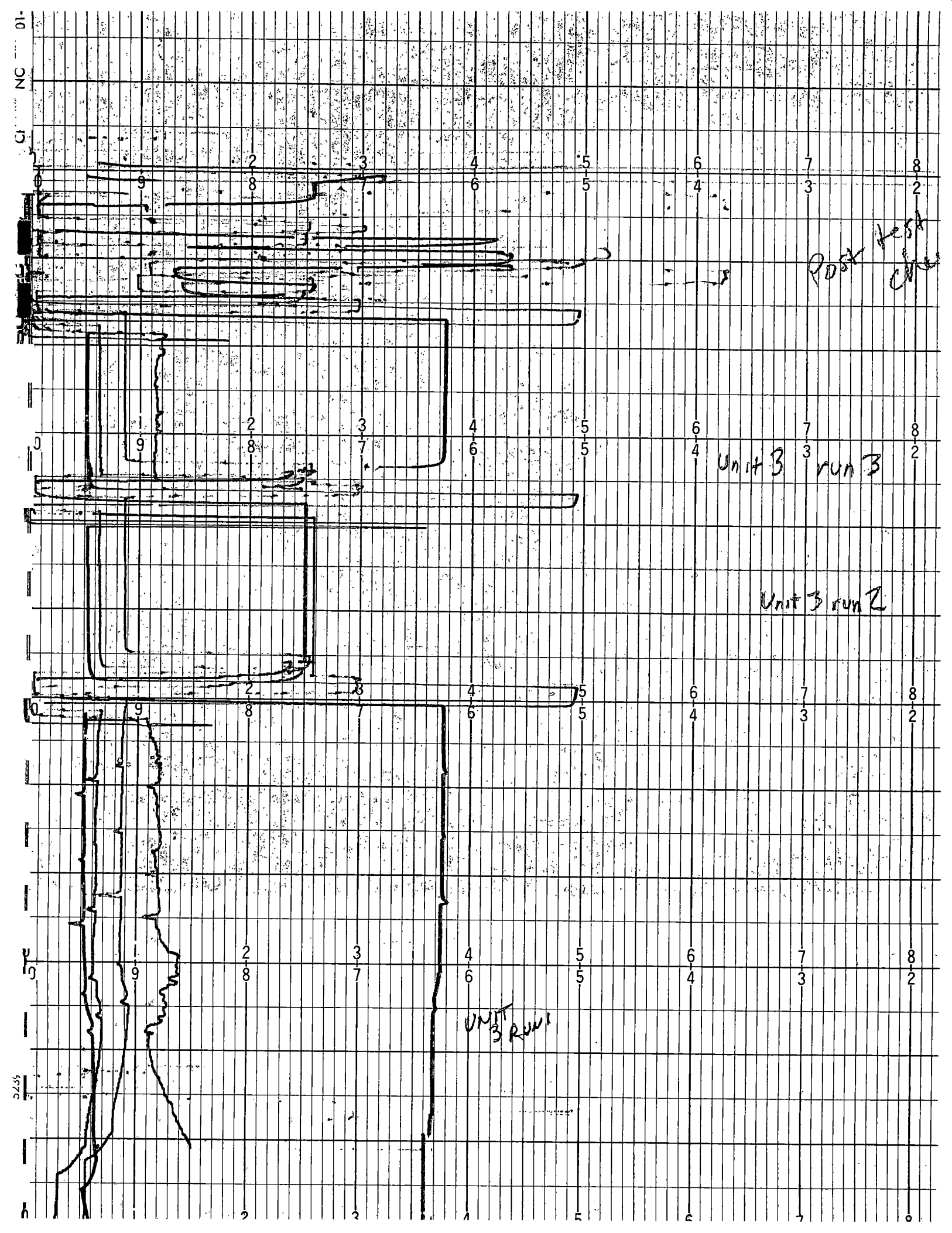
Unit 2 run2
Unit 2 Run 1


PDSK test curve
Unit 3 run 3
Unit 3 run 2
UNIT 3 RUN 1

Appendix B

Unit 1-3: G.E. M3002-RA Gas Turbine
Test Information
Vail Compressor Station

Tested: April 1, 2003

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Appendix B

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Section 1

Detailed Emissions Summary

Detailed Emissions Summary – Unit 1

elpaso Natural Gas

COMPANY :	EPNG
STATION :	Vail
UNIT :	1.00
TURBINE TYPE :	GE Frame 3
DATE :	4/1/2003

RUN	1	2	3	Average
TIME	9:25			
Operating Parameters				
TURBINE				
HORSEPOWER	4936.4	5408.3	5263.5	5202.75
% Load	98.7	108.2	105.3	104.05
HP Speed	6107	6294	6346	6248.79
%HP Speed	102	105	106	104.15
LP Speed	5351	5460	5456	5422.48
%LP Speed	98	100	100	99.31
COMPRESSOR				
T5 AVERAGE (F)	876	865	865	868.64
UNIT SUCTION PRESS (PSIG)	637.778	636.500	635.500	636.59
UNIT SUCTION TEMP (F)	66.000	66.500	67.000	66.50
UNIT DISCHARGE PRESS (PSIG)	725.000	727.000	726.750	726.25
UNIT DISCHARGE TEMP (F)	94.000	96.000	96.250	95.42
Spread	87.222	90.500	91.250	89.66
FLOW MEASUREMENTS				
FUEL GAS PRESSURE (PSIG)	139.000	138.000	138.750	138.58
FUEL GAS DIFF. PRESS. (INH2O)	54.667	61.500	62.000	59.39
FUEL FLOW (SCFH)	52573.57	55527.47	55824.14	54641.73
FUEL FLOW (SCFM)	876.226	925.458	930.402	910.70
EX. FLOW (LB/HR) **	234306	242064	241603	239324.20
EX. FLOW (WSCFM)	62112	64175	64054	63447.42
AIR FLOW (WSCFM)	60091	62047	61916	61351.34
HEAT RATE (BTU/HP-HR)	9813	9460	9772	9681.36
AMBIENT CONDITIONS				
AMBIENT TEMP. (F)	76.550	79.930	82.160	79.55
BAROMETRIC PR. ("Hg)	26.540	26.510	26.470	26.51
AMBIENT REL. HUM. (%)	11.580	10.450	9.700	10.58
ABS. HUM. (grains/LB)	17.60	17.77	17.76	17.71
EMISSIONS CONCENTRATIONS AND CALCULATED MASS EMISSIONS				
NO PPM (raw measured dry)	34.900	35.680	36.610	[illegible]
NOx PPM (raw measured dry)	42.170	43.150	43.210	42.84
NO_X PPM (bias corrected)	42.147	43.040	43.197	42.79
NOx g/BHP-HR **	1.758	1.691	1.740	1.73
NOx LB/HR **	19.132	20.164	20.193	19.83
NOx @15% O2	101.04	101.02	103.33	101.80
NOx ISO Corrected @ 15% O2	94.7	93.9	95.5	94.73
Heat Rate (KJ/Watt-Hr)	13.88	13.38	13.82	13.69
Subpart GG Limit	155.6	161.5	156.3	157.80
CO PPM (raw measured dry)	25.910	24.390	24.920	25.07
CO PPM (bias corrected)	25.784	24.326	24.844	24.98
CO g/BHP-HR **	0.684	0.609	0.655	0.65
CO LB/HR **	7.440	7.258	7.595	7.43
$\%C0_2$ (raw measured dry)	1.560	1.570	1.570	1.57
$\%O_2$ (raw measured dry)	18.330	18.270	18.250	18.28
$\%O_2$ (bias corrected)	18.439	18.386	18.433	18.42
CALCULATED EMISSIONS CONCENTRATIONS				
$\%CO_2$ (WET) *	1.429	1.461	1.472	1.45
$\%CO_2$ (DRY) *	1.477	1.510	1.522	1.50
$\%H_2O$ *	3.200	3.266	3.287	3.25
%O2 (WET) *	17.743	17.673	17.650	17.69

Detailed Emissions Summary – Unit 2

elpaso Natural Gas

COMPANY :	EPNG
STATION :	Vail
UNIT :	2
TURBINE TYPE :	GE Frame 3
DATE :	4/1/2003

RUN	1	2	3	Average
TIME				
Operating Parameters				
TURBINE				
HORSEPOWER	4666.5	4925.0	4777.2	4789.56
% Load	93.3	98.5	95.5	95.79
HP Speed	6026	6063	6030	6039.64
%HP Speed	100	101	101	100.66
LP Speed	5400.6	5460.3	5457.0	5439.27
%LP Speed	99	100	100	99.62
COMPRESSOR				
T5 AVERAGE (F)	876	865	865	868.28
UNIT SUCTION PRESS (PSIG)	625.556	618.750	616.333	620.21
UNIT SUCTION TEMP (F)	66.000	66.000	66.000	66.00
UNIT DISCHARGE PRESS (PSIG)	698.778	693.500	690.000	694.09
UNIT DISCHARGE TEMP (F)	92.222	93.000	93.000	92.74
Spread	73.222	74.750	73.667	73.88
FLOW MEASUREMENTS				
FUEL GAS PRESSURE (PSIG)	136.444	137.000	136.667	136.70
FUEL GAS DIFF. PRESS. (INH2O)	47.222	47.250	46.000	46.82
FUEL FLOW (SCFH)	48180.57	48331.92	47659.28	48057.26
FUEL FLOW (SCFM)	803.010	805.532	794.321	800.95
EX. FLOW (LB/HR) **	209285	210661	208536	209494.11
EX. FLOW (WSCFM)	55483	55859	55282	55541.60
AIR FLOW (WSCFM)	53637	54006	53454	53699.28
HEAT RATE (BTU/HP-HR)	9513	9042	9192	9248.86
AMBIENT CONDITIONS				
AMBIENT TEMP. (F)	87.510	86.120	84.230	85.95
BAROMETRIC PR. ("Hg)	26.270	26.260	26.470	26.33
AMBIENT REL. HUM. (%)	8.030	8.810	8.920	8.59
ABS. HUM. (grains/LB)	17.59	18.47	17.46	17.84
EMISSIONS CONCENTRATIONS AND CALCULATED MASS EMISSIONS				
NO PPM (raw measured dry)	33.900	33.630	33.290	33.61
NOx PPM (raw measured dry)	41.050	40.730	40.500	40.76
NO_X PPM (bias corrected)	41.091	40.658	40.499	40.75
NOx g/BHP-HR **	1.618	1.527	1.552	1.57
NOx LB/HR **	16.641	16.580	16.348	16.52
NOx @15% O2	100.27	100.96	98.32	99.85
NOx ISO Corrected @ 15% O2	91.6	92.9	90.3	91.59
Heat Rate (KJ/Watt-Hr)	13.45	12.79	13.00	13.08
Subpart GG Limit	160.5	168.9	166.2	165.20
CO PPM (raw measured dry)	24.950	24.330	25.090	24.79
CO PPM (bias corrected)	24.932	24.346	25.028	24.77
CO g/BHP-HR **	0.652	0.616	0.629	0.63
CO LB/HR **	6.711	6.689	6.630	6.68
$\%C0_2$ (raw measured dry)	1.480	1.480	1.470	1.48
$\%O_2$ (raw measured dry)	18.260	18.270	18.280	18.27
$\%O_2$ (bias corrected)	18.482	18.524	18.470	18.49
CALCULATED EMISSIONS CONCENTRATIONS				
$\%CO_2$ (WET) *	1.466	1.461	1.456	1.46
$\%CO_2$ (DRY) *	1.516	1.510	1.505	1.51
$\%H_2O$ *	3.272	3.281	3.249	3.27
$\%O_2$ (WET) *	17.662	17.670	17.686	17.67

Detailed Emissions Summary – Unit 3

elpaso Natural Gas

COMPANY :	EPNG
STATION :	Vail
UNIT :	3
TURBINE TYPE :	GE Frame 3
DATE :	4/1/2003

RUN	1	2	3	Average
TIME	19:32	20:44	21:17	
Operating Parameters				
TURBINE				
HORSEPOWER	4425.8	4807.9	5043.5	4759.06
% Load	88.5	96.2	100.9	95.18
HP Speed	6120	6165	6104	6129.54
%HP Speed	102	103	102	102.16
LP Speed	5355.8	5461.8	5456.5	5424.68
%LP Speed	98	100	100	99.35
COMPRESSOR				
T5 AVERAGE (F)	875	864	865	868.05
UNIT SUCTION PRESS (PSIG)	606.889	602.000	602.000	603.63
UNIT SUCTION TEMP (F)	65.222	65.000	65.000	65.07
UNIT DISCHARGE PRESS (PSIG)	686.778	684.250	683.500	684.84
UNIT DISCHARGE TEMP (F)	91.333	93.250	94.000	92.86
Spread	79.889	82.250	81.500	81.21
FLOW MEASUREMENTS				
FUEL GAS PRESSURE (PSIG)	139.222	138.000	138.500	138.57
FUEL GAS DIFF. PRESS. (INH2O)	46.889	45.750	44.000	45.55
FUEL FLOW (SCFH)	51587.90	51007.39	50104.30	50899.86
FUEL FLOW (SCFM)	859.798	850.123	835.072	848.33
EX. FLOW (LB/HR) **	220076	225585	224030	223230.54
EX. FLOW (WSCFM)	58355	59819	59415	59196.27
AIR FLOW (WSCFM)	56383	57859	57488	57243.31
HEAT RATE (BTU/HP-HR)	10740	9775	9153	9889.18
AMBIENT CONDITIONS				
AMBIENT TEMP. (F)	76.290	74.920	73.990	75.07
BAROMETRIC PR. ("Hg)	26.270	26.310	26.330	26.30
AMBIENT REL. HUM. (%)	11.940	12.900	13.830	12.89
ABS. HUM. (grains/LB)	18.18	18.74	19.46	18.79
EMISSIONS CONCENTRATIONS AND CALCULATED MASS EMISSIONS				
NO PPM (raw measured dry)	34.390	34.720	34.340	34.48
NOx PPM (raw measured dry)	41.760	41.990	41.460	41.74
NO_X PPM (bias corrected)	41.757	41.905	41.341	41.67
NOx g/BHP-HR **	1.821	1.728	1.615	1.72
NOx LB/HR **	17.770	18.313	17.955	18.01
NOx @15% O2	99.78	104.75	104.19	102.90
NOx ISO Corrected @ 15% O2	94.3	99.4	99.3	97.66
Heat Rate (KJ/Watt-Hr)	15.19	13.82	12.95	13.99
Subpart GG Limit	142.2	156.2	166.9	155.10
CO PPM (raw measured dry)	23.620	22.370	22.730	22.91
CO PPM (bias corrected)	23.556	22.351	22.653	22.85
CO g/BHP-HR **	0.681	0.616	0.589	0.63
CO LB/HR **	6.648	6.524	6.549	6.57
$\%C0_2$ (raw measured dry)	1.530	1.490	1.480	1.50
$\%O_2$ (raw measured dry)	18.210	18.310	18.340	18.29
$\%O_2$ (bias corrected)	18.431	18.540	18.559	18.51
CALCULATED EMISSIONS CONCENTRATIONS				
$\%CO_2$ (WET) *	1.493	1.440	1.423	1.45
$\%CO_2$ (DRY) *	1.544	1.488	1.471	1.50
$\%H_2O$ *	3.337	3.246	3.230	3.27
$\%O_2$ (WET) *	17.602	17.716	17.748	[illegible]

Section 2

Instrument Checks and Calibration

Calibration Gas Certificates

Scott Specialty Gases
www.scottgas.com

Shipped From: 9810 BAY AREA BLVD
PASADENA TX 77507
Phone: 281-474-5800 Fax: 281-474-5857

CERTIFICATE OF ANALYSIS

TENNESSEE GAS PIPELINE
BUSTER WRIGHT
16951 JFK BLVD

HOUSTON TX 77032

PROJECT #: 04-07079-017
PO#: BW052302
ITEM #: 0401022 AL
DATE: 19Jun2002

CYLINDER #: ALM048655
FILL PRESSURE: 02000 PSIG

PURE MATERIAL: AIR CAS# 132259-10-0

GRADE: HYDROCARBONFREE

IMPURITY	MAXIMUM CONCENTRATIONS
O2 CONTENT	20 TO 21%
CO	0.5 PPM
CO2	1 PPM
H2O	5 PPM
THC(CH4)	0.1 PPM

ANALYST: _____

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

9810 BAY AREA BLVD,PASADENA,TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA,TX 77507

P.O. No.: BLW031202
Project No.: 04-04642-001

Customer

TENNESSEE GAS C/O EL PASO CORP
BUSTER WRIGHT
11955 FM 529
HOUSTON TX 77041

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure #G1; September, 1997.

Cylinder Number: ALM046644 **Certification Date:** 4/05/02 **Exp. Date:** 4/04/2004
Cylinder Pressure*:** 1817 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
NITRIC OXIDE	124	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	125.	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocal procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM	5/01/05	AAL15778	100.7 PPM	NO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9400260	03/06/02	FTIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

NITRIC OXIDE

First Triad Analysis

Date:03/29/02	Response Unit:PPM	
Z1 = 0.39790	R1 = 100.2146	T1 = 124.7935
R2 = 100.8912	Z2 = 0.43580	T2 = 124.8054
Z3 = 0.53490	T3 = 125.1726	R3 = 100.9940
Avg. Concentration:	124.9	PPM

Second Triad Analysis

Date: 04/05/02	Response Unit: PPM	
Z1 = 0.19290	R1 = 100.7632	T1 = 124.4839
R2 = 100.7450	Z2 = 0.34760	T2 = 124.7043
Z3 = 0.34740	T3 = 124.6985	R3 = 100.5916
Avg. Concentration:	124.6	PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = 0.999990	
Constants:	A = 0.000000
B = 1.000000	C = 0.000000
D = 0.000000	E = 0.000000

APPROVED BY: William A. Morgan Jr.
William Morgan

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration St

9810 BAY AREA BLVD, PASADENA, TX 77507

Phone: 281-474-

_CERTIFICATE_OF_ACCURACY:_Interference_Free__EPA_Protocol_Gas™_____

Assay_Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: CREDIT CARD BW
Project No.: 04-09629-001

Customer_
TENNESSEE GAS PIPELINE
Buster Wright
16951 JFK BLVD
HOUSTON TX 77032

_ANALYTICAL_INFORMATION_____

This certification was performed according to EPA Traceability Protocol For Ass of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM046015 Certification Date: 16Sep2002 Exp. Date:

Cylinder Pressure***: 1942 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)		ANALYTICAL ACCURACY**_	TRACEAB
NITRIC OXIDE	50.0	PPM	+/- 1%	Direct
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	50.8	PPM		Referen

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1

__Product_certified_as_+/-_1%_analytical_accuracy_is_directly_traceable_to_NIST_

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM	03Apr2006	AAL069417	94.62PM	NO/N2

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICA
FTIR System/8220/AAB9400260	15Sep2002	FTIR

_ANALYZER_READINGS_____

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation C

First Triad Analysis Second Triad Analysis Calibration

NITRIC OXIDE

First Triad Analysis	Second Triad Analysis	Calibration
Date: 07Sep2002Resp Unit:PPM	Date: 16Sep2002Resp Unit: PPM	Concentration=A
Z1=-0.68610=94.096161=50.22895	Z1=-0.95430=94.40077=50.45307	r=0.999990
R2=95.25294=-0.605602=48.94105	R2=94.60141=-0.59940=50.86070	Constants:
Z3=0.762803=50.451703=94.51089	Z3=0.079403=49.57616=94.85784	B=1.000000
Avg. Conc: 49.87 PPM	Avg. Conc: 50.30 PPM	D=0.000000

APPROVED BY: (signature on file)
William Morgan

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

9810 BAY AREA BLVD,PASADENA,TX 77507

Phone: 281-474-5800 Fax: 281-474-5857

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA,TX 77507

P.O. No.: BLW031202
Project No.: 04-04642-002

Customer

TENNESSEE GAS C/O EL PASO CORP
BUSTER WRIGHT
11955 FM 529
HOUSTON TX 77041

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure #G1; September, 1997.

Cylinder Number: ALM051745 **Certification Date:** 3/29/02 **Exp. Date:** 3/28/2004
Cylinder Pressure*:** 1962 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
NITRIC OXIDE	249	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	250.	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocal procedure G1, September 1997. Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM	10/01/04	ALM038120	500.7 PPM	NO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9400260	03/06/02	FTIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

NITRIC OXIDE

First Triad Analysis

Date:03/22/02	Response Unit:PPM	
Z1 = 0.17660	R1 = 501.0091	T1 = 248.5931
R2 = 500.1912	Z2 = 0.07930	T2 = 249.0409
Z3 = 0.21650	T3 = 249.0132	R3 = 500.8995
Avg. Concentration:	248.9	PPM

Second Triad Analysis

Date: 03/29/02	Response Unit: PPM	
Z1 = 0.36270	R1 = 500.7673	T1 = 249.3492
R2 = 500.9577	Z2 = 0.55740	T2 = 249.2004
Z3 = 0.55200	T3 = 249.2164	R3 = 500.3748
Avg. Concentration:	249.3	PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999990

Constants:	
B = 1.000000	A = 0.000000
D = 0.000000	C = 0.000000
	E = 0.000000

APPROVED BY: Mik Varkonyi

Scott Specialty Gases
www.scottgas.com

Shipped From: 9810 BAY AREA BLVD
PASADENA TX 77507
Phone: 281-474-5800 Fax: 281-474-5857

CERTIFICATE OF ANALYSIS

TENNESSEE GAS PIPELINE
Buster Wright
9 EAST GREENWAY PLAZA
RM 1073A
HOUSTON TX 77046

PROJECT #: 04-11638-001
PO#: BW CC 11/12/02
ITEM #: 0401813 AL
DATE: 12Nov2002

CYLINDER #: ALM020757
FILL PRESSURE: 02000 PSIG

PURE MATERIAL: NITROGEN CAS# 7727-37-9

GRADE: ZERO GAS

PURITY: 99.998%

IMPURITY	MAXIMUM CONCENTRATIONS
THC	0.5 PPM

ANALYST: _____

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration St

9810 BAY AREA BLVD, PASADENA, TX 77507

Phone: 281-474-

_CERTIFICATE_OF_ACCURACY:_Interference_Free__EPA_Protocol_Gas™_____

Assay_Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: CREDIT CARD BW
Project No.: 04-09629-007

Customer_
TENNESSEE GAS PIPELINE
Buster Wright
16951 JFK BLVD
HOUSTON TX 77032

_ANALYTICAL_INFORMATION_____

This certification was performed according to EPA Traceability Protocol For Ass of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM048950 Certification Date: 11Sep2002 Exp. Date:

Cylinder Pressure***: 1944 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)		ANALYTICAL ACCURACY**_	TRACEAB
CARBON MONOXIDE	59.3	PPM	+/- 1%	Direct
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1

__Product_certified_as_+/-_1%_analytical_accuracy_is_directly_traceable_to_NIST_

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM	01Jan2003	ALM035944	101.7PM	CO/N2

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICA
FTIR System/8220/AAB9400260	13Aug2002	FTIR

_ANALYZER_READINGS_____

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation C

First Triad Analysis Second Triad Analysis Calibration

CARBON MONOXIDE

First Triad Analysis	Second Triad Analysis	Calibration
Date: 04Sep2002Resp Unit:PPM	Date: 11Sep2002Resp Unit: PPM	Concentration=A
Z1=-1.48230=101.79161=59.59504	Z1=-1.29880=102.5572=58.68024	r=0.999990
R2=102.2361=-1.609402=60.03027	R2=101.2643=-1.41810=59.06635	Constants:
Z3=-1.38860=59.481403=101.0722	Z3=-1.01350=59.27600=101.2784	B=1.000000
Avg. Conc: 59.70 PPM	Avg. Conc: 59.01 PPM	D=0.000000

APPROVED BY: (signature on file)
William Morgan

MATHESON TRI-GAS

CERTIFICATE OF ANALYSIS - EPA PROTOCOL MIXTUR

1650 Enterprise Parkway, Twinsburg, Ohio 44087 • (330) 425-4406 • (800) 426-94

Customer: TENNESSEE GAS PIPELINE
Cylinder Number: SX-22599
Cylinder pressure: 2000
Last Analysis date: 9-21-2001
Expiration Date: 9/21/04

Reference # 178541
Protocol: G1

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 150 PSIG

REPLICATE CONCENTRATIONS

Component :	Carbon Monoxide	Date: 9-14-2001	Date: 9-21-2001
Mean Conc:	25.6 ± 0.2 PPM	25.7 PPM	25.5 PPM
		25.7 PPM	25.7 PPM
		25.8 PPM	25.5 PPM

BALANCE GAS: Nitrogen

REFERENCE STANDARDS

Component: Carbon Monoxide
SRM #: NTRM-81678
Cylinder #: SX-21455
Concentration: 51.4ppm

CERTIFICATION INSTRUMENTS

Component: Carbon Monoxide
Make/Model: TECO 48H
Serial Number: 48-H-37040-255
Measurement Principle: IR
Last Calibration: 9-11-2001

This certification was performed according to EPA Traceability Protocol for Assay & Certification of Gaseous Calibration Standards September 1997, using procedure G1 and/or G2.

Analyst Philip D. Mant Date 9-24-01

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

9810 BAY AREA BLVD,PASADENA,TX 77507

Phone: 281-474-5800 Fax: 281-474-585

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA,TX 77507

P.O. No.: BLW031202
Project No.: 04-04642-006

Customer

TENNESSEE GAS C/O EL PASO CORP
BUSTER WRIGHT
11955 FM 529
HOUSTON TX 77041

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure #G1; September, 1997.

Cylinder Number: ALM049839 **Certification Date:** 4/03/02 **Exp. Date:** 4/02/2005

Cylinder Pressure*:** 1982 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	126	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocal procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1679	1/01/03	ALM012798	101.7 PPM	CO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9400260	03/06/02	FTIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis

CARBON MONOXIDE

Date:03/27/02	Response Unit:PPM	
Z1 = -1.52660	R1 = 101.7572	T1 = 126.4971
R2 = 101.7687	Z2 = -1.50750	T2 = 126.3859
Z3 = -1.46520	T3 = 126.2995	R3 = 101.5739
Avg. Concentration:	126.4	PPM

Second Triad Analysis

Date: 04/03/02	Response Unit: PPM	
Z1 = -1.49620	R1 = 101.7254	T1 = 126.5595
R2 = 101.7152	Z2 = -1.48720	T2 = 126.7260
Z3 = -1.52030	T3 = 126.4911	R3 = 101.6593
Avg. Concentration:	126.6	PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999990

Constants:	
B = 1.000000	A = 0.000000
D = 0.000000	C = 0.000000
	E = 0.000000

APPROVED BY: William A. Morgan Jr.
William Morgan

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration St

9810 BAY AREA BLVD, PASADENA, TX 77507

Phone: 281-474-

_CERTIFICATE_OF_ACCURACY:_EPA_Protocol_Gas_____

Assay_Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: CREDIT CARD
Project No.: 04-12992-002

Customer_
TENNESSEE GAS PIPELINE
Buster Wright
9 EAST GREENWAY PLAZA
RM 1073A
HOUSTON TX 77046

_ANALYTICAL_INFORMATION_____

This certification was performed according to EPA Traceability Protocol For Ass
of Gaseous Calibration Standards; Procedure G-1; September, 1997.
Cylinder Number: ALM049555 Certification Date: 31Jan2003 Exp. Date:
Cylinder Pressure***: 2000 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)	ANALYTICAL ACCURACY**_	TRACEAB
OXYGEN	12.52 %	+/- 1%	Direct
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1
__Product_certified_as_+/-_1%_analytical_accuracy_is_directly_traceable_to_NIST_

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM 2658	02Oct2006	ALM065059	9.930	OXYGEN

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICA
MTI-A/M200/171109	13Jan2003	GAS CHROM

_ANALYZER_READINGS_____

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation C

First Triad Analysis Second Triad Analysis Calibration

OXYGEN
Date: 31Jan2003Resp Unit:AREA
Z1=101.0000=37353.001=47062.00
R2=37260.00=150.00002=47019.00
Z3=62.00000=47059.003=37357.00
Avg. Conc: 12.52 %
APPROVED BY: (signature on file)
LING WEN

Concentration=A
r=0.99997907
Constants:
B=0.000262885
D=

MATHESON TRI-GAS

CERTIFICATE OF ANALYSIS - EPA PROTOCOL MIXTUR

1650 Enterprise Parkway, Twinsburg, Ohio 44087 • (330) 425-4406 • (800) 426-94

Customer: TENNESSEE GAS PIPELINE
Cylinder Number: SX-13858
Cylinder pressure: 2000
Last Analysis date: 9-6-2001
Expiration Date: 9/6/04

Reference # 178541
Protocol: G1

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 150 PSIG

REPLICATE CONCENTRATIONS

		Date: 9-6-2001	Date:
Component:	Oxygen	6.44 PCT	
Mean Conc:	6.44 ± 0.03 PCT	6.44 PCT	
		6.44 PCT	

BALANCE GAS: Nitrogen

REFERENCE STANDARDS
Component: Oxygen
SRM #: NTRM-82658
Cylinder #: SX-32160
Concentration: 10.14%

CERTIFICATION INSTRUMENTS
Component: Oxygen
Make/Model: Rosemount 755
Serial Number: 2002832
Measurement Principle: Paramagnetic
Last Calibration: 8-24-2001

This certification was performed according to EPA Traceability Protocol for Assay & Certification of Gaseous Calibration Standards September 1997, using procedure G1 and/or G2.

Analyst Philip D. Mant Date 9-24-01

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration St

9810 BAY AREA BLVD, PASADENA, TX 77507

Phone: 281-474-

_CERTIFICATE_OF_ACCURACY:_EPA_Protocol_Gas_____

Assay_Laboratory

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: CREDIT CARD
Project No.: 04-12992-003

Customer_
TENNESSEE GAS PIPELINE
Buster Wright
9 EAST GREENWAY PLAZA
RM 1073A
HOUSTON TX 77046

_ANALYTICAL_INFORMATION_____

This certification was performed according to EPA Traceability Protocol For Ass of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM047333 Certification Date: 31Jan2003 Exp. Date:

Cylinder Pressure***: 2000 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)	ANALYTICAL _ACCURACY**_	TRACEAB
OXYGEN	21.15 %	+/- 1%	Direct
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1

__Product_certified_as_+/-_1%_analytical_accuracy_is_directly_traceable_to_NIST_

REFERENCE_STANDARD_____ TYPE/SRM_NO.	_EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM 2658	02Oct2006	ALM065059	9.930	OXYGEN

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICA
MTI-A/M200/171109	13Jan2003	GAS CHROM

_ANALYZER_READINGS_____

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation C

First Triad Analysis Second Triad Analysis Calibration

OXYGEN
Date: 13Jan2003Resp Unit:AREA
Z1=101.0000=37353.001=79429.00
R2=37260.00=150.00002=79381.00
Z3=62.00000=79369.003=37357.00
Avg. Conc: 21.15 %
APPROVED BY: (signature on file)
LING WEN

Concentration=A
r=0.99997907
Constants:
B=0.000262885
D=

Linearity Check Forms and Raw Data

NO_x ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 1

DATE: 4/1/2003

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial -Final)	PERCENT DIFFERENCE
ZERO	ALM-048655	0.00	SCAN L 7:23:37 0.01	0.01	0.01%
MID	ALM-046644	125.00	SCAN L 7:19:27 125.002	0.002	0.00%
HIGH	ALM-051745	250	SCAN L 7:29:22 253.75	3.75	1.50%
LOW	ALM-046015	50.8	SCAN L 7:26:22 50.02	0.78	0.31%

CO ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 1

DATE: 4/1/2003

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial - Final)	PERCENT DIFFERENCE
ZERO	ALM-020757	0.00	SCAN L 7:23:37 0.00	0.00	0.00%
MID	ALM-048950	59.30	SCAN L 7:19:27 59.44	0.14	0.07%
HIGH	ALM-049839	126.00	SCAN L 7:29:22 124.81	1.19	0.60%
LOW	SX-22599	25.60	SCAN L 7:26:22 25.28	0.33	0.16%

O_2 ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 1

DATE: 4/1/2003

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT
ZERO	ALM-020757	0.00	SCAN L 7:23:37 0.05	0.05	0.21%
LOW	SX-13858	6.44	SCAN L 7:26:22 6.381	0.06	0.24%
MID	ALM-040955	12.52	SCAN L 7:19:27 12.55	0.03	0.10%
HIGH	ALM-047333	21.1	SCAN L 7:29:22 21.20	0.10	0.39%

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:23:37 AM

*** Pre Cal Zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.010	ppm	02 CO	0.003	ppm
04 NOx	0.014	ppm	01 CO2	0.050	%
00 O2	0.052	%	05 THC	-0.184	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	61.766	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	19.273	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:26:22 AM

*** Pre Cal ~~Zeros~~ Low ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	47.672	ppm	02 CO	25.275	ppm
04 NOx	50.024	ppm	01 CO2	0.057	%
00 O2	6.381	%	05 THC	0.129	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	62.154	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	19.060	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:19:27 AM

*** Pre Cal Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	124.410	ppm	02 CO	59.441	ppm
04 NOx	125.002	ppm	01 CO2	12.422	%
00 O2	12.545	%	05 THC	0.243	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	61.159	F			
50 Barometric Press.	26.537	In_Hg	51 Relative Humidity	19.622	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:29:22 AM

*** Pre Cal ~~Zeros~~ HIGH ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	218.349	ppm	02 CO	124.805	ppm
04 NOx	253.752	ppm	01 CO2	0.096	%
00 O2	21.198	%	05 THC	0.568	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	62.487	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	18.922	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

NO_x ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 2

DATE: 4/1/2003

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial -Final)	PERCENT DIFFERENCE
ZERO	ALM-048655	0.00	SCAN L 11:50:20 0.02	0.02	0.01%
MID	ALM-046644	125.00	SCAN L 11:53:08 125.014	0.014	0.01%
HIGH	ALM-051745	250	SCAN L 12:02:13 247.12	2.88	1.15%
LOW	ALM-046015	50.8	SCAN L 11:56:22 49.81	0.99	0.40%

CO ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 2

DATE: 4/1/2003

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial - Final)	PERCENT DIFFERENCE
ZERO	ALM-020757	0.00	SCAN L 11:50:20 0.02	0.02	0.01%
MID	ALM-048950	59.30	SCAN L 11:53:08 59.50	0.20	0.10%
HIGH	ALM-049839	126.00	SCAN L 12:02:13 125.47	0.53	0.27%
LOW	SX-22599	25.60	SCAN L 11:56:22 25.39	0.21	0.10%

O_2 ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 2

DATE: 4/1/2003

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT
ZERO	ALM-020757	0.00	SCAN L 11:50:20 0.20	0.20	0.78%
LOW	SX-13858	6.44	SCAN L 11:56:22 6.487	0.05	0.19%
MID	ALM-04955	12.52	SCAN L 11:53:08 12.44	0.08	0.31%
HIGH	ALM-047333	21.1	SCAN L 12:02:13 21.23	0.13	0.50%

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 11:56:22 AM

*** Unit 1 Run 3 Drift Lows ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	47.462	ppm	02 CO	25.394	ppm
04 NOx	49.812	ppm	01 CO2	12.344	%
00 O2	6.487	%	05 THC	-0.065	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	82.464	F			
50 Barometric Press.	26.454	In_Hg	51 Relative Humidity	9.913	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 12:02:13 PM

*** Unit 1 Run 3 Drift ~~LOWS~~ HIGHS ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	243.022	ppm	02 CO	125.467	ppm
04 NOx	247.120	ppm	01 CO2	0.078	%
00 O2	21.225	%	05 THC	0.896	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	84.428	F			
50 Barometric Press.	26.425	In_Hg	51 Relative Humidity	9.036	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

NO_x ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 3

DATE: 4/1/2003

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial -Final)	PERCENT DIFFERENCE
ZERO	ALM-048655	0.00	SCAN L 18:10:44 -0.02	0.02	0.01%
MID	ALM-046644	125.00	SCAN L 18:16:48 125	0	0.00%
HIGH	ALM-051745	250	SCAN L 18:23:36 249.97	0.03	0.01%
LOW	ALM-046015	50.8	SCAN L 18:19:52 52.31	1.51	0.60%

CO ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 3

DATE: 4/1/2003

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

GAS	CYLINDER NO.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	DIFFERENCE (Initial - Final)	PERCENT DIFFERENCE
ZERO	ALM-020757	0.00	SCAN L 18:10:44 -0.01	0.01	0.00%
MID	ALM-048950	59.30	SCAN L 18:16:48 59.44	0.14	0.07%
HIGH	ALM-049839	126.00	SCAN L 18:23:36 124.96	1.04	0.52%
LOW	SX-22599	25.60	SCAN L 18:19:52 25.14	0.46	0.23%

O_2 ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 3

DATE: 4/1/2003

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT
ZERO	ALM-020757	0.00	SCAN L 18:10:44 0.17	0.17	0.69%
LOW	SX-13858	6.44	SCAN L 18:19:52 6.448	0.01	0.03%
MID	ALM-04955	12.52	SCAN L 18:16:48 12.47	0.05	0.18%
HIGH	ALM-047333	21.1	SCAN L 18:23:36 21.08	0.02	0.10%

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 06:19:52 PM

*** Unit 2 Run 3 drift low***

Instrument	Value	Units	Instrument	Value	Units
03 NO	49.565	ppm	02 CO	25.137	ppm
04 NOx	52.311	ppm	01 CO2	12.264	%
00 O2	6.448	%	05 THC	0.141	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	83.297	F			
50 Barometric Press.	26.245	In_Hg	51 Relative Humidity	8.896	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 06:23:36 PM

*** Unit 2 Run 3 drift high***

Instrument	Value	Units	Instrument	Value	Units
03 NO	243.882	ppm	02 CO	124.964	ppm
04 NOx	249.974	ppm	01 CO2	1.073	%
00 O2	21.076	%	05 THC	0.977	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	82.769	F			
50 Barometric Press.	26.247	In_Hg	51 Relative Humidity	9.000	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Sample Line Leak Check

SAMPLE LINE LEAK CHECK

STATION: Vail
DATE: 4/1/2003

Pre-test Leak Check	Fail		
Time of Day	8:12		
Duration	1	MIN.	Pass
Initial Vacuum	-15	in. HG	
Final Vacuum	-15	in. HG	
Post-test Leak Check	Pass		
Time of Day	22:02:18		
Duration	1	MIN.	Pass
Initial Vacuum	-18	in. HG	
Final Vacuum	-18	in. HG	

System Integrity / Bias Check Forms and Raw Data

SAMPLE LINE INTEGRITY CHECK

STATION:	Vail	NO_x ANALYZER:	THERMO 42 H	O_2 ANALYZER:	SERVOMEX 1400	CO ANALYZER:	THERMO 48H	THC ANALYZER:	0
		S/N:	42H-54607-300	S/N:	01420B/842	S/N:	48H-54474-300	S/N:	0
DATE:	4/1/2003	RANGE:	250	RANGE:	25	RANGE:	200	RANGE:	0

PRE-TEST	NO_x Analyzer Zero Response		NO_x Analyzer Span Response		O2 Analyzer Zero Response		O2 Analyzer Span Response	
Calibration gas through calibration system (It)	scan time	7:23:37	scan time	7:19:27	scan time	7:23:37	scan time	7:19:27
	0.01	ppm	125.00	ppm	0.00	ppm	12.55	ppm
Calibration gas through complete sampling system (Ic)	scan time	8:16:35	scan time	8:25:29	scan time	8:31:49	scan time	8:34:35
	0.12	ppm	124.91	ppm	0.11	ppm	12.45	ppm
	Pass		Pass		Pass		Pass	
System Calibration Bias	0.04	%	0.04	%	0.054	%	0.05	%

POST-TEST	NO_x Analyzer Zero Response		NO_x Analyzer Span Response		O_2 Analyzer Zero Response		O_2 Analyzer Span Response	
Calibration gas through calibration system (It)	scan time	7:23:37	scan time	7:19:27	scan time	7:23:37	scan time	7:19:27
	0.01	ppm	125.00	ppm	0.05	ppm	12.45	ppm
Calibration gas through complete sampling system (Ic)	scan time	21:53:34	scan time	21:55:26	scan time	10:36:56	scan time	22:02:18
	0.62	ppm	124.26	ppm	0.26	ppm	12.43	ppm
	Pass		Pass		Pass		Pass	
System Calibration Bias	0.24	%	0.30	%	0.82	%	0.08	%

$$\text{System Calibration Bias} = \frac{\text{System Calibration Response} - \text{Analyzer Calibration Response}}{\text{Span}} \times 100$$

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:16:35 AM

*** Pre Bias NOx Zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.079	ppm	02 CO	1.066	ppm
04 NOx	0.124	ppm	01 CO2	0.084	%
00 O2	20.929	%	05 THC	-0.091	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	68.656	F			
50 Barometric Press.	26.545	In_Hg	51 Relative Humidity	16.375	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:25:29 AM

*** Pre Bias NOx Mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	125.385	ppm	02 CO	1.439	ppm
04 NOx	124.912	ppm	01 CO2	0.018	%
00 O2	2.767	%	05 THC	0.466	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	68.948	F			
50 Barometric Press.	26.545	In_Hg	51 Relative Humidity	16.140	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:27:08 AM

*** Pre Bias CO Zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	24.433	ppm	02 CO	2.043	ppm
04 NOx	27.945	ppm	01 CO2	0.011	%
00 O2	0.284	%	05 THC	-0.170	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	69.144	F			
50 Barometric Press.	26.544	In_Hg	51 Relative Humidity	16.019	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:29:13 AM

*** Pre Bias CO Mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.790	ppm	02 CO	61.165	ppm
04 NOx	0.614	ppm	01 CO2	0.010	%
00 O2	0.160	%	05 THC	-0.015	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	69.325	F			
50 Barometric Press.	26.543	In_Hg	51 Relative Humidity	16.002	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:31:49 AM

*** Pre Bias O2 Zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.597	ppm	02 CO	1.836	ppm
04 NOx	0.616	ppm	01 CO2	0.007	%
00 O2	0.111	%	05 THC	-0.173	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	69.666	F			
50 Barometric Press.	26.544	In_Hg	51 Relative Humidity	15.783	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:34:35 AM

*** Pre Bias O2 Mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.306	ppm	02 CO	0.909	ppm
04 NOx	0.616	ppm	01 CO2	0.052	%
00 O2	12.445	%	05 THC	-0.406	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	70.120	F			
50 Barometric Press.	26.545	In_Hg	51 Relative Humidity	15.628	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:53:34 PM

*** Unit 3 Run 3 bias nox zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.577	ppm	02 CO	1.521	ppm
04 NOx	0.616	ppm	01 CO2	0.087	%
00 O2	18.241	%	05 THC	0.072	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	71.708	F			
50 Barometric Press.	26.347	In_Hg	51 Relative Humidity	14.874	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:55:26 PM

*** Unit 3 Run 3 bias nox mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	124.867	ppm	02 CO	1.043	ppm
04 NOx	124.257	ppm	01 CO2	0.037	%
00 O2	3.178	%	05 THC	0.041	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	71.497	F			
50 Barometric Press.	26.348	In_Hg	51 Relative Humidity	16.786	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:56:52 PM

*** Unit 3 Run 3 bias CO and O2 zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	83.149	ppm	02 CO	1.334	ppm
04 NOx	100.115	ppm	01 CO2	0.022	%
00 O2	0.258	%	05 THC	0.088	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	70.436	F			
50 Barometric Press.	26.348	In_Hg	51 Relative Humidity	17.386	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:59:07 PM

*** Unit 3 Run 3 bias CO mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.754	ppm	02 CO	60.015	ppm
04 NOx	0.606	ppm	01 CO2	0.014	%
00 O2	0.117	%	05 THC	-0.236	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	69.321	F			
50 Barometric Press.	26.349	In_Hg	51 Relative Humidity	18.172	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:02:18 PM

*** Unit 3 Run 3 bias O2 mid ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.045	ppm	02 CO	0.614	ppm
04 NOx	0.615	ppm	01 CO2	0.057	%
00 O2	12.425	%	05 THC	0.062	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	69.094	F			
50 Barometric Press.	26.348	In_Hg	51 Relative Humidity	18.503	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).
Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Post Leak check

-18 10:04 - 10:05

Calibration / Drift Forms and Raw Data

NO_x ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 1

DATE: 04/01/03

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 7:23:37 0.014	SCAN 10:36:56 0.04	0.023	0.01%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 10:42:19 125.034	0.032	0.01%
Run 2	ZERO	ALM-020757	0	SCAN 7:23:37 0.014	SCAN 11:14:41 0.04	0.025	0.01%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 11:18:16 125.537	0.535	0.21%
Run 3	ZERO	ALM-020757	0	SCAN 7:23:37 0.014	SCAN 11:50:20 0.02	0.003	0.00%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 11:53:08 125.014	0.012	0.00%

O_2 ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 1

DATE: 04/01/03

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 7:23:37 0.05	SCAN 10:36:56 0.14	0.09	0.35%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.55	SCAN 10:42:19 12.53	-0.02	-0.07%
Run 2	ZERO	ALM-020757	0	SCAN 7:23:37 0.05	SCAN 11:14:41 0.23	0.18	0.71%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.55	SCAN 11:18:16 12.55	0.00	0.00%
Run 3	ZERO	ALM-020757	0	SCAN 7:23:37 0.05	SCAN 11:50:20 0.20	0.14	0.57%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.55	SCAN 11:53:08 12.44	0.10	0.41%

CO ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 1

DATE: 04/01/03

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-048655	0	SCAN 7:23:37 0.00	SCAN 10:36:56 0.15	0.146	0.07%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 10:42:19 59.54	0.10	0.05%
Run 2	ZERO	ALM-048655	0	SCAN 7:23:37 0.003	SCAN 11:14:41 0.00	0.00	0.00%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 11:18:16 59.46	0.02	0.01%
Run 3	ZERO	ALM-048655	0	SCAN 7:23:37 0.00	SCAN 11:50:20 0.02	0.015	0.01%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 11:53:08 59.50	0.05	0.03%

THC ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 1

DATE: 04/01/03

ANALYZER: 0
SERIAL NO.: 0
SPAN VALUE: 0

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0.00	SCAN 0 0	0.00	#DIV/0!
Run 2	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!
Run 3	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:36:56 AM

*** Unit 1 Run 1Drift Zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.036	ppm	02 CO	0.149	ppm
04 NOx	0.037	ppm	01 CO2	0.016	%
00 O2	0.139	%	05 THC	-0.380	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	78.218	F			
50 Barometric Press.	26.519	In_Hg	51 Relative Humidity	10.837	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:42:19 AM

*** Unit 1 Run 1Drift Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	123.092	ppm	02 CO	59.539	ppm
04 NOx	125.034	ppm	01 CO2	12.400	%
00 O2	12.527	%	05 THC	0.205	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	78.268	F			
50 Barometric Press.	26.516	In_Hg	51 Relative Humidity	10.967	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 11:14:41 AM

*** Unit 1 Run 2 Drift Zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.036	ppm	02 CO	0.004	ppm
04 NOx	0.039	ppm	01 CO2	0.019	%
00 O2	0.230	%	05 THC	-0.400	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	80.166	F			
50 Barometric Press.	26.493	In_Hg	51 Relative Humidity	10.300	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 11:18:16 AM

*** Unit 1 Run 2 Drift Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	123.443	ppm	02 CO	59.461	ppm
04 NOx	125.537	ppm	01 CO2	12.361	%
00 O2	12.540	%	05 THC	0.294	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	80.504	F			
50 Barometric Press.	26.487	In_Hg	51 Relative Humidity	10.283	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 11:50:20 AM

*** Unit 1 Run 3 Drift Zero ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.021	ppm	02 CO	0.018	ppm
04 NOx	0.017	ppm	01 CO2	0.014	%
00 O2	0.195	%	05 THC	-0.057	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	83.457	F			
50 Barometric Press.	26.458	In_Hg	51 Relative Humidity	9.620	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 11:53:08 AM

*** Unit 1 Run 3 Drift Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	121.168	ppm	02 CO	59.495	ppm
04 NOx	125.014	ppm	01 CO2	12.325	%
00 O2	12.443	%	05 THC	0.056	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	83.380	F			
50 Barometric Press.	26.459	In_Hg	51 Relative Humidity	9.667	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

NO_x ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 2

DATE: 04/01/03

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 11:50:20 0.017	SCAN 16:50:40 -0.03	0.047	0.02%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 16:53:31 124.778	0.224	0.09%
Run 2	ZERO	ALM-020757	0	SCAN 11:50:20 0.017	SCAN 17:34:50 -0.02	0.039	0.02%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 17:38:00 125.45	0.448	0.18%
Run 3	ZERO	ALM-020757	0	SCAN 11:50:20 0.017	SCAN 18:10:44 -0.02	0.033	0.01%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 18:16:48 125	0.002	0.00%

O_2 ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 2

DATE: 04/01/03

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 11:50:20 0.20	SCAN 16:50:40 0.15	0.04	0.18%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.44	SCAN 16:53:31 12.42	-0.02	-0.08%
Run 2	ZERO	ALM-020757	0	SCAN 11:50:20 0.20	SCAN 17:34:50 0.14	0.06	0.24%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.44	SCAN 17:38:00 12.38	0.07	0.27%
Run 3	ZERO	ALM-020757	0	SCAN 11:50:20 0.20	SCAN 18:10:44 0.17	0.02	0.09%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.44	SCAN 18:16:48 12.47	0.03	0.12%

CO ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 2

DATE: 04/01/03

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-048655	0	SCAN 11:50:20 0.02	SCAN 16:50:40 -0.01	0.029	0.01%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 16:53:31 59.23	0.21	0.10%
Run 2	ZERO	ALM-048655	0	SCAN 11:50:20 0.018	SCAN 17:34:50 -0.11	0.13	0.06%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 17:38:00 59.21	0.23	0.12%
Run 3	ZERO	ALM-048655	0	SCAN 11:50:20 0.02	SCAN 18:10:44 -0.01	0.026	0.01%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 18:16:48 59.44	0.00	0.00%

THC ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 2

DATE: 04/01/03

ANALYZER: 0
SERIAL NO.: 0
SPAN VALUE: 0

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0.00	SCAN 0 0	0.00	#DIV/0!
Run 2	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!
Run 3	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:50:40 PM

*** Unit 2 Run 1 Drift Zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	-0.029	ppm	02 CO	-0.011	ppm
04 NOx	-0.030	ppm	01 CO2	0.010	%
00 O2	0.151	%	05 THC	0.096	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.114	F			
50 Barometric Press.	26.265	In_Hg	51 Relative Humidity	8.287	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:53:31 PM

*** Unit 2 Run 1 Drift Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	112.421	ppm	02 CO	59.234	ppm
04 NOx	124.778	ppm	01 CO2	12.222	%
00 O2	12.423	%	05 THC	0.180	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.543	F			
50 Barometric Press.	26.253	In_Hg	51 Relative Humidity	8.160	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 05:34:50 PM

test Drift zero

*** Unit 2 Run 2 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	-0.024	ppm	02 CO	-0.107	ppm
04 NOx	-0.022	ppm	01 CO2	0.014	%
00 O2	0.135	%	05 THC	-0.441	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	85.120	F			
50 Barometric Press.	26.245	In_Hg	51 Relative Humidity	9.145	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 05:38:00 PM

*** Unit 2 post Run 2 Drift mids***

Instrument	Value	Units	Instrument	Value	Units
03 NO	121.642	ppm	02 CO	59.210	ppm
04 NOx	125.450	ppm	01 CO2	12.219	%
00 O2	12.376	%	05 THC	0.246	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	84.790	F			
50 Barometric Press.	26.246	In_Hg	51 Relative Humidity	9.116	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 06:10:44 PM

*** Unit 2 Run 3 drift zeros***

Instrument	Value	Units	Instrument	Value	Units
03 NO	-0.014	ppm	02 CO	-0.008	ppm
04 NOx	-0.016	ppm	01 CO2	0.013	%
00 O2	0.173	%	05 THC	-0.003	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	83.018	F			
50 Barometric Press.	26.248	In_Hg	51 Relative Humidity	8.999	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 06:16:48 PM

*** Unit 2 Run 3 drift mids***

Instrument	Value	Units	Instrument	Value	Units
03 NO	124.986	ppm	02 CO	59.437	ppm
04 NOx	125.000	ppm	01 CO2	12.266	%
00 O2	12.474	%	05 THC	0.007	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	83.228	F			
50 Barometric Press.	26.233	In_Hg	51 Relative Humidity	8.869	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

CO ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 3

DATE: 04/01/03

ANALYZER: THERMO 48H
SERIAL NO.: 48H-54474-300
SPAN VALUE: 200

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-048655	0	SCAN 18:10:44 -0.01	SCAN 20:34:17 0.01	0.014	0.01%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 20:36:54 59.49	0.04	0.02%
Run 2	ZERO	ALM-048655	0	SCAN 18:10:44 -0.008	SCAN 21:09:10 0.00	0.01	0.00%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 21:11:51 59.27	0.17	0.08%
Run 3	ZERO	ALM-048655	0	SCAN 18:10:44 -0.01	SCAN 21:42:25 0.07	0.08	0.04%
	MID	ALM-048950	126	SCAN 7:19:27 59.44	SCAN 21:45:12 59.46	0.02	0.01%

THC ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 3

DATE: 04/01/03

ANALYZER: 0
SERIAL NO.: 0
SPAN VALUE: 0

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0.00	SCAN 0 0	0.00	#DIV/0!
Run 2	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!
Run 3	ZERO	0	0	SCAN 0 0.00	SCAN 0 0.00	0.00	#DIV/0!
	MID	0	0	SCAN 0 0	SCAN 0 0	0.00	#DIV/0!

NO_x ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 3

DATE: 04/01/03

ANALYZER: THERMO 42 H
SERIAL NO.: 42H-54607-300
SPAN VALUE: 250

	GAS	CYLINDER No.	CYLINDER VALUE (ppm)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 18:10:44 -0.016	SCAN 20:34:17 0.02	0.033	0.01%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 20:36:54 125.013	0.011	0.00%
Run 2	ZERO	ALM-020757	0	SCAN 18:10:44 -0.016	SCAN 21:09:10 0.01	0.025	0.01%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 21:11:51 125.518	0.516	0.21%
Run 3	ZERO	ALM-020757	0	SCAN 18:10:44 -0.016	SCAN 21:42:25 0.04	0.052	0.02%
	MID	ALM-046644	250	SCAN 7:19:27 125.002	SCAN 21:45:12 125.675	0.673	0.27%

O_2 ANALYZER

ZERO AND CALIBRATION DATA

STATION: Vail
UNIT: 3

DATE: 04/01/03

ANALYZER: SERVOMEX 1400
SERIAL NO.: 01420B/842
SPAN VALUE: 25

	GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	FINAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT DRIFT
Run 1	ZERO	ALM-020757	0	SCAN 18:10:44 0.17	SCAN 20:34:17 0.15	0.02	0.08%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.47	SCAN 20:36:54 12.42	-0.06	-0.23%
Run 2	ZERO	ALM-020757	0	SCAN 18:10:44 0.17	SCAN 21:09:10 0.17	0.01	0.03%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.47	SCAN 21:11:51 12.41	0.06	0.25%
Run 3	ZERO	ALM-020757	0	SCAN 18:10:44 0.17	SCAN 21:42:25 0.17	0.00	0.00%
	MID	ALM-04955	12.52	SCAN 7:19:27 12.47	SCAN 21:45:12 12.43	0.04	0.18%

THC ANALYZER

LINEARITY CHECK

STATION: Vail
UNIT: 3

DATE: 4/1/2003

ANALYZER: 0
SERIAL NO.: 0
SPAN VALUE: 0

GAS	CYLINDER No.	CYLINDER VALUE (%)	INITIAL ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	PERCENT
ZERO	0.00	0.00	SCAN L 00:00:00 0	0	#DIV/0!
LOW	0.00	0.00	SCAN L 12:00:00 AM 0	0	#DIV/0!
MID	0.00	0.00	SCAN L 12:00:00 AM 0	0	#DIV/0!
HIGH	0.00	0.00	SCAN L 0 0	0	#DIV/0!

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:34:17 PM

*** Unit 3 Run 1 Drift Zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.021	ppm	02 CO	0.006	ppm
04 NOx	0.017	ppm	01 CO2	0.020	%
00 O2	0.153	%	05 THC	-0.120	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.382	F			
50 Barometric Press.	26.292	In_Hg	51 Relative Humidity	12.756	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:36:54 PM

*** Unit 3 Run 1 Drift Mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	120.832	ppm	02 CO	59.485	ppm
04 NOx	125.013	ppm	01 CO2	12.251	%
00 O2	12.417	%	05 THC	-0.021	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.235	F			
50 Barometric Press.	26.294	In_Hg	51 Relative Humidity	12.831	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:09:10 PM

*** Unit 3 Run 2 Drift zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.010	ppm	02 CO	0.000	ppm
04 NOx	0.009	ppm	01 CO2	0.017	%
00 O2	0.165	%	05 THC	0.083	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.428	F			
50 Barometric Press.	26.317	In_Hg	51 Relative Humidity	13.148	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:11:51 PM

*** Unit 3 Run 2 Drift mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	123.732	ppm	02 CO	59.273	ppm
04 NOx	125.518	ppm	01 CO2	12.258	%
00 O2	12.412	%	05 THC	-0.001	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.389	F			
50 Barometric Press.	26.319	In_Hg	51 Relative Humidity	13.166	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:42:25 PM

*** Unit 3 Run 3 Drift zeros ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	0.038	ppm	02 CO	0.072	ppm
04 NOx	0.036	ppm	01 CO2	0.022	%
00 O2	0.174	%	05 THC	-0.472	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	72.820	F			
50 Barometric Press.	26.341	In_Hg	51 Relative Humidity	14.310	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:45:12 PM

*** Unit 3 Run 3 Drift mids ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	124.022	ppm	02 CO	59.459	ppm
04 NOx	125.675	ppm	01 CO2	12.272	%
00 O2	12.430	%	05 THC	0.462	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	72.719	F			
50 Barometric Press.	26.343	In_Hg	51 Relative Humidity	14.419	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:47:47 PM

*** Unit 3 Run 3 Drift lows ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	50.597	ppm	02 CO	25.570	ppm
04 NOx	52.776	ppm	01 CO2	0.084	%
00 O2	6.511	%	05 THC	-0.059	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	72.277	F			
50 Barometric Press.	26.346	In_Hg	51 Relative Humidity	14.621	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:50:42 PM

*** Unit 3 Run 3 Drift high ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	242.222	ppm	02 CO	125.603	ppm
04 NOx	252.490	ppm	01 CO2	0.105	%
00 O2	20.981	%	05 THC	0.568	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	72.106	F			
50 Barometric Press.	26.348	In_Hg	51 Relative Humidity	14.715	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 0.25 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Section 3

Raw Data – Unit 1

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:28:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.537	ppm	02 CO	29.841	ppm
04 NOx	42.108	ppm	01 CO2	1.587	%
00 O2	18.311	%	05 THC	0.041	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.512	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	12.167	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).
Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:31:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	36.014	ppm	02 CO	23.853	ppm
04 NOx	42.244	ppm	01 CO2	1.576	%
00 O2	18.324	%	05 THC	-0.101	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.788	F			
50 Barometric Press.	26.537	In_Hg	51 Relative Humidity	12.070	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:34:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.890	ppm	02 CO	22.601	ppm
04 NOx	42.183	ppm	01 CO2	1.578	%
00 O2	18.322	%	05 THC	-0.064	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.826	F			
50 Barometric Press.	26.536	In_Hg	51 Relative Humidity	12.077	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:37:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.067	ppm	02 CO	25.288	ppm
04 NOx	42.243	ppm	01 CO2	1.587	%
00 O2	18.304	%	05 THC	0.044	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.918	F			
50 Barometric Press.	26.535	In_Hg	51 Relative Humidity	12.219	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).
Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:40:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.671	ppm	02 CO	27.890	ppm
04 NOx	41.707	ppm	01 CO2	1.557	%
00 O2	18.345	%	05 THC	-0.104	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.329	F			
50 Barometric Press.	26.536	In_Hg	51 Relative Humidity	12.168	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:43:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.897	ppm	02 CO	30.187	ppm
04 NOx	41.899	ppm	01 CO2	1.566	%
00 O2	18.331	%	05 THC	-0.061	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.171	F			
50 Barometric Press.	26.536	In_Hg	51 Relative Humidity	11.928	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:46:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.423	ppm	02 CO	26.233	ppm
04 NOx	41.866	ppm	01 CO2	1.562	%
00 O2	18.334	%	05 THC	0.039	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.570	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	11.559	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).
Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:49:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.124	ppm	02 CO	26.447	ppm
04 NOx	41.591	ppm	01 CO2	1.555	%
00 O2	18.346	%	05 THC	-0.107	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.076	F			
50 Barometric Press.	26.538	In_Hg	51 Relative Humidity	11.755	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:52:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.440	ppm	02 CO	25.541	ppm
04 NOx	41.423	ppm	01 CO2	1.542	%
00 O2	18.365	%	05 THC	-0.062	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.812	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	11.926	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:55:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.864	ppm	02 CO	29.569	ppm
04 NOx	41.882	ppm	01 CO2	1.556	%
00 O2	18.342	%	05 THC	0.039	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.327	F			
50 Barometric Press.	26.541	In_Hg	51 Relative Humidity	11.857	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 09:58:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.689	ppm	02 CO	28.655	ppm
04 NOx	41.821	ppm	01 CO2	1.558	%
00 O2	18.337	%	05 THC	-0.105	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.102	F			
50 Barometric Press.	26.542	In_Hg	51 Relative Humidity	11.439	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:01:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.389	ppm	02 CO	26.832	ppm
04 NOx	41.857	ppm	01 CO2	1.552	%
00 O2	18.339	%	05 THC	-0.062	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.557	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	11.165	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:04:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.065	ppm	02 CO	23.372	ppm
04 NOx	41.538	ppm	01 CO2	1.525	%
00 O2	18.380	%	05 THC	0.038	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.546	F			
50 Barometric Press.	26.540	In_Hg	51 Relative Humidity	11.144	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:07:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.438	ppm	02 CO	29.160	ppm
04 NOx	41.399	ppm	01 CO2	1.533	%
00 O2	18.371	%	05 THC	-0.107	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.992	F			
50 Barometric Press.	26.539	In_Hg	51 Relative Humidity	11.367	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:10:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.213	ppm	02 CO	27.399	ppm
04 NOx	41.781	ppm	01 CO2	1.543	%
00 O2	18.347	%	05 THC	-0.063	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.778	F			
50 Barometric Press.	26.536	In_Hg	51 Relative Humidity	11.367	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:13:54 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.835	ppm	02 CO	22.166	ppm
04 NOx	42.157	ppm	01 CO2	1.545	%
00 O2	18.347	%	05 THC	0.041	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.627	F			
50 Barometric Press.	26.534	In_Hg	51 Relative Humidity	11.487	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:23:15 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.533	ppm	02 CO	25.534	ppm
04 NOx	43.018	ppm	01 CO2	1.555	%
00 O2	18.316	%	05 THC	-0.064	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.279	F			
50 Barometric Press.	26.531	In_Hg	51 Relative Humidity	11.252	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:26:15 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	36.642	ppm	02 CO	23.830	ppm
04 NOx	43.679	ppm	01 CO2	1.573	%
00 O2	18.287	%	05 THC	-0.096	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	78.018	F			
50 Barometric Press.	26.530	In_Hg	51 Relative Humidity	10.999	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:29:15 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	36.723	ppm	02 CO	21.211	ppm
04 NOx	43.430	ppm	01 CO2	1.574	%
00 O2	18.288	%	05 THC	0.044	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	78.565	F			
50 Barometric Press.	26.530	In_Hg	51 Relative Humidity	10.918	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 10:32:15 AM

*** Unit 1 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	36.523	ppm	02 CO	22.520	ppm
04 NOx	43.481	ppm	01 CO2	1.590	%
00 O2	18.257	%	05 THC	-0.059	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	79.233	F			
50 Barometric Press.	26.526	In_Hg	51 Relative Humidity	10.637	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Filename	Date	Time	0: O2 (%)	1: CO2 (%	2: CO (ppn	3: NO (ppn	4: NOx (pp	5: THC (pp	50: Barom	51: Relativ	52: Amb. Temp. (F)
01092858.I	4/1/03	09:28:58 AM	18.31	1.59	29.84	34.54	42.11	0.04	26.54	12.17	74.51
01093158.I	4/1/03	09:31:58 AM	18.32	1.58	23.85	36.01	42.24	-0.10	26.54	12.07	74.79
01093458.I	4/1/03	09:34:58 AM	18.32	1.58	22.60	35.89	42.18	-0.06	26.54	12.08	74.83
01093758.I	4/1/03	09:37:58 AM	18.30	1.59	25.29	35.07	42.24	0.04	26.53	12.22	74.92
01094058.I	4/1/03	09:40:58 AM	18.35	1.56	27.89	33.67	41.71	-0.10	26.54	12.17	75.33
01094358.I	4/1/03	09:43:58 AM	18.33	1.57	30.19	33.90	41.90	-0.06	26.54	11.93	76.17
01094658.I	4/1/03	09:46:58 AM	18.33	1.56	26.23	34.42	41.87	0.04	26.54	11.56	76.57
01094958.I	4/1/03	09:49:58 AM	18.35	1.55	26.45	34.12	41.59	-0.11	26.54	11.76	76.08
01095258.I	4/1/03	09:52:58 AM	18.36	1.54	25.54	34.44	41.42	-0.06	26.54	11.93	75.81
01095558.I	4/1/03	09:55:58 AM	18.34	1.56	29.57	33.86	41.88	0.04	26.54	11.86	76.33
01095858.I	4/1/03	09:58:58 AM	18.34	1.56	28.65	33.69	41.82	-0.10	26.54	11.44	77.10
01100158.I	4/1/03	10:01:58 AM	18.34	1.55	26.83	34.39	41.86	-0.06	26.54	11.17	77.56
01100458.I	4/1/03	10:04:58 AM	18.38	1.52	23.37	35.07	41.54	0.04	26.54	11.14	77.55
01100758.I	4/1/03	10:07:58 AM	18.37	1.53	29.16	33.44	41.40	-0.11	26.54	11.37	76.99
01101058.I	4/1/03	10:10:58 AM	18.35	1.54	27.40	34.21	41.78	-0.06	26.54	11.37	76.78
01101358.I	4/1/03	10:13:58 AM	18.35	1.54	22.17	35.84	42.16	0.04	26.53	11.49	76.63
01102319.I	4/1/03	10:23:19 AM	18.32	1.55	25.53	35.53	43.02	-0.06	26.53	11.25	77.28
01102619.I	4/1/03	10:26:19 AM	18.29	1.57	23.83	36.64	43.68	-0.10	26.53	11.00	78.02
01102919.I	4/1/03	10:29:19 AM	18.29	1.57	21.21	36.72	43.43	0.04	26.53	10.92	78.57
01103219.I	4/1/03	10:32:19 AM	18.26	1.59	22.52	36.52	43.48	-0.06	26.53	10.64	79.23

Unit 1 run 1

Data Review (Page 1)

Average of 20 Scans Generated on 4/1/03 at 10:33:08 AM

Type	Name	Value	Units
Analog 0	O2	18.33	%
Analog 1	CO2	1.56	%
Analog 2	CO	25.91	ppm
Analog 3	NO	34.90	ppm
Analog 4	NOx	42.17	ppm
Analog 5	THC	-0.04	ppm
Analog 50	Barometric Press.	26.54	In_Hg
Analog 51	Relative Humidity	11.58	% RH
Analog 52	Amb. Temp.	76.55	F

Unit 1 run 2

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 11:11:48 AM

Type	Name	Value	Units
Analog 0	O2	18.27	%
Analog 1	CO2	1.57	%
Analog 2	CO	24.39	ppm
Analog 3	NO	35.68	ppm
Analog 4	NOx	43.15	ppm
Analog 5	THC	-0.03	ppm
Analog 50	Barometric Press.	26.51	In_Hg
Analog 51	Relative Humidity	10.45	% RH
Analog 52	Amb. Temp.	79.93	F

Unit 1 run 3

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 11:47:12 AM

Type	Name	Value	Units
Analog 0	O2	18.25	%
Analog 1	CO2	1.57	%
Analog 2	CO	24.92	ppm
Analog 3	NO	35.61	ppm
Analog 4	NOx	43.21	ppm
Analog 5	THC	-0.04	ppm
Analog 50	Barometric Press.	26.47	In_Hg
Analog 51	Relative Humidity	9.70	% RH
Analog 52	Amb. Temp.	82.16	F

01092858.I	4/1/2003	9:28:58 AM	18.31	1.59	29.84	34.54	42.11	0.04	0.00	0.00	0.00	26.54	12.17	74.51	0.00	0.00	
01093158.I	4/1/2003	9:31:58 AM	18.32	1.58	23.85	36.01	42.24	-0.10	0.00	0.00	0.00	26.54	12.07	74.79	0.00	0.00	
01093458.I	4/1/2003	9:34:58 AM	18.32	1.58	22.60	35.89	42.18	-0.06	0.00	0.00	0.00	26.54	12.08	74.83	0.00	0.00	
01093758.I	4/1/2003	9:37:58 AM	18.30	1.59	25.29	35.07	42.24	0.04	0.00	0.00	0.00	26.53	12.22	74.92	0.00	0.00	
01094058.I	4/1/2003	9:40:58 AM	18.35	1.56	27.89	33.67	41.71	-0.10	0.00	0.00	0.00	26.54	12.17	75.33	0.00	0.00	
01094358.I	4/1/2003	9:43:58 AM	18.33	1.57	30.19	33.90	41.90	-0.06	0.00	0.00	0.00	26.54	11.93	76.17	0.00	0.00	
01094658.I	4/1/2003	9:46:58 AM	18.33	1.56	26.23	34.42	41.87	0.04	0.00	0.00	0.00	26.54	11.56	76.57	0.00	0.00	
01094958.I	4/1/2003	9:49:58 AM	18.35	1.55	26.45	34.12	41.59	-0.11	0.00	0.00	0.00	26.54	11.76	76.08	0.00	0.00	
01095258.I	4/1/2003	9:52:58 AM	18.36	1.54	25.54	34.44	41.42	-0.06	0.00	0.00	0.00	26.54	11.93	75.81	0.00	0.00	
01095558.I	4/1/2003	9:55:58 AM	18.34	1.56	29.57	33.86	41.88	0.04	0.00	0.00	0.00	26.54	11.86	76.33	0.00	0.00	Unit 1 Run 1
01095858.I	4/1/2003	9:58:58 AM	18.34	1.56	28.65	33.69	41.82	-0.10	0.00	0.00	0.00	26.54	11.44	77.10	0.00	0.00	
01100158.I	4/1/2003	10:01:58 AM	18.34	1.55	26.83	34.39	41.86	-0.06	0.00	0.00	0.00	26.54	11.17	77.56	0.00	0.00	
01100458.I	4/1/2003	10:04:58 AM	18.38	1.52	23.37	35.07	41.54	0.04	0.00	0.00	0.00	26.54	11.14	77.55	0.00	0.00	
01100758.I	4/1/2003	10:07:58 AM	18.37	1.53	29.16	33.44	41.40	-0.11	0.00	0.00	0.00	26.54	11.37	76.99	0.00	0.00	
01101058.I	4/1/2003	10:10:58 AM	18.35	1.54	27.40	34.21	41.78	-0.06	0.00	0.00	0.00	26.54	11.37	76.78	0.00	0.00	
01101358.I	4/1/2003	10:13:58 AM	18.35	1.54	22.17	35.84	42.16	0.04	0.00	0.00	0.00	26.53	11.49	76.63	0.00	0.00	
01102319.I	4/1/2003	10:23:19 PM	18.32	1.55	25.53	35.53	43.02	-0.06	0.00	0.00	0.00	26.53	11.25	77.28	0.00	0.00	
01102619.I	4/1/2003	10:26:19 PM	18.29	1.57	23.83	36.64	43.68	-0.10	0.00	0.00	0.00	26.53	11.00	78.02	0.00	0.00	
01102919.I	4/1/2003	12:29:19 PM	18.29	1.57	21.21	36.72	43.43	0.04	0.00	0.00	0.00	26.53	10.92	78.57	0.00	0.00	
01103219.I	4/1/2003	12:32:19 PM	18.26	1.59	22.52	36.52	43.48	-0.06	0.00	0.00	0.00	26.53	10.64	79.23	0.00	0.00	
Average			18.33	1.56	25.91	34.90	42.17	-0.04	0.00	0.00	0.00	26.54	11.58	76.55	0.00	0.00	
01104936.I	4/1/2003	10:49:36 PM	18.24	1.60	23.60	36.00	43.14	0.05	0.00	0.00	0.00	26.51	10.59	79.74	0.00	0.00	
01105236.I	4/1/2003	10:52:36 PM	18.24	1.59	24.89	35.91	43.47	-0.09	0.00	0.00	0.00	26.51	10.28	80.20	0.00	0.00	
01105536.I	4/1/2003	10:55:36 PM	18.26	1.58	26.37	35.48	43.42	-0.07	0.00	0.00	0.00	26.51	10.50	79.79	0.00	0.00	
01105836.I	4/1/2003	10:58:36 PM	18.26	1.58	23.29	36.23	43.47	0.06	0.00	0.00	0.00	26.51	10.24	80.28	0.00	0.00	Unit 1 Run 2
01110136.I	4/1/2003	11:01:36 PM	18.33	1.53	22.36	35.06	42.35	-0.09	0.00	0.00	0.00	26.50	10.32	80.09	0.00	0.00	
01110436.I	4/1/2003	11:04:36 PM	18.27	1.57	28.45	34.36	42.84	-0.09	0.00	0.00	0.00	26.50	10.60	79.79	0.00	0.00	
01110736.I	4/1/2003	11:07:36 PM	18.27	1.56	22.75	36.36	43.31	0.05	0.00	0.00	0.00	26.50	10.65	79.60	0.00	0.00	
01111036.I	4/1/2003	11:10:36 PM	18.28	1.57	23.41	36.04	43.16	-0.07	0.00	0.00	0.00	26.50	10.45	79.98	0.00	0.00	
Average			18.27	1.57	24.39	35.68	43.15	-0.03	0.00	0.00	0.00	26.51	10.45	79.93	0.00	0.00	
01112545.I	4/1/2003	11:25:45 AM	18.24	1.60	25.29	35.85	43.36	-0.09	0.00	0.00	0.00	26.48	9.87	81.26	0.00	0.00	
01112845.I	4/1/2003	11:28:45 AM	18.24	1.58	23.60	36.11	43.33	0.04	0.00	0.00	0.00	26.48	9.61	82.34	0.00	0.00	
01113145.I	4/1/2003	11:31:45 AM	18.25	1.58	24.10	35.83	43.36	-0.07	0.00	0.00	0.00	26.47	9.44	82.52	0.00	0.00	
01113445.I	4/1/2003	11:34:45 AM	18.26	1.57	24.10	35.70	43.16	-0.09	0.00	0.00	0.00	26.47	9.60	82.16	0.00	0.00	Unit 1 Run 3
01113745.I	4/1/2003	11:37:45 AM	18.28	1.55	25.34	35.24	42.65	0.03	0.00	0.00	0.00	26.47	9.68	82.15	0.00	0.00	
01114045.I	4/1/2003	11:40:45 AM	18.26	1.56	27.38	34.90	43.19	-0.05	0.00	0.00	0.00	26.47	9.96	81.89	0.00	0.00	
01114345.I	4/1/2003	11:43:45 AM	18.24	1.58	24.78	35.67	43.40	-0.11	0.00	0.00	0.00	26.47	9.73	82.38	0.00	0.00	
01114645.I	4/1/2003	11:46:45 AM	18.24	1.57	24.77	35.58	43.26	0.03	0.00	0.00	0.00	26.46	9.72	82.57	0.00	0.00	
Average			18.25	1.57	24.92	35.61	43.21	-0.04	0.00	0.00	0.00	26.47	9.70	82.16	0.00	0.00	

Section 4

Raw Data – Unit 2

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 03:48:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.381	ppm	02 CO	25.517	ppm
04 NOx	41.039	ppm	01 CO2	1.515	%
00 O2	18.207	%	05 THC	-0.094	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.598	F			
50 Barometric Press.	26.279	In_Hg	51 Relative Humidity	8.109	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 03:51:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.974	ppm	02 CO	25.822	ppm
04 NOx	40.950	ppm	01 CO2	1.507	%
00 O2	18.222	%	05 THC	0.021	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.220	F			
50 Barometric Press.	26.280	In_Hg	51 Relative Humidity	8.154	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 03:54:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.980	ppm	02 CO	25.014	ppm
04 NOx	41.083	ppm	01 CO2	1.501	%
00 O2	18.233	%	05 THC	-0.042	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	86.869	F			
50 Barometric Press.	26.282	In_Hg	51 Relative Humidity	8.272	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 03:57:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.761	ppm	02 CO	25.768	ppm
04 NOx	41.234	ppm	01 CO2	1.506	%
00 O2	18.226	%	05 THC	-0.129	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.823	F			
50 Barometric Press.	26.273	In_Hg	51 Relative Humidity	7.954	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:00:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.265	ppm	02 CO	24.318	ppm
04 NOx	39.782	ppm	01 CO2	1.450	%
00 O2	18.302	%	05 THC	-0.020	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.255	F			
50 Barometric Press.	26.272	In_Hg	51 Relative Humidity	7.989	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:03:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.774	ppm	02 CO	25.210	ppm
04 NOx	41.111	ppm	01 CO2	1.484	%
00 O2	18.254	%	05 THC	0.004	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.260	F			
50 Barometric Press.	26.272	In_Hg	51 Relative Humidity	7.964	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:06:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.132	ppm	02 CO	24.688	ppm
04 NOx	41.238	ppm	01 CO2	1.497	%
00 O2	18.238	%	05 THC	-0.140	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.094	F			
50 Barometric Press.	26.272	In_Hg	51 Relative Humidity	8.005	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:09:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.970	ppm	02 CO	24.495	ppm
04 NOx	41.233	ppm	01 CO2	1.494	%
00 O2	18.239	%	05 THC	-0.047	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.488	F			
50 Barometric Press.	26.272	In_Hg	51 Relative Humidity	7.995	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:12:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.060	ppm	02 CO	24.752	ppm
04 NOx	41.052	ppm	01 CO2	1.481	%
00 O2	18.254	%	05 THC	0.024	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.790	F			
50 Barometric Press.	26.271	In_Hg	51 Relative Humidity	7.928	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:15:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.050	ppm	02 CO	24.669	ppm
04 NOx	41.238	ppm	01 CO2	1.478	%
00 O2	18.264	%	05 THC	-0.116	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.643	F			
50 Barometric Press.	26.267	In_Hg	51 Relative Humidity	7.951	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:18:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.715	ppm	02 CO	25.627	ppm
04 NOx	41.073	ppm	01 CO2	1.479	%
00 O2	18.262	%	05 THC	-0.079	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.797	F			
50 Barometric Press.	26.266	In_Hg	51 Relative Humidity	7.863	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:21:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.859	ppm	02 CO	25.695	ppm
04 NOx	41.236	ppm	01 CO2	1.491	%
00 O2	18.247	%	05 THC	0.034	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.769	F			
50 Barometric Press.	26.272	In_Hg	51 Relative Humidity	7.924	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:24:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	32.727	ppm	02 CO	24.983	ppm
04 NOx	40.311	ppm	01 CO2	1.429	%
00 O2	18.340	%	05 THC	-0.106	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.812	F			
50 Barometric Press.	26.275	In_Hg	51 Relative Humidity	7.919	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:27:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.744	ppm	02 CO	25.757	ppm
04 NOx	41.229	ppm	01 CO2	1.471	%
00 O2	18.277	%	05 THC	-0.097	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.923	F			
50 Barometric Press.	26.268	In_Hg	51 Relative Humidity	7.889	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:30:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.960	ppm	02 CO	24.640	ppm
04 NOx	41.229	ppm	01 CO2	1.479	%
00 O2	18.259	%	05 THC	0.034	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.723	F			
50 Barometric Press.	26.266	In_Hg	51 Relative Humidity	8.018	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:33:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.226	ppm	02 CO	24.356	ppm
04 NOx	41.231	ppm	01 CO2	1.485	%
00 O2	18.255	%	05 THC	-0.081	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.857	F			
50 Barometric Press.	26.266	In_Hg	51 Relative Humidity	8.032	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:36:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.779	ppm	02 CO	24.504	ppm
04 NOx	40.860	ppm	01 CO2	1.457	%
00 O2	18.288	%	05 THC	-0.113	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.878	F			
50 Barometric Press.	26.263	In_Hg	51 Relative Humidity	8.046	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:39:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.932	ppm	02 CO	24.854	ppm
04 NOx	41.228	ppm	01 CO2	1.464	%
00 O2	18.284	%	05 THC	0.025	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.544	F			
50 Barometric Press.	26.269	In_Hg	51 Relative Humidity	8.068	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:42:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.250	ppm	02 CO	24.320	ppm
04 NOx	41.231	ppm	01 CO2	1.478	%
00 O2	18.268	%	05 THC	-0.062	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	87.005	F			
50 Barometric Press.	26.266	In_Hg	51 Relative Humidity	8.151	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 04:45:51 PM

*** Unit 2 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.375	ppm	02 CO	23.987	ppm
04 NOx	41.315	ppm	01 CO2	1.482	%
00 O2	18.258	%	05 THC	-0.123	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	86.951	F			
50 Barometric Press.	26.267	In_Hg	51 Relative Humidity	8.270	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Unit 2 run 2

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 05:32:34 PM

Type	Name	Value	Units
Analog 0	O2	18.27	%
Analog 1	CO2	1.48	%
Analog 2	CO	24.33	ppm
Analog 3	NO	33.63	ppm
Analog 4	NOx	40.73	ppm
Analog 5	THC	-0.06	ppm
Analog 50	Barometric Press.	26.26	In_Hg
Analog 51	Relative Humidity	8.81	% RH
Analog 52	Amb. Temp.	86.13	F

5:09:29 – 5:30:29

Unit 2 run 3

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 06:08:04 PM

Type	Name	Value	Units
Analog 0	O2	18.28	%
Analog 1	CO2	1.47	%
Analog 2	CO	25.09	ppm
Analog 3	NO	33.29	ppm
Analog 4	NOx	40.50	ppm
Analog 5	THC	-0.06	ppm
Analog 50	Barometric Press.	26.25	In_Hg
Analog 51	Relative Humidity	8.92	% RH
Analog 52	Amb. Temp.	84.23	F

01154855.I	4/1/2003	3:48:55 PM	18.21	1.52	25.52	34.38	41.04	-0.09	0.00	0.00	0.00	26.28	8.11	87.60	0.00	0.00	
01155155.I	4/1/2003	3:51:55 PM	18.22	1.51	25.82	33.97	40.95	0.02	0.00	0.00	0.00	26.28	8.15	87.22	0.00	0.00	
01155455.I	4/1/2003	3:54:55 PM	18.23	1.50	25.01	33.98	41.08	-0.04	0.00	0.00	0.00	26.28	8.27	86.87	0.00	0.00	
01155755.I	4/1/2003	3:57:55 PM	18.23	1.51	25.77	33.76	41.23	-0.13	0.00	0.00	0.00	26.27	7.95	87.82	0.00	0.00	
01160055.I	4/1/2003	4:00:55 PM	18.30	1.45	24.32	33.26	39.78	-0.02	0.00	0.00	0.00	26.27	7.99	87.26	0.00	0.00	
01160355.I	4/1/2003	4:03:55 PM	18.25	1.48	25.21	33.77	41.11	0.00	0.00	0.00	0.00	26.27	7.96	87.26	0.00	0.00	
01160655.I	4/1/2003	4:06:55 PM	18.24	1.50	24.69	34.13	41.24	-0.14	0.00	0.00	0.00	26.27	8.01	87.09	0.00	0.00	
01160955.I	4/1/2003	4:09:55 PM	18.24	1.49	24.49	33.97	41.23	-0.05	0.00	0.00	0.00	26.27	7.99	87.49	0.00	0.00	
01161255.I	4/1/2003	4:12:55 PM	18.25	1.48	24.75	34.06	41.05	0.02	0.00	0.00	0.00	26.27	7.93	87.79	0.00	0.00	
01161555.I	4/1/2003	4:15:55 PM	18.26	1.48	24.67	34.05	41.24	-0.12	0.00	0.00	0.00	26.27	7.95	87.64	0.00	0.00	
01161855.I	4/1/2003	4:18:55 PM	18.26	1.48	25.63	33.71	41.07	-0.08	0.00	0.00	0.00	26.27	7.86	87.80	0.00	0.00	
01162155.I	4/1/2003	4:21:55 PM	18.25	1.49	25.70	33.86	41.24	0.03	0.00	0.00	0.00	26.27	7.92	87.77	0.00	0.00	
01162455.I	4/1/2003	4:24:55 PM	18.34	1.43	24.98	32.73	40.31	-0.11	0.00	0.00	0.00	26.27	7.92	87.81	0.00	0.00	Unit 2 Run 1
01162755.I	4/1/2003	4:27:55 PM	18.28	1.47	25.76	33.74	41.23	-0.10	0.00	0.00	0.00	26.27	7.89	87.92	0.00	0.00	
01163055.I	4/1/2003	4:30:55 PM	18.26	1.48	24.64	33.96	41.23	0.03	0.00	0.00	0.00	26.27	8.02	87.72	0.00	0.00	
01163355.I	4/1/2003	4:33:55 PM	18.25	1.48	24.36	34.23	41.23	-0.08	0.00	0.00	0.00	26.27	8.03	87.86	0.00	0.00	
01163655.I	4/1/2003	4:36:55 PM	18.29	1.46	24.50	33.78	40.86	-0.11	0.00	0.00	0.00	26.26	8.05	87.88	0.00	0.00	
01163955.I	4/1/2003	4:39:55 PM	18.28	1.46	24.85	33.93	41.23	0.02	0.00	0.00	0.00	26.27	8.07	87.54	0.00	0.00	
01164255.I	4/1/2003	4:42:55 PM	18.27	1.48	24.32	34.25	41.23	-0.06	0.00	0.00	0.00	26.27	8.15	87.00	0.00	0.00	
01164555.I	4/1/2003	4:45:55 PM	18.26	1.48	23.99	34.38	41.31	-0.12	0.00	0.00	0.00	26.27	8.27	86.95	0.00	0.00	
Average			18.26	1.48	24.95	33.90	41.05	-0.06	0.00	0.00	0.00	26.27	8.03	87.51	0.00	0.00	
01170929.I	4/1/2003	5:09:29 PM	18.24	1.51	23.86	33.89	41.17	-0.05	0.00	0.00	0.00	26.25	8.55	86.68	0.00	0.00	
01171229.I	4/1/2003	5:12:29 PM	18.26	1.48	24.26	33.68	40.67	-0.13	0.00	0.00	0.00	26.26	8.68	86.49	0.00	0.00	
01171529.I	4/1/2003	5:15:29 PM	18.26	1.48	24.88	33.42	40.67	0.00	0.00	0.00	0.00	26.26	8.80	86.13	0.00	0.00	
01171829.I	4/1/2003	5:18:29 PM	18.27	1.48	24.11	33.89	40.67	-0.02	0.00	0.00	0.00	26.26	8.81	86.14	0.00	0.00	
01172129.I	4/1/2003	5:21:29 PM	18.27	1.48	24.32	33.64	40.67	-0.14	0.00	0.00	0.00	26.26	8.86	86.02	0.00	0.00	
01172429.I	4/1/2003	5:24:29 PM	18.28	1.47	24.16	33.71	40.67	-0.01	0.00	0.00	0.00	26.26	8.95	85.62	0.00	0.00	Unit 2 Run 2
01172729.I	4/1/2003	5:27:29 PM	18.28	1.47	24.32	33.48	40.67	-0.01	0.00	0.00	0.00	26.25	8.95	85.89	0.00	0.00	
01173029.I	4/1/2003	5:30:29 PM	18.29	1.47	24.74	33.29	40.64	-0.14	0.00	0.00	0.00	26.25	8.88	86.03	0.00	0.00	
Average			18.27	1.48	24.33	33.63	40.73	-0.06	0.00	0.00	0.00	26.26	8.81	86.12	0.00	0.00	
01174431.I	4/1/2003	5:44:31 PM	18.25	1.49	24.88	33.38	40.68	-0.14	0.00	0.00	0.00	26.25	8.88	85.19	0.00	0.00	
01174731.I	4/1/2003	5:47:31 PM	18.26	1.48	24.59	33.43	40.64	0.00	0.00	0.00	0.00	26.25	9.05	84.45	0.00	0.00	
01175031.I	4/1/2003	5:50:31 PM	18.28	1.47	25.38	33.14	40.46	-0.02	0.00	0.00	0.00	26.25	8.99	84.68	0.00	0.00	
01175331.I	4/1/2003	5:53:31 PM	18.28	1.47	25.19	33.27	40.62	-0.14	0.00	0.00	0.00	26.25	8.85	84.92	0.00	0.00	
01175631.I	4/1/2003	5:56:31 PM	18.28	1.47	24.98	33.38	40.62	-0.02	0.00	0.00	0.00	26.24	8.77	84.37	0.00	0.00	
01175931.I	4/1/2003	5:59:31 PM	18.29	1.47	24.91	33.35	40.37	0.00	0.00	0.00	0.00	26.25	8.94	83.44	0.00	0.00	Unit 2 Run 3
01180231.I	4/1/2003	6:02:31 PM	18.30	1.47	25.26	33.18	40.27	-0.14	0.00	0.00	0.00	26.25	8.95	83.36	0.00	0.00	
01180531.I	4/1/2003	6:05:31 PM	18.29	1.47	25.53	33.21	40.39	-0.04	0.00	0.00	0.00	26.25	8.95	83.47	0.00	0.00	
Average			18.28	1.47	25.09	33.29	40.50	-0.06	0.00	0.00	0.00	26.25	8.92	84.23	0.00	0.00	

Section 5

Raw Data – Unit 3

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:32:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	36.889	ppm	02 CO	21.972	ppm
04 NOx	44.521	ppm	01 CO2	1.714	%
00 O2	17.904	%	05 THC	0.064	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.967	F			
50 Barometric Press.	26.254	In_Hg	51 Relative Humidity	11.191	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:35:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	37.011	ppm	02 CO	21.847	ppm
04 NOx	44.701	ppm	01 CO2	1.690	%
00 O2	17.933	%	05 THC	-0.104	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.901	F			
50 Barometric Press.	26.256	In_Hg	51 Relative Humidity	11.235	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:38:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.824	ppm	02 CO	24.298	ppm
04 NOx	43.559	ppm	01 CO2	1.666	%
00 O2	17.982	%	05 THC	-0.088	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.740	F			
50 Barometric Press.	26.256	In_Hg	51 Relative Humidity	11.300	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:41:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.441	ppm	02 CO	24.663	ppm
04 NOx	42.070	ppm	01 CO2	1.569	%
00 O2	18.120	%	05 THC	0.061	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.576	F			
50 Barometric Press.	26.259	In_Hg	51 Relative Humidity	11.367	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:44:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.110	ppm	02 CO	25.877	ppm
04 NOx	41.130	ppm	01 CO2	1.536	%
00 O2	18.195	%	05 THC	-0.093	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.442	F			
50 Barometric Press.	26.262	In_Hg	51 Relative Humidity	11.434	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:47:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	32.902	ppm	02 CO	27.065	ppm
04 NOx	40.975	ppm	01 CO2	1.535	%
00 O2	18.192	%	05 THC	-0.121	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.368	F			
50 Barometric Press.	26.264	In_Hg	51 Relative Humidity	11.477	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:50:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.319	ppm	02 CO	25.597	ppm
04 NOx	41.184	ppm	01 CO2	1.516	%
00 O2	18.223	%	05 THC	0.050	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	77.179	F			
50 Barometric Press.	26.265	In_Hg	51 Relative Humidity	11.543	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:53:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.133	ppm	02 CO	23.619	ppm
04 NOx	41.347	ppm	01 CO2	1.504	%
00 O2	18.245	%	05 THC	-0.065	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.785	F			
50 Barometric Press.	26.268	In_Hg	51 Relative Humidity	11.710	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:56:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.366	ppm	02 CO	23.011	ppm
04 NOx	39.959	ppm	01 CO2	1.464	%
00 O2	18.313	%	05 THC	-0.141	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.462	F			
50 Barometric Press.	26.270	In_Hg	51 Relative Humidity	11.844	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 07:59:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.049	ppm	02 CO	23.659	ppm
04 NOx	41.321	ppm	01 CO2	1.513	%
00 O2	18.232	%	05 THC	0.039	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	76.182	F			
50 Barometric Press.	26.273	In_Hg	51 Relative Humidity	11.929	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:02:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.159	ppm	02 CO	23.377	ppm
04 NOx	41.295	ppm	01 CO2	1.499	%
00 O2	18.258	%	05 THC	-0.036	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.961	F			
50 Barometric Press.	26.273	In_Hg	51 Relative Humidity	12.014	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:05:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.282	ppm	02 CO	23.071	ppm
04 NOx	41.409	ppm	01 CO2	1.486	%
00 O2	18.278	%	05 THC	-0.148	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.815	F			
50 Barometric Press.	26.274	In_Hg	51 Relative Humidity	12.096	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:08:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.848	ppm	02 CO	23.378	ppm
04 NOx	40.758	ppm	01 CO2	1.483	%
00 O2	18.290	%	05 THC	0.016	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.832	F			
50 Barometric Press.	26.277	In_Hg	51 Relative Humidity	12.123	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:11:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.917	ppm	02 CO	23.690	ppm
04 NOx	41.269	ppm	01 CO2	1.494	%
00 O2	18.267	%	05 THC	-0.009	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.661	F			
50 Barometric Press.	26.279	In_Hg	51 Relative Humidity	12.222	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:14:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.092	ppm	02 CO	23.271	ppm
04 NOx	41.367	ppm	01 CO2	1.489	%
00 O2	18.279	%	05 THC	-0.150	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.254	F			
50 Barometric Press.	26.280	In_Hg	51 Relative Humidity	12.432	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:17:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.418	ppm	02 CO	22.885	ppm
04 NOx	41.527	ppm	01 CO2	1.480	%
00 O2	18.292	%	05 THC	-0.005	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.205	F			
50 Barometric Press.	26.283	In_Hg	51 Relative Humidity	12.470	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:20:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	33.636	ppm	02 CO	23.040	ppm
04 NOx	40.973	ppm	01 CO2	1.466	%
00 O2	18.321	%	05 THC	0.014	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	75.089	F			
50 Barometric Press.	26.284	In_Hg	51 Relative Humidity	12.518	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:23:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.419	ppm	02 CO	23.492	ppm
04 NOx	41.360	ppm	01 CO2	1.495	%
00 O2	18.276	%	05 THC	-0.151	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.828	F			
50 Barometric Press.	26.286	In_Hg	51 Relative Humidity	12.603	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:26:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	34.549	ppm	02 CO	22.815	ppm
04 NOx	41.838	ppm	01 CO2	1.481	%
00 O2	18.291	%	05 THC	-0.024	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.776	F			
50 Barometric Press.	26.287	In_Hg	51 Relative Humidity	12.590	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

EMISSIONS TEST

Station: EPNG Vail Unit: GE FRAME 3 4/1/03 08:29:39 PM

*** Unit 3 Run 1 ***

Instrument	Value	Units	Instrument	Value	Units
03 NO	35.523	ppm	02 CO	21.700	ppm
04 NOx	42.652	ppm	01 CO2	1.493	%
00 O2	18.281	%	05 THC	0.039	ppm

*** Atmospheric Data ***

Instrument	Value	Units	Instrument	Value	Units
52 Amb. Temp.	74.689	F			
50 Barometric Press.	26.288	In_Hg	51 Relative Humidity	12.639	% RH

Instrument	Value	Units	Instrument	Value	Units

Scanning Period is 3.00 minute(s).

Values calibrated using file "C:\Tenneco\CALS\VAIL 4-03.cal".

Data Review (Page 1)

Average of 20 Scans Generated on 4/1/03 at 08:30:20 PM

Type	Name	Value	Units
Analog 0	O2	18.21	%
Analog 1	CO2	1.53	%
Analog 2	CO	23.62	ppm
Analog 3	NO	34.39	ppm
Analog 4	NOx	41.76	ppm
Analog 5	THC	-0.04	ppm
Analog 50	Barometric Press.	26.27	In_Hg
Analog 51	Relative Humidity	11.94	% RH
Analog 52	Amb. Temp.	76.29	F

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 09:06:24 PM

Type	Name	Value	Units
Analog 0	O2	18.31	%
Analog 1	CO2	1.49	%
Analog 2	CO	22.37	ppm
Analog 3	NO	34.72	ppm
Analog 4	NOx	41.99	ppm
Analog 5	THC	-0.03	ppm
Analog 50	Barometric Press.	26.31	In_Hg
Analog 51	Relative Humidity	12.90	% RH
Analog 52	Amb. Temp.	74.92	F

Data Review (Page 1)

Average of 8 Scans Generated on 4/1/03 at 09:40:14 PM

Type	Name	Value	Units
Analog 0	O2	18.34	%
Analog 1	CO2	1.48	%
Analog 2	CO	22.73	ppm
Analog 3	NO	34.34	ppm
Analog 4	NOx	41.46	ppm
Analog 5	THC	-0.04	ppm
Analog 50	Barometric Press.	26.33	In_Hg
Analog 51	Relative Humidity	13.83	% RH
Analog 52	Amb. Temp.	73.99	F

01193244.I	4/1/2003	7:32:44 PM	17.90	1.71	21.97	36.89	44.52	0.06	0.00	0.00	0.00	26.25	11.19	77.97	0.00	0.00	
01193543.I	4/1/2003	7:35:43 PM	17.93	1.69	21.85	37.01	44.70	-0.10	0.00	0.00	0.00	26.26	11.24	77.90	0.00	0.00	
01193843.I	4/1/2003	7:38:42 PM	17.98	1.67	24.30	35.82	43.56	-0.09	0.00	0.00	0.00	26.26	11.30	77.74	0.00	0.00	
01194143.I	4/1/2003	7:41:41 PM	18.12	1.57	24.66	34.44	42.07	0.06	0.00	0.00	0.00	26.26	11.37	77.58	0.00	0.00	
01194443.I	4/1/2003	7:44:40 PM	18.20	1.54	25.88	33.11	41.13	-0.09	0.00	0.00	0.00	26.26	11.43	77.44	0.00	0.00	
01194743.I	4/1/2003	7:47:39 PM	18.19	1.53	27.07	32.90	40.97	-0.12	0.00	0.00	0.00	26.26	11.48	77.37	0.00	0.00	
01195043.I	4/1/2003	7:50:38 PM	18.22	1.52	25.60	33.32	41.18	0.05	0.00	0.00	0.00	26.27	11.54	77.18	0.00	0.00	
01195343.I	4/1/2003	7:53:37 PM	18.25	1.50	23.62	34.13	41.35	-0.06	0.00	0.00	0.00	26.27	11.71	76.78	0.00	0.00	
01195643.I	4/1/2003	7:56:36 PM	18.31	1.46	23.01	33.37	39.96	-0.14	0.00	0.00	0.00	26.27	11.84	76.46	0.00	0.00	
01195943.I	4/1/2003	7:59:35 PM	18.23	1.51	23.66	34.05	41.32	0.04	0.00	0.00	0.00	26.27	11.93	76.18	0.00	0.00	Unit 3 Run 1
01200243.I	4/1/2003	8:02:34 PM	18.26	1.50	23.38	34.16	41.30	-0.04	0.00	0.00	0.00	26.27	12.01	75.96	0.00	0.00	
01200543.I	4/1/2003	8:05:33 PM	18.28	1.49	23.07	34.28	41.41	-0.15	0.00	0.00	0.00	26.27	12.10	75.82	0.00	0.00	
01200843.I	4/1/2003	8:08:32 PM	18.29	1.48	23.38	33.85	40.76	0.02	0.00	0.00	0.00	26.28	12.12	75.83	0.00	0.00	
01201143.I	4/1/2003	8:11:31 PM	18.27	1.49	23.69	33.92	41.27	-0.01	0.00	0.00	0.00	26.28	12.22	75.66	0.00	0.00	
01201443.I	4/1/2003	8:14:30 PM	18.28	1.49	23.27	34.09	41.37	-0.15	0.00	0.00	0.00	26.28	12.43	75.25	0.00	0.00	
01201743.I	4/1/2003	8:17:29 PM	18.29	1.48	22.88	34.42	41.53	0.00	0.00	0.00	0.00	26.28	12.47	75.21	0.00	0.00	
01202043.I	4/1/2003	8:20:28 PM	18.32	1.47	23.04	33.64	40.97	0.01	0.00	0.00	0.00	26.28	12.52	75.09	0.00	0.00	
01202343.I	4/1/2003	8:23:27 PM	18.28	1.50	23.49	34.42	41.36	-0.15	0.00	0.00	0.00	26.29	12.60	74.83	0.00	0.00	
01202643.I	4/1/2003	8:26:26 PM	18.29	1.48	22.82	34.55	41.84	-0.02	0.00	0.00	0.00	26.29	12.59	74.78	0.00	0.00	
01202943.I	4/1/2003	8:29:25 PM	18.28	1.49	21.70	35.52	42.65	0.04	0.00	0.00	0.00	26.29	12.64	74.69	0.00	0.00	
Average			18.21	1.53	23.62	34.39	41.76	-0.04	0.00	0.00	0.00	26.27	11.94	76.29	0.00	0.00	
01204422.I	4/1/2003	8:44:22 PM	18.28	1.50	21.87	34.87	42.15	0.06	0.00	0.00	0.00	26.30	12.90	74.08	0.00	0.00	
01204722.I	4/1/2003	8:47:22 PM	18.29	1.50	21.99	34.87	42.13	-0.05	0.00	0.00	0.00	26.30	12.78	74.56	0.00	0.00	
01205022.I	4/1/2003	8:50:22 PM	18.30	1.49	21.92	34.86	42.21	-0.14	0.00	0.00	0.00	26.31	12.66	74.95	0.00	0.00	
01205322.I	4/1/2003	8:53:22 PM	18.31	1.49	22.60	34.77	42.07	0.04	0.00	0.00	0.00	26.31	12.74	75.07	0.00	0.00	Unit 3 Run 2
01205622.I	4/1/2003	8:56:22 PM	18.31	1.49	22.38	34.70	41.92	-0.03	0.00	0.00	0.00	26.31	12.85	75.16	0.00	0.00	
01205922.I	4/1/2003	8:59:22 PM	18.32	1.48	23.38	34.41	41.79	-0.15	0.00	0.00	0.00	26.31	13.07	75.00	0.00	0.00	
01210222.I	4/1/2003	9:02:22 PM	18.32	1.48	22.66	34.55	41.82	0.02	0.00	0.00	0.00	26.31	13.11	75.20	0.00	0.00	
01210522.I	4/1/2003	9:05:22 PM	18.33	1.48	22.19	34.73	41.80	0.00	0.00	0.00	0.00	26.31	13.12	75.36	0.00	0.00	
Average			18.31	1.49	22.37	34.72	41.99	-0.03	0.00	0.00	0.00	26.31	12.90	74.92	0.00	0.00	
01211755.I	4/1/2003	9:17:55 PM	18.31	1.49	22.21	34.48	41.78	-0.10	0.00	0.00	0.00	26.32	13.38	74.98	0.00	0.00	
01212055.I	4/1/2003	9:20:55 PM	18.32	1.48	22.49	34.43	41.65	0.06	0.00	0.00	0.00	26.32	13.55	74.65	0.00	0.00	
01212355.I	4/1/2003	9:23:55 PM	18.33	1.48	22.79	34.35	41.37	-0.09	0.00	0.00	0.00	26.32	13.73	74.25	0.00	0.00	
01212655.I	4/1/2003	9:26:55 PM	18.34	1.47	22.87	34.36	41.40	-0.12	0.00	0.00	0.00	26.33	13.77	74.16	0.00	0.00	Unit 3 Run 3
01212955.I	4/1/2003	9:29:55 PM	18.35	1.47	22.63	34.44	41.40	0.06	0.00	0.00	0.00	26.33	13.88	73.93	0.00	0.00	
01213255.I	4/1/2003	9:32:55 PM	18.36	1.47	22.38	34.38	41.40	-0.07	0.00	0.00	0.00	26.33	13.98	73.67	0.00	0.00	
01213555.I	4/1/2003	9:35:55 PM	18.35	1.47	22.87	34.35	41.37	-0.13	0.00	0.00	0.00	26.34	14.13	73.26	0.00	0.00	
01213855.I	4/1/2003	9:38:55 PM	18.35	1.47	23.61	33.90	41.29	0.04	0.00	0.00	0.00	26.34	14.24	72.98	0.00	0.00	
Average			18.34	1.48	22.73	34.34	41.46	-0.04	0.00	0.00	0.00	26.33	13.83	73.99	0.00	0.00	