

Revised: September 25, 1992

NMED - Air Pollution Control Bureau
P.O. Box 26110
Santa Fe, NM 87502
Telephone: 505-827-0070

**STREAMLINE AND GENERAL COMPRESSOR
PERMIT APPLICATION
AND NOTICE OF INTENT
FOR THE STATE OF NEW MEXICO**

Refer to the attached instructions for footnotes and directions on how to fill out this application form

Section 1: General Information:

1. Name of Company: Gas Company of New Mexico 2. Date Submitted: March 9, 1995
Name of Facility: Los Mestenos Compressor Station
Purpose of facility: Natural gas compression
3. Main Office Address: Alvarado Square, Albuquerque, New Mexico 87158
4. Phone No.: (505) 241-2385
5. Person to contact: Nancy Norem 6. Title: Senior Engineer
7. Location of the plant:
Section: 25 & 26 Range: 5W Township: 26N County: Rio Arriba
UTM Zone: 13 UTMH: 292.4 km UTMV: 4036.3 km
Plant Elevation: 6,660 ft. above mean sea level.
Approximate location from nearest town (direction and distance) 24 km northwest
Name of nearest town and Zip Code: Gavilan, New Mexico 87029
8. Is this site permanent? ☒ Yes ☐ No If not how long is it expected to be occupied? N/A
9. Is this a new plant? ☐ Yes ☒ No
Date of anticipated start of construction: Mo N/A Day N/A Yr N/A
10. Date of anticipated startup: Mo N/A Day N/A Yr N/A
11. Was this plant constructed prior to Aug. 31, 1972? ☐ Yes ☒ No
12. Is the plant currently operating in New Mexico? ☒ Yes ☐ No
13. Has the plant been modified or the capacity increased since Aug. 31, 1972? ☐ Yes ☒ No
If yes, briefly describe _____
14. Normal operating hours: 24 hrs/day 7 days/wk
4.2 wk/mo 12 mos/yr
15. Specify maximum operating periods, if any: none
16. Estimated percent annual production by quarters: 25 Dec. - Feb., 25 Mar. - May
25 June - Aug., 25 Sep. - Nov.
17. Class of land at plant site (private, State, Federal, Indian, etc.) Indian
18. SIC Code: 4923

Section 2: Streamline Applicability

A. Facility Criteria

Facility Criteria	Answer (yes/no)
Do maximum controlled facility emissions exceed 200 tpy of any one regulated air pollutant (CO, NOx, SO2, VOC)?	N/A
Is the facility a "major stationary source" as defined in NMAQCR 707?	N/A
Is there an NSPS applicable to this source other than for turbines (40 CFR Part 60 Subpart GG)?	N/A
Is there a NESHAP applicable to this source, except asbestos demolition renovation?	N/A
Is this a source of potential air toxic emissions (NMAQCR 702, Part III)?	N/A
Are the compressor engines and ancillary equipment located at a natural gas processing plant, chemical manufacturing plant, bulk gasoline terminal or refinery or at a facility for which a 702 permit would be required in the absence of the compressors?	N/A

B. Air Quality Location Restrictions

Air Quality Restriction Areas	Answer (yes/no)
Will the proposed facility be located within any of the exclusion areas specified in TABLE 2?	N/A
Will the proposed facility's impact radius intersect any of the areas specified in TABLE 2? (This only applies to facilities with air impacts greater than the significance level).	N/A

C. General Location Restrictions

Location Restriction	Distance (km)	Name or Identify
The distance to the nearest school, residence, office building or occupied structure, excluding the immediate facility complex must be > 1 km.		N/A
The distance to the nearest state park, Class II wilderness or wildlife refuge, historic park, state recreation area identified in TABLE 1 must be > 3 km.		N/A
The distance to the nearest community with a population of more than 20,000 people (SEE TABLE 1) must be > 3 km.		N/A
The distance to the nearest community with a population of more than 40,000 people (SEE TABLE 1) must be > 10 km.		N/A
The distance to the nearest Class I area (SEE TABLE 1 and FIGURE 1) must be > 30 km.		N/A
The distance to Bernalillo County must be > 15 km.		N/A

Section 3: Equipment Information

Unit No. (1)	Type of Unit Serial No. (2)	Manufacturer and Model No.	Size of Unit	Date of Installation (4)	Type and Sulfur Content of Fuel (5)	Amount of Fuel Per Year (6)	Turbo Charged? yes/no
1	Turbine SC-795681	Solar Saturn 1200	1136 hp 3a 1200 hp 3b	1989**	sweet natural gas	91.2 MMcf	yes
2*	Engine 49-C-284	Caterpillar G-399	598 hp 3a 750 hp 3b	1989	sweet natural gas	16 MMscf	no
3	Fuel Gas Heater	Unknown	0.3 MMBtu/hr 0.3 MMBtu/hr	1989	sweet natural gas	2.92 MMcf	no
4	Heater	Unknown	0.3 MMBtu/hr 0.3 MMBtu/hr	1989	sweet natural gas	2.92 MMcf	no
			3a 3b				
			3a 3b				
* Equipment and emission information for Unit 2 was taken from the previous permit since it is unchanged.							
** According to the manufacturer, Unit 1 was constructed and shipped in July, 1979. According to GCNM records, this unit was installed at Los Mestenios in 1989.							
			3a 3b				
			3a 3b				
			3a 3b				

91.2 MMcf

Section 4: Emissions Information:

[illegible]

[illegible]

COMPANY NAME Gas Company of New Mexico

SECTION 6: CERTIFICATION

I, Nancy Norem hereby certify that the information and data submitted in this application are completely true and as accurate as possible, to the best of my personal knowledge and professional expertise and experience.

Signed this 9th day of March, 19 95, upon my oath or affirmation, before a notary of the State of NEW MEXICO.

Nancy Norem
SIGNATURE

3/9/95
DATE

Nancy Norem
PRINTED NAME

Senior Engineer
TITLE

Subscribed and sworn to before me on this 9th day of March, 19 95.

My authorization as a Notary of the State of NEW MEXICO expires on the 25th day of March, 19 96.

Robin K. DeLapp
NOTARY'S SIGNATURE

March 9, 1995
DATE

ROBIN K. DeLAPP
NOTARY'S PRINTED NAME



Turbine Emissions

Emission Unit No: 1

Model: Solar Saturn T1200

Horsepower Calculations

6,660 ft MSL	Altitude	
1,200 hp	Sea level horsepower	Mfg. data
5.32%	Horsepower derate	2% per 1000 ft above 4000 ft
1,136 hp	Derated hp at site elev.	Sea level hp * (1-derate %)

Emission Rates

NO _x	CO	NMHC		
(1)	(2)	(3)	Units	
4.63	2.72	0.09	lb/hr	Hourly emission rate
20.3	11.9	0.4	tpy	Annual emission rate

Basis for Calculations:

- (1) NO_x emissions = maximum testing results (4.21 lb/hr) + 10% safety factor
- (2) CO emissions = maximum testing results (2.47 lb/hr) + 10% safety factor
- (3) NMHC emissions taken from permit 791-M-1

Annual Emissions based on 8760 hrs/yr operation

Fuel Consumption

250 Mcfd	Fuel feed	Test data
91.2 MMcf/yr	Annual fuel usage	Assume 8760 hrs/yr operation
1050 Btu/cf	Fuel heat value	
10.9 MMBtu/hr	Heat input	Fuel usage * fuel heat value

Exhaust Parameters

707.3 °F	Exhaust temp	Test data minimum
30,535 cfm	Stack flow	Test data minimum
1.58 ft	Stack diameter	Measured
258.47 fps	Stack velocity	Test data
17.75 ft	Stack height	Measured



Process and Control Equipment Information

Plant Description:	Natural Gas Compression Station
Process Name:	Gas Compression Turbine
Equipment	
Make:	Solar
Model:	Saturn T-1200 (CSI-SB-160)
Serial No.:	SC-795681
Max. Rated Capacity Type:	Turbine Horsepower (1200 Hp nameplate)
Max. Rated Capacity Amount:	818 Hp (derated for elevation)
Normal Capacity:	30 MSCFD
Hours of Operation per Year:	8760
Fuel Type:	Natural Gas
Fuel Feed Rate:	250 MCFD
Control Equipment	
Pollutant Controlled:	
Type:	No Control Equipment

Emission Results

FACILITY INFORMATION

Facility Name: Los Mestenios Compressor Station
Hrs of Oper./Year: 8760

TEST INFORMATION

Test Operator, (LN,FI):	M. Lynn	M. Lynn	M. Lynn	
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant	
Test Date, (mm/dd/yy):	01/26/95	01/26/95	01/26/95	
Run ID Number, (VDRR):	1101	1102	1103	AVERAGE
Time- Start, (24hr.):	14:00	15:15	16:30	
- End, (24hr.):	15:00	16:15	17:30	
Time of Test, (t, min.):	60.0	60.0	60.0	60.0
Max. Rtd. Cap., (Hp):	818.00	818.00	818.00	818.00
Production Load, (Hp):	760.74	760.74	760.74	760.74
Test Cond., Hp, (%MRC):	93.00	93.00	93.00	93.00

NOx RESULTS, (RM20)

ppm,(ISO Std. Cond.):	62.61	64.70	58.12	61.81
ppm,(dry,v/v,@ 15% O2):	53.1	53.8	48.3	51.7
ppm, (dry, v/v):	33.6	32.9	31.7	32.7
gm./HP-hr.:	1.42	1.40	1.41	1.41
lbs./hr.:	2.38	2.35	2.37	2.37
Tons/Year:	10.43	10.27	10.39	10.37

CO RESULTS (RM 10)

ppm,(dry,v/v,@ 15%O2):	86.2	89.9	89.1	88.4
ppm, (dry, v/v):	54.5	55.0	58.5	56.0
gm./HP-hr.:	1.40	1.42	1.59	1.47
lbs./hr.:	2.35	2.39	2.67	2.47
Tons/Year:	10.30	10.46	11.68	10.81

PARAMETRIC FLUE GAS RESULTS

Pres.Vel.Del.P(in.w.g.):	6.8783	7.0845	7.8111	7.2579
Moisture, (%v/v):	4.09	5.16	5.44	4.90
CO2, Inst., (% dry,v/v):	1.20	1.21	1.12	1.18
O2, Inst., (% dry,v/v):	17.17	17.29	17.03	17.16
Temperature,Stack, (°F):	710.0	707.0	705.0	707.3
Velocity,Flue Gas,(fps):	251.51	255.68	268.22	258.47
Volume Flow, (DSCFM):	9913	9971	10468	10118
Volume Flow, (ACFM):	29713	30205	31687	30535

NOx Iso-Standard Conditions

Barometric Pressure (in. Hg.):	23.24	23.23	23.22	23.23
Gauge Pressure (in. Hg.):	0.00	0.00	0.00	0.00
Observed Pressure (in. Hg.):	23.24	23.23	23.22	23.23
Reference Pressure (in. Hg.):	29.92	29.92	29.92	29.92
Ambient Temperature (°F):	39.90	36.50	36.90	37.77
Relative Humidity (%):	80.00	100.00	100.00	93.33
Vapor Pressure:	0.2468	0.2160	0.2194	0.2274

Sampling Data and Analysis

FACILITY INFORMATION

Facility Name:	Los Mestenos Compressor Station
Stack/Duct Identifier:	Turbine Exhaust Stack
Hrs of Oper./Year:	8760

TEST INFORMATION

Test Operator (LN,FI):	M. Lynn	M. Lynn	M. Lynn
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant
Test Date, (mm/dd/yy):	01/26/95	01/26/95	01/26/95
Run ID Number, (VDRR):	1101	1102	1103
Time- Start, (24hr.):	14:00	15:15	16:30
- End, (24hr.):	15:00	16:15	17:30
Time of Test, (t, min.):	60.0	60.0	60.0

SAMPLE VOLUME DATA

Reference Diluent (CO2) %:	12.0	12.0	12.0
Reference Diluent (O2) %:	15.0	15.0	15.0
Console ID #:	CC-02	CC-02	CC-02
Gas Meter ID Number:	6843919	6843919	6843919
Gas Mtr. Cal Factor, (Yo):	1.00480	1.00480	1.00480
Volume, Gas Samp. @ Std. Cond, (dscf):	48.591	48.756	48.486
Corrected for Excess Leak, (acf):	59.660	59.129	59.046
At Meter Conditions, (acf):	59.660	59.129	59.046
Temperature, @ Gas Meter, (°F):	49.96	43.50	45.38
Delta H Pres. @ Meter, (in. w. g.):	2.50	2.50	2.50
Pressure Barometric., Abs., (in. Hg.):	23.240	23.230	23.220
Leak Ck. Result, Post, Excessive, (acf):	0.000	0.000	0.000
Leak Rate Result, (cfm):	0.000	0.000	0.000
At Vacuum, (in. Hg.):	13.50	13.50	13.50
High During Run, (in. Hg.):	6.00	6.00	6.00

STACK MOISTURE DATA

Press. H2O Vap. @ Saturation, (in. Hg.):	0.2677	0.3004	0.3004
Of Gas @ Silica Gel, (in. Hg.):	17.240	17.230	17.220
Temperature @ Silica Gel Imp., (°F):	42.00	45.00	45.00
Vacuum @ Silica Gel/Pump, (in. Hg.):	6.000	6.000	6.000
Volume H2O @ Silica Gel, (gm):	19.98	22.27	22.25
Condensed H2O @ Impingers, (ml.):	24.0	34.0	37.0
Total Vol. H2O Collected, (ml.):	43.98	56.27	59.25

EQUIPMENT DATA

Pitot Side ID #:	A	A	A
Pitot Coef., (Cp):	0.840	0.840	0.840
Density of Flue Gas, (lb/cf):	0.0737	0.0734	0.0732
Molecular Weight, wet:	28.446	28.336	28.280

Emission Results

FACILITY INFORMATION

Facility Name: Los Mestenos Compressor Station
Hrs of Oper./Year: 8760

TEST INFORMATION

Test Operator, (LN,FI):	M. Lynn	M. Lynn	M. Lynn	
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant	
Test Date, (mm/dd/yy):	01/26/95	01/26/95	01/26/95	
Run ID Number, (VDRR):	2101	2102	2103	AVERAGE
Time- Start, (24hr.):	9:50	11:08	12:29	
- End, (24hr.):	10:50	12:08	13:29	
Time of Test, (t, min.):	60.0	60.0	60.0	60.0
Max. Rtd. Cap., (Hp):	818.00	818.00	818.00	818.00
Production Load, (Hp):	777.10	777.10	777.10	777.10
Test Cond., Hp, (%MRC):	95.00	95.00	95.00	95.00

NOx RESULTS, (RM20)

ppm,(ISO Std. Cond.):	64.38	71.99	65.90	67.42
ppm,(dry,v/v,@ 15% O2):	53.6	59.9	55.3	56.3
ppm, (dry, v/v):	36.1	38.2	37.4	37.2
gm./HP-hr.:	1.64	1.72	1.67	1.68
lbs./hr.:	2.81	2.95	2.86	2.87
Tons/Year:	12.29	12.94	12.55	12.59

CO RESULTS (RM 10)

ppm,(dry,v/v,@ 15%O2):	68.2	72.5	65.4	68.7
ppm, (dry, v/v):	45.9	46.2	44.2	45.4
gm./HP-hr.:	1.27	1.27	1.20	1.25
lbs./hr.:	2.17	2.18	2.06	2.14
Tons/Year:	9.51	9.53	9.03	9.36

PARAMETRIC FLUE GAS RESULTS

Pres.Vel.Del.P(in.w.g.):	8.5891	8.5737	8.4464	8.5364
Moisture, (%v/v):	4.11	4.45	4.56	4.38
CO2, Inst., (% dry,v/v):	1.44	1.48	1.44	1.45
O2, Inst., (% dry,v/v):	16.93	17.14	16.91	16.99
Temperature,Stack, (°F):	752.0	753.0	754.0	753.0
Velocity,Flue Gas,(fps):	286.17	286.16	284.63	285.65
Volume Flow, (DSCFM):	10868	10819	10713	10800
Volume Flow, (ACFM):	33807	33806	33625	33746

NOx Iso-Standard Conditions

Barometric Pressure (in. Hg.):	23.32	23.31	23.29	23.31
Gauge Pressure (in. Hg.):	0.00	0.00	0.00	0.00
Observed Pressure (in. Hg.):	23.32	23.31	23.29	23.31
Reference Pressure (in. Hg.):	29.92	29.92	29.92	29.92
Ambient Temperature (°F):	36.50	37.10	37.50	37.03
Relative Humidity (%):	100.00	100.00	92.00	97.33
Vapor Pressure:	0.2160	0.2212	0.2247	0.2206

Sampling Data and Analysis

FACILITY INFORMATION

Facility Name:	Los Mestenos Compressor Station
Stack/Duct Identifier:	Turbine Exhaust Stack
Hrs of Oper./Year:	8760

TEST INFORMATION

Test Operator (LN,FI):	M. Lynn	M. Lynn	M. Lynn
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant
Test Date, (mm/dd/yy):	01/26/95	01/26/95	01/26/95
Run ID Number, (VDRR):	2101	2102	2103
Time- Start, (24hr.):	9:50	11:08	12:29
- End, (24hr.):	10:50	12:08	13:29
Time of Test, (t, min.):	60.0	60.0	60.0

SAMPLE VOLUME DATA

Reference Diluent (CO2) %:	12.0	12.0	12.0
Reference Diluent (O2) %:	15.0	15.0	15.0
Console ID #:	CC-02	CC-02	CC-02
Gas Meter ID Number:	6843919	6843919	6843919
Gas Mtr. Cal Factor, (Yo):	1.00480	1.00480	1.00480
Volume, Gas Samp. @ Std. Cond, (dscf):	48.151	47.696	48.379
Corrected for Excess Leak, (acf):	57.744	57.218	58.598
At Meter Conditions, (acf):	57.744	57.218	58.598
Temperature, @ Gas Meter, (°F):	39.79	39.75	44.15
Delta H Pres. @ Meter, (in. w.g.):	2.50	2.50	2.50
Pressure Barometric, Abs., (in. Hg.):	23.320	23.310	23.290
Leak Ck. Result, Post, Excessive, (acf):	0.000	0.000	0.000
Leak Rate Result, (cfm):	0.000	0.000	0.000
At Vacuum, (in. Hg.):	12.50	12.80	13.50
High During Run, (in. Hg.):	5.50	5.80	5.80

STACK MOISTURE DATA

Press. H2O Vap. @ Saturation, (in. Hg.):	0.3120	0.3004	0.2782
Of Gas @ Silica Gel, (in. Hg.):	17.820	17.510	17.490
Temperature @ Silica Gel Imp., (°F):	46.00	45.00	43.00
Vacuum @ Silica Gel/Pump, (in. Hg.):	5.500	5.800	5.800
Volume H2O @ Silica Gel, (gm):	21.84	21.20	20.11
Condensed H2O @ Impingers, (ml.):	22.0	26.0	29.0
Total Vol. H2O Collected, (ml.):	43.84	47.20	49.11

EQUIPMENT DATA

Pitot Side ID #:	A	A	A
Pitot Coef., (Cp):	0.840	0.840	0.840
Density of Flue Gas, (lb/cf):	0.0737	0.0737	0.0736
Molecular Weight, wet:	28.470	28.447	28.421

Emission Results

FACILITY INFORMATION

Facility Name: Los Mestenos Compressor Station
Hrs of Oper./Year: 8760

TEST INFORMATION

Test Operator, (LN,FI):	M. Lynn	M. Lynn	M. Lynn	
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant	
Test Date, (mm/dd/yy):	01/25/95	01/25/95	01/25/95	
Run ID Number, (VDRR):	3101	3102	3103	AVERAGE
Time- Start, (24hr.):	14:22	15:40	16:55	
- End, (24hr.):	15:22	16:40	17:55	
Time of Test, (t, min.):	60.0	60.0	60.0	60.0
Max. Rtd. Cap., (Hp):	818.00	818.00	818.00	818.00
Production Load, (Hp):	793.46	793.46	793.46	793.46
Test Cond., Hp, (%MRC):	97.00	97.00	97.00	97.00

NO_x RESULTS, (RM20)

ppm,(ISO Std. Cond.):	68.47	70.16	69.15	69.26
ppm,(dry,v/v,@ 15% O ₂):	59.5	61.1	59.3	60.0
ppm, (dry, v/v):	40.2	41.0	39.9	40.4
gm./HP-hr.:	1.79	1.81	1.75	1.78
lbs./hr.:	3.13	3.16	3.06	3.12
Tons/Year:	13.70	13.83	13.42	13.65

CO RESULTS (RM 10)

ppm,(dry,v/v,@ 15%O ₂):	59.1	59.4	61.6	60.0
ppm, (dry, v/v):	39.9	39.9	41.4	40.4
gm./HP-hr.:	1.08	1.07	1.11	1.09
lbs./hr.:	1.89	1.87	1.94	1.90
Tons/Year:	8.28	8.19	8.48	8.32

PARAMETRIC FLUE GAS RESULTS

Pres.Vel.Del.P(in.w.g.):	8.9170	8.7543	8.6800	8.7838
Moisture, (%v/v):	5.28	5.38	5.04	5.23
CO ₂ , Inst., (% dry,v/v):	1.50	1.53	0.00	1.01
O ₂ , Inst., (% dry,v/v):	16.92	16.94	0.00	11.28
Temperature,Stack, (°F):	773.0	770.0	770.0	771.0
Velocity,Flue Gas,(fps):	294.32	291.64	290.69	292.22
Volume Flow, (DSCFM):	10882	10772	10741	10798
Volume Flow, (ACFM):	34770	34454	34341	34522

NO_x Iso-Standard Conditions

Barometric Pressure (in. Hg.):	23.38	23.37	23.34	23.36
Gauge Pressure (in. Hg.):	0.00	0.00	0.00	0.00
Observed Pressure (in. Hg.):	23.38	23.37	23.34	23.36
Reference Pressure (in. Hg.):	29.92	29.92	29.92	29.92
Ambient Temperature (°F):	49.60	48.00	45.10	47.57
Relative Humidity (%):	60.00	60.00	70.00	63.33
Vapor Pressure:	0.3572	0.3364	0.3015	0.3317

Sampling Data and Analysis

FACILITY INFORMATION

Facility Name:	Los Mestenos Compressor Station
Stack/Duct Identifier:	Turbine Exhaust Stack
Hrs of Oper./Year:	8760

TEST INFORMATION

Test Operator (LN,FI):	M. Lynn	M. Lynn	M. Lynn
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant
Test Date, (mm/dd/yy):	01/25/95	01/25/95	01/25/95
Run ID Number, (VDRR):	3101	3102	3103
Time- Start, (24hr.):	14:22	15:40	16:55
- End, (24hr.):	15:22	16:40	17:55
Time of Test, (t, min.):	60.0	60.0	60.0

SAMPLE VOLUME DATA

Reference Diluent (CO2) %:	12.0	12.0	12.0
Reference Diluent (O2) %:	15.0	15.0	15.0
Console ID #:	CC-02	CC-02	CC-02
Gas Meter ID Number:	6843919	6843919	6843919
Gas Mtr. Cal Factor, (Yo):	1.00480	1.00480	1.00480
Volume, Gas Samp. @ Std. Cond, (dscf):	46.235	46.532	47.199
Corrected for Excess Leak, (acf):	57.103	57.735	58.355
At Meter Conditions, (acf):	57.103	57.735	58.355
Temperature, @ Gas Meter, (°F):	56.04	58.21	55.71
Delta H Pres. @ Meter, (in. w.g.):	2.50	2.50	2.50
Pressure Barometric, Abs., (in. Hg.):	23.380	23.370	23.340
Leak Ck. Result, Post, Excessive, (acf):	0.000	0.000	0.000
Leak Rate Result, (cfm):	0.000	0.000	0.000
At Vacuum, (in. Hg.):	12.00	12.50	13.00
High During Run, (in. Hg.):	5.50	5.80	6.00

STACK MOISTURE DATA

Press. H2O Vap. @ Saturation, (in. Hg.):	0.3004	0.3120	0.2782
Of Gas @ Silica Gel, (in. Hg.):	17.880	17.570	17.340
Temperature @ Silica Gel Imp., (°F):	45.00	46.00	43.00
Vacuum @ Silica Gel/Pump, (in. Hg.):	5.500	5.800	6.000
Volume H2O @ Silica Gel, (gm):	20.71	22.16	20.20
Condensed H2O @ Impingers, (ml.):	34.0	34.0	33.0
Total Vol. H2O Collected, (ml.):	54.71	56.16	53.20

EQUIPMENT DATA

Pitot Side ID #:	A	A	A
Pitot Coef., (Cp):	0.840	0.840	0.840
Density of Flue Gas, (lb/cf):	0.0734	0.0734	0.0735
Molecular Weight, wet:	28.352	28.346	28.381

The Emission Measurement Group, Inc.

Emission Results

FACILITY INFORMATION

Facility Name: Los Mestenios Compressor Station
Hrs of Oper./Year: 8760

TEST INFORMATION

Test Operator, (LN,FI):	M. Lynn	M. Lynn	M. Lynn	
Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant	
Test Date, (mm/dd/yy):	01/25/95	01/25/95	01/25/95	
Run ID Number, (VDRR):	4101	4102	4103	AVERAGE
Time- Start, (24hr.):	9:02	10:27	11:58	
- End, (24hr.):	10:02	11:27	12:58	
Time of Test, (t, min.):	60.0	60.0	60.0	60.0
Max. Rtd. Cap., (Hp):	818.00	818.00	818.00	818.00
Production Load, (Hp):	818.00	818.00	818.00	818.00
Test Cond., Hp, (%MRC):	100.00	100.00	100.00	100.00

NOx RESULTS, (RM20)

ppm,(ISO Std. Cond.):	69.80	84.51	75.99	76.77
ppm,(dry,v/v,@ 15% O2):	61.4	74.3	66.7	67.5
ppm, (dry, v/v):	46.6	52.6	47.7	49.0
gm./HP-hr.:	2.24	2.51	2.26	2.33
lbs./hr.:	4.04	4.52	4.07	4.21
Tons/Year:	17.68	19.80	17.81	18.43

CO RESULTS (RM 10)

ppm,(dry,v/v,@ 15%O2):	43.0	43.8	41.5	42.8
ppm, (dry, v/v):	32.6	31.0	29.7	31.1
gm./HP-hr.:	0.95	0.90	0.85	0.90
lbs./hr.:	1.72	1.62	1.54	1.63
Tons/Year:	7.53	7.10	6.75	7.13

PARAMETRIC FLUE GAS RESULTS

Pres.Vel.Del.P(in.w.g.):	11.5000	11.5000	11.5000 *	11.5000
Moisture, (%v/v):	5.25	5.74	5.84	5.61
CO2, Inst., (% dry,v/v):	1.95	1.88	1.84	1.89
O2, Inst., (% dry,v/v):	16.43	16.73	16.68	16.61
Temperature,Stack, (°F):	825.0	834.0	842.0	833.7
Velocity,Flue Gas,(fps):	340.42	342.04	344.57	342.34
Volume Flow, (DSCFM):	12115	12017	11925	12019
Volume Flow, (ACFM):	40216	40408	40706	40443

NOx Iso-Standard Conditions

Barometric Pressure (in. Hg.):	23.46	23.43	23.41	23.43
Gauge Pressure (in. Hg.):	0.00	0.00	0.00	0.00
Observed Pressure (in. Hg.):	23.46	23.43	23.41	23.43
Reference Pressure (in. Hg.):	29.92	29.92	29.92	29.92
Ambient Temperature (°F):	39.20	47.60	50.70	45.83
Relative Humidity (%):	55.00	55.00	55.00	55.00
Vapor Pressure:	0.2402	0.3314	0.3722	0.3146

** Note: Delta-P greater than 10 in. w.g. which is off scale. Used estimate of 11.5.

Sampling Data and Analysis

FACILITY INFORMATION

Facility Name:	Los Mestenos Compressor Station
Stack/Duct Identifier:	Turbine Exhaust Stack
Hrs of Oper./Year:	8760

TEST INFORMATION

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Tech. Helper #1:	K. Wyant	K. Wyant	K. Wyant
Test Date, (mm/dd/yy):	01/25/95	01/25/95	01/25/95
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- End, (24hr.):	10:02	11:27	12:58
Time of Test, (t, min.):	60.0	60.0	60.0

SAMPLE VOLUME DATA

Reference Diluent (CO2) %:	12.0	12.0	12.0
Reference Diluent (O2) %:	15.0	15.0	15.0
Console ID #:	CC-02	CC-02	CC-02
Gas Meter ID Number:	6843919	6843919	6843919
Gas Mtr. Cal Factor, (Yo):	1.00480	1.00480	1.00480
Volume, Gas Samp. @ Std. Cond, (dscf):	47.637	46.849	47.786
Corrected for Excess Leak, (acf):	57.494	59.310	59.900
At Meter Conditions, (acf):	57.494	59.310	59.900
Temperature, @ Gas Meter, (°F):	46.00	70.08	64.42
Delta H Pres. @ Meter, (in. w.g.):	2.50	2.50	2.50
Pressure Barometric., Abs., (in. Hg.):	23.460	23.430	23.410
Leak Ck. Result, Post, Excessive, (acf):	0.000	0.000	0.000
Leak Rate Result, (cfm):	0.000	0.000	0.000
At Vacuum, (in. Hg.):	12.50	12.00	12.00
High During Run, (in. Hg.):	5.20	5.20	5.20

STACK MOISTURE DATA

Press. H2O Vap. @ Saturation, (in. Hg.):	0.3240	0.3493	0.3493
Of Gas @ Silica Gel, (in. Hg.):	18.293	18.230	18.210
Temperature @ Silica Gel Imp., (°F):	47.00	49.00	49.00
Vacuum @ Silica Gel/Pump, (in. Hg.):	5.167	5.200	5.200
Volume H2O @ Silica Gel, (gm):	22.01	24.60	24.87
Condensed H2O @ Impingers, (ml.):	34.0	36.0	38.0
Total Vol. H2O Collected, (ml.):	56.01	60.60	62.87

EQUIPMENT DATA

Pitot Side ID #:	A	A	A
Pitot Coef., (Cp):	0.840	0.840	0.840
Density of Flue Gas, (lb/cf):	0.0736	0.0734	0.0734
Molecular Weight, wet:	28.405	28.351	28.333

Fuel Gas Heater Emissions

Emission Unit No: 3

Fuel Data

0.3 MMBtu/hr	Heat rate	Nameplate
900 Btu/cf	Fuel heat value	Nominal heat value for natural gas
0.33 Mcf/hr	Fuel consumption	Heat rate and fuel heat value
2.92 MMcf/yr	Annual fuel usage	Assume 8760 hrs/yr operation

Emission Rates

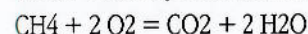
NO _x	CO	NMHC	Units
(1)	(2)	(3)	
0.040	0.0084	0.0015	lb/hr
0.175	0.037	0.0067	tpy

Basis for Calculations:

- (1) NO_x emissions calculated from emission factor in AP-42, Section 1.4 (NO_x factor = 100 lb/MMcf) + 20% safety factor
- (2) CO emissions calculated from emission factor in AP-42, Section 1.4 (CO factor = 21 lb/MMcf) + 20% safety factor
- (3) NMHC emissions calculated from emission factor in AP-42, Section 1.4 (NMHC factor = 3.83 lb/MMcf) + 20% safety factor
NMHC factor derived from AP-42 THC factor, assuming THC includes 34% methane as stated in AP-42

AP-42 emission factors for commercial boilers were utilized in calculations as determined by heat rate of fuel gas heater

Stack Velocity Estimation



ICAO Standard Atmosphere = 20.95% oxygen, 79.05% other gases

Therefore, ratio of other gases to oxygen = $79.05 \div 20.95$, or 3.77 : 1

Stoichiometric Combustion

1 cf fuel + 2 cf oxygen + (2 * 3.77) cf other gases = 3 cf combustion gases + 7.54 cf of other gases

1 cf fuel + 2 cf oxygen + (2 * 3.77) cf other gases = 10.54 cf exhaust gases

$$\text{Vol} = 10.54 * \text{Fn} * (\text{Pstd}/\text{Ps}) * (\text{Ts}/\text{Tstd})$$

Stack Parameters

6,660 ft MSL	Altitude	
5.56 scfm	Fuel rate (Fn)	Calculated from fuel consumption
1,060 °R	Typical stack temperature (Ts), 600 °F	
23.35 " Hg	Pressure at stack elevation (Ps)	Calculated from altitude
520 °R	Standard temperature (Tstd), 60 °F	
29.92 " Hg	Standard pressure (Pstd)	
153 acfm	Calculated stack flow	
1 ft	Stack diameter	Site visit
3.25 ft/sec	Stack velocity	Stack flow / ($\pi * (\text{Stack radius})^2$)
24 ft	Stack height	Site visit



Heater Emissions

Emission Unit No: 4

Fuel Data

0.3 MMBtu/hr	Heat rate	Nameplate
900 Btu/cf	Fuel heat value	Nominal heat value for natural gas
0.33 Mcf/hr	Fuel consumption	Heat rate and fuel heat value
2.92 MMcf/yr	Annual fuel usage	Assume 8760 hrs/yr operation

Emission Rates

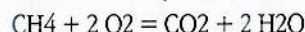
NO _x	CO	NMHC	Units
(1)	(2)	(3)	
0.040	0.0084	0.0015	lb/hr
0.175	0.037	0.0067	tpy

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1 cf fuel + 2 cf oxygen + (2 * 3.77) cf other gases = 10.54 cf exhaust gases

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Stack Parameters

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1,060 °R	Typical stack temperature (Ts), 600 °F	
23.35 " Hg	Pressure at stack elevation (Ps)	Calculated from altitude
520 °R	Standard temperature (Tstd), 60 °F	
29.92 " Hg	Standard pressure (Pstd)	
153 acfm	Calculated stack flow	
0.25 ft	Stack diameter	Site visit
51.94 ft/sec	Stack velocity	Stack flow / ($\pi * (\text{Stack radius})^2$)
3 ft	Stack height	Site visit

