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Final Report

Waste Management of Dallas Field Trial of of FPC-1 Fuel Performance Catalyst

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Abstract

A test of a unique fuel combustion catalyst conducted by Waste Management of Dallas verified reductions in fuel consumption and smoke emissions. The catalyst, known as FPC-1, was tested in a fleet of seven Mack powered waste disposal trucks. Fuel consumption reductions averaged 8.0%. Smoke emissions reductions averaged 22.5%.

The reduction in fuel consumption equates to a nearly $0.05 per gallon of fuel net savings, based upon fuel cost information provided to the author. Therefore, annual fuel cost reduction potential to Waste Management resulting from the use of FPC-1 nationwide could reach several million dollars.

Further, a high profile company like Waste Management will benefit substantially from cleaner exhausts. A voluntary program to reduce obnoxious smoke and diesel odor from trucks operating in urban and residential areas, through the use of FPC-1, would further enhance Waste Management's public image, and relieve pressure from political, regulatory, and special interest groups.

I. Introduction

FPC-1 Fuel Performance Catalyst is a burn rate modifier or catalyst proven to reduce fuel consumption and increase engine horsepower in several recognized, independent laboratory tests, including Southwest Research Institute, and dozens of independent field trials. The catalyst also has a positive impact upon the products of incomplete combustion, primarily soot (smoke).

The intent of the current trial at Waste Management of Dallas is to determine the degree of fuel consumption, and smoke reduction resulting from the addition of the FPC-1 catalyst to the # 2 diesel fuelling a select fleet of waste disposal trucks. The test methodology for determining fuel consumption is the carbon mass balance (cmb). The cmb method measures the carbon containing products of the combustion process (CO2, CO, HC) found in the exhaust, rather than directly measuring fuel flow into the engine. The method also makes it convenient to determine the effect of FPC-1 upon smoke density by applying the Bacharach Smokespot method.

This report summarizes the test data and the results of the baseline fuel to FPC-1 treated fuel comparison.

II. Discussion of Carbon Mass Balance Method

The carbon mass balance eliminates virtually all of the variables associated with field testing for fuel consumption changes. The method requires no modifications to fuel lines or engines, and can be conducted in a short period of time at minimal expense.

Instead of measuring fuel flow into the engine (ie., the weight or volume of the fuel), measurements are made of the exhaust gases leaving the engine. More precisely, the carbon containing gases in the exhaust are measured. The method is based upon the Law of Conservation of Matter, which states that atoms can neither be created nor destroyed. Since the engines only source of carbon is the fuel it consumes, the carbon measured in the exhaust must come from the fuel. By measuring the carbon going out of the engine in the form of products of combustion, the amount of carbon entering the engine can be determined.

Additionally, the measurement of smoke density in the exhaust on a relative basis can be done simultaneously with the cmb.

Carbon Balance Calculation

The carbon leaving the engine is mainly in the form of carbon dioxide (CO2), carbon monoxide (CO), unburned hydrocarbons (HC), and particulate (smoke). By collecting these data while the engine is operating at a given load and speed, the fuel flow rate into the engine can be accurately determined. When engine load and speed, along with other factors influencing fuel consumption are reproduced and/or monitored to make appropriate corrections, the carbon balance can be used to confidently determine changes in fuel consumption that might result from the use of a fuel catalyst, such as FPC-1.

With the carbon balance, engine efficiency is expressed in terms of engine performance factors

(mass flow rates). To calculate any change in engine performance, separate measurements are made with the engine running on base fuel (untreated) and FPC-1 treated fuel. Any changes are stated as percentage changes from baseline.

A copy of the carbon balance equations is found on Figure 1 (Appendix 1). A sample calculation for illustration purposes is also attached (see Figure 2, Appendix 1). The changes in fuel consumption for each engine tested are summarized on Table 1, Appendix 2. The Excel Pro calculated computer printouts for each truck are found in Appendix 3.

Additionally, the carbon balance can be used to determine the effect of FPC-1 upon harmful emissions, such as smoke.

Bacharach Smokespot Method

Smoke is a product of incomplete combustion, and as such, is a measure of engine efficiency. Smoke is simply unburned fuel droplets not consumed during the final phase or tail of combustion when temperatures and pressures are significantly lower than ideal, and much of the oxygen in the chamber has been expended. FPC-1 continues to function throughout the entire combustion cycle, improving the oxidation of these fuel droplets, thereby extracting more useful energy while reducing smoke emissions.

Smoke density was determined using the Bacharach Truespot Smokemeter and filter paper. The Bacharach smokespot meter draws a specific volume of exhaust gases through a 5 micron filter medium. The particulate or soot (smoke) in the exhaust sample collects on the surface of the medium, and darkens it. The greater the concentration or density of the smoke in the exhaust sample, the darker the spot that forms on the surface of the paper. This smoke spot is compared to a smoke scale and assigned a smoke density number. The Bacharach scale ranges from 0 to 9, with 0 being a pure white spot, and 9 almost completely black.

The smoke samples were taken while each engine was run at a fixed rpm and at high idle. The smoke numbers can be used to determine the relative change in smoke density created by the addition of FPC-1 to the fuel. The smoke density data are found on Table 2, in Appendix 4.

III. Instrumentation

Precision, state-of-the-art instrumentation is used to measure the concentrations of carbon containing gases in the exhaust stream and other factors related to fuel consumption and engine performance. The instruments and their purposes are listed below:

1) A Sun Electric SGA-9000 non-dispersive infrared (NDIR) four gas analyzer - measures the volume percent of CO2, CO, and oxygen (O2) in the exhaust, and the parts per million (ppm) of HC.

2) EPA I/M Calibration Gases - known gases used to internally calibrate the NDIR analyzer.

3) A twenty (20) foot sampling train and stainless steel exhaust gas probe - inserted into the engine exhaust pipe draws a sample of exhaust gases to the analyzer.

4) A Fluke Model 52 hand held digital thermometer and wet/dry thermocouple probe - measures exhaust, ambient, and fuel temperature.

5) A Dwyer Magnehelic 2000 Series Pressure Gauge and pitot tube - measures exhaust air velocity and/or pressure.

6) A Monarch Contact/Noncontact digital tachometer and magnetic tape - measures engine rpm when dash mounted tachometers are unavailable.

7) A hydrometer and flask - determines fuel specific gravity (density).

8) Barometric pressure is acquired from local airport or weather station.

9) A Bacharach Truespot Smokemeter - for smoke density determination.

With the exception of engine speed, fuel density, and ambient readings, all data are collected by simply inserting probes into the exhaust stream while the engine is running at a fixed rpm and load, and the vehicle is stationary. No modifications or device installation are made to the fuel system, nor are normal equipment work cycles disrupted.

Between the baseline test and the treated test, the test fleet was operated on FPC-1 fuel treatment approximately 500 hours to ensure complete engine conditioning.

IV. Technical Approach

The following technical approach was observed during the baseline and treated tests:

1) All instruments calibrated according to accepted protocol. The SGA-9000 NDIR analyzer was calibrate with the same bottle of BAR 90 calibration gases.

2) A sample of fuel is drawn from the fuel tank on each piece of equipment. Using a hydrometer, fuel density (specific gravity) was determined and recorded.

3) Each piece of equipment to be tested was parked, brakes locked, and run out-of-gear at a specific engine speed (RPM) until engine water and exhaust temperature, and exhaust pressure and exhaust gas concentrations stabilized. Engine speed was controlled using either a hand held phototach or the tachometer in the cab, and on Snap On throttle locking device..

4) Engine hours (or mileage) were taken from meters installed on the trucks.

5) After engine stabilization, the Autocal button on the SGA-9000 was depressed and after the LED readouts clear, test personnel took multiple readings of carbon dioxide, carbon monoxide, unburned hydrocarbons, and oxygen, along with engine speed, exhaust temperature and pressure.

6) Periodically, ambient air temperature, atmospheric pressure, and relative humidity are recorded. Temperature readings are taken at the test site. Other ambient readings are acquired from local weather information services (see Appendix 5).

7) All data are recorded until technicians are confident the information is consistent and reproducible.

8) After completing the baseline, all test fleet fuel was treated with FPC-1. All equipment operated as normal for approximately 500 hours, at which time the above procedure was reproduced without alteration, except for FPC-1 fuel treatment in the test fleet.

*The first treatment of FPC-1 was done by UHI personnel after the baseline test. Treatment of additional fuel delivered to the site during the test was carried out by Waste Management personnel.

The data relative to the rate of fuel consumption was used by UHI and Waste Management engineers to calculate the percent change in fuel consumption before and after FPC-1 fuel treatment. Smoke density changes were determined in a similar manner.

V. Baseline Data and Calculations

The data collected during the baseline and treated fuel carbon balance tests are summarized on the attached computer printouts (Appendix 3). From these data the volume fraction (VF) of each gas is determined and the average molecular weight (Mwt) of the exhaust gases computed. Next, the engine performance factor (pf) based upon the carbon mass in the exhaust is computed. The pf is finally corrected for intake air temperature and pressure (barometric), and total exhaust mass yielding a corrected engine performance factor (PF). The baseline and treated fuel PFs are tabulated on Table 1 of Appendix 2. Baseline smoke spot (smoke density) numbers are found on Table 2 of Appendix 4.

203, 204 and 221

Units 203, 204 and 221 were originally included in the test fleet but could not be tested during the treated portion of the test procedure. The dash mounted electronic tachometers were not working during the treated test, nor could a mechanical tachometer be mounted on the engine. Since engine speed (rpm) could not reproduced for these units, they were not tested a second time when treated with FPC-1.

Unit 221 was tested with FPC-1 treated fuel, however, the data indicated the engine was

experiencing much larger changes in fuel consumption than observed in previous laboratory and field tests with FPC-1 treated fuel. When the reason for the dramatic change was investigated, it was discovered that a new injection pump had been installed on Unit 221. The large change in fuel consumption was certainly influenced by the pump replacement, and therefore, Unit 221 was removed from the test sample.

VI. Conclusions

(1) Fuel consumption was reduced 8.0% for the Mack test fleet after FPC-1 fuel treatment and engine conditioning.

(2) Smoke density in the exhaust gases from the Mack test fleet was reduced 22.5% after FPC-1 fuel treatment and engine conditioning.

(3) Although not quantifiable, diesel odor was less noticeable after FPC-1 fuel treatment.

APPENDIX 1

Figure 1
CARBON MASS BALANCE FORMULAE

ASSUMPTIONS: $C_{12}H_{26}$ and SG = 0.82
Time is constant
Load is constant

DATA:

Mwt = Molecular Weight
pf1 = Calculated Performance Factor (Baseline)
pf2 = Calculated Performance Factor (Treated)
PF1 = Performance Factor (adjusted for Baseline exhaust mass)
PF2 = Performance Factor (adjusted for Treated exhaust mass)
CFM = Volumetric Flow Rate of the Exhaust
SG = Specific Gravity of the Fuel
VF = Volume Fraction
d = Exhaust stack diameter in inches
Pv = Velocity pressure in inches of H_20
P_B = Barometric pressure in inches of mercury
Te = Exhaust temperature °F
VFHC = "reading" ÷ 1,000,000
VFCO = "reading" ÷ 100
$VFCO_2$ = "reading" ÷ 100
VFO_2 = "reading" ÷ 100

EQUATIONS:

$$Mwt = (VFHC)(86)+(VFCO)(28)+(VFCO_2)(44)+(VFO_2)(32)+[(1-VFHC-VFCO-VFCO_2-VFO_2)(28)]$$

$$pf1 \text{ or } pf2 = \frac{3099.6 \times Mwt}{86(VFHC)+13.89(VFCO)+13.89(VFCO_2)}$$

$$CFM = \frac{(d/2)^2\pi}{144}\left(1096.2\sqrt{\frac{Pv}{1.325(PB/ET+460)}}\right)$$

$$PF1 \text{ or } PF2 = \frac{pf \times (Te+460)}{CFM}$$

FUEL ECONOMY:
PERCENT INCREASE (OR DECREASE) $\frac{PF2 - PF1}{PF1} \times 100$

Figure 2.

SAMPLE CALCULATION FOR THE CARBON MASS BALANCE

BASELINE:

Equation 1 (Volume Fractions)

VFHC = 13.20/1,000,000
= 0.0000132

VFCO = 0.017/100
= 0.00017

$VFCO_2$ = 1.937/100
= 0.01937

VFO_2 = 17.10/100
= 0.171

Equation 2 (Molecular Weight)

Mwt1 = (0.0000132)(86) + (0.00017)(28) + (0.01937)(44) + (0.171)(32)
+ [(1-0.0000132-0.00017-0.01937-0.171)(28)]

Mwt1 = 28.995

Equation 3 (Calculated Performance Factor)

$$pf1 = \frac{3099.6 \times 28.995}{86(0.0000132) + 13.89(0.00017) + 13.89(0.01937)}$$

pf1 = 329,809

Equation 4 (CFM Calculations)

$$CFM = \frac{(d/2)^2\pi}{144}\left(1096.2\sqrt{\frac{Pv}{1.325(PB/ET+460)}}\right)$$

d = Exhaust stack diameter in inches
Pv = Velocity pressure in inches of H_20
P_B = Barometric pressure in inches of mercury
Te = Exhaust temperature ^oF

$$CFM = \frac{(10/2)^2\pi}{144}\left(1096.2\sqrt{\frac{.80}{1.325(30.00/313.100+460)}}\right)$$

CFM = 2358.37

Equation 5 (Corrected Performance Factor)

$$PF1 = \frac{329,809(313.1 \text{ deg F} + 460)}{2358.37 \text{ CFM}}$$

PF1 = 108,115

TREATED:

Equation 1 (Volume Fractions)

VFHC = 14.6/1,000,000
= 0.0000146

VFCO = .013/100
= 0.00013

$VFCO_2$ = 1.826/100
= 0.01826

VFO_2 = 17.17/100
= 0.1717

Equation 2 (Molecular Weight)

Mwt2 $= (0.0000146)(86) + (0.00013)(28) + (0.01826)(44) + (0.1717)(32)$
$+ [(1-0.0000146-0.00013-0.01826-0.1717)(28)]$

Mwt2 $= 28.980$

Equation 3 (Calculated Performance Factor)

$$pf2 = \frac{3099.6 \times 28.980}{86(0.0000146) + 13.89(0.00013) + 13.89(0.01826)}$$

pf2 $\doteq 349{,}927$

Equation 4 (CFM Calculations)

$$CFM = \frac{(d/2)^2\pi}{144}\left(1096.2\sqrt{\frac{Pv}{1.325(PB/ET+460)}}\right)$$

d = Exhaust stack diameter in inches
Pv = Velocity pressure in inches of H_20
P_B = Barometric pressure in inches of mercury
Te = Exhaust temperature ^oF

$$CFM = \frac{(10/2)^2\pi}{144}\left(1096.2\sqrt{\frac{.775}{1.325(29.86/309.02+460)}}\right)$$

CFM $= 2320.51$

Equation 5 (Corrected Performance Factor)

$$PF2 = \frac{349{,}927(309.02 \text{ deg F} + 460)}{2320.51 \text{ CFM}}$$

$= 115{,}966$

Fuel Specific Gravity Correction Factor

Baseline Fuel Specific Gravity - Treated Fuel Specific Gravity/Baseline Fuel Specific Gravity +1

.840-.837/.840+1=1.0036

PF2 = 115,966 x Specific Gravity Correction

PF2 = 115,966 x 1.0036

PF2 = 116,384

Equation 6 (Percent Change in Engine Performance Factor:)

$$\% \text{ Change PF} = \frac{PF2 - PF1}{PF1} \times 100$$

% Change PF = [(116,384 - 108,115)/108,115](100)

= +7.65

Note: A positive change in PF equates to a reduction in fuel consumption.

APPENDIX 2

Table 1: Baseline and Treated Fuel Engine Performance Factors (PF)

No.	Baseline PF	Treated PF	%Chg
205	328,099	345,577	5.33
215	329,103	361,601	9.69
248	379,573	421,766	10.12
264	371,079	407,938	9.93
418	471,345	513,098	8.71
420	592,434	611,403	3.20
463	759,223	828,826	9.17

* A positive change in PF equates to a reduction in fuel consumption.

Table 2: Baseline and Treated Fuel Smoke Spot Numbers (Exhaust Smoke Density)

Unit No.	Baseline Smoke No.	Treated Smoke No.	%Chg
205	7.0	6.0	14.0
215	5.0	5.0	00.0
248	6.0	4.5	25.0
264	5.5	4.5	18.0
418	5.5	5.0	10.0
420	3.0	1.5	50.0
463	5.0	3.0	40.0

APPENDIX 3

Company Name:	Waste Management	*Location:*	Dallas West	*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4 Inches		
Engine Type:	Mack	*Mile/Hrs*	242445		
Equipment Type:	Garbage Truck	*ID #:*	205	*Baro*	30.01
Fuel Sp. Gravity(SG	.850	*Temp:*			
				Time:	1500

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1800	331.4	2.8	0.01	9	2.19	16.7	
1800	334	2.8	0.01	9	2.19	16.7	
1800	340	2.8	0.01	9	2.17	16.8	
1800	341.2	2.8	0.01	9	2.19	16.8	
1800	343.4	2.8	0.01	9	2.19	16.7	
1800	344.6	2.8	0.01	9	2.18	16.7	
1800	348	2.8	0.01	9	2.19	16.7	
1800	347.8	2.8	0.01	9	2.19	16.6	
1800.000	**341.300**	**2.800**	**.010**	**9.000**	**2.186**	**16.713**	Mean
0	**6.041**	**.000**	**.000**	**.000**	**.007**	**.064**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
9.00E-06	0.0001	.022	.167	29.019	294,078	328,099

Company Name:	Waste Management	*Location:*	Dallas West	*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4 Inches		
Engine Type:	Mack	*Mile/Hrs:*	245637		
Equipment Type	Garbage Truck	*ID #:*	205	*Baro:*	29.97
Fuel Sp. Gravity:	.830	*Temp:*			
SG Corr Factor:	1.024			*Time:*	13:30

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1800	397.2	2.5	0.01	10	2.35	17	
	398.6		0.01	10	2.35	16.9	
	397.8		0.01	10	2.31	17.1	
	397.4	2.6	0.01	9	2.29	17.1	
	396.6		0.01	9	2.28	17.1	
	396.8	2.6	0.01	9	2.25	17.1	
	399		0.01	9	2.25	17.1	
1800.000	**397.629**	**2.567**	**.010**	**9.429**	**2.297**	**17.057**	Mean
#DIV/0!	**.898**	**.058**	**.000**	**.535**	**.042**	**.079**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
9.43E-06	0.0001	.023	.171	29.050	280,250	337,632

Performance factor adjusted for fuel density: 345,577

****% Change PF= 5.33 %**

*** A positive change in PF equates to a reduction in fuel consumption.*

Company Name:	Waste Management	*Location:*	Dallas West		*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4	Inches		
Engine Type:	Mack	*Mile/Hrs*	235213			
Equipment Type:	Garbage Truck	*ID #:*	215		*Baro*	30.03
Fuel Sp. Gravity(SG	.847	*Temp:*	75			
					Time:	1424

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	347.4		0.01	13	2.42	16.9	
1900	350	2.4	0.01	13	2.41	17	
1900	353		0.01	13	2.42	16.9	
1900	355.2	2.4	0.01	13	2.4	16.9	
1900	359.6		0.01	13	2.41	17	
1900	366	2.4	0.01	13	2.3	17	
1900	366.8	2.4	0.01	13	2.3	17.1	
1900.000	**356.857**	**2.400**	**.010**	**13.000**	**2.380**	**16.971**	Mean
0	**7.573**	**.000**	**.000**	**.000**	**.055**	**.076**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
1.30E-05	0.0001	.024	.170	29.060	270,394	329,103

Company Name:	Waste Management	*Location:*	Dallas West		*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4	Inches		
Engine Type:	Mack	*Mile/Hrs:*	238874			
Equipment Type	Garbage Truck	*ID #:*	215		*Baro:*	29.87
Fuel Sp. Gravity:	.838	*Temp:*				
SG Corr Factor:	1.011				*Time:*	14:25

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	400.6	2.3	0.01	12	2.35	16.7	
	400.3	2.3	0.01	12	2.32	16.7	
	412.4	2.2	0.01	10	2.36	16.9	
	414	2.2	0.01	10	2.35	16.9	
	415.8	2.2	0.01	10	2.35	17	
	416.6	2.2	0.01	10	2.33	17	
	418	2.3	0	12	2.3	17	
	418.2	2.3	0	12	2.33	17	
1900.000	**411.988**	**2.250**	**.008**	**11.000**	**2.336**	**16.900**	Mean
#DIV/0!	**7.378**	**.053**	**.005**	**1.069**	**.020**	**.131**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
1.10E-05	0.000075	.023	.169	29.050	275,766	357,201

Performance factor adjusted for fuel density: 360,997

****% Change PF= 9.69 %**

*** A positive change in PF equates to a reduction in fuel consumption.*

Company Name:	Waste Management	*Location*	Dallas West		*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4	Inches		
Engine Type:	Mack	*Mile/Hrs*	44954			
Equipment Type:	Garbage Truck	*ID #:*	248		*Baro*	29.98
Fuel Sp. Gravity(SG	.850	*Temp:*				
					Time:	1640

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	360.6	2.4	0.01	9	2.09	16.9	
1900	361.4	2.4	0.01	8	2	17	
1900	363	2.4	0.01	9	2	17.1	
1900	364.8	2.6	0.01	9	2.06	17	
1900	364.4	2.6	0.01	9	1.96	17.1	
1900	362.4	2.6	0.01	9	1.95	17.2	
1900.000	**362.767**	**2.500**	**.010**	**8.833**	**2.010**	**17.050**	Mean
0	**1.646**	**.110**	**.000**	**.408**	**.055**	**.105**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
8.83E-06	0.0001	.020	.171	29.004	319,519	382,095

Company Name:	Waste Management	*Location:*	Dallas West		*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4	Inches		
Engine Type:	Mack	*Mile/Hrs:*	51700			
Equipment Type	Garbage Truck	*ID #:*	248		*Baro:*	29.84
Fuel Sp. Gravity:	.836	*Temp:*				
SG Corr Factor:	1.016				*Time:*	17:00

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	381.8	2.4	0.01	12	1.94	17.3	
1900	382.8	2.4	0.01	12	1.9	17.4	
1900	381.8	2.4	0.01	10	1.89	17.7	
1900	381.2	2.4	0.01	10	1.88	17.7	
1900	381.4	2.4	0.01	10	1.87	17.7	
1900	381	2.6	0.01	12	1.85	17.7	
1900	381.2	2.6	0.01	12	1.85	17.7	
1900	378.8	2.6	0.01	10	1.85	17.7	
1900.000	**381.250**	**2.475**	**.010**	**11.000**	**1.879**	**17.613**	Mean
0	**1.140**	**.104**	**.000**	**1.069**	**.031**	**.164**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
1.10E-05	0.0001	.019	.176	29.006	341,425	413,962

Performance factor adjusted for fuel density: 420,780

****% Change PF= 10.12 %**

***** A positive change in PF equates to a reduction in fuel consumption.***

Company Name:	Waste Management	*Location*	Dallas West		*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4	Inches		
Engine Type:	Mack	*Mile/Hrs*	188843			
Equipment Type:	Garbage Truck	*ID #:*	264		*Baro*	30.07
Fuel Sp. Gravity(SG	.853	*Temp:*	71			
					Time:	1305

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1800	358	1.9	0.02	10	2.35	16.6	
	359		0.02	10	2.35	16.7	
		1.9	0.02	9	2.38	17.1	
	360		0.02	9	2.39	17.1	
	359	1.9	0.02	8	2.34	17.2	
	359		0.02	9	2.34	17.2	
	361	1.95	0.02	8	2.37	17	
	361.2		0.02	8	2.38	17.1	
1800.000	**359.600**	**1.913**	**.020**	**8.875**	**2.363**	**17.000**	Mean
#DIV/0!	**1.178**	**.025**	**.000**	**.835**	**.020**	**.227**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
8.88E-06	0.0002	.024	.170	29.059	271,524	371,079

Company Name:	Waste Management	*Location:*	Dallas West		*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4	Inches		
Engine Type:	Mack	*Mile/Hrs:*	96501			
Equipment Type	Garbage Truck	*ID #:*	264		*Baro:*	29.97
Fuel Sp. Gravity:	.835	*Temp:*	92			
SG Corr Factor:	1.021				*Time:*	14:00

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1800	364	1.8	0.02	10	2.29	17	
1800	367	1.8	0.02	10	2.29	17	
1800	370.8	1.8	0.02	10	2.28	17.1	
1800	370	1.8	0.02	10	2.26	17.1	
1800	371.2	1.8	0.02	10		17.1	
1800	371	1.8	0.02	11		17.3	
1800	371.4	1.8	0.02	10		17.3	
1800	371.6	1.8	0.02	12	2.24	17.1	
1800	376	1.8	0.02	13	2.26	17.1	
1800.000	**370.333**	**1.800**	**.020**	**10.667**	**2.270**	**17.122**	Mean
0	**3.309**	**.000**	**.000**	**1.118**	**.020**	**.109**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
1.07E-05	0.0002	.023	.171	29.049	282,228	399,507

Performance factor adjusted for fuel density: 407,938

****% Change PF= 9.93 %**

*** A positive change in PF equates to a reduction in fuel consumption.*

Company Name:	Waste Management	*Location*	Dallas West	*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4 Inches		
Engine Type:	Mack	*Mile/Hrs*	125695		
Equipment Type:	Garbage Truck	*ID #:*	418	*Baro*	29.98
Fuel Sp. Gravity(SG	.844	*Temp:*	72		
				Time:	1600

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	355	1.4	0.01	4	2.21	16.6	
1900	355.4	1.4	0.01	5	2.18	16.6	
1900	358.8	1.4	0.02	4	2.17	16.9	
1900	360	1.4	0.01	4	2.19	16.9	
1900	362.2	1.4	0.02	5	2.19	17	
1900	362.8	1.4	0.01	4	2.18	16.9	
1900	364.2	1.4	0.01	4	2.15	16.9	
1900	365.6	1.4	0.01	4	2.15	17	
1900.000	**360.500**	**1.400**	**.013**	**4.250**	**2.178**	**16.850**	Mean
0	**3.915**	**.000**	**.005**	**.463**	**.021**	**.160**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
4.25E-06	0.000125	.022	.169	29.023	295,363	471,345

Company Name:	Waste Management	*Location:*	Dallas West	*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4 Inches		
Engine Type:	Mack	*Mile/Hrs:*			
Equipment Type	Garbage Truck	*ID #:*	418	*Baro:*	29.90
Fuel Sp. Gravity:	.832	*Temp:*			
SG Corr Factor:	1.014			*Time:*	13:50

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	356	1.4	0.01	2	2.03	17.3	
	358.7		0.01	2	2.04	17.3	
	363.4	1.4	0.01	3	2.03	17.5	
	364.8	1.4	0.01	3	2.02	17.5	
	367.6	1.4	0.01	4	2.04	17.4	
	368.8	1.4	0.01	4	2.04	17.4	
	371	1.4	0.01	3	2.05	17.4	
1900.000	**364.329**	**1.400**	**.010**	**3.000**	**2.036**	**17.400**	Mean
#DIV/0!	**5.437**	**.000**	**.000**	**.816**	**.010**	**.082**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
3.00E-06	0.0001	.020	.174	29.022	316,283	505,230

Performance factor adjusted for fuel density: 512,413

****% Change PF= 8.71 %**

*** A positive change in PF equates to a reduction in fuel consumption.*

Company Name:	Waste Management	*Location*	Dallas West		*Date:*	4/25/95
Test Portion:	Baseline	*Stack Diam.*	4	Inches		
Engine Type:	Mack	*Mile/Hrs*	120062			
Equipment Type:	Garbage Truck	*ID #:*	420		*Baro*	30.01
Fuel Sp. Gravity(SG	.846	*Temp:*				
					Time:	1520

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	334.6	1.2	0.01	4	1.81	17.4	
1900	336.6		0.01	4	1.8	17.4	
1900	342	1.2	0	4	1.83	17.4	
1900	342.6		0.01	5	1.84	17.3	
1900	343.8	1.2	0.01	5	1.88	17.3	
1900	344.6	1.2	0.01	5	1.88	17.2	
1900	345.6	1.2	0.01	5	1.88	17.3	
1900	345.4	1.2	0.01	4	1.88	17.3	
1900.000	**341.900**	**1.200**	**.009**	**4.500**	**1.850**	**17.325**	Mean
0	**4.118**	**.000**	**.004**	**.535**	**.034**	**.071**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
4.50E-06	0.0000875	.019	.173	28.989	347,493	592,434

Company Name:	Waste Management	*Location:*	Dallas West		*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4	Inches		
Engine Type:	Mack	*Mile/Hrs:*	132900			
Equipment Type	Garbage Truck	*ID #:*	420		*Baro:*	29.97
Fuel Sp. Gravity:	.830	*Temp:*				
SG Corr Factor:	1.019				*Time:*	15:50

RPM	Exh Temp	Pv Inch	0.01	HC	CO2	O2	
1900	332	1	0.01	5	2.05	17.5	
	331.6	1	0.01	5	2.06	17.5	
	329.6	1	0.01	5	2.04	17.5	
	329.6	1	0.01	4	2.04	17.5	
	327.8	0.9	0.01	5	2.01	17.5	
	328	0.9	0.01	4	2	17.5	
	327.8	0.9	0.01	5	2.02	17.6	
	328		0.01	4	2.02	17.5	
1900.000	**329.300**	**.957**	**.010**	**4.625**	**2.030**	**17.513**	Mean
#DIV/0!	**1.717**	**.053**	**.000**	**.518**	**.021**	**.035**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
4.63E-06	0.0001	.020	.175	29.026	317,047	600,054

Performance factor adjusted for fuel density: 611,403

****% Change PF= 3.20 %**

***** A positive change in PF equates to a reduction in fuel consumption.***

Company Name:	Waste Management	*Location*	Dallas West		*Date:*	4/26/95
Test Portion:	Baseline	*Stack Diam.*	4	Inches		
Engine Type:	Mack	*Mile/Hrs*	487000			
Equipment Type:	Garbage Truck	*ID #:*	463		*Baro*	29.85
Fuel Sp. Gravity(SG	.850	*Temp:*				
					Time:	1500

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	314.6	0.8	0.03	8	1.77	18.3	
1900	315		0.03	9	1.75	18.3	
1900	315.6	0.8	0.03	9	1.74	18.4	
1900	316.4		0.03	9	1.73	18.3	
1900	316.4	0.8	0.03	10	1.7	18.4	
1900	316.8		0.03	10	1.69	18.4	
1900	317.6	0.8	0.02	9	1.67	18.4	
1900	318.4		0.02	9	1.66	18.4	
1900.000	**316.350**	**.800**	**.028**	**9.125**	**1.714**	**18.363**	Mean
0	**1.277**	**.000**	**.005**	**.641**	**.040**	**.052**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw1	pf1	PF1
9.13E-06	0.000275	.017	.184	29.009	370,529	759,223

Company Name:	Waste Management	*Location:*	Dallas West		*Test Date:*	6/27/95
Test Portion:	Treated	*Stack Diam:*	4	Inches		
Engine Type:	Mack	*Mile/Hrs:*	504189			
Equipment Type	Garbage Truck	*ID #:*	463		*Baro:*	29.97
Fuel Sp. Gravity:	.835	*Temp:*				
SG Corr Factor:	1.018				*Time:*	12:15

RPM	Exh Temp	Pv Inch	CO	HC	CO2	O2	
1900	330.6	0.7	0.02	10	1.8	17.8	
	330	0.7	0.02	10	1.8	17.8	
	330.4	0.7	0.02	10	1.79	17.8	
	330.6	0.7	0.02	10	1.76	17.8	
	330.4	0.7	0.02	10	1.77	17.9	
	330.6	0.6	0.02	10	1.77	17.8	
	330.8	0.6	0.02	10	1.78	17.9	
	330.8	0.6	0.02	10	1.79	17.8	
1900.000	**330.525**	**.663**	**.020**	**10.000**	**1.783**	**17.825**	Mean
#DIV/0!	**.260**	**.052**	**.000**	**.000**	**.015**	**.046**	Std Dev

VFHC	VFCO	VFCO2	VFO2	Mtw2	pf2	PF2
1.00E-05	0.0002	.018	.178	28.999	357,739	814,453

Performance factor adjusted for fuel density: 828,826

****% Change PF= 9.17 %**

*** A positive change in PF equates to a reduction in fuel consumption.*

APPENDIX 4

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Item: 2 Code: CTX

8AM Tue 25 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	45	SW 11	33	15	60%	30.00f	45	37	
Amarillo	no report	49	S 20	31	10	63%	30.02s	49	39	
Childress	clear	52	S 13	40	25	64%	30.06f	52	42	
Lubbock Intl	clear	51	S 16	36	15	61%	30.06f	51	43	
Reese AFB	ptly cldy	55	S 18	41	10	49%	30.04f	55	48	
El Paso	clear	54	NE 7	49	50	31%	30.00r	59	46	
Guadalupe Ps	dry	57	SW 6G13	54		32%	29.99s	59	51	
Wink	clear	55	SE 17	41	20	45%	30.02s	55	49	
Midland	clear	55	S 15	43	20	53%	30.05s	55	45	
San Angelo	.....									
Marfa	no report	53	SE 3	53	10	40%	30.09s	53	37	
Sanderson	no report	55	SE 7G10	50		51%		58	51	
Wichita Falls	ptly cldy	54	S 9	48	10	75%	30.09s	54	42	
Sherman	.....									
Dyess AFB	ptly cldy	56	S 15	44	15	64%	30.10s	56	47	
Abilene AP	mstly clr	57	S 18	43	30	55%	30.09s	57	48	
Mineral Wells	ptly cldy	55	S 7	50	20	67%	30.13r	55	45	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	ptly cldy	56	S 7	53	15	75%	30.15r	56	44	
Dallas FtWrth	clear	57	S 7	54	15	72%	30.14r	57	47	
East Addition	.....									
Dallas Love	clear	60	S 6	58	12	60%	30.14r	60	50	
Dallas Adsn	clear	59	S 6	56	13	56%	30.13r	59	51	
Dallas Hensly	ptly cldy	59	S 8	55	12	65%	30.12r	59	48	
Greenville	clear	57	CALM	60	15	78%	30.14s			
Mt Pleasant	.....									
Tyler	clear	57	SW 7	55	20	75%	30.13s			
Longview	clear	57	CALM	58	20	67%	30.15r			
Waco	no report	55	CALM	58	10	83%	30.14r	55	44	
Killeen Gray	ptly cldy	60	S 7	58	14	65%	30.15r	60	49	
Ft. Hood	ptly cldy	59	S 5	59	7	65%	30.15r	59	49	
Temple	no report	58	SW 3	59	10	65%	30.13r	58	44	
Lufkin	clear	58	CALM	62	10	81%	30.17r	58	44	
Junction	dry	60	SE 9G13	54		48%	30.15f	60	46	
Round Mtn	.....									
Austin AP	mstly clr	59	CALM	59	15	60%	30.14s	59	47	
Bergstrom AFB	ptly cldy	56	CALM	57	10	72%	30.13s			
College Stn	clear	61	S 8	60	10	72%	30.15r	61	48	
Del Rio Intl	dry	63	S 10G15	56	8	45%	30.11r	63	54	
Laughlin AFB	ptly cldy	62	SE 9	56	20	50%	30.11s	62	54	
Hondo	.....									
Kelly AFB	ptly cldy	60	N 7	57	7	62%	30.11s	60	46	
Sn Antnio Int	mstly clr	58	NW 5	58	10	67%	30.14r	58	46	
Randolph AFB	ptly cldy	58	N 6	56	7	67%	30.13s	58	42	
Cotulla	mstly cldy	60	E 5	60	15	62%	30.11r	60	55	
Laredo	cloudy	58	CALM	58	15	58%	30.10r	61	56	
Mc Allen	cloudy	63	N 5	65	10	68%	30.11r	63	58	
Harlingen	mstly cldy	64	S 5	67	15	70%	30.10r	64	59	
Brownsville	ptly cldy	68	E 5	73	10	66%	30.09r	72	59	
Kingsville	mstly cldy	63	W 8	62	7	70%	30.04f	63	53	
Alice	mstly cldy	62	NE 14	55	15	65%	30.09r	62	51	
CrpusCsty Int	mstly cldy	64	N 15	60	10	73%	30.08f	64	59	
Crpus Csty NS	mstly cldy	65	NE 15	61	11	70%	30.07f	65	62	
Rockport	.....									

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Item: 2 Code: CTX

10AM Tue 25 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	57	SW 17	44	15	42%	29.96f	57	37	
Amarillo	no report	62	SW 29G37	47	10	40%	29.98f	62	39	
Childress	clear	66	SW 22	55	25	39%	30.04f	66	42	
Lubbock Intl	clear	61	S 21	48	12	39%	30.04f	61	43	
Reese AFB	clear	65	S 16G31	55	10	33%	30.03f	65	48	
El Paso	clear	68	S 6	66	50	25%	30.00f	68	46	
Guadalupe Ps	dry	58	SW 7G20	54		33%	29.99s	59	51	
Wink	clear	65	SE 15	56	20	29%	30.01s	65	49	
Midland	clear	65	SE 21G31	54	20	37%	30.04f	65	45	
San Angelo	clear	67	S 11	61	25	44%	30.08f	67	46	
Marfa	no report	61	SE 9	55	10	31%	30.07f	61	37	
Sanderson	no report	64	N 7G9	60		38%		64	51	
Wichita Falls	ptly cldy	65	S 18	56	10	50%	30.08f	65	42	
Sherman	clear	64	S 11	57	15	48%	30.12r			
Dyess AFB	ptly cldy	67	S 16	58	15	45%	30.08f	67	47	
Abilene AP	mstly clr	65	S 17	55	30	42%	30.07f	65	48	
Mineral Wells	clear	65	SW 10	59	20	49%	30.12s	65	45	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly clr	66	S 14	61	15	57%	30.13f	66	44	
Dallas FtWrth	clear	67	S 14	60	15	47%	30.12s	67	47	
East Addition	.....									
Dallas Love	clear	67	S 9	64	20	53%	30.13f	67	50	
Dallas Adsn	clear	63	S 7	59	13	48%	30.13s	63	51	
Dallas Hensly	ptly cldy	67	S 10	61	12	44%	30.11f	67	48	
Greenville	clear	68	S 9	68	15	59%	30.13f			
Mt Pleasant	.....									
Tyler	clear	64	SW 7	65	20	68%	30.15r	64	48	
Longview	clear	63	S 5	63	20	54%	30.15s	63	42	
Waco	no report	65	S 10	61	10	54%	30.14f	65	44	
Killeen Gray	ptly cldy	66	S 8	63	14	49%	30.13f	66	49	
Ft. Hood	clear	64	S 10	58	7	48%	30.16r	64	49	
Temple	no report	65	S 10	60	10	52%	30.12s	65	44	
Lufkin	clear	65	S 8	62	15	52%	30.17s	65	44	
Junction	dry	67	SE 7G15	64		33%	30.14r	67	46	
Round Mtn	.....									
Austin AP	clear	66	SE 8	63	15	49%	30.15f	66	47	
Bergstrom AFB	ptly cldy	65	S 3	68	10	59%	30.13f	65	45	
College Stn	clear	69	SE 6	70	10	53%	30.16s	69	48	
Del Rio Intl	dry	68	SE 11G20	62	8	38%	30.10s	68	54	
Laughlin AFB	clear	70	SE 16	62	20	36%	30.10f	70	54	
Hondo	.....									
Kelly AFB	ptly cldy	69	SE 8	65	7	41%	30.11f	69	46	
Sn Antnio Int	ptly cldy	70	SE 6	69	10	42%	30.13f	70	46	
Randolph AFB	ptly cldy	67	SE 9	62	7	42%	30.13f	67	42	
Cotulla	mstly cldy	66	S 7	65	15	52%	30.14r	66	55	
Laredo	mstly cldy	62	E 8	59	15	60%	30.13f	62	56	
Mc Allen	cloudy	69	E 8	70	10	59%	30.13s	69	58	
Harlingen	mstly cldy	72	E 14	77	15	53%	30.12r	72	59	
Brownsville	mstly cldy	71	E 13	76	10	55%	30.11r	72	59	
Kingsville	cloudy	68	E 5	72	7	63%	30.11r	68	53	
Alice	mstly cldy	69	E 7	69	15	51%	30.14r	69	51	
CrpusCsty Int	mstly cldy	70	NE 11	69	10	55%	30.11r	70	59	
Crpus Csty NS	mstly cldy	69	NE 11	69	11	63%	30.10r	69	62	
Rockport	.....									

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Item: 2 Code: CTX

11AM Tue 25 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	61	SW 21	48	15	39%	29.94f	61	37	
Amarillo	no report	62	SW 29G37	47	10	40%	29.98f	62	39	
Childress	clear	69	S 23	59	25	35%	30.02f	69	42	
Lubbock Intl	clear	66	S 21	55	10	33%	30.03f	66	43	
Reese AFB	clear	69	S 20G33	60	10	28%	30.01f	69	48	
El Paso	clear	72	S 9	68	50	22%	29.99f	72	46	
Guadalupe Ps	dry	64	SW 10G15	58		28%	29.98s	64	51	
Wink	clear	69	SE 15	61	20	28%	29.99f	69	49	
Midland	clear	69	S 20	60	20	32%	30.02f	69	45	
San Angelo	clear	72	S 15	65	25	29%	30.06f	72	46	
Marfa	no report	65	S 16	55	10	28%	30.07s	65	37	
Sanderson	no report	66	SE 6G10	64		34%		66	51	
Wichita Falls	ptly cldy	69	S 20G28	60	10	39%	30.05f	69	8	
Sherman	clear	66	S 5G11	65	15	45%	30.09f			
Dyess AFB	clear	70	S 17G24	62	15	38%	30.05f	70	47	
Abilene AP	clear	69	S 24	58	30	26%	30.05f	69	48	
Mineral Wells	clear	70	SW 8	66	20	34%	30.10f	70	45	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	clear	69	S 9	67	15	49%	30.13s	69	44	
Dallas FtWrth	clear	69	S 11	65	15	46%	30.11f	69	47	
East Addition	.....									
Dallas Love	clear	70	S 9	66	20	41%	30.12f	70	50	
Dallas Adsn	clear	68	S 9	63	13	42%	30.11f	68	51	
Dallas Hensly	ptly cldy	69	S 9	65	12	42%	30.10f	69	48	
Greenville	clear	70	S 11	67	15	47%	30.13s			
Mt Pleasant	.....									
Tyler	clear	64	SW 7	65	20	68%	30.15r	64	48	
Longview	clear	67	S 9	62	35	39%	30.15s	67	42	
Waco	no report	65	S 10	61	10	54%	30.14f	65	44	
Killeen Gray	clear	69	SE 10	66	14	47%	30.12f	69	49	
Ft. Hood	clear	70	SE 13G17	65	7	42%	30.13f	70	49	
Temple	no report	67	S 11	62	10	49%	30.10f	67	44	
Lufkin	clear	69	SE 8	65	15	42%	30.16f	69	44	
Junction	dry	73	SE 9G16	69		23%	30.11f	73	46	
Round Mtn	ptly cldy	69	E 11	63	7	39%	30.13r			
Austin AP	clear	68	SE 9	65	15	49%	30.14f	68	47	
Bergstrom AFB	ptly cldy	68	SE 5	69	10	49%	30.11f	68	45	
College Stn	clear	70	S 8	70	10	53%	30.13f	70	48	
Del Rio Intl	dry	72	SE 15G22	65	7	33%	30.07f	72	54	
Laughlin AFB	clear	74	SE 14	68	20	33%	30.08f	74	54	
Hondo	.....									
Kelly AFB	ptly cldy	72	SE 9	68	7	38%	30.09f	72	46	
Sn Antnio Int	ptly cldy	72	SE 6	70	10	35%	30.12f	72	46	
Randolph AFB	ptly cldy	71	SE 13	65	7	37%	30.12f	71	42	
Cotulla	ptly cldy	69	SE 13	64	15	47%	30.13f	69	55	
Laredo	mstly cldy	68	SE 17	62	15	51%	30.13s	68	56	
Mc Allen	cloudy	71	E 8	76	10	57%	30.13s	71	58	
Harlingen	cloudy	73	E 11	79	15	55%	30.13r	73	59	
Brownsville	mstly cldy	71	E 13	76	10	55%	30.11r	72	59	
Kingsville	cloudy	69	E 9	70	7	63%	30.10f	69	53	
Alice	mstly cldy	71	E 20	74	15	49%	30.14s	71	51	
CrpusCsty Int	cloudy	69	E 13	67	10	59%	30.13r	70	59	
Crpus Csty NS	mstly cldy	69	E 10	70	11	63%	30.13s	69	62	
Rockport	cloudy	70	E 7	75	7	68%	30.14r			

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Item: 2 Code: CTX

12PM Tue 25 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	67	SW 16	58	15	25%	29.92f	67	37	
Amarillo	no report	71	SW 25G34	61	10	27%	29.93f	71	39	
Childress	clear	72	S 23G33	63	25	31%	29.99f	72	42	
Lubbock Intl	clear	70	S 21G30	61	10	28%	30.00f	70	43	
Reese AFB	clear	69	S 20G33	60	10	28%	30.01f	69	48	
El Paso	clear	76	SW 7	74	50	20%	29.96f	77	46	
Guadalupe Ps	dry	67	SW 14G26	59		25%	29.96f	67	51	
Wink	clear	75	SE 14	70	20	22%	29.96f	75	49	
Midland	clear	73	S 20G25	65	20	26%	29.99f	73	44	
San Angelo	clear	75	S 17	69	25	23%	30.03f	75	45	
Marfa	no report	67	S 16G22	58	10	26%	30.06f	67	37	
Sanderson	no report	70	SE 6G13	68		31%		70	51	
Wichita Falls	ptly cldy	70	S 18	62	10	36%	30.03f	71	8	
Sherman	clear	66	S 5G11	65	15	45%	30.09f			
Dyess AFB	clear	74	S 18G29	67	15	26%	30.03f	74	47	
Abilene AP	clear	71	S 20G34	62	30	24%	30.02f	71	47	
Mineral Wells	clear	73	S 14	67	20	33%	30.06f	73	45	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	clear	70	SE 16	64	15	44%	30.09f	70	44	
Dallas FtWrth	clear	70	S 15	64	15	42%	30.09f	70	47	
East Addition	.....									
Dallas Love	clear	72	S 14	73	20	41%	30.10f	72	50	
Dallas Adsn	clear	68	S 9	63	13	42%	30.11f	68	51	
Dallas Hensly	clear	70	S 8	68	12	44%	30.08f	71	48	
Greenville	clear	70	S 11	67	15	47%	30.13s			
Mt Pleasant	.....									
Tyler	clear	64	SW 7	65	20	68%	30.15r	64	48	
Longview	clear	67	S 9	62	35	39%	30.15s	67	42	
Waco	no report	69	SE 9	66	10	47%	30.10f	69	44	
Killeen Gray	clear	71	S 11	73	14	44%	30.10f	71	49	
Ft. Hood	clear	70	SE 13G17	65	7	42%	30.13f	70	49	
Temple	no report	67	S 7	65	10	47%	30.09f	67	44	
Lufkin	clear	70	CALM	70	15	39%	30.13f	70	44	
Junction	dry	76	SE 11G21	72		19%	30.09f	76	46	
Round Mtn	ptly cldy	69	E 11	63	7	39%	30.13r			
Austin AP	clear	71	SE 7	74	15	48%	30.10f	71	47	
Bergstrom AFB	clear	70	SE 3	72	10	47%	30.08f	70	45	
College Stn	clear	72	SE 8	76	10	51%	30.11f	72	48	
Del Rio Intl	dry	73	SE 15G22	67	6	30%	30.05f	73	54	
Laughlin AFB	clear	76	SE 14G25	71	20	29%	30.06f	76	54	
Hondo	.....									
Kelly AFB	ptly cldy	72	SE 9	68	7	38%	30.09f	72	46	
Sn Antnio Int	clear	75	SE 9	72	10	33%	30.10f	75	45	
Randolph AFB	ptly cldy	73	S 11	68	7	37%	30.10f	73	42	
Cotulla	ptly cldy	72	S 11G17	74	15	43%	30.10f	72	54	
Laredo	mstly cldy	68	SE 17	62	15	51%	30.13s	68	56	
Mc Allen	cloudy	73	E 11	78	10	53%	30.10f	73	58	
Harlingen	cloudy	73	E 11	79	15	55%	30.13r	73	59	
Brownsville	mstly cldy	71	E 10	77	10	59%	30.09f	72	59	
Kingsville	cloudy	69	E 9	70	7	63%	30.10f	69	53	
Alice	mstly cldy	71	E 20	74	15	49%	30.14s	71	51	
CrpusCsty Int	cloudy	69	E 13	67	10	59%	30.13r	70	59	
Crpus Csty NS	mstly cldy	69	E 9	71	11	66%	30.10f	69	62	
Rockport	cloudy	70	E 7	75	7	68%	30.14r			

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Item: 2 Code: CTX

4PM Tue 25 April TEXAS this hour TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	76	SW 18	70	15	13%	29.78f	76	37	
Amarillo	no report	78	SW 25G46	72	10	15%	29.80f	78	39	
Childress	clear	80	S 22	75	25	21%	29.82f	80	42	
Lubbock Intl	clear	80	S 18G33	76	15	15%	29.83s	80	43	
Reese AFB	ptly cldy	85	SW 16G37	83	10	12%	29.81f	85	48	
El Paso	clear	84	W 14G22	82	50	12%	29.88f	84	46	
Guadalupe Ps	dry	73	W 26G41	64		15%	29.85f	74	51	
Wink	ptly cldy	87	SE 6	87	20	10%	29.80f	87	49	
Midland	clear	81	S 21G44	76	20	18%	29.86f	81	44	
San Angelo	clear	79	SE 17G31	74	25	25%	29.91f	79	45	
Marfa	no report	77	S 11G21	73	10	16%	29.93f	77	37	
Sanderson	no report	78	SE 8G20	76		27%		78	51	
Wichita Falls	ptly cldy	74	S 16G29	68	10	32%	29.92fr	74	8	
Sherman	clear	72	S 6G17	70	15	31%	30.00s	72	50	
Dyess AFB	clear	80	S 22G33	75	15	21%	29.88f	80	47	
Abilene AP	clear	76	SE 21G29	69	30	24%	29.88f	76	47	
Mineral Wells	clear	75	S 17G24	69	20	28%	29.94f	76	45	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	clear	73	SE 14	74	15	40%	30.00f	73	44	
Dallas FtWrth	clear	73	S 14	76	20	44%	29.96f	73	47	
East Addition	.....									
Dallas Love	clear	75	S 11	78	20	43%	29.98f	75	50	
Dallas Adsn	clear	73	S 11	74	13	38%	30.00f	73	51	
Dallas Hensly	clear	72	SE 13	74	12	43%	29.96f	73	48	
Greenville	clear	74	SE 9	77	15	43%	30.02fr			
Mt Pleasant	.....									
Tyler	clear	72	S 9	82	30	73%	30.01f	72	48	
Longview	clear	72	S 7	69	35	34%	30.04f	72	42	
Waco	no report	73	SE 14G17	75	10	43%	30.00f	73	44	
Killeen Gray	clear	76	S 15	78	7	37%	30.01f	76	49	
Ft. Hood	clear	75	SE 15	69	7	34%	30.00f	75	49	
Temple	no report	74	S 16G21	76	10	40%	29.97f	74	44	
Lufkin	clear	75	SE 6	76	15	36%	30.04f	75	44	
Junction	dry	78	S 13G25	74		21%	29.99s	79	46	
Round Mtn	.....									
Austin AP	clear	75	SE 11	77	15	40%	30.00f	75	47	
Bergstrom AFB	clear	75	S 9	77	10	39%	29.98f	76	45	
College Stn	clear	76	SE 7	80	10	43%	30.04f	76	48	
Del Rio Intl	dry	80	SE 17G24	76	6	22%	29.92f	80	54	
Laughlin AFB	clear	82	S 18G32	78	20	22%	29.93f	82	54	
Hondo	.....									
Kelly AFB	clear	78	SE 11	75	7	29%	29.96f	78	46	
Sn Antnio Int	clear	77	SE 11G18	73	10	31%	29.99f	78	45	
Randolph AFB	clear	77	SE 15	72	7	31%	29.99f	78	42	
Cotulla	clear	79	SE 7	77	15	29%	29.99f	79	54	
Laredo	clear	77	SE 21	78	15	33%	30.00f	77	56	
Mc Allen	ptly cldy	77	E 9	82	10	47%	29.99f	77	58	
Harlingen	cloudy	73	E 11	79	15	55%	30.02f	75	59	
Brownsville	ptly cldy	77	E 13G21	83	10	48%	30.00f	77	59	
Kingsville	mstly cldy	75	E 13	81	7	52%	30.00f	75	53	
Alice	mstly cldy	75	SE 13	78	15	42%	30.05f	75	51	
CrpusCsty Int	ptly cldy	73	E 16	79	10	57%	30.04f	75	59	
Crpus Csty NS	ptly cldy	72	SE 13	78	11	59%	30.02f	73	62	
Rockport	.....									

Item: 2 Code: CTX

8AM Wed 26 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	51	N 23G29	32	15	66%	29.85r	51	37	
Amarillo	no report	51	N 23G30	32	10	66%	29.83r	58	48	
Childress	clear	64	SW 20	52	20	45%	29.75r	64	56	
Lubbock Intl	clear	58	SW 21G28	43	15	49%	29.82r	62	54	
Reese AFB	clear	60	SW 21G31	46	10	43%	29.80r	60	53	
El Paso	clear	70	SW 8G23	66	70	10%	29.94r	74	64	
Guadalupe Ps	dry	56	SW 13G17	45		16%	29.90r	61	52	
Wink	clear	61	E 3	61	20	46%	29.85r	62	53	
Midland	clear	63	S 20	51	20	50%	29.85r	63	55	
San Angelo	clear	62	S 20G30	54	25	73%	29.89s	64	57	
Marfa	no report	47	CALM	47	10	50%	29.98r	53	39	
Sanderson	no report	59	SE 1G3	59		56%		63	49	
Wichita Falls	ptly cldy	61	S 23	51	10	72%	29.79f	61	56	
Sherman	cloudy	60	S 17G23	53	10	84%	29.89r			
Dyess AFB	clear	62	S 32G41	50	15	70%	29.78s	62	58	
Abilene AP	clear	61	S 24G36	50	30	67%	29.80f	63	56	0.10
Mineral Wells	mstly cldy	62	SW 15G21	56	20	73%	29.88f	62	56	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	61	S 15G24	56	10	84%	29.91r	61	57	
Dallas FtWrth	cloudy	61	S 13	58	10	87%	29.92s	63	56	
East Addition	.....									
Dallas Love	mstly cldy	62	S 14G22	59	10	84%	29.93f	63	58	
Dallas Adsn	mstly cldy	60	S 17G23	53	10	81%	29.92r	60	56	
Dallas Hensly	mstly cldy	61	S 16G25	55	7	78%	29.91s	61	56	
Greenville	ptly cldy	60	S 11	56	12	78%	29.93fr			
Mt Pleasant	.....									
Tyler	clear	58	S 11	54	15	87%	29.95r	58	53	
Longview	clear	62	S 11	59	20	73%	29.98r	62	54	
Waco	mstly cldy	61	S 14	58	10	87%	29.94s	61	56	
Killeen Gray	cloudy	63		63	7	84%		63	57	
Ft. Hood	light fog	59	S 14	55	5	93%	29.94s	60	57	
Temple	ptly cldy	58	S 14	52	10	87%	29.92s	58	54	
Lufkin	clear	62	SE 8	62	15	78%	30.02r	62	49	
Junction	dry	63	SW 15G20	56		63%	29.97s	63	55	
Round Mtn	.....									
Austin AP	light fog	62	S 8	64	5	87%	29.97r	62	55	
Bergstrom AFB	light fog	63	S 8	66	5	87%	29.96r			
College Stn	clear	65	SE 13	67	10	90%	29.99s	65	54	
Del Rio Intl	dry	63	SE 9G17	61	6	65%	29.94s	66	59	
Laughlin AFB	ptly cldy	65	SE 13	62	20	68%	29.95r	66	59	
Hondo	.....									
Kelly AFB	light fog	61	S 8	65	1	100%	29.96r	61	56	
Sn Antnio Int	light fog	64	S 9	66	3	84%	29.98s	64	57	
Randolph AFB	light fog	62	S 8	65	3	90%	29.98r	62	53	
Cotulla	clear	64	SE 7	67	10	78%	29.96s	64	56	
Laredo	clear	62	SE 9	62	15	84%	29.94r	65	61	
Mc Allen	clear	70	E 8	76	8	76%	29.96r	70	62	
Harlingen	light fog	61	CALM	69	3	97%	29.95r	61	58	
Brownsville	no report	72	E 6	84	10	79%	29.95r	72	60	
Kingsville	ptly cldy	69	E 7	77	7	84%	29.92r	69	54	
Alice	clear	68	CALM	77	15	78%	29.96r	68	52	
CrpusCsty Int	clear	72	E 11	83	10	76%	29.95r	72	60	
Crpus Csty NS	ptly cldy	64	SE 6	70	11	90%	29.92f	68	63	
Rockport	.....									

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Item: 2 Code: CTX

10AM Wed 26 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	mstly cldy	47	N 34G43	23	15	61%	29.96r	51	37	
Amarillo	cloudy	52	N 28G34	32	10	64%	29.90r	58	48	
Childress	clear	71	NW 22G29	62	15	31%	29.78r	71	56	
Lubbock Intl	clear	67	NW 22	56	15	24%	29.86r	67	54	
Reese AFB	clear	71	N 20G30	62	10	20%	29.86r	71	53	
El Paso	clear	73	SW 15	67	70	10%	29.96r	74	64	
Guadalupe Ps	dry	64	SW 18G25	53		13%	29.93s	64	52	
Wink	clear	75	W 9	72	20	15%	29.86s	75	53	
Midland	clear	73	SW 17	66	20	30%	29.87r	73	55	
San Angelo	clear	72	S 17G34	76	25	51%	29.88s	72	57	
Marfa	no report	71	W 13G22	65	10	18%	30.01s	71	39	
Sanderson	no report	72	S 5G8	71		37%		72	49	
Wichita Falls	ptly cldy	68	S 26G30	61	10	59%	29.79s	68	56	
Sherman	mstly cldy	66	S 23G29	59	10	65%	29.88f	66	56	
Dyess AFB	clear	71	S 30G44	75	15	53%	29.79r	71	58	
Abilene AP	clear	68	SW 28G45	59	25	55%	29.80s	68	56	0.10
Mineral Wells	ptly cldy	69	S 16G29	66	20	59%	29.86f	69	56	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	65	S 20G28	60	10	75%	29.90f	65	57	
Dallas FtWrth	mstly cldy	66	S 15	65	12	78%	29.90f	66	56	
East Addition	.....									
Dallas Love	mstly cldy	68	S 18G30	66	10	71%	29.92f	68	58	
Dallas Adsn	mstly cldy	64	S 11G34	63	10	75%	29.90f	64	56	
Dallas Hensly	mstly cldy	65	S 11G23	65	7	78%	29.91r	65	56	
Greenville	mstly cldy	72	S 11G23	81	10	71%	29.93r			
Mt Pleasant	.....									
Tyler	ptly cldy	67		68	15	73%	29.96f	67	53	
Longview	ptly cldy	68	S 14	65	20	61%	29.99s	68	54	
Waco	mstly cldy	68	S 17G23	67	10	73%	29.93s	68	56	
Killeen Gray	mstly cldy	69	S 20	66	7	66%	29.93f	69	57	
Ft. Hood	mstly cldy	68	S 16G24	67	7	71%	29.94f	68	57	
Temple	mstly cldy	68	S 24G30	63	10	66%	29.90s	68	54	
Lufkin	ptly cldy	71	S 14	79	15	66%	30.01f	71	49	
Junction	dry	72	S 15G22	75		46%	29.95f	72	55	
Round Mtn	.....									
Austin AP	mstly cldy	69	S 15G28	69	10	71%	29.96s	69	55	
Bergstrom AFB	mstly cldy	72	S 16G22	81	7	68%	29.94f	72	55	
College Stn	cloudy	73	S 13	85	10	79%	29.97f	73	54	
Del Rio Intl	dry	71	S 11G18	76	6	55%	29.93s	71	59	
Laughlin AFB	ptly cldy	74	SE 14G24	80	20	54%	29.93f	74	59	
Hondo	.....									
Kelly AFB	mstly cldy	73	SW 18G18	81	7	62%	29.94s	73	56	
Sn Antnio Int	ptly cldy	71	S 15G21	79	7	68%	29.97s	71	57	
Randolph AFB	ptly cldy	73	S 17	80	7	59%	29.97s	73	53	
Cotulla	ptly cldy	73	S 11	81	15	62%	29.95f	73	56	
Laredo	mstly cldy	72	S 18	79	15	62%	29.95s	72	61	
Mc Allen	mstly cldy	77	SE 9	96	10	91%	29.96s	77	62	
Harlingen	mstly cldy	79	SE 14	88	12	54%	29.95f	79	58	
Brownsville	mstly cldy	79	SE 17	88	10	54%	29.95s	79	60	
Kingsville	mstly cldy	77	SE 13	88	7	64%	29.93f	77	54	
Alice	mstly cldy	77	SE 18	85	15	56%	29.97s	77	52	
CrpusCsty Int	mstly cldy	77	SE 17	87	10	62%	29.96s	77	60	
Crpus Csty NS	mstly cldy	76	SE 10	88	11	69%	29.97r	76	63	
Rockport	.....									

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Item: 2 Code: CTX

12PM Wed 26 April TEXAS this hour TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	51	N 33G41	29	15	48%	30.01r	51	37	
Amarillo	cloudy	49	N 25	29	10	59%	29.98r	60	47	
Childress	clear	67	N 28G37	55	15	44%	29.87r	71	54	
Lubbock Intl	clear	69	N 25G36	58	15	34%	29.91r	69	54	
Reese AFB	ptly cldy	72	N 22G31	63	10	29%	29.90r	72	53	
El Paso	ptly cldy	78	W 15G25	73	50	9%	29.96s	79	60	
Guadalupe Ps	dry	70	W 18G26	62		12%	29.94f	70	52	
Wink	clear	83	NW 11	81	20	7%	29.85f	83	52	
Midland	clear	84	NW 16G25	81	20	13%	29.84f	85	55	
San Angelo	clear	81	SW 21G33	85	25	37%	29.85f	81	57	
Marfa	no report	77	W 20G33	71	10	10%	29.99f	77	39	
Sanderson	no report	79	S 8G16	77		29%		79	49	
Wichita Falls	ptly cldy	76	S 22G29	81	10	48%	29.77s	76	56	
Sherman	ptly cldy	71	S 17G23	77	12	61%	29.85s	71	56	
Dyess AFB	clear	80	SW 21G34	83	15	37%	29.81r	80	58	
Abilene AP	clear	76	SW 26G38	79	25	42%	29.81s	76	56	0.10
Mineral Wells	clear	76	SW 17G31	80	20	45%	29.83f	76	52	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	71	S 16G26	78	10	64%	29.86f	71	57	
Dallas FtWrth	ptly cldy	71	S 17	78	12	64%	29.86f	71	56	
East Addition	.....									
Dallas Love	mstly cldy	73	S 17G26	81	12	62%	29.88f	73	58	
Dallas Adsn	mstly cldy	72	S 17G29	78	13	57%	29.87f	72	56	
Dallas Hensly	mstly cldy	70	S 25	66	7	64%	29.87f	70	56	
Greenville	.....									
Mt Pleasant	.....									
Tyler	ptly cldy	74	S 17	83	15	64%	29.92f	74	53	
Longview	clear	74	S 11	79	25	50%	29.95f	74	54	
Waco	mstly cldy	73	S 20	80	10	59%	29.89f	74	56	
Killeen Gray	.....									
Ft. Hood	ptly cldy	75	S 18G25	81	7	54%	29.91f	75	57	
Temple	ptly cldy	73	S 22G26	79	10	57%	29.87f	73	54	
Lufkin	ptly cldy	76	S 15	83	15	54%	29.97f	76	49	
Junction	dry	78	SW 6G23	81		39%	29.93f	78	55	
Round Mtn	ptly cldy	74	E 11	78	7	46%	30.10r			
Austin AP	ptly cldy	75	S 15G24	82	12	56%	29.92f	75	55	
Bergstrom AFB	mstly cldy	77	S 15G21	85	10	56%	29.90f	77	55	
College Stn	mstly cldy	78	S 16G26	90	10	64%	29.95f	78	54	
Del Rio Intl	dry	80	SE 13G20	85	6	41%	29.88f	80	59	
Laughlin AFB	ptly cldy	81	SE 14	85	20	38%	29.89f	81	59	
Hondo	.....									
Kelly AFB	ptly cldy	77	S 11G22	83	7	50%	29.90f	77	56	
Sn Antnio Int	ptly cldy	78	S 13	84	7	49%	29.94f	78	57	
Randolph AFB	ptly cldy	77	S 14	83	7	48%	29.93f	77	53	
Cotulla	mstly cldy	79	SE 8G17	87	15	50%	29.91f	79	56	
Laredo	ptly cldy	79	SE 21	85	15	47%	29.90f	79	61	
Mc Allen	mstly cldy	83	E 11	100	10	70%	29.92f	83	62	
Harlingen	mstly cldy	81	SE 11	90	12	51%	29.92f	81	58	
Brownsville	ptly cldy	81	S 14G21	89	10	49%	29.91f	82	60	
Kingsville	mstly cldy	78	SE 10	88	7	60%	29.89f	78	54	
Alice	mstly cldy	81	S 14	86	15	41%	29.93f	81	52	
CrpusCsty Int	mstly cldy	79	SE 17	88	10	56%	29.92f	80	60	
Crpus Csty NS	ptly cldy	78	SE 14	90	11	67%	29.94s	78	63	
Rockport	mstly cldy	78	S 21	91	7	69%	29.97f			

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Item: 2 Code: CTX

3PM Wed 26 April — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	mstly cldy	50	N 26G34	30	15	54%	30.04f	52	37	
Amarillo	no report	52	N 30G38	31	10	49%	30.01r	60	47	
Childress	ptly cldy	61	N 25G38	46	15	46%	29.96r	71	54	
Lubbock Intl	mstly clr	68	N 23G36	57	10	32%	29.95r	71	54	
Reese AFB	mstly clr	70	NE 28G43	59	10	28%	29.93s	73	53	
El Paso	ptly cldy	84	SW 11G20	82	50	7%	29.90f	85	60	
Guadalupe Ps	dry	74	W 23G32	66		11%	29.89f	75	52	
Wink	mstly clr	87	W 11	86	20	6%	29.81f	87	52	
Midland	mstly clr	89	NW 13G16	88	20	12%	29.80f	89	55	
San Angelo	clear	88	SW 11	87	25	21%	29.79f	88	57	
Marfa	no report	80	W 9	78	10	10%	29.94f	80	39	
Sanderson	no report	88	SE 7G16	88		21%		88	49	
Wichita Falls	ptly cldy	75	NW 28G37	79	7	45%	29.80s	81	56	
Sherman	mstly cldy	75	S 17G23	81	12	52%	29.83s	75	56	
Dyess AFB	ptly cldy	88	W 14G24	87	15	18%	29.78f	88	58	
Abilene AP	ptly cldy	85	N 21G32	87	25	28%	29.78s	85	56	0.10
Mineral Wells	ptly cldy	82	SW 15	88	20	41%	29.81f	82	52	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	77	S 17	85	10	56%	29.84s	77	57	
Dallas FtWrth	mstly cldy	78	S 20	86	15	54%	29.84f	78	56	
East Addition	.....									
Dallas Love	mstly cldy	78	S 17G25	86	15	54%	29.85f	78	58	
Dallas Adsn	mstly cldy	76	S 15G32	82	13	52%	29.83f	76	56	
Dallas Hensly	mstly cldy	75	S 16	83	7	58%	29.83s	75	56	
Greenville	.....									
Mt Pleasant	.....									
Tyler	ptly cldy	76	S 17	85	15	62%	29.85f	77	53	
Longview	ptly cldy	77	S 14	82	30	45%	29.87f	77	54	
Waco	no report	79	S 23G26	86	10	49%	29.83f	79	56	
Killeen Gray	ptly cldy	80	S 15	87	14	47%	29.85f	80	57	
Ft. Hood	ptly cldy	81	S 20	87	9	44%	29.85f	81	57	
Temple	ptly cldy	79	S 25G30	86	10	49%	29.80f	80	54	
Lufkin	ptly cldy	78	S 13	84	15	49%	29.91f	78	49	
Junction	dry	86	S 13G15	88		28%	31.99s	86	55	
Round Mtn	.....									
Austin AP	ptly cldy	79	S 13	85	15	47%	29.87f	79	55	
Bergstrom AFB	ptly cldy	80	S 11G17	89	10	52%	29.84f	80	55	
College Stn	cloudy	78	S 14	88	10	60%	29.88f	79	54	
Del Rio Intl	dry	88	E 8G16	93	6	33%	29.80f	88	59	
Laughlin AFB	clear	90	S 13G24	95	20	29%	29.81f	90	59	
Hondo	.....									
Kelly AFB	ptly cldy	83	S 7	89	7	40%	29.83f	83	56	
Sn Antnio Int	ptly cldy	84	S 10	90	7	40%	29.86f	84	57	
Randolph AFB	ptly cldy	83	S 14G22	89	7	40%	29.86f	83	53	
Cotulla	clear	85	S 10	91	15	37%	29.81f	85	56	
Laredo	clear	85	SE 15	91	15	39%	29.81f	85	61	
Mc Allen	ptly cldy	83	SE 14	95	10	55%	29.83f	83	62	
Harlingen	mstly cldy	84	E 14	93	12	46%	29.84f	84	58	
Brownsville	mstly cldy	81	SE 14	91	10	54%	29.84f	82	60	
Kingsville	ptly cldy	81	E 14	93	7	58%	29.82f	81	54	
Alice	mstly cldy	81	SE 11	90	15	51%	29.85f	87	52	
CrpusCsty Int	mstly cldy	79	SE 20	90	10	60%	29.86f	80	60	
Crpus Csty NS	ptly cldy	77	SE 16	89	11	67%	29.87f	78	63	
Rockport	.....									

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Item: 2 Code: CTX

10AM Tue 27 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	72	S 8	78	15	59%	30.06f	72	53	
Amarillo	no report	72	NW 6	79	10	62%	30.06f	72	55	
Childress	ptly cldy	74	SW 6	85	25	71%	30.03s	74	63	0.17
Lubbock Intl	ptly cldy	72	NW 9	80	15	66%	30.08f	72	61	0.17
Reese AFB	ptly cldy	76	SW 11	84	10	58%	30.07f	76	64	0.21
El Paso	no report	76	CALM	80	10	43%	30.13s	76	63	
Guadalupe Ps	dry	70	W 8G13	69		49%	30.12s	71	58	
Wink	clear	75	S 5	83	20	60%	30.07s	75	64	Trace
Midland	clear	77	CALM	85	20	56%	30.08s	77	64	
San Angelo	cloudy	77	S 13	90	15	71%	30.04f	77	66	
Marfa	no report	72	S 3	75	10	46%	30.16s	72	56	
Sanderson	no report	79	S 1G5	91		65%		79	67	
Wichita Falls	dry	74	NW 8	84	10	69%	29.99s	75	68	
Sherman	mstly cldy	84	SE 7	93	15	48%	29.94s	84	75	
Dyess AFB	mstly cldy	72	NW 7	84	15	82%	30.04r	72	64	
Abilene AP	cloudy	70	N 11	77	30	87%	30.04r	71	64	0.12
Mineral Wells	cloudy	74	SE 5	86	20	74%	29.98f	74	72	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	cloudy	80	SW 9	92	15	60%	29.99r	80	67	
Dallas FtWrth	cloudy	85	S 13	94	15	46%	29.97r	85	74	
East Addition	.....									
Dallas Love	mstly cldy	87	S 8	96	20	42%	29.98r	87	75	
Dallas Adsn	mstly cldy	86	S 11	95	13	43%	29.97r	86	73	
Dallas Hensly	mstly cldy	85	S 8	94	12	46%	29.97r	85	70	
Greenville	mstly cldy	91	E 6		15		29.98s			
Mt Pleasant	.....									
Tyler	mstly cldy	85	S 6	97	20	51%	29.98r	85	70	
Longview	ptly cldy	86	W 8	98	4	50%	29.98s	86	68	
Waco	dry	78	SW 6	92	10	71%	30.00r	78	63	
Killeen Gray	mstly cldy	78	SW 6	92	7	71%	30.02r	78	71	
Ft. Hood	mstly cldy	77	NW 8	91	10	74%	30.02f			
Temple	no report	79	NW 5	89	10	58%	29.99f	80	66	
Lufkin	ptly cldy	86	W 9	101	15	57%	30.02s	86	66	
Junction	dry	80	S 6G9	92		60%	31.99s	80	67	
Round Mtn	.....									
Austin AP	ptly cldy	83	W 5	95	10	57%	30.00f	83	71	Trace
Bergstrom AFB	ptly cldy	84	CALM	97	10	57%	29.98f	84	72	
College Stn	mstly cldy	85	NW 8	100	10	59%	30.01s	85	71	
Del Rio Intl	dry	85	S 9G14	98	8	55%	29.99s	85	75	
Laughlin AFB	ptly cldy	89	SE 9	104	20	52%	29.99s	89	76	
Hondo	.....									
Kelly AFB	cloudy	83	NW 7	100	7	70%	30.00s	83	68	
Sn Antnio Int	ptly cldy	84	W 6	100	10	65%	30.01s	84	68	
Randolph AFB	ptly cldy	85	S 8	101	7	61%	30.02s	85	68	
Cotulla	haze	80	SW 3	98	5	79%	29.97s	80	72	
Laredo	ptly cldy	86	S 6	103	12	63%	29.96f	86	77	
Mc Allen	mstly cldy	88	E 7	107	10	63%	29.97r	88	75	
Harlingen	mstly cldy	90	NE 9	110	12	61%	29.95s	90	71	
Brownsville	mstly cldy	89	E 9	109	10	63%	29.94s	89	74	
Kingsville	haze	91	SE 2	112	6	62%	29.93s	91	73	
Alice	mstly clr	88	NW 7	105	7	59%	29.97f	88	75	
CrpusCsty Int	light fog	82	SW 6	104	5	85%	29.95s	82	74	
Crpus Csty NS	ptly cldy	88	E 6	108	7	65%	29.95s	88	77	
Rockport	.....									

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Item: 2 Code: CTX

9AM Tue 27 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	66	W 9	67	15	73%	30.08s	66	53	
Amarillo	no report	67	NW 8	69	10	70%	30.07s	67	55	
Childress	ptly cldy	72	W 6	82	25	73%	30.03r	72	63	0.17
Lubbock Intl	mstly clr	69	SW 10	73	15	76%	30.09r	69	61	0.17
Reese AFB	ptly cldy	73	W 7	81	10	64%	30.08s	73	64	0.21
El Paso	no report	73	E 3	77	10	48%	30.13f	73	63	
Guadalupe Ps	dry	66	NE 5G13	68		59%	30.12s	66	58	
Wink	clear	70	NW 5	76	20	68%	30.07s	71	64	Trace
Midland	clear	73	NW 3	82	20	66%	30.08r	73	64	
San Angelo	cloudy	73	S 7	85	15	76%	30.05r	73	66	
Marfa	no report	71	CALM	74	10	48%	30.16s	71	56	
Sanderson	no report	77	N 2G8	87		62%		77	67	
Wichita Falls	mstly cldy	72	W 7	82	10	73%	29.96r	75	68	
Sherman	mstly cldy	82	S 6	93	15	55%	29.94f	82	75	
Dyess AFB	mstly cldy	71	S 11	82	15	79%	29.99r	71	64	
Abilene AP	cloudy	71	S 14	82	30	79%	29.99r	71	64	0.12
Mineral Wells	cloudy	72	S 7	84	20	79%	29.99r	72	72	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	cloudy	80	SW 9	92	15	60%	29.98r	80	67	
Dallas FtWrth	mstly cldy	84	S 9	96	15	53%	29.96s	84	74	
East Addition	.....									
Dallas Love	mstly cldy	85	S 9	94	20	46%	29.97s	85	75	
Dallas Adsn	cloudy	83	S 11	92	13	49%	29.96s	83	73	
Dallas Hensly	ptly cldy	82	S 7	95	12	61%	29.95s	82	70	
Greenville	mstly cldy	86	CALM		15		29.98rr			
Mt Pleasant	.....									
Tyler	ptly cldy	82	CALM	92	20	53%	29.97s	82	70	
Longview	mstly cldy	81	SW 6	92	30	56%	29.98r	81	68	
Waco	no report	76	CALM	90	10	76%	29.99f	76	63	
Killeen Gray	rain shwr	75	SW 5	87	7	74%	30.02s	76	71	
Ft. Hood	cloudy	78	W 9	91	10	69%	30.03s			
Temple	no report	80	W 8	91	10	58%	30.00s	80	66	
Lufkin	ptly cldy	82	W 8	97	15	65%	30.02r	82	66	
Junction	dry	73	E 6G9	85		76%	31.99s	73	67	
Round Mtn	.....									
Austin AP	ptly cldy	81	N 6	95	10	65%	30.02r	81	71	Trace
Bergstrom AFB	mstly cldy	79	CALM	92	10	67%	30.00r	79	72	
College Stn	cloudy	82	W 7	98	10	69%	30.01r	82	71	
Del Rio Intl	dry	82	SE 11G14	95	8	61%	29.99s	82	75	
Laughlin AFB	ptly cldy	85	SE 13	98	20	55%	29.99r	85	76	
Hondo	.....									
Kelly AFB	cloudy	81	N 3	99	7	77%	30.00s	81	68	
Sn Antnio Int	no report	80	S 3	96	10	74%	30.01s	80	68	
Randolph AFB	mstly cldy	82	W 8	99	7	72%	30.02r	82	68	
Cotulla	haze	80	SW 3	98	5	79%	29.97s	80	72	
Laredo	ptly cldy	85	SE 11	102	7	65%	29.97r	85	77	
Mc Allen	mstly cldy	84	NE 7	105	8	77%	29.96s	84	75	
Harlingen	mstly cldy	88	E 6	109	12	68%	29.95r	88	71	
Brownsville	ptly cldy	87	NE 3	107	10	68%	29.94r	87	74	
Kingsville	haze	89	SE 2	110	5	66%	29.93r	89	73	
Alice	mstly clr	88	CALM	107	7	63%	29.98r	88	75	
CrpusCsty Int	light fog	82	SW 6	104	5	85%	29.95s	82	74	
Crpus Csty NS	haze	86	CALM	106	5	70%	29.95r	86	77	
Rockport	.....									

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Item: 2 Code: CTX

3PM Tue 27 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	82	SE 5	84	15	32%	30.03f	82	53	
Amarillo	no report	82	S 8	88	10	41%	30.03f	82	55	
Childress	ptly cldy	83	SW 7	93	25	51%	29.98f	83	63	0.17
Lubbock Intl	ptly cldy	82	W 9	89	15	44%	30.03f	82	61	0.17
Reese AFB	ptly cldy	86	SW 9	94	10	40%	30.04s	86	64	0.21
El Paso	no report	91	NW 9	92	10	21%	30.05f	91	62	
Guadalupe Ps	dry	80	W 17G25	82		33%	30.07f	80	58	
Wink	clear	87	CALM	93	20	36%	30.01f	87	63	Trace
Midland	ptly cldy	89	E 6	94	20	30%	30.01f	89	63	
San Angelo	ptly cldy	90	SE 3	99	20	38%	29.99f	90	66	
Marfa	no report	86	S 9	89	10	30%	30.10s	86	56	
Sanderson	no report	90	N 7G9	101		42%		90	67	
Wichita Falls	ptly cldy	87	SE 7	96	10	42%	29.94f	87	68	
Sherman	cloudy	80	W 9	92	15	60%	29.95r	86	75	
Dyess AFB	mstly cldy	85	W 7	97	15	51%	29.99f	85	64	
Abilene AP	mstly cldy	84	SW 7	97	25	57%	29.99f	84	64	0.12
Mineral Wells	cloudy	78	S 10	91	20	69%	29.98f	80	64	Trace
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	rain shwr	82	SW 11	95	10	61%	29.98s	84	67	
Dallas FtWrth	rain shwr	82	SW 14	97	15	65%	29.98r	87	73	
East Addition	.....									
Dallas Love	rain shwr	83	SW 9	96	15	59%	29.97s	87	75	
Dallas Adsn	cloudy	85	S 11	95	13	48%	29.97s	86	73	
Dallas Hensly	rain shwr	84	SW 5	93	12	48%	29.96f	85	70	
Greenville	.....									
Mt Pleasant	.....									
Tyler	mstly cldy	88	W 6	98	15	43%	29.97r	91	70	
Longview	cloudy	89	W 9	98	35	41%	29.96f	89	68	
Waco	dry	83	E 8	100	10	70%	29.96s	83	63	
Killeen Gray	ptly cldy	94	S 15	100	7	29%	29.96f	94	71	0.07
Ft. Hood	ptly cldy	92	S 13	103	10	40%	29.97f	92	76	
Temple	no report	91	S 16G21	100	10	38%	29.94s	91	66	
Lufkin	mstly cldy	91	SW 7	104	15	45%	29.97f	92	66	
Junction	dry	92	S 9G16	103		40%	31.99s	92	67	
Round Mtn	.....									
Austin AP	mstly cldy	90	SE 10	106	10	52%	29.95f	90	71	Trace
Bergstrom AFB	ptly cldy	93	S 6	106	10	43%	29.94s	93	72	
College Stn	ptly cldy	95	S 10	107	10	39%	29.97f	95	71	
Del Rio Intl	dry	98	S 5G10	110	8	34%	29.91f	98	75	
Laughlin AFB	ptly cldy	100	CALM	112	10	32%	29.93f	100	76	
Hondo	.....									
Kelly AFB	mstly cldy	91	SE 9	107	7	52%	29.96f	91	68	
Sn Antnio Int	no report	90	S 9	106	10	52%	29.97f	90	68	
Randolph AFB	ptly cldy	93	E 7	109	7	47%	29.97f	93	68	
Cotulla	ptly cldy	94	E 10	108	10	43%	29.92f	94	72	
Laredo	clear	97	SE 15	102	15	24%	29.90f	98	77	
Mc Allen	mstly cldy	91	E 17G23	112	10	62%	29.93r	96	75	
Harlingen	mstly cldy	91	E 20	111	12	60%	29.92f	94	71	
Brownsville	no report	90	E 16	110	10	61%	29.93s	93	74	
Kingsville	haze	92	E 7	108	6	50%	29.91s	95	73	
Alice	mstly cldy	94	E 18	110	15	46%	29.94f	95	70	
CrpusCsty Int	ptly cldy	90	E 14	110	7	61%	29.94f	91	74	
Crpus Csty NS	ptly cldy	90	SE 13	110	7	61%	29.95f	90	77	
Rockport	.....									

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Item: 2 Code: CTX

4PM Tue 27 June TEXAS this hour TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	clear	85	S 6	86	15	26%	30.00f	85	53	
Amarillo	no report	83	S 9	88	10	37%	30.00f	83	55	
Childress	ptly cldy	86	S 8	92	25	37%	29.95f	86	63	0.17
Lubbock Intl	ptly cldy	86	W 10	92	15	37%	30.01f	86	61	0.17
Reese AFB	ptly cldy	88	S 6	95	10	36%	29.99f	88	64	0.21
El Paso	ptly cldy	92	NW 6	92	10	18%	30.00f	92	62	
Guadalupe Ps	dry	82	W 17G21	78		27%	30.04s	82	58	
Wink	ptly cldy	91	NE 5	97	20	31%	29.96f	91	63	Trace
Midland	clear	91	SE 7	96	20	30%	29.98f	91	63	
San Angelo	ptly cldy	90	N 9	100	15	41%	29.94f	93	66	
Marfa	lgt rain	69	NE 21G30	66	7	66%	30.09s	86	56	0.01
Sanderson	no report	88	N 3G9	97		42%		90	67	
Wichita Falls	ptly cldy	88	S 9	95	10	36%	29.90s	88	68	
Sherman	mstly cldy	82	SW 7	94	15	58%	29.94f	86	75	
Dyess AFB	ptly cldy	90	SW 3	99	15	39%	29.94f	90	64	
Abilene AP	ptly cldy	89	SW 7	101	30	45%	29.94f	89	64	0.12
Mineral Wells	mstly cldy	81	SE 16	95	20	65%	29.95f	82	64	Trace
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	lgt t-shwr	70	NE 6	83	10	97%	29.98f	84	67	
Dallas FtWrth	rain shwr	76	SW 11	92	7	82%	29.99r	87	73	
East Addition	.....									
Dallas Love	rain shwr	77	SW 9	93	15	82%	29.98r	87	75	
Dallas Adsn	lgt rain	80	SW 9	92	7	62%	29.97s	86	73	
Dallas Hensly	rain shwr	74	SW 3	86	12	74%	29.96s	85	70	
Greenville	.....									
Mt Pleasant	.....									
Tyler	mstly cldy	88	SW 8	98	10	43%	29.95f	91	70	
Longview	mstly cldy	90	SW 13	100	35	41%	29.95f	90	68	
Waco	ptly cldy	87	NE 11	100	10	52%	29.93f	87	63	
Killeen Gray	ptly cldy	96	SE 11	107	7	35%	29.93f	96	71	0.07
Ft. Hood	ptly cldy	94	S 11	105	10	37%	29.94s	94	76	
Temple	ptly cldy	91	S 10	100	10	37%	29.92f	91	66	
Lufkin	mstly cldy	91	S 9	104	15	45%	29.96f	92	66	
Junction	dry	89	SW 6G9	98		39%	31.99s	92	67	
Round Mtn	.....									
Austin AP	cloudy	90	S 9	106	10	52%	29.93f	90	71	Trace
Bergstrom AFB	ptly cldy	91	S 5	104	10	45%	29.91f	93	72	
College Stn	mstly cldy	93	S 10	105	10	41%	29.94f	95	71	
Del Rio Intl	dry	99	SE 3G17	107	8	28%	29.87f	99	75	
Laughlin AFB	ptly cldy	103	S 9	112	10	22%	29.88f	103	76	
Hondo	.....									
Kelly AFB	ptly cldy	95	S 11	110	7	43%	29.92f	95	68	
Sn Antnio Int	ptly cldy	91	SE 8	106	7	49%	29.93f	91	68	
Randolph AFB	ptly cldy	95	E 10	110	7	43%	29.93f	95	68	
Cotulla	ptly cldy	97	NE 11	111	10	39%	29.87f	97	72	
Laredo	ptly cldy	100	SE 17	111	15	26%	29.86f	100	77	
Mc Allen	mstly cldy	88	SE 23	108	10	65%	29.92r	96	75	
Harlingen	mstly cldy	93	E 15	112	12	54%	29.89s	94	71	
Brownsville	no report	88	SE 16	108	10	65%	29.91s	93	74	
Kingsville	haze	90	SE 13	107	6	56%	29.87f	95	73	
Alice	clear	95	SE 17	111	12	44%	29.91f	96	70	
CrpusCsty Int	ptly cldy	90	SE 16G22	108	8	57%	29.91f	91	74	
Crpus Csty NS	ptly cldy	88	SE 16	107	7	63%	29.91f	90	77	
Rockport	.....									

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Item: 2 Code: CTX

11AM Wed 28 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	83	N 14	89	15	40%	30.03r	83	62	
Amarillo	no report	85	NW 7	91	10	39%	30.00s	85	62	
Childress	mstly clr	83	SE 6	98	20	63%	29.93f	83	68	
Lubbock Intl	ptly cldy	86	W 9	91	15	33%	30.00f	86	68	
Reese AFB	ptly cldy	90	S 11	95	10	31%	29.99s	90	68	
El Paso	no report	84	NW 3	87	10	31%	30.07f	84	63	
Guadalupe Ps	dry	75	SW 10G21	79		45%	30.07s	75	64	
Wink	clear	86	S 7	92	20	36%	29.98f	86	63	
Midland	clear	86	SE 9	92	20	37%	30.00f	86	65	
San Angelo	clear	89	S 11	104	15	52%	29.97f	89	70	
Marfa	no report	80	SW 9	83	10	37%	30.11f	80	56	
Sanderson	no report	84	S 6G9	93		48%		84	66	
Wichita Falls	ptly cldy	88	SE 6	104	10	57%	29.88s	88	63	
Sherman	clear	88	S 8	102	15	52%	29.92s	88	68	
Dyess AFB	clear	90	S 11	102	15	44%	29.94s	90	72	
Abilene AP	mstly clr	87	SW 11	101	12	53%	29.93f	87	70	
Mineral Wells	clear	89	SW 8	106	11	57%	29.91f	89	69	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	85	S 14	101	8	63%	29.92s	85	68	
Dallas FtWrth	ptly cldy	85	S 13	103	10	67%	29.93s	85	69	
East Addition	.....									
Dallas Love	ptly cldy	89	S 11	107	10	59%	29.93f	89	72	
Dallas Adsn	ptly cldy	88	SE 11	104	10	55%	29.92s	88	71	
Dallas Hensly	ptly cldy	85	S 11	98	12	55%	29.91s	85	71	
Greenville	ptly cldy	88	S 11		15		29.95f			
Mt Pleasant	.....									
Tyler	mstly cldy	85	S 8	101	7	61%	29.96f	85	70	
Longview	mstly cldy	83	S 17	100	7	70%	29.98f	83	71	
Waco	ptly cldy	81	S 10	100	10	79%	29.96s	81	68	
Killeen Gray	thunder	88	S 10	106	7	61%	29.98r	88	73	
Ft. Hood	thunder	86	N 11	105	10	68%	29.99r			
Temple	ptly cldy	85	SW 9	102	10	65%	29.96r	85	69	
Lufkin	mstly cldy	86	SW 6	105	10	68%	29.99s	86	69	
Junction	dry	84	S 5G11	100		63%	31.99s	84	72	
Round Mtn	.....									
Austin AP	mstly cldy	87	S 11	107	10	68%	29.96s	87	74	
Bergstrom AFB	cloudy	87	S 6	106	10	65%	29.93s	87	75	
College Stn	cloudy	88	SW 6	109	7	68%	29.97s	88	74	
Del Rio Intl	dry	91	S 6G13	108	8	54%	29.93s	91	80	
Laughlin AFB	ptly cldy	92	S 7	108	20	50%	29.93f	92	80	
Hondo	.....									
Kelly AFB	mstly cldy	91	SE 10	109	7	56%	29.94f	91	76	
Sn Antnio Int	no report	88	S 8	105	10	59%	29.95f	88	76	
Randolph AFB	mstly cldy	91	S 14	108	7	54%	29.95f	91	75	
Cotulla	ptly cldy	85	SE 7	103	15	67%	29.92f	85	76	
Laredo	ptly cldy	92	S 18	107	15	47%	29.91s	92	78	
Mc Allen	ptly cldy	91	SE 14	109	10	56%	29.92s	91	78	
Harlingen	ptly cldy	93	SE 11	110	10	51%	29.91s	93	77	
Brownsville	ptly cldy	92	SE 16	111	10	56%	29.91f	92	78	
Kingsville	ptly cldy	94	SE 8	116	7	58%	29.89s	94	75	
Alice	mstly cldy	93	S 11	110	10	51%	29.93s	93	74	
CrpusCsty Int	rain shwr	86	SE 14	107	7	72%	29.93r	88	76	
Crpus Csty NS	ptly cldy	91	S 13	113	11	64%	29.93r	91	80	
Rockport	.....									

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Item: 2 Code: CTX

12PM Wed 28 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	85	N 7	89	15	33%	30.02f	85	62	
Amarillo	no report	87	W 6	91	10	30%	29.99f	88	62	
Childress	mstly clr	88	S 5	103	20	53%	29.92f	88	68	
Lubbock Intl	ptly cldy	88	W 9	92	15	29%	29.99f	89	68	
Reese AFB	ptly cldy	93	S 11	95	10	22%	29.98f	93	68	
El Paso	no report	88	CALM	89	10	24%	30.06f	89	63	
Guadalupe Ps	dry	78	W 15G20	81		39%	30.06f	78	64	
Wink	clear	89	SE 6	95	20	33%	29.96f	90	63	
Midland	clear	89	SE 6	94	20	32%	29.98f	89	65	
San Angelo	clear	92	S 10	106	15	45%	29.96f	92	69	
Marfa	no report	83	SW 8G16	86	10	33%	30.09f	83	56	
Sanderson	no report	87	SW 6G11	97		45%		87	66	
Wichita Falls	ptly cldy	91	S 9	105	10	47%	29.88s	91	63	
Sherman	ptly cldy	90	SE 6	105	15	50%	29.91f	90	68	
Dyess AFB	clear	93	S 10	105	15	40%	29.93f	93	72	
Abilene AP	mstly clr	90	S 8	104	25	48%	29.92s	90	70	
Mineral Wells	clear	93	SW 9	109	15	49%	29.90f	93	67	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	ptly cldy	90	S 14	109	8	59%	29.90f	90	68	
Dallas FtWrth	ptly cldy	89	S 15	108	10	61%	29.92f	89	69	
East Addition	.....									
Dallas Love	ptly cldy	89	S 11	106	10	57%	29.92f	89	72	
Dallas Adsn	ptly cldy	89	SE 17	105	10	55%	29.90f	89	71	
Dallas Hensly	ptly cldy	89	S 11	105	12	55%	29.90f	89	71	
Greenville	ptly cldy	88	S 11		15		29.95f			
Mt Pleasant	.....									
Tyler	mstly cldy	87	S 6	102	7	55%	29.96s	87	70	
Longview	mstly cldy	85	S 11	101	7	61%	29.97f	85	71	
Waco	lgt rain	81	S 11	101	10	82%	29.93f	84	68	0.01
Killeen Gray	thunder	87	SE 6	104	7	61%	29.97s	88	73	
Ft. Hood	lgt t-shwr	78	N 16	97	5	88%	29.99s			
Temple	no report	83	S 8	100	10	70%	29.95f	86	69	
Lufkin	mstly cldy	90	W 7	108	10	57%	29.96f	90	69	
Junction	dry	88	S 7G14	102		52%	31.99s	88	72	
Round Mtn	mstly cldy	78	W 5	92	7	71%	30.05r			
Austin AP	mstly cldy	87	SW 11	106	10	65%	29.96s	87	74	
Bergstrom AFB	mstly cldy	93	SW 6	112	10	54%	29.93s	93	75	
College Stn	cloudy	91	S 5	112	7	62%	29.96f	92	74	
Del Rio Intl	dry	94	SE 7G13	110	8	46%	29.92f	94	80	
Laughlin AFB	ptly cldy	96	S 5	112	20	43%	29.92f	96	80	
Hondo	.....									
Kelly AFB	mstly cldy	92	SE 8	109	7	52%	29.93f	92	76	
Sn Antnio Int	no report	90	S 10	106	10	54%	29.94f	91	76	
Randolph AFB	ptly cldy	92	S 11	108	7	50%	29.94f	92	75	
Cotulla	mstly cldy	93	SE 8	107	15	44%	29.89f	93	76	
Laredo	ptly cldy	95	SE 24	109	15	41%	29.89f	95	78	
Mc Allen	ptly cldy	95	SE 11	111	10	46%	29.90f	95	78	
Harlingen	mstly cldy	94	SE 11	110	10	47%	29.90f	94	77	
Brownsville	ptly cldy	91	SE 17G21	109	10	56%	29.91s	93	78	
Kingsville	ptly cldy	96	SE 9	117	7	53%	29.87f	96	67	
Alice	mstly cldy	95	S 11	111	15	46%	29.92f	95	74	
CrpusCsty Int	mstly cldy	84	E 7G31	107	7	82%	29.93s	91	76	0.55
Crpus Csty NS	ptly cldy	91	S 14	113	11	64%	29.92s	91	80	
Rockport	ptly cldy	87	SE 17	114	10	82%	29.95r			

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Item: 2 Code: CTX

3PM Wed 28 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	86	N 8	90	15	31%	30.00f	86	62	
Amarillo	no report	89	SW 10	92	10	27%	29.96f	90	62	
Childress	mstly clr	93	SW 5	104	20	38%	29.89f	93	68	
Lubbock Intl	ptly cldy	95	SE 11	97	15	21%	29.95f	95	68	
Reese AFB	ptly cldy	95	S 14	97	10	20%	29.95f	95	68	
El Paso	no report	96	NW 8	97	10	13%	29.97f	96	63	
Guadalupe Ps	dry	84	W 18G30	81		24%	30.01s	84	64	
Wink	ptly cldy	94	CALM	98	20	24%	29.90f	94	63	
Midland	ptly cldy	92	SE 11	96	20	26%	29.92f	92	65	
San Angelo	mstly cldy	94	SE 9	103	15	35%	29.89f	95	69	
Marfa	ptly cldy	88	NW 13G18	87	10	22%	30.04f	88	56	
Sanderson	no report	88	SE 2G11	97		40%		92	66	
Wichita Falls	ptly cldy	96	E 8	108	10	37%	29.81f	96	63	
Sherman	mstly cldy	94	S 7	109	15	44%	29.88f	94	68	
Dyess AFB	mstly cldy	95	SE 9	105	15	35%	29.89f	96	72	
Abilene AP	mstly cldy	93	S 16	103	15	37%	29.86f	95	70	
Mineral Wells	mstly cldy	90	S 13	107	15	56%	29.84f	94	67	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	ptly cldy	91	S 17	111	8	60%	29.88f	91	68	
Dallas FtWrth	ptly cldy	92	S 15	110	12	54%	29.87f	92	69	
East Addition	.....									
Dallas Love	mstly clr	92	S 10	108	15	49%	29.87f	92	72	
Dallas Adsn	mstly cldy	91	SE 11	108	10	54%	29.88f	91	71	
Dallas Hensly	ptly cldy	91	S 11	107	12	52%	29.85f	91	71	
Greenville	ptly cldy	95	S 9		15		29.91f			
Mt Pleasant	.....									
Tyler	mstly cldy	90	SW 8	104	10	48%	29.91f	90	70	
Longview	mstly cldy	89	SE 7	103	10	50%	29.92f	89	71	
Waco	no report	83	S 6	104	10	80%	29.88f	86	68	0.01
Killeen Gray	mstly cldy	87	SE 9	105	7	63%	29.90f	89	73	
Ft. Hood	mstly cldy	83	SE 9	106	7	85%	29.90f	86	72	
Temple	lgt rain	79	NW 8	99	5	88%	29.92s	86	69	0.05
Lufkin	mstly cldy	92	CALM	109	10	52%	29.91f	92	69	
Junction	dry	92	S 11G15	103		40%	31.99s	92	72	
Round Mtn	.....									
Austin AP	mstly cldy	92	SE 9	109	10	52%	29.89f	92	74	
Bergstrom AFB	mstly cldy	95	SW 5	111	10	46%	29.86f	95	75	
College Stn	mstly cldy	96	SW 6	115	7	49%	29.91f	96	74	
Del Rio Intl	dry	100	SE 11G14	115	8	33%	29.83f	100	80	
Laughlin AFB	ptly cldy	98	E 7	111	20	36%	29.86f	98	80	
Hondo	.....									
Kelly AFB	mstly cldy	96	SE 8G15	112	7	44%	29.86f	96	76	
Sn Antnio Int	ptly cldy	94	S 7	110	10	47%	29.87f	94	76	
Randolph AFB	mstly cldy	95	SE 11	111	7	44%	29.90f	95	75	
Cotulla	mstly cldy	98	SE 11	111	15	36%	29.84f	98	76	
Laredo	.....									
Mc Allen	ptly cldy	96	E 14	112	10	43%	29.84f	98	78	
Harlingen	.....									
Brownsville	ptly cldy	93	SE 18G23	112	10	54%	29.87f	93	78	
Kingsville	ptly cldy	94	SE 16G22	115	7	56%	29.85f	96	67	
Alice	mstly cldy	96	SE 20	116	15	51%	29.86f	99	74	
CrpusCsty Int	dry	91	SE 18	111	7	60%	29.86f	93	76	0.55
Crpus Csty NS	ptly cldy	90	S 16	111	11	64%	29.89f	91	80	
Rockport	.....									

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Item: 2 Code: CTX

4PM Wed 28 June — TEXAS this hour — TODAY'S DATA

TOWN	WEATHER	TEMP	WIND	FLSLK	VIS	HUM	BRMTR	HI	LOW	PCPN
Dalhart	ptly cldy	89	NE 11	92	15	26%	29.96f	89	62	
Amarillo	no report	90	CALM	91	10	23%	29.94f	90	62	
Childress	mstly clr	95	S 6	104	25	32%	29.85f	95	68	
Lubbock Intl	ptly cldy	93	SE 8	95	15	22%	29.93f	95	68	
Reese AFB	ptly cldy	97	SE 7	99	10	19%	29.92s	97	68	
El Paso	no report	96	NW 8	97	10	13%	29.94f	96	63	
Guadalupe Ps	dry	82	E 16G31	83		28%	30.02s	86	64	
Wink	mstly cldy	95	SE 7	98	20	22%	29.89f	95	63	
Midland	ptly cldy	94	S 8G23	97	20	23%	29.90f	94	65	
San Angelo	mstly cldy	93	S 13	101	15	32%	29.86f	95	69	
Marfa	no report	82	E 24G31	84	10	32%	30.03s	88	56	
Sanderson	no report	87	S 2G6	96		42%		92	66	
Wichita Falls	ptly cldy	96	E 6	107	10	35%	29.78f	96	63	
Sherman	mstly cldy	94	S 7	109	15	44%	29.88f	94	68	
Dyess AFB	mstly cldy	97	S 14	107	15	33%	29.84f	97	72	
Abilene AP	lgt t-shwr	86	SE 16G30	95	30	45%	29.86r	95	70	
Mineral Wells	thunder	89	S 13	105	15	55%	29.84s	94	67	
Stephenville	.....									
Carswell AFB	.....									
Fort Worth AP	mstly cldy	90	S 14	108	8	57%	29.82s	93	68	
Dallas FtWrth	ptly cldy	93	S 15	112	12	54%	29.83f	93	69	
East Addition	.....									
Dallas Love	ptly cldy	92	SE 11	110	15	54%	29.84f	92	72	
Dallas Adsn	mstly cldy	91	SE 11	108	10	54%	29.88f	91	71	
Dallas Hensly	ptly cldy	92	SE 11	111	12	56%	29.82f	92	71	
Greenville	ptly cldy	95	S 9		15		29.91f			
Mt Pleasant	.....									
Tyler	mstly cldy	90	S 5	106	10	52%	29.87f	91	70	
Longview	ptly cldy	89	S 5	104	15	52%	29.89f	89	71	
Waco	no report	88	SE 10	107	10	63%	29.84f	88	68	0.01
Killeen Gray	lgt t-shwr	85	SE 6	104	7	70%	29.88f	89	73	
Ft. Hood	mstly cldy	83	SE 9	106	7	85%	29.90f	86	72	
Temple	lgt rain	79	CALM	96	10	79%	29.84s	86	69	0.11
Lufkin	mstly cldy	92	S 7	109	10	52%	29.90f	92	69	
Junction	dry	89	S 5G14	101		47%	31.99s	92	72	
Round Mtn	.....									
Austin AP	mstly cldy	93	E 7	111	10	52%	29.85f	93	74	
Bergstrom AFB	mstly cldy	96	S 3	111	10	42%	29.82f	96	75	
College Stn	ptly cldy	96	SE 9	114	10	48%	29.85fr	96	74	
Del Rio Intl	dry	100	S 10G20	115	8	34%	29.82s	101	80	
Laughlin AFB	mstly cldy	100	S 16G22	115	20	32%	29.82f	100	80	
Hondo	.....									
Kelly AFB	mstly cldy	96	S 5	112	7	43%	29.83f	96	76	
Sn Antnio Int	no report	94	S 3	110	10	46%	29.84f	94	76	
Randolph AFB	mstly cldy	95	S 14	109	7	41%	29.84f	96	75	
Cotulla	ptly cldy	99	SE 9	117	15	43%	29.80f	99	76	
Laredo	ptly cldy	100	SE 18	114	15	30%	29.79f	100	78	
Mc Allen	ptly cldy	96	E 14	112	10	44%	29.82f	98	78	
Harlingen	mstly cldy	95	SE 17	112	12	47%	29.83f	96	77	
Brownsville	ptly cldy	92	SE 18	112	10	58%	29.85f	93	78	
Kingsville	mstly cldy	88	SE 14	106	7	61%	29.82s	96	67	
Alice	ptly cldy	95	SE 18	113	15	49%	29.84f	99	74	
CrpusCsty Int	ptly cldy	91	SE 20	107	7	52%	29.85f	93	76	0.55
Crpus Csty NS	ptly cldy	89	SE 15	108	11	61%	29.86f	91	80	
Rockport	.....									

APPENDIX 5

Carbon Mass Balance Field Data Form

Company: Mack Location: W-Dallas Test Date: 11/23/05
Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___Inches

Engine Make/Model: Mack Miles/Hours: 23528 I.D.#: 215
Type of Equipment: _____

Fuel Specific Gravity: .847 @ _____ (°F)
Barometric Pressure: 30.03 Inches of Mercury
Intake Air Temperature: 75 (°F) Start Time: 2:21

Water Temp 180°F

RPM	Exhaust Temp °F	P, Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1800	347.4		.01	13	2.42	16.9	
	350.0	2.4	.01	13	2.41	17.0	5
	353.0		.01	13	2.42	16.9	
	355.2	2.4	.01	13	2.40	16.9	
	358.6		.01	13	2.41	17.0	
W	~~360.8~~		~~.01~~	~~13~~	~~2.36~~	~~17~~	
	361	2.4	.01	13	2.38	16.1	Bad RPM 185
	366	2.4	.01	13	2.32	17	
	366.8	2.4	.01	13	2.30	17.1	

End Time 2:40

✓

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____ _____

Carbon Mass Balance Field Data Form

Company: Waste Location: W Houston Test Date: 4/25/95
Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___ Inches
Engine Make/Model: Mack Miles/Hours: 242445 ~~[illegible]~~ 205 ~~I.D.# 649~~ DX9 649
Type of Equipment: _____

Fuel Specific Gravity: .850 @: _____ (°F)
Barometric Pressure: 30.01 Inches of Mercury
Intake Air Temperature: _____ (°F) Start Time: 3:00

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1800	331.4	2.8	.101	9	2.19	16.7	
	334	2.8	.01	9	2.19	16.7	7
	340	2.8	.101	9	2.17	16.8	
	341.2	2.8	.101	9	2.19	16.7	
	343.4	2.8	.101	9	2.19	16.7	
	344.6	2.8	.101	9	2.18	16.7	
	348	2.8	.101	9	2.19	16.7	
	347.8	2.8	.101	9	2.19	16.6	

Water T 192

End Time 3:15

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

Carbon Mass Balance Field Data Form

Company: Waste Location: D West Test Date: 11/15/95

Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___ Inches

Engine Make/Model: Mack Miles/Hours: 44934 I.D.#: 1009 796

Type of Equipment: _____

Fuel Specific Gravity: _____ @: _____ (°F)

Barometric Pressure: 29.98 Inches of Mercury

Intake Air Temperature: _____ (°F) Start Time: 4:41

RPM	Exhaust Temp °F	P-Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	360.6	2.4	.01	9	2.09	11.9	
	361.4	2.4	.01	8	2.02	11.8	10
	363.	2.6	.01	9	2.00	11.8	
	364.8	2.6	.01	9	2.06	11.8	
	364.4	2.6	.01	9	18.6	17.1	
	360.4	2.6	.01	9	19.5	17.2	

End Time 4:55

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____ _____

Carbon Mass Balance Field Data Form

Company: Waste Location: W - Dallas Test Date: [illegible]/25

Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___ Inches

Engine Make/Model: Mack Miles/Hours: 120662 I.D.#: GF2870 420

Type of Equipment: _____

Fuel Specific Gravity: .846 @: _____ (°F) Water Temp

Barometric Pressure: 30.01 Inches of Mercury

Intake Air Temperature: _____ (°F) Start Time: [illegible] 180 °F

RPM	Exhaust Temp °F	P, Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	334.8	1.2	.01	4	1.61	14.1	30
	336.6		.01	4	1.80	13.9	
	342	1.2	.00	4	1.83	13.1	
	342.6		.01	5	18.4	13.3	
	343.8	1.2	.01	5	18.5	13.3	
	344.6	1.2	.01	5	18.8	13.2	
	345.6	1.2	.01	5	18.7	13.3	
	345.4	1.2	.01	4	18.2	13.6	

End Time [illegible]

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

Carbon Mass Balance Field Data Form

Company: Waste Location: W-Dallas Test Date: 7/26/95
Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___ Inches
Engine Make/Model: Mack Miles/Hours: 187000 I.D.#: 263 ONE 163
Type of Equipment: _____

Fuel Specific Gravity: _____ @: _____ (°F)
Barometric Pressure: 29.85 Inches of Mercury
Intake Air Temperature: _____ (°F) Start Time: 3:

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	314.6	.8	.03	8	17.7	18.3	5
	315.0		.03	9	17.5	18.3	
	315.6	.8	.03	9	17.4	18.4	
	316.1		.03	9	17.3	18.3	
	316.4	.8	.03	10	17.0	18.4	
	316.8		.03	10	16.9	18.4	
	317.6	.8	.02	9	16.7	18.4	
	318.4		.02	9	16.6	18.4	

End Time 3:19

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____ _____

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas W Test Date: 7/25/95

Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___ Inches 4/8

Engine Make/Model: Mack Miles/Hours: 12545 I.D.#: E 29312

Type of Equipment: _____

Fuel Specific Gravity: .844 @: _____ (°F)

Barometric Pressure: 29.98 Inches of Mercury

Intake Air Temperature: 76° (°F) Start Time: 4:00 H_2O Temp 184°F

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	355	1.4	.01	4	2.01	11.2	5.5
	355.4	1.4	.01	5	2.18	11.1	
	358.8	1.4	.02	4	2.17	11.1	
	360.0	1.4	.01	4	2.17	11	
	362.2	1.4	.02	5	2.15	11.0	
	362.8	1.4	.01	4	2.18	11.1	
	364.2	1.4	.01	4	2.15	11.1	
	365.6	1.4	.01	4	2.13	11.0	

End Time _____

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas West Test Date: 7/2/95
Test Portion: Baseline: ✓ Treated: _____ Exhaust Stack Diameter: ___Inches #264
Engine Make/Model: Mack Miles/Hours: 843 I.D.# GF6-709
Type of Equipment: _____

Fuel Specific Gravity: ~~.9~~ .853 @: _____ (°F) Water Temp 200°F
Barometric Pressure: 30.07 Inches of Mercury
Intake Air Temperature: 71 (°F) Start Time: 1245

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO	% O_2	Smoke Number
1900	358	1.9	.02	10	2.35	16.6	
	359		.02	10	2.35	16.7	
		1.9	.02	9	2.38	17.1	
	360		.02	9	2.39	17.1	
	359	1.9	.02	8	2.34	17.2	
	359		.02	9	2.34	17.2	
	361	1.95	.02	8	2.37	17	
	361.2		.02	8	2.38	17.1	

End Time 1:17

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waster Location: Dallas West Test Date: 6/27/95
Test Portion: Baseline:_____ Treated: ✓ Exhaust Stack Diameter: ___Inches

GF5709

Engine Make/Model: Mack Miles/Hours: 96501 I.D.#: 2664
Type of Equipment: _____

Fuel Specific Gravity: .825 @:_____(°F)
Barometric Pressure: 29.97 Inches of Mercury
Intake Air Temperature: _____(°F) Start Time: 5 01

Water 220

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1800	364	1.8	.105	9	2.29	17.	45
	367	1.8	.102	10	2.29	17.0	
	370.8	1.5	.102	10	2.08	17.1	
	370.0	1.8	.102	10	2.26	17.1	
	371.2	1.8	.102	10	2.17	17.1	
	371.0	1.8	.102	11	2.13	17.3	
	371.4	1.8	.02	10	2.18	17.2	
	371.6	1.8	.01	12	2.24	17.1	
	371.0	1.8	.01	13	2.26	17.1	

water

End Time 2:34

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waste Location: Adler West Test Date: 2/27/95

Test Portion: Baseline:_____ Treated:_____ Exhaust Stack Diameter: ___Inches 9X9 649

Engine Make/Model: Mack Miles/Hours: 245637 I.D.#: 305

Type of Equipment: _____

Fuel Specific Gravity: .83 @:_____ (°F)

Barometric Pressure: 29.84 Inches of Mercury

Intake Air Temperature: _____ (°F) Start Time: 1[illegible]

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1800	397.2	2.5	.01	10	2.35	17.0	6
	398.6		.01	10	2.35	16.9	
	399.8		.01	10	2.31	17.1	
	397.4	2.6	.01	9	2.29	17.1	
	396.6		.01	9	2.28	17.1	
	396.8	2.6	.01	9	2.25	17.1	
	399.00		.01	9	2.25	17.1	

Water 193

End Time 15[illegible]

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____ _____

Carbon Mass Balance Field Data Form

Company: Waste Mgmt Location: Dallas W. Test Date: 6/27/95 Louis

Test Portion: Baseline: _____ Treated: ✓ Exhaust Stack Diameter: ___ Inches

Engine Make/Model: Mack Miles/Hours: 132900 I.D.#: 420 GF2 872

Type of Equipment: _____

Fuel Specific Gravity: .83 @: _____ (°F)

Barometric Pressure: 29.27 Inches of Mercury

Intake Air Temperature: _____ (°F) Start Time: 3:50

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1700	332	1.0	.01	5	2.05	17.5	1.5
	331.6	|	.01	5	2.06	17.5	
	329.6	|	.01	5	2.04	17.5	
	329.6	|	.01	4	2.04	17.5	
	327.8	.9	.01	5	2.01	17.6	
	328	.9	.01	4	2.00	17.5	
	327.8	.9	.01	5	2.02	17.6	
	328		.01	4	2.02	17.5	

Water 180

End Time 4:10

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas West Test Date: 6/2/95

Test Portion: Baseline:_____ Treated:_____ Exhaust Stack Diameter: ___Inches

Engine Make/Model: Mack Miles/Hours: 504189 I.D.#: 358 over 463

Type of Equipment: _____

Fuel Specific Gravity: .835 @:_____(°F)

Barometric Pressure: 25.97 Inches of Mercury

Intake Air Temperature: _____(°F) Start Time: 1215

RPM	Exhaust Temp °F	ΔInches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	330.6	.7	.02	10	1.8	17.8	3
	330		.02	10	1.8	17.8	
	330.4		.02	10	1.79	17.8	
	330.6		.02	10	1.78	17.8	
	330.4		.02	10	1.77	17.9	
	330.6	.6	.02	10	1.77	17.8	
	330.8	.6	.02	10	1.78	17.9	
	330.8	.6	.02	10	1.79	17.8	

1215 start
1230

End Time 1230

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas W Test Date: 6/28/95

Test Portion: Baseline:_____ Treated:_____ Exhaust Stack Diameter: ___Inches

Engine Make/Model: _____ Miles/Hours: 138518 I.D.#: 418 E29-342

Type of Equipment: _____

Fuel Specific Gravity: .832 @:_____ (°F)

Barometric Pressure: 29.90 Inches of Mercury

Intake Air Temperature: _____ (°F) Start Time: 11:5[illegible]

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	356	1.8	.01	2	2.03	17.3	5
	358.7		.01	2	2.04	17.3	
	363.4	1.4	.01	3	2.03	17.3	
	364.8		.01	3	2.02	17.5	
	367.6	1.4	.01	4	2.04	17.4	
	368.8	1.4	.01	4	2.04	17.4	
	371	1.8	.01	3	2.05	17.4	
		1.4					

Wat. Temp 185

End Time 11:34

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas W Test Date: 7/08/95
Test Portion: Baseline:_____ Treated: ✓ Exhaust Stack Diameter: ___Inches

Engine Make/Model: Mack Miles/Hours: 51700 I.D.#: 348
Type of Equipment: _____

Fuel Specific Gravity: 1836 @:_____ (°F)
Barometric Pressure: 29.84 Inches of Mercury
Intake Air Temperature: _____ (°F) Start Time: 5:00

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	381.8	92.4	.01	12	1.94	17.3	4.5
	382.8	2.4	.01	12	1.90	17.4	
	381.8	2.4	.01	10	1.89	17.7	
	381.2	2.4	.01	10	1.88	17.1	
	381.4	2.4	.01	10	1.86	17.7	
	381.0	2.4	.01	12	1.85	17.7	
	381.2	2.6	.01	12	1.85	17.7	
	378.8	2.6	.01	10	1.83	17.7	
			.01	10	1.82	17.8	

End Time 5:15

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____

Carbon Mass Balance Field Data Form

Company: Waste Location: Dallas west Test Date: 6/28/95
Test Portion: Baseline:_____ Treated:_____ Exhaust Stack Diameter: ___Inches
Engine Make/Model: Mack Miles/Hours: 238874 I.D.#: 215 DX9646
Type of Equipment: _____

Fuel Specific Gravity: .838 @:_____ (°F)
Barometric Pressure: 29.87 Inches of Mercury
Intake Air Temperature: _____ (°F) Start Time: 2 0 5

RPM	Exhaust Temp °F	P Inches of H_2O	% CO	HC ppm	% CO_2	% O_2	Smoke Number
1900	400.6	2.3	.01	12	2.35	16.7	
	400.3	2.3	.01	12	2.32	16.7	5
	412.4	2.2	.01	10	2.36	16.9	
	414.	2.2	.01	10	2.35	16.9	
	415.8	2.2	.01	10	2.35	17.0	
	416.6	2.2	.01	10	2.33	17.0	
	418	2.3	.0	12	2.30	17.0	
	418.2	2.2	.0	12	2.33	17	

Warm 180'

End Time 2 0 5

Names of Customer Personnel Participating in Test:

_____ _____

Signature of Technicians:

_____ _____