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APCD—SOUTHERN REGION

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SUMMARY OF SOURCE TEST RESULTS

COMPANY: **DESTEC - KERN FRONT** APCD #: 4166001 (B)

TEST DATE: FEBRUARY 18-19, 23-26, 1993 UNIT #: TURBINE #1

EMISSIONS	gr/scf	@12%CO2	ppm	ppm @15% O2	lb/ MMBtu	lb/hr	lb/day	Permit Limits
PARTICULATE	0.000691 0.000539	0.003373 0.002627				0.81 0.64	19.44 15.36	
Mean:	0.000615	0.003000				0.73	17.40	3.12 lb/hr
SULFUR			in fuel			in exhaust	in exhaust	
Mean:			2.0			0.0379	0.910	0.16 lb/hr
NOx (dry) (RUNS 1-9)								0.0162 lb/MMBtu
Mean:			2.12	1.81	0.00661	1.73	41.5	4.04 lb/hr
CO (RUNS 1-9)								
Mean:			35.6	30.4	0.06764	17.8	427	27.63 lb/hr
NMHC turbine plus 2 lube oil vents								
Mean:						1.22	29.06	3.12 lb/hr

RELATIVE ACCURACY	% RA Related to Referance Method	% RA Related to Applicable Standard	PERMIT LIMITS Related to Referance Method	PERMIT LIMITS Related to Applicable Standard
NOx	4.77	NA	20 %	NA
CO	6.07	NA	10 %	NA
O2	1.29	NA	20 %	NA

For San Joaquin Unified APCD Use Only: _____

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SUMMARY OF SOURCE TEST RESULTS

COMPANY: **DESTEC - KERN FRONT** APCD #: 4166002 (B)

TEST DATE: FEBRUARY 18-19, 23-26, 1993 UNIT #: TURBINE #2

EMISSIONS	gr/scf	@12%CO2	ppm	ppm @15% O2	lb/ MMBtu	lb/hr	lb/day	Permit Limits
PARTICULATE	0.000865 0.000744	0.004223 0.003648				0.99 0.88	23.76 21.12	
Mean:	0.000805	0.003936				0.94	22.44	3.12 lb/hr
SULFUR			in fuel			in exhaust	in exhaust	
Mean:			1.9			0.0364	0.874	0.16 lb/hr
NOx (dry) (RUNS 1-9)								0.0162 lb/MMBtu
Mean:			2.82	2.45	0.00893	2.26	54.2	4.04 lb/hr
CO (RUNS 1-9)								
Mean:			40.9	35.4	0.07874	19.9	478	27.63 lb/hr
NMHC turbine plus 2 lube oil vents								
Mean:						1.39	33.33	3.12 lb/hr

RELATIVE ACCURACY	% RA Related to Referance Method	% RA Related to Applicable Standard	PERMIT LIMITS Related to Referance Method	PERMIT LIMITS Related to Applicable Standard
NOx	9.97	NA	20 %	NA
CO	0.96	NA	10 %	NA
O2	1.17	NA	20 %	NA

For San Joaquin Unified APCD Use Only: _____

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COMPANY : DESTEC
UNIT : KERN FRONT – TURBINES 1 & 2 AND LUBE OIL VENTS
DATE : 02-18/19, 25-93
REPORT : 027-343

SUMMARY OF HYDROCARBONS RESULTS

	gr/scf	ppm	lbs/hr	lbs/day
TURBINE #1				
NON-CONDENSABLE	---	4.34	1.21	28.96
TOTAL HYDROCARBONS	---	---	*1.21*	*28.96*
TURBINE #2				
NON-CONDENSABLE	---	4.85	1.38	33.20
TOTAL HYDROCARBONS	---	---	*1.38*	*33.20*
LOV GENERATOR 1				
CONDENSABLE	0.03755	---	0.00356	0.0854
NON-CONDENSABLE	---	24.56	0.00071	0.0170
TOTAL HYDROCARBONS	---	---	*0.00427*	*0.1024*
LOV TURBINE 1				
CONDENSABLE	0.03151	---	0.00068	0.0163
NON-CONDENSABLE	---	12.54	0.00008	0.0018
TOTAL HYDROCARBONS	---	---	*0.00076*	*0.0181*
LOV GENERATOR 2				
CONDENSABLE	0.03081	---	0.00323	0.0800
NON-CONDENSABLE	---	21.61	0.00068	0.0163
TOTAL HYDROCARBONS	---	---	*0.00391*	*0.0963*
LOV TURBINE 2				
CONDENSABLE	0.02558	---	0.00070	0.0167
NON-CONDENSABLE	---	80.80	0.00063	0.0150
TOTAL HYDROCARBONS	---	---	*0.00133*	*0.0317*
TOTAL EMISSIONS				
TURBINE #1 + LOVG 1 + LOVT 1			*1.22*	*29.08*
TURBINE #2 + LOVG 2 + LOVT 2			*1.39*	*33.33*

INTRODUCTION

On February 23-26, 1992, Petro Chem Environmental Services, Inc. (PCES) performed a series of emission source tests for Destec Operating Company at their Kern Front Limited Cogeneration Facility located in Kern County, California. The units tested were two 25.0 MW GE LM-2500 gas fired turbine/generators and four lube oil vents; two per turbine.

Determination of concentrations (ppm) and emissions (lbs/hr) of particulate, sulfur, NMHC, NOx, CO, O_2, from the exhaust of the two turbine/generators and relative accuracy testing was performed for NOx, CO, and O_2 using the following procedures:

PARAMETERS	METHOD	# TEST RUNS PER TURBINE
Particulate	EPA Method 5; Gravimetric	2 - 6 hr.
Sulfur	Fuel Analysis / Fuel Rates EAS Labs	1
NMHC	EPA Method 18; (modified) C_1 - C_{6+}	3
NOx	EPA Method 20; Chemiluminescent Analyzer equipped with Molydenum Convertor	Turbine #1 9 - 30 min. Turbine #2 9 - 30 min.
CO	EPA Method 10; Gas Filter Correlation Analyzer	Turbine #1 9 - 30 min. Turbine #2 9 - 30 min.
O_2	EPA Method 20; Fuel Cell Analyzer	Turbine #1 9 - 30 min. Turbine #2 9 - 30 min.
Molecular Weight O_2, CO_2, N_2	EPA Method 3; Orsat	2
Volume Flow DSCFM	EPA Method 2; Pitot Tube Traverse	2
Relative Accuracy NOx/ CO / O_2	Title 40 CFR Performance Spec II, III, IV	Turbine #1 9 - 30 min. Turbine #2 9 - 30 min.

Each turbine was equipped with two lube oil vent (LOV) stacks; turbine LOV and generator LOV. Concentrations (ppm, gr/DSCF) and emissions (lb/hr, lb/day) of condensable and non condensable hydrocarbon emissions from the exhaust of the lube oil vent stacks were determined using the following procedures:

PARAMETERS	METHOD	# TEST RUNS/ LUBE OIL VENT
Condensable Hydrocarbons	EPA Method 4; with Gravimetric Organic Extractions Utilizing CARB Method 5.4.3.1.	3
Non Condensable Hydrocarbons	EPA Method 18; Bag Sample FID Analysis	3
Volume Flow	EPA Method 2; Pitot Tube Or Hot Wire Anemometer	3
Molecular Weight	EPA Method 3; Orsat Analysis	3
% H_2O	EPA Method 4; Condensation	3

As per permit to operate, emissions of hydrocarbons are expressed as the sum of the emissions from the turbine and it's two LOV stacks.

All sampling was performed by Doug Towne and Randall Kastner of Petro Chem Environmental Services, Inc. The hydrocarbons, fuel gas, PM, and organic analyses were performed by Terry Rowles of PCES. The fuel sulfur was analyzed by EAS Labs of San Luis Obispo, California. Gary Fuller of Destec Operating Company supervised the testing. Harvey Lopez of San Joaquin Valley Unified APCD, Southern Region, was present and witnessed the testing.

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

METHOD 1-5
FIELD DATA @ 60° F

RUN #:	1	2
TIME :	911	835
Vm (dry gas sampled)	173.99	173.61
Y (meter calib. factor)	0.982977	0.982977
P bar (Barometric pressure)	29.04	29.09
P static (stack pressure, " H2O)	-0.85	-0.85
Delta H (differential meter press, " H2O)	0.57	0.6
Tm (meter temperature, R°)	526	519
Vol H2O mls	779.8	779.4
Vm(std),dscf	164.34	166.49
Bws-H2O vapor	0.1806	0.1786
MF-moisture factor	0.8194	0.8214
% CO2	3	3
% O2	14	14
% N2	83	83
Md-MW stk gas,dry	29.04	29.04
Ms-MW stk gas,wet	27.05	27.07
Cp-pitot tube	0.791	0.791
Avg sq rt ^p	0.99	1.01
T stack, R°	723	729
Stack area,ft2	50.528	50.528
Vs-fps	64.43	65.88
Qstd-dscfm	111481	113527
Area noz,ft2	2.10E-04	2.10E-04
Sample time	360	360
% Isokinetic	98.7	98.2

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

EPA METHOD 5 DATA
@ 60°F

RUN #1

PARTICULATE RESULTS:	net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO2	lbs/hr	lbs/day
Probe & Nozzle:	3.70	0.000347	0.000284	0.001387	0.33	7.92
Filter:	0.10	0.000009	0.000008	0.000037	0.01	0.24
Condensables:	5.20	0.000487	0.000399	0.001949	0.47	11.28
Total:	9.00	0.000843	0.000691	0.003373	0.81	19.44

ADDITIONAL DATA:

TIME

start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
901	1523	14	3	18.06	164.34	111481

RUN #2

PARTICULATE RESULTS:	net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO2	lbs/hr	lbs/day
Probe & Nozzle:	2.00	0.000185	0.000152	0.000740	0.18	4.32
Filter:	0.30	0.000028	0.000023	0.000111	0.03	0.72
Condensables:	4.80	0.000444	0.000365	0.001776	0.43	10.32
Total:	7.10	0.000657	0.000539	0.002627	0.64	15.36

ADDITIONAL DATA:

TIME

start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
835	1451	14	3	17.86	166.49	113527

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

METHOD 1-5
FIELD DATA @ 60° F

RUN #:	1	2
TIME :	750	823
Vm (dry gas sampled)	167.98	172.04
Y (meter calib. factor)	0.982977	0.982977
P bar (Barometric pressure)	29.13	29.03
P static (stack pressure, " H2O)	-0.6	-0.6
Delta H (differential meter press, " H2O)	0.57	0.59
Tm (meter temperature, R°)	522	522
Vol H2O mls	762.5	796.1
Vm(std),dscf	160.38	163.70
Bws-H2O vapor	0.1809	0.1843
MF-moisture factor	0.8191	0.8157
% CO2	3	3
% O2	14	14.3
% N2	83	82.7
Md-MW stk gas,dry	29.04	29.05
Ms-MW stk gas,wet	27.04	27.02
Cp-pitot tube	0.791	0.791
Avg sq rt ^p	0.97	0.99
T stack, R°	725	720
Stack area,ft2	50.528	50.528
Vs-fps	62.91	64.16
Qstd-dscfm	108922	111009
Area noz,ft2	2.10E-04	2.10E-04
Sample time	360	360
% Isokinetic	98.6	98.8

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

EPA METHOD 5 DATA
@ 60°F

RUN #1

PARTICULATE RESULTS:	net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO2	lbs/hr	lbs/day
Probe & Nozzle:	4.90	0.000471	0.000385	0.001882	0.44	10.56
Filter:	0.30	0.000029	0.000024	0.000115	0.03	0.72
Condensables:	5.79	0.000556	0.000456	0.002226	0.52	12.48
Total:	10.99	0.001056	0.000865	0.004223	0.99	23.76

ADDITIONAL DATA:

TIME start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
750	1401	14	3	18.09	160.38	108922

RUN #2

PARTICULATE RESULTS:	net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO2	lbs/hr	lbs/day
Probe & Nozzle:	3.30	0.000310	0.000253	0.001242	0.30	7.20
Filter:	0.20	0.000019	0.000015	0.000075	0.02	0.48
Condensables:	6.19	0.000583	0.000475	0.002331	0.56	13.44
Total:	9.69	0.000912	0.000744	0.003648	0.88	21.12

ADDITIONAL DATA:

TIME start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
823	1433	14.3	3	18.43	163.7	111009

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINES 1 & 2 AND LUBE OIL VENTS
DATE : 02-18/19, 25-93
REPORT : 027-343

SUMMARY OF HYDROCARBONS RESULTS

	gr/scf	ppm	lbs/hr	lbs/day
TURBINE #1				
NON-CONDENSABLE	---	4.34	1.21	28.96
TOTAL HYDROCARBONS	---	---	*1.21*	*28.96*
TURBINE #2				
NON-CONDENSABLE	---	4.85	1.38	33.20
TOTAL HYDROCARBONS	---	---	*1.38*	*33.20*
LOV GENERATOR 1				
CONDENSABLE	0.03755	---	0.00356	0.0854
NON-CONDENSABLE	---	24.56	0.00071	0.0170
TOTAL HYDROCARBONS	---	---	*0.00427*	*0.1024*
LOV TURBINE 1				
CONDENSABLE	0.03151	---	0.00068	0.0163
NON-CONDENSABLE	---	12.54	0.00008	0.0018
TOTAL HYDROCARBONS	---	---	*0.00076*	*0.0181*
LOV GENERATOR 2				
CONDENSABLE	0.03081	---	0.00323	0.0800
NON-CONDENSABLE	---	21.61	0.00068	0.0163
TOTAL HYDROCARBONS	---	---	*0.00391*	*0.0963*
LOV TURBINE 2				
CONDENSABLE	0.02558	---	0.00070	0.0167
NON-CONDENSABLE	---	80.80	0.00063	0.0150
TOTAL HYDROCARBONS	---	---	*0.00133*	*0.0317*
TOTAL EMISSIONS				
TURBINE #1 + LOVG 1 + LOVT 1			***1.22***	***29.08***
TURBINE #2 + LOVG 2 + LOVT 2			***1.39***	***33.33***

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1 & LUBE OIL VENTS
DATE : 02-18/19, 25-93
REPORT : 027-343

SUMMARY OF HYDROCARBONS RESULTS

	gr/scf	ppm	lbs/hr	lbs/day
TURBINE #1 - MAIN STACK				
BLANK CORRECTED				
NON-CONDENSABLE				
RUN 1		4.82	1.34	32.16
RUN 2		4.20	1.17	28.08
RUN 3		4.00	1.11	26.64
AVERAGE		4.34	1.21	28.96
LOV GENERATOR 1				
CONDENSABLE				
RUN 1	0.04393		0.00380	0.0913
RUN 2	0.03505		0.00335	0.0804
RUN 3	0.03368		0.00352	0.0845
AVERAGE	0.03755		0.00356	0.0854
NON-CONDENSABLE				
RUN 1		16.95	0.00043	0.0103
RUN 2		11.87	0.00033	0.0079
RUN 3		44.87	0.00136	0.0326
AVERAGE		24.56	0.00071	0.0170
TOTAL HYDROCARBONS	---	---	**0.00427**	**0.1024**
LOV TURBINE 1				
CONDENSABLE				
RUN 1	0.04024		0.00092	0.0220
RUN 2	0.02909		0.00058	0.0140
RUN 3	0.02520		0.00054	0.0130
AVERAGE	0.03151		0.00068	0.0163
NON-CONDENSABLE				
RUN 1		13.71	0.00009	0.0022
RUN 2		12.65	0.00007	0.0017
RUN 3		11.25	0.00007	0.0017
AVERAGE		12.54	0.00008	0.0018
TOTAL HYDROCARBONS	---	---	**0.00076**	**0.0181**
TURBINE #1				
TOTAL EMISSIONS			***1.22***	***29.08***
MAIN STACK + LOVG + LOVT				

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-25-93
REPORT : 027-343

HYDROCARBON RESULTS
CORRECTED FOR METHOD BLANK

RUN No.:	1						
DSCFM:	109966		average of pitot tube velocity profiles				
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	66.25	18.43	66.25	18.43
Ethane	(C2)	*ND	0.03	2.41	1.26	4.82	1.34
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			68.66	19.69	71.07	19.77
	Total (non methane)			2.41	1.26	4.82	1.34

RUN No.:	2						
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	59.53	16.56	59.53	16.56
Ethane	(C2)	*ND	0.03	2.10	1.10	4.20	1.17
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			61.63	17.65	63.73	17.73
	Total (non methane)			2.10	1.10	4.20	1.17

RUN No.:	3						
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	56.09	15.60	56.09	15.60
Ethane	(C2)	*ND	0.03	2.00	1.04	4.00	1.11
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			58.09	16.65	60.09	16.72
	Total (non methane)			2.00	1.04	4.00	1.11

*ND – Non detect in sample blank, used detection limit

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-25-93
REPORT : 027-343

HYDROCARBON RESULTS

RUN No.: 1
DSCFM: 109966 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	66.30	18.44	66.30	18.44
Ethane	(C2)	2.44	1.27	4.88	1.36
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	68.74	19.72	71.18	19.80
	Total (non methane)	2.44	1.27	4.88	1.36

RUN No.: 2
DSCFM: 109966 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	59.58	16.57	59.58	16.57
Ethane	(C2)	2.13	1.11	4.26	1.19
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	61.71	17.68	63.84	17.76
	Total (non methane)	2.13	1.11	4.26	1.19

RUN No.: 3
DSCFM: 109966 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	56.14	15.62	56.14	15.62
Ethane	(C2)	2.04	1.06	4.08	1.13
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	58.18	16.68	60.22	16.75
	Total (non methane)	2.04	1.06	4.08	1.13

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 1
DATE : 02-19-93
REPORT : 027-343

FIELD DATA @ 60°F

RUN #:	1	2	3
TIME:	1228	1312	1355
Vm (dry gas sampled)	24.07	23.97	23.93
Y (meter calib. factor)	0.998954	0.998954	0.998954
P bar (Barometric pressure)	29.08	29.08	29.08
P static (stack pressure, " H2O)	0	0	0
Delta H (differential meter press, " H2O)	0.59	0.59	0.59
Tm (meter temperature, R°)	536.7	538.44	536.6
Vol H2O mls	4.7	6.3	7.4
Vm(std),dscf	22.68	22.51	22.55
Bws-H2O vapor	0.0095	0.0128	0.0150
MF-moisture factor	0.990463	0.9872	0.9850
% CO2	0	0	0
% O2	20.7	20.7	20.7
% N2	79.3	79.3	79.3
Md-MW stk gas,dry	28.83	28.83	28.83
Ms-MW stk gas,wet	28.73	28.69	28.67
T stack, R°	557.5	546.5	549.4
Stack area,ft2	0.058	0.058	0.058
Vs-fpm, hot wire anemometer	189.1	214.4	224
Q-acfm	11	12	13
Qstd-dscfm	10	11	12
Sample time	40	40	40

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 1
DATE : 02-19-93
REPORT : 027-343

EPA METHOD 4 DATA
@ 60°F

RUN #1

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	65.31	0.04435	0.04393	0.00380	0.0913

ADDITIONAL DATA:

TIME

start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1228	1308	20.7	0	0.95	22.68	10

RUN #2

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	51.90	0.03551	0.03505	0.00335	0.0804

ADDITIONAL DATA:

TIME

start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1312	1352	20.7	0	1.28	22.51	11

RUN #3

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	50.07	0.03419	0.03368	0.00352	0.0845

ADDITIONAL DATA:

TIME

start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1355	1435	20.7	0	1.5	22.55	12

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 1
DATE : 02-19-93
REPORT : 027-343

NON CONDENSABLE
HYDROCARBON RESULTS

RUN No.: 1					
DSCFM: 10					
		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	2.59	0.00007	2.59	0.00007
Ethane	(C2)	0.00	0.00000	0.00	0.00000
Propane	(C3)	0.40	0.00003	1.19	0.00003
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.55	0.00006	2.76	0.00007
Hexane	(C6)	2.17	0.00029	13.00	0.00033
	Total	5.70	0.00045	19.54	0.00049
	Total (non methane)	3.12	0.00039	16.95	0.00043

RUN No.: 2					
DSCFM: 11					
		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	3.54	0.00010	3.54	0.00010
Ethane	(C2)	0.00	0.00000	0.00	0.00000
Propane	(C3)	0.00	0.00000	0.00	0.00000
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.06	0.00001	0.31	0.00001
Hexane	(C6)	1.93	0.00029	11.56	0.00032
	Total	5.53	0.00039	15.41	0.00043
	Total (non methane)	1.99	0.00030	11.87	0.00033

RUN No.: 3					
DSCFM: 12					
		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	1.75	0.00005	1.75	0.00005
Ethane	(C2)	0.00	0.00000	0.00	0.00000
Propane	(C3)	0.43	0.00004	1.28	0.00004
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.36	0.00005	1.79	0.00005
Hexane	(C6)	6.97	0.00114	41.80	0.00127
	Total	9.50	0.00127	46.62	0.00142
	Total (non methane)	7.75	0.00122	44.87	0.00136

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE #1
DATE : 02-18-93
REPORT : 027-343

FIELD DATA @ 60°F

RUN #:	1	2	3
TIME:	1554	1642	1728
Vm (dry gas sampled)	23.99	24.02	24.04
Y (meter calib. factor)	0.998954	0.998954	0.998954
P bar (Barometric pressure)	29.14	29.14	29.14
P static (stack pressure, " H2O)	0	0	0
Delta H (differential meter press, " H2O)	0.59	0.59	0.59
Tm (meter temperature, R°)	531.9	532.8	531.3
Vol H2O mls	19.7	17.6	18.7
Vm(std),dscf	22.85	22.84	22.93
Bws-H2O vapor	0.0385	0.0346	0.0365
MF-moisture factor	0.961487	0.9654	0.9635
% CO2	0	0	0
% O2	20.9	20.9	20.9
% N2	79.1	79.1	79.1
Md-MW stk gas,dry	28.84	28.84	28.84
Ms-MW stk gas,wet	28.42	28.47	28.44
T stack, R°	546.6	545	543.6
Stack area,ft2	0.058	0.058	0.058
Vs-fpm, hot wire anemometer	47.8	42	45
Q-acfm	2.75	2.42	2.59
Qstd-dscfm	2.55	2.25	2.42
Sample time	40	40	40

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE 1
DATE : 02-18-93
REPORT : 027-343

EPA METHOD 4 DATA
@ 60°F

RUN #1

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	62.10	0.04185	0.04024	0.00092	0.0220

ADDITIONAL DATA:

TIME start	TIME finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1554	1634	20.9	0	3.85	22.85	2.55

RUN #2

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	44.69	0.03013	0.02909	0.00058	0.0140

ADDITIONAL DATA:

TIME start	TIME finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1642	1722	20.9	0	3.46	22.84	2.25

RUN #3

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	38.95	0.02616	0.02520	0.00054	0.0130

ADDITIONAL DATA:

TIME start	TIME finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1728	1808	20.9	0	3.65	22.93	2.42

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE 1
DATE : 02-18-93
REPORT : 027-343

NON CONDENSABLE
HYDROCARBON RESULTS

RUN No.: 1
DSCFM: 2.55

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	67.71	0.00044	67.71	0.00044
Ethane	(C2)	2.60	0.00003	5.21	0.00003
Propane	(C3)	0.31	0.00001	0.94	0.00001
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.21	0.00001	1.06	0.00001
Hexane	(C6)	1.09	0.00004	6.51	0.00004
	Total	71.92	0.00052	81.42	0.00053
	Total (non methane)	4.21	0.00008	13.71	0.00009

RUN No.: 2
DSCFM: 2.25

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	70.40	0.00040	70.40	0.00040
Ethane	(C2)	2.63	0.00003	5.26	0.00003
Propane	(C3)	0.38	0.00001	1.15	0.00001
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.06	0.00000	0.31	0.00000
Hexane	(C6)	0.99	0.00003	5.92	0.00003
	Total	74.46	0.00047	83.04	0.00047
	Total (non methane)	4.06	0.00007	12.65	0.00007

RUN No.: 3
DSCFM: 2.42

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	63.06	0.00039	63.06	0.00039
Ethane	(C2)	2.18	0.00003	4.37	0.00003
Propane	(C3)	0.19	0.00000	0.58	0.00000
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.07	0.00000	0.34	0.00000
Hexane	(C6)	0.99	0.00003	5.95	0.00004
	Total	66.50	0.00045	74.31	0.00045
	Total (non methane)	3.44	0.00006	11.25	0.00007

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2 & LUBE OIL VENTS
DATE : 02-18/19, 25-93
REPORT : 027-343

SUMMARY OF HYDROCARBONS RESULTS

	gr/scf	ppm	lbs/hr	lbs/day
TURBINE #2 - MAIN STACK				
BLANK CORRECTED				
NON-CONDENSABLE				
RUN 1		5.96	1.70	40.80
RUN 2		4.24	1.21	29.04
RUN 3		4.34	1.24	29.76
AVERAGE		4.85	1.38	33.20
LOV GENERATOR 2				
CONDENSABLE				
RUN 1	0.03311		0.00372	0.0893
RUN 2	0.03141		0.00379	0.0909
RUN 3	0.02792		0.00218	0.0523
AVERAGE	0.03081		0.00323	0.0800
NON-CONDENSABLE				
RUN 1		9.63	0.00032	0.0077
RUN 2		36.77	0.00130	0.0312
RUN 3		18.43	0.00042	0.0101
AVERAGE		21.61	0.00068	0.0163
TOTAL HYDROCARBONS	---	---	**0.00391**	**0.0963**
LOV TURBINE 2				
CONDENSABLE				
RUN 1	0.02405		0.00066	0.0158
RUN 2	0.02239		0.00059	0.0141
RUN 3	0.03030		0.00084	0.0202
AVERAGE	0.02558		0.00070	0.0167
NON-CONDENSABLE				
RUN 1		103.86	0.00082	0.0197
RUN 2		100.74	0.00076	0.0182
RUN 3		37.79	0.00030	0.0072
AVERAGE		80.80	0.00063	0.0150
TOTAL HYDROCARBONS	---	---	**0.00133**	**0.0317**
TURBINE #2				
TOTAL EMISSIONS			***1.39***	***33.33***
MAIN STACK + LOVG + LOVT				

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25-93
REPORT : 027-343

HYDROCARBON RESULTS
CORRECTED FOR METHOD BLANK

RUN No.:	1						
DSCFM:	112504		average of pitot tube velocity profiles				
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	79.61	22.66	79.61	22.66
Ethane	(C2)	*ND	0.03	2.98	1.59	5.96	1.70
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			82.59	24.25	85.57	24.35
	Total (non methane)			2.98	1.59	5.96	1.70

RUN No.:	2						
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	16.28	4.63	16.28	4.63
Ethane	(C2)	*ND	0.03	2.12	1.13	4.24	1.21
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			18.40	5.76	20.52	5.84
	Total (non methane)			2.12	1.13	4.24	1.21

RUN No.:	3						
			BLANK	ppm - BLANK	lb/hr	ppm (as Methane)	lb/hr
Methane	(C1)	*ND	0.05	16.95	4.82	16.95	4.82
Ethane	(C2)	*ND	0.03	2.17	1.16	4.34	1.24
Propane	(C3)	*ND	0.02	0.00	0.00	0.00	0.00
Butane	(C4)	*ND	0.02	0.00	0.00	0.00	0.00
Pentane	(C5)	*ND	0.02	0.00	0.00	0.00	0.00
Hexane	(C6)		0.10	0.00	0.00	0.00	0.00
	Total			19.12	5.98	21.29	6.06
	Total (non methane)			2.17	1.16	4.34	1.24

*ND - Non detect in sample blank, used detection limit

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25-93
REPORT : 027-343

HYDROCARBON RESULTS

RUN No.: 1
DSCFM: 112504 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	79.66	22.67	79.66	22.67
Ethane	(C2)	3.01	1.61	6.02	1.71
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	82.67	24.28	85.68	24.38
	Total (non methane)	3.01	1.61	6.02	1.71

RUN No.: 2
DSCFM: 112504 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	57.38	16.33	57.38	16.33
Ethane	(C2)	2.15	1.15	4.30	1.22
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	59.53	17.48	61.68	17.55
	Total (non methane)	2.15	1.15	4.30	1.22

RUN No.: 3
DSCFM: 112504 average of pitot tube velocity profiles

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	59.73	17.00	59.73	17.00
Ethane	(C2)	2.20	1.17	4.40	1.25
Propane	(C3)	0.00	0.00	0.00	0.00
Butane	(C4)	0.00	0.00	0.00	0.00
Pentane	(C5)	0.00	0.00	0.00	0.00
Hexane	(C6)	0.00	0.00	0.00	0.00
	Total	61.93	18.17	64.13	18.25
	Total (non methane)	2.20	1.17	4.40	1.25

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 2
DATE : 02-19-93
REPORT : 027-343

FIELD DATA @ 60°F

RUN #:	1	2	3
TIME:	959	1042	1125
Vm (dry gas sampled)	24.11	24.04	24.07
Y (meter calib. factor)	0.998954	0.998954	0.998954
P bar (Barometric pressure)	29.08	29.08	29.08
P static (stack pressure, " H2O)	0	0	0
Delta H (differential meter press, " H2O)	0.59	0.59	0.59
Tm (meter temperature, R°)	532.2	526.3	527.6
Vol H2O mls	3.4	1.8	5.1
Vm(std),dscf	22.91	23.10	23.07
Bws-H2O vapor	0.0068	0.0036	0.0102
MF-moisture factor	0.993152	0.9964	0.9898
% CO2	0	0	0
% O2	20.8	20.8	20.8
% N2	79.2	79.2	79.2
Md-MW stk gas,dry	28.83	28.83	28.83
Ms-MW stk gas,wet	28.76	28.79	28.72
T stack, R°	557.5	546.5	746.9
Stack area,ft2	0.058	0.058	0.058
Vs-fpm, hot wire anemometer	256.3	270	224
Q-acfm	15	16	13
Qstd-dscfm	13	14	9
Sample time	40	40	40

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 2
DATE : 02-19-93
REPORT : 027-343

EPA METHOD 4 DATA
@ 60°F

RUN #1

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	49.60	0.03334	0.03311	0.00372	0.0893

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
959	1039	20.8	0	0.68	22.91	13

RUN #2

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	47.29	0.03153	0.03141	0.00379	0.0909

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1042	1122	20.8	0	0.36	23.1	14

RUN #3

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	42.25	0.02820	0.02792	0.00218	0.0523

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1125	1205	20.8	0	1.02	23.07	9

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT GENERATOR 2
DATE : 02-19-93
REPORT : 027-343

NON CONDENSABLE
HYDROCARBON RESULTS

RUN No.: 1
DSCFM: 13

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	5.57	0.00018	5.57	0.00018
Ethane	(C2)	0.00	0.00000	0.00	0.00000
Propane	(C3)	0.00	0.00000	0.00	0.00000
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.00	0.00000	0.00	0.00000
Hexane	(C6)	1.60	0.00028	9.63	0.00032
	Total	7.17	0.00047	15.19	0.00050
	Total (non methane)	1.60	0.00028	9.63	0.00032

RUN No.: 2
DSCFM: 14

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	9.77	0.00035	9.77	0.00035
Ethane	(C2)	0.34	0.00002	0.68	0.00002
Propane	(C3)	0.00	0.00000	0.00	0.00000
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.00	0.00000	0.00	0.00000
Hexane	(C6)	6.02	0.00115	36.09	0.00128
	Total	16.12	0.00151	46.54	0.00165
	Total (non methane)	6.36	0.00117	36.77	0.00130

RUN No.: 3
DSCFM: 9

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	14.14	0.00032	14.14	0.00032
Ethane	(C2)	0.60	0.00003	1.20	0.00003
Propane	(C3)	0.00	0.00000	0.00	0.00000
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.28	0.00003	1.39	0.00003
Hexane	(C6)	2.64	0.00032	15.84	0.00036
	Total	17.66	0.00070	32.57	0.00074
	Total (non methane)	3.52	0.00038	18.43	0.00042

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE 2
DATE : 02-18-93
REPORT : 027-343

FIELD DATA @ 60°F

RUN #:	1	2	3
TIME:	1022	1112	1207
Vm (dry gas sampled)	24.03	24.04	24
Y (meter calib. factor)	0.998954	0.998954	0.998954
P bar (Barometric pressure)	29.14	29.14	29.14
P static (stack pressure, " H2O)	0	0	0
Delta H (differential meter press, " H2O)	0.59	0.59	0.58
Tm (meter temperature, R°)	522.6	523.3	525.9
Vol H2O mls	13.2	12.5	14.8
Vm(std),dscf	23.3	23.28	23.12
Bws-H2O vapor	0.0256	0.0243	0.0289
MF-moisture factor	0.974354	0.9757	0.9711
% CO2	0	0	0
% O2	20.9	20.9	20.9
% N2	79.1	79.1	79.1
Md-MW stk gas,dry	28.84	28.84	28.84
Ms-MW stk gas,wet	28.56	28.58	28.53
T stack, R°	535.4	532.4	537.4
Stack area,ft2	0.058	0.058	0.058
Vs-fpm, hot wire anemometer	57.1	54.3	58.1
Q-acfm	3.29	3.13	3.35
Qstd-dscfm	3.11	2.98	3.15
Sample time	40	40	40

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE 2
DATE : 02-18-93
REPORT : 027-343

EPA METHOD 4 DATA
@ 60°F

RUN #1

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	37.34	0.02468	0.02405	0.00066	0.0158

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1022	1102	20.9	0	2.56	23.3	3.11

RUN #2

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	34.69	0.02295	0.02239	0.00059	0.0141

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1112	1152	20.9	0	2.43	23.28	2.98

RUN #3

CONDENSABLE HYDROCARBONS:	net mg	gr/dscf	gr/scf	lbs/hr	lbs/day
RESULTS:	46.84	0.03120	0.03030	0.00084	0.0202

ADDITIONAL DATA:

TIME						
start	finish	%O2	%CO2	%H2O	Vm(std)	DSCFM
1207	1247	20.9	0	2.89	23.12	3.15

COMPANY : DESTEC
UNIT : KERN FRONT - LUBE OIL VENT TURBINE 2
DATE : 02-18-93
REPORT : 027-343

NON CONDENSABLE
HYDROCARBON RESULTS

RUN No.: 1
DSCFM: 3.11

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	307.38	0.00242	307.38	0.00242
Ethane	(C2)	11.47	0.00017	22.95	0.00018
Propane	(C3)	1.92	0.00004	5.75	0.00005
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.00	0.00000	0.00	0.00000
Hexane	(C6)	12.53	0.00053	75.16	0.00059
	Total	333.30	0.00316	411.24	0.00324
	Total (non methane)	25.92	0.00074	103.86	0.00082

RUN No.: 2
DSCFM: 2.98

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	306.58	0.00231	306.58	0.00231
Ethane	(C2)	11.40	0.00016	22.80	0.00017
Propane	(C3)	1.75	0.00004	5.25	0.00004
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.00	0.00000	0.00	0.00000
Hexane	(C6)	12.12	0.00049	72.69	0.00055
	Total	331.85	0.00300	407.33	0.00307
	Total (non methane)	25.27	0.00069	100.74	0.00076

RUN No.: 3
DSCFM: 3.15

		ppm	lb/hr	ppm (as Methane)	lb/hr (as Methane)
Methane	(C1)	348.73	0.00278	348.73	0.00278
Ethane	(C2)	13.47	0.00020	26.95	0.00021
Propane	(C3)	2.17	0.00005	6.50	0.00005
Butane	(C4)	0.00	0.00000	0.00	0.00000
Pentane	(C5)	0.24	0.00001	1.20	0.00001
Hexane	(C6)	0.52	0.00002	3.15	0.00003
	Total	365.13	0.00306	386.52	0.00308
	Total (non methane)	16.40	0.00028	37.79	0.00030

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1 & #2
DATE : 02-25-93
REPORT : 027-343

HYDROCARBON RESULTS @ 60°F

DETECTION LIMITS

		ppm	ppm (as Methane)
Methane	(C1)	0.05	0.05
Ethane	(C2)	0.03	0.06
Propane	(C3)	0.02	0.06
Butane	(C4)	0.02	0.08
Pentane	(C5)	0.02	0.10
Hexane	(C6)	0.02	0.12
Total		0.16	0.47
Total (non methane)		0.11	0.42

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

SUFUR EMISSION RESULTS

DATE	TIME	TS, ppm	AVG LBS/HR GAS FUEL FLOW	SP VOL CF/LB	AVERAGE SCFH	FUEL SCFM	SULFUR LBS/HR	SULFUR LBS/DAY
2/23/93	1430-1645	2.0	10078.6	22.07	222435	3707	0.03751	0.900
2/24/93	915-1345	2.0	10296.1	22.07	227235	3787	0.03832	0.920
						AVERAGE	0.03792	0.910

EQUATION:

SCFM = SCFH (1/60)

SULFUR LBS/HR = TS ppm * 32 * SCFM * 1.581 * 10^-7

MW SULFUR = 32

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

SUFUR EMISSION RESULTS

DATE	TIME	TS, ppm	AVG LBS/HR GAS FUEL FLOW	SP VOL CF/LB	AVERAGE SCFH	FUEL SCFM	SULFUR	
							LBS/HR	LBS/DAY
2/25/93	930-1600	1.9	10301.2	22.06	227244	3787	0.03641	0.874

EQUATION:

SCFM = SCFH (1/60)

SULFUR LBS/HR = TS ppm * 32 * SCFM * 1.581 * 10^-7

MW SULFUR = 32

Environmental Analytical Service, Inc.

March 9, 1993
Reference Number: 30728

Terry Rowles
Petro Chem Environmental Services, Inc.
3207 Antonino Avenue
Bakersfield, CA 93308

Dear Terry,

Enclosed is the analytical report for the samples which were received by Environmental Analytical Service on January 23, 1993 for your project location Kern Front #1 and #2.

If you have any questions on the report or the analytical data please contact myself or Vivian Longacre at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
Laboratory Director

SDH/jd
enclosures

Petro Chem Environmental Services, Inc.
170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX: (805) 541-4550

ANALYSIS REPORT SHEET

Sulfur Compounds by GC/FPD

Client:	Petro Chem	Lab #:	30730
Site:	Kern Front Fuel Gas #1	Date Sampled:	2-22-93
Can #:	Tedlar	Date Analyzed:	2-23-93

Compound	MDL ug/m3	Concentration ug/m3	Concentration ppbv
Hydrogen Sulfide	110	390	280
Carbonyl Sulfide	110	1600	660
Methyl Mercaptan	110	450	230
Dimethyl Sulfide	110	not detected	not detected
Carbon Disulfide	55	not detected	not detected
Total Sulfur, H2S *			2000

* Includes above listed compounds plus all quantifiable peaks.

2000 / 1000,000,000

2 ppm.

ANALYSIS REPORT SHEET

Sulfur Compounds by GC/FPD

Client:	Petro Chem	Lab #:	30731
Site:	Kern Front Fuel Gas #2	Date Sampled:	2-22-93
Can #:	Tedlar	Date Analyzed:	2-23-93

Compound	MDL ug/m3	Concentration ug/m3	Concentration ppbv
Hydrogen Sulfide	110	300	210
Carbonyl Sulfide	110	1600	650
Methyl Mercaptan	110	not detected	not detected
Dimethyl Sulfide	110	not detected	not detected
Carbon Disulfide	55	not detected	not detected
Total Sulfur, H2S *			1900

* Includes above listed compounds plus all quantifiable peaks.

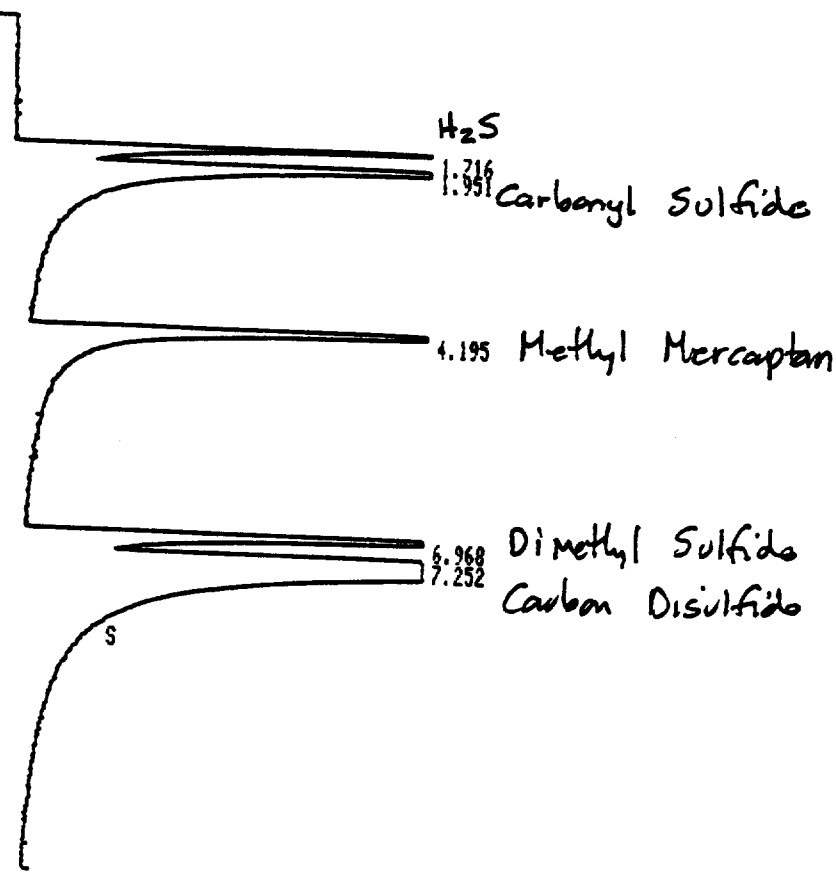
*IDEENTIFIER STD 12 13 14 0.3ML

INVALID SYSTEM COMMAND

Sulfur Gas Standard

* RUN # 258 FEB 23, 1993 23:47:49

START



STOP

Closing signal file M:SIGNAL .BNC

RUN# 258 FEB 23, 1993 23:47:49

IDENTIFIER : STD 12, 13,
SIGNAL FILE: M:SIGNAL.BNC
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.716	707352	SPH	.018	8.75139
1.951	1055068	SHB	.029	13.05335
4.195	538907	BB	.030	6.66739
6.968	509136	PB	.032	6.29906
7.252	5272272	SBB	.036	65.22883

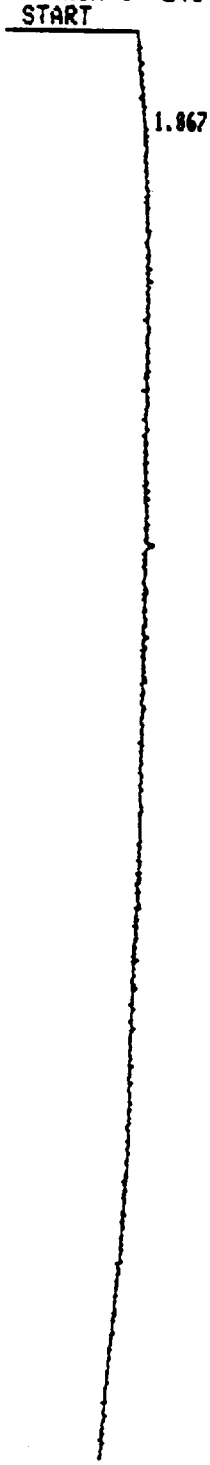
TOTAL AREA=8082736
MUL FACTOR=1.0000E+00

INVALID SYSTEM COMMAND

* RUN # 248 FEB 23, 1993 18:40:25

BLANK

START



TIMETABLE STOP

Closing signal file M:SIGNAL .BNC

RUN# 248 FEB 23, 1993 18:40:25

IDENTIFIER : : LANK ZERO
SIGNAL FILE: M:SIGNAL.BNC
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.067	2297	I PB	.102	100.00000

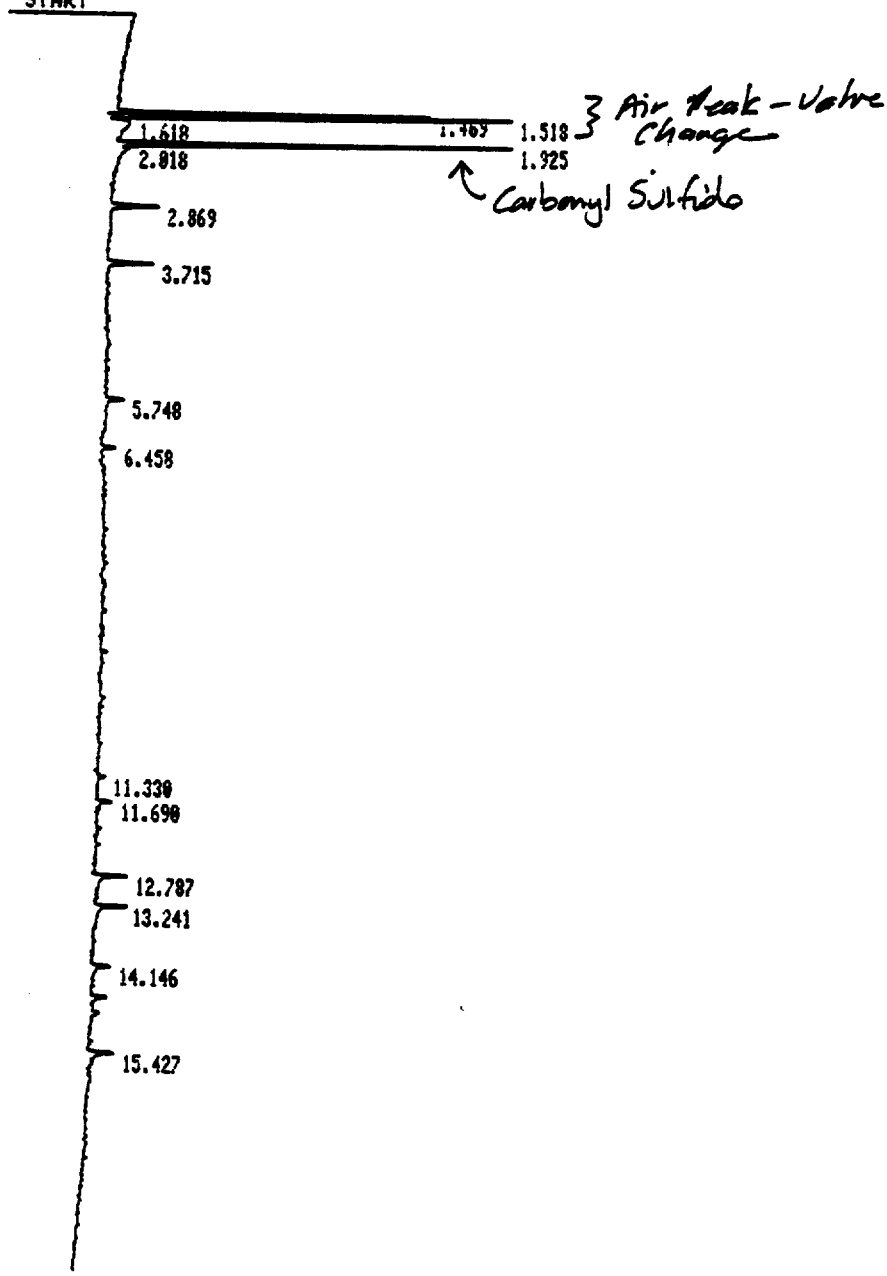
TOTAL AREA= 2297
MUL FACTOR=1.0000E+00

GC/FPD
Capillary Column

Sample 30728

*IDENTIFIER: 307/28 1.36ML

* RUN # 250 FEB 23, 1993 19:49:40
START



STOP

Closing signal file M:SIGNAL .BNC

RUN# 250 FEB 23, 1993 19:49:40

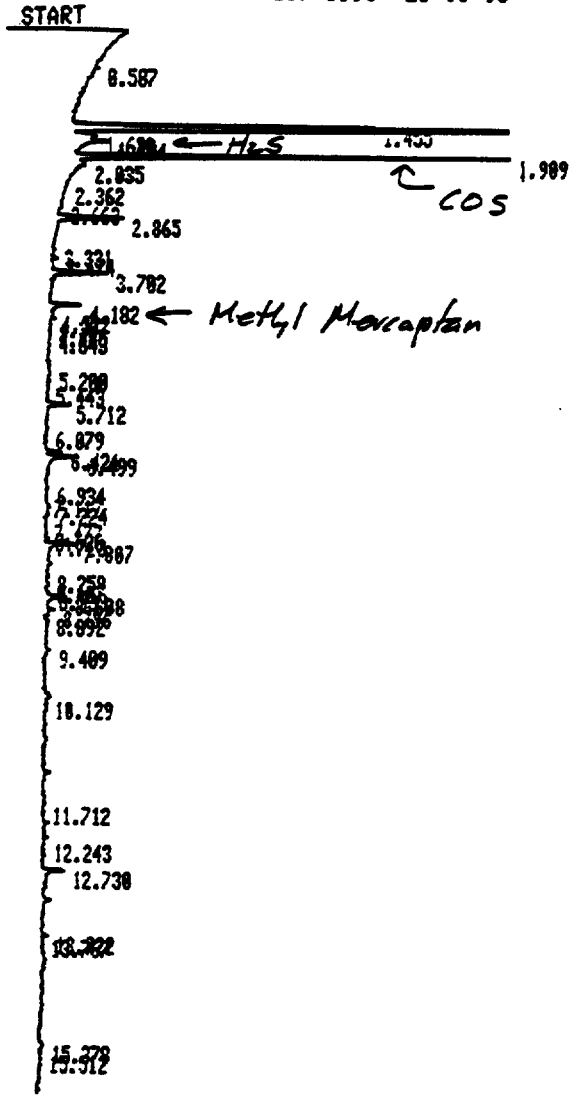
IDENTIFIER : : 307728 1.3
SIGNAL FILE: M:SIGNAL.BNC
AREA%

RT	AREA	TYPE	WIDTH	AREA%

Sample 30730

RUN # 253 FEB 23, 1993 21:10:05

START



END OF SIGNAL

Closing signal file M:SIGNAL .BHA

RUN# 253 FEB 23, 1993 21:10:05

IDENTIFIER : : 330730 1.3
SIGNAL FILE: M:SIGNAL.BHA
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.587	610	PV	.027	.11980
1.455	274606	PB	.215	53.92933
1.620	6521	PV	.070	1.28065
1.704	12425	VV	.085	2.44012
1.909	100523	VV	.029	19.74152
2.035	9526	VV	.121	1.87079
2.362	1160	VV	.047	.22781
2.663	1135	VV	.059	.22290
2.865	12465	PV	.046	2.44798
3.331	1359	PV	.083	.26689
3.474	819	VP	.032	.16084

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

ANALYZER NOx

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	1.88	2.05	-0.17
2	2.01	1.98	0.03
3	2.08	2.05	0.03
4	2.23	2.07	0.16
5	2.37	2.29	0.08
6	2.48	2.44	0.04
7	2.25	2.12	0.13
8	1.89	2.05	-0.16
9	1.88	2.04	-0.16
AVERAGE	2.119	2.121	-0.002

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	0.13
CONFIDIENCE COEFFICIENT	=	0.10
REF METHOD	=	2.1
RELATIVE ACCURACY	=	4.77

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

ANALYZER CO

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	36.7	36.42	0.28
2	37.3	37.65	-0.35
3	36.3	36.25	0.05
4	35.4	35.67	-0.27
5	32.6	32.81	-0.21
6	31.5	29.47	2.03
7	36.4	33.98	2.42
8	38.1	35.53	2.57
9	36.5	33.40	3.10
AVERAGE	35.6	34.58	1.07

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	1.42
CONFIDIENCE COEFFICIENT	=	1.09
REF METHOD	=	35.6
RELATIVE ACCURACY	=	6.07

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

ANALYZER O2

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	13.85	14.13	-0.28
2	14.01	14.12	-0.11
3	14.03	14.12	-0.09
4	14.04	14.12	-0.08
5	14.06	14.12	-0.06
6	14.04	14.12	-0.08
7	13.95	14.12	-0.17
8	13.96	14.12	-0.16
9	13.99	14.12	-0.13
AVERAGE	13.99	14.12	-0.13

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	0.07
CONFIDIENCE COEFFICIENT	=	0.05
REF METHOD	=	13.99
RELATIVE ACCURACY	=	1.29

COMPANY : DESTEC
UNIT : KERN FRONT – TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

ANALYZER NOx

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	2.57	2.71	-0.14
2	2.84	2.66	0.18
3	3.22	2.80	0.42
4	2.81	2.73	0.08
5	2.85	2.80	0.05
6	2.52	2.80	-0.28
7	2.53	2.80	-0.27
8	3.37	2.80	0.57
9	2.66	2.80	-0.14
AVERAGE	2.82	2.77	0.05

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	0.30
CONFIDIENCE COEFFICIENT	=	0.23
REF METHOD	=	2.82
RELATIVE ACCURACY	=	9.97

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

ANALYZER CO

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	45.50	45.32	0.18
2	43.10	43.24	-0.14
3	41.40	40.45	0.95
4	40.90	41.29	-0.39
5	39.90	40.05	-0.15
6	39.70	39.43	0.27
7	38.60	38.50	0.10
8	39.00	39.27	-0.27
9	39.60	39.38	0.22
AVERAGE	40.86	40.77	0.09

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	0.40
CONFIDIENCE COEFFICIENT	=	0.31
REF METHOD	=	40.86
RELATIVE ACCURACY	=	0.96

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

ANALYZER O2

RELATIVE ACCURACY RESULTS

PPMvd

RUN #	REFERENCE METHOD	CEM DATA	DIFFERENCE
1	14.04	14.23	-0.19
2	14.03	14.22	-0.19
3	14.11	14.23	-0.12
4	14.12	14.22	-0.10
5	14.08	14.22	-0.14
6	14.13	14.23	-0.10
7	14.09	14.22	-0.13
8	14.09	14.23	-0.14
9	14.19	14.22	-0.03
AVERAGE	14.10	14.22	-0.13

RELATIVE ACCURACY RELATED TO THE REFERENCE METHOD		
$t_{.975}$	=	2.306
STANDARD DEVIATION	=	0.05
CONFIDIENCE COEFFICIENT	=	0.04
REF METHOD	=	14.10
RELATIVE ACCURACY	=	1.17

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1 & #2
DATE : 02-23/26-93
REPORT : 027-343

CEM DATA SUMMARY

	TURBINE #1			TURBINE #2		
RUN #	%O2	NOx ppm	CO ppm	%O2	NOx ppm	CO ppm
1	14.13	2.05	36.42	14.23	2.71	45.32
2	14.12	1.98	37.65	14.22	2.66	43.24
3	14.12	2.05	36.25	14.23	2.80	40.45
4	14.12	2.07	35.67	14.22	2.73	41.29
5	14.12	2.29	32.81	14.22	2.80	40.05
6	14.12	2.44	29.47	14.23	2.80	39.43
7	14.12	2.12	33.98	14.22	2.80	38.50
8	14.12	2.05	35.53	14.23	2.80	39.27
9	14.12	2.04	33.40	14.22	2.80	39.38
	14.12	2.12	34.58	14.22	2.77	40.77

COMPANY : DESTEC
UNIT : KERN FRONT – TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

PCES REFERENCE METHOD SUMMARY

			NOx			CO		
RUN #	TIME	%O2	ppm	ppm @ 15% O2	lbs/hr	ppm	ppm @ 15% O2	lbs/hr
1	1430–1500	13.85	1.88	1.58	1.54	36.7	30.7	18.3
2	1530–1600	14.01	2.01	1.73	1.65	37.3	32.0	18.6
3	1615–1645	14.03	2.08	1.79	1.70	36.3	31.2	18.1
4	915–945	14.04	2.23	1.92	1.82	35.4	30.5	17.6
5	1015–1045	14.06	2.37	2.05	1.94	32.6	28.1	16.2
6	1100–1130	14.04	2.48	2.13	2.03	31.5	27.1	15.7
7	1145–1215	13.95	2.25	1.91	1.84	36.4	30.9	18.1
8	1230–1300	13.96	1.89	1.61	1.55	38.1	32.3	19.0
9	1315–1345	13.99	1.88	1.61	1.54	36.5	31.2	18.2
	AVERAGE	13.99	2.12	1.81	1.73	35.6	30.4	17.8

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #1

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:30 PM	-	02:40 PM	13.90	1.88	36.7	65.7	13.8	46.6
02:40 PM	-	02:50 PM	13.85	1.90	36.8	65.7	13.9	46.7
02:50 PM	-	03:00 PM	13.79	1.87	36.7	65.7	13.9	46.7
	Averages:		13.85	1.88	36.7	65.7	13.9	46.7

Calibration Data	O2	NOx	CO
INITIAL zero	9.8	10	9.8
INITIAL span	70	45.2	91.4
FINAL zero	10.05	10	9.8
FINAL span	70.4	45.4	91.5
ZERO DRIFT %/ppm	0.06	0.00	0.00
CALIB. DRIFT %/ppm	0.10	0.10	0.10
ZERO DRIFT %fs	0.25	0.00	0.00
CALIB.DRIFT %fs	0.40	0.20	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	13.85	1.88	4.78	1.58	1.54

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	13.85	36.7	93.2	30.7	18.3

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #2

NOx/CO/O2 DATA

TIME INTERVAL			Stack Gas Measurement Data CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:30 PM	-	03:40 PM	14.05	1.92	37.6	66.1	13.8	47.6
03:40 PM	-	03:50 PM	13.99	2.01	37.8	65.7	13.9	47.8
03:50 PM	-	04:00 PM	14.00	2.11	36.5	65.6	14.0	46.5
	Averages:		14.01	2.01	37.3	65.8	13.9	47.3

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	70	45.4	91.5
FINAL zero	10	10	9.9
FINAL span	69.5	45.1	91.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.13	-0.15	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.50	-0.30	0.00
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.01	2.01	5.24	1.73	1.65

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.01	37.3	97.0	32.0	18.6

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #3

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:15 PM	-	04:25 PM	14.06	2.01	36.7	66.3	14.0	46.7
04:25 PM	-	04:35 PM	14.00	2.06	36.8	66.2	14.0	46.7
04:35 PM	-	04:45 PM	14.02	2.16	35.5	66.4	14.1	45.4
	Averages:		14.03	2.08	36.3	66.3	14.0	46.3

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.4
FINAL zero	10	10.1	9.8
FINAL span	70.4	45	91.5
ZERO DRIFT %/ppm	0.00	0.05	-0.20
CALIB. DRIFT %/ppm	0.10	-0.20	0.10
ZERO DRIFT %fs	0.00	0.10	-0.20
CALIB.DRIFT %fs	0.40	-0.40	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.03	2.08	5.42	1.79	1.70

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.03	36.3	94.6	31.2	18.1

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #4

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL		CONCENTRATIONS			% FULL SCALE		
BEGIN	- END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:15 AM	- 09:25 AM	14.03	2.18	35.1	66.1	14.3	45.0
09:25 AM	- 09:35 AM	14.05	2.21	35.7	66.2	14.2	45.4
09:35 AM	- 09:45 AM	14.05	2.30	35.5	66.2	14.2	45.1
	Averages:	14.04	2.23	35.4	66.2	14.2	45.2

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.4
FINAL zero	9.9	10	9.8
FINAL span	70.1	44.9	91.1
ZERO DRIFT %/ppm	-0.02	0.00	-0.20
CALIB. DRIFT %/ppm	0.02	-0.25	-0.30
ZERO DRIFT %fs	-0.10	0.00	-0.20
CALIB.DRIFT %fs	0.10	-0.50	-0.30
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.04	2.23	5.82	1.92	1.82

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.04	35.4	92.4	30.5	17.6

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #5

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:15 AM	-	10:25 AM	14.05	2.30	33.6	66.2	14.6	43.7
10:25 AM	-	10:35 AM	14.09	2.39	32.0	66.3	14.7	42.1
10:35 AM	-	10:45 AM	14.05	2.42	32.2	66.1	14.7	42.3
	Averages:		14.06	2.37	32.6	66.2	14.7	42.7

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.5
FINAL zero	9.9	10	10
FINAL span	70	45.2	91.6
ZERO DRIFT %/ppm	-0.02	0.00	0.00
CALIB. DRIFT %/ppm	0.00	-0.10	0.10
ZERO DRIFT %fs	-0.10	0.00	0.00
CALIB.DRIFT %fs	0.00	-0.20	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.06	2.37	6.21	2.05	1.94

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.06	32.6	85.4	28.1	16.2

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #6

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:00 AM	-	11:10 AM	14.03	2.41	31.8	66.1	14.8	41.8
11:10 AM	-	11:20 AM	14.01	2.51	31.4	66.0	14.9	41.3
11:20 AM	-	11:30 AM	14.07	2.51	31.3	66.2	14.8	41.2
	Averages:		14.04	2.48	31.5	66.1	14.8	41.4

Calibration Data	O2	NOx	CO
INITIAL zero	9.9	10	10
INITIAL span	70	45.4	91.4
FINAL zero	10	10.1	9.8
FINAL span	69.8	45	91.5
ZERO DRIFT %/ppm	0.02	0.05	-0.20
CALIB. DRIFT %/ppm	-0.05	-0.20	0.10
ZERO DRIFT %fs	0.10	0.10	-0.20
CALIB.DRIFT %fs	-0.20	-0.40	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.04	2.48	6.47	2.13	2.03

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.04	31.5	82.1	27.1	15.7

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #7

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:45 AM	-	11:55 AM	13.95	2.31	33.3	65.8	14.5	43.3
11:55 AM	-	12:05 PM	13.95	2.16	38.1	65.9	13.9	48.1
12:05 PM	-	12:15 PM	13.96	2.26	37.9	66.0	13.8	48.0
	Averages:		13.95	2.25	36.4	65.9	14.1	46.5

Calibration Data	O2	NOx	CO
INITIAL zero	9.8	10	10
INITIAL span	70	45.4	91.4
FINAL zero	9.9	10	10
FINAL span	70.1	44.5	91.5
ZERO DRIFT %/ppm	0.02	0.00	0.00
CALIB. DRIFT %/ppm	0.02	-0.45	0.10
ZERO DRIFT %fs	0.10	0.00	0.00
CALIB.DRIFT %fs	0.10	-0.90	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	13.95	2.25	5.79	1.91	1.84

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	13.95	36.4	93.8	30.9	18.1

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #8

NOx/CO/O2 DATA

TIME INTERVAL			Stack Gas Measurement Data CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:30 PM	-	12:40 PM	13.94	1.96	38.2	65.7	14.0	48.2
12:40 PM	-	12:50 PM	13.95	1.89	38.0	65.6	14.0	48.1
12:50 PM	-	01:00 PM	13.99	1.82	38.1	65.6	14.0	48.3
	Averages:		13.96	1.89	38.1	65.6	14.0	48.2

Calibration Data	O2	NOx	CO
INITIAL zero	9.9	10	10
INITIAL span	70	45.4	91.4
FINAL zero	9.7	10	10
FINAL span	69.8	45.8	91.7
ZERO DRIFT %/ppm	-0.05	0.00	0.00
CALIB. DRIFT %/ppm	-0.05	0.20	0.30
ZERO DRIFT %fs	-0.20	0.00	0.00
CALIB.DRIFT %fs	-0.20	0.40	0.30
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	13.96	1.89	4.88	1.61	1.55

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	13.96	38.1	98.1	32.3	19.0

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 2-23/24-93
REPORT : 027-343

RUN #9

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:15 PM	-	01:25 PM	13.97	1.95	37.1	65.8	14.0	47.1
01:25 PM	-	01:35 PM	14.00	1.87	36.4	65.8	14.0	46.3
01:35 PM	-	01:45 PM	14.01	1.83	36.1	65.7	14.1	46.0
	Averages:		13.99	1.88	36.5	65.8	14.0	46.5

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.4
FINAL zero	10	10.1	9.8
FINAL span	69.6	45.8	91.5
ZERO DRIFT %/ppm	0.00	0.05	-0.20
CALIB. DRIFT %/ppm	-0.10	0.20	0.10
ZERO DRIFT %fs	0.00	0.10	-0.20
CALIB.DRIFT %fs	-0.40	0.40	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 112504 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	13.99	1.88	4.88	1.61	1.54

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	13.99	36.5	94.6	31.2	18.2

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

PCES REFERENCE METHOD SUMMARY

			NOx			CO		
RUN #	TIME	%O2	ppm	ppm @ 15% O2	lbs/hr	ppm	ppm @ 15% O2	lbs/hr
1	930-1000	14.04	2.57	2.21	2.06	45.5	39.1	22.1
2	1015-1045	14.03	2.84	2.44	2.27	43.1	37.1	21.0
3	1100-1130	14.11	3.22	2.79	2.57	41.4	35.9	20.1
4	1145-1215	14.12	2.81	2.45	2.25	40.9	35.6	19.9
5	1230-1300	14.08	2.85	2.47	2.28	39.9	34.5	19.4
6	1315-1345	14.13	2.52	2.20	2.02	39.7	34.6	19.3
7	1400-1430	14.09	2.53	2.19	2.02	38.6	33.5	18.8
8	1445-1515	14.09	3.37	2.92	2.70	39.0	33.8	19.0
9	1530-1600	14.19	2.66	2.34	2.13	39.6	34.8	19.3
	AVERAGE	14.10	2.82	2.45	2.26	40.9	35.4	19.9

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #1

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:30 AM	-	09:40 AM	14.03	2.60	45.5	66.1	15.3	55.6
09:40 AM	-	09:50 AM	14.05	2.59	45.0	66.1	15.4	54.8
09:50 AM	-	10:00 AM	14.04	2.52	45.9	66.0	15.4	55.5
	Averages:		14.04	2.57	45.5	66.1	15.4	55.3

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.8
FINAL zero	9.9	10	9.8
FINAL span	69.9	45.8	91.2
ZERO DRIFT %/ppm	-0.02	0.00	-0.20
CALIB. DRIFT %/ppm	-0.02	0.20	-0.60
ZERO DRIFT %fs	-0.10	0.00	-0.20
CALIB.DRIFT %fs	-0.10	0.40	-0.60
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.04	2.57	6.71	2.21	2.06

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.04	45.5	119	39.1	22.1

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #2

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:15 AM	-	10:25 AM	14.03	2.69	43.9	66.1	15.3	53.8
10:25 AM	-	10:35 AM	14.05	2.86	42.6	66.1	15.4	52.3
10:35 AM	-	10:45 AM	14.02	2.98	42.9	65.9	15.4	52.4
	Averages:		14.03	2.84	43.1	66.0	15.4	52.8

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.5
FINAL zero	10	10	9.9
FINAL span	69.8	44.7	90.9
ZERO DRIFT %/ppm	0.00	0.00	-0.10
CALIB. DRIFT %/ppm	-0.05	-0.35	-0.60
ZERO DRIFT %fs	0.00	0.00	-0.10
CALIB.DRIFT %fs	-0.20	-0.70	-0.60
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.03	2.84	7.41	2.44	2.27

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.03	43.1	112	37.1	21.0

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #3

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL		CONCENTRATIONS			% FULL SCALE		
BEGIN	- END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:00 AM	- 11:10 AM	14.08	2.92	41.9	66.3	15.6	51.8
11:10 AM	- 11:20 AM	14.11	3.23	41.1	66.4	15.7	50.8
11:20 AM	- 11:30 AM	14.12	3.50	41.1	66.4	15.7	50.6
	Averages:	14.11	3.22	41.4	66.4	15.7	51.1

Calibration Data	O2	NOx	CO
INITIAL zero	9.9	10	10
INITIAL span	70	45.4	91.4
FINAL zero	9.8	10.1	9.9
FINAL span	70	43.7	90.9
ZERO DRIFT %/ppm	-0.02	0.05	-0.10
CALIB. DRIFT %/ppm	0.00	-0.85	-0.50
ZERO DRIFT %fs	-0.10	0.10	-0.10
CALIB.DRIFT %fs	0.00	-1.70	-0.50
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.11	3.22	8.48	2.79	2.57

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.11	41.4	109	35.9	20.1

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #4

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:45 AM	-	11:55 AM	14.10	2.83	40.6	66.4	15.7	50.6
11:55 AM	-	12:05 PM	14.14	2.76	41.1	66.5	15.6	51.0
12:05 PM	-	12:15 PM	14.12	2.84	40.9	66.4	15.8	50.7
		Averages:	14.12	2.81	40.9	66.4	15.7	50.8

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.4
FINAL zero	9.9	10.2	9.9
FINAL span	70	45.3	91.3
ZERO DRIFT %/ppm	-0.02	0.10	-0.10
CALIB. DRIFT %/ppm	0.00	-0.05	-0.10
ZERO DRIFT %fs	-0.10	0.20	-0.10
CALIB.DRIFT %fs	0.00	-0.10	-0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.12	2.81	7.42	2.45	2.25

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.12	40.9	108	35.6	19.9

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #5

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:30 PM	-	12:40 PM	14.09	2.84	39.8	66.4	15.7	49.8
12:40 PM	-	12:50 PM	14.09	2.85	40.0	66.5	15.7	50.0
12:50 PM	-	01:00 PM	14.06	2.87	40.0	66.5	15.7	50.0
		Averages:	14.08	2.85	39.9	66.5	15.7	49.9

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.5	91.5
FINAL zero	10.2	10.1	10
FINAL span	70.1	45.3	91.4
ZERO DRIFT %/ppm	0.05	0.05	0.00
CALIB. DRIFT %/ppm	0.02	-0.10	-0.10
ZERO DRIFT %fs	0.20	0.10	0.00
CALIB.DRIFT %fs	0.10	-0.20	-0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.08	2.85	7.49	2.47	2.28

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.08	39.9	104.8	34.5	19.4

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #6

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:15 PM	-	01:25 PM	14.12	2.70	39.8	66.5	15.6	49.8
01:25 PM	-	01:35 PM	14.14	2.44	39.9	66.6	15.4	49.9
01:35 PM	-	01:45 PM	14.13	2.42	39.4	66.6	15.7	49.4
	Averages:		14.13	2.52	39.7	66.6	15.6	49.7

Calibration Data	O2	NOx	CO
INITIAL zero	9.9	10	10
INITIAL span	70	45.4	91.5
FINAL zero	10	10	10
FINAL span	70	46.4	91.4
ZERO DRIFT %/ppm	0.02	0.00	0.00
CALIB. DRIFT %/ppm	0.00	0.50	-0.10
ZERO DRIFT %fs	0.10	0.00	0.00
CALIB.DRIFT %fs	0.00	1.00	-0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.13	2.52	6.66	2.20	2.02

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.13	39.7	105	34.6	19.3

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #7

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:00 PM	-	02:10 PM	14.10	2.71	38.2	66.4	15.7	48.2
02:10 PM	-	02:20 PM	14.10	2.58	38.3	66.4	15.9	48.2
02:20 PM	-	02:30 PM	14.08	2.30	39.4	66.3	15.8	49.3
	Averages:		14.09	2.53	38.6	66.4	15.8	48.6

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.5	91.5
FINAL zero	10	10	10
FINAL span	70	46.9	91.3
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.00	0.69	-0.20
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.00	1.40	-0.20
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.09	2.53	6.65	2.19	2.02

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.09	38.6	102	33.5	18.8

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #8

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:45 PM	-	02:55 PM	14.12	2.88	39.6	66.7	15.2	49.6
02:55 PM	-	03:05 PM	14.09	3.36	38.8	67.0	15.0	48.9
03:05 PM	-	03:15 PM	14.06	3.89	38.7	67.3	14.9	48.9
	Averages:		14.09	3.37	39.0	67.0	15.0	49.1

Calibration Data	O2	NOx	CO
INITIAL zero	9.8	10	10
INITIAL span	70	45.4	91.4
FINAL zero	10	9.5	10
FINAL span	71.1	42.4	91.6
ZERO DRIFT %/ppm	0.05	-0.25	0.00
CALIB. DRIFT %/ppm	0.27	-1.49	0.20
ZERO DRIFT %fs	0.20	-0.50	0.00
CALIB.DRIFT %fs	1.10	-3.00	0.20
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.09	3.37	8.87	2.92	2.70

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.09	39.0	103	33.8	19.0

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 2-25/26-93
REPORT : 027-343

RUN #9

NOx/CO/O2 DATA

Stack Gas Measurement Data							
TIME INTERVAL			CONCENTRATIONS			% FULL SCALE	
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:30 PM	-	03:40 PM	14.12	2.79	39.1	66.4	15.7	49.1
03:40 PM	-	03:50 PM	14.20	2.66	39.4	66.6	15.6	49.3
03:50 PM	-	04:00 PM	14.26	2.53	40.4	66.7	15.5	50.3
	Averages:		14.19	2.66	39.6	66.6	15.6	49.6

Calibration Data	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	70	45.4	91.4
FINAL zero	10	10.1	9.8
FINAL span	69.6	45.8	91.5
ZERO DRIFT %/ppm	0.00	0.05	-0.20
CALIB. DRIFT %/ppm	-0.10	0.20	0.10
ZERO DRIFT %fs	0.00	0.10	-0.20
CALIB.DRIFT %fs	-0.40	0.40	0.10
CAL GAS value	15	17.61	81.4
FULL SCALE RANGE	25	50	100

DSCFM = 109966 (AVERAGE OF PITOT TUBE TRAVERSE)

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
NOx values:	14.19	2.66	7.10	2.34	2.13

	%O2	ppm	@ 3%O2	@15%O2	lb/hr
CO values:	14.19	39.6	106	34.8	19.3

SSION FACTORS
(lbs/MMBtu)

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1
DATE : 02-23/24-93
REPORT : 027-343

LBS/MMBTU & EPA F FACTOR @ 60°F

NOx

RUN	PPM	%O2	LBS/MMBTU
#1	1.88	13.85	0.00574
#2	2.01	14.01	0.00628
#3	2.08	14.03	0.00652
#4	2.23	14.04	0.00700
#5	2.37	14.06	0.00746
#6	2.48	14.04	0.00779
#7	2.25	13.95	0.00697
#8	1.89	13.96	0.00587
#9	1.88	13.99	0.00586
AVERAGE	2.12	13.99	0.00661

CO

RUN	PPM	%O2	LBS/MMBTU
#1	36.7	13.85	0.06825
#2	37.3	14.01	0.07098
#3	36.3	14.03	0.06928
#4	35.4	14.04	0.06766
#5	32.6	14.06	0.06249
#6	31.5	14.04	0.06021
#7	36.4	13.95	0.06867
#8	38.1	13.96	0.07198
#9	36.5	13.99	0.06926
AVERAGE	35.6	13.99	0.06764

EPA F FACTOR @ 60°F 8503

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #2
DATE : 02-25/26-93
REPORT : 027-343

LBS/MMBTU & EPA F FACTOR @ 60°F

NOx

RUN	PPM	%O2	LBS/MMBTU
#1	2.57	14.04	0.00807
#2	2.84	14.03	0.00890
#3	3.22	14.11	0.01022
#4	2.81	14.12	0.00893
#5	2.85	14.08	0.00900
#6	2.52	14.13	0.00802
#7	2.53	14.09	0.00800
#8	3.37	14.09	0.01066
#9	2.66	14.19	0.00854
AVERAGE	2.82	14.10	0.00893

CO

RUN	PPM	%O2	LBS/MMBTU
#1	45.5	14.04	0.08696
#2	43.1	14.03	0.08226
#3	41.4	14.11	0.07994
#4	40.9	14.12	0.07910
#5	39.9	14.08	0.07671
#6	39.7	14.13	0.07689
#7	38.6	14.09	0.07432
#8	39.0	14.09	0.07509
#9	39.6	14.19	0.07738
AVERAGE	40.9	14.10	0.07874

EPA F FACTOR @ 60°F 8503

GAS ANALYSIS

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93308
(805) 327-7300
FAX (805) 327-3459

COMPANY : DESTEC OPERATING
UNIT : KERN FRONT # 1
DATE : 2-22-93
PROJECT : 027-343

DATE RECEIVED : FEBRUARY 19, 1993
DATE ANALYZED : FEBRUARY 23, 1993
DATE REPORTED: FEBRUARY 25, 1993

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	0.604	1.547	CARBON	73.61
OXYGEN	0.008	0.016	HYDROGEN	23.83
NITROGEN	0.871	1.419	OXYGEN	1.14
CARBON MONOXIDE	0.000	0.000	NITROGEN	1.42
			SULFUR	0.00
METHANE	93.327	87.059	H/C	0.324
ETHANE	4.308	7.532		
PROPANE	0.726	1.862		
ISOBUTANE	0.065	0.221		
N-BUTANE	0.053	0.179		
ISOPENTANE	0.012	0.050		
N-PENTANE	0.008	0.032		
HEXANES+	0.017	0.083		
TOTALS :	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.5938
SPECIFIC VOLUME, cu.ft./lb.	22.07
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	1044.88
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	1024.36
GROSS CALORIFIC VALUE (DRY), BTU/lb.	23058.55
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	942.39
NET CALORIFIC VALUE (WET), BTU/cu.ft.	923.88
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9978
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8632
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8503

ASTM METHODS D-1945-81 & D-3588-91

Terry Rowles
Laboratory Manager

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93308
(805) 327-7300
FAX (805) 327-3459

COMPANY : DESTEC OPERATING
UNIT : KERN FRONT # 2
DATE : 2-22-93
PROJECT : 027-343

DATE RECEIVED : FEBRUARY 19, 1993
DATE ANALYZED : FEBRUARY 23, 1993
DATE REPORTED: FEBRUARY 25, 1993

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %
CARBON DIOXIDE	0.610	1.560
OXYGEN	0.014	0.025
NITROGEN	0.873	1.421
CARBON MONOXIDE	0.000	0.000
METHANE	93.313	87.030
ETHANE	4.311	7.536
PROPANE	0.725	1.860
ISOBUTANE	0.065	0.221
N-BUTANE	0.053	0.179
ISOPENTANE	0.012	0.050
N-PENTANE	0.008	0.032
HEXANES+	0.017	0.085
TOTALS:	100.000	100.000

CHONS Wt.%	
CARBON	73.59
HYDROGEN	23.83
OXYGEN	1.16
NITROGEN	1.42
SULFUR	0.00
H/C	0.324

SPECIFIC GRAVITY (AIR = 1)	0.5939
SPECIFIC VOLUME, cu.ft./lb.	22.06
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	1044.79
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	1024.27
GROSS CALORIFIC VALUE (DRY), BTU/lb.	23052.39
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	942.30
NET CALORIFIC VALUE (WET), BTU/cu.ft.	923.79
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9978
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8632
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8503

ASTM METHODS D-1945-81 & D-3588-91

Terry Rowles
Laboratory Manager

S AND EQUATIONS

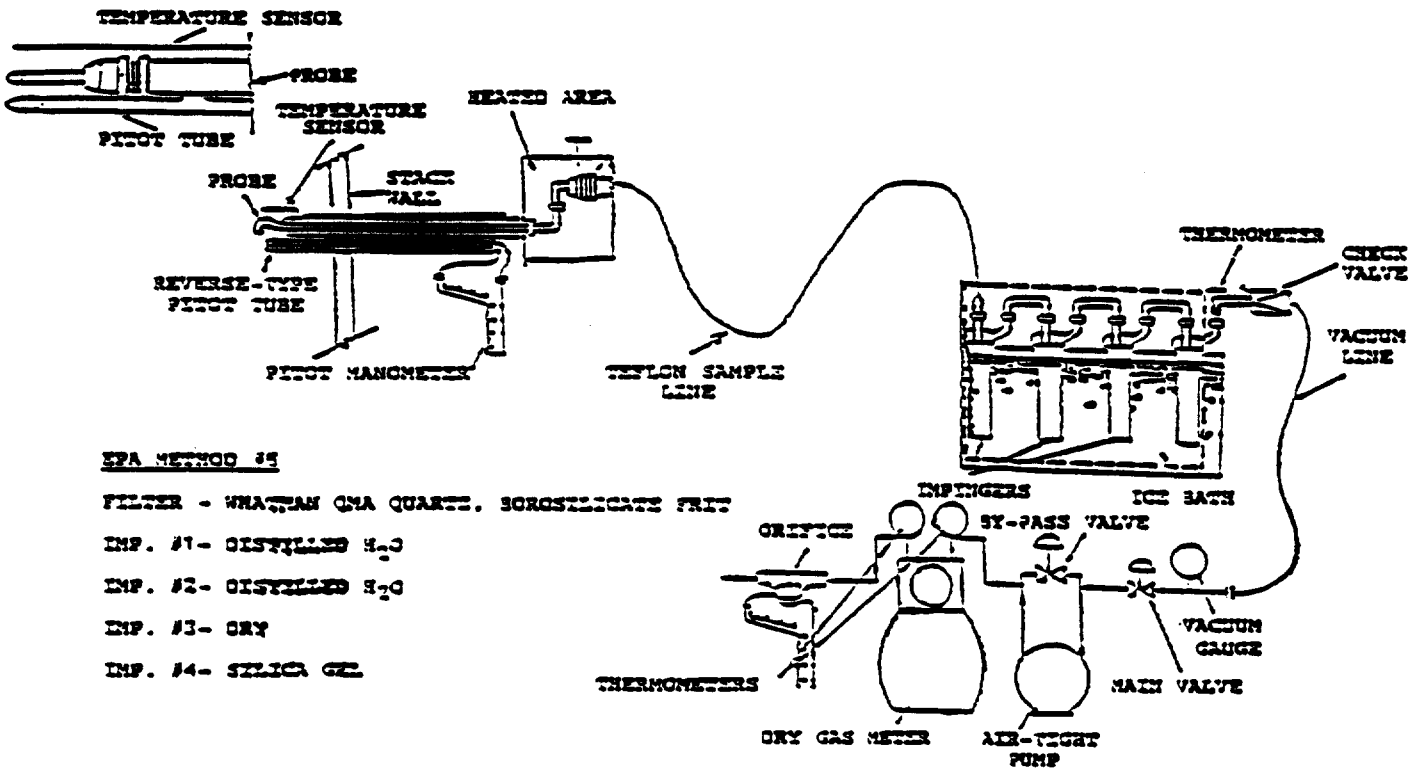
SAMPLING AND ANALYTIC PROCEDURES

REF: EPA Code of Federal Regulations, Title 40, Part 60, Appendix A.
Method 1, 2, 3, 4, and 5

Sampling Apparatus

The sampling apparatus consisted of a nozzle, a heater wrapped probe, and a heated filter holder (see data sheets for type of nozzle, probe, and filter). The filter was connected to a heated teflon filter-to-impinger line. A series of impingers (see data sheet for type and contents) was connected in tandem and immersed in an ice bath. Following the absorption train was a gas pump, dry test meter, and a calibrated restriction orifice fitted with a magnehelic differential pressure gauge. A type 'S' pitot tube and temperature probe was then positioned alongside the probe terminating at the sample nozzle for the purpose of monitoring duct conditions throughout the test.

Sampling Diagram



EPA Method 1: Sampling and Velocity Traverses for Stationary Sources

Prior to the source test a site assessment was performed in order to locate sample points for obtaining the best representative measurements of pollution concentrations and volumetric flow rates. EPA Method 1 takes into account duct area, straight run and cyclonic or stratified flow patterns.

EPA Method 2: Velocity and Volumetric Flow Rates

A computer was used in selection of suitable sample/traverse points. The calibrated pitot tube was connected to a magnehelic gauge and leak checked. A temperature and Δ-P was then recorded at each traverse point and a duct static pressure was also measured and recorded. A volume flow rate was calculated from the measured required traverse points.

EPA Method 3: % CO_2, % O_2, Dry Molecular Weight

Concurrent with each particulate sampling, an integrated gas sample was withdrawn from the summation of the traverse points through the train and collected at the outlet of the meter into a sample bag. Then the contents of the sample bladder were analyzed by Orsat for fixed gas composition.

EPA Method 4: Percent Water

Tare weights of the charged individual impingers was recorded. After sampling, the final weights was then recorded. Percent water was calculated from the weight of water collected and the dry gas volume sampled.

EPA Method 5: Particulate Emissions

A series of preliminary measurements was made prior to conducting the particulate test. EPA Methods 1, 2, and 3 was performed to determine location and number of traverse points, average gas velocity, and pressure and gas molecular weight. Percent water was determined by a psychrometric chart or from combustion analysis of the fixed gases. The results of these measurements were entered into the field computer for the purpose of determining an appropriate nozzle size for isokinetic sampling.

The method 5 apparatus was then prepared on-site in the mobile laboratory. The absorption train was charged with freshly prepared chemicals, weighted on a calibrated digital balance to the nearest 0.1 grams, and assembled. The probe was brushed out and rinsed with distilled water and acetone, then the filter holder was charged. The sampling apparatus was sealed and transported to the sampling site were it was assembled and leak tested at 15 inches mercury vacuum.

The probe, filter and impinger line heaters were set at 250 °F and the probe was then positioned into the duct at the first traverse point with the nozzle out of the flow.

The nozzle was positioned into the gas flow and the vacuum pump was started immediately and adjusted to obtain an isokinetic sample rate. A complete traverse was performed while sampling at a minimum of two minutes per sample point. Upon completion of the traverse the vacuum pump was turned off and the probe was transferred into the next sample EPA port where an identical sample-traverse was then performed. Duct conditions (temperature, Δ-P)

and sampling conditions (meter temperature, volume and pressure, probe, filter, sample line, impinger temperatures, and absorption train vacuum) was monitored and recorded regularly for each sample point.

Upon completion of sampling, the apparatus was leak tested at a vacuum greater than the highest observed vacuum. The leak was recorded and the apparatus was then sealed and transported to the mobile laboratory. The heated filter-to-impinger line was rinsed with a known amount of distilled water into the first impinger.

The filter and any loose particulate was carefully removed from the filter holder with tweezers. It was then placed in a labeled petri dish and transported to the P.C.E.S. laboratory. The nozzle, probe, and filter top housing was rinsed and brushed three times with distilled water and acetone. The sample fractions were combined, bottled, labeled, and fluid level marked for transportation to the P.C.E.S. laboratory. Aliquots of distilled water and acetone were similarly treated for blank analysis.

The absorption train was inspected for abnormalities and disassembled. The impingers were weighed on a digital balance for a percent moisture determination. The contents of the impingers were quantitatively transferred into separate bottles, sealed, labeled, and fluid level marked for transportation to the P.C.E.S. laboratory for analysis, if required. Aliquots of the reagent grade impinger contents were saved for blank analysis.

The filter was transferred to an oven and heated at 105 °F for 2-3 hours and then placed in a desiccator for 24 hours. The filter was then weighed on a Mettler digital balance to the nearest 0.01 mg. Additional six hour desiccations and weighings were then performed until the difference between consecutive weighings were less than 0.5 mg or one percent of the total filtrate weight (weighed to a constant weight).

The nozzle/probe/filter top wash was then examined for any leakage during transportation and transferred to a tared evaporation dish. The wash was then evaporated at an elevated temperature, below the boiling point of the wash, with occasional swirling. The dish and wash residue was then desiccated and weighed to a constant weight.

If required by the regulatory agency, the contents of the first impinger were recovered and diluted volumetrically to a known volume. An aliquot of this sample was then evaporated, desiccated, and then weighed to a constant weight.

The net weight of particulate was calculated from the two fractions (three fractions including the impinger contents, if required). Concentrations (gr/DSCF) and emissions (lbs/hr) or other applicable units were then calculated and reported.

EPA METHOD 2
STACK GAS VELOCITY AND VOLUMETRIC FLOWRATE

Average Stack Gas Velocity
Eq. 2-6 & Eq. 2-9

$$P_g = \frac{\text{Static Pressure, } H_2O}{13.6}$$

$$P_s = P_{bar} + P_g$$

$$V_s = K_p \; C_p \left(\sqrt{\Delta P}\right) avg \sqrt{\frac{T_{s\,(avg)}}{P_s \; M_s}}$$

Average Stack Gas Dry Volumetric Flow Rate
Eq. 2-10

$$Q_{std} = 60 \left(1 - B_{ws}\right) v_s \; A \left(\frac{T_{std}}{T_{s\,(avg)}}\right) \left(\frac{P_s}{P_{std}}\right)$$

$$\frac{Q_{std}}{MF} = SCFM$$

EPA METHOD 3
DRY MOLECULAR WEIGHT OF STACK GAS
Eq. 3-2

$$M_d = 0.44\,(\%\,CO_2) + 0.320\,(\%\,O_2) + 0.280\,(\%\,N_2 + \%\,CO)$$

Wet Molecular Weight of Stack Gas

$$M_s = M_d\left(1 - B_{ws}\right) + 18\left(B_{ws}\right)$$

EPA METHOD 4
DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Volume of Water Vapor Condensed
Eq. 4-1

$$V_{wc\,(std)} = \frac{(V_f - V_i)\rho_w \; RT_{std}}{P_{std} \; M_w} = K_1 (V_f - V_i)$$

Where: $K_1 = 0.04646 \; \frac{ft^3}{ml} \; @ \; 520^\circ R$

Volume of Water Vapor Collected in Silica Gel
Eq. 4-2

$$V_{wsg\,(std)} = \frac{(W_f - W_i) \; RT_{std}}{P_{std} \; M_w \; (453.6 \; g/lb)}$$

$$= K_2 (W_f - W_i)$$

Where: $K_2 = 0.04651 \; \frac{ft^3}{g} \; @ \; 520^\circ R$

Sample Gas Volume
Eq. 4-3

$$V_m\,(std) = V_m \; Y \left(\frac{(P_m)(T_{std})}{(P_{std})(T_m)} \right)$$

$$= K_3 \; Y \; \frac{V_m \; P_m}{T_m}$$

Where: $K_3 = 17.38 \; \frac{^\circ R}{in. \; Hg} \; @ \; 520^\circ R$

Moisture Content
Eq. 4-4

$$B_{ws} = \frac{V_{wc}\,(std) + V_{wsg}\,(std)}{V_{wc}\,(std) + V_{wsg}\,(std) + V_m\,(std)}$$

$$B_{ws} \times 100 = \%\; H_2O \; in \; gas \; stream$$

$$MF = 1 - B_{ws}$$

EPA METHOD 5
DETERMINATION OF PARTICULATE EMISSIONS FROM STATIONARY SOURCES
Use in Method 5 and 8 combinations runs

Dry Gas Volume
Eq. 5-1

$$V_m(std) = V_m Y \left(\frac{T_{std}}{T_m}\right)\left[P_{bar} + \frac{\Delta H}{13.6}\right]$$

$$= K_1 V_m Y \left[\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right]$$

$$= K_1 = 17.38 \frac{^\circ R}{in.Hg} @ 520 ^\circ R$$

*In case of leak rate beyond allowable limits, correct Eq. 5-1 as follows:
Case 1 - No component changes made during run.

$$V_m = V_m - (L_p - L_a)\theta$$

Case 2 - One or more component changes made during run.

$$V_m = \left[V_m - (L_1 - L_a)\theta_1 - \sum_{i=2}^{n} (L_i - L_a)\theta_i - (L_p - L_a)\theta_p\right]$$

Volume of Water Vapor
Eq. 5-2

$$V_{wc}(std) = V_{1c}\left(\frac{\rho_w}{M_w}\right)\left(\frac{RT_{std}}{P_{std}}\right)$$

$$= K_2 V_{1c}$$

Where: $K_2 = 0.04646 \frac{ft^3}{ml} @ 60 ^\circ F$

Moisture Contnet
Eq. 5-3

$$B_{ws} = \frac{V_{wc}(std)}{V_m(std) + V_{wc}(std)}$$

EPA METHOD 5
(con't)

Acetone Blank Concentration
Eq. 5-4

$$C_a = \frac{M_a}{V_a \rho_a}$$

Acetone Wash Blank
Eq. 5-5

$$W_a = C_a V_{aw} \rho_a$$

Particulate Concentration
Eq. 5-6

$$C_s = \frac{gr}{dscf} = \left(0.001 \frac{g}{mg} \right) \left(\frac{M_n}{V_m (std)} \right) (15.432)$$

$$gr/dscf\,(MF) = \frac{gr}{scf}$$

Corrected to 12 % CO_2

$$\frac{gr}{dscf} @ 12\%\ CO_2 = \frac{\frac{gr}{dscf} \times 12\ \%\ CO_2}{\%\ CO_2\ (dry)}$$

Isokinetic Variation
Eq. 5-7 and 5-8

$$\%\ I = 100 \times \frac{T_s \left[V_{1c} K_3 + \frac{V_m}{T_m} \left(P_b + \frac{\Delta H}{13.6} \right) \right]}{60\ \theta\ A_n\ V_s\ P_s}$$

Where: $K_3 = 0.002669$

Mass Emission Rate

$$\frac{lbs}{hr} = \frac{gr}{dscf} \times dscfm \times 60 \frac{m}{hr} \times \frac{1\ lb}{7000\ gr}$$

NOMENCLATURE

(1 of 3)

A = Cross-sectional area of stack (ft^2)

A_n = Cross-sectional area of nozzle, (ft^2)

B_{ws} = Proportion of water vapor, by volume, in the gas stream

C_a = Acetone blank residue concentration, (mg/g)

C_p = Pitot tube coefficient, dimensionless

C_s = Concentration of particulate matter in stack gas, dry basis corrected to standard conditions, (gr/dscf)

C_{SO2} = Concentration of sulfur dioxide dry basis corrected to standard conditions, (lb/dscf)

C_{H2SO4} = Sulfuric acid (including SO3) concentration, corrected to standard conditions, (lb/dscf)

ΔH = Average pressure differential across the orifice meter, (in H_2O)

K_p = Pitot tube constant, $85.49 \frac{ft\ [(lb/lb\text{-}mole)(in\ Hg)]^{\frac{1}{2}}}{sec[\ (^{\circ}R)\ (in\ H_2O)\ ]}$

L_p = Leakage rate observed during the post-test leak check, (cfm)

L_a = Maximum acceptable leakage rate, (0.02 cfm or 4% of average sampling rate, whichever is less)

L_i = Individual leakage rate observed during the leak check conducted prior to the "i^{nth}" component change, (cfm)

M_a = Mass of residue of acetone after evaporation, mg

M_d = Molecular weight of stack gas, dry basis, (lb/lb-mole)

M_n = Total weight of particulate matter collected, mg

M_s = Molecular weight of stack gas, wet basis, (lb/lb-mole)

M_w = Molecular weight of water, 18 lb/lb-mole

N = Normality of barium perchlorate titrant, (milliequivalents/ml)

ΔP = Velocity head of stack gas, (in H_2O)

P_{bar} = Barometric pressure at measurement site (in Hg)

P_g = Stack static pressure, (in Hg)

P_m = Absolute pressure at the dry gas meter, ($P_{bar} + \Delta H/13.6$)

NOMENCLATURE

(2 of 3)

P_s	=	Absolute stack gas pressure, (inches Hg)
$P_{(std)}$	=	Standard absolute pressure, 29.92 in Hg
$Q_{(std)}$	=	Dry volumetric stack gas flow rate, standard conditions, (dscfm)
R	=	Ideal gas constant, 21.85 (in Hg) (ft^3)/(lb-mole)(°R)
t_s	=	Stack temperature, (°F)
T_m	=	Absolute temperature at meter, (°R)
$T_{(std)}$	=	Standard absolute temperature, (520°R)
T_s	=	Absolute stack temperature, (460°+ t_s)
V_a	=	Volume of sample aliquot titrated, (ml)
V_{ab}	=	Volume of acetone blank, ml
V_m	=	Dry gas volume measured by dry gas meter, (dcf)
$V_{m(std)}$	=	Dry gas volume measured by dry gas meter, corrected to standard conditions, (dscf)
$V_{wc(std)}$	=	Volume of water vapor condensed corrected to standard conditions,(scf)
$V_{wsg(std)}$	=	Volume of water vapor collected in silica gel corrected to standard conditions (scf)
V_{ic}	=	Volume of water vapor condensed in impingers and silica gel, (ml)
V_f	=	Final volume of condensed water, ml
V_i	=	Initial volume of condensed water, ml
v_s	=	Average stack gas velocity, (ft/sec)
V_{soln}	=	Total volume of solution in which the sulfur dioxide sample is contained (ml)
V_t	=	Volume of barium perchlorate titrant used for the sample, (ml)
V_{tb}	=	Volume of barium perchlorate titrant used for the blank, (ml)
W_f	=	Final weight of silica gel or silica gel plus impinger, (g)
W_i	=	Initial weight of silica gel or silica gel plus impinger, (g)
Y	=	Dry gas meter calibration factor
ρ_w	=	Density of water, (0.002202 lb/ml @ 60°F)

NOMENCLATURE

(3 of 3)

ρa	=	Density of acetone, (g/ml)(see bottle label)
MF	=	Moisture factor
$\%CO_2$	=	Percent CO_2 by volume (dry basis)
$\%O_2$	=	Percent O_2 by volume (dry basis)
%CO	=	Percent CO by volume (dry basis)
$\%N_2$	=	Percent N_2 by volume (dry basis)
0.264	=	Ratio of O_2 to N_2 in air v/v
0.280	=	Molecular weight of N_2 or CO, divided by 100
0.320	=	Molecular weight of O_2, divided by 100
0.440	=	Molecular weight of CO_2, divided by 100
60	=	Conversion factor, (sec/min)
18.0	=	Molecular weight of water, (lb/lb-mole)
32.03	=	Equivalent weight of sulfur dioxide
θ	=	Total sampling time (min)
θ_i	=	Sampling time interval, between two successive component changes, beginning with the interval between the first and second changes, (min)
θ_1	=	Sampling time interval, from the run beginning until first component change, (min)
θ_p	=	Sampling time interval, from the final (n^{th}) component change until the end of the sampling run, (min)

CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

Reference: Manual of Procedures; ST-13A, ST-19A, Jan 1982, State of California, Air Resources Board, Test Methods 1-100, June 1979.
EPA CFR Title 40, Pt. 60, Appendix A, Method 3A, 6C, 7E, & 10.

Instrument Summary

A constant sample of flue gas was extracted, dried, filtered and delivered to an instrument manifold system for distribution to one or more analyzers. Instrument results are recorded on an analog strip chart recorder. System calibration checks are performed as well as calibration checks at the beginning and end of each test run. Final data reduction includes zero and calibration drift corrections.

Sample Conditioning System

Consists of a borosilicate glass tube or 316 grade stainless steel probe fitted with a cindered stainless steel or pyrex glass wool particulate filter. The probe is fitted with a teflon (TFE) sample line which connects to a water condensation system located at the source. The condensation system consists of three 500-ml short stem glass impingers connected in a series, immersed in an ice bath. The gas is delivered to the instrument trailer with a teflon line (3/8" O.D.) through an in-line Balston particulate filter drawn by a teflon-coated diaphragm pump. The sample system is leak checked prior to sampling by plugging the end of the sample probe and adjusting the sample pump to its maximum rate (approximately 22" Hg). The manifold is by-passed and the leak rate monitored through a gas meter or low range flow meter.

Manifold System

Sample gas is delivered to each analyzer through a five way valve and regulated with a needle valve flow meter. Manifold pressure is controlled by a back pressure regulator which is typically set at three psi. Zero gas (N_2) and calibrated gases are delivered to the analyzers using the same five way valve and flow meter. All manifold parts are glass, stainless steel, or teflon materials.

Analog Strip Chart Data Reduction

Analog recordings consists of averaged time increments as shown on the data pages (typically 5,10, or 20 minute increments). Data for each increment was recorded at an average percent of full scale. The readings were then compared with the zero and calibration readings for calculation of the average concentration for each time increment. Any deviation of the zero and calibration readings from the start to the end of a test period was corrected by calculating apparent zero and calibration readings for the mid-point of each time increment. The average concentrations were then calculated from the sample readings and the apparent zero and span readings.

EPA METHOD 18
HYDROCARBON EMISSIONS TESTING
FID ANALYSIS

Sampling Procedures

The sample was drawn via evacuated cannister through a stainless steel/teflon probe into a tedlar bag. Each sample bag was evacuated and then filled.

Analytical Procedures

The contents of the tedlar bag are analyzed by gas chromatography. The gas chromatograph is calibrated with an appropriate standard for each carbon #, before and after each set of samples are analyzed. The sample is speciated by carbon #-C_1, C_2, C_3, C_4, C_5, and C_{6+} backflush.

Symbol Identification

i	=	Carbon #; i = 1 to 6+
s	=	Refers to standard for that carbon #
Rx_i	=	Response factor for C_i
MW	=	Molecular weight - g/mole
DSCFM	=	Average volume flow rate of unit tested

Equations

$$Rx_i = \frac{Area_{std}}{ppm_{std}}$$

$$Sample\ ppm_i = \frac{1}{Rx_i} \times Area_i$$

$$Sample\ ppm\ (as\ C_i) = Sample\ ppm \times \#\ of\ carbons$$

$$\frac{lbs}{hr_i} = ppm_i \times MW_i \times DSCFM \times 1.581 \times 10^{-7}$$

$$Total\ non\text{-}methane\ \frac{lbs}{hr} = \sum_{2}^{6+} \frac{lbs}{hr_i}$$

Note 1: If lbs/hr as methane is required, MW will equal 16.0 (MW of methane)
Note 2: # of carbons: ethane = 2; propane = 3; etc...

APPENDIX I
ERATIONAL DATA
(Supplied by Destec)

COMPANY : DESTEC
UNIT : KERN FRONT - TURBINE #1 & #2
DATE : 02-23/26-93
REPORT : 027-343

CEM DATA SUMMARY

	TURBINE #1			TURBINE #2		
RUN #	%O2	NOx ppm	CO ppm	%O2	NOx ppm	CO ppm
1	14.13	2.05	36.42	14.23	2.71	45.32
2	14.12	1.98	37.65	14.22	2.66	43.24
3	14.12	2.05	36.25	14.23	2.80	40.45
4	14.12	2.07	35.67	14.22	2.73	41.29
5	14.12	2.29	32.81	14.22	2.80	40.05
6	14.12	2.44	29.47	14.23	2.80	39.43
7	14.12	2.12	33.98	14.22	2.80	38.50
8	14.12	2.05	35.53	14.23	2.80	39.27
9	14.12	2.04	33.40	14.22	2.80	39.38
	14.12	2.12	34.58	14.22	2.77	40.77

PD 23FEB93 16:56:01

EMMISSIONS MONITORING LOG1
KERN FRONT - LOG8 (12HR)

LOG # 8 PAGE 1

1 NOX LEVEL AT STACK 01-101
2 CO LEVEL AT STACK 01-101
3 COR NOX LEVEL AT STACK 01-101
4 COR CO LEVEL AT STACK 01-101
5 O2 LEVEL AT STACK 01-101
6 NOX LEVEL AT STACK 02-101
7 CO LEVEL AT STACK 02-101
8 COR NOX LEVEL AT STACL 02-101
9 COR CO LEVEL AT STACK 02-101
10 O2 LEVEL AT STACK 02-101
11 CEM SYSTEM IN CALIBRATION
12

HH:MM:SS	1 BLR1NOX PPMVD AVG	2 BLR1CO PPMVD AVG	3 BLR1NOCR PPMVD AVG	4 BLR1COCR PPMVD AVG	5 BLR1O2 PPMVD AVG	6 BLR2NOX PPMVD AVG	7 BLR2CO PPMVD AVG	8 BLR2NOCR PPMVD AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB	12
05:00:00	1.36	30.50	1.1	27.3	14.42	2.05	36.56	1.8	33.0	14.47	NORMAL	
05:15:00	1.53	30.46	1.3	27.3	14.42	2.05	36.72	1.8	32.9	14.43	NORMAL	
05:30:00	1.54	29.98	1.3	26.9	14.42	2.18	34.21	1.9	30.8	14.48	NORMAL	
05:45:00	1.54	30.47	1.3	27.3	14.42	2.15	35.77	1.9	32.2	14.47	NORMAL	
06:00:00	1.54	30.25	1.3	27.1	14.42	2.04	39.99	1.8	35.8	14.42	NORMAL	
06:15:00	1.34	31.00	1.1	27.7	14.42	2.04	39.42	1.8	35.3	14.43	NORMAL	
06:30:00	1.52	30.55	1.3	27.4	14.43	2.04	38.29	1.8	34.3	14.43	NORMAL	
06:45:00	1.54	30.36	1.3	27.2	14.43	2.04	37.52	1.8	33.6	14.42	NORMAL	
07:00:00	1.53	30.15	1.3	27.0	14.42	2.04	37.51	1.8	33.6	14.43	NORMAL	
07:15:00	1.54	30.38	1.3	27.2	14.43	2.05	37.46	1.8	33.8	14.48	NORMAL	
07:30:00	1.52	30.67	1.3	27.5	14.43	2.05	38.11	1.8	34.5	14.52	NORMAL	
07:45:00	1.34	30.95	1.1	27.7	14.43	2.05	37.72	1.8	34.2	14.53	NORMAL	
08:00:00	1.52	30.55	1.3	27.4	14.43	2.05	36.57	1.8	33.1	14.50	NORMAL	
08:15:00	1.52	30.28	1.3	27.1	14.43	2.05	36.58	1.8	33.1	14.49	NORMAL	
08:30:00	1.52	30.66	1.3	27.5	14.43	2.04	37.26	1.8	33.4	14.43	NORMAL	
08:45:00	9.62	19.73	3.2	17.2	8.24	2.04	38.27	1.8	34.3	14.43	NORMAL	
09:00:00	10.39	16.35	3.4	14.1	7.80	2.04	38.27	1.8	34.3	14.43	CALIB	
09:15:00	7.10	24.36	2.6	20.9	10.20	2.04	38.27	1.8	34.3	14.43	CALIB	
09:30:00	13.28	17.55	4.0	13.2	5.61	2.04	38.27	1.8	34.3	14.43	NORMAL	
09:45:00	1.54	34.62	1.3	31.0	14.43	2.05	41.75	1.8	37.4	14.44	NORMAL	
10:00:00	2.28	33.47	1.5	29.6	13.86	2.05	42.03	1.8	37.7	14.44	CALIB	
10:15:00	3.23	30.38	1.7	27.2	13.20	2.04	40.82	1.8	36.8	14.48	NORMAL	
10:30:00	1.79	35.31	1.5	31.6	14.42	2.19	40.32	1.9	36.5	14.52	NORMAL	
10:45:00	1.79	33.76	1.5	30.2	14.42	2.29	40.17	2.0	36.5	14.52	NORMAL	
11:00:00	1.78	33.81	1.5	30.4	14.43	2.30	39.96	2.0	36.1	14.48	CALIB	
11:15:00	1.79	34.80	1.5	31.1	14.43	2.30	39.27	2.0	35.1	14.43	NORMAL	
11:30:00	2.22	32.47	2.0	28.7	14.34	2.30	39.27	2.0	35.1	14.43	CALIB	
11:45:00	2.29	32.32	2.0	28.0	14.21	2.35	39.01	2.1	34.8	14.41	NORMAL	
12:00:00	2.29	33.03	2.0	28.2	14.12	2.80	38.46	2.5	33.4	14.22	NORMAL	
12:15:00	2.29	31.73	2.0	27.3	14.16	2.80	36.42	2.5	32.0	14.31	NORMAL	
12:30:00	2.29	30.32	2.0	26.2	14.17	2.80	35.71	2.6	31.1	14.22	NORMAL	
12:45:00	2.29	29.65	2.0	25.5	14.15	2.59	41.20	2.3	35.8	14.23	NORMAL	
13:00:00	2.29	29.50	2.0	25.4	14.18	2.55	40.63	2.3	34.9	14.15	NORMAL	
13:15:00	2.29	29.03	2.0	25.0	14.17	2.74	39.56	2.5	34.3	14.22	NORMAL	
13:30:00	2.39	28.38	2.1	24.5	14.17	2.55	41.59	2.3	36.0	14.21	NORMAL	
13:45:00	2.29	29.80	2.0	25.7	14.17	2.55	41.26	2.3	35.8	14.22	NORMAL	
14:00:00	2.05	33.97	1.8	29.1	14.12	2.54	42.39	2.3	36.3	14.14	NORMAL	
14:15:00	2.05	35.96	1.8	30.8	14.12	2.55	42.73	2.3	36.6	14.14	NORMAL	
14:30:00	2.05	35.68	1.8	30.5	14.12	2.55	41.59	2.3	36.2	14.23	NORMAL	
14:45:00	2.05	36.18	1.8	31.0	14.13	2.55	44.25	2.3	38.4	14.21	NORMAL	
15:00:00	2.05	36.65	1.8	31.4	14.13	2.54	42.34	2.3	36.7	14.13	NORMAL	
15:15:00	2.05	36.77	1.8	31.5	14.12	2.55	42.72	2.3	36.6	14.14	NORMAL	

Run #1
Turbine #1

RUN #2
Turbine #1

15:30:00	2.05	37.29	1.8	31.9	14.12	2.54	42.83	2.3	37.2	14.23	NORMAL
15:45:00	1.98	38.03	1.7	32.5	14.12	2.55	44.02	2.3	38.2	14.23	NORMAL
16:00:00	1.97	37.26	1.7	31.9	14.12	2.55	43.52	2.3	37.8	14.23	NORMAL
16:15:00	2.04	36.49	1.8	31.3	14.12	2.55	41.72	2.3	36.2	14.23	NORMAL
16:30:00	2.04	36.75	1.8	31.4	14.12	2.55	41.25	2.3	35.8	14.23	NORMAL

First 1/2 of Run #3
Turbine #1

SECOND 1/2 of Port #3 Turbine #1

PD 23FEB93 16:56:06 EMMISSIONS MONITORING LOG1 LOG # 8 PAGE 2

KERN FRONT - LOG8 (12HR)

HH:MM:SS	1 BLR1NOX PPMVD AVG	2 BLR1CO PPMVD AVG	3 BLR1NOCR PPMVD AVG	4 BLR1COCR PPMVD AVG	5 BLR1O2 PPMVD AVG	6 BLR2NOX PPMVD AVG	7 BLR2CO PPMVD AVG	8 BLR2NOCR PPMVD AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB	12
16:45:00	2.05	35.74	1.8	30.6	14.12	2.55	38.03	2.3	33.0	14.23	NORMAL	

SUMMARY DATA

AVG	2.59	31.55	1.8	27.6	13.72	2.31	39.55	2.1	35.0	14.35
MAX	13.28	38.03	4.0	32.5	14.43	2.80	44.25	2.6	38.4	14.53
TMAX	9:30:00	15:45:00	9:30:00	15:45:00	11:00:00	12:00:00	14:45:00	12:30:00	14:45:00	7:45:00
MIN	1.34	16.35	1.1	13.2	5.61	2.04	34.21	1.8	30.8	14.13
TMIN	7:45:00	9:00:00	6:15:00	9:30:00	9:30:00	6:00:00	5:30:00	6:00:00	5:30:00	15:00:00

PD 24FEB93 15:16:45 EMMISSIONS MONITORING LOG1 LOG # 8 PAGE 1

KERN FRONT - LOG8 (12HR)

1 NOX LEVEL AT STACK 01-101
2 CO LEVEL AT STACK 01-101
3 COR NOX LEVEL AT STACK 01-101
4 COR CO LEVEL AT STACK 01-101
5 O2 LEVEL AT STACK 01-101
6 NOX LEVEL AT STACK 02-101
7 CO LEVEL AT STACK 02-101
8 COR NOX LEVEL AT STACL 02-101
9 COR CO LEVEL AT STACK 02-101
10 O2 LEVEL AT STACK 02-101
11 CEM SYSTEM IN CALIBRATION
12

HH:MM:SS	1 BLR1NOX PPMVD AVG	2 BLR1CO PPMVD AVG	3 BLR1NOCR PPMVD AVG	4 BLR1COCR PPMVD AVG	5 BLR1O2 PPMVD AVG	6 BLR2NOX PPMVD AVG	7 BLR2CO PPMVD AVG	8 BLR2NOCR PPMVD AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB	12
03:30:00	1.79	41.13	1.5	35.2	14.12	2.54	58.14	2.3	49.8	14.13	NORMAL	
03:45:00	2.66	41.34	2.3	35.4	14.12	2.53	57.56	2.3	49.3	14.12	NORMAL	
04:00:00	4.41	48.25	3.8	41.0	14.07	2.54	54.98	2.3	47.1	14.13	NORMAL	
04:15:00	3.11	55.33	2.6	46.7	14.03	2.55	55.57	2.3	47.6	14.12	NORMAL	
04:30:00	1.54	55.06	1.3	46.5	14.03	2.55	54.11	2.3	46.3	14.12	NORMAL	
04:45:00	1.54	54.92	1.3	46.4	14.02	2.55	57.06	2.3	48.9	14.13	NORMAL	
05:00:00	1.54	55.09	1.3	46.5	14.02	2.54	56.06	2.3	48.0	14.12	NORMAL	
05:15:00	1.54	55.85	1.3	47.1	14.03	2.54	54.94	2.3	47.1	14.12	NORMAL	
05:30:00	1.54	56.89	1.3	48.0	14.03	2.54	55.79	2.3	47.8	14.13	NORMAL	
05:45:00	1.82	48.54	1.6	41.3	14.08	2.39	59.17	2.2	50.7	14.12	NORMAL	
06:00:00	1.98	42.00	1.7	35.9	14.12	2.80	41.80	2.6	36.3	14.23	NORMAL	
06:15:00	2.05	41.51	1.8	35.5	14.12	2.79	41.25	2.5	35.8	14.23	NORMAL	
06:30:00	2.00	41.31	1.8	35.3	14.12	2.80	41.87	2.6	36.3	14.22	NORMAL	
06:45:00	1.98	40.18	1.7	34.4	14.12	2.81	41.34	2.5	35.9	14.22	NORMAL	
07:00:00	2.04	38.43	1.8	32.9	14.12	2.81	42.56	2.6	36.9	14.23	NORMAL	
07:15:00	2.04	38.29	1.8	32.7	14.13	2.81	42.72	2.5	37.1	14.23	NORMAL	
07:30:00	2.05	38.44	1.8	32.9	14.13	2.80	41.76	2.5	36.2	14.22	NORMAL	
07:45:00	2.04	38.75	1.8	33.1	14.12	2.79	43.47	2.4	37.3	14.15	NORMAL	
08:00:00	2.04	38.75	1.8	33.1	14.12	2.80	42.33	2.5	36.7	14.23	NORMAL	
08:15:00	2.05	38.48	1.8	32.9	14.12	2.80	41.27	2.6	35.8	14.22	NORMAL	
08:30:00	2.05	38.06	1.8	32.6	14.12	2.80	41.01	2.5	35.6	14.23	NORMAL	
08:45:00	2.04	37.45	1.8	32.1	14.12	2.81	39.93	2.5	34.7	14.23	NORMAL	
09:00:00	2.04	36.99	1.8	31.7	14.12	2.81	39.03	2.5	33.9	14.23	NORMAL	
09:15:00	2.05	36.64	1.8	31.4	14.12	3.03	37.49	2.6	32.6	14.23	NORMAL	
09:30:00	2.08	35.80	1.8	30.6	14.12	3.05	35.56	2.8	31.2	14.31	NORMAL	
#4 09:45:00	2.05	35.54	1.8	30.4	14.12	3.05	37.76	2.6	32.8	14.24	NORMAL	
10:00:00	2.08	35.07	1.8	30.0	14.12	3.05	36.56	2.8	32.2	14.31	NORMAL	
10:15:00	2.18	34.64	1.9	29.6	14.12	3.06	34.93	2.6	30.4	14.24	NORMAL	
10:30:00	2.29	33.41	2.0	28.6	14.12	3.05	34.73	2.8	30.6	14.32	NORMAL	
#5 10:45:00	2.29	32.20	2.0	27.5	14.12	3.05	34.17	2.8	30.1	14.32	CALIB	
11:00:00	2.29	31.80	2.0	27.2	14.12	3.05	34.02	2.8	30.0	14.33	NORMAL	
11:15:00	2.40	30.18	2.2	25.8	14.12	3.29	29.19	2.8	25.7	14.32	NORMAL	
#6 11:30:00	2.47	28.76	2.2	24.7	14.12	3.33	29.73	2.8	25.9	14.26	NORMAL	
11:45:00	2.29	30.78	2.0	26.4	14.11	3.30	32.14	2.8	28.3	14.32	NORMAL	
12:00:00	2.19	32.69	1.9	28.0	14.12	3.30	29.07	2.8	25.6	14.32	NORMAL	
#7 12:15:00	2.05	35.26	1.8	30.1	14.12	2.57	46.49	2.3	39.0	14.13	NORMAL	
12:30:00	2.04	36.58	1.8	30.4	14.12	2.54	46.69	2.3	40.1	14.13	NORMAL	
12:45:00	2.04	36.03	1.8	30.9	14.12	2.55	44.69	2.3	38.7	14.20	NORMAL	
#8 13:00:00	2.05	35.02	1.8	29.9	14.12	2.55	43.58	2.3	37.8	14.22	NORMAL	
13:15:00	2.06	34.92	1.8	29.8	14.12	2.54	45.57	2.3	39.1	14.13	NORMAL	
13:30:00	2.04	33.35	1.8	28.3	14.12	2.55	40.61	2.3	35.2	14.22	NORMAL	
Rw #7 13:45:00	2.04 2.04	33.14	1.8	28.4	14.12 14.12	2.55	42.91	2.3	37.2	14.22	NORMAL	

Turbine #1

PD 26FEB93 16:09:22 EMMISSIONS MONITORING LOG1 LOG # 8 PAGE 1

KERN FRONT - LOG8 (12HR)

1 NOX LEVEL AT STACK 01-101
2 CO LEVEL AT STACK 01-101
3 COR NOX LEVEL AT STACK 01-101
4 COR CO LEVEL AT STACK 01-101
5 O2 LEVEL AT STACK 01-101
6 NOX LEVEL AT STACK 02-101
7 CO LEVEL AT STACK 02-101
8 COR NOX LEVEL AT STACL 02-101
9 COR CO LEVEL AT STACK 02-101
10 O2 LEVEL AT STACK 02-101
11 CEM SYSTEM IN CALIBRATION
12

HH:MM:SS	1 BLR1NOX PPMVD AVG	2 BLR1CO PPMVD AVG	3 BLR1NOCR PPMVD AVG	4 BLR1COCR PPMVD AVG	5 BLR1O2 PPMVD AVG	6 BLR2NOX PPMVD AVG	7 BLR2CO PPMVD AVG	8 BLR2NOCR PPMVD AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB	12
04:15:00	0.84	34.46	0.6	28.7	13.95	1.59	44.07	1.3	37.3	14.05	NORMAL	
04:30:00	0.91	37.58	0.7	31.4	13.93	1.53	48.65	1.3	40.8	13.97	NORMAL	
04:45:00	0.53	50.47	0.5	42.0	13.93	1.34	52.56	1.1	44.1	13.99	NORMAL	
05:00:00	0.53	49.80	0.5	41.5	13.92	1.42	51.87	1.2	43.5	13.96	NORMAL	
05:15:00	0.54	49.09	0.5	40.9	13.92	1.36	49.59	1.1	41.8	14.01	NORMAL	
05:30:00	0.54	47.42	0.5	39.5	13.93	1.48	46.03	1.2	38.8	14.02	NORMAL	
05:45:00	0.53	46.80	0.5	39.0	13.92	1.54	43.74	1.3	36.9	14.03	NORMAL	
06:00:00	0.53	47.18	0.5	39.3	13.92	1.54	40.75	1.3	34.4	14.04	NORMAL	
06:15:00	0.53	47.07	0.5	39.2	13.92	1.54	41.19	1.3	34.8	14.04	NORMAL	
06:30:00	0.53	47.36	0.5	39.4	13.92	1.54	42.52	1.3	36.0	14.05	NORMAL	
06:45:00	0.53	46.34	0.5	38.6	13.92	1.54	42.59	1.3	36.0	14.03	NORMAL	
07:00:00	0.53	46.92	0.5	39.0	13.92	1.54	43.82	1.3	37.2	14.09	NORMAL	
07:15:00	0.52	46.91	0.5	39.0	13.92	1.53	43.42	1.3	36.7	14.04	NORMAL	
07:30:00	0.53	47.50	0.5	39.5	13.92	1.54	43.65	1.3	37.2	14.09	NORMAL	
07:45:00	0.52	48.51	0.5	40.3	13.92	1.52	45.02	1.3	38.1	14.04	NORMAL	
08:00:00	0.50	50.68	0.5	42.2	13.92	1.33	48.46	1.1	40.9	14.02	NORMAL	
08:15:00	0.32	50.05	0.3	41.6	13.92	1.31	47.54	1.1	40.1	14.02	NORMAL	
08:30:00	0.52	49.37	0.5	41.1	13.92	1.32	46.03	1.1	38.9	14.02	NORMAL	
08:45:00	0.34	49.12	0.4	40.9	13.92	1.30	46.15	1.1	39.0	14.02	NORMAL	
09:00:00	0.30	49.34	0.3	41.0	13.92	1.29	46.32	1.0	39.1	14.03	CALIB	
09:15:00	0.41	49.39	0.4	41.1	13.93	1.29	46.32	1.0	39.1	14.03	NORMAL	
09:30:00	1.80	49.46	1.5	41.8	14.02	2.20	45.79	2.0	39.4	14.15	NORMAL	
09:45:00	1.77	51.92	1.5	43.8	14.02	2.77	45.20	2.5	39.3	14.23	NORMAL	
#1 10:00:00	1.79	52.02	1.5	43.9	14.02	2.65	45.43	2.4	39.5	14.22	NORMAL	
10:15:00	1.79	49.34	1.5	41.6	14.02	2.56	45.53	2.3	39.6	14.22	NORMAL	
10:30:00	1.80	50.10	1.5	42.3	14.02	2.61	43.91	2.4	38.1	14.22	NORMAL	
#2 10:45:00	1.79	49.44	1.5	41.7	14.02	2.70	42.57	2.5	37.0	14.22	NORMAL	
11:00:00	1.80	48.66	1.5	41.1	14.03	2.80	42.60	2.6	37.0	14.22	NORMAL	
11:15:00	1.80	47.08	1.5	39.8	14.03	2.80	40.93	2.6	35.5	14.22	NORMAL	
#3 11:30:00	1.80	47.66	1.5	40.3	14.03	2.80	39.96	2.5	34.7	14.23	NORMAL	
11:45:00	1.80	47.69	1.5	40.3	14.03	2.80	39.91	2.6	34.6	14.22	NORMAL	
12:00:00	1.80	48.16	1.5	40.7	14.03	2.73	40.91	2.5	35.5	14.22	NORMAL	
#4 12:15:00	1.79	49.05	1.5	41.5	14.04	2.72	41.67	2.5	36.2	14.22	NORMAL	
12:30:00	1.79	48.22	1.5	40.7	14.04	2.77	40.61	2.5	35.3	14.22	NORMAL	
12:45:00	1.80	46.01	1.5	39.3	14.11	2.80	40.19	2.5	34.9	14.22	NORMAL	
#5 13:00:00	1.79	47.03	1.5	39.7	14.02	2.80	39.90	2.5	34.6	14.22	NORMAL	
13:15:00	1.80	46.37	1.5	39.2	14.03	2.80	39.29	2.5	34.1	14.22	NORMAL	
13:30:00	1.79	46.85	1.5	39.5	14.02	2.80	39.95	2.5	34.7	14.23	NORMAL	
#6 13:45:00	1.79	46.42	1.5	39.2	14.03	2.80	38.90	2.5	33.8	14.23	NORMAL	
14:00:00	1.79	47.28	1.5	40.0	14.03	2.80	38.79	2.5	33.7	14.22	NORMAL	
14:15:00	1.79	44.79	1.5	38.2	14.10	2.80	37.98	2.5	33.0	14.22	NORMAL	
#7 14:30:00	1.79	46.66	1.5	39.6	14.10	2.80	39.01	2.5	33.8	14.22	NORMAL	

TURBINE #2

	14:45:00	1.79	47.59	1.5	40.2	14.02	2.80	39.76	2.5	34.5	14.22	NORMAL
#8	15:00:00	1.80	46.53	1.5	39.1	14.02	2.80	39.30	2.5	34.1	14.23	NORMAL
	15:15:00	1.79	45.94	1.5	39.2	14.09	2.80	39.23	2.5	34.0	14.22	NORMAL
	15:30:00	1.79	47.41	1.5	40.0	14.07	2.80	39.09	2.5	33.9	14.22	NORMAL
#9	15:45:00	1.79	46.93	1.5	39.7	14.02	2.80	39.15	2.5	34.0	14.22	NORMAL

NOX = 2.80

CO = 39.38

O2 = 14.22

Run #9

PD 26FEB93 16:09:27 EMMISSIONS MONITORING LOG1 LOG # 8 PAGE 2

KERN FRONT - LOG8 (12HR)

second 1/2 run #9

HH:MM:SS	1 BLR1NOX PPMVD AVG	2 BLR1CO PPMVD AVG	3 BLR1NOCR PPMVD AVG	4 BLR1COCR PPMVD AVG	5 BLR1O2 PPMVD AVG	6 BLR2NOX PPMVD AVG	7 BLR2CO PPMVD AVG	8 BLR2NOCR PPMVD AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB	12
16:00:00	1.80	46.84	1.5	39.5	14.03	2.80	39.61	2.6	34.4	14.22	NORMAL	

SUMMARY DATA

Tul line #2

AVG	1.24	47.56	1.1	39.9	13.99	2.18	43.03	1.9	36.9	14.14
MAX	1.80	52.02	1.5	43.9	14.11	2.80	52.56	2.6	44.1	14.23
TMAX	9:30:00	10:00:00	10:30:00	10:00:00	12:45:00	14:15:00	4:45:00	11:45:00	4:45:00	9:45:00
MIN	0.30	34.46	0.3	28.7	13.92	1.29	37.98	1.0	33.0	13.96
TMIN	9:00:00	4:15:00	9:00:00	4:15:00	6:30:00	9:00:00	14:15:00	9:00:00	14:15:00	5:00:00

PG 24FEB93 00:01:17 WATER AND FUEL USAGE LOG # 5

23

KERN FRONT - LOGS (DAILY)

1 ACTUAL FLOW
2 GAS FUEL FLOW
3 GAS FUEL FLOW
4 RAW WTR FROM CITIES SERVICE
5 RAW WTR CITIES SERV - CURR TOT 9
6 TURBINE GT-01-101 RUN HOUR MTR 10
7 TURBINE GT-02-201 RUN HOUR MTR 11
8 12

PH:MX:SS	1 FQ1970 MSCF MAX	2 W1IBX LBS/HR AVG	3 W2IBX AVG	4 FI1500 GPM AVG	5 FQ1500 GALS MAX	6 XQ11001 HOURS MAX	7 XQ12001 HOURS MAX	8	9	10	11
01:00:00	8980.00	10243.9	10029.6	371.3	2911.2	13.834	45.067				
02:00:00	8980.00	10238.4	10016.5	366.0	2939.6	14.834	46.067				
03:00:00	8980.00	10240.0	10050.7	365.4	645.3	15.834	47.067				
04:00:00	8980.00	10244.2	10045.3	362.5	1008.0	16.834	48.067				
05:00:00	8980.00	10251.2	10023.0	357.0	1365.1	17.834	49.067				
06:00:00	8980.00	10241.6	10051.1	360.5	1726.0	18.834	50.067				
07:00:00	8980.00	10225.9	10057.0	361.1	2087.4	19.834	51.067				
08:00:00	8980.00	[illegible]	10014.5	360.9	2448.5	20.834	52.067				
09:00:00	8980.00	10225.9	10004.6	352.4	2801.4	21.834	53.067				
10:00:00	8980.00	10222.3	9987.6	101.8	2903.5	22.834	54.067				
11:00:00	8980.00	10165.0	9863.6	166.5	2999.8	23.834	55.067				
12:00:00	8980.00	10088.5	9752.7	309.5	379.5	24.834	56.067				
13:00:00	8980.00	9914.0	9722.2	306.9	686.7	25.834	57.066				
14:00:00	8980.00	9899.3	9852.9	382.8	1069.3	26.834	58.066				
15:00:00	8980.00	10146.2	9891.7	408.5	1478.1	27.834	59.066				
16:00:00	8980.00	10169.9	9863.2	402.0	1880.6	28.834	60.066				
17:00:00	8980.00	10099.1	9687.1	362.4	2243.5	29.834	61.066				
18:00:00	8980.00	10116.5	9798.4	356.5	2600.2	30.834	62.066				
19:00:00	8980.00	10379.8	10152.2	331.3	2931.9	31.834	63.066				
20:00:00	8980.00	10359.8	10130.9	289.4	2999.9	32.834	64.066				
21:00:00	8980.00	10365.5	10193.8	288.0	509.6	33.834	65.067				
22:00:00	8980.00	10464.7	10309.9	288.4	798.1	34.834	66.067				
23:00:00	8980.00	10524.1	10360.7	288.7	1087.0	35.833	67.067				
00:00:00	8980.00	10589.6	10462.3	288.0	1375.2	36.833	68.067				

SUMMARY DATA AVG = 10078.6 TURBINE 1

AVG	8980.00	10234.5	10013.4	326.2	1830.6	25.334	56.567
SUM	215520.0	245628.5	240321.7	7829.6	43935.3	608.007	1357.599
MAX	8980.00	10589.6	10462.3	408.5	2999.9	36.833	68.067

TURBINE 1 Fuel Flow

LOG # 9 PAGI

25FEB93 15:35:52

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EMMISSIONS MONITORING LOG2
KERN FRONT - LOG9 (DAILY)

1 GT-1 MWATTS
2 GAS FUEL FLOW
3 STEAM NOZZLE LOW FLOW ALARM
4 TURBINE 1 STEAM : FUEL RATIO
5 STEAM CDP LOW FLOW ALARM
6 INLET CO CATALYTIC CONVERTER
7 SRC REACTOR INLET LOW TEMP SEL
8 TOTAL FUEL FLOW TO TURBINE 1
9 COR CO LEVEL AT STACK 02-101
10 02 LEVEL AT STACK 02-101
11 CEM SYSTEM IN CALIBRATION
12

:MM:SS	1 J11964 MW AVG	2 W11BX AVG	3 W11BU AVG	4 W1STOF RATIO AVG	5 W11BV AVG	6 TE1402 DEG F AVG	7 TI1456 DEG F AVG	8 GT1FGTOT MMPPH AVG	9 BLR2COCR PPMVD AVG	10 BLR2O2 PPMVD AVG	11 XS1932 CALIB
6:00:00	23.2	10268.2	20209.9	1.97	21054.9	983.0	761.8632	161841.9	36.9	14.15	NORMAL
7:00:00	23.4	10329.7	20473.4	1.98	21010.4	982.0	762.2900	172144.3	38.2	14.12	NORMAL
8:00:00	23.9	10524.5	21359.3	2.03	21017.7	978.9	764.0773	182576.8	42.5	14.12	NORMAL
9:00:00	24.1	10595.3	21811.5	2.06	21019.1	975.4	764.7004	193162.3	49.8	14.12	NORMAL
0:00:00	24.2	10581.6	22045.0	2.08	21020.5	972.7	763.6401	203761.7	44.5	14.13	NORMAL
1:00:00	24.2	10599.5	22097.0	2.08	21023.7	973.4	765.8008	214357.8	40.1	14.12	NORMAL
2:00:00	24.2	10605.8	22117.3	2.09	21004.0	970.1	770.0055	224978.1	44.4	14.13	NORMAL
3:00:00	24.2	10615.9	22128.0	2.08	20993.5	970.6	772.4147	235603.0	45.4	14.13	NORMAL
0:00:00	24.2	10609.0	22426.5	2.11	21101.4	971.1	759.4440	246232.2	43.7	14.12	NORMAL
1:00:00	24.1	10591.1	22253.8	2.10	21052.1	971.3	760.7283	5310.29	41.2	14.13	NORMAL
2:00:00	24.2	10601.6	22235.8	2.10	21053.1	970.7	759.9986	15913.92	44.8	14.10	NORMAL
3:00:00	24.2	10609.8	22219.3	2.09	21029.1	969.2	758.8836	26528.07	46.6	14.12	NORMAL
4:00:00	24.2	10603.1	22232.2	2.10	20981.2	967.7	758.2797	37144.68	47.8	14.12	NORMAL
5:00:00	24.2	10602.4	22345.3	2.11	21030.5	967.1	758.1885	47753.75	42.9	14.12	NORMAL
6:00:00	24.2	10606.7	22493.6	2.12	21087.8	966.4	758.0854	58366.21	40.2	14.12	NORMAL
7:00:00	24.2	10618.9	21860.2	2.06	21267.7	970.6	759.9977	68988.53	23.2	14.22	NORMAL
8:00:00	23.8	10451.8	20496.8	1.96	21348.8	980.4	763.2581	79565.18	29.0	14.17	NORMAL
9:00:00	23.0	10217.4	19350.9	1.89	21332.0	985.7	764.0693	89856.78	28.1	14.21	NORMAL
0:00:00	23.6	10439.8	21129.6	2.02	21324.1	983.8	764.6702	100225.3	27.1	14.27	NORMAL
1:00:00	23.3	10348.2	20672.2	2.00	21325.4	985.0	764.2823	110618.7	32.2	14.22	NORMAL
2:00:00	23.1	10283.8	20314.5	1.98	21325.5	986.1	764.5181	120938.7	37.1	14.19	NORMAL
3:00:00	23.2	10323.0	19708.6	1.91	22091.4	982.8	763.1141	131227.8	26.3	14.05	CALIB
4:00:00	23.0	10257.7	18644.2	1.82	22876.7	980.6	761.7185	141594.0	31.9	14.12	CALIB
5:00:00	22.9	10202.6	18894.8	1.85	22885.1	983.2	762.7180	151718.2	34.5	14.13	NORMAL

AVG 10296.1 TURBINE 1 + 10078.6 / 10296.1 = 10187.4

SUMMARY DATA

AVG	23.8	10478.6	21230.0	2.02	21302.3	976.2	762.7811	125850.3	38.3	14.14
MAX	24.2	10618.9	22493.6	2.12	22885.1	986.1	772.4147	246232.2	49.8	14.27
TMAX	7:00:00	7:00:00	6:00:00	6:00:00	15:00:00	12:00:00	23:00:00	0:00:00	19:00:00	10:00:00
MIN	22.9	10202.6	18644.2	1.82	20981.2	966.4	758.0854	5310.29	23.2	14.05
TMIN	15:00:00	15:00:00	14:00:00	14:00:00	4:00:00	6:00:00	6:00:00	1:00:00	7:00:00	13:00:00

P3

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WATER AND FUEL USAGE
KERN FRONT - LOG5 (DAILY)

LOG # 5

1 ACTUAL FLOW
2 GAS FUEL FLOW
3 GAS FUEL FLOW
4 RAW WTR FROM CITIES SERVICE
5 RAW WTR CITIES SERV - CURR TOT 9
6 TURBINE GT-01-101 RUN HOUR MTR 10
7 TURBINE GT-02-201 RUN HOUR MTR 11
8 12

HH:MM:SS	1 FQ1970 MSCF MAX	2 W1IBX AVG	3 W2IBX AVG	4 FI1500 GPM AVG	5 FQ1500 GALS MAX	6 XQI1C01 HOURS MAX	7 XQI2001 HOURS MAX	8	9	10	11
01:00:00	8980.00	10591.1	10492.6	353.9	1040.0	61.833	3.050				
02:00:00	8980.00	10601.5	10563.2	349.0	1389.1	62.833	4.050				
03:00:00	8980.00	10609.9	10607.3	347.6	1736.8	63.833	5.050				
04:00:00	8980.00	10603.2	10650.6	348.2	2080.1	64.833	6.050				
05:00:00	8980.00	10602.3	10599.2	339.2	2419.7	65.833	7.050				
06:00:00	8980.00	10606.7	10570.0	339.0	2758.8	66.834	8.050				
07:00:00	8980.00	10618.9	9863.5	335.6	2999.7	67.834	9.050				
08:00:00	8980.00	10451.3	10108.3	340.4	435.8	68.834	10.050				
09:00:00	8980.00	10217.4	9950.4	341.4	777.7	69.834	11.050				
10:00:00	8980.00	10439.9	9837.9	344.8	1122.4	70.835	12.050				
11:00:00	8980.00	10348.5	9907.6	344.0	1466.6	71.835	13.050				
12:00:00	8980.00	10283.7	9912.7	345.1	1811.9	72.835	14.050				
13:00:00	8980.00	10323.0	10198.3	347.2	2159.1	73.835	15.050				
14:00:00	8980.00	10257.8	10051.7	197.5	2357.1	74.835	16.050				
15:00:00	8980.00	10202.9	10039.8	302.1	2659.5	75.836	17.050				
16:00:00	8980.00	10326.2	9909.9	300.2	2960.0	76.836	18.050				
17:00:00	8980.00	10091.0	9803.2	297.0	2999.8	77.836	19.050				
18:00:00	8980.00	10211.5	9968.2	295.6	553.0	78.836	20.050				
19:00:00	8980.00	10312.4	10145.0	294.5	847.7	79.836	21.050				
20:00:00	8980.00	10537.9	10471.2	293.3	1141.3	80.837	22.050				
21:00:00	8980.00	10568.1	10472.7	293.3	1434.5	81.837	23.050				
22:00:00	8980.00	10575.7	10514.0	292.1	1725.6	82.837	24.050				
23:00:00	8980.00	10616.7	10472.4	308.2	2035.0	83.837	25.050				
00:00:00	8980.00	10630.4	10530.2	334.5	2369.8	84.838	26.050				

2/25 Turb 7

SUMMARY DATA

AVG	8980.00	10442.8	10235.0	320.0	1803.4	73.335	14.550
SUM	215520.0	250622.2	245640.5	7673.8	43281.9	1760.042	349.207
MAX	8980.00	10630.4	10650.6	353.9	2999.8	84.838	26.050

COMPANY : Destec
UNIT : Turbine Outlet #1
DATE : 2-23/24-93
REPORT : 027-343

ON-SITE DATA

		RUN	#1 (2-23-93)	#2 (2-24-93)	#3
		TIME	0911-1523	08:35 → 14:51	
Vm	Dry sampled gas volume, dcf		173.99	173.61	
Y	Meter calibration factor (met# 1002, 1002,)		0.982977	0.982977	
Pbar	Barometric Pressure, "Hg		29.04	29.09	
Pstatic	Stack static pressure, "Hg		-0.85	-0.85	
ΔH	Differential meter pressure, "H2O		0.57	0.60	
Tm	Meter temperature, °F		66	59	

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	909.0	597.8	311.2	941.7	596.5	345.20			
H_2O	926.9	593.9	333.0	928.7	590.9	337.80			
KC	642.8	494.4	148.4	604.0	493.9	110.10			
KO	482.9	482.4	.5	482.3	481.8	0.50			
SG	859.9	832.1	27.8	860.7	834.0	26.70			
(LW)			(41.1)			(40.9)			
V lc volume of H2O, gms			779.8			779.4			

		RUN	#1	#2	#3
CO2	% Dry Volume		3.0	3.	
O2	% Dry Volume		14.0	14	
N2	% Dry Volume		83.0	83.0	
Cp	Pitot tube coefficient (Pit#)		0.791	0.791	
ΔP	Avg P, "H2O		0.964	1.023	
Ts	Stack temperature, °F		263	269	
As	Stack area, sq. ft.		50.53	50.53	
Ds	Stack diameter, inches		96.25	96.25	
Dn	Nozzle diameter, inches		.196	.196	
Dur	Sampling time, min		360	360	
% Iso	Mini iso		100.18	100.03	

	#1	#2	#3
Filter #	514	515	
Filter tare weights, gms	0.6168	0.6134	

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 5 RUN # 1

COMPANY: DESTEC

UNIT: KERN FRONT TURBINE #1

DATE: 2-23-93

REPORT: 027-343

TECH: RJK

PUMP #: GAST (PD 09)

METER BOX#: CB1002 (0.85)

METER COEFF: 0.982977

PROBE #: Cp: 0.791

(PRE) POST TEST LEAK CHECK

LEAK RATE: < 0.002 cfm

VACUUM: 10 "Hg

AMBIENT TEMP, °F: 52°

Pbar: 29.04

STATIC PRESSURE ("Hg): -0.85

ASSUMED MOISTURE,%: 18%

NOZZLE ID#: MW WET = 27.0

AVG. CALIB. NOZZLE DIAM.("): 0.196

PROBE LINER MATERIAL: QTZ.

FILTER #:

DUCT DIAM ("): 96.25

TRAVERSE PT. NUMBER N.E. PORT	TIME (θ) min. 15/PT.	VACUUM "Hg	STACK TEMP (Ts) °F 5	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL, "H2O RATE	PRESSURE DIFFERENTIAL, "H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER TEMP, °F 3 PROBE	FILTER HOLDER TEMP, °F 3 BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	9:01	2	263	1.00	0.474	0.59	800.20	52	52	253	257	
11	9:26	2	263	1.00	0.476	0.59	807.5	57	53	254	254	
10	9:41	2	266	1.10	0.499	0.64	814.5	59	53	256	250	
9	9:56	2	266	1.05	0.490	0.62	821.8	61	55	253	247	
8	10:11	2	265	1.10	0.503	0.65	829.1	62	56	251	247	
7	10:26	2	265	1.10	0.503	0.65	836.7	63	56	249	248	
6	10:41	2	265	0.95	0.469	0.57	844.2	65	58	253	248	
5	10:56	2	265	0.95	0.470	0.57	851.3	66	59	252	249	
4	11:11	2	264	0.95	0.472	0.57	858.4	67	60	251	248	
3	11:26	2	264	0.95	0.474	0.57	865.6	70	62	250	247	
2	11:41	2	264	0.95	0.475	0.58	872.7	72	63	250	250	
1	11:56	2	262	0.85	0.450	0.52	879.7	70	65	251	248	
P.C.	12:11						886.66					
AVG												

METHOD 5 RUN # 1 (cont)

COMPANY: DESTEC

UNIT: KERN FRONT TURBINE #1

DATE: 2-23-93

REPORT: 027-343

TECH: RJK

PUMP #: GAST (PD 09)

METER BOX#: CB1002 (0.85)

METER COEFF: 0.982977

PROBE #: Cp: 0.791

PRE / POST TEST LEAK CHECK

LEAK RATE: <0.002 cfm

VACUUM: 10 "Hg

AMBIENT TEMP, °F: 66

Pbar: 29.04

STATIC PRESSURE ("Hg): -0.85

ASSUMED MOISTURE,%: 18%

NOZZLE ID#: MW WET 27.0

AVG. CALIB. NOZZLE DIAM.("): 0.196

PROBE LINER MATERIAL: QTZ.

FILTER #:

DUCT DIAM ("): 96.25

87.53

TRAVERSE PT. NUMBER S.E. PORT	TIME (e) min. 15/PT.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL, "H2O RATE	PRESSURE DIFFERENTIAL, "H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	12:23	2	259	1.00	0.489	0.61	886.90	68	67	250	254	
11	12:38	2	258	1.05	0.505	0.64	894.2	74	68	254	252	
10	12:53	2	259	1.05	0.505	0.63	901.7	73	69	250	254	
9	13:08	2	260	1.05	0.506	0.64	909.3	76	69	257	253	
8	13:23	2	260	1.00	0.494	0.61	916.9	76	70	254	252	
7	13:38	2	261	1.00	0.494	0.61	924.4	74	72	252	253	
6	13:53	2	263	0.95	0.481	0.58	931.8	75	72	251	253	
5	14:08	2	265	0.95	0.480	0.58	938.9	75	72	250	253	
4	14:23	2	266	0.95	0.480	0.58	945.9	75	72	253	253	
3	14:38	2	265	0.95	0.480	0.58	953.3	74	72	251	252	
2	14:53	2	264	0.90	0.467	0.55	960.4	75	71	250	252	
1	15:08	2	261	0.85	0.454	0.53	967.5	73	71	249	253	
END	15:23						974.43					
							VOL=173.99					
							ISO=100.18					
							VELFPS=6.49					
AVG			263	0.984		0.57			66			

METHOD 5 RUN # 2

COMPANY: DESTEC

AMBIENT TEMP, °F: 47°

UNIT: KERN FRONT TURBINE #1

DATE: 2-24-93

REPORT: 027-343

TECH: RJK

PUMP #: GAST, (PD-09)

METER BOX#: CB 1002 (0.85)

METER COEFF: 0.982977

PROBE #: Cp: 0.791

(PRE)/ POST TEST LEAK CHECK

LEAK RATE: < 0.002 cfm

VACUUM: 10 "Hg

Pbar: 29.09

STATIC PRESSURE ("Hg): -0.85

ASSUMED MOISTURE,%: 18%

NOZZLE ID#: MW WET 27.0

AVG. CALIB. NOZZLE DIAM.("): 0.196

PROBE LINER MATERIAL: QTZ.

FILTER #:

DUCT DIAM ("): 96.25

TRAVERSE PT. NUMBER S.E.	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F 5	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL, "H20 RATE	PRESSURE DIFFERENTIAL, "H20 Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER / TEMP, °F 3 PROBE	FILTER HOLDER / TEMP, °F 3 BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	8:35	2	267	1.10	0.490	0.63	975.70	47	47	246	245	
11	8:50	2	267	1.10	0.491	0.63	983.2	50	47	251	248	
10	9:05	2	269	1.15	0.503	0.66	990.5	52	48	250	247	
9	9:20	2	270	1.10	0.492	0.63	998.0	52	49	249	247	
8	9:35	2	270	1.10	0.492	0.63	1005.2	52	49	250	248	
7	9:50	2	270	1.15	0.504	0.66	1012.6	53	49	252	249	
6	10:05	2	271	1.05	0.482	0.61	1020.1	53	50	251	248	
5	10:20	2	274	0.95	0.460	0.56	1027.4	59	50	250	245	
4	10:35	2	274	0.95	0.463	0.56	1034.5	63	53	249	245	
3	10:50	2	272	0.95	0.465	0.56	1041.4	63	55	252	255	
2	11:05	2	270	0.95	0.467	0.57	1048.2	65	57	253	256	
1	11:20	2	266	0.85	0.444	0.52	1055.2	65	59	252	254	
P.C.	11:35						1061.90					
AVG												

METHOD 5 RUN # 2 (CONT.)

COMPANY: DESTEC
UNIT: KERN FRONT TURBINE #1
DATE: 2-24-93
REPORT: 027-343
TECH: RJK
PUMP #: GAST. (PD-09)
METER BOX#: CB 1002 (0.85)
METER COEFF: 0.982977
PROBE #: Cp: 0.791

PRE / POST TEST LEAK CHECK
LEAK RATE: <0.002 cfm
VACUUM: 10 "Hg

AMBIENT TEMP, °F: 61°
Pbar: 29.09
STATIC PRESSURE ("Hg): -0.85
ASSUMED MOISTURE,%: 18%
NOZZLE ID#: MW WET 27.0
AVG. CALIB. NOZZLE DIAM.("): 0.196
PROBE LINER MATERIAL: QTZ.
FILTER #:
DUCT DIAM ("): 96.25

86.20+87.41

TRAVERSE PT. NUMBER N.E.	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F 5	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL, "H2O RATE	PRESSURE DIFFERENTIAL, "H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER / TEMP, °F 3 PROBE	FILTER HOLDER / TEMP, °F 3 BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	11:51	2	270	1.00	0.479	0.59	1,062.40	61	61	255	260	
11	12:06	2	270	1.05	0.492	0.62	1,069.5	65	60	254	259	
10	12:21	2	270	1.10	0.505	0.65	1,076.8	68	59	253	257	
9	12:36	2	270	1.10	0.506	0.65	1,084.5	68	61	254	259	
8	12:51	2	269	1.10	0.506	0.65	1,092.2	67	61	252	257	
7	13:06	2	269	1.15	0.517	0.67	1,099.8	67	61	251	258	
6	13:21	2	268	1.00	0.483	0.60	1,107.5	68	60	250	259	
5	13:36	2	267	1.00	0.482	0.60	1,114.7	66	61	253	260	
4	13:51	2	266	0.95	0.471	0.57	1,121.9	68	60	254	258	
3	14:06	2	265	0.95	0.472	0.57	1,128.9	68	61	253	256	
2	14:21	2	265	0.95	0.470	0.57	1136.0	65	61	252	259	
1	14:36	2	260	0.85	0.446	0.52	1,143.1	63	61	253	260	
END	14:51						1,149.81					
							Vol=173.61					
							Tso=100.03					
							Vel Fps=65.95					
AVG			269	1.023		0.60			59			

VELOCITY TRAVERSE

COMPANY : DESTEC
UNIT : KERN FRONT TURBINE #1
DATE : 2-22-93
REPORT : 027-343
RUN # : INITIAL VELOCITY
PUMP # : GAST (PD-09)
METER BOX# : CB1002 (0.85)
METER coeff: ~~0.989077~~ 0.982977
PITOT TUBE# : 0.791

TOTAL : 105.25
COUPLING : 9.00
DIAMETER : 96.25
AREA : 50.53
Cp : 0.791

TRAVERSE POINTS w/o	w/coun	no.	SOUTH EAST Ts (°F)	ΔP	NORTH EAST Ts (°F)	ΔP
94.2	103.2	12	258	1.05	263	1.05
89.8	98.8	11	259	1.10	263	1.05
84.9	93.9	10	259	1.10	264	1.05
79.2	88.2	9	261	1.10	265	1.10
72.2	81.2	8	261	1.05	265	1.10
62.0	71.0	7	262	1.10	266	1.15
34.2	43.2	6	264	0.90	264	0.95
24.1	33.1	5	265	0.95	264	0.95
17.1	26.1	4	265	0.95	264	0.90
11.4	20.4	3	265	0.95	263	0.95
6.4	15.4	2	264	0.95	263	0.95
2.0	11.0	1	262	0.75	262	0.85

VELOCITY DATA

Rated Total MMBTU/hr _____

$\overline{\Delta P}$ 0.998
$\overline{Ts}$ 262.96
Static -0.85
Pbar 29.04
MW(wet) 27.0
%H2O 18%
%O2 _____
F_{60} _____

Vel= _____
DSCFM= _____
MMBTU/hr= _____
%Thr= _____

Additional Data:

0.156 = Noz. Rate / .476 ΔH / 0.59
0.196 =

COMPANY : Destec Kern Front
UNIT : Turbine #2
DATE : 2-25/26-93
REPORT : 027-343

ON-SITE DATA

		RUN	#1 (2-25-93)	#2 (2-26-93)	#3
		TIME	7:50-14:01	8:23-14:33	
Vm	Dry sampled gas volume, dcf		167.98	172.04	
Y	Meter calibration factor (met# 1002, 1002,)		0.982977	0.982977	
Pbar	Barometric Pressure, "Hg		29.13	29.03	
Pstatic	Stack static pressure, "Hg		-0.60	-0.60	
ΔH	Differential meter pressure, "H2O		0.57	0.59	
Tm	Meter temperature, °F		62	62	

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	937.5	596.7	340.8	934.4	601.4	333.0			
H_2O	945.0	594.3	350.7	957.5	597.9	359.6			
KO	584.6	493.8	90.8	614.8	494.3	120.5			
KO	482.0	481.3	.7	481.7	481.6	.1			
SG	883.8	861.2	22.6	825.5	799.6	25.9			
(LW)			(43.1)			(43.0)			
V lc volume of H2O, gms			762.5			796.1			

		RUN	#1	#2	#3
CO2	% Dry Volume		3	3	
O2	% Dry Volume		14	14.3	
N2	% Dry Volume		83	82.7	
Cp	Pitot tube coefficient (Pit#)		0.791	0.791	
ΔP	Avg P, "H2O		0.939	0.979	
Ts	Stack temperature, °F		265	260	
As	Stack area, sq. ft.		50.53	50.53	
Ds	Stack diameter, inches		96.25	96.25	
Dn	Nozzle diameter, inches		.196	.196	
Dur	Sampling time, min		360	360	
% Iso	Mini iso		100.06	99.96	

	#1	#2	#3
Filter #	424	425	
Filter tare weights, gms	0.6035	0.6039	

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 5 RUN # 1

COMPANY: DESTEC
UNIT: KERN FRONT TURBINE #2
DATE: 2-25-93
REPORT: 027-343
TECH: RJK
PUMP #: GAST. (PD-09)
METER BOX#: CB1002 (0.85)
METER COEFF: 0.982977
PROBE #: Cp: 0.791

(PRE) POST TEST LEAK CHECK
LEAK RATE: <0.003 cfm
VACUUM: 10 "Hg

AMBIENT TEMP, °F: 56°
Pbar: 29.13
STATIC PRESSURE ("Hg): -0.60
ASSUMED MOISTURE,%: 18
NOZZLE ID#: MW WET 27.0
AVG. CALIB. NOZZLE DIAM.("): 0.196
PROBE LINER MATERIAL: QTZ.
FILTER #:
DUCT DIAM ("): 96.25

TRAVERSE PT. NUMBER	TIME (e) min. 15/PT.	VACUUM "Hg	STACK TEMP (Ts) °F 5	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL,"H2O RATE	PRESSURE DIFFERENTIAL,"H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (6) AT DRY GAS METER (7) INLET, °F	GAS SAMPLE TEMP. (6) AT DRY GAS METER (7) OUTLET, °F	FILTER HOLDER /TEMP, °F 3 PROBE	FILTER HOLDER /TEMP, °F 3 BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	7:50	2	266	1.00	0.476	0.59	151.00	56	56	245	255	
11	8:05	2	267	1.00	0.476	0.59	158.0	58	56	250	259	
10	8:20	2	267	1.00	0.477	0.59	165.2	59	56	256	260	
9	8:35	2	268	0.95	0.465	0.57	172.4	60	56	254	261	
8	8:50	2	267	0.95	0.465	0.57	179.5	60	56	253	261	
7	9:05	2	267	1.05	0.489	0.62	186.5	61	56	251	262	
6	9:20	2	266	1.00	0.478	0.59	193.8	61	57	252	262	
5	9:35	2	265	0.95	0.467	0.57	200.8	62	57	253	262	
4	9:50	2	265	0.75	0.415	0.46	207.8	61	59	254	262	
3	10:05	2	264	0.85	0.443	0.52	214.0	62	58	251	263	
2	10:20	2	264	0.80	0.430	0.49	220.8	62	59	252	263	
1	10:35	2	262	0.95	0.470	0.57	227.3	64	59	253	264	
P.C.	10:50						234.27					
AVG												

METHOD 5 RUN # 1 (CONT.)

COMPANY: DESTEC
UNIT: KERN FRONT #2
DATE: 2-25-93
REPORT: 027-343
TECH: RJK
PUMP #: GAST (PD-09)
METER BOX#: CB 1002 (0.85)
METER COEFF: 0.982977
PROBE #: Cp: 0.791

PRE / (POST) TEST LEAK CHECK
LEAK RATE: <0.002 cfm
VACUUM: 7 "Hg

AMBIENT TEMP, °F: 62°
Pbar: 29.13
STATIC PRESSURE ("Hg): -0.60
ASSUMED MOISTURE,%: 18
NOZZLE ID#: MW WET 27.0
AVG. CALIB. NOZZLE DIAM.("): 0.196
PROBE LINER MATERIAL: QTZ.
FILTER #:
DUCT DIAM ("): 96.25

83.27+84.71

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL, "H2O RATE	PRESSURE DIFFERENTIAL, "H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER / TEMP, °F 3 PROBE	FILTER HOLDER / TEMP, °F 3 BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	11:01	2	260	0.95	0.472	0.58	234.70	64	62	254	265	
11	11:16	2	261	1.00	0.485	0.60	241.7	67	62	253	256	
10	11:31	2	262	1.00	0.486	0.60	249.0	69	63	257	255	
9	11:46	2	262	1.05	0.498	0.63	256.2	68	64	250	257	
8	12:01	2	262	0.90	0.460	0.55	263.7	66	64	253	255	
7	12:16	2	264	1.15	0.520	0.68	270.7	66	65	252	257	
6	12:31	2	267	0.95	0.472	0.57	278.6	67	64	250	254	
5	12:46	2	268	0.90	0.458	0.54	285.7	66	63	253	254	
4	13:01	2	265	0.80	0.433	0.49	292.4	66	63	254	254	
3	13:16	2	263	0.85	0.448	0.52	299.0	68	64	254	252	
2	13:31	2	263	0.95	0.473	0.58	305.7	68	63	251	255	
1	13:46	2	266	0.85	0.448	0.52	312.8	70	65	252	255	
END	14:01						319.41					
							VOL.=167.98					
							Tso=100.06					
							VEL FPS=62.96					
AVG			265	0.939		0.57			62			

METHOD 5 RUN # 2

COMPANY: DESTEC
UNIT: KERN FRONT TURBINE #2
DATE: 2-26-93
REPORT: 027-343
TECH: RJK
PUMP #: GAST - (PD-09)
METER BOX#: CB1002 (0.85)
METER COEFF: 0.982977
PROBE #: Cp: 0.791

(PRE) POST TEST LEAK CHECK
LEAK RATE: <0.002 cfm
VACUUM: 10 "Hg

AMBIENT TEMP, °F: 52°
Pbar: 29.03
STATIC PRESSURE ("Hg): -0.60
ASSUMED MOISTURE,%: 18%
NOZZLE ID#: MW WET 27.0
AVG. CALIB. NOZZLE DIAM.("): 0.196
PROBE LINER MATERIAL: QTZ.
FILTER #:
DUCT DIAM ("): 96.25

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H20	PRESSURE DIFFERENTIAL,"H2O RATE	PRESSURE DIFFERENTIAL,"H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. (AT DRY GAS METER) INLET, °F	GAS SAMPLE TEMP. (AT DRY GAS METER) OUTLET, °F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
12	8:23	2	257	1.00	0.476	0.59	321.50	52	52	245	243	
11	8:38	2	257	1.05	0.488	0.62	328.6	54	52	248	246	
10	8:53	2	258	1.05	0.489	0.62	335.8	56	51	250	248	
9	9:08	2	259	1.10	0.500	0.65	343.2	55	52	249	247	
8	9:23	2	260	1.15	0.511	0.67	350.9	56	52	251	[illegible]	253
7	9:38	2	261	1.15	0.510	0.67	358.6	55	52	250	254	
6	9:53	2	262	1.00	0.476	0.59	366.1	56	52	252	255	
5	10:08	2	262	0.95	0.464	0.57	373.4	56	53	251	256	
4	10:23	2	262	0.90	0.453	0.54	380.2	58	53	253	255	
3	10:38	2	262	0.95	0.467	0.57	387.0	60	54	254	256	
2	10:53	2	261	0.90	0.457	0.55	393.9	64	56	253	257	
1	11:08	2	259	0.85	0.447	0.52	400.7	67	59	252	259	
P.C.	11:23						407.42					
AVG												

METHOD 5 RUN # 2(CONT.)

COMPANY: DESTEC
UNIT: KERN FRONT TURBINE #2
DATE: 2-26-93
REPORT: 027-343
TECH: RJK
PUMP #: GAST (PD-09)
METER BOX#: CR1002 (0.85)
METER coeff: 0.982977
PITOT TUBE#: 0.791

PRE / POST TEST LEAK CHECK
LEAK RATE: < 0.002 cfm
VACUUM: 7.5 "Hg

AMBIENT TEMP, °F: 65°
Pbar: 29.93
STATIC PRESSURE("Hg): -0.60
ASSUMED MOISTURE,%: 18
MW WET 27.0
AVG. CALIB. NOZZLE DIAM("): 0.196
PROBE LINER MATERIAL: QTZ.
FILTER #:
DUCT DIAM ("): 96.25

85.92+86.12

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F 5	VELOCITY HEAD (ΔPs) "H2O	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER 7 INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
12	11:33	2	260	0.95	0.475	0.58	407.70	68	63	252	261	
11	11:48	2	260	0.95	0.479	0.58	414.7	73	66	251	252	
10	12:03	2	261	1.05	0.503	0.63	422.0	73	67	250	251	
9	12:18	2	262	1.00	0.489	0.60	429.5	69	68	249	253	
8	12:33	2	263	1.00	0.487	0.60	436.9	67	66	251	252	
7	12:48	2	262	1.05	0.501	0.63	444.2	71	65	253	252	
6	13:03	2	261	0.95	0.478	0.58	451.8	74	65	252	248	
5	13:18	2	261	0.95	0.478	0.58	458.9	71	68	251	246	
4	13:33	2	260	0.95	0.478	0.58	465.9	70	67	250	250	
3	13:48	2	260	0.95	0.478	0.58	473.2	69	68	252	248	
2	14:03	2	260	0.90	0.464	0.55	480.4	68	66	253	253	
1	14:18	2	259	0.80	0.438	0.50	487.4	70	66	255	249	
END	14:33						493.82					
							VOL.=172.04					
							Iso=99.96					
AVERAGE			260	0.979		0.59	VELFPS=64.21		62			

VELOCITY TRAVERSE

COMPANY : DESTEC
UNIT : KERN FRONT TURBINE #2
DATE : 2-25-93
REPORT : 027-343
RUN # : INITIAL VEL.
PUMP # : GAST (PD-09)
METER BOX# : CB1002 (0.85)
METER coeff : 0.982977
PITOT TUBE# : 0.791

TOTAL : 105.25
COUPLING : 9.00
DIAMETER : 96.25
AREA : 50.53
Cp : 0.791

TRAVERSE POINTS w.b	w/coup	no.	North East Ts (°F)	ΔP	South East Ts (°F)	ΔP
94.2	103.2	12	265	1.00	260	1.00
89.8	98.8	11	266	1.00	262	1.00
84.9	93.9	10	267	1.05	263	1.00
79.2	88.2	9	268	0.95	262	1.05
72.2	81.2	8	268	0.95	262	0.95
62.0	71.0	7	267	1.10	263	1.10
34.2	43.2	6	266	1.05	266	0.95
24.1	33.1	5	265	0.90	267	0.90
17.1	26.1	4	266	0.75	265	0.85
11.4	20.4	3	265	0.85	264	0.80
6.4	15.4	2	263	0.80	263	0.90
2.0	11.0	1	261	0.90	264	0.85

VELOCITY DATA

Rated Total MMBTU/hr

$\overline{\Delta P}$ 0.941
$\overline{Ts}$ 264.50
Static -0.60
Pbar 29.13
MW(wet) 27.0
%H2O 18
%O2
F_{60}

Vel=
DSCFM=
MMBTU/hr=
%Thr=

Additional Data:

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

REPORT: 027-343

LOCATION/UNIT: Kern Front Turbine #1

DATE TESTED: 2/23/93

ANALYST: DGS

RUN # 1

PROBE/NOZZLE/FILTER TOP

VOL- 208 ml

DISH # 52 #1	#2	#3	AVERAGE
FINAL (g) 77.1704	77.1704		77.1704
TARE (g) 77.1667			77.1667
NET (g)			0.0037

FILTER # 514

#1	#2	#3	AVERAGE
FINAL (g) 0.6169	0.6169		0.6169
TARE (g) 0.6168			0.6168
NET (g)			0.0001

CONDENSABLE (aliquot 57 ml / 1142 ml)

DISH # 54 #1	#2	#3	AVERAGE
FINAL (g) 79.4056	79.4055		79.4056
TARE (g) 79.4030			79.4030
NET (g)			0.0026

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

REPORT: 027-343

LOCATION/UNIT: Kern Front Turbine #1

DATE TESTED: 2/24/93

ANALYST: DGS

RUN # 2

PROBE/NOZZLE/FILTER TOP

VOL- 260ml

DISH # 66 #1	#2	#3	AVERAGE
FINAL (g) 82.0678	82.0677		82.0678
TARE (g) 82.0658			82.0658
NET (g)			0.0020

FILTER # 515

#1	#2	#3	AVERAGE
FINAL (g) 0.6137	0.6136		0.6137
TARE (g) 0.6134			0.6134
NET (g)			0.0003

CONDENSABLE (aliquot 588ml / 1176ml)

DISH # 18 #1	#2	#3	AVERAGE
FINAL (g) 65.8830	65.8834		65.8832
TARE (g) 65.8808			65.8808
NET (g)			0.0024

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Kern Front Turbine #2

REPORT: 027-343

DATE TESTED: 2/25/93

ANALYST: DGS

RUN # 1

PROBE/NOZZLE/FILTER TOP

VOL- 258 ml

DISH # 5 #1	#2	#3	AVERAGE
FINAL (g) 76.5844	76.5847		76.5846
TARE (g) 76.5797			76.5797
NET (g)			0.0049

FILTER # 424

#1	#2	#3	AVERAGE
FINAL (g) 0.6038	0.6037		0.6038
TARE (g) 0.6035			0.6035
NET (g)			0.0003

CONDENSABLE (aliquot 573 ml / 1145 ml)

DISH # 37 #1	#2	#3	AVERAGE
FINAL (g) 80.6408	80.6410		80.6409
TARE (g) 80.6380			80.6380
NET (g)			0.0029

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Kern Front Turbine #2

REPORT: 027-343

DATE TESTED: 2/26/93

ANALYST: DGS

RUN # 2

PROBE/NOZZLE/FILTER TOP

VOL- 194 ml

DISH # 24 #1	#2	#3	AVERAGE
FINAL (g) 74.5914	74.5911		74.5913
TARE (g) 74.5880			74.5880
NET (g)			0.0033

FILTER # 425

#1	#2	#3	AVERAGE
FINAL (g) 0.6041	0.6040		0.6041
TARE (g) 0.6039			0.6039
NET (g)			0.0002

CONDENSABLE (aliquot 594 ml / 1187 ml)

DISH # 64 #1	#2	#3	AVERAGE
FINAL (g) 76.8189	76.8193		76.8191
TARE (g) 76.8160			76.8160
NET (g)			0.0031

COMPANY : Destec Kern Front
UNIT : Generator #1 LOV
DATE : 2·19·93
REPORT : 027-343

ON-SITE DATA

		RUN	#1	#2	#3
		TIME	12:28-13:08	13:12-13:52	13:55-14:35
Vm	Dry sampled gas volume, dcf		24.07	23.97	23.93
Y	Meter calibration factor (met# 1003, 1003, 1003)		.998954	.998954	.998954
Pbar	Barometric Pressure, "Hg		29.08	29.08	29.08
Pstatic	Stack static pressure, "Hg		-	-	-
ΔH	Differential meter pressure, "H2O		.59	.59	.59
Tm	Meter temperature, °F		76.7	78.44	76.6

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	635.7	593.8	41.9	620.8	575.6	45.2	612.5	568.6	43.9
H_2O	576.7	576.6	.1	565.4	564.1	1.3	607.9	606.6	1.3
KO	527.5	527.3	.2	485.4	485.1	.3	533.7	533.3	.4
SG	804.3	800.7	3.6	783.7	780.0	3.7	768.9	763.8	5.1
(LW)			(41.1)			(44.2)			(43.3)
V lc volume of H2O, gms			4.7	H_2O - 142.1 MeCL - 42.4		6.3	H_2O - 142.6 MeCL - 41.0		7.4

H_2O - 147.4
MeCL - 43.0

		RUN	#1	#2	#3
CO2	% Dry Volume		0	0	0
O2	% Dry Volume		20.7	20.7	20.7
N2	% Dry Volume		-	-	-
Cp	Pitot tube coefficient (Pit# ____)		-	-	-
ΔP	Avg P, "H2O (FT/MIN) HOT WIRE ANEMOMET.		189.1	214.4	224.0
Ts	Stack temperature, °F		97.5	86.5	89.4
As	Stack area, sq. ft.				
Ds	Stack diameter, inches		3.25	3.25	3.25
Dn	Nozzle diameter, inches		-	-	-
Dur	Sampling time, min		40	40	40
% Iso	Mini iso				

Filter # _____ _____ _____
Filter tare weights, gms _____ _____ _____

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 4 RUN # 1

COMPANY: Dester Kern Front
UNIT: LOU #1 Generator
DATE: 2-19-93
REPORT: 027-343
TECH: SAH
PUMP #: GAST
METER BOX#: 1003 (1.078)
METER H@: .998954
PROBE #: Cp:

PRE / POST TEST LEAK CHECK
LEAK RATE: .005 / .004 cfm
VACUUM: 11 / 6 "Hg

AMBIENT TEMP, °F: 65°
Pbar: 29.08
STATIC PRESSURE ("Hg):
ASSUMED MOISTURE,%:
NOZZLE ID#:
AVG. CALIB. NOZZLE DIAM.("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20	PRESSURE DIFFERENTIAL,"H20 RATE	PRESSURE DIFFERENTIAL,"H20 Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET,°F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
Start	12:28	2	96	185	.60	.59	833.30	71	74			
		2	96	195	.60	.59	836.29	71	77			
	:38	2	97	203	.60	.59	839.30	71	80			
		2	97	175	.60	.59	842.32	75	80			
	:48	2	98	170	.60	.59	845.33	74	80			
		2	98	200	.60	.59	848.35	77	81			
	:58	2	99	195	.60	.59	851.35	77	81			
		2	99	190	.60	.59	854.36	77	81			
END	13:08						857.37					
			97.5	189.13	.60	.59	24.07		76.69			
AVG												

V_{mSTD} = 24.07 (.998954) (520 / 536.69) ((29.08 + 99/13.6) / 29.92) = 22.677

METHOD 4 RUN # 2

COMPANY: Destec Kern Front

UNIT: LOU #1 Generator

DATE: 2-19-93

REPORT: 027-343

TECH: SAH

PUMP #: GAST

METER BOX#: 1003 (.998954)

METER H@: 1.0258

PROBE #: Cp:

PRE / POST TEST LEAK CHECK

LEAK RATE: .009 / .007 cfm

VACUUM: 9 / 5 "Hg

AMBIENT TEMP, °F: 65°

Pbar: 29.08

STATIC PRESSURE ("Hg):

ASSUMED MOISTURE,%:

NOZZLE ID#:

AVG. CALIB. NOZZLE DIAM.("):

PROBE LINER MATERIAL:

FILTER #:

DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20	PRESSURE DIFFERENTIAL,"H2O RATE	PRESSURE DIFFERENTIAL,"H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET,°F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
Start	1:12	2	86	230	.60	.59	858.60	78	80			
		2	86	210	.60	.59	861.67	77	80			
	:27	2	86	220	.60	.59	864.69	76	79			
		2	86	240	.60	.59	867.66	76	79			
	:37	2	87	205	.60	.59	870.62	77	80			
		2	87	210	.60	.59	873.60	77	80			
	:42	2	87	195	.60	.59	876.58	77	81			
		2	87	205	.60	.59	879.56	77	81			
END	1:52						882.57					
			86.5	214.375	.60	.59			78.44			
							23.97					
AVG												

$V_{m\,STD} = 23.97(.998954)\left(\frac{520}{538.44}\right)\left(\frac{29.08 + \frac{.59}{13.6}}{29.92}\right) = \boxed{22.509}$

METHOD 4 RUN # 3

COMPANY: Destec Kernfront

UNIT: LOU #1 Generator

DATE: 2-19-93

REPORT: 027-343

TECH: SAH

PUMP #: GAST

METER BOX#: 1003 (.998454)

METER H@: 1.0258

PROBE #: Cp:

PRE / POST TEST LEAK CHECK

LEAK RATE: .005 / .003 cfm

VACUUM: 11 / 6 "Hg

AMBIENT TEMP, °F: 65°

Pbar: 29.08

STATIC PRESSURE ("Hg):

ASSUMED MOISTURE,%:

NOZZLE ID#:

AVG. CALIB. NOZZLE DIAM.("):

PROBE LINER MATERIAL:

FILTER #:

DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20	PRESSURE DIFFERENTIAL,"H2O RATE	PRESSURE DIFFERENTIAL,"H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET,°F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
Start	1:55	2	90	220	.60	.59	883.10	76	76			
		2	90	230	.60	.59	886.10	75	77			
	2:05	2	90	232	.60	.59	889.12	75	77			
		2	89	237	.60	.59	892.11	75	78			
	:15	2	89	216	.60	.59	895.09	75	78			
		2	89	212	.60	.59	898.07	76	78			
	:25	2	89	205	.60	.59	901.06	76	79			
		2	89	210	.60	.59	904.05	76	79			
END	2:35						907.03					
			89.575	224.0	.60	.59	23.93		76.625			
AVG												

$V_{m(std)} = 23.93 (.998454) \left(\frac{520}{536.625}\right) \left(\frac{29.08 + \frac{.59}{13.6}}{29.92}\right) = 22.548$

COMPANY : Destec Kern Front
UNIT : Turbine Unit #1 L.O.V.
DATE : 2·18·93
REPORT : 027-343

ON-SITE DATA

		RUN	#1	#2	#3
		TIME	15:54-16:34	16:42-17:22	17:28-18:08
Vm	Dry sampled gas volume, dcf		23.99	24.02	24.04
Y	Meter calibration factor (met# 1003, 1003, 1003)		.998954	.998954	.998954
Pbar	Barometric Pressure, "Hg		29.14	29.14	29.14
Pstatic	Stack static pressure, "Hg				
ΔH	Differential meter pressure, "H2O		.59	.59	.59
Tm	Meter temperature, °F		71.8	72.8	71.3

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	647.3	596.0	51.3	629.4	574.9	54.5	622.7	567.9	54.8
H_2O	576.3	573.3	3.0	570.8	568.1	2.7	610.7	608.4	2.3
KO	528.6	528.0	.6	486.7	486.3	.4	534.4	533.7	.7
Silica	797.2	791.6	5.6	776.9	771.9	5.0	802.4	795.6	6.8
(LW)			(40.8)			(45.0)			(45.9)
V lc volume of H2O, gms			19.7	H_2O - 143.2 MeCl - 42.6		17.6	H_2O - 138.7 MeCl - 42.8		18.7

H_2O - 136.1
MeCl - 45.0

		RUN	#1	#2	#3
CO2	% Dry Volume				
O2	% Dry Volume				
N2	% Dry Volume				
Cp	Pitot tube coefficient (Pit#)				
ΔP	Avg P, "H2O (FT/MIN)		47.8	42	45
Ts	Stack temperature, °F		86.6	85	83.6
As	Stack area, sq. ft.				
Ds	Stack diameter, inches				
Dn	Nozzle diameter, inches				
Dur	Sampling time, min		40	40	40
% Iso	Mini iso				

Filter #
Filter tare weights, gms

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 4 RUN # 1

COMPANY: Destec Kern Front
UNIT: Turbine #1 LOV
DATE: 2-18 93
REPORT: 027-343
TECH: DCP
PUMP #: GAST
METER BOX#: 1003
METER coeff: .998954 (ΔH: 1.026)
PILOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.006 / <.004 cfm
VACUUM: 12 / 5 "Hg

AMBIENT TEMP, °F: 60°
Pbar: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE, %:
AVG. CALIB. NOZZLE DIAM(''):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM (''):

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	15:54.0	2	85	43	.60	.59	685.400	69	70			
5	59	2	86	44	.60	.59	688.4	69	69			
10	16.04.0	2	86	46	.60	.58	691.3	69	73			
15	09	2	90	51	.60	.58	694.3	69	75			
20	14	2	85	49	.60	.59	697.3	70	76			
25	19	2	88	55	.60	.59	700.3	70	76			
30	24	2	86	43	.60	.59	703.3	71	76			
35	29	2	87	51	.60	.59	706.3	71	76			
40	16:34.0						709.390					
							Vm: 23.99					
			86.6	47.8	.60	.59			71.8			
AVERAGE												

METHOD 4 RUN #2

COMPANY: Dastec Kern Front
UNIT: Turbine #1 LOV
DATE: 2·18 93
REPORT: 027·343
TECH: DJT
PUMP #: GAST
METER BOX#: 1003
METER coeff: .998954 (ΔH·1.028)
PITOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.007 / <.004 cfm
VACUUM: 11 / 5 "Hg

AMBIENT TEMP, °F: 65°
Pbar: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE, %:
AVG. CALIB. NOZZLE DIAM("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	16:42.0	2	85	38	.60	.59	710.200	71	73			
5	47	2	86	43	.60	.59	713.2	70	75			
10	52	2	84	41	.60	.59	716.2	71	76			
15	57	2	85	44	.60	.58	719.2	71	75			
20	17:02.0	2	85	42	.60	.58	722.2	71	75			
25	07	2	86	41	.60	.58	725.2	70	75			
30	12	2	85	42	.60	.59	728.2	70	75			
35	17	2	85	45	.60	.59	731.2					
40	17:22.0						734.22					
							Vm: 24.02					
			85	42	.60	.59			72.8			
AVERAGE												

METHOD 4 RUN # 3

COMPANY: Destec Kern Front
UNIT: Turbine #1 LOV
DATE: 2·18·93
REPORT: 027-343
TECH: DCT
PUMP #: GAST
METER BOX#: 1003
METER coeff: .998954 (ΔH: 1.028)
PITOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.004 / <.002 cfm
VACUUM: 11 / 5 " Hg

AMBIENT TEMP, °F: 65°
Pbar: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE, %:
AVG. CALIB. NOZZLE DIAM("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	17:28.0	2	84	41	.60	.59	734.90	69	70			
5	33	2	85	48	.60	.59	737.9	69	73			
10	38	2	84	45	.60	.59	740.9	69	74			
15	43	2	84	47	.60	.58	743.9	69	74			
20	48	2	83	43	.60	.58	746.9	69	75			
25	53	2	82	46	.60	.59	749.9	69	74			
30	58	2	83	42	.60	.58	752.9	69	74			
35	18:03.0	2	84	48	.60	.59	755.9	69	75			
40	18:08.0	2					758.94					
							Vm: 24.04					
			83.6	45	.60	.59			71.3			
AVERAGE												

COMPANY : Destec Kern Front
UNIT : Generator #2 L.O.V.
DATE : 2.19.93
REPORT : 027-343

ON-SITE DATA

		RUN	#1	#2	#3
		TIME	9:59-10:39	10:42-11:22	11:25-12:05
Vm	Dry sampled gas volume, dcf		24.11	24.04	24.07
Y	Meter calibration factor (met# 1003, 1003, 1003)		.998954	.998954	.998954
Pbar	Barometric Pressure, "Hg		29.08	29.08	29.08
Pstatic	Stack static pressure, "Hg				
ΔH	Differential meter pressure, "H2O		.59	.59	.59
Tm	Meter temperature, °F		72.2	66.3	67.6

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	638.8	590.3	48.5	627.3	583.3	44.0	612.6	567.9	44.7
H_2O	566.2	566.8	<.6>	561.8	562.3	<.5>	603.6	603.2	.4
KO	528.1	528.1	.0	485.1	485.9	<.8>	533.6	533.8	<.2>
SG	800.5	796.7	3.8	780.5	776.9	3.6	765.2	758.4	4.8
<LW>			<48.3>			<44.5>			<44.6>
V lc volume of H2O, gms			3.4	H_2O - 148.4 MeCl - 44.7		1.8	H_2O - 126.9 MeCl - 42.2		51

MeCl - 44.4
H_2O - 128.6

		RUN	#1	#2	#3
CO2	% Dry Volume		0	0	0
O2	% Dry Volume		20.8	20.8	20.8
N2	% Dry Volume				
Cp	Pitot tube coefficient (Pit# ____, ____, ____)				
ΔP	Avg P, "H2O (FT|MIN) HOT WIRE ANEMOMETER		256.3	270.0	286.9
Ts	Stack temperature, °F		70.6	69.5	77.3
As	Stack area, sq. ft.				
Ds	Stack diameter, inches				
Dn	Nozzle diameter, inches				
Dur	Sampling time, min		40	40	40
% Iso	Mini iso				

Filter # ____ ____ ____
Filter tare weights, gms ____ ____ ____

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 4 RUN # 1

COMPANY: Destec Kern Front

UNIT: # 2 Generator 10V

DATE: 2-19-93

REPORT: 027-343

TECH: SAH

PUMP #: GAST

METER BOX#: 1003 (1.028)

METER H@: .998954

PROBE #: Cp:

PRE / POST TEST LEAK CHECK

LEAK RATE: .006 / .004 cfm

VACUUM: 11 / 6 "Hg

AMBIENT TEMP, °F: 65°

Pbar: 29.08

STATIC PRESSURE ("Hg):

ASSUMED MOISTURE,%:

NOZZLE ID#:

AVG. CALIB. NOZZLE DIAM.("):

PROBE LINER MATERIAL:

FILTER #:

DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20 (ft/min)	PRESSURE DIFFERENTIAL, "H20 RATE	PRESSURE DIFFERENTIAL, "H20 Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET, °F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
START	9:59	2	71	260	.60	.59	759.60	73	73			
	10:04	2	70	255	.60	.59	762.61	76	79			
	:09	2	70	250	.60	.59	765.63	76	77			
	:14	2	70	270	.60	.59	768.65	73	76			
	:19	2	71	265	.60	.59	771.66	71	73			
	:24	2	71	255	.60	.59	774.68	68	72			
	:29	2	71	240	.60	.59	777.70	66	69			
	:34	2	71	255	.60	.59	780.70	65	68			
END	10:39						783.71					
			70.625	256.25	.60	.59						
							Vol = 24.11		72.19			

$$V_{mSTD} = 24.11(.998954)\left(\frac{520}{532.19}\right)\left(\frac{29.08 \cdot \frac{.59}{13.6}}{29.92}\right) = \boxed{22.907}$$

AVG

METHOD 4 RUN # 2

COMPANY: Destec Kern Front

UNIT: LOV #2 Generator

DATE: 2-19-93

REPORT: 027-343

TECH: SAH

PUMP #: GAST

METER BOX#: 1003 (1.028)

METER H@: .998954

PROBE #: Cp:

PRE / POST TEST LEAK CHECK

LEAK RATE: .01 / .006 cfm

VACUUM: 11 / 6 "Hg

AMBIENT TEMP, °F: 60

Pbar: 29.08

STATIC PRESSURE ("Hg):

ASSUMED MOISTURE,%:

NOZZLE ID#:

AVG. CALIB. NOZZLE DIAM.("):

PROBE LINER MATERIAL:

FILTER #:

DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20	PRESSURE DIFFERENTIAL, "H2O RATE	PRESSURE DIFFERENTIAL, "H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET, °F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
START	10:17	2	69	260	.60	.59	784.15	65	67			
		2	69	295	.60	.59	787.14	65	67			
	:52	2	70	300	.60	.59	790.15	65	67			
		2	70	255	.60	.59	793.16	65	67			
	11:02	2	70	260	.60	.59	796.17	65	68			
		2	70	265	.60	.59	799.18	65	68			
	:12	2	69	255	.60	.59	802.17	65	68			
		2	69	270	.60	.59	805.18	65	68			
END	11:22						806.19					
			69.5	270.0	.60	.59	24.04		66.25			
AVG												

$V_{mstd} = 24.04 (.998954) \left(\frac{520}{526.25}\right) \left(\frac{29.08}{29.92}\right) \left(\frac{.59}{1.028}\right) = 23.098$

METHOD 4 RUN # 3

COMPANY: Dester Vern Front

UNIT: LOV #2 Generator

DATE: 2-19-93

REPORT: 027-343

TECH: SAH

PUMP #: GAST

METER BOX#: .003 (1.028)

METER H@: .998954

PROBE #: Cp:

PRE / POST TEST LEAK CHECK

LEAK RATE: .012 / .007 cfm

VACUUM: 11 / 6 "Hg

AMBIENT TEMP, °F: 65°

Pbar: 29.08

STATIC PRESSURE ("Hg):

ASSUMED MOISTURE,%:

NOZZLE ID#:

AVG. CALIB. NOZZLE DIAM.("):

PROBE LINER MATERIAL:

FILTER #:

DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (Δ Ps) "H20	PRESSURE DIFFERENTIAL,"H2O RATE	PRESSURE DIFFERENTIAL,"H2O Δ H	GAS SAMPLE VOLUME (cu.ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	GAS SAMPLE TEMP. AT DRY GAS METER OUTLET,°F	FILTER HOLDER TEMP, °F PROBE	FILTER HOLDER TEMP, °F BOX	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER
START	11:25	2	76	285	.60	.59	808.70	64	66			
		2	76	290	.60	.59	811.72	65	68			
	:35	2	77	305	.60	.59	814.70	65	71			
		2	77	275	.60	.59	817.68	65	71			
	:45	2	78	265	.60	.59	820.67	65	71			
		2	78	300	.60	.59	823.70	65	71			
	:55	2	78	290	.60	.59	826.72	65	72			
		2	78	285	.60	.59	829.75	65	72			
END	12:05						832.77					
			77.25	286.875	.60	.59			67.56			
							24.07					
AVG												

$$V_{mstd} = 24.07 \left(.998954\right)\left(\frac{520}{527.56}\right)\left(\frac{29.08 + \frac{.59}{13.6}}{29.92}\right) = \boxed{23.069}$$

COMPANY : Destec Kern Front
UNIT : Turbine Unit #2 L.O.V.
DATE : 2·18·93
REPORT : 027-343

ON-SITE DATA

		RUN	#1	#2	#3
		TIME	10:22-11:02	11:12-11:52	12:07-12:47
Vm	Dry sampled gas volume, dcf		24.03	24.04	24.0
Y	Meter calibration factor (met# 1003, 1003, 1003)		.998954	.998954	.998954
Pbar	Barometric Pressure, "Hg		29.14	29.14	29.14
Pstatic	Stack static pressure, "Hg		0	0	0
ΔH	Differential meter pressure, "H2O		.59	.59	.58
Tm	Meter temperature, °F		62.6	63.3	65.9

CONTENTS	RUN 1 FINAL	RUN 1 TARE	RUN 1 NET	RUN 2 FINAL	RUN 2 TARE	RUN 2 NET	RUN 3 FINAL	RUN 3 TARE	RUN 3 NET
H_2O	647.1	590.5	56.60	633.0	576.3	56.7	657.5	607.0	50.5
H_2O	569.8	569.2	.6	564.1	563.4	.7	570.0	568.7	1.3
KO	528.0	527.9	.1	486.4	486.4	.0	535.0	535.0	.0
SG	792.3	786.8	5.5	772.5	767.1	5.4	795.8	790.5	5.3
(LW)			(49.6)			(50.3)			(42.3)
V lc volume of H2O, gms	H_2O - 157.9 MeCl - 39.4		13.2	H_2O - 175.1 MeCl - 42.6		12.5	H_2O - 142.5 MeCl - 43.3		14.8

		RUN	#1	#2	#3
CO2	% Dry Volume		0	0	0
O2	% Dry Volume		20.9	20.9	20.9
N2	% Dry Volume				
Cp	Pitot tube coefficient (Pit#)		–	–	–
ΔP	Avg P, "H2O (FT/MIN)		57.1	54.3	58.1
Ts	Stack temperature, °F		75.4	72.4	77.4
As	Stack area, sq. ft.				
Ds	Stack diameter, inches		3.25	3.25	3.25
Dn	Nozzle diameter, inches		–	–	–
Dur	Sampling time, min		40	40	40
% Iso	Mini iso				

Filter # _____ _____ _____
Filter tare weights, gms _____ _____ _____

INITIALS
CONTROL BOX#:
Hi P_____ Lo P_____ Avg P_____ Duct Temp _____
Diameters before disturb_____ After_____
# of points, total _____
Overall (inches)_____ Coupling _____

METHOD 4 RUN # 1

COMPANY: Destec Kern Front
UNIT: Turbine #2 LOV
DATE: 2-18-93
REPORT: 027-343
TECH: DJP
PUMP #: CAST
METER BOX#: 1C03
METER coeff: .998954 (ΔH: 1.028)
PITOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.001 / <.001 cfm
VACUUM: 12 / 5 "Hg

AMBIENT TEMP, °F: 63°
Pbar: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE, %:
AVG. CALIB. NOZZLE DIAM("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	1022.0	2	75	52	.60	.58	608.500	61	62			
5	27	2	75	58	.60	.59	611.4	61	63			
10	32	2	74	56	.60	.59	614.4	60	65			
15	37	2	75	54	.60	.59	617.4	60	65			
20	42	2	76	58	.60	.59	620.4	60	65			
25	47	2	76	60	.60	.59	623.4	60	66			
30	52	2	76	57	.60	.59	626.5	61	66			
35	57	2	76	62	.60	.58	629.5	61	66			
40	1102.0						632.525					
							VM: 24.03					
			75.4	57.1	.60	.59			62.6			
AVERAGE												

METHOD 4 RUN # 2

COMPANY: Desler Kerr Frost
UNIT: Turbine #2 LOV
DATE: 2·18·93
REPORT: 027-543
TECH: DCT
PUMP #: GAST
METER BOX#: 1003
METER Coeff: .998954 (ΔH: 1.028)
PILOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.008 / .005 cfm
VACUUM: 12 / 5 "Hg

AMBIENT TEMP, °F: 63°
Pbar: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE,%:
AVG. CALIB. NOZZLE DIAM("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (θ) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	11:12.0	2	74	48	.60	.59	633.00	62	63			
5	17	2	75	51	.60	.59	636.0	62	64			
10	22	2	74	58	.60	.59	638.9	62	65			
15	27	2	72	60	.60	.59	641.9	62	64			
20	32	2	70	55	.60	.59	645.0	62	64			
25	37	2	70	51	.60	.59	648.0	62	64			
30	42	2	70	54	.60	.59	651.0	62	66			
35	47	2	74	57	.60	.59	654.0	62	66			
40	11:52.0						657.040					
							ΔM: 24.04					
AVERAGE			72.4	54.3	.60	.59			63.3			

METHOD 4 RUN # 3

COMPANY: Dester Kern Front
UNIT: Turbine #2. LOV
DATE: 2·18·93
REPORT: 027-343
TECH: DCP
PUMP #: GAST
METER BOX#: 1003
METER coeff: .998954 (ΔH: 1.028)
PITOT TUBE#:

PRE / POST TEST LEAK CHECK

LEAK RATE: <.009 / <.005 cfm
VACUUM: 15 / 5 "Hg

AMBIENT TEMP, °F: 63°
Pbm: 29.14
STATIC PRESSURE("Hg):
ASSUMED MOISTURE, %:
AVG. CALIB. NOZZLE DIAM("):
PROBE LINER MATERIAL:
FILTER #:
DUCT DIAM ("):

TRAVERSE PT. NUMBER	TIME (e) min.	VACUUM "Hg	STACK TEMP (Ts) °F	VELOCITY HEAD (ΔPs) "H2O (FT/MIN)	PRESSURE DIFFERENTIAL ΔH rate "H2O	ΔH	GAS SAMPLE VOLUME (cu. ft)	GAS SAMPLE TEMP. AT DRY GAS METER INLET, °F	OUTLET, °F	FILTER HOLDER TEMP °F Probe	Box	TEMP OF GAS EXIT CONDENSER OR LAST IMPINGER °F
0	12:07.0	2	74	49	.60	.59	660.500	64	66			
5	12	2	75	57	.60	.59	663.5	64	68			
10	17	2	76	61	.60	.58	666.5	64	68			
15	22	2	79	65	.60	.58	669.5	63	68			
20	27	2	80	59	.60	.58	672.5	64	68			
25	32	2	79	55	.60	.58	675.5	64	68			
30	37	2	79	58	.60	.58	678.5	64	69			
35	42	2	77	59	.60	.59	681.5	64	69			
40	12:47.0	2					684.500					
							Vm: 24.0					
			77.4	58.1	.60	.58			65.9			
AVERAGE												

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

LOCATION/UNIT: LOV #1 Generator

REPORT: 027-343

DATE TESTED: 2/19/93

ANALYST: DGS

SAMPLE # 1 aliquot - 221 ml

TIN # 39			
# 1	# 2	# 3	AVERAGE
final (g) 1.66221	final (g) 1.66220	final (g)	1.66221
tare (g) 1.59690	tare (g)	tare (g)	1.59690
NET (g)	NET (g)	NET (g)	0.06531

SAMPLE # 2 aliquot - 224 ml

TIN # 35			
# 1	# 2	# 3	AVERAGE
final (g) 1.63793	final (g) 1.63797	final (g)	1.63795
tare (g) 1.58605	tare (g)	tare (g)	1.58605
NET (g)	NET (g)	NET (g)	0.05190

SAMPLE # 3 aliquot - 222 ml

TIN # 40			
# 1	# 2	# 3	AVERAGE
final (g) 1.63557	final (g) 1.63468 ✓	final (g) 1.63464 ✓	1.63466
tare (g) 1.58459	tare (g)	tare (g)	1.58459
NET (g)	NET (g)	NET (g)	0.05007

SAMPLE # aliquot -

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

REPORT: 027-343

LOCATION/UNIT: LOV #1 Turbine

DATE TESTED: 2/18/93

ANALYST: DGS

SAMPLE # 1 aliquot - 226 ml

TIN # 43			
# 1	# 2	# 3	AVERAGE
final (g) 1.66694	final (g) 1.64761	final (g) 1.64760	1.64761
tare (g) 1.58551	tare (g)	tare (g)	1.58551
NET (g)	NET (g)	NET (g)	0.06210

SAMPLE # 2 aliquot - 223 ml

TIN # 46			
# 1	# 2	# 3	AVERAGE
final (g) 1.65142	final (g) 1.65151	final (g) 1.65148	1.65150
tare (g) 1.60681	tare (g)	tare (g)	1.60681
NET (g)	NET (g)	NET (g)	0.04469

SAMPLE # 3 aliquot - 222 ml

TIN # 38			
# 1	# 2	# 3	AVERAGE
final (g) 1.62888	final (g) 1.62056	final (g) 1.62053	1.62055
tare (g) 1.58160	tare (g)	tare (g)	1.58160
NET (g)	NET (g)	NET (g)	0.03895

SAMPLE # aliquot -

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

LOCATION/UNIT: LOV #2 Generator

REPORT: 027-343

DATE TESTED: 2/19/93

ANALYST: DGS

SAMPLE # 1 aliquot - 214 ml

TIN # 32			
# 1	# 2	# 3	AVERAGE
final (g) 1.63908	final (g) 1.63905	final (g)	1.63907
tare (g) 1.58947	tare (g)	tare (g)	1.58947
NET (g)	NET (g)	NET (g)	0.04960

SAMPLE # 2 aliquot - 214 ml

TIN # 36			
# 1	# 2	# 3	AVERAGE
final (g) 1.63219	final (g) 1.63223	final (g)	1.63221
tare (g) 1.58492	tare (g)	tare (g)	1.58492
NET (g)	NET (g)	NET (g)	0.04729

SAMPLE # 3 aliquot - 218 ml

TIN # 37			
# 1	# 2	# 3	AVERAGE
final (g) 1.63198	final (g) 1.63195	final (g)	1.63197
tare (g) 1.58972	tare (g)	tare (g)	1.58972
NET (g)	NET (g)	NET (g)	0.04225

SAMPLE # aliquot -

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

REPORT: 027-343

LOCATION/UNIT: LOV #2 Turbine

DATE TESTED: 2/18/93

ANALYST: DGS

SAMPLE # 1 aliquot - 216 ml

TIN # 31			
# 1	# 2	# 3	AVERAGE
final (g) 1.62843	final (g) 1.62838	final (g)	1.62841
tare (g) 1.59107	tare (g)	tare (g)	1.59107
NET (g)	NET (g)	NET (g)	0.03734

SAMPLE # 2 aliquot - 220 ml

TIN # 30			
# 1	# 2	# 3	AVERAGE
final (g) 1.62716	final (g) 1.62714	final (g)	1.62715
tare (g) 1.59246	tare (g)	tare (g)	1.59246
NET (g)	NET (g)	NET (g)	0.03469

SAMPLE # 3 aliquot - 214 ml

TIN # 33			
# 1	# 2	# 3	AVERAGE
final (g) 1.61820	final (g) 1.61819	final (g)	1.61820
tare (g) 1.57136	tare (g)	tare (g)	1.57136
NET (g)	NET (g)	NET (g)	0.04684

SAMPLE # aliquot -

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93308
(805) 327-7300
FAX (805) 327-3459

COMPANY	: DESTEC OPERATING	DATE RECEIVED :	2-26-93
DATE	: 2-25-93	DATE ANALYZED :	2-26-93
REPORT	: 027-343	DATE REPORTED:	3-9-93

EPA METHOD 18
HYDROCARBON ANALYSIS REPORT

UNIT : KERN FRONT TURBINES 1 & 2

INITIAL HC SAMPLE BLANK

CONSTITUENT	ppm(v/v)
METHANE	ND
ETHANE	ND
PROPANE	ND
BUTANE	ND
PENTANE	ND
HEXANES+	ND
TOTAL	ND
NON-METHANE	ND

UNIT : KERN FRONT TURBINES 1 & 2

MIDTEST HC SAMPLE BLANK

CONSTITUENT	ppm(v/v)
METHANE	ND
ETHANE	ND
PROPANE	ND
BUTANE	ND
PENTANE	ND
HEXANES+	0.10
TOTAL	0.10
NON-METHANE	0.10

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93308
(805) 327-7300
FAX (805) 327-3459

COMPANY	: DESTEC OPERATING	DATE RECEIVED :	2-26-93
DATE	: 2-25-93	DATE ANALYZED :	2-26-93
REPORT	: 027-343	DATE REPORTED:	3-9-93

EPA METHOD 18
HYDROCARBON ANALYSIS REPORT

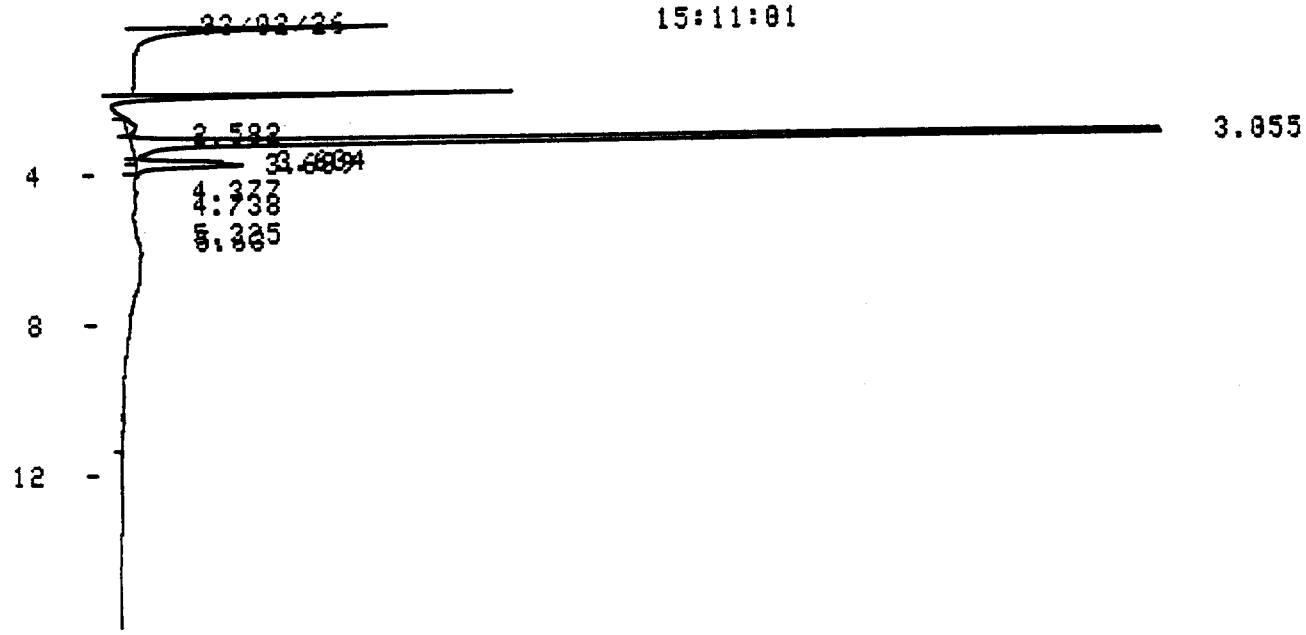
UNIT : KERN FRONT TURBINE # 1

CONSTITUENT	RUN # 1 ppm(v/v)	RUN # 2 ppm(v/v)	RUN # 3 ppm(v/v)
METHANE	66.30	59.58	56.14
ETHANE	2.44	2.13	2.04
PROPANE	ND	ND	ND
BUTANE	ND	ND	ND
PENTANE	ND	ND	ND
HEXANES+	0.07	0.17	0.14
TOTAL	68.82	61.88	58.32
NON-METHANE	2.52	2.30	2.18

UNIT : KERN FRONT TURBINE # 2

CONSTITUENT	RUN # 1 ppm(v/v)	RUN # 2 ppm(v/v)	RUN # 3 ppm(v/v)
METHANE	79.66	57.38	59.73
ETHANE	3.01	2.15	2.20
PROPANE	0.15	0.09	0.06
BUTANE	ND	ND	ND
PENTANE	ND	ND	ND
HEXANES+	0.06	0.02	0.03
TOTAL	82.88	59.64	62.01
NON-METHANE	3.22	2.26	2.28

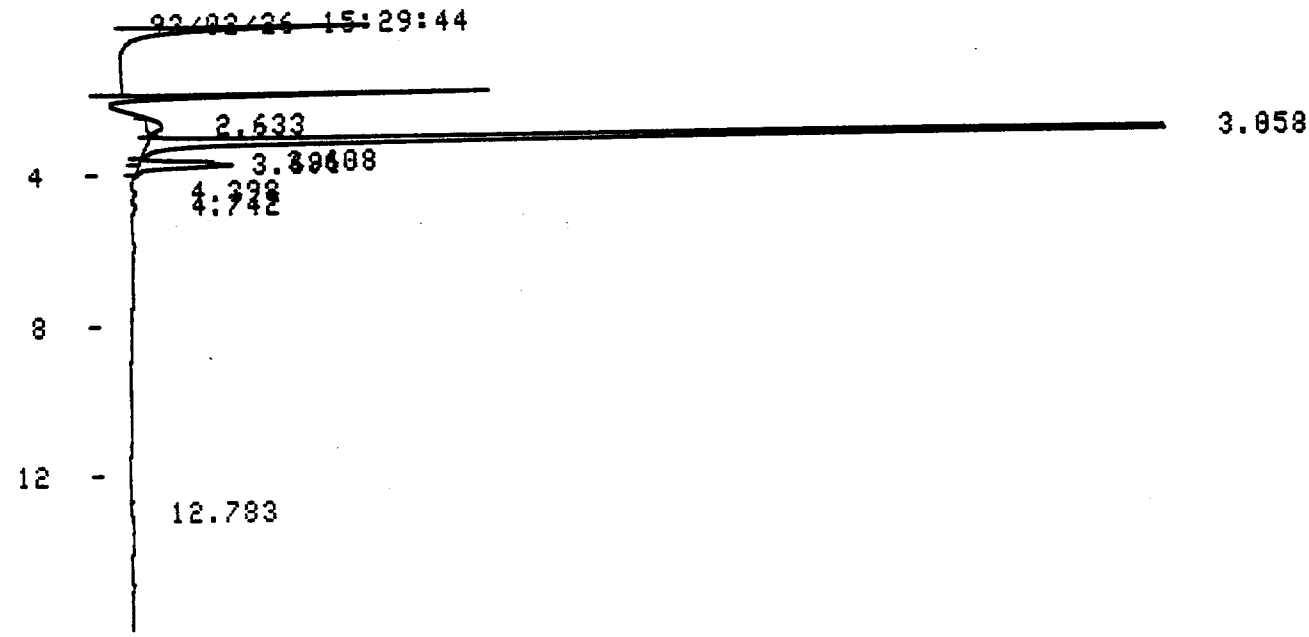
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 1



CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.582	816		6		C-6+
2	3.055	115203		1		C-1
3	3.604	3064		2		C-2) 8609
4	3.689	5545	V	2		C-2)
	TOTAL	124627			0	

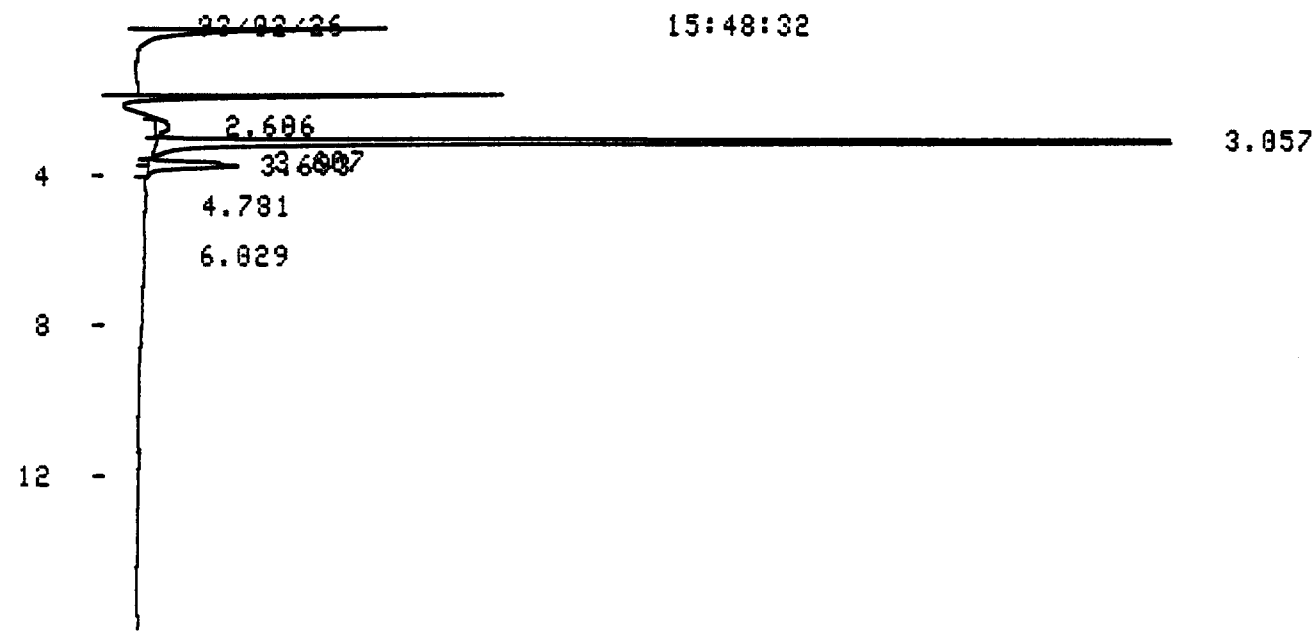
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 2



CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.633	1863		6		C-6+
2	3.058	103528		1		C-1
3	3.608	2825		2		C-2) 7522
4	3.691	4697	V	2		C 2
	TOTAL	112914			0	

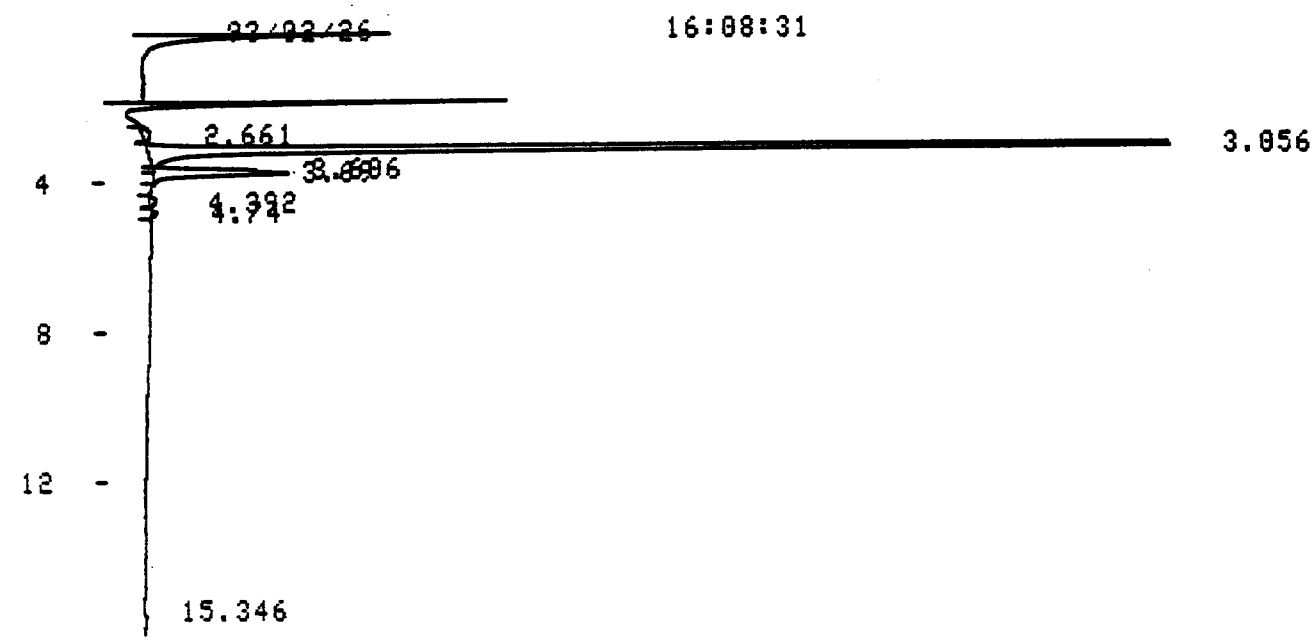
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 3



CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.606	1540		6		C-6+
2	3.057	97550		1		C-1
3	3.607	2713		2		C-2) 7200
4	3.693	4487	V	2		c2)
	TOTAL	106290			0	

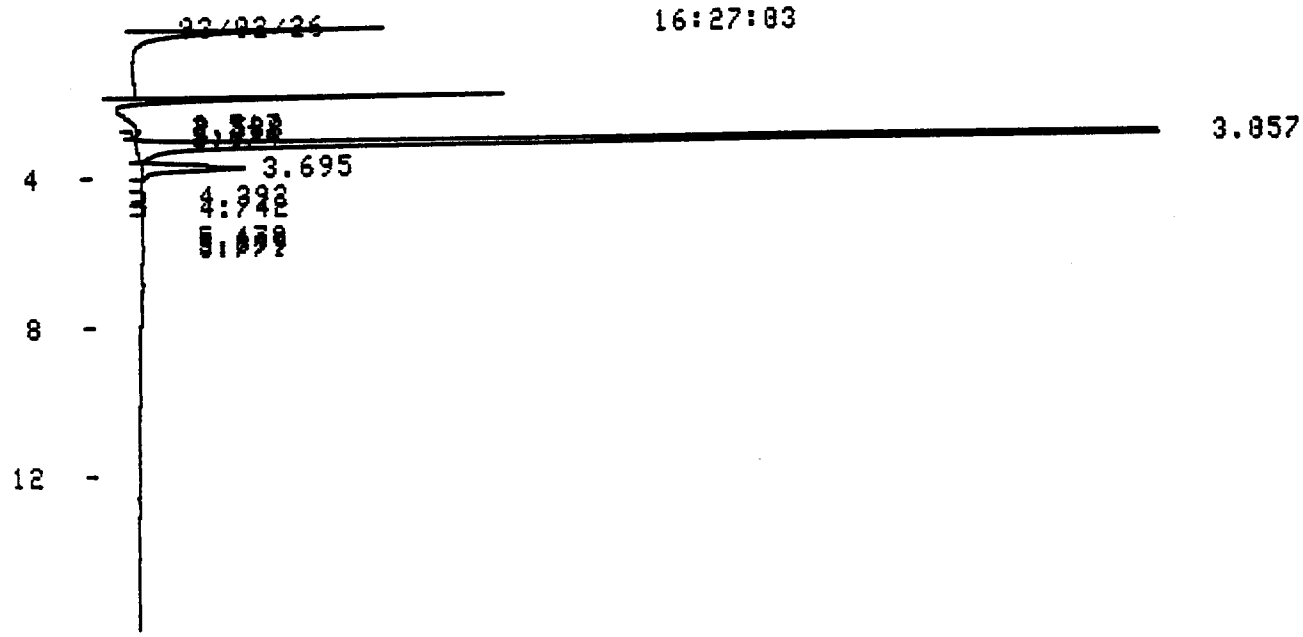
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 2 HC SAMPLE # 1



CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.661	722		6		C-6+
2	3.056	138419		1		C-1
3	3.606	3975		2		C-2) 10599
4	3.69	6624	V	2		C2
5	4.392	443		8		C-3) 748
6	4.74	305		3		C-3
	TOTAL	150487			0	

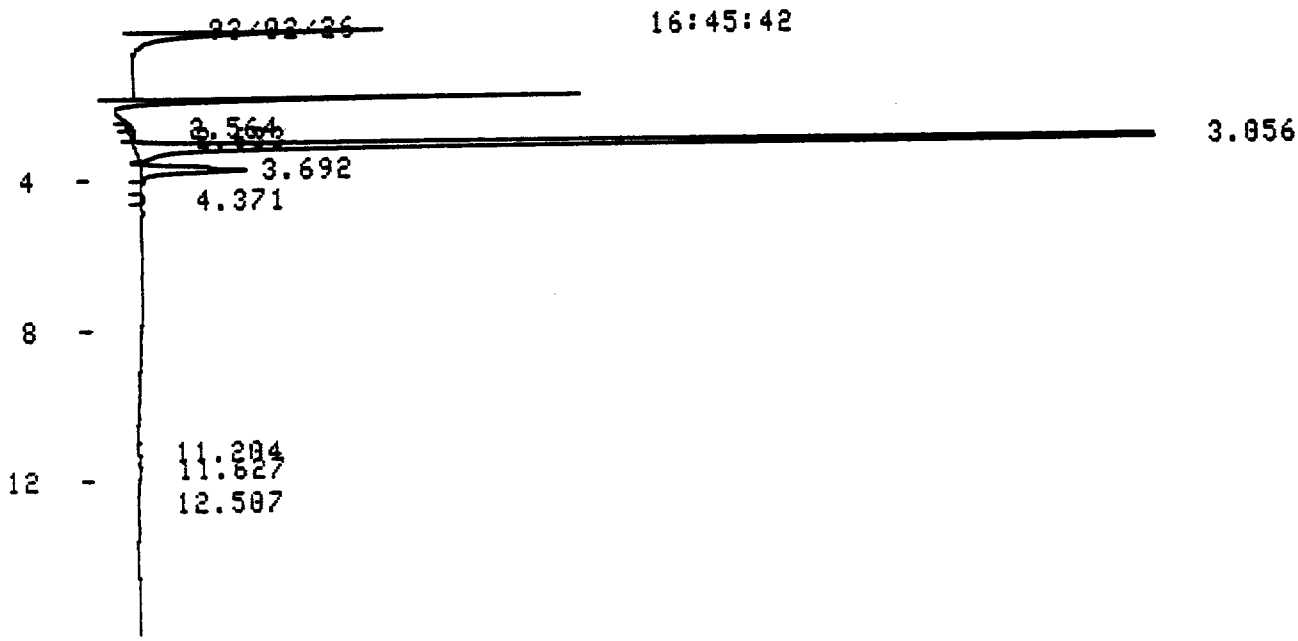
DESTEC KERN FRONT
2-25-93 REPORT # 027-343
TURBINE # 2 HC SAMPLE # 2



CHROMATOGRAM 12 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.674	266	V	6		C-6+
2	3.857	99696		1		C-1
3	3.695	7587		2		C 2
4	4.392	232		8		C-3) 450
5	4.742	218		3		C-3
	TOTAL	107999			0	

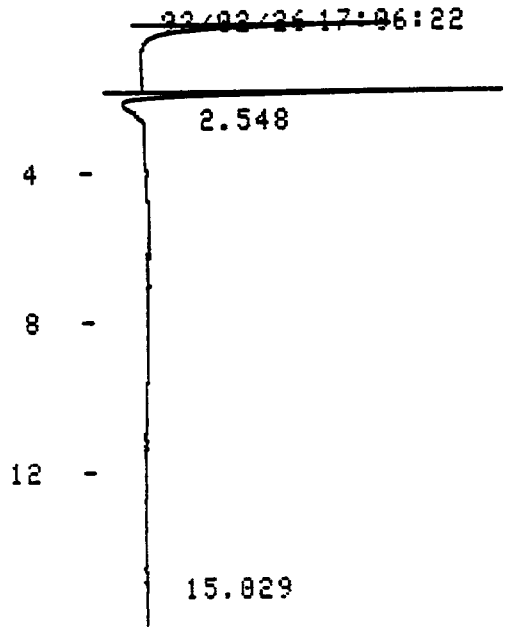
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 2 HC SAMPLE # 3



CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.564	237				
2	2.633	305	V	6		C-6+
3	3.056	103779		1		C-1
4	3.692	7743		2		C2
5	4.371	297		8		C-3
	TOTAL	112361			0	

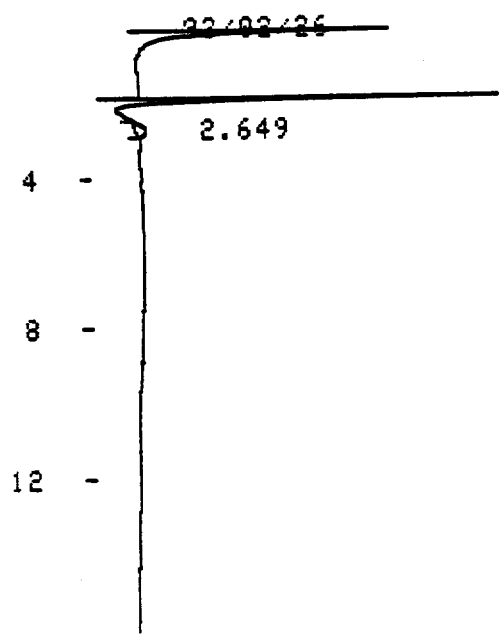
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
HC SAMPLE BLANK



CHROMATOGRAM 14 MEMORIZED
WARNING NO PEAK

DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
MIDTEST BLANK

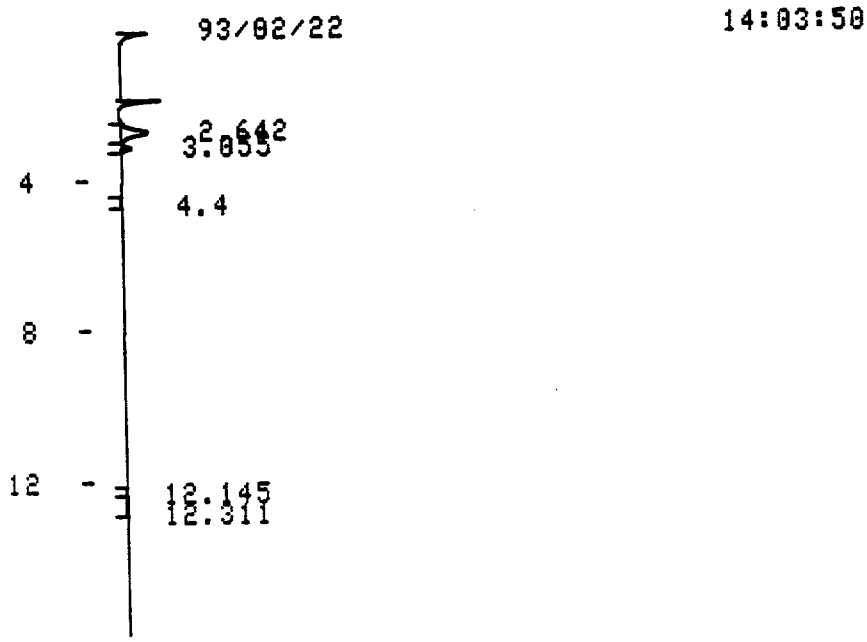
18:46:07



CHROMATOGRAM 19 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.649	1105		6		C-6+
	TOTAL	1105			0	

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 1

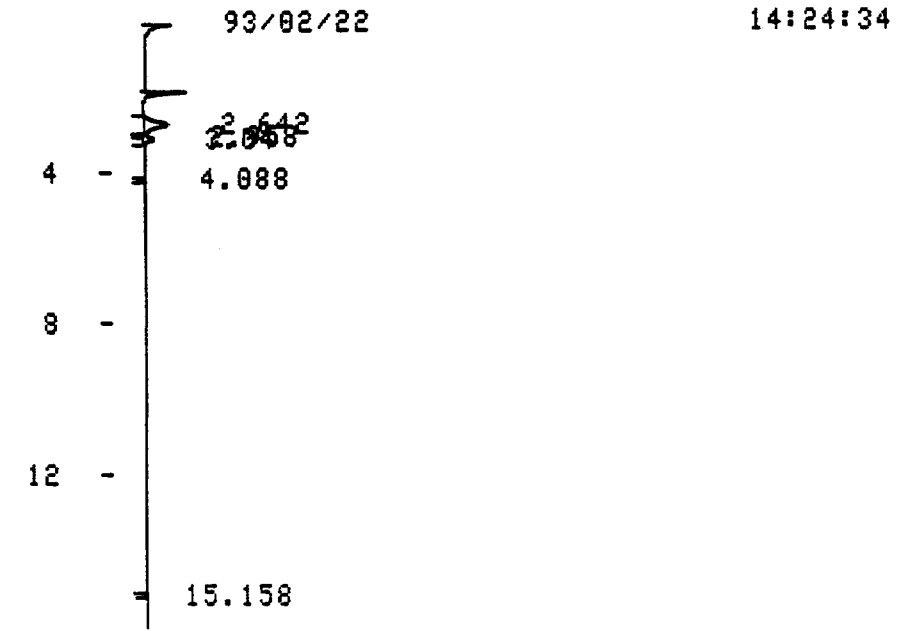


CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2294		6	2.1669	C-6+
2	3.055	441		1	2.5884	C-1
3	4.4	215		8	0.3981	C-3
4	12.145	163		16	0.188	C-5
5	12.311	315		16	0.3632	C-5
	TOTAL	3428			5.7047	

GROUP(NAME)	CONC
C-1	2.5884
C-2	0
C-3	0.3981
C-4	0
C-5	0.5513
C-6+	2.1669

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 2

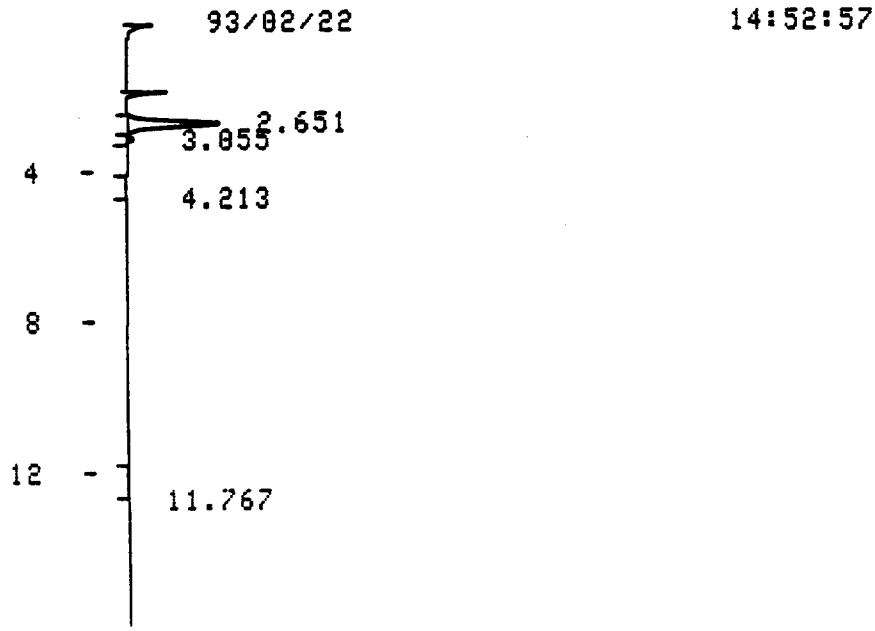


CHROMATOGRAM 14 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2039		6	1.9265	C-6+
2	2.958	183	V	1	1.075	C-1
3	3.04	420	V	1	2.465	C-1
4	4.088	51				
5	15.158	54		15	0.0617	C-5
	TOTAL	2747			5.5281	

GROUP(NAME)	CONC
C-1	3.54
C-2	0
C-3	0
C-4	0
C-5	0.0617
C-6+	1.9265

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 3

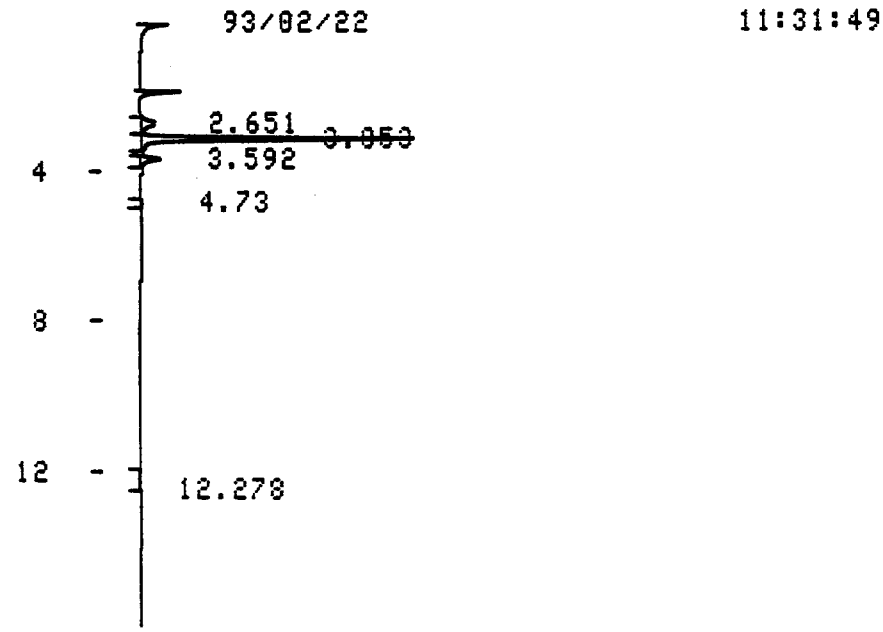


CHROMATOGRAM 15 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.651	7376		6	6.9674	C-6+
2	3.055	298		1	1.7493	C-1
3	4.213	230		8	0.4265	C-3
4	11.767	310		17	0.3571	C-5
	TOTAL	8214			9.5003	

GROUP(NAME)	CONC
C-1	1.7493
C-2	0
C-3	0.4265
C-4	0
C-5	0.3571
C-6+	6.9674

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 1 TURBINE
HC SAMPLE # 1



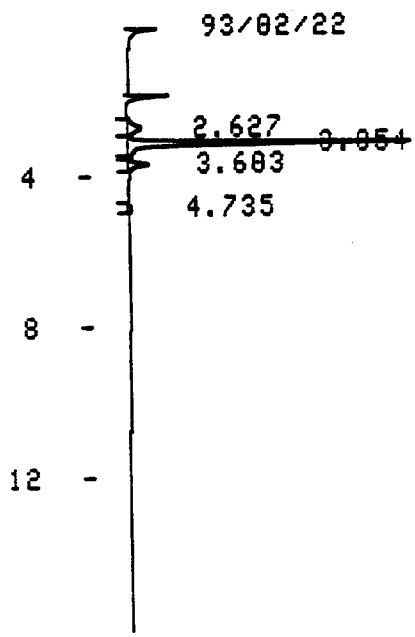
CHROMATOGRAM 6 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.651	1149		6	1.0854	C-6+
2	3.053	11534		1	67.7079	C-1
3	3.592	934		2	2.603	C-2
4	4.73	169		3	0.3134	C-3
5	12.278	183		16	0.2111	C-5
	TOTAL	13970			71.9208	

GROUP(NAME)	CONC
C-1	67.7079
C-2	2.603
C-3	0.3134
C-4	0
C-5	0.2111
C-6+	1.0854

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 1 TURBINE
HC SAMPLE # 2

93/02/22 11:52:37



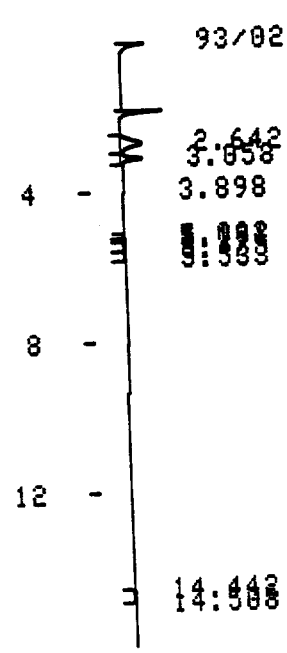
CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.627	1045		6	0.9872	C-6+
2	3.054	11992	V	1	70.3967	C-1
3	3.603	945		2	2.6324	C-2
4	4.735	207		3	0.3834	C-3
	TOTAL	14189			74.3997	

GROUP(NAME)	CONC
C-1	70.3967
C-2	2.6324
C-3	0.3834
C-4	0
C-5	0
C-6+	0.9872

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 1

93/02/22 15:17:32

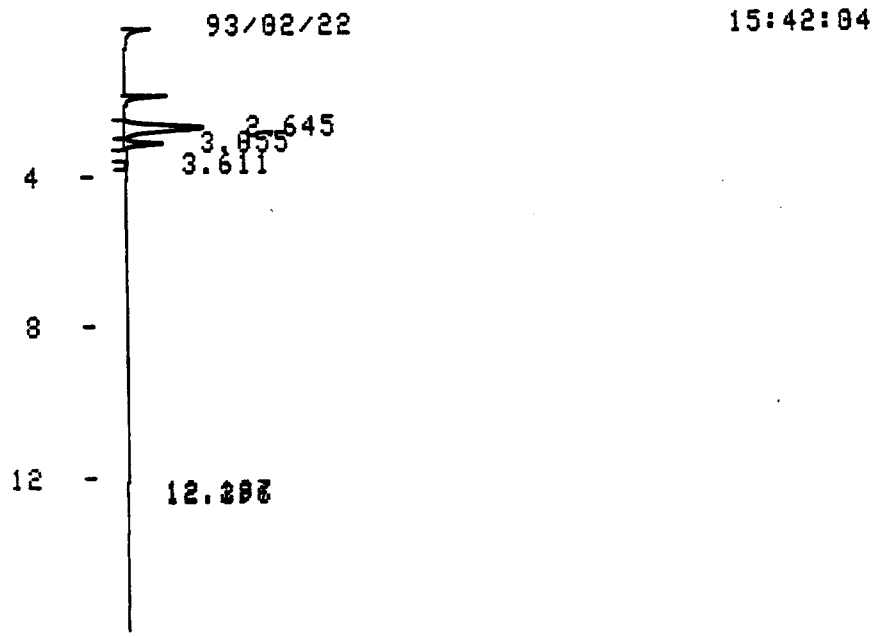


CHROMATOGRAM 16 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	1699		6	1.6044	C-6+
2	3.058	949		1	5.5684	C-1
3	5.082	60				
4	5.475	111	V			
5	5.533	110				
6	14.508	145	V			
	TOTAL	3074			7.1728	

GROUP(NAME)	CONC
C-1	5.5684
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	1.6044

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 2

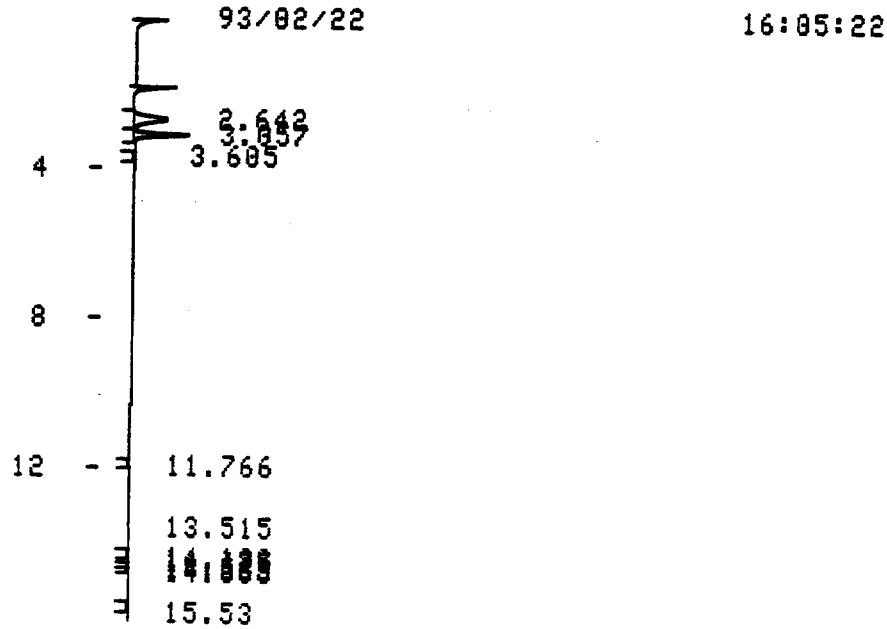


CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.645	6369		6	6.0158	C-6+
2	3.055	1664		1	9.767	C-1
3	3.611	122		2	0.3399	C-2
	TOTAL	8155			16.1228	

GROUP(NAME)	CONC
C-1	9.767
C-2	0.3399
C-3	0
C-4	0
C-5	0
C-6+	6.0158

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 3

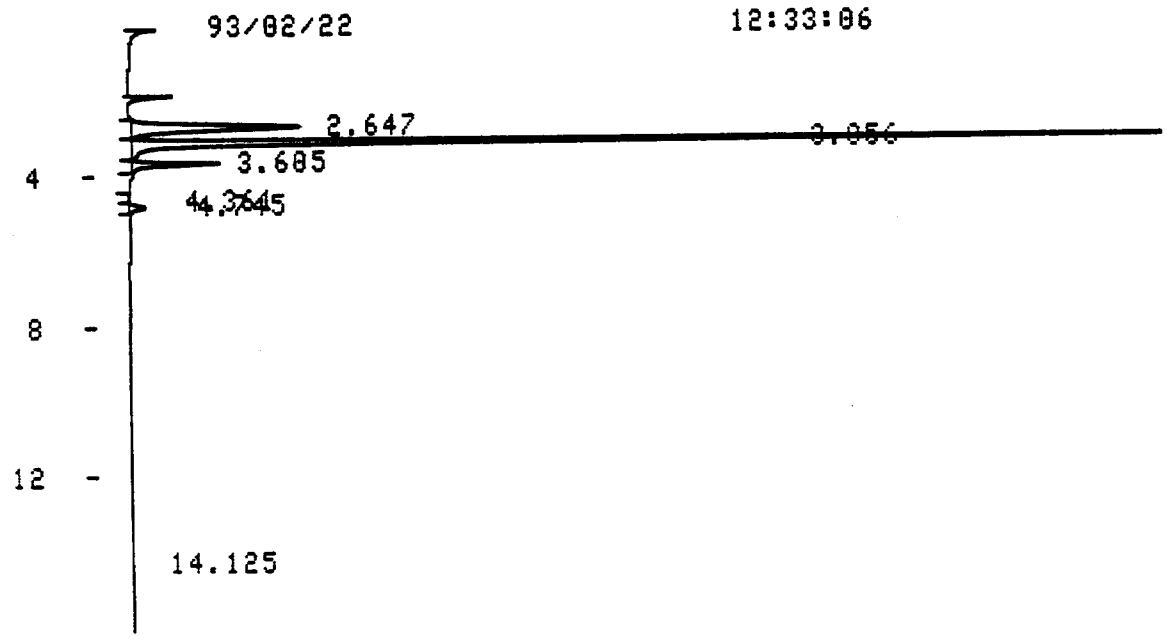


CHROMATOGRAM 18 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2795		6	2.6399	C-6+
2	3.057	2409		1	14.1423	C-1
3	3.605	215		2	0.5988	C-2
4	11.766	127		17	0.1463	C-5
5	14.198	161				
6	14.533	71				
7	14.655	62	V			
8	15.53	115		15	0.1326	C-5
	TOTAL	5955			17.6598	

GROUP(NAME)	CONC
C-1	14.1423
C-2	0.5988
C-3	0
C-4	0
C-5	0.2788
C-6+	2.6399

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 1

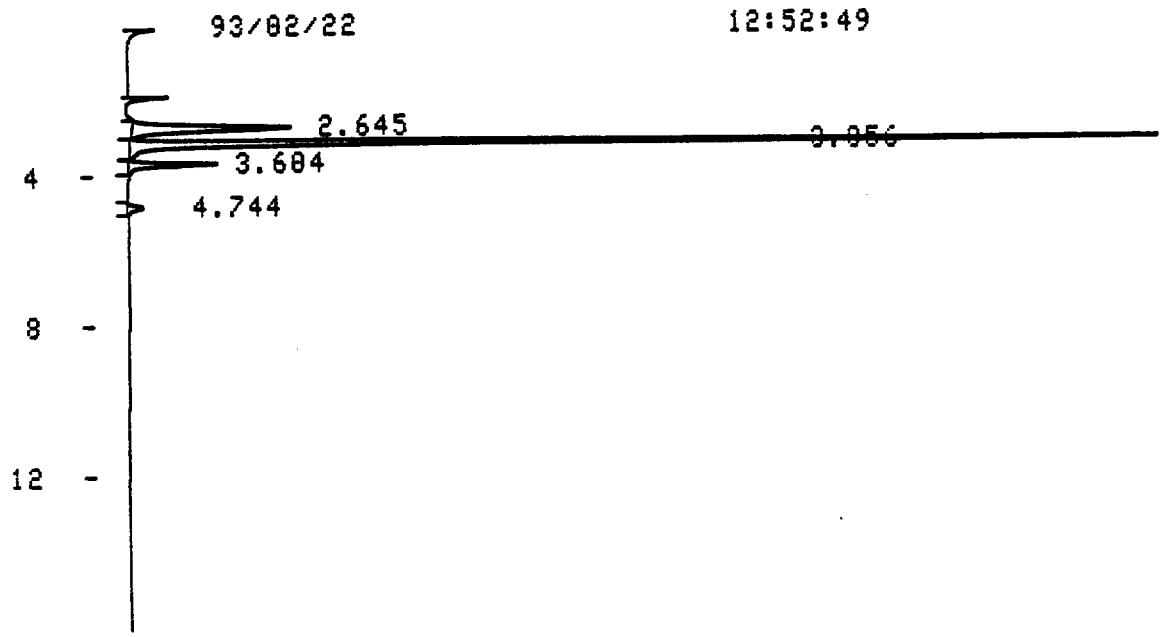


CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.647	13262		6	12.527	C-6+
2	3.056	52364		1	307.3803	C-1
3	3.685	4118		2	11.4735	C-2
4	4.361	56		8	0.1032	C-3
5	4.745	977		3	1.8123	C-3
	TOTAL	70776			333.2962	

GROUP(NAME)	CONC
C-1	307.3803
C-2	11.4735
C-3	1.9155
C-4	0
C-5	0
C-6+	12.527

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 2

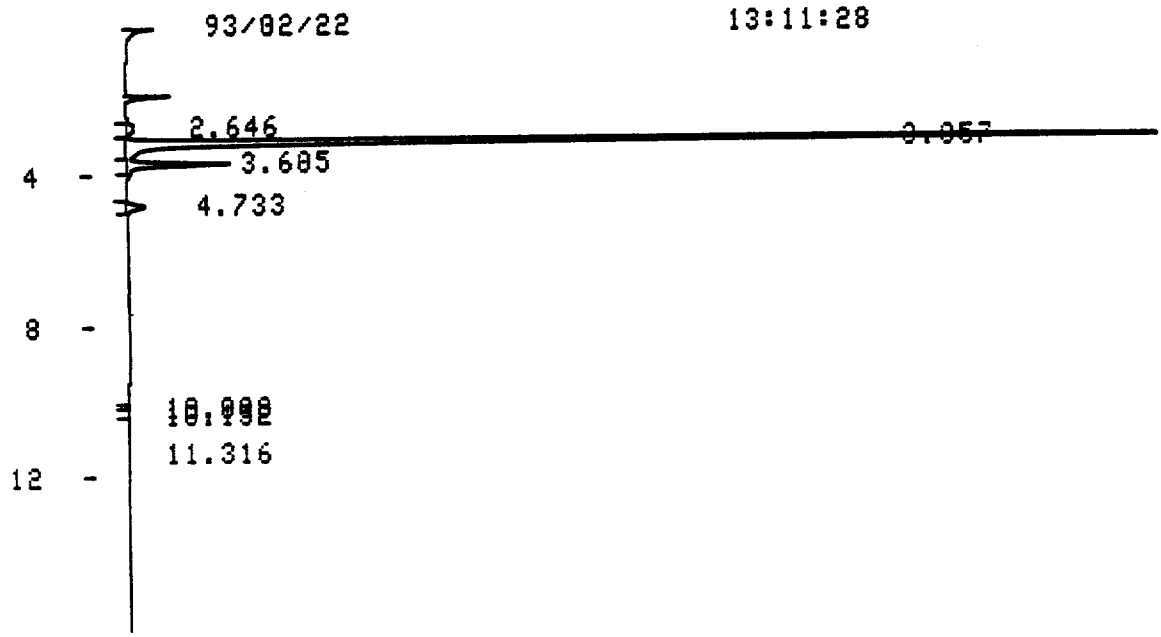


CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.645	12826		6	12.1153	C-6+
2	3.056	52228		1	306.5854	C-1
3	3.684	4091		2	11.4002	C-2
4	4.744	943		3	1.75	C-3
	TOTAL	70089			331.8509	

GROUP(NAME)	CONC
C-1	306.5854
C-2	11.4002
C-3	1.75
C-4	0
C-5	0
C-6+	12.1153

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 3



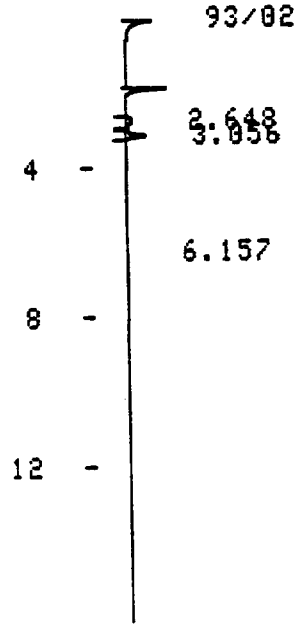
CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.646	555		6	0.5243	C-6+
2	3.057	59407		1	348.7268	C-1
3	3.605	4835	V	2	13.4726	C-2
4	4.733	1168		3	2.167	C-3
5	10.008	66		11	0.0764	C-5
6	10.152	142		11	0.1631	C-5
	TOTAL	66173			365.1301	

GROUP(NAME)	CONC
C-1	348.7268
C-2	13.4726
C-3	2.167
C-4	0
C-5	0.2396
C-6+	0.5243

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 & # 2
HC SAMPLE BLANK

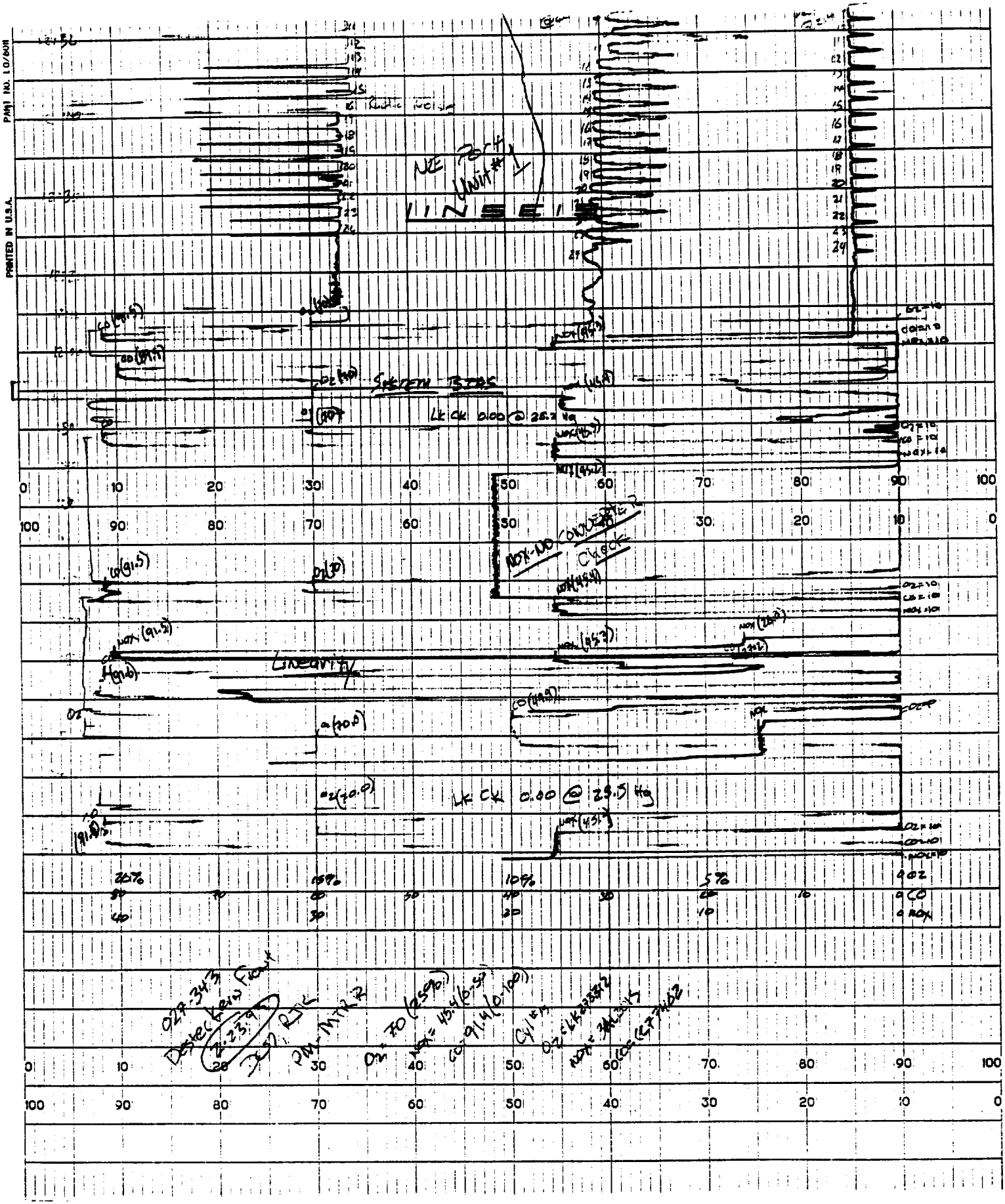
93/02/22 13:39:35

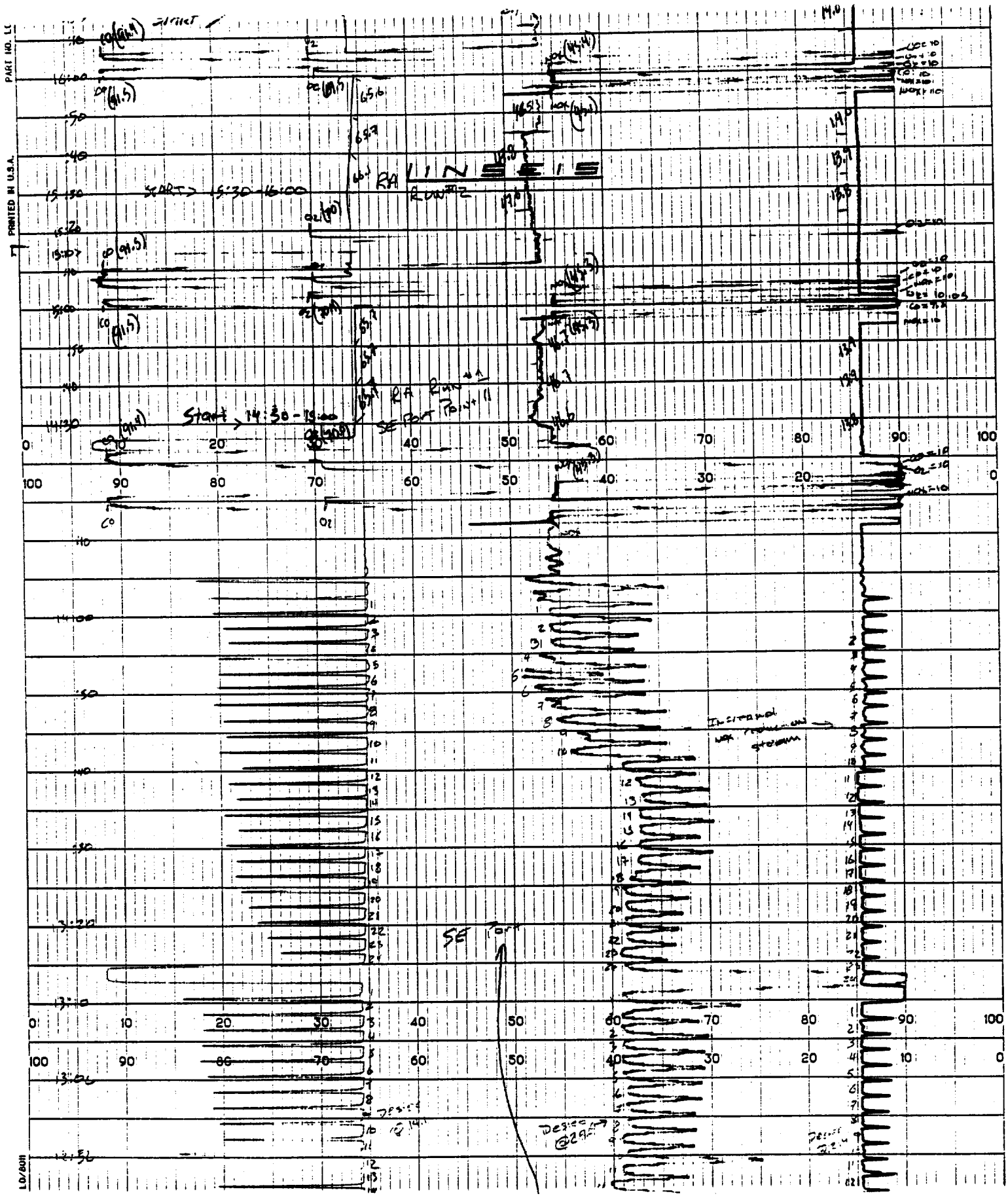


CHROMATOGRAM 12 MEMORIZED

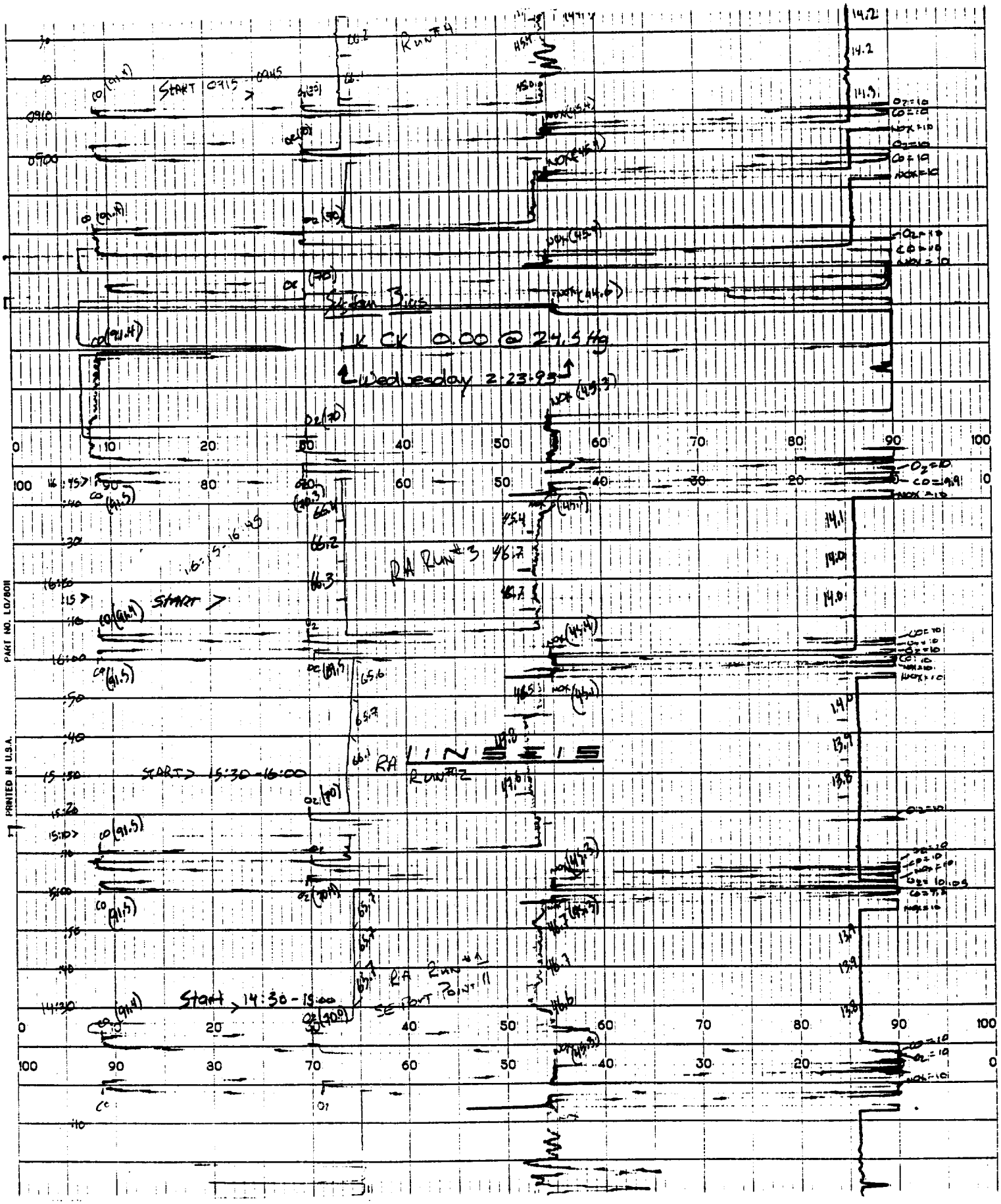
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.648	361		6	0.3413	C-6+
2	3.056	934		1	5.4844	C-1
	TOTAL	1296			5.8257	

GROUP(NAME)	CONC
C-1	5.4844
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	0.3413

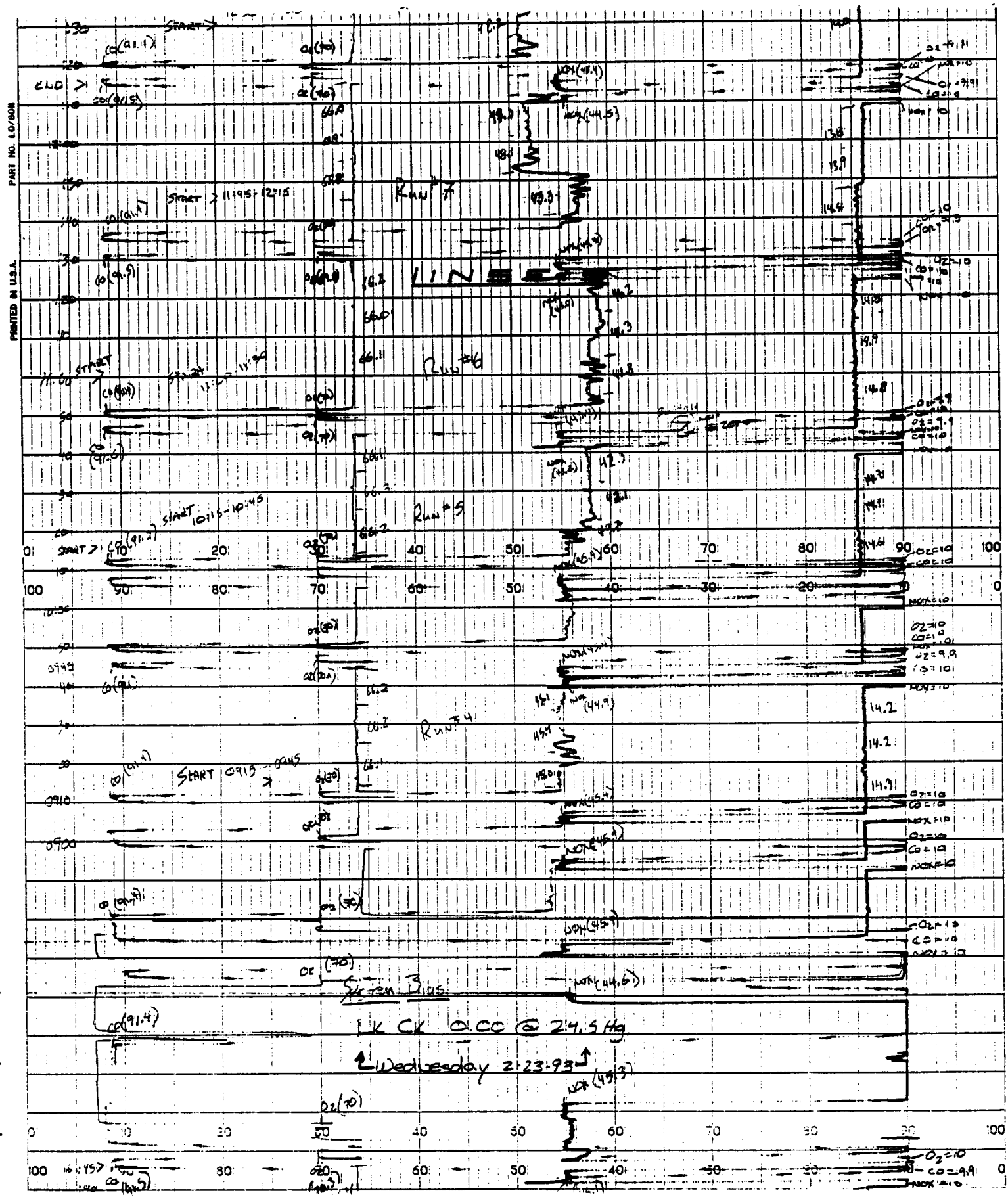

PRINTED IN U.S.A.
NE Port Unit #1
LINSEI
System Bias
Lk Ck 0.00 @ 25.2 Hg
NOX-NO Converter Check
Linearity
Lk Ck 0.00 @ 25.5 Hg
O2
CO
NOX
PM-MTR R

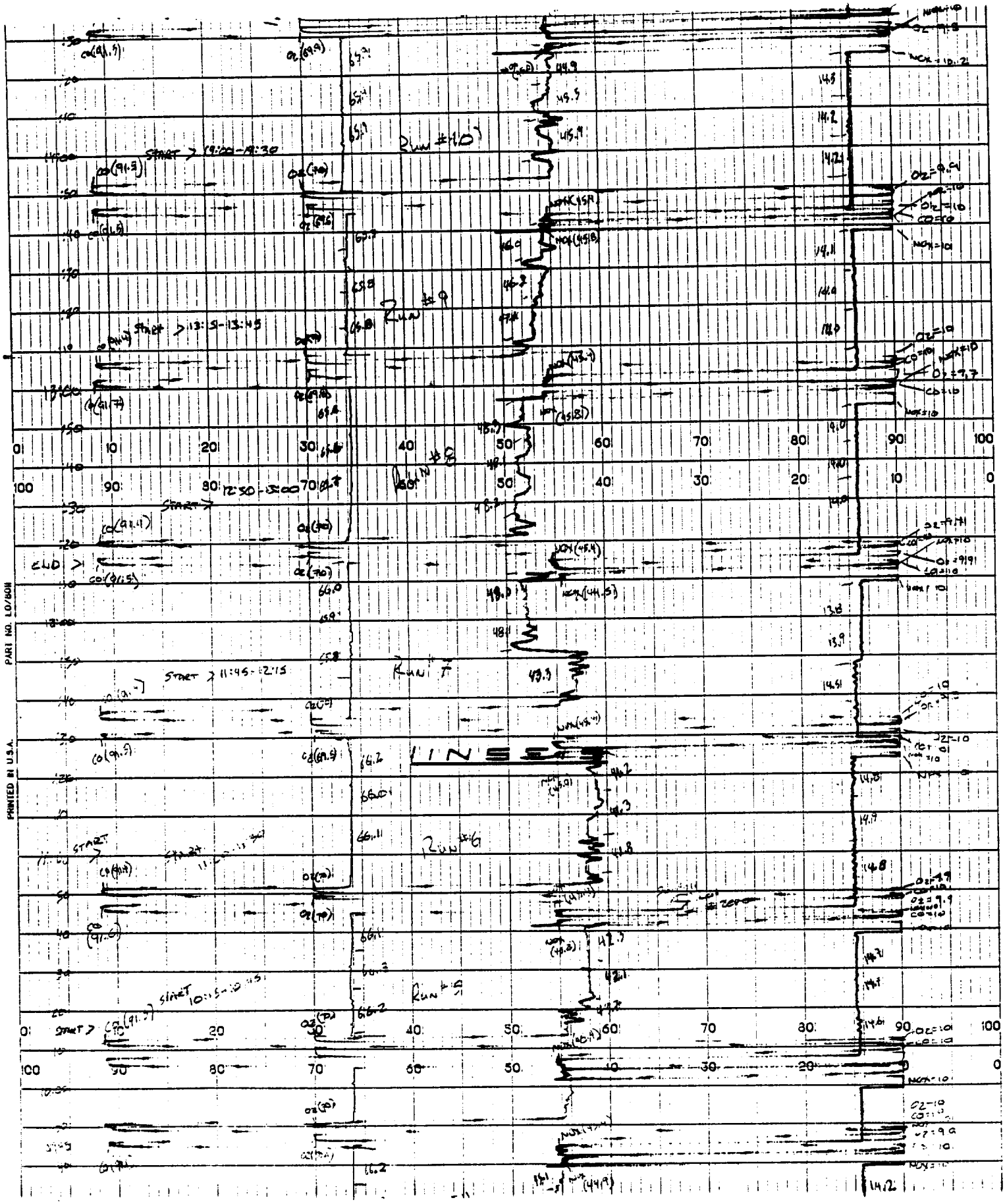


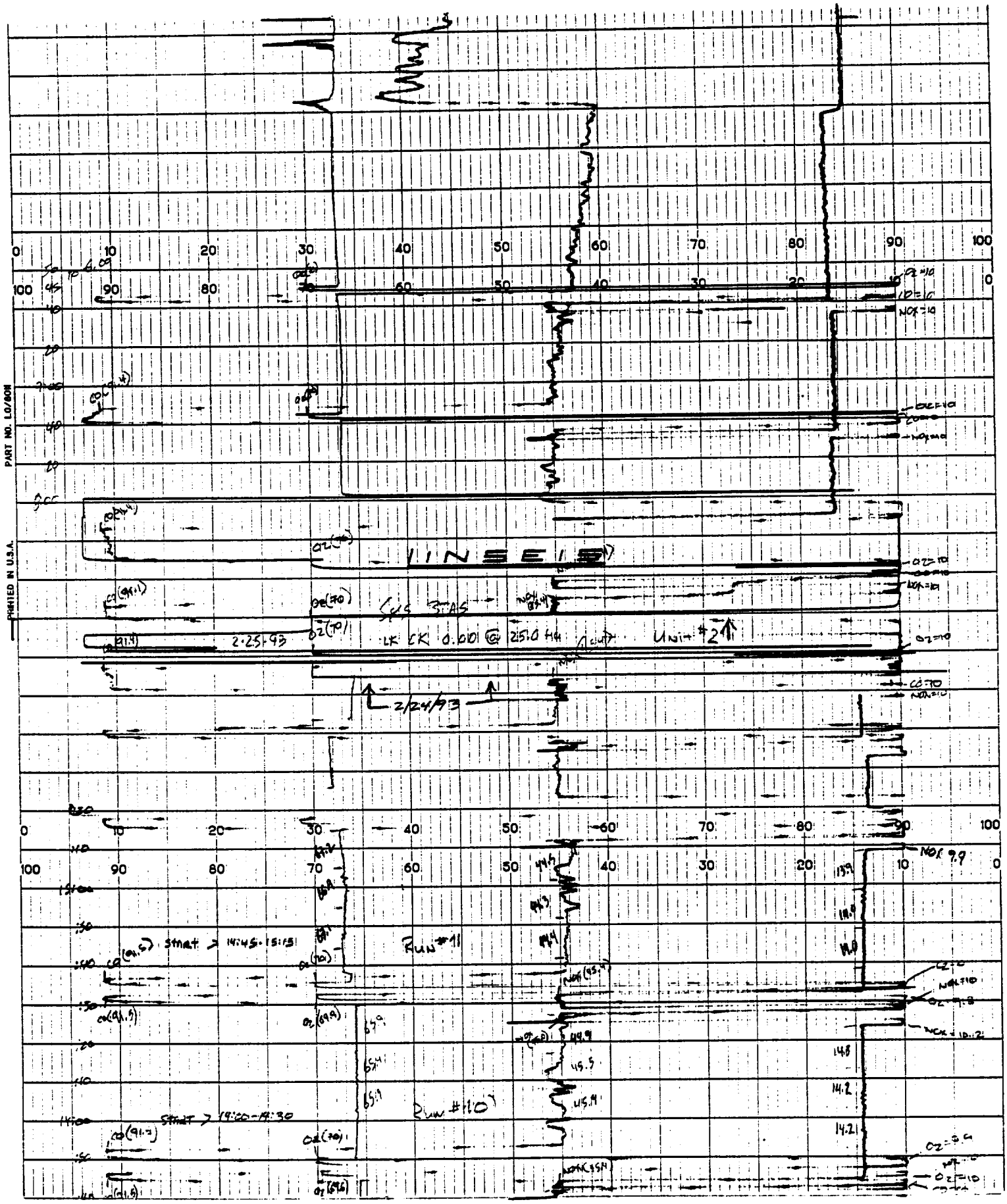
PART NO. LC
PRINTED IN U.S.A.
LD/8011
START
START > 15:30-16:00
RA LINSEIS
RUN #2
Start > 14:30-15:00
RA Run #1
SE Port Point 11
SE Port
Increased



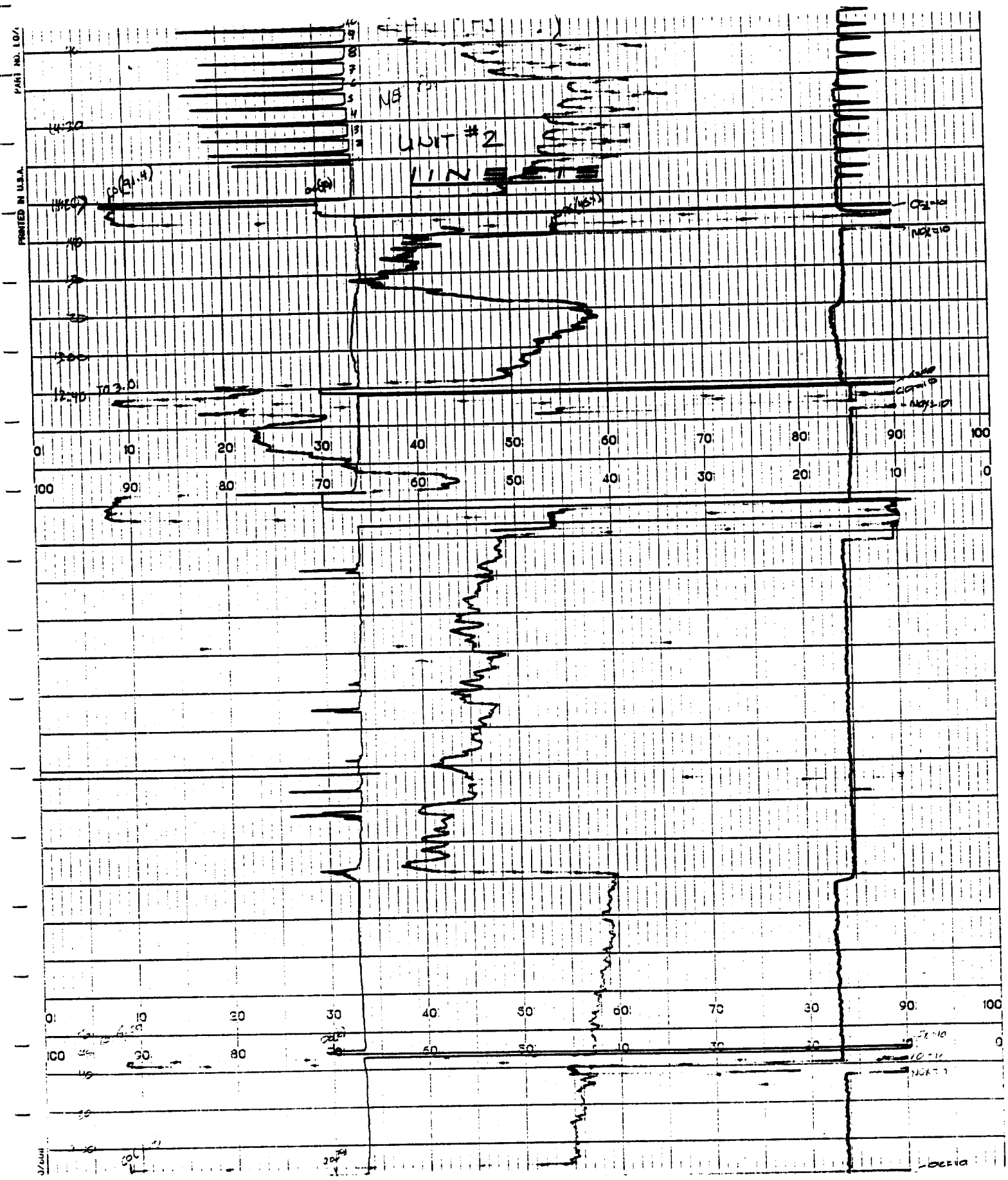
Run #4
Start 0915 - 0945
System Bias
LK CK 0.00 @ 24.5 Hg
Wednesday 2-23-93
RA Run #3
Start
RA LINSEIS
Run #2
Start > 15:30-16:00
RA Run #1
SE Port Point 11
Start > 14:30-15:00
PART NO. LO/8011
PRINTED IN U.S.A.

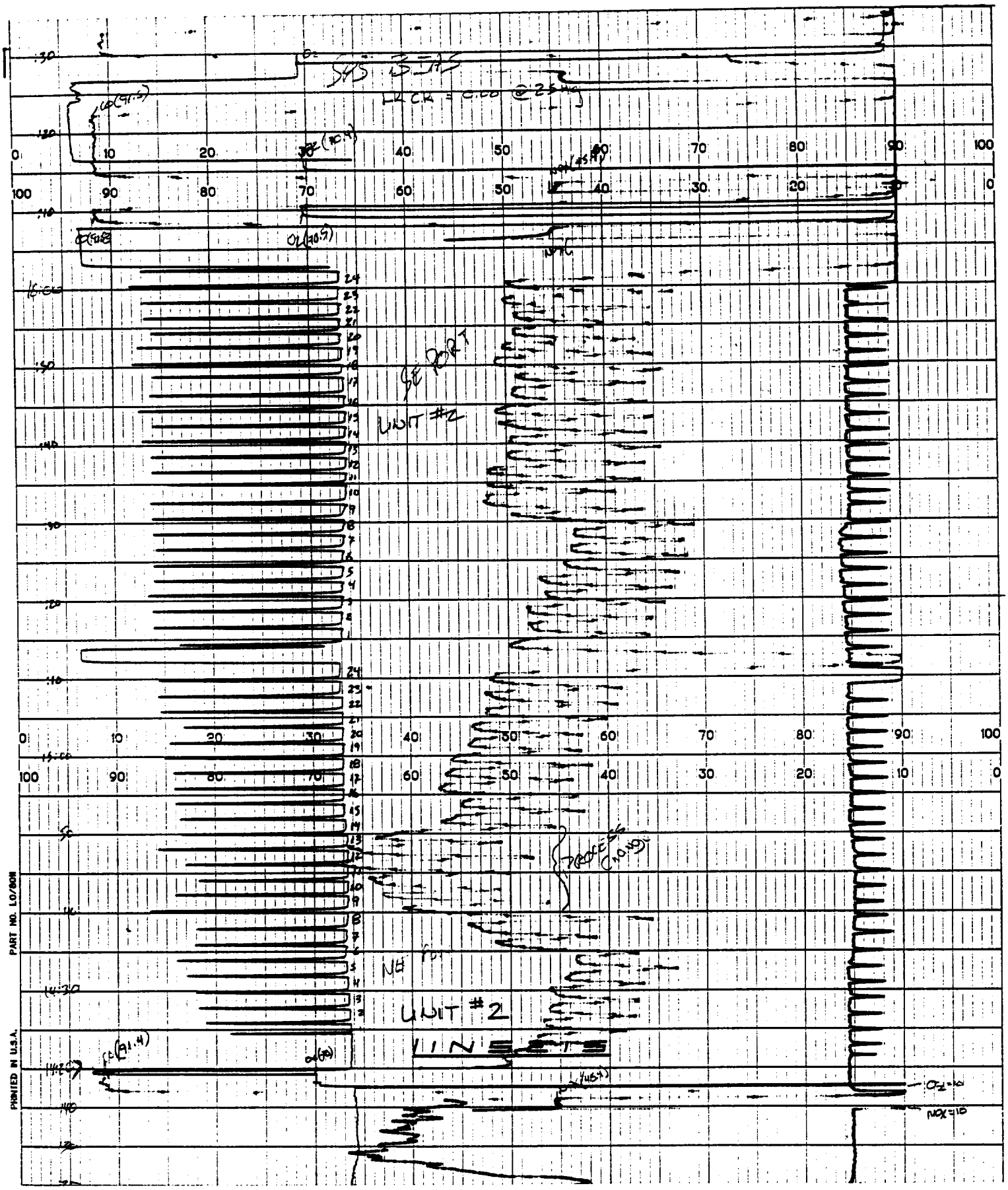

PART NO. LO/60M
PRINTED IN U.S.A.
START
END
Run #7
Run #6
Run #5
Run #4
START 11:45-12:15
START 10:15-10:45
START 0915-0945
Sketch Bias
LK CK 0.00 @ 24.5 Hg
Wednesday 2-23-93

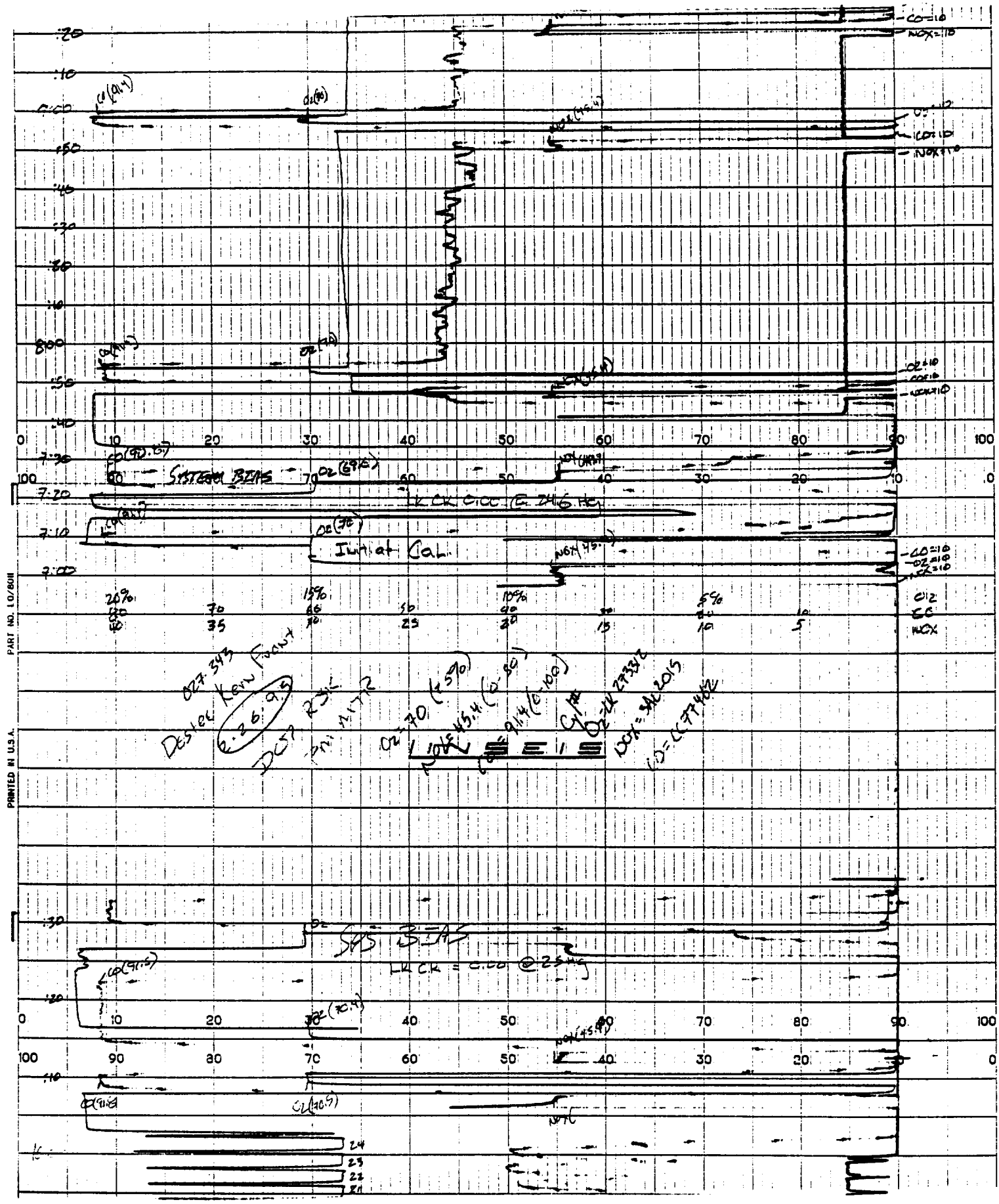

Run #10
Run #9
Run #8
Run #7
Run #6
Run #5
START > 19:00-19:30
START > 13:15-13:45
START > 12:30-13:00
START > 11:45-12:15
START > 10:15-10:45
END >
PART NO. LO/BOII
PRINTED IN U.S.A.



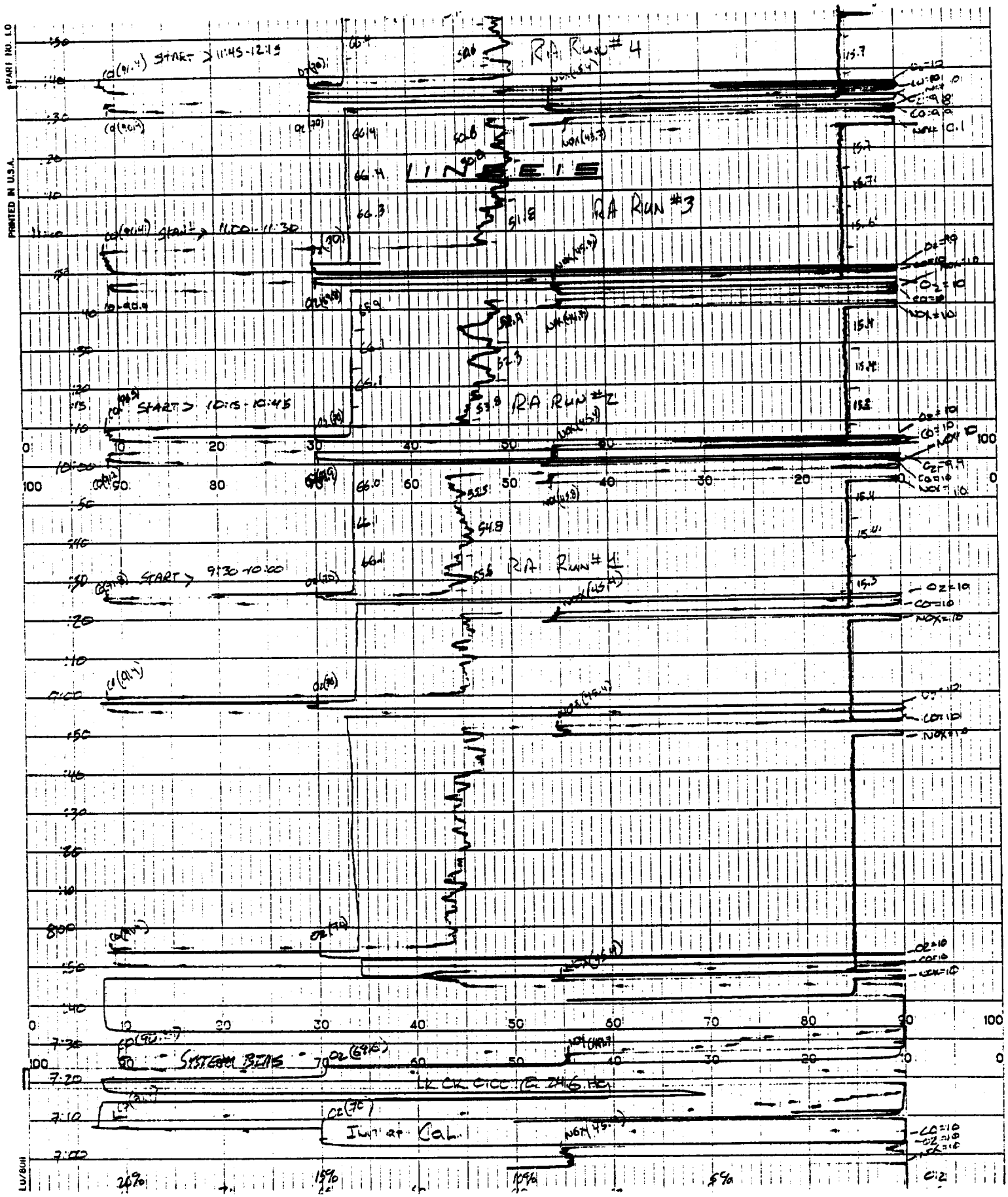
PART NO. LO/80N
PRINTED IN U.S.A.
LINSEIS
Sys BIAS
LK CK 0.001 @ 25.0 Hg
Unit #2
2-25-93
2/24/93
Run #11
Run #10
Start > 14:45-15:15
Start > 14:00-14:30
NOX 9.9

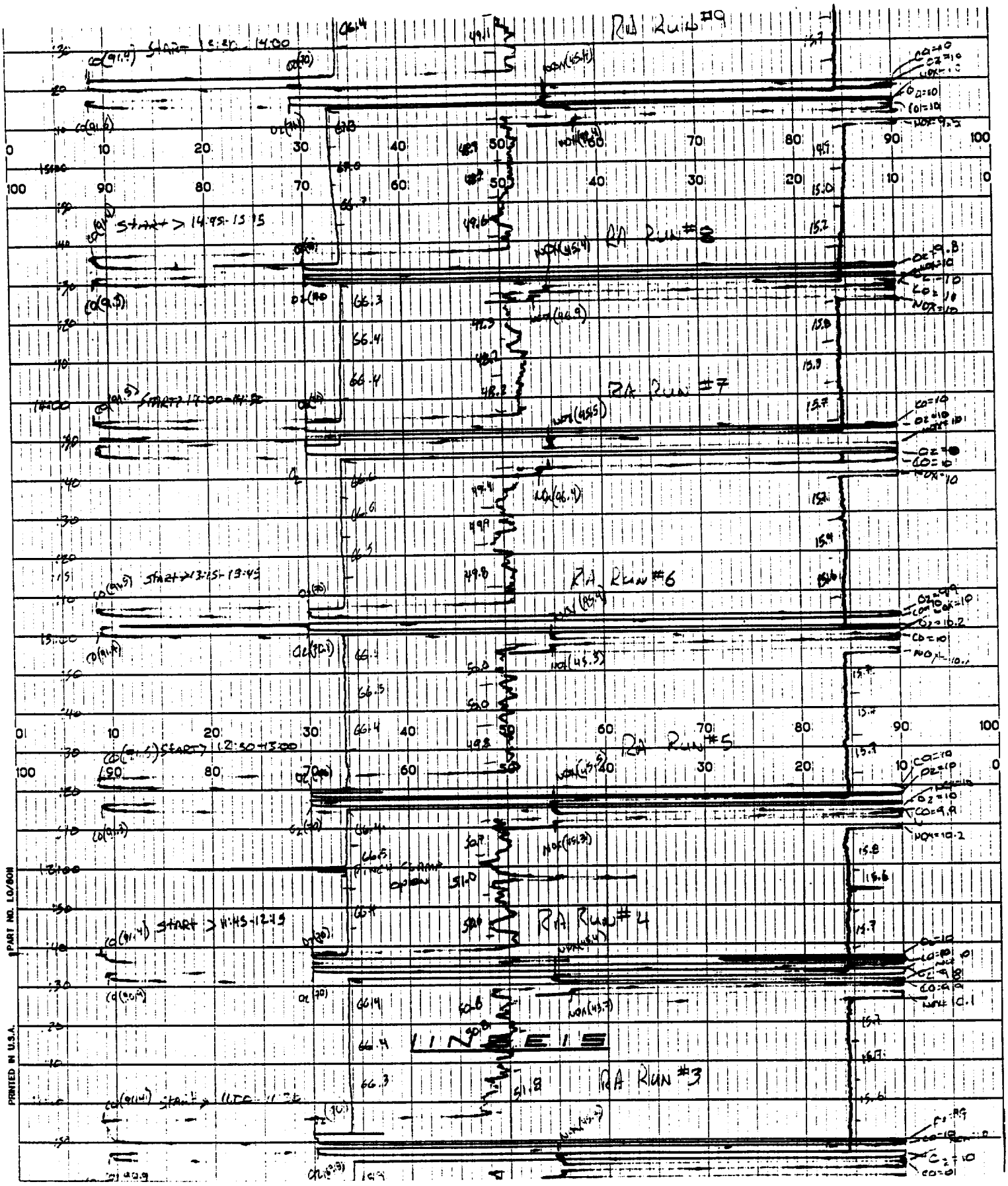

UNIT #2
PRINTED IN U.S.A.
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0

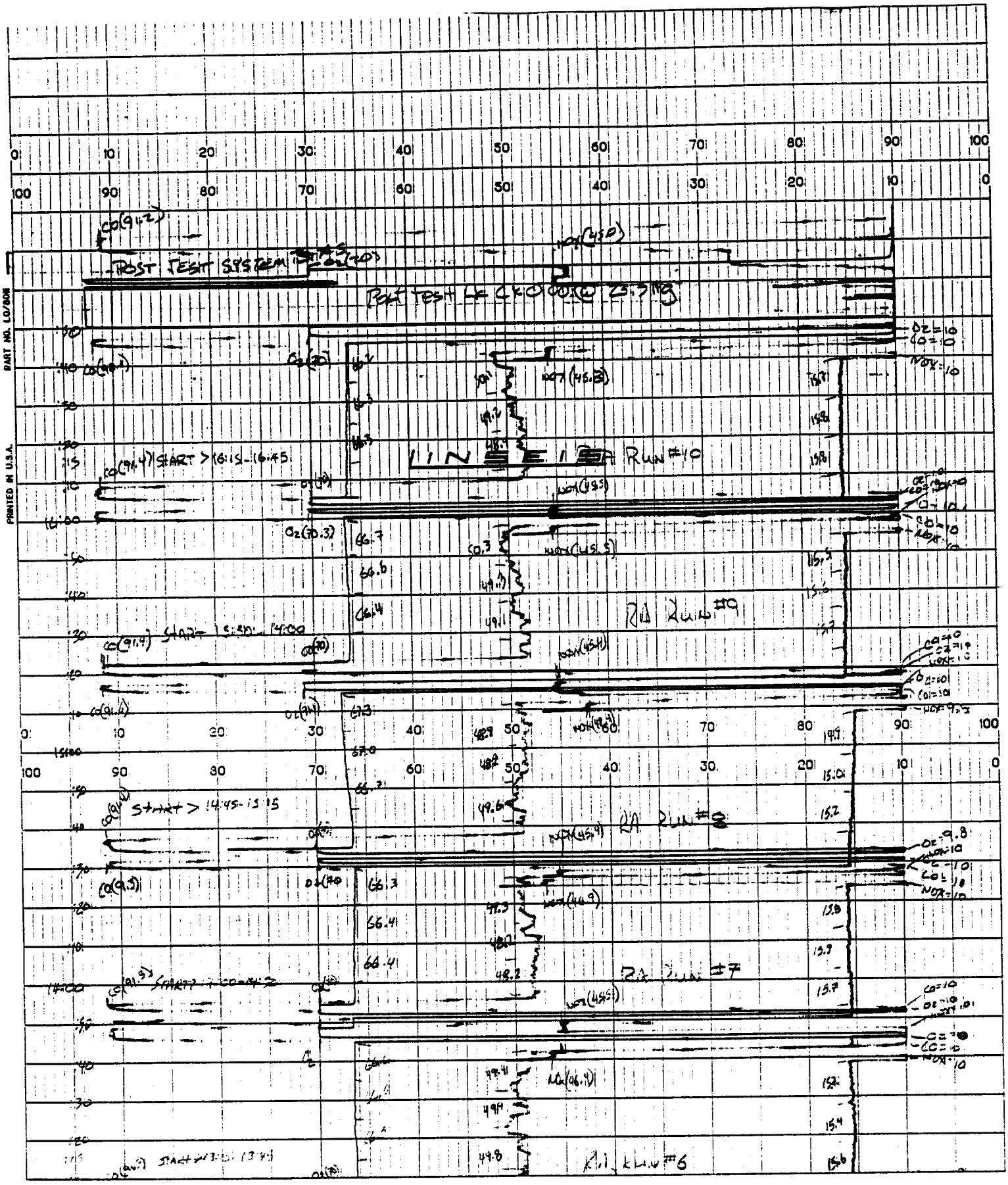

UNIT #2
UNIT #2
PART NO. LO/BON
PRINTED IN U.S.A.



SYSTEM BIAS
LK CK 0.00 @ 24.6 Hg
Init at Cal.
SPS BIAS
LK CK = 0.00 @ 25 Hg
PART NO. LO/8011
PRINTED IN U.S.A.


RA Run #4
START > 11:45-12:15
RA Run #3
START > 11:00-11:30
RA Run #2
START > 10:15-10:45
RA Run #1
START > 9:30-10:00
System Bias
Int at Cal
PART NO. LO
PRINTED IN U.S.A.
LU/BUH


RA Run #9
RA Run #8
RA Run #7
RA Run #6
RA Run #5
RA Run #4
RA Run #3
PART NO. LO/BOH
PRINTED IN U.S.A.


POST TEST SYSTEM
Run #10
Run #9
Run #8
Run #7
Run #6
START > 16:15-16:45
START > 14:45-15:15
PART NO. LO/80II
PRINTED IN U.S.A.

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY	LOCATION/UNIT
Destec	Kern Front Turbine #2
REPORT # 027-343	SAMPLER RJK / DCJ
METHOD Method 5	REPORT ATTN. Terry Rowles / PO#

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	ANALYSIS REQUEST: EPA Method 5/Gravimetric				
301	P/N #1 (Run 1)	2/25/93	/			/				
302	Filter #1	"		/		/				
303	Impinger #1A	"	/			/				
304	" #1B	"	/			/				
305	" #1C	"	/			/				
306	P/N #2 (Run 2)	2/26/93	/			/				
307	Filter #2	"		/		/				
308	Impinger #2A	"	/			/				
309	" #2B	"	/			/				
310	" #2C	"	/			/				
311	DI H_2O Blank (used to rinse Run #2 only)	"	/			/				
312	Post Test P/N Blank	"	/							
313	Post test Method filter blank	"		/		/				

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
D C Jozwiak	2/26/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

CHAIN OF CUSTODY RECORD

MAIN OFFICE
313 Daniels Lane
Bakersfield, CA 93307
(805) 327-7300 FAX (805) 327-3459

LAB OFFICE
3207 Antonino Avenue
Bakersfield, CA 93308
(805) 631-9332 FAX (805) 327-0860

LABORATORY	LAB ID#
COMPANY: Destec	LOCATION/UNIT: Kern Front Turbine #2
REPORT: 027-343	SAMPLED BY: DCT/RJK
METHOD: Method 5	DELIVER REPORT TO: / PCES PO#:

ANALYSIS REQUEST

SAMPLE ID#	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	EPA Method 5/Gravimetric	C1-C6+ GC/FID	HOLD ?		
401	H/C Midtest Blank	2/25/93			/		/			
402	H/C Mystery Blank	2/24/93			/		/			
403	High Pressure Soft Water 14:58	2/26/93	/			?		/		
404	Low Pressure Feed Water 15:00	"	/			?		/		
405	Low Pressure Steam 15:00	"	/			?		/		
406	L.P. Drum Cont. Blowdown 15:03	"	/			?		/		
407	High Pressure Steam 16:34	"	/			?		/		
408	Oxy 16:35	"	/			?		/		

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
D. Stowe	2/26/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY	LOCATION/UNIT	
Destec	Kern Front Turbine #1	
REPORT # 027-343	SAMPLER RJK / DOT	
METHOD Method 5	REPORT ATTN. Terry Rowles	PO#

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	ANALYSIS REQUEST: EPA Method 5/Gravimetric
201	Impinger Mid test Blank	2/24/93	/			/
202	Filter " "	"		/		/
203	P/N " "	"	/			/
204	High Pressure Feed Steam Sample	"	/			/
205	Low Pressure Drum Cont Blowdown	"	/			/
206	High Pressure Steam	"	/			/
207	Low Pressure Steam	"	/			/

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
DOTowne	2/24/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY: Destec	LOCATION/UNIT: Kern Front Turbine #1
REPORT #: 027-343	SAMPLER: RJK / DCT
METHOD: Method 18	REPORT ATTN: Terry Rowles / PO#:

ANALYSIS REQUEST

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	C_1-C_6+ GC/FID				
	HC #1 12:00				✓	✓				
	#2 12:40				✓	✓				
	#3 13:20				✓	✓				
	Pretest Field blank				✓	✓				

COMMENTS:
0.2 ppmv detection limit C_1-C_6+

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
D Towne	2/24/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY	LOCATION/UNIT
Destec	Kern Front Turbine #1
REPORT # 027-343	SAMPLER RJK/DCT
METHOD Method 5	REPORT ATTN. Terry Rowles / PO#

ANALYSIS REQUEST

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	EPA Method 5/Gravimetric				
101	P/N #1	2/23/93	✓			✓				
102	Filter #1	"		✓		✓				
103	Impinger #1A	"	✓			✓				
103	" #1B	"	✓			✓				
104	P/N #2	2/24/93	✓			✓				
105	Filter #2	"		✓		✓				
106	Impinger #2A	"	✓			✓				
107	" #2B	"	✓			✓				
108	" #2C	"	✓			✓				
109	P/N pretest field blank	2/23/93	✓			✓				
110	Filter " " "	"		✓		✓				
111	Impinger " " "	"	✓			✓				
112	Filter Reagent blak	"	✓	✓		✓				
113	DI H_2O " "	"	✓			✓				

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
D Ozuna	2/24/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 631-9332 FAX (805) 327-0860

CHAIN OF CUSTODY RECORD

Submitted to: EAS

COMPANY: Destec	LOCATION/UNIT: Kern Front #1 & #2
REPORT #: 027-343	SAMPLER: RJK
METHOD:	REPORT ATTN.: Terry Rowles / PO#: 49144

ANALYSIS REQUEST

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	Sulfur Speciation	Total Sulfur as H_2S			
Bag	Fuel Gas #1	2/22/93			✓	✓	✓	30730		
Bag	Fuel Gas #2	2/22/93			✓	✓	✓	30731		

COMMENTS:
72 hour holding time from sample date.

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
D Smallwood	2/22/93	Cora Cox	2/23/93
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY: Destec	LOCATION/UNIT: Kern Front Turbine #1
REPORT #: 027-343	SAMPLER: DCT
METHOD: Method 18	REPORT ATTN: Terry Rowles / PO#:

ANALYSIS REQUEST

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	$C_1 - C_6$ + GC/FID				
	~~#2~~ HC #2	2/23			/	—				
	HC #3	2/23			/	—				
	"Replacement Samples for Turbine #1"									

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
DC Powers	2/25/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
3207 Antonino Avenue, Bakersfield, CA 93308
(805) 327-7300 FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

Submitted to: Terry Rowles

COMPANY	LOCATION/UNIT
Dester	Kern Front Turbine #2
REPORT # 027-343	SAMPLER RJK/DCJ
METHOD Method 18	REPORT ATTN. Terry Rowles / PO#

ANALYSIS REQUEST

SAMPLE No/ID	SAMPLE DESCRIPTION	SAMPLE DATE	Liq	Filter	Gas	$C_1 - C_6^+$ GC/FID				
	HC#1	2/25			✓	✓				
	HC#2	"			✓	✓				
	HC#3	"			✓	✓				
	Post Test blank	"			✓	✓				

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
DC Rowne	2/25/93		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO CHEM ENVIRONMENTAL SERVICES, INC.
PITOT TUBE CALIBRATION

PITOT TUBE ID. # P12Q-10
DATE: 2-4-93
CALIBRATED BY: RJK

	"A" SIDE CALIBRATION			
RUN #	ΔPstd cm H2O (in.H2O)	ΔP(s) cm H2O (in. H2O)	Cp(s)	DEVIATION Cp(s) -Cp(A)
1	0.260	0.415	0.784	-0.007
2	0.265	0.410	0.796	0.005
3	0.270	0.420	0.794	0.003
		Cp (SIDE A)	0.791	

	"B" SIDE CALIBRATION			
RUN #	ΔPstd cm H2O (in.H2O)	ΔP(s) cm H2O (in. H2O)	Cp(s)	DEVIATION Cp(s) -Cp(B)
1	0.265	0.415	0.791	0.000
2	0.260	0.410	0.788	-0.003
3	0.270	0.420	0.794	0.003
		Cp (SIDE B)	0.791	

Cp (SIDE A) - Cp (SIDE B) =	0.000	0.791

Cp=.99 * ΔPstd / ΔP(s)

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

DRY GAS METER CALIBRATION

DATE:	1-27-93	AMBIENT TEMP °F:	62
TECH:	BDM	BAROMETRIC Pbar:	29.54
METER I.D.#	1002	TEST METER ID#:	9SM104564
		TEST METER Mcf:	1.023

APPROXIMATE CFM		0.75	0.50	0.30
STD TEST METER VOLUME CF	INITIAL	0.00	0.00	0.00
	FINAL	7.41	10.01	10.05
	TOTAL	7.41	10.01	10.05
FIELD GAS METER VOLUME CF	INITIAL	109.20	119.00	130.10
	FINAL	116.69	129.56	140.89
	TOTAL	7.49	10.56	10.79
STD TEST METER TEMP (°F)		62.5	60.0	60.0
FIELD GAS METER TEMP (°F)	IN	69.0	71.0	69.5
	OUT	54.0	60.0	63.0
	AVERAGE	61.5	65.5	66.3
STD TEST METER PRESSURE ("H2O)		-0.60	-0.30	-0.15
FIELD GAS METER PRESSURE ("H2O)		1.40	0.60	0.21
FIELD GAS METER, Mcf		1.006629	0.978514	0.963789

FIELD AVERAGE Mcf:	0.982977

H@:	1.4324

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

DRY GAS METER CALIBRATION

DATE:	1-28-93	AMBIENT TEMP °F:	61
TECH:	BDM	BAROMETRIC Pbar:	30.22
METER I.D.#	1003	TEST METER ID#:	S6M104564
		TEST METER Mcf:	1.023

APPROXIMATE CFM		.75	0.50	0.30
STD TEST METER VOLUME CF	INITIAL	0.00	0.00	0.00
	FINAL	7.59	10.04	10.01
	TOTAL	7.59	10.04	10.01
FIELD GAS METER VOLUME CF	INITIAL	807.30	815.30	826.50
	FINAL	814.90	825.75	837.19
	TOTAL	7.60	10.45	10.69
STD TEST METER TEMP (°F)		57.0	60.5	61.0
FIELD GAS METER TEMP (°F)	IN	59.0	66.5	66.5
	OUT	60.0	75.0	72.5
	AVERAGE	59.5	70.3	69.0
STD TEST METER PRESSURE ("H2O)		-0.60	-0.30	-0.15
FIELD GAS METER PRESSURE ("H2O)		0.90	0.40	0.18
FIELD GAS METER, Mcf		1.024351	1.000301	0.972209

FIELD AVERAGE Mcf:	0.998954	H@:	0.8432

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

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 1653/Reanalysis

CYLINDER NUMBER CC37890

COMPONENT	CONCENTRATION (v/v)
Carbon Monoxide	6.86 ± 0.14 ppm
Nitric Oxide	7.27 ± 0.15 ppm
Sulfur Dioxide	6.83 ± 0.14 ppm
Nitrogen*	Balance

Cylinder pressure: 1600 psig

*Oxygen-free

Replicate Analysis Data On CO:	01/03/91	6.87 ppm
		6.92 ppm
		6.83 ppm
	Mean	6.87 ppm

Expiration Date CO: 07/03/92

Replicate Analysis Data On NO:	01/03/91	7.25 ppm
		7.25 ppm
		7.28 ppm
	Mean	7.26 ppm

Expiration Date NO: 07/03/92

RECEIVED FEB 1 4 1991

SCOTT-MARRIN, INC.

2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

PETRØ1

TO: DATE : Ø2/11/91

RICK WILLIAMS
PETROCHEM ENVIRONMENTAL
32Ø7 ANTONINO AVE.
BAKERSFIELD, CA 93308

CUSTOMER ORDER NUMBER: Ø1138 PAGE 1

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.:	CC68780					
			Monitor Labs Model 8440		Ø1/11/91	Ø1/22/91
Nitric Oxide	17.61 ± Ø.35 ppm	GMIS	S/N 136	Ø7/22/91	17.62 ppm	17.62 ppm
		Cylinder #	Continuous		17.56 ppm	17.56 ppm
		CC28863	Chemiluminescence		17.56 ppm	17.69 ppm
		@ 19.31 ppm	Last Cal Date: 10/23/90	Mean:	17.58 ppm	17.63 ppm
			Carle Insts Model 8800		Ø1/22/91	Ø1/29/91
Carbon Monoxide	17.98 ± Ø.36 ppm	GMIS	S/N 8249	Ø7/29/91	18.02 ppm	17.99 ppm
		Cylinder #	Methanation/FID		17.93 ppm	18.10 ppm
Nitrogen, O2-Free Balance		CC12168	Gas Chromatography		17.90 ppm	17.93 ppm
Cylinder Pressure: 2000 psig		@ 17.73 ppm	Last Cal Date: 12/24/90	Mean:	17.95 ppm	18.01 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Mark Monson
M.J. Monson

Approved: J.T.Marrin

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

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

Petro Chem Environmental Services, Inc.

AIRCO

518655

Airco Electronic Gases
Union Landing & River Roads
P.O. Drawer No. 272
Riverton
New Jersey 08077
Telephones: Marketing: 609-829-7878
Prod. & Admin.: 609-829-
International: 609-829-79

CERTIFICATE OF ANALYSIS - EPA PROTOCOL GAS MIX

CUSTOMER: Bakersfield Welding Supply
CYLINDER #: CC-17885 CERTIFICATION DATE: 11/2/92
CYLINDER PRESSURE: 1650 psig EXPIRATION DATE: 5/2/93
LABORATORY: Riverton NJ REFERENCE #: 24275

MIXTURE COMPONENTS	ACTUAL MIXTURE CONCENTRATION	AIRCO INTERMEDIATE STANDARD CYLINDER #	CONC.	NIST SRM#
Nitric Oxide	40.0 ppm	CC-14977	49.8 ppm	1683B
Carbon Monoxide	39.9 ppm	CC-43310	49.8 ppm	1678C

BALANCE GAS: Nitrogen

COMPONENT 1 GAS ANALYSIS PROCEDURE Chemiluminescence
MAKE/MODEL/SER#: Beckman, 952, 0100204
LAST MULTIPOINT CALIBRATION DATE: 8/3/92

COMPONENT 2 GAS ANALYSIS PROCEDURE Non-Dispersive Infrared
MAKE/MODEL/SER#: Horiba, CO/Analyzer, 56255601
LAST MULTIPOINT CALIBRATION DATE: 8/3/92
R=REFERENCE STANDARD Z=ZERO GAS S=SAMPLE GAS

1ST COMPONENT Nitric Oxide
1ST ANALYSIS: DATE 10/26/92 ANALYST A. Lattanze

1)	Z 0000	R 4550	S 3635	CONC (1)	39.8 ppm
2)	R 4540	Z 0000	S 3640	CONC (2)	39.9 ppm
3)	R 4540	S 3630	Z 0000	CONC (3)	39.8 ppm
				AVE CONC	39.8 ppm

2ND ANALYSIS: DATE 11/2/92 ANALYST A. Lattanze

1)	Z 0000	R 4385	S 3540	CONC (1)	40.2 ppm
2)	R 4400	Z 0000	S 3535	CONC (2)	40.0 ppm
3)	R 4410	S 3540	Z 0000	CONC (3)	40.0 ppm
				AVE CONC	40.1 ppm

2ND COMPONENT Carbon Monoxide
1ST ANALYSIS: DATE 10/26/92 ANALYST A. Lattanze

1)	Z 000	R 491	S 393	CONC (1)	39.9 ppm
2)	R 491	Z 000	S 393	CONC (2)	39.9 ppm
3)	R 491	S 393	Z 000	CONC (3)	39.9 ppm
				AVE CONC	39.9 ppm

2ND ANALYSIS: DATE 11/2/92 ANALYST A. Lattanze

1)	Z 000	R 493	S 395	CONC (1)	39.9 ppm
2)	R 493	Z 000	S 395	CONC (2)	39.9 ppm
3)	R 493	S 395	Z 000	CONC (3)	39.9 ppm
				AVE CONC	39.9 ppm

THIS CALIBRATION STANDARD HAS BEEN CERTIFIED VERSUS EPA TRACEABILITY PROTOCOL NO. 1, PROCEDURE G1, AND ANALYSES PERFORMED PER SECTION 3.0.4.
CERTIFIED CONCENTRATION: Nitric Oxide = 40.0 ppm; Carbon Monoxide = 39.9 pp
Nitrogen = Balance

APPROVED BY
LABORATORY MANAGER

A member of The BOC Group

Petro Chem Environmental Services, Inc.

AIRCO

512041

Airco Electronic Gases
Union Landing & River Roads
P.O. Drawer No. 272
Riverton
New Jersey 08077
Telephones: Marketing: 609-829-7878
Prod. & Admin.: 609-829-7914
International: 609-829-7917

CERTIFICATE OF ANALYSIS - EPA PROTOCOL GAS MIX

CUSTOMER: Bakersfield Welding (Saugas, CA)
CYLINDER #: CC-77462 CERTIFICATION DATE: 10/12/92
CYLINDER PRESSURE: 1650 psig EXPIRATION DATE: 4/12/93
LABORATORY: Riverton, NJ REFERENCE #: 23698

MIXTURE COMPONENTS	ACTUAL MIXTURE CONCENTRATION	AIRCO INTERMEDIATE STANDARD CYLINDER #	CONC.	NIST SRM#
Nitric Oxide	78.2 ppm	CC-69954	100 ppm	1684B
Carbon Monoxide	81.4 ppm	CC-3138	112 ppm	1679C

BALANCE GAS: Nitrogen

COMPONENT 1 GAS ANALYSIS PROCEDURE Chemiluminescence
MAKE/MODEL/SER#: Beckman, 952, 0100204
LAST MULTIPOINT CALIBRATION DATE: 8/3/92

COMPONENT 2 GAS ANALYSIS PROCEDURE Non-Dispersive Infrared
MAKE/MODEL/SER#: Beckman; 866; 1000049
LAST MULTIPOINT CALIBRATION DATE: 8/3/92
R=REFERENCE STANDARD Z=ZERO GAS S=SAMPLE GAS

1ST COMPONENT Nitric Oxide
1ST ANALYSIS: DATE 10/5/92 ANALYST A. Lattanze

1)	Z 0000	R 3690	S 2880	CONC (1)	78.0 ppm
2)	R 3690	Z 0000	S 2880	CONC (2)	78.0 ppm
3)	R 3690	S 2880	Z 0000	CONC (3)	78.0 ppm
				AVE CONC	78.0 ppm

2ND ANALYSIS: DATE 10/12/92 ANALYST A. Lattanze

1)	Z 0000	R 3700	S 2900	CONC (1)	78.4 ppm
2)	R 3700	Z 0000	S 2900	CONC (2)	78.4 ppm
3)	R 3700	S 2900	Z 0000	CONC (3)	78.4 ppm
				AVE CONC	78.4 ppm

2ND COMPONENT Carbon Monoxide
1ST ANALYSIS: DATE 10/5/92 ANALYST A. Lattanze

1)	Z 000	R 222	S 163	CONC (1)	82.2 ppm
2)	R 222	Z 000	S 161	CONC (2)	81.2 ppm
3)	R 222	S 163	Z 000	CONC (3)	82.2 ppm
				AVE CONC	81.9 ppm

2ND ANALYSIS: DATE 10/12/92 ANALYST A. Lattanze

1)	Z 000	R 221	S 160	CONC (1)	81.1 ppm
2)	R 222	Z 000	S 160	CONC (2)	80.7 ppm
3)	R 222	S 160	Z 000	CONC (3)	80.7 ppm
				AVE CONC	80.8 ppm.

THIS CALIBRATION STANDARD HAS BEEN CERTIFIED VERSUS EPA TRACEABILITY PROTOCOL NO. 1, PROCEDURE G1, AND ANALYSES PERFORMED PER SECTION 3.0.4.
CERTIFIED CONCENTRATION: Nitric Oxide = 78.2 ppm; Carbon Monoxide = 81.4 ppm
Nitrogen = Balance

APPROVED BY J. Lucas
LABORATORY MANAGER

A member of The BOC Group

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

CALIBRATION GAS CERTIFICATE

DATE: 12-2-91
ANALYST: TIM BRENNAN

TANK #: LK-273312
CONTENTS: Oxygen in Nitrogen

	SET #1	SET #2	SET #3
RUN #1	15.0	15.1	15.0
RUN #2	15.0	15.1	15.0
RUN #3	15.1	15.0	15.1
AVERAGE	15.0	15.1	15.0

TOTAL AVERAGE CONCENTRATION 15.0 %O2

Expires: 6-2-93

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Blanks

REPORT: 027-343

DATE TESTED: 2/22/93

ANALYST: DGS

RUN # Pre test

PROBE/NOZZLE/FILTER TOP

VOL- 164 ml

DISH # 51 #1	#2	#3	AVERAGE
FINAL (g) 80.0515	80.0516		80.0516
TARE (g) 80.0505			80.0505
NET (g)			0.0011

FILTER # 513

#1	#2	#3	AVERAGE
FINAL (g) 0.6133	0.6132		0.6133
TARE (g) 0.6135			0.6135
NET (g)			0

CONDENSABLE (aliquot 100 ml /284 ml)

DISH # 59 #1	#2	#3	AVERAGE
FINAL (g) 80.8203	80.8201		80.8202
TARE (g) 80.8202			80.8202
NET (g)			0

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Blanks

REPORT: 027-343

DATE TESTED: 2/24/93

ANALYST: DGS

RUN # Mid test

PROBE/NOZZLE/FILTER TOP

VOL-234 ml

DISH # 50 #1	#2	#3	AVERAGE
FINAL (g) 77.4980	77.4979		77.4980
TARE (g) 77.4964			77.4964
NET (g)			0.0016

FILTER # 517

#1	#2	#3	AVERAGE
FINAL (g) 0.6105	0.6104		0.6105
TARE (g) 0.6106			0.6106
NET (g)			0

CONDENSABLE (aliquot 100ml / 220ml)

DISH # 7 #1	#2	#3	AVERAGE
FINAL (g) 65.0509	65.0508		65.0509
TARE (g) 65.0505			65.0505
NET (g)			0.0004

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Deskec

LOCATION/UNIT: Blanks

REPORT: 027-343

DATE TESTED: 2/24/93

ANALYST: DGJ

RUN # Dost Test

PROBE/NOZZLE/FILTER TOP

VOL-205 ml

DISH # 62 #1	#2	#3	AVERAGE
FINAL (g) 90.2265	90.2263		90.2264
TARE (g) 90.2258			90.2258
NET (g)			0.0006

FILTER # 426

#1	#2	#3	AVERAGE
FINAL (g) 0.6051	0.6051		0.6051
TARE (g) 0.6053			0.6053
NET (g)			0

CONDENSABLE (aliquot 100 ml / 270 ml)

DISH # 19 #1	#2	#3	AVERAGE
FINAL (g) 66.1554	66.1553		66.1554
TARE (g) 66.1550			66.1550
NET (g)			0.0004

LABORATORY ANALYSIS
EPA METHOD 5 - PARTICULATE ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Kern Front

REPORT: 027-343

DATE TESTED: 2/23/93

ANALYST: DGS

RUN # Blanks

PROBE/NOZZLE/FILTER TOP VOL-

DISH # #1	#2	#3	AVERAGE
FINAL (g)			
TARE (g)			
NET (g)			

FILTER # 516

#1	#2	#3	AVERAGE
FINAL (g) 0.6155	0.6154		0.6155
TARE (g) 0.6155			0.6155
NET (g)			0

H_2O CONDENSABLE (aliquot 100ml / 130ml)

DISH # 27 #1	#2	#3	AVERAGE
FINAL (g) 81.1219	81.1219		81.1218
TARE (g) 81.1217			81.1217
NET (g)			0.0001

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Blanks

REPORT: 027-343

DATE TESTED: 2/18 & 19/93

ANALYST: DGS

SAMPLE # ~~Lab Reagent~~ MeCl2 Blank aliquot - 100 ml

TIN # 44			
# 1	# 2	# 3	AVERAGE
final (g) 1.57544	final (g) 1.57558	final (g) 1.57559	1.57559
tare (g) 1.57529	tare (g)	tare (g)	1.57529
NET (g)	NET (g)	NET (g)	0.00030

SAMPLE # Empty Dish aliquot - 0 ml

TIN # 34			
# 1	# 2	# 3	AVERAGE
final (g) 1.58753	final (g) 1.58774	final (g) 1.58770	1.58772
tare (g) 1.58740	tare (g)	tare (g)	1.58740
NET (g)	NET (g)	NET (g)	0.00032

SAMPLE # _____ aliquot - _____

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

SAMPLE # _____ aliquot - _____

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

LABORATORY ANALYSIS
EPA METHOD 5 - ORGANIC ANALYSIS

COMPANY: Destec

LOCATION/UNIT: Blanks

REPORT: 027-343

DATE TESTED: 2/18 & 19/93

ANALYST: DGS

SAMPLE # DI H_2O (2/18/93) aliquot - 200 ml

TIN # 42			
# 1	# 2	# 3	AVERAGE
final (g) 1.59371	final (g) 1.59382	final (g) 1.59381	1.59382
tare (g) 1.59326	tare (g)	tare (g)	1.59326
NET (g)	NET (g)	NET (g)	0.00056

SAMPLE # DI H_2O (2/19/93) aliquot - 200 ml

TIN # 41			
# 1	# 2	# 3	AVERAGE
final (g) 1.59734	final (g) 1.59749	final (g) 1.59747	1.59748
tare (g) 1.59706	tare (g)	tare (g)	1.59706
NET (g)	NET (g)	NET (g)	0.00042

SAMPLE # Field $MeCl_2$ aliquot - 229 ml

TIN # 45			
# 1	# 2	# 3	AVERAGE
final (g) 1.57932	final (g) 1.57952	final (g) 1.57950	1.57951
tare (g) 1.57903	tare (g)	tare (g)	1.57903
NET (g)	NET (g)	NET (g)	0.00048

SAMPLE # aliquot -

TIN #			
# 1	# 2	# 3	AVERAGE
final (g)	final (g)	final (g)	
tare (g)	tare (g)	tare (g)	
NET (g)	NET (g)	NET (g)	

PETRO CHEM ENVIRONMENTAL SERVICES LABORATORY

QUALITY CONTROL - METHOD 5 Q A BATCH #: 5-93-0013

DI H_2O FROM ANTONINO AVE VOLUME (ml): 250 ml

DISH #: 43		AVERAGE
FINAL WT.(g): 78.2221	FINAL WT.(g): 78.2218	FINAL WT.(g): 78.2220
TARE WT. (g): 78.2218	TARE WT. (g):	TARE WT. (g): 78.2218
NET WT. (g):	NET WT. (g):	NET WT. (g): 0.0002

DI H_2O FROM DANIELS LN. VOLUME (ml): 250 ml

DISH #: 20		AVERAGE
FINAL WT.(g): 72.3964	FINAL WT.(g): 72.3965	FINAL WT.(g): 72.3964
TARE WT. (g): 72.3956	TARE WT. (g):	TARE WT. (g): 72.3956
NET WT. (g):	NET WT. (g):	NET WT. (g): 0.0010

EMPTY DISH

DISH #: 65		AVERAGE
FINAL WT.(g): 80.9385	FINAL WT.(g): 80.9388	FINAL WT.(g): 80.9387
TARE WT. (g): 80.9386	TARE WT. (g):	TARE WT. (g): 80.9386
NET WT. (g):	NET WT. (g):	NET WT. (g): 0.0001

FILTER BLANK

FILTER #: 530		AVERAGE
FINAL WT.(g): 0.6148	FINAL WT.(g): 0.6147	FINAL WT.(g): 0.6148
TARE WT. (g): 0.6148	TARE WT. (g):	TARE WT. (g): 0.6148
NET WT. (g):	NET WT. (g):	NET WT. (g): 0

RECOVERY SAMPLE VOLUME (ml): 100 ml

DISH #: 12		AVERAGE
FINAL WT.(g): 76.9234	FINAL WT.(g): 76.9229	FINAL WT.(g): 76.9232
TARE WT. (g): 76.9003	TARE WT. (g):	TARE WT. (g): 76.9003
NET WT. (g):	NET WT. (g):	NET WT. (g): 0.0229

CONC (g/l): 0.2296 g/l Na_2SO_4	% RECOVERY: 99.7 %
WT (g): 0.02296 g	(0.0229 / 0.02296) 100

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3207 Antonino Avenue
Bakersfield, California 93308
(805) 327-7300
FAX (805) 327-3459

COMPANY	: DESTEC OPERATING	DATE RECEIVED :	2-26-93
DATE	: 2-25-93	DATE ANALYZED :	2-26-93
REPORT	: 027-343	DATE REPORTED:	3-9-93

EPA METHOD 18
LOW RANGE HYDROCARBON ANALYSIS
CALIBRATION DATA AND STATISTICS

METHANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.413	701	5.89E-04
0.825	1426	5.79E-04
4.125	7301	5.65E-04
8.25	14489	5.69E-04
	AVERAGE RF	5.76E-04
	STD. DEVIATION	9.27E-06
	RSD%	1.61%

ETHANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.413	1447	2.85E-04
0.825	2884	2.86E-04
4.125	14647	2.82E-04
8.25	29285	2.82E-04
	AVERAGE RF	2.84E-04
	STD. DEVIATION	2.05E-06
	RSD%	0.72%

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COMPANY: DESTEC OPERATING
DATE : 2-25-93
REPORT : 027-343

DATE RECEIVED : 2-26-93
DATE ANALYZED : 2-26-93
DATE REPORTED: 3-9-93

EPA METHOD 18
LOW RANGE HYDROCARBON ANALYSIS
CALIBRATION DATA AND STATISTICS

PROPANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.413	2050	2.01E-04
0.825	4274	1.93E-04
4.125	21507	1.92E-04
8.25	43237	1.91E-04
	AVERAGE RF	1.94E-04
	STD. DEVIATION	4.22E-06
	RSD%	2.17%

BUTANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.413	2712	1.52E-04
0.825	5732	1.44E-04
4.125	28432	1.45E-04
8.25	58664	1.41E-04
	AVERAGE RF	1.45E-04
	STD. DEVIATION	4.25E-06
	RSD%	2.92%

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COMPANY: DESTEC OPERATING
DATE : 2-25-93
REPORT : 027-343

DATE RECEIVED : 2-26-93
DATE ANALYZED : 2-26-93
DATE REPORTED: 3-9-93

EPA METHOD 18
LOW RANGE HYDROCARBON ANALYSIS
CALIBRATION DATA AND STATISTICS

PENTANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.37	3461	1.07E-04
0.74	6886	1.07E-04
3.7	34739	1.07E-04
7.4	69824	1.06E-04
	AVERAGE RF	1.07E-04
	STD. DEVIATION	5.43E-07
	RSD%	0.51%

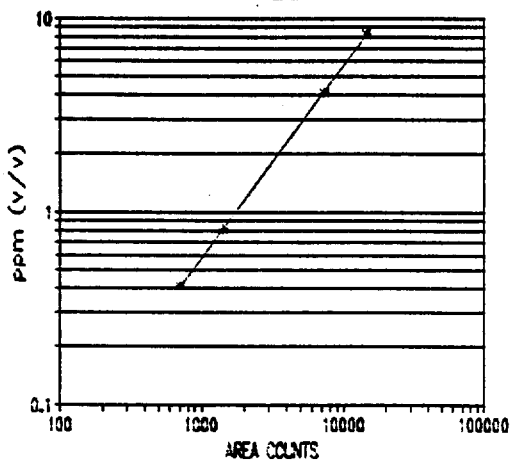
HEXANE

CONC. (ppmv)	AREA COUNTS	RESPONSE FACTOR ppmv/AC
0.38	4424	8.59E-05
0.76	8505	8.94E-05
3.8	41301	9.20E-05
7.6	82301	9.23E-05
	AVERAGE RF	8.99E-05
	STD. DEVIATION	2.59E-06
	RSD%	2.88%

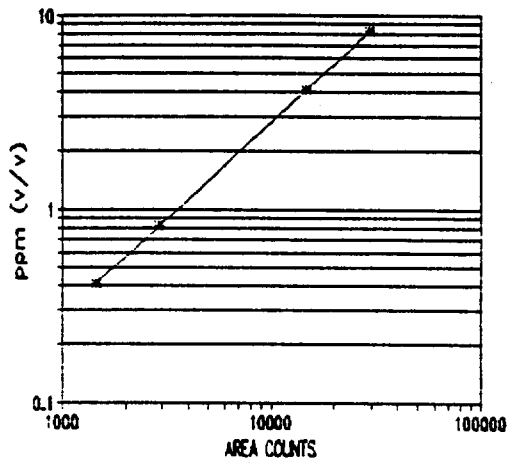
COMPANY : DESTEC OPERATING
UNIT : KERN FRONT TURBINES 1 & 2
DATE : 2-25-93
REPORT : 027-343

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 2-26-93

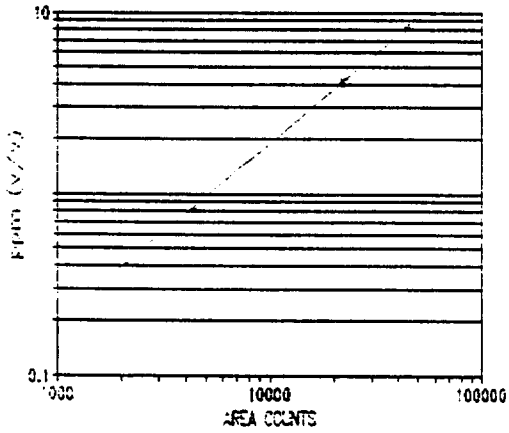
METHANE
CALIBRATION LINEARITY



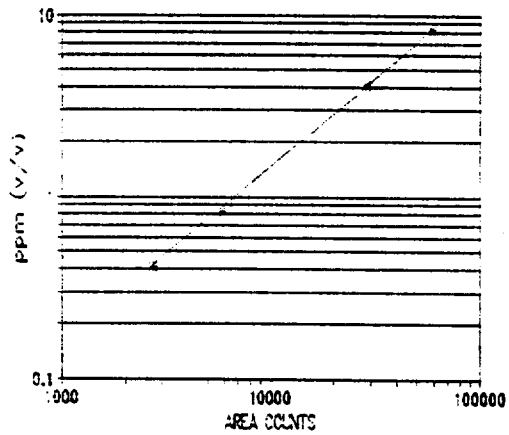
ETHANE
CALIBRATION LINEARITY



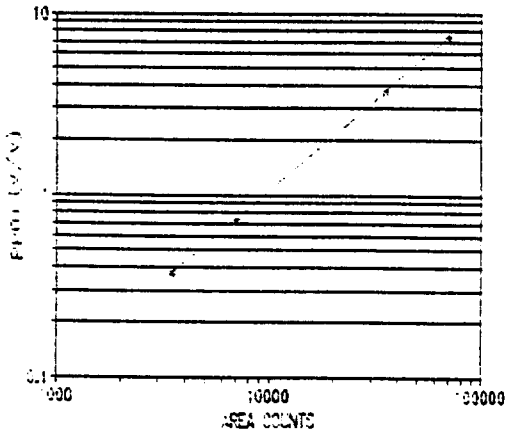
PROPANE
CALIBRATION LINEARITY



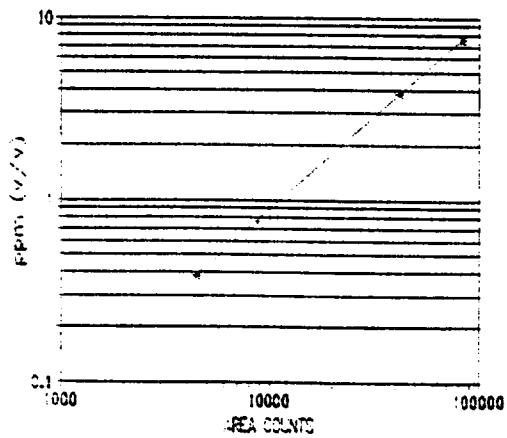
BUTANE
CALIBRATION LINEARITY



PENTANE
CALIBRATION LINEARITY



HEXANES+
CALIBRATION LINEARITY



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COMPANY: DESTEC OPERATING
DATE : 2-25-93
REPORT : 027-343

DATE RECEIVED : 2-26-93
DATE ANALYZED : 2-26-93
DATE REPORTED: 3-9-93

EPA METHOD 18
CALIBRATION DRIFT ANALYSIS

POST ANALYSIS CALIBRATION CHECK (0.4ppm STD.)

CONSTITUENT	INITIAL RF	POST RF	%DIFF.
METHANE	5.89E-04	5.73E-04	2.77%
ETHANE	2.85E-04	2.85E-04	0.07%
PROPANE	2.01E-04	1.88E-04	6.65%
BUTANE	1.52E-04	1.39E-04	8.87%
PENTANE	1.07E-04	1.16E-04	-8.87%
HEXANES+	8.59E-05	8.59E-05	0.00%

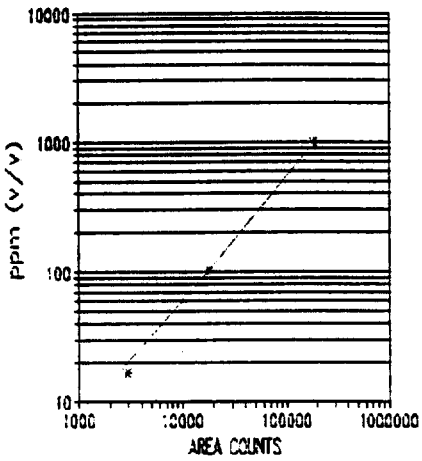
POST ANALYSIS CALIBRATION CHECK (0.8ppm STD.)

CONSTITUENT	INITIAL RF	POST RF	%DIFF.
METHANE	5.79E-04	6.07E-04	-4.85%
ETHANE	2.86E-04	2.93E-04	-2.49%
PROPANE	1.93E-04	2.01E-04	-3.96%
BUTANE	1.44E-04	1.53E-04	-6.38%
PENTANE	1.07E-04	1.13E-04	-4.75%
HEXANES+	8.94E-05	9.09E-05	-1.69%

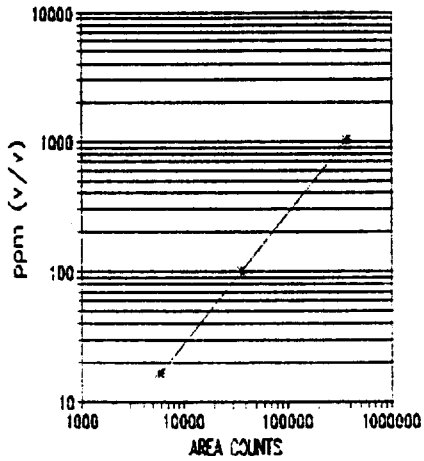
COMPANY : DESTEC OPERATING
UNIT : KERN FRONT LUBE OIL VENTS
DATE : 2-18,19-93
REPORT : 027-343

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 2-22-93

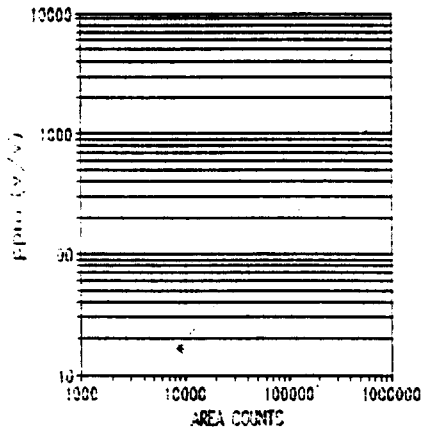
METHANE
CALIBRATION LINEARITY



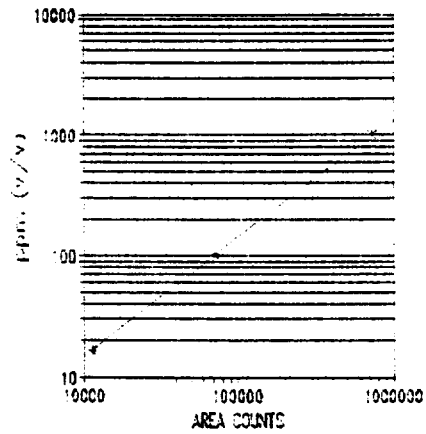
ETHANE
CALIBRATION LINEARITY



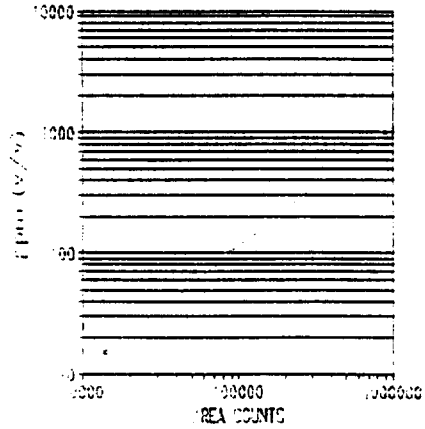
PROPANE
CALIBRATION LINEARITY



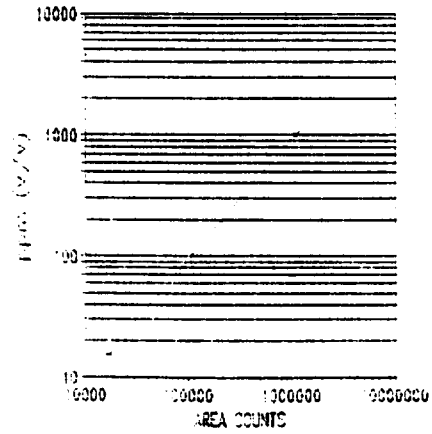
BUTANE
CALIBRATION LINEARITY



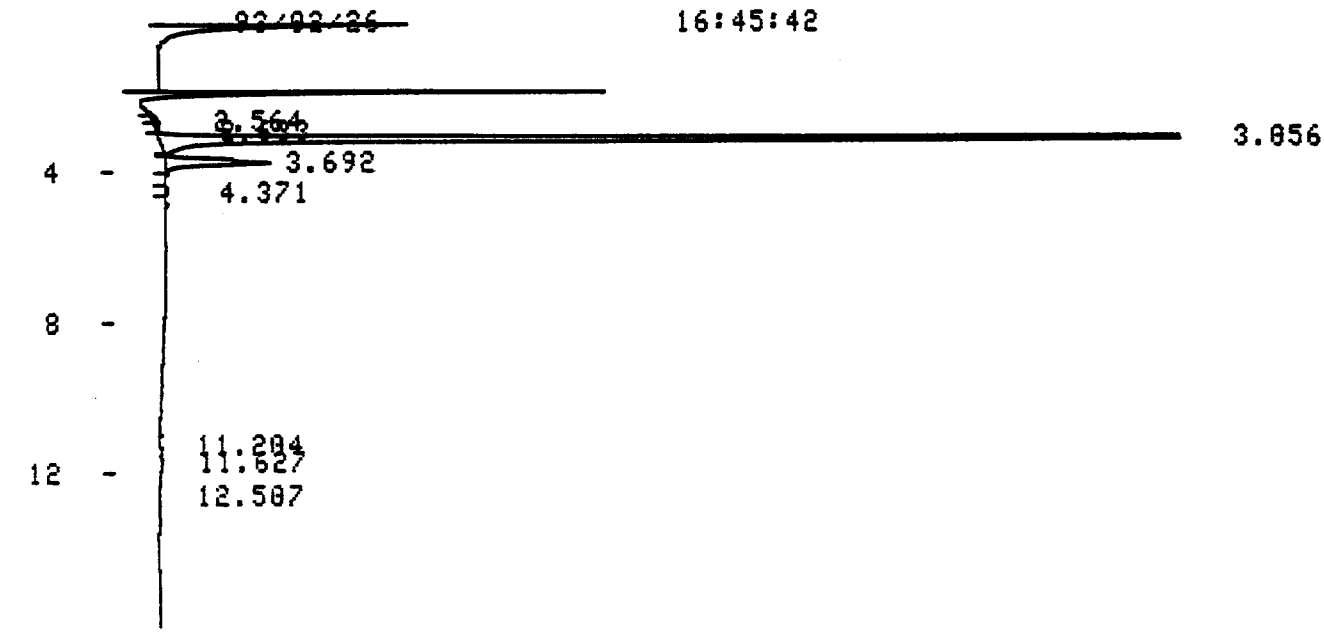
PENTANE
CALIBRATION LINEARITY



HEXANES+
CALIBRATION LINEARITY



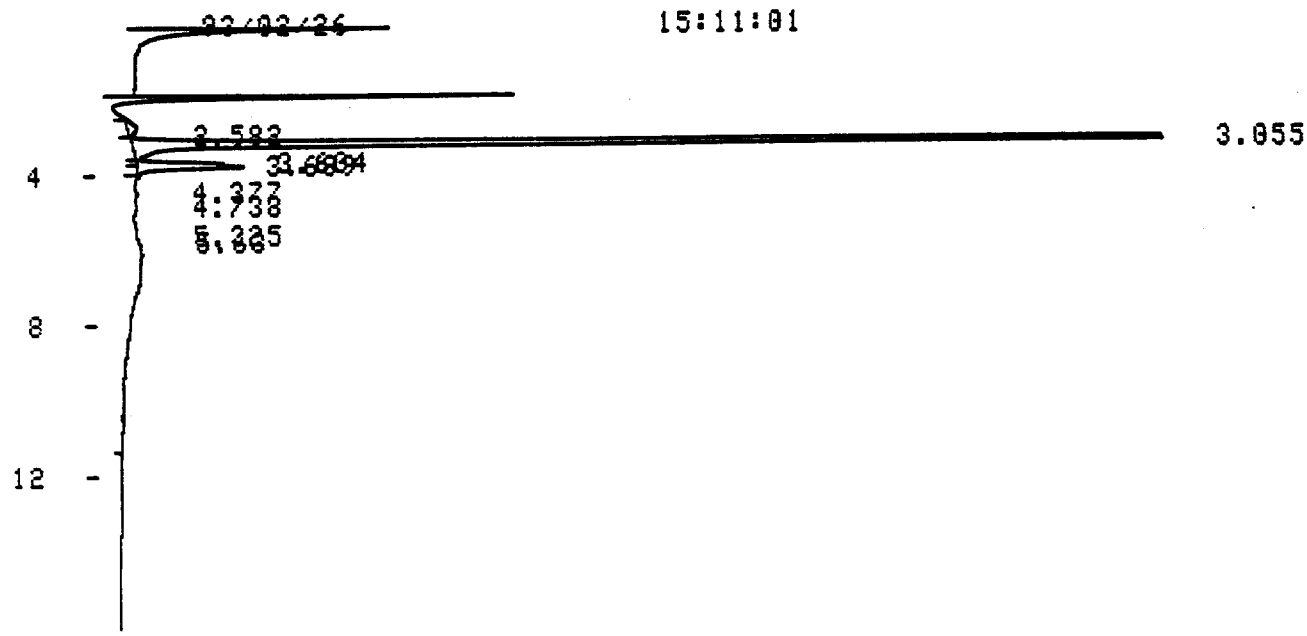
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 2 HC SAMPLE # 3



CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.564	237				
2	2.633	305	V	6		C-6+
3	3.056	103779		1		C-1
4	3.692	7743		2		C2
5	4.371	297		8		C-3
	TOTAL	112361			0	

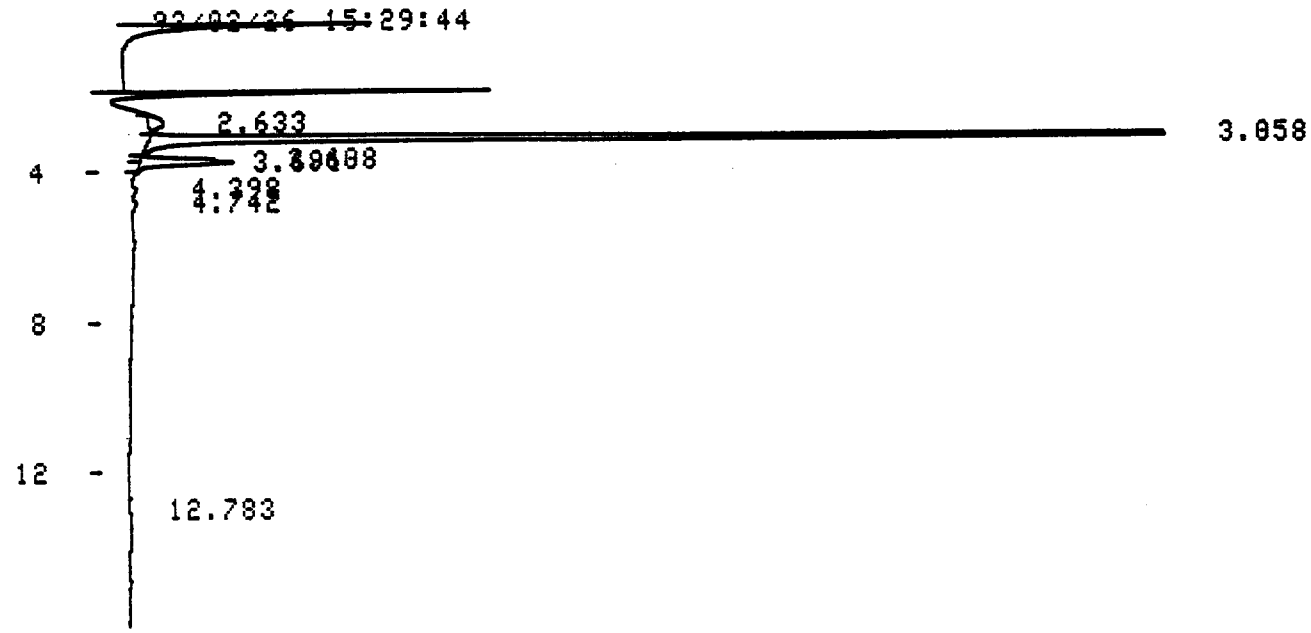
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 1



CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.582	816		6		C-6+
2	3.055	115203		1		C-1
3	3.604	3064		2		C-2) 8609
4	3.689	5545	V	2		C-2
	TOTAL	124627			0	

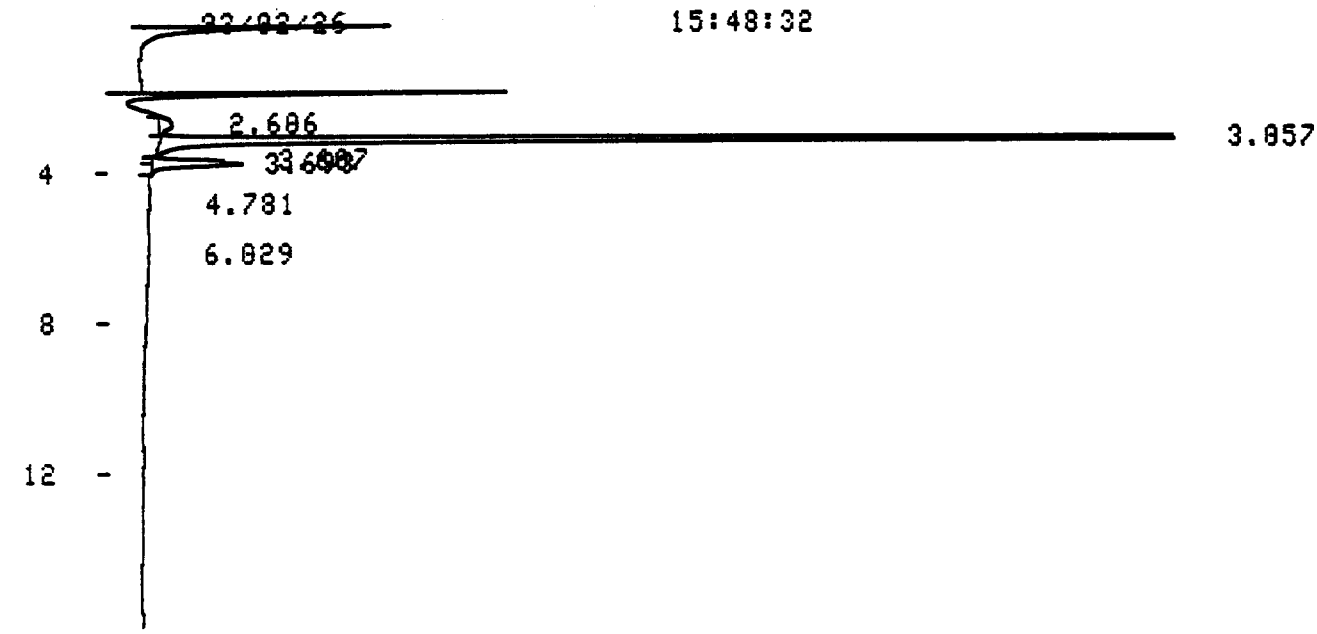
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 2



CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.633	1863		6		C-6+
2	3.058	103528		1		C-1
3	3.608	2825		2		C-2) 7522
4	3.691	4697	V	2		C2
	TOTAL	112914			0	

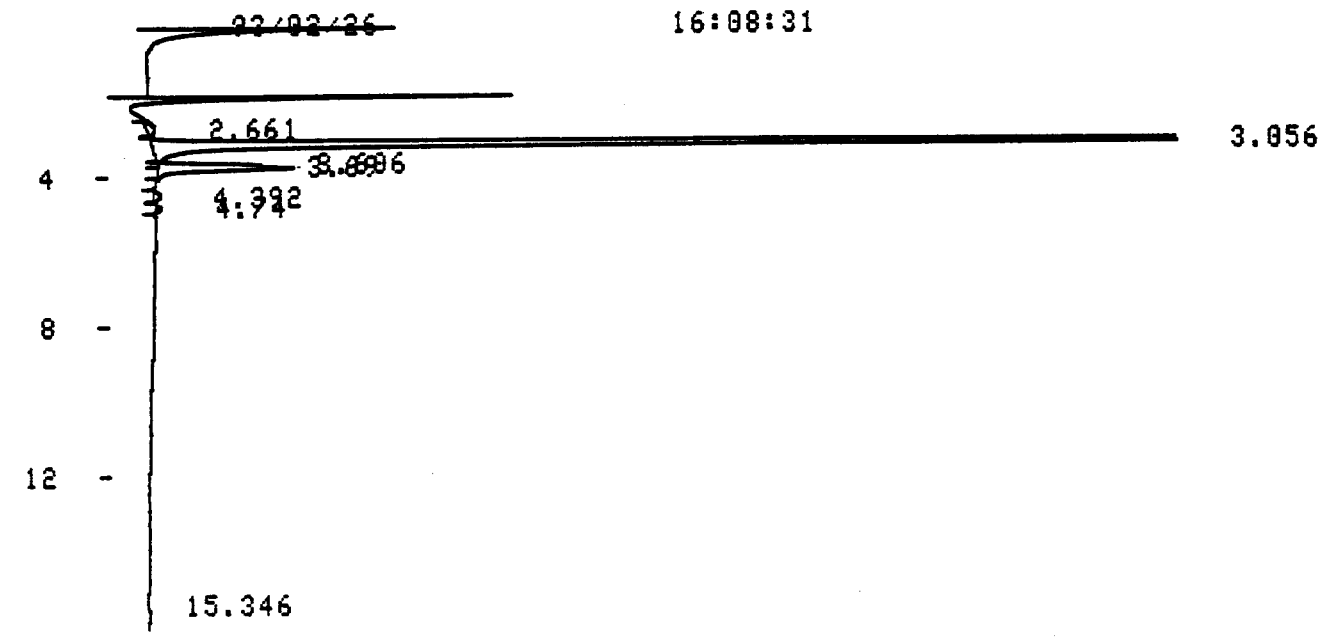
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 1 HC SAMPLE # 3



CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.606	1540		6		C-6+
2	3.057	97550		1		C-1
3	3.607	2713		2		C-2) 7200
4	3.693	4487	V	2		C2)
	TOTAL	106290			0	

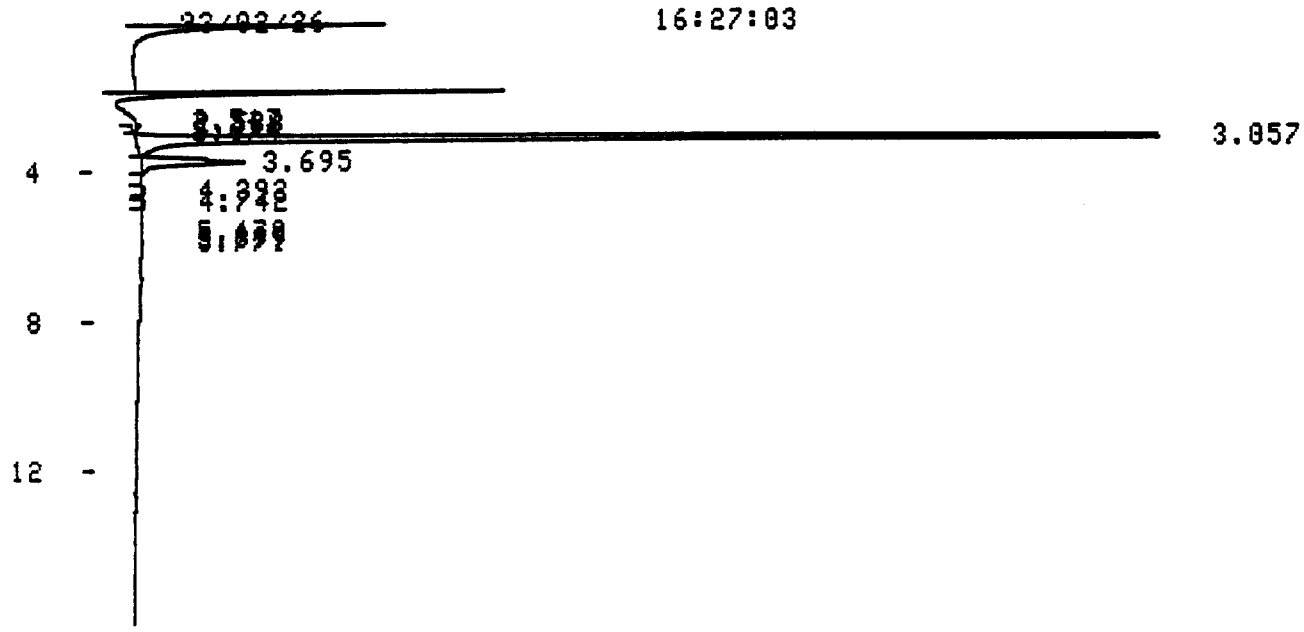
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
TURBINE # 2 HC SAMPLE # 1



CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.661	722		6		C-6+
2	3.056	138419		1		C-1
3	3.606	3975		2		C-2) 10599
4	3.69	6624	V	2		C2
5	4.392	443		8		C-3) 748
6	4.74	305		3		C-3
	TOTAL	150487			0	

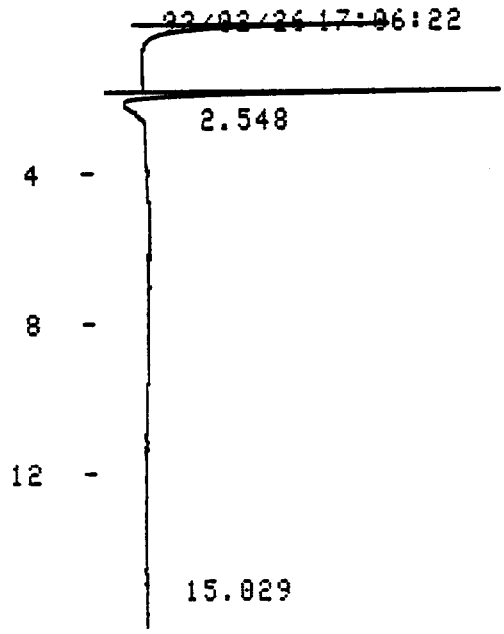
DESTEC KERN FRONT
2-25-93 REPORT # 027-343
TURBINE # 2 HC SAMPLE # 2



CHROMATOGRAM 12 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.674	266	V	6		C-6+
2	3.057	99696		1		C-1
3	3.695	7587		2		C 2
4	4.392	232		8		C-3) 450
5	4.742	218		3		C-3
	TOTAL	107999			0	

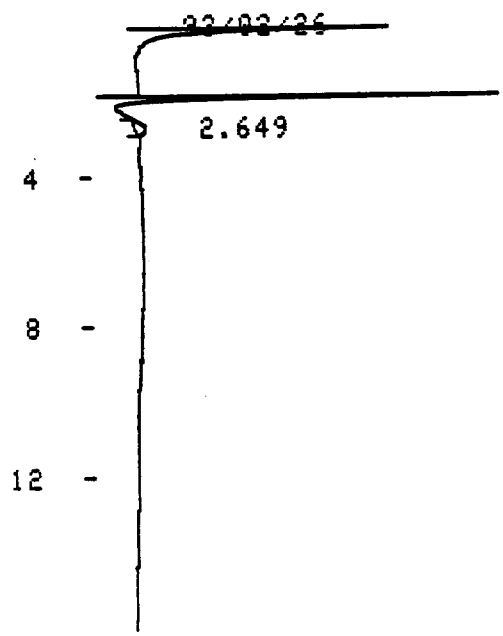
DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
HC SAMPLE BLANK



CHROMATOGRAM 14 MEMORIZED
WARNING NO PEAK

DESTEC KERN FRONT
2-25-93 PROJECT # 027-343
MIDTEST BLANK

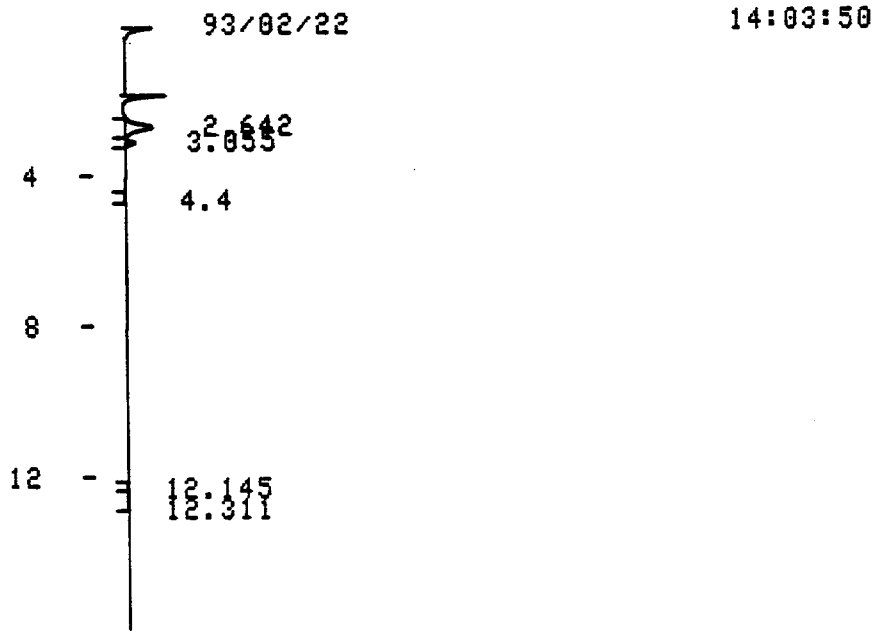
93/03/26 18:46:07



CHROMATOGRAM 19 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.649	1105		6		C-6+
	TOTAL	1105			0	

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 1

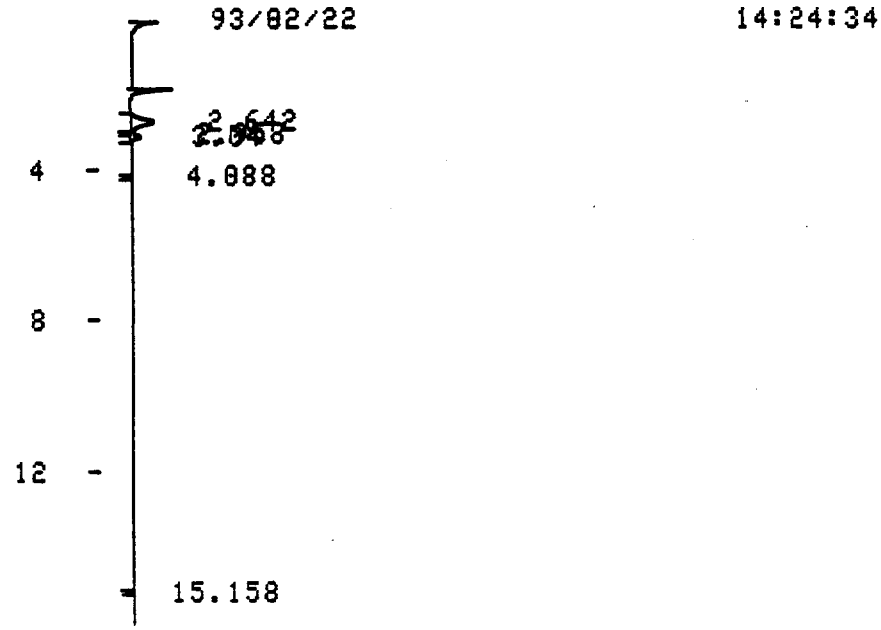


CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2294		6	2.1669	C-6+
2	3.055	441		1	2.5884	C-1
3	4.4	215		8	0.3981	C-3
4	12.145	163		16	0.188	C-5
5	12.311	315		16	0.3632	C-5
	TOTAL	3428			5.7047	

GROUP(NAME)	CONC
C-1	2.5884
C-2	0
C-3	0.3981
C-4	0
C-5	0.5513
C-6+	2.1669

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 2

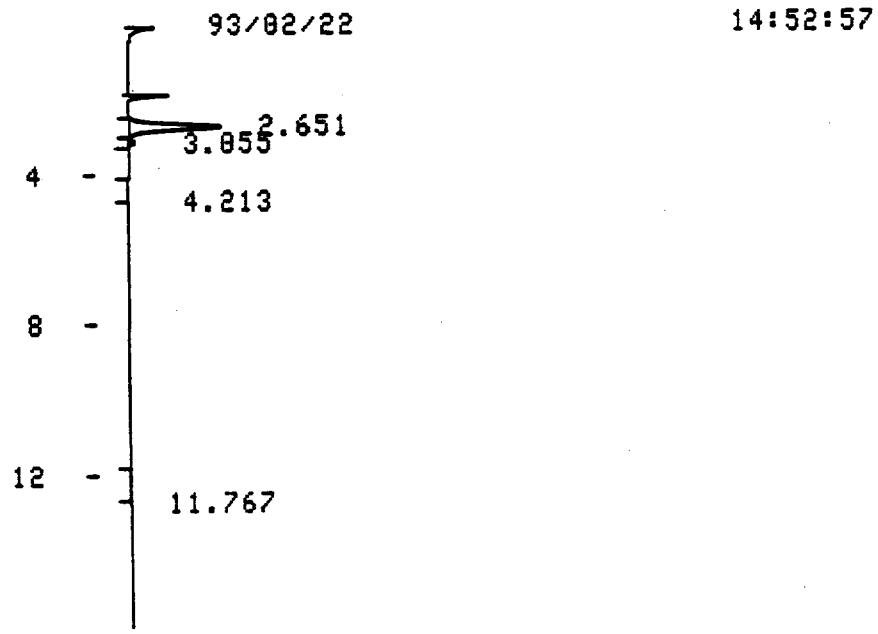


CHROMATOGRAM 14 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2039		6	1.9265	C-6+
2	2.958	183	V	1	1.075	C-1
3	3.04	420	V	1	2.465	C-1
4	4.088	51				
5	15.158	54		15	0.0617	C-5
	TOTAL	2747			5.5281	

GROUP(NAME)	CONC
C-1	3.54
C-2	0
C-3	0
C-4	0
C-5	0.0617
C-6+	1.9265

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 GENERATOR
HC SAMPLE # 3

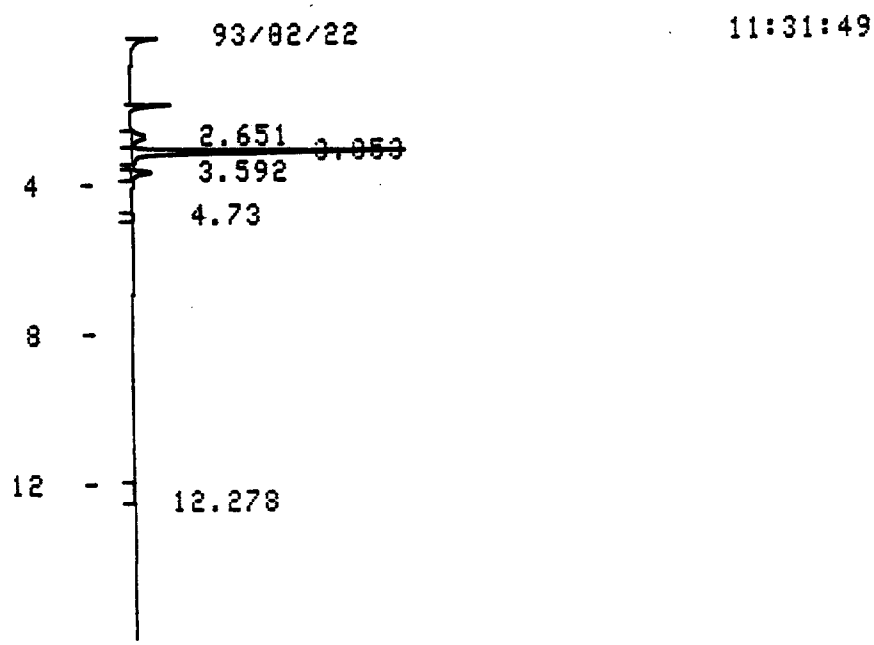


CHROMATOGRAM 15 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.651	7376		6	6.9674	C-6+
2	3.055	298		1	1.7493	C-1
3	4.213	230		8	0.4265	C-3
4	11.767	310		17	0.3571	C-5
	TOTAL	8214			9.5003	

GROUP(NAME)	CONC
C-1	1.7493
C-2	0
C-3	0.4265
C-4	0
C-5	0.3571
C-6+	6.9674

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 1 TURBINE
HC SAMPLE # 1

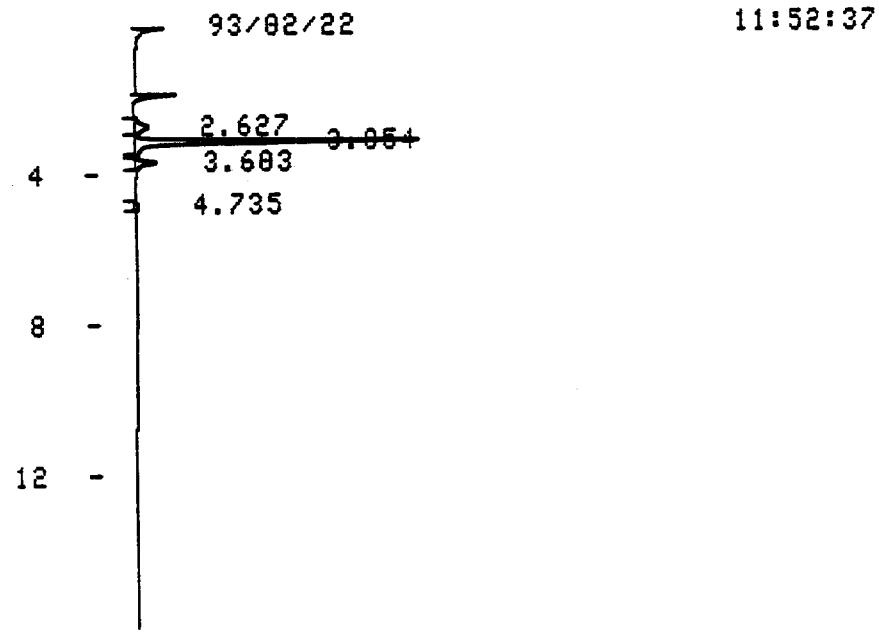


CHROMATOGRAM 6 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.651	1149		6	1.0854	C-6+
2	3.053	11534		1	67.7079	C-1
3	3.592	934		2	2.603	C-2
4	4.73	169		3	0.3134	C-3
5	12.278	183		16	0.2111	C-5
	TOTAL	13970			71.9208	

GROUP(NAME)	CONC
C-1	67.7079
C-2	2.603
C-3	0.3134
C-4	0
C-5	0.2111
C-6+	1.0854

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 1 TURBINE
HC SAMPLE # 2

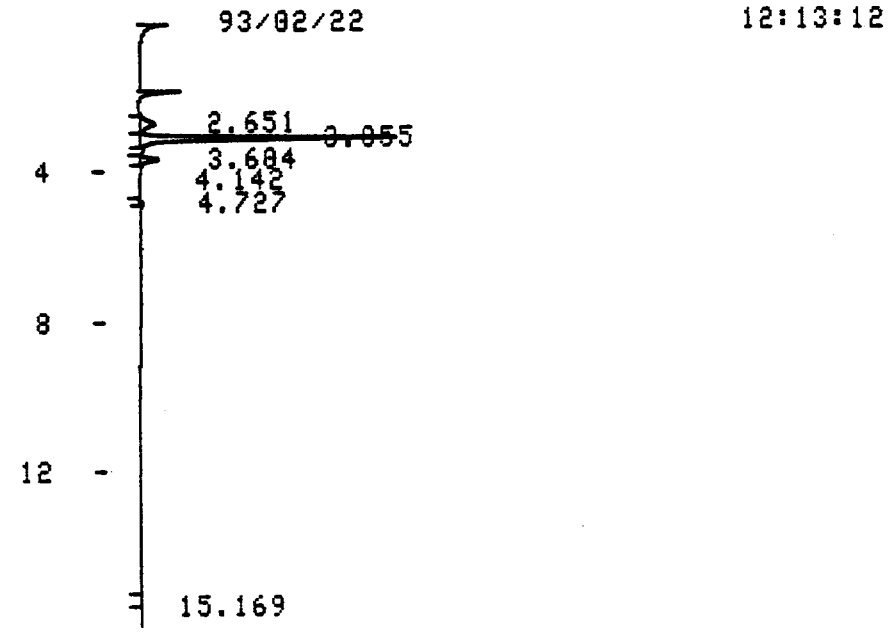


CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.627	1045		6	0.9872	C-6+
2	3.054	11992	V	1	70.3967	C-1
3	3.603	945		2	2.6324	C-2
4	4.735	207		3	0.3834	C-3
	TOTAL	14189			74.3997	

GROUP(NAME)	CONC
C-1	70.3967
C-2	2.6324
C-3	0.3834
C-4	0
C-5	0
C-6+	0.9872

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 1 TURBINE
HC SAMPLE # 3

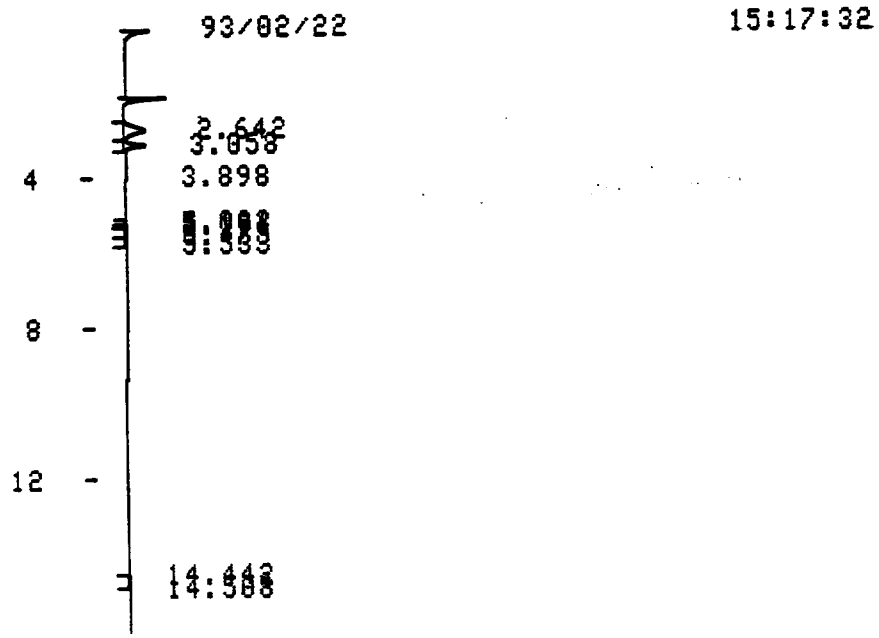


CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.651	1050		6	0.9919	C-6+
2	3.055	10743		1	63.0603	C-1
3	3.684	784		2	2.1847	C-2
4	4.727	105		3	0.1945	C-3
5	15.169	60		15	0.0687	C-5
	TOTAL	12741			66.5001	

GROUP(NAME)	CONC
C-1	63.0603
C-2	2.1847
C-3	0.1945
C-4	0
C-5	0.0687
C-6+	0.9919

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 1

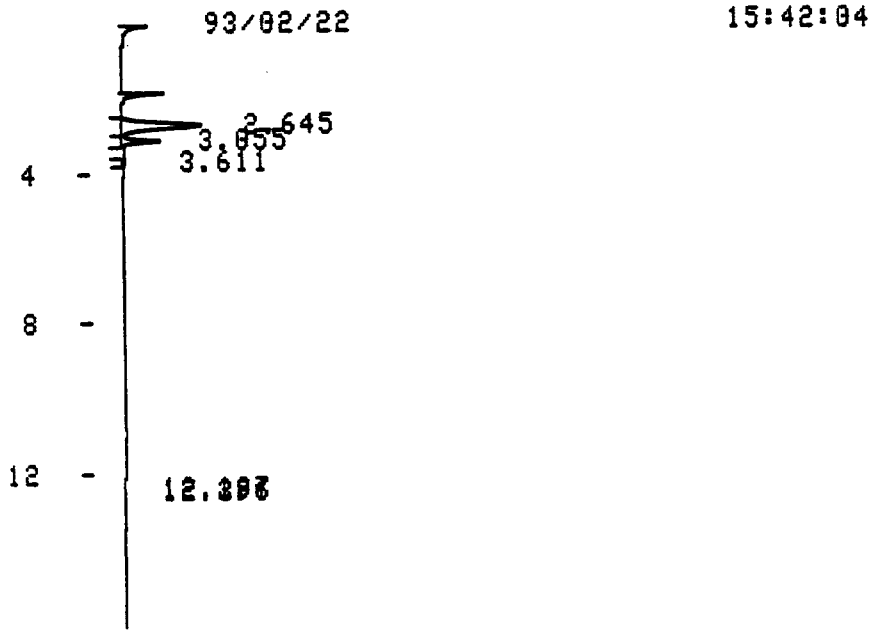


CHROMATOGRAM 16 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	1699		6	1.6044	C-6+
2	3.058	949		1	5.5684	C-1
3	5.082	60				
4	5.475	111	V			
5	5.533	110				
6	14.508	145	V			
	TOTAL	3074			7.1728	

GROUP(NAME)	CONC
C-1	5.5684
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	1.6044

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 2

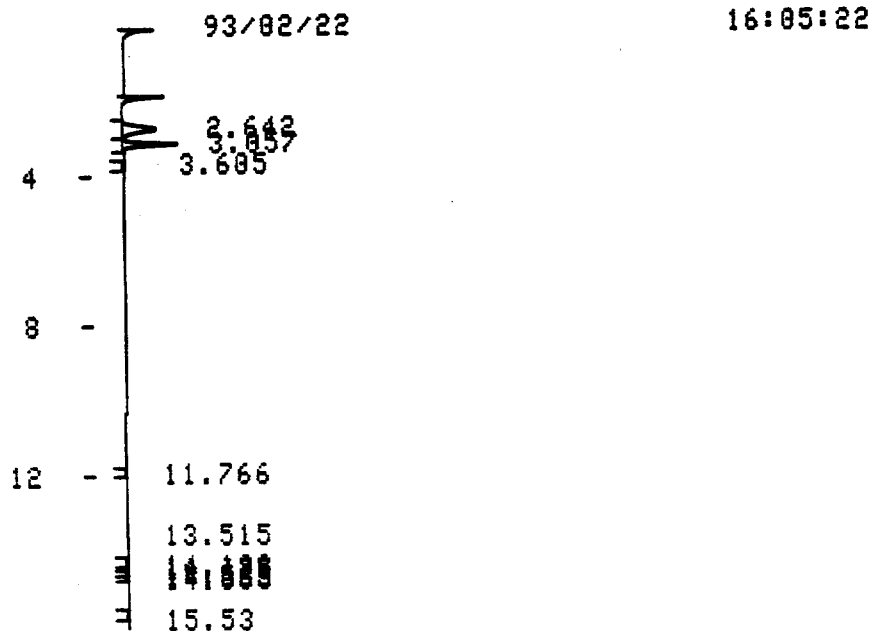


CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.645	6369		6	6.0158	C-6+
2	3.055	1664		1	9.767	C-1
3	3.611	122		2	0.3399	C-2
	TOTAL	8155			16.1228	

GROUP(NAME)	CONC
C-1	9.767
C-2	0.3399
C-3	0
C-4	0
C-5	0
C-6+	6.0158

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 2 GENERATOR
HC SAMPLE # 3

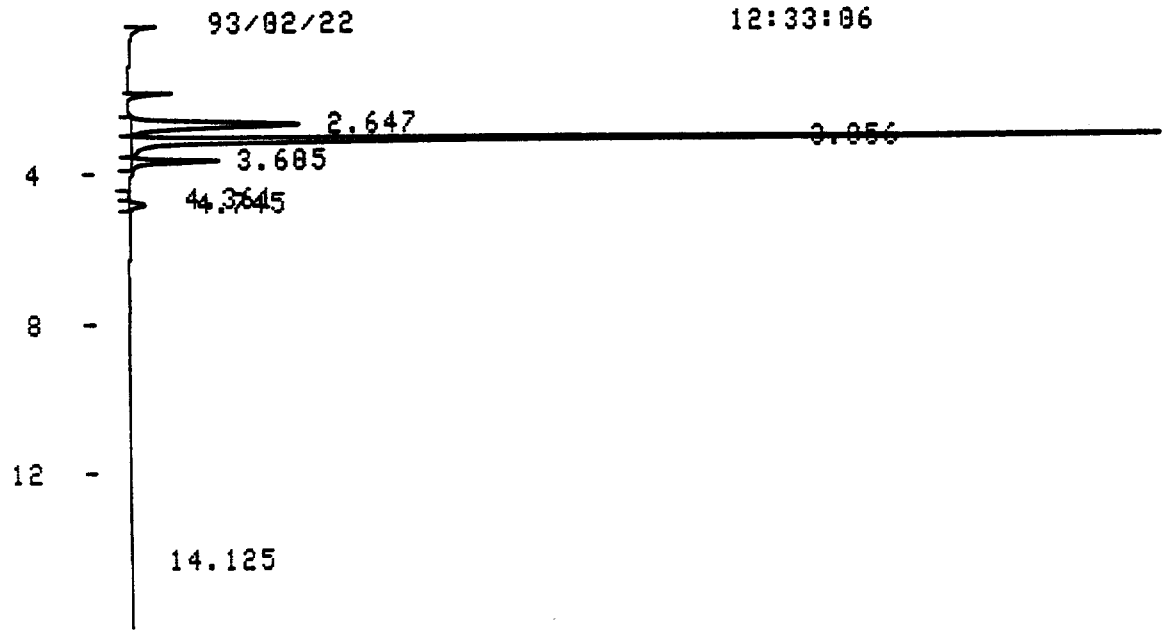


CHROMATOGRAM 18 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.642	2795		6	2.6399	C-6+
2	3.057	2409		1	14.1423	C-1
3	3.605	215		2	0.5988	C-2
4	11.766	127		17	0.1463	C-5
5	14.198	161				
6	14.533	71				
7	14.655	62	V			
8	15.53	115		15	0.1326	C-5
	TOTAL	5955			17.6598	

GROUP(NAME)	CONC
C-1	14.1423
C-2	0.5988
C-3	0
C-4	0
C-5	0.2788
C-6+	2.6399

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 1

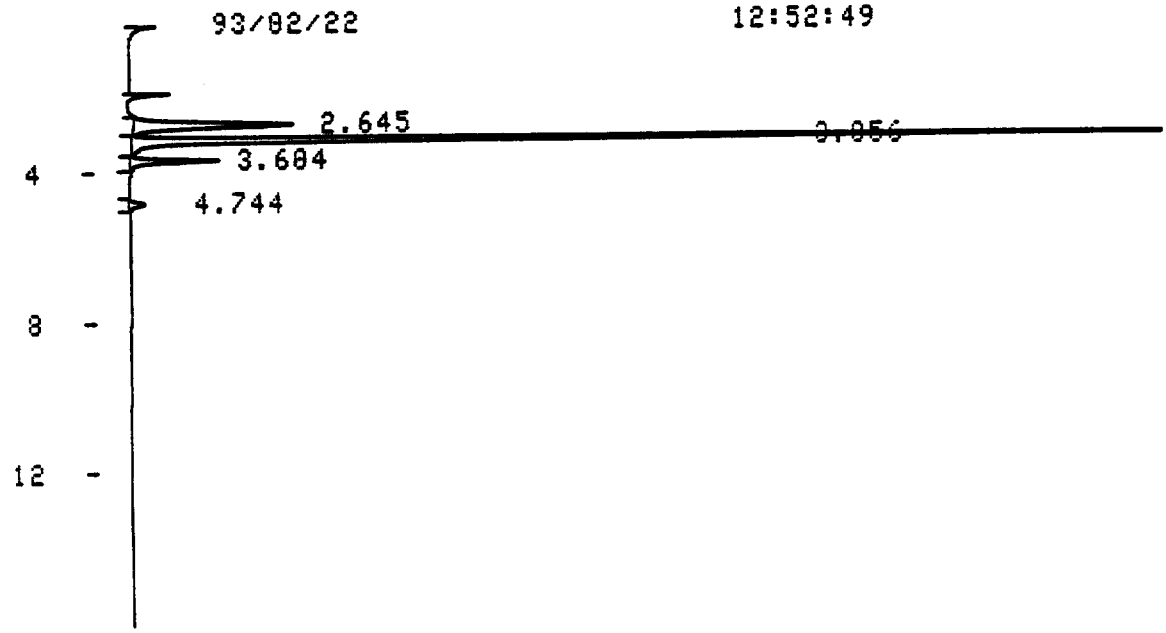


CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.647	13262		6	12.527	C-6+
2	3.056	52364		1	307.3803	C-1
3	3.685	4118		2	11.4735	C-2
4	4.361	56		8	0.1032	C-3
5	4.745	977		3	1.8123	C-3
	TOTAL	70776			333.2962	

GROUP(NAME)	CONC
C-1	307.3803
C-2	11.4735
C-3	1.9155
C-4	0
C-5	0
C-6+	12.527

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 2

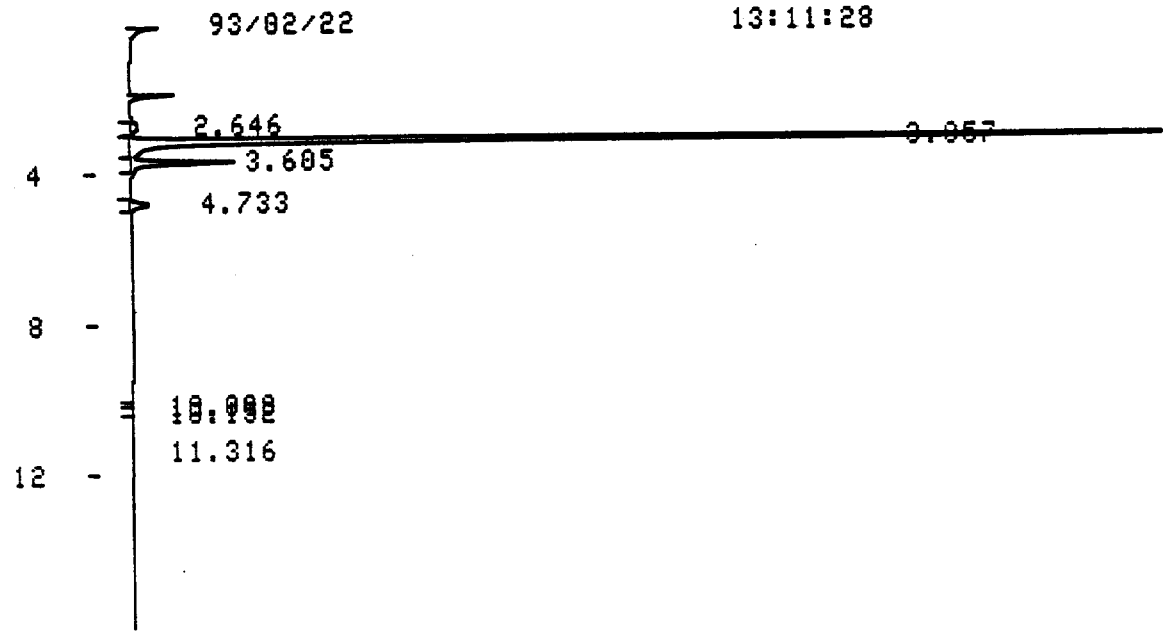


CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.645	12826		6	12.1153	C-6+
2	3.056	52228		1	306.5854	C-1
3	3.604	4091		2	11.4002	C-2
4	4.744	943		3	1.75	C-3
	TOTAL	70089			331.8509	

GROUP(NAME)	CONC
C-1	306.5854
C-2	11.4002
C-3	1.75
C-4	0
C-5	0
C-6+	12.1153

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
LUBE OIL VENT # 2 TURBINE
HC SAMPLE # 3



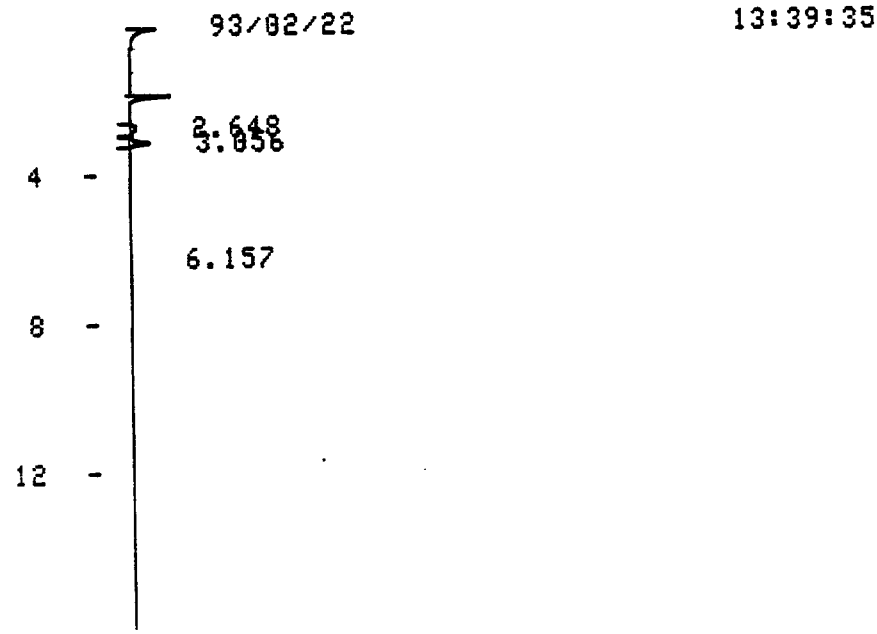
CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.646	555		6	0.5243	C-6+
2	3.057	59407		1	348.7268	C-1
3	3.605	4835	V	2	13.4726	C-2
4	4.733	1168		3	2.167	C-3
5	10.008	66		11	0.0764	C-5
6	10.152	142		11	0.1631	C-5
	TOTAL	66173			365.1301	

GROUP(NAME)	CONC
C-1	348.7268
C-2	13.4726
C-3	2.167
C-4	0
C-5	0.2396
C-6+	0.5243

DESTEC KERN FRONT
2-19-93 REPORT # 027-343
LUBE OIL VENT # 1 & # 2
HC SAMPLE BLANK

93/02/22 13:39:35



CHROMATOGRAM 12 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.648	361		6	0.3413	C-6+
2	3.056	934		1	5.4844	C-1
	TOTAL	1296			5.8257	

GROUP(NAME)	CONC
C-1	5.4844
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	0.3413

MAIN STACK PACK

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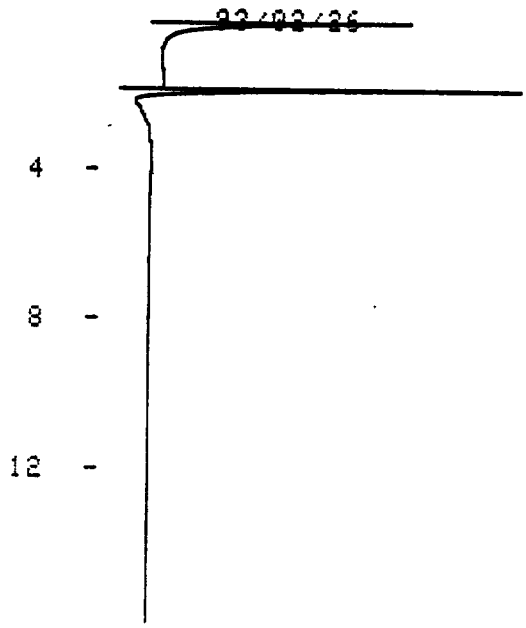
UHP NIRTOGEN

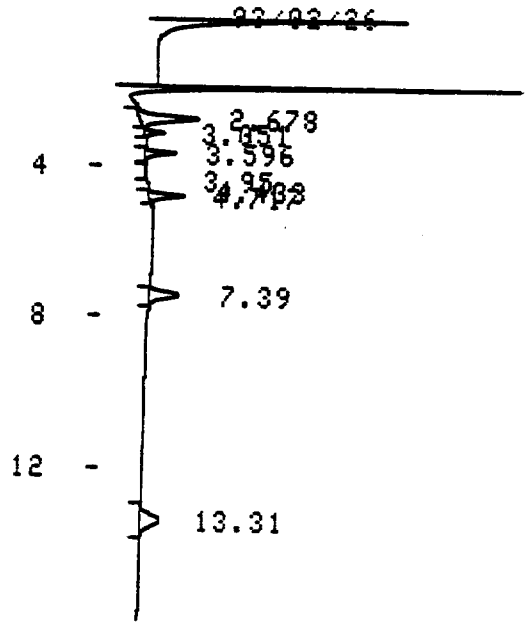


12:28:20

CHROMATOGRAM 1 MEMORIZED
WARNING NO PEAK

0.4PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:40

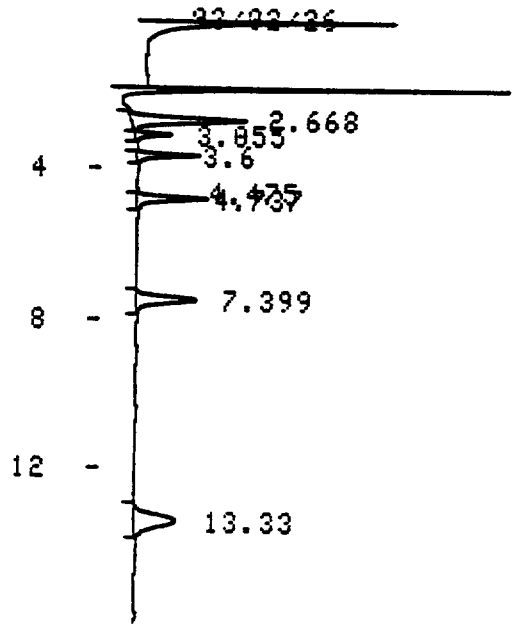
93/03/26 12:56:19



CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.678	4424		6		C-6+
2	3.051	701		1		C-1
3	3.596	1447		2		C-2
4	3.95	221		7		C-2
5	4.717	2050		3		C-3
6	7.39	2712		4		C-4
7	13.31	3461		5		C-5
	TOTAL	15016			0	

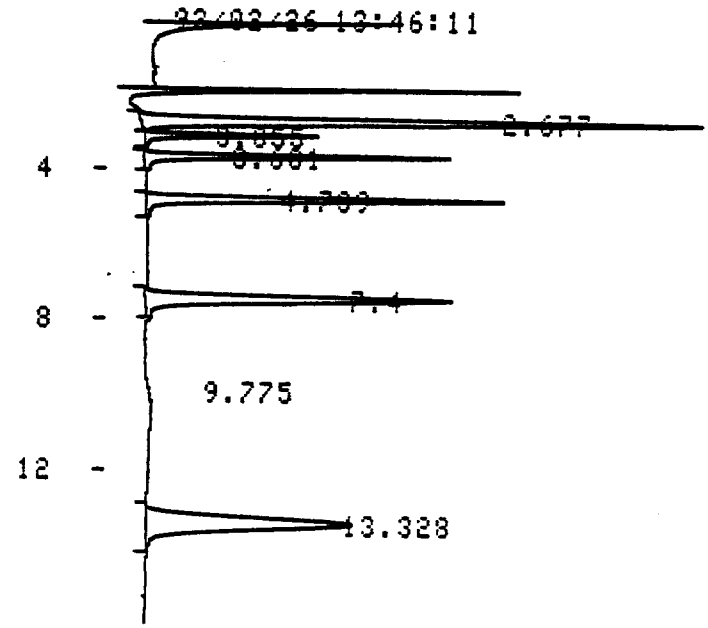
0.8PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:20



CHROMATOGRAM 3 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.668	8505		6		C-6+
2	3.055	1426		1		C-1
3	3.6	2884		2		C-2
4	4.737	4274		3		C-3
5	7.399	5732		4		C-4
6	13.33	6886		5		C-5
	TOTAL	29707			0	

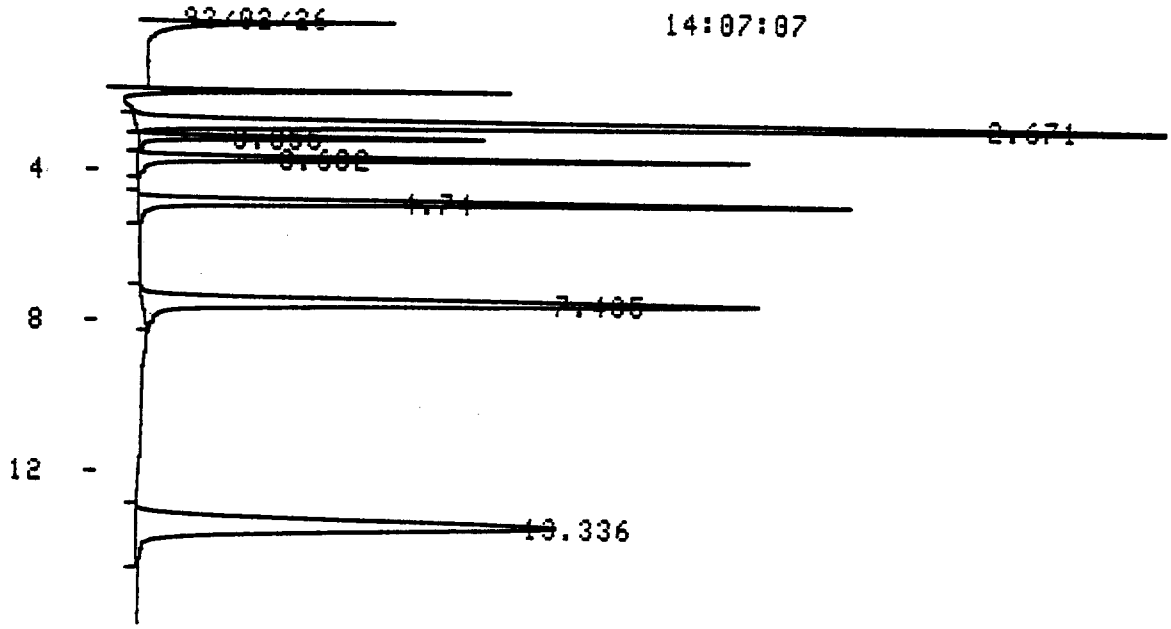
4PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:4



CHROMATOGRAM 4 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.677	41301		6		C-6+
2	3.055	7301		1		C-1
3	3.601	14647		2		C-2
4	4.739	21507		3		C-3
5	7.4	28432		4		C-4
6	13.328	34739		5		C-5
	TOTAL	147927			0	

8PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:2

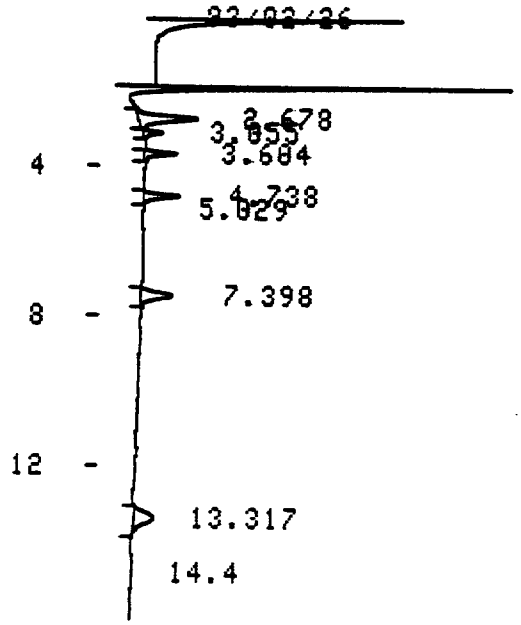


CHROMATOGRAM 5 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.671	82301		6		C-6+
2	3.055	14489		1		C-1
3	3.602	29285		2		C-2
4	4.74	43237		3		C-3
5	7.405	58664		4		C-4
6	13.336	69824		5		C-5
	TOTAL	297799			0	

POST ANALYSIS CALIBRATION CHECK
0.4PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:40

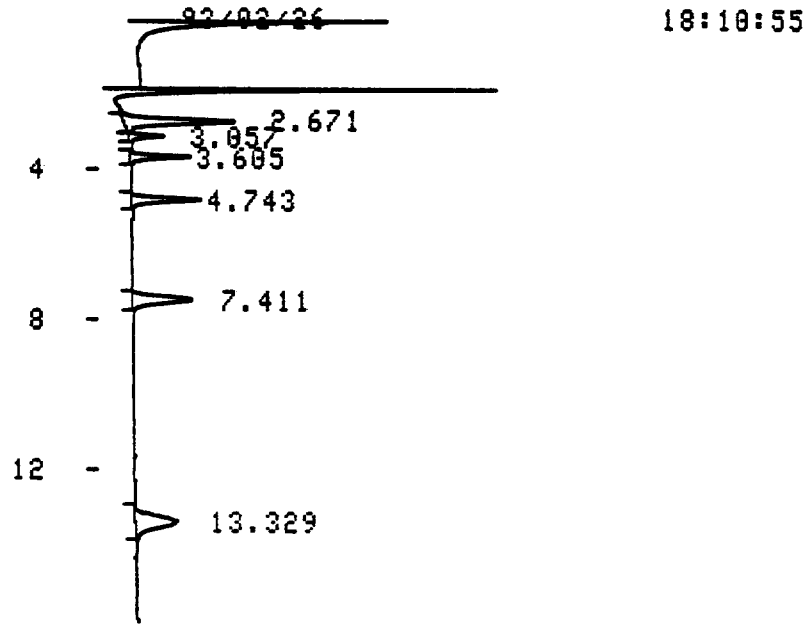
93/03/26 17:32:42



CHROMATOGRAM 15 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.678	4424		6		C-6+
2	3.055	721		1		C-1
3	3.684	1448		2		C-2
4	4.738	2196		3		C-3
5	7.398	2976		4		C-4
6	13.317	3179		5		C-5
	TOTAL	14943			0	

POST ANALYSIS CALIBRATION CHECK
0.8PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1 DIL. 1:20



CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.671	8364		6		C-6+
2	3.057	1360		1		C-1
3	3.605	2814		2		C-2
4	4.743	4111		3		C-3
5	7.411	5388		4		C-4
6	13.329	6574		5		C-5
	TOTAL	28612			0	

LOV QA PACK

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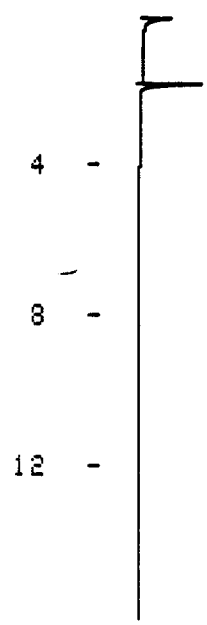
UHP NITROGEN

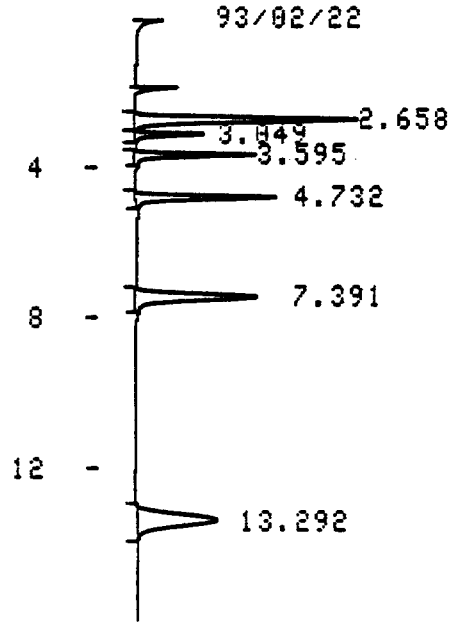
93/02/22 09:35:49



CHROMATOGRAM 1 MEMORIZED
WARNING NO PEAK

1.5PPm HYDROCARBON STANDARD
SCOTT CAN MIX 1

93/02/22 10:04:14



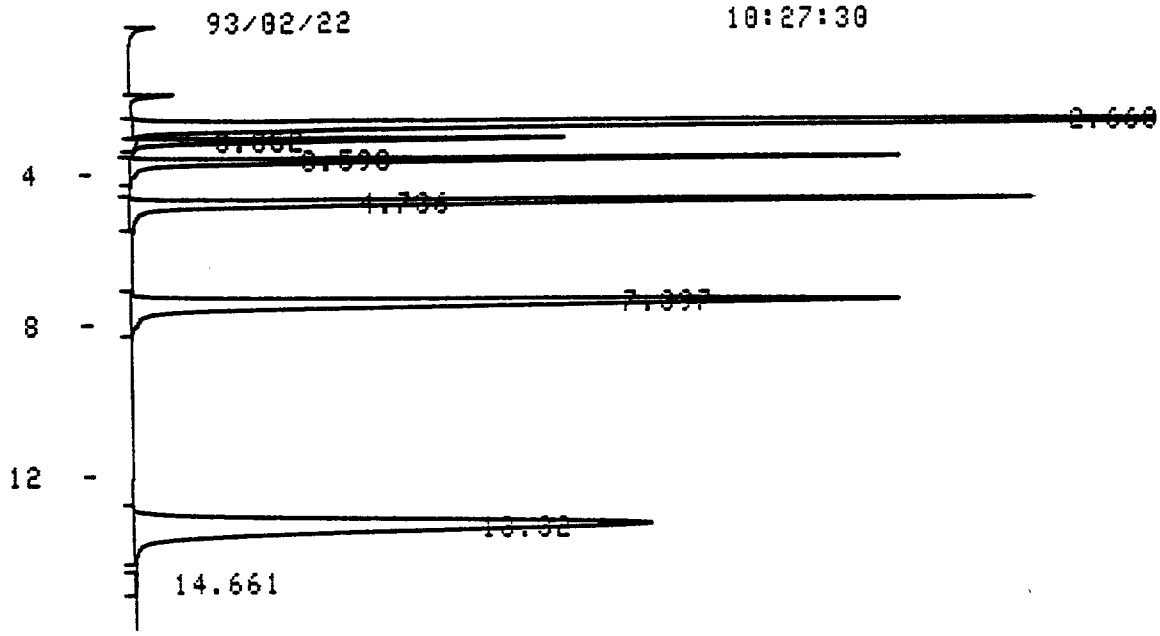
CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.658	16426		6		C-6+
2	3.049	2863		1		C-1
3	3.595	5737		2		C-2
4	4.732	8499		3		C-3
5	7.391	11271		4		C-4
6	13.292	13550		5		C-5
	TOTAL	58347				

IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.03	0.00576419	16.5
2	C-2	3.58	0.00287594	16.5
3	C-3	4.72	0.00194131	16.5
4	C-4	7.37	0.00146388	16.5
5	C-5	13.28	0.00109229	14.8
6	C-6+	2.65	0.00092534	15.2
7	C-2	3.85	0.00287594	16.5
8	C-3	4.3	0.00194131	16.5
9	C-4	5.7	0.00146388	16.5
10	C-4	6.65	0.00146388	16.5
11	C-5	10.24	0.00109229	14.8
12	C-5	10.59	0.00109229	14.8
13	C-5	12.73	0.00109229	14.8
14	C-5	11.3	0.00109229	14.8
15	C-5	15.43	0.00109229	14.8
16	C-5	8.79	0.00109229	14.8
17	C-5	11.82	0.00109229	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



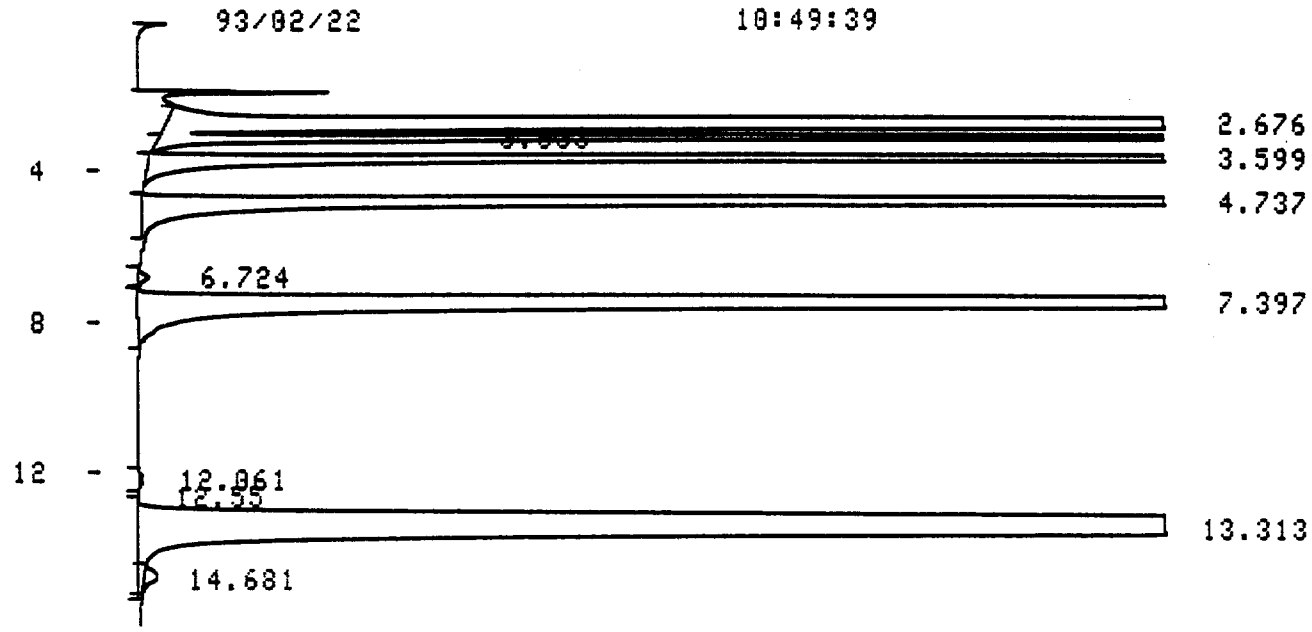
CHROMATOGRAM 3 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.668	105865		6		C-6+
2	3.052	17206		1		C-1
3	3.598	36247		2		C-2
4	4.736	53909		3		C-3
5	7.397	71268		4		C-4
6	13.32	85952		5		C-5
7	14.661	148				
	TOTAL	370596				

IDENTIFICATION FILE 1
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.04	0.00587011	101
2	C-2	3.58	0.00278646	101
3	C-3	4.72	0.00185496	100
4	C-4	7.38	0.00141718	101
5	C-5	13.3	0.00115297	99.1
6	C-6+	2.66	0.0009446	100
7	C-2	3.9	0.00278646	101
8	C-3	4.35	0.00185496	100
9	C-4	5.75	0.00141718	101
10	C-4	6.66	0.00141718	101
11	C-5	10.21	0.00115297	101
12	C-5	10.59	0.00115297	99.1
13	C-5	12.71	0.00115297	99.1
14	C-5	11.3	0.00115297	99.1
15	C-5	15.27	0.00115297	99.1
16	C-5	12.19	0.00115297	99.1
17	C-5	11.6	0.00115297	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



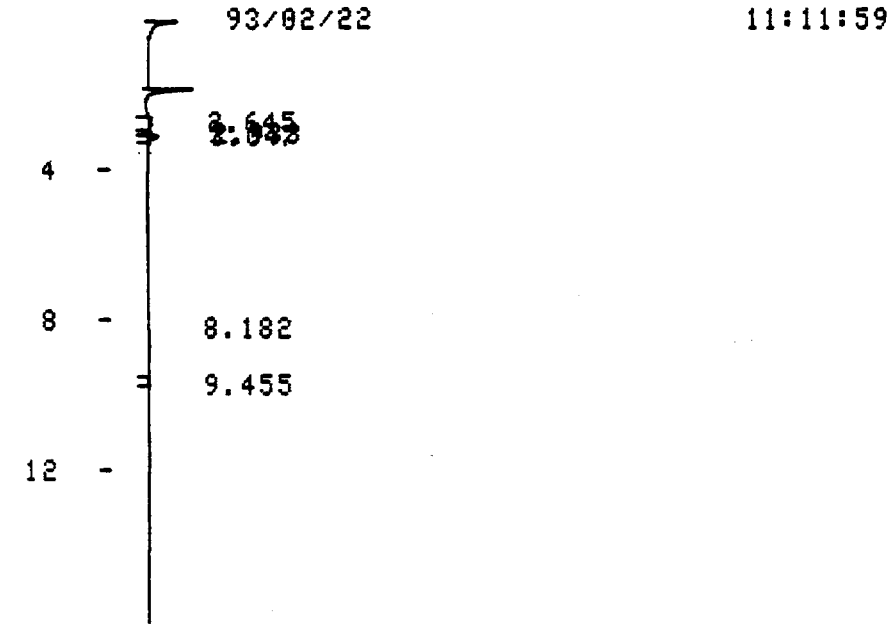
CHROMATOGRAM 4 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.676	1086007		6		C-6+
2	3.053	182088	V	1		C-1
3	3.599	366655		2		C-2
4	4.737	545057		3		C-3
5	6.724	804		10		C-4
6	7.397	722778		4		C-4
7	12.061	604				
8	13.313	888100	SV	5		C-5
9	14.681	2207	T			
	TOTAL	3794299				

IDENTIFICATION FILE 2
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.04	0.00549186	1000
2	C-2	3.58	0.00280918	1030
3	C-3	4.72	0.00183467	1000
4	C-4	7.38	0.00139739	1010
5	C-5	13.29	0.00114852	1020
6	C-6+	2.66	0.000925408	1005
7	C-2	3.9	0.00280918	1030
8	C-3	4.52	0.00183467	1000
9	C-4	5.94	0.00139739	1010
10	C-4	6.7	0.00139739	1010
11	C-5	10.21	0.00114852	1020
12	C-5	10.59	0.00114852	1020
13	C-5	12.73	0.00114852	1020
14	C-5	12.55	0.00114852	1020
15	C-5	15.21	0.00114852	1020

DESTEC KERN FRONT
2-18-93 REPORT # 027-343
HC SAMPLE BLANK

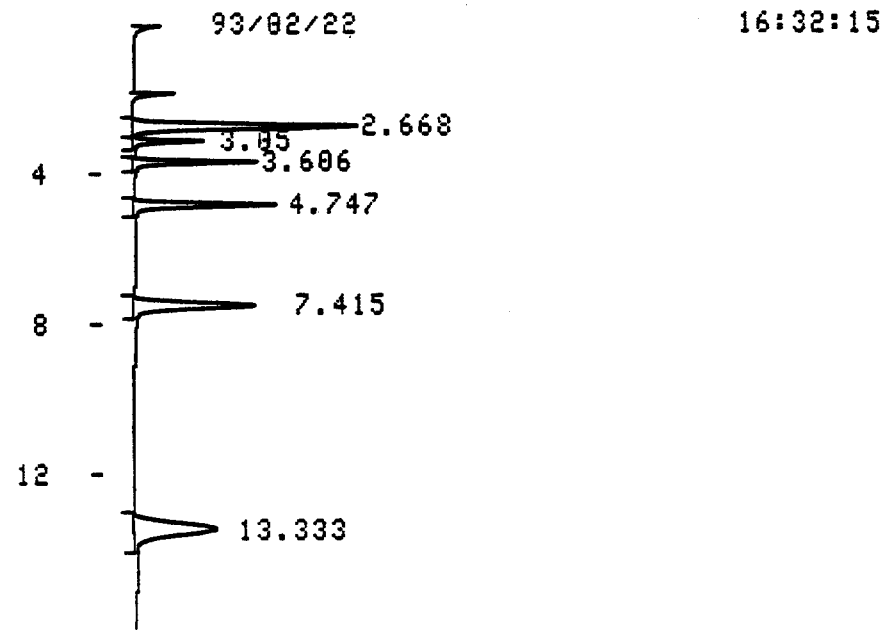


CHROMATOGRAM 5 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.645	324		6	0.3065	C-6+
2	2.933	~~136~~				
3	3.047	393	V	1	2.3089	C-1
4	9.455	~~56~~				
	TOTAL	911			2.6154	

GROUP(NAME)	CONC
C-1	2.3089
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	0.3065

POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD

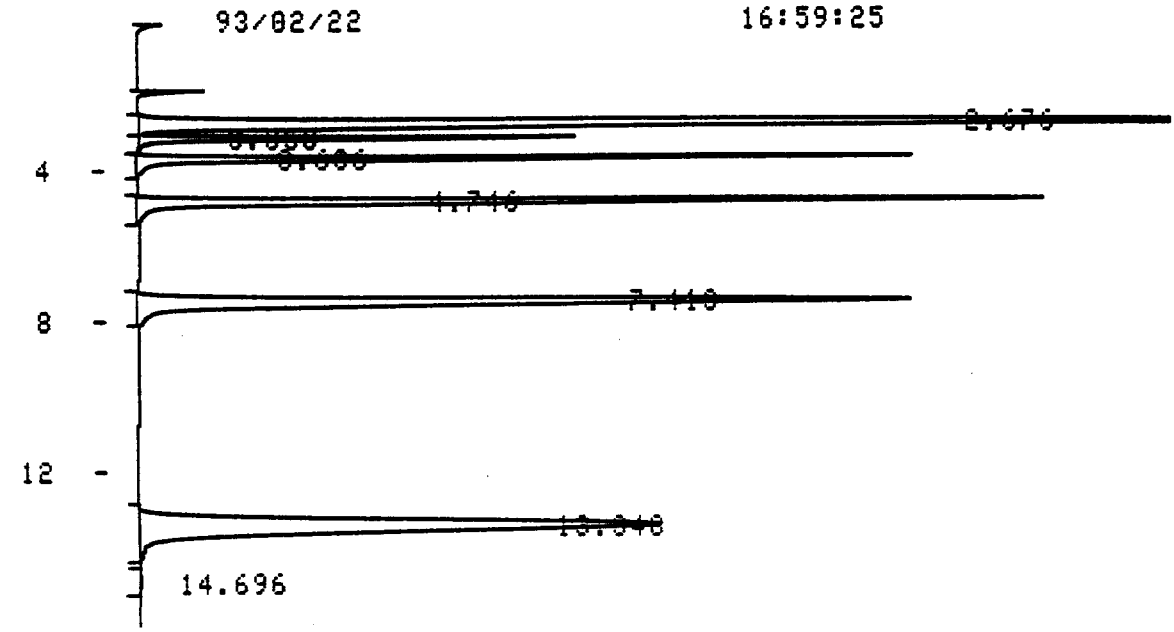


CHROMATOGRAM 19 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.668	16601		6	15.3613	C-6+
2	3.05	2905		1	16.7461	C-1
3	3.606	5756		2	16.5536	C-2
4	4.747	8542		3	16.5828	C-3
5	7.415	11108		4	16.2601	C-4
6	13.333	13783		5	15.0553	C-5
	TOTAL	58695			96.5593	

GROUP(NAME)	CONC
C-1	16.7461
C-2	16.5536
C-3	16.5828
C-4	16.2601
C-5	15.0553
C-6+	15.3613

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



CHROMATOGRAM 20 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.676	106879		6	100.9578	C-6+
2	3.058	17901		1	105.0785	C-1
3	3.606	36431		2	101.5132	C-2
4	4.746	54303		3	100.7292	C-3
5	7.413	71681		4	101.5843	C-4
6	13.348	86774		5	100.0474	C-5
7	14.696	330				
	TOTAL	374297			609.9104	

GROUP(NAME)	CONC
C-1	105.0785
C-2	101.5132
C-3	100.7292
C-4	101.5843
C-5	100.0474
C-6+	100.9578

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

313 Daniels Lane
Bakersfield, California 93307
(805) 327-7300
FAX (805) 327-3459

Gary Fuller
WZI, Inc.
January 29, 1993

Units: Kern Front Limited
Two Cogens

SOURCE TEST PLAN

I. Source Information:

A. Unit: Two 25.0 MW GE LM-2500
Gas Fired Turbines
PTO# 4166001 (B), 4166002 (B)

B. Company: Destec Engineering, Inc.
Kern Front Limited Cogeneration Facility
Sec. 2-T28S-R27E
Kern County, California

C/O Gary Fuller (WZI, Inc.)
4800 Easton Drive, Suite 114
Bakersfield, CA 93309

II. Testing Firm:

Petro Chem Environmental Services, Inc.
313 Daniels Lane
Bakersfield, CA 93307

Attention: Mark Ready

III. Regulatory Agency:

San Joaquin Valley Unified APCD
Southern Region

IV. Summary:

Determination of concentrations (ppm) and emissions (lb/hr) of particulate, sulfur, NMHC, NOx, CO and Spec II, III, IV (NOx, O_2 and CO) relative accuracy, from the exhaust of two gas fired Turbine/Generators.

V. Testing Date:

February 23 - 26, 1993

PROPOSAL FOR COMPLIANCE TESTING AT TWO TURBINE MAIN STACKS

Determination of concentrations (ppm) and emissions (lb/hr) of particulate, sulfur, NMHC, NOx and CO from the exhaust of two 25 MW gas fired Turbine/Generators. Relative Accuracy testing will be performed for NOx, O_2 and CO following Title 40 CFR performance Spec II, III and IV; a minimum of nine thirty minute runs will be performed. Fuel sulfur analysis will be performed by EPA Method 20 and 19; EAS Labs of San Luis Obispo will be used (example analysis enclosed). The following methods will be used:

Parameters	Method	# Test Runs Per Turbine	Permit Limit, lb/hr Per Turbine
Particulate	EPA Method 5; Gravimetric	2 - 6 hour	3.12
Sulfur	Fuel Analysis / Fuel Rates	1	*** 0.16 as sulfur
NMHC	EPA Method 18; (modified) C_1-C_6+	3	** 3.12
* NOx	EPA Method 20; Chemiluminescent Analyzer	9 - 30 minute	4.04 lb/hr 0.0162 lb/MMBtu
* CO	EPA method 10; GFC Analyzer	9 - 30 minute	27.83
* O_2	EPA Method 20; Fuel Cell Analyzer	9 - 30 minute	---
Molecular Weight $O_2/CO_2/N_2$	EPA Method 3; Orsat	2	---
volume Flow DSCFM	EPA Method 2; Pitot Tube Traverse	2	---
Relative Accuracy NOx/O_2/CO	Title 40 CFR Performance Spec II/III/IV	See above NOx, O_2, CO	20%/20%/10%

* An initial 48 point concentration traverse will be performed to document the point(s) of average concentration. All follow-up runs will be performed at the point(s) of average concentration.

** Includes emission from lube oil vent stack. The Method 18 analysis will be modified to increase sensitivity to 0.2 ppm C_1-C_6+. Sample analysis is enclosed.

*** Emissions as sulfur = (lb/hr SO_2/s) + lb/hr SO_4/3

Gary Fuller (WZI)
Kern Front Limited Cogen Facility
January 29, 1993

Units: Two Gas Turbines and
Four Lube Oil Vent Stacks

PROPOSAL FOR COMPLIANCE TESTING
LUBE OIL VENT STACKS

Determination of concentrations (ppm, gr/DSCF) and emissions (lb/hr, lb/day) of condensable and non condensable hydrocarbon emissions from the exhaust of four lube oil vent stacks (two per turbine). The following procedures will be used:

Parameters	Method	# Test Runs/Site
Condensable Hydrocarbons	EPA Method 4; with Gravimetric Organic Extractions Utilizing CARB Method 5.4.3.1	3
Non Condensable Hydrocarbons	EPA Method 18; Bag Sample FID Analysis	3
Volume Flow	EPA Method 2; Pitot Tube or Hot Wire Anemometer	3
Molecular Weight	EPA Method 3; Orsat Analysis	3
% H_2O	EPA Method 4; Condensation	3

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

2700 "M" STREET, SUITE 275
BAKERSFIELD, CA. 93301
TELEPHONE: (805) 861-3682

Number: 4166001(B)

PERMIT TO OPERATE IS HEREBY GRANTED TO: KERN FRONT LIMITED

FOR EQUIPMENT LOCATED AT: Sec. 2, T28S, R27E
Kern Front Lease

EQUIPMENT OR PROCESS DESCRIPTION: 25.0 MW Gas-Fired Turbine Engine
Cogeneration System

OPERATIONAL CONDITIONS LISTED BELOW.

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR LOCATION, OR ANY ALTERATION.

NOTE: The permittee may be required to provide adequate sampling and testing facilities. Equipment modification requires a new permit.

REVOCABLE: This permit does not authorize the emission of air contaminants in excess of those allowed by the Rules and Regulations the K.C.A.P.C.D.

WILLIAM J. RODDY
AIR POLLUTION CONTROL OFFICER

By: _____

For Period: 02-28-92 TO 02-28-93

CONDITIONAL APPROVAL:
Compliance with all conditions of approval imposed by any applicable Authority to Construct is required for life of this equipment unless modified by application. Equipment authorized by this Permit to Operate shall comply in full with applicable Rule 210.1 requirements.

EQUIPMENT DESCRIPTION:

a. Winston 120 HB centrifugal separator.
b. General Electric. Model LM 2500. 230.3 MM BTU/hr input natural gas fired turbine engine.
c. Continuously recording emission monitores for NOx. CO. and O_2.
d. 25.0 MW electric generator.

OPERATIONAL CONDITIONS:

1. Gas turbine engine shall be fired exclusively with PUC-regulated quality natural gas. (Rule 210.1)
2. Gas turbine engine steam injection rate shall be maintained at 1.82 - 1.92 steam to fuel ratio documented to result in compliance with emission limits. (Rule 209)
3. Ammonia injection rate shall be controlled to maintain ammonia "break-through" to less than 20 ppmv. (Rule 410)
4. If steam injection. SCR. or catalytic conversion system is inoperative, gas turbine engine shall be shut down. (Rule 209)
   Inlet gas temperature to both catalyst beds shall be maintained within the range recommended by catalyst manufacturer. (Rule 209)
6. Gas turbine engine shall not burn more thna 5.87 MM scf/day of natural gas. (Rule 209)

7. All gas turbine exhaust shall flow through both catalyst beds. (Rule 209)
8. Handling and storage of collected liquids shall not result in an increase of hydrocarbon emissions. (Rule 210.1)
9. Visible emissions from lube oil system atmospheric vent shall not exceed 20% opacity for more than a total of 3 minutes in any one hour. (Rule 401)

COMPLIANCE TESTING REQUIREMENT:

Compliance with particulates, sulfur compounds, oxides of nitrogen, hydrocarbons and carbon monoxide emission sampling limits shall be demonstrated by District-witnessed sample collection by independent testing laboratory within 60 days after startup and annually within 60 days prior to permit anniversary date, and the official test results, and field data submitted within 30 days after collection. Samples shall be collected during maximum fuel consumption and use of evaporative coolers. (Rule 108.1)

EMISSION SAMPLING LIMITS:

Particulates:	3.12	lbm/hr		(Rule 210.1)
Sulfur Compounds:	0.16	lbm/hr	(of SO2)	(Rule 210.1)
	0.24	lbm/hr	(of SO4)	(Rule 210.1)
Oxides of Nitrogen:	4.04	lbm/hr	(as NO2)	(Rule 210.1)
	0.0162	lbm/MM BTU	(as NO2)	(Rule 210.1 BACT req'mt)
Hydrocarbons:	3.12	lbm/hr		(Rule 210.1) (including lube oil cooler/ accumulating vents & collected liquids)
Carbon Monoxide:	27.88	lbm/hr		(Rule 210.1)

SPECIAL CONDITIONS:

1. Kern Front Limited shall comply in full with Rule 422 (New Source Performance Standards) requirements including notification, record keeping and monitoring requirements.
2. Continuous emission monitoring system for NOx (as NO2), CO and O2 serving exhaust gas stream shall conform to Rule 108 specifications.
3. Continuous emission monitoring systems shall be calibrated and operated according to EPA guidelines as specified in CRF, Part 60, Appendix B. (Rule 108)
4. Audits of monitors shall be conducted semi-annually by independent laboratory in accordance with EPA guidelines, witnessed by District, and reports shall be submitted to District within 30 days of such audit. (Rule 108)
5. Kern Front Limited continuous emissions monitoring printouts shall be made readily available for District inspection upon request. (Rule 208)

Petro Chem Environmental Services, Inc.

6. Kern Front Limited shall keep accurate records of daily fuel consumption of gas turbine engine and shall make them readily available for District inspection upon request. (Rule 209)
7. Steam produced at this facility for use in oil-production operations shall affect only wells connected to well vent vapor recovery systems KCAPCD #4019105 & '106 owned by Cities Service and KCAPCD #4032104 & '106 owned by Petro Lewis unless prior District approval is obtained. (Rule 210.1)
8. Kern Front Limited shall provide design details, including but not limited to engineering drawings of SCR and catalytic convertor units for District approval prior to installation. (Rule 209)
9. Non-compliance with NOx emission sampling limit shall require: shut-down of gas turbine, down throttling (reduced fuel consumption), or installation of additional SCR catalyst volume - increased emission limits will require modified Authority to Construct before continued operation at such levels pursuant to Section 42350 of Califonria Health & Safety Code. a variance for this condition cannot be obtained. (Rule 209)

<u>RNING</u>:

Failure of catalyst to perform as required because of catalyst poisoning of fouling shall not be recognized as basis for Rule 111 enforcement exemption. (Rule 209)

7. All gas turbine exhaust shall flow through both catalyst beds. (Rule 209)
8. Handling and storage of collected liquids shall not result in an increase of hydrocarbon emissions. (Rule 210.1)
9. Visible emissions from lube oil system atmospheric vent shall not exceed 20% opacity for more than a total of 3 minutes in any one hour. (Rule 401)

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Sulfur Compounds:	0.16	lbm/hr	(of SO2) (Rule 210.1)
	0.24	lbm/hr	(of SO4) (Rule 210.1)
Oxides of Nitrogen:	4.04	lbm/hr	(as NO2) (Rule 210.1)
	0.0162	lbm/MM BTU	(as NO2) (Rule 210.1 BACT req'mt)
Hydrocarbons:	3.12	lbm/hr	(Rule 210.1) (including lube oil cooler/ accumulating vents & collected liquids)
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5. Kern Front Limited continuous emissions monitoring printouts shall be made readily available for District inspection upon request. (Rule 208)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

Number: 4166002(B)

2700 "M" STREET, SUITE 275
BAKERSFIELD, CA. 93301
TELEPHONE: (805) 861-3682

PERMIT TO OPERATE IS HEREBY GRANTED TO: KERN FRONT LIMITED

FOR EQUIPMENT LOCATED AT: Sec. 2, T28S, R27E
Kern Front Lease

EQUIPMENT OR PROCESS DESCRIPTION: 25.0 MW Gas-Fired Turbine Engine
Cogeneration System

OPERATIONAL CONDITIONS LISTED BELOW.

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR LOCATION, OR ANY ALTERATION.

NOTE: The permittee may be required to provide adequate sampling and testing facilities. Equipment modification requires a new permit.

REVOCABLE: This permit does not authorize the emission of air contaminants in excess of those allowed by the Rules and Regulations the K.C.A.P.C.D.

WILLIAM J. RODDY
AIR POLLUTION CONTROL OFFICER

By: _____

For Period: 02-28-92 TO 02-28-93

CONDITIONAL APPROVAL:
Compliance with all conditions of approval imposed by any applicable Authority to Construct is required for life of this equipment unless modified by application. Equipment authorized by this Permit to Operate shall comply in full with applicable Rule 210.1 requirements.

EQUIPMENT DESCRIPTION:

a. Winston 120 HB centrifugal separator.
b. General Electric, Model LM 2500, 250.3 MM BTU/hr input natural gas fired turbine engine.
c. Continuously recording emission monitores for NOx, CO, and O_2.
d. 25.0 MW electric generator.

OPERATIONAL CONDITIONS:

1. Gas turbine engine shall be fired exclusively with PUC-regulated quality natural gas. (Rule 210.1)
2. Gas turbine engine steam injection rate shall be maintained at 1.57 - 2.05 steam to fuel ratio documented to result in compliance with emission limits. (Rule 209)
3. Ammonia injection rate shall be controlled to maintain ammonia "break-through" to less than 20 ppmv. (Rule 410)
4. If steam injection, SCR, or catalytic conversion system is inoperative, gas turbine engine shall be shut down. (Rule 209)
   Inlet gas temperature to both catalyst beds shall be maintained within the range recommended by catalyst manufacturer. (Rule 209)
6. Gas turbine engine shall not burn more thna 5.67 MM scf/day of natural gas. (Rule 209)

6. Kern Front Limited shall keep accurate records of daily fuel consumption of gas turbine engine and shall make them readily available for District inspection upon request. (Rule 209)
7. Steam produced at this facility for use in oil-production operations shall affect only wells connected to well vent vapor recovery systems KCAPCD #4018108 & '106 owned by Cities Service and KCAPCD #4032104 & '106 owned by Petro Lewis unless prior District approval is obtained. (Rule 210.1)
8. Kern Front Limited shall provide design details, including but not limited to engineering drawings of SCR and catalytic convertor units for District approval prior to installation. (Rule 209)
9. Non-compliance with NOx emission sampling limit shall require: shut-down of gas turbine, down throttling (reduced fuel consumption), or installation of additional SCR catalyst volume - increased emission limits will require modified Authority to Construct before continued operation at such levels pursuant to Section 42350 of California Health & Safety Code, a variance for this condition cannot be obtained. (Rule 209)

WARNING:

Failure of catalyst to perform as required because of catalyst poisoning of fouling shall not be recognized as basis for Rule 111 enforcement exemption. (Rule 209)