Received 2/18/93 from UNOCAL with corrected ROC lbs/hr values and lbs/hr. values for NOx, CO

SUMMARY OF EMISSION RESULTS

COMPANY : UNOCAL CORPORATION

UNIT : ALL

DATE : OCTOBER 13–20, 1992
NOVEMBER 4 & 11, 1992

REPORT : 086–211

	DSCFM	NOx ppm	CO ppm	ROC ppm	NOx lbs/hr	CO lbs/hr	ROC lbs/hr
BATTLES							
WATER PUMP #19	83	17.9	437	135	0.0108	0.1606	0.0604
WATER PUMP #20	78	7.3	548	221	0.0041	0.1892	0.0864
WATER PUMP #21	110	17.3	246	57	0.0138	0.1198	0.0308
COOLING FAN 23	42	24.2	593	796	0.0074	0.1103	0.1754
COOLING FAN 24	23	19.1	412	381	0.0032	0.0419	0.0469
COOLING FAN 25	26	40.6	645	248	0.0077	0.0742	0.0336
COOLING FAN 26	19	43.6	527	200	0.0060	0.0443	0.0209
COOLING TOWER 13	84	29.4	263	85	0.0180	0.0978	0.0395
COOLING TOWER 14	175	52.5	305	84	0.0668	0.2363	0.0765
COOLING TOWER 15	84	40.5	294	123	0.0247	0.1093	0.0531
SANTA MARIA							
O'DONNELL 2–5	66	40.1	433	201	0.0192	0.1265	0.0701
UNION SUGAR 7	61	45.8	855	252	0.0203	0.2309	0.0902
UNION SUGAR 16	55	50.0	563	133	0.0200	0.1371	0.0390
UNION SUGAR 26	30	32.3	634	199	0.0070	0.0842	0.0314
UNION SUGAR 46	41	37.8	481	165	0.0113	0.0873	0.0380
UNION SUGAR 21	47	31.0	375	76	0.0106	0.0780	0.0192
UNION SUGAR 27	51	27.6	458	118	0.0102	0.1034	0.0314
LEROY PINE 15	62	33.8	563	120	0.0152	0.1545	0.0385
LEROY PINE 14	33	23.0	466	195	0.0055	0.0681	0.0333
CAMALIA							
GAS COMP. ENGINE	111	62.1	322	152	0.0501	0.1582	0.0856
CAT CANYON							
BELL 17	85	19.8	467	131	0.0122	0.1757	0.0610
BELL 169	82	33.7	544	149	0.0201	0.1975	0.0633
BELL 87	63	36.6	491	94	0.0168	0.1369	0.0304
BELL 85	97	44.5	502	133	0.0314	0.2156	0.0658

Unocal North American
Oil & Gas Division
Unocal Corporation
201 South Broadway
Orcutt, California 93455
Telephone (805) 937-6376

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SB CO. APCD

UNOCAL 76

January 14, 1993

Mr. Brian Shafritz
Air Quality Engineer
Santa Barbara County APCD
26 Castilian Drive B-23
Goleta, CA 93117

RE: Internal Combustion Engines - Source Test Emissions Summary Report #086-211

Dear Mr. Shafritz,

Enclosed please find the summary of emissions for the internal combustion engines found in the referenced report. Please include with the report.

If you have any comments concerning this submittal, please feel free to call me at (805) 934-8291.

Sincerely,
UNION OIL COMPANY OF CALIFORNIA
dba UNOCAL

Dennis K. Simila
Environmental Specialist

SUMMARY OF EMISSION RESULTS

COMPANY : UNOCAL CORPORATION UNIT : ALL

DATE : OCTOBER 13–20, 1992 REPORT : 086–211
NOVEMBER 4 & 11, 1992

	DSCFM	NOx ppm	CO ppm	ROC ppm	NOx Lbs/hr	CO Lbs/hr	ROC Lbs/hr
BATTLES							
WATER PUMP #19	83	17.9	437	135	0.011	0.161	0.028
WATER PUMP #20	78	7.3	548	221	0.004	0.189	0.044
WATER PUMP #21	110	17.3	246	57	0.014	0.119	0.016
COOLING FAN 23	42	24.2	593	796	0.007	0.109	0.084
COOLING FAN 24	23	19.1	412	381	0.003	0.043	0.022
COOLING FAN 25	26	40.6	645	248	0.008	0.073	0.016
COOLING FAN 26	19	43.6	527	200	0.006	0.044	0.009
COOLING TOWER 13	84	29.4	263	85	0.018	0.098	0.018
COOLING TOWER 14	175	52.5	305	84	0.067	0.237	0.037
COOLING TOWER 15	84	40.5	294	123	0.025	0.109	0.026
SANTA MARIA							
O'DONNELL 2–5	66	40.1	433	201	0.019	0.127	0.034
UNION SUGER 7	61	45.8	855	252	0.020	0.232	0.039
UNION SUGER 16	55	50.0	563	133	0.020	0.138	0.019
UNION SUGER 26	30	32.3	634	199	0.007	0.084	0.015
UNION SUGER 46	41	37.8	481	165	0.011	0.088	0.017
UNION SUGER 21	47	31.0	375	76	0.011	0.078	0.009
UNION SUGER 27	51	27.6	458	118	0.010	0.103	0.015
LEROY PINE 15	62	33.8	563	120	0.015	0.155	0.019
LEROY PINE 14	33	23.0	466	195	0.006	0.069	0.016
CASMALIA							
GAS COMP. ENGINE	111	62.1	322	152	0.050	0.158	0.043
CAT CANYON							
BELL 17	85	19.8	467	131	0.012	0.176	0.028
BELL 169	82	33.7	544	149	0.020	0.197	0.031
BELL 87	63	36.6	491	94	0.017	0.137	0.015
BELL 85	97	44.5	502	133	0.031	0.215	0.032

Unocal North American
Oil & Gas Division
Unocal Corporation
201 South Broadway
Orcutt, California 93455
Telephone (805) 937-6376

UNOCAL 76

December 3, 1992

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DEC 1992

SB CO. APCD

Mr. Brian Shafritz
Santa Barbara County APCD
26 Castilian, Suite B-23
Goleta, CA 93117

RE: Source Test Results
Battles Gas Plant,
Battles Variance,
Casmalia and Cat Canyon

Dear Mr. Shafritz:

Enclosed please find source test results for the following programs:

1. Battles Gas Plant Rule 333 Compliance-Water pumps 19, 20 and 21. Cooling tower pumps 13, 14 and 15.

2. Battles Variance-Cooling fans 23, 24, 25, and 26. Concurrent offset sources O'Donnell 2-5, Union Sugar 7, 16, 26, 46, 21 and 27, Leroy Pine 14 and 15.

3. Casmalia Rule 333 Compliance- Compressor.

4. Cat Canyon Rule 333 Compliance-Bell 17, 85, 87 and 169.

Please note that the Battles Gas Plant cooling fan #23 failed to meet the ROC limit of 250 ppm @ 15% O2. This 25 hp engine, exempt from Rule 333, was part of the Battles Gas Plant Variance program. Since the failure of this engine to meet the ROC limit makes it unusable as a concurrent offset, Unocal proposes to eliminate this engine from the program.

If you have any questions, please contact Mr. Bob Sewell or Mr. Dennis Simila at the letterhead address.

Sincerely,

Union Oil Company of California
dba UNOCAL

John M. Deacon
Environmental Supervisor
Santa Maria District

Enclosure

Permit#	Equip. Location	Equipment
8816	Battles	IC Engine, Waukesha Model 195, Sr. #12249, 63 BHP, Cool Twr #13
8816	Battles	IC Engine, Waukesha Model 145, #11529, 131 BHP, Cool Twr #14
8816	Battles	IC Engine, Waukesha, Model #195, #12246, 63 BHP, J Wtr Pump #19
8816	Battles	IC Engine, Waukesha, Model 195, #12248, 63 BHP, Cool Twr #15
8816	Battles	IC Engine Waukesha, Model #195, #12237, 63 BHP, J Wtr Pump #20
8816	Battles	IC Engine Waukesha #195, #12230, 63 BHP, J Wtr Pump #21
8816	Battles	IC Engine M & M #165, #12244, 25 BHP, Cooling Fan #23
8816	Battles	IC Engine M & M #165, #12232, 25 BHP, Cooling Fan #24
8816	Battles	IC Engine M & M # 165, #12233, 25 BHP, Cooling Fan #25
8816	Battles	IC Engine M & M #165, #12234, 25 BHP, Cooling Fan #26
8810	Casmalia	IC Engine Caterpillar #G342, #12253, 225 BHP, Compressor #1
8814	Cat Canyon	IC Engine Waukesha #145, #11266, 131 BHP, Bell #169
8814	Cat Canyon	IC Engine Waukesha #145, #11711, 131 BHP, Bell #17
8814	Cat Canyon	IC Engine Waukesha 145, #11545, 131 BHP, Bell #85
8814	Cat Canyon	IC Engine Waukesha 145, #11510, 131 BHP, Bell #87
8845	Santa Maria Valley	IC Engine M & M #605, #11279, 46 BHP, O'Donnell 2-5
8845	Santa Maria Valley	IC Engine Waukesha 145, #9905, 49 BHP, Union Sugar #7
8845	Santa Maria Valley	IC Engine Waukesha 145, 11262, 49 BHP, Union Sugar #16
8845	Santa Maria Valley	IC Engine M & M 605, #10365, 46 BHP, Union Sugar #21
8845	Santa Maria Valley	IC Engine M & M 425, #10966, 39 BHP, Union Sugar #26
8845	Santa Maria Valley	IC Engine M & M 605 #8505, 46 BHP, Union Sugar #27
8845	Santa Maria Valley	IC Engine M & M 605, #9883, 46 BHP, Union Sugar #46
8845	Santa Maria Valley	IC Engine M & M 425, #11226, 39 BHP, Leroy Pine #14
8845	Santa Maria Valley	IC Engine M & M 605, #12131, 46 BHP, Leroy Pine #15

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SUMMARY OF EMISSION RESULTS

COMPANY: UNOCAL CORPORATION

UNIT : ALL

DATE : OCTOBER 13-20, 1992
NOVEMBER 4 & 11, 1992

REPORT #: 086-211

	NOx ppm	ppm @ 15% O2	CO ppm	ppm @ 15% O2	R O C ppm @ 15% O2
BATTLES					
WATER PUMP # 19	17.9	8.7	437	211	65
WATER PUMP # 20	7.34	4.05	548	302	122
WATER PUMP # 21	17.3	10.6	246	150	35
COOLING FAN 23	24.2	15.1	593	372	509
COOLING FAN 24	19.1	9.1	412	197	182
COOLING FAN 25	40.6	20.4	645	324	125
COOLING FAN 26	43.6	18.6	527	225	85
COOLING TOWER 13	29.4	19.0	263	170	55
COOLING TOWER 14	52.5	23.7	305	137	38
COOLING TOWER 15	40.5	17.3	294	126	53
SANTA MARIA VALLEY					
O'DONNELL 2-5	40.1	18.0	433	194	90
UNION SUGAR 7	45.8	19.7	855	369	109
UNION SUGAR 16	50.0	22.0	563	248	59
UNION SUGAR 26	32.3	15.5	634	305	96
UNION SUGAR 46	37.8	16.5	481	211	72
UNION SUGAR 21	31.0	12.7	375	154	31
UNION SUGAR 27	27.6	12.2	458	202	52
LEROY PINE 15	33.8	14.5	563	239	51
LEROY PINE 14	23.0	10.4	466	211	89
CASMALIA					
GAS COMP. ENGINE	62.1	28.7	322	149	70
CAT CANYON					
BELL 17	19.8	11.7	467	277	78
BELL 169	33.7	15.8	544	255	70
BELL 87	36.6	16.2	491	217	42
BELL 85	44.5	20.6	502	165	61

COMPANY : UNOCAL CORPORATION

UNIT : BATTLES LEASE

DATE : OCTOBER 13-15, 1992
NOVEMBER 4 & 11, 1992

REPORT #: 086-211

		NOx ppm	ppm @ 15% O2	CO ppm	ppm @ 15% O2	R O C ppm @ 15% O2
WATER PUMP # 19	RUN # 1	18.5	8.90	436	210	66
	RUN # 2	17.8	8.60	437	211	67
	RUN # 3	17.5	8.50	437	212	63
	AVERAGE	17.9	8.67	437	211	65
WATER PUMP # 20	RUN # 1	7.81	4.29	551	303	127
	RUN # 2	7.18	3.97	542	299	116
	RUN # 3	7.03	3.88	550	303	122
	AVERAGE	7.34	4.05	548	302	122
WATER PUMP # 21	RUN # 1	19.5	11.5	251	148	33
	RUN # 2	16.6	10.1	262	160	38
	RUN # 3	15.8	10.1	225	143	33
	AVERAGE	17.3	10.6	246	150	35
COOLING FAN 23	RUN # 1	23.3	14.9	585	374	336
	RUN # 2	20.9	13.8	579	382	887
	RUN # 3	28.5	16.7	615	361	305
	AVERAGE	24.2	15.1	593	372	509
COOLING FAN 24	RUN # 1	19.0	9.00	329	157	195
	RUN # 2	18.5	8.90	454	218	166
	RUN # 3	19.8	9.50	453	216	185
	AVERAGE	19.1	9.13	412	197	182
COOLING FAN 25	RUN # 1	37.8	19.1	645	326	131
	RUN # 2	42.6	21.3	650	325	126
	RUN # 3	41.4	20.8	641	322	118
	AVERAGE	40.6	20.4	645	324	125
COOLING FAN 26	RUN # 1	42.4	18.4	537	233	75
	RUN # 2	41.1	17.5	525	224	90
	RUN # 3	47.2	20.0	535	226	91
	AVERAGE	43.6	18.6	532	228	85
COOLING TOWER 13	RUN # 1	28.3	18.5	257	169	56
	RUN # 2	31.3	20.0	257	164	57
	RUN # 3	28.6	18.4	274	176	52
	AVERAGE	29.4	19.0	263	170	55
COOLING TOWER 14	RUN # 1	49.4	22.2	360	162	39
	RUN # 2	55.0	24.7	197	88	38
	RUN # 3	53.2	24.1	358	162	38
	AVERAGE	52.5	23.7	305	137	38
COOLING TOWER 15	RUN # 1	39.2	16.9	296	128	50
	RUN # 2	42.1	17.9	294	125	67
	RUN # 3	40.1	17.0	293	124	41
	AVERAGE	40.5	17.3	294	126	53

COMPANY: UNOCAL CORPORATION UNIT : SANTA MARIA VALLEY

DATE : OCTOBER 15-20, 1992 REPORT #: 086-211

		NOx ppm	ppm @ 15% O2	CO ppm	ppm @ 15% O2	R O C ppm @ 15% O2
O'DONNELL 2-5	RUN # 1	35.7	16.3	450	205	94
	RUN # 2	39.8	17.8	391	175	92
	RUN # 3	44.8	19.8	458	202	85
	AVERAGE	40.1	18.0	433	194	90
UNION SUGAR 7	RUN # 1	44.5	19.2	847	366	107
	RUN # 2	44.0	19.1	852	369	108
	RUN # 3	48.9	20.9	867	371	111
	AVERAGE	45.8	19.7	855	369	109
UNION SUGAR 16	RUN # 1	38.7	17.0	615	271	58
	RUN # 2	69.7	30.6	551	242	59
	RUN # 3	41.6	18.3	524	231	59
	AVERAGE	50.0	22.0	563	248	59
UNION SUGAR 26	RUN # 1	37.2	17.8	624	299	87
	RUN # 2	34.2	16.4	629	301	95
	RUN # 3	25.5	12.4	649	316	106
	AVERAGE	32.3	15.5	634	305	96
UNION SUGAR 46	RUN # 1	40.3	17.5	406	177	71
	RUN # 2	38.8	17.0	525	230	73
	RUN # 3	34.4	15.1	513	225	73
	AVERAGE	37.8	16.5	481	211	72
UNION SUGAR 21	RUN # 1	31.1	12.7	378	154	31
	RUN # 2	34.7	14.4	361	149	30
	RUN # 3	27.1	11.1	386	159	33
	AVERAGE	31.0	12.7	375	154	31
UNION SUGAR 27	RUN # 1	30.6	13.3	481	209	52
	RUN # 2	25.6	11.3	466	206	51
	RUN # 3	26.6	11.9	452	202	54
	AVERAGE	27.6	12.2	466	206	52
LEROY PINE 15	RUN # 1	30.9	12.9	554	230	51
	RUN # 2	30.1	12.8	568	240	52
	RUN # 3	40.3	17.7	566	248	51
	AVERAGE	33.8	14.5	563	239	51
LEROY PINE 14	RUN # 1	25.9	11.5	469	209	74
	RUN # 2	21.6	9.9	466	213	100
	RUN # 3	21.6	9.9	462	212	92
	AVERAGE	23.0	10.4	466	211	89

COMPANY: UNOCAL CORPORATION

UNIT : CASMALIA & CAT CANYON

DATE : OCTOBER 20, 1992

REPORT #: 086-211

		NOx ppm	ppm @ 15% O2	CO ppm	ppm @ 15% O2	R O C ppm @ 15% O2
CASMALIA	RUN # 1	66.1	30.2	340	156	61
	RUN # 2	62.8	29.1	290	135	72
	RUN # 3	57.5	26.8	336	157	78
	AVERAGE	62.1	28.7	322	149	70
BELL 17	RUN # 1	19.2	11.6	457	277	79
	RUN # 2	20.1	11.9	476	281	79
	RUN # 3	20.1	11.7	469	274	77
	AVERAGE	19.8	11.7	467	277	78
BELL 169	RUN # 1	34.1	16.0	543	255	68
	RUN # 2	37.4	17.3	541	251	68
	RUN # 3	29.6	14.0	547	259	74
	AVERAGE	33.7	15.8	544	255	70
BELL 87	RUN # 1	35.2	15.5	494	217	44
	RUN # 2	37.3	16.6	489	217	37
	RUN # 3	37.2	16.5	489	216	44
	AVERAGE	36.6	16.2	491	217	42
BELL 85	RUN # 1	41.3	18.9	359	164	54
	RUN # 2	44.3	20.2	349	159	58
	RUN # 3	47.8	22.8	362	173	72
	AVERAGE	44.5	20.6	357	165	61

INTRODUCTION

On October 13 thru 20 and November 4 & 11, 1992, Petro Chem Environmental Services, Inc. (PCES) performed a series of emission tests for Unocal on various IC Engines located at Battles Plant, Santa Maria Valley, Casmalia, and Cat Canyon. Concentrations and emissions of NOx, CO, O_2, ROC, and volume flow were determined using the following procedures:

Parameters	Method	# Test Runs / Unit
NOx	EPA Method 7E; TECO 10 Chemiluminescent Analyzer	3 - 40 minute
CO	EPA Method 10; TECO 48, GFC	3 - 40 minute
O_2	EPA Method 3A; Teledyne 320 AX, Fuel Cell Analyzer	3 - 40 minute
ROC	EPA Method 18; GC-FID	3
Fuel Analysis	ASTM Methods D-1945-81 and D-3588-91	1/setting

All sampling was performed by John Hinkle of Petro Chem Environmental Services, Inc. (PCES). The fuel analysis and hydrocarbons were analyzed by Terry Rowles PCES. Bob Sewell supervised the testing for Unocal. UiJay Pawar witnessed some of the testing for Santa Barbara County APCD.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #19
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:33 AM	-	07:43 AM	8.67	19.3	438	44.8	29.5	53.4
07:43 AM	-	07:53 AM	8.68	18.5	436	44.9	28.7	53.3
07:53 AM	-	08:03 AM	8.68	18.6	435	44.9	28.8	53.2
08:03 AM	-	08:13 AM	8.67	17.7	434	44.9	27.9	53.2
		Averages:	8.68	18.5	436	44.9	28.7	53.3

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.6	88
FINAL zero	10	10.1	10
FINAL span	94	49.6	88.3
ZERO DRIFT %/ppm	0.00	0.10	0.00
CALIB. DRIFT %/ppm	0.02	0.00	3.03
ZERO DRIFT %fs	0.00	0.10	0.00
CALIB.DRIFT %fs	0.10	0.00	0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.68	18.5	27.1	8.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.68	436	638	210	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #19
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:20 AM	-	08:30 AM	8.67	17.9	436	44.9	28.1	53.3
08:30 AM	-	08:40 AM	8.67	18.3	436	44.9	28.5	53.3
08:40 AM	-	08:50 AM	8.67	18.4	436	44.9	28.6	53.3
08:50 AM	-	09:00 AM	8.70	16.8	440	45.0	27.0	53.7
		Averages:	**8.68**	**17.8**	**437**	**44.9**	**28.1**	**53.4**

	O2	NOx	CO
INITIAL zero	10	10.1	10
INITIAL span	94	49.6	88.3
FINAL zero	10	10	10
FINAL span	93.5	49.5	88.3
ZERO DRIFT %/ppm	0.00	-0.10	0.00
CALIB. DRIFT %/ppm	-0.12	-0.10	0.00
ZERO DRIFT %fs	0.00	-0.10	0.00
CALIB.DRIFT %fs	-0.50	-0.10	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**8.68**	**17.8**	**26.1**	**8.6**	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**8.68**	**437**	**640**	**211**	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #19
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:05 AM	-	09:15 AM	8.74	17.3	438	45.0	27.3	53.5
09:15 AM	-	09:25 AM	8.72	17.1	436	44.9	27.1	53.3
09:25 AM	-	09:35 AM	8.69	17.5	438	44.8	27.5	53.5
09:35 AM	-	09:45 AM	8.72	18.1	436	44.9	28.1	53.3
		Averages:	8.72	17.5	437	44.9	27.5	53.4

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.5	49.5	88.3
FINAL zero	10	10	10
FINAL span	93	49.9	88.3
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.13	0.40	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.50	0.40	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.72	17.5	25.7	8.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.72	437	642	212	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #21
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:54 AM	-	10:04 AM	10.79	20.0	254	53.2	30.2	35.1
10:04 AM	-	10:14 AM	10.85	19.4	254	53.2	30.1	35.0
10:14 AM	-	10:24 AM	10.85	20.8	245	53.0	31.9	33.9
10:24 AM	-	10:34 AM	10.91	17.9	252	53.0	29.5	34.5
		Averages:	10.85	19.5	251	53.1	30.4	34.6

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.3	88
FINAL zero	10	11	10
FINAL span	93	50.1	87.5
ZERO DRIFT %/ppm	0.00	1.00	0.00
CALIB. DRIFT %/ppm	-0.22	0.80	-5.05
ZERO DRIFT %fs	0.00	1.00	0.00
CALIB.DRIFT %fs	-0.90	0.80	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.85	19.5	34.8	11.5	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.85	251	448	148	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #21
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:49 AM	-	10:59 AM	11.35	16.6	266	55.5	26.5	36.3
10:59 AM	-	11:09 AM	10.98	16.6	265	54.0	26.5	36.2
11:09 AM	-	11:19 AM	11.10	16.1	262	54.5	26.0	35.9
11:19 AM	-	11:29 AM	11.48	17.3	253	56.0	27.2	35.0
		Averages:	11.23	16.6	262	55.0	26.6	35.9

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.3	88
FINAL zero	10	10.3	10
FINAL span	94.7	49.7	88.5
ZERO DRIFT %/ppm	0.00	0.30	0.00
CALIB. DRIFT %/ppm	0.20	0.40	5.05
ZERO DRIFT %fs	0.00	0.30	0.00
CALIB.DRIFT %fs	0.80	0.40	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.23	16.6	30.7	10.1	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.23	262	484	160	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #21
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:35 AM	-	11:45 AM	11.42	16.5	200	55.5	27.0	30.0
11:45 AM	-	11:55 AM	11.37	16.5	225	55.3	27.0	32.5
11:55 AM	-	12:05 PM	11.92	14.6	240	57.5	25.0	34.0
12:05 PM	-	12:15 PM	11.79	15.7	233	57.0	26.2	33.3
		Averages:	11.63	15.8	225	56.3	26.3	32.5

	O2	NOx	CO
INITIAL zero	10	10.3	10
INITIAL span	93.6	49.7	88.5
FINAL zero	10	10	10
FINAL span	95	49.1	88
ZERO DRIFT %/ppm	0.00	-0.30	0.00
CALIB. DRIFT %/ppm	0.35	-0.60	-5.02
ZERO DRIFT %fs	0.00	-0.30	0.00
CALIB.DRIFT %fs	1.40	-0.60	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.63	15.8	30.6	10.1	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.63	225	434	143	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 23
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:31 PM	-	12:41 PM	10.58	28.0	619	52.5	38.0	71.3
12:41 PM	-	12:51 PM	11.95	22.0	611	58.0	32.0	70.5
12:51 PM	-	01:01 PM	12.69	19.1	546	61.0	29.0	64.0
01:01 PM	-	01:11 PM	11.44	24.1	566	56.0	34.0	66.0
		Averages:	**11.66**	**23.3**	**585**	**56.9**	**33.3**	**68.0**

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.3	88
FINAL zero	10	9.9	10
FINAL span	94	49.3	88
ZERO DRIFT %/ppm	0.00	-0.10	0.00
CALIB. DRIFT %/ppm	0.02	0.00	0.00
ZERO DRIFT %fs	0.00	-0.10	0.00
CALIB.DRIFT %fs	0.10	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**11.66**	**23.3**	**45.2**	**14.9**	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**11.66**	**585**	**1135**	**374**	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 23
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:20 PM	-	01:30 PM	11.22	24.1	627	55.0	34.0	72.0
01:30 PM	-	01:40 PM	10.97	25.1	617	54.0	35.0	71.0
01:40 PM	-	01:50 PM	11.97	20.1	546	58.0	30.0	64.0
01:50 PM	-	02:00 PM	13.72	14.3	526	65.0	24.2	62.0
		Averages:	**11.97**	**20.9**	**579**	**58.0**	**30.8**	**67.3**

	O2	NOx	CO
INITIAL zero	10	9.9	10
INITIAL span	93.7	49.3	88
FINAL zero	10	10	10
FINAL span	93	49.9	88.3
ZERO DRIFT %/ppm	0.00	0.10	0.00
CALIB. DRIFT %/ppm	-0.17	0.60	3.03
ZERO DRIFT %fs	0.00	0.10	0.00
CALIB.DRIFT %fs	-0.70	0.60	0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**11.97**	**20.9**	**41.9**	**13.8**	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**11.97**	**579**	**1160**	**382**	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 23
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

IME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:05 PM	-	02:15 PM	11.26	24.5	602	55.0	34.5	70.0
02:15 PM	-	02:25 PM	10.76	32.0	621	53.0	42.0	71.9
02:25 PM	-	02:35 PM	10.88	27.5	630	53.5	37.5	72.8
02:35 PM	-	02:45 PM	10.51	30.0	607	52.0	40.0	70.5
		Averages:	10.85	28.5	615	53.4	38.5	71.3

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	49.3	88.5
FINAL zero	10	9.9	10
FINAL span	93.9	49.5	88.5
ZERO DRIFT %/ppm	0.00	-0.10	0.00
CALIB. DRIFT %/ppm	0.08	0.20	0.00
ZERO DRIFT %fs	0.00	-0.10	0.00
CALIB.DRIFT %fs	0.30	0.20	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.85	28.5	50.8	16.7	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.85	615	1096	361	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 24
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:55 PM	-	03:05 PM	8.72	19.0	353	45.0	29.0	45.0
03:05 PM	-	03:15 PM	8.73	18.9	313	45.0	28.9	41.0
03:15 PM	-	03:25 PM	7.94	19.0	333	41.8	29.0	43.0
03:25 PM	-	03:35 PM	8.69	19.0	317	44.8	29.0	41.5
		Averages:	**8.52**	**19.0**	**329**	**44.2**	**29.0**	**42.6**

	O2	NOx	CO
INITIAL zero	10	9.9	10
INITIAL span	93.9	49.5	88
FINAL zero	10	10	10.1
FINAL span	93.8	49.3	88
ZERO DRIFT %/ppm	0.00	0.10	1.01
CALIB. DRIFT %/ppm	-0.02	-0.20	0.00
ZERO DRIFT %fs	0.00	0.10	0.10
CALIB.DRIFT %fs	-0.10	-0.20	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**8.52**	**19.0**	**27.4**	**9.0**	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**8.52**	**329**	**476**	**157**	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 24
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:39 PM	-	03:49 PM	8.71	19.0	448	45.0	29.0	55.0
03:49 PM	-	03:59 PM	8.46	18.3	458	44.0	28.3	56.0
03:59 PM	-	04:09 PM	8.71	17.9	450	45.0	27.9	55.2
04:09 PM	-	04:19 PM	8.46	18.9	460	44.0	28.9	56.2
		Averages:	**8.59**	**18.5**	**454**	**44.5**	**28.5**	**55.6**

	O2	NOx	CO
INITIAL zero	10	10	10.1
INITIAL span	93.8	49.3	89
FINAL zero	10	9.9	10
FINAL span	92.9	49.3	89
ZERO DRIFT %/ppm	0.00	-0.10	-1.00
CALIB. DRIFT %/ppm	-0.22	0.00	0.00
ZERO DRIFT %fs	0.00	-0.10	-0.10
CALIB.DRIFT %fs	-0.90	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**8.59**	**18.5**	**26.9**	**8.9**	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**8.59**	**454**	**660**	**218**	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 24
DATE : 10-13-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:24 PM	-	04:34 PM	8.47	19.5	444	44.0	29.4	54.5
04:34 PM	-	04:44 PM	8.59	18.3	454	44.5	28.2	55.5
04:44 PM	-	04:54 PM	8.35	21.0	459	43.5	31.0	56.0
04:54 PM	-	05:04 PM	8.72	20.5	454	45.0	30.5	55.5
		Averages:	8.53	19.8	453	44.3	29.8	55.4

	O2	NOx	CO
INITIAL zero	10	9.9	10
INITIAL span	93.9	49.3	89
FINAL zero	10.3	9.9	10
FINAL span	93.6	49.3	89
ZERO DRIFT %/ppm	0.07	0.00	0.00
CALIB. DRIFT %/ppm	-0.07	0.00	0.00
ZERO DRIFT %fs	0.30	0.00	0.00
CALIB.DRIFT %fs	-0.30	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.53	19.8	28.7	9.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.53	453	655	216	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 25
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:34 AM	-	07:44 AM	9.25	36.9	645	46.9	47.0	74.0
07:44 AM	-	07:54 AM	9.27	36.7	643	46.9	47.0	73.9
07:54 AM	-	08:04 AM	9.20	38.4	645	46.5	49.0	74.2
08:04 AM	-	08:14 AM	9.22	39.0	646	46.5	49.8	74.4
		Averages:	9.24	37.8	645	46.7	48.2	74.1

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.5	49.3	88.2
FINAL zero	9.9	10.9	10.3
FINAL span	93.2	49.3	88.2
ZERO DRIFT %/ppm	-0.03	0.90	3.02
CALIB. DRIFT %/ppm	-0.08	0.00	0.00
ZERO DRIFT %fs	-0.10	0.90	0.30
CALIB.DRIFT %fs	-0.30	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	9.24	37.8	57.9	19.1	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	9.24	645	989	326	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 25
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:20 AM	-	08:30 AM	9.15	44.1	652	46.7	54.0	75.0
08:30 AM	-	08:40 AM	9.12	41.1	652	46.6	51.0	75.0
08:40 AM	-	08:50 AM	9.10	42.4	647	46.5	52.3	74.5
08:50 AM	-	09:00 AM	9.10	43.1	648	46.5	53.0	74.6
		Averages:	9.12	42.6	650	46.6	52.6	74.8

	O2	NOx	CO
INITIAL zero	10	10	10.3
INITIAL span	93.8	49.3	88.4
FINAL zero	10	10	9.9
FINAL span	93.5	50	88.2
ZERO DRIFT %/ppm	0.00	0.00	-4.04
CALIB. DRIFT %/ppm	-0.07	0.70	-2.02
ZERO DRIFT %fs	0.00	0.00	-0.40
CALIB.DRIFT %fs	-0.30	0.70	-0.20
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	9.12	42.6	64.8	21.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	9.12	650	987	325	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 25
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:05 AM	-	09:15 AM	9.13	45.0	646	46.5	55.0	74.0
09:15 AM	-	09:25 AM	9.20	40.0	641	46.8	50.0	73.5
09:25 AM	-	09:35 AM	9.15	40.0	636	46.6	50.0	73.0
09:35 AM	-	09:45 AM	9.18	40.5	641	46.7	50.5	73.5
		Averages:	**9.16**	**41.4**	**641**	**46.7**	**51.4**	**73.5**

	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	93.5	49.3	88
FINAL zero	10	10	10
FINAL span	93.2	49.3	87
ZERO DRIFT %/ppm	0.00	0.00	1.01
CALIB. DRIFT %/ppm	-0.08	0.00	-10.09
ZERO DRIFT %fs	0.00	0.00	0.10
CALIB.DRIFT %fs	-0.30	0.00	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	9.16	41.4	63.1	20.8	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	9.16	641	977	322	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 26
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:54 AM	-	10:04 AM	7.46	33.6	529	40.2	43.5	62.9
10:04 AM	-	10:14 AM	7.37	34.4	526	40.3	44.0	63.0
10:14 AM	-	10:24 AM	7.23	43.6	542	40.2	53.0	65.0
10:24 AM	-	10:34 AM	7.06	57.9	549	40.0	67.0	66.1
		Averages:	7.28	42.4	537	40.2	51.9	64.3

	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	93.9	49.3	88.5
FINAL zero	10	9	10
FINAL span	95.8	49.3	90
ZERO DRIFT %/ppm	0.00	-1.00	1.00
CALIB. DRIFT %/ppm	0.47	0.00	15.04
ZERO DRIFT %fs	0.00	-1.00	0.10
CALIB.DRIFT %fs	1.90	0.00	1.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.28	42.4	55.7	18.4	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.28	537	706	233	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 26
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:28 AM	-	11:38 AM	7.05	45.0	533	38.4	55.0	63.0
11:38 AM	-	11:48 AM	6.95	48.5	533	38.0	58.5	63.0
11:48 AM	-	11:58 AM	6.87	49.0	533	37.7	59.0	63.0
11:58 AM	-	12:08 PM	6.95	46.5	538	38.0	56.5	63.5
		Averages:	**6.95**	**47.2**	**535**	**38.0**	**57.3**	**63.1**

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.8	49.3	88.4
FINAL zero	9.6	9.6	9.9
FINAL span	93	49.3	89
ZERO DRIFT %/ppm	-0.10	-0.40	-1.01
CALIB. DRIFT %/ppm	-0.20	0.00	6.03
ZERO DRIFT %fs	-0.40	-0.40	-0.10
CALIB.DRIFT %fs	-0.80	0.00	0.60
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**6.95**	**47.2**	**60.6**	**20.0**	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**6.95**	**535**	**686**	**226**	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 13
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:42 PM	-	12:52 PM	11.93	29.0	264	58.0	39.0	36.2
12:52 PM	-	01:02 PM	11.96	28.7	259	58.4	39.0	36.1
01:02 PM	-	01:12 PM	11.88	28.4	255	58.4	39.0	36.0
01:12 PM	-	01:22 PM	11.83	27.2	251	58.5	38.1	36.0
		Averages:	11.90	28.3	257	58.3	38.8	36.1

	O2	NOx	CO
INITIAL zero	10	9.6	9.9
INITIAL span	93.8	49.3	88
FINAL zero	10.5	10.2	10
FINAL span	94.5	49.9	89.3
ZERO DRIFT %/ppm	0.12	0.59	1.01
CALIB. DRIFT %/ppm	0.17	0.59	13.12
ZERO DRIFT %fs	0.50	0.60	0.10
CALIB.DRIFT %fs	0.70	0.60	1.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.90	28.3	56.3	18.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.90	257	511	169	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 13
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:38 PM	-	01:48 PM	11.64	31.9	256	57.0	41.9	35.3
01:48 PM	-	01:58 PM	11.64	32.2	256	57.0	42.2	35.3
01:58 PM	-	02:08 PM	11.67	31.2	257	57.1	41.2	35.4
02:08 PM	-	02:18 PM	11.69	29.9	258	57.2	40.0	35.5
		Averages:	11.66	31.3	257	57.1	41.3	35.4

	O2	NOx	CO
INITIAL zero	10.5	10.2	10
INITIAL span	93.9	49.3	88
FINAL zero	10.3	10.3	10
FINAL span	93.6	49.1	88.3
ZERO DRIFT %/ppm	-0.05	0.10	0.00
CALIB. DRIFT %/ppm	-0.08	-0.20	3.03
ZERO DRIFT %fs	-0.20	0.10	0.00
CALIB.DRIFT %fs	-0.30	-0.20	0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.66	31.3	60.6	20.0	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.66	257	497	164	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 13
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:31 PM	-	02:41 PM	11.71	29.0	268	56.9	39.0	36.4
02:41 PM	-	02:51 PM	11.73	29.0	269	57.0	39.0	36.5
02:51 PM	-	03:01 PM	11.71	28.5	273	56.9	38.5	36.9
03:01 PM	-	03:11 PM	11.71	28.0	284	56.9	38.0	38.0
		Averages:	11.71	28.6	274	56.9	38.6	37.0

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	49.3	88
FINAL zero	10	10	9.9
FINAL span	93	49.1	89.2
ZERO DRIFT %/ppm	0.00	0.00	-1.01
CALIB. DRIFT %/ppm	-0.15	-0.20	12.12
ZERO DRIFT %fs	0.00	0.00	-0.10
CALIB.DRIFT %fs	-0.60	-0.20	1.20
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.71	28.6	55.7	18.4	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.71	274	533	176	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 14
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:30 PM	-	03:40 PM	7.75	48.4	360	41.1	58.5	46.1
03:40 PM	-	03:50 PM	7.76	49.9	359	41.1	60.0	46.0
03:50 PM	-	04:00 PM	7.79	49.9	360	41.2	60.0	46.0
04:00 PM	-	04:10 PM	7.82	49.5	361	41.3	59.5	46.1
		Averages:	7.78	49.4	360	41.2	59.5	46.1

	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	93.9	49.4	89.2
FINAL zero	10	10	9.9
FINAL span	93.8	49.3	89
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.02	-0.10	-1.99
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.10	-0.10	-0.20
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.78	49.4	67.4	22.2	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.78	360	491	162	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 14
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:30 PM	-	04:40 PM	7.76	52.2	190	41.1	62.2	28.9
04:40 PM	-	04:50 PM	7.74	53.0	221	41.0	63.0	32.0
04:50 PM	-	05:00 PM	7.74	58.0	187	41.0	68.0	28.6
05:00 PM	-	05:10 PM	7.74	56.9	190	41.0	66.9	28.9
		Averages:	7.74	55.0	197	41.0	65.0	29.6

	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	93.8	49.3	88.7
FINAL zero	10	9.9	9.9
FINAL span	94	49.3	89
ZERO DRIFT %/ppm	0.00	-0.10	0.00
CALIB. DRIFT %/ppm	0.05	0.00	3.00
ZERO DRIFT %fs	0.00	-0.10	0.00
CALIB.DRIFT %fs	0.20	0.00	0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.74	55.0	74.8	24.7	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.74	197	268	88	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 14
DATE : 10-14-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
05:20 PM	-	05:30 PM	7.79	53.9	355	41.2	64.0	45.3
05:30 PM	-	05:40 PM	7.81	53.9	357	41.3	64.0	45.5
05:40 PM	-	05:50 PM	7.89	52.9	359	41.6	63.0	45.7
05:50 PM	-	06:00 PM	7.94	52.4	361	41.8	62.5	45.9
		Averages:	7.86	53.2	358	41.5	63.4	45.6

	O2	NOx	CO
INITIAL zero	10	10	9.9
INITIAL span	94	49.3	88.7
FINAL zero	10	9.2	10
FINAL span	94.8	48.9	89.2
ZERO DRIFT %/ppm	0.00	-0.80	1.00
CALIB. DRIFT %/ppm	0.20	-0.40	5.00
ZERO DRIFT %fs	0.00	-0.80	0.10
CALIB.DRIFT %fs	0.80	-0.40	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.86	53.2	73.0	24.1	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.86	358	491	162	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 15
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:15 AM	-	07:25 AM	7.17	39.2	290	38.6	49.2	38.9
07:25 AM	-	07:35 AM	7.26	38.9	293	38.7	49.0	39.1
07:35 AM	-	07:45 AM	7.33	38.9	302	38.7	49.1	39.9
07:45 AM	-	07:55 AM	7.32	39.6	300	38.4	49.9	39.6
		Averages:	7.27	39.2	296	38.6	49.3	39.4

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.8	49.3	88.5
FINAL zero	9.7	9.7	10
FINAL span	93	49.9	88.2
ZERO DRIFT %/ppm	-0.07	-0.30	0.00
CALIB. DRIFT %/ppm	-0.20	0.60	-3.01
ZERO DRIFT %fs	-0.30	-0.30	0.00
CALIB.DRIFT %fs	-0.80	0.60	-0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.27	39.2	51.4	16.9	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.27	296	389	128	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 15
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:15 AM	-	08:25 AM	7.17	45.0	297	38.9	55.0	39.5
08:25 AM	-	08:35 AM	6.92	42.9	295	37.9	52.9	39.3
08:35 AM	-	08:45 AM	6.94	40.5	292	38.0	50.5	39.0
08:45 AM	-	08:55 AM	7.07	39.8	293	38.5	49.8	39.1
		Averages:	7.02	42.1	294	38.3	52.1	39.2

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	94	49.3	88.2
FINAL zero	10	10	10.2
FINAL span	92.8	49.3	88
ZERO DRIFT %/ppm	0.00	0.00	2.02
CALIB. DRIFT %/ppm	-0.30	0.00	-2.02
ZERO DRIFT %fs	0.00	0.00	0.20
CALIB.DRIFT %fs	-1.20	0.00	-0.20
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.02	42.1	54.2	17.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.02	294	380	125	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 15
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:07 AM	-	09:17 AM	6.99	39.1	292	38.0	49.1	39.1
09:17 AM	-	09:27 AM	6.94	39.9	292	37.8	49.9	39.1
09:27 AM	-	09:37 AM	7.01	38.9	292	38.1	48.9	39.1
09:37 AM	-	09:47 AM	6.96	42.3	293	37.9	52.3	39.2
		Averages:	6.97	40.1	293	38.0	50.1	39.1

	O2	NOx	CO
INITIAL zero	10	10	10.2
INITIAL span	93.8	49.3	88
FINAL zero	10	10	10
FINAL span	93.9	49.3	88
ZERO DRIFT %/ppm	0.00	0.00	-2.03
CALIB. DRIFT %/ppm	0.02	0.00	0.00
ZERO DRIFT %fs	0.00	0.00	-0.20
CALIB.DRIFT %fs	0.10	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.97	40.1	51.5	17.0	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.97	293	376	124	

COMPANY : UNOCAL CORPORATION
UNIT : O'DONNELL 2-5
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:24 AM	-	11:34 AM	8.05	33.9	445	42.4	44.0	54.2
11:34 AM	-	11:44 AM	7.96	35.4	451	42.1	45.3	54.5
11:44 AM	-	11:54 AM	7.94	35.8	451	42.1	45.5	54.2
11:54 AM	-	12:04 PM	7.92	37.9	453	42.1	47.5	54.1
		Averages:	7.97	35.7	450	42.2	45.6	54.3

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	94	49.5	88.5
FINAL zero	10.3	9.2	9.8
FINAL span	94	49.6	87.5
ZERO DRIFT %/ppm	0.07	-0.80	-2.01
CALIB. DRIFT %/ppm	0.00	0.10	-10.04
ZERO DRIFT %fs	0.30	-0.80	-0.20
CALIB.DRIFT %fs	0.00	0.10	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.97	35.7	49.5	16.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.97	450	623	205	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 7
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:12 PM	-	03:22 PM	7.22	45.7	848	38.7	56.0	94.0
03:22 PM	-	03:32 PM	7.30	43.7	838	39.0	54.0	93.0
03:32 PM	-	03:42 PM	7.30	43.7	865	39.0	54.0	95.7
03:42 PM	-	03:52 PM	7.32	42.9	856	39.1	53.2	94.8
		Averages:	7.29	44.0	852	39.0	54.3	94.4

	O2	NOx	CO
INITIAL zero	9.7	10	10
INITIAL span	93.7	49.5	88
FINAL zero	9.7	9.8	10
FINAL span	94.1	49.1	87.5
ZERO DRIFT %/ppm	0.00	-0.20	0.00
CALIB. DRIFT %/ppm	0.10	-0.40	-5.05
ZERO DRIFT %fs	0.00	-0.20	0.00
CALIB.DRIFT %fs	0.40	-0.40	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.29	44.0	57.9	19.1	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.29	852	1120	369	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 7
DATE : 10-15-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:01 PM	-	04:11 PM	7.23	48.0	875	38.8	58.0	96.0
04:11 PM	-	04:21 PM	7.05	47.5	855	38.1	57.5	94.0
04:21 PM	-	04:31 PM	7.08	50.5	863	38.2	60.5	94.8
04:31 PM	-	04:41 PM	7.05	49.4	876	38.1	59.4	96.1
		Averages:	7.10	48.9	867	38.3	58.9	95.2

	O2	NOx	CO
INITIAL zero	9.7	9.8	10
INITIAL span	93.7	49.3	87.5
FINAL zero	9.7	10	10
FINAL span	93.3	49.6	88
ZERO DRIFT %/ppm	0.00	0.20	0.00
CALIB. DRIFT %/ppm	-0.10	0.30	5.08
ZERO DRIFT %fs	0.00	0.20	0.00
CALIB.DRIFT %fs	-0.40	0.30	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.10	48.9	63.4	20.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.10	867	1125	371	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 16
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
06:57 AM	-	07:07 AM	7.54	35.4	615	40.2	46.2	70.9
07:07 AM	-	07:17 AM	7.55	36.0	619	40.3	47.0	71.3
07:17 AM	-	07:27 AM	7.43	38.9	621	39.9	50.2	71.5
07:27 AM	-	07:37 AM	7.41	44.4	606	39.9	56.1	70.0
		Averages:	**7.48**	**38.7**	**615**	**40.1**	**49.9**	**70.9**

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	50	88
FINAL zero	10	10	10
FINAL span	93.9	51	88
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.08	0.98	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.30	1.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.48	38.7	51.6	17.0	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.48	615	821	271	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 16
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:43 AM	-	07:53 AM	7.44	72.4	551	40.0	85.5	64.9
07:53 AM	-	08:03 AM	7.44	70.1	552	40.0	83.0	65.0
08:03 AM	-	08:13 AM	7.44	68.3	552	40.0	81.2	65.0
08:13 AM	-	08:23 AM	7.44	68.1	552	40.0	81.0	65.0
		Averages:	7.44	69.7	551	40.0	82.7	65.0

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	51	88.5
FINAL zero	10	10.6	10
FINAL span	92.5	51.4	88
ZERO DRIFT %/ppm	0.00	0.58	0.00
CALIB. DRIFT %/ppm	-0.35	0.38	-5.02
ZERO DRIFT %fs	0.00	0.60	0.00
CALIB.DRIFT %fs	-1.40	0.40	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.44	69.7	92.8	30.6	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.44	551	734	242	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 16
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:31 AM	-	08:41 AM	7.47	67.4	503	39.9	80.0	60.0
08:41 AM	-	08:51 AM	7.55	38.2	523	40.2	50.0	62.0
08:51 AM	-	09:01 AM	7.50	30.3	528	40.0	41.9	62.5
09:01 AM	-	09:11 AM	7.55	30.4	543	40.2	42.0	64.0
		Averages:	7.52	41.6	524	40.1	53.5	62.1

	O2	NOx	CO
INITIAL zero	10	10.6	10
INITIAL span	93.5	51	88.5
FINAL zero	10	10	10
FINAL span	93.2	50.7	89.5
ZERO DRIFT %/ppm	0.00	-0.58	0.00
CALIB. DRIFT %/ppm	-0.08	-0.29	10.04
ZERO DRIFT %fs	0.00	-0.60	0.00
CALIB.DRIFT %fs	-0.30	-0.30	1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.52	41.6	55.6	18.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.52	524	702	231	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 26
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
09:40 AM	-	09:50 AM	8.53	37.7	618	44.1	48.9	71.3
09:50 AM	-	10:00 AM	8.58	37.7	626	44.2	48.9	72.3
10:00 AM	-	10:10 AM	8.62	35.4	631	44.3	46.5	73.1
10:10 AM	-	10:20 AM	8.59	37.8	621	44.1	49.0	72.3
		Averages:	8.58	37.2	624	44.2	48.3	72.3

	O2	NOx	CO
INITIAL zero	9.8	10	10
INITIAL span	93.9	50.5	88
FINAL zero	10	10	10
FINAL span	93.4	50.5	89
ZERO DRIFT %/ppm	0.05	0.00	0.00
CALIB. DRIFT %/ppm	-0.12	0.00	10.10
ZERO DRIFT %fs	0.20	0.00	0.00
CALIB.DRIFT %fs	-0.50	0.00	1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.58	37.2	54.0	17.8	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.58	624	906	299	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 26
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:27 AM	-	10:37 AM	8.56	35.2	623	44.2	46.2	72.5
10:37 AM	-	10:47 AM	8.56	35.2	627	44.2	46.2	72.9
10:47 AM	-	10:57 AM	8.63	32.4	629	44.5	43.3	73.1
10:57 AM	-	11:07 AM	8.61	34.1	638	44.4	45.1	74.0
		Averages:	8.59	34.2	629	44.3	45.2	73.1

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.4	50.5	89
FINAL zero	10	10.6	9.8
FINAL span	92.8	50.5	88.5
ZERO DRIFT %/ppm	0.00	0.58	-1.99
CALIB. DRIFT %/ppm	-0.15	0.00	-4.99
ZERO DRIFT %fs	0.00	0.60	-0.20
CALIB.DRIFT %fs	-0.60	0.00	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.59	34.2	49.7	16.4	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.59	629	915	301	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 26
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:13 AM	-	11:23 AM	8.77	25.7	650	45.3	36.5	74.8
11:23 AM	-	11:33 AM	8.75	25.2	650	45.2	36.0	74.8
11:33 AM	-	11:43 AM	8.72	24.9	646	45.1	35.7	74.4
11:43 AM	-	11:53 AM	8.87	26.1	650	45.7	37.0	74.8
		Averages:	8.78	25.5	649	45.3	36.3	74.7

	O2	NOx	CO
INITIAL zero	10	10	9.8
INITIAL span	93.9	50.5	88.5
FINAL zero	10	10	9.8
FINAL span	93.2	50	87.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.17	-0.49	-10.01
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.70	-0.50	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.78	25.5	37.6	12.4	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.78	649	958	316	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 46
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:32 PM	-	12:42 PM	7.42	41.9	410	39.8	51.9	50.9
12:42 PM	-	12:52 PM	7.41	39.3	410	39.8	49.3	51.0
12:52 PM	-	01:02 PM	7.31	41.8	404	39.4	51.8	50.6
01:02 PM	-	01:12 PM	7.28	38.0	400	39.3	48.0	50.3
		Averages:	7.35	40.3	406	39.6	50.3	50.7

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.3	88.5
FINAL zero	10	10	10
FINAL span	94	49.3	89
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.02	0.00	5.02
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.10	0.00	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.35	40.3	53.2	17.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.35	406	537	177	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 46
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:20 PM	-	01:30 PM	7.49	38.0	526	39.9	48.0	62.0
01:30 PM	-	01:40 PM	7.44	39.0	526	39.7	49.0	62.0
01:40 PM	-	01:50 PM	7.42	40.3	526	39.6	50.3	62.0
01:50 PM	-	02:00 PM	7.49	38.0	522	39.9	48.0	61.6
		Averages:	7.46	38.8	525	39.8	48.8	61.9

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.5	49.3	88
FINAL zero	10	10	10
FINAL span	93.9	49.3	88.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.10	0.00	5.05
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.40	0.00	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.46	38.8	51.7	17.0	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.46	525	699	230	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 46
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:12 PM	-	02:22 PM	7.43	35.7	515	40.0	45.8	61.4
02:22 PM	-	02:32 PM	7.45	33.1	515	40.1	43.2	61.4
02:32 PM	-	02:42 PM	7.50	32.9	511	40.3	43.0	61.0
02:42 PM	-	02:52 PM	7.48	36.0	510	40.2	46.1	60.9
		Averages:	7.46	34.4	513	40.2	44.5	61.2

	O2	NOx	CO
INITIAL zero	10.2	10	10
INITIAL span	93.9	49.3	88.5
FINAL zero	10	9.3	9.8
FINAL span	93.6	49.3	88.2
ZERO DRIFT %/ppm	-0.05	-0.70	-2.01
CALIB. DRIFT %/ppm	-0.07	0.00	-3.01
ZERO DRIFT %fs	-0.20	-0.70	-0.20
CALIB.DRIFT %fs	-0.30	0.00	-0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.46	34.4	45.9	15.1	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.46	513	683	225	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 21
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:23 PM	-	03:33 PM	6.24	24.2	423	35.0	34.0	52.0
03:33 PM	-	03:43 PM	6.52	31.9	379	36.2	42.0	48.0
03:43 PM	-	03:53 PM	6.50	34.8	358	36.2	45.2	46.2
03:53 PM	-	04:03 PM	6.48	33.5	351	36.2	44.0	45.9
		Averages:	6.44	31.1	378	35.9	41.3	48.0

	O2	NOx	CO
INITIAL zero	10	9.3	9.8
INITIAL span	93.6	49.3	88.2
FINAL zero	10	10	9.8
FINAL span	93.9	49.3	89.5
ZERO DRIFT %/ppm	0.00	0.69	0.00
CALIB. DRIFT %/ppm	0.08	0.00	13.07
ZERO DRIFT %fs	0.00	0.70	0.00
CALIB.DRIFT %fs	0.30	0.00	1.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.44	31.1	38.5	12.7	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.44	378	467	154	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 21
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:08 PM	-	04:18 PM	6.64	36.9	358	36.8	46.9	46.0
04:18 PM	-	04:28 PM	6.64	35.0	353	36.8	45.0	45.5
04:28 PM	-	04:38 PM	6.62	34.8	353	36.7	44.8	45.5
04:38 PM	-	04:48 PM	6.64	32.0	379	36.8	42.0	48.2
		Averages:	6.64	34.7	361	36.8	44.7	46.3

	O2	NOx	CO
INITIAL zero	10	10	9.8
INITIAL span	93.9	49.3	89.5
FINAL zero	10.2	10	10
FINAL span	92.1	49.5	89
ZERO DRIFT %/ppm	0.05	0.00	1.98
CALIB. DRIFT %/ppm	-0.45	0.20	-4.94
ZERO DRIFT %fs	0.20	0.00	0.20
CALIB.DRIFT %fs	-1.80	0.20	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.64	34.7	43.5	14.4	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.64	361	453	149	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 21
DATE : 10-16-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:55 PM	-	05:05 PM	6.41	24.1	415	35.9	34.2	51.7
05:05 PM	-	05:15 PM	6.43	23.2	406	36.0	33.3	50.8
05:15 PM	-	05:25 PM	6.68	28.8	368	37.0	39.0	47.0
05:25 PM	-	05:35 PM	6.71	32.3	356	37.1	42.5	45.8
		Averages:	6.56	27.1	386	36.5	37.3	48.8

	O2	NOx	CO
INITIAL zero	10.2	10	10
INITIAL span	93.9	49.5	89
FINAL zero	10	10	10
FINAL span	93.8	49.3	88
ZERO DRIFT %/ppm	-0.05	0.00	0.00
CALIB. DRIFT %/ppm	-0.02	-0.20	-9.97
ZERO DRIFT %fs	-0.20	0.00	0.00
CALIB.DRIFT %fs	-0.10	-0.20	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.56	27.1	33.8	11.1	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.56	386	482	159	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 27
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:18 AM	-	07:28 AM	7.25	31.3	489	39.0	42.0	56.5
07:28 AM	-	07:38 AM	7.31	30.4	489	39.0	41.5	57.1
07:38 AM	-	07:48 AM	7.36	30.5	483	39.0	42.0	57.2
07:48 AM	-	07:58 AM	7.40	30.2	463	38.9	42.0	56.0
		Averages:	7.33	30.6	481	39.0	41.9	56.7

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	50	84.4
FINAL zero	10	10.5	10
FINAL span	93	51	87
ZERO DRIFT %/ppm	0.00	0.49	0.00
CALIB. DRIFT %/ppm	-0.22	0.98	27.54
ZERO DRIFT %fs	0.00	0.50	0.00
CALIB.DRIFT %fs	-0.90	1.00	2.60
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.33	30.6	40.3	13.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.33	481	634	209	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 27
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:07 AM	-	08:17 AM	7.48	27.6	470	40.0	38.9	56.5
08:17 AM	-	08:27 AM	7.53	25.2	466	40.2	36.5	56.1
08:27 AM	-	08:37 AM	7.86	19.9	470	41.5	31.0	56.5
08:37 AM	-	08:47 AM	7.43	29.8	460	39.8	41.2	55.5
		Averages:	7.58	25.6	466	40.4	36.9	56.2

	O2	NOx	CO
INITIAL zero	10	10.5	10
INITIAL span	93.7	51	88
FINAL zero	10	10	10
FINAL span	93.4	51.5	88
ZERO DRIFT %/ppm	0.00	-0.49	0.00
CALIB. DRIFT %/ppm	-0.07	0.49	0.00
ZERO DRIFT %fs	0.00	-0.50	0.00
CALIB.DRIFT %fs	-0.30	0.50	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.58	25.6	34.4	11.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.58	466	626	206	

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 27
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:53 AM	-	09:03 AM	7.57	25.8	460	40.1	37.2	55.5
09:03 AM	-	09:13 AM	7.57	25.7	455	40.1	37.1	55.0
09:13 AM	-	09:23 AM	7.77	26.4	447	40.9	37.9	54.2
09:23 AM	-	09:33 AM	7.77	28.4	449	40.9	40.0	54.4
		Averages:	7.67	26.6	452	40.5	38.1	54.8

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.4	51.5	88
FINAL zero	11	10.2	10
FINAL span	93.3	51.5	88
ZERO DRIFT %/ppm	0.25	0.19	0.00
CALIB. DRIFT %/ppm	-0.03	0.00	0.00
ZERO DRIFT %fs	1.00	0.20	0.00
CALIB.DRIFT %fs	-0.10	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.67	26.6	36.0	11.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.67	452	612	202	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 15
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:10 AM	-	10:20 AM	6.80	31.6	511	37.3	41.7	61.0
10:20 AM	-	10:30 AM	6.75	32.0	545	37.2	41.9	64.5
10:30 AM	-	10:40 AM	6.79	30.3	578	37.5	40.0	67.9
10:40 AM	-	10:50 AM	6.86	29.7	568	37.9	39.2	67.0
		Averages:	6.80	30.9	551	37.5	40.7	65.1

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.7	49.5	88.5
FINAL zero	10.3	9.8	10
FINAL span	93.9	49	89
ZERO DRIFT %/ppm	0.07	-0.20	0.00
CALIB. DRIFT %/ppm	0.05	-0.50	5.02
ZERO DRIFT %fs	0.30	-0.20	0.00
CALIB.DRIFT %fs	0.20	-0.50	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.80	30.9	39.2	12.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.80	551	699	230	

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 15
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:52 AM	-	11:02 AM	7.03	29.5	563	38.4	39.8	66.5
11:02 AM	-	11:12 AM	6.98	29.7	573	38.2	40.0	67.5
11:12 AM	-	11:22 AM	6.93	30.7	568	38.0	41.0	67.0
11:22 AM	-	11:32 AM	6.93	30.7	568	38.0	41.0	67.0
		Averages:	6.96	30.1	568	38.2	40.5	67.0

	O2	NOx	CO
INITIAL zero	10.3	9.8	10
INITIAL span	93.9	49.8	89
FINAL zero	11	10	10
FINAL span	93.3	50	88
ZERO DRIFT %/ppm	0.17	0.20	0.00
CALIB. DRIFT %/ppm	-0.15	0.20	-9.97
ZERO DRIFT %fs	0.70	0.20	0.00
CALIB.DRIFT %fs	-0.60	0.20	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	6.96	30.1	38.7	12.8	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	6.96	568	729	240	

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 15
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:40 AM	-	11:50 AM	7.43	39.3	576	40.2	50.0	67.0
11:50 AM	-	12:00 PM	7.46	40.3	566	40.3	51.0	66.0
12:00 PM	-	12:10 PM	7.41	40.5	566	40.1	51.2	66.0
12:10 PM	-	12:20 PM	7.41	41.3	558	40.1	52.0	65.2
		Averages:	7.43	40.3	566	40.2	51.1	66.1

	O2	NOx	CO
INITIAL zero	11	10	10
INITIAL span	93.3	50	88
FINAL zero	11	10	10
FINAL span	93.9	50	88
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.15	0.00	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.60	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.43	40.3	53.6	17.7	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.43	566	752	248	

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 14
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:53 PM	-	01:03 PM	7.81	25.8	473	41.5	36.3	57.0
01:03 PM	-	01:13 PM	7.67	26.3	469	41.2	37.0	57.0
01:13 PM	-	01:23 PM	7.55	26.4	469	41.0	37.2	57.4
01:23 PM	-	01:33 PM	7.61	25.1	464	41.5	36.0	57.2
		Averages:	7.66	25.9	469	41.3	36.6	57.2

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	50	88
FINAL zero	10	10	10
FINAL span	95	50.5	89.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.27	0.49	15.15
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	1.10	0.50	1.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.66	25.9	35.0	11.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.66	469	634	209	

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 14
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:34 PM	-	01:44 PM	8.01	22.6	463	42.2	33.3	56.0
01:44 PM	-	01:54 PM	8.21	21.3	458	43.0	32.0	55.5
01:54 PM	-	02:04 PM	7.91	21.3	468	41.8	32.0	56.5
02:04 PM	-	02:14 PM	7.96	21.1	473	42.0	31.8	57.0
		Averages:	8.03	21.6	466	42.3	32.3	56.3

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	50.5	88.5
FINAL zero	10	10	10
FINAL span	93.5	50	90
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.10	-0.49	15.06
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.40	-0.50	1.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.03	21.6	30.0	9.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.03	466	647	213	

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 14
DATE : 10-19-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:20 PM	-	02:30 PM	8.11	21.1	463	42.4	31.5	56.2
02:30 PM	-	02:40 PM	8.01	21.7	465	42.0	32.1	56.4
02:40 PM	-	02:50 PM	8.06	21.6	460	42.2	32.0	55.9
02:50 PM	-	03:00 PM	8.01	21.8	461	42.0	32.2	56.0
		Averages:	8.04	21.6	462	42.2	32.0	56.1

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	50	88.5
FINAL zero	9.9	10	10
FINAL span	93.9	50	88
ZERO DRIFT %/ppm	-0.02	0.00	0.00
CALIB. DRIFT %/ppm	0.08	0.00	-5.02
ZERO DRIFT %fs	-0.10	0.00	0.00
CALIB.DRIFT %fs	0.30	0.00	-0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.04	21.6	30.0	9.9	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.04	462	644	212	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CASMALIA
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
07:19 AM	-	07:29 AM	7.90	64.9	347	41.3	73.0	44.6
07:29 AM	-	07:39 AM	7.93	67.5	346	41.1	76.0	44.9
07:39 AM	-	07:49 AM	8.00	71.6	341	41.1	80.5	44.9
07:49 AM	-	07:59 AM	8.13	60.2	328	41.3	70.0	44.0
		Averages:	7.99	66.1	340	41.2	74.9	44.6

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.2	48	88
FINAL zero	10	10	10
FINAL span	92	50	89.8
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.30	2.07	18.18
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-1.20	2.00	1.80
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.99	66.1	91.6	30.2	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.99	340	472	156	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CASMALIA
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:05 AM	-	08:15 AM	8.09	63.9	293	42.5	75.0	39.5
08:15 AM	-	08:25 AM	8.09	61.9	291	42.5	73.0	39.3
08:25 AM	-	08:35 AM	8.24	61.0	288	43.1	72.0	39.0
08:35 AM	-	08:45 AM	8.29	64.4	288	43.3	75.5	39.0
		Averages:	8.18	62.8	290	42.9	73.9	39.2

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	50	89
FINAL zero	10	10	10
FINAL span	93.6	50.5	88
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.07	0.49	-9.97
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.30	0.50	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.18	62.8	88.4	29.1	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.18	290	409	135	

COMPANY : UNOCAL CORPORATION
UNIT : CASMALIA
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
08:50 AM	-	09:00 AM	8.22	55.8	328	43.0	67.5	42.5
09:00 AM	-	09:10 AM	8.22	54.5	333	43.0	66.1	43.0
09:10 AM	-	09:20 AM	8.29	60.2	341	43.3	72.0	43.8
09:20 AM	-	09:30 AM	8.22	59.7	341	43.0	71.5	43.8
		Averages:	8.23	57.5	336	43.1	69.3	43.3

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	50.5	88
FINAL zero	10	10	10
FINAL span	92.5	50.7	88
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.27	0.19	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-1.10	0.20	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.23	57.5	81.3	26.8	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.23	336	475	157	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 17
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
10:44 AM	-	10:54 AM	11.23	20.1	451	55.0	30.5	55.0
10:54 AM	-	11:04 AM	11.23	19.0	451	55.0	29.5	55.1
11:04 AM	-	11:14 AM	11.15	18.6	459	54.7	29.2	56.0
11:14 AM	-	11:24 AM	11.01	19.3	467	54.2	30.1	56.8
		Averages:	11.16	19.2	457	54.7	29.8	55.7

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.7	50	88.6
FINAL zero	10	10	10
FINAL span	93.8	50.5	88.9
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.02	0.49	3.01
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.10	0.50	0.30
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	11.16	19.2	35.3	11.6	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	11.16	457	839	277	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 17
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:29 AM	-	11:39 AM	10.96	19.7	479	54.0	30.1	57.5
11:39 AM	-	11:49 AM	10.88	20.6	479	53.7	31.0	57.5
11:49 AM	-	11:59 AM	10.91	20.4	479	53.8	30.8	57.5
11:59 AM	-	12:09 PM	10.91	19.7	466	53.8	30.0	56.2
		Averages:	10.91	20.1	476	53.8	30.5	57.2

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.8	50	88
FINAL zero	10	10	10
FINAL span	93	50	87
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.20	0.00	-10.10
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-0.80	0.00	-1.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.91	20.1	36.1	11.9	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.91	476	853	281	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 17
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:19 PM	-	12:29 PM	10.73	19.6	473	53.9	30.0	56.8
12:29 PM	-	12:39 PM	10.82	19.6	464	54.3	30.0	55.9
12:39 PM	-	12:49 PM	10.87	20.6	468	54.5	31.0	56.3
12:49 PM	-	12:59 PM	10.80	20.6	470	54.2	31.0	56.5
		Averages:	10.81	20.1	469	54.2	30.5	56.4

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	95	50	88
FINAL zero	9.8	10	10
FINAL span	93	49.5	88
ZERO DRIFT %/ppm	-0.05	0.00	0.00
CALIB. DRIFT %/ppm	-0.49	-0.49	0.00
ZERO DRIFT %fs	-0.20	0.00	0.00
CALIB.DRIFT %fs	-2.00	-0.50	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.81	20.1	35.6	11.7	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.81	469	831	274	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 169
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:31 PM	-	01:41 PM	8.20	36.9	545	42.8	47.2	64.0
01:41 PM	-	01:51 PM	8.26	37.1	544	42.8	47.5	64.0
01:51 PM	-	02:01 PM	8.38	33.0	542	43.0	43.5	64.0
02:01 PM	-	02:11 PM	8.54	29.3	541	43.4	40.0	64.0
		Averages:	8.35	34.1	543	43.0	44.6	64.0

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.5	88
FINAL zero	9.9	10.6	10
FINAL span	93	49.5	88.5
ZERO DRIFT %/ppm	-0.02	0.60	0.00
CALIB. DRIFT %/ppm	-0.22	0.00	5.05
ZERO DRIFT %fs	-0.10	0.60	0.00
CALIB.DRIFT %fs	-0.90	0.00	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.35	34.1	48.6	16.0	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.35	543	774	255	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 169
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
02:15 PM	-	02:25 PM	8.20	34.9	542	43.0	45.2	64.0
02:25 PM	-	02:35 PM	8.18	37.0	542	42.9	47.3	64.0
02:35 PM	-	02:45 PM	8.18	38.7	537	42.9	49.0	63.5
02:45 PM	-	02:55 PM	8.20	38.7	542	43.0	49.0	64.0
		Averages:	8.19	37.4	541	43.0	47.6	63.9

	O2	NOx	CO
INITIAL zero	9.9	10.6	10
INITIAL span	94	49.5	88.5
FINAL zero	10	10	10
FINAL span	92.7	49.5	88.5
ZERO DRIFT %/ppm	0.02	-0.61	0.00
CALIB. DRIFT %/ppm	-0.32	0.00	0.00
ZERO DRIFT %fs	0.10	-0.60	0.00
CALIB.DRIFT %fs	-1.30	0.00	0.00
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.19	37.4	52.6	17.3	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.19	541	762	251	

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 169
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
03:00 PM	-	03:10 PM	8.21	34.3	547	42.9	44.5	64.0
03:10 PM	-	03:20 PM	8.36	33.8	547	43.5	44.0	64.0
03:20 PM	-	03:30 PM	8.54	27.1	544	44.2	37.2	63.7
03:30 PM	-	03:40 PM	8.69	23.1	550	44.8	33.2	64.3
		Averages:	**8.45**	**29.6**	**547**	**43.9**	**39.7**	**64.0**

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	49.5	88
FINAL zero	10	10	10
FINAL span	94.5	49.5	89.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.15	0.00	15.15
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.60	0.00	1.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	**8.45**	**29.6**	**42.5**	**14.0**	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	**8.45**	**547**	**787**	**259**	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 87
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:14 PM	-	04:24 PM	7.64	33.7	498	40.7	44.3	60.0
04:24 PM	-	04:34 PM	7.54	35.5	497	40.6	46.1	60.0
04:34 PM	-	04:44 PM	7.46	35.7	496	40.6	46.3	60.0
04:44 PM	-	04:54 PM	7.39	35.9	484	40.6	46.5	59.0
		Averages:	7.51	35.2	494	40.6	45.8	59.8

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.6	50	89
FINAL zero	9.8	9.4	10
FINAL span	95	50.5	89.5
ZERO DRIFT %/ppm	-0.05	-0.59	0.00
CALIB. DRIFT %/ppm	0.35	0.49	4.99
ZERO DRIFT %fs	-0.20	-0.60	0.00
CALIB.DRIFT %fs	1.40	0.50	0.50
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.51	35.2	47.1	15.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.51	494	660	217	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 87
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
05:02 PM	-	05:12 PM	7.62	37.9	487	40.5	49.0	59.0
05:12 PM	-	05:22 PM	7.62	37.7	487	40.5	48.8	59.0
05:22 PM	-	05:32 PM	7.67	36.2	491	40.7	47.2	59.4
05:32 PM	-	05:42 PM	7.62	37.4	488	40.5	48.5	59.1
		Averages:	7.63	37.3	489	40.6	48.4	59.1

	O2	NOx	CO
INITIAL zero	9.8	9.4	10
INITIAL span	93.9	50.5	89.1
FINAL zero	10	10	10
FINAL span	93.3	50	88.3
ZERO DRIFT %/ppm	0.05	0.57	0.00
CALIB. DRIFT %/ppm	-0.15	-0.48	-7.97
ZERO DRIFT %fs	0.20	0.60	0.00
CALIB.DRIFT %fs	-0.60	-0.50	-0.80
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.63	37.3	50.3	16.6	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.63	489	659	217	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 87
DATE : 10-20-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
05:47 PM	-	05:57 PM	7.54	36.4	495	40.2	47.0	59.5
05:57 PM	-	06:07 PM	7.61	35.4	490	40.5	46.0	59.0
06:07 PM	-	06:17 PM	7.56	36.4	496	40.3	47.0	59.6
06:17 PM	-	06:27 PM	7.56	40.7	474	40.3	51.4	57.4
		Averages:	7.57	37.2	489	40.3	47.9	58.9

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.3	50	88.6
FINAL zero	10	10	10
FINAL span	92	50.5	87.7
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	-0.33	0.49	-9.02
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	-1.30	0.50	-0.90
CAL GAS value	20.9	39.3	788
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.57	37.2	50.0	16.5	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.57	489	656	216	

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #20
DATE : 11-04-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
11:50 AM	-	12:00 PM	10.2	7.54	550	51.0	17.5	65.0
12:00 PM	-	12:10 PM	10.2	7.59	555	50.9	17.3	65.5
12:10 PM	-	12:20 PM	10.2	8.23	549	50.8	17.7	64.9
12:20 PM	-	12:30 PM	10.1	7.89	549	50.7	17.1	64.9
		Averages:	**10.2**	**7.81**	**551**	**50.9**	**17.4**	**65.1**

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	94	90	90.5
FINAL zero	10	10	10
FINAL span	94	89	90.5
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.00	-0.99	0.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.00	-1.00	0.00
CAL GAS value	20.9	79.1	805
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.2	7.81	13.0	4.29	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.2	551	918	303	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #20
DATE : 11-04-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
12:35 PM	-	12:45 PM	10.2	7.21	550	50.9	17.2	64.9
12:45 PM	-	12:55 PM	10.2	7.11	537	50.4	17.1	63.5
12:55 PM	-	01:05 PM	10.2	7.11	540	50.2	17.1	63.7
01:05 PM	-	01:15 PM	10.3	7.31	541	50.1	17.3	63.7
		Averages:	10.2	7.18	542	50.4	17.2	64.0

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	94	89	90.5
FINAL zero	9.9	10	10
FINAL span	92.8	89	90.1
ZERO DRIFT %/ppm	-0.02	0.00	0.00
CALIB. DRIFT %/ppm	-0.30	0.00	-4.00
ZERO DRIFT %fs	-0.10	0.00	0.00
CALIB.DRIFT %fs	-1.20	0.00	-0.40
CAL GAS value	20.9	79.1	805
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.2	7.18	12.0	3.97	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.2	542	907	299	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #20
DATE : 11-04-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
01:15 PM	-	01:25 PM	10.2	7.01	553	51.0	17.0	65.3
01:25 PM	-	01:35 PM	10.2	7.01	547	51.0	17.0	64.8
01:35 PM	-	01:45 PM	10.2	7.21	548	51.0	17.2	64.9
01:45 PM	-	01:55 PM	10.2	6.91	550	51.0	16.9	65.2
		Averages:	10.2	7.03	550	51.0	17.0	65.1

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	94	89	90.5
FINAL zero	10	10	10
FINAL span	94	89	90.7
ZERO DRIFT %/ppm	0.00	0.00	0.00
CALIB. DRIFT %/ppm	0.00	0.00	2.00
ZERO DRIFT %fs	0.00	0.00	0.00
CALIB.DRIFT %fs	0.00	0.00	0.20
CAL GAS value	20.9	79.1	805
FULL SCALE RANGE	25	100	1000

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	10.2	7.03	11.8	3.88	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	10.2	550	919	303	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 85
DATE : 11-11-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #1

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
04:16 PM	-	04:26 PM	7.96	40.2	388	42.1	26.0	88.0
04:26 PM	-	04:36 PM	8.14	40.5	347	43.1	26.0	79.5
04:36 PM	-	04:46 PM	8.07	40.9	350	43.1	26.0	79.9
04:46 PM	-	04:56 PM	7.76	43.8	350	42.1	27.0	79.5
		Averages:	7.98	41.3	359	42.6	26.3	81.7

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	92.5	94.7
FINAL zero	11	10.9	10
FINAL span	94	91	93.7
ZERO DRIFT %/ppm	0.25	2.25	0.00
CALIB. DRIFT %/ppm	0.02	-3.75	-4.97
ZERO DRIFT %fs	1.00	0.90	0.00
CALIB.DRIFT %fs	0.10	-1.50	-1.00
CAL GAS value	20.9	206.1	420.9
FULL SCALE RANGE	25	250	500

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.98	41.3	57.3	18.9	
	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.98	359	497	164	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 85
DATE : 11-11-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #2

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
05:10 PM	-	05:20 PM	8.10	39.4	365	42.5	25.9	82.5
05:20 PM	-	05:30 PM	7.97	42.2	347	42.0	27.0	79.0
05:30 PM	-	05:40 PM	7.90	45.9	342	41.7	28.5	78.0
05:40 PM	-	05:50 PM	7.85	49.7	342	41.5	30.0	78.0
		Averages:	7.95	44.3	349	41.9	27.9	79.4

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	92.5	93.7
FINAL zero	9.2	10	10
FINAL span	94.8	91	94
ZERO DRIFT %/ppm	-0.20	0.00	0.00
CALIB. DRIFT %/ppm	0.22	-3.75	1.51
ZERO DRIFT %fs	-0.80	0.00	0.00
CALIB.DRIFT %fs	0.90	-1.50	0.30
CAL GAS value	20.9	206.1	420.9
FULL SCALE RANGE	25	250	500

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	7.95	44.3	61.2	20.2	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	7.95	349	483	159	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 85
DATE : 11-11-92
REPORT : 086-211

NOx/CO/O2 DATA

RUN #3

TIME INTERVAL			CONCENTRATIONS			% FULL SCALE		
BEGIN	-	END	O2:%	NOx:ppm	CO:ppm	O2%fs	NOx%fs	CO%fs
06:00 PM	-	06:10 PM	8.29	49.4	378	43.2	30.0	85.5
06:10 PM	-	06:20 PM	8.49	49.2	358	44.0	29.9	81.5
06:20 PM	-	06:30 PM	8.71	47.7	356	44.9	29.3	81.0
06:30 PM	-	06:40 PM	8.74	44.9	355	45.0	28.2	80.9
		Averages:	8.56	47.8	362	44.3	29.4	82.2

	O2	NOx	CO
INITIAL zero	10	10	10
INITIAL span	93.9	92.5	94
FINAL zero	10.5	10.2	8.9
FINAL span	94	90.5	95.2
ZERO DRIFT %/ppm	0.12	0.50	-5.51
CALIB. DRIFT %/ppm	0.02	-5.00	6.01
ZERO DRIFT %fs	0.50	0.20	-1.10
CALIB.DRIFT %fs	0.10	-2.00	1.20
CAL GAS value	20.9	206.1	420.9
FULL SCALE RANGE	25	250	500

	%O2	ppm	@ 3%O2	@15%O2	
NOx values:	8.56	47.8	69.3	22.8	

	%O2	ppm	@ 3%O2	@15%O2	
CO values:	8.56	362	525	173	

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.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP # 19
DATE : 10-13-92
REPORT : 086-211

ROC RESULTS

RUN No.:	1		
% O2:	8.68		
		ppm	ppm @ 15% O2
Methane	(C1)	1074	519
Ethane	(C2)	116	56
Propane	(C3)	9	4
Butane	(C4)	6	3
Pentane	(C5)	2	1
Hexane	(C6)	4	2
	Total	1211	585
(non methane)	Total	137	66

RUN No.:	2		
% O2:	8.68		
		ppm	
Methane	(C1)	1094	528
Ethane	(C2)	118	57
Propane	(C3)	9	4
Butane	(C4)	6	3
Pentane	(C5)	1	0
Hexane	(C6)	4	2
	Total	1232	595
(non methane)	Total	138	67

RUN No.:	3		
% O2:	8.72		
		ppm	
Methane	(C1)	1053	510
Ethane	(C2)	112	54
Propane	(C3)	8	4
Butane	(C4)	6	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	1183	573
(non methane)	Total	130	63

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP # 21
DATE : 10-13-92
REPORT : 086-211

ROC RESULTS

RUN No.:	1		
% O2:	10.85		
		ppm	ppm @ 15% O2
Methane	(C1)	464	272
Ethane	(C2)	52	31
Propane	(C3)	3	2
Butane	(C4)	1	1
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	521	306
(non methane)	Total	57	33

RUN No.:	2		
% O2:	11.23		
		ppm	
Methane	(C1)	469	286
Ethane	(C2)	54	33
Propane	(C3)	5	3
Butane	(C4)	3	2
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	532	325
(non methane)	Total	63	38

RUN No.:	3		
% O2:	11.63		
		ppm	
Methane	(C1)	390	248
Ethane	(C2)	47	30
Propane	(C3)	3	2
Butane	(C4)	1	1
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	442	281
(non methane)	Total	52	33

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #23
DATE : 10-13-92
REPORT : 086-211

ROC RESULTS

RUN No.:	1		
% O2:	11.66		
		ppm	ppm @ 15% O2
Methane	(C1)	6419	4099
Ethane	(C2)	447	285
Propane	(C3)	62	40
Butane	(C4)	13	8
Pentane	(C5)	2	1
Hexane	(C6)	2	1
	Total	6945	4435
(non methane)	Total	526	336

RUN No.:	2		
% O2:	11.97		
		ppm	
Methane	(C1)	16891	11160
Ethane	(C2)	1122	741
Propane	(C3)	183	121
Butane	(C4)	30	20
Pentane	(C5)	6	4
Hexane	(C6)	2	1
	Total	18234	12047
(non methane)	Total	1343	887

RUN No.:	3		
% O2:	10.85		
		ppm	
Methane	(C1)	6118	3592
Ethane	(C2)	438	257
Propane	(C3)	65	38
Butane	(C4)	13	8
Pentane	(C5)	2	1
Hexane	(C6)	2	1
	Total	6638	3897
(non methane)	Total	520	305

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #24
DATE : 10-13-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	8.52		
		ppm	ppm @ 15% O2
Methane	(C1)	4389	2092
Ethane	(C2)	341	163
Propane	(C3)	48	23
Butane	(C4)	13	6
Pentane	(C5)	3	1
Hexane	(C6)	5	2
	Total	4799	2287
	Total (non methane)	410	195

RUN No.:	2		
% O2:	8.59		
		ppm	
Methane	(C1)	3798	1820
Ethane	(C2)	290	139
Propane	(C3)	36	17
Butane	(C4)	12	6
Pentane	(C5)	3	1
Hexane	(C6)	5	2
	Total	4144	1986
	Total (non methane)	346	166

RUN No.:	3		
% O2:	8.53		
		ppm	
Methane	(C1)	4384	2091
Ethane	(C2)	327	156
Propane	(C3)	41	20
Butane	(C4)	11	5
Pentane	(C5)	3	1
Hexane	(C6)	5	2
	Total	4771	2276
	Total (non methane)	387	185

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #25
DATE : 10-14-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	9.24		
		ppm	ppm @ 15% O2
Methane	(C1)	2702	1367
Ethane	(C2)	219	111
Propane	(C3)	26	13
Butane	(C4)	8	4
Pentane	(C5)	1	1
Hexane	(C6)	4	2
	Total	2960	1498
(non methane)	Total	258	131

RUN No.:	2		
% O2:	9.12		
		ppm	
Methane	(C1)	2683	1344
Ethane	(C2)	213	107
Propane	(C3)	26	13
Butane	(C4)	8	4
Pentane	(C5)	1	1
Hexane	(C6)	3	2
	Total	2934	1469
(non methane)	Total	251	126

RUN No.:	3		
% O2:	9.16		
		ppm	
Methane	(C1)	2404	1208
Ethane	(C2)	198	100
Propane	(C3)	24	12
Butane	(C4)	8	4
Pentane	(C5)	1	1
Hexane	(C6)	4	2
	Total	2639	1326
(non methane)	Total	235	118

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #26
DATE : 10-14-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.28		
		ppm	ppm @ 15% O2
Methane	(C1)	1493	647
Ethane	(C2)	142	62
Propane	(C3)	16	7
Butane	(C4)	8	3
Pentane	(C5)	2	1
Hexane	(C6)	6	3
	Total	1667	722
(non methane)	Total	174	75

RUN No.:	2		
% O2:	7.04		
		ppm	
Methane	(C1)	1865	794
Ethane	(C2)	172	73
Propane	(C3)	19	8
Butane	(C4)	10	4
Pentane	(C5)	3	1
Hexane	(C6)	8	3
	Total	2077	884
(non methane)	Total	212	90

RUN No.:	3		
% O2:	6.95		
		ppm	
Methane	(C1)	1823	771
Ethane	(C2)	173	73
Propane	(C3)	19	8
Butane	(C4)	11	5
Pentane	(C5)	3	1
Hexane	(C6)	9	4
	Total	2038	862
(non methane)	Total	215	91

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER #13
DATE : 10-14-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	11.90		
		ppm	ppm @ 15% O2
Methane	(C1)	662	434
Ethane	(C2)	70	46
Propane	(C3)	7	5
Butane	(C4)	4	3
Pentane	(C5)	1	1
Hexane	(C6)	3	2
	Total	747	490
	Total		
(non methane)		85	56

RUN No.:	2		
% O2:	11.66		
		ppm	
Methane	(C1)	649	414
Ethane	(C2)	72	46
Propane	(C3)	9	6
Butane	(C4)	4	3
Pentane	(C5)	1	1
Hexane	(C6)	3	2
	Total	738	471
	Total		
(non methane)		89	57

RUN No.:	3		
% O2:	11.71		
		ppm	
Methane	(C1)	610	392
Ethane	(C2)	67	43
Propane	(C3)	6	4
Butane	(C4)	4	3
Pentane	(C5)	1	1
Hexane	(C6)	3	2
	Total	691	444
	Total		
(non methane)		81	52

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER #14
DATE : 10-14-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.78		
		ppm	ppm @ 15% O2
Methane	(C1)	847	381
Ethane	(C2)	76	34
Propane	(C3)	7	3
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	934	420
(non methane)	Total	87	39

RUN No.:	2		
% O2:	7.74		
		ppm	
Methane	(C1)	838	376
Ethane	(C2)	75	34
Propane	(C3)	6	3
Butane	(C4)	2	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	922	413
(non methane)	Total	84	38

RUN No.:	3		
% O2:	7.86		
		ppm	
Methane	(C1)	835	378
Ethane	(C2)	75	34
Propane	(C3)	6	3
Butane	(C4)	2	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	919	416
(non methane)	Total	84	38

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER #15
DATE : 10-15-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.27		
		ppm	ppm @ 15% O2
Methane	(C1)	602	261
Ethane	(C2)	86	37
Propane	(C3)	19	8
Butane	(C4)	10	4
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	718	311
	Total		
(non methane)		116	50
RUN No.:	2		
% O2:	7.02		
		ppm	
Methane	(C1)	2028	862
Ethane	(C2)	136	58
Propane	(C3)	17	7
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	2186	929
	Total		
(non methane)		158	67
RUN No.:	3		
% O2:	6.97		
		ppm	
Methane	(C1)	994	421
Ethane	(C2)	84	36
Propane	(C3)	8	3
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1090	462
	Total		
(non methane)		96	41

COMPANY : UNOCAL CORPORATION
UNIT : O'DONNELL 2-5
DATE : 10-15-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.97		
		ppm	ppm @ 15% O2
Methane	(C1)	1898	866
Ethane	(C2)	173	79
Propane	(C3)	22	10
Butane	(C4)	7	3
Pentane	(C5)	1	0
Hexane	(C6)	2	1
	Total	2103	960
(non methane)	Total	205	94

RUN No.:	2		
% O2:	7.71		
		ppm	
Methane	(C1)	1983	887
Ethane	(C2)	174	78
Propane	(C3)	23	10
Butane	(C4)	7	3
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	2189	979
(non methane)	Total	206	92

RUN No.:	3		
% O2:	7.52		
		ppm	
Methane	(C1)	1878	828
Ethane	(C2)	161	71
Propane	(C3)	21	9
Butane	(C4)	7	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	2071	913
(non methane)	Total	193	85

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #7
DATE : 10-15-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.24		
		ppm	ppm @ 15% O2
Methane	(C1)	1353	584
Ethane	(C2)	195	84
Propane	(C3)	16	7
Butane	(C4)	16	7
Pentane	(C5)	7	3
Hexane	(C6)	14	6
	Total	1601	692
	Total		
(non methane)		248	107

RUN No.:	2		
% O2:	7.29		
		ppm	
Methane	(C1)	1416	614
Ethane	(C2)	198	86
Propane	(C3)	16	7
Butane	(C4)	16	7
Pentane	(C5)	6	3
Hexane	(C6)	13	6
	Total	1665	722
	Total		
(non methane)		249	108

RUN No.:	3		
% O2:	7.10		
		ppm	
Methane	(C1)	1428	611
Ethane	(C2)	204	87
Propane	(C3)	16	7
Butane	(C4)	17	7
Pentane	(C5)	7	3
Hexane	(C6)	15	6
	Total	1687	721
	Total		
(non methane)		259	111

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #16
DATE : 10-16-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.48		
		ppm	ppm @ 15% O2
Methane	(C1)	1114	490
Ethane	(C2)	113	50
Propane	(C3)	9	4
Butane	(C4)	5	2
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	1245	547
(non methane)	Total	131	58

RUN No.:	2		
% O2:	7.44		
		ppm	
Methane	(C1)	1232	540
Ethane	(C2)	116	51
Propane	(C3)	9	4
Butane	(C4)	6	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	1367	599
(non methane)	Total	135	59

RUN No.:	3		
% O2:	7.52		
		ppm	
Methane	(C1)	1109	489
Ethane	(C2)	116	51
Propane	(C3)	9	4
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	3	1
	Total	1242	548
(non methane)	Total	133	59

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #26
DATE : 10-16-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	8.58		
		ppm	ppm @ 15% O2
Methane	(C1)	1781	853
Ethane	(C2)	157	75
Propane	(C3)	15	7
Butane	(C4)	6	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	1963	940
	Total		
(non methane)		182	87

RUN No.:	2		
% O2:	8.59		
		ppm	
Methane	(C1)	1973	946
Ethane	(C2)	172	82
Propane	(C3)	17	8
Butane	(C4)	6	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	2172	1041
	Total		
(non methane)		199	95

RUN No.:	3		
% O2:	8.78		
		ppm	
Methane	(C1)	2196	1069
Ethane	(C2)	187	91
Propane	(C3)	19	9
Butane	(C4)	7	3
Pentane	(C5)	1	0
Hexane	(C6)	3	1
	Total	2413	1175
	Total		
(non methane)		217	106

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #46
DATE : 10-16-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.35		
		ppm	ppm @ 15% O2
Methane	(C1)	1127	491
Ethane	(C2)	135	59
Propane	(C3)	10	4
Butane	(C4)	10	4
Pentane	(C5)	2	1
Hexane	(C6)	6	3
	Total	1290	562
(non methane)	Total	163	71

RUN No.:	2		
% O2:	7.46		
		ppm	
Methane	(C1)	1121	492
Ethane	(C2)	136	60
Propane	(C3)	12	5
Butane	(C4)	10	4
Pentane	(C5)	2	1
Hexane	(C6)	6	3
	Total	1287	565
(non methane)	Total	166	73

RUN No.:	3		
% O2:	7.46		
		ppm	
Methane	(C1)	1148	504
Ethane	(C2)	136	60
Propane	(C3)	11	5
Butane	(C4)	10	4
Pentane	(C5)	2	1
Hexane	(C6)	7	3
	Total	1314	577
(non methane)	Total	166	73

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #21
DATE : 10-16-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	6.44		
		ppm	ppm @ 15% O2
Methane	(C1)	502	205
Ethane	(C2)	65	27
Propane	(C3)	5	2
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	3	1
	Total	579	236
(non methane)	Total	77	31

RUN No.:	2		
% O2:	6.64		
		ppm	
Methane	(C1)	473	196
Ethane	(C2)	62	26
Propane	(C3)	5	2
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	545	225
(non methane)	Total	72	30

RUN No.:	3		
% O2:	6.56		
		ppm	
Methane	(C1)	568	234
Ethane	(C2)	68	28
Propane	(C3)	5	2
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	647	266
(non methane)	Total	79	33

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR #27
DATE : 10-19-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.33		
		ppm	ppm @ 15% O2
Methane	(C1)	1099	478
Ethane	(C2)	104	45
Propane	(C3)	8	3
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1218	530
	Total		
(non methane)		119	52
RUN No.:	2		
% O2:	7.58		
		ppm	
Methane	(C1)	1087	481
Ethane	(C2)	101	45
Propane	(C3)	8	4
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1202	532
	Total		
(non methane)		115	51
RUN No.:	3		
% O2:	7.67		
		ppm	
Methane	(C1)	1057	471
Ethane	(C2)	105	47
Propane	(C3)	8	4
Butane	(C4)	5	2
Pentane	(C5)	1	0
Hexane	(C6)	2	1
	Total	1178	525
	Total		
(non methane)		121	54

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE #15
DATE : 10-19-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	6.80		
		ppm	ppm @ 15% O2
Methane	(C1)	1223	512
Ethane	(C2)	108	45
Propane	(C3)	10	4
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1345	563
(non methane)	Total	122	51

RUN No.:	2		
% O2:	6.96		
		ppm	
Methane	(C1)	1103	467
Ethane	(C2)	108	46
Propane	(C3)	9	4
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1226	519
(non methane)	Total	123	52

RUN No.:	3		
% O2:	7.43		
		ppm	
Methane	(C1)	1109	486
Ethane	(C2)	104	46
Propane	(C3)	8	4
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1225	537
(non methane)	Total	116	51

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE #14
DATE : 10-19-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.66		
		ppm	ppm @ 15% O2
Methane	(C1)	1858	828
Ethane	(C2)	146	65
Propane	(C3)	14	6
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	2024	902
	Total		
(non methane)		166	74

RUN No.:	2		
% O2:	8.03		
		ppm	
Methane	(C1)	2442	1119
Ethane	(C2)	195	89
Propane	(C3)	18	8
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	2661	1220
	Total		
(non methane)		219	100

RUN No.:	3		
% O2:	8.04		
		ppm	
Methane	(C1)	2252	1033
Ethane	(C2)	174	80
Propane	(C3)	19	9
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	2452	1125
	Total		
(non methane)		200	92

COMPANY : UNOCAL CORPORATION
UNIT : CASMALIA
DATE : 10-20-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.99		
		ppm	ppm @ 15% O2
Methane	(C1)	1626	743
Ethane	(C2)	118	54
Propane	(C3)	12	5
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	0	0
	Total	1760	804
	Total		
(non methane)		134	61

RUN No.:	2		
% O2:	8.18		
		ppm	
Methane	(C1)	1853	859
Ethane	(C2)	136	63
Propane	(C3)	15	7
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	0	0
	Total	2008	931
	Total		
(non methane)		155	72

RUN No.:	3		
% O2:	8.23		
		ppm	
Methane	(C1)	2015	938
Ethane	(C2)	148	69
Propane	(C3)	16	7
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	0	0
	Total	2183	1017
	Total		
(non methane)		168	78

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL #17
DATE : 10-20-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	11.16		
		ppm	ppm @ 15% O2
Methane	(C1)	938	568
Ethane	(C2)	111	67
Propane	(C3)	7	4
Butane	(C4)	7	4
Pentane	(C5)	1	1
Hexane	(C6)	4	2
	Total	1068	647
(non methane)	Total	130	79

RUN No.:	2		
% O2:	10.91		
		ppm	
Methane	(C1)	954	563
Ethane	(C2)	112	66
Propane	(C3)	8	5
Butane	(C4)	6	4
Pentane	(C5)	2	1
Hexane	(C6)	5	3
	Total	1087	642
(non methane)	Total	133	79

RUN No.:	3		
% O2:	10.81		
		ppm	
Methane	(C1)	915	535
Ethane	(C2)	110	64
Propane	(C3)	7	4
Butane	(C4)	7	4
Pentane	(C5)	2	1
Hexane	(C6)	5	3
	Total	1046	612
(non methane)	Total	131	77

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL #169
DATE : 10-20-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	8.35		
		ppm	ppm @ 15% O2
Methane	(C1)	1285	604
Ethane	(C2)	127	60
Propane	(C3)	11	5
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1430	672
	Total		
(non methane)		145	68

RUN No.:	2		
% O2:	8.19		
		ppm	
Methane	(C1)	1300	603
Ethane	(C2)	128	59
Propane	(C3)	11	5
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1446	671
	Total		
(non methane)		146	68

RUN No.:	3		
% O2:	8.45		
		ppm	
Methane	(C1)	1485	704
Ethane	(C2)	137	65
Propane	(C3)	13	6
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	2	1
	Total	1642	778
	Total		
(non methane)		157	74

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL #87
DATE : 10-20-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	7.51		
		ppm	ppm @ 15% O2
Methane	(C1)	916	404
Ethane	(C2)	88	39
Propane	(C3)	7	3
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1015	447
(non methane)	Total	99	44

RUN No.:	2		
% O2:	7.63		
		ppm	
Methane	(C1)	753	335
Ethane	(C2)	74	33
Propane	(C3)	6	3
Butane	(C4)	2	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	836	372
(non methane)	Total	83	37

RUN No.:	3		
% O2:	7.57		
		ppm	
Methane	(C1)	1000	443
Ethane	(C2)	88	39
Propane	(C3)	8	4
Butane	(C4)	3	1
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1100	487
(non methane)	Total	100	44

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #20
DATE : 11-04-92
REPORT : 086-211

R O C RESULTS

RUN No.:	1		
% O2:	10.20		
		ppm	ppm @ 15% O2
Methane	(C1)	2427	1338
Ethane	(C2)	209	115
Propane	(C3)	16	9
Butane	(C4)	5	3
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	2658	1466
(non methane)	Total	231	127

RUN No.:	2		
% O2:	10.20		
		ppm	
Methane	(C1)	2128	1173
Ethane	(C2)	191	105
Propane	(C3)	14	8
Butane	(C4)	5	3
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	2339	1290
(non methane)	Total	211	116

RUN No.:	3		
% O2:	10.20		
		ppm	
Methane	(C1)	2309	1273
Ethane	(C2)	200	110
Propane	(C3)	15	8
Butane	(C4)	5	3
Pentane	(C5)	0	0
Hexane	(C6)	1	1
	Total	2530	1395
(non methane)	Total	221	122

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL #85
DATE : 11-10-92
REPORT : 086-211

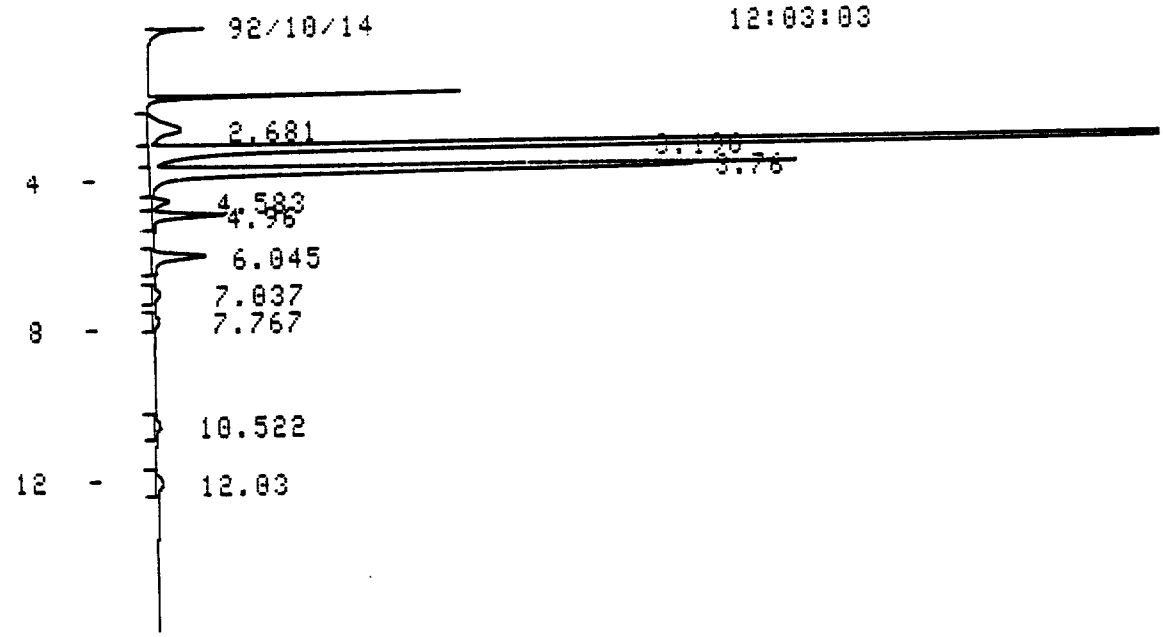
R O C RESULTS

RUN No.:	1		
% O2:	7.98		
		ppm	ppm @ 15% O2
Methane	(C1)	1178	538
Ethane	(C2)	105	48
Propane	(C3)	10	5
Butane	(C4)	4	2
Pentane	(C5)	0	0
Hexane	(C6)	0	0
	Total	1297	592
(non methane)	Total	119	54

RUN No.:	2		
% O2:	7.95		
		ppm	
Methane	(C1)	1206	549
Ethane	(C2)	112	51
Propane	(C3)	10	5
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1334	608
(non methane)	Total	128	58

RUN No.:	3		
% O2:	8.56		
		ppm	
Methane	(C1)	1398	668
Ethane	(C2)	134	64
Propane	(C3)	11	5
Butane	(C4)	5	2
Pentane	(C5)	0	0
Hexane	(C6)	1	0
	Total	1549	741
(non methane)	Total	151	72

UNOCAL UNIT # WP19
10-13-92 REPORT # 086-211
HC SAMPLE # 1



CHROMATOGRAM 16 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.681	5311		6	3.9054	C-6+
2	3.196	245067	V	1	1073.9123	C-1
3	3.76	52616	V	2	116.4279	C-2
4	4.583	1251		8	1.8443	C-3
5	4.96	4582	V	3	6.7527	C-3
6	6.045	4327		9	4.8764	C-4
7	7.037	543		10	0.6117	C-4
8	7.767	507		4	0.5713	C-4
9	10.522	749		12	0.6964	C-5
10	12.03	955			0.9877	C-5
	TOTAL	315907			1209.598	

GROUP(NAME)	CONC
C-1	1073.9123
C-2	116.4279
C-3	8.597
C-4	6.0595
C-5	~~0.6964~~ 1.5841
C-6+	3.9054

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #26
DATE : 10-14-92
REPORT : 086-211

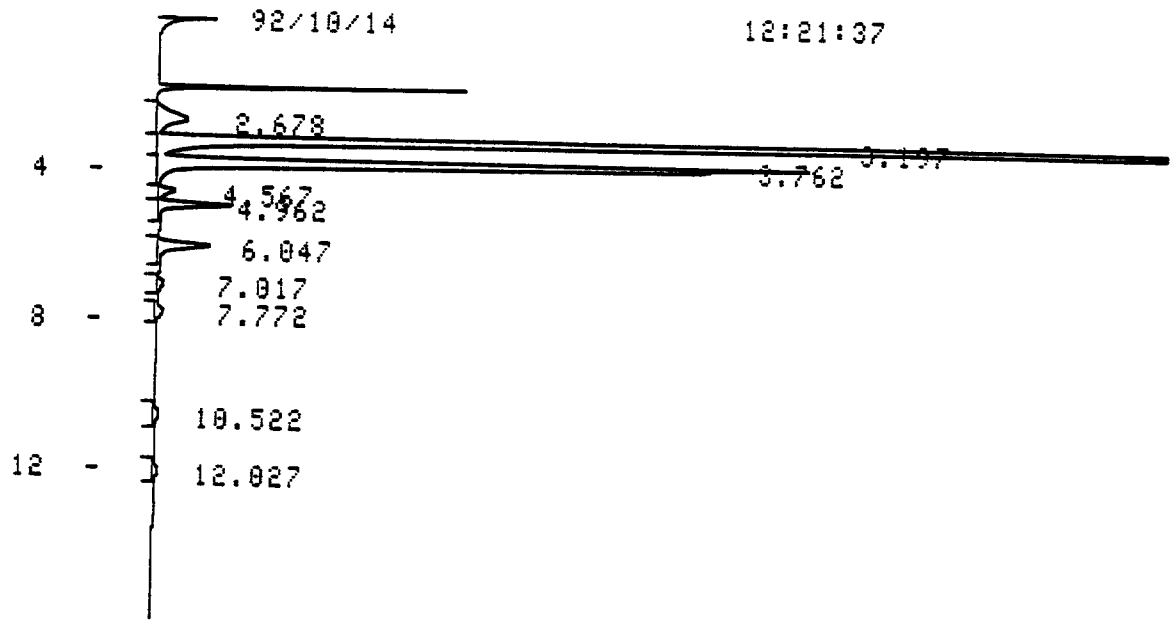
R O C RESULTS

RUN No.:	1		
% O2:	7.28		
		ppm	ppm @ 15% O2
Methane	(C1)	1493	647
Ethane	(C2)	142	62
Propane	(C3)	16	7
Butane	(C4)	8	3
Pentane	(C5)	2	1
Hexane	(C6)	6	3
	Total	1667	722
(non methane)	Total	174	75

RUN No.:	2		
% O2:	7.04		
		ppm	
Methane	(C1)	1865	794
Ethane	(C2)	172	73
Propane	(C3)	19	8
Butane	(C4)	10	4
Pentane	(C5)	3	1
Hexane	(C6)	8	3
	Total	2077	884
(non methane)	Total	212	90

RUN No.:	3		
% O2:	6.95		
		ppm	
Methane	(C1)	1823	771
Ethane	(C2)	173	73
Propane	(C3)	19	8
Butane	(C4)	11	5
Pentane	(C5)	3	1
Hexane	(C6)	9	4
	Total	2038	862
(non methane)	Total	215	91

UNOCAL UNIT # WP19
10-13-92 REPORT # 086-211
HC SAMPLE # 2

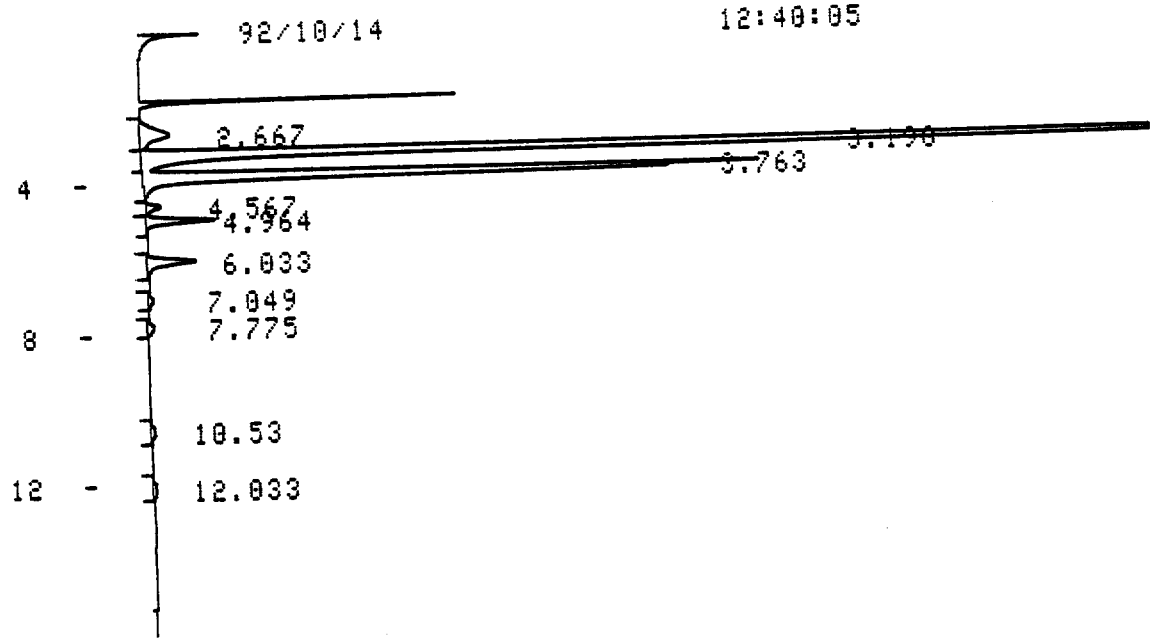


CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.678	4832		6	3.553	C-6+
2	3.197	249723	V	1	1094.3161	C-1
3	3.762	53156	V	2	117.6231	C-2
4	4.567	1302		8	1.9182	C-3
5	4.962	4738	V	3	6.9827	C-3
6	6.047	4313		9	4.8612	C-4
7	7.017	523		10	0.5894	C-4
8	7.772	553		4	0.6235	C-4
9	10.522	764		12	0.7099	C-5
10	12.027	621			0.5772	C-5
	TOTAL	320524			1231.1766	

GROUP(NAME)	CONC
C-1	1094.3161
C-2	117.6231
C-3	8.9009
C-4	6.0741
C-5	~~0.7099~~ 1.2871
C-6+	3.553

UNOCAL UNIT # WP19
10-13-92 REPORT # 086-211
HC SAMPLE # 3



CHROMATOGRAM 18 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.667	4526		6	3.328	C-6+
2	3.198	240380	V	1	1053.3741	C-1
3	3.763	50683	V	2	112.1511	C-2
4	4.567	1213		8	1.7878	C-3
5	4.964	4517	V	3	6.6564	C-3
6	6.033	4106		9	4.6275	C-4
7	7.049	463		10	0.5215	C-4
8	7.775	496		4	0.559	C-4
9	10.53	696		12	0.6473	C-5
10	12.033	603			0.5605	C-5
	TOTAL	307682			1183.6523	

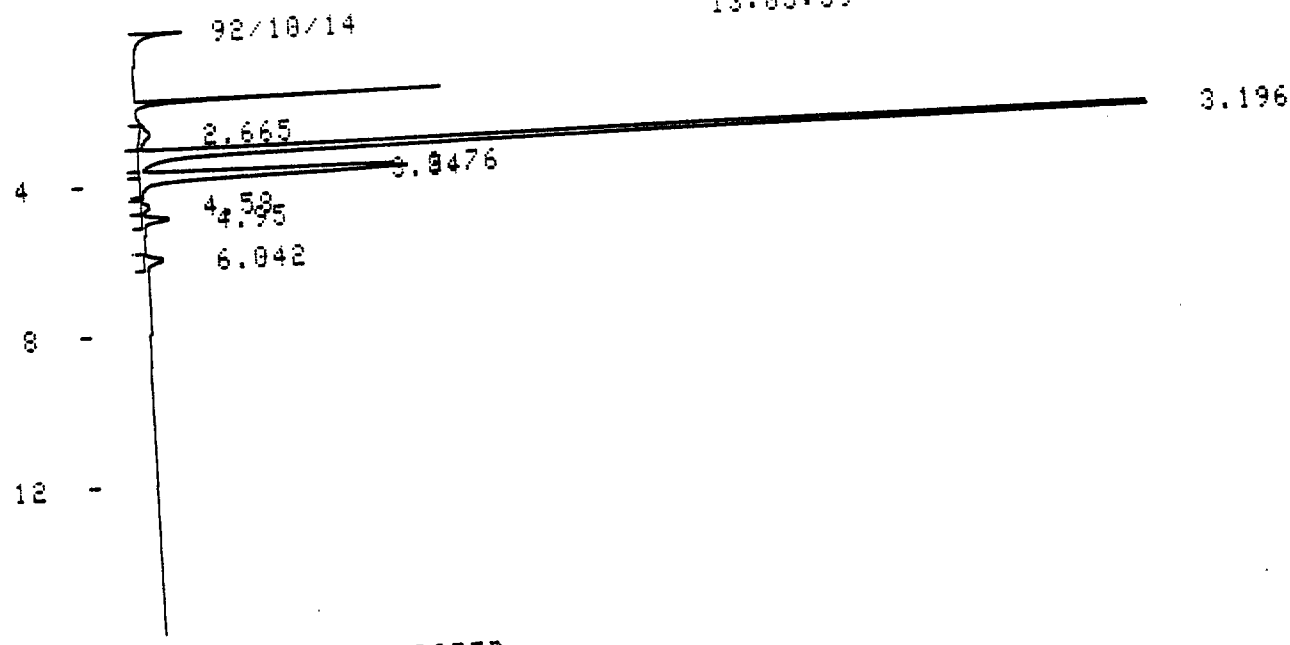
GROUP(NAME)	CONC
C-1	1053.3741
C-2	112.1511
C-3	8.4442
C-4	5.708
C-5	~~0.6473~~ 1.2078
C-6+	3.328

FR

Petro Chem Environmental Services, Inc.

JMOCAL UNIT # WP21
10-13-92 REPORT # 086-211
HC SAMPLE # 1

13:03:39



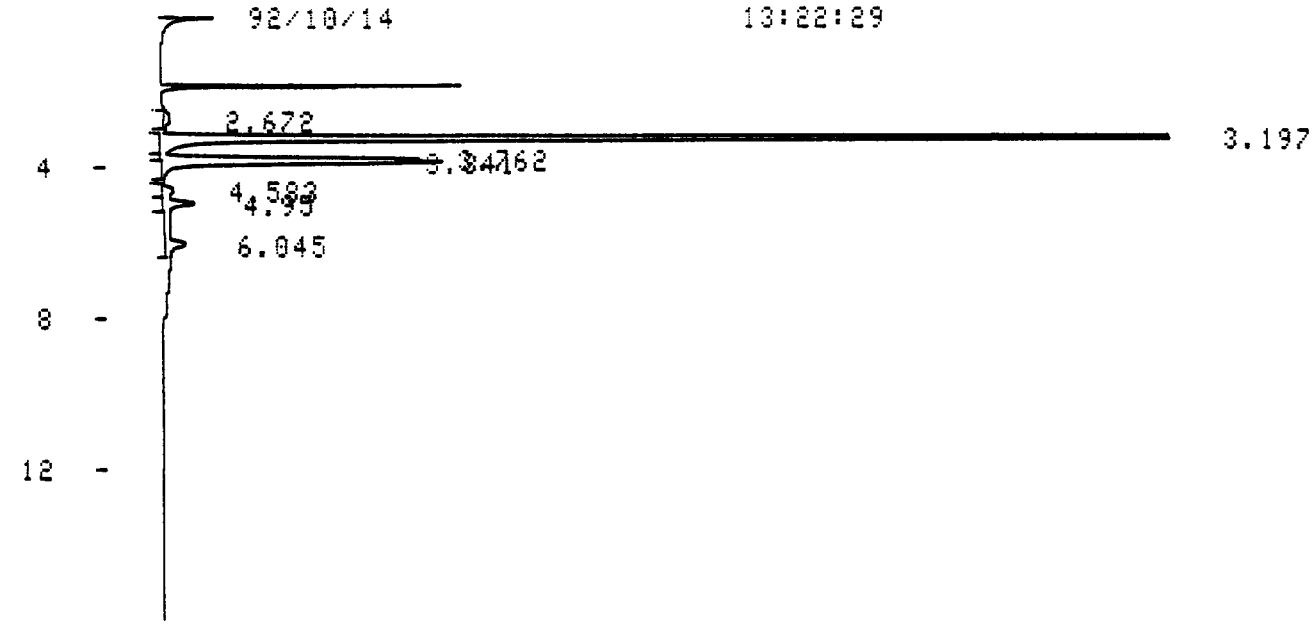
CHROMATOGRAM 19 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.665	1277		6	0.9392	C-6+
2	3.196	105842		1	463.8114	C-1
3	3.76	9799	V	2	21.6828	C-2
4	3.84	13766	V	7	30.4622	C-2
5	4.58	655		8	0.9655	C-3
6	4.95	1624	V	3	2.3937	C-3
7	6.042	1312		9	1.4785	C-4
	TOTAL	134275			521.7331	

GROUP(NAME)	CONC
C-1	463.8114
C-2	52.145
C-3	3.3592
C-4	1.4785
C-5	0
C-6+	0.9392

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # WP21
10-13-92 REPORT # 086-211
HC SAMPLE # 2

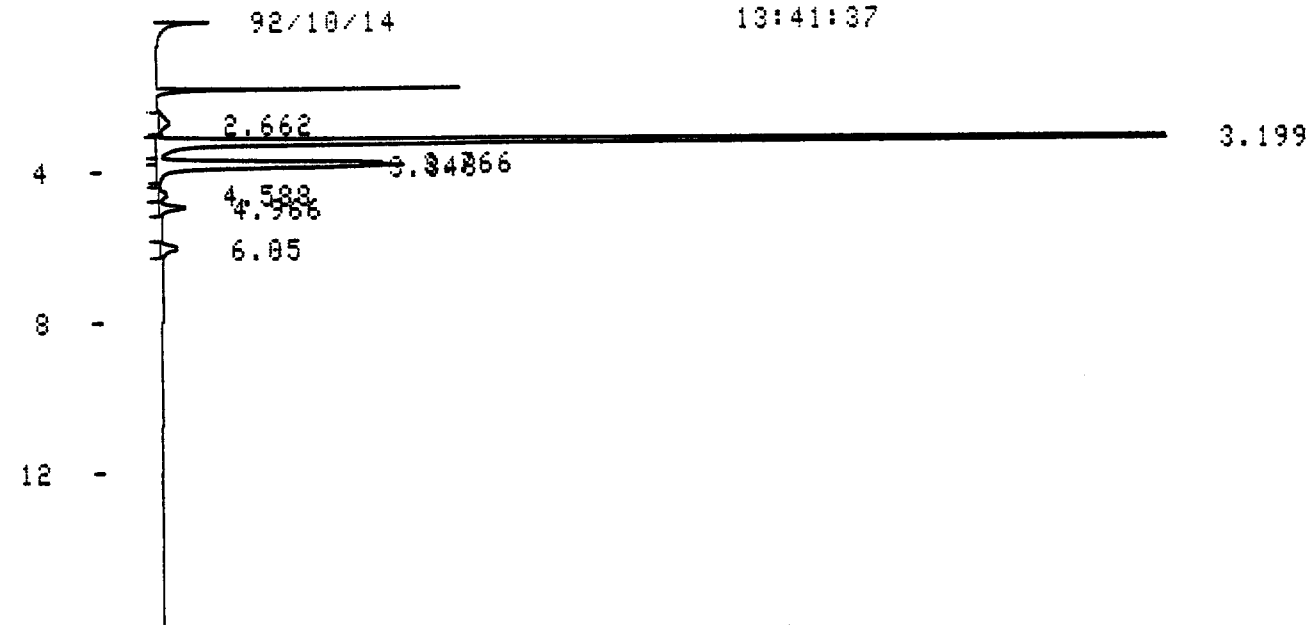


CHROMATOGRAM 20 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.672	734		6	0.5399	C-6+
2	3.197	106918		1	468.5279	C-1
3	3.762	9816	V	2	21.721	C-2
4	3.841	14457	V	7	31.9907	C-2
5	4.583	962		8	1.4171	C-3
6	4.95	2304	V	3	3.3951	C-3
7	6.045	2370	V	9	2.6712	C-4
	TOTAL	137561			530.2626	

GROUP(NAME)	CONC
C-1	468.5279
C-2	53.7117
C-3	4.8122
C-4	2.6712
C-5	0
C-6+	0.5399

UNOCAL UNIT # WP21
10-13-92 REPORT # 086-211
HC SAMPLE # 3

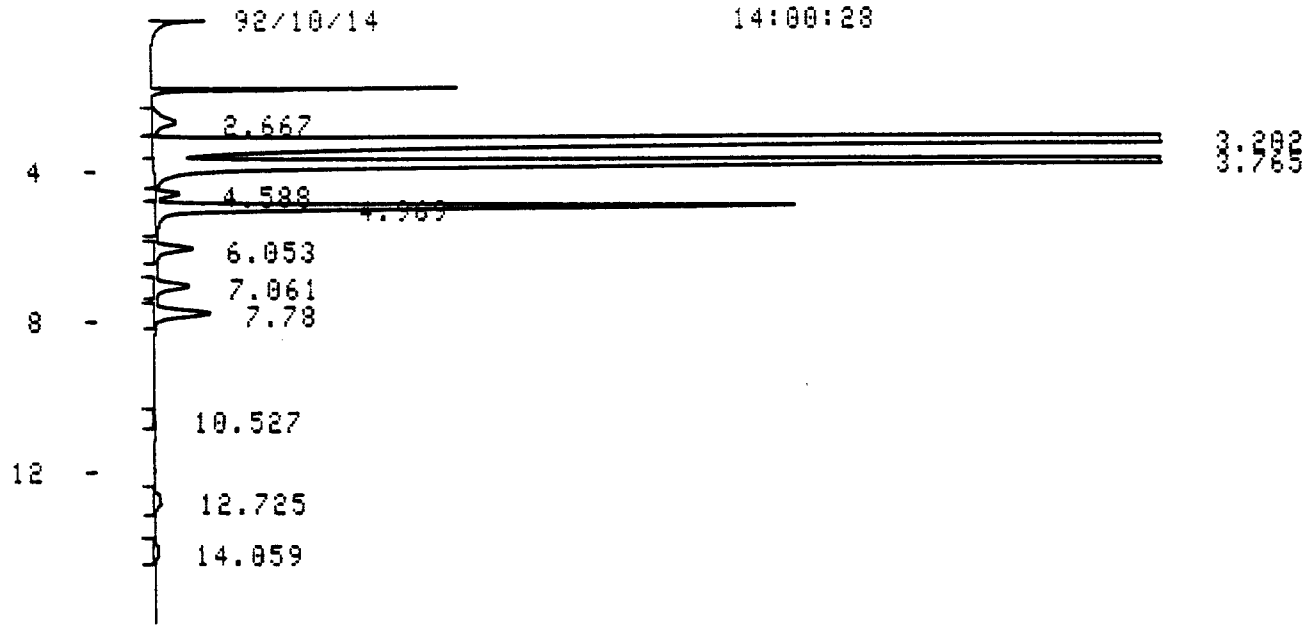


CHROMATOGRAM 21 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.662	1111		6	0.8172	C-6+
2	3.199	88934		1	389.7176	C-1
3	3.766	8971	V	2	19.8514	C-2
4	3.848	12363	V	7	27.3568	C-2
5	4.588	657		8	0.9689	C-3
6	4.966	1597	V	3	2.3534	C-3
7	6.05	1305		9	1.4709	C-4
	TOTAL	114938			442.5363	

GROUP(NAME)	CONC
C-1	389.7176
C-2	47.2083
C-3	3.3223
C-4	1.4709
C-5	0
C-6+	0.8172

UNOCAL UNIT # 23-CF
10-13-92 REPORT # 086-211
HC SAMPLE # 1

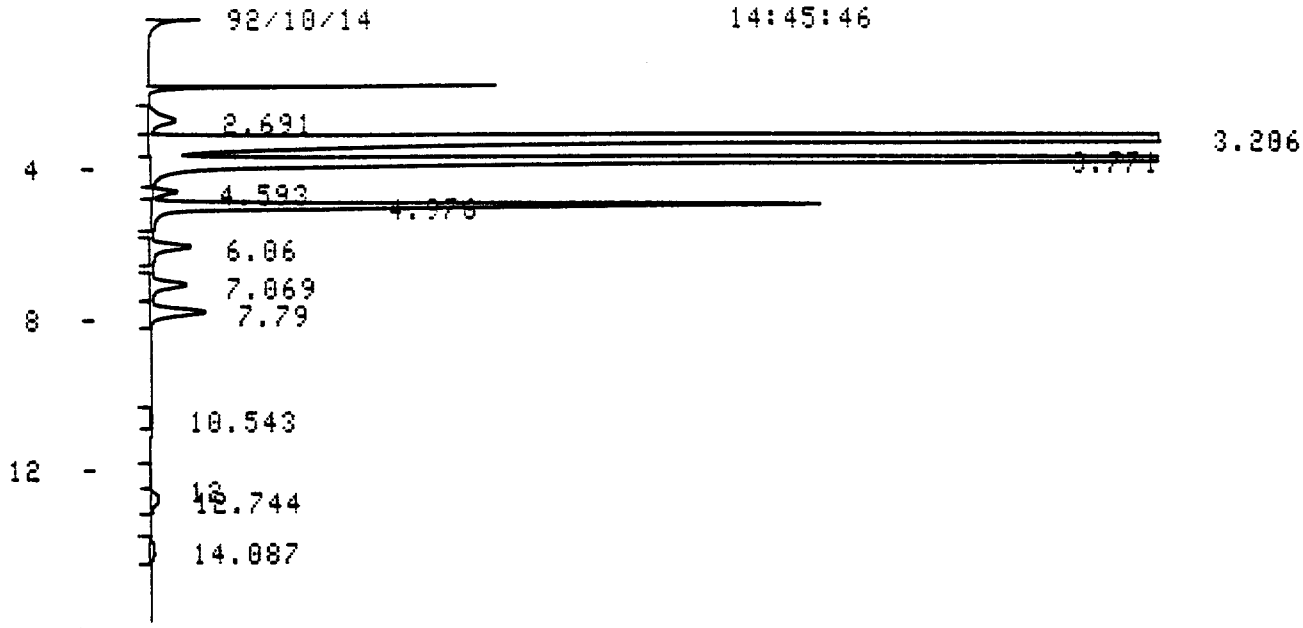


CHROMATOGRAM 22 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.667	2729		6	2.007	C-6+
2	3.202	1464864		1	6419.2065	C-1
3	3.765	202055	V	2	447.1077	C-2
4	4.588	1746		8	2.5727	C-3
5	4.969	40543	V	3	59.7511	C-3
6	6.053	2936		9	3.3093	C-4
7	7.061	3006		10	3.3878	C-4
8	7.78	5286		4	5.9583	C-4
9	10.527	296		12	0.2748	C-5
10	12.725	1234		13	1.1468	C-5
11	14.059	802		5	0.7454	C-5
	TOTAL	1725496			6945.4648	

GROUP(NAME)	CONC
C-1	6419.2065
C-2	447.1077
C-3	62.3238
C-4	12.6554
C-5	2.167
C-6+	2.007

UNOCAL UNIT # 23-CF
10-13-92 REPORT # 086-211
HC SAMPLE # 3



CHROMATOGRAM 24 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.691	3287		6	2.4167	C-6+
2	3.206	1396090		1	6117.8281	C-1
3	3.771	197728	V	2	437.5336	C-2
4	4.593	1752		8	2.5828	C-3
5	4.976	42176	V	3	62.1582	C-3
6	6.06	3336		9	3.7603	C-4
7	7.069	3265		10	3.6804	C-4
8	7.79	5224		4	5.8877	C-4
9	10.543	370		12	0.3442	C-5
10	12	243			0.2259	C-5
11	12.744	1148		13	1.0667	C-5
12	14.087	842		5	0.7828	C-5
	TOTAL	1655461			6638.0395	

GROUP(NAME)	CONC
C-1	6117.8281
C-2	437.5336
C-3	64.741
C-4	13.3284
C-5	~~2.1938~~ 2.4195
C-6+	2.4167 FR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # CF-24
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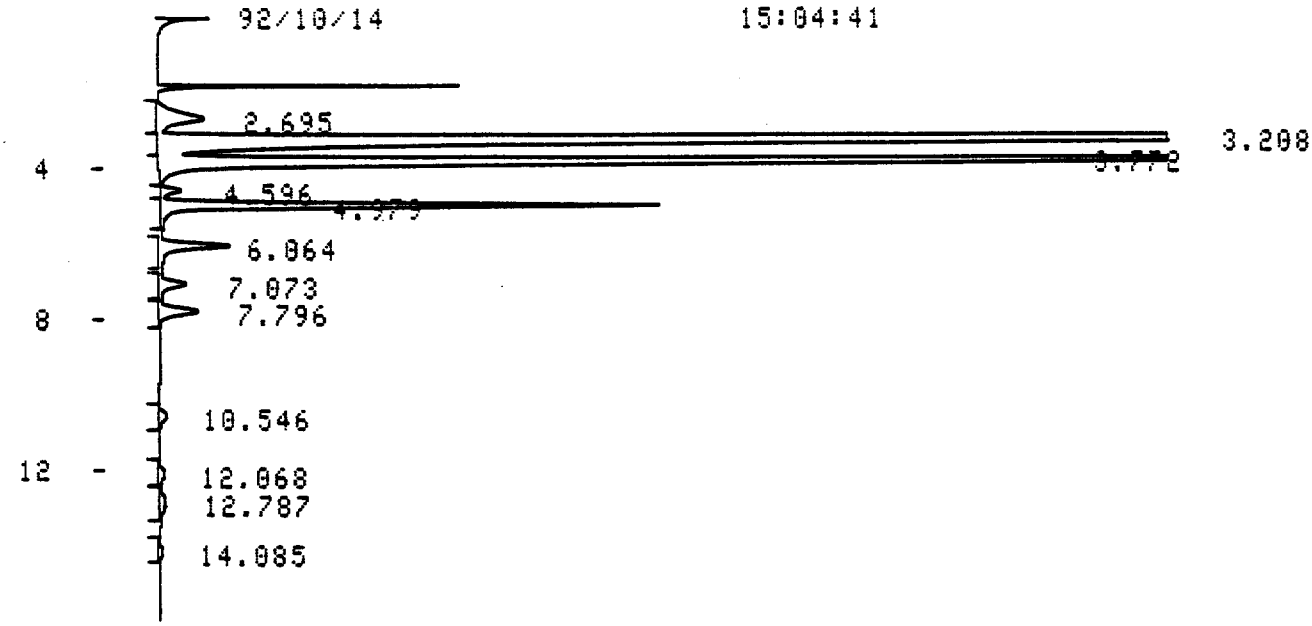
HC SAMPLE # 1



CHROMATOGRAM 25 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.695	6729		6	4.948	C-6+
2	3.208	1001678	V	1	4389.4711	C-1
3	3.772	153975	V	2	340.7174	C-2
4	4.596	1481		8	2.1827	C-3
5	4.979	31247	V	3	46.0518	C-3
6	6.064	5702		9	6.4268	C-4
7	7.073	2265		10	2.5527	C-4
8	7.796	3685		4	4.153	C-4
9	10.546	1064		12	0.9894	C-5
10	12.068	801			0.7446	C-5
11	12.787	1171		13	1.0884	C-5
12	14.085	554		5	0.5146	C-5
	TOTAL	1210353			4799.0947	

GROUP(NAME)	CONC
C-1	4389.4711
C-2	340.7174
C-3	48.2344
C-4	13.1325
C-5	~~2.5924~~ 3.3370
C-6+	4.948

TR

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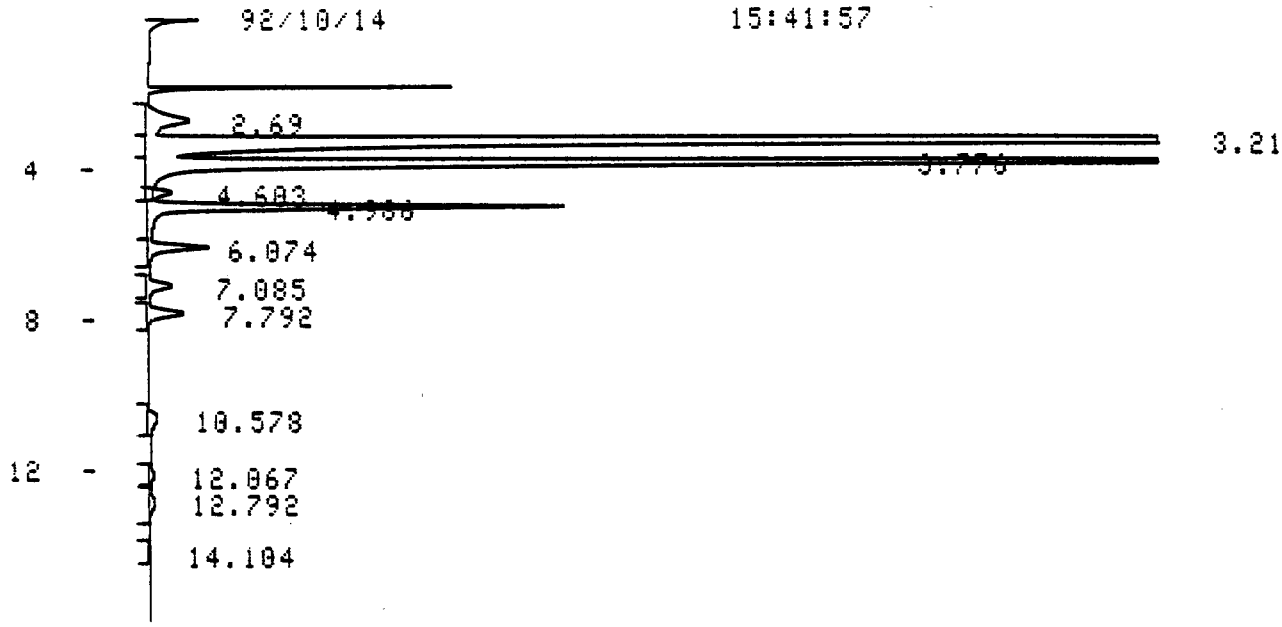
UNOCAL UNIT # CF-24
10-13-92 REPORT # 086-211
HC SAMPLE # 3

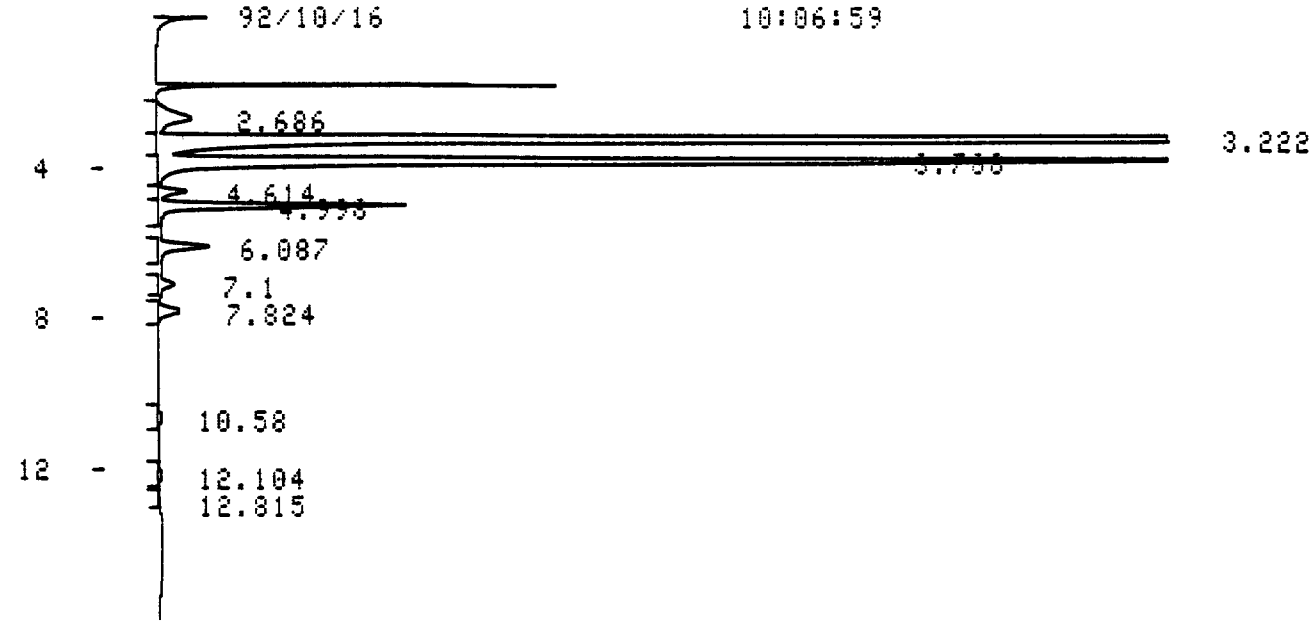


CHROMATOGRAM 27 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.69	6551		6	4.817	C-6+
2	3.21	1000477	V	1	4384.2065	C-1
3	3.776	147788	SV	2	327.0264	C-2
4	4.603	1290	T	8	1.9012	C-3
5	4.986	26795	V	3	39.4906	C-3
6	6.074	4693		9	5.2898	C-4
7	7.085	2058		10	2.3192	C-4
8	7.792	3393		4	3.8242	C-4
9	10.578	1491		12	1.3862	C-5
10	12.067	610			0.5670	C-5
11	12.792	1112		13	1.0336	C-5
12	14.104	438		5	0.4067	C-5
	TOTAL	1196695			4771.6982	

GROUP(NAME)	CONC
C-1	4384.2065
C-2	327.0264
C-3	41.3918
C-4	11.4331
C-5	~~2.0266~~ 3.3936
C-6+	4.817 TR

UNOCAL UNIT # COOLING FAN 25
10-14-92 REPORT # 086-211
HC SAMPLE # 1



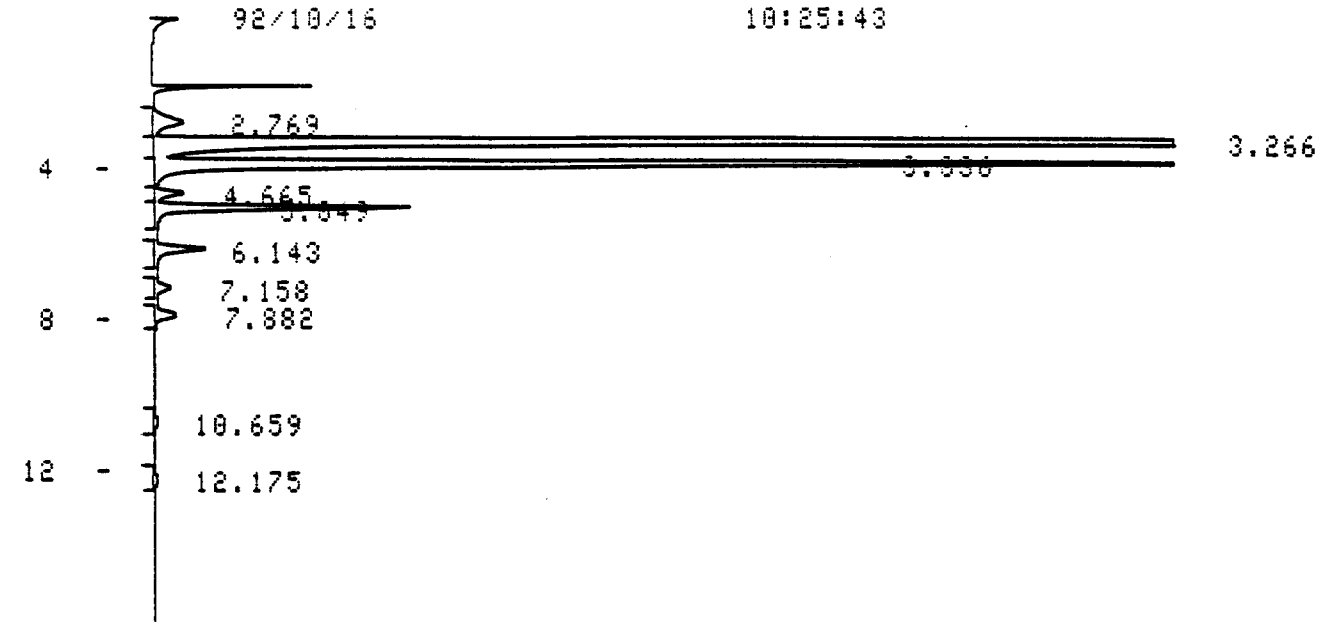
CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.686	5276		6	3.842	C-6+
2	3.222	613506	V	1	2702.0778	C-1
3	3.788	98839	V	7	218.7114	C-2
4	4.614	2030		8	2.973	C-3
5	4.998	15779	V	3	23.1051	C-3
6	6.087	4138		9	4.5133	C-4
7	7.1	1270		10	1.3854	C-4
8	7.824	2020		4	2.2033	C-4
9	10.58	640		12	0.5938	C-5
10	12.104	673			0.6245	C-5
11	12.815	252		13	0.2341	C-5
	TOTAL	744424			2959.6381	

GROUP(NAME)	CONC
C-1	2702.0778
C-2	218.7114
C-3	26.0781
C-4	8.1019
C-5	~~0.8278~~ 1.4523
C-6+	3.842

TR

UNOCAL UNIT # COOLING FAN 25
10-14-92 REPORT # 086-211
HC SAMPLE # 2

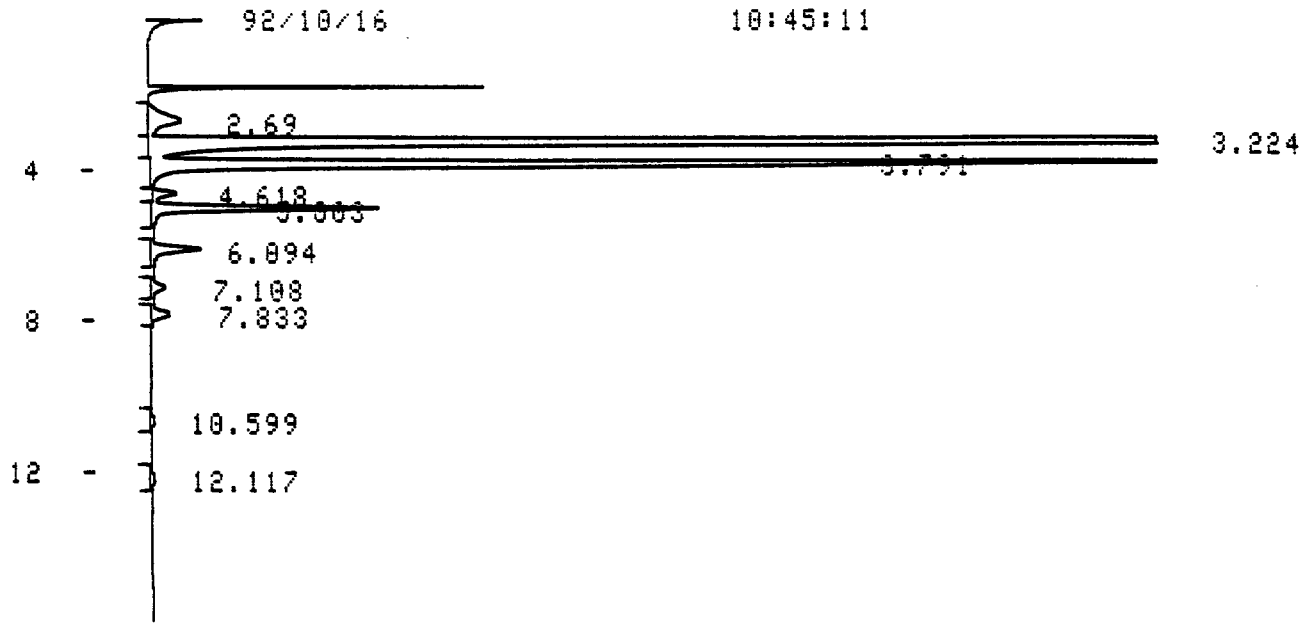


CHROMATOGRAM 3 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.769	3828		6	2.7388	C-6+
2	3.266	618572		1	2682.9208	C-1
3	3.836	100037	V	7	212.6793	C-2
4	4.665	2056		8	2.9473	C-3
5	5.049	16074	V	3	23.0452	C-3
6	6.143	4160		9	4.5611	C-4
7	7.158	1297		10	1.4221	C-4
8	7.882	2030		4	2.2253	C-4
9	10.659	673		12	0.6099	C-5
10	12.175	663				
	TOTAL	749389			2933.1491	

GROUP(NAME)	CONC
C-1	2682.9208
C-2	212.6793
C-3	25.9925
C-4	8.2085
C-5	0.6099
C-6+	2.7388

UNOCAL UNIT # COOLING FAN 25
10-14-92 REPORT # 086-211
HC SAMPLE # 3

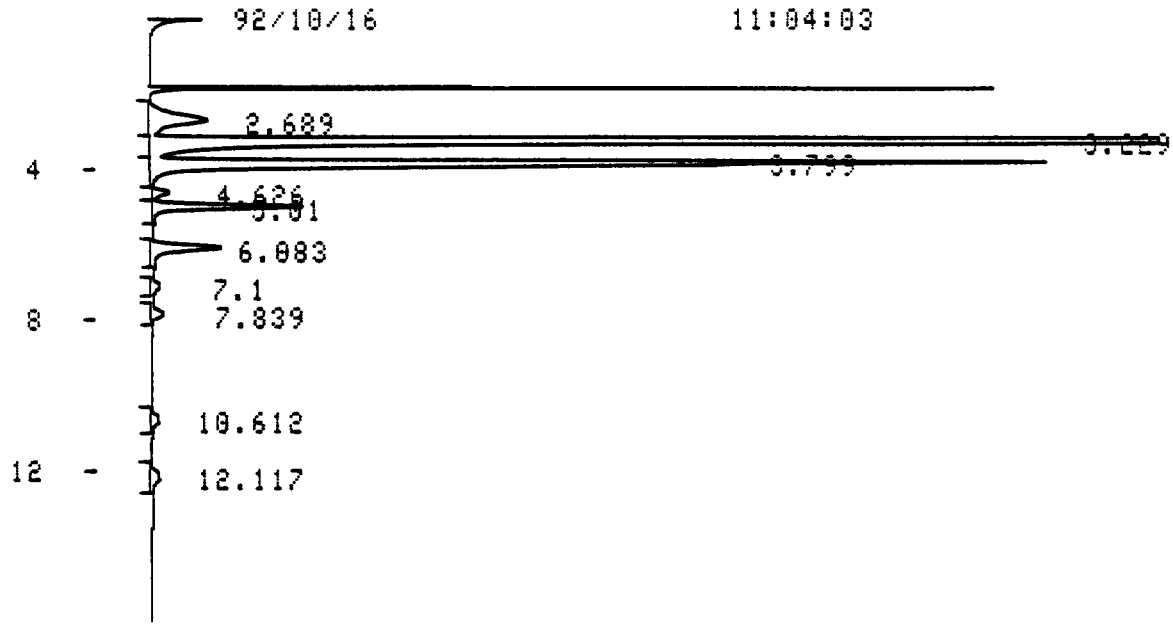


CHROMATOGRAM 4 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.69	5180		6	3.7719	C-6+
2	3.224	545895	V	1	2404.3002	C-1
3	3.791	89690	V	7	198.4653	C-2
4	4.618	1936		8	2.8344	C-3
5	5.003	14484	V	3	21.2085	C-3
6	6.094	4019		9	4.3827	C-4
7	7.108	1157		10	1.2622	C-4
8	7.833	1799		4	1.9618	C-4
9	10.599	580		12	0.5386	C-5
10	12.117	627			0.5818	C-5
	TOTAL	665366			2638.725	

GROUP(NAME)	CONC
C-1	2404.3002
C-2	198.4653
C-3	24.0429
C-4	7.6067
C-5	~~0.5386~~ 1.1204
C-6+	3.7719

UNOCAL UNIT # COOLING FAN 26
10-14-92 REPORT # 086-211
HC SAMPLE # 1

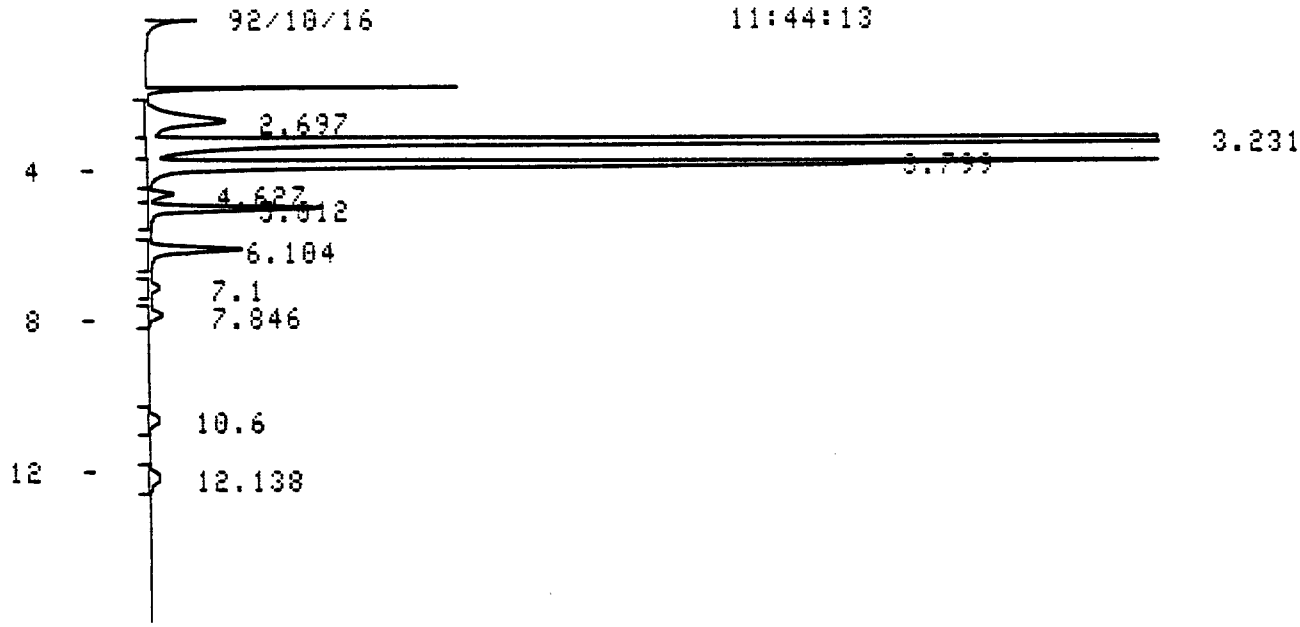


CHROMATOGRAM 5 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.689	8726		6	6.3546	C-6+
2	3.229	339096	V	1	1493.4898	C-1
3	3.799	64201	V	7	142.064	C-2
4	4.626	1417		8	2.0755	C-3
5	5.01	9706	V	3	14.2132	C-3
6	6.083	5758		9	6.2792	C-4
7	7.1	730		10	0.7966	C-4
8	7.839	1049		4	1.144	C-4
9	10.612	1187		12	1.1013	C-5
10	12.117	1406			1.3046	C-5
	TOTAL	433278			1667.5179	

GROUP(NAME)	CONC
C-1	1493.4898
C-2	142.064
C-3	16.2887
C-4	8.2198
C-5	~~1.1013~~ 2.4059
C-6+	6.3546 TR

UNOCAL UNIT # COOLING FAN 26
10-14-92 REPORT # 086-211
HC SAMPLE # 3



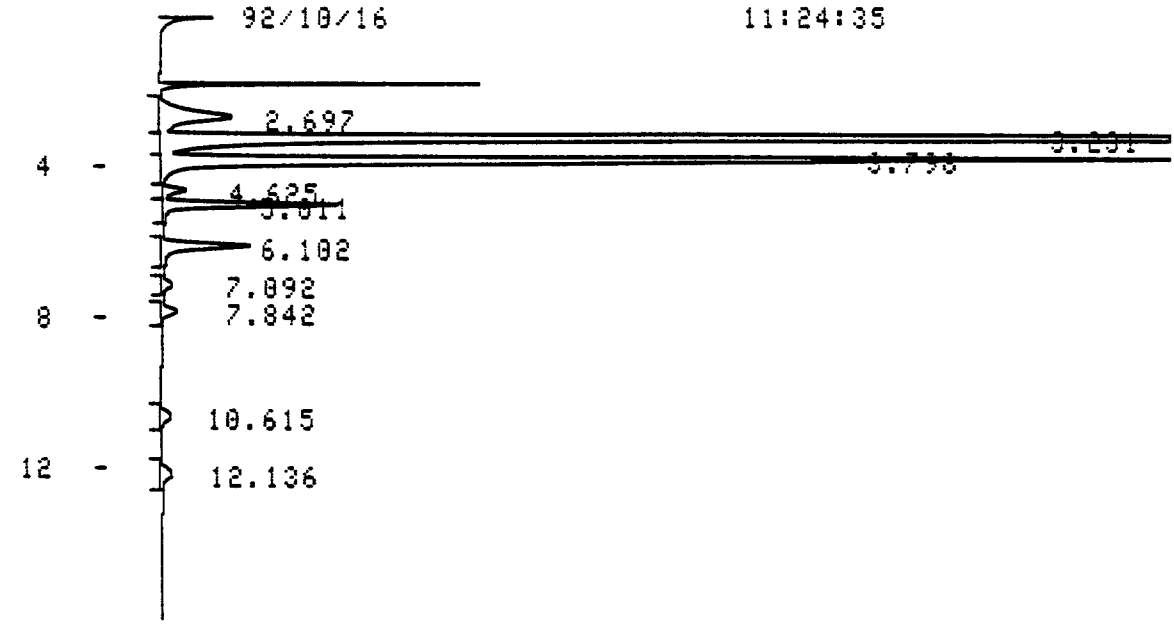
CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.697	12558		6	9.1449	C-6+
2	3.231	413844	V	1	1822.702	C-1
3	3.799	78111	V	7	172.8449	C-2
4	4.627	1787		8	2.6165	C-3
5	5.012	11143	V	3	16.3168	C-3
6	6.104	7678		9	8.3735	C-4
7	7.1	874		10	0.9527	C-4
8	7.846	1234		4	1.3462	C-4
9	10.6	1609		12	1.4933	C-5
10	12.138	1908			1.7704 e-5	
	TOTAL	530746			2035.7902	

GROUP(NAME)	CONC
C-1	1822.702
C-2	172.8449
C-3	18.9333
C-4	10.6723
C-5	~~1.4933~~ 3.2627
C-6+	9.1449 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # COOLING FAN 26
10-14-92 REPORT # 086-211
HC SAMPLE # 2



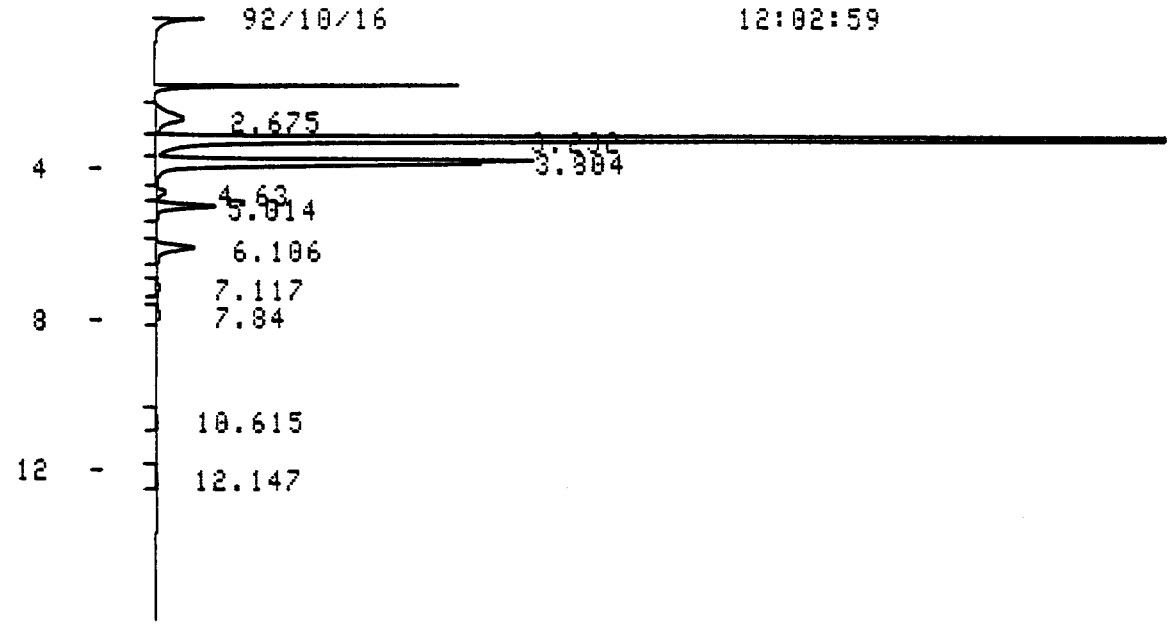
CHROMATOGRAM 6 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.697	11376		6	8.2842	C-6+
2	3.231	423475	V	1	1865.1199	C-1
3	3.798	77666	V	7	171.8594	C-2
4	4.625	1739		8	2.5458	C-3
5	5.011	11208	V	3	16.4118	C-3
6	6.102	7249		9	7.9059	C-4
7	7.092	905		10	0.9872	C-4
8	7.842	1370		4	1.4939	C-4
9	10.615	1488		12	1.3811	C-5
10	12.136	1772			1.6443	C-5
	TOTAL	538247			2075.9885	

GROUP(NAME)	CONC
C-1	1865.1199
C-2	171.8594
C-3	18.9576
C-4	10.387
C-5	~~1.3811~~ 3.0254
C-6+	8.2842

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # COOLING TOWER 13
10-14-92 REPORT # 086-211
HC SAMPLE # 1

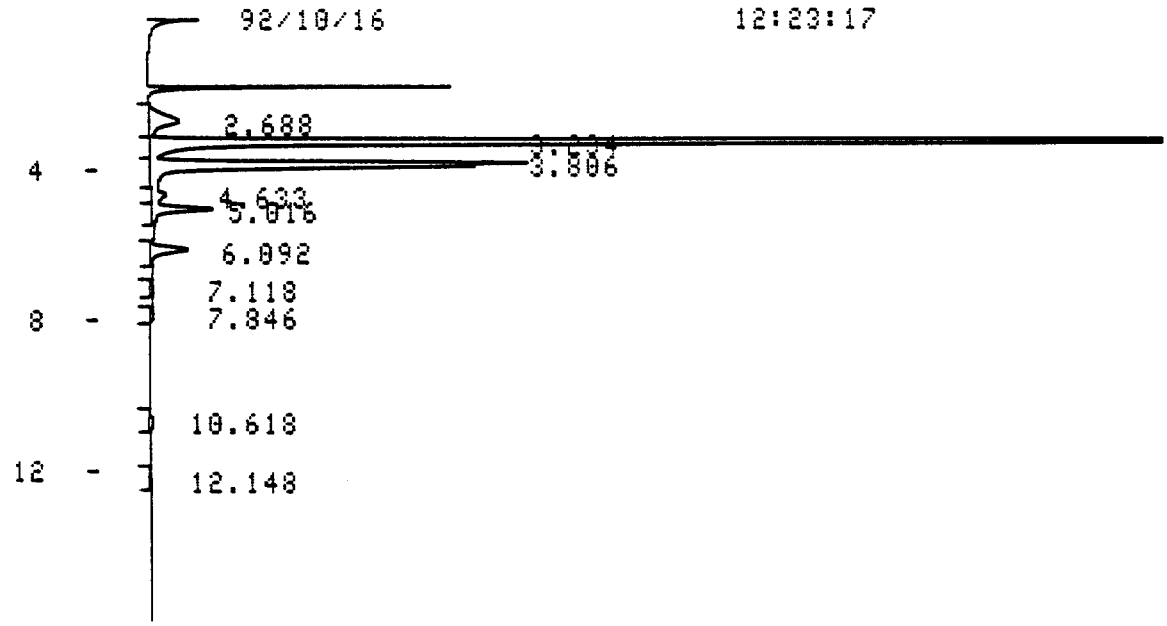


CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.675	4358		6	3.1739	C-6+
2	3.232	150223		1	661.6311	C-1
3	3.804	31659	V	7	70.0554	C-2
4	4.63	795		8	1.1646	C-3
5	5.014	3845	V	3	5.6307	C-3
6	6.106	3103		9	3.3845	C-4
7	7.117	334		10	0.3643	C-4
8	7.84	440		4	0.4796	C-4
9	10.615	607		12	0.5631	C-5
10	12.147	519			0.4816	C-5
	TOTAL	195884			746.4471	

GROUP(NAME)	CONC
C-1	661.6311
C-2	70.0554
C-3	6.7954
C-4	4.2284
C-5	~~0.5631~~ 1.0447
C-6+	3.1739 TR

UNOCAL UNIT # COOLING TOWER 13
10-14-92 REPORT # 086-211
HC SAMPLE # 2

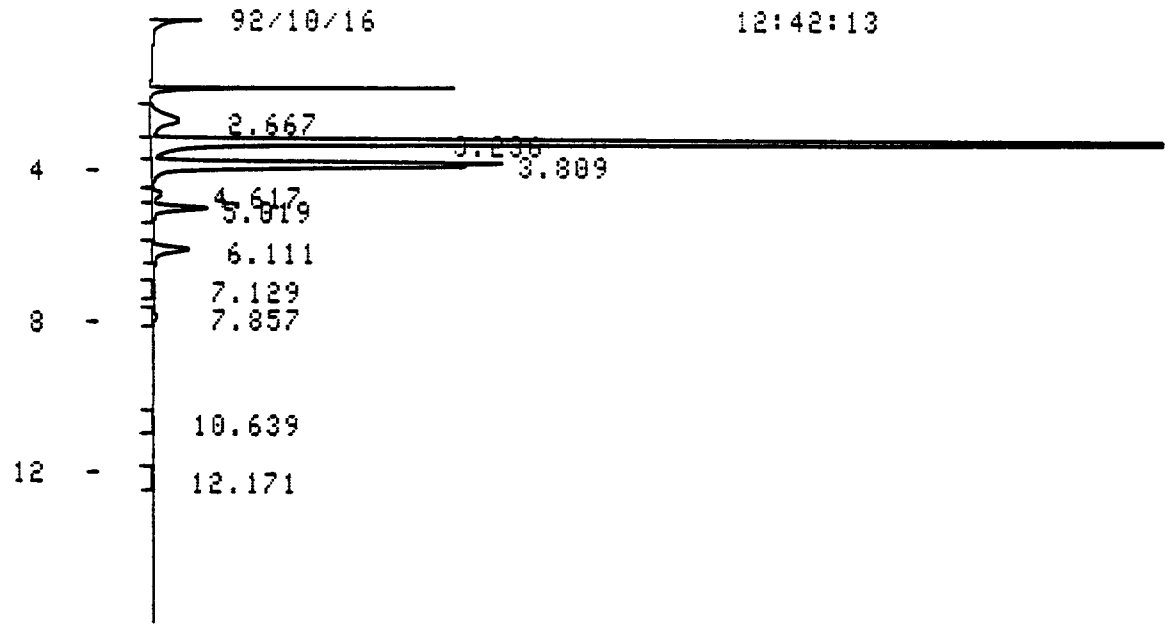


CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.688	4469		6	3.2544	C-6+
2	3.234	147279		1	648.6657	C-1
3	3.806	32386	V	7	71.664	C-2
4	4.633	1646	V	8	2.4099	C-3
5	5.016	4231	V	3	6.1958	C-3
6	6.092	2985		9	3.2558	C-4
7	7.118	354		10	0.3863	C-4
8	7.846	388		4	0.4234	C-4
9	10.618	582		12	0.5398	C-5
10	12.148	482			0.4473	C-5
	TOTAL	194803			736.7949	

GROUP(NAME)	CONC
C-1	648.6657
C-2	71.664
C-3	8.6057
C-4	4.0655
C-5	~~0.5398~~ 0.9871
C-6+	3.2544

UNOCAL UNIT # COOLING TOWER 13
10-14-92 REPORT # 086-211
HC SAMPLE # 3



CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.667	4388		6	3.1956	C-6+
2	3.236	138481		1	609.9135	C-1
3	3.809	30212	V	7	66.8529	C-2
4	4.617	786		8	1.1506	C-3
5	5.019	3516	V	3	5.1489	C-3
6	6.111	2896		9	3.1579	C-4
7	7.129	324		10	0.3533	C-4
8	7.857	410		4	0.4468	C-4
9	10.639	578		12	0.536	C-5
10	12.171	487			0.4579	C-5
	TOTAL	182077			690.7551	

GROUP(NAME)	CONC
C-1	609.9135
C-2	66.8529
C-3	6.2995
C-4	3.958
C-5	~~0.536~~ 0.9879
C-6+	3.1956 TR

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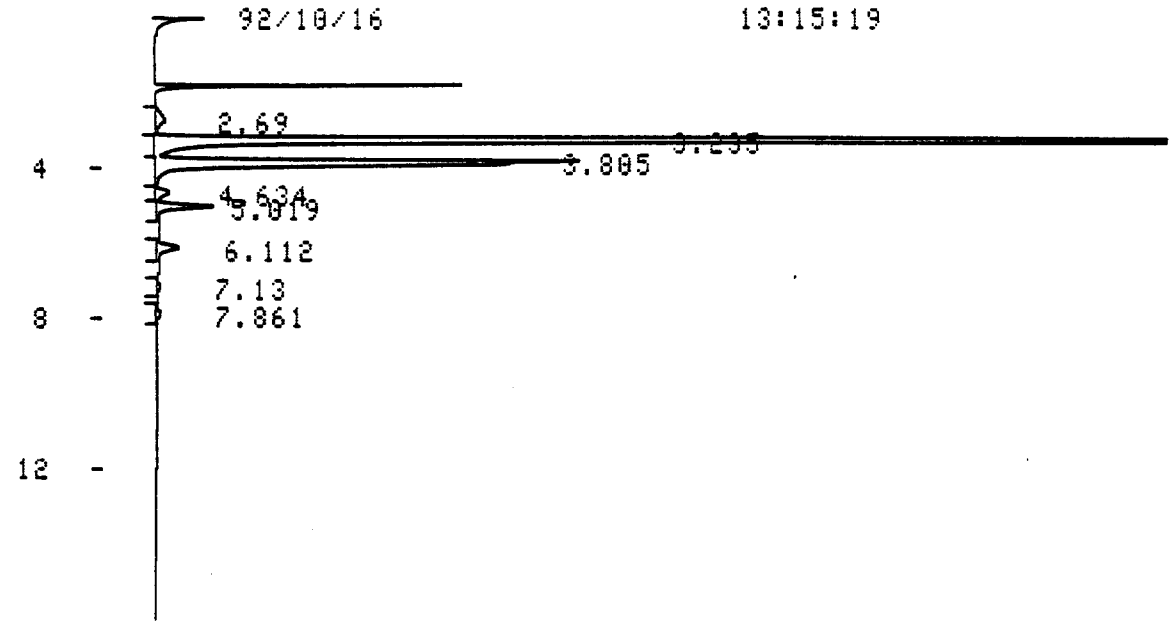
UNOCAL UNIT # COOLING TOWER 14
10-14-92 REPORT # 086-211
HC SAMPLE # 1

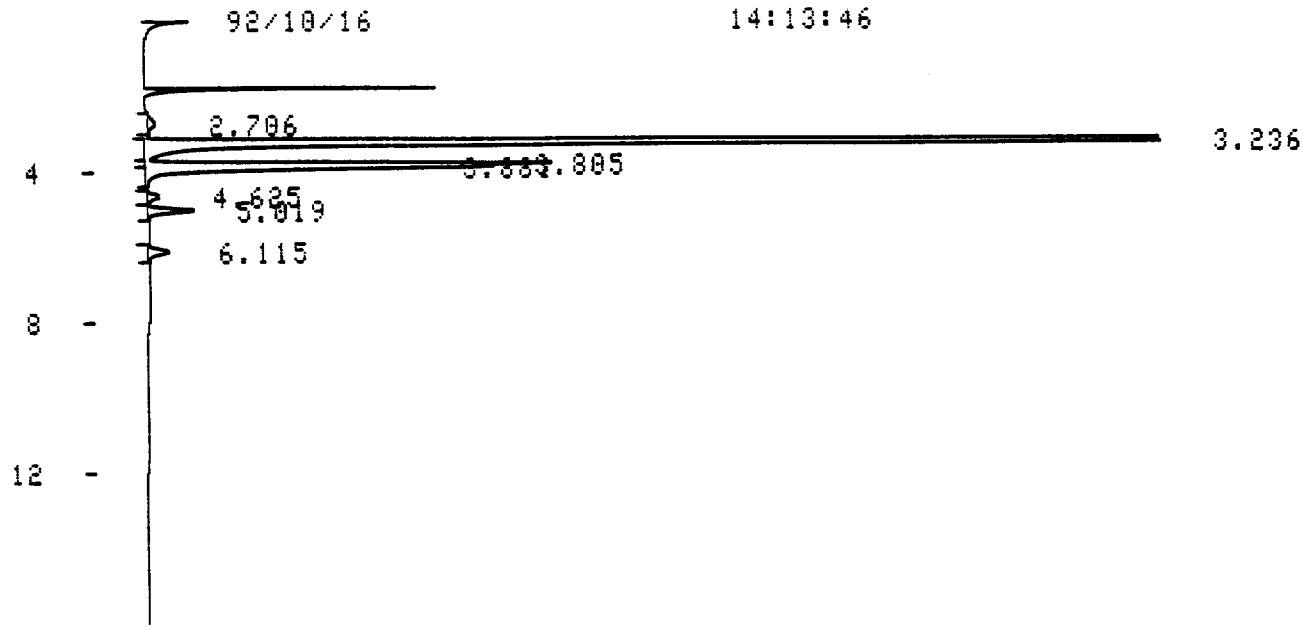


CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.69	1388		6	1.0111	C-6+
2	3.235	192276		1	846.8446	C-1
3	3.805	34496	V	7	76.332	C-2
4	4.634	1071		8	1.5676	C-3
5	5.019	3668	V	3	5.3704	C-3
6	6.112	1782		9	1.9439	C-4
7	7.13	311		10	0.3393	C-4
8	7.861	415		4	0.4528	C-4
	TOTAL	235407			933.8615	

GROUP(NAME)	CONC
C-1	846.8446
C-2	76.332
C-3	6.938
C-4	2.736
C-5	0
C-6+	1.0111

UNOCAL UNIT # COOLING TOWER 14
10-14-92 REPORT # 086-211
HC SAMPLE # 3

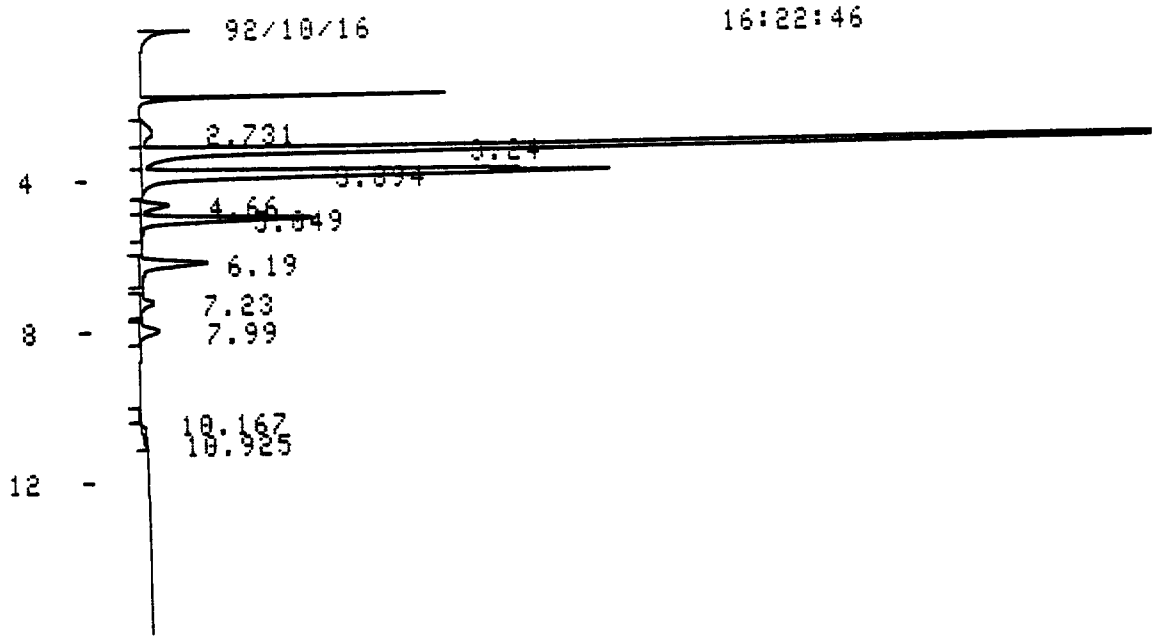


CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.706	974		6	0.7093	C-6+
2	3.236	189652		1	835.2888	C-1
3	3.805	17481	V	7	38.6827	C-2
4	3.881	16246	V	7	35.9487	C-2
5	4.625	1018		8	1.4909	C-3
6	5.019	3106	V	3	4.5488	C-3
7	6.115	1660		9	1.8103	C-4
	TOTAL	230138			918.4793	

GROUP(NAME)	CONC
C-1	835.2888
C-2	74.6313
C-3	6.0397
C-4	1.8103
C-5	0
C-6+	0.7093

UNOCAL UNIT # COOLING TOWER 15
10-15-92 REPORT # 086-211
HC SAMPLE # 1



CHROMATOGRAM 20 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.731	1608		6	1.1707	C-6+
2	3.24	136576		1	601.5242	C-1
3	3.894	38917	V	7	86.1164	C-2
4	4.66	2134		8	3.1247	C-3
5	5.049	11119	V	3	16.2821	C-3
6	6.19	5789		9	6.3138	C-4
7	7.23	1353			1.4756	C-4
8	7.99	1943		4	2.1185	C-4
9	10.167	153		11	~~0.1416~~	~~C-5~~ not peaks
10	10.925	895				
	TOTAL	200485			716.7919	

GROUP(NAME)	CONC
C-1	601.5242
C-2	86.1164
C-3	19.4068
C-4	~~8.4324~~ 9.4080
C-5	~~0.1416~~ Ø
C-6+	1.1707 TR

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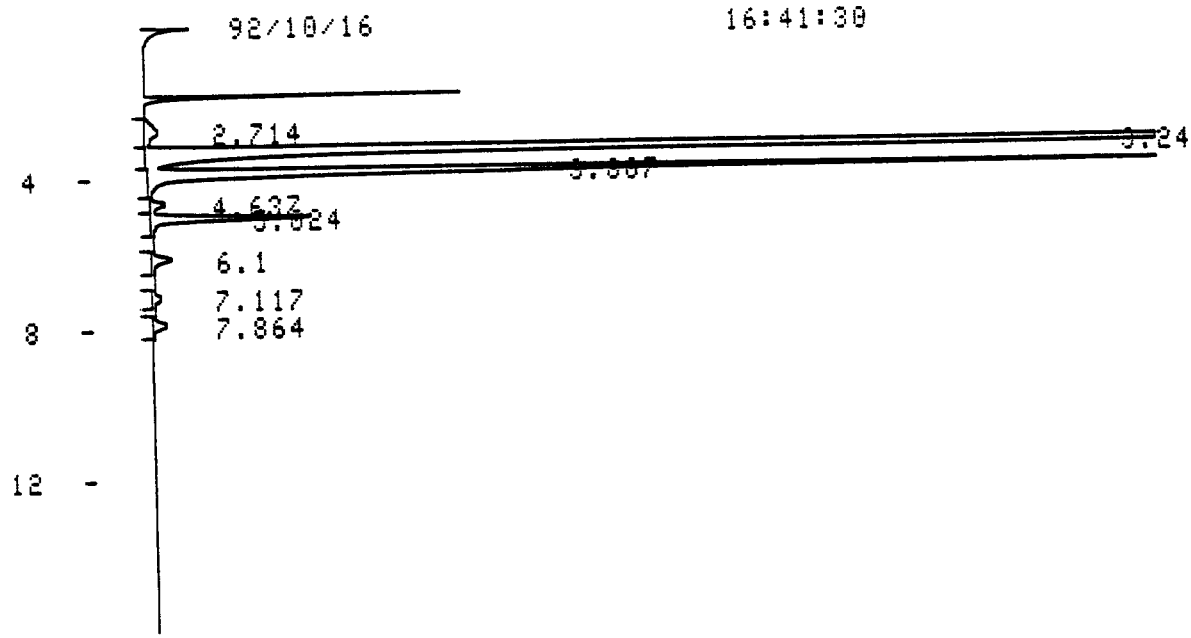
UNOCAL UNIT # COOLING TOWER 15
10-15-92 REPORT # 086-211
HC SAMPLE # 2

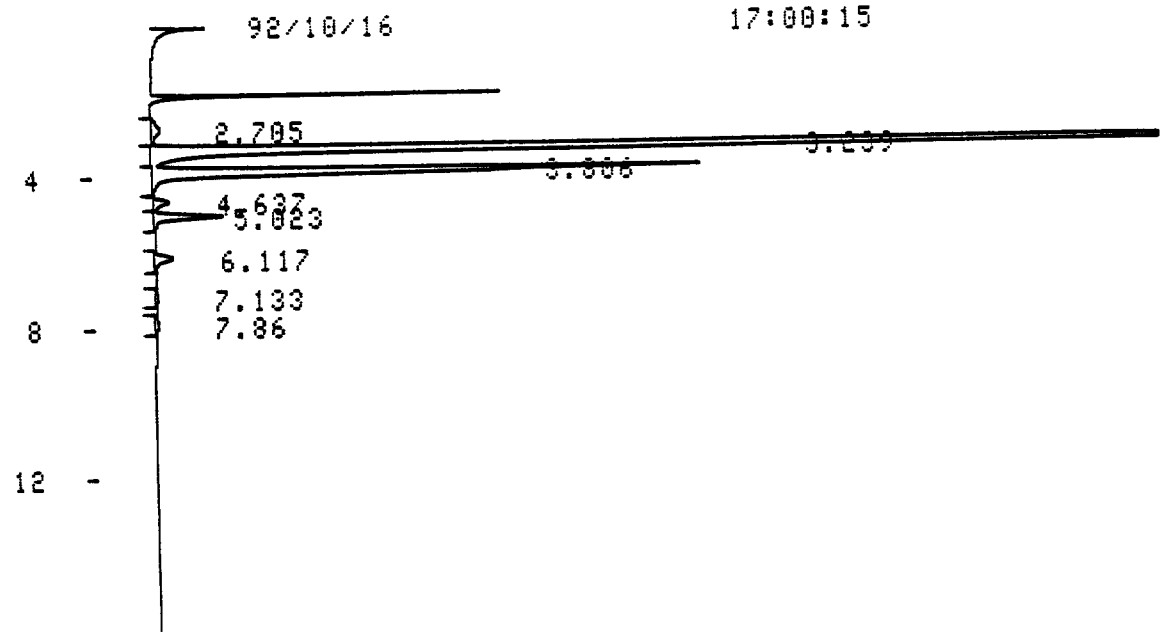


CHROMATOGRAM 21 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.714	1733		6	1.2621	C-6+
2	3.24	460519		1	2028.2763	C-1
3	3.807	61509	V	7	136.1071	C-2
4	4.637	1227		8	1.7962	C-3
5	5.024	10316	V	3	15.1063	C-3
6	6.1	1669		9	1.8204	C-4
7	7.117	865		10	0.943	C-4
8	7.864	1301		4	1.4191	C-4
	TOTAL	539139			2186.7299	

GROUP(NAME)	CONC
C-1	2028.2763
C-2	136.1071
C-3	16.9025
C-4	4.1824
C-5	0
C-6+	1.2621

UNOCAL UNIT # COOLING TOWER 15
10-15-92 REPORT # 086-211
HC SAMPLE # 3

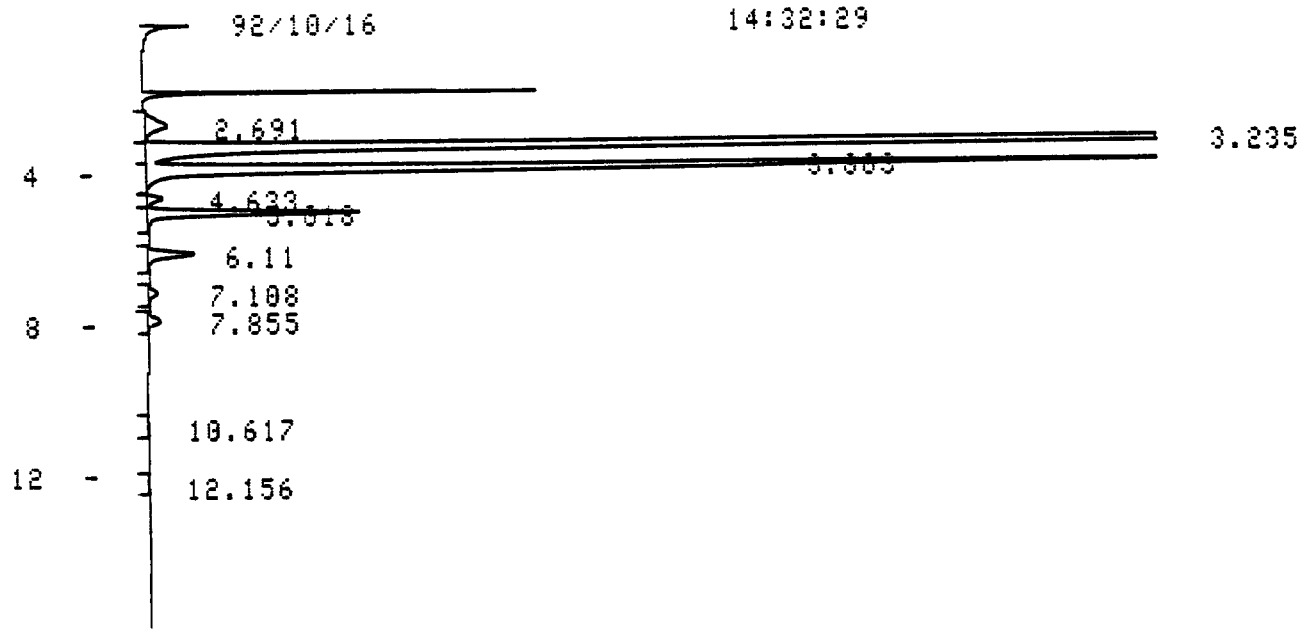


CHROMATOGRAM 22 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.705	1329		6	0.9679	C-6+
2	3.239	225755		1	994.2993	C-1
3	3.806	38128	V	7	84.3691	C-2
4	4.637	1238		8	1.8123	C-3
5	5.023	4562	V	3	6.6801	C-3
6	6.117	1573		9	1.7158	C-4
7	7.133	379		10	0.413	C-4
8	7.86	497		4	0.5424	C-4
	TOTAL	273461			1090.7996	

GROUP(NAME)	CONC
C-1	994.2993
C-2	84.3691
C-3	8.4924
C-4	2.6712
C-5	0
C-6+	0.9679

UNOCAL UNIT # ODONNELL 2-5
10-15-92 REPORT # 086-211
HC SAMPLE # 1



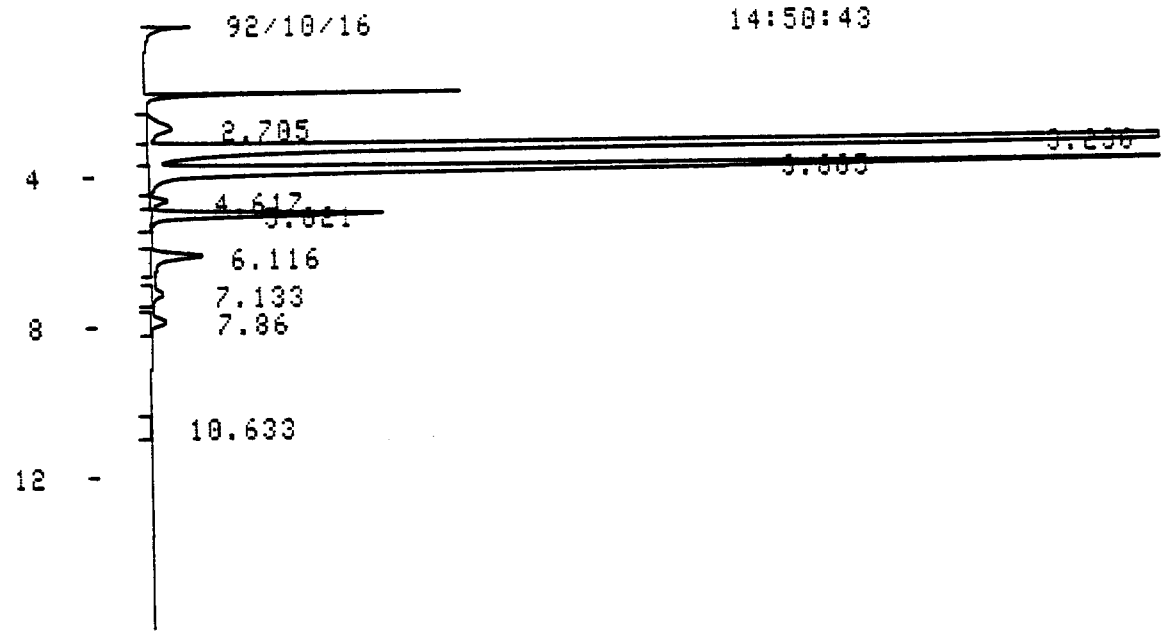
CHROMATOGRAM 14 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.691	3167		6	2.3064	C-6+
2	3.235	430946		1	1898.0252	C-1
3	3.803	78359	V	7	173.3928	C-2
4	4.633	1226		8	1.7951	C-3
5	5.018	13711	V	3	20.0779	C-3
6	6.11	3918		9	4.2732	C-4
7	7.108	850		10	0.9268	C-4
8	7.855	1212		4	1.3223	C-4
9	10.617	473		12	0.4393	C-5
10	12.156	361			0.3350	C-5
	TOTAL	534224			2102.5576	

GROUP(NAME)	CONC
C-1	1898.0252
C-2	173.3928
C-3	21.873
C-4	6.5222
C-5	~~0.4393~~ 0.7743
C-6+	2.3064 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # ODONNELL 2-5
10-15-92 REPORT # 086-211
HC SAMPLE # 2

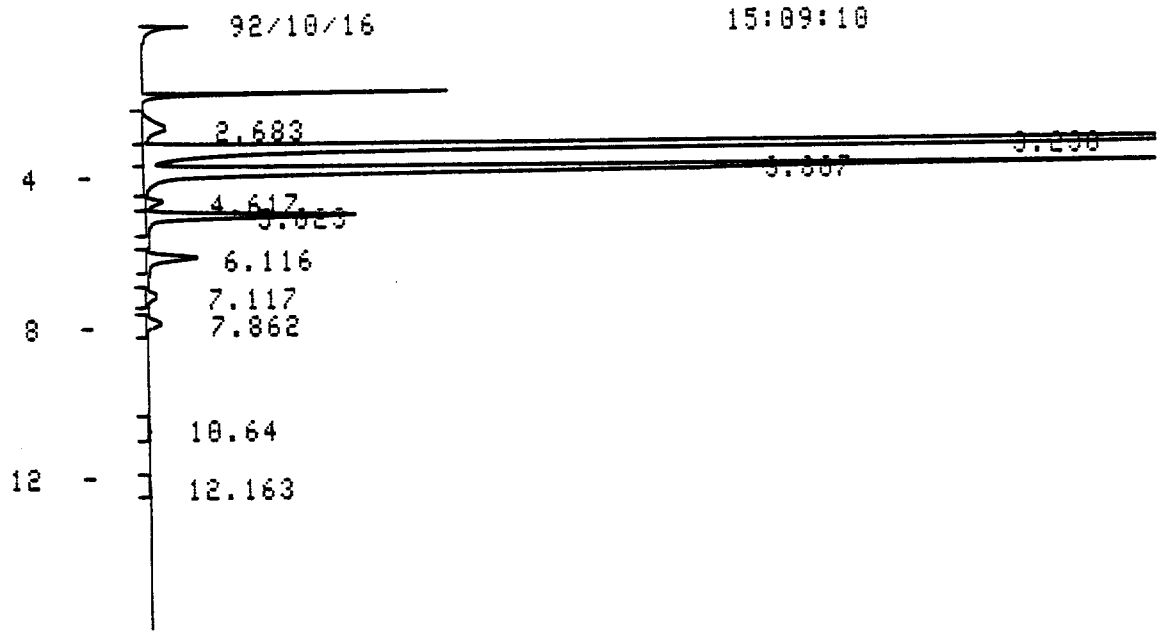


CHROMATOGRAM 15 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.705	3370		6	2.454	C-6+
2	3.236	450279	V	1	1983.1729	C-1
3	3.805	78604	V	7	173.9348	C-2
4	4.617	1111		8	1.6273	C-3
5	5.021	14603		3	21.3839	C-3
6	6.116	4290		9	4.679	C-4
7	7.133	893		10	0.9737	C-4
8	7.86	1323		4	1.4423	C-4
9	10.633	462		12	0.429	C-5
	TOTAL	554935			2190.0964	

GROUP(NAME)	CONC
C-1	1983.1729
C-2	173.9348
C-3	23.0112
C-4	7.095
C-5	0.429
C-6+	2.454

UNOCAL UNIT # ODONNELL 2-5
10-15-92 REPORT # 086-211
HC SAMPLE # 3

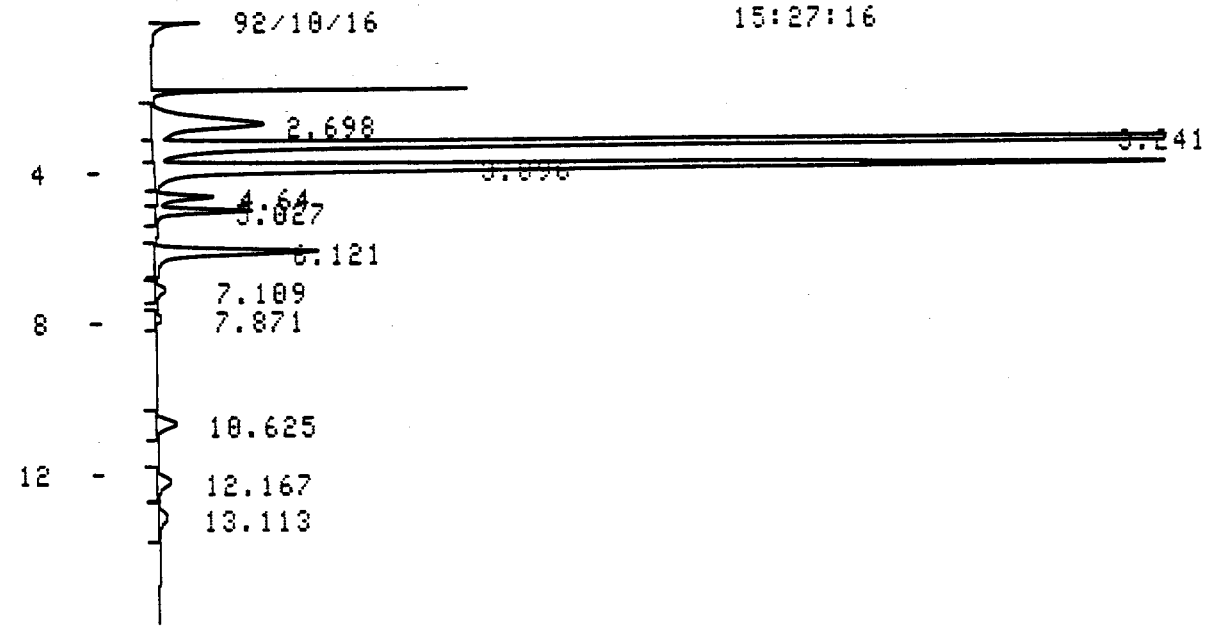


CHROMATOGRAM 16 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.683	3722		6	2.7101	C-6+
2	3.238	426497	V	1	1878.4321	C-1
3	3.807	72575	V	7	160.5948	C-2
4	4.617	1242		8	1.8189	C-3
5	5.023	13339	V	3	19.532	C-3
6	6.116	4138		9	4.5129	C-4
7	7.117	870		10	0.9488	C-4
8	7.862	1296		4	1.4132	C-4
9	10.64	549		12	0.5095	C-5
10	12.163	431			0.3999	C-5
	TOTAL	524658			2070.4714	

GROUP(NAME)	CONC
C-1	1878.4321
C-2	160.5948
C-3	21.3509
C-4	6.8749
C-5	~~0.5095~~ 0.9094
C-6+	2.7101 TR

UNOCAL UNIT # SUGAR 7
10-15-92 REPORT # 086-211
HC SAMPLE # 1



CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.698	18678		6	13.6012	C-6+
2	3.241	307147	V	1	1352.773	C-1
3	3.896	88079	V	7	194.9001	C-2
4	4.64	4343		8	6.36	C-3
5	5.027	6282	V	3	9.1987	C-3
6	6.121	13609		9	14.8427	C-4
7	7.109	939		10	1.0245	C-4
8	7.871	545		4	0.5941	C-4
9	10.625	2844		12	2.6386	C-5
10	12.167	2319			2.1518	C-5
11	13.113	1863		14	1.7287	C-5
	TOTAL	446647			1597.6608	

GROUP(NAME)	CONC
C-1	1352.773
C-2	194.9001
C-3	15.5587
C-4	16.4613
C-5	~~4.3674~~ 6.5192
C-6+	13.6012 TR

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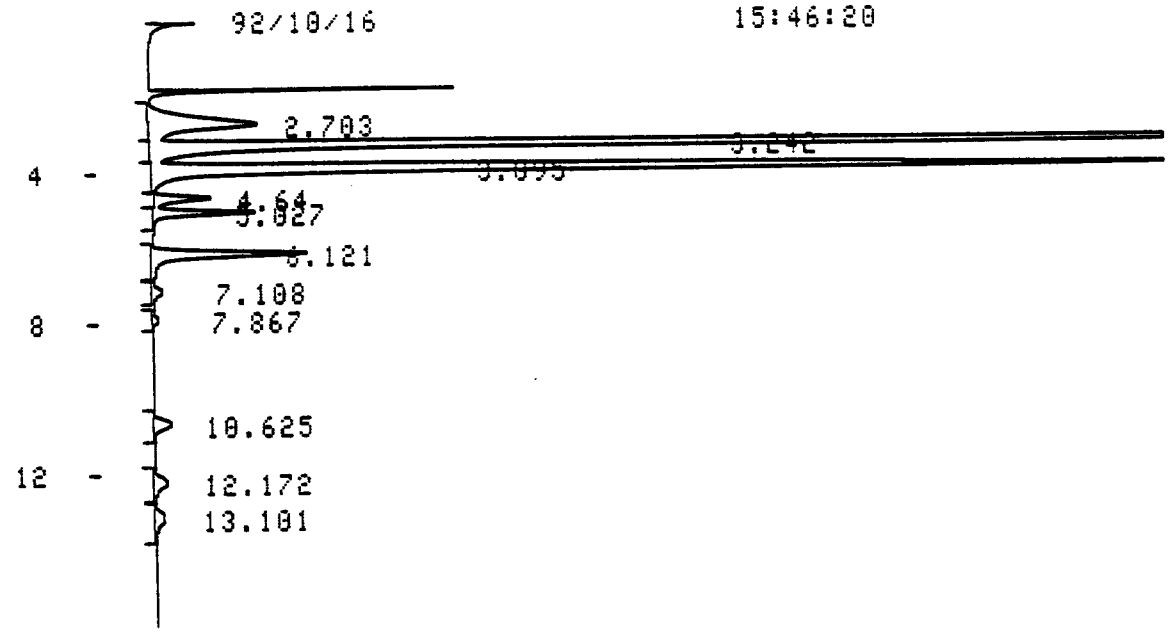
UNOCAL UNIT # SUGAR 7
10-15-92 REPORT # 086-211
HC SAMPLE # 2



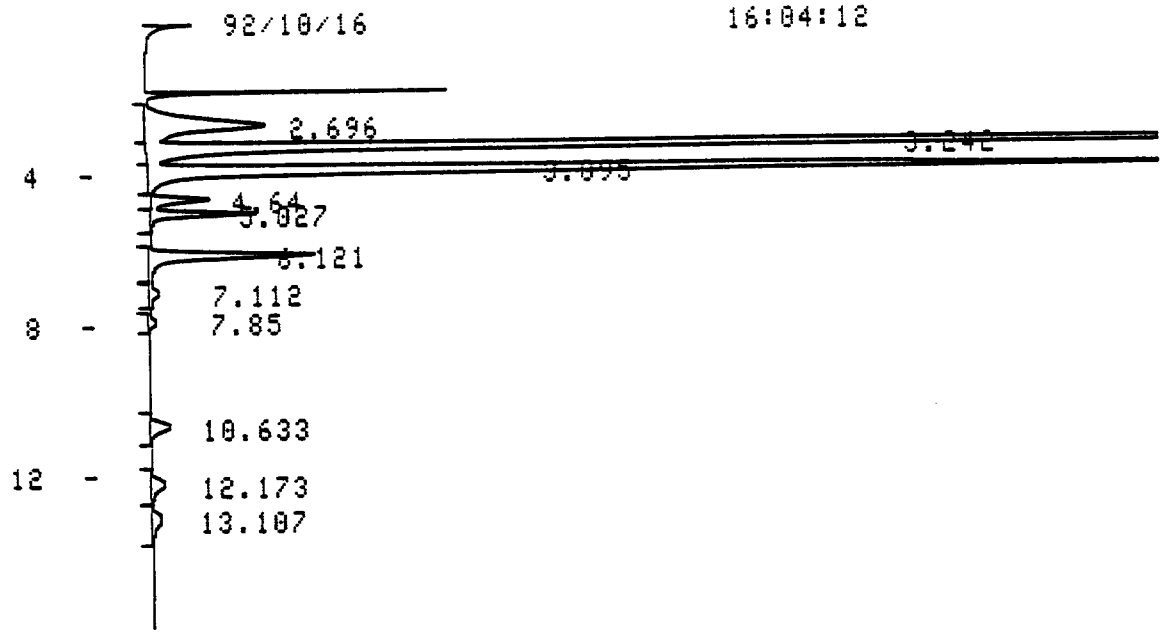
CHROMATOGRAM 18 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.703	17931		6	13.0572	C-6+
2	3.242	321575	V	1	1416.3222	C-1
3	3.895	89334	V	7	197.6778	C-2
4	4.64	4312		8	6.3142	C-3
5	5.027	6688	V	3	9.7934	C-3
6	6.121	12972		9	14.1476	C-4
7	7.108	923		10	1.0071	C-4
8	7.867	570		4	0.6213	C-4
9	10.625	2652		12	2.4611	C-5
10	12.172	2208			2.0488	C-5
11	13.101	2016		14	1.8702	C-5
	TOTAL	461181			1663.2714	

GROUP(NAME)	CONC
C-1	1416.3222
C-2	197.6778
C-3	16.1076
C-4	15.776
C-5	~~4.3313~~ TR 6.38C/
C-6+	13.0572

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 7
10-15-92 REPORT # 086-211
HC SAMPLE # 3



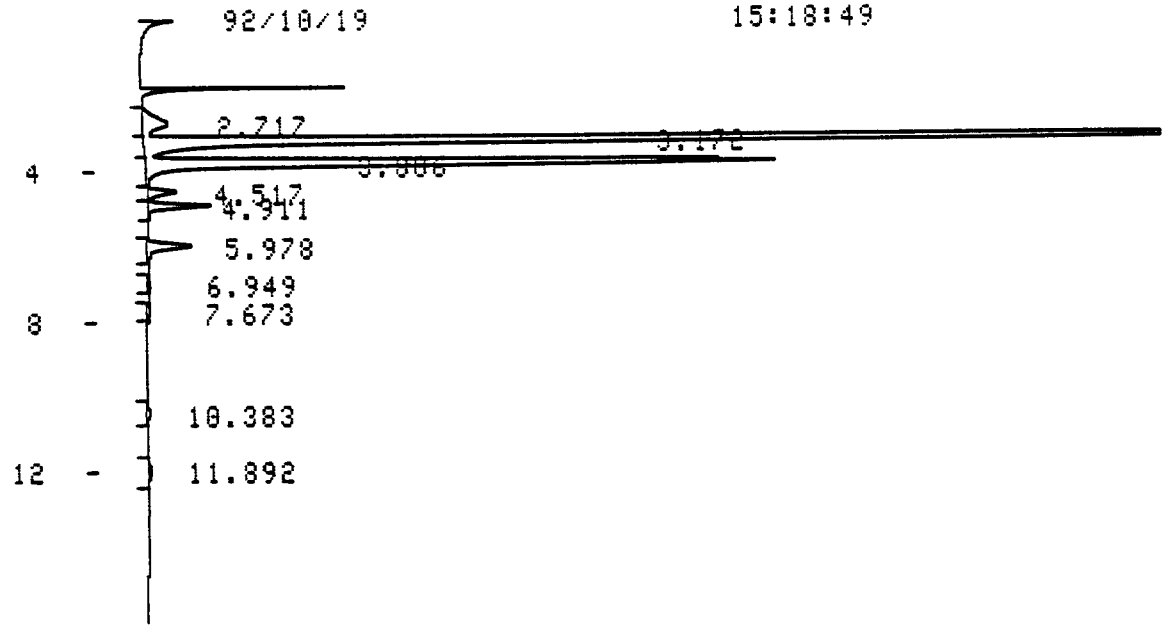
CHROMATOGRAM 19 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.696	20404		6	14.858	C-6+
2	3.242	324232	V	1	1428.0251	C-1
3	3.895	92046	V	7	203.6783	C-2
4	4.64	4334		8	6.3464	C-3
5	5.027	6900	V	3	10.1042	C-3
6	6.121	13831		9	15.0843	C-4
7	7.112	957		10	1.0436	C-4
8	7.85	563		4	0.6138	C-4
9	10.633	2828		12	2.624	C-5
10	12.173	2365			2.1945	C-5
11	13.107	1915		14	1.7766	C-5
	TOTAL	470374			1684.1539	

GROUP(NAME)	CONC
C-1	1428.0251
C-2	203.6783
C-3	16.4507
C-4	16.7417
C-5	~~4.4006~~ 6.5951
C-6+	14.858 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 16
10-16-92 REPORT # 086-211
HC SAMPLE # 1



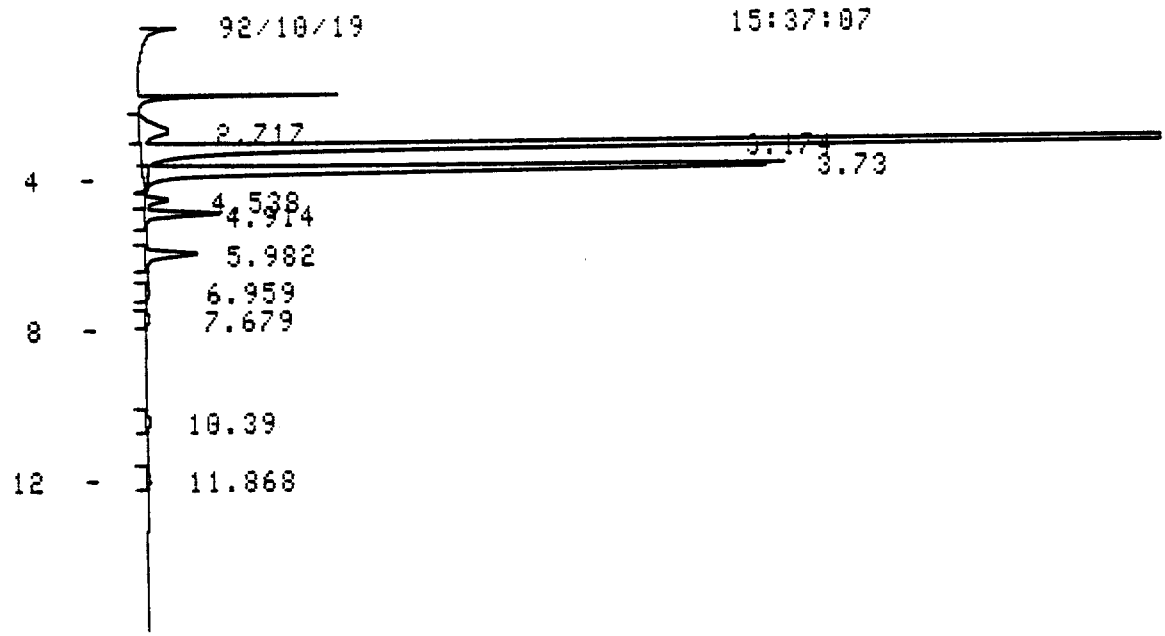
CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.717	3919		6	2.7886	C-6+
2	3.172	263760	V	1	1113.5104	C-1
3	3.806	53359	V	7	113.4406	C-2
4	4.517	2144		8	3.0339	C-3
5	4.911	3948	V	3	5.5876	C-3
6	5.978	3651		9	3.9515	C-4
7	6.949	412		10	0.4457	C-4
8	7.673	385		4	0.4161	C-4
9	10.383	517		11	0.4569	C-5
10	11.892	486			0.4294	C5
	TOTAL	332579			1243.6307	

GROUP(NAME)	CONC
C-1	1113.5104
C-2	113.4406
C-3	8.6215
C-4	4.8133
C-5	~~0.4569~~ 0.8863
C-6+	2.7886 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 16
10-16-92 REPORT # 086-211
HC SAMPLE # 2



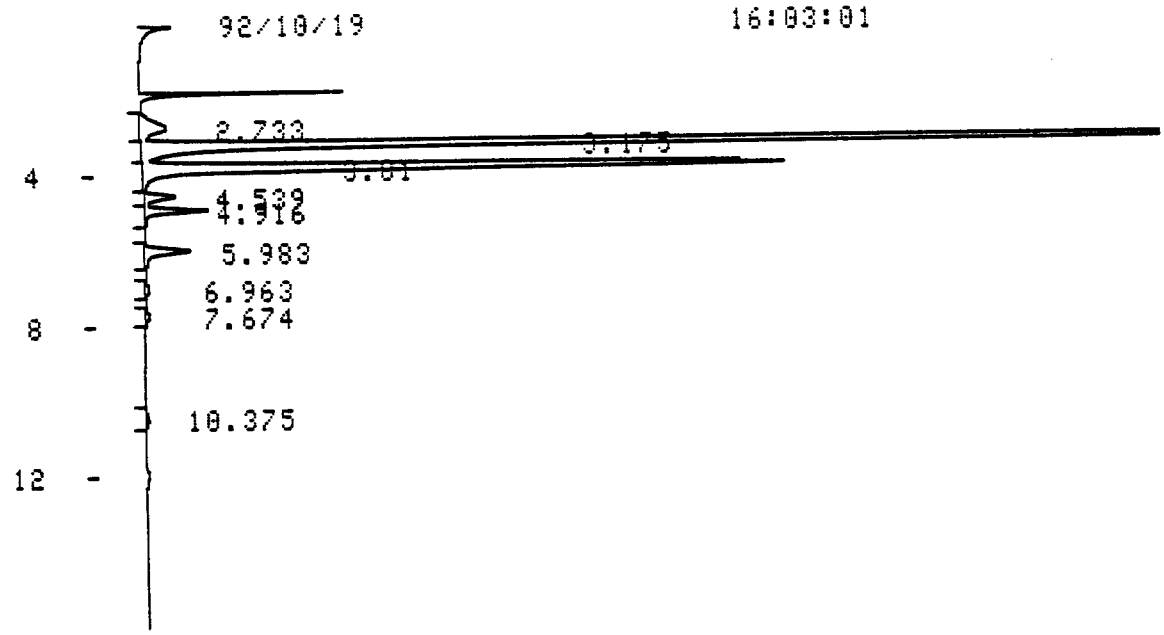
CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.717	4591		6	3.2666	C-6+
2	3.174	291802	SV	1	1231.895	C-1
3	3.73	54403	T	2	115.6611	C-2
4	4.538	1746		8	2.4719	C-3
5	4.914	4682	V	3	6.6271	C-3
6	5.982	4149		9	4.4898	C-4
7	6.959	473		10	0.5116	C-4
8	7.679	472		4	0.5112	C-4
9	10.39	644		11	0.5688	C-5
10	11.868	440			0.3888	C-5
	TOTAL	363401			1366.0026	

GROUP(NAME)	CONC
C-1	1231.895
C-2	115.6611
C-3	9.099
C-4	5.5126
C-5	~~0.5688~~ 0.9576
C-6+	3.2666 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 16
10-16-92 REPORT # 086-211
HC SAMPLE # 3

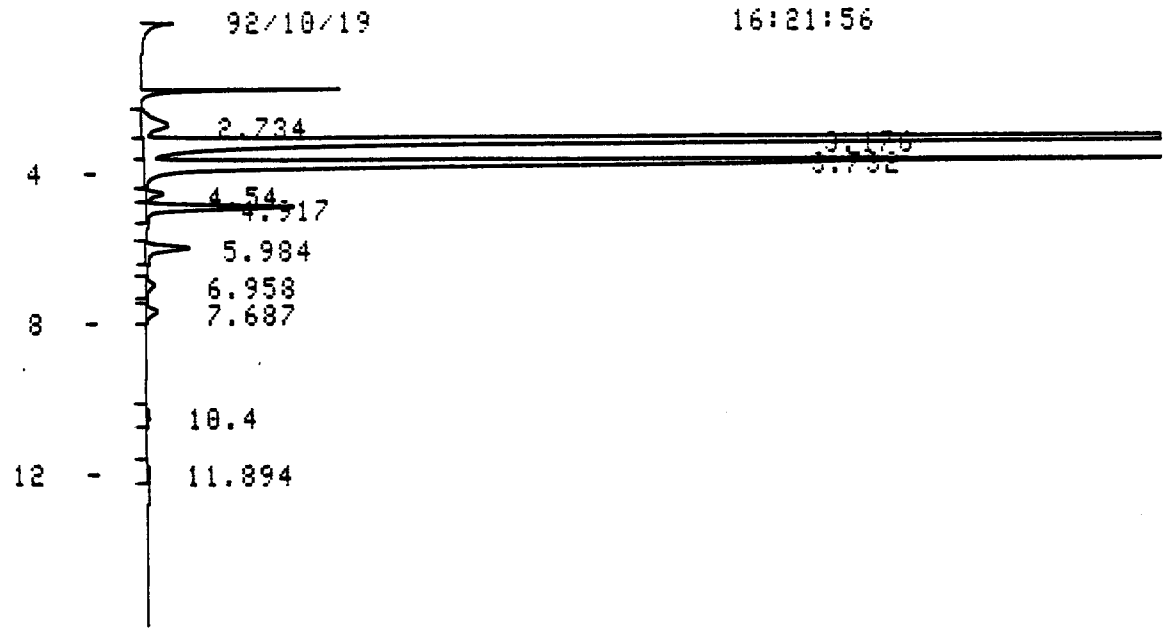


CHROMATOGRAM 3 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.733	3974		6	2.8281	C-6+
2	3.175	262807	V	1	1109.4871	C-1
3	3.81	54753	V	7	116.4039	C-2
4	4.539	2250		8	3.1848	C-3
5	4.916	4084	V	3	5.78	C-3
6	5.983	3733		9	4.0396	C-4
7	6.963	446		10	0.4823	C-4
8	7.674	420		4	0.455	C-4
9	10.375	508		11	0.4492	C-5
	TOTAL	332975			1243.1094	

GROUP(NAME)	CONC
C-1	1109.4871
C-2	116.4039
C-3	8.9648
C-4	4.9769
C-5	0.4492
C-6+	2.8281

UNOCAL UNIT # SUGAR 26
10-16-92 REPORT # 086-211
HC SAMPLE # 1



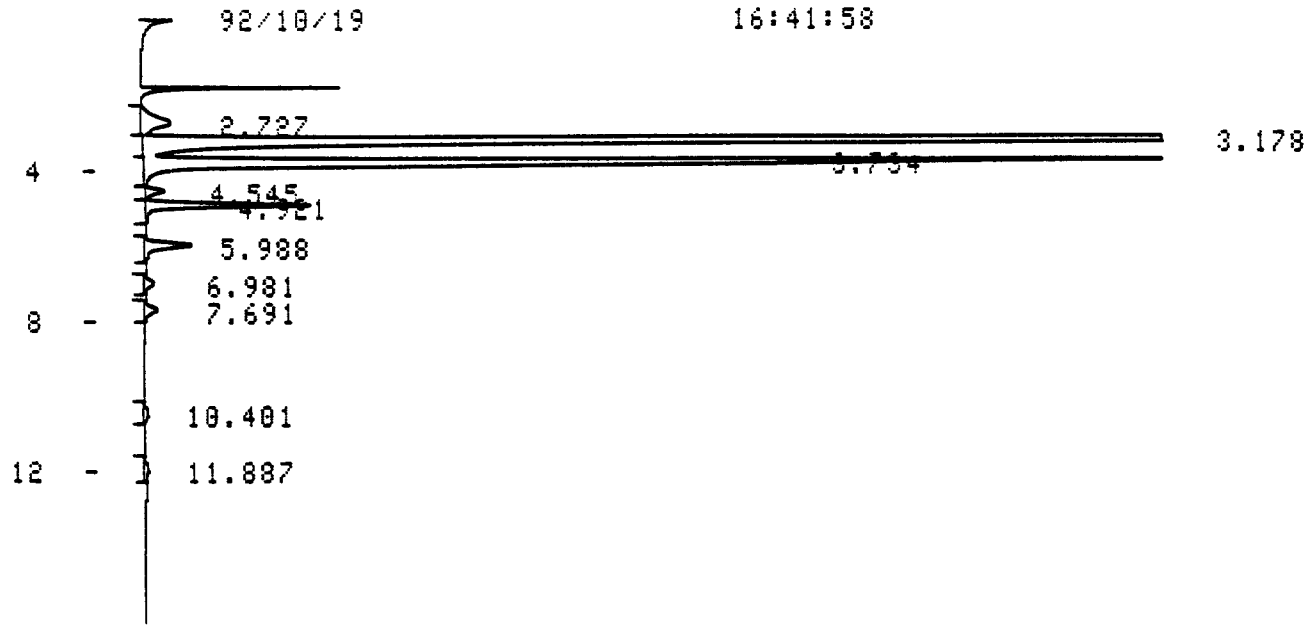
CHROMATOGRAM 4 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.734	3783		6	2.692	C-6+
2	3.176	421943	V	1	1781.3105	C-1
3	3.732	73707	V	2	156.7003	C-2
4	4.54	1297		8	1.8363	C-3
5	4.917	9250	V	3	13.092	C-3
6	5.984	3514		9	3.8025	C-4
7	6.958	803		10	0.8688	C-4
8	7.687	1117		4	1.2086	C-4
9	10.4	549		11	0.4851	C-5
10	11.894	471			0.4162	C-5
	TOTAL	516433			1961.9958	

GROUP(NAME)	CONC
C-1	1781.3105
C-2	156.7003
C-3	14.9283
C-4	5.8799
C-5	~~0.4851~~ 0.9013
C-6+	2.692

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 26
10-16-92 REPORT # 086-211
HC SAMPLE # 2



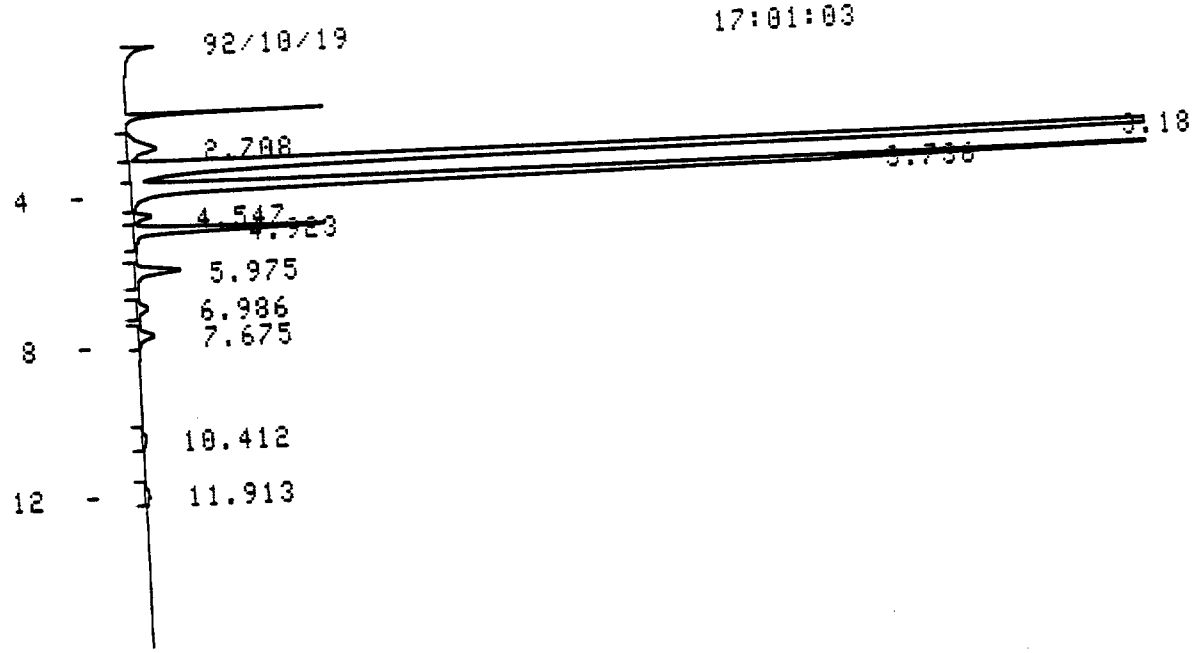
CHROMATOGRAM 5 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.727	4328		6	3.0795	C-6+
2	3.178	467304	V	1	1972.8089	C-1
3	3.734	80947	V	2	172.0938	C-2
4	4.545	1371		8	1.94	C-3
5	4.921	10350	V	3	14.6491	C-3
6	5.988	3810		9	4.1227	C-4
7	6.981	825		10	0.8928	C-4
8	7.691	1214		4	1.3142	C-4
9	10.401	568		11	0.5018	C-5
10	11.887	608			0.5372	C-5
	TOTAL	571323			2171.402	

GROUP(NAME)	CONC
C-1	1972.8089
C-2	172.0938
C-3	16.589
C-4	6.3297
C-5	~~0.5018~~ 1.0390
C-6+	3.0795 HC

UNOCAL UNIT # SUGAR 26
10-16-92 REPORT # 086-211
HC SAMPLE # 3

17:01:03



CHROMATOGRAM 6 MEMORIZED

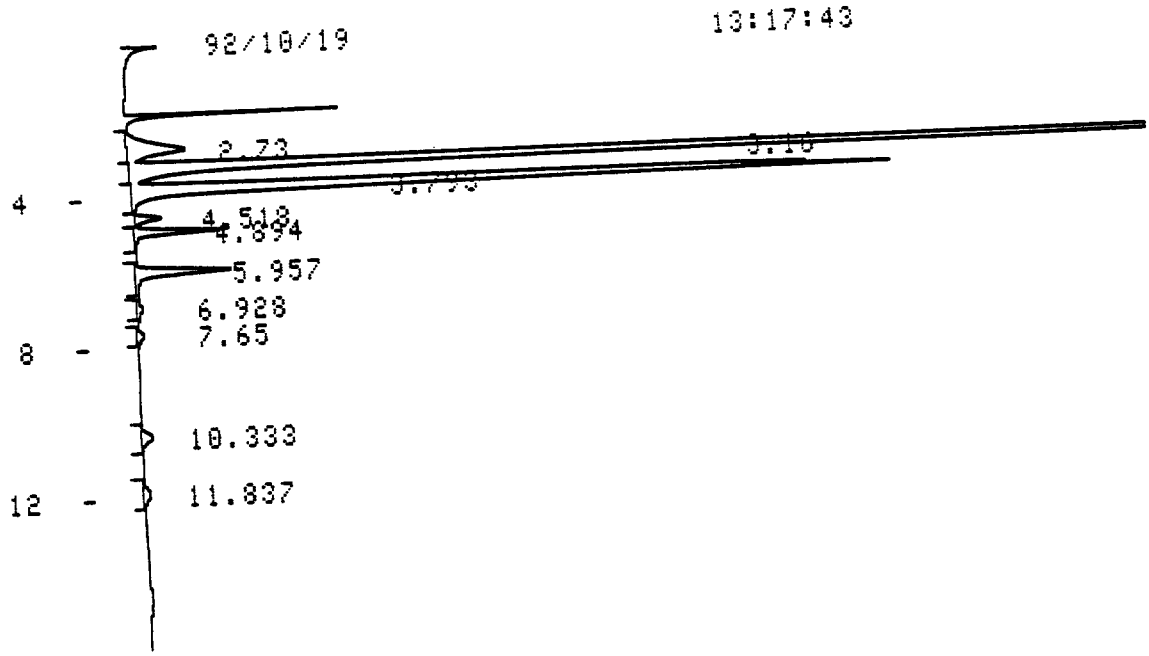
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
				6	2.7312	C-6+
1	2.708	3838		1	2195.5932	C-1
2	3.18	520075	V	2	187.4582	C-2
3	3.736	88174	V	8	1.9328	C-3
4	4.547	1366		3	16.9701	C-3
5	4.923	11990	V	9	3.9602	C-4
6	5.975	3659		10	1.0399	C-4
7	6.986	961		4	1.5772	C-4
8	7.675	1457		12	0.4911	C-5
9	10.412	556			0.5143	C-5
10	11.913	582				
	TOTAL	632658			2411.7529	

GROUP(NAME)	CONC
C-1	2195.5932
C-2	187.4582
C-3	18.9029
C-4	6.5773
C-5	~~0.4911~~ 1.0054
C-6+	2.7312 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 46
10-16-92 REPORT # 086-211
HC SAMPLE # 1

13:17:43



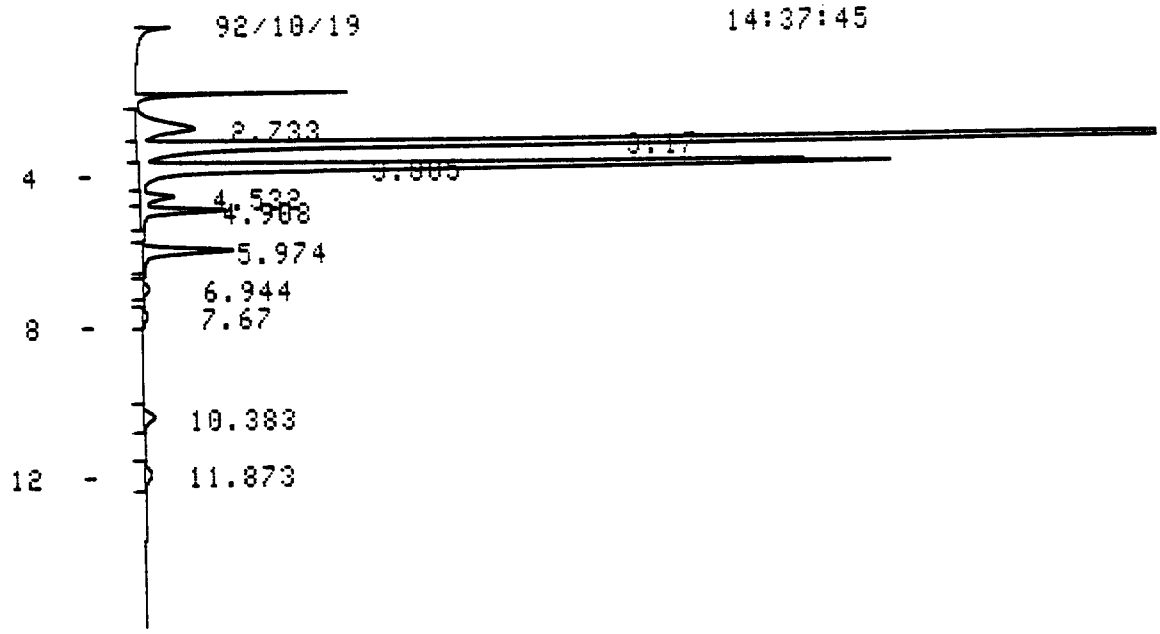
CHROMATOGRAM 35 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.73	8688		6	6.1824	C-6+
2	3.16	266869	V	1	1126.6365	C-1
3	3.793	63725	V	7	135.4784	C-2
4	4.518	2047		8	2.8978	C-3
5	4.894	5346	V	3	7.5674	C-3
6	5.957	7724		9	8.3589	C-4
7	6.928	792		10	0.8568	C-4
8	7.65	623		4	0.6743	C-4
9	10.333	1635		11	1.445	C-5
10	11.837	1146			1.0126	C-5
	TOTAL	358595			1290.0971	

GROUP(NAME)	CONC
C-1	1126.6365
C-2	135.4784
C-3	10.4652
C-4	9.89
C-5	~~1.445~~ 2.4572
C-6+	6.1824

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 46
10-16-92 REPORT # 086-211
HC SAMPLE # 2



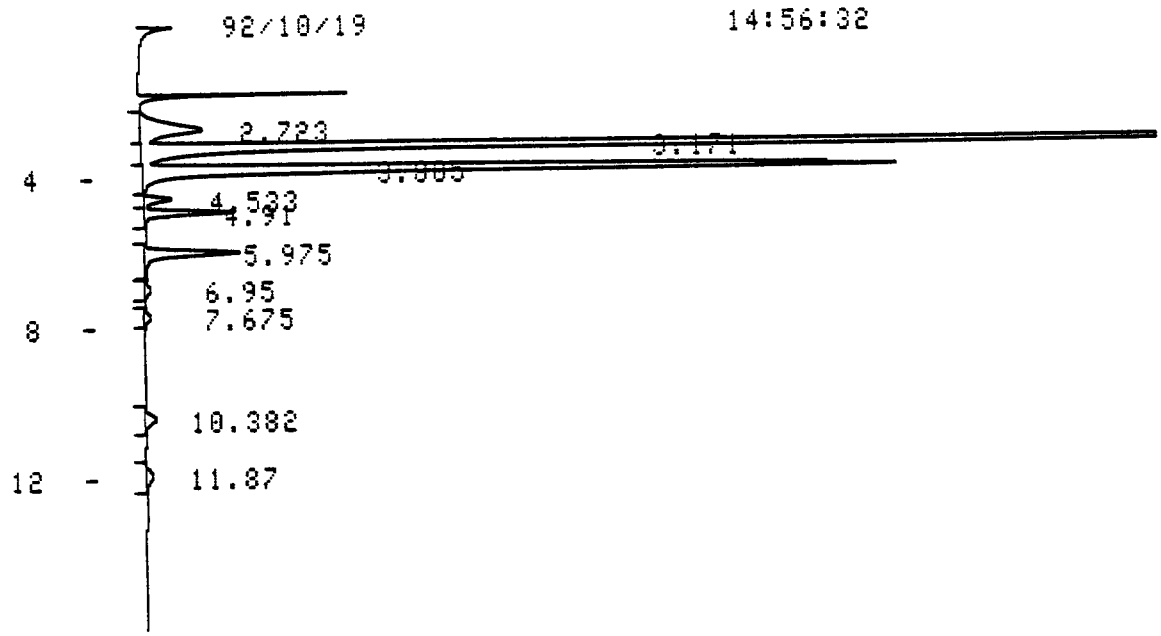
CHROMATOGRAM 38 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.733	9067		6	6.4521	C-6+
2	3.17	265526	V	1	1120.9652	C-1
3	3.805	64035	V	7	136.1385	C-2
4	4.532	2930	V	8	4.1471	C-3
5	4.908	5843	V	3	8.2699	C-3
6	5.974	7463		9	8.077	C-4
7	6.944	717		10	0.7763	C-4
8	7.67	638		4	0.6903	C-4
9	10.383	1503		11	1.3282	C-5
10	11.873	1240			1.0957	C-5
	TOTAL	358963			1286.8442	

GROUP(NAME)	CONC
C-1	1120.9652
C-2	136.1385
C-3	12.417
C-4	9.5437
C-5	~~1.3282~~ 2.4239
C-6+	6.4521 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 46
10-16-92 REPORT # 086-211
HC SAMPLE # 3



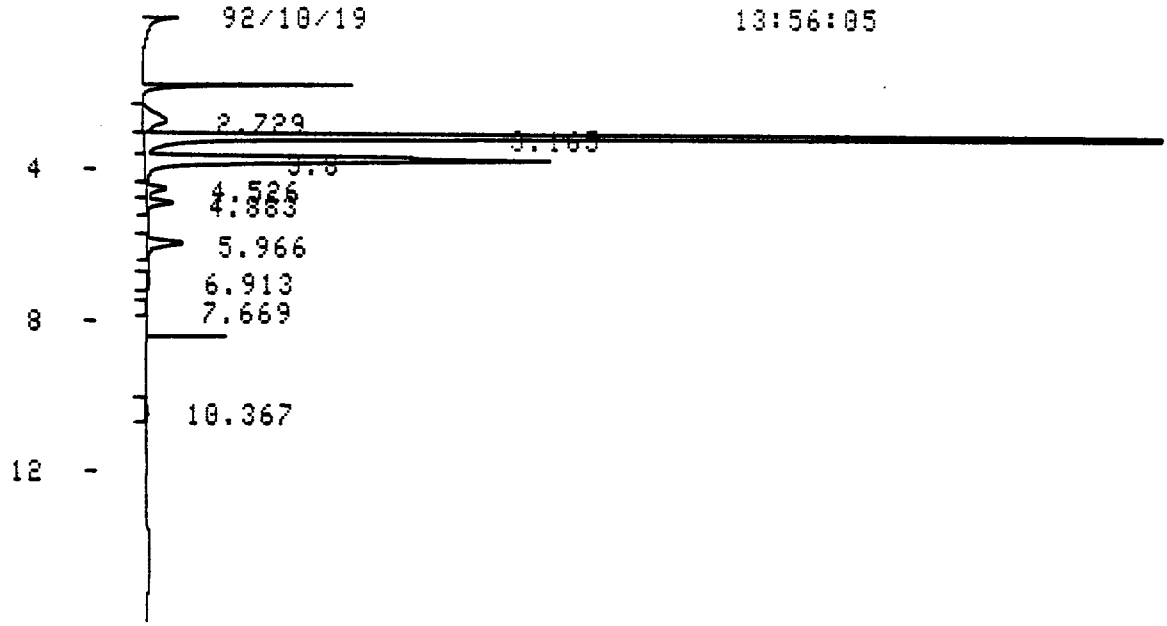
CHROMATOGRAM 38 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.723	9613		6	6.8407	C-6+
2	3.171	271857	V	1	1147.6951	C-1
3	3.805	63949	V	7	135.9561	C-2
4	4.533	2022		8	2.8626	C-3
5	4.91	5659	V	3	8.0098	C-3
6	5.975	7817		9	8.46	C-4
7	6.95	759		10	0.8213	C-4
8	7.675	653		4	0.7061	C-4
9	10.382	1591		11	1.4061	C-5
10	11.87	1211			1.0701	C5
	TOTAL	365133			1312.7575	

GROUP(NAME)	CONC
C-1	1147.6951
C-2	135.9561
C-3	10.8724
C-4	9.9875
C-5	~~1.4061~~ 2.4762
C-6+	6.8407 TR

Petro Chem Environmental Services, Inc.

UNOCAL UNIT # SUGAR 21
10-16-92 REPORT # 086-211
HC SAMPLE # 1

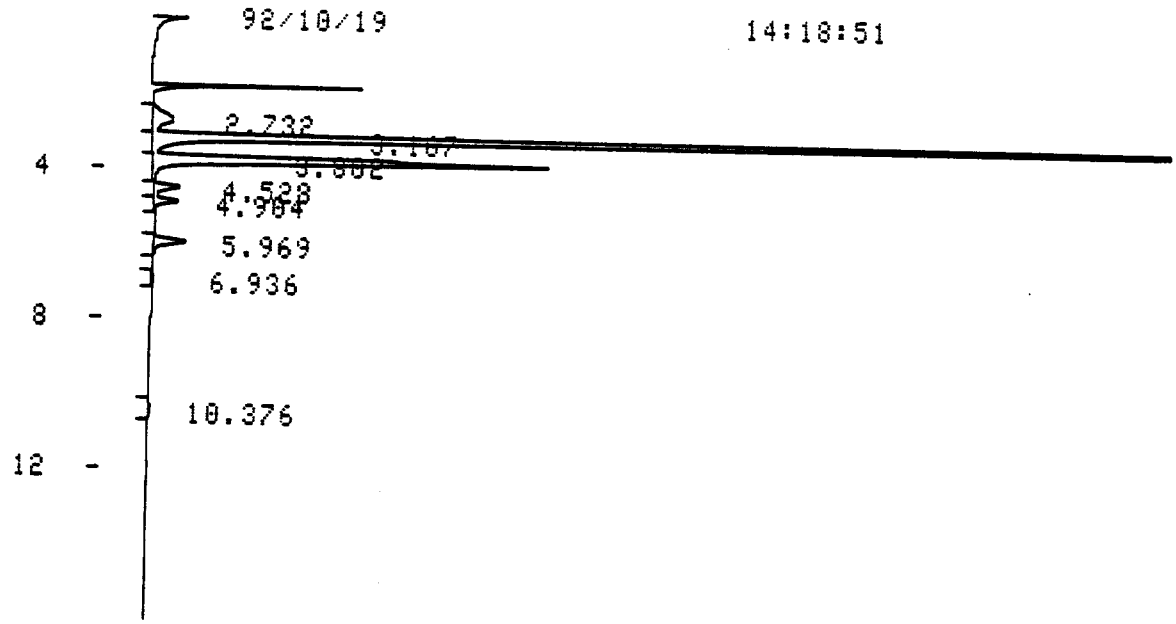


CHROMATOGRAM 37 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.729	3622		6	2.5776	C-6+
2	3.165	118956	V	1	502.1964	C-1
3	3.8	30431	V	7	64.696	C-2
4	4.526	1528		8	2.163	C-3
5	4.883	1699	V	3	2.4049	C-3
6	5.966	3002		9	3.2489	C-4
7	6.913	301		10	0.3255	C-4
8	7.669	173		4	0.1877	C-4
9	10.367	476		11	0.4203	C-5
	TOTAL	160189			578.2201	

GROUP(NAME)	CONC
C-1	502.1964
C-2	64.696
C-3	4.5679
C-4	3.7622
C-5	0.4203
C-6+	2.5776

UNOCAL UNIT # SUGAR 21
10-16-92 REPORT # 086-211
HC SAMPLE # 2

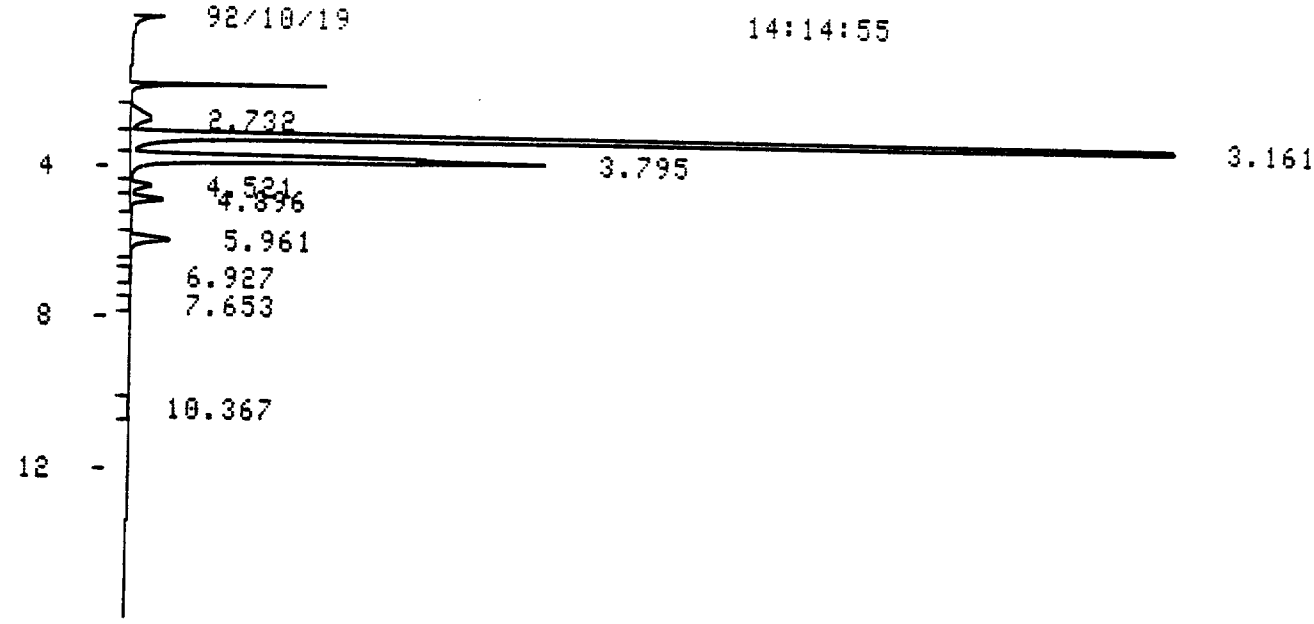


CHROMATOGRAM 38 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.732	3291		6	2.3415	C-6+
2	3.167	112122	V	1	473.3425	C-1
3	3.802	29038	V	7	61.7339	C-2
4	4.528	1988		8	2.8134	C-3
5	4.904	1601	V	3	2.2667	C-3
6	5.969	2552		9	2.7623	C-4
7	6.936	281		10	0.3043	C-4
8	10.376	409		11	0.3614	C-5
	TOTAL	151282			545.9257	

GROUP(NAME)	CONC
C-1	473.3425
C-2	61.7339
C-3	5.0801
C-4	3.0665
C-5	0.3614
C-6+	2.3415

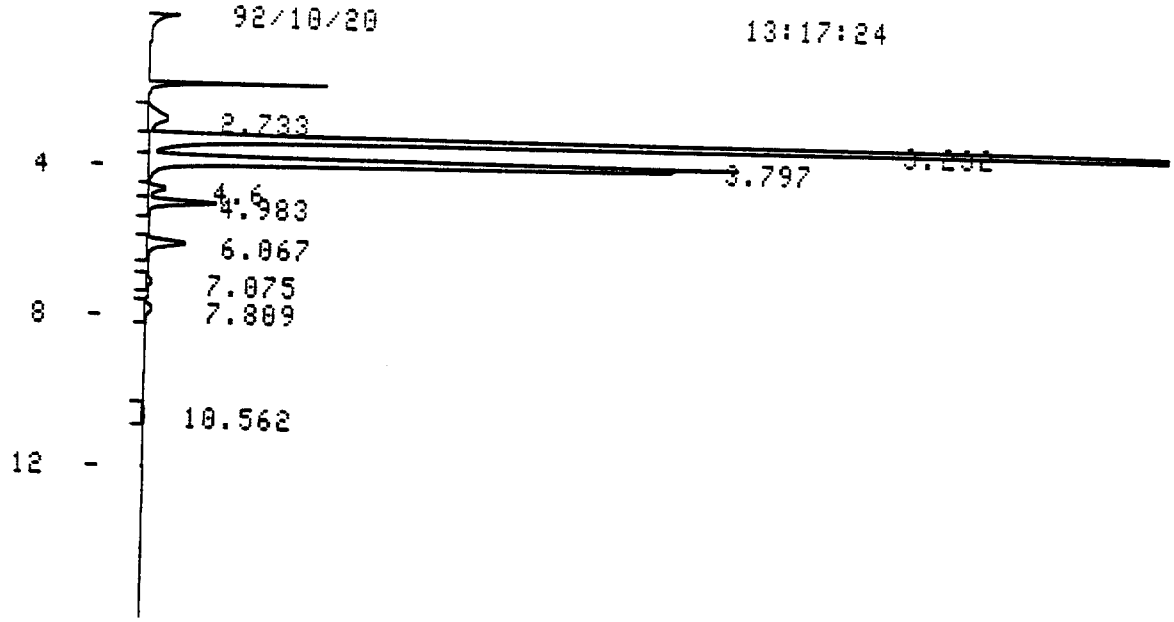
UNOCAL UNIT # SUGAR 21
10-16-92 REPORT # 086-211
HC SAMPLE # 3



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.732	3372		6	2.3995	C-6+
2	3.161	134465	V	1	567.6665	C-1
3	3.795	31955	V	7	67.9362	C-2
4	4.521	1564		8	2.2142	C-3
5	4.896	2108	V	3	2.9832	C-3
6	5.961	3044		9	3.294	C-4
7	6.927	289		10	0.3126	C-4
8	7.653	174		4	0.1881	C-4
9	10.367	485		11	0.4284	C-5
	TOTAL	177455			647.4224	

GROUP(NAME)	CONC
C-1	567.6665
C-2	67.9362
C-3	5.1974
C-4	3.7946
C-5	0.4284
C-6+	2.3995

UNOCAL UNIT # SUGAR 27
10-19-92 REPORT # 086-211
HC SAMPLE # 1

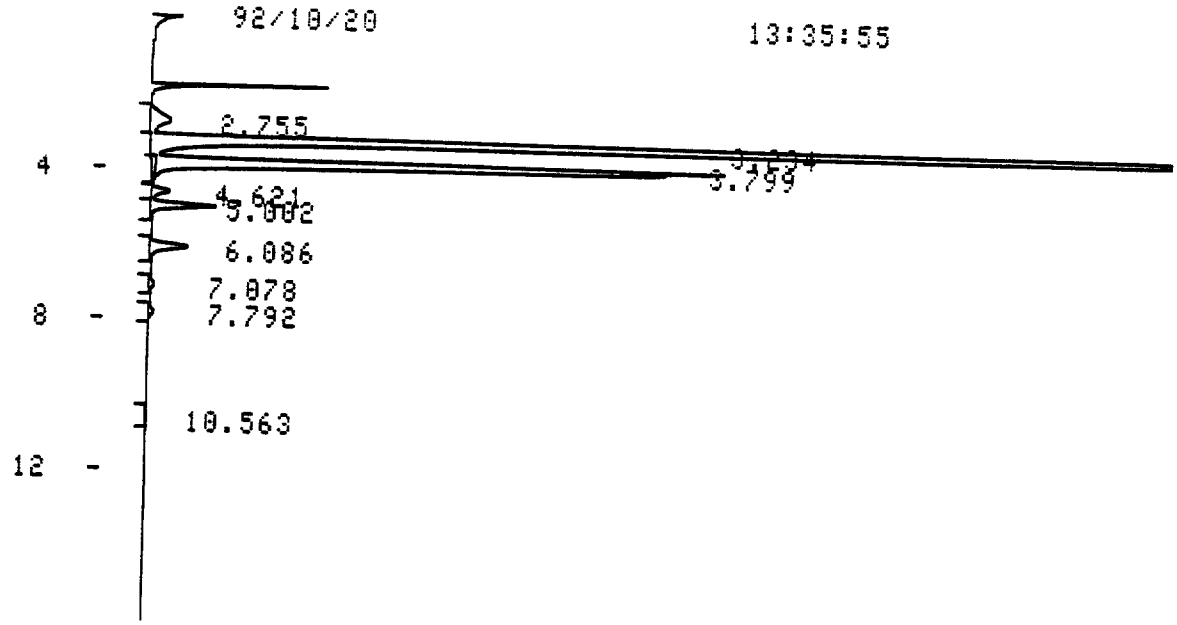


CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.733	2794		6	2.0258	C-6+
2	3.232	250965		1	1098.6556	C-1
3	3.797	49112	V	7	104.4126	C-2
4	4.6	1306		8	1.8777	C-3
5	4.983	4307	V	3	6.1936	C-3
6	6.067	3264		9	3.5979	C-4
7	7.075	485		10	0.5348	C-4
8	7.809	697		4	0.7683	C-4
9	10.562	475		12	0.43	C-5
	TOTAL	313406			1218.4958	

GROUP(NAME)	CONC
C-1	1098.6556
C-2	104.4126
C-3	8.0713
C-4	4.901
C-5	0.43
C-6+	2.0258

UNOCAL UNIT # SUGAR 27
10-19-92 REPORT # 086-211
HC SAMPLE # 2

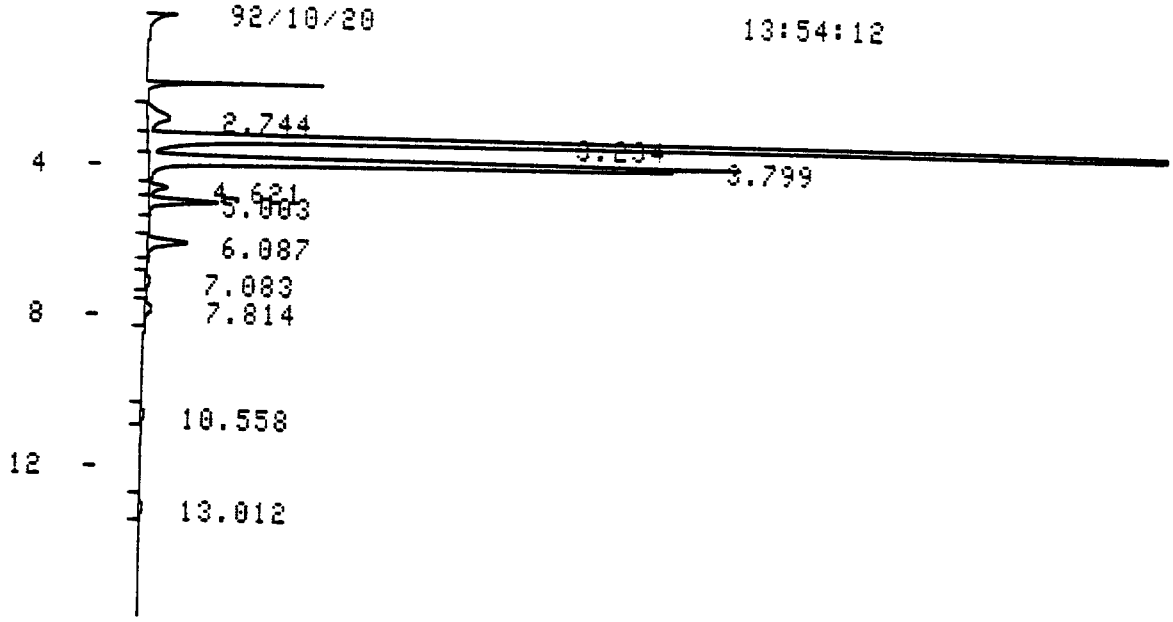


CHROMATOGRAM 12 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	3030		6	2.1968	C-6+
2	3.234	248196	SV	1	1086.5368	C-1
3	3.799	47338	T	7	100.6404	C-2
4	4.621	1366		8	1.9636	C-3
5	5.002	4169	V	3	5.9954	C-3
6	6.086	3110		9	3.4282	C-4
7	7.078	444		10	0.4898	C-4
8	7.792	461		4	0.5084	C-4
9	10.563	449		12	0.4062	C-5
	TOTAL	308564			1202.1649	

GROUP(NAME)	CONC
C-1	1086.5368
C-2	100.6404
C-3	7.959
C-4	4.4264
C-5	0.4062
C-6+	2.1968

UNOCAL UNIT # SUGAR 27
10-19-92 REPORT # 086-211
HC SAMPLE # 3

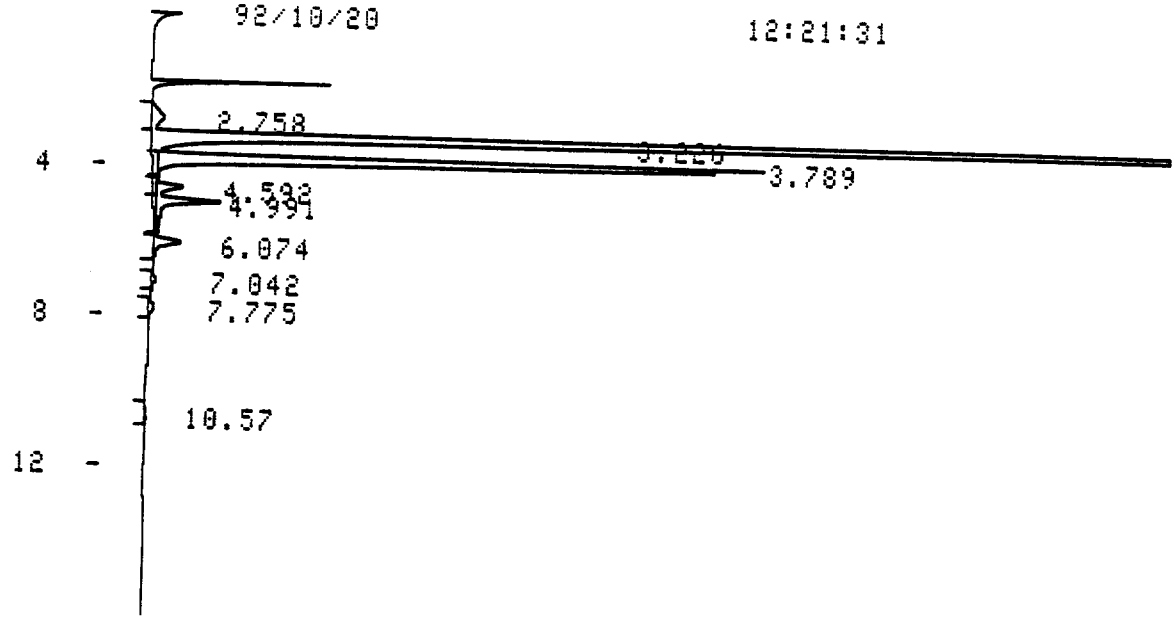


CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.744	3329		6	2.4131	C-6+
2	3.234	241525	V	1	1057.3312	C-1
3	3.799	49241	V	7	104.6856	C-2
4	4.621	1303		8	1.8731	C-3
5	5.003	4365	V	3	6.2762	C-3
6	6.087	3248		9	3.5797	C-4
7	7.083	463		10	0.51	C-4
8	7.814	863		4	0.951	C-4
9	10.558	466		12	0.4216	C-5
10	13.012	540		13	0.4884	C-5
	TOTAL	305341			1178.5295	

GROUP(NAME)	CONC
C-1	1057.3312
C-2	104.6856
C-3	8.1492
C-4	5.0407
C-5	0.91
C-6+	2.4131

UNOCAL UNIT # LEROY PINE 15
10-19-92 REPORT # 086-211
HC SAMPLE # 1

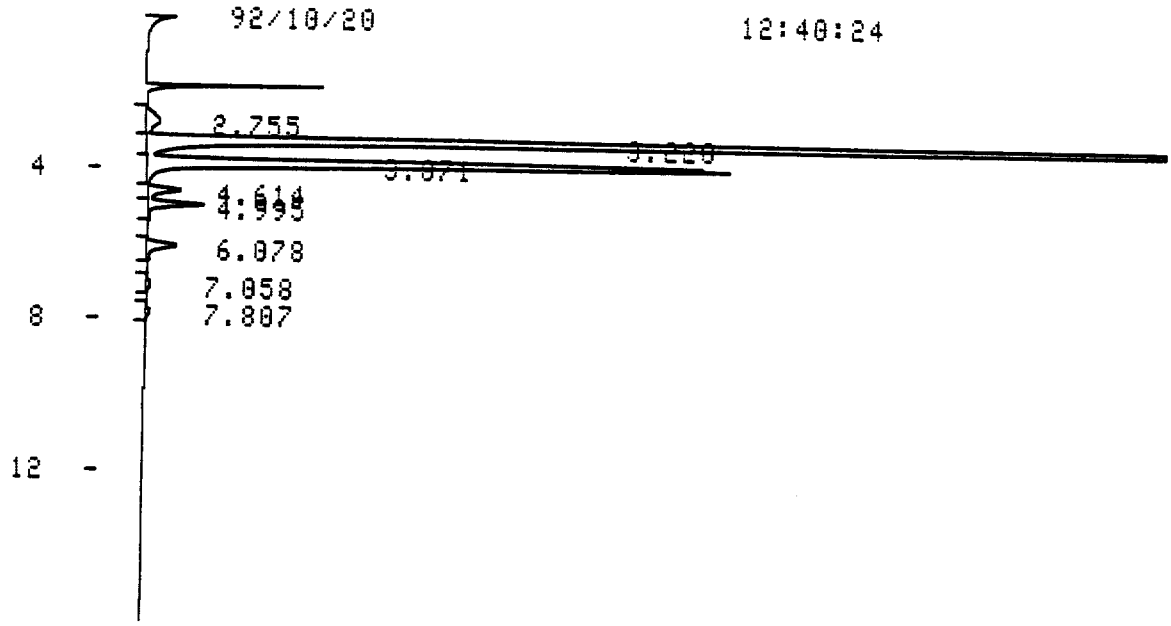


CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.758	1908		6	1.3831	C-6+
2	3.226	279396	SV	1	1223.1197	C-1
3	3.789	50566	T	7	107.5022	C-2
4	4.592	2154	T	8	3.0978	C-3
5	4.991	5140	TV	3	7.391	C-3
6	6.074	2097		9	2.3113	C-4
7	7.042	410		10	0.4521	C-4
8	7.775	485		4	0.5347	C-4
9	10.57	408		12	0.369	C-5
	TOTAL	342563			1346.1605	

GROUP(NAME)	CONC
C-1	1223.1197
C-2	107.5022
C-3	10.4888
C-4	3.298
C-5	0.369
C-6+	1.3831

UNOCAL UNIT # LEROY PINE 15
10-19-92 REPORT # 086-211
HC SAMPLE # 2

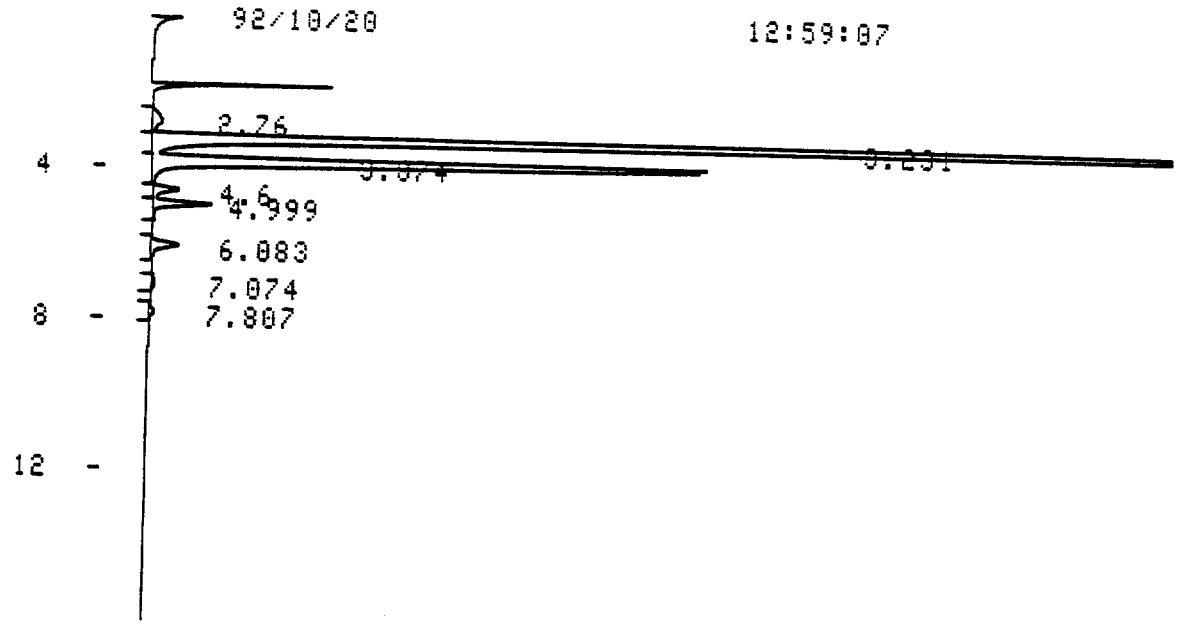


CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	2295		6	1.6635	C-6+
2	3.228	251961	V	1	1103.018	C-1
3	3.871	50914	V	7	108.2435	C-2
4	4.614	2404		8	3.4576	C-3
5	4.995	3577	V	3	5.1433	C-3
6	6.078	2498		9	2.7533	C-4
7	7.058	411		10	0.4525	C-4
8	7.807	426		4	0.4696	C-4
	TOTAL	314486			1225.2009	

GROUP(NAME)	CONC
C-1	1103.018
C-2	108.2435
C-3	8.6009
C-4	3.6753
C-5	0
C-6+	1.6635

UNOCAL UNIT # LEROY PINE 15
10-19-92 REPORT # 086-211
HC SAMPLE # 3

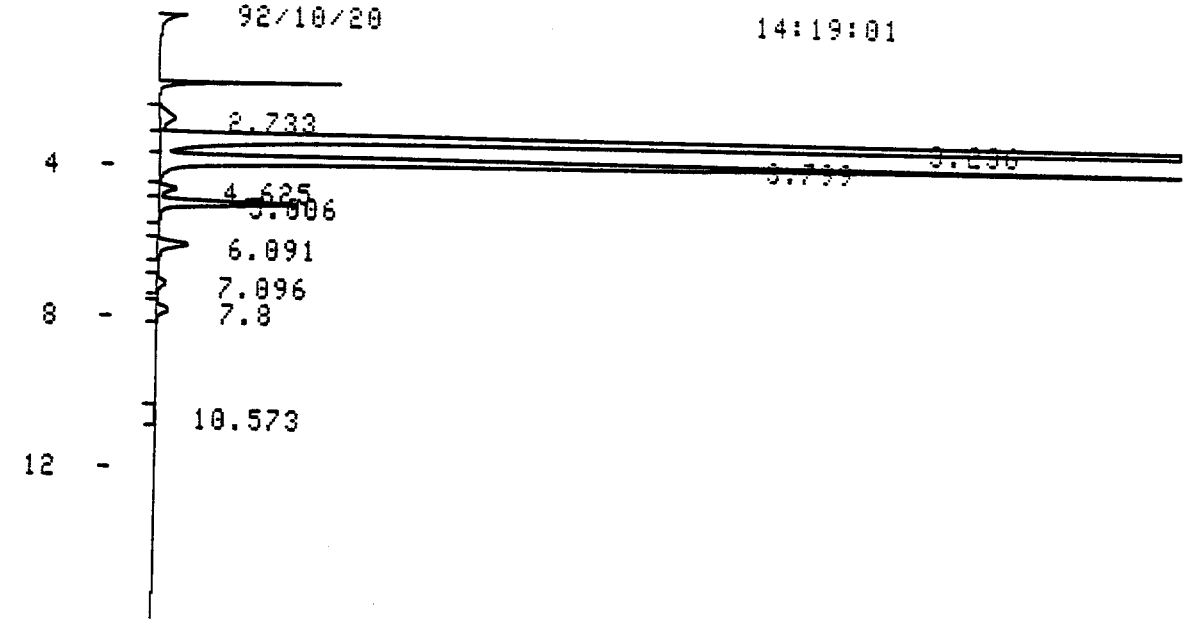


CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.76	1491		6	1.0811	C-6+
2	3.231	253279		1	1108.7873	C-1
3	3.874	48963	V	7	104.0952	C-2
4	4.6	1962		8	2.8213	C-3
5	4.999	3807	V	3	5.475	C-3
6	6.083	2144		9	2.3628	C-4
7	7.074	447		10	0.4926	C-4
8	7.807	433		4	0.4774	C-4
	TOTAL	312526			1225.5922	

GROUP(NAME)	CONC
C-1	1108.7873
C-2	104.0952
C-3	8.2963
C-4	3.3328
C-5	0
C-6+	1.0811

UNOCAL UNIT # PINE 14
10-19-92 REPORT # 086-211
HC SAMPLE # 1

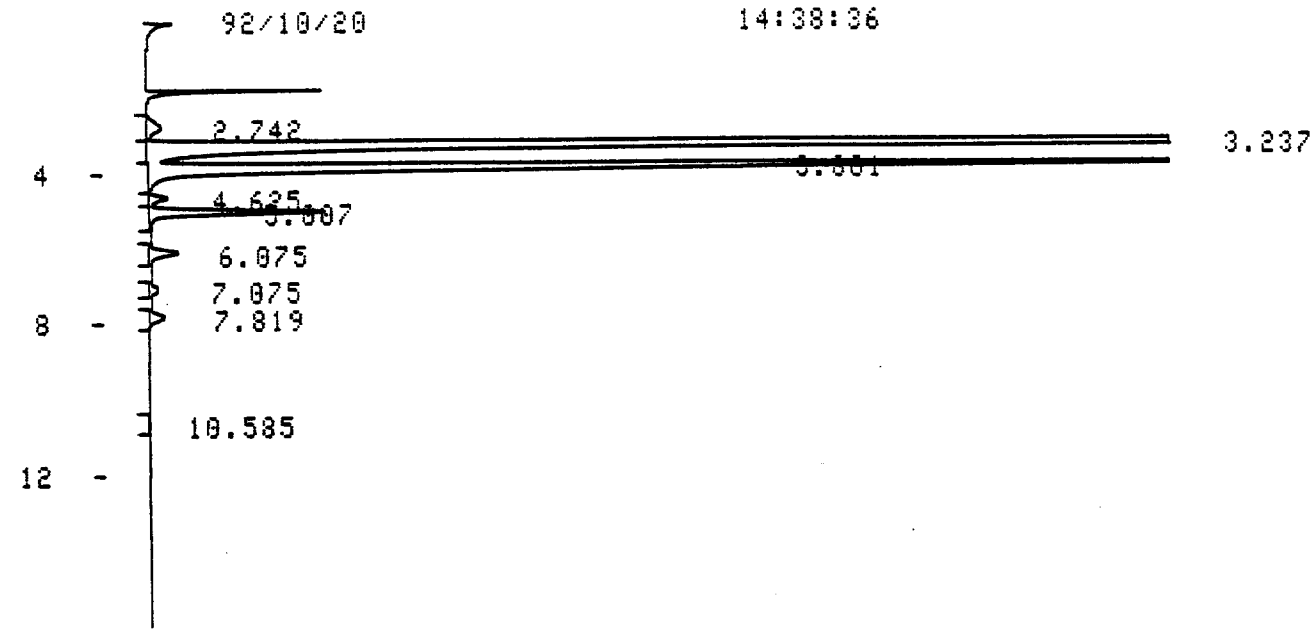


CHROMATOGRAM 14 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.733	1962		6	1.4224	C-6+
2	3.236	424503		1	1858.3619	C-1
3	3.799	68889	V	7	146.4577	C-2
4	4.625	1345		8	1.9344	C-3
5	5.006	8671	V	3	12.4689	C-3
6	6.091	2503		9	2.7593	C-4
7	7.096	765		10	0.8436	C-4
8	7.8	1155		4	1.273	C-4
9	10.573	301		12	0.272	C-5
	TOTAL	510095			2025.7927	

GROUP(NAME)	CONC
C-1	1858.3619
C-2	146.4577
C-3	14.4034
C-4	4.8759
C-5	0.272
C-6+	1.4224

UNOCAL UNIT # PINE 14
10-19-92 REPORT # 086-211
HC SAMPLE # 2

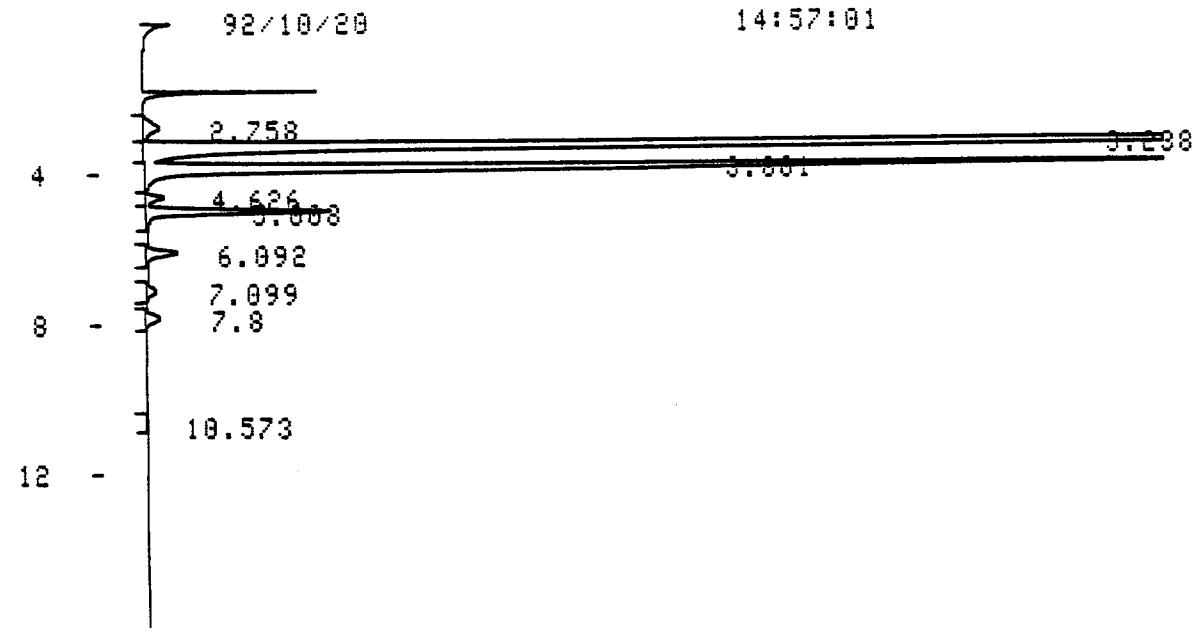


CHROMATOGRAM 15 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.742	1898		6	1.3759	C-6+
2	3.237	557763		1	2441.7358	C-1
3	3.801	91671	V	7	194.8931	C-2
4	4.625	1322		8	1.9006	C-3
5	5.007	11153	V	3	16.0369	C-3
6	6.075	2303		9	2.5388	C-4
7	7.075	795		10	0.8763	C-4
8	7.819	1375		4	1.5154	C-4
9	10.585	277		12	0.2506	C-5
	TOTAL	668556			2661.1225	

GROUP(NAME)	CONC
C-1	2441.7358
C-2	194.8931
C-3	17.9375
C-4	4.9306
C-5	0.2506
C-6+	1.3759

UNOCAL UNIT PINE 14
10-19-92 REPORT # 086-211
HC SAMPLE # 3

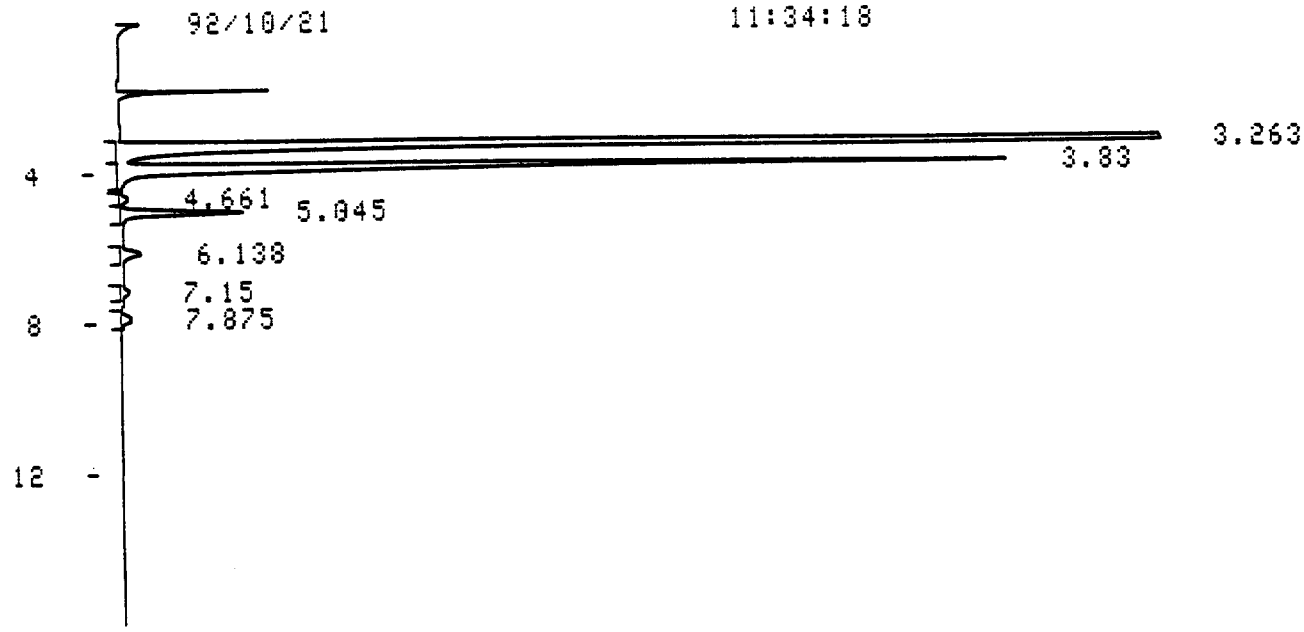


CHROMATOGRAM 16 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.758	2100		6	1.5224	C-6+
2	3.238	514484		1	2252.2712	C-1
3	3.801	81826	V	7	173.962	C-2
4	4.626	1345		8	1.9335	C-3
5	5.008	11610	V	3	16.6943	C-3
6	6.092	2619		9	2.8867	C-4
7	7.099	918		10	1.0119	C-4
8	7.8	1386		4	1.5276	C-4
9	10.573	331		12	0.299	C-5
	TOTAL	616617			2452.1071	

GROUP(NAME)	CONC
C-1	2252.2712
C-2	173.962
C-3	18.6278
C-4	5.4261
C-5	0.299
C-6+	1.5224

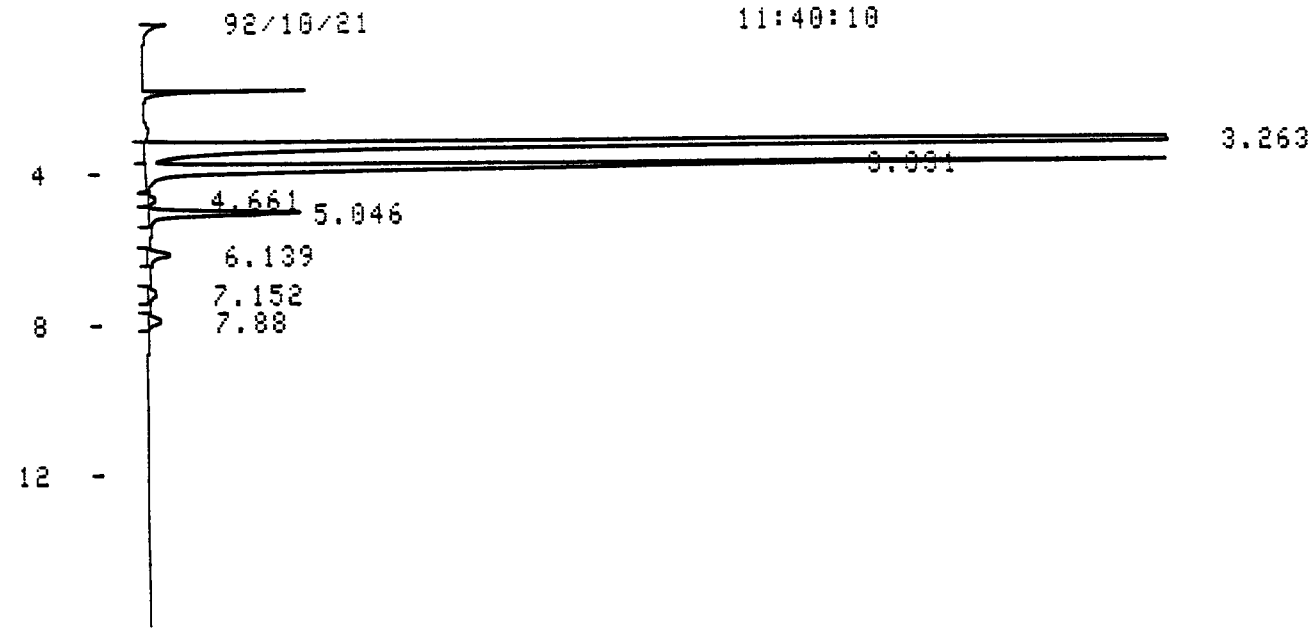
UNOCAL UNIT: CASMALIA COMPRESSOR
10-20-92 REPORT # 086-211
HC SAMPLE # 1



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.263	374860		1	1625.8752	C-1
2	3.83	55564	V	7	118.1286	C-2
3	4.661	656		8	0.94	C-3
4	5.045	7680	V	3	11.0105	C-3
5	6.138	1608		9	1.7623	C-4
6	7.15	604		10	0.662	C-4
7	7.875	1005		4	1.1016	C-4
	TOTAL	441975			1759.4798	

GROUP(NAME)	CONC
C-1	1625.8752
C-2	118.1286
C-3	11.9505
C-4	3.5259
C-5	0
C-6+	0

UNOCAL UNIT: CASMALIA COMPRESSOR
10-20-92 REPORT # 086-211
HC SAMPLE # 2

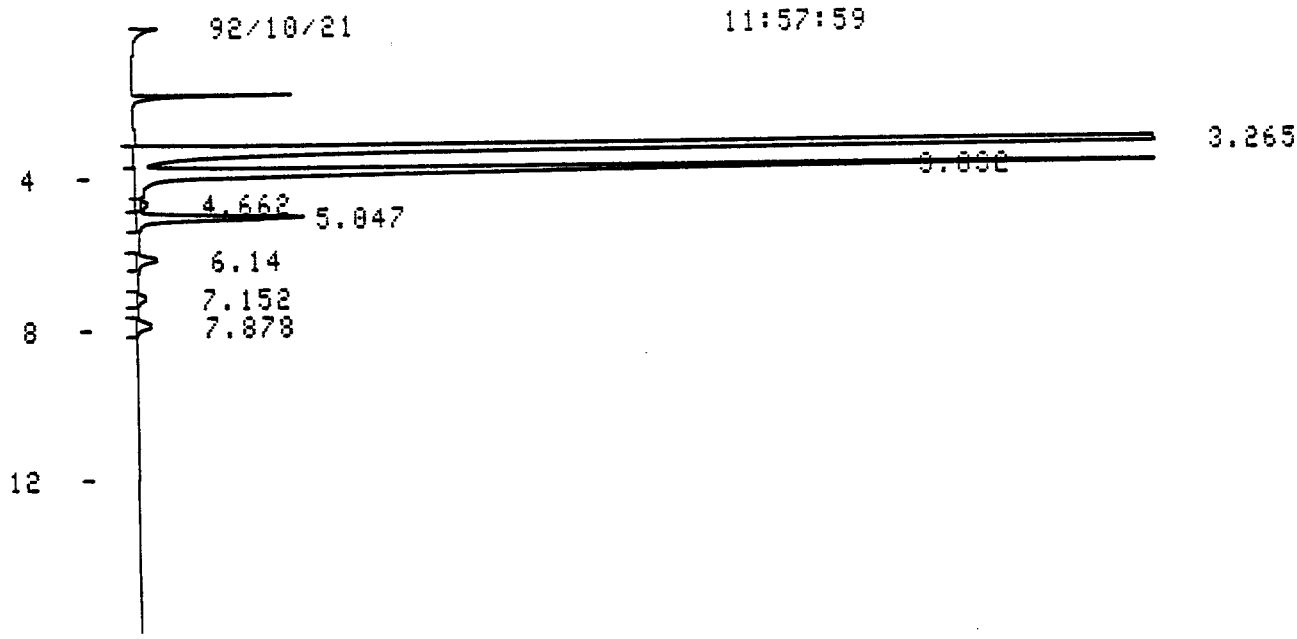


CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.263	427323		1	1853.4206	C-1
2	3.831	63907	V	7	135.8661	C-2
3	4.661	665		8	0.9527	C-3
4	5.046	9491	V	3	13.6076	C-3
5	6.139	1677		9	1.8381	C-4
6	7.152	776		10	0.8509	C-4
7	7.88	1163		4	1.2754	C-4
	TOTAL	505001			2007.811	

GROUP(NAME)	CONC
C-1	1853.4206
C-2	135.8661
C-3	14.5603
C-4	3.9644
C-5	0
C-6+	0

UNOCAL UNIT: CASMALIA COMPRESSOR
10-20-92 REPORT # 086-211
HC SAMPLE # 3



CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.265	464483		1	2014.597	C-1
2	3.832	69536	SV	7	147.8345	C-2
3	4.662	560	T	8	0.8027	C-3
4	5.047	10831	V	3	15.5281	C-3
5	6.14	1644		9	1.8022	C-4
6	7.152	808		10	0.8854	C-4
7	7.878	1340		4	1.4695	C-4
	TOTAL	549202			2182.9187	

GROUP(NAME)	CONC
C-1	2014.597
C-2	147.8345
C-3	16.3307
C-4	4.1571
C-5	0
C-6+	0

Petro Chem Environmental Services, Inc.

UNOCAL UNIT: BELL 17

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HC CHANNEL 1

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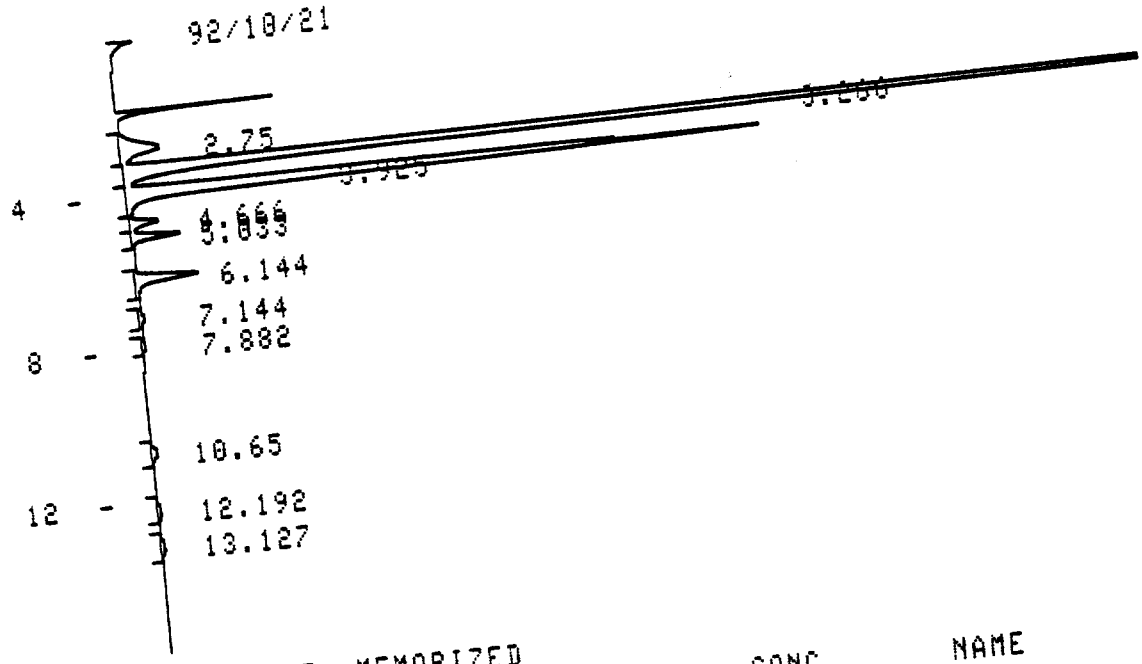
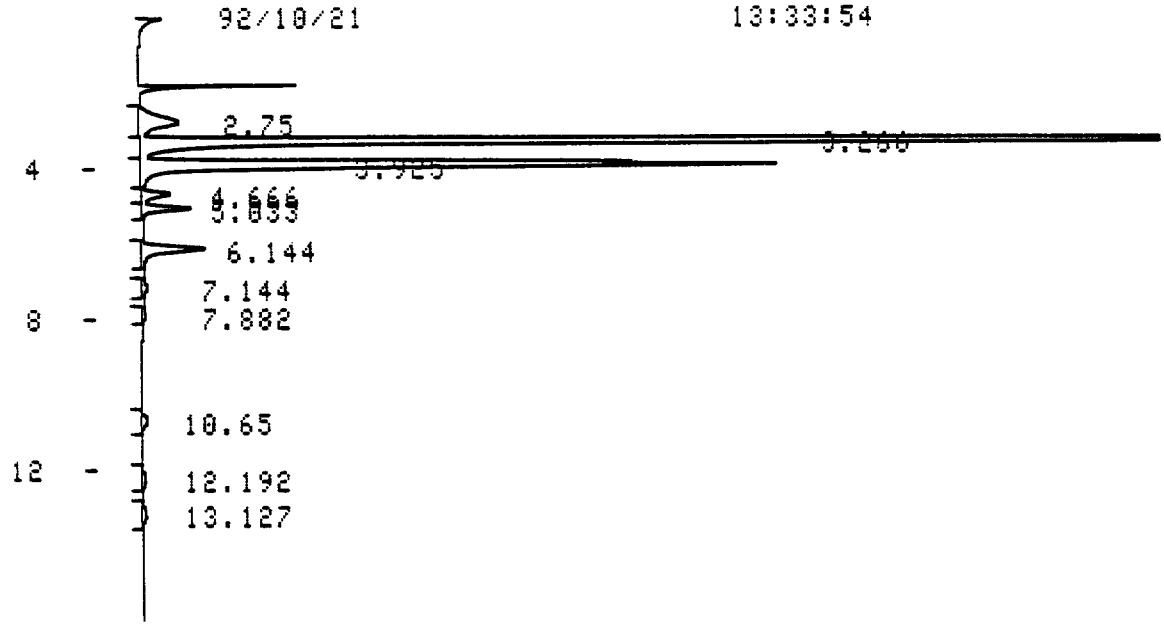
92/10/21



CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
					4.4183	C-6+

UNOCAL UNIT: BELL 17
10-20-92 REPORT # 086-211
HC SAMPLE # 1



CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.75	6175		6	4.4183	C-6+
2	3.266	216286	V	1	938.0921	C-1
3	3.925	52232	V	7	111.0448	C-2
4	4.666	2060		8	2.9534	C-3
5	5.033	3100	V	3	4.445	C-3
6	6.144	5171		9	5.6689	C-4
7	7.144	486		10	0.5332	C-4
8	7.882	345		4	0.3785	C-4
9	10.65	893		12	0.8101	C-5
10	12.192	745				
11	13.127	738		14	0.6693	C-5
	TOTAL	288231			1069.0129	

GROUP(NAME)	CONC
C-1	938.0921
C-2	111.0448
C-3	7.3984
C-4	6.5805
C-5	1.4794
C-6+	4.4183

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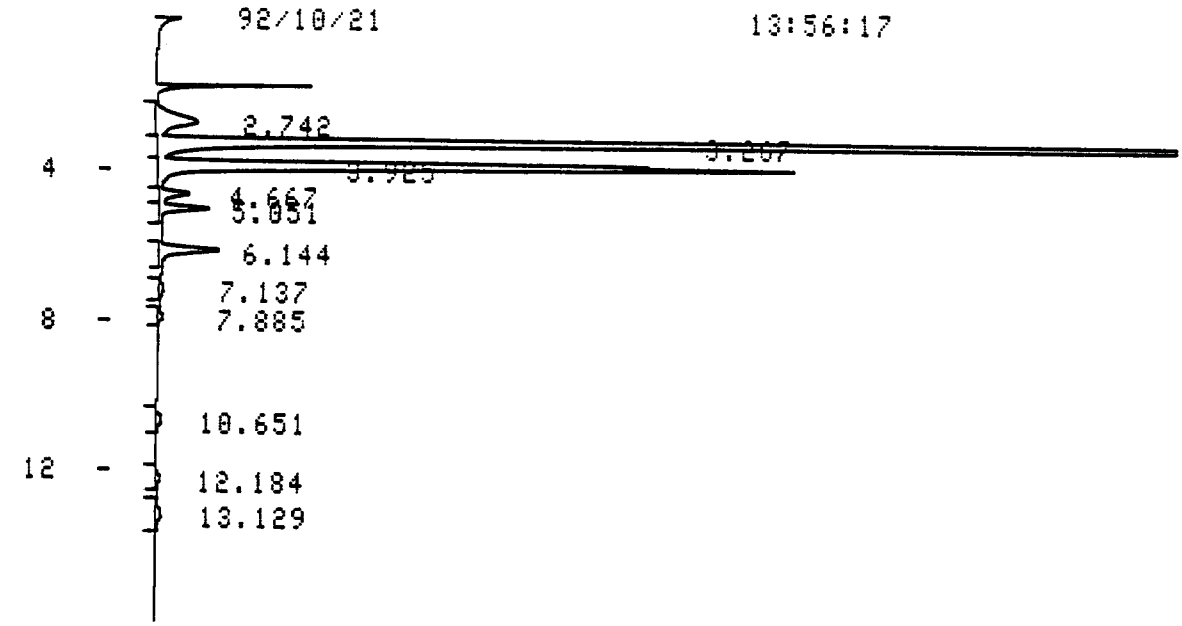
UNOCAL UNIT: BELL 17
10-20-92 REPORT # 086-211
HC SAMPLE # 2

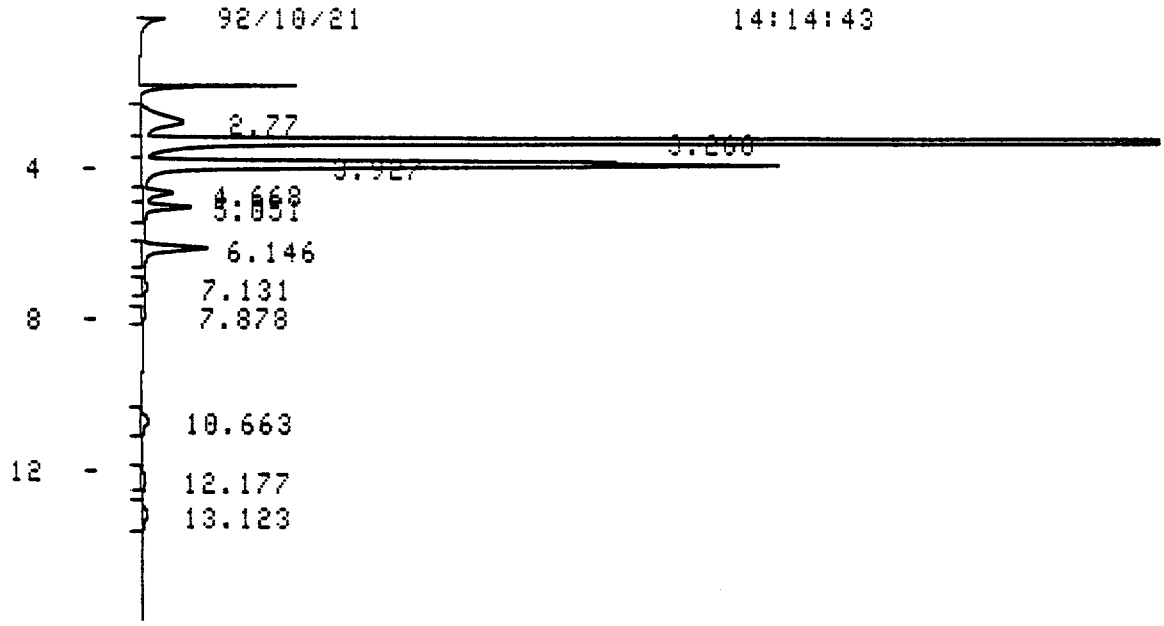


CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.742	6686		6	4.7839	C-6+
2	3.267	220050	V	1	954.4174	C-1
3	3.925	52656	V	7	111.9469	C-2
4	4.667	2132		8	3.0574	C-3
5	5.051	3203	V	3	4.5915	C-3
6	6.144	4983		9	5.4624	C-4
7	7.137	482		10	0.5283	C-4
8	7.885	346		4	0.379	C-4
9	10.651	890		12	0.8074	C-5
10	12.184	681		16	0.6178	C-5
11	13.129	1055		14	0.957	C-5
	TOTAL	293164			1087.5483	

GROUP(NAME)	CONC
C-1	954.4174
C-2	111.9469
C-3	7.6489
C-4	6.3697
C-5	2.3822
C-6+	4.7839

UNOCAL UNIT: BELL 17
10-20-92 REPORT # 086-211
HC SAMPLE # 3



CHROMATOGRAM 9 MEMORIZED

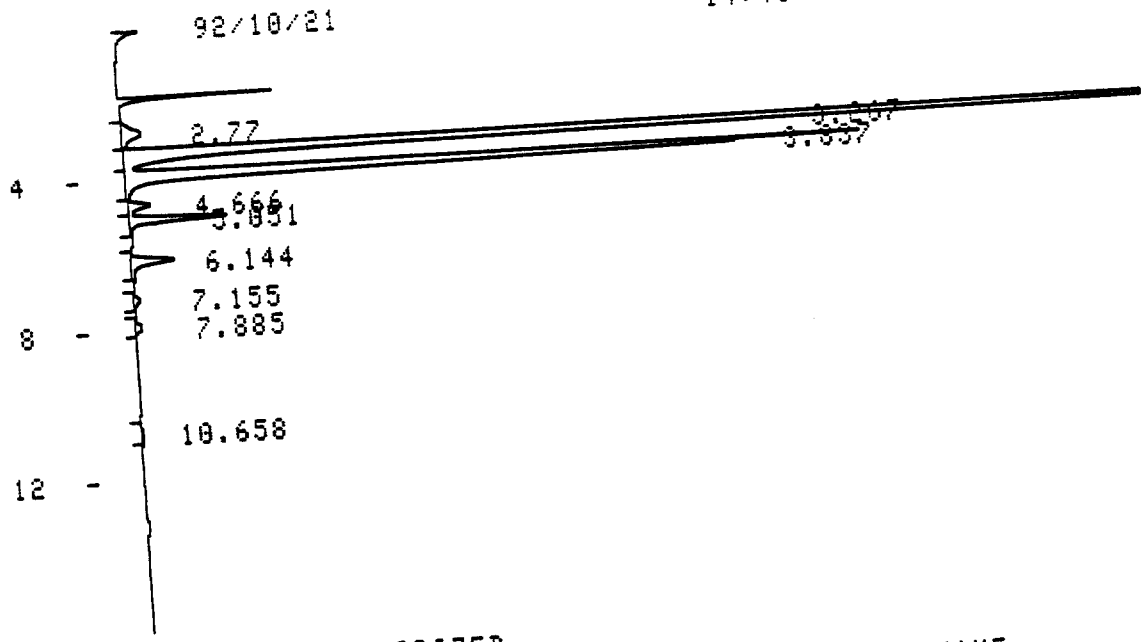
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.77	7110		6	5.0869	C-6+
2	3.268	210995	V	1	915.1456	C-1
3	3.927	51568	V	7	109.6329	C-2
4	4.668	2099		8	3.009	C-3
5	5.051	3070	V	3	4.402	C-3
6	6.146	5210		9	5.7115	C-4
7	7.131	476		10	0.5223	C-4
8	7.878	337		4	0.3694	C-4
9	10.663	981		12	0.8896	C-5
10	12.177	733		16	0.6646	C-5
11	13.123	933		14	0.846	C-5
	TOTAL	283511			1046.2792	

GROUP(NAME)	CONC
C-1	915.1456
C-2	109.6329
C-3	7.411
C-4	6.6032
C-5	2.4002
C-6+	5.0869

UNOCAL UNIT: BELL 169
10-20-92 REPORT # 086-211
HC SAMPLE # 1

14:40:38

92/10/21



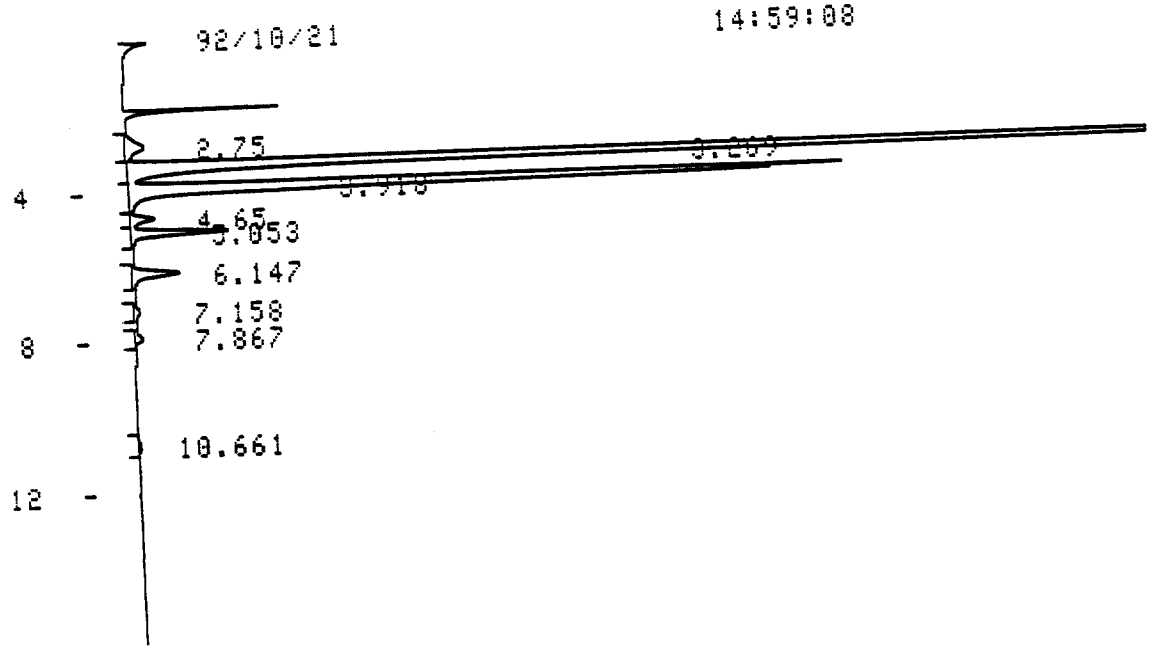
CHROMATOGRAM 10 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.77	2695		6	1.928	C-6+
2	3.267	296222		1	1284.8007	C-1
3	3.837	59664	V	7	126.846	C-2
4	4.666	1669		8	2.3923	C-3
5	5.051	6249	V	3	8.9588	C-3
6	6.144	3512		9	3.8505	C-4
7	7.155	529		10	0.5794	C-4
8	7.885	734		4	0.8049	C-4
9	10.658	399		12	0.3621	C-5
	TOTAL	371672			1430.5222	

GROUP(NAME)	CONC
C-1	1284.8007
C-2	126.846
C-3	11.351
C-4	5.2348
C-5	0.3621
C-6+	1.928

Petro Chem Environmental Services, Inc.

UNOCAL UNIT: BELL 169
10-20-92 REPORT # 086-211
HC SAMPLE # 2



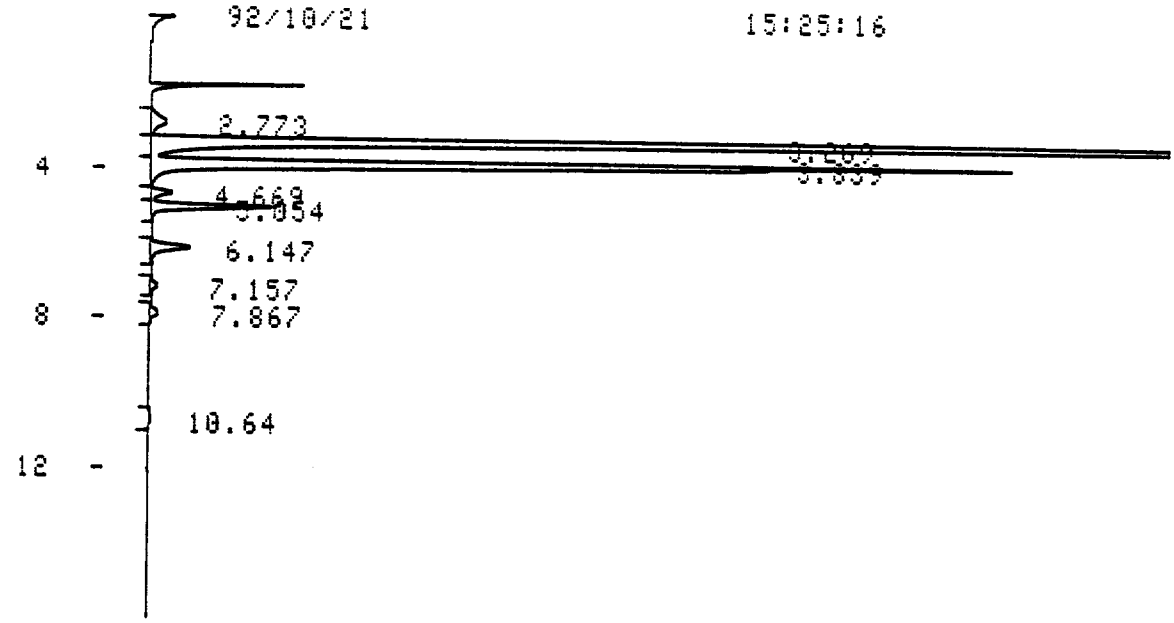
CHROMATOGRAM 11 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.75	2453		6	1.7551	C-6+
2	3.269	299664		1	1299.7301	C-1
3	3.918	60437	V	7	128.4896	C-2
4	4.65	1605		8	2.3005	C-3
5	5.053	6098	V	3	8.7423	C-3
6	6.147	3721		9	4.0796	C-4
7	7.158	502		10	0.5508	C-4
8	7.867	606		4	0.6644	C-4
9	10.661	420		12	0.3805	C-5
	TOTAL	375506			1446.6923	

GROUP(NAME)	CONC
C-1	1299.7301
C-2	128.4896
C-3	11.0428
C-4	5.2948
C-5	0.3805
C-6+	1.7551

Petro Chem Environmental Services, Inc.

UNOCAL UNIT: BELL 169
10-20-92 REPORT # 086-211
HC SAMPLE # 3

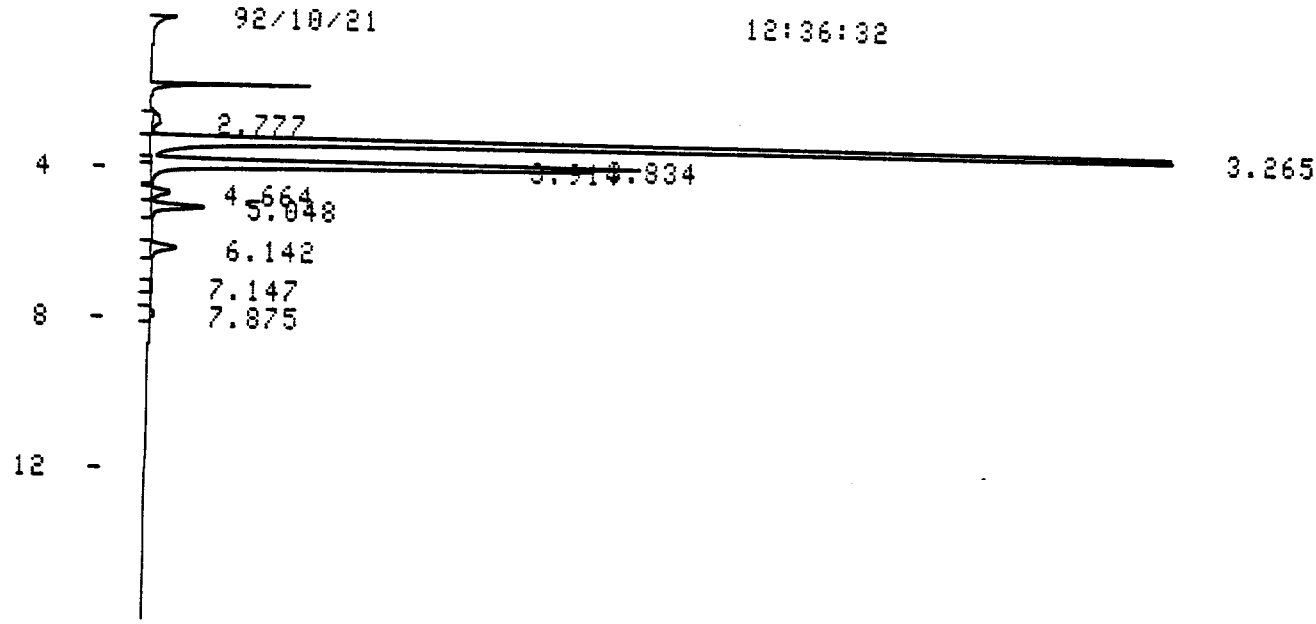


CHROMATOGRAM 12 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.773	2208		6	1.5798	C-6+
2	3.269	342454		1	1485.3198	C-1
3	3.839	64545	V	7	137.2226	C-2
4	4.669	1552		8	2.2255	C-3
5	5.054	7702	V	3	11.0418	C-3
6	6.147	3234		9	3.5451	C-4
7	7.157	631		10	0.6917	C-4
8	7.867	920		4	1.0086	C-4
9	10.64	325		12	0.2951	C-5
	TOTAL	423571			1642.9296	

GROUP(NAME)	CONC
C-1	1485.3198
C-2	137.2226
C-3	13.2673
C-4	5.2453
C-5	0.2951
C-6+	1.5798

UNOCAL UNIT: BELL 87
10-20-92 REPORT # 686-211
HC SAMPLE # 1

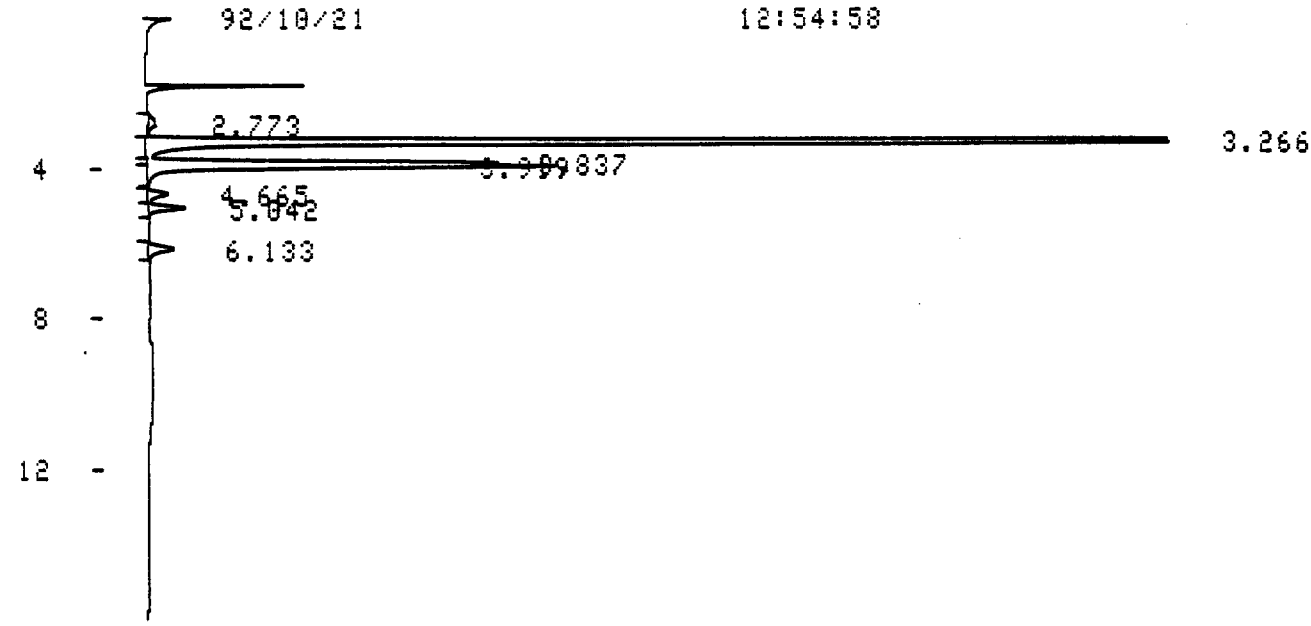


CHROMATOGRAM 4 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.777	1123		6	0.8032	C-6+
2	3.265	211163		1	915.875	C-1
3	3.834	20029	V	7	42.5818	C-2
4	3.914	21373	V	7	45.4384	C-2
5	4.664	1453		8	2.0831	C-3
6	5.048	3406	V	3	4.8839	C-3
7	6.142	1952		9	2.1396	C-4
8	7.147	264		10	0.2898	C-4
9	7.875	423		4	0.4638	C-4
	TOTAL	261186			1014.5582	

GROUP(NAME)	CONC
C-1	915.875
C-2	88.0202
C-3	6.967
C-4	2.8931
C-5	0
C-6+	0.8032

UNOCAL UNIT: BELL 87
10-20-92 REPORT # 086-211
HC SAMPLE # 2

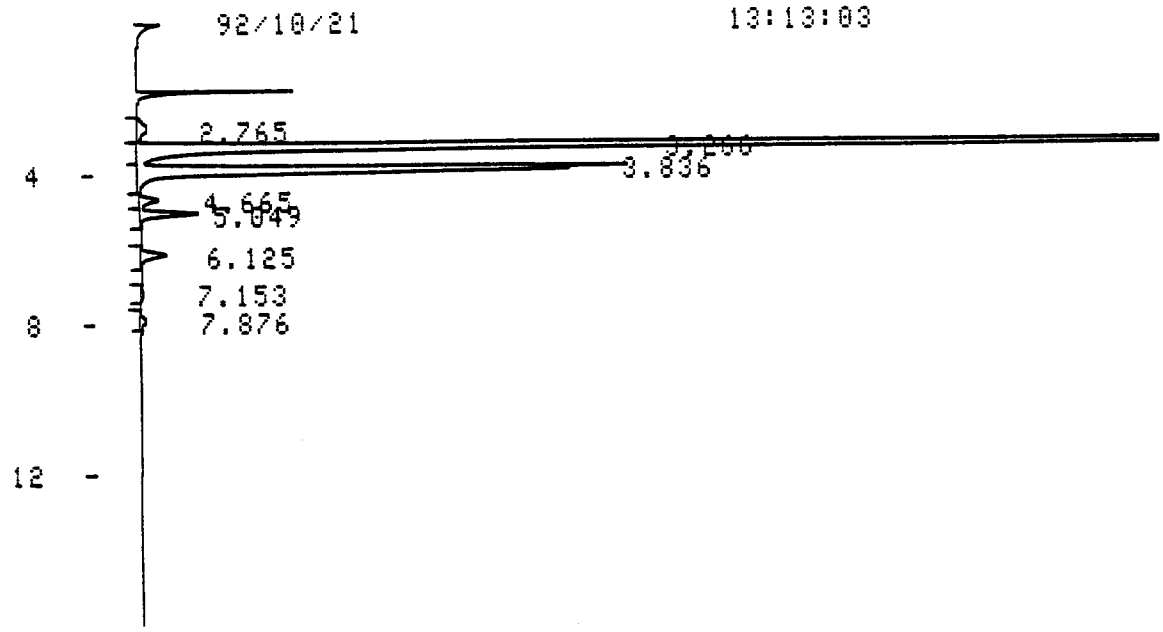


CHROMATOGRAM 5 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.773	1154		6	0.8257	C-6+
2	3.266	173576		1	752.8499	C-1
3	3.837	13367	V	7	28.419	C-2
4	3.919	21518	V	7	45.7483	C-2
5	4.665	1548		8	2.2192	C-3
6	5.042	2456	V	3	3.521	C-3
7	6.133	1997		9	2.1891	C-4
	TOTAL	215617			835.7721	

GROUP(NAME)	CONC
C-1	752.8499
C-2	74.1674
C-3	5.7402
C-4	2.1891
C-5	0
C-6+	0.8257

UNOCAL UNIT: BELL 87
10-20-92 REPORT # 086-211
HC SAMPLE # 3

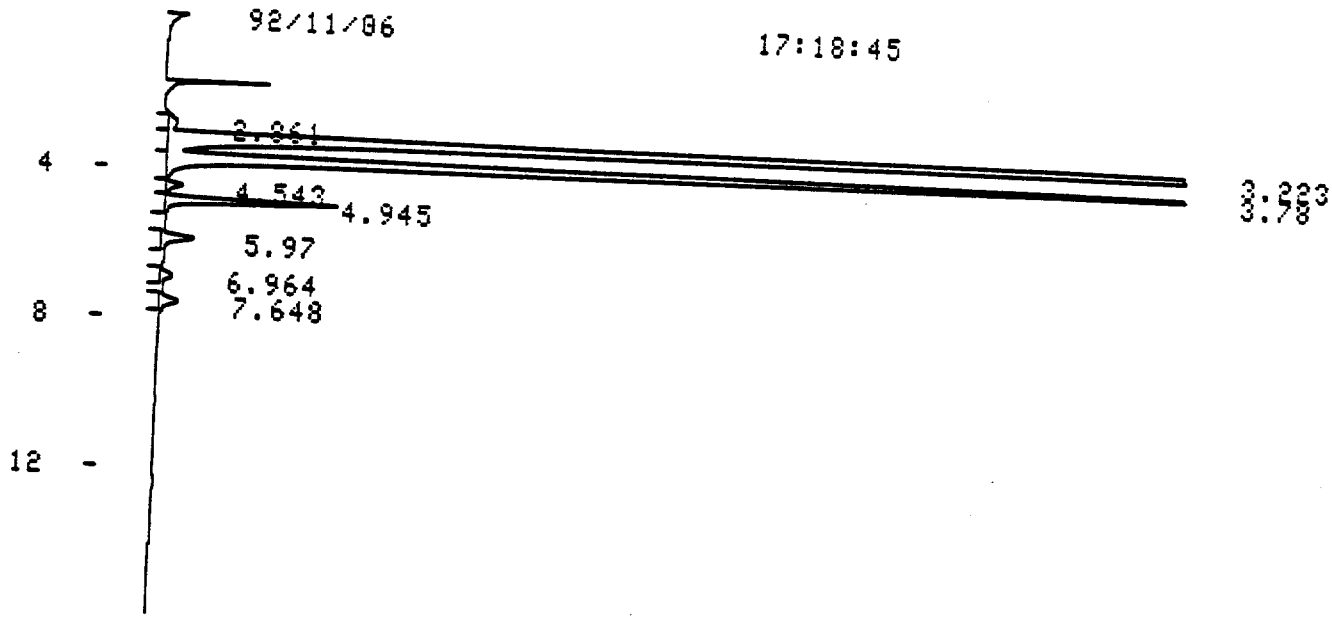


CHROMATOGRAM 6 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.765	1321		6	0.9449	C-6+
2	3.266	230537		1	999.9047	C-1
3	3.836	41210	V	7	87.612	C-2
4	4.665	1481		8	2.1229	C-3
5	5.049	3839	V	3	5.5047	C-3
6	6.125	2095		9	2.2968	C-4
7	7.153	377		10	0.4136	C-4
8	7.876	522		4	0.5726	C-4
	TOTAL	281382			1099.3718	

GROUP(NAME)	CONC
C-1	999.9047
C-2	87.612
C-3	7.6276
C-4	3.283
C-5	0
C-6+	0.9449

UNOCAL UNIT: WAUKASHA # 20
11-4-92 REPORT # 086-221
HC SAMPLE # 1

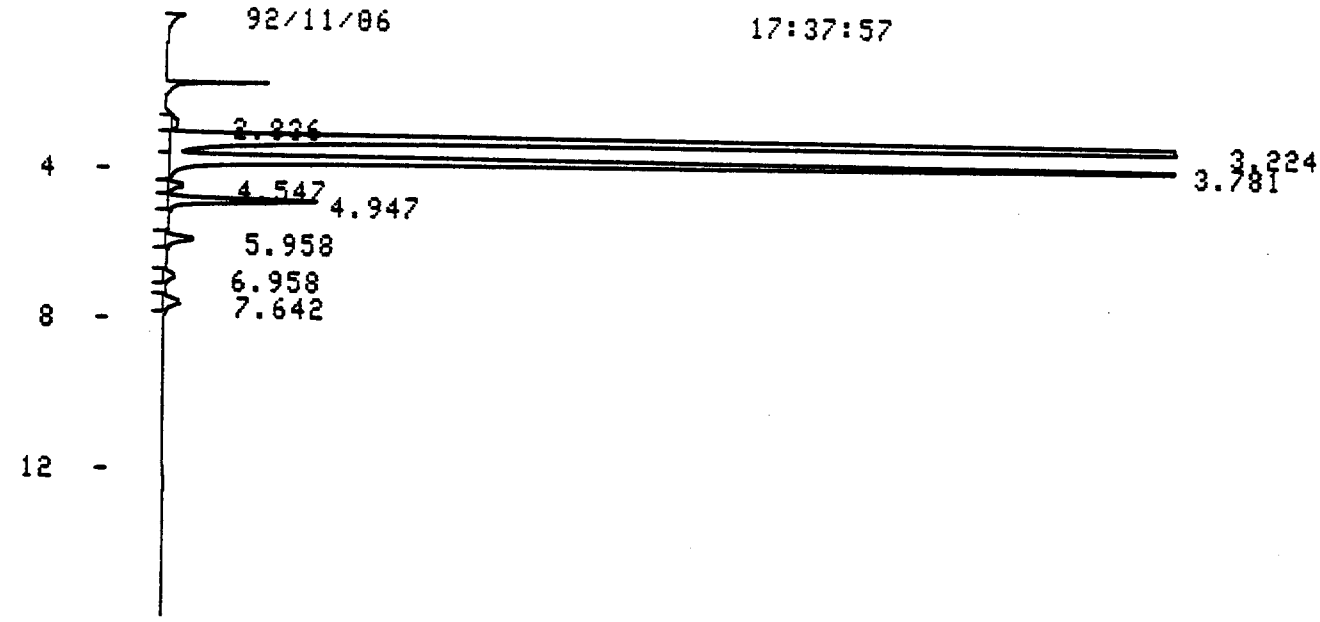


CHROMATOGRAM 25 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.861	853		6	0.6356	C-6+
2	3.223	563648	V	1	2426.9375	C-1
3	3.78	98376	V	7	209.1484	C-2
4	4.543	1028		8	1.4251	C-3
5	4.945	10270		3	14.2432	C-3
6	5.97	2431		9	2.5906	C-4
7	6.964	934		10	0.9953	C-4
8	7.648	1559		4	1.661	C-4
	TOTAL	679099			2657.6359	

GROUP(NAME)	CONC
C-1	2426.9375
C-2	209.1484
C-3	15.6683
C-4	5.2469
C-5	0
C-6+	0.6356

UNOCAL UNIT: WAUKASHA # 20
11-4-92 REPORT # 086-221
HC SAMPLE # 2

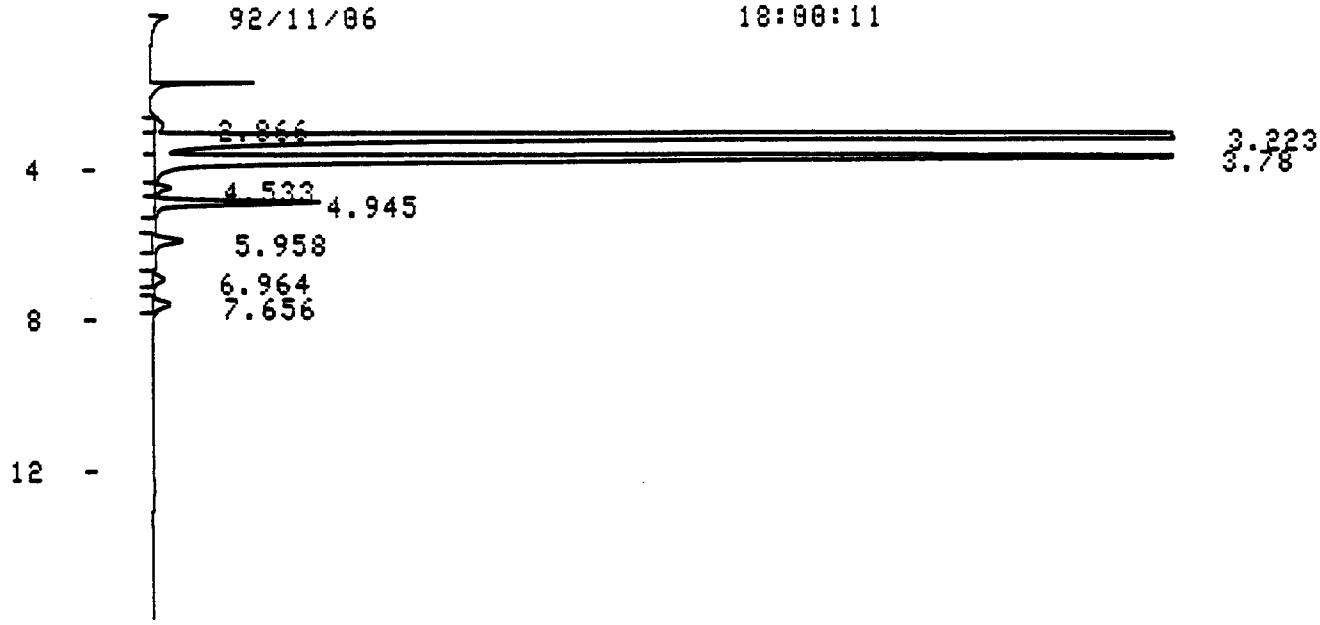


CHROMATOGRAM 26 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.836	746		6	0.5555	C-6+
2	3.224	494156		1	2127.7197	C-1
3	3.781	89998	V	7	191.336	C-2
4	4.547	1001		8	1.3887	C-3
5	4.947	9023		3	12.5144	C-3
6	5.958	2101		9	2.2385	C-4
7	6.958	758		10	0.8077	C-4
8	7.642	1372		4	1.4618	C-4
	TOTAL	599154			2338.0214	

GROUP(NAME)	CONC
C-1	2127.7197
C-2	191.336
C-3	13.9031
C-4	4.508
C-5	0
C-6+	0.5555

UNOCAL UNIT: WAUKASHA # 20
11-4-92 REPORT # 086-221
HC SAMPLE # 3



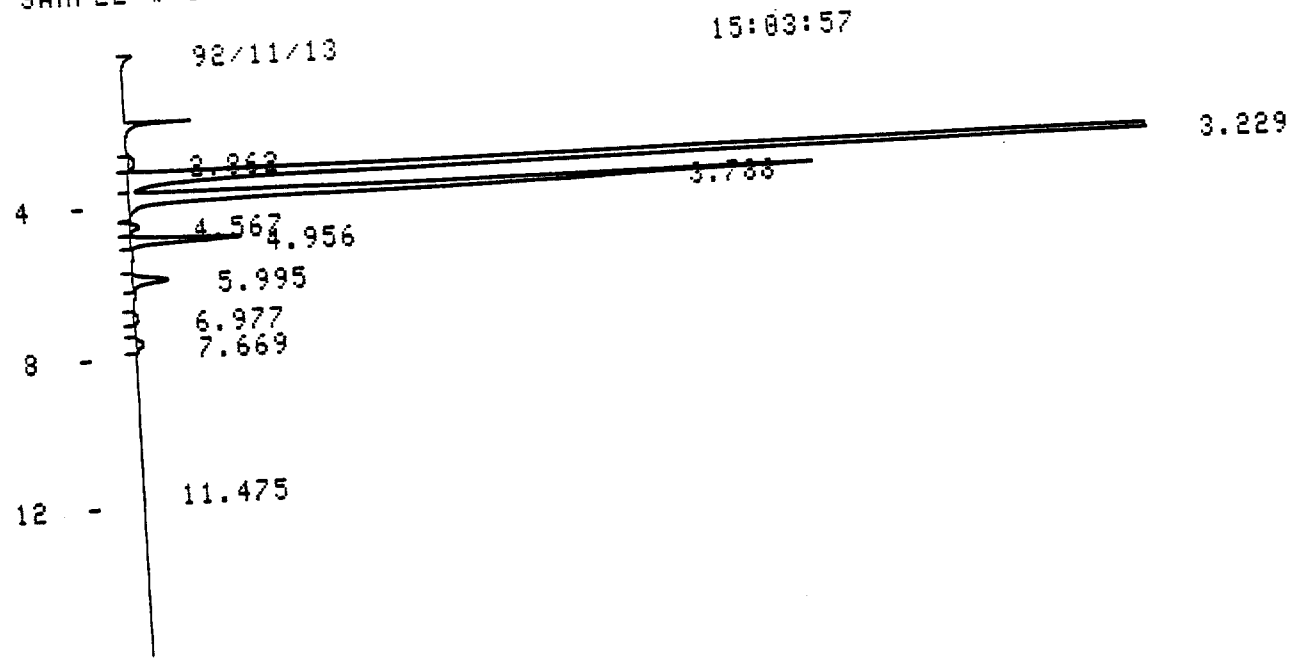
CHROMATOGRAM 27 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.866	826		6	0.6155	C-6+
2	3.223	536256	V	1	2308.9946	C-1
3	3.78	94225	V	7	200.3224	C-2
4	4.533	1053		8	1.4598	C-3
5	4.945	9959		3	13.813	C-3
6	5.958	2231		9	2.3771	C-4
7	6.964	905		10	0.9646	C-4
8	7.656	1470		4	1.5666	C-4
	TOTAL	646925			2530.1125	

GROUP(NAME)	CONC
C-1	2308.9946
C-2	200.3224
C-3	15.2727
C-4	4.9884
C-5	0
C-6+	0.6155

Petro Chem Environmental Services, Inc.

UNOCAL UNIT: BELL 85
11-10-92 REPORT # 086-223
HC SAMPLE # 1



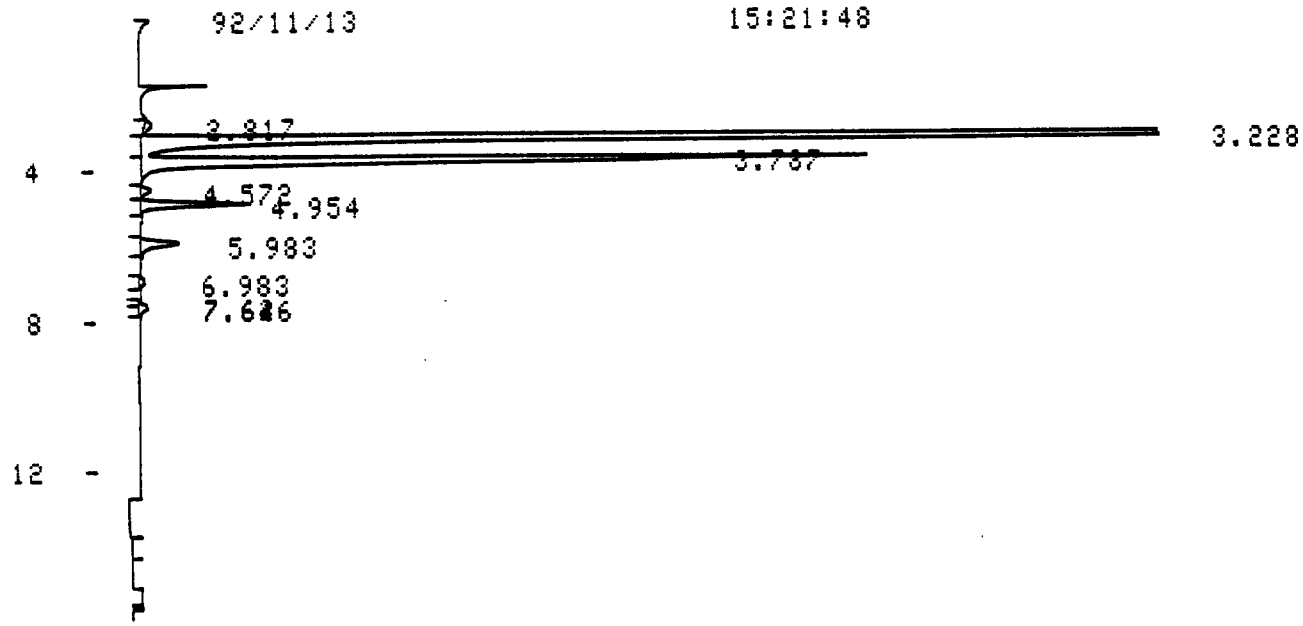
CHROMATOGRAM 22 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.862	635		6	0.4758	C-6+
2	3.229	270288		1	1177.5177	C-1
3	3.788	49394	V	7	105.0113	C-2
4	4.567	746		8	1.0344	C-3
5	4.956	6713		3	9.3104	C-3
6	5.995	2739		9	2.9029	C-4
7	6.977	461		10	0.4887	C-4
8	7.669	696		4	0.7382	C-4
	TOTAL	331672			1297.479	

GROUP(NAME)	CONC
C-1	1177.5177
C-2	105.0113
C-3	10.3449
C-4	4.1297
C-5	0
C-6+	0.4758

Petro Chem Environmental Services, Inc.

UNOCAL UNIT: BELL 85
11-10-92 REPORT # 086-223
HC SAMPLE # 2

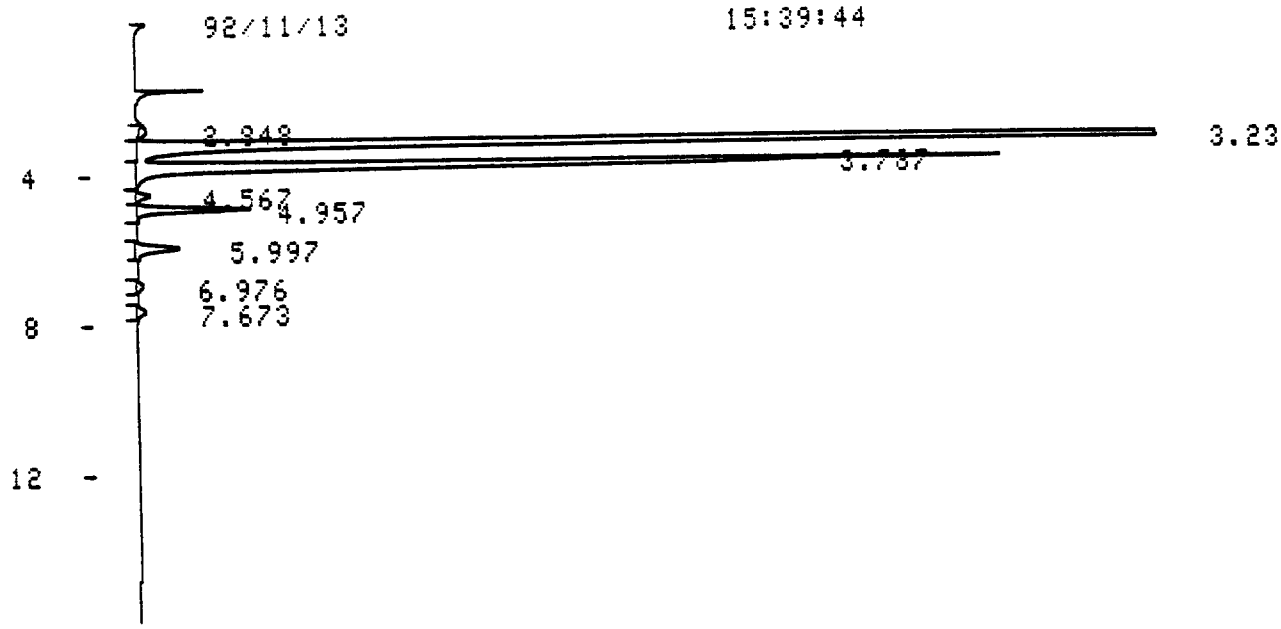


CHROMATOGRAM 23 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.817	706		6	0.5289	C-6+
2	3.228	276873		1	1206.2033	C-1
3	3.787	52871	V	7	112.4035	C-2
4	4.572	792		8	1.0991	C-3
5	4.954	6474		3	8.9788	C-3
6	5.983	3037		9	3.2194	C-4
7	6.983	432		10	0.4584	C-4
8	7.62	272		4	0.2884	C-4
9	7.646	546	V	4	0.5785	C-4
	TOTAL	342003			1333.7579	

GROUP(NAME)	CONC
C-1	1206.2033
C-2	112.4035
C-3	10.0779
C-4	4.5447
C-5	0
C-6+	0.5289

UNOCAL UNIT: BELL 85
11-10-92 REPORT # 086-223
HC SAMPLE # 3



CHROMATOGRAM 24 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.848	767		6	0.5746	C-6+
2	3.23	320877		1	1397.9088	C-1
3	3.787	62791	V	7	133.4936	C-2
4	4.567	916		8	1.2704	C-3
5	4.957	7020		3	9.7373	C-3
6	5.997	3373		9	3.5752	C-4
7	6.976	470		10	0.4982	C-4
8	7.673	727		4	0.7707	C-4
	TOTAL	396941			1547.8282	

GROUP(NAME)	CONC
C-1	1397.9088
C-2	133.4936
C-3	11.0076
C-4	4.8441
C-5	0
C-6+	0.5746

Petro Chem Environmental Services, Inc.

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...

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #19
DATE : 10-13-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	41
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	60
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	5.8
% O2	8.68
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	83

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	41
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	61
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	5.8
% O2	8.68
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	83

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	41
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	62
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	5.8
% O2	8.72
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	83

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #21
DATE : 10-13-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	43
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	64
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	6.1
% O2	10.85
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	105

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	43
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	66
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	6.1
% O2	11.23
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	108

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	44
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	66
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	6.2
% O2	11.63
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	116

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #23
DATE : 10-13-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	16
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	67.5
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	2.2
% O2	11.66
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	42

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	16
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	2.2
% O2	11.97
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	44

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	16
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	2.2
% O2	10.85
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	39

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #24
DATE : 10-13-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	42
CUBIC FEET MEASURED	12
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	67.5
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	1.6
% O2	8.52
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	22

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	12
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	68
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	1.7
% O2	8.59
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	24

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	12
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	68
BAROMETRIC PRESSURE	29.75
PRESSURE PSI	69
SCFM (corrected fuel consumption)	1.7
% O2	8.53
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	24

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN #25
DATE : 10-14-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	13
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	63
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68
SCFM (corrected fuel consumption)	1.8
% O2	9.24
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	27

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	11.5
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	64
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68
SCFM (corrected fuel consumption)	1.6
% O2	9.12
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	24

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	12.5
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	66
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68.5
SCFM (corrected fuel consumption)	1.7
% O2	9.16
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	26

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING FAN 26
DATE : 10-14-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	10.5
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68.5
SCFM (corrected fuel consumption)	1.5
% O2	7.28
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	19

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	10.5
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68.5
SCFM (corrected fuel consumption)	1.5
% O2	7.04
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	18

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	11
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	69
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68.5
SCFM (corrected fuel consumption)	1.5
% O2	6.95
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	19

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 13
DATE : 10-14-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	33
ACFM (uncorrected fuel consumption)	0.8
METER TEMERATURE	75.5
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67.5
SCFM (corrected fuel consumption)	4.5
% O2	11.90
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	86

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	32.5
ACFM (uncorrected fuel consumption)	0.8
METER TEMERATURE	78
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67.5
SCFM (corrected fuel consumption)	4.4
% O2	11.66
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	82

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	33
ACFM (uncorrected fuel consumption)	0.8
METER TEMERATURE	79
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67.5
SCFM (corrected fuel consumption)	4.4
% O2	11.71
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	84

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 14
DATE : 10-14-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	101
ACFM (uncorrected fuel consumption)	2.5
METER TEMERATURE	81
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	66.5
SCFM (corrected fuel consumption)	13.4
% O2	7.78
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	177

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	98
ACFM (uncorrected fuel consumption)	2.5
METER TEMERATURE	82
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	66.5
SCFM (corrected fuel consumption)	13.0
% O2	7.74
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	171

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	100
ACFM (uncorrected fuel consumption)	2.5
METER TEMERATURE	81
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67
SCFM (corrected fuel consumption)	13.4
% O2	7.86
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	178

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES COOLING TOWER 15
DATE : 10-15-92
REPORT : 086-221

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	42
CUBIC FEET MEASURED	51
ACFM (uncorrected fuel consumption)	1.2
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67
SCFM (corrected fuel consumption)	6.7
% O2	7.27
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	85

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	49
ACFM (uncorrected fuel consumption)	1.2
METER TEMERATURE	67
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	68
SCFM (corrected fuel consumption)	6.8
% O2	7.02
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	85

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	48
ACFM (uncorrected fuel consumption)	1.2
METER TEMERATURE	71
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	67.5
SCFM (corrected fuel consumption)	6.6
% O2	6.97
F FACTOR @60	8580
CALORIFIC VALUE	967
DSCFM (exhaust flow rate)	82

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : O'DONNELL 2-5
DATE : 10-15-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	25
ACFM (uncorrected fuel consumption)	0.6
METER TEMERATURE	69
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	126.5
SCFM (corrected fuel consumption)	5.9
% O2	7.97
F FACTOR @60	8592
CALORIFIC VALUE	966
DSCFM (exhaust flow rate)	79

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	20
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	73
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	126.5
SCFM (corrected fuel consumption)	4.7
% O2	7.71
F FACTOR @60	8592
CALORIFIC VALUE	966
DSCFM (exhaust flow rate)	62

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	19
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	76
BAROMETRIC PRESSURE	29.72
PRESSURE PSI	126.5
SCFM (corrected fuel consumption)	4.4
% O2	7.52
F FACTOR @60	8592
CALORIFIC VALUE	966
DSCFM (exhaust flow rate)	57

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 7
DATE : 10-15-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	24
ACFM (uncorrected fuel consumption)	**0.6**
METER TEMERATURE	85.5
BAROMETRIC PRESSURE	29.89
PRESSURE PSI	116.5
SCFM (corrected fuel consumption)	**5.1**
% O2	7.24
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**63**

RUN 2

TEST TIME IN MINUTES	42
CUBIC FEET MEASURED	25
ACFM (uncorrected fuel consumption)	**0.6**
METER TEMERATURE	89
BAROMETRIC PRESSURE	29.89
PRESSURE PSI	114
SCFM (corrected fuel consumption)	**4.9**
% O2	7.29
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**61**

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	24
ACFM (uncorrected fuel consumption)	**0.6**
METER TEMERATURE	82
BAROMETRIC PRESSURE	29.89
PRESSURE PSI	110.5
SCFM (corrected fuel consumption)	**4.9**
% O2	7.1
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**60**

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 16
DATE : 10-16-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	20
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	47
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	111
SCFM (corrected fuel consumption)	4.4
% O2	7.48
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	55

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	20
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	49
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	113
SCFM (corrected fuel consumption)	4.4
% O2	7.44
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	56

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	19
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	54
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	118
SCFM (corrected fuel consumption)	4.3
% O2	7.52
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	55

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 26
DATE : 10-16-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	9
ACFM (uncorrected fuel consumption)	0.2
METER TEMERATURE	61.5
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	123.5
SCFM (corrected fuel consumption)	2.1
% O2	8.58
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	29

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	10
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	70
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	120.5
SCFM (corrected fuel consumption)	2.3
% O2	8.59
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	31

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	10
ACFM (uncorrected fuel consumption)	0.3
METER TEMERATURE	79
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	117
SCFM (corrected fuel consumption)	2.2
% O2	8.78
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	30

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 46
DATE : 10-16-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	43
CUBIC FEET MEASURED	16
ACFM (uncorrected fuel consumption)	**0.4**
METER TEMERATURE	79
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	118
SCFM (corrected fuel consumption)	**3.2**
% O2	7.35
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**40**

RUN 2

TEST TIME IN MINUTES	45
CUBIC FEET MEASURED	17
ACFM (uncorrected fuel consumption)	**0.4**
METER TEMERATURE	74
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	117
SCFM (corrected fuel consumption)	**3.3**
% O2	7.46
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**41**

RUN 3

TEST TIME IN MINUTES	45
CUBIC FEET MEASURED	18
ACFM (uncorrected fuel consumption)	**0.4**
METER TEMERATURE	71
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	115
SCFM (corrected fuel consumption)	**3.5**
% O2	7.46
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	**43**

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 21
DATE : 10-16-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	18
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	68
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	109.5
SCFM (corrected fuel consumption)	3.7
% O2	6.44
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	44

RUN 2

TEST TIME IN MINUTES	41
CUBIC FEET MEASURED	19
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	66
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	111
SCFM (corrected fuel consumption)	3.9
% O2	6.64
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	46

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	20
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	65
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	113
SCFM (corrected fuel consumption)	4.3
% O2	6.56
F FACTOR @60	8578
CALORIFIC VALUE	941
DSCFM (exhaust flow rate)	51

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : UNION SUGAR 27
DATE : 10-19-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	21
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	49
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	91
SCFM (corrected fuel consumption)	3.9
% O2	7.33
F FACTOR @60	8580
CALORIFIC VALUE	964
DSCFM (exhaust flow rate)	49

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	22
ACFM (uncorrected fuel consumption)	0.6
METER TEMERATURE	55
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	93
SCFM (corrected fuel consumption)	4.1
% O2	7.58
F FACTOR @60	8580
CALORIFIC VALUE	964
DSCFM (exhaust flow rate)	53

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	20
ACFM (uncorrected fuel consumption)	0.5
METER TEMERATURE	65
BAROMETRIC PRESSURE	29.93
PRESSURE PSI	98.5
SCFM (corrected fuel consumption)	3.8
% O2	7.67
F FACTOR @60	8580
CALORIFIC VALUE	964
DSCFM (exhaust flow rate)	50

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 15
DATE : 10-19-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	27
ACFM (uncorrected fuel consumption)	0.7
METER TEMERATURE	76.5
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	99
SCFM (corrected fuel consumption)	5.1
% O2	6.80
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	61

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	28
ACFM (uncorrected fuel consumption)	0.7
METER TEMERATURE	84
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	96
SCFM (corrected fuel consumption)	5.0
% O2	6.96
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	62

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	28
ACFM (uncorrected fuel consumption)	0.7
METER TEMERATURE	86
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	96
SCFM (corrected fuel consumption)	5.0
% O2	7.43
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	64

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : LEROY PINE 14
DATE : 10-19-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	14
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	82
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	93
SCFM (corrected fuel consumption)	2.5
% O2	7.66
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	32

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	15
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	77
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	88.5
SCFM (corrected fuel consumption)	2.5
% O2	8.03
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	34

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	15
ACFM (uncorrected fuel consumption)	0.4
METER TEMERATURE	75
BAROMETRIC PRESSURE	29.92
PRESSURE PSI	87
SCFM (corrected fuel consumption)	2.5
% O2	8.04
F FACTOR @60	8593
CALORIFIC VALUE	953
DSCFM (exhaust flow rate)	34

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : CASMALIA
DATE : 10-20-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	120
ACFM (uncorrected fuel consumption)	**3.0**
METER TEMERATURE	56
BAROMETRIC PRESSURE	29.62
PRESSURE PSI	24
SCFM (corrected fuel consumption)	**7.9**
% O2	7.99
F FACTOR @60	8588
CALORIFIC VALUE	960
DSCFM (exhaust flow rate)	**106**

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	123
ACFM (uncorrected fuel consumption)	**3.1**
METER TEMERATURE	57
BAROMETRIC PRESSURE	29.62
PRESSURE PSI	25
SCFM (corrected fuel consumption)	**8.3**
% O2	8.18
F FACTOR @60	8588
CALORIFIC VALUE	960
DSCFM (exhaust flow rate)	**113**

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	123
ACFM (uncorrected fuel consumption)	**3.1**
METER TEMERATURE	60
BAROMETRIC PRESSURE	29.62
PRESSURE PSI	25
SCFM (corrected fuel consumption)	**8.3**
% O2	8.23
F FACTOR @60	8588
CALORIFIC VALUE	960
DSCFM (exhaust flow rate)	**113**

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 17
DATE : 10-20-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	40
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	82
BAROMETRIC PRESSURE	28.77
PRESSURE PSI	60
SCFM (corrected fuel consumption)	4.8
% O2	11.16
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	85

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	41
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	99
BAROMETRIC PRESSURE	28.77
PRESSURE PSI	61
SCFM (corrected fuel consumption)	4.9
% O2	10.91
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	84

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	42
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	97
BAROMETRIC PRESSURE	28.77
PRESSURE PSI	61
SCFM (corrected fuel consumption)	5.0
% O2	10.81
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	85

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 169
DATE : 10-20-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	49
ACFM (uncorrected fuel consumption)	1.2
METER TEMERATURE	89.5
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	61
SCFM (corrected fuel consumption)	5.9
% O2	8.35
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	81

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	48
ACFM (uncorrected fuel consumption)	1.2
METER TEMERATURE	89
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	62
SCFM (corrected fuel consumption)	5.9
% O2	8.19
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	79

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	50
ACFM (uncorrected fuel consumption)	1.3
METER TEMERATURE	88
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	62
SCFM (corrected fuel consumption)	6.2
% O2	8.45
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	85

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 87
DATE : 10-20-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	44
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	75
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	53
SCFM (corrected fuel consumption)	4.9
% O2	7.51
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	63

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	44
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	70
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	52
SCFM (corrected fuel consumption)	4.9
% O2	7.63
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	63

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	44
ACFM (uncorrected fuel consumption)	1.1
METER TEMERATURE	71
BAROMETRIC PRESSURE	28.97
PRESSURE PSI	53
SCFM (corrected fuel consumption)	4.9
% O2	7.57
F FACTOR @60	8589
CALORIFIC VALUE	954
DSCFM (exhaust flow rate)	63

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : BATTLES WATER PUMP #20
DATE : 11-4-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	39
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	92.5
BAROMETRIC PRESSURE	29.76
PRESSURE PSI	62
SCFM (corrected fuel consumption)	4.8
% O2	10.2
F FACTOR @60	8595
CALORIFIC VALUE	963
DSCFM (exhaust flow rate)	77

RUN 2

TEST TIME IN MINUTES	50
CUBIC FEET MEASURED	49
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	93
BAROMETRIC PRESSURE	29.76
PRESSURE PSI	62
SCFM (corrected fuel consumption)	4.8
% O2	10.2
F FACTOR @60	8595
CALORIFIC VALUE	963
DSCFM (exhaust flow rate)	78

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	39
ACFM (uncorrected fuel consumption)	1.0
METER TEMERATURE	91
BAROMETRIC PRESSURE	29.76
PRESSURE PSI	62
SCFM (corrected fuel consumption)	4.8
% O2	10.2
F FACTOR @60	8595
CALORIFIC VALUE	963
DSCFM (exhaust flow rate)	78

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL CORPORATION
UNIT : CAT CANYON BELL 85
DATE : 11-11-92
REPORT : 086-211

DSCFM CALCULATIONS

RUN 1

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	57
ACFM (uncorrected fuel consumption)	1.4
METER TEMERATURE	64
BAROMETRIC PRESSURE	29.2
PRESSURE PSI	60.5
SCFM (corrected fuel consumption)	7.2
% O2	7.98
F FACTOR @60	8576
CALORIFIC VALUE	947
DSCFM (exhaust flow rate)	95

RUN 2

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	56
ACFM (uncorrected fuel consumption)	1.4
METER TEMERATURE	59
BAROMETRIC PRESSURE	29.09
PRESSURE PSI	61
SCFM (corrected fuel consumption)	7.2
% O2	7.95
F FACTOR @60	8576
CALORIFIC VALUE	947
DSCFM (exhaust flow rate)	94

RUN 3

TEST TIME IN MINUTES	40
CUBIC FEET MEASURED	55.5
ACFM (uncorrected fuel consumption)	1.4
METER TEMERATURE	56
BAROMETRIC PRESSURE	29.09
PRESSURE PSI	62.5
SCFM (corrected fuel consumption)	7.3
% O2	8.56
F FACTOR @60	8576
CALORIFIC VALUE	947
DSCFM (exhaust flow rate)	101

ACFM = CUBIC FEET MEASURED / TIME TEST IN MINUTES
SCFM = ACFM*(520/(460 + METER TEMP))*(((PBAR/2.036) + PSI)/14.7)
DSCFM = SCFM * CALORIFIC VALUE * F FACTOR * O2 CORRECTION

PETRO
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COMPANY : UNOCAL
UNIT : BATTLES GAS PLANT
DATE : 10-13-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 14, 1992
DATE ANALYZED : OCTOBER 15, 1992
DATE REPORTED: OCTOBER 19, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %
CARBON DIOXIDE	7.899	17.796
OXYGEN	0.208	0.340
NITROGEN	1.891	2.712
CARBON MONOXIDE	0.000	0.000
METHANE	83.933	68.935
ETHANE	5.074	7.811
PROPANE	0.820	1.851
ISOBUTANE	0.047	0.140
N-BUTANE	0.089	0.265
ISOPENTANE	0.018	0.067
N-PENTANE	0.013	0.050
HEXANES+	0.008	0.033
TOTALS :	100.000	100.000

CHONS Wt.%	
CARBON	64.68
HYDROGEN	19.33
OXYGEN	13.28
NITROGEN	2.71
SULFUR	0.00
H/C	0.299

SPECIFIC GRAVITY (AIR = 1)	0.6744
SPECIFIC VOLUME, cu.ft./lb.	19.43
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	966.59
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	947.38
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18779.33
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	872.14
NET CALORIFIC VALUE (WET), BTU/cu.ft.	854.81
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9975
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8711
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8580

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

Terry Rowles
Laboratory Manager

Petro Chem Environmental Services, Inc.

PETRO
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3207 Antonino Avenue
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COMPANY : UNOCAL
UNIT : O'DONNEL 2-5
DATE : 10-15-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 16, 1992
DATE ANALYZED : OCTOBER 19, 1992
DATE REPORTED: OCTOBER 19, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	8.901	19.636	CARBON	64.04
OXYGEN	0.205	0.329	HYDROGEN	18.86
NITROGEN	1.778	2.496	OXYGEN	14.61
CARBON MONOXIDE	0.000	0.000	NITROGEN	2.50
			SULFUR	0.00
METHANE	82.432	66.293	H/C	0.294
ETHANE	5.263	7.933		
PROPANE	1.222	2.701		
ISOBUTANE	0.058	0.170		
N-BUTANE	0.105	0.305		
ISOPENTANE	0.018	0.063		
N-PENTANE	0.014	0.049		
HEXANES+	0.006	0.026		
TOTALS :	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.6888
SPECIFIC VOLUME, cu.ft./lb.	19.02
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	965.75
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	946.48
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18372.23
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	871.65
NET CALORIFIC VALUE (WET), BTU/cu.ft.	854.26
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9974
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8722
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8592

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

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PETRO
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COMPANY : UNOCAL
UNIT : SUGAR LEASE
DATE : 10-15-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 14, 1992
DATE ANALYZED : OCTOBER 21, 1992
DATE REPORTED: OCTOBER 22, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	7.804	17.203	CARBON	61.80
OXYGEN	0.958	1.535	HYDROGEN	18.38
NITROGEN	4.112	5.770	OXYGEN	14.04
CARBON MONOXIDE	0.000	0.000	NITROGEN	5.77
			SULFUR	0.00
METHANE	80.866	64.985	H/C	0.297
ETHANE	4.950	7.455		
PROPANE	1.128	2.491		
ISOBUTANE	0.054	0.158		
N-BUTANE	0.096	0.278		
ISOPENTANE	0.016	0.057		
N-PENTANE	0.011	0.041		
HEXANES+	0.006	0.027		
TOTALS :	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.6893
SPECIFIC VOLUME, cu.ft./lb.	19.01
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	941.26
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	922.61
GROSS CALORIFIC VALUE (DRY), BTU/lb.	17893.31
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	849.47
NET CALORIFIC VALUE (WET), BTU/cu.ft.	832.63
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9976
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8709
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8578

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

Terry Rowles
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PETRO
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COMPANY : UNOCAL
UNIT : SUGAR LEASE
DATE : 10-19-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 20, 1992
DATE ANALYZED : OCTOBER 21, 1992
DATE REPORTED: OCTOBER 22, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %
CARBON DIOXIDE	8.174	18.317
OXYGEN	0.301	0.491
NITROGEN	1.896	2.704
CARBON MONOXIDE	0.000	0.000
METHANE	83.472	68.190
ETHANE	5.139	7.868
PROPANE	0.851	1.912
ISOBUTANE	0.050	0.147
N-BUTANE	0.089	0.262
ISOPENTANE	0.014	0.050
N-PENTANE	0.010	0.036
HEXANES+	0.005	0.022
TOTALS :	100.000	100.000

CHONS Wt.%	
CARBON	64.33
HYDROGEN	19.16
OXYGEN	13.81
NITROGEN	2.70
SULFUR	0.00
H/C	0.298

SPECIFIC GRAVITY (AIR = 1)	0.6781
SPECIFIC VOLUME, cu.ft./lb.	19.32
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	963.51
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	944.35
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18619.40
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	869.39
NET CALORIFIC VALUE (WET), BTU/cu.ft.	852.11
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9975
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8711
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8580

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

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COMPANY : UNOCAL
UNIT : LEROY PINE
DATE : 10-19-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 20, 1992
DATE ANALYZED : OCTOBER 21, 1992
DATE REPORTED: OCTOBER 22, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	9.009	19.956	CARBON	63.43
OXYGEN	0.246	0.397	HYDROGEN	18.73
NITROGEN	2.081	2.934	OXYGEN	14.91
CARBON MONOXIDE	0.000	0.000	NITROGEN	2.93
			SULFUR	0.00
METHANE	82.553	66.659	H/C	0.295
ETHANE	5.171	7.827		
PROPANE	0.771	1.712		
ISOBUTANE	0.049	0.144		
N-BUTANE	0.089	0.260		
ISOPENTANE	0.014	0.051		
N-PENTANE	0.010	0.036		
HEXANES+	0.006	0.026		
TOTALS :	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.6860
SPECIFIC VOLUME, cu.ft./lb.	19.10
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	952.83
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	933.87
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18199.94
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	859.75
NET CALORIFIC VALUE (WET), BTU/cu.ft.	842.64
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9975
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8724
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8593

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

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Laboratory Manager

Petro Chem Environmental Services, Inc.

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

COMPANY : UNOCAL
UNIT : CASMALIA COMPRESSOR
DATE : 10-20-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 21, 1992
DATE ANALYZED : OCTOBER 21, 1992
DATE REPORTED: OCTOBER 22, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %
CARBON DIOXIDE	8.821	19.422
OXYGEN	0.379	0.607
NITROGEN	2.166	3.036
CARBON MONOXIDE	0.000	0.000
METHANE	81.555	65.460
ETHANE	6.108	9.189
PROPANE	0.801	1.768
ISOBUTANE	0.050	0.145
N-BUTANE	0.090	0.262
ISOPENTANE	0.014	0.051
N-PENTANE	0.010	0.036
HEXANES+	0.006	0.024
TOTALS :	100.000	100.000

CHONS Wt.%	
CARBON	63.52
HYDROGEN	18.71
OXYGEN	14.73
NITROGEN	3.04
SULFUR	0.00
H/C	0.295

SPECIFIC GRAVITY (AIR = 1)	0.6901
SPECIFIC VOLUME, cu.ft./lb.	18.99
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	960.18
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	941.05
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18230.94
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	866.62
NET CALORIFIC VALUE (WET), BTU/cu.ft.	849.35
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9975
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8719
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8588

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

Terry Rowles
Laboratory Manager

Petro Chem Environmental Services, Inc.

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

COMPANY : UNOCAL
UNIT : CAT CANYON
DATE : 10-20-92
REPORT : 086-211

DATE RECEIVED : OCTOBER 21, 1992
DATE ANALYZED : OCTOBER 21, 1992
DATE REPORTED: OCTOBER 22, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	8.930	19.629	CARBON	63.07
OXYGEN	0.455	0.727	HYDROGEN	18.57
NITROGEN	2.407	3.368	OXYGEN	15.00
CARBON MONOXIDE	0.000	0.000	NITROGEN	3.37
			SULFUR	0.00
METHANE	81.395	65.222	H/C	0.294
ETHANE	5.852	8.789		
PROPANE	0.788	1.735		
ISOBUTANE	0.050	0.144		
N-BUTANE	0.091	0.265		
ISOPENTANE	0.015	0.054		
N-PENTANE	0.011	0.038		
HEXANES+	0.007	0.029		
TOTALS :	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.6913
SPECIFIC VOLUME, cu.ft./lb.	18.95
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	953.82
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	934.82
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18079.57
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	860.82
NET CALORIFIC VALUE (WET), BTU/cu.ft.	843.68
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9975
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8720
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8589

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

Terry Rowles
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SERVICES, INC.

3207 Antonino Avenue
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COMPANY : UNOCAL
UNIT : BATTLES
DATE : 11-4-92
REPORT : 086-221

DATE RECEIVED : NOVEMBER 5, 1992
DATE ANALYZED : NOVEMBER 16, 1992
DATE REPORTED: NOVEMBER 19, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
CARBON DIOXIDE	9.262	20.371	CARBON	63.89
OXYGEN	0.156	0.250	HYDROGEN	18.75
NITROGEN	1.644	2.301	OXYGEN	15.06
CARBON MONOXIDE	0.000	0.000	NITROGEN	2.30
			SULFUR	0.00
METHANE	81.844	65.621	H/C	0.294
ETHANE	6.198	9.314		
PROPANE	0.710	1.565		
ISOBUTANE	0.048	0.140		
N-BUTANE	0.095	0.277		
ISOPENTANE	0.020	0.074		
N-PENTANE	0.015	0.055		
HEXANES+	0.007	0.031		
TOTALS:	100.000	100.000		

SPECIFIC GRAVITY (AIR = 1)	0.6909
SPECIFIC VOLUME, cu.ft./lb.	18.97
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	963.10
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	943.87
GROSS CALORIFIC VALUE (DRY), BTU/lb.	18266.59
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	869.24
NET CALORIFIC VALUE (WET), BTU/cu.ft.	851.89
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9974
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8726
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8595

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

Terry Rowles
Laboratory Manager

Petro Chem Environmental Services, Inc.

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SERVICES, INC.

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

COMPANY : UNOCAL
UNIT : CAT CANYON, BELL 85
DATE : 11-10-92
REPORT : 086-222

DATE RECEIVED : NOVEMBER 11, 1992
DATE ANALYZED : NOVEMBER 16, 1992
DATE REPORTED: NOVEMBER 19, 1992

FUEL GAS ANALYSIS

CONSTITUENT	MOLE %	WT. %
CARBON DIOXIDE	7.725	16.957
OXYGEN	1.011	1.614
NITROGEN	4.104	5.735
CARBON MONOXIDE	0.000	0.000
METHANE	80.280	64.235
ETHANE	5.502	8.251
PROPANE	1.168	2.568
ISOBUTANE	0.062	0.180
N-BUTANE	0.108	0.313
ISOPENTANE	0.020	0.073
N-PENTANE	0.015	0.053
HEXANES+	0.005	0.021
TOTALS:	100.000	100.000

CHONS Wt.%	
CARBON	61.94
HYDROGEN	18.38
OXYGEN	13.94
NITROGEN	5.73
SULFUR	0.00
H/C	0.297

SPECIFIC GRAVITY (AIR = 1)	0.6923
SPECIFIC VOLUME, cu.ft./lb.	18.93
GROSS CALORIFIC VALUE (DRY), BTU/cu.ft.	947.06
GROSS CALORIFIC VALUE (WET), BTU/cu.ft.	928.27
GROSS CALORIFIC VALUE (DRY), BTU/lb.	17925.92
NET CALORIFIC VALUE (DRY), BTU/cu.ft.	854.87
NET CALORIFIC VALUE (WET), BTU/cu.ft.	837.90
COMPRESSABILITY FACTOR "Z" @ 60° F, 1 ATM	0.9976
EPA "F" FACTOR @ 68° F (DSCF/MM BTU)	8706
EPA "F" FACTOR @ 60° F (DSCF/MM BTU)	8576

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

Terry Rowles
Laboratory Manager

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL BATILES / WATER PUMPS
UNIT : UNIT 19121
DATE : 10-13-92
REPORT : 1586-211

OPERATIONAL DATA

	Run 1	Run 2	Run 3	19 21	Run 1		
TIME IN MINUTES	7:33	8:20	9:05	9:54	10:49	11:35	
START ft³ measured	98049	98136	98182	98228	98288	98337	
END ft³ measured	98130	98177	98223	98271	98331	98381	
TOTAL ft³ measured	41	41	41	43	43	44	
meter temp	60°	60°	61	61	63	63	65	66	65	65	67
Bar	29.71	29.71	29.71	29.75	29.75	29.75	
pressure "Hg	69	69	69	68	68	69	69	69	69	69	69
%O2	8.68	8.68	8.72	10.85	11.23	11.63	

COMPANY : UNOCAL BATTLES / COOLING FANS
UNIT : UNIT 2324
DATE : 10-13-92
REPORT : 086-211

OPERATIONAL DATA

	23	23	23	24 42min		
TIME	1231	1320	1405	1455	1539	1624
ft³ measured start	98389	98408	98426	98444	98457	98482
ft³ END	98405	98424	98442	98456	98469	98470
meter temp	68 67	67 67	67 67	67 68	68 68	68 67
Pressure	69 69	69 69	69 69	69 69	69 69	69 69
total ft³	16	16	16	12	12	12
Pbar	29.75	29.75	29.75	29.75	29.75	29.75
O2 %	11.66	11.97	10.85	8.52	8.59	8.53

22 23 23

COMPANY : UNOCAL BAFFLES/COOLING FANS
UNIT : 25.26
DATE : 10-14-92
REPORT : 086-210

OPERATIONAL DATA

	25	25	25	26	26	26
TIME	7:34	820	905	954	1043	1129
START CF MEASURED	98496	98511	98524.5	98540	98553	98565
END CF measured	98509	98522.5	98537	98550.5	98635	98576
Meter temp	63 63	63 65	65 67	67 67	67 67	68 70
Barometric pressure	29.72	29.72	29.72	29.72	29.72	29.72
total cf	13	11.5	12.5	10.5	10.5	11
pressure	68 68	68 68	68 69	69 68	68 69	69 68
O_2%	9.24	9.12	9.16	7.28	7.04	6.95
	27	23				

COMPANY : DNXCAL BATTLES / COOLING TOWERS
UNIT : 13, 14
DATE : 5-14-92
REPORT : 86-211

OPERATIONAL DATA

	13	13	13	14	14	14
TIME	1242	1338	12131	1530	1630	1720
CF START	98597	98643	98686	98748	98899	99022
CF END	98630	98675.5	98719	98849	99997	99122
CF TOTAL	33	32.5	33	101	98	100
METER TEMP	74 77	77 79	79 79	80 82	82 81	81 80
Pbar	29.72	29.72	29.72	29.72	29.72	29.72
Pressure	68 67	67 68	67 68	67 66	66 67	67 67
O_2	11.90	11.66	11.71	7.78	7.74	7.86

99207 7.15 67 67 99258 67 67 42 min 815 99279 67 67

SANTA MARIA VALLEY
O DONNELL 2-5

COMPANY : UNOCAL
UNIT : 15 ODONNELL 2-5
DATE : 10-15-92
REPORT : 86-211

OPERATIONAL DATA 42

	15	15	15	2-5	2-5	2-5
TIME	7:15	8:15	9:07	1124 R16	1222	1307
CF START	99207	99279	99343	99411	99439	99461
CF END	99258	99328	99391	99436	99459	99480
CF TOTAL	51	49	48	25	20	19
METER TEMP	67 67	67 67	69 72	67 71	71 75	75 77
Pbar	29.89	29.89	29.89	29.89	29.89	29.89
Pressure	67 67	67 69	68 67	127 126	126 127	127 126
O2	7.27	7.02	6.97	7.97	7.71	7.52

Petro Chem Environmental Services, Inc.

SANTA MARIA VALLEY
UNION SUGAR #7

COMPANY : UNOCAL
UNIT : UNION SUGAR 7
DATE : 10-15-92
REPORT : 086-211

OPERATIONAL DATA

42 MIN

TIME	1425	1512	1601			
CF START	09490	99518	99547			
CF END	99514	99543	99571			
CF TOTAL	24	25	24			
METER TEMP	82 89	89 88	88 75			
Pbar	29.89	29.89	29.89			
Pressure	119 114	114 114	114 107			
O_2	7.24	7.29	7.10			
	64	62	61			

UNION SUGAR #16

COMPANY : UNOCAL SUGAR
UNIT : 16
DATE : 10-16-92
REPORT : 086-211

Union Sugar #26

OPERATIONAL DATA

	16	16	16	26	26	26
TIME	6:57	743	831	9:40	1027	1113
GF START	99596	99625	99644	99665	99676	99687
GF END	99616	99640	99663	99674	99686	99697
GF TOTAL	20	20	19	9	10	10
METER TEMP	47 47	47 51	52 55	60 63	64 75	76 81
DDAC	29.93	29.93	29.93	29.93	29.93	29.93
Pressure	111 111	111 115	115 121	121 126	125 116	117 117
O_2	7.48	7.44	7.57	8.58	8.59	8.78
	56	57	5[illegible]			

Petro Chem Environmental Services, Inc.

UNION SUGAR

COMPANY : UNOCAL #46
UNIT : UNIT 46-21 #21
DATE : 10-16-92
REPORT : 086-211

OPERATIONAL DATA

	46 43min	21 45min	21 45min		21 41	21
TIME	1230	1320	1412	1521	1607	1655
START OF	99755	99724	99744	99769	99790	99812
END OF	99721	99741	99762	99757	99809	99832
TOTAL OF	16	17	18	18	19	20
METER TEMP	63 75	75 73	72 70	70 66	66 65	65 65
P BAR	29.93	29.93	29.93	29.93	29.93	29.93
PRESSURE	118 117	117 117	118 112	108 111	111 111	112 114
O2	7.35	7.47	7.45	6.43	6.64	6.62

Petro Chem Environmental Services, Inc.

UNION SUGAR #27

LEROY PINE #15

COMPANY : UNOCAL
UNIT : SUGAR 27, PINE 15
DATE : 10-19-92
REPORT : 02-311

OPERATIONAL DATA

	27	27	27	PINE 15		
TIME	718	807	853	1010	1058	1145
START CF	99850	99886	99911	99935	99968	100001
END CF	99881	99908	99931	99962	99996	100029
TOTAL CF	21	22	20	27	28	28
METER TEMP	49 49	51 59	61 68	71 82	83 84	85 87
PBAR	29.92	29.92	29.92	29.92	29.92	29.92
PRESSURE	90 91	91 95	96 101	102 96	95 97	95 97
O2	7.33	7.58	7.67	6.84	6.96	7.40

LEROY PINE #14

COMPANY : UNOCAL
UNIT : LEROY PINE 14
DATE : 10-19-92
REPORT : 086-211

OPERATIONAL DATA

14

TIME	1253	1339	1425			
START CF	100046	100062	100080			
END CF	100060	100077	100095			
TOTAL CF	14	15	15			
METER	84 80	80 73	74 75			
Pbar	29.92	29.92	29.92			
Pressure	96 90	90 87	86 87			
O_2	7.68	8.04	8.04			
	32	34	34			

((59)(20.9-12))

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL
UNIT : CASMALIA COMPRESSOR BELL 17
DATE : 10-20-92
REPORT : 086-211

CASMALIA
COMPRESSOR
CAT CANYON
BELL #17

OPERATIONAL DATA

	CAS	CAS	CAS	BELL 17	17	17
TIME	719	806	852	1046	1133	1222
START CF	100284	100425	100567	100708	100755	100805
END CF	100404	100548	100690	100748	100796	100847
TOTAL CF	120	123	123	40	41	42
METER	55 56	57 57	58 62	74 90	102 96	97 97
BBAR	29.62	29.62	29.62	28.77	28.77	28.77
DPRESSURE	24 24	24 25	25 25	60 60	60 61	61 61
O2	8.00	8.22	8.20	11.16	10.91	10.98

CAT CANYON

COMPANY : Unocal
UNIT : Bell 169, 87
DATE : 10-20-92
REPORT : 086-211

BELL #169 & #87

OPERATIONAL DATA

	169	169	169	87	87	87
TIME	1331	1418	1505	1618	1705	1751
START CF	100864	100921	100977	101045	101097	101148
END CF	100913	100969	101027	101089	101141	101192
TOTAL CF	49	48	50	44	44	44
METER	91 89	88 89	89 87	80 70	69 70	70 72
DBAP	28.97	28.97	28.97	28.97	28.97	28.97
PRESSURE	60 62	62 62	62 62	53 52	52 52	52 53
O_2	8.23	8.20	8.49	7.51	7.63	7.57
				62	63	

Petro Chem Environmental Services, Inc.

COMPANY : UNOCAL
LOCATION : BATTLES GAS PLANT
UNIT : #20 Waukesha
DATE : 11-4-92
REPORT : ~~000~~ 086-221

FUEL FLOW DATA

RUN #1 P-BAR 29.76

TIME	READING	TEMP	PRESSURE
0:00	1232595	92	62
40:00	1232634	93	62
	39.0		
		ACFM =	0.98

RUN #2

TIME	READING	TEMP	PRESSURE
0:00	1232634	93	62
50:00	1232683	93	62
	49.0		
		ACFM =	0.98

RUN #3

TIME	READING	TEMP	PRESSURE
0:00	1232683	93	62
40:00	1232722	88	62
	39.0		
		ACFM =	0.98

COMPANY : Unocal
UNIT : PSC's
DATE : 11-10-92
REPORT : 086-222

OPERATIONAL DATA

	UNIT	HRS	RUN	PSC ON	PSC OFF	NO2	PPM NOx	lb/hr	DSCFM	Ohm	METER START	METER STOP	TEMP	PSI
	CAT CANYON 5	1508	1		X	2.14	872	.324	59	29.45	115669	115726	70/70	61/61
	CAT CAN 5	11508	2		X	2.84	851	.415	67	29.39	115732	115788	70/73	61/62
41	CAT CANYON 5	11508	3		X	2.98	891	.447	69	29.40	115796	115855	73/77	62/60
								.412 - .020 = .392 Reduction						
	CAT CANYON 2	11493	1	X		9.07	25	.021	119	29.38	115873	115944	77/80	60/60
	CAT CANYON 2	11493	2	X		8.77	23	.019	115	29.36	115953	116020	80/83	60/60
	CAT CANYON 2	11493	3	X		9.29	22	.019	119	29.35	116030	116097	85/87	60/60
	CAT CANYON 2	11493	1		X	1.93	910	.477	72	29.35	116116	116182	84/83	60/60
	CAT CANYON 2	11493	2		X	1.74	953	.506	73	29.34	116188	116255	83/83	60/60
	CAT CANYON 2	11493	3		X	1.15	1023	.528	71	29.34	116284	116331	83/79	60/60
								.504 - .020 = .484 Reduction						
	Bell 85		1			7.98	413		96	29.2	116411	116468	66/62	60/61
	Bell 85		2			7.95	443		94	29.09	116456	116512	60/57	61/62
	Bell 85		3			5.56	475		101	29.09	116557	116612	56/55	62/63

213 885-2154
FAX # 213 885-0882

LIQUID CARBONIC

SPECIALTY GAS CORPORATION
5700 SOUTH ALAMEDA STREET • LOS ANGELES, CALIFORNIA 90058

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PETRO-CHEM

P.O NUMBER 1690

REFERENCE STANDARD

COMPONENT		NIST SRM NO.	CYLINDER NO.	CONCENTRATION
NITRIC OXIDE	GMIS	vs 1687b	SGAL 2874	944 ppm
CARBON MONOXIDE	GMIS	vs 1680b	SGAL 2540	948 ppm
SULFUR DIOXIDE	GMIS	vs 1662a	SGAL 2810	999 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT NITRIC OXIDE GMIS ANALYZER MAKE-MODEL-S/N Beckman 951A S/N 0101354
   ANALYTICAL PRINCIPLE Chemiluminescence LAST CALIBRATION DATE 03/05/92
   FIRST ANALYSIS DATE 03/02/92 SECOND ANALYSIS DATE 03/11/92

Z 0.0	R 76.1	C 62.4	CONC. 774 ppm	Z 0.0	R 94.4	C 77.5	CONC. 775 ppm
R 76.1	Z 0.0	C 62.4	CONC. 774 ppm	R 94.4	Z 0.0	C 77.6	CONC. 776 ppm
Z 0.0	C 62.4	R 76.1	CONC. 774 ppm	Z 0.0	C 77.6	R 94.4	CONC. 776 ppm
U/M mV		MEAN TEST ASSAY	774 ppm	U/M mV		MEAN TEST ASSAY	776 ppm

2. COMPONENT CARBON MONOXIDE GMIS ANALYZER MAKE-MODEL-S/N Siemens Ultramat 5E S/N A12-729
   ANALYTICAL PRINCIPLE NDIR LAST CALIBRATION DATE 03/06/92
   FIRST ANALYSIS DATE 03/02/92 SECOND ANALYSIS DATE 03/11/92

Z 0	R 948	C 788	CONC. 788 ppm	Z 0	R 948	C 790	CONC. 790 ppm
R 948	Z 0	C 788	CONC. 788 ppm	R 948	Z 0	C 786	CONC. 786 ppm
Z 0	C 788	R 948	CONC. 788 ppm	Z 0	C 788	R 948	CONC. 788 ppm
U/M ppm		MEAN TEST ASSAY	788 ppm	U/M ppm		MEAN TEST ASSAY	788 ppm

3. COMPONENT SULFUR DIOXIDE GMIS ANALYZER MAKE-MODEL-S/N Siemens Ultramat 5E S/N C1-009
   ANALYTICAL PRINCIPLE NDIR LAST CALIBRATION DATE 02/11/92
   FIRST ANALYSIS DATE 03/02/92 SECOND ANALYSIS DATE 03/11/92

Z 0	R 1000	C 776	CONC. 775 ppm	Z 0	R 998	C 774	CONC. 775 ppm
R 1000	Z 0	C 776	CONC. 775 ppm	R 998	Z 0	C 774	CONC. 775 ppm
Z 0	C 776	R 1000	CONC. 775 ppm	Z 0	C 774	R 998	CONC. 775 ppm
U/M ppm		MEAN TEST ASSAY	775 ppm	U/M ppm		MEAN TEST ASSAY	775 ppm

THIS CYLINDER NO. SA 3027
HAS BEEN CERTIFIED ACCORDING TO SECTION 3.0.4
OF TRACEABILITY PROTOCOL NO. 1
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 1650 PSIG
CERTIFICATION DATE 03/11/92
EXPIRATION DATE 09/11/92

CERTIFIED CONCENTRATION

NITRIC OXIDE	775 ppm
CARBON MONOXIDE	788 ppm
SULFUR DIOXIDE	775 ppm
NITROGEN	BALANCE
NOx	780 ppm

ANALYZED BY DOUG GRANT

CERTIFIED BY KWAN YOUNG

AIRCO

481593

Airco Special 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 Supply (Bakersfield, CA)
CYLINDER #: CC-107736 CERTIFICATION DATE: 4/15/92
CYLINDER PRESSURE: 1650 psig EXPIRATION DATE: 10/15/93
LABORATORY: Riverton, NJ REFERENCE #: 21275

MIXTURE COMPONENTS	ACTUAL MIXTURE CONCENTRATION	AIRCO INTERMEDIATE STANDARD CYLINDER #	CONC.	NIST SRM#
Nitric Oxide	39.3 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: 4/1/92

COMPONENT 2 GAS ANALYSIS PROCEDURE Non-Dispersive Infrared
MAKE/MODEL/SER#: Horiba, CO/Analyzer, 56255601
LAST MULTIPOINT CALIBRATION DATE: 4/1/92
R=REFERENCE STANDARD Z=ZERO GAS S=SAMPLE GAS

1ST COMPONENT Nitric Oxide
1ST ANALYSIS: DATE 4/8/92 ANALYST A. Lattanze

1) Z 0000	R 4350	S 3420	CONC (1)	39.2 ppm
2) R 4390	Z 0000	S 3440	CONC (2)	39.0 ppm
3) R 4390	S 3440	Z 0000	CONC (3)	39.0 ppm
			AVE CONC	39.1 ppm

2ND ANALYSIS: DATE 4/15/92 ANALYST A. Lattanze

1) Z 0000	R 4350	S 3440	CONC (1)	39.4 ppm
2) R 4350	Z 0000	S 3440	CONC (2)	39.4 ppm
3) R 4350	S 3440	Z 0000	CONC (3)	39.4ppm
			AVE CONC	39.4 ppm

2ND COMPONENT Carbon Monoxide
1ST ANALYSIS: DATE 4/8/92 ANALYST A. Lattanze

1) Z 000	R 488	S 391	CONC (1)	39.9 ppm
2) R 488	Z 000	S 391	CONC (2)	39.9 ppm
3) R 488	S 391	Z 000	CONC (3)	39.9 ppm
			AVE CONC	39.9 ppm

2ND ANALYSIS: DATE 4/15/92 ANALYST A. Lattanze

1) Z 000	R 492	S 393	CONC (1)	39.8 ppm
2) R 492	Z 000	S 393	CONC (2)	39.8 ppm
3) R 492	S 393	Z 000	CONC (3)	39.8 ppm
			AVE CONC	39.8 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 = 39.3 ppm; Carbon Monoxide 39.9 ppm; Nitrogen = Balance

APPROVED BY J. Lova
LABORATORY MANAGER

A member of The BOC Group

Petro Chem Environmental Services, Inc.

AIRCO

481598

Airco Special 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 MIXTURE

CUSTOMER: Bakersfield Welding Supply (Bakersfield, CA)

CYLINDER #: CC-6049
CYLINDER PRESSURE: 1000 psig
LABORATORY: Riverton, NJ

CERTIFICATION DATE: 4/20/92
EXPIRATION DATE: 10/20/93
REFERENCE #: 21260

MIXTURE COMPONENT	ACTUAL MIXTURE CONCENTRATION	AIRCO INTERMEDIATE STANDARD CYLINDER #	CONC.	NIST SRM#
Carbon Monoxide	805 ppm	CC-55744	805 ppm	1681A

BALANCE GAS: Nitric Oxide; Sulfur Dioxide; Nitrogen

GAS ANALYZER:
MAKE: Beckman MODEL: 866 SERIAL#: 1000049
PRINCIPAL: Non-Dispersive Infrared
LAST MULTIPOINT CALIBRATION DATE: 4/1/92

R=REFERENCE STANDARD Z=ZERO GAS S=SAMPLE GAS

1ST ANALYSIS: DATE 4/13/92 ANALYST A. Lattanze

1) Z 000	R 881	S 880	CONC (1)	804 ppm
2) R 881	Z 000	S 880	CONC (2)	804 ppm
3) R 881	S 880	Z 000	CONC (3)	804 ppm
			AVE CONC	804 ppm

2ND ANALYSIS: DATE 4/20/92 ANALYST A. Lattanze

1) Z 000	R 865	S 865	CONC (1)	805 ppm
2) R 865	Z 000	S 865	CONC (2)	805 ppm
3) R 865	S 865	Z 000	CONC (3)	805 ppm
			AVE CONC	805 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: Carbon Monoxide = 805ppm; Nitric Oxide = 801 ppm; Sulfur Dioxide = 779ppm; Nitrogen = Balance

APPROVED BY J. Long
LABORATORY MANAGER

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.

Scott Specialty Gases, Inc.

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

2600 CAJON BLVD., SAN BERNARDINO, CA 92411

Shipped From: Scott SAN BERNARDINO, CA
Date Shipped 09/23/92
Our Project No: 21699
Your P.O. No: 2341
Page 1 of 1
Expiration Date: 3/93
RECERTIFICATION

PETRO CHEM ENV SERVICES
3207 ANTONINO AVENUE
BAKERSFIEDL CA

CERTIFICATE OF ANALYSIS – EPA PROTOCOL GASES

Certified Per Traceability Protocol No. 1 Procedure No. G1 Cylinder No. ALM011747 Cylinder Pressure 1550 PSIG Certified Accuracy ±1% % NIST Traceable

COMPONENTS	CERTIFIED CONC	REFERENCE STD SRM/CRM NO.	REFERENCE STD CYL. NO.	REFERENCE STD CONC.	GAS ANALYZER MAKE/MODEL/SERIAL NO.	GAS ANALYZER LAST CAL. DATE	GAS ANALYZER ANALYTICAL PRINCIPLE
NITRIC OXIDE	403.5 PPM	GMIS TRACEABLE TO SRM1686B	AAL8564	480.2 PPM	THERMO-ELECTRON 10AR 14853-150	07/23/92	CHEMI-LUMINESCENT
NOX	415.2 PPM						
CARBON MONOXIDE	420.9 PPM	CRM1680	ALM013394	475.0 PPM	HORIBA AIA-24 4564403	06/03/92	INFRA-RED

BALANCE GAS NITROGEN

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

Component NITRIC OXIDE
First Analysis Date 09/16/92 Units mv

Z 0.00	R 48.56	T 40.77
R 48.55	Z 0.02	T 40.85
Z 0.03	T 40.79	R 48.58

Mean Test Assay 403.5 PPM

Second Analysis Date ____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay ____

Component CARBON MONOXIDE
Date 09/16/92 Units mv

Z 00.00	R 93.0	T 84.2
R 93.0	Z 00.01	T 84.2
Z 00.02	T 84.2	R 93.0

Mean Test Assay 420.9 PPM

Date ____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay ____

Component ____
Date ____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay ____

Date ____ Units mv

Z	R	T
R	Z	T
Z	T	R

Mean Test Assay ____

Chronology: Date 01/15/92
Assay NO = 399.8 PPM
NOX = 409.5 PPM
CO = 420.1 PPM

Analyst G. KING/M. JOHNSON

Approved By: [signature]
A.F. LANGE, Ph.D., MANAGER, QA

Petro Chem Environmental Services, Inc.

UNOCAL
10/13/92 REPORT # 086-211
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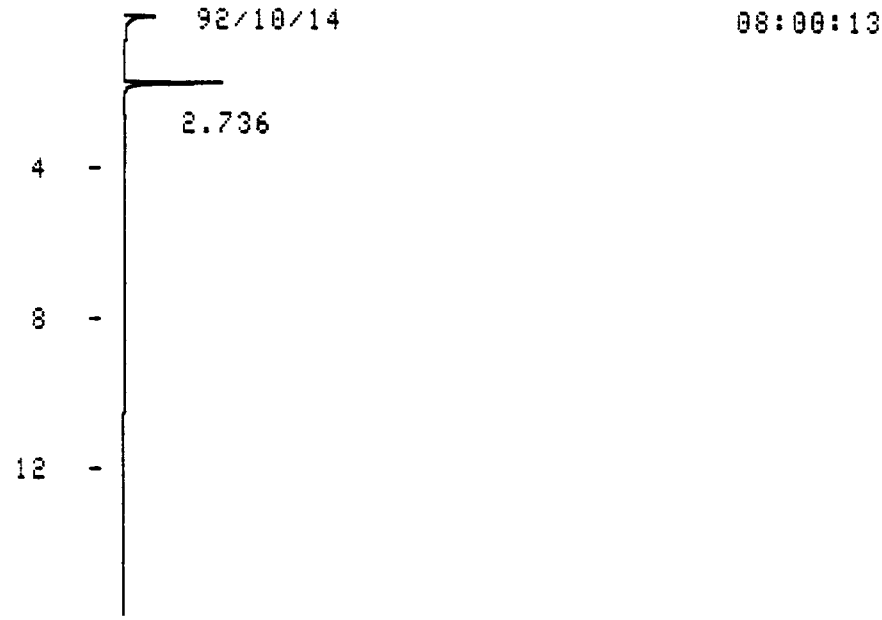

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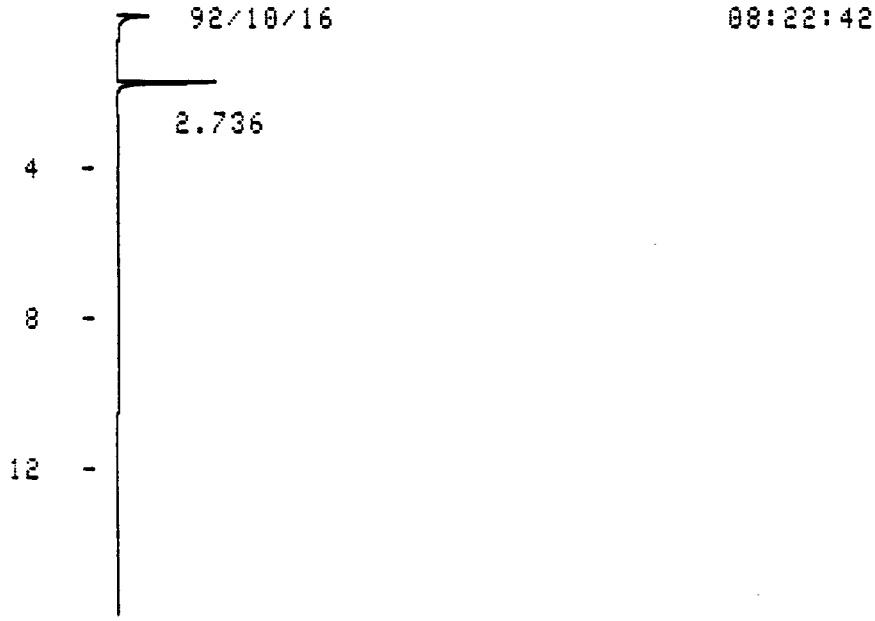

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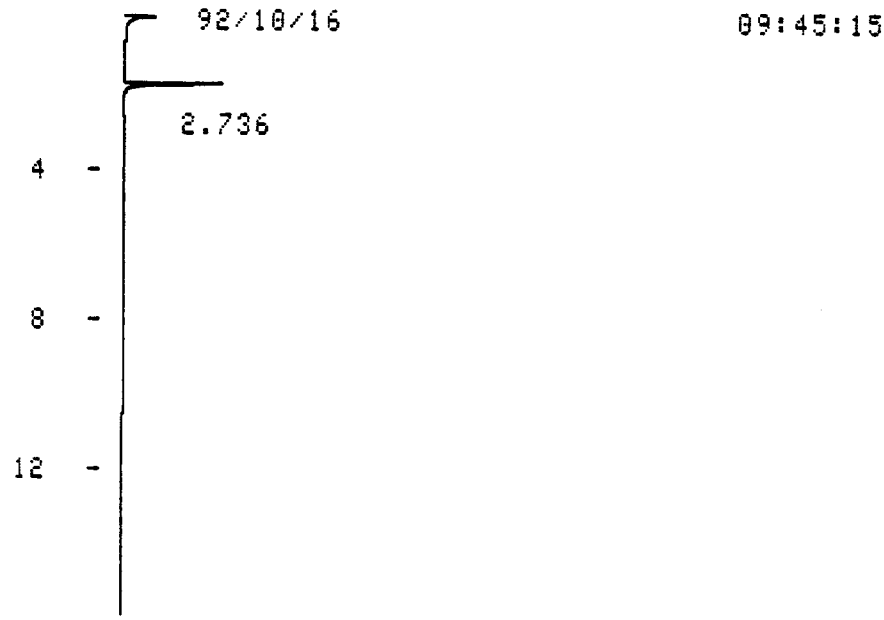

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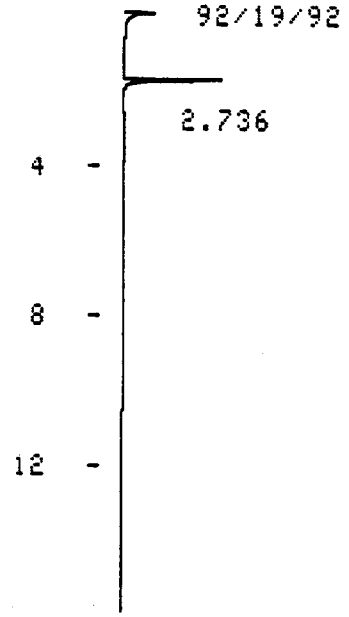

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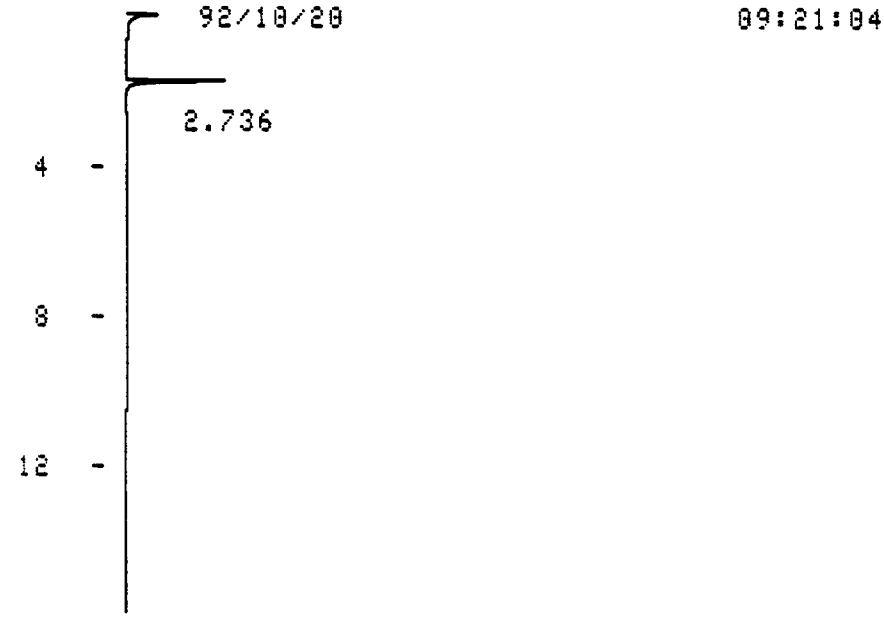

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10-20-92 REPORT # 086-211
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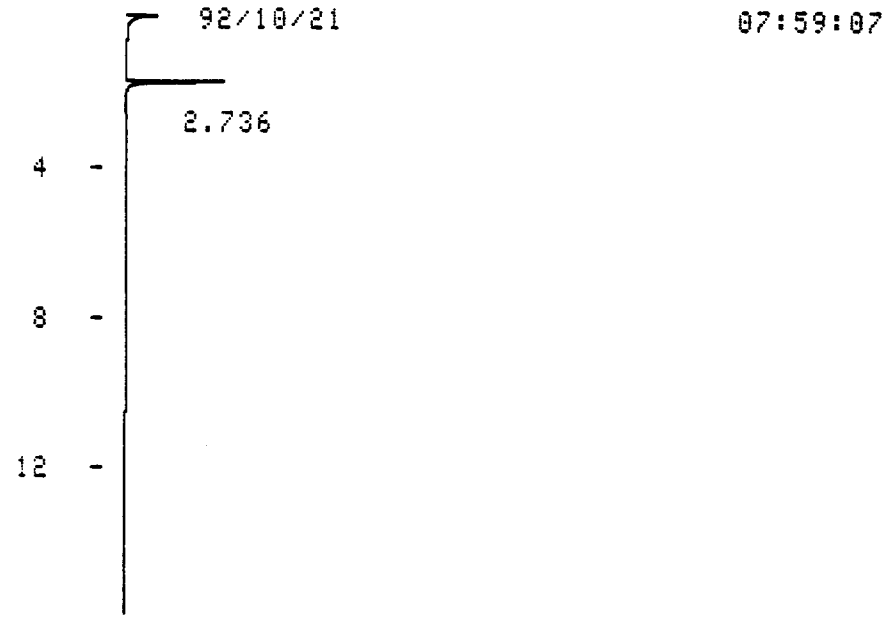

WARNING NO PEAK

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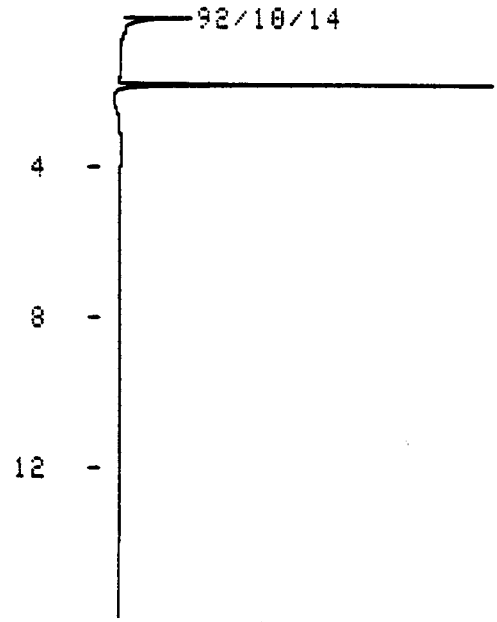
UHP NITROGEN



WARNING NO PEAK

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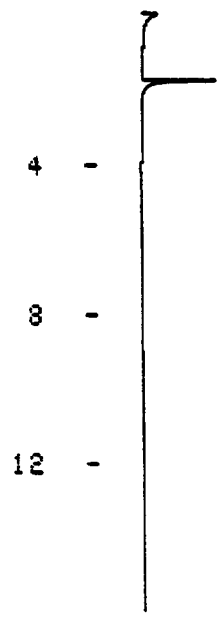
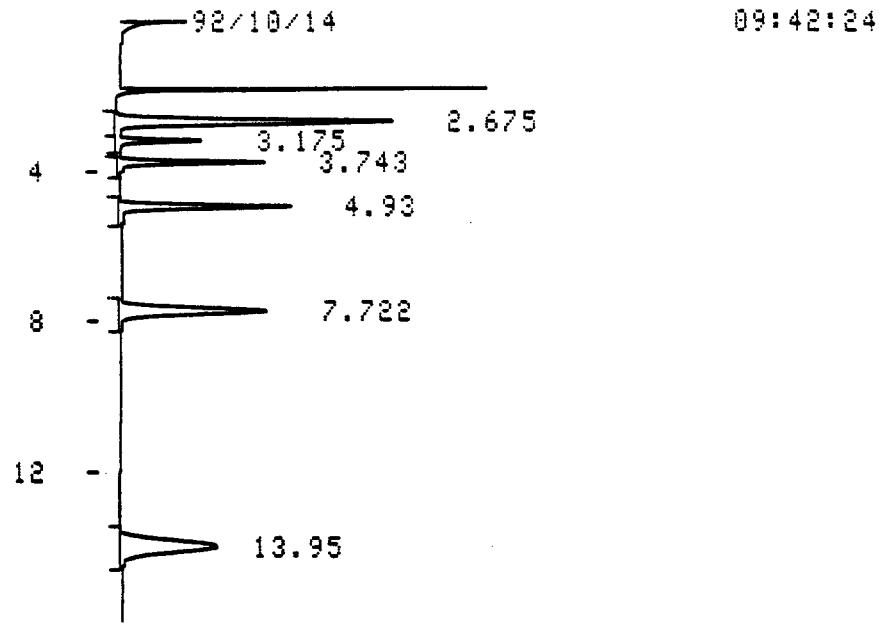


CHROMATOGRAM 3 MEMORIZED
WARNING NO PEAK

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1



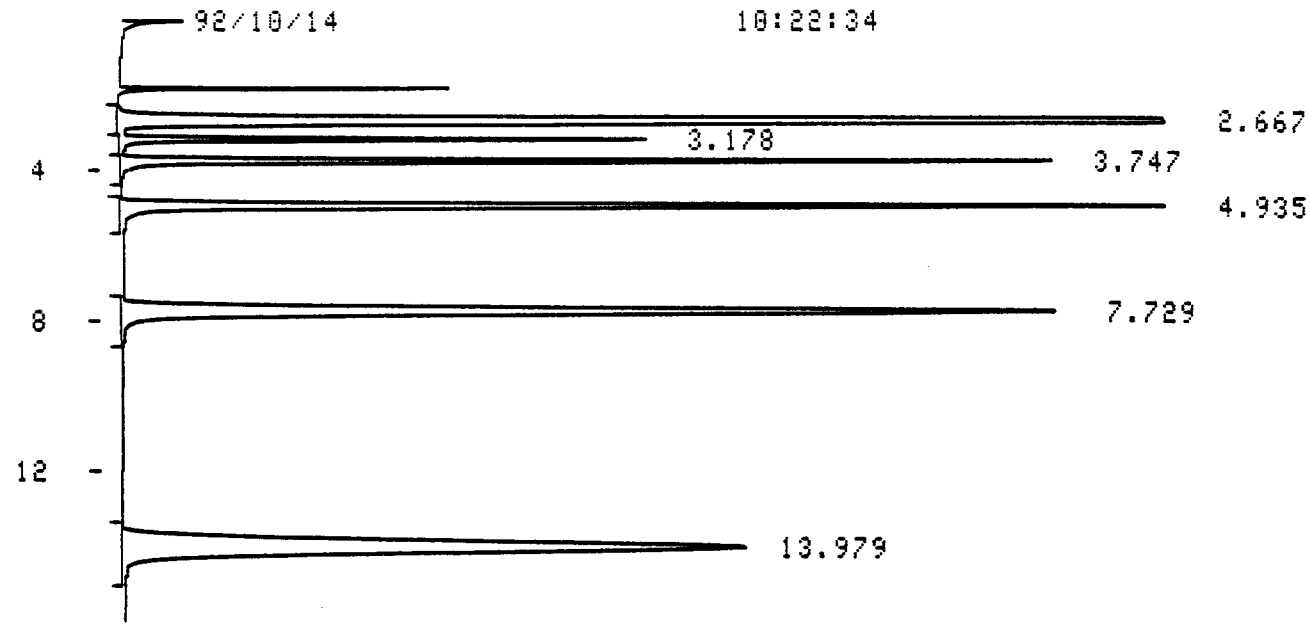
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.675	21009		6		C-6+
2	3.175	3746	V	1		C-1
3	3.743	7292		2		C-2
4	4.93	10830		3		C-3
5	7.722	14238		4		C-4
6	13.95	16978		5		C-5

	TOTAL	74093				

CALIBRATION MADE IN IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.16	0.00440487	16.5
2	C-2	3.73	0.00226288	16.5
3	C-3	4.92	0.0015235	16.5
4	C-4	7.7	0.00115889	16.5
5	C-5	13.91	0.000871727	14.8
6	C-6+	2.67	0.00072349	15.2
7	C-2	3.83	0.00226288	16.5
8	C-3	4.58	0.0015235	16.5
9	C-4	6.04	0.00115889	16.5
10	C-4	7.02	0.00115889	16.5
11	C-5	10.24	0.00072349	14.8
12	C-5	10.59	0.00072349	14.8
13	C-5	12.73	0.00072349	14.8
14	C-5	13.17	0.00072349	14.8
15	C-5	15.43	0.00072349	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



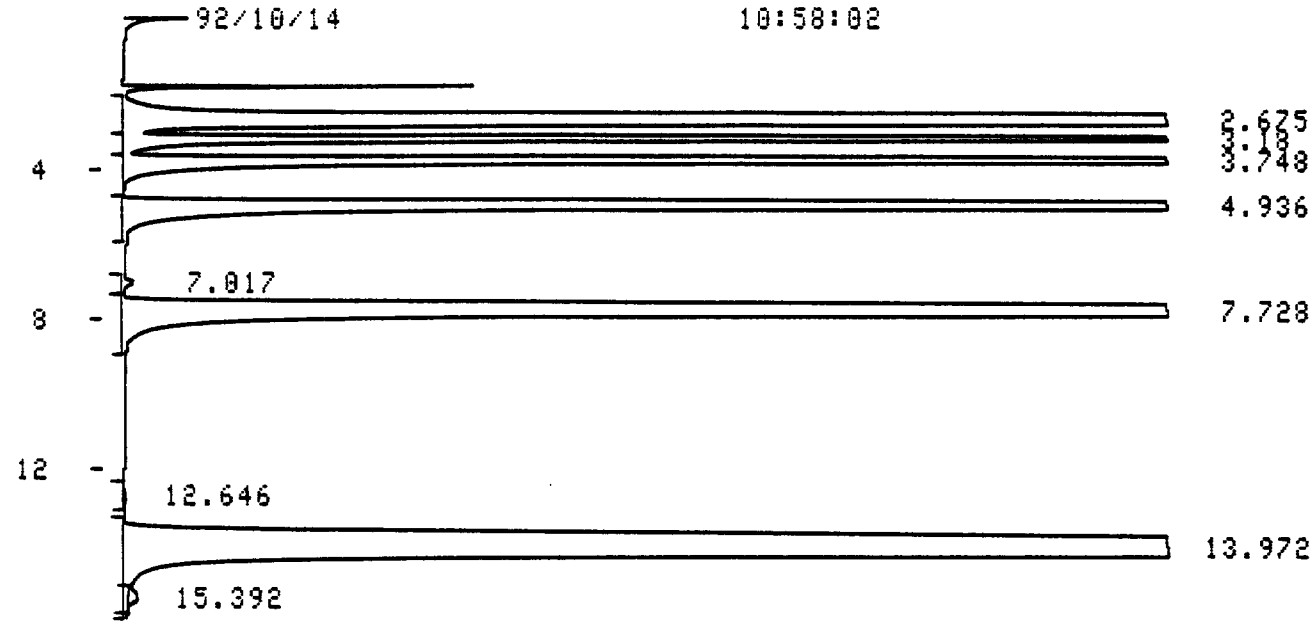
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.667	135995		6		C-6+
2	3.178	23048	V	1		C-1
3	3.747	45643		2		C-2
4	4.935	67853		3		C-3
5	7.729	89609		4		C-4
6	13.979	106613		5		C-5

	TOTAL	468761				

CALIBRATION MADE IN IDENTIFICATION FILE 1
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.16	0.00438212	101
2	C-2	3.73	0.0022128	101
3	C-3	4.92	0.00147378	100
4	C-4	7.71	0.00112711	101
5	C-5	13.96	0.000929532	99.1
6	C-6+	2.66	0.000735323	100
7	C-2	3.81	0.0022128	101
8	C-3	4.59	0.00147378	100
9	C-4	6.04	0.00112711	101
10	C-4	7	0.00112711	101
11	C-5	10.21	0.000929532	101
12	C-5	10.59	0.000929532	99.1
13	C-5	12.77	0.000929532	99.1
14	C-5	13.27	0.000929532	99.1
15	C-5	15.49	0.000929532	99.1

1000PPM HYDROCARBON STANDARD
SCOTTY CAN MIX 224



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.675	1406648		6		C-6+
2	3.18	236983	V	1		C-1
3	3.748	470003	V	2		C-2
4	4.936	695693		3		C-3
5	7.017	1012		10		C-4
6	7.728	920883		4		C-4
7	12.646	823		13		C-5
8	13.972	1127708	S	5		C-5
9	15.392	1474	T	15		C-5

	TOTAL	4861227				

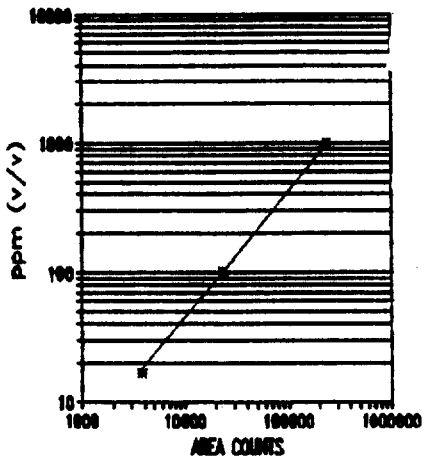
IDENTIFICATION FILE 2
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.18	0.0042197	1000
2	C-2	3.74	0.00219147	1030
3	C-3	4.92	0.00143741	1000
4	C-4	7.71	0.00109677	1010
5	C-5	13.95	0.000904489	1020
6	C-6+	2.67	0.000714465	1005
7	C-2	3.81	0.00219147	1030
8	C-3	4.52	0.00143741	1000
9	C-4	5.94	0.00109677	1010
10	C-4	7	0.00109677	1010
11	C-5	10.21	0.000904489	1020
12	C-5	10.59	0.000904489	1020
13	C-5	12.63	0.000904489	1020
14	C-5	13.27	0.000904489	1020
15	C-5	15.37	0.000904489	1020

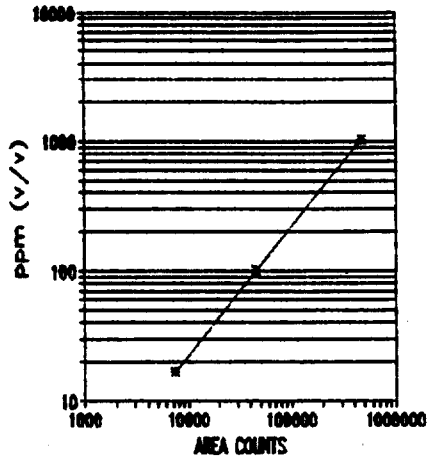
COMPANY : UNOCAL
UNIT : VARIOUS
DATE : 10-13-92
REPORT : 086-211

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 10-14-92

METHANE
CALIBRATION LINEARITY



ETHANE
CALIBRATION LINEARITY



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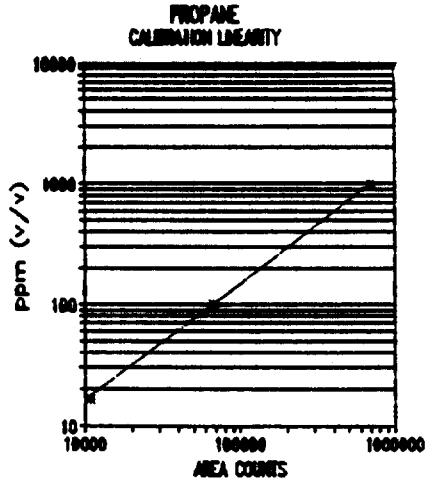
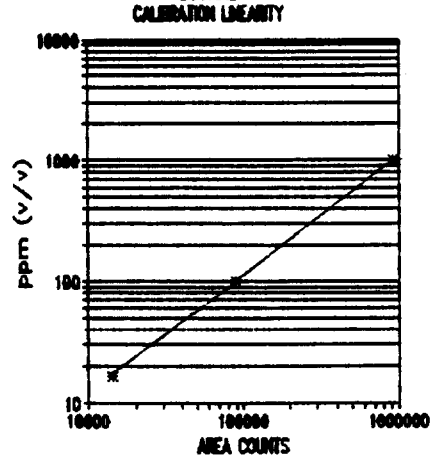
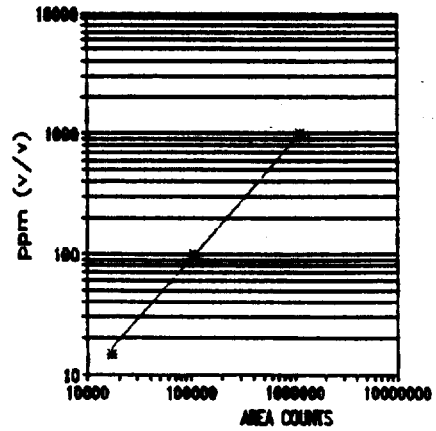
CALIBRATION LINEARITY



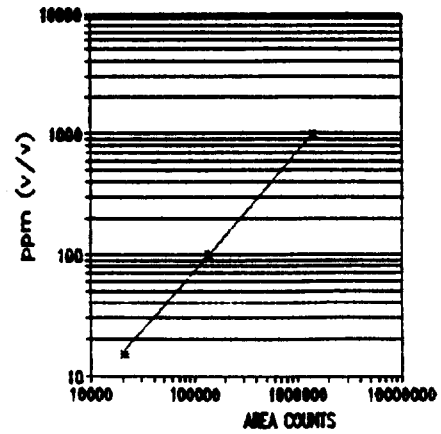
BUTANE
CALIBRATION LINEARITY



PENTANE
CALIBRATION LINEARITY

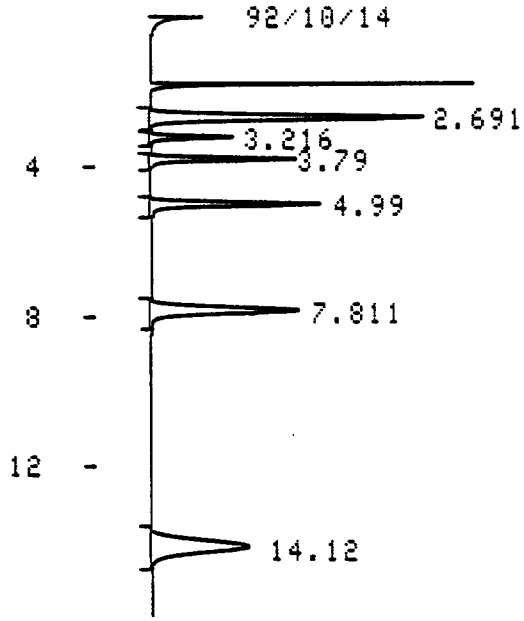


HEXANES+
CALIBRATION LINEARITY



POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

92/10/14 16:10:46

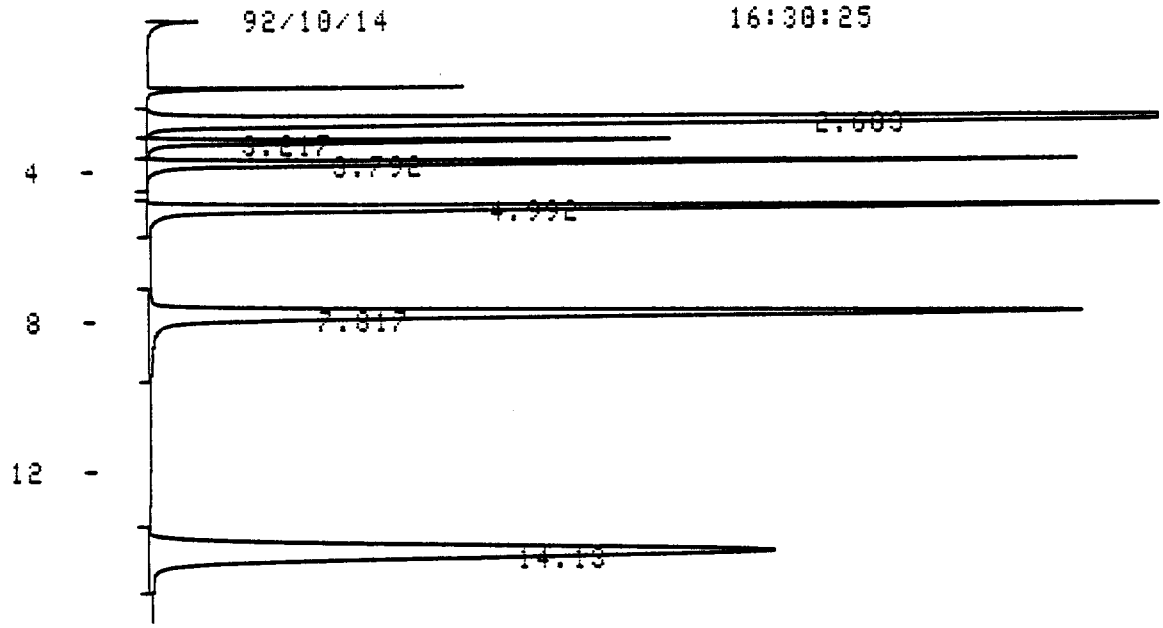


CHROMATOGRAM 28 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.691	20977		6	15.1765	C-6+
2	3.216	3642		1	16.0425	C-1
3	3.79	7228		7	16.3553	C-2
4	4.99	10738		3	16.3597	C-3
5	7.811	14219		4	16.4779	C-4
6	14.12	16972		5	14.7949	C-5
	TOTAL	73775			95.2069	

GROUP(NAME)	CONC
C-1	16.0425
C-2	16.3553
C-3	16.3597
C-4	16.4779
C-5	14.7949
C-6+	15.1765

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220

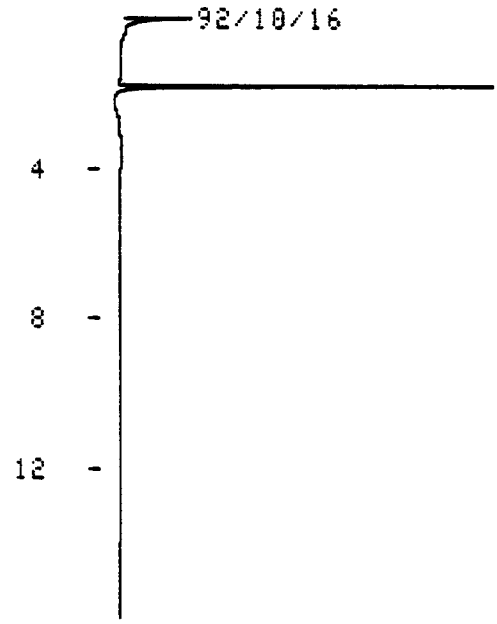


CHROMATOGRAM 29 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.683	137324		6	99.3529	C-6+
2	3.217	22932		1	101.0124	C-1
3	3.792	45934		7	103.9422	C-2
4	4.992	68291		3	104.0422	C-3
5	7.817	92608		4	107.3218	C-4
6	14.13	106799		5	93.0998	C-5
	TOTAL	473889			608.7713	

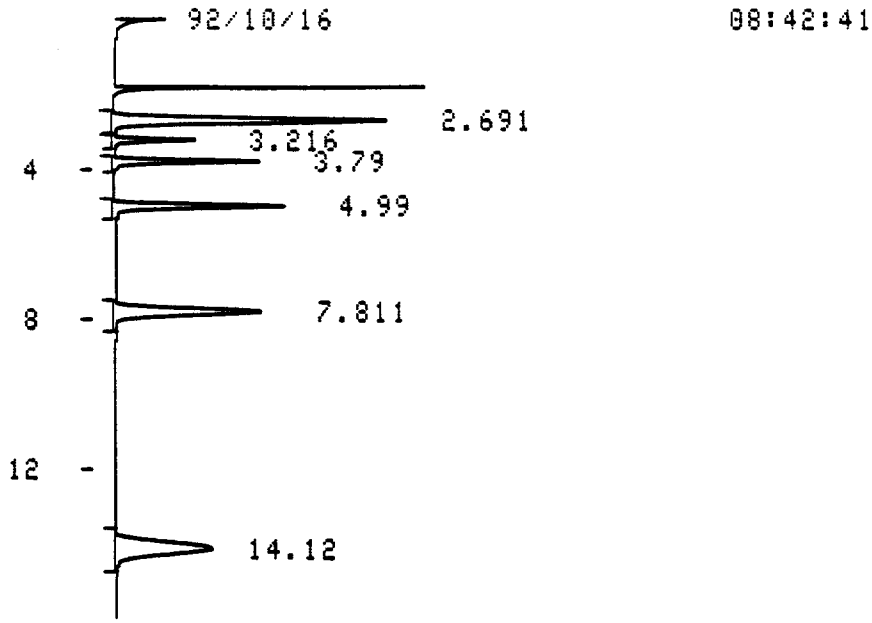
GROUP(NAME)	CONC
C-1	101.0124
C-2	103.9422
C-3	104.0422
C-4	107.3218
C-5	93.0998
C-6+	99.3529

SYSTEM BLANK
UHP NIRTOGEN



WARNING NO PEAK

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1



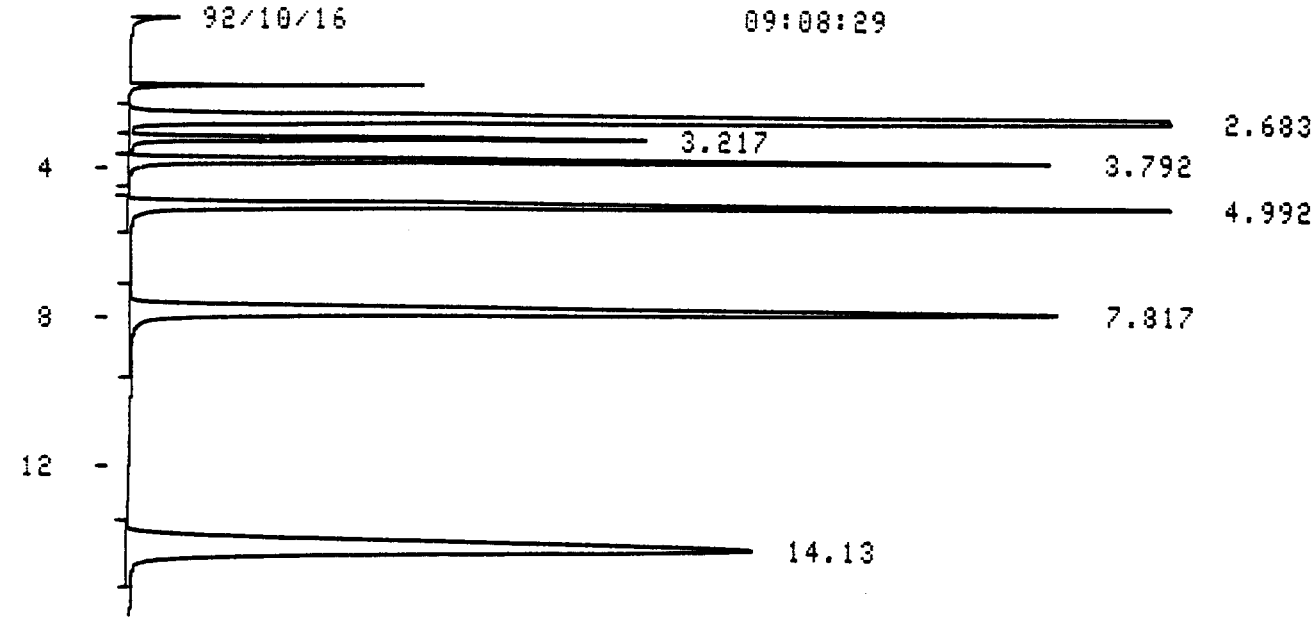
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.691	20977		6		C-6+
2	3.216	3642		1		C-1
3	3.79	7228		7		C-2
4	4.99	10738		3		C-3
5	7.811	14219		4		C-4
6	14.12	16972		5		C-5

	TOTAL	73775				

IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.18	0.00453048	16.5
2	C-2	3.73	0.00226288	16.5
3	C-3	4.95	0.00153657	16.5
4	C-4	7.75	0.00116044	16.5
5	C-5	14.01	0.000872024	14.8
6	C-6+	2.68	0.00072461	15.2
7	C-2	3.81	0.00226288	16.5
8	C-3	4.58	0.00153657	16.5
9	C-4	6.04	0.00116044	16.5
10	C-4	7.02	0.00116044	16.5
11	C-5	10.24	0.000872024	14.8
12	C-5	10.59	0.000872024	14.8
13	C-5	12.73	0.000872024	14.8
14	C-5	13.17	0.000872024	14.8
15	C-5	15.43	0.00087202	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220

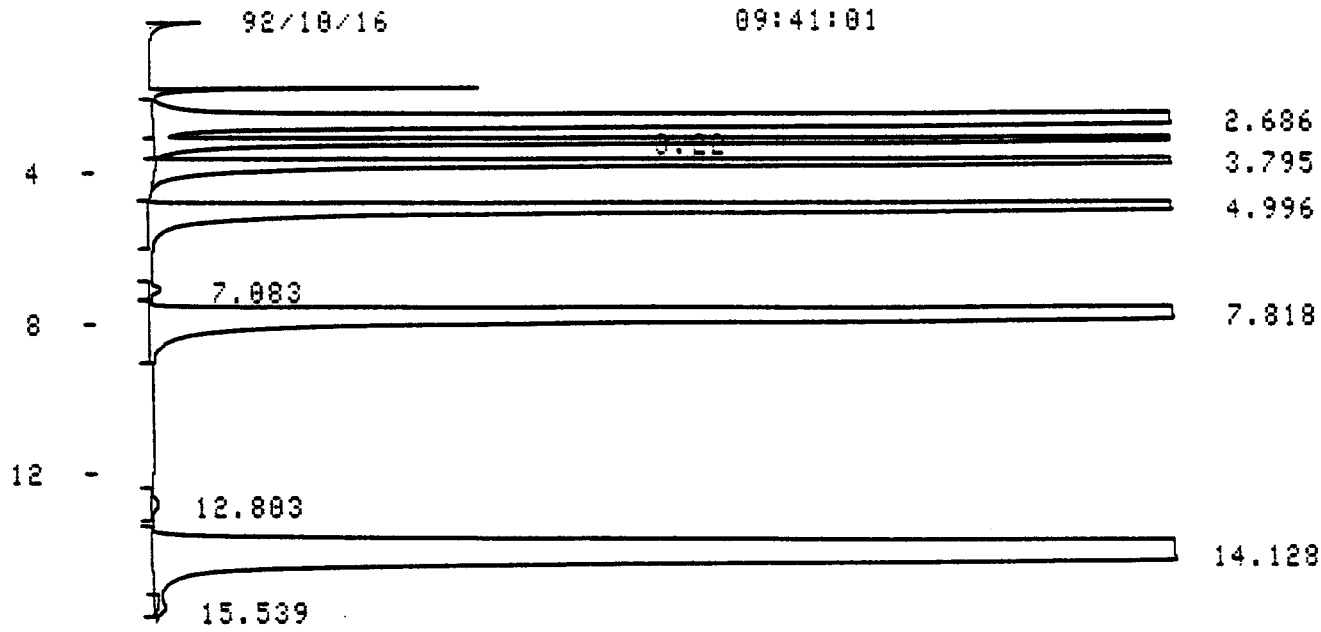


PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.683	137324		6		C-6+
2	3.217	22932		1		C-1
3	3.792	45934		7		C-2
4	4.992	68291		3		C-3
5	7.817	92608		4		C-4
6	14.13	106799		5		C-5
	TOTAL	473888				

IDENTIFICATION FILE 1
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.18	0.00440433	101
2	C-2	3.73	0.0022128	101
3	C-3	4.95	0.00146431	100
4	C-4	7.76	0.00109062	101
5	C-5	14.04	0.000927908	99.1
6	C-6+	2.67	0.000728202	100
7	C-2	3.8	0.0022128	101
8	C-3	4.59	0.00146431	100
9	C-4	6.04	0.00109062	101
10	C-4	7	0.00109062	101
11	C-5	10.21	0.000927908	101
12	C-5	10.59	0.000927908	99.1
13	C-5	12.77	0.000927908	99.1
14	C-5	13.27	0.000927908	99.1
15	C-5	15.49	0.000927908	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



CHROMATOGRAM 1 MEMORIZED

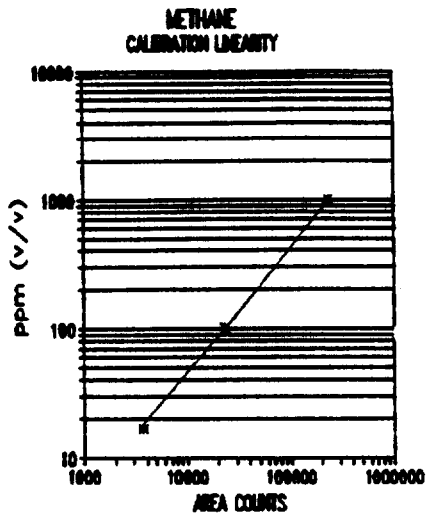
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.686	1412768		6		C-6+
2	3.22	236576	V	1		C-1
3	3.795	470593		7		C-2
4	4.996	698135		3		C-3
5	7.083	990		10		C-4
6	7.818	923997		4		C-4
7	12.803	1268		13		C-5
8	14.128	1118453	S	5		C-5
9	15.539	970	T	15		C-5
	TOTAL	4863750				

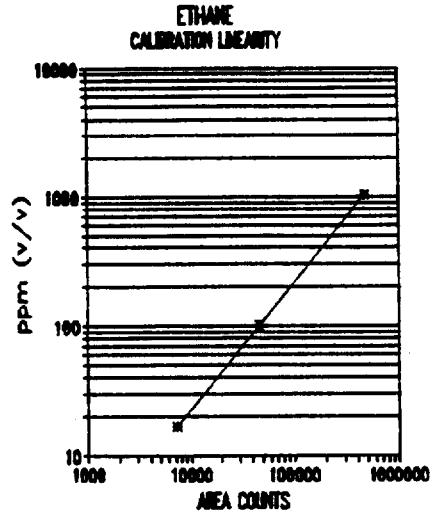
IDENTIFICATION FILE 2
MODE$ 101 WINDOW 3

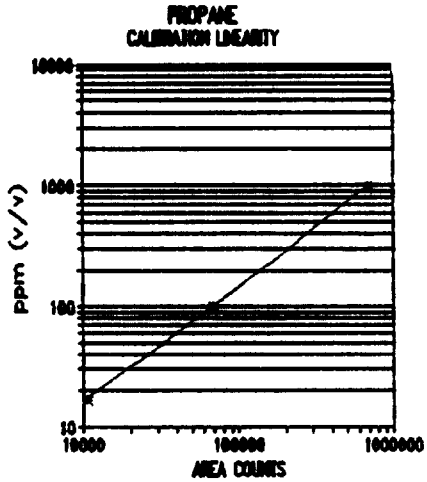
IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.2	0.00422697	1000
2	C-2	3.74	0.00219147	1030
3	C-3	4.95	0.00143239	1000
4	C-4	7.76	0.00109308	1010
5	C-5	14.03	0.000911974	1020
6	C-6+	2.67	0.00071137	1005
7	C-2	3.8	0.00219147	1030
8	C-3	4.52	0.00143239	1000
9	C-4	5.94	0.00109308	1010
10	C-4	7.04	0.00109308	1010
11	C-5	10.21	0.000911974	1020
12	C-5	10.59	0.000911974	1020
13	C-5	12.71	0.000911974	1020
14	C-5	13.27	0.000911974	1020
15	C-5	15.45	0.000911974	1020

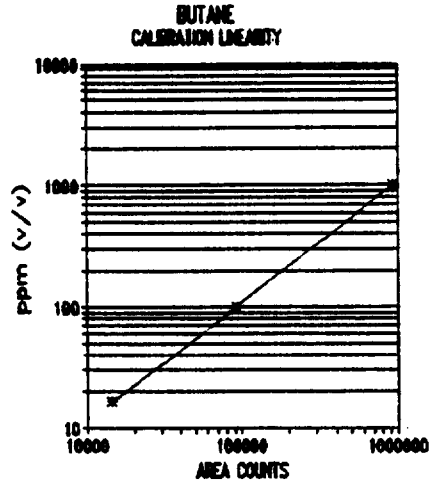
COMPANY : UNOCAL
UNIT : VARIOUS
DATE : 10-14 & 15-92
REPORT : 086-211

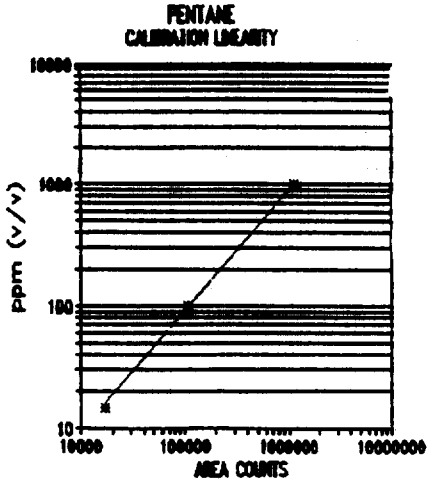
HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 10-16-92

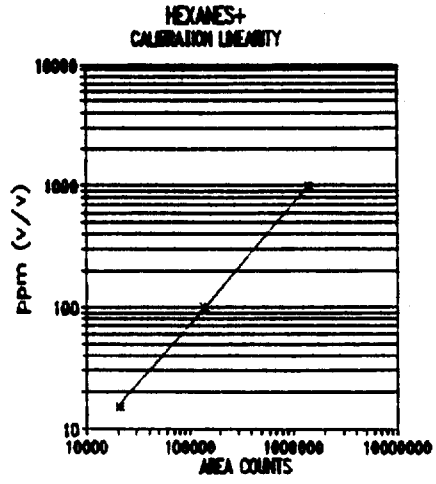




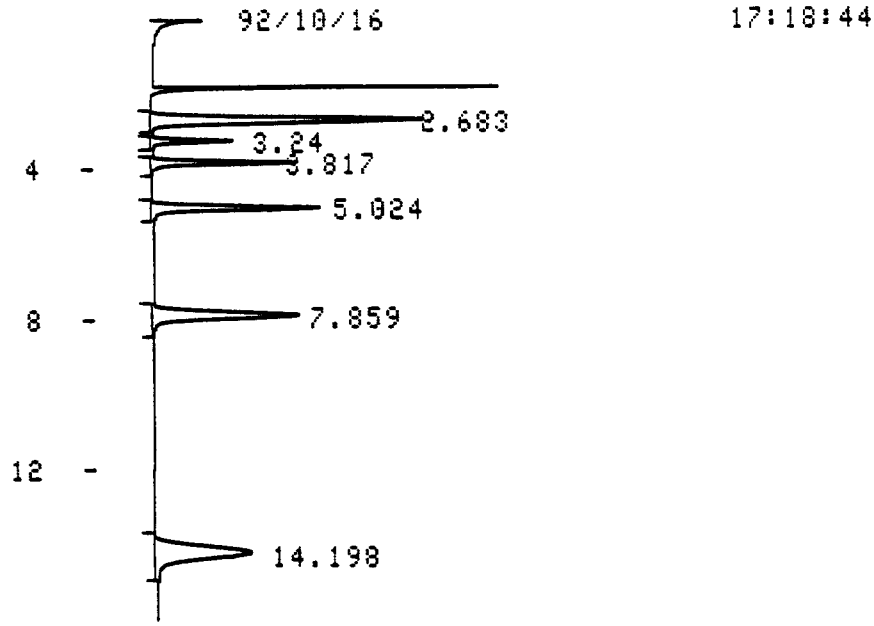








POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

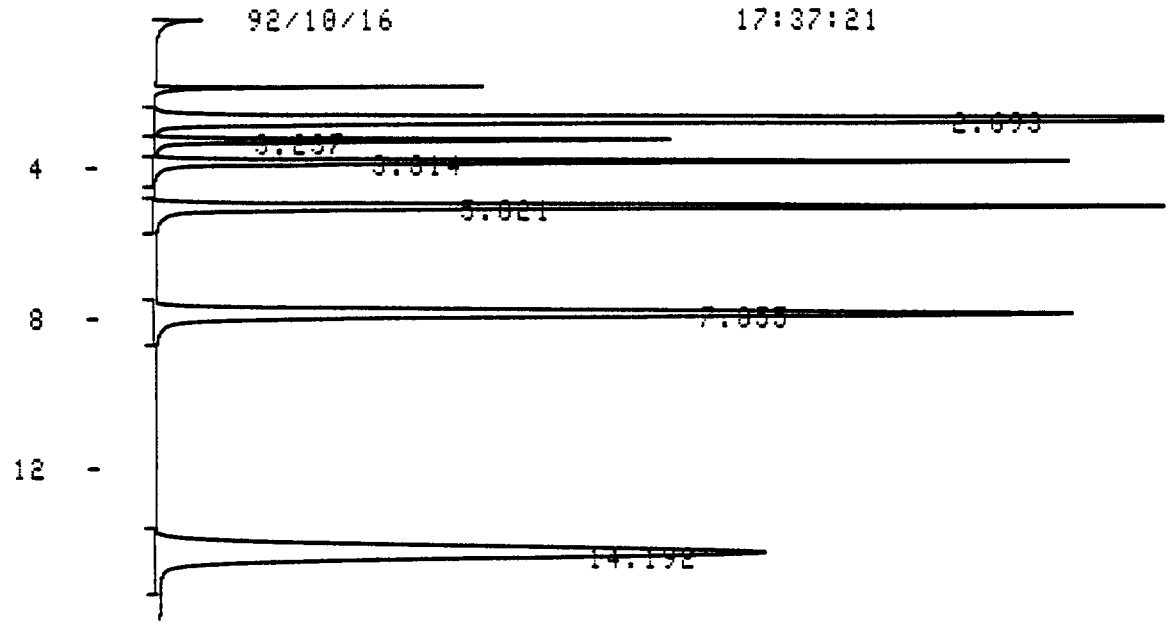


CHROMATOGRAM 23 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.683	21008		6	15.2977	C-6+
2	3.24	3632		1	15.9945	C-1
3	3.817	7235		7	16.0087	C-2
4	5.024	10647		3	15.5908	C-3
5	7.859	14190		4	15.4759	C-4
6	14.198	16938		5	15.7165	C-5
	TOTAL	73648			94.0842	

GROUP(NAME)	CONC
C-1	15.9945
C-2	16.0087
C-3	15.5908
C-4	15.4759
C-5	15.7165
C-6+	15.2977

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



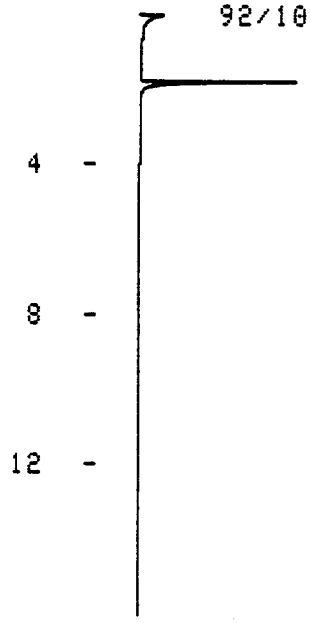
CHROMATOGRAM 24 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.693	135710		6	98.8246	C-6+
2	3.237	22654		1	99.776	C-1
3	3.814	45301		7	100.2409	C-2
4	5.021	67223		3	98.436	C-3
5	7.855	88759		4	96.8029	C-4
6	14.192	104437		5	96.9077	C-5
	TOTAL	464084			590.9881	

GROUP(NAME)	CONC
C-1	99.776
C-2	100.2409
C-3	98.436
C-4	96.8029
C-5	96.9077
C-6+	98.8246

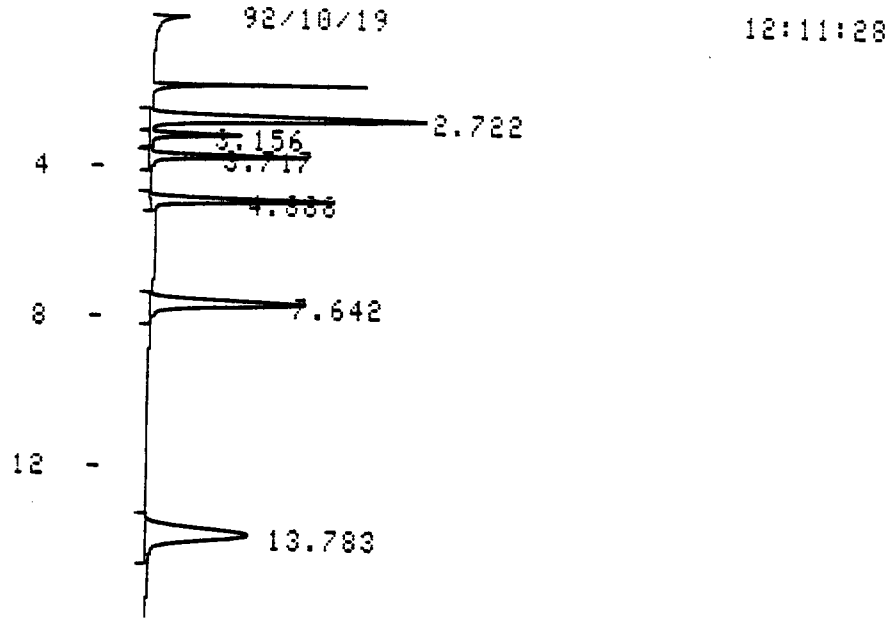
SYSTEM BLANK
UHP NITROGEN

92/10/19 11:30:18



CHROMATOGRAM 15 MEMORIZED
WARNING NO PEAK

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1



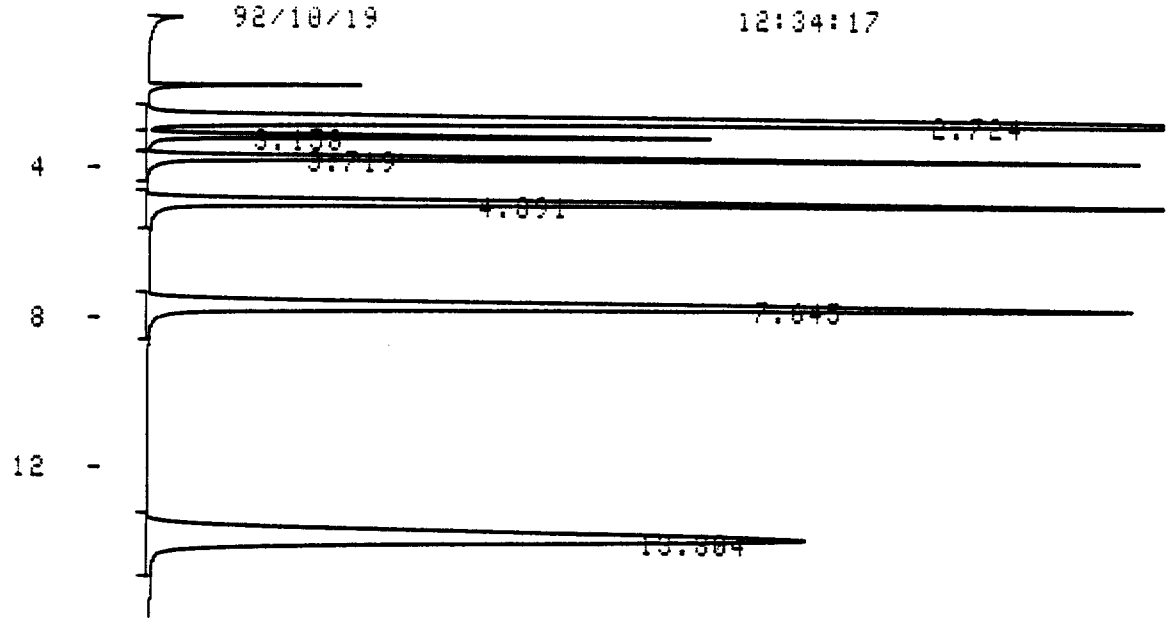
CHROMATOGRAM 32 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.722	21510		6		C-6+
2	3.156	3787		1		C-1
3	3.717	7579		2		C-2
4	4.888	10965		3		C-3
5	7.642	14815		4		C-4
6	13.783	18040		5		C-5
	TOTAL	76696				

IDENTIFICATION FILE 0
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.16	0.00435655	16.5
2	C-2	3.72	0.0021771	16.5
3	C-3	4.91	0.00150486	16.5
4	C-4	7.75	0.00111371	16.5
5	C-5	13.99	0.000820397	14.8
6	C-6+	2.71	0.00070666	15.2
7	C-2	3.87	0.0021771	16.5
8	C-3	4.58	0.00150486	16.5
9	C-4	6.04	0.00111371	16.5
10	C-4	7.02	0.00111371	16.5
11	C-5	10.24	0.000820397	14.8
12	C-5	10.59	0.000820397	14.8
13	C-5	12.73	0.000820397	14.8
14	C-5	13.17	0.000820397	14.8
15	C-5	15.43	0.000820397	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



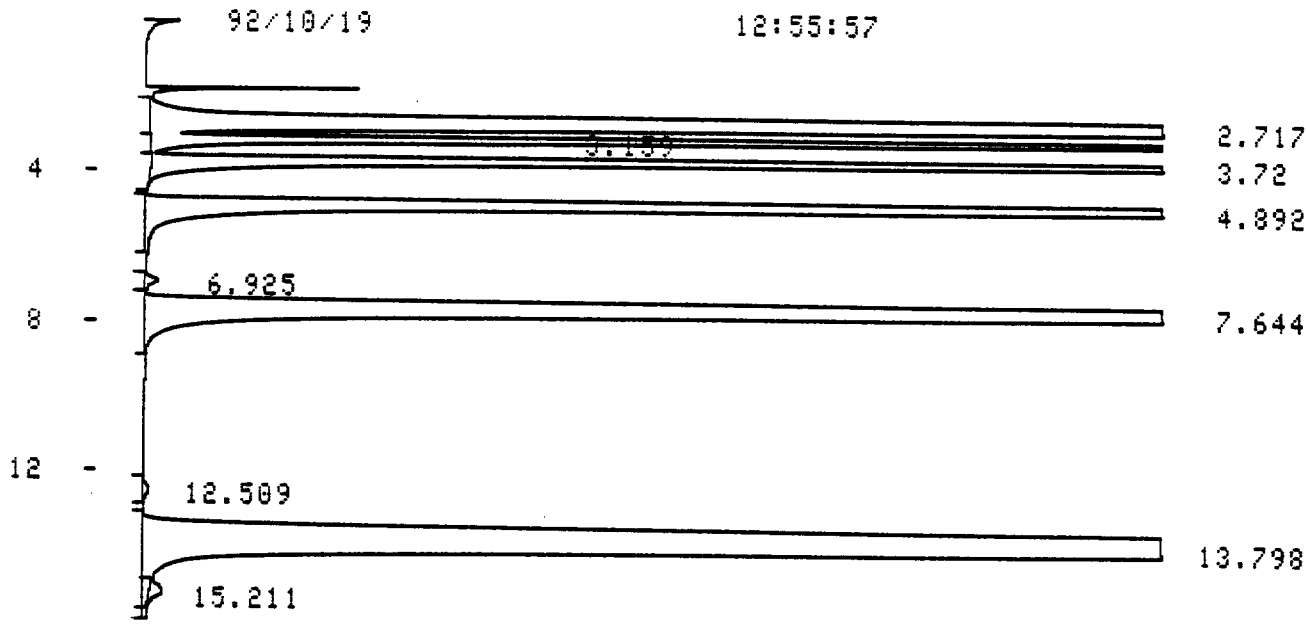
CHROMATOGRAM 33 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.724	140531		6		C-6+
2	3.158	23924	V	1		C-1
3	3.719	47507		2		C-2
4	4.891	70652		3		C-3
5	7.645	93327		4		C-4
6	13.804	112153		5		C-5
	TOTAL	488093				

IDENTIFICATION FILE 1
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.16	0.00422168	101
2	C-2	3.72	0.002126	101
3	C-3	4.92	0.0014154	100
4	C-4	7.7	0.00108222	101
5	C-5	13.92	0.000883617	99.1
6	C-6+	2.71	0.000711586	100
7	C-2	3.8	0.002126	101
8	C-3	4.59	0.0014154	100
9	C-4	6.04	0.00108222	101
10	C-4	7	0.00108222	101
11	C-5	10.21	0.000883617	101
12	C-5	10.59	0.000883617	99.1
13	C-5	12.77	0.000883617	99.1
14	C-5	13.27	0.000883617	99.1
15	C-5	15.49	0.000883617	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



CHROMATOGRAM 34 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.717	1444181		6		C-6+
2	3.159	245235	V	1		C-1
3	3.72	486881		2		C-2
4	4.892	723909		3		C-3
5	6.925	1031		10		C-4
6	7.644	957155		4		C-4
7	12.509	827		13		C-5
8	13.798	1176576	S	5		C-5
9	15.211	2047	T	15		C-5
	TOTAL	5037840				

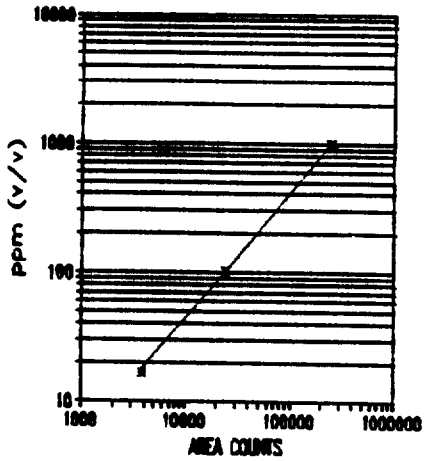
IDENTIFICATION FILE 2
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.17	0.00407773	1000
2	C-2	3.73	0.00211551	1030
3	C-3	4.92	0.00138139	1000
4	C-4	7.7	0.00105521	1010
5	C-5	13.91	0.000866922	1020
6	C-6+	2.7	0.000695896	1005
7	C-2	3.8	0.00211551	1030
8	C-3	4.52	0.00138139	1000
9	C-4	5.94	0.00105521	1010
10	C-4	6.98	0.00105521	1010
11	C-5	10.21	0.000866922	1020
12	C-5	10.59	0.000866922	1020
13	C-5	12.6	0.000866922	1020
14	C-5	13.25	0.000866922	1020
15	C-5	15.33	0.000866922	1020

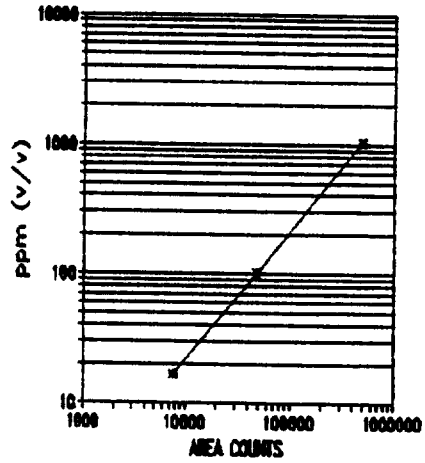
COMPANY : UNOCAL
UNIT : VARIOUS
DATE : 10-16-92
REPORT : 086-211

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 10-19-92

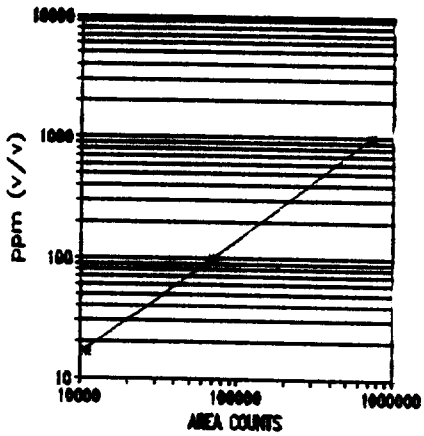
METHANE
CALIBRATION LINEARITY



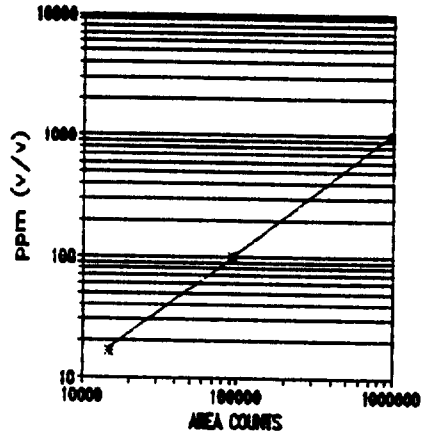
ETHANE
CALIBRATION LINEARITY



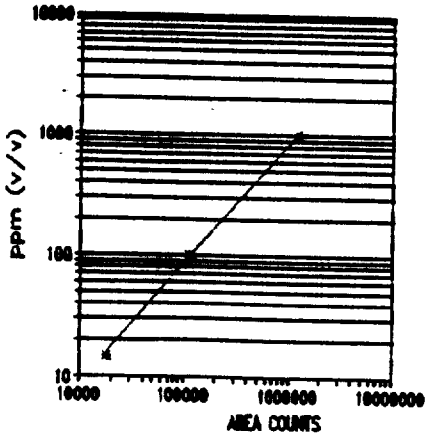
PROPANE
CALIBRATION LINEARITY



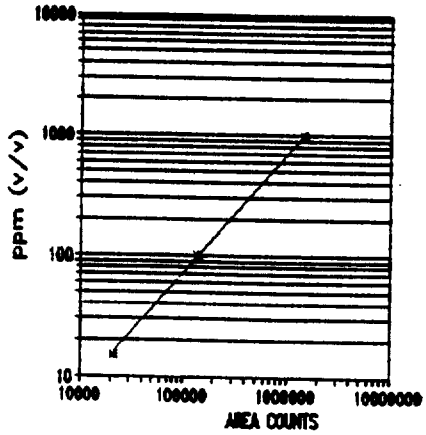
BUTANE
CALIBRATION LINEARITY



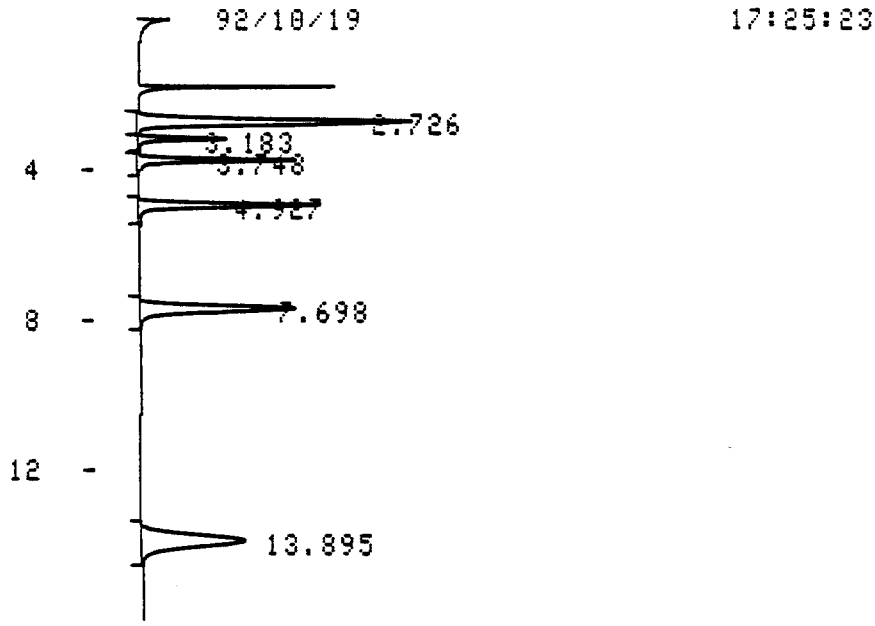
PENTANE
CALIBRATION LINEARITY



HEXANES+
CALIBRATION LINEARITY



POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

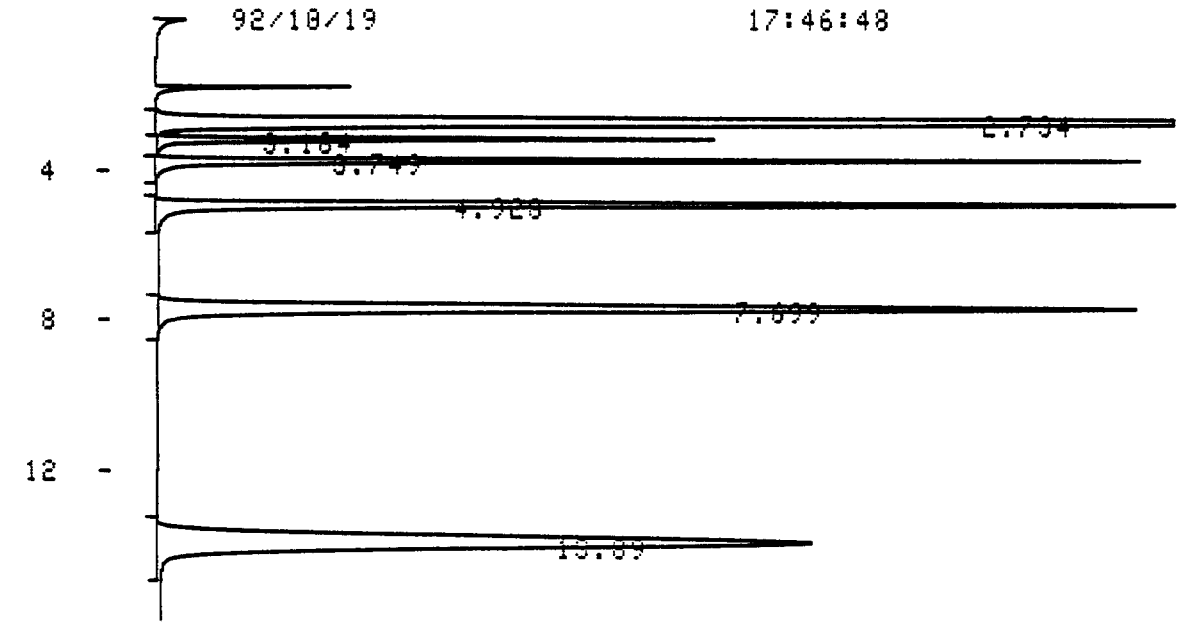


CHROMATOGRAM 7 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.726	21572		6	15.35	C-6+
2	3.183	3775		1	15.935	C-1
3	3.748	7569		2	16.0919	C-2
4	4.927	11187		3	15.8333	C-3
5	7.698	14776		4	15.9905	C-4
6	13.895	18028		5	15.9298	C-5
	TOTAL	76905			95.1306	

GROUP(NAME)	CONC
C-1	15.935
C-2	16.0919
C-3	15.8333
C-4	15.9905
C-5	15.9298
C-6+	15.35

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



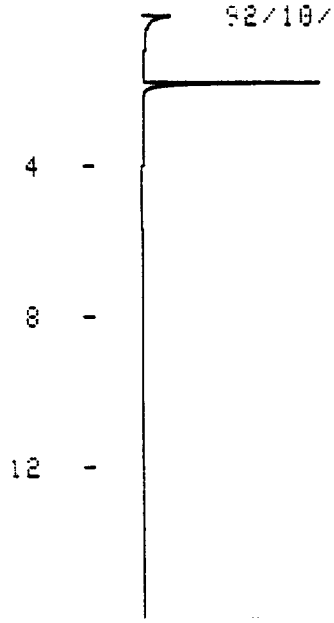
CHROMATOGRAM 8 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.734	140071		6	99.6727	C-6+
2	3.184	23502		1	99.2163	C-1
3	3.749	47241		2	100.4351	C-2
4	4.928	70324		3	99.5359	C-3
5	7.699	92607		4	100.2205	C-4
6	13.89	111750		5	98.7442	C-5
	TOTAL	485494			597.8246	

GROUP(NAME)	CONC
C-1	99.2163
C-2	100.4351
C-3	99.5359
C-4	100.2205
C-5	98.7442
C-6+	99.6727

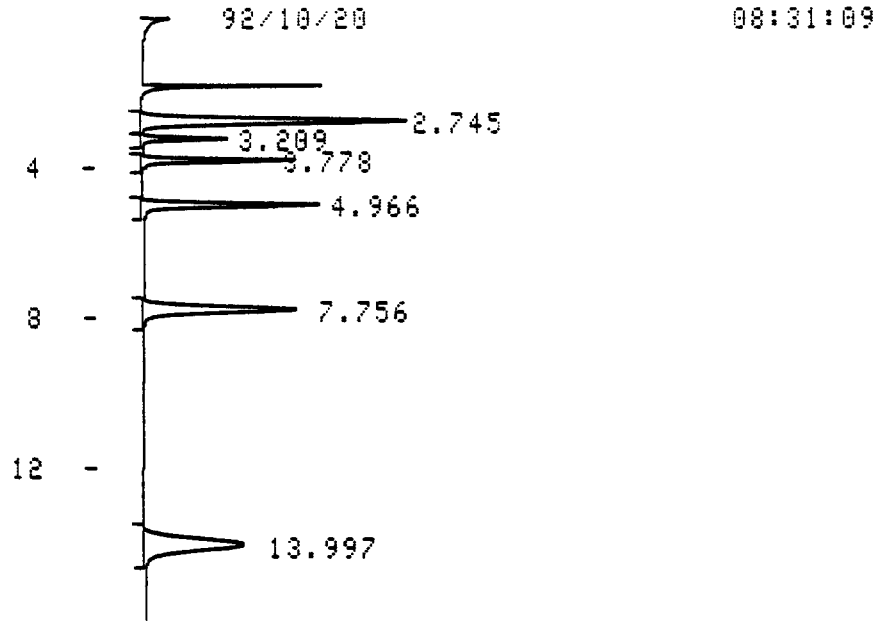
SYSTEM BLANK
UHP NITROGEN

92/10/20 08:08:17



CHROMATOGRAM 9 MEMORIZED
WARNING NO PEAK

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1



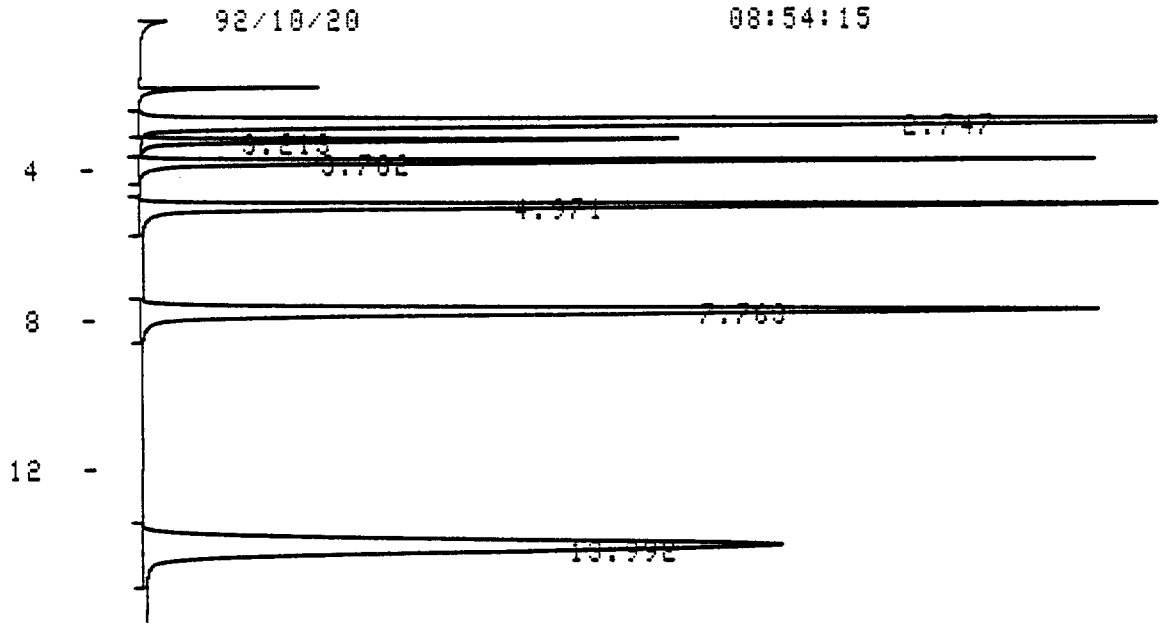
CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.745	21133		6		C-6+
2	3.209	3712		1		C-1
3	3.778	7388		2		C-2
4	4.966	10929		3		C-3
5	7.756	14552		4		C-4
6	13.997	17369		5		C-5
	TOTAL	75083				

IDENTIFICATION FILE 0
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.18	0.00444474	16.5
2	C-2	3.74	0.00223332	16.5
3	C-3	4.93	0.00150978	16.5
4	C-4	7.75	0.0011339	16.5
5	C-5	13.99	0.000852083	14.8
6	C-6+	2.72	0.000719249	15.2
7	C-2	3.87	0.00223332	16.5
8	C-3	4.58	0.00150978	16.5
9	C-4	6.04	0.0011339	16.5
10	C-4	7.02	0.0011339	16.5
11	C-5	10.24	0.000852083	14.8
12	C-5	10.59	0.000852083	14.8
13	C-5	12.73	0.000852083	14.8
14	C-5	13.17	0.000852083	14.8
15	C-5	15.43	0.000852083	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



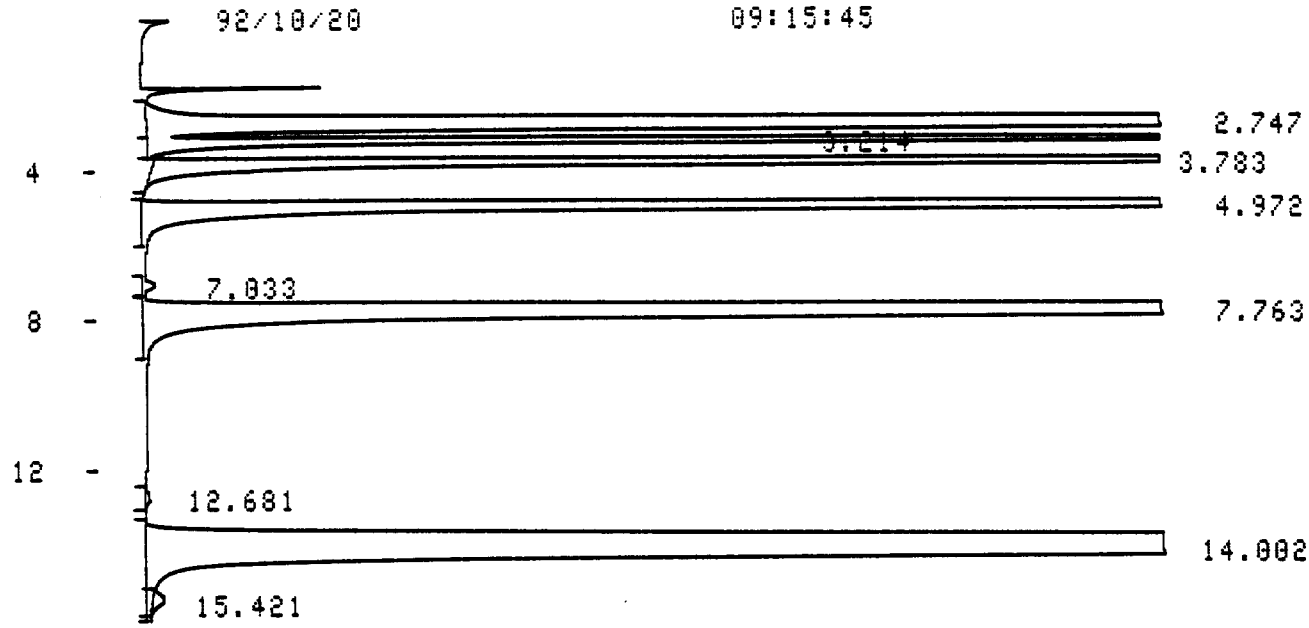
CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.747	137943		6		C-6+
2	3.213	23071		1		C-1
3	3.782	46717		7		C-2
4	4.971	69543		3		C-3
5	7.763	91631		4		C-4
6	13.992	109560		5		C-5
	TOTAL	478464				

IDENTIFICATION FILE 1
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.18	0.00437773	101
2	C-2	3.72	0.002126	101
3	C-3	4.94	0.00143796	100
4	C-4	7.73	0.00110225	101
5	C-5	13.95	0.00090453	99.1
6	C-6+	2.72	0.000724938	100
7	C-2	3.79	0.002126	101
8	C-3	4.59	0.00143796	100
9	C-4	6.04	0.00110225	101
10	C-4	7	0.00110225	101
11	C-5	10.21	0.00090453	101
12	C-5	10.59	0.00090453	99.1
13	C-5	12.77	0.00090453	99.1
14	C-5	13.27	0.00090453	99.1
15	C-5	15.49	0.00090453	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



CHROMATOGRAM 9 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.747	1424405		6		C-6+
2	3.214	241195	V	1		C-1
3	3.783	477660		7		C-2
4	4.972	711091		3		C-3
5	7.033	1008		10		C-4
6	7.763	940988		4		C-4
7	12.681	667		13		C-5
8	14.002	1152497	S	5		C-5
9	15.421	1650	T	15		C-5
	TOTAL	4951160				

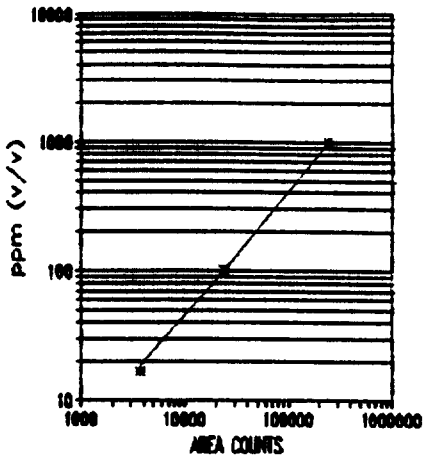
IDENTIFICATION FILE 2
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.19	0.00414603	1000
2	C-2	3.73	0.00211551	1030
3	C-3	4.94	0.00140629	1000
4	C-4	7.73	0.00107334	1010
5	C-5	13.95	0.000885035	1020
6	C-6+	2.72	0.000705558	1005
7	C-2	3.79	0.00211551	1030
8	C-3	4.52	0.00140629	1000
9	C-4	5.94	0.00107334	1010
10	C-4	7	0.00107334	1010
11	C-5	10.21	0.000885035	1020
12	C-5	10.59	0.000885035	1020
13	C-5	12.64	0.000885035	1020
14	C-5	13.25	0.000885035	1020
15	C-5	15.37	0.000885035	1020

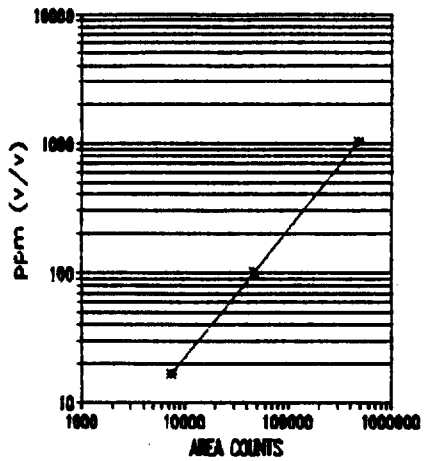
COMPANY : UNOCAL
UNIT : VARIOUS
DATE : 10-19-92
REPORT : 086-211

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 10-20-92

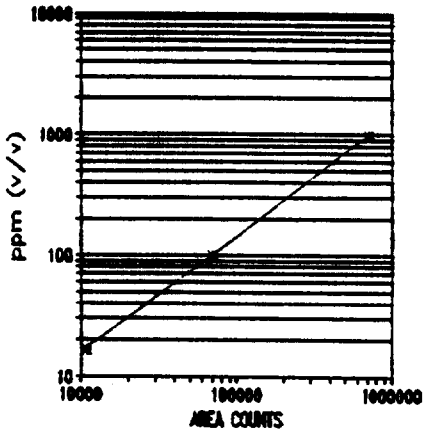
METHANE
CALIBRATION LINEARITY



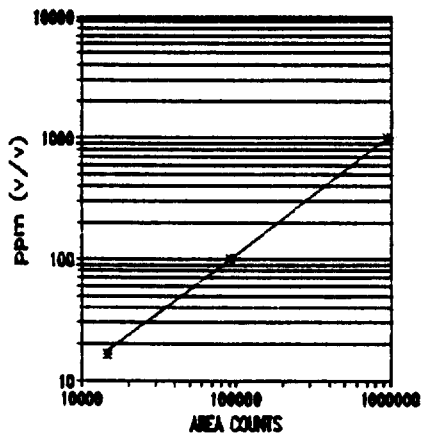
ETHANE
CALIBRATION LINEARITY



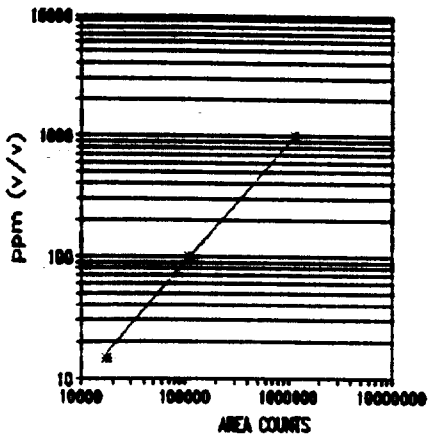
PROPANE
CALIBRATION LINEARITY



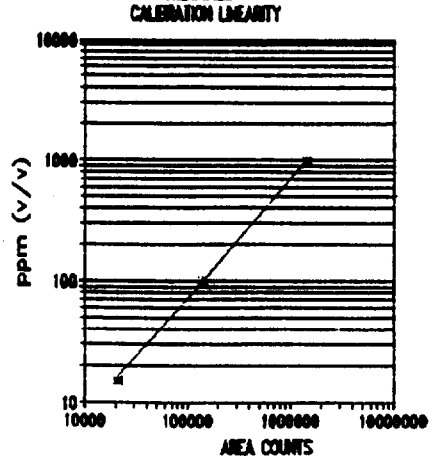
BUTANE
CALIBRATION LINEARITY



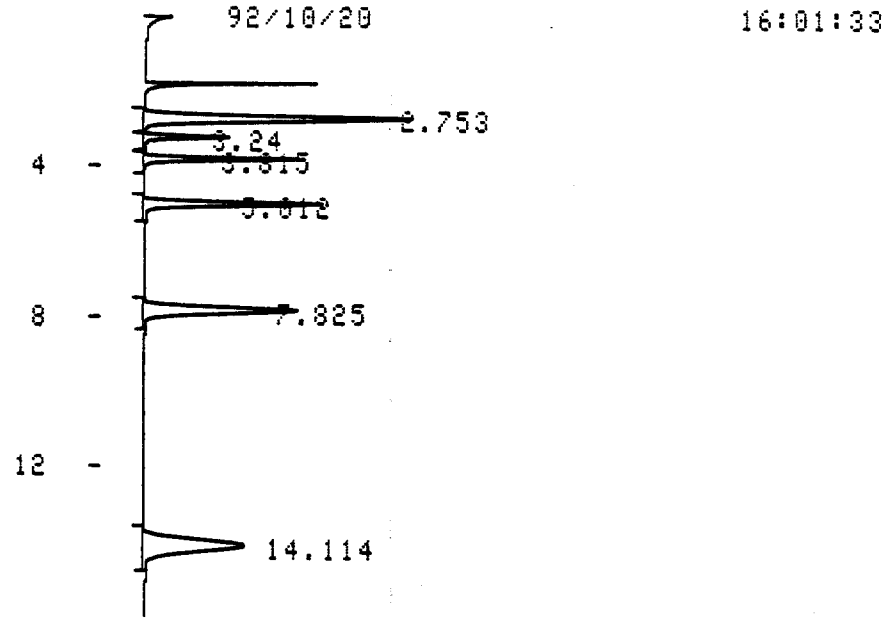
PENTANE
CALIBRATION LINEARITY



HEXANES+
CALIBRATION LINEARITY



POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

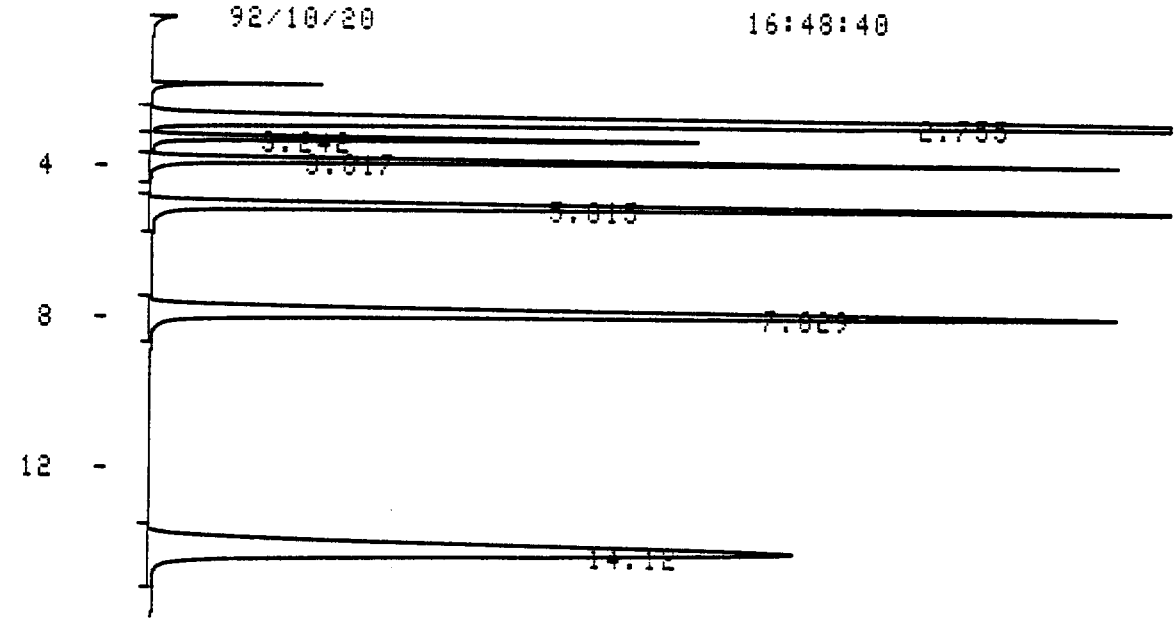


CHROMATOGRAM 17 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.753	21700		6	15.6078	C-6+
2	3.24	3810		1	16.9345	C-1
3	3.815	7565		7	16.8947	C-2
4	5.012	11224		3	16.9462	C-3
5	7.825	14779		4	16.7576	C-4
6	14.114	17651		5	15.0399	C-5
	TOTAL	76729			98.1808	

GROUP(NAME)	CONC
C-1	16.9345
C-2	16.8947
C-3	16.9462
C-4	16.7576
C-5	15.0399
C-6+	15.6078

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



CHROMATOGRAM 18 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	140180		6	101.622	C-6+
2	3.242	23604		1	103.3324	C-1
3	3.817	47382		7	100.7347	C-2
4	5.015	70358		3	101.1726	C-3
5	7.829	92830		4	102.3219	C-4
6	14.12	110592		5	100.0341	C-5
	TOTAL	484947			609.2176	

GROUP(NAME)	CONC
C-1	103.3324
C-2	100.7347
C-3	101.1726
C-4	102.3219
C-5	100.0341
C-6+	101.622

SYSTEM BLANK
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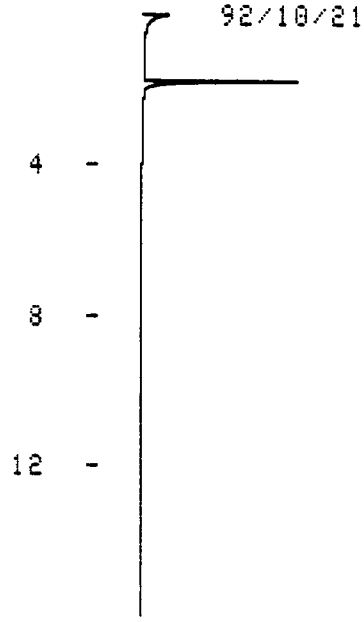
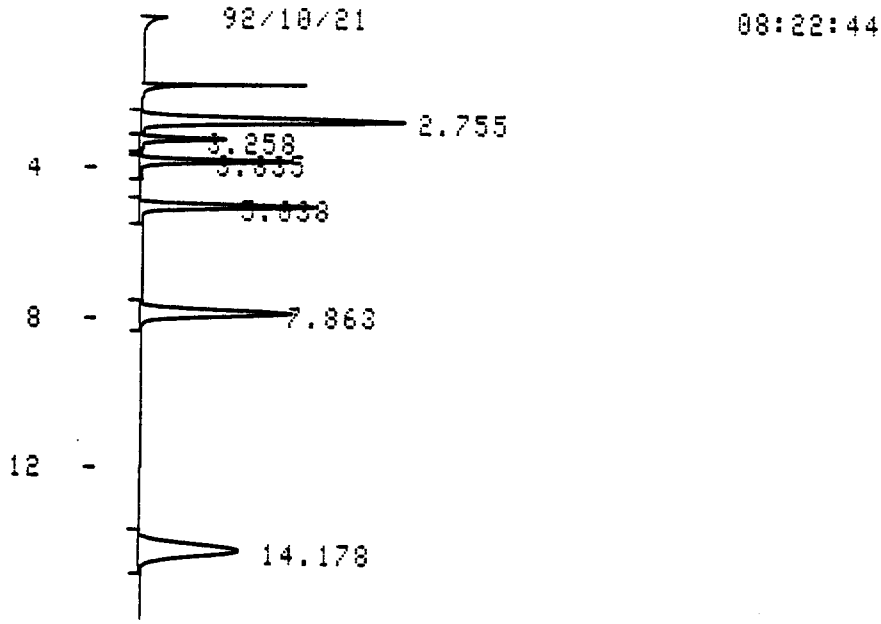


CHROMATOGRAM 19 MEMORIZED
WARNING NO PEAK

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1



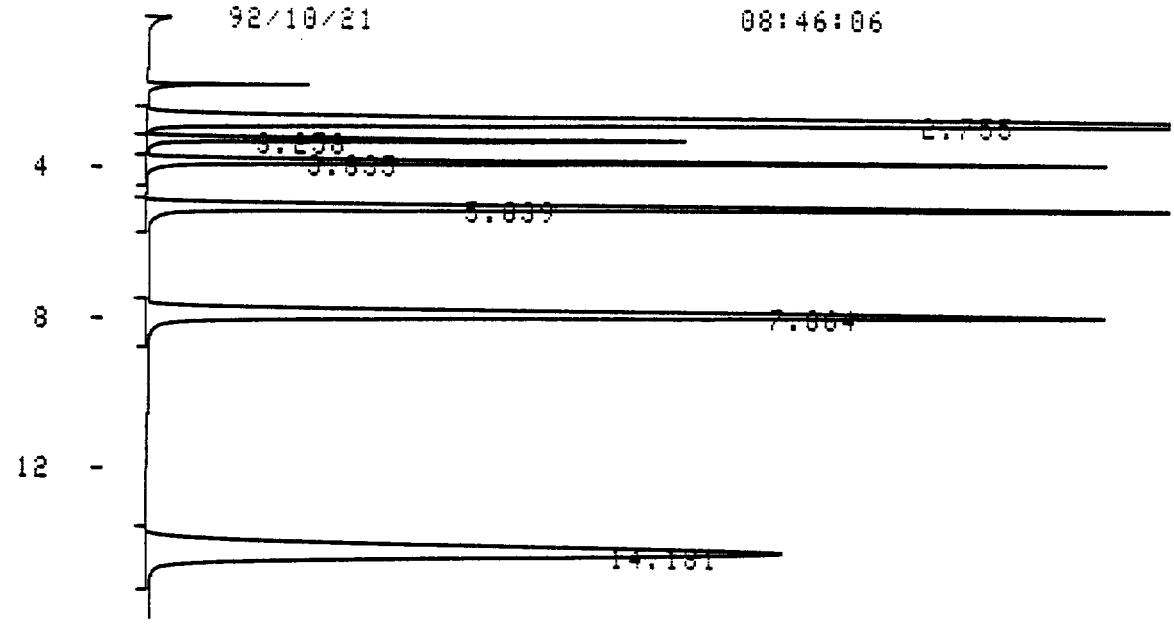
CHROMATOGRAM 20 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	21494		6		C-6+
2	3.258	3765		1		C-1
3	3.835	7515		7		C-2
4	5.038	11079		3		C-3
5	7.863	14568		4		C-4
6	14.178	17347		5		C-5
	TOTAL	75769				

IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.0043827	16.5
2	C-2	3.74	0.00223332	16.5
3	C-3	4.98	0.00148932	16.5
4	C-4	7.8	0.0011326	16.5
5	C-5	14.08	0.000853163	14.8
6	C-6+	2.73	0.000707168	15.2
7	C-2	3.85	0.00223332	16.5
8	C-3	4.58	0.00148932	16.5
9	C-4	6.04	0.0011326	16.5
10	C-4	7.02	0.0011326	16.5
11	C-5	10.24	0.000853163	14.8
12	C-5	10.59	0.000853163	14.8
13	C-5	12.73	0.000853163	14.8
14	C-5	13.17	0.000853163	14.8
15	C-5	15.43	0.000853163	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



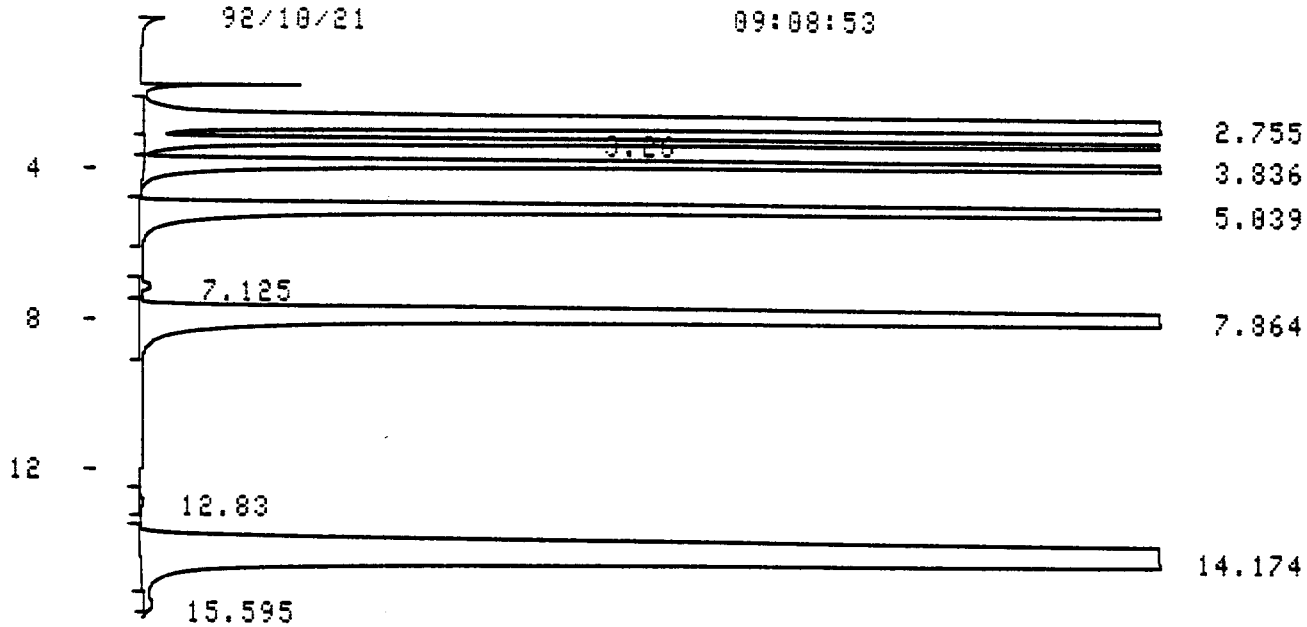
CHROMATOGRAM 21 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	139764		6		C-6+
2	3.258	23286		1		C-1
3	3.835	47030		7		C-2
4	5.039	69749		3		C-3
5	7.864	92126		4		C-4
6	14.181	109272		5		C-5
	TOTAL	481228				

IDENTIFICATION FILE 1
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00433729	101
2	C-2	3.72	0.002126	101
3	C-3	4.98	0.00143372	100
4	C-4	7.79	0.00109632	101
5	C-5	14.06	0.00090691	99.1
6	C-6+	2.73	0.000715489	100
7	C-2	3.81	0.002126	101
8	C-3	4.59	0.00143372	100
9	C-4	6.04	0.00109632	101
10	C-4	7	0.00109632	101
11	C-5	10.21	0.00090691	101
12	C-5	10.59	0.00090691	99.1
13	C-5	12.77	0.00090691	99.1
14	C-5	13.27	0.00090691	99.1
15	C-5	15.49	0.00090691	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



CHROMATOGRAM 22 MEMORIZED

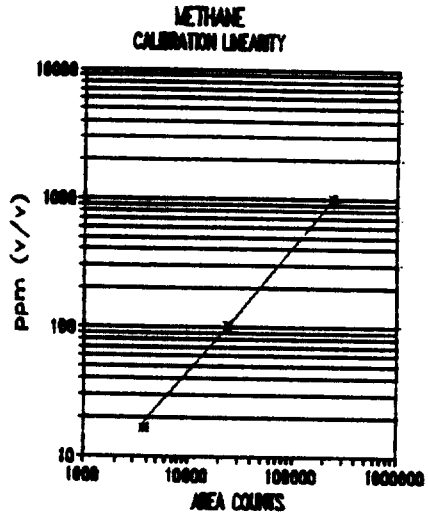
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.755	1446499		6		C-6+
2	3.26	242592	V	1		C-1
3	3.836	481751		7		C-2
4	5.039	715036		3		C-3
5	7.125	1031		10		C-4
6	7.864	946454		4		C-4
7	12.83	862		13		C-5
8	14.174	1147967		5		C-5
9	15.595	1217	V	15		C-5
	TOTAL	4983406				

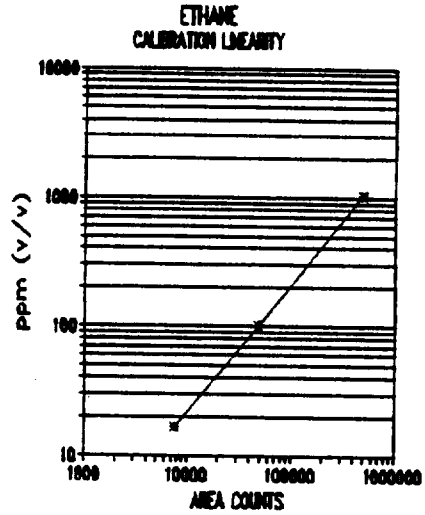
IDENTIFICATION FILE 2
MODE$ 101 WINDOW 3

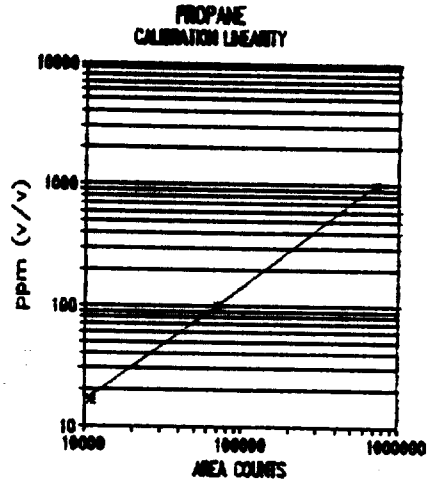
IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.22	0.00412215	1000
2	C-2	3.73	0.00211551	1030
3	C-3	4.98	0.00139853	1000
4	C-4	7.79	0.00106714	1010
5	C-5	14.06	0.000888527	1020
6	C-6+	2.73	0.000694781	1005
7	C-2	3.81	0.00211551	1030
8	C-3	4.52	0.00139853	1000
9	C-4	5.94	0.00106714	1010
10	C-4	7.06	0.00106714	1010
11	C-5	10.21	0.000888527	1020
12	C-5	10.59	0.000888527	1020
13	C-5	12.73	0.000888527	1020
14	C-5	13.25	0.000888527	1020
15	C-5	15.48	0.000888527	1020

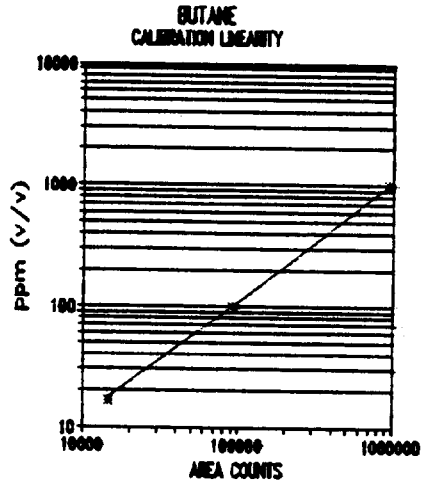
COMPANY : UNOCAL
UNIT : VARIOUS
DATE : 10-20-92
REPORT : 086-211

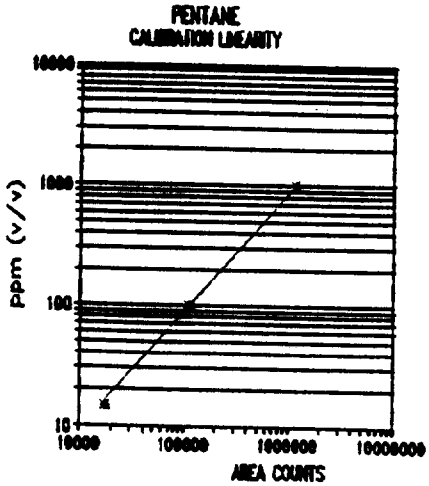
HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 10-21-92

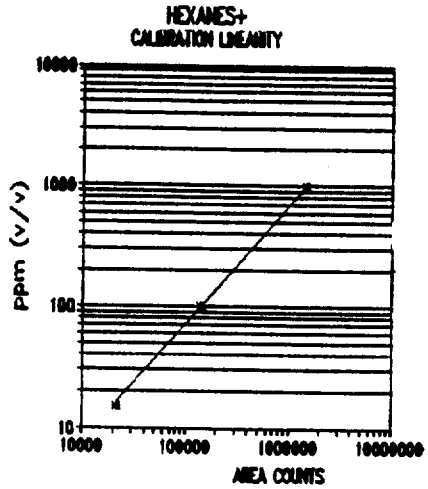




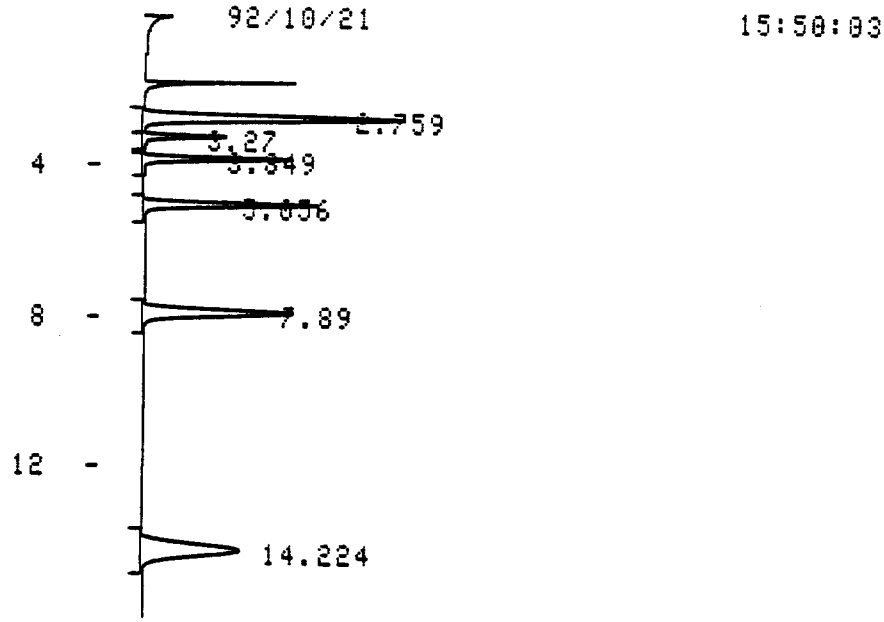








POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

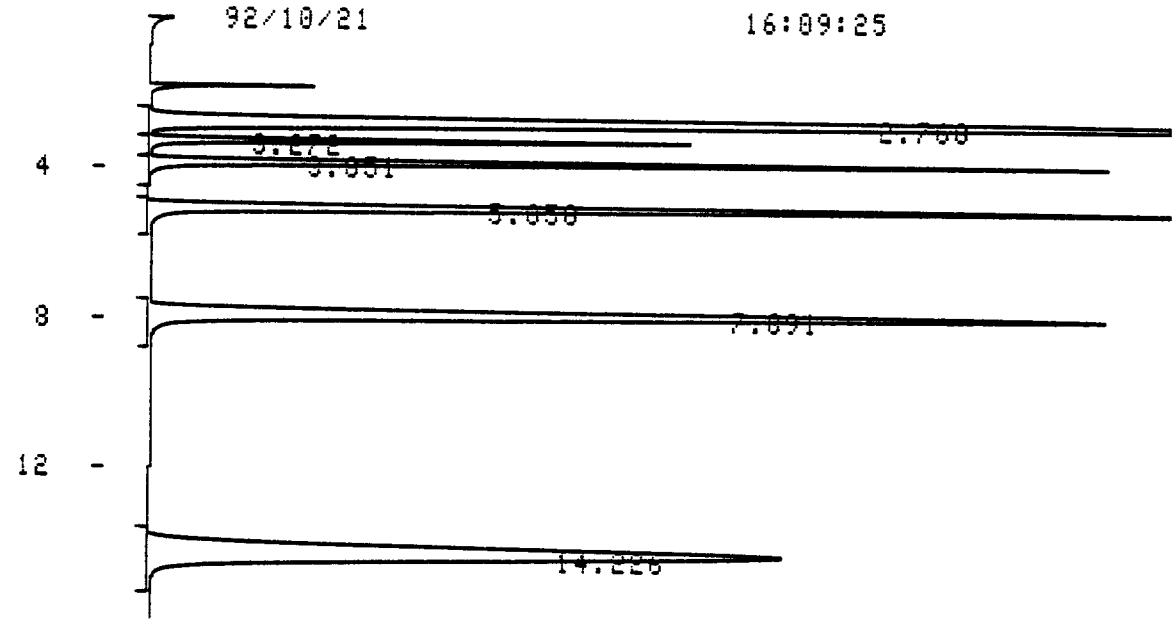


CHROMATOGRAM 13 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.759	21699		6	15.3451	C-6+
2	3.27	3783		1	16.5802	C-1
3	3.849	7535		7	16.8274	C-2
4	5.056	11108		3	16.5434	C-3
5	7.89	14696		4	16.6452	C-4
6	14.224	17381		5	14.829	C-5
	TOTAL	76203			96.7703	

GROUP(NAME)	CONC
C-1	16.5802
C-2	16.8274
C-3	16.5434
C-4	16.6452
C-5	14.829
C-6+	15.3451

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



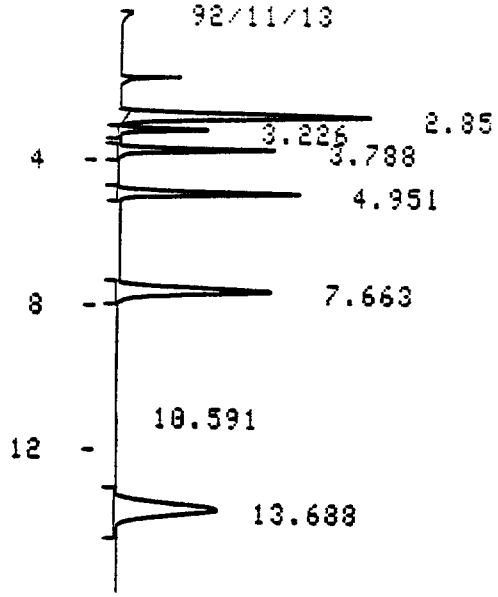
CHROMATOGRAM 14 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.768	140398		6	100.4532	C-6+
2	3.272	23498		1	101.9188	C-1
3	3.851	47183		7	100.3103	C-2
4	5.058	70110		3	100.5173	C-3
5	7.891	92478		4	101.386	C-4
6	14.226	109667		5	99.4584	C-5
	TOTAL	483334			604.044	

GROUP(NAME)	CONC
C-1	101.9188
C-2	100.3103
C-3	100.5173
C-4	101.386
C-5	99.4584
C-6+	100.4532

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

92/11/13 06:47:45



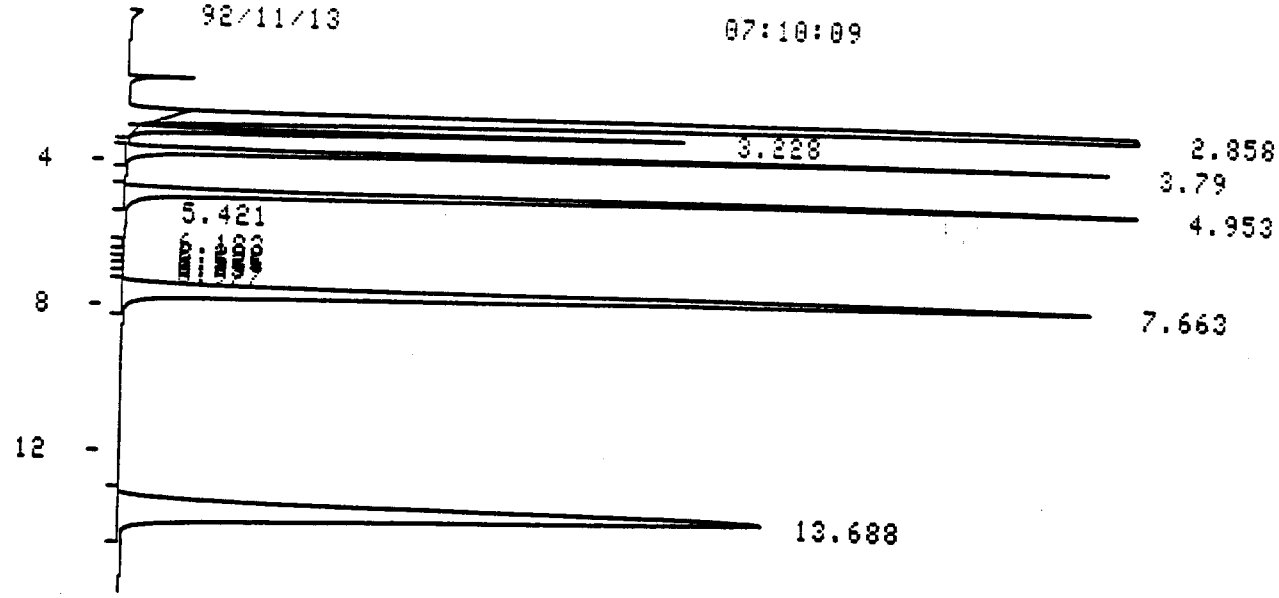
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.85	20169		6		C-6+
2	3.226	3731		1		C-1
3	3.788	7713		2		C-2
4	4.951	11215		3		C-3
5	7.663	14980		4		C-4
6	13.688	18676		14		C-5

	TOTAL	76484				

IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00442252	16.5
2	C-2	3.77	0.00213933	16.5
3	C-3	4.94	0.00147124	16.5
4	C-4	7.66	0.00110146	16.5
5	C-5	14.08	0.000853163	14.8
6	C-6+	2.84	0.000753624	15.2
7	C-2	3.85	0.00213933	16.5
8	C-3	4.58	0.00147124	16.5
9	C-4	6.04	0.00110146	16.5
10	C-4	7.02	0.00110146	16.5
11	C-5	10.24	0.000853163	14.8
12	C-5	10.59	0.000853163	14.8
13	C-5	12.73	0.000853163	14.8
14	C-5	13.63	0.000853163	14.8
15	C-5	15.43	0.000853163	14.8

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



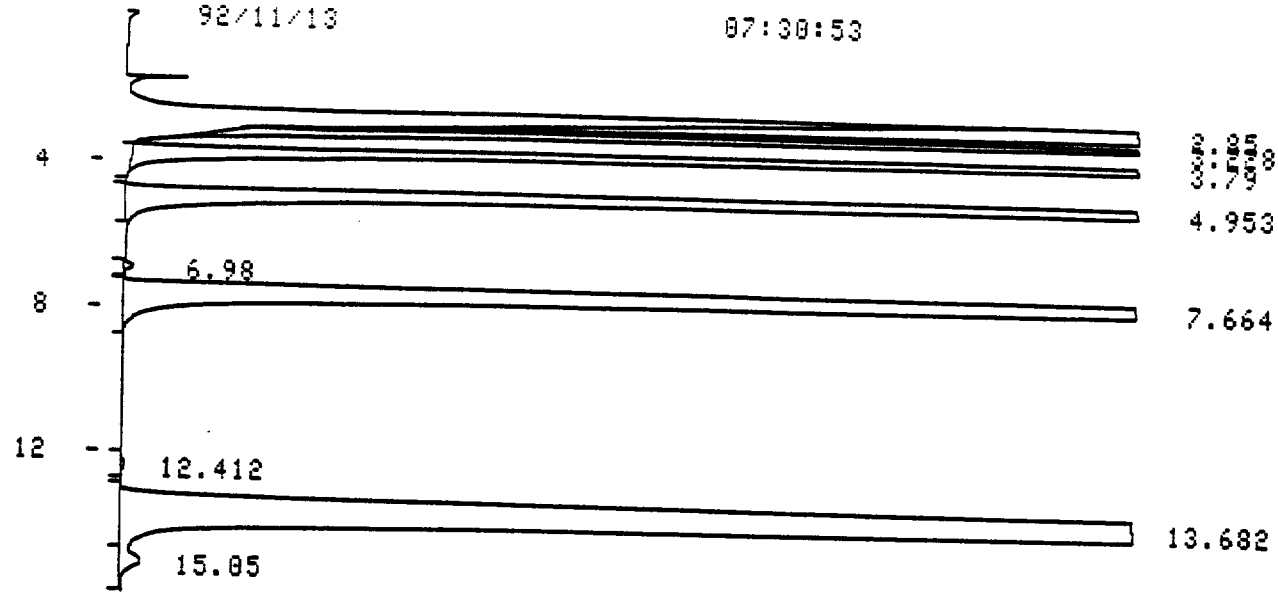
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.858	133524		6		C-6+
2	3.228	23184		1		C-1
3	3.79	48528		7		C-2
4	4.953	72097	S	3		C-3
5	6.292	112				
6	6.75	67				
7	6.977	92	Y	10		C-4
8	7.663	95285		4		C-4
9	13.688	114941		14		C-5

	TOTAL	487829				

IDENTIFICATION FILE 1
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00435653	101
2	C-2	3.72	0.002126	101
3	C-3	4.94	0.00138702	100
4	C-4	7.65	0.00105998	101
5	C-5	14.06	0.00090691	99.1
6	C-6+	2.84	0.00074893	100
7	C-2	3.77	0.002126	101
8	C-3	4.59	0.00138702	100
9	C-4	6.04	0.00105998	101
10	C-4	6.98	0.00105998	101
11	C-5	10.21	0.00090691	101
12	C-5	10.59	0.00090691	99.1
13	C-5	12.77	0.00090691	99.1
14	C-5	13.66	0.00090691	99.1
15	C-5	15.49	0.00090691	99.1
16	C-5	12.19	0.00090691	99.1
17	C-5	11.6	0.00090691	99.1

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.85	1358866		6		C-6+
2	3.228	239105		1		C-1
3	3.79	498499		2		C-2
4	4.953	748299		3		C-3
5	6.98	980		10		C-4
6	7.664	977294		4		C-4
7	12.412	857		14		C-5
8	13.682	1206997		5		C-5
9	15.05	4691	V	15		C-5

	TOTAL	5027586				

IDENTIFICATION FILE 2
MODE$ 101

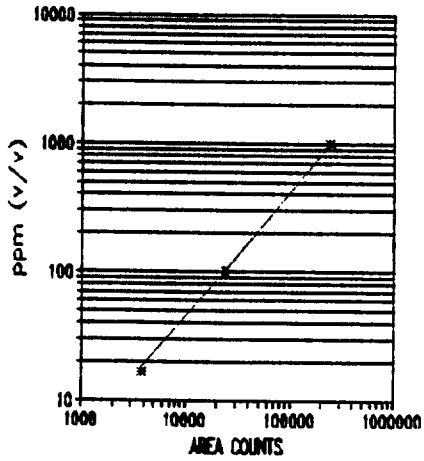
WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00418226	1000
2	C-2	3.78	0.0020662	1030
3	C-3	4.94	0.00135081	1000
4	C-4	7.65	0.00103347	1010
5	C-5	13.65	0.000845073	1020
6	C-6+	2.85	0.000739587	1005
7	C-2	3.81	0.0020662	1030
8	C-3	4.52	0.00135081	1000
9	C-4	5.94	0.00103347	1010
10	C-4	6.96	0.00103347	1010
11	C-5	10.21	0.000845073	1020
12	C-5	10.59	0.000845073	1020
13	C-5	12.73	0.000845073	1020
14	C-5	12.39	0.000845073	1020
15	C-5	15.1	0.000845073	1020

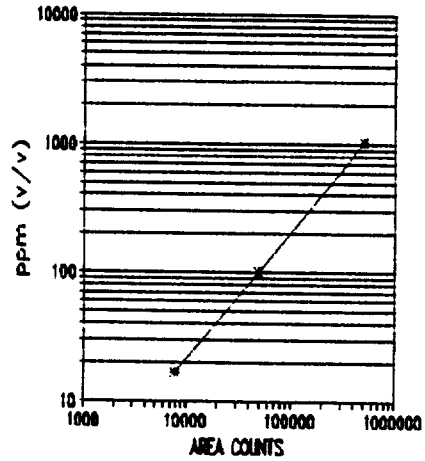
COMPANY : UNOCAL
LOCATION : VAROIUS
DATE : 11-10-92
REPORT : 086-223

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 11-13-92

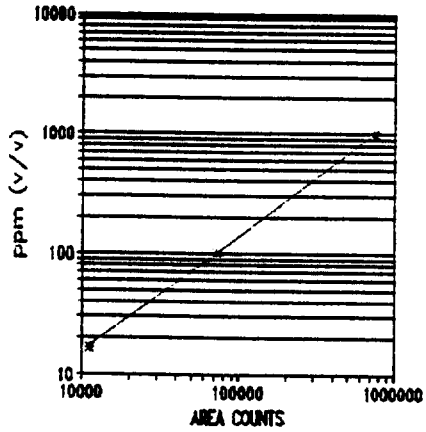
METHANE
CALIBRATION LINEARITY



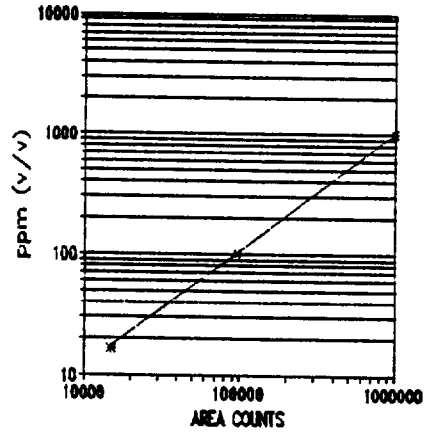
ETHANE
CALIBRATION LINEARITY



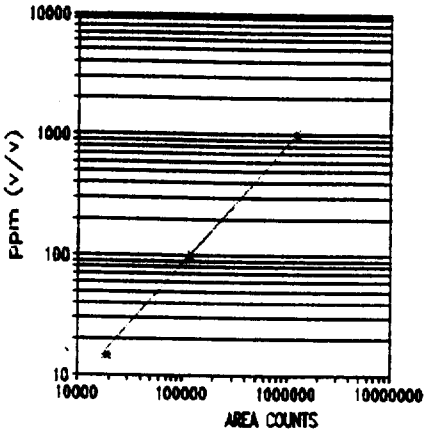
PROPANE
CALIBRATION LINEARITY



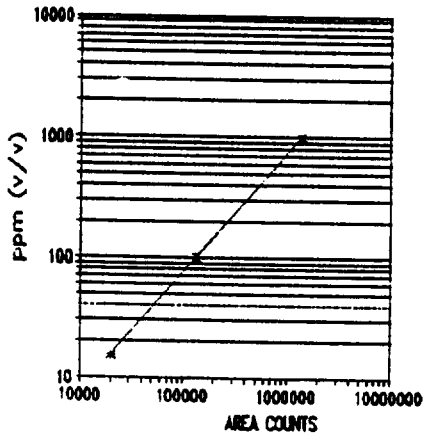
BUTANE
CALIBRATION LINEARITY



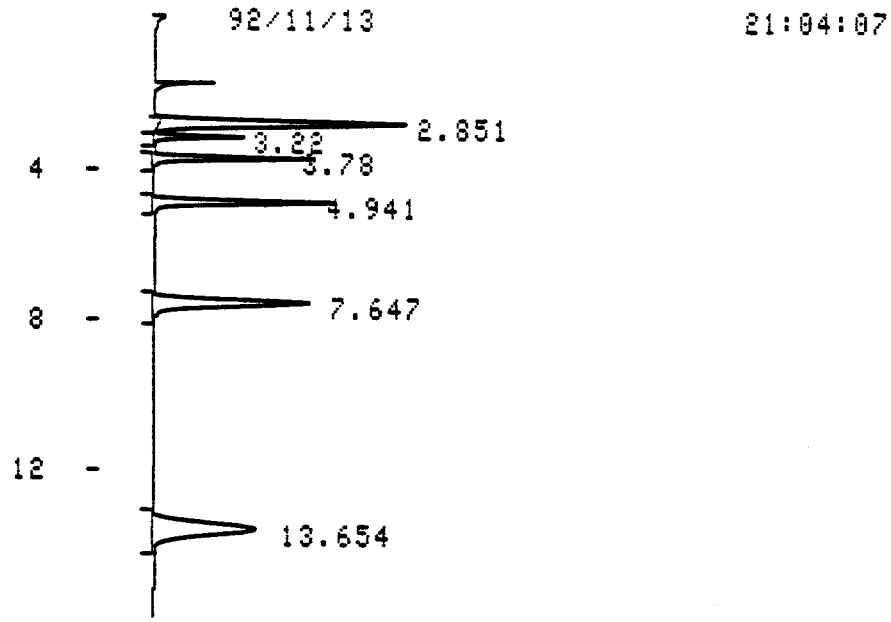
PENTANE
CALIBRATION LINEARITY



HEXANES+
CALIBRATION LINEARITY



POST ANALYSIS CALIBRATION CHECK
15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

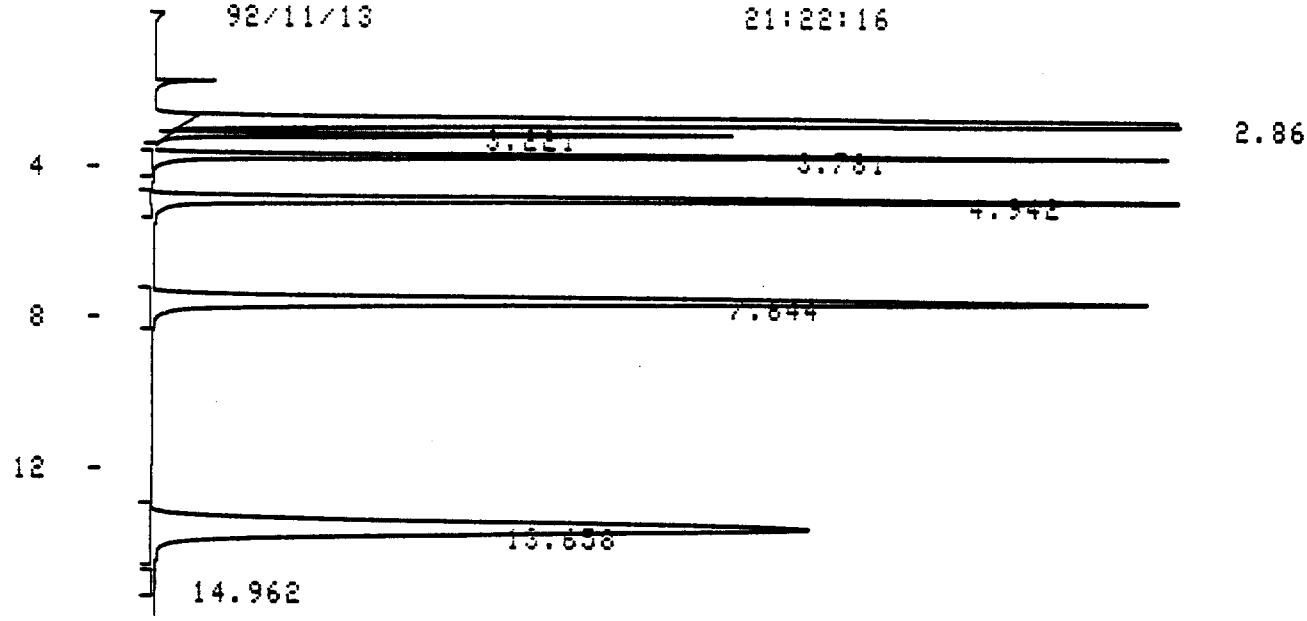


CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.851	20109		6	15.0605	C-6+
2	3.22	3671		1	15.9922	C-1
3	3.78	7580		7	16.1148	C-2
4	4.941	11118		3	15.4204	C-3
5	7.647	14797		4	15.6846	C-4
6	13.654	17900		14	16.2337	C-5
	TOTAL	75175			94.5061	

GROUP(NAME)	CONC
C-1	15.9922
C-2	16.1148
C-3	15.4204
C-4	15.6846
C-5	16.2337
C-6+	15.0605

POST ANALYSIS CALIBRATION CHECK
100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



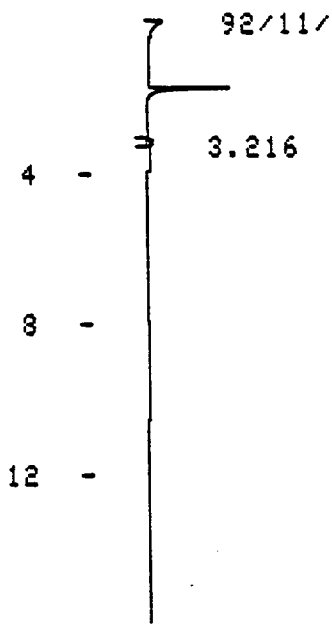
CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.86	132046		6	98.8929	C-6+
2	3.221	22272		1	97.0288	C-1
3	3.781	47809		7	101.6416	C-2
4	4.942	70734		3	98.1095	C-3
5	7.644	93494		4	99.1019	C-4
6	13.658	112857		14	102.3515	C-5
7	14.962	294				
	TOTAL	479507			597.126	

GROUP(NAME)	CONC
C-1	97.0288
C-2	101.6416
C-3	98.1095
C-4	99.1019
C-5	102.3515
C-6+	98.8929

UNOCAL
11-4-92 REPORT # 086-221
HC SAMPLE BLANK

92/11/06 19:05:58

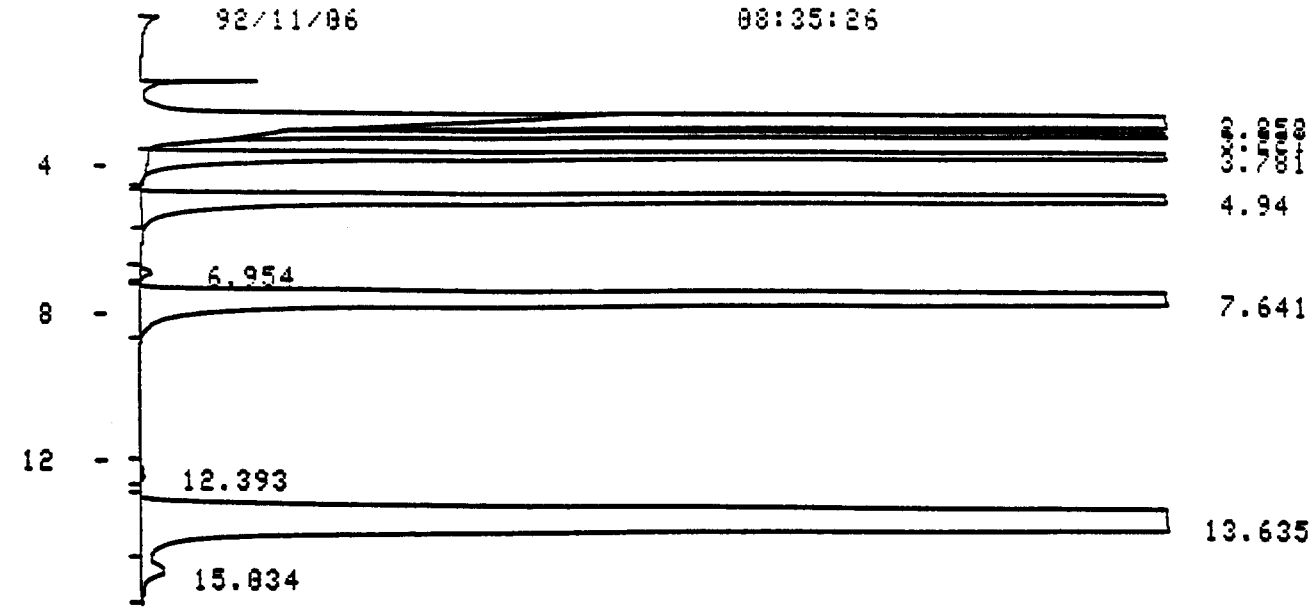


CHROMATOGRAM 31 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.216	194		1	0.8336	C-1
	TOTAL	194			0.8336	

GROUP(NAME)	CONC
C-1	0.8336
C-2	0
C-3	0
C-4	0
C-5	0
C-6+	0

1000PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 224



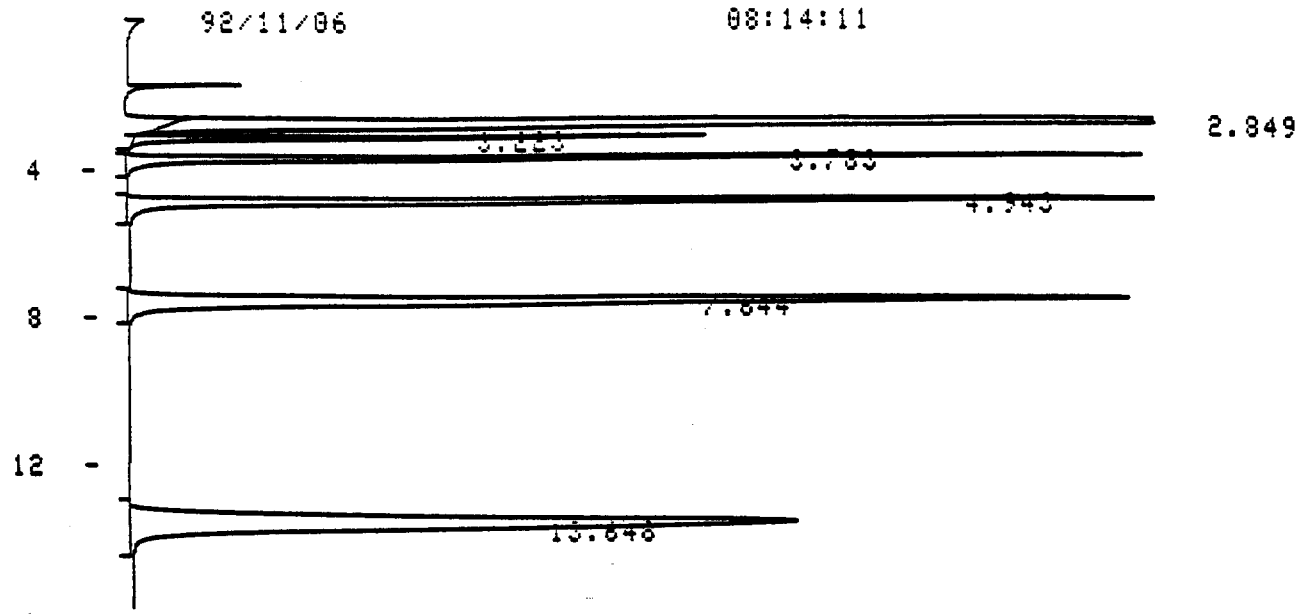
CHROMATOGRAM 2 MEMORIZED

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.858	1388153		6		C-6+
2	3.221	236465		1		C-1
3	3.781	495881		2		C-2
4	4.94	734814		3		C-3
5	6.954	992		10		C-4
6	7.641	974376		4		C-4
7	12.393	855		14		C-5
8	13.635	1288387		5		C-5
9	15.034	4930	V	15		C-5
	TOTAL	5836770				

IDENTIFICATION FILE 2
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00422896	1000
2	C-2	3.77	0.00207745	1030
3	C-3	4.93	0.00136089	1000
4	C-4	7.64	0.00103656	1010
5	C-5	13.61	0.000849726	1020
6	C-6+	2.85	0.000723983	1005
7	C-2	3.81	0.00207745	1030
8	C-3	4.52	0.00136089	1000
9	C-4	5.94	0.00103656	1010
10	C-4	6.95	0.00103656	1010
11	C-5	10.21	0.000849726	1020
12	C-5	10.59	0.000849726	1020
13	C-5	12.73	0.000849726	1020
14	C-5	12.36	0.000849726	1020
15	C-5	15.25	0.000849726	1020

100PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 220



CHROMATOGRAM 2 MEMORIZED

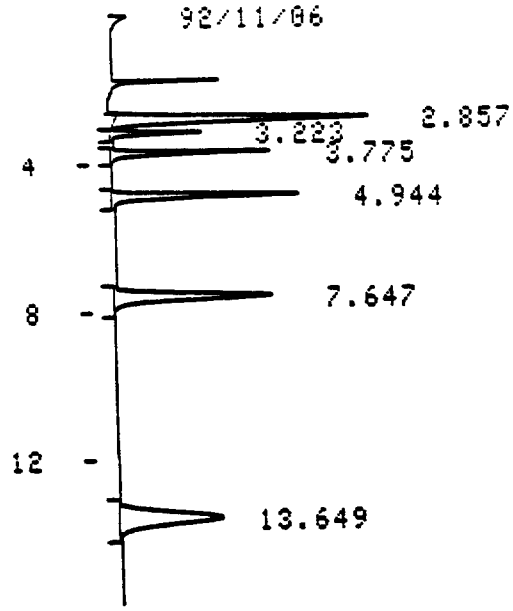
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.849	134213		6		C-6+
2	3.223	23457		1		C-1
3	3.783	48431		7		C-2
4	4.943	72101		3		C-3
5	7.644	94789		4		C-4
6	13.648	114827		14		C-5
	TOTAL	487818				

IDENTIFICATION FILE 1
MODE# 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00430577	101
2	C-2	3.72	0.002126	101
3	C-3	4.93	0.00138694	100
4	C-4	7.63	0.00106553	101
5	C-5	14.06	0.00090691	99.1
6	C-6+	2.84	0.000745082	100
7	C-2	3.77	0.002126	101
8	C-3	4.59	0.00138694	100
9	C-4	6.04	0.00106553	101
10	C-4	7	0.00106553	101
11	C-5	10.21	0.00090691	101
12	C-5	10.59	0.00090691	99.1
13	C-5	12.77	0.00090691	99.1
14	C-5	13.59	0.00090691	99.1
15	C-5	15.49	0.00090691	99.1
16	C-5	12.19	0.00090691	99.1

15PPm HYDROCARBON STANDARD
SCOTTY CAN MIX 1

92/11/06 08:09:26



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.857	20542		6		C-6+
2	3.223	3747		1		C-1
3	3.775	7685		2		C-2
4	4.944	11385		3		C-3
5	7.647	15109		4		C-4
6	13.649	18257		14		C-5
	TOTAL	76724				

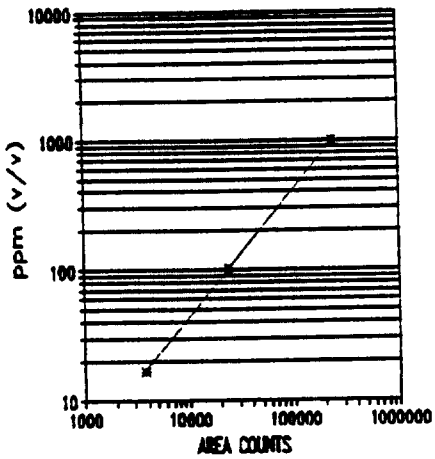
IDENTIFICATION FILE 0
MODE$ 101 WINDOW 3

IDNO	NAME	TIME	FACTOR	CONC
1	C-1	3.21	0.00440399	16.5
2	C-2	3.76	0.00214718	16.5
3	C-3	4.94	0.00144931	16.5
4	C-4	7.67	0.00109207	16.5
5	C-5	14.08	0.000853163	14.8
6	C-6+	2.84	0.000739933	15.2
7	C-2	3.85	0.00214718	16.5
8	C-3	4.58	0.00144931	16.5
9	C-4	6.04	0.00109207	16.5
10	C-4	7.02	0.00109207	16.5
11	C-5	10.24	0.000853163	14.8
12	C-5	10.59	0.000853163	14.8
13	C-5	12.73	0.000853163	14.8
14	C-5	13.5	0.000853163	14.8
15	C-5	15.43	0.000853163	14.8

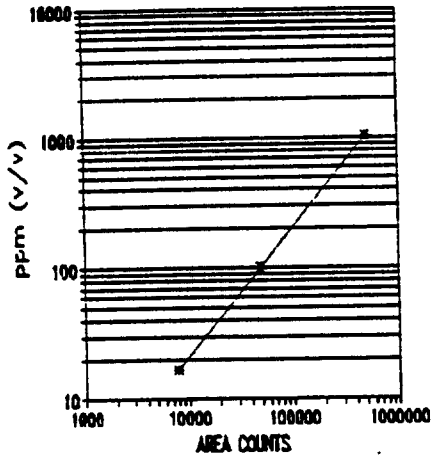
COMPANY : UNOCAL
LOCATION : VARIOUS
DATE : 11-3,4,5-92
REPORT : 086-221

HYDROCARBON CALIBRATION LINEARITY GRAPHS
ANALYSIS PERFORMED ON 11-6-92

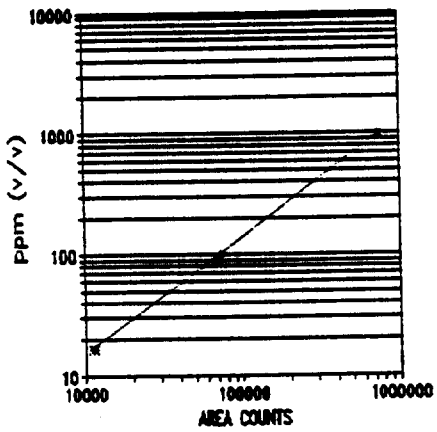
METHANE
CALIBRATION LINEARITY



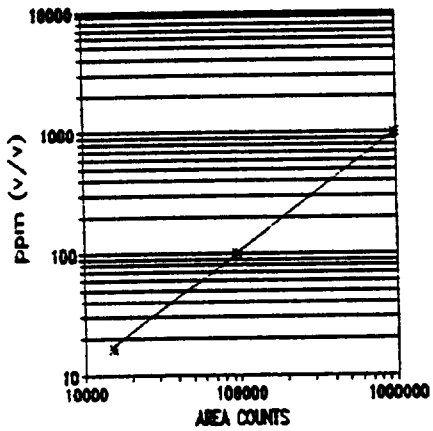
ETHANE
CALIBRATION LINEARITY



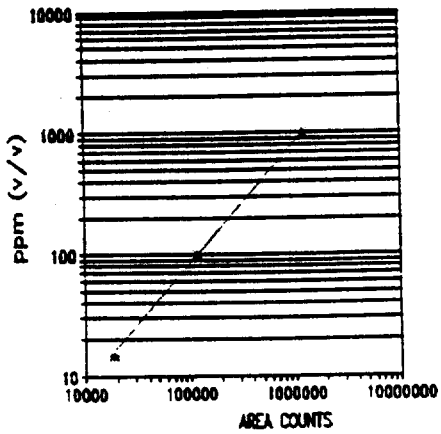
PROPANE
CALIBRATION LINEARITY



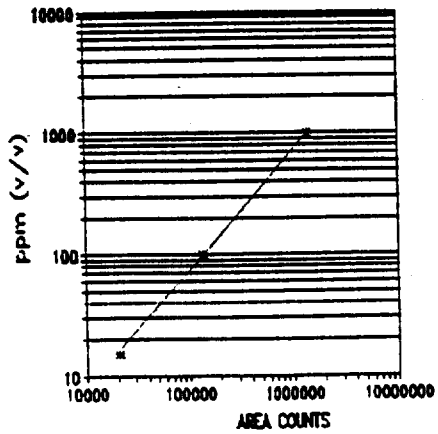
BUTANE
CALIBRATION LINEARITY

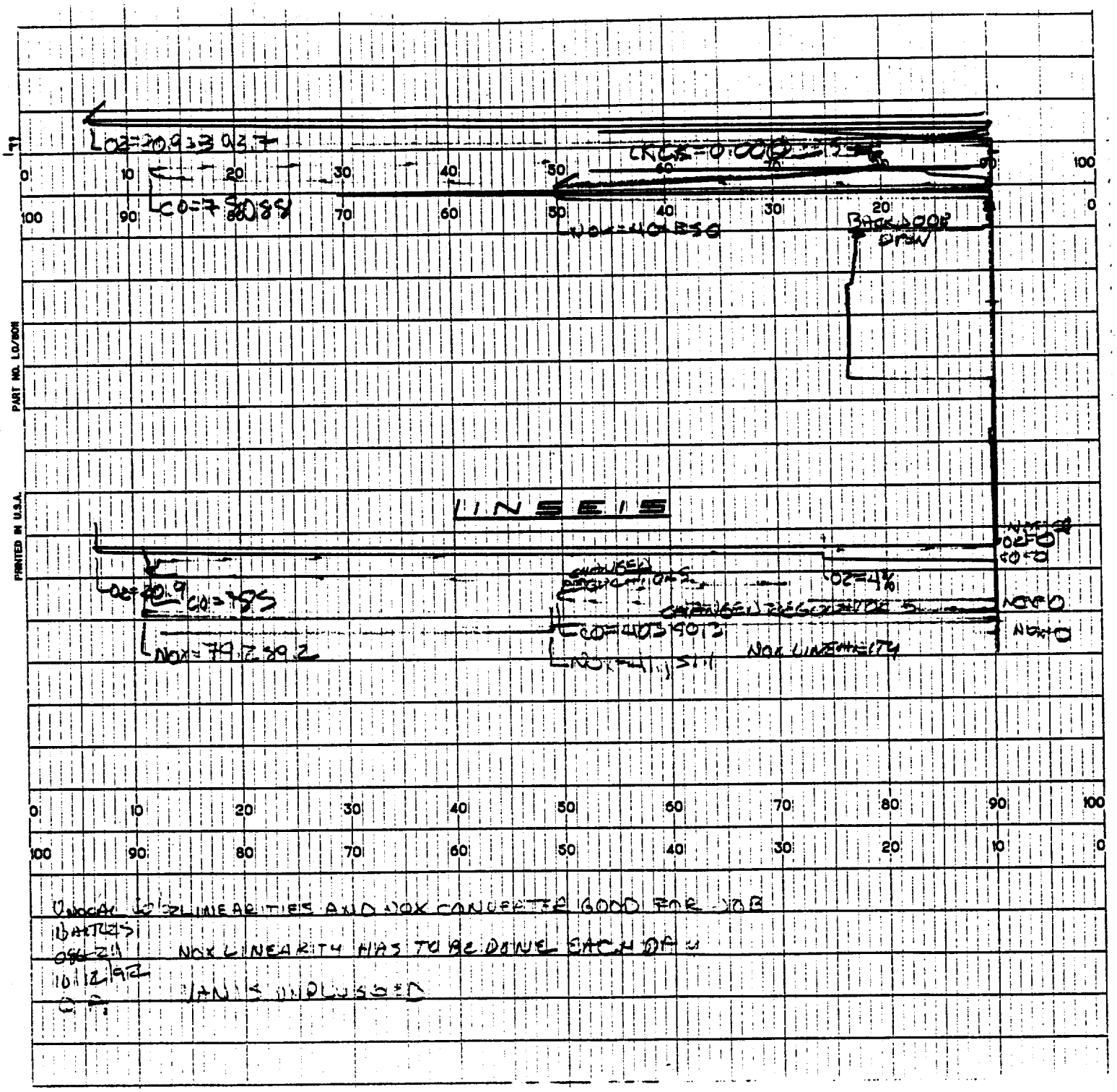


PENTANE
CALIBRATION LINEARITY

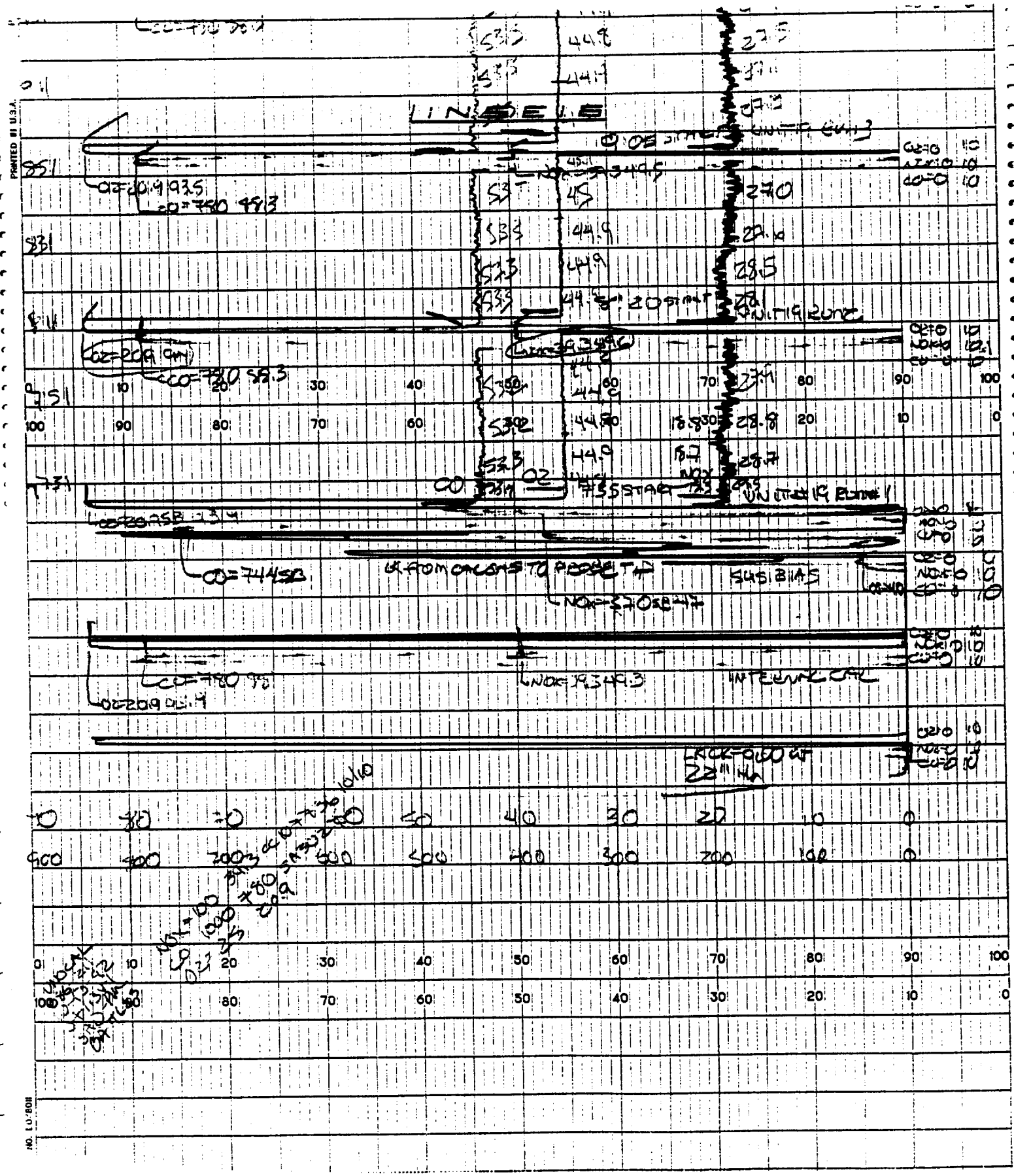


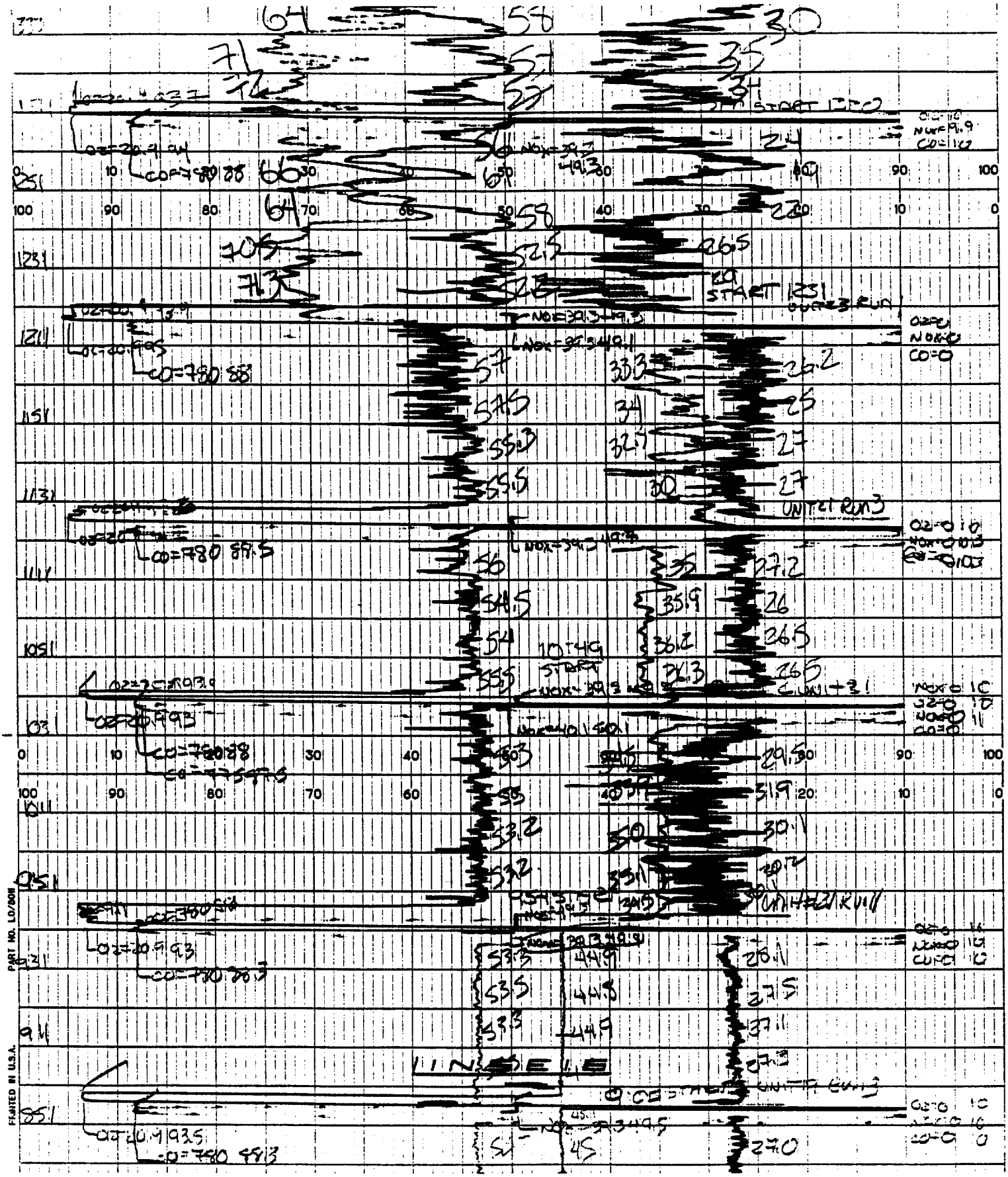
HEXANES+
CALIBRATION LINEARITY



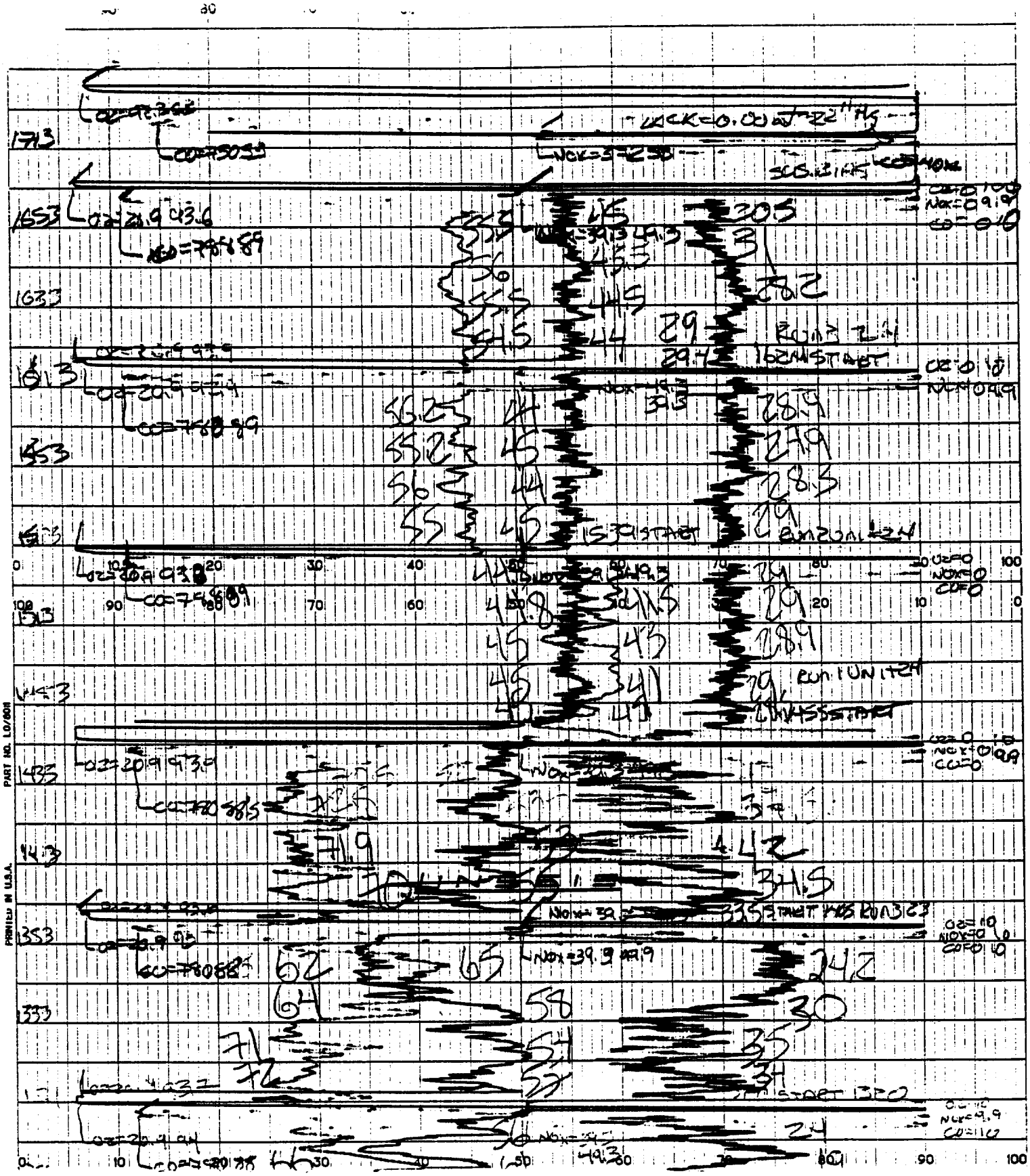


VARIOUS LINEARITIES AND NOX CONVERTER GOOD FOR JOB
BATTERY
OSCILL
10/12/92
NOX LINEARITY HAS TO BE DONE EACH OF U
FANS UNPLUGGED

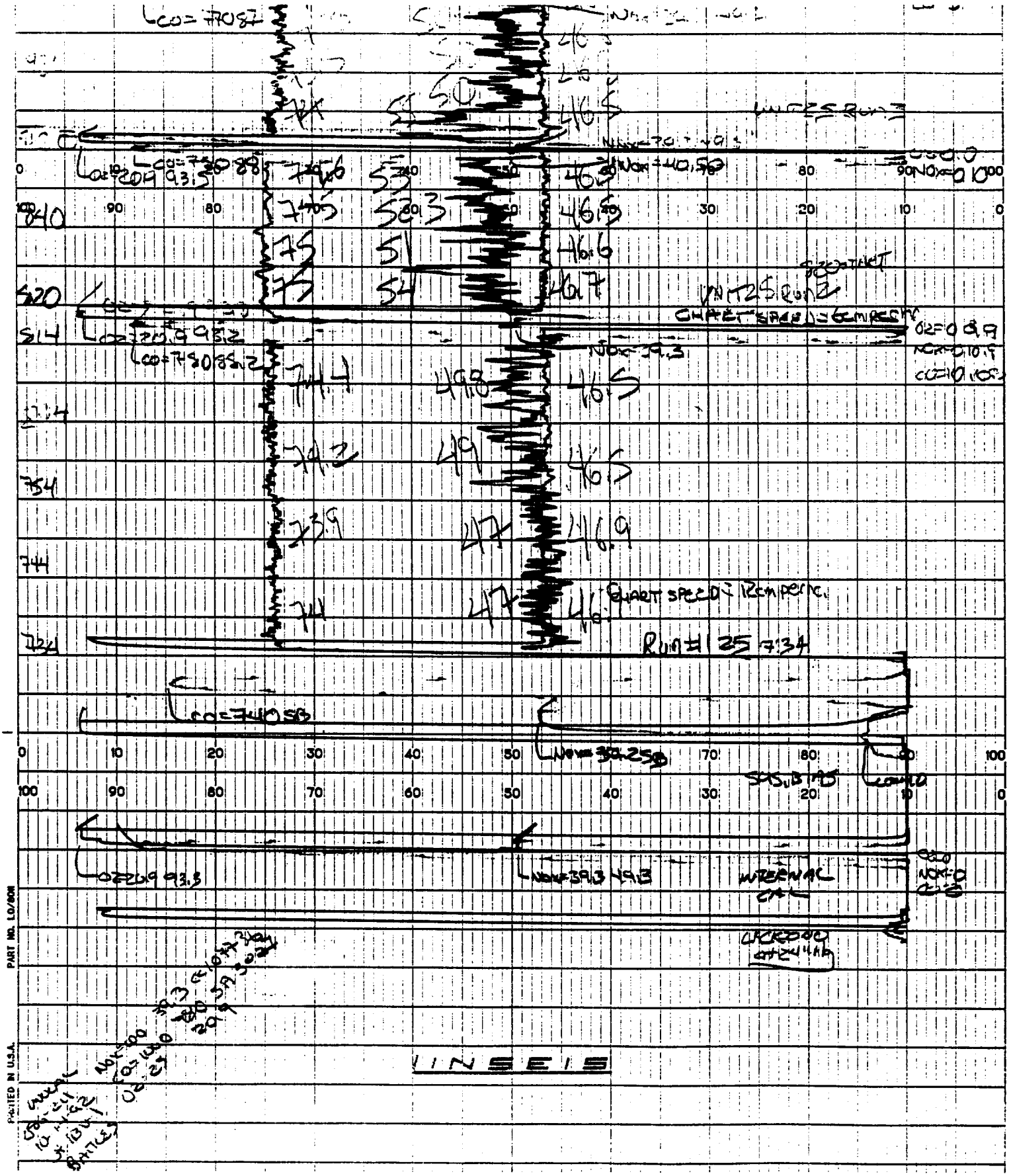

LINE 1.5
CO
O2
NOx
UNITING RUN
UNITING RUN!
INTERVAL CAL
LACK 900 GT
28" Hg

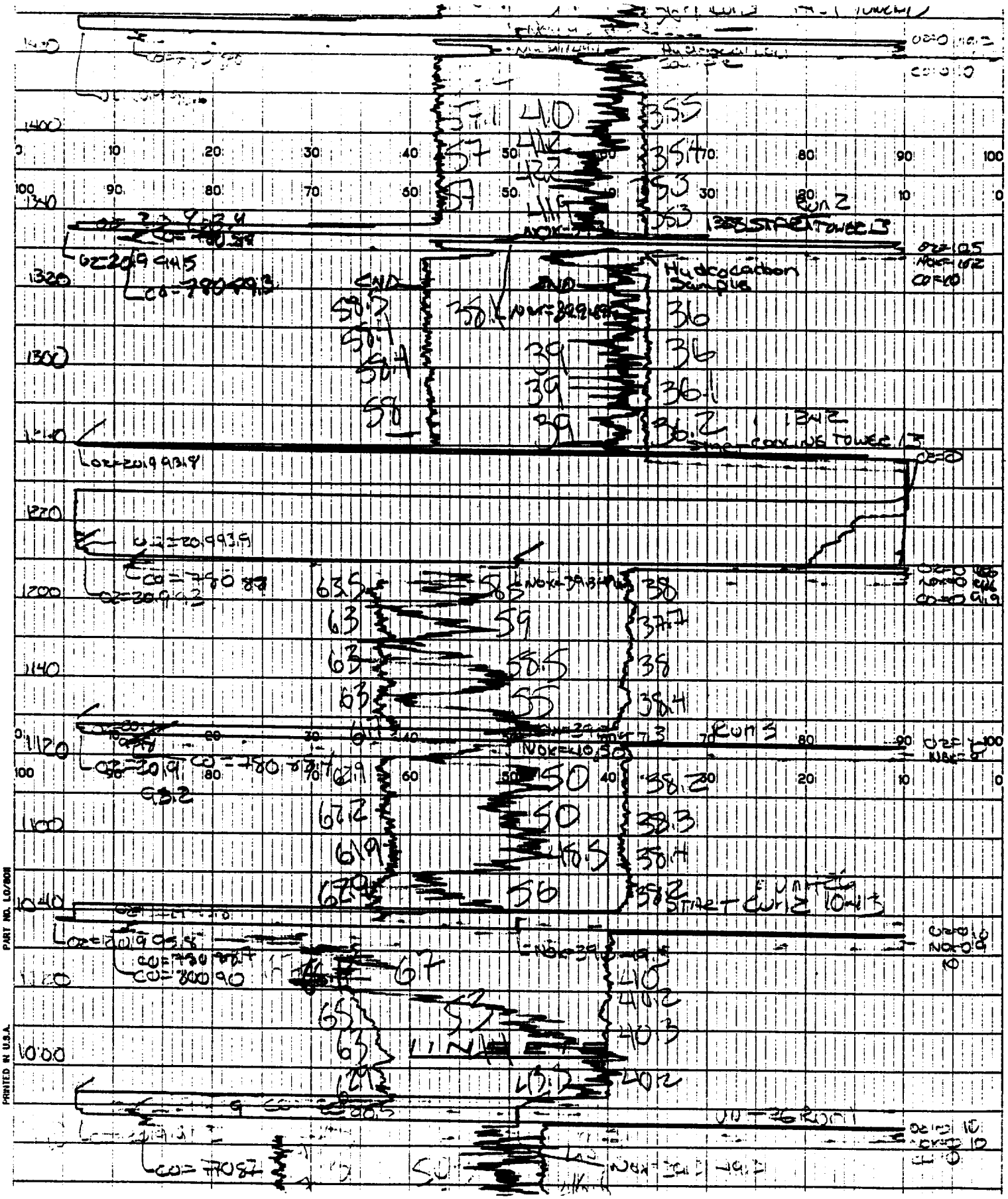


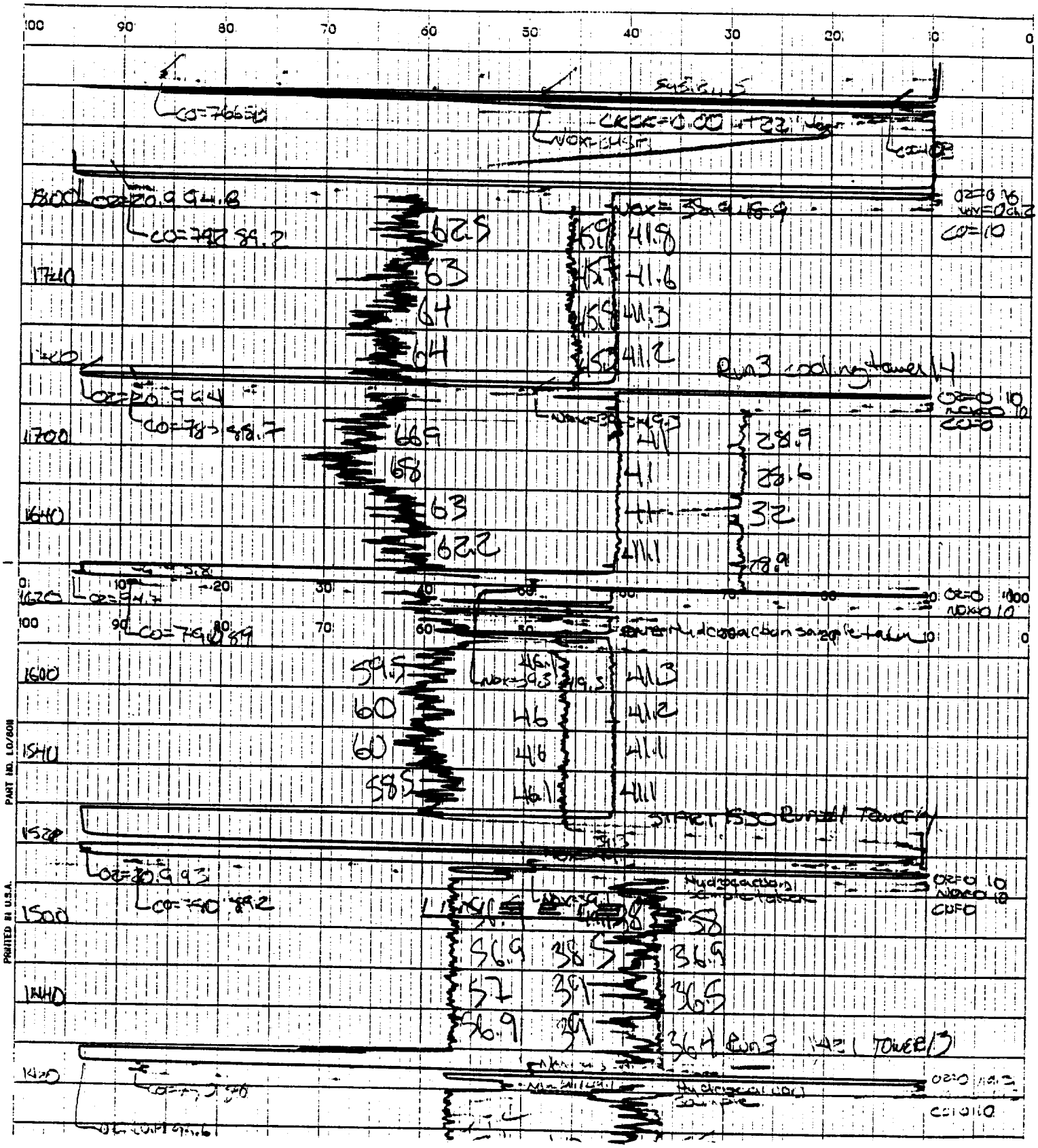
Petro Chem Environmental Services, Inc.



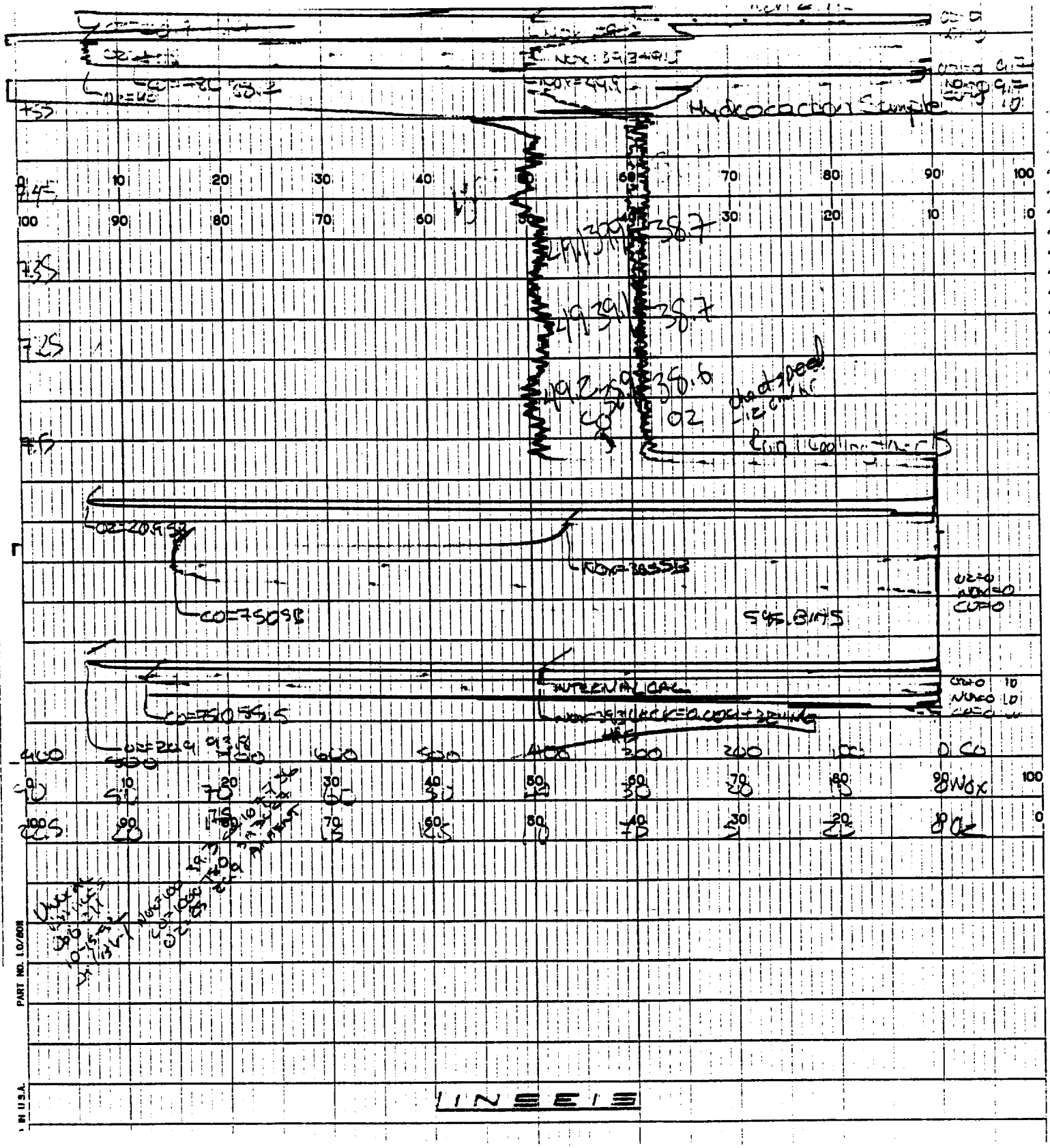
Petro Chem Environmental Services, Inc.


Run #1 25 7:34
PART NO. LO/60M
PRINTED IN U.S.A.
VINSEIS

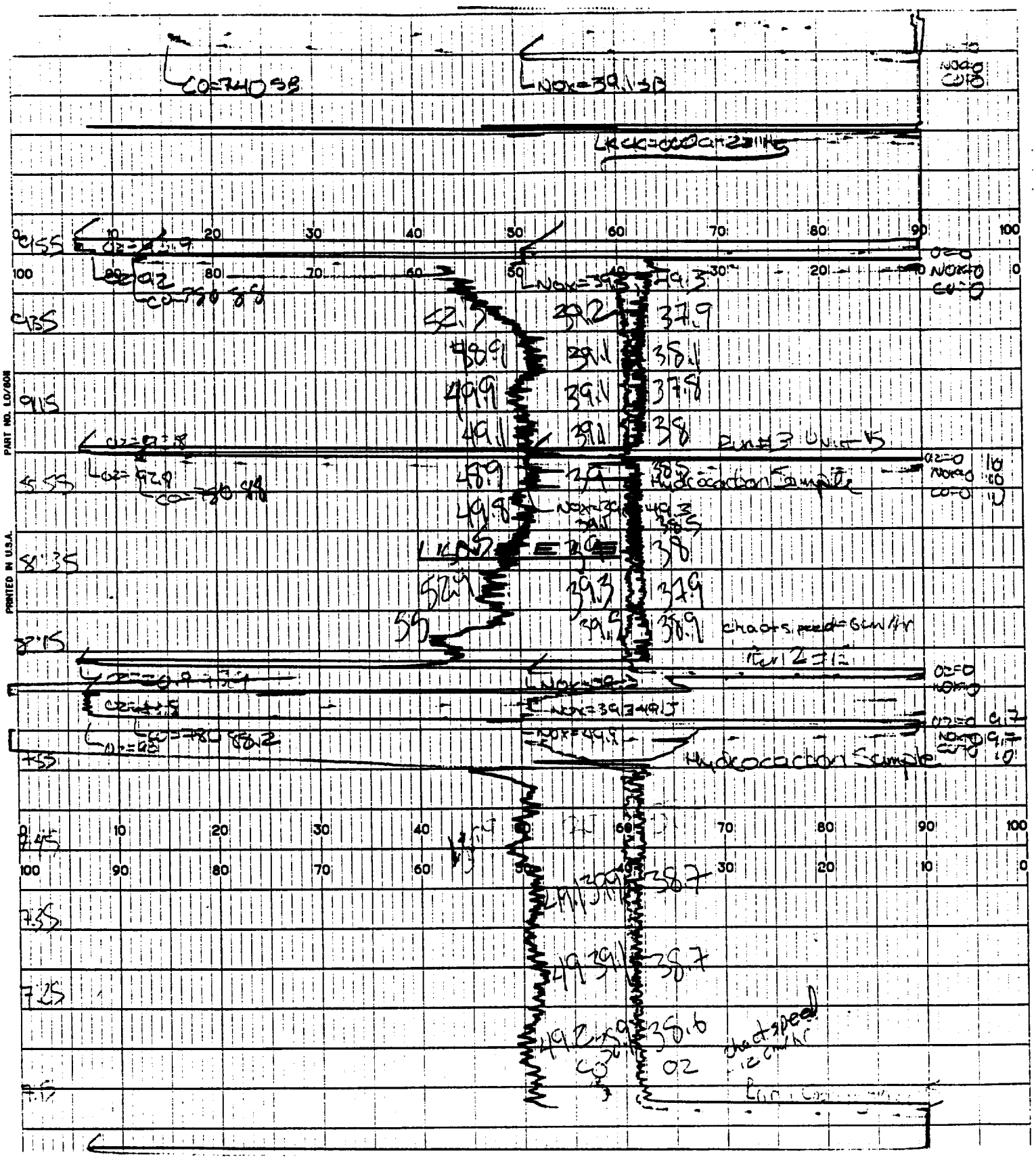

Run 2
Hydrocarbon Sample
Run 3
Run 4



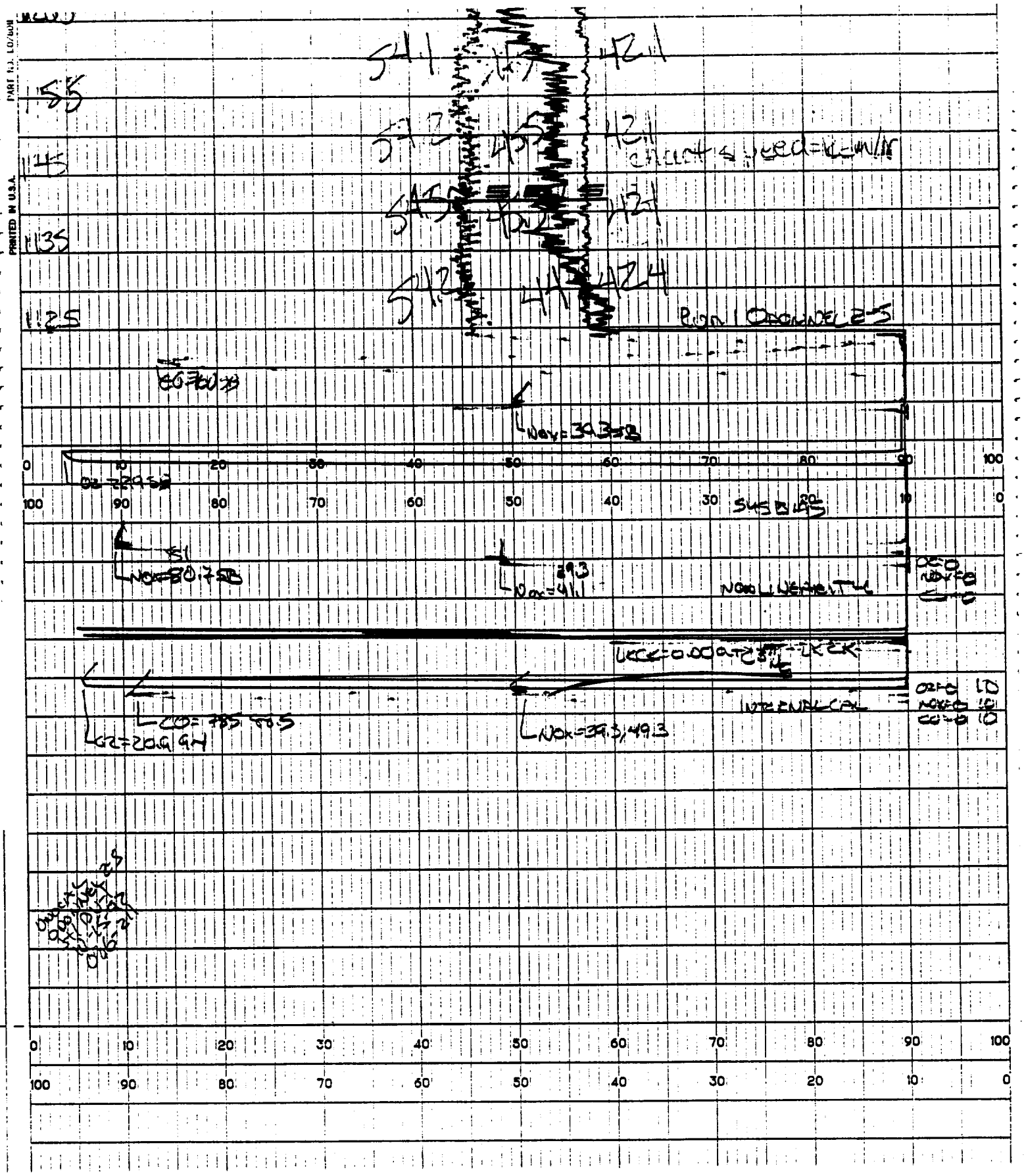
Petro Chem Environmental Services, Inc.



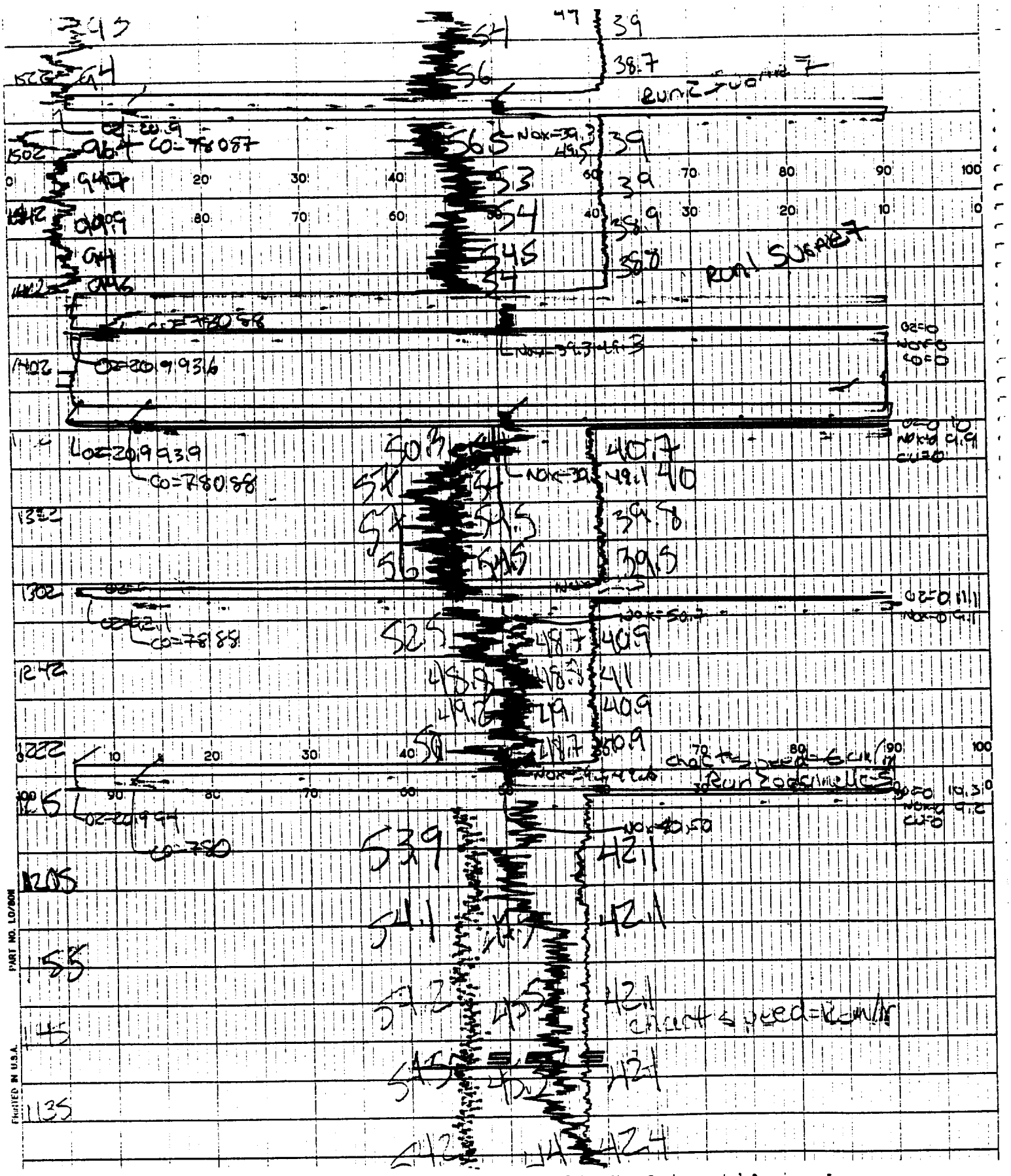
Petro Chem Environmental Services, Inc.



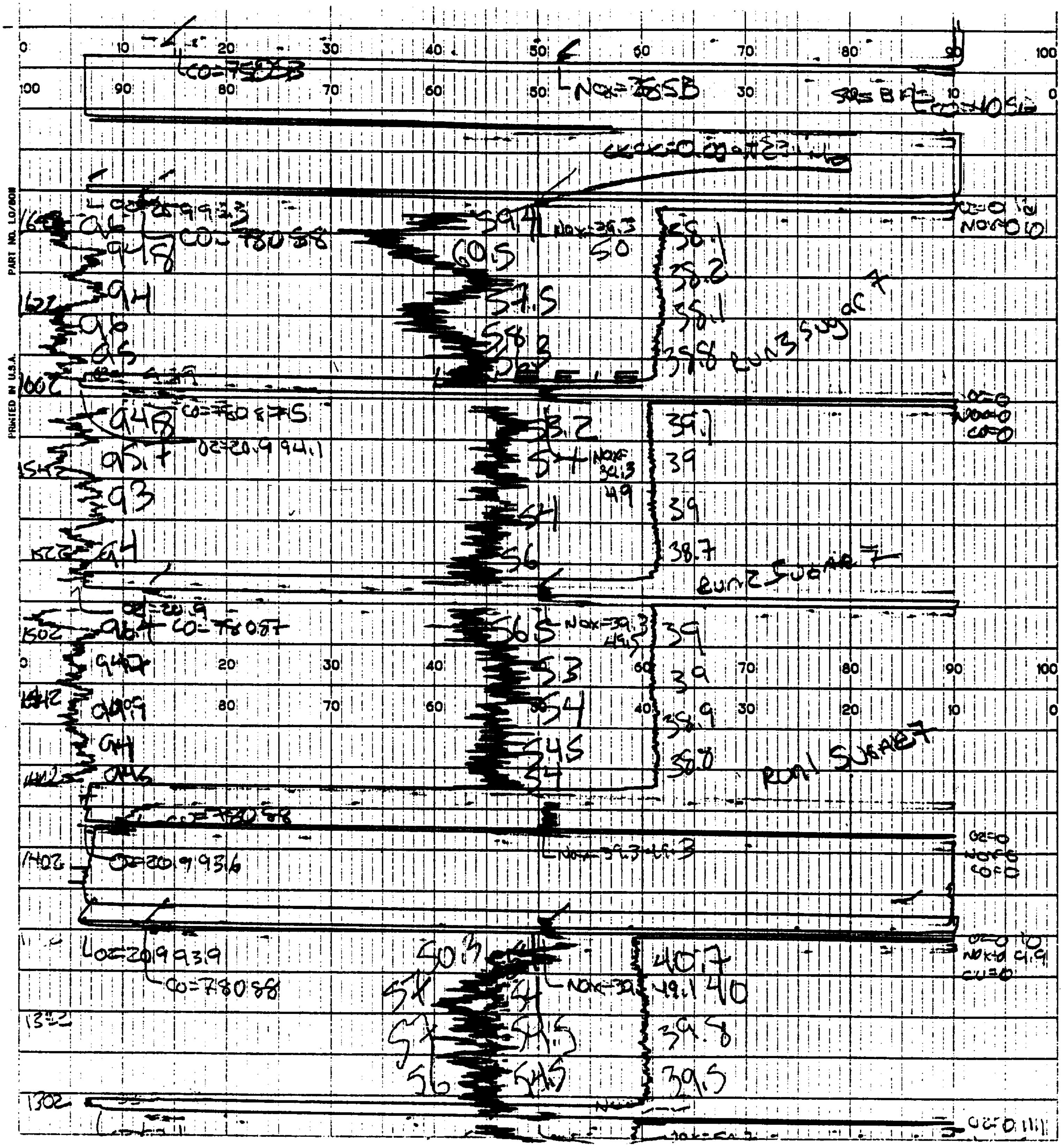
Petro Chem Environmental Services, Inc.



Petro Chem Environmental Services, Inc.



Petro Chem Environmental Services, Inc.



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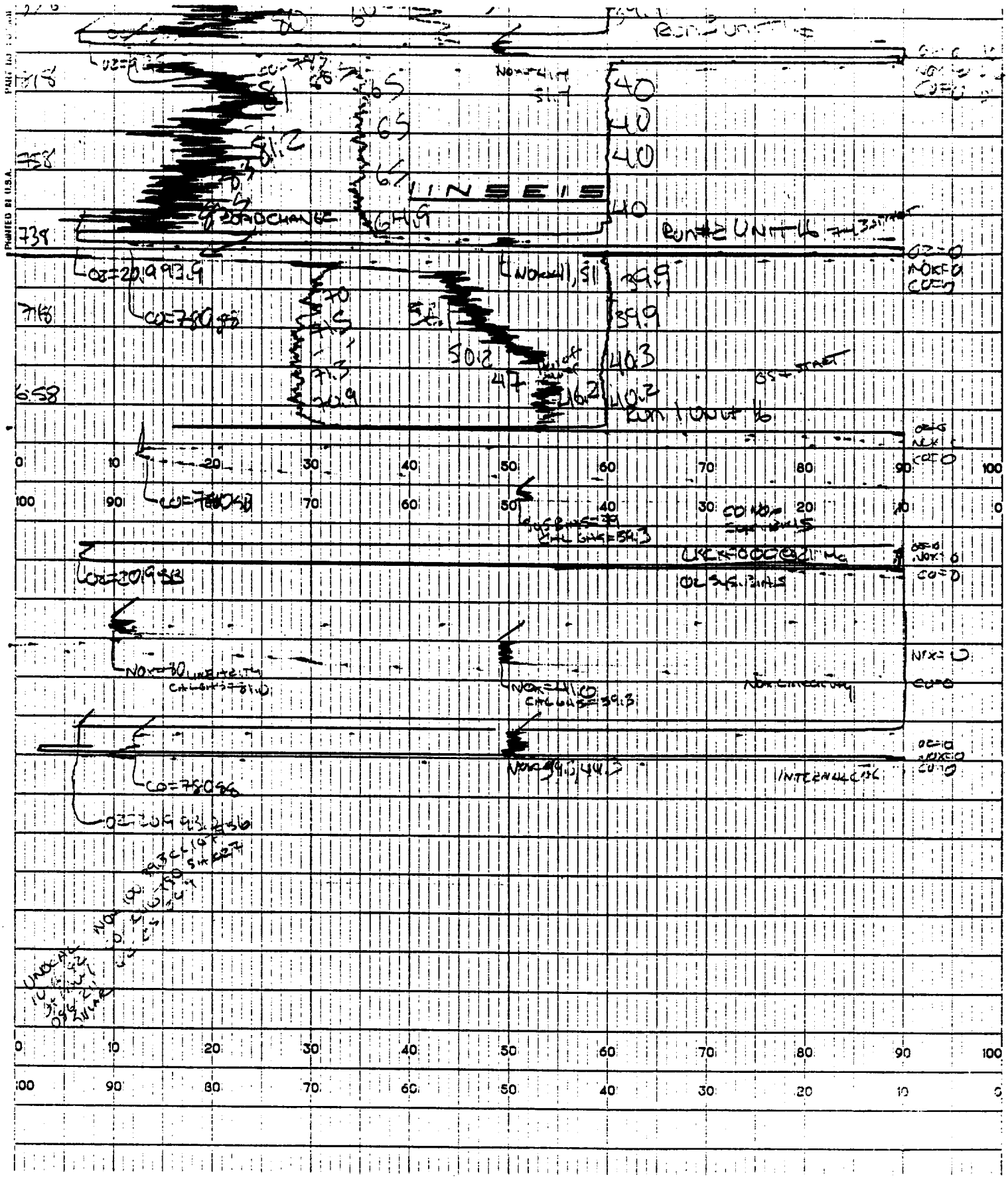

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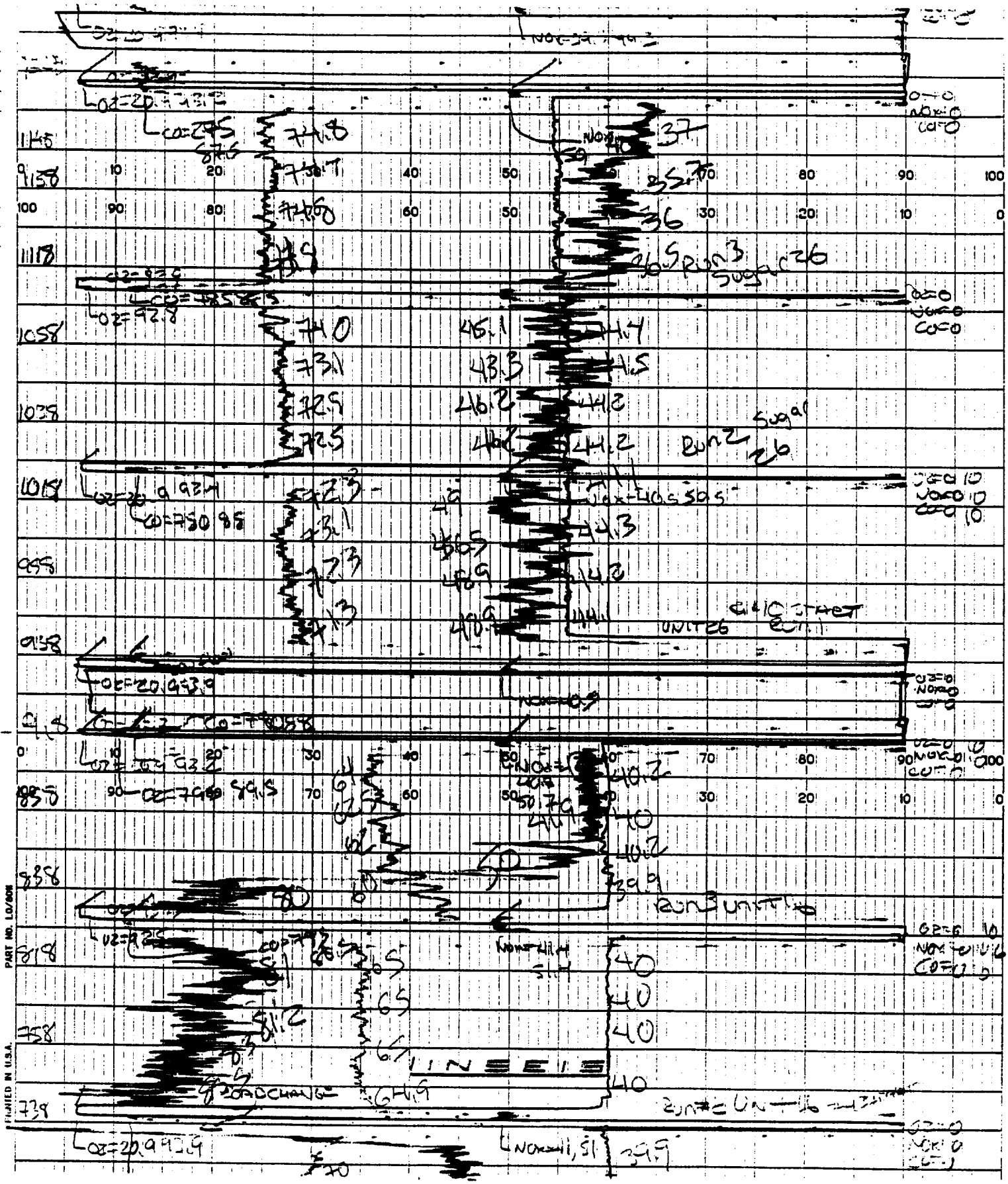

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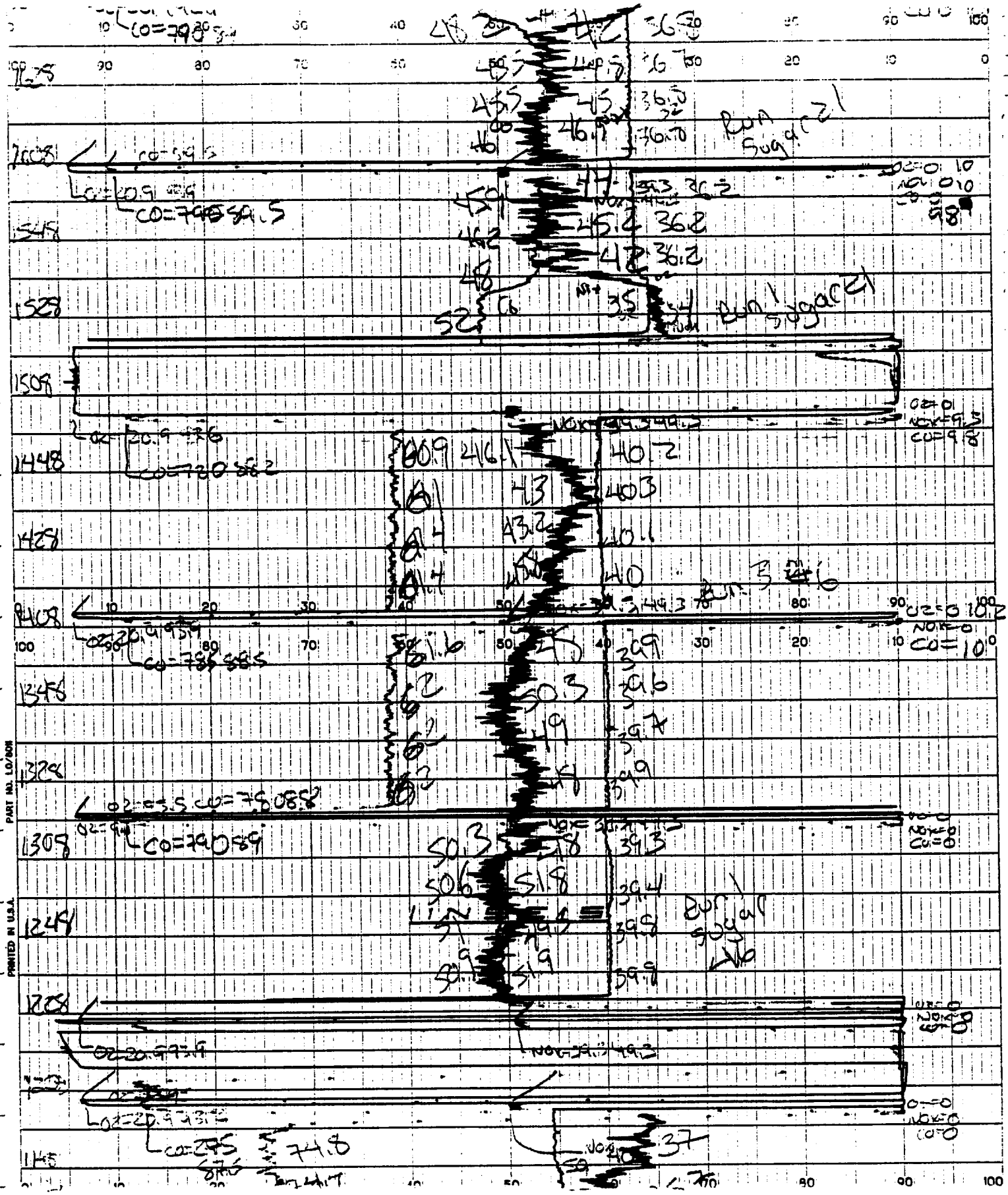

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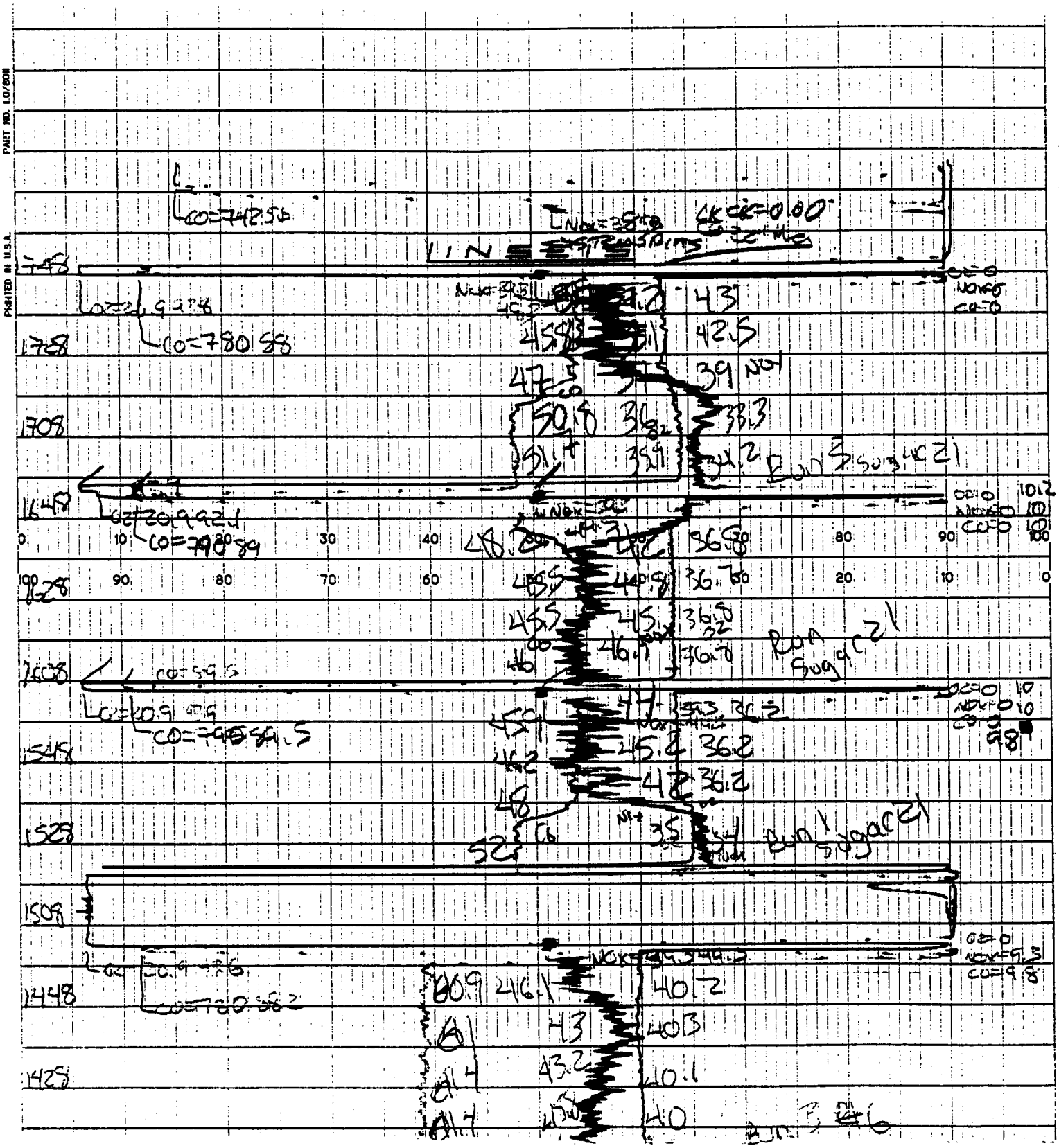
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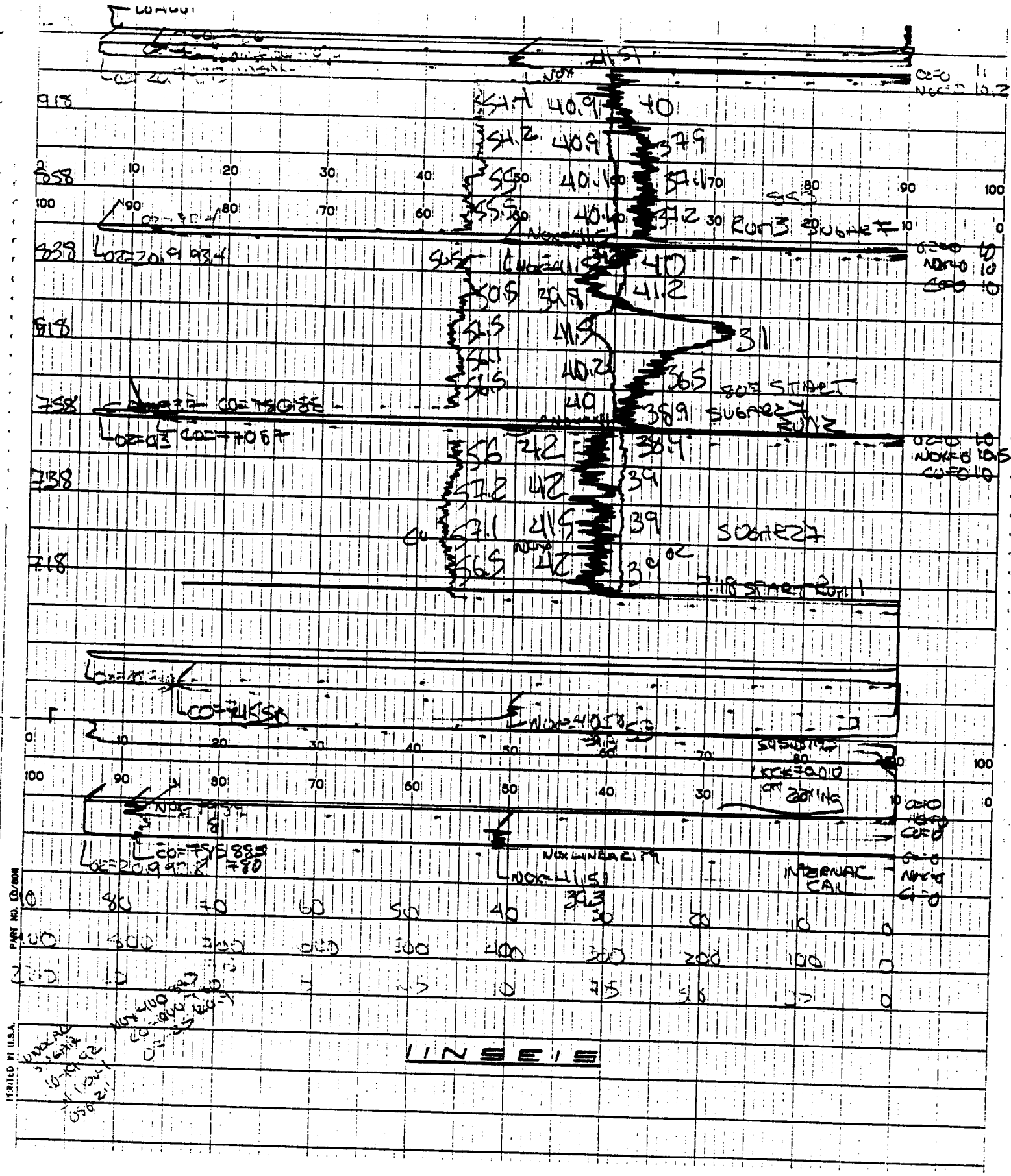
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RUN 3 SUBNET
RUN 2
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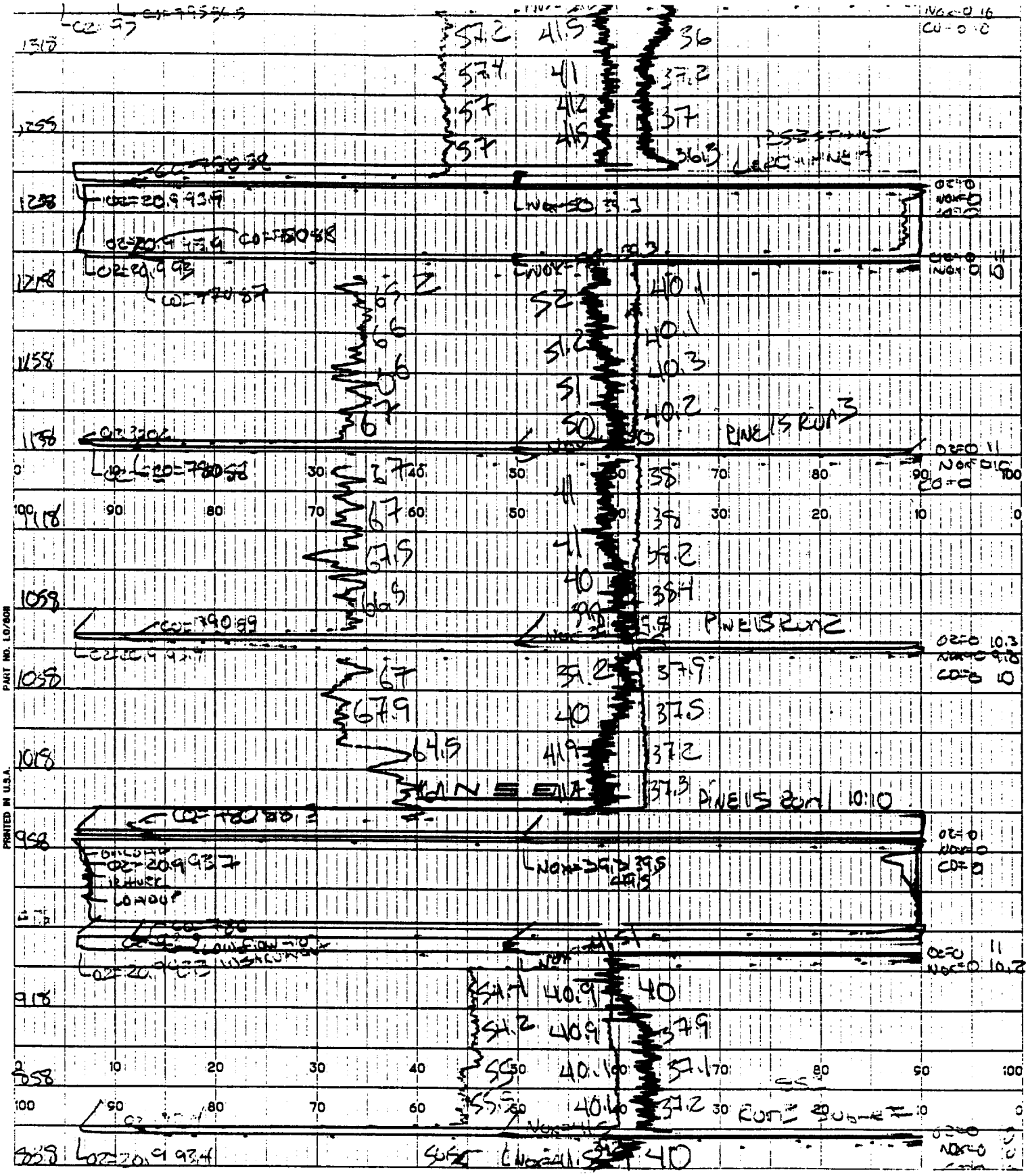
INTERNAL CAL
LINSEIS



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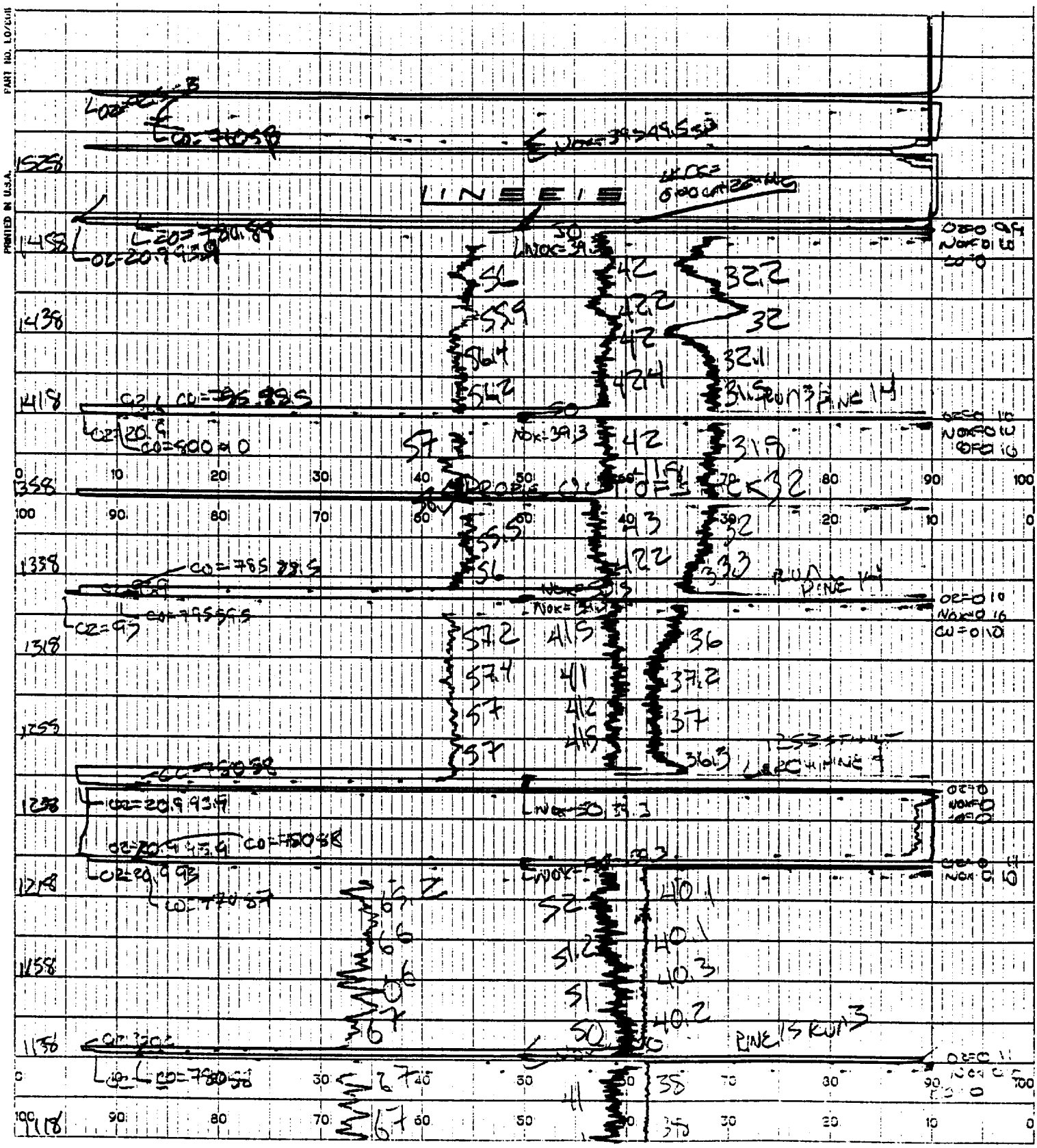

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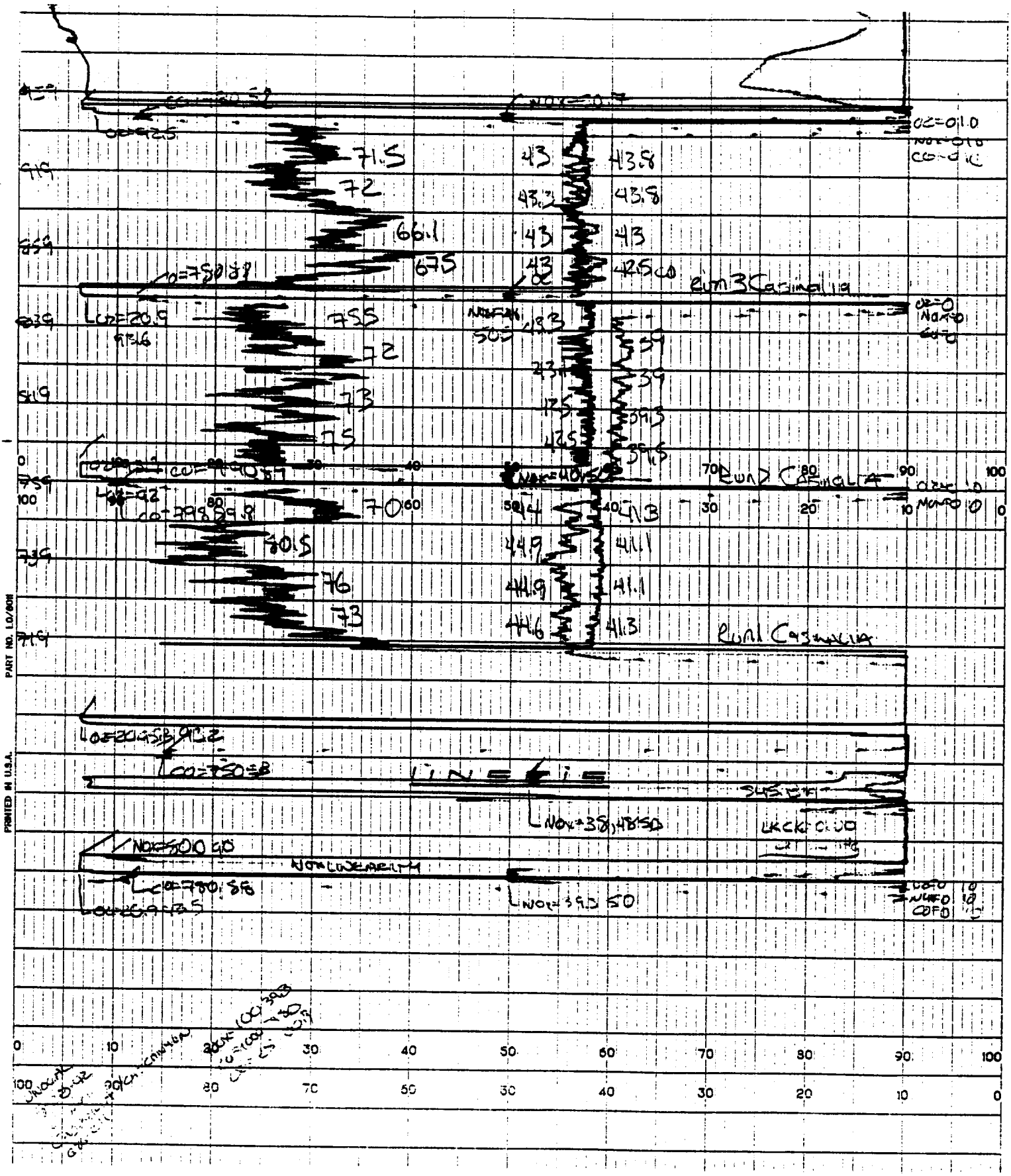

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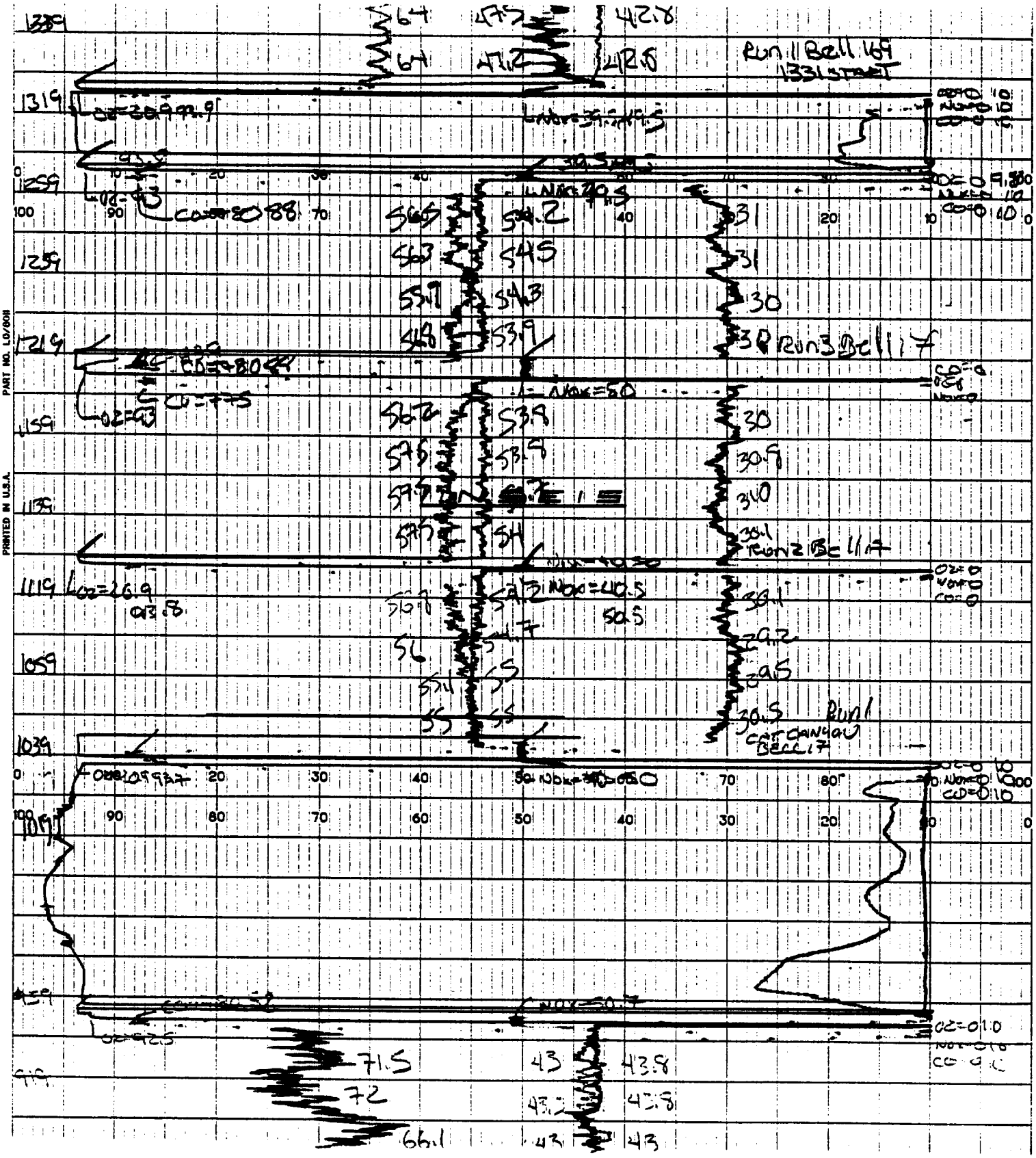

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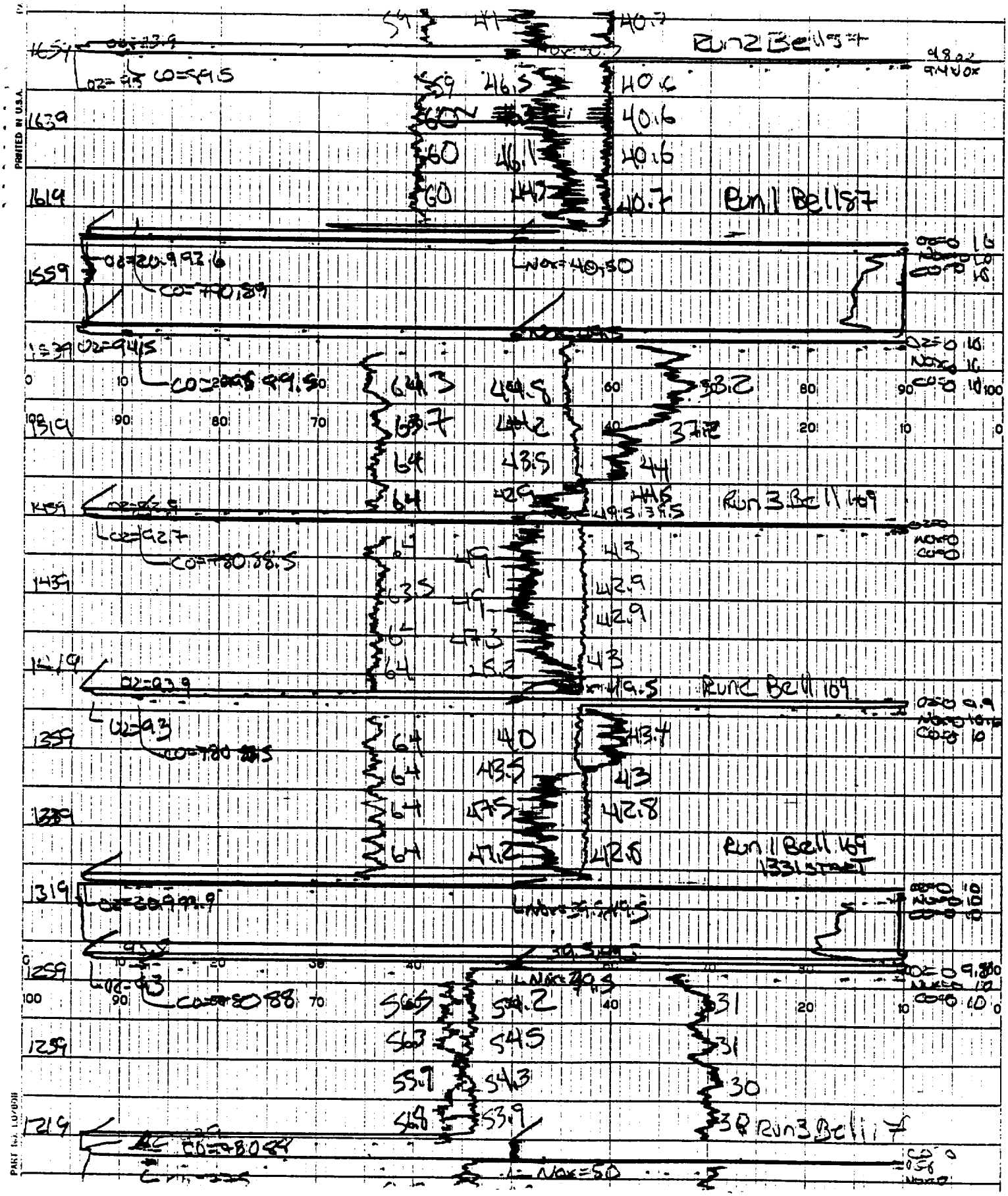

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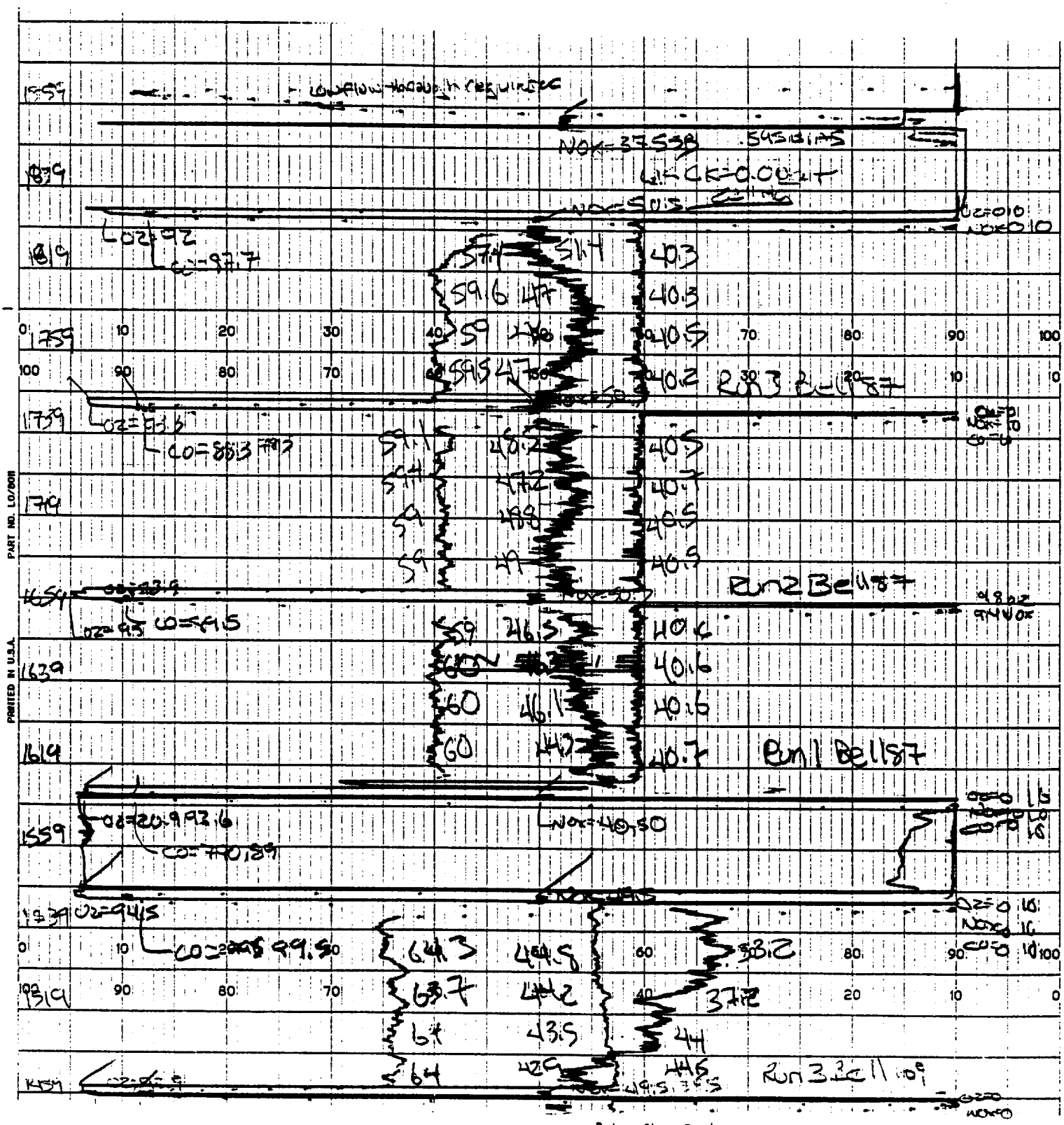

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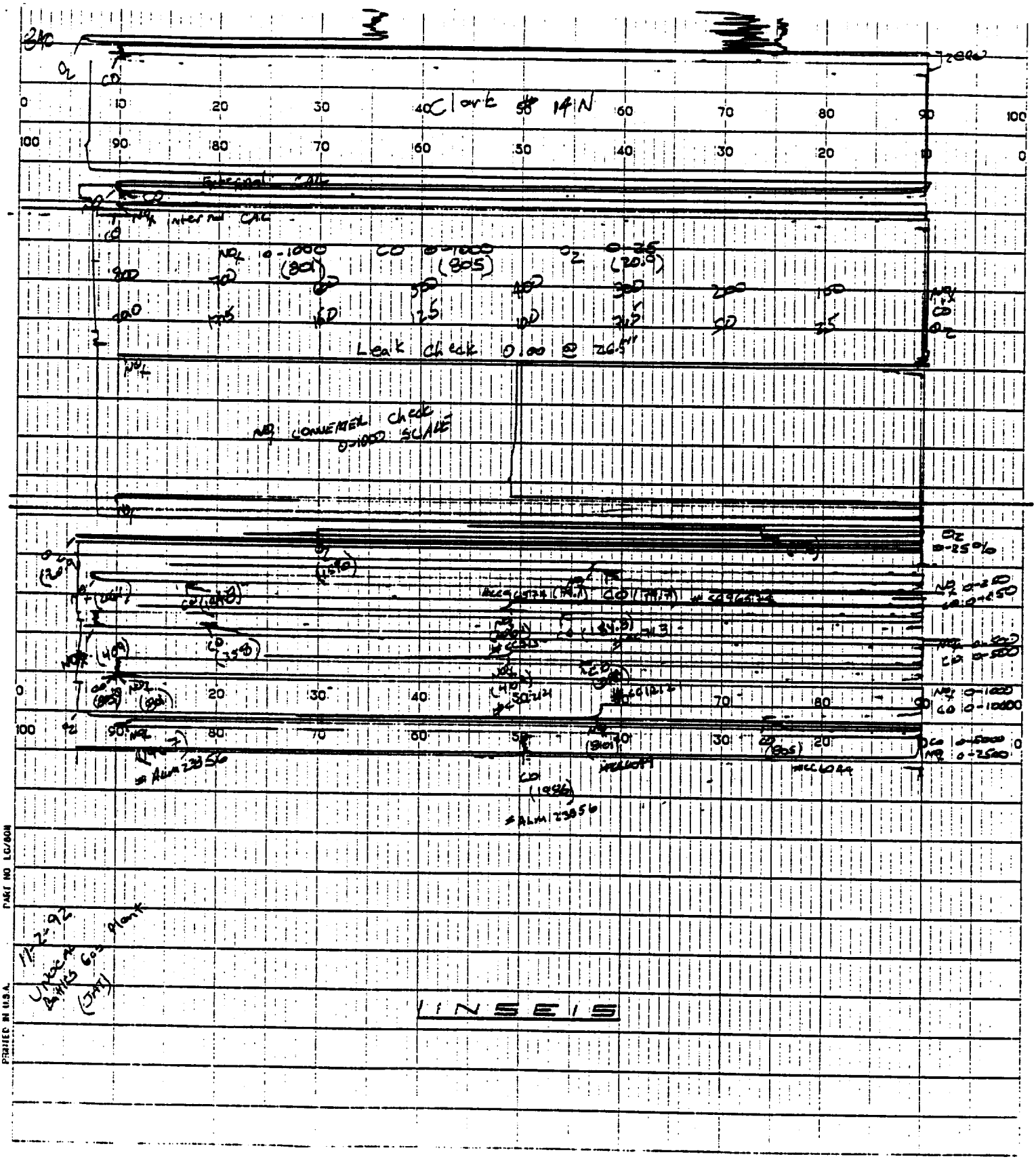
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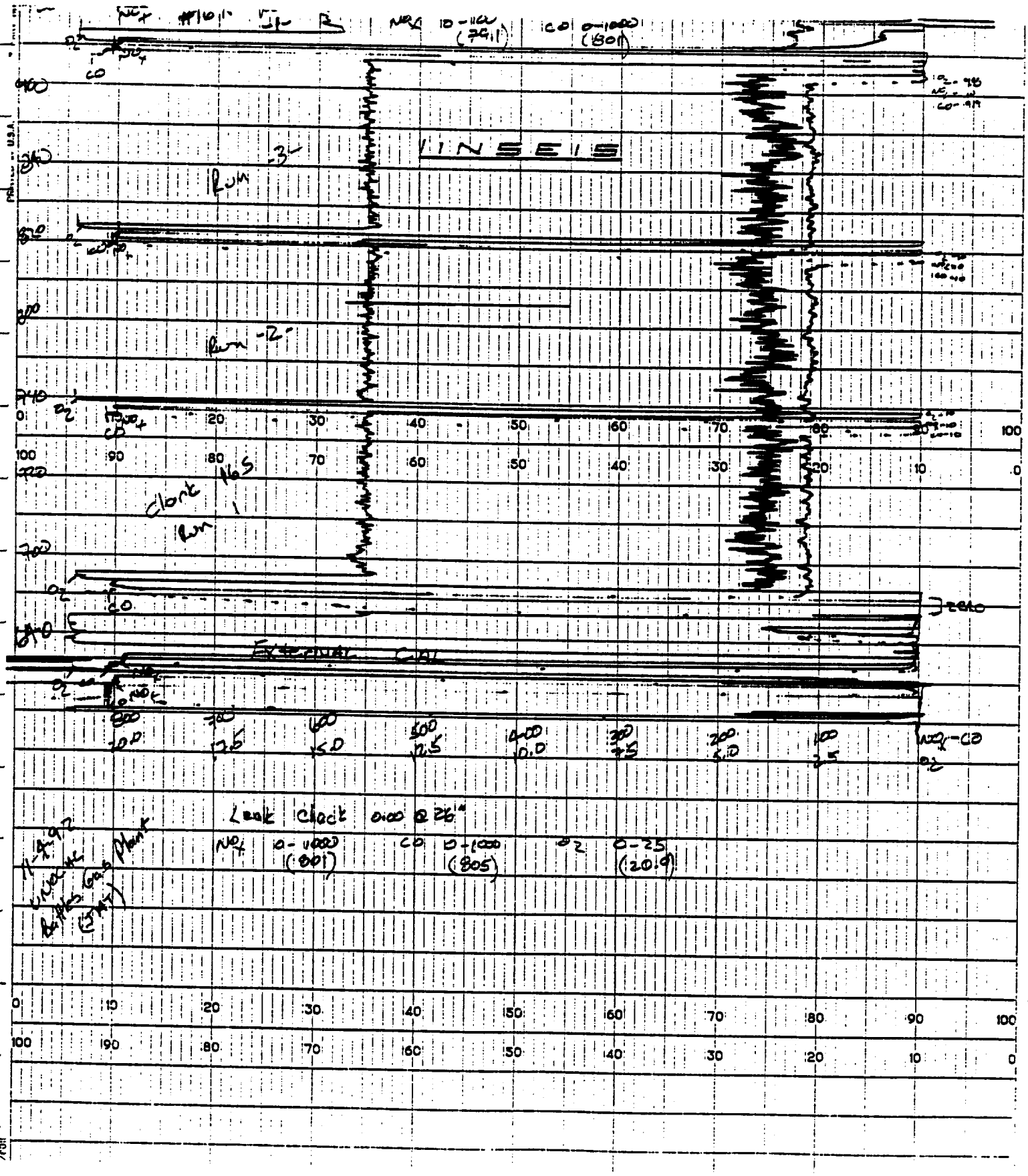
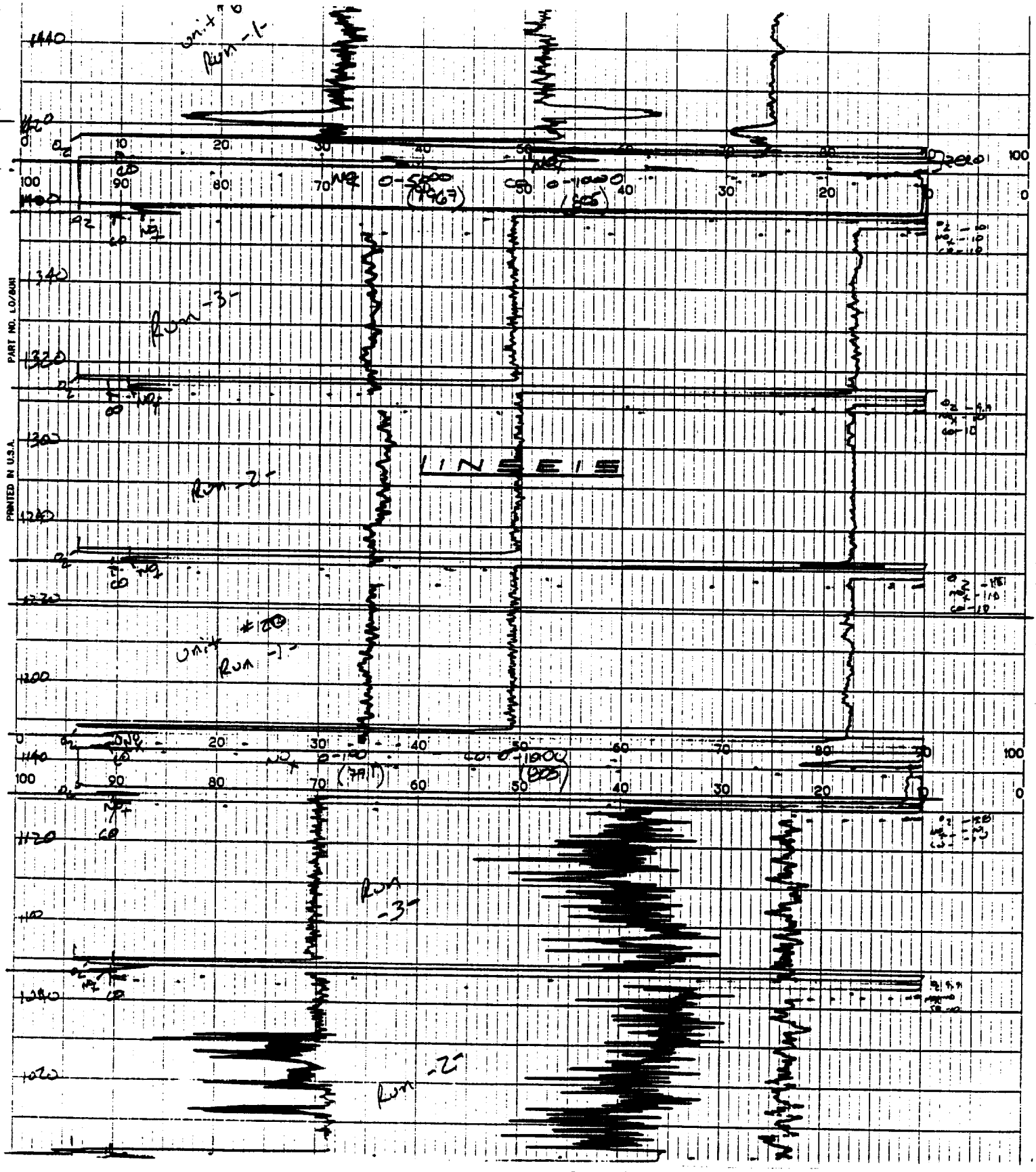
External Cal
Internal Cal
NOx 0-1000 (801)
CO 0-1000 (805)
O2 0-25 (20.9)
Leak check 0.00 @ 20.5"
NOx Commerel check 0-1000 SCALE
O2 0-25%
NOx 0-250
CO 0-250
NOx 0-500
CO 0-500
NOx 0-1000
CO 0-10000
CO 0-5000
NOx 0-2500
LINSEIS


VINSEIS
Run -3-
Run -2-
Run 1
External Cal
Leak Check 0.00 @ 26"
NOx 0-1000 (801)
CO 0-1000 (805)
O2 0-25 (20.9)



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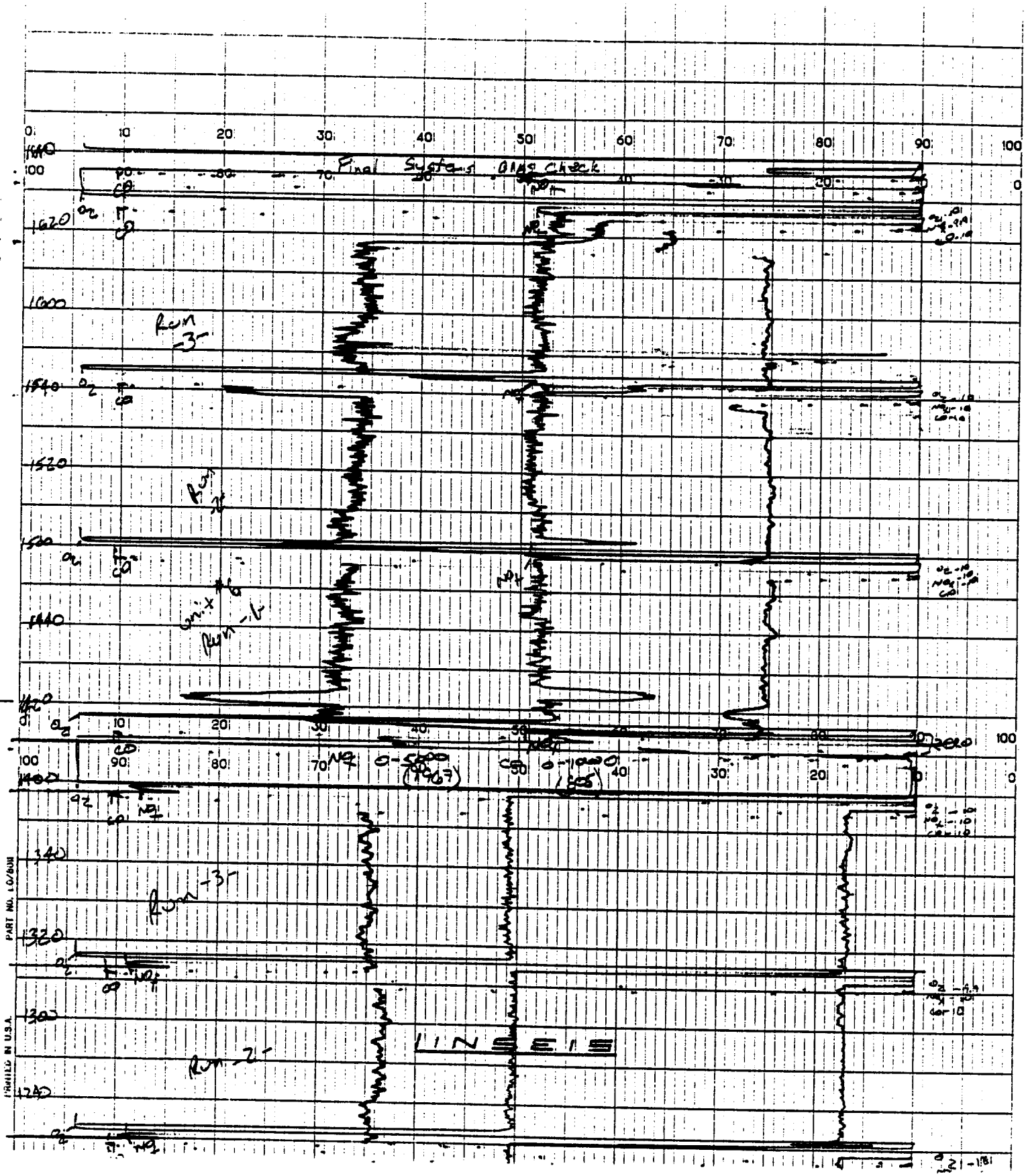

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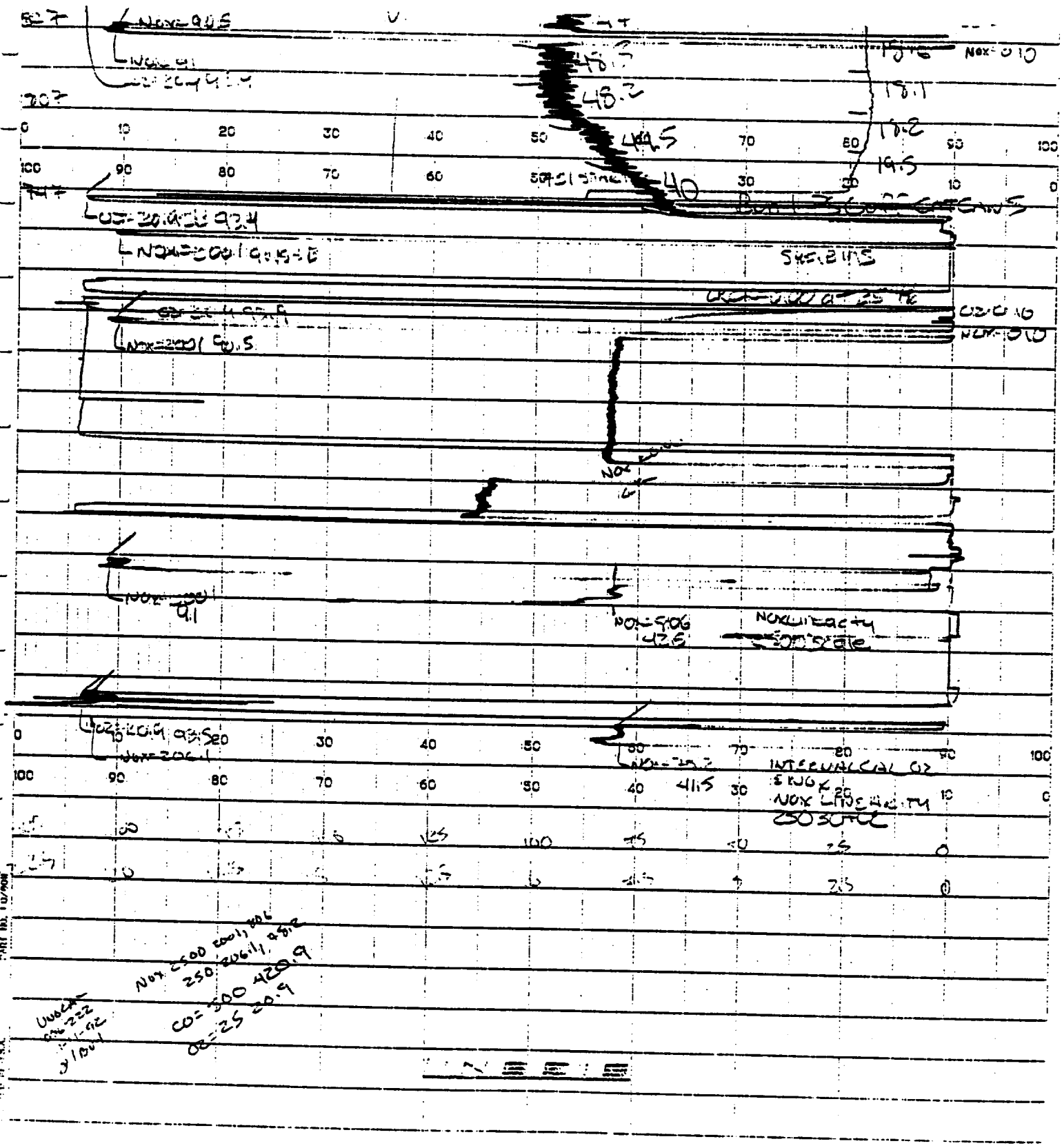
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NOX 2500 2001, 206
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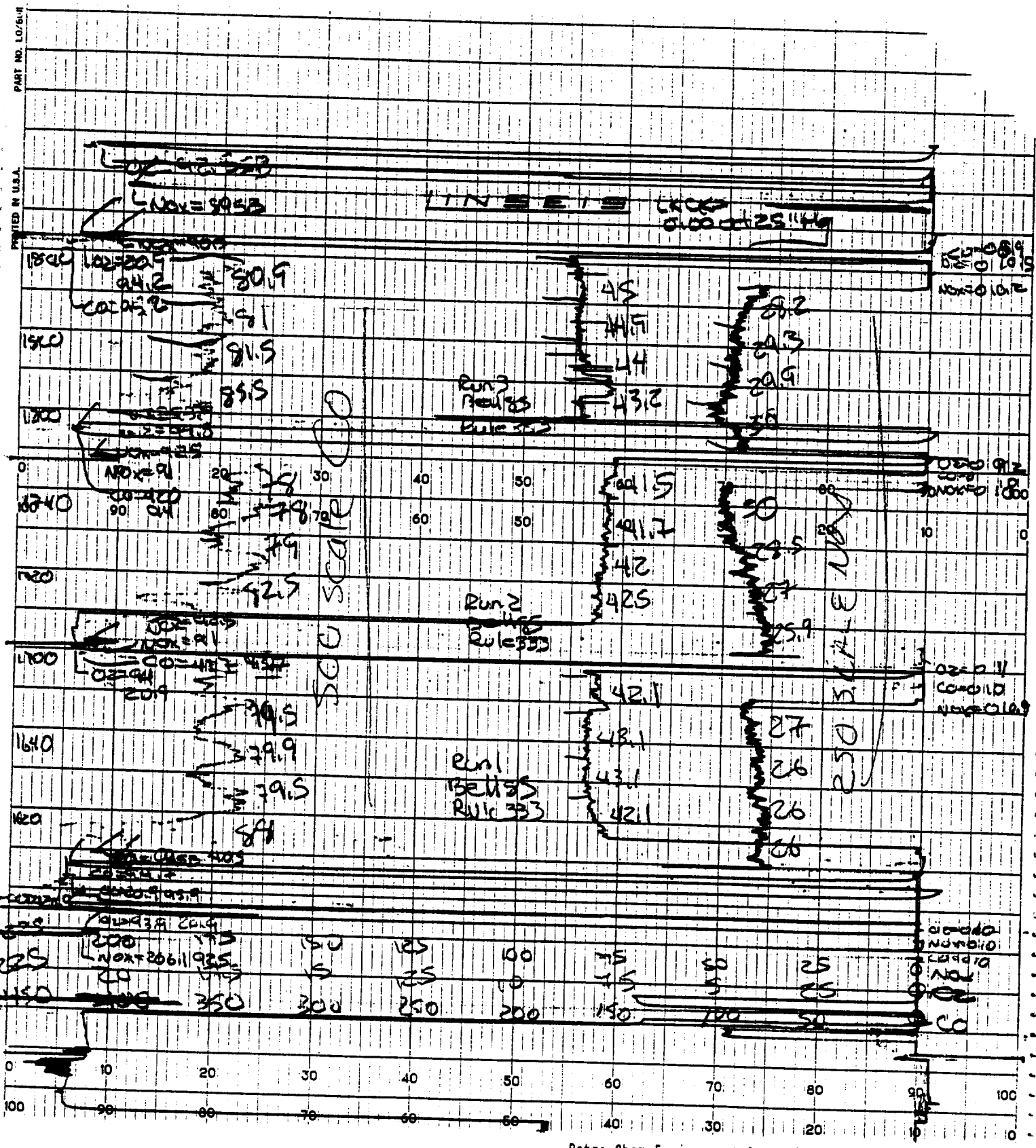
CO = 500 420.9
O2 = 25 20.9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PRINTED IN U.S.A.
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Run 2
Run 1
Rule 333
SCALE
CO
NOx
O2