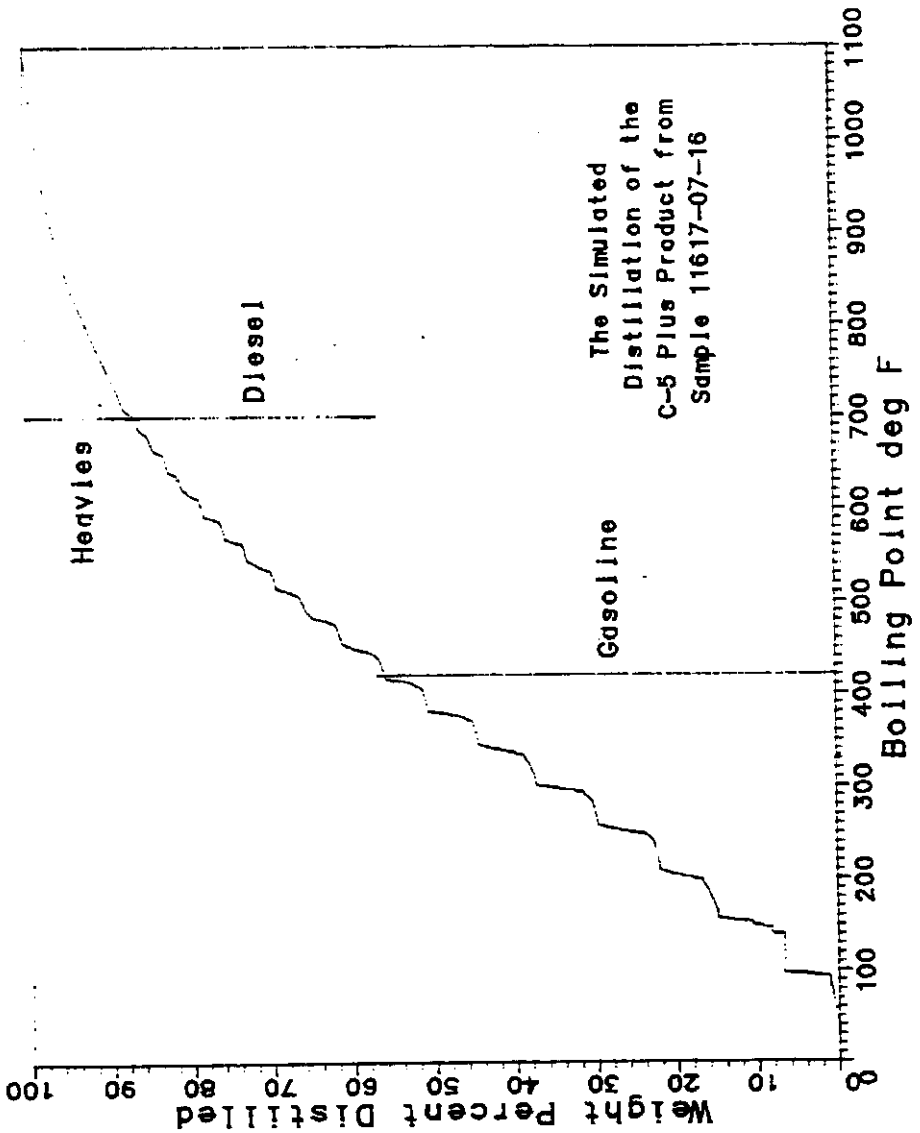

The Simulated
Distillation of the
C-5 Plus Product from
Sample 11617-07-16
Heavies
Diesel
Gasoline
Weight Percent Distilled
Boiling Point deg F
0
100
200
300
400
500
600
700
800
900
1000
1100
10
20
30
40
50
60
70
80
90
100

Fig. B147

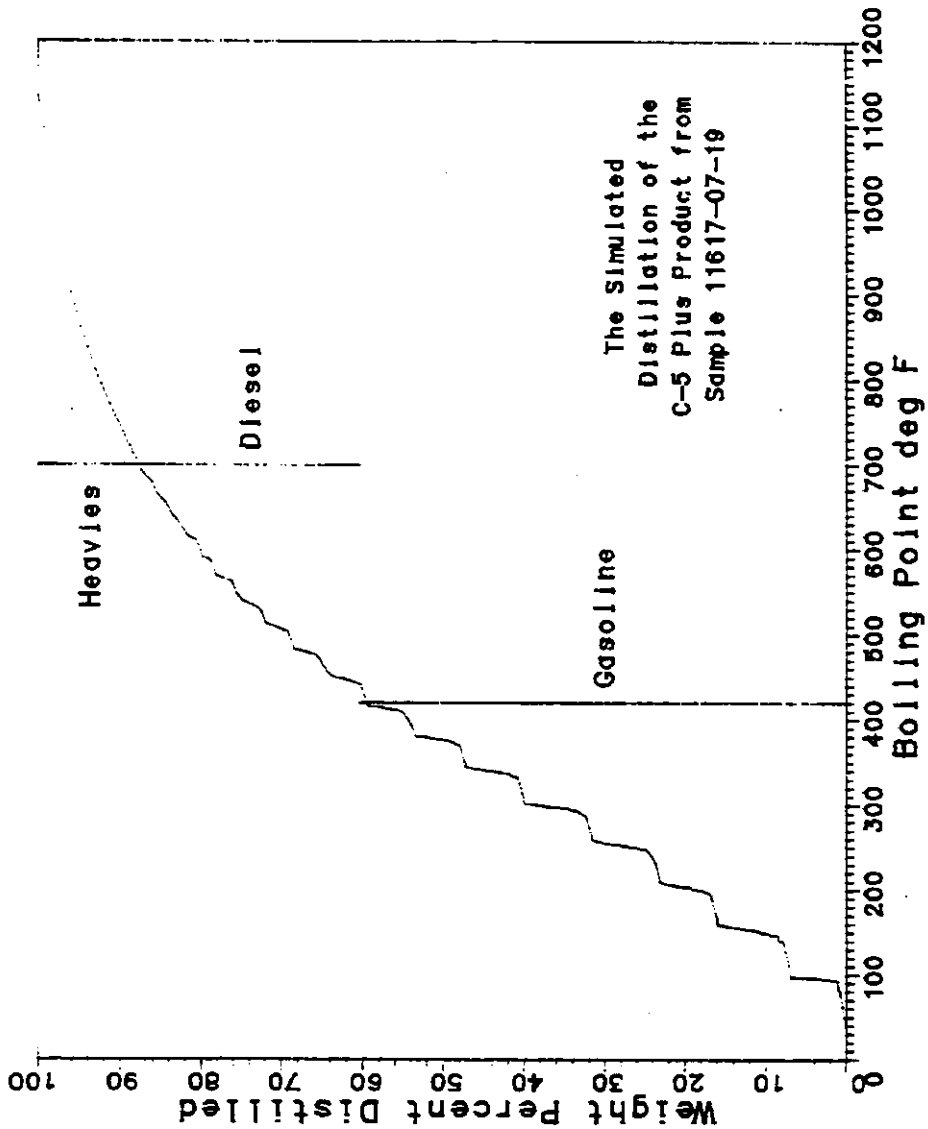

The Simulated
Distillation of the
C-5 Plus Product from
Sample 11617-07-19
Heavies
Diesel
Gasoline
Weight Percent Distilled
Boiling Point deg F
0
10
20
30
40
50
60
70
80
90
100
100
200
300
400
500
600
700
800
900
1000
1100
1200

Fig. B148

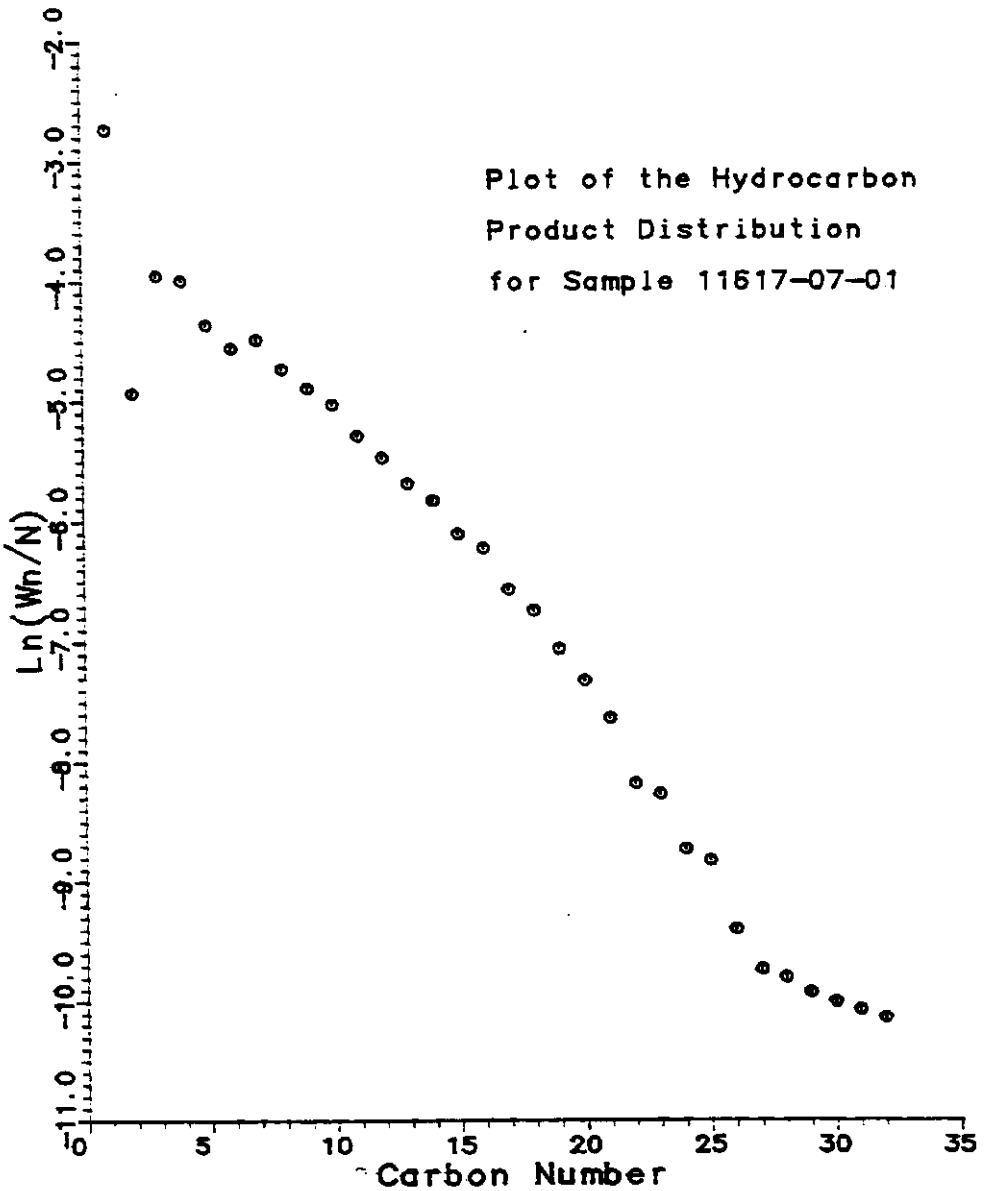

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-01
Ln (Wn/N)
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
Carbon Number

Fig. B149

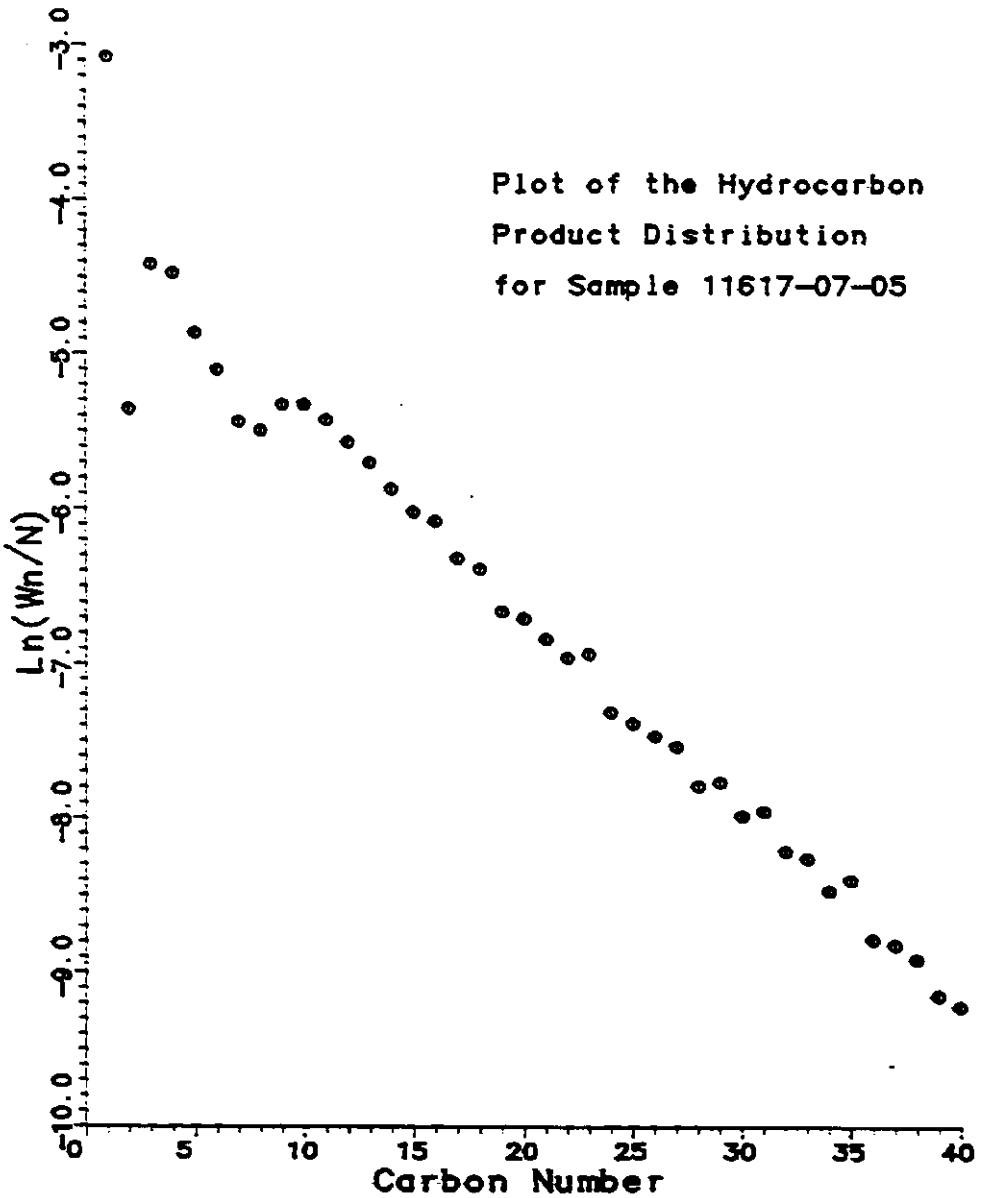

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-05
Ln(Wn/N)
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B150

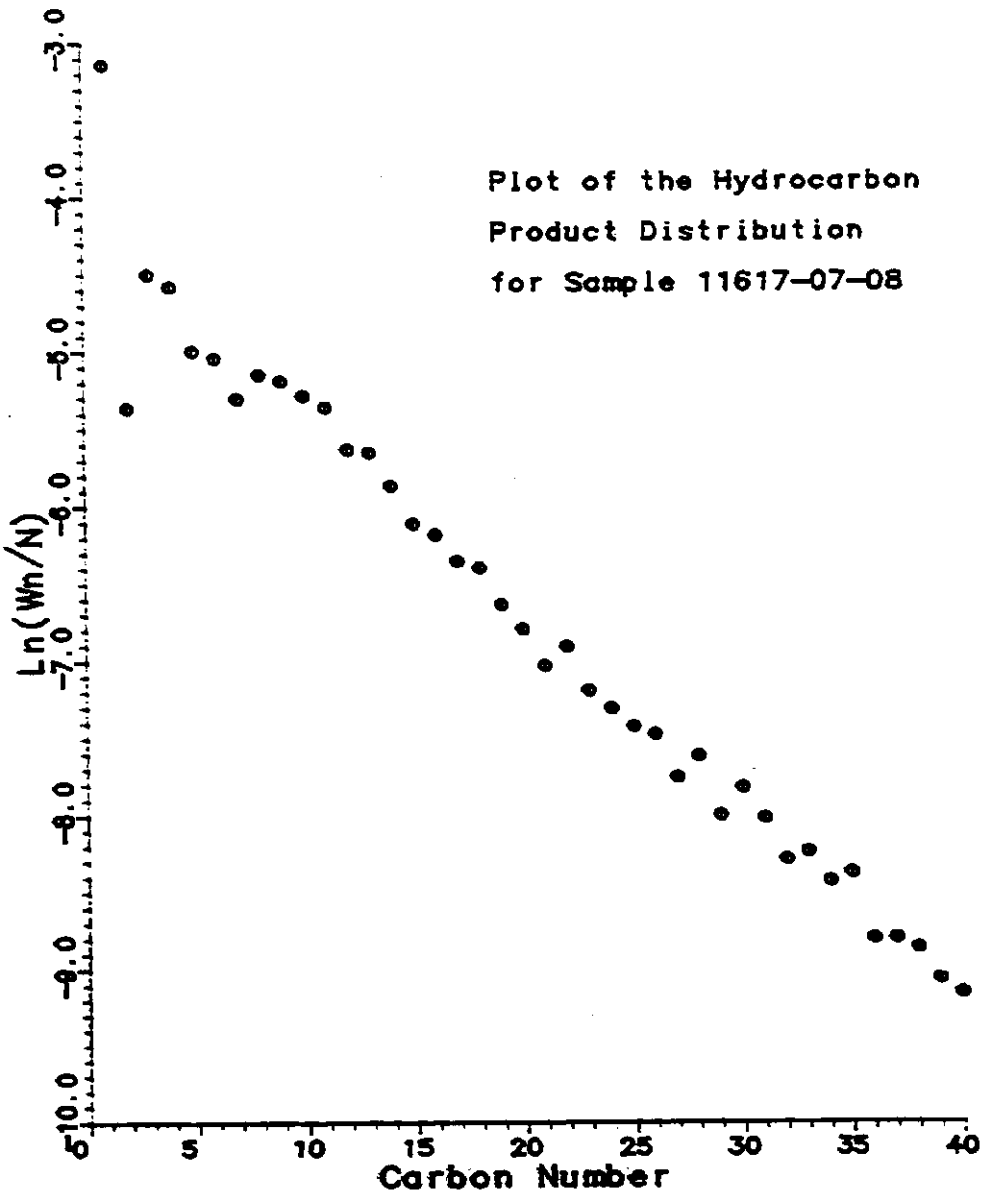

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-08
Ln(Wn/N)
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B151

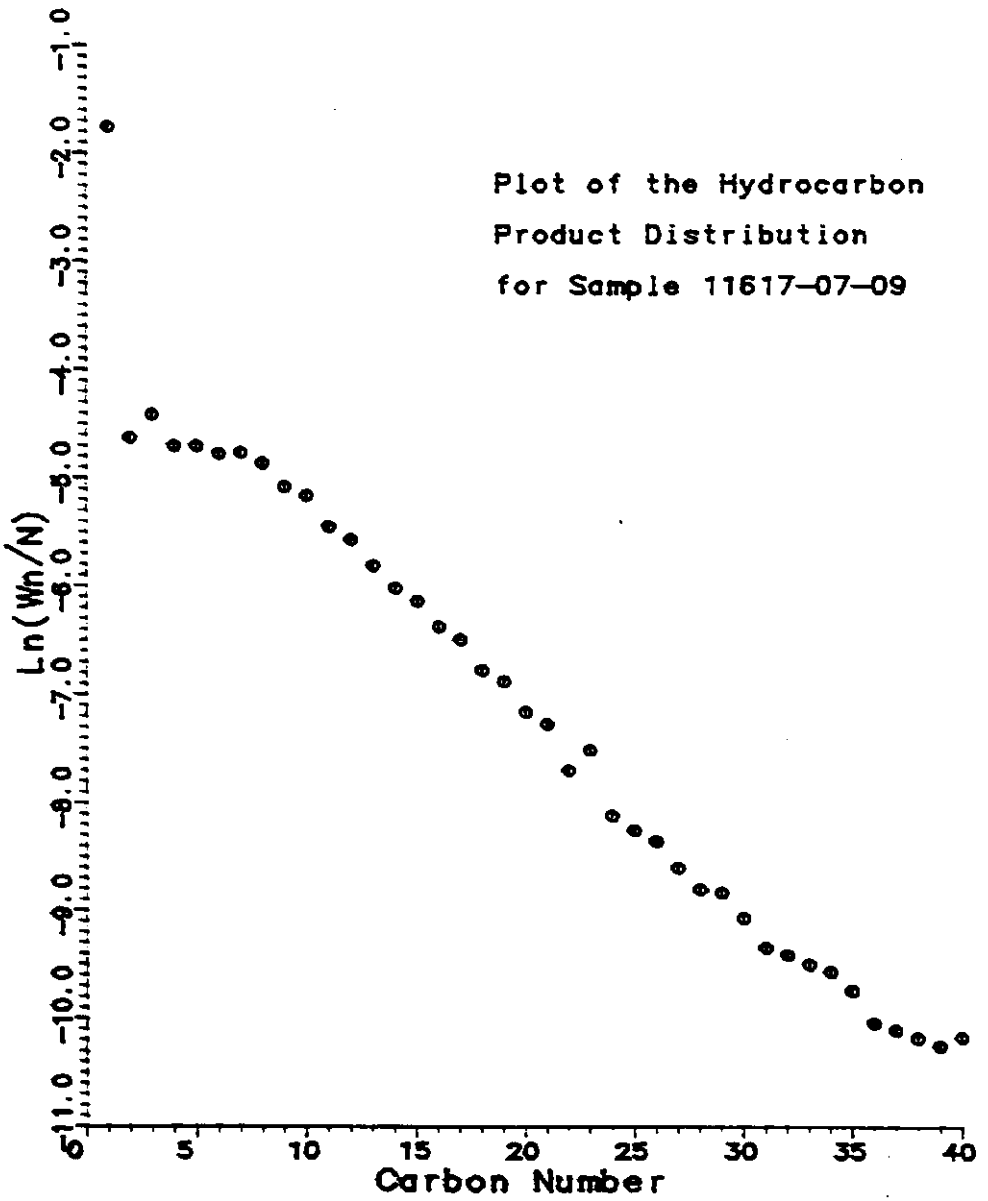

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-09
Ln(Wn/N)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B152

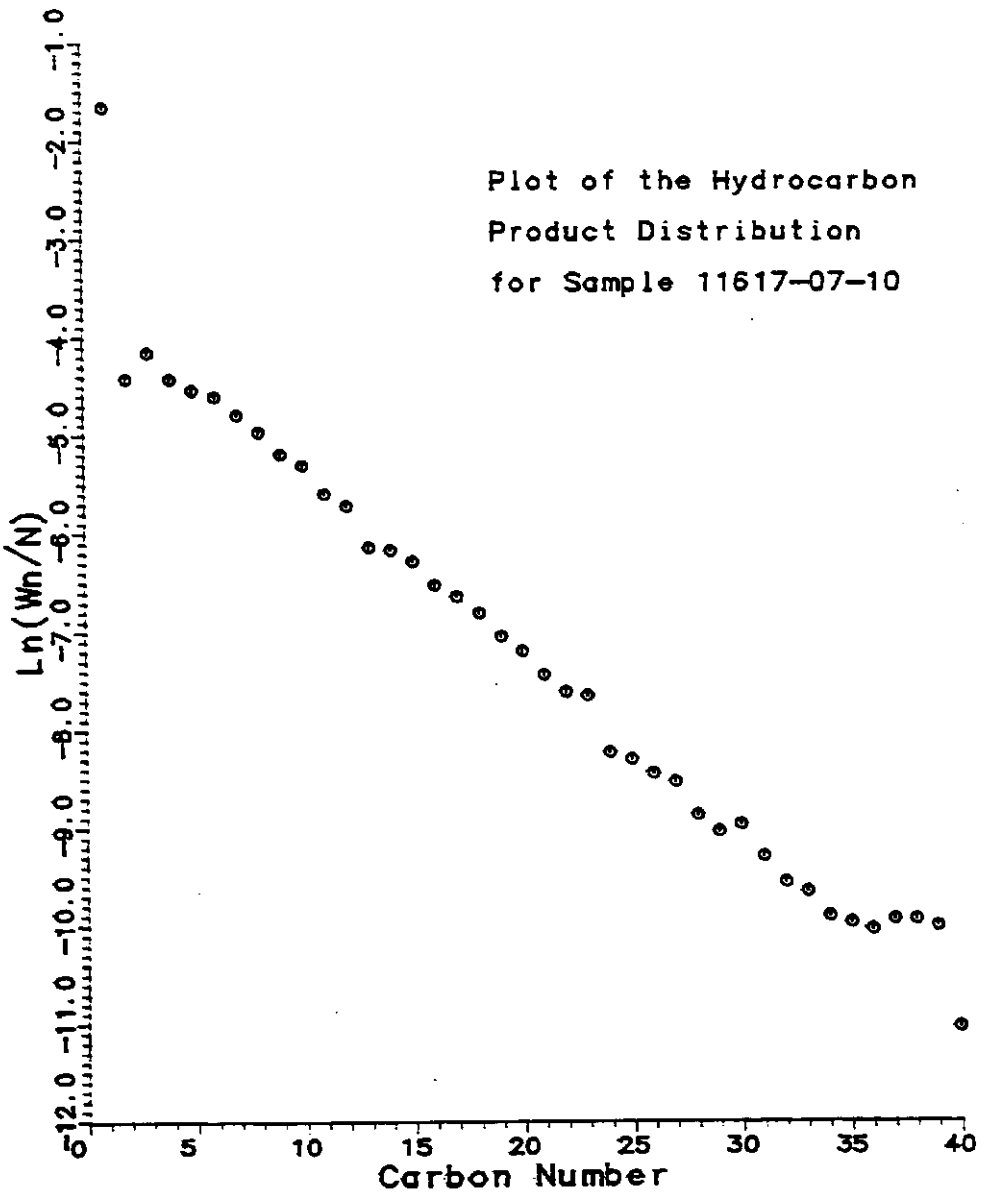

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-10
Ln(Wn/N)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
-12.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B153

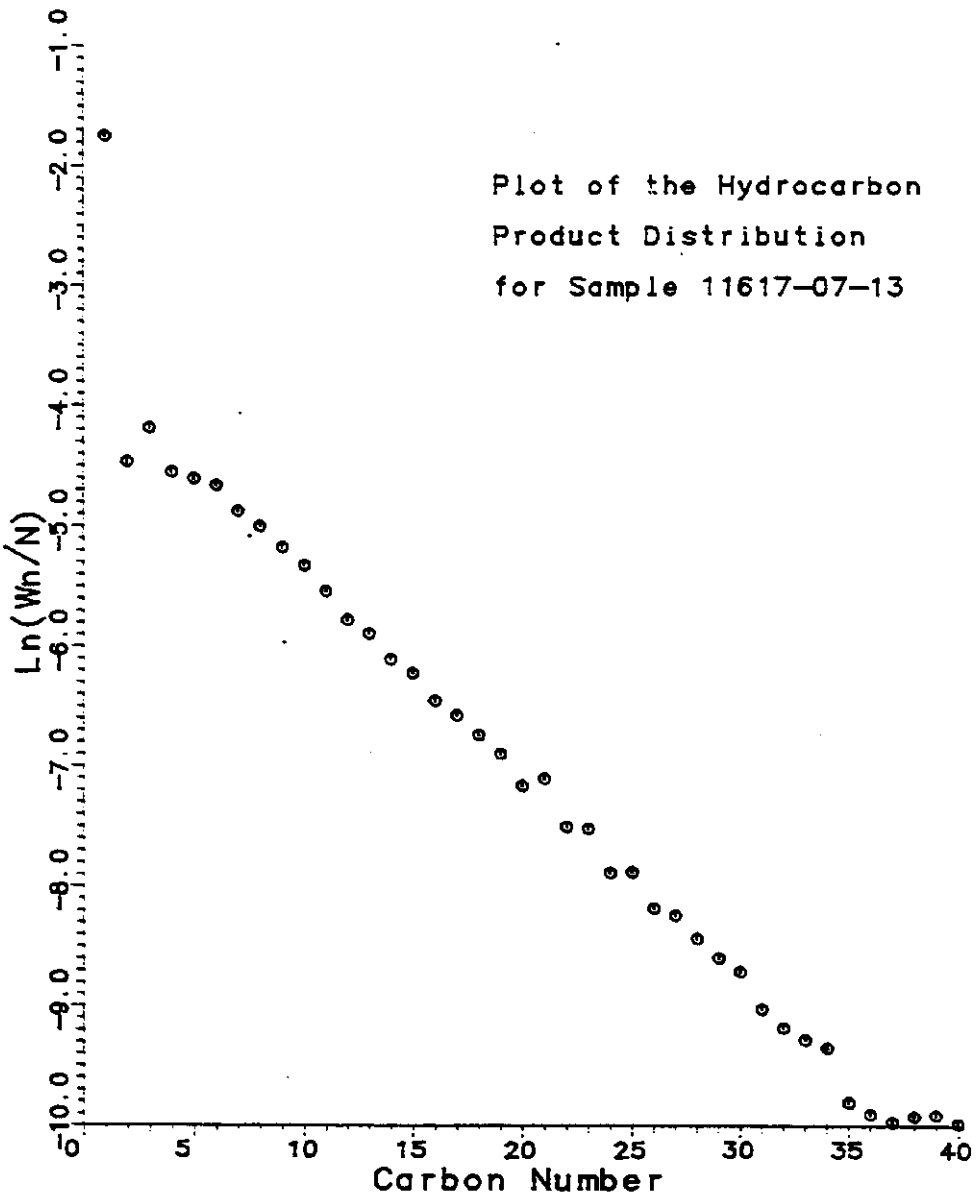

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-13
Ln(Wn/N)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B154

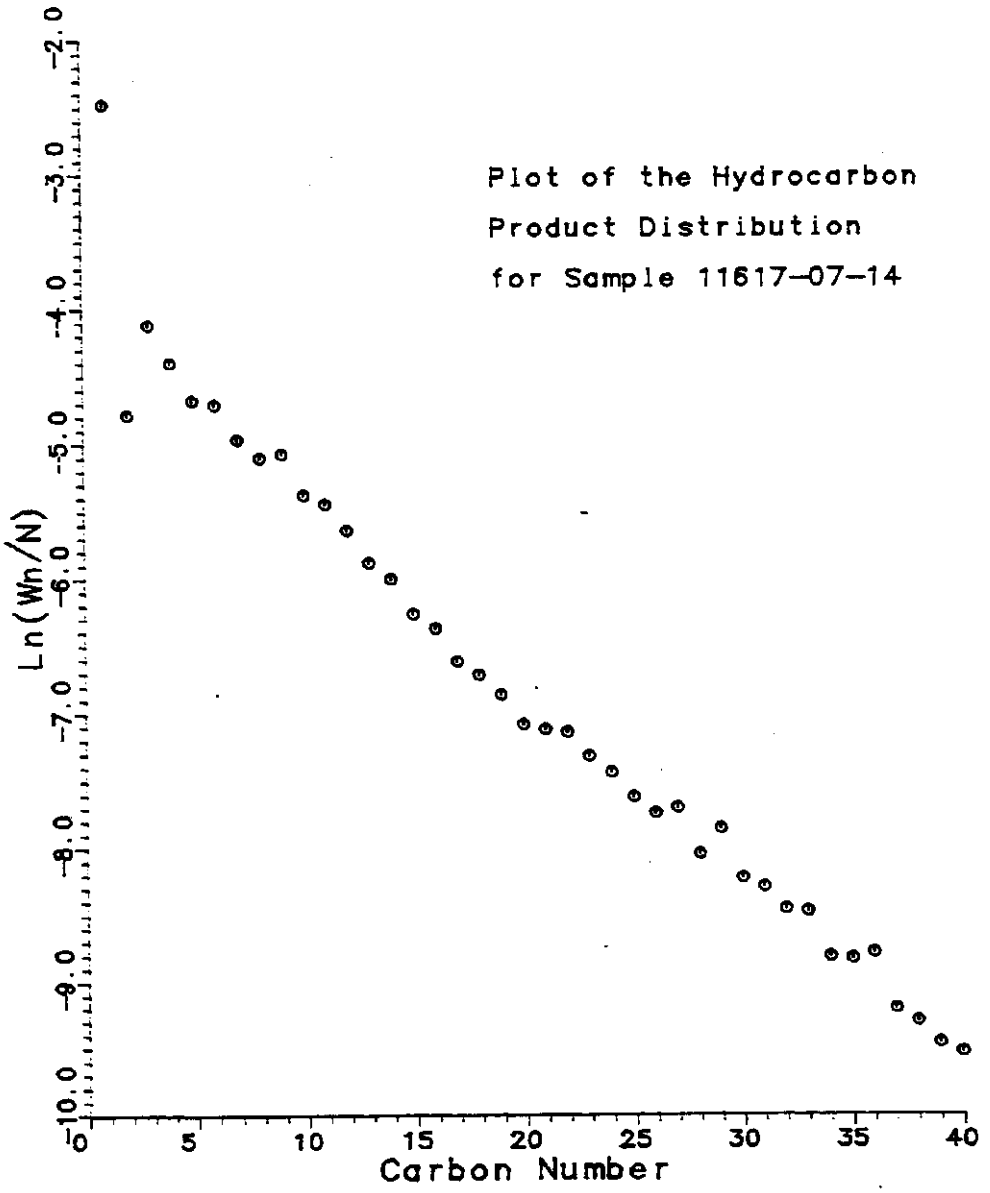

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-14
Ln(Wn/N)
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B155

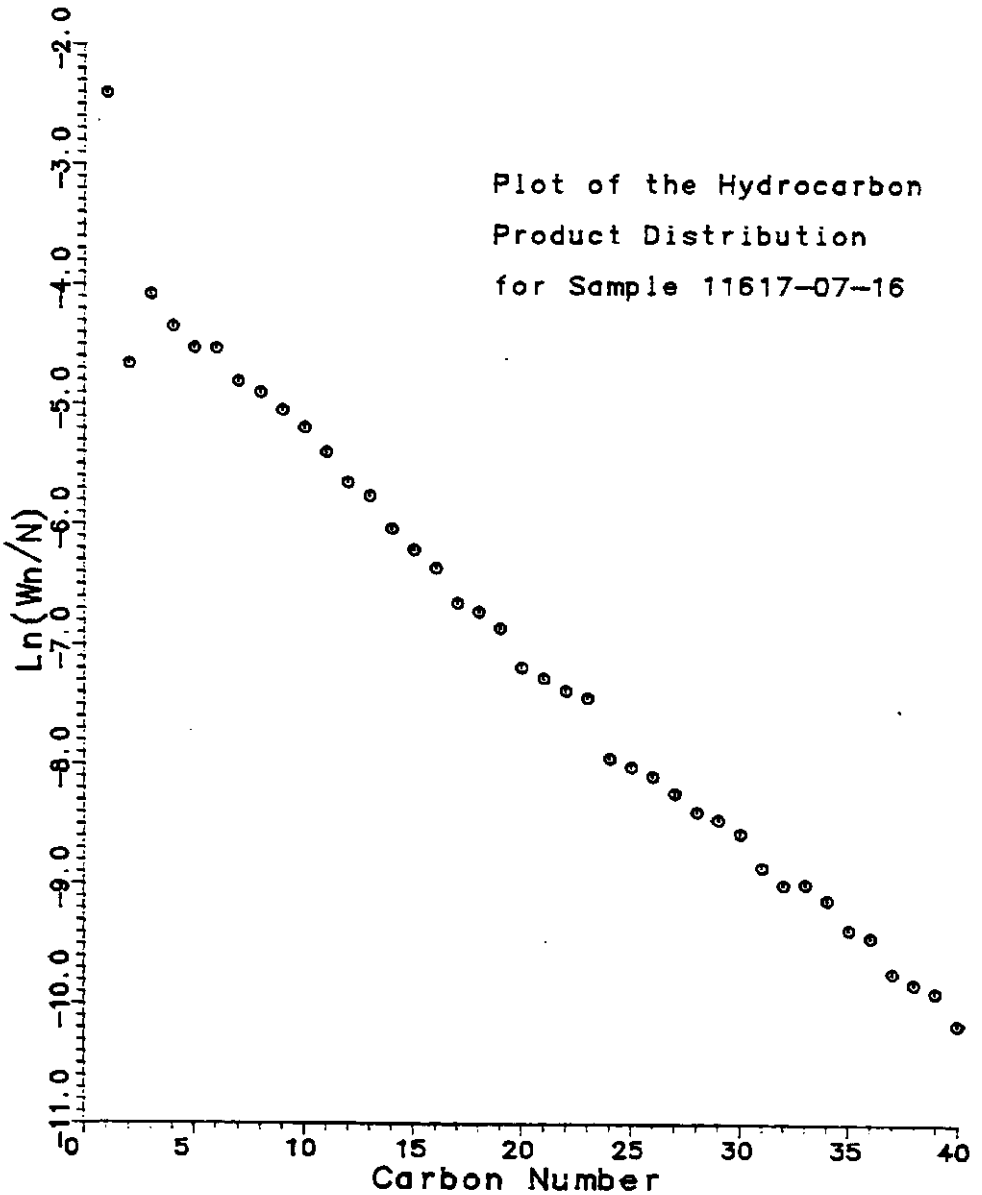

Plot of the Hydrocarbon
Product Distribution
for Sample 11617-07-16
Ln(Wn/N)
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
40
Carbon Number

Fig. B156

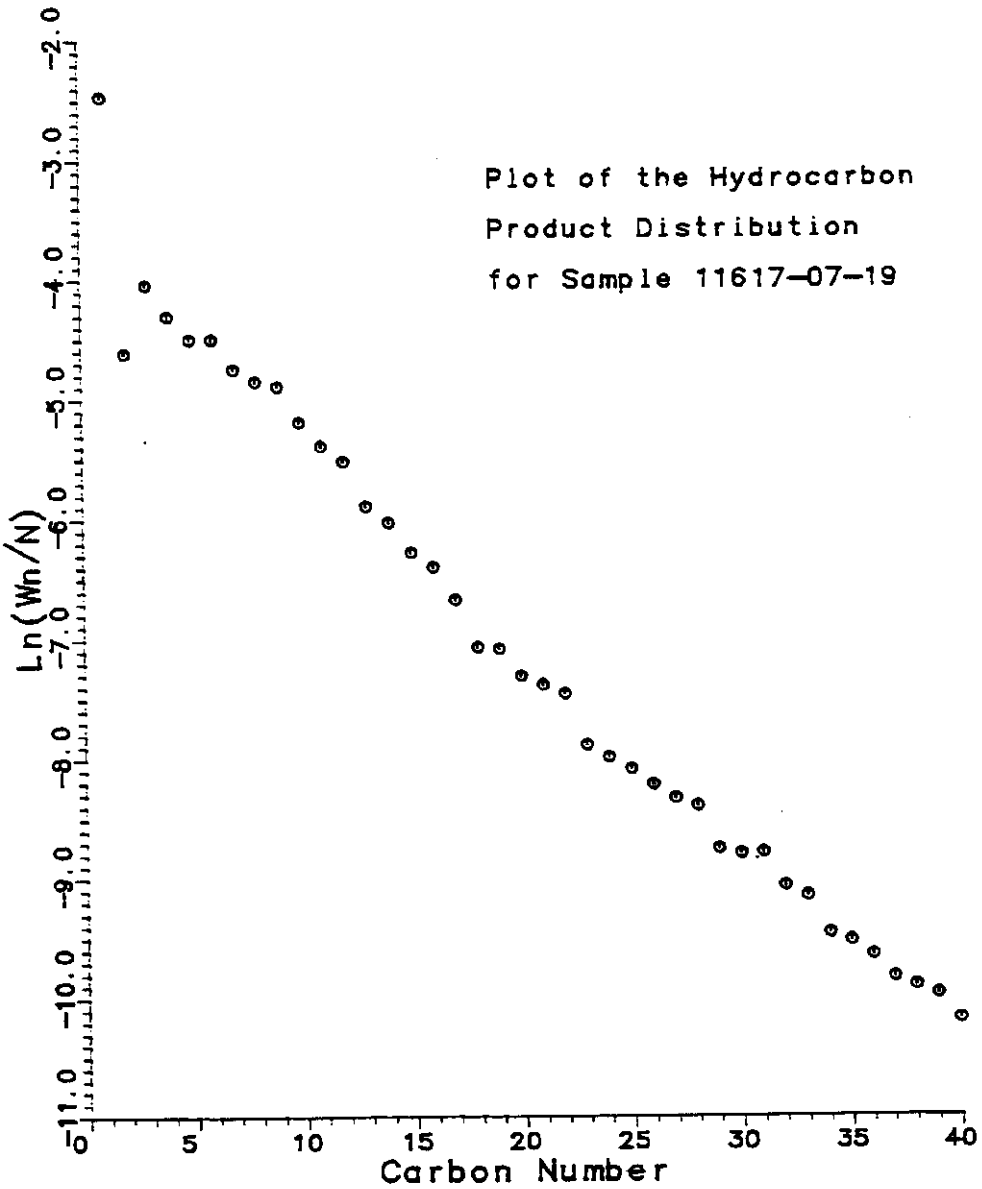
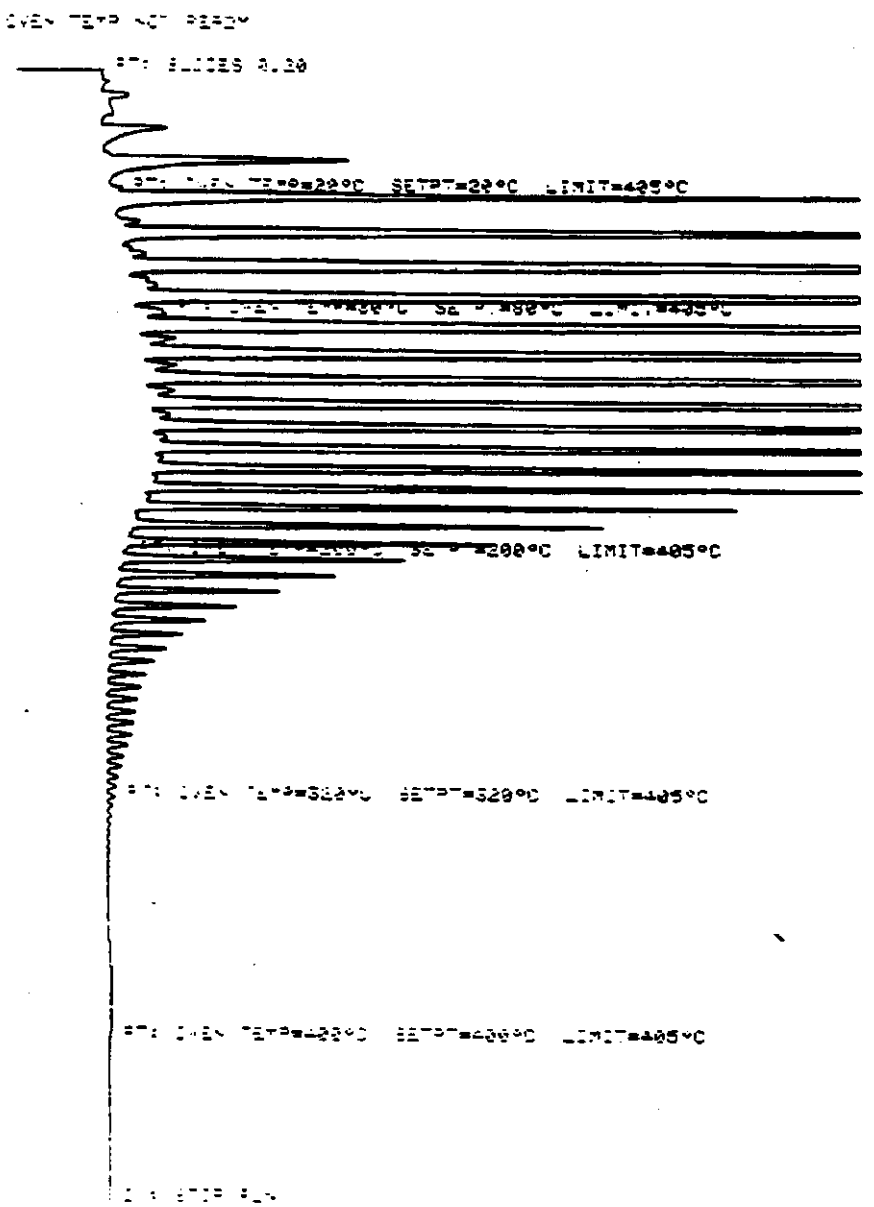


Fig. B157
- B210 -



116I7-07-01

Fig. B158

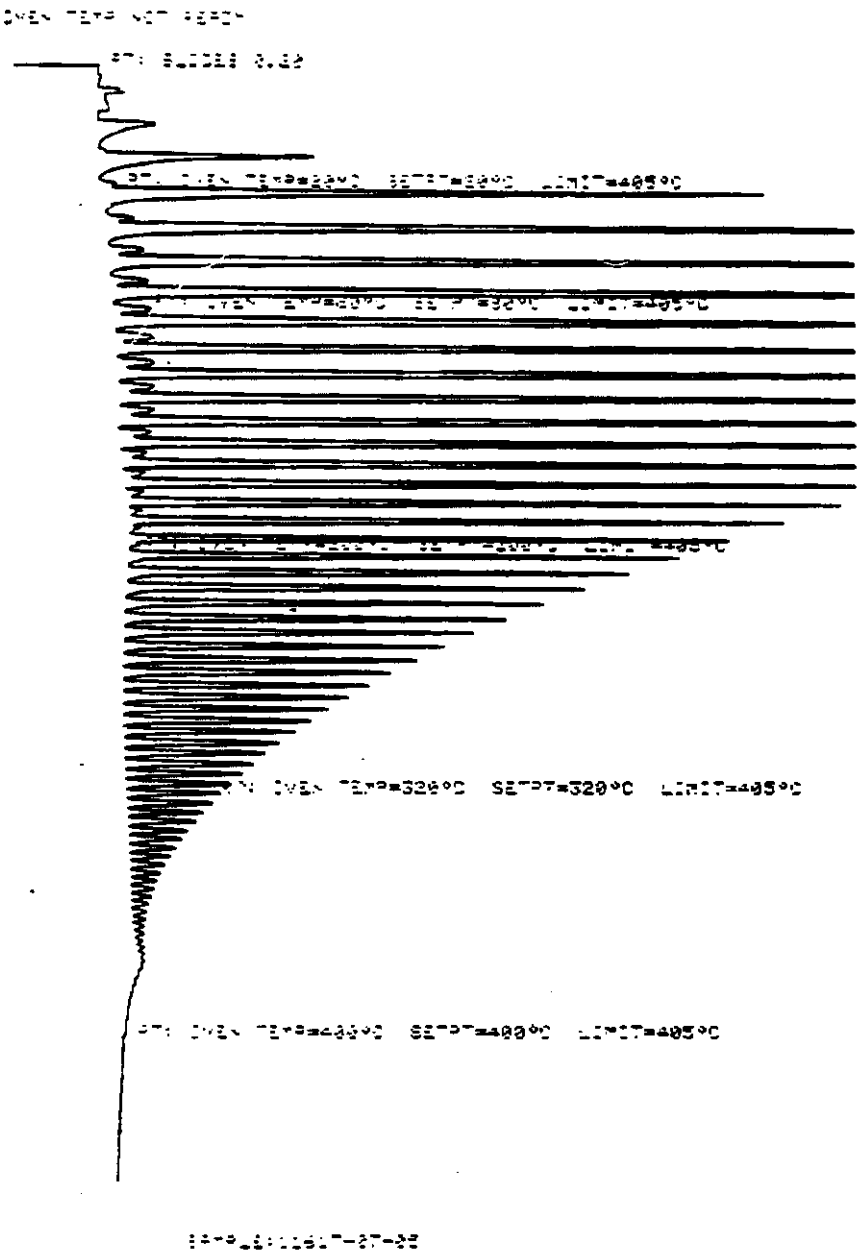


Fig. B159

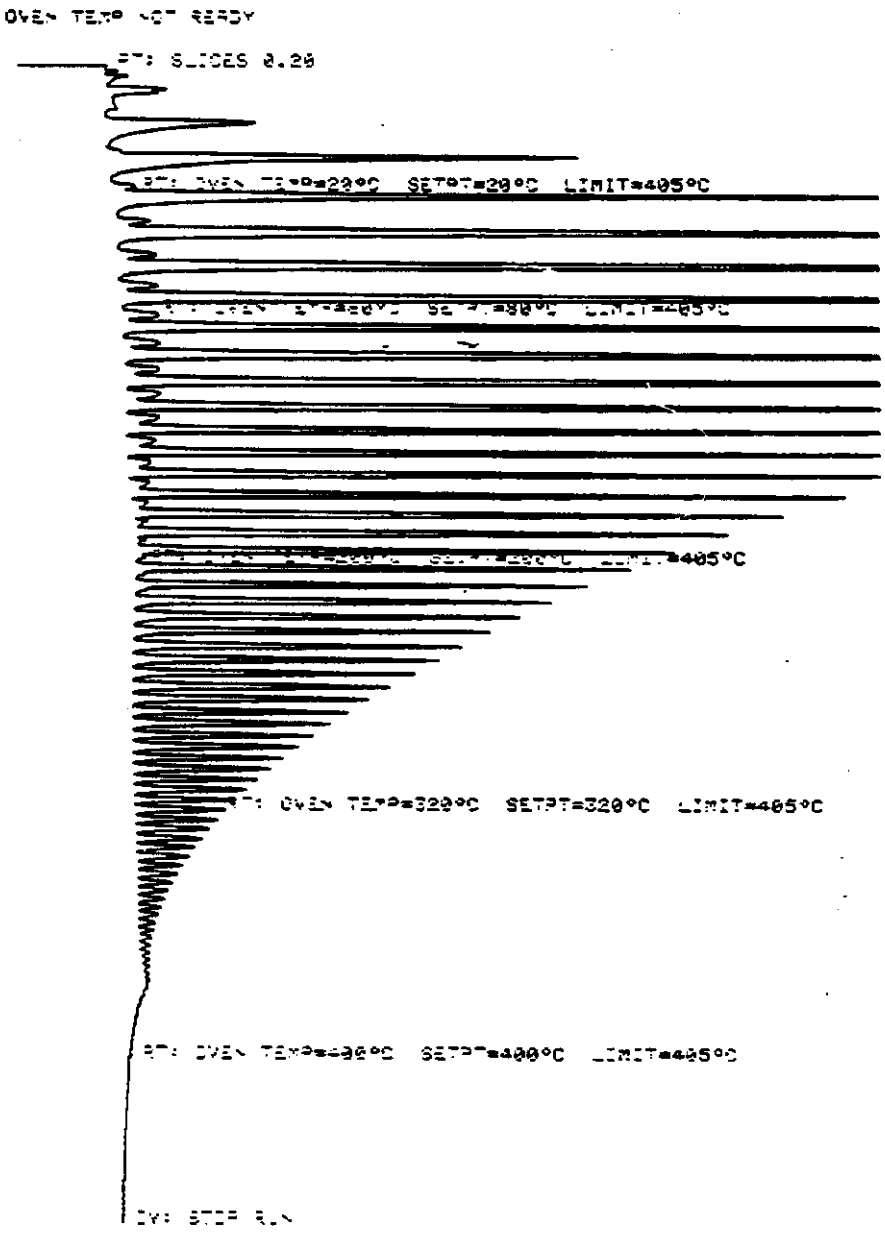
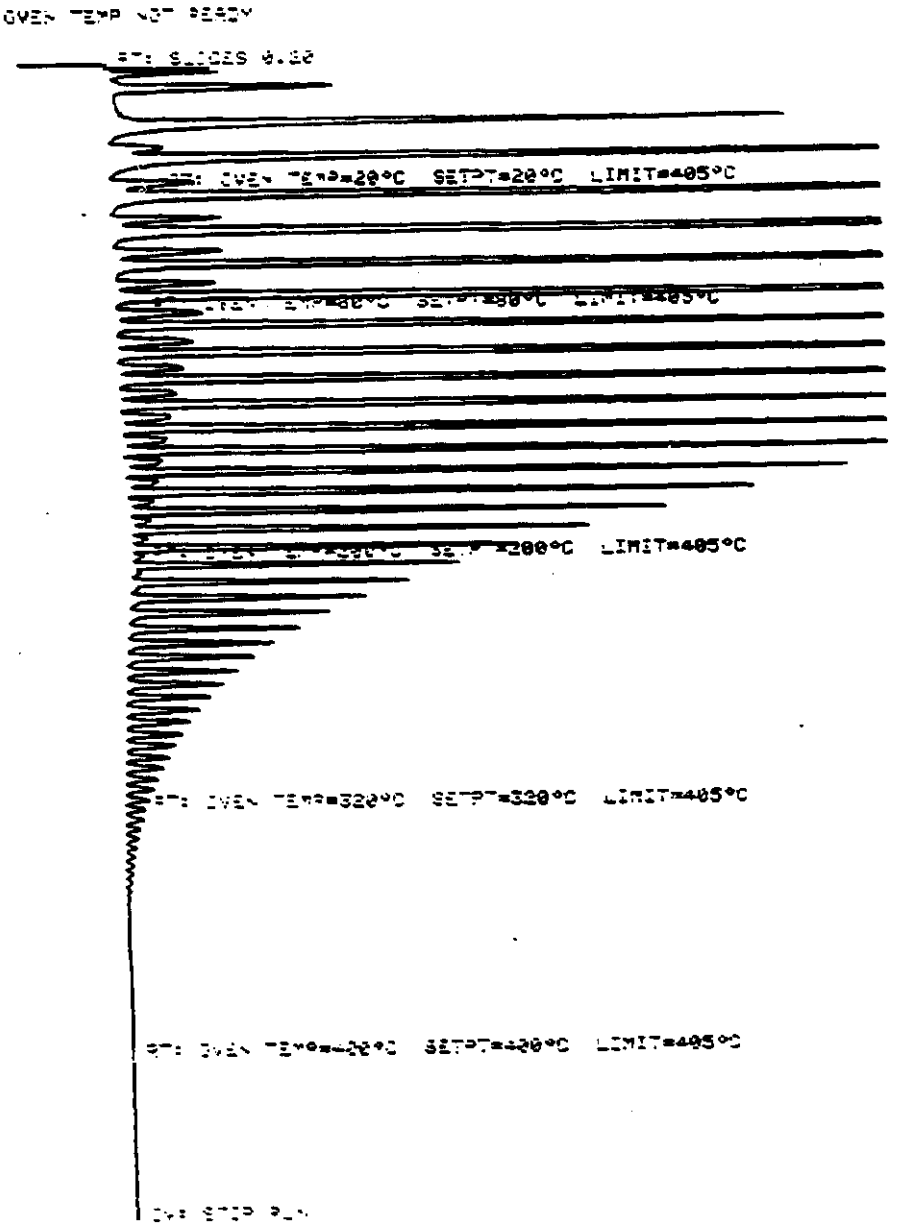
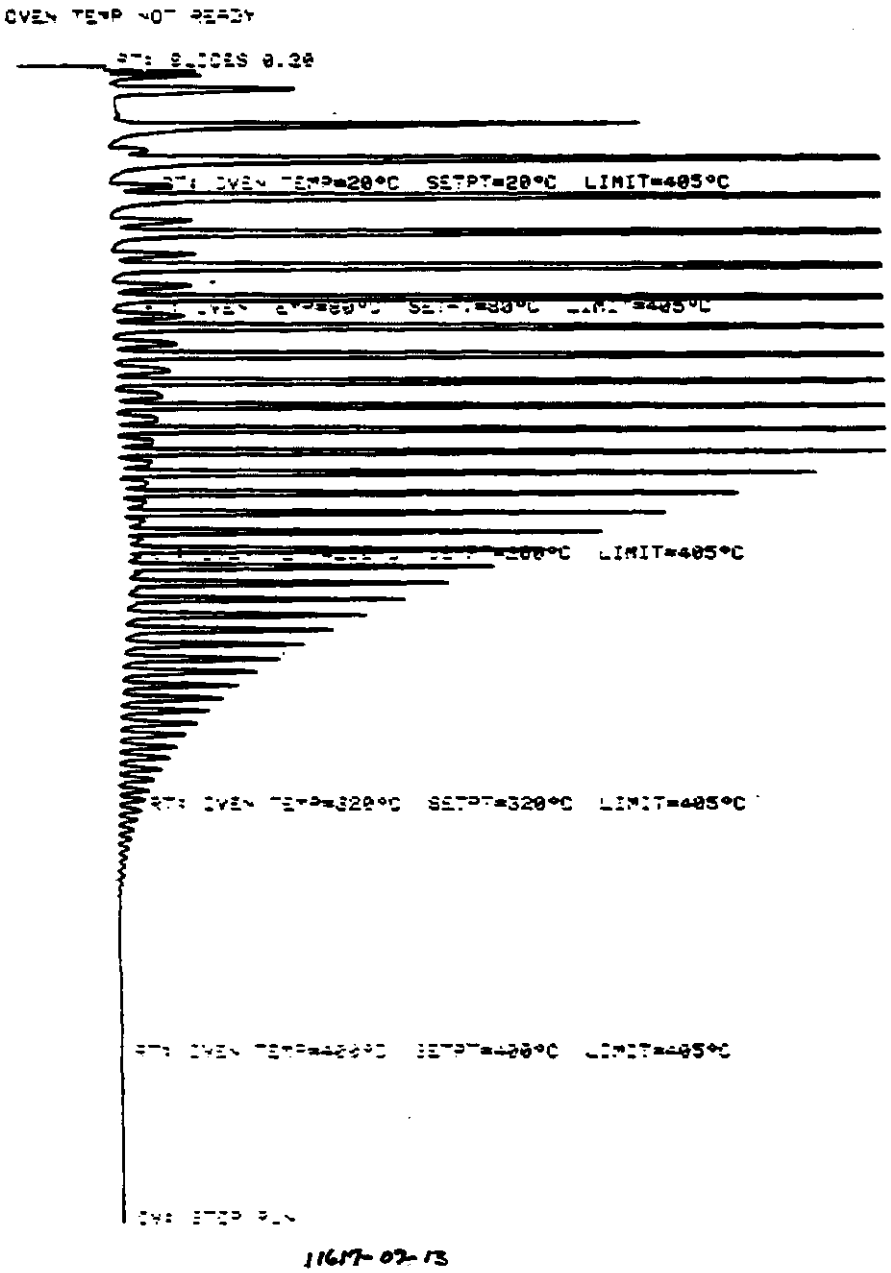

OVEN TEMP NOT READY
PT: SLICES 0.20
PT: OVEN TEMP=320°C SETPT=320°C LIMIT=405°C
PT: OVEN TEMP=320°C SETPT=320°C LIMIT=405°C
PT: OVEN TEMP=320°C SETPT=400°C LIMIT=405°C
DV: STOP RUN

Fig. B160



11617-07-10

Fig. B161



11617-02-13

Fig. B162

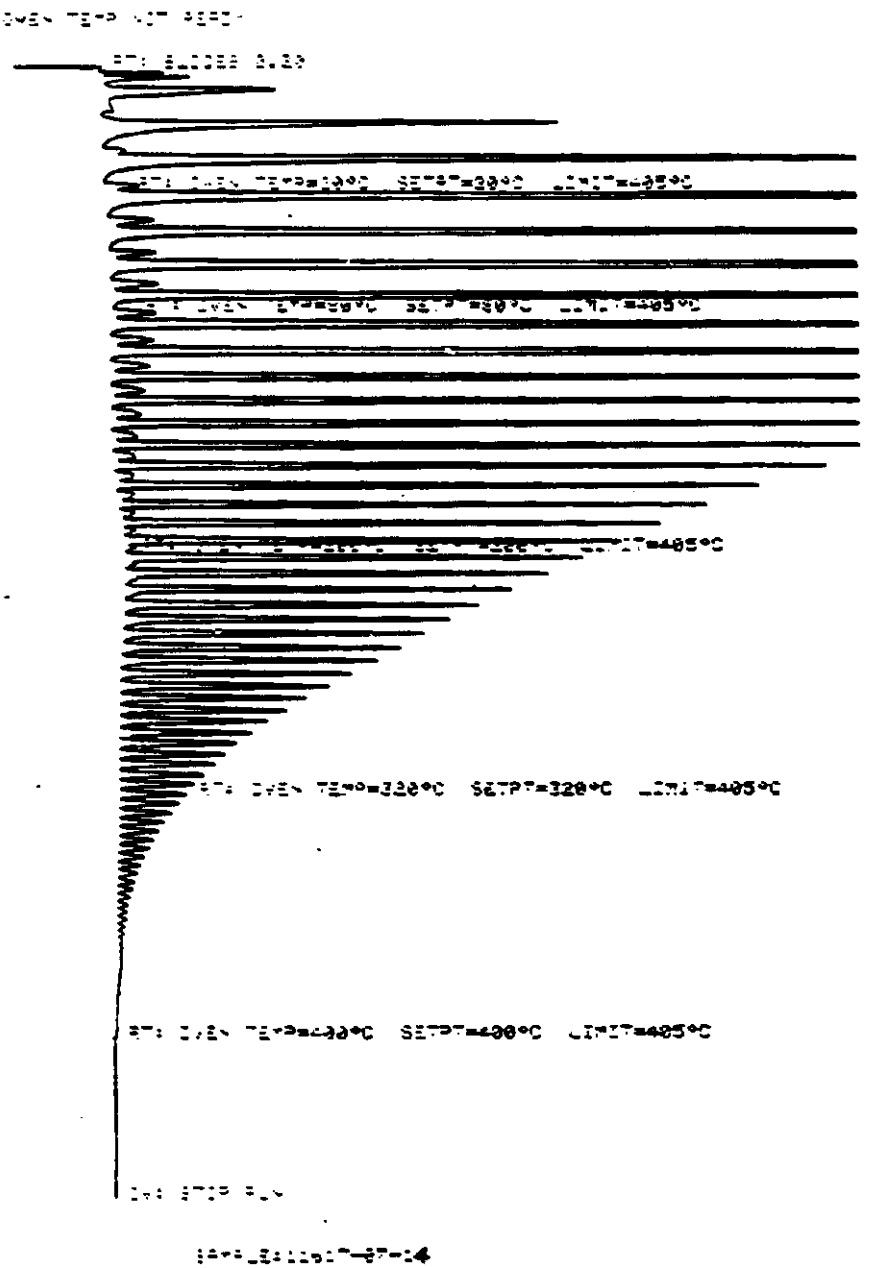


Fig. B163

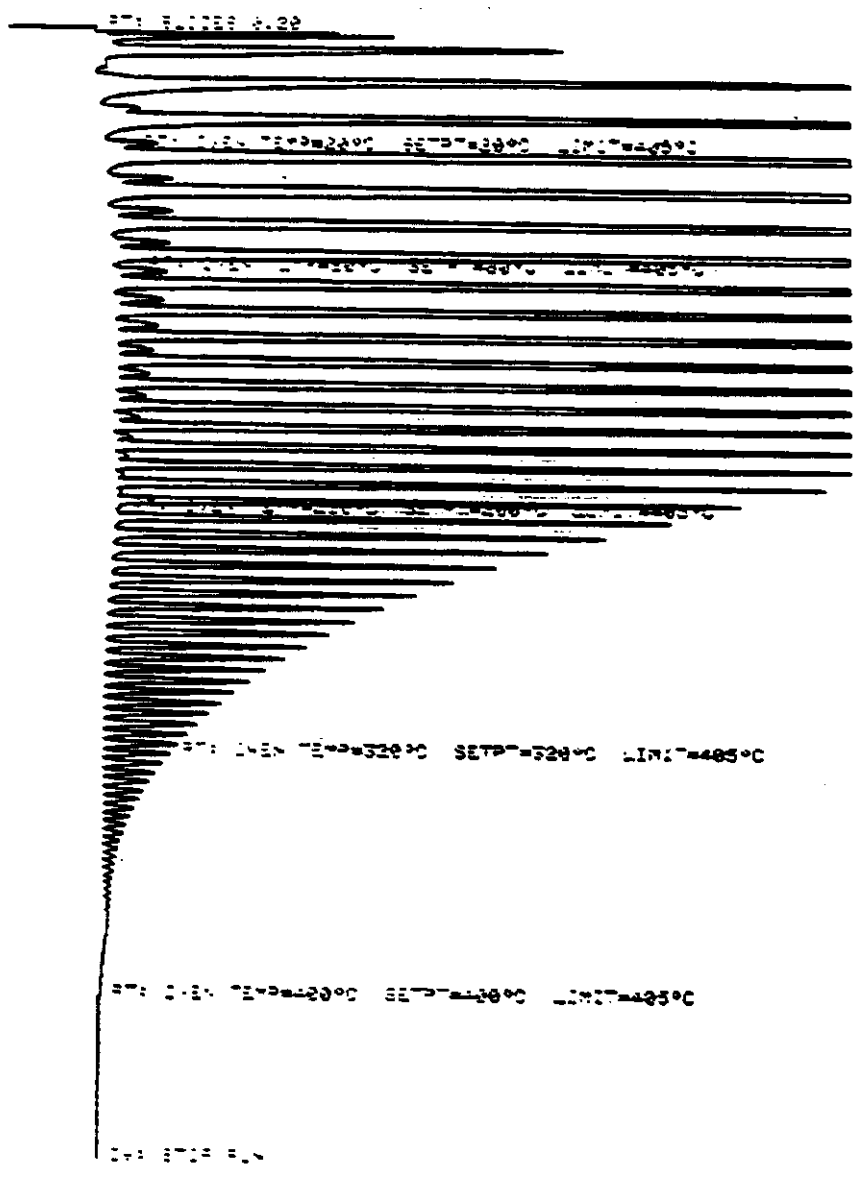


Fig. B164

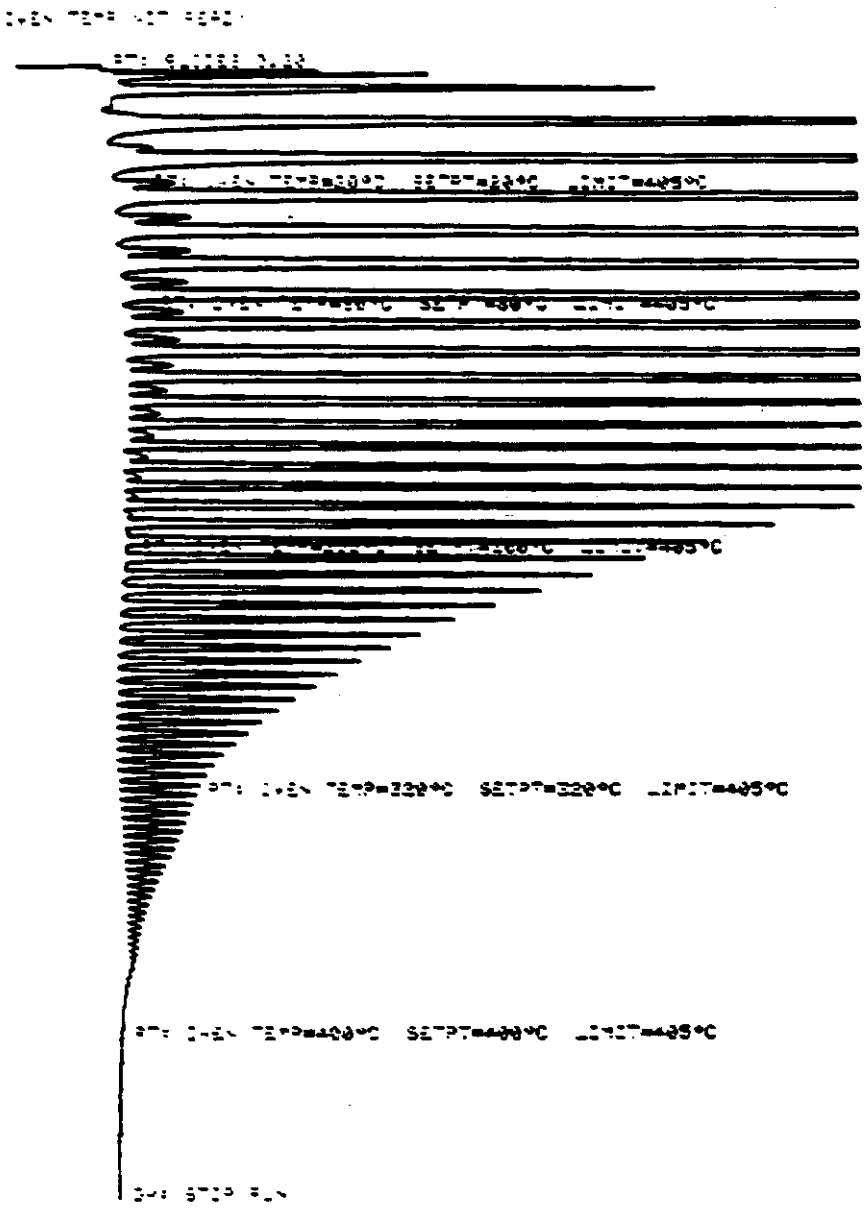


Fig. B165

Table B19

FILE: 1161707A TSQ4 A1

RESULT OF SYNGAS OPERATION

RUN NO. 11617-07
CATALYST CO/K11/K12-TC123 250 CC 125.2 G AFTER USE:182.1 G (+56.9 G)
FEED H2:CO OF 50:50 @ 1260 CC/MN OR 300 GHSV (CAT#12524-25)

RUN & SAMPLE NO.	11617-07-01	617-07-02	617-07-03	617-07-04	617-07-05
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	20.50	43.50	68.00	91.50	115.00
PRESSURE,PSIG	300.00	300.00	300.00	300.00	300.00
TEMP. C	229.00	229.00	238.00	239.00	239.00
FEED CC/MIN	1260.00	1260.00	1260.00	1260.00	1260.00
HOURS FEEDING	20.50	23.00	24.50	23.50	23.50
EFFLNT GAS LITER	689.41	979.80	952.87	928.02	901.93
GM AQUEOUS LAYER	184.14	169.10	195.17	186.70	187.63
GM OIL	31.24	107.23	133.47	125.15	125.04
MATERIAL BALANCE					
GM ATOM CARBON %	68.58	103.60	98.09	104.04	94.52
GM ATOM HYDROGEN %	81.07	104.39	101.87	108.53	99.79
GM ATOM OXYGEN %	89.23	98.69	95.96	95.76	94.65
RATIO CHX/(H2O+CO2)	0.4159	1.1636	1.0663	1.2587	0.9959
RATIO X IN CHX	2.2500	2.1878	2.2101	2.1874	2.2251
USAGE H2/CO PRODT	3.0806	1.8211	1.8964	1.7715	1.9652
FEED H2/CO FRM EFFLNT	1.1822	1.0077	1.0385	1.0431	1.0558
RESIDUAL H2/CO RATIO	0.5890	0.5640	0.5416	0.5496	0.5553
RATIO CO2/(H2O+CO2)	0.0457	0.0545	0.0539	0.0530	0.0509
X SHIFT IN EFFLNT	0.0282	0.0325	0.0309	0.0308	0.0298
SPECIFIC ACTIVITY SA	3.6625	6.5015	4.2687	4.5082	3.6754
CONVERSION					
ON CO %	23.81	35.29	36.68	40.39	35.50
ON H2 %	62.03	63.78	66.98	68.59	66.08
ON CO+H2 %	44.52	49.59	52.11	54.78	51.20
PRDT SELECTIVITY,WT %					
CH4	6.54	3.71	4.18	3.71	4.62
C2 HC'S	1.46	0.93	0.89	0.81	0.95
C3H8	2.62	1.42	1.61	1.55	1.77
C3H6=	3.19	1.91	1.80	1.71	1.86
C4H10	3.12	1.84	1.83	1.87	1.95
C4H8=	4.33	2.76	2.55	2.64	2.62
C5H12	3.59	2.38	2.23	2.57	2.22
C5H10=	2.83	2.13	1.72	1.97	1.64
C6H14	4.92	3.44	3.18	3.15	3.13
C6H12= & CYCLO'S	1.45	1.23	1.00	0.77	0.52
C7+ IN GAS	19.31	17.89	7.17	19.51	3.53
LIQ HC'S	46.65	60.37	71.83	59.73	75.18
TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	21.25	12.56	12.86	12.30	13.77
C5 -420 F	52.21				32.47
420-700 F	24.30				31.20
700-END PT	2.24				22.55

Table B19 (continued)

FILE: 1161707A TSQ4 A1

C5+-END PT	78.75	87.44	87.14	87.70	86.23
ISO/NORMAL MOLE RATIO					
C4	0.0139	0.0124	0.0131	0.0180	0.0141
C5	0.0305	0.0371	0.0452	0.0524	0.0417
C6	0.1894	0.1666	0.2068	0.2796	0.2242
C4=	0.0443	0.0458	0.0585	0.0651	0.0640
PARAFFIN/OLEFIN RATIO					
C3	0.7844	0.7058	0.8513	0.8637	0.9105
C4	0.6953	0.6430	0.6909	0.6837	0.7211
C5	1.2343	1.0886	1.2591	1.2724	1.3161
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))	0.7883	0.8778	0.8359	0.8398	0.8792
RATIO CH4/(1-A)**2	1.4599	2.4863	1.5535	1.4462	3.1710
ALPHA FRM CORRELATION	0.8384				0.8407
ALPHA (EXPTL/CORR)	0.9403				1.0459
WXCH4 FRM CORRELATION	11.0241				12.6456
WXCH4 (EXPTL/CORR)	0.5932				0.3657
LIQ HC COLLECTION					
PHYS. APPEARANCE	CLD OIL	OIL WAX	OIL WAX	OIL WAX	OIL WAX
DENSITY					
N, REFRACTIVE INDEX					
SIMULT'D DISTILATN					
10 WT % @ DEG F	294.00				298.00
16	334.00				339.00
50	449.00				560.00
84	592.00				827.00
90	638.00				903.00
RANGE(16-84 %)	258.00				488.00
WT % @ 420 F	43.10				28.50
WT % @ 700 F	95.20				70.00

Table B20

FILE: 1161707B T5Q4 A1

RESULT OF SYNGAS OPERATION

RUN NO. 11617-07
CATALYST CO/X11/X12-TC123 250 CC 125.2 G AFTER USE:182.1 G (+56.9 G)
FEED H2:CO OF 50:50 @ 1260 CC/MN OR 300 GHSV (CAT#12524-25)

RUN & SAMPLE NO.	11617-07-06	617-07-07	617-07-08	617-07-09	617-07-10
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	60:40: 0	60:40: 0
HRS ON STREAM	139.00	167.50	189.00	217.00	236.00
PRESSURE,PSIG	300.00	300.00	300.00	300.00	300.00
TEMP. C	240.00	241.00	240.00	242.00	241.00
FEED CC/MIN	1260.00	1260.00	1260.00	1260.00	1260.00
HOURS FEEDING	24.00	28.50	21.50	23.00	19.00
EFFLNT GAS LITER	930.00	1104.40	817.65	509.37	623.84
GM AQUEOUS LAYER	191.72	222.09	166.81	216.90	185.99
GM OIL	137.02	165.72	124.21	124.92	99.91
MATERIAL BALANCE					
GM ATOM CARBON %	96.58	97.54	95.61	78.91	100.71
GM ATOM HYDROGEN %	102.10	101.18	99.79	86.72	103.02
GM ATOM OXYGEN %	95.14	95.17	93.55	81.10	101.60
RATIO CHX/(H2O+CO2)	1.0447	1.0751	1.0662	0.9546	0.9829
RATIO X IN CHX	2.2213	2.2238	2.2188	2.4731	2.5220
USAGE H2/CO PRODT	1.9216	1.8894	1.9095	1.9692	1.9241
FEED H2/CO FRM EFFLNT	1.0572	1.0374	1.0436	1.6485	1.5343
RESIDUAL H2/CO RATIO	0.5602	0.5453	0.5479	1.0606	1.0218
RATIO CO2/(H2O+CO2)	0.0523	0.0568	0.0505	0.1012	0.1191
K SHIFT IN EFFLNT	0.0309	0.0329	0.0291	0.1195	0.1381
SPECIFIC ACTIVITY SA	3.6541	3.6209	3.6678	3.3036	2.8163
CONVERSION					
ON CO %	36.50	36.61	36.41	64.70	56.80
ON H2 %	66.35	66.68	66.62	77.29	71.23
ON CO+H2 %	51.84	51.92	51.83	72.54	65.54
PRDT SELECTIVITY,WT %					
CH4	4.52	4.67	4.34	17.28	19.18
C2 HC'S	0.91	1.00	0.94	1.96	2.43
C3H8	1.74	1.73	1.65	3.16	4.05
C3H6=	1.76	1.70	1.70	0.48	0.69
C4H10	1.88	1.82	1.74	3.04	3.95
C4H8=	2.53	2.48	2.38	0.59	0.89
C5H12	2.19	2.10	1.95	3.13	4.16
C5H10=	1.57	1.52	1.44	0.32	0.48
C6H14	2.35	2.20	2.55	3.07	4.38
C6H12= & CYCLO'S	0.51	0.47	0.46	0.15	0.25
C7+ IN GAS	3.32	2.99	2.44	1.63	2.65
LIQ HC'S	76.72	77.33	78.43	65.20	56.91
TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	13.35	13.39	12.73	26.51	31.18
C5 -420 F			34.95	42.26	40.99
420-700 F			30.28	24.06	21.57
700-END PT			22.04	7.17	6.26

Table B20 (continued)

FILE: 1161707B T5Q4 A1

C5+-END PT	86.65	86.61	87.27	73.49	68.82
ISO/NORMAL MOLE RATIO					
C4	0.0141	0.0144	0.0163	0.0725	0.0684
C5	0.0452	0.0487	0.0491	0.1047	0.0953
C6	0.3320	0.3333	0.2725	0.1615	0.1462
C4=	0.0669	0.0664	0.0690	0.0939	0.0982
PARAFFIN/OLEFIN RATIO					
C3	0.9460	0.9729	0.9257	6.3469	5.6216
C4	0.7179	0.7096	0.7085	4.9290	4.2699
C5	1.3600	1.3489	1.3219	9.5115	8.4545
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))	0.7352	0.7246	0.8772	0.8361	0.8297
RATIO CH4/(1-A)**2	0.6446	0.6155	2.8730	6.4336	6.6139
ALPHA FRM CORRELATION			0.8413	0.8090	0.8108
ALPHA (EXPTL/CORR)			1.0427	1.0336	1.0233
W%CH4 FRM CORRELATION			12.6897	23.1623	22.3544
W%CH4 (EXPTL/CORR)			0.3417	0.7462	0.8578
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL WAX	OIL WAX	OIL WAX	OIL WAX	OIL WAX
DENSITY					
N, REFRACTIVE INDEX					
SIMULT'D DISTILATN					
10 WT % @ DEG F			284.00	205.00	206.00
16			326.00	249.00	250.00
50			534.00	415.00	416.00
84			825.00	639.00	660.00
90			902.00	706.00	723.00
RANGE(16-84 %)			499.00	390.00	410.00
WT % @ 420 F			33.30	52.10	51.10
WT % @ 700 F			71.90	89.00	89.00

Table B21

FILE: 1161707C T5Q4 A1

RESULT OF SYNGAS OPERATION

RUN NO. 11617-07
CATALYST CO/K11/K12-TC123 250 CC 125.2 G AFTER USE:182.1 G (+56.9 G)
FEED H2:CO OF 60:40 @ 1260 CC/MN OR 300 GHSV (CAT#12524-25)

RUN & SAMPLE NO.	11617-07-11	617-07-12	617-07-13	617-07-14	617-07-15
FEED H2:CO:AR	60:40: 0	60:40: 0	60:40: 0	60:40: 0	60:40: 0
HRS ON STREAM	260.00	308.00	333.00	357.00	380.50
PRESSURE,PSIG	300.00	300.00	300.00	500.00	500.00
TEMP. C	241.00	241.00	242.00	241.00	240.00
FEED CC/MIN	1260.00	1260.00	1260.00	1260.00	1260.00
HOURS FEEDING	24.00	48.00	25.00	24.00	23.50
EFFLNT GAS LITER	727.67	1441.00	745.42	614.16	638.38
GM AQUEOUS LAYER	240.15	482.15	254.64	260.34	256.69
GM OIL	131.36	264.52	141.72	158.03	149.05
MATERIAL BALANCE					
GM ATOM CARBON %	96.38	96.08	97.43	93.32	93.49
GM ATOM HYDROGEN %	99.75	99.72	101.04	96.93	98.79
GM ATOM OXYGEN %	98.69	97.66	98.54	93.66	95.01
RATIO CHX/(H2O+CO2)	0.9558	0.9694	0.9790	0.9935	0.9711
RATIO X IN CHX	2.4949	2.4702	2.4883	2.3201	2.3306
USAGE H2/CO PRODT	1.9534	1.9640	1.9431	2.0203	2.0703
FEED H2/CO FRM EFFLNT	1.5524	1.5568	1.5555	1.5581	1.5849
RESIDUAL H2/CO RATIO	1.0023	1.0029	0.9958	0.9030	0.9480
RATIO CO2/(H2O+CO2)	0.1101	0.0990	0.1073	0.0481	0.0395
K SHIFT IN EFFLNT	0.1240	0.1102	0.1197	0.0457	0.0389
SPECIFIC ACTIVITY SA	3.0320	2.9818	3.1654	1.9283	1.8544
CONVERSION					
ON CO %	57.84	57.63	59.09	58.63	56.75
ON H2 %	72.78	72.70	73.81	76.02	74.13
ON CO+H2 %	66.93	66.81	68.05	69.22	67.41
PRDT SELECTIVITY,WT %					
CH4	17.87	16.47	17.47	8.43	9.16
C2 HC'S	2.30	2.32	2.31	1.68	1.24
C3H8	3.89	3.81	3.88	3.80	4.02
C3H6=	0.66	0.73	0.70	1.10	1.20
C4H10	3.70	3.66	3.67	3.29	3.46
C4H8=	0.86	0.91	0.56	1.64	1.76
C5H12	3.82	3.95	3.89	3.20	3.29
C5H10=	0.44	0.54	0.45	0.76	0.57
C6H14	3.71	4.15	3.96	3.25	3.43
C6H12= & CYCLO'S	0.34	0.27	0.26	0.40	0.44
C7+ IN GAS	1.82	2.41	2.37	1.79	1.83
LIQ HC'S	60.58	60.79	60.48	70.67	69.61
TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	29.29	27.90	28.59	19.93	20.83
C5 -420 F			39.48	39.23	
420-700 F			23.40	24.52	
700-END PT			8.53	16.32	

Table B21 (continued)

FILE: 1161707C T5Q4 A1

C5+-END PT	70.71	72.10	71.41	80.07	79.17
ISO/NORMAL MOLE RATIO					
C4	0.0699	0.0709	0.0698	0.0442	0.0408
C5	0.0954	0.0919	0.0949	0.0631	0.0589
C6	0.1377	0.1568	0.1447	0.1654	0.1828
C4=	0.0986	0.0980	0.1794	0.1273	0.0804
PARAFFIN/OLEFIN RATIO					
C3	5.5948	5.0023	5.2576	3.2923	3.2070
C4	4.1311	3.8750	6.3321	1.9398	1.8983
C5	8.3916	7.1254	8.4831	4.0655	5.6294
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))	0.7614	0.7866	0.4784	0.8577	0.7047
RATIO CH4/(1-A)**2	3.1387	3.6170	0.6421	4.1646	1.0509
ALPHA FRM CORRELATION			0.8120	0.8168	
ALPHA (EXPTL/CORR)			0.5891	1.0500	
W%CH4 FRM CORRELATION			22.2090	20.4870	
W%CH4 (EXPTL/CORR)			0.7867	0.4117	
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL WAX	OIL WAX	OIL WAX	OIL WAX	OIL WAX
DENSITY					
N, REFRACTIVE INDEX					
SIMULT'D DISTILATN					
10 WT % @ DEG F			208.00	247.00	
16			252.00	270.00	
50			445.00	477.00	
84			681.00	773.00	
90			744.00	845.00	
RANGE(16-84 %)			429.00	503.00	
WT % @ 420 F			47.20	42.20	
WT % @ 700 F			85.90	76.90	

Table B22

FILE: 1161707D T5Q4 A1

RESULT OF SYNGAS OPERATION

RUN NO. 11617-07
CATALYST CO/X11/X12-TC123 250 CC 125.2 G AFTER USE:182.1 G (+56.9 G)
FEED H2:CO OF 60:40 @ 1260 CC/MN OR 300 GHSV (CAT#12524-25)

RUN & SAMPLE NO.	11617-07-16	617-07-17	617-07-18	617-07-19
FEED H2:CO:AR	60:40: 0	60:40: 0	60:40: 0	60:40: 0
HRS ON STREAM	404.50	428.50	447.75	501.25
PRESSURE,PSIG	500.00	500.00	500.00	500.00
TEMP. C	240.00	240.00	240.00	240.00
FEED CC/MIN	1260.00	1260.00	1260.00	1260.00
HOURS FEEDING	24.00	24.00	46.00	26.50
EFFLNT GAS LITER	661.94	676.08	1346.88	742.00
GM AQUEOUS LAYER	259.77	259.87	493.94	278.25
GM OIL.	149.83	149.56	262.46	158.50
MATERIAL BALANCE				
GM ATOM CARBON %	92.74	94.45	92.66	91.65
GM ATOM HYDROGEN %	98.91	99.67	98.15	96.79
GM ATOM OXYGEN %	94.31	95.69	96.88	93.61
RATIO CHX/(H2O+CO2)	0.9696	0.9762	0.9177	0.9609
RATIO X IN CHX	2.3326	2.3374	2.3363	2.3252
USAGE H2/CO PRODT	2.0861	2.0792	2.1500	2.1038
FEED H2/CO FRM EFFLNT	1.5999	1.5829	1.5889	1.5841
RESIDUAL H2/CO RATIO	0.9772	0.9594	0.9663	0.9677
RATIO CO2/(H2O+CO2)	0.0351	0.0361	0.0314	0.0308
K SHIFT IN EFFLNT	0.0355	0.0359	0.0314	0.0308
SPECIFIC ACTIVITY SA	1.6815	1.7582	2.7983	1.6013
CONVERSION				
ON CO %	56.15	55.67	52.60	54.26
ON H2 %	73.22	73.13	71.18	72.06
ON CO+H2 %	66.65	66.37	64.00	65.17
PRDT SELECTIVITY,WT %				
CH4	9.05	9.26	8.97	8.51
C2 HC'S	1.90	1.93	2.00	1.99
C3H8	3.92	3.99	4.24	4.03
C3H6=	1.17	1.26	1.36	1.28
C4H10	3.36	3.46	3.68	3.49
C4H8=	1.83	1.90	2.09	1.94
C5H12	3.17	3.27	3.47	3.28
C5H10=	0.82	0.85	0.93	0.89
C6H14	3.22	3.25	3.49	3.22
C6H12= & CYCLO'S	0.46	0.47	0.47	0.39
C7+ IN GAS	1.57	1.62	1.57	1.51
LIQ HC'S	69.51	68.74	67.73	69.50
TOTAL	100.00	100.00	100.00	100.00
SUB-GROUPING				
C1 -C4	21.24	21.80	22.34	21.22
C5 -420 F	44.08			46.88
420-700 F	24.26			22.03
700-END PT	10.43			9.87

Table B22 (continued)

FILE: 1161707D T5Q4 A1

C5+-END PT	78.76	78.20	77.66	78.78
ISO/NORMAL MOLE RATIO				
C4	0.0401	0.0425	0.0378	0.0398
C5	0.0579	0.0587	0.0596	0.0561
C6	0.1855	0.1855	0.1918	0.1962
C4=	0.1293	0.1335	0.1282	0.1245
PARAFFIN/OLEFIN RATIO				
C3	3.1886	3.0229	2.9864	3.0000
C4	1.7683	1.7619	1.6994	1.7369
C5	3.7668	3.7419	3.6263	3.5923
SCHULZ-FLORY DISTRBTN				
ALPHA (EXP(SLOPE))	0.8381	0.6976	0.6968	0.8300
RATIO CH4/(1-A)**2	3.4550	1.0126	0.9757	2.9425
ALPHA FRM CORRELATION	0.8131			0.8135
ALPHA (EXPTL/CORR)	1.0308			1.0202
W%CH4 FRM CORRELATION	21.4343			21.2875
W%CH4 (EXPTL/CORR)	0.4224			0.3996
LIQ HC COLLECTION				
PHYS. APPEARANCE	OIL WAX	OIL WAX	OIL WAX	OIL WAX
DENSITY				
N, REFRACTIVE INDEX				
SIMULT'D DISTILATN				
10 WT % @ DEG F	202.00			201.00
16	249.00			247.00
50	417.00			412.00
84	685.00			679.00
90	771.00			772.00
RANGE(16-84 %)	436.00			432.00
WT % @ 420 F	50.10			54.10
WT % @ 700 F	85.00			85.80

VII. Summary

The work reported this Quarter consisted of five runs directed toward three objectives.

Two of the runs tested two new Molecular Sieves, TC-123 and TC-133, for the possibility of improving on the promising performance of Catalyst 32 (Co/X_{11}/TC-103, Fourth Quarterly Report).

Two other runs were attempts to replicate an apparent carbon number cut-off, at the high end of the diesel range, which first appeared with Catalysts 20 and 39.

The fifth run tested the addition of a second promoter, X_{12}, to a Co/X_{11}/TC-123 catalyst.

The search for a carbon number cut-off was unsuccessful. It is not clear whether the apparent effect was an experimental artifact, or was due to some as yet unidentified element in the catalyst preparation or test procedure. One possible explanation is that a sample collected after 24 hours of rapid deactivation may seriously distort the true product mix. Another is that the effect was real, and the failure to replicate was due to some obscure but significant alteration in the activation procedure, the reaction conditions, or both. More work is necessary to clarify these possibilities.

Adding X_{12} as a second promoter improved the activity of the Co/X_{11}/TC-123 catalyst, but apparently rendered it more sensitive

to the hydrogen content of the feed. The result, an excessively high production of methane when the H_2:CO feed ratio was raised.

Both new Molecular Sieves improved significantly on the activity of TC-103. One of them, TC-123, improved on its selectivity as well, reducing production of methane, increasing production of C_5^+, and raising the olefin content of the light gas fraction (C_2-C_4). The low methane production made it possible, in turn, to operate the catalyst in a more hydrogen-rich environment, enhancing its activity still further.