

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMA

REFINING HEADQUARTERS LABORATORY

Plt.: P. C.

File: 662.9

LABORATORY NO.: L-98-65

12-16-65

CHARGE: PC 49

SUBJECT: QUALITY - BENZENE FROM LAKE CHARLES

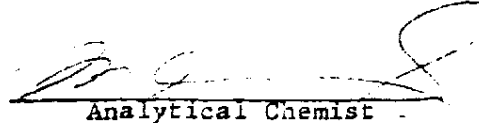
Sample No.: PC 2160

Product: Composite of 19 Tankcars Received October and November 1965.

Specific Gravity, 60/60°F.	0.8816
Color, Saybolt	+28
Freezing Point, °C.	5.20
Mole % Purity from Freezing Point	99.50
Distillation, °C.:	
I.B.P.	79.7
D.P.	82.7
Sulfur, ppm.	0.5
Chlorides, ppm.	1.0
Phenol, ppm.	<0.5
Non-Volatile Matter, g./100 ml.	0.0016
Chromatographic Analysis, Wt. %	
2,2 DMP	.008
MCP	.013
Benzene	99.473
3,3 DMP	.022
CH	.051
2 MH	.031
2,3 DMP + 1,1 DMCP	.016
3 MH + Trans 1,3 DMCP	.130
Cis 1,3 DMCP	.035
EP	.008
nC ₇	.182
2,2 DMH	.015
Toluene	.006
High-Boiling Hydrocarbons, Wt. %	
(Boiling Above Toluene)	.010

Approved by:

K. C. Hunt (etc)
Senior Analytical Chemist


Analytical Chemist

Copies to:
GWW-LB-JFP-CAN-F

MCD 000018724

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMA

Plt.: P. C.

File: 662.9

REFINING HEADQUARTERS LABORATORY

LABORATORY NO.: J-26-65

10-6-65

CHARGE: LC 49

SUBJECT: QUALITY - BENZENE FROM LAKE CHARLES

Sample No. PC 1268

Composite of 16 tankcars received during September 1965.

Specific Gravity, 60/60°F.	0.8805
Color, Saybolt	+30
Freezing Point, °C.	5.10
Mole % Purity from Freezing Point	99.34
Distillation, °C.:	
I.B.P.	79.3
D.P.	83.3
Sulfur, ppm.	2.0
Chlorides, ppm.	<0.5
Phenol, ppm.	<0.5
Non-Volatile Matter, g./100 ml.	0.0025
Chromatographic Analysis, Wt. %	
MCP	.018
Benzene	99.454
CH	.030
2 MH	.044
2,3 DMP + 1,1 DMCP	.031
3 MH + Trans 1,3 DMCP	.091
Cis 1,3 DMCP	.021
EP	.006
Trans 1,2 DMCP	.026
nC ₇	.243
Toluene	.026
High-Boiling Hydrocarbons, Wt. % (Boiling Above Toluene)	.010

COMMENTS:

The sulfur content is somewhat higher and the distillation range somewhat wider than usual. However, the quantity received was small and had a minimal effect on cyclohexane production.

MCD 000018725

Approved by:

H. C. Hunt
Senior Analytical Chemist

Arthur E. Gustafson, Jr.
Analytical Chemist

CC: GWW-LB-JFP-JRB-MEO-CAN-F

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING HEADQUARTERS LABORATORY

Plt.: P. C.
 File: 662.9
 650

LABORATORY NO.: F-140-65
 CHARGE: PASA
 SUBJECT: QUALITY - PASA BENZENE - FROM M/V STOLT NIAGARA BEFORE
 UNLOADING AT LAKE CHARLES

6-18-65

Sample No. PC 1876 L.C. 139-65

	<u>P.C. Data</u>	<u>L. C. Data</u>
Specific Gravity, 60/60°F.	0.8822	0.8844
Color, Saybolt	+30	-
Freezing Point, °C.	5.40	5.35
Mole % Purity from Freezing Point	99.80	99.72

	<u>As Received</u>	<u>Dry Basis</u>	<u>As Received</u>
Distillation, °C.:			
I.B.P.	78.6	79.8	78.0
D. P.	80.2	80.3	80.4
Sulfur, ppm.	1.5		-
Chlorides, ppm.	<0.5		-
Phenol, ppm.	<0.5		-
Non-Volatile Matter, g./100 ml.	0.0004		0.0000
<u>Chromatographic Analysis, Wt. %</u>			
2 MP	0.006		0.02
3 MP	0.010		0.02
nC ₆	0.025		0.04
MCP	0.053		0.08
Benzene	99.860		99.76
CH	0.003		-
2 MH	0.005		-
2,3 DMP + 1,1 DMCP	0.004		-
3 MH + Trans 1,3 DMCP	0.007		-
nC ₇	0.014		0.02
Toluene	0.003		
MCH	-		0.01
<u>High-Boiling Hydrocarbons, Wt. %</u>			
(Boiling Above Toluene)	0.010		0.05

REFERENCE: Letter from MEO to CAN dated 6-11-65.

Approved by:

R.C. Hunt
 Senior Analytical Chemist

Arthur E. Gustafson, Jr.
 Analytical Chemist

MCD 000018726

cc: GWW-LB-JFP-GJK-MEO-CAN-F(2)

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING HEADQUARTERS LABORATORY

Plt.: P. C.
File: 662.9

LABORATORY NO.: F-62-65 6-9-65
CHARGE: PC 49
SUBJECT: QUALITY - BENZENE RECEIVED FROM LAKE CHARLES

Sample No. PC 1720
Product Composite of 28 Tankcars received in May 1965.

Specific Gravity, 60/60°F.	0.8822
Color, Saybolt	+22
Freezing Point, °C.	5.00
Mole % Purity from Freezing Point	99.19
Distillation, °C.:	
I.B.P.	79.3
D.P.	80.7
Sulfur, ppm.	0.5
Chlorides, ppm.	<0.5
Phenol, ppm.	<0.5
Non-Volatile Matter, g./100 ml.	0.0010
Chromatographic Analysis, Wt. %	
MCP	0.013
Benzene	99.358
2 MH	0.075
2,3 DMP + 1,1 DMCP	0.023
3 MH + Trans. 1,3 DMCP	0.169
Cis 1,3 DMCP	0.009
E.P.	0.002
2,2,4 T.M.P.	0.002
nC ₇	0.288
MCH	0.005
Toluene	0.046
High-Boiling Hydrocarbons, Wt. % (Boiling Above Toluene)	0.010

William L. Barbaree
Analytical Chemist

Approved by:

R. C. Hunt
Senior Analytical Chemist

cc: GWW-(L3P-LB)-JFP-CAN-F(2)

MCD 000018727

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMA

Plt.: L. C.

File: 662.9

REFINING HEADQUARTERS LABORATORY

LABORATORY NO.: A-122-66

1-20-66

CHARGE: LC 49

SUBJECT: QUALITY OF BENZENE - LAKE CHARLES

Sample
Sample No.
DateTk 22 Benzene
LC 27-66, PC 2769
1-14-66

Gravity, A.P.I.	29.0
Distillation, °C.:	
I.B.P.	79.2
D.P.	81.2
Color, Saybolt	17
Freezing Point, °C.	4.95
Purity from Freezing Point, Mole %	99.12
Sulfur, ppm.	<0.5
Thiophene, ppm. (Calculated	<0.2
Chloride, ppm.	<0.5
<u>Chromatographic Analysis, Weight %</u>	
Normal Hexane	0.002
Methylcyclopentane	0.016
Benzene	99.300
2 Methylhexane	0.022
2,3 Dimethylpentane + 1,1 Dimethyl-	
cyclopentane	0.012
3 Methylhexane + Trans 1,3 Dimethyl-	
cyclopentane	0.132
Cis 1,3 Dimethylcyclopentane	0.011
Ethylpentane	0.005
Trans 1,2 Dimethylcyclopentane	0.003
Normal Heptane	0.309
2,2 Dimethylhexane	0.014
Cis 1,2 Dimethylcyclopentane	0.025
Toluene	0.139
High-Boiling Hydrocarbons	
(Boiling above toluene)	0.010


Senior Analytical ChemistCopies to:
(RAR-JPM)-EJJ(2)-MEO-CAN(2)-F

MCD 000018730

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMAREFINING HEADQUARTERS LABORATORY

Plt.: P. C.

File: 662.9

LABORATORY NO.: A-90-66

1-13-66

CHARGE: PC 49

SUBJECT: QUALITY - BENZENE PURCHASED FROM COSDEN PETROLEUM COMPANY,
BIG SPRING, TEXAS

Sample No. PC 2668

Product: Composite of 5 Tankcars received from 12-27-65 to 1-7-66.

Specific Gravity, 60/60°F.	0.8822
*Color, Saybolt	+19
Freezing Point, °C.	5.45
Mole % Purity from Freezing Point	99.87
Distillation, °C.:	
I.B.P.	79.3
D.P.	80.4
Sulfur, ppm.	1.5
Chlorides, ppm.	<0.5
Phenol, ppm.	<0.5
Non-Volatile Matter, g./100 ml.	0.0010
Chromatographic Analysis, Wt. %	
MCP	.002
Benzene	99.889
MCH	.010
Toluene	.089
High-Boiling Hydrocarbons, Wt. % (Boiling Above Toluene)	.010

*Color on individual samples:

<u>Car No.</u>	<u>Sampling Date</u>	<u>Color, Saybolt</u>
CONX 2055	12-27-65	+16
CONX 2059	12-27-65	+15
CONX 2064	12-27-65	+15
CONX 2056	1-4-66	+24
CONX 2070	1-7-66	+28

COMMENTS: We feel that the poor color is a result of contamination from the tankcars. In general, the Cosden benzene appears to be of excellent quality.

MCD 000018731

Arthur E. Luntz
Analytical Chemist

Approved by:

R.C. Hunt
Senior Analytical Chemist

cc: GWW-(REL-TEN)-LB-JFP-CAN-JRL-F

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING HEADQUARTERS LABORATORY

Plt.: L. C.
File: 662.9

LABORATORY NO.: C-192-66 3-25-66
CHARGE: LC 49
SUBJECT: PURITY OF LAKE CHARLES BENZENE - CROSS CHECK OF SAMPLES

Lake Charles No. 72-66

	<u>Lake Charles</u>	<u>Ponca City</u>
Freezing Point	4.90	4.95
Purity from Freezing Point (Mol. %)	99.04	99.12 (98.9 Wt. %)
Chromatographic Analysis (Weight Percent)		
Column Type	Carbowax Column	Carbowax Column
Paraffins + Olefins	1.13	0.87
Benzene	98.75	99.02
Toluene	<u>0.12</u>	<u>0.11</u>
	100.00	100.00

Lake Charles No. 107-66

Freezing Point		4.95
Purity from Freezing Point		99.12 (98.9 Wt. %)
Chromatographic Analysis (Weight Percent)		
Column Type	Paraffin Oil Column	Carbowax Column
Paraffins	0.27	0.79
Olefins		0.27
Benzene	99.63	98.84
Toluene	<u>0.10</u>	<u>0.10</u>
	100.00	100.00

COMMENTS:

With reference to sample No. LC 72-66, we believe the lack of better agreement between Lake Charles and Ponca City laboratories is due to too large a sample being used at Lake Charles.

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MEO-CAN-JOW-F

MCD 000018732

C-192-66

3-25-66

Page 2

The excellent agreement in weight percent benzene results at Ponca City by the freezing point and chromatographic methods represents the kind of check which should be expected from these two procedures.

With reference to sample No. LC 107-66, it is impossible to analyze this sample properly by using a chromatographic method which employs only a "boiling point" column, such as paraffin oil. This type column will not separate the olefins which are present from the benzene. In order to make this separation, a substrate with a great deal of aromatic selectivity must be employed. The best known materials used for this purpose are the Carbowaxes.

Another danger in an analysis of this type is overloading of the detector with the major component (i.e., too large a sample.) Too large a quantity of the major components entering the detector causes a loss of linearity of response. This may be guarded against by analyzing a sample of known purity for reference. Care should be taken to use the same sample size in analyzing the unknown sample as was used with the reference sample.

P.C. analysis of L.C. No. 107-66 shows that virtually all of the known C₇ paraffins and cycloparaffins are present. Thus, each one of the peaks on the Lake Charles chromatogram probably represents several components, and individual component identification is impossible. Obviously then, this is further evidence that the paraffin oil column is entirely inadequate.

It is true that the carbonwax column recommended by the Ponca City laboratory also has limitations with reference to complete separation, but it does give reliable values for benzene and toluene which are of primary interest.

Elton W. Carpenter
Associate Chemist

Approved:

John C. Ghine
Senior Technologist

MCD 000018733

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING HEADQUARTERS LABORATORY

Plt.: L. C.
File: 662.9

LABORATORY NO.: C-192-66 3-25-66
CHARGE: LC 49
SUBJECT: PURITY OF LAKE CHARLES BENZENE - CROSS CHECK OF SAMPLES

Lake Charles No. 72-66

	<u>Lake Charles</u>	<u>Ponca City</u>
Freezing Point	4.90	4.95
Purity from Freezing Point (Mol. %)	99.04	99.12 (98.9 Wt. %)
Chromatographic Analysis (Weight Percent)		
Column Type	Carbowax Column	Carbowax Column
Paraffins + Olefins	1.13	0.87
Benzene	98.75	99.02
Toluene	0.12	0.11
	100.00	100.00

Lake Charles No. 107-66

Freezing Point		4.95
Purity from Freezing Point		99.12 (98.9 Wt. %)
Chromatographic Analysis (Weight Percent)		
Column Type	Paraffin Oil	
	Column	Carbowax Column
Paraffins	0.27	0.79
Olefins		0.27
Benzene	99.63	98.84
Toluene	0.10	0.10
	100.00	100.00

COMMENTS:

With reference to sample No. LC 72-66, we believe the lack of better agreement between Lake Charles and Ponca City laboratories is due to too large a sample being used at Lake Charles.

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MEO-CAN-JOW-F

MCD 000018753

C-192-66

3-25-66

Page 2

The excellent agreement in weight percent benzene results at Ponca City by the freezing point and chromatographic methods represents the kind of check which should be expected from these two procedures.

With reference to sample No. LC 107-66, it is impossible to analyze this sample properly by using a chromatographic method which employs only a "boiling point" column, such as paraffin oil. This type column will not separate the olefins which are present from the benzene. In order to make this separation, a substrate with a great deal of aromatic selectivity must be employed. The best known materials used for this purpose are the Carbowaxes.

Another danger in an analysis of this type is overloading of the detector with the major component (i.e., too large a sample.) Too large a quantity of the major components entering the detector causes a loss of linearity of response. This may be guarded against by analyzing a sample of known purity for reference. Care should be taken to use the same sample size in analyzing the unknown sample as was used with the reference sample.

P.C. analysis of L.C. No. 107-66 shows that virtually all of the known C₇ paraffins and cycloparaffins are present. Thus, each one of the peaks on the Lake Charles chromatogram probably represents several components, and individual component identification is impossible. Obviously then, this is further evidence that the paraffin oil column is entirely inadequate.

It is true that the carbonwax column recommended by the Ponca City laboratory also has limitations with reference to complete separation, but it does give reliable values for benzene and toluene which are of primary interest.

Elton W. Carpenter
Associate Chemist

Approved:

John C. Haine
Senior Technologist

MCD 000018754

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMA

Plt.: L. C.

File: 662.9

REFINING HEADQUARTERS LABORATORY

LABORATORY NO.: A-122-66

1-20-66

CHARGE: LC 49

SUBJECT: QUALITY OF BENZENE - LAKE CHARLES

Sample
Sample No.
DateTk 22 Benzene
LC 27-66, PC 2769
1-14-66

Gravity, A.P.I.	29.0
Distillation, °C.:	
I.B.P.	79.2
D.P.	81.2
Color, Saybolt	17
Freezing Point, °C.	4.95
Purity from Freezing Point, Mole %	99.12
Sulfur, ppm.	<0.5
Thiophene, ppm. (Calculated)	<0.2
Chloride, ppm.	<0.5
<u>Chromatographic Analysis, Weight %</u>	
Normal Hexane	0.002
Methylcyclopentane	0.016
Benzene	99.300
2 Methylhexane	0.022
2,3 Dimethylpentane + 1,1 Dimethyl- cyclopentane	0.012
3 Methylhexane + Trans 1,3 Dimethyl- cyclopentane	0.132
Cis 1,3 Dimethylcyclopentane	0.011
Ethylpentane	0.005
Trans 1,2 Dimethylcyclopentane	0.003
Normal Heptane	0.309
2,2 Dimethylhexane	0.014
Cis 1,2 Dimethylcyclopentane	0.025
Toluene	0.139
High-Boiling Hydrocarbons (Boiling above toluene)	0.010

H. C. Hunt
Senior Analytical Chemist

Copies to:
(RAR-JPM)-EJJ(2)-MEO-CAN(2)-F

MCD 000018755

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING TECHNICAL SERVICES LABORATORY

Plt.: LC
File: 671
924
Date: 6-17-77

LABORATORY NO.: F-63-77
CHARGE: Lake Charles Production Division
SUBJECT: Benzene Content of Crude and Related Products

ANALYTICAL DATA:

Sample Number:	PC 1931	PC 1932	PC 1933
Sample	Varsol, Cameron Storage	JP-4 Turbine Fuel (M.C. Area)	TK 55, Crude Oil Grand Chenier Separator Station
Sample Date	<u>6-14-77</u>	<u>6-10-77</u>	<u>6-10-77</u>
Benzene, L.V. %	None Detected *	None Detected *	1.2 None Detected

* Lower detectable limit is 0.1 LV%

Approved:

Melvin M. Foster
Associate Chemist

Senior Technologist

bp

cc: RMR-RH-CLJ-KCH-F

MCD 000018768

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
REFINING TECHNICAL SERVICES LABORATORY

Plt.: LC
File: 671
924
Date: 6-9-77

LABORATORY NO.: F-36-77
CHARGE: Lake Charles Production Division
SUBJECT: Determination of Benzene in Crude Oils - Lake Charles Production Division

ANALYTICAL DATA:

Sample No.:	PC 1894	PC 1895
Sample:	EC-66A+66B Crude (Gibstown)	Patterson Terminal Crude
Date Received:	<u>6-6-77</u>	<u>6-6-77</u>
Benzene, Vol.:	0.1	0.5

Sample No.:	PC 1896	PC 1897
Sample:	Conoco-C.A.G.C. Freshwater Terminal Crude Oil	Conoco-C.A.G.C. Grand Chenier Crude
Date Received:	<u>6-6-77</u>	<u>6-6-77</u>
Benzene, Vol.:	0.2	1.2

Approved:

A. A. Orrell
Senior Technologist

Robert Henderson
Analytical Chemist

cc: Robert Henderson-C. L. Jacobs-R.M. Robinson-KCH-F

MCD 000018769

VOL.% BENZENE OF REFINERY STREAMS

<u>LAKE CHARLES REFINERY (May 1977)</u>			<u>Vol. %</u>
PC 1842	LC 643-77	Coker Gasoline	0.2
PC 1843	LC 644-77	Thermal Gasoline	0.3
PC 1844	LC 645-77	TCC Gasoline	0.5
PC 1819	LC 646-77	#1 L.S.R.	1.8
PC 1846	LC 647-77	#2 L.S.R.	1.6
PC 1847	LC 648-77	Denuded Casinghead	3.7
PC 1848	LC 649-77	#1 Reformate	0.9
PC 1849	LC 650-77	#2 Reformate	1.0
PC 1850	LC 651-77	Primary Tower OH	2.8

<u>PARAMOUNT REFINERY</u>			
PC 1857	Pa 127-77	Light Naphtha 5-13-77	1.5
PC 1858	Pa 128-77	Low Severity Reformate 4-20-77	0.9
PC 1859	Pa 129-77	High Severity Reformate 4-25	1.3

MCD 000018799

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
Manufacturing Headquarters Laboratory

Plt.: L. C.
File: 662.9

LABORATORY NO.: D-92-64 4-17-64
CHARGE: LC 49
SUBJECT: CHROMATOGRAPHIC ANALYSES - BENZENE - LAKE CHARLES

A stream sample of Lake Charles benzene taken March 26, 1964, was sent to Ponca City for a chromatographic analysis. The analysis is part of a study to determine the feasibility of charging about 200 bpd of Lake Charles benzene to the cyclohexane unit.

Sample No.	LC 103-64 <u>Benzene Stream</u>
Freezing Point, °C.	5.20
Mole % Purity	99.50
<u>Chromatographic Analysis, Wt. %</u>	
3 MP	0.002
MCP	0.002
Benzene	99.493
2 MH	0.026
2,3 DMP + 1,1 DMCP	0.019
3 MH + Trans 1,3 DMCP	0.058
Cis 1,3 DMCP	0.005
2 EP	0.017
Trans 1,2 DMCP	0.006
2,2,4 Trimethyl pentane	0.112
nC ₇	0.090
Cis 1,2 DMCP	0.001
MCH	0.002
Toluene	0.031
High Boiling Hydrocarbons	0.012
Other C ₈ Paraffins and Naphthenes	0.124

H. C. Hunt
Senior Analytical Chemist

Copies to:
(KSA-JPM)-JFP-LES-MEO-CAN-F

MCD 000018833

CONTINENTAL OIL COMPANY

PONCA CITY, OKLAHOMA

Plt.: P.C.

File: 662.9

Manufacturing Headquarters Laboratory

LABORATORY NO.: D-17-63

4-5-63

CHARGE: PC 49

SUBJECT: QUALITY - LAKE CHARLES BENZENE FOR CHARGE TO
CYCLOHEXANE UNIT

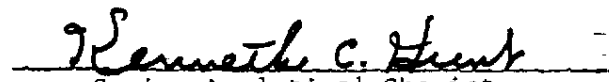
Sample No.: PC 1320

Product: Composite of 7 tank cars received from March 20, 1963,
through March 29, 1963.

Specific Gravity, 60/60°F.	0.8800
Color, Saybolt	+21
Freezing Point, °C.	4.80
Mol. % Purity from Freezing Point	98.89
Copper Strip Test, 30 min. at 212°F.	1 b
Distillation, °C.:	
I.B.P.	79.5
D.P.	85.5
Sulfur, ppm	1.0
Chlorides, ppm	<0.5
Phenol, ppm	<0.5
Non-Volatile Matter, g./100 ml.	0.0063
High-Boiling Hydrocarbons, Wt. % (Boiling above Toluene)	0.333
Chromatographic Analysis, Wt. %	
MCP	0.027
Benzene	99.161
CH	0.022
C7's	0.433
Toluene	0.024
High Boiling Hydrocarbons	0.333

COMMENTS: The distillation, color, non-volatile matter, and high boiling hydrocarbons are quite far from meeting specifications for benzene charge to the cyclohexane unit.

APPROVED:


Analytical Chemist
Senior Analytical Chemist

MCD 000018834

cc: (DEH-RBB)-KSA-KRG-MEO-CAN-F

CONTINENTAL OIL COMPANY
PONCA CITY, OKLAHOMA
Manufacturing Headquarters Laboratory

Pit.: Ponca City
File: 650
662.3

LABORATORY NO.: K-119-63

11-15-63

CHARGE NO.: General 50

SUBJECT: DODECYL BENZENE AND DODECYL BENZENE INTERMEDIATE AS
NO. 2 HEATING OIL COMPONENTS - BALTIMORE PETROCHEMICAL
PLANT

Samples of dodecyl benzene (D.B.) and dodecyl benzene intermediate (D.B.I.) were received from the Process Laboratory to determine how much of a 60-40 by weight, D.B.-D.B.I. mix could be blended into No. 2 Heating Oil at Baltimore, presumably by sale to Cities Service. This D.B. and D.B.I. is representative of by-product materials which will be produced in new operations at Baltimore now being planned.

CONCLUSIONS:

1. The Flash Point of D.B.I. is low, that is, 84°F.
2. The Flash Point of a 60:40 D.B.-D.B.I. blend is low, that is, 112°F. The odor is strongly aromatic.
3. A 50:50 blend of (D.B.-D.B.I., 60:40) and Lake Charles No. 2 Heating Oil has satisfactory flash, odor, stability, and all other inspections. This is about the maximum recommended concentration of the D.B.-D.B.I. in a No. 2 Heating Oil blend.
4. Since Cities Service is the proposed purchaser and blending with their No. 2 only is involved, they would have to pass on the acceptance of this material in their No. 2 Fuel Oil.

RESULTS: Results are shown in the attached table.

REFERENCE: Letter G.W. Inbody to C.A. Neilson dated November 4, 1963.

Bill B. Smith
Analytical Chemist

Approved by:

[Signature]
Senior Technologist

Copies to:
GWI-KRG-TJK-WLX-JHS-DFC-JDB-CAN-F

MCD 000018835

968810000 CCM

Sample	Sample No.	D.B.I.		D.B.		Lake Charles		Blend of		Blend of	
		R&D 6616J		R&D 6618J		PC 1966		40% D.B.I.		#2 Diesel	
Gravity, A.P.I.		40.0		32.8		35.9		35.7		35.8	34.2
Distillation, °F.											
I.B.P.		254		452		370		294		322	392
10%		318		496		425		378		409	455
20%		346		507		-		417		440	472
50%		402		524		487		434		488	505
90%		466		564		557		542		548	561
95%								562			
End Point		494		586		606		572		590	600
Recovery, %		98		98		98		98		99	98
ASTM Color		L0.5		L0.5		L1.5		L0.5		L1.0	L1.0
Flash, P.M., °F.		84		205		150		112		128	165
Pour Point, °F.		Below -70		Below -70		-10		Below -70		-25	-20
Cloud Point, °F.		Below -50		Below -50		-4		Below -50		-18	-10
Copper Strip Test, Corrosion											
3 hrs. at 122°F.		0		0		0		0		0	0
Carbon Residue, 10% Bottoms,											
Rambottom, Wt. %		-		-		.20		.11		.15	.15
Sulfur, Wt. %		0.00		0.00		.05		0.00		.02	.03
Viscosity, SSU @ 100°F.		1.44 CS		41.5		34.1		34.5		34.4	36.5
Cetane Index (Calc.)		41		46		47		46		47	47
Odor		Aromatic		Aromatic		OK		Aromatic		OK	OK
Accelerated Stability Tests											
90-min, 300°F. Heat Test Rating								0		1	2
16-hour Oxygen Bomb Tests											
ASTM Color								L1.0		L1.5	2.0
Insoluble Gum								-		0.4	0.6
Soluble Gum								0.6		2.0	3.8