Chief, Planning and Review Staff, ORR
THRU : Acting Chief, Materials Division, ORR

Chief, Petroleum Branch, D/A/P

25 January 1954

Project 20.111 - Soviet Bloc Offers of Petroleum and Petroleum Products to the West

1. Transmitted herewith is original and one copy of D/A/P contribution to the subject project.

2. Data submitted by D/S/TF and D/S/TF are included in this contribution.

/s/ [redacted]

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SOVIET BLOC OFFERS OF PETROLEUM AND PETROLEUM PRODUCTS TO THE WEST

PROJECT 20.111

PETROLEUM BRANCH, MATERIALS DIVISION
ORR

15 Jan. 54

IP-358

SOVIET BLOC OFFERS OF PETROLEUM AND PETROLEUM PRODUCTS TO THE WEST

This report is a brief presentation of the ability of the Soviet Bloc to export petroleum and petroleum products to the Free World. As the production of crude petroleum and petroleum products has increased, there has been an accompanying increase in shipments to the Free World. It is believed that this will continue and that the exports from the Bloc may reach 5 million metric tons by 1955. The Bloc has the capability of exporting this amount, and possibly somewhat more in terms of total tonnage, without affecting their minimum internal requirements. This volume of petroleum exports does not constitute a serious threat to the stability of the world petroleum market nor does it appear likely to grow to unstabilizing proportions in the near future.

The motives behind the efforts of the Bloc to re-establish trade with the West in petroleum appear to be both political and economic. There are many possible secondary implications, of varying degrees of importance to the Bloc, including military, that can be inspired by this increasing petroleum export trade. It is our opinion that the primary objectives of the Bloc in this matter are in line with the "New Course" and that petroleum exports are being used to (1) improve foreign exchange balances, (2) secure strategic goods from the West, (3) break down Western economic controls and (4) build trade dependence in selected Western countries. There is the propaganda value to be derived from offering petroleum and petroleum products at prices apparently below the world market. It is considered that the situation in petroleum exports is a part of a larger picture involving other commodities and can not be completely divorced from it.

There has been no evidence of a tendency on the part of the Soviet Bloc to export petroleum from areas of over-supply within the Bloc and to import from Western sources to areas of local deficit. Actually in the period under consideration in this paper, imports by the Bloc from the West have been negligible. However, within the Bloc, there is evidence that this practice has been engaged in for some time.

A. EXPORTS OF PETROLEUM AND PETROLEUM PRODUCTS BY THE SOVIET BLOC*

Tables 1 through 5 give a detailed breakdown of exports from the Soviet Bloc to the Free World during 1951, 1952, and 1953. These figures are believed to be complete except for the following known omissions:

(1) Information on shipments out of the Black Sea in the last week of 1953 was not available when this report was prepared.

(2) Small, but unknown, quantities of petroleum products have been shipped from the USSR to Afghanistan during the three years covered by the tables.

(3) In addition to that shipped by sea, some petroleum products are believed to be shipped from the USSR to Finland by rail, but the quantities involved are unknown.

(4) Some shipments of petroleum products have been made from the Soviet Zone of Austria to Switzerland during the last quarter of 1953, but details are unknown.

In view of these omissions, total exports by the Soviet Bloc to the Free World in the years under consideration probably amounted to about 1.4 million tons in 1951, 2.0 million tons in 1952, and 3.0 million tons in 1953. Exports from the Bloc have, therefore, been increasing steadily since 1950, when it is estimated that about 0.7 million tons were exported. In 1953, exports amounted to 4 times those in 1950 and twice the volume of 1951.

The table below shows the relative importance of the petroleum exporting countries in the Soviet Bloc in the three years covered.

* For the purpose of this paper the Soviet Bloc includes the USSR, Albania, Soviet Zone of Austria, Bulgaria, Czechoslovakia, Soviet Zone of Germany, Hungary, Poland, Rumania, China, North Korea, and Outer Mongolia.

Relative Importance of Petroleum Exporting Countries of the Soviet Bloc, 1951-1953

Country	1951 Percent of Total	1952 Percent of Total	1953 Percent of Total
Soviet Zone of Austria	62.5	49.3	37.1
Rumania	29.1	32.2	41.7
USSR	7.8	13.1	16.2
Soviet Zone of Germany	0.6	5.4	5.0
TOTAL	100.0	100.0	100.0

The importance of Rumania as a petroleum exporting country has increased steadily and significantly, while that of the Soviet Zone of Austria has declined. The USSR has become relatively more important as an exporter, but is still far below Rumania and the Soviet Zone of Austria.

In 1953, 65 percent of Rumania's shipments went to Finland and Italy. Sweden, Italy, Finland and Iceland, in that order, were the recipients of nearly 85 percent of the exports of the USSR, while over 95 percent of the deliveries of the Soviet Zone of Austria were made to the Western Zones of Austria. All the Rumanian and Soviet exports listed in Tables 2 and 3 were carried out of the Black Sea in Free World tankers. Austrian and German deliveries were made by rail, river and probably by the Baltic Sea through Szczecin (Stettin) by tanker.

Fuel oil was the principal product shipped from the Bloc and, in 1953, represented over 50 percent of the total exports. More than 70 percent of Rumanian deliveries during 1953 was in the form of fuel oil. Diesel oil, gas oil and gasoline accounted for 50 percent of Soviet exports in 1953. Virtually all of the 150,000 tons of crude oil exported in 1953 was supplied from the USSR. Exports of products in the distillate range have remained constant at around 40 percent of the Bloc total during the period 1951-1953.

If the present trend continues, exports of petroleum and petroleum products from the Soviet Bloc may reach 5 million metric tons by 1955. There appears to be a good possibility that this figure can be attained since internal consumption does not appear to have kept pace with production. This possibly increasing "surplus" coupled with the Soviet desire to re-establish East-West trade appears to indicate a future rise in shipments to the Free World.

Table I

EXPORTS OF CRUDE OIL AND PRODUCTS FROM THE SOVIET BLOC TO THE FREE WORLD

METRIC TONS

YEAR	PRODUCT	ITALY	FINLAND	BELGIUM	EGYPT	UNITED KINGDOM	WESTERN AUSTRIA	WESTERN GERMANY	SWEDEN	NORWAY	NETHERLANDS	FRANCE	GREECE	DENMARK	ICELAND	TOTAL	% OF TOTAL
1951	Crude Oil	28,798														28,798	2.2
	Gasoline		95,371				164,500	5,699								265,570	20.0
	Kerosene		7,857				39,500									47,357	3.6
	Gas/Diesel Oil		6,315				186,700	5,913								198,928	15.0
	Fuel Oil	73,809	62,286	7,971	155,673	48,114	389,700									737,553	55.7
	Lubricants				2,100		42,800	1,707								46,607	3.5
	TOTAL	102,607	171,829	7,971	157,773	48,114	823,200	13,319								1,324,813	100.0
	% of Total	7.7	13.0	0.6	12.0	3.6	62.1	1.0									
1952	Crude Oil	184,223														184,223	9.7
	Gasoline		207,390				168,000	30,000								405,390	21.3
	Kerosene		3,552				36,600									40,152	2.1
	Gas/Diesel Oil		23,019	23,620			172,000	24,000	60,000		11,300					313,939	16.5
	Fuel Oil	237,373	106,038				502,000		47,432	20,137						912,980	47.9
	Lubricants						48,000									48,000	2.5
	TOTAL	421,596	339,999	23,620			926,600	54,000	107,432	20,137	11,300					1,904,684	100.0
	% of Total	22.1	17.9	1.2			48.7	2.8	5.6	1.1	0.6						
1953	Crude Oil	121,025												9,900	21,421	152,346	5.5
	Gasoline		178,941				177,500	60,000								426,441	15.3
	Kerosene		52,415				24,000									76,415	2.8
	Gas/Diesel Oil		162,392				200,000	69,650	114,071	12,003	36,500				19,038	614,449	22.1
	Fuel Oil	208,635	214,919	87,516			550,000		174,951	125,787	47,855	19,654	17,000		10,000	1,456,317	52.4
	Lubricants						54,000									54,000	1.9
	TOTAL	329,660	608,657	87,516			1,015,500	129,650	289,022	137,795	84,355	19,654	17,000	9,900	51,259	2779,968	100.0
	% of Total	11.9	21.9	3.1			36.5	4.7	10.4	5.0	3.0	0.7	0.6	0.4	1.8		

Note: Margin of Error - 1951+1952 - 0 to +5%
1953 - 0 to +10%

Table 2

EXPORTS OF CRUDE OIL AND PRODUCTS FROM RUMANIA TO THE FREE WORLD

METRIC TONS

YEAR	PRODUCT	FINLAND	ITALY	BELGIUM	SWEDEN	NETHER-LANDS	NORWAY	FRANCE	GREECE	DEN-MARK	EGYPT	UNITED KINGDOM	TOTAL	% OF TOTAL
1951	Crude Oil												95,371	24.7
	Gasoline	95,371											7,957	2.0
	Kerosene	7,957											6,315	1.6
	Gas/Diesel Oil	6,315									155,67[illegible]	1[illegible],114	274,[illegible]	71.1
	Fuel Oil	62,296		7,971							2,100		2,100	0.6
	Lubricants													100.0
	TOTAL	171,929		7,971							157,77[illegible]	1[illegible],114	385,[illegible]7	
1952	Crude Oil												207,390	33.9
	Gasoline	207,390											3,552	0.6
	Kerosene	3,552											23,019	3.7
	Gas/Diesel Oil	23,019											379,[illegible]7	61.9
	Fuel Oil	106,03[illegible]	206,020		47,432		2[illegible],137							
	Lubricants													[illegible]
	TOTAL	339,99[illegible]	206,020		47,432	1[illegible]	2[illegible],13[illegible]						61[illegible]	
1953										9,[illegible]00			9,[illegible]	0.9
	Crude Oil												143,192	12.3
	Gasoline	143,192											52,415	4.[illegible]
	Kerosene	52,415											129,456	11.2
	Gas/Diesel Oil	129,456											[illegible]25,0[illegible]	71.1
	Fuel Oil	214,919	20[illegible],63[illegible]	[illegible]7,516	103,[illegible]97	47,[illegible]	10[illegible],7[illegible]	19,[illegible]54	17,000					
	Lubricants													100.0
	TOTAL	539,9[illegible]2	20[illegible],63[illegible]	[illegible]7,516	103,[illegible]97	47,[illegible]	10[illegible],7[illegible]	19,[illegible]54	17,000	9,[illegible]00			1,1[illegible]0,026	

EXPORTS OF CRUDE OIL AND PRODUCTS FROM THE USSR TO THE FREE WORLD

METRIC TONS

YEAR	PRODUCT	ITALY	BELGIUM	NETHER-LANDS	FINLAND	SWEDEN	ICELAND	NORWAY	WESTERN GERMANY	TOTAL	% OF TOTAL
1951	Crude Oil	28,798								28,798	28.1
	Gasoline										
	Gas/Diesel Oil										
	Fuel Oil	73,809								73,809	71.9
	TOTAL	102,607								102,607	
1952	Crude Oil	184,223								184,223	73.6
	Gasoline										
	Gas/Diesel Oil		23,620	11,300						34,920	13.9
	Fuel Oil	31,353								31,353	12.5
	TOTAL	215,576	23,620	11,300						250,496	
1953	Crude Oil	121,025					21,421			142,446	31.7
	Gasoline				35,749					35,749	7.9
	Gas/Diesel Oil			36,500	32,926	61,071	19,838	12,009	24,650	189,993	42.3
	Fuel Oil					73,254	10,000			81,254	18.1
	TOTAL	121,025		36,500	68,675	134,325	51,259	12,009	24,650	449,442	

Table 4

[illegible]

METRIC TONS

YEAR	PRODUCT	AUSTRIA	GERMANY	TOTAL	% OF TOTAL
1951	Gasoline	164,500		164,500	19.8
	Kerosene	39,500		39,500	4.8
	Gas/Diesel Oil	186,700	3,598	190,298	23.0
	Fuel Oil	389,700		389,700	47.0
	Lubricants	42,800	1,707	44,507	5.4
	TOTAL	823,200	5,305	828,505	
1952	Gasoline	168,000		168,000	17.9
	Kerosene	36,600		36,600	3.9
	Gas/Diesel Oil	172,000	12,000	184,000	19.6
	Fuel Oil	502,000		502,000	53.5
	Lubricants	48,000		48,000	5.1
	TOTAL	926,600	12,000	938,600	
1953	Gasoline	187,500		187,500	18.2
	Kerosene	24,000		24,000	2.3
	Gas/Diesel Oil	200,000	15,000	215,000	20.9
	Fuel Oil	550,000		550,000	53.4
	Lubricants	54,000		54,000	5.2
	TOTAL	1,015,500	15,000	1,030,500	

EXPORTS OF PETROLEUM PRODUCTS FROM THE SOVIET ZONE OF GERMANY TO THE FREE WORLD

METRIC TONS

YEAR	PRODUCT	GERMANY	SWEDEN	TOTAL	% OF TOTAL
1951	Gasoline	5,699		5,699	71.1
	Gas/Diesel Oil	2,315		2,315	28.9
	TOTAL	8,014		8,014	
1952	Gasoline	30,000		30,000	29.4
	Gas/Diesel Oil	12,000	60,000	72,000	70.6
	TOTAL	42,000	60,000	102,000	
1953	Gasoline	60,000		60,000	42.9
	Gas/Diesel Oil	30,000	50,000	80,000	57.1
	TOTAL	90,000	50,000	140,000	

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B. PETROLEUM PROCESSING FACILITIES AND OPERATIONS

A detailed analysis of refinery installations was presented in MP-108, entitled "Selected Data on Soviet Bloc Petroleum Exports" of August 1953. The estimates shown in that paper have been projected through 1955. A copy of this follows as part of the analysis in Project No. 30.111. The estimates shown in MP-108 have been projected through 1955. Minor discrepancies will be noted between the new estimates and those in MP-108 for 1951 and 1952. These can be explained by the fact that certain factors, including the Bloc crude oil import-export balance, have been taken into consideration in the new figures. The revised estimates are shown in the table below.

Production of Natural and Synthetic Petroleum Products in the Soviet Bloc

1951 - 1955

(Thousand Metric Tons)

Product	Year	USSR	European Satellites	Asiatic Satellites	Total
Gasoline Blend Stocks a/	1951	12,040	2,892	120	15,052
	1952	14,699	3,319	136	18,154
	1953	17,845	3,692	151	21,688
	1954	19,829	4,351	187	24,367
	1955	21,804	4,844	213	26,861
Intermediate Distillate Stocks b/	1951	10,019	3,625	183	13,827
	1952	10,718	4,058	220	14,996
	1953	12,265	4,502	243	17,010
	1954	13,545	5,140	298	18,983
	1955	14,799	~~5,697~~ 5,697	342	20,838
Residual Stocks c/	1951	14,581	3,565	196	18,342
	1952	15,596	4,040	232	19,868
	1953	14,913	4,479	259	19,651
	1954	16,446	4,965	315	21,726
	1955	17,901	5,495	362	23,758
TOTAL Products Stocks	1951	36,640	10,082	499	47,221
	1952	41,013	11,417	588	53,018
	1953	45,023	12,673	653	58,349
	1954	49,820	14,456	800	65,076
	1955	54,504	16,036	917	71,457

a/ Includes gasolines, naphthas, ligroines and some commercial petroleum solvents.

b/ Includes kerosenes, distillate fuel oils, Diesel fuel oil and some commercial petroleum solvents.

c/ Includes Lubricating oils, residual fuel oils, asphalts, topped crude waxes, etc.

PETROLEUM PROCESSING FACILITIES AND OPERATIONS

Estimates of the currently installed petroleum processing facilities in the Soviet Bloc are shown in Tables B-1 to B-5, inclusive. Tables B-6 to B-10, inclusive, show estimates of the actual Soviet Bloc petroleum product yields, covering 1950, 1951, and 1952.

Generally, in the Soviet Bloc, in comparison with the natural crude oil refining practices in most Western countries, such as the US, the relative yields from the crude oil charge are lower in distillates and higher in residuals. This primarily arises from the lesser degree of modernization in the cracking and other conversion refining equipment in the Soviet Bloc. Particularly in the USSR, the country that furnished 77.6 weight percent of the estimated total Soviet Bloc petroleum products in 1952, this comparative status would probably persist to some extent even if the most modern types of conventional conversions were applied to the crudes.

Soviet natural crude oils present special problems with respect to refining. Notable features of a large portion of such crudes are as follows: (1) the stocks tend to have naphthenic and even aromatic base, and they tend to have relatively low percentage contents of virgin gasolines and other light straight-run distillates; (2) the stocks tend to be relatively high in contents of gas oil suitable for cracking, and likewise in heavy gas oil and residuals not especially adaptable to the conventional types of thermal and catalytic cracking. The carbocyclic base in the light gas oils and more volatile distillates is desirable within limits, referring to potential octane ratings of products. However, the Soviet carbocyclic base crudes often tend to have (1) high sulphur

contents and (2) poor quality characteristics in the heavy gas oil and residual portions.

An intensive program has been evident for several years in the USSR, involving reconstruction, modernization, and expansion of the natural crude oil refining facilities. The program was in progress through a period of rehabilitation of the facilities which were damaged during World War II, and has been continued. Beginning with the World War II period, the Soviets have been quite active in the installation of catalytic refining apparatus. However, it does not seem probable that the Soviets will attempt to attain a relative status in catalytic conversion such as that which exists in the US. This status would place heavy requirements upon Soviet industry to furnish the complex and specialized equipment for the installations. A high relative degree of catalytic conversion results in high quality and high relative yields of the gasolines. The Soviets, however, will probably be more interested in the light distillates, in general which are obtainable with less emphasis upon the catalytic techniques as compared with the simpler thermal processes.

In the Soviet technological literature there are significant reports on new and special technique experiments, specifically developed for the direct thermal and catalytic cracking of the relatively abundant heavy gas oils and residual stocks. In most other petroleum areas of the world, the percentage yields are usually small enough, with respect to refractory stocks of that nature, to make impractical the special processing which is required to prevent excessive coke deposit incident to the cracking operation. Comparing 1953 with 1950, as shown in Table B-1, a significant increase in the modernization of the Soviet

natural crude oil refining installations is indicated. This trend will probably continue.

The Soviet modernization program appears to have been effectively increased since 1950. Prior to 1953, however, it is not evident that the cumulative effect has been sufficient to warrant a change in the over-all yield factors which were derived in detail for 1950. Beginning with 1953, it is probable that the modernization effects will have increasing influence upon the Soviet natural crude oil product yields. Table B-6 summarizes the comparable yields in 1950, as estimated for the USSR and as reported for the US. The Table B-6 data shows that the US operations obtained 9.6% (by weight) more in distillates, 6.3% (by weight) less in lubricants and residuals, and 3.3% (by weight) less in gas and process loss, in terms of the crude oil charge. Table B-7 summarizes the over-all petroleum product yields in the USSR, as estimated for 1950, 1951, and 1952.

Natural crude oil refining facilities are reportedly being expanded and modernized in the Soviet Bloc Satellites, but not upon a basis comparable with the USSR program. Table B-8 shows the estimated 1952 petroleum product yields on the basis of crude oil production, in the Soviet Bloc, prorated to the individual Soviet Bloc countries. Tables B-9 and B-10 summarize the over-all yield estimates for the Satellites and the Soviet Bloc in 1950, 1951, and 1952.

TABLE B-1
Installed Petroleum Processing Capacities
Natural Petroleum Refining in the USSR

Thousands of Metric Tons per Year

Process	Stock	Economic Regions a/ III, IV, V.	Xa, Xb.	Ib, VI, VIII.	Ia, IIa, VII.	XII	Total
1. Available in 1950 (Detail Estimates)							
Crude Distillation	Charge	29,050	4,160	8,430	2,000	1,280	44,920
Thermal Cracking	Charge	6,086	2,151	6,353	1,248	474	16,312
Thermal Reforming	Charge		218	771			989
Catalytic Cracking	Charge		380	374			754
Catalytic Alkylation	Alkylate		44	46			90
Catalytic Polymerization	Copolymer	30	[illegible]	60			90
Catalytic Hydrogenation	Iso-octane			80			80
2. Available in 1953 (Preliminary Estimates)							
Crude Distillation	Charge	30,000	4,200	18,150	2,500	1,300	56,150
Thermal Cracking	Charge)	10,000	2,400	7,450	1,300	500	21,650
Thermal Reforming	Charge)						
Catalytic Cracking	Charge	760	760	1,134			2,654
Catalytic Alkylation	Alkylate	96	90	142			328
Catalytic Polymerization	Copolymer	30	10	60			100
Catalytic Hydrogenation	Iso-octane			80			80

a/ Economic Regions:
- III - Ukraine
- IV - Lower Don - Caucasus
- V - Transcaucasus

- Xa - Kazach SSR
- Xb - Central Asia

- Ib - Northern European USSR
- VI - Volga
- VIII - Urals

- Ia - Northwest
- IIa - Baltic
- VII - Central European USSR

- XII - Far East

Table B-2

Installed Petroleum Processing Capacities Natural Petroleum Refining in the Soviet Bloc Satellites Available in 1952 - 1953 a/

Thousands of Metric Tons per Year

Country	Crude Distillation Charge	Thermal Cracking/Reforming Charge
Rumania b/	8,050	2,500
Soviet Zone of Austria	2,000	300
Hungary	1,010	30
Czechoslovakia	390	50
Poland	370	20
Soviet Zone of Germany	250	0
Bulgaria	60	0
Albania	50	0
China	400	50
Total	12,580	2,950

a/ Preliminary estimates.

b/ Small capacity catalytic facilities for polymerization, hydrogenation, and alkylation were reportedly installed in Rumania prior to the close of World War II. Present operability and operation status unknown.

Table B-3

Installed Petroleum Processing Capacities

Synthetic Oil Facilities in the USSR

Available in 1953 a/

Thousands of Metric Tons per Year

Facilities Type	Location	Total Synthetic Oil Products
Shale Oil Plants	Estonian SSR	300
Bergius Hydrogenation	Lake Baikal Area	400
Total		700

a/ Preliminary estimates.

Table B-4

Installed Petroleum Processing Capacities

Synthetic Oil Facilities in the Soviet Bloc Satellites

Availble in 1952 - 1953 a/

Thousands of Metric Tons per Year

Facilities Type	Area	Total Synthetic Oil Products
Bergius/Fischer-Tropsch	German Sovzone	1,100
Coal Tar Distillation	German Sovzone	350
Lubricants Processing	German Sovzone	25
Total	German Sovzone	1,475
Bergius	Czechoslovakia	350
Bergius	Poland	100
Various	China	185
Total	Satellites	2,110

a/ Preliminary estimates.

b/ Bulgaria contains oil shale reserves of some extent. However, data are not presently available for commercial synthetic oil exploitation in Bulgaria or other Satellite areas except as shown.

Table B-5

Installed Petroleum Processing Capacities a/

Soviet Bloc Facilities

Available in 1953

Thousands of Metric Tons per Year

Types of Facilities or Products	Stock	Capacity
1. Processing Capacities		
Crude Distillation b/ c/	Charge	68,730
Thermal Cracking/Reforming b/ c/	Charge	24,600
Catalytic Cracking b/ c/	Charge	2,654
Catalytic Alkylation b/	Alkylate	328
Catalytic Polymerization b/	Copolymer	100
Catalytic Hydrogenation b/	Iso-octane	80
Synthetic Oil Plants	Oil Products d/	2,810
2. Production Capacities d/ e/		
Natural Crude Oil Products	Oil Products	61,290
Synthetic Oil Products	Oil Products	2,750
Total Products	Oil Products	64,040

a/ Preliminary estimates; exclusive of facilities for recovery of natural gas liquids.

b/ Natural crude oil processing facilities.

c/ Cracking and reforming units can be operated concurrently together with the crude distillation unites, to fractionate a natural crude oil charge approximately equal to the aggregate of the charge capacity ratings of the units. However, if a system is designed for a conversion process such as cracking or reforming, the equipment is not generally efficient in the crude distillation service. Further in an overall operation as thus described, the final products are essentially confined to the virgin components of the crude and are suitable only for emergency or temporary purposes as compared with the finished refined products obtainable by separate use of the conversion processes. The overall operation generally furnishes charge in reduced quantities for the gas reversion processes such as alkylation and poly merization.

d/ Non-gaseous petroleum products.

e/ Net values of finished refined products for consumption, allowing for distribution loss but without deduction for petroleum product consumption within the petroleum industry itself. All conversion units assumed to be used for conversion.

Table B-6

Comparison of Overall Natural Crude Oil Refining

USSR and US in 1950

Stock	USSR		US	
	Thousand Metric Tons	Weight %	Thousand Metric Tons	Weight %
Gasolines	10,017	28.1	105,321	37.3
Intermediate Distillates	9,077	25.5	73,166	25.9
Lubricants and Specialty Residuals	2,607	7.3	21,769	7.7
Residual Fuel Oil	10,718	30.1	66,066	23.4
Gas and Process Loss	3,206	9.0	16,065	5.7
Crude Oil Charge	35,625	100.0	282,387	100.0
Gas and Process Loss	3,206	9.0	16,065	5.7
Gross Non-Gaseous Products	32,419	91.0	266,322	94.3
Distribution Loss	648	1.8	a/	a/
Net Non-Gaseous Products	31,771	89.2	a/	a/

a/ Data not available.

Table B-7

USSR

Estimated Annual Yields of Petroleum Products [a]

Thousands of Metric Tons

	1950	1951	1952
From Natural Petroleum			
Gasolines	9,817	10,711	11,495
Intermediate Distillates	8,896	9,738	10,450
Lubricants and Specialty Residuals	2,554	2,794	2,999
Residual Fuel Oil	10,504	11,493	12,333
Total Refined Non-Gaseous Products [a]	31,771	34,736	37,277
Process, Gas, and Distribution Loss	3,854	4,214	4,523
Crude Oil Charge to Refining	35,625	38,950	41,800
Unrefined Crude Oil Consumption [b]	375	410	440
Crude Oil Field Losses	1,500	1,640	1,760
Total Crude Oil Production	37,500	41,000	44,000
Natural Gas Liquids [a]	300	1,100	3,000
Total Petroleum Production	37,800	42,100	47,000
From Synthetic Oil			
Distillates [c]	171	217	483
Lubricants and Residuals	38	48	56
Total Synthetic Oil Products [a]	209	265	539
Distribution Loss	4	5	11
Total Synthetic Oil Plant Production	213	270	550
Total Distillates [a] [c]			
Natural Gas Liquids	300	1,100	3,000
Natural Crude Oil Products	18,713	20,449	21,945
Synthetic Oil Products	171	217	483
Total Distillates	19,184	21,766	25,428
Total Lubricants and Residuals [a]			
Unrefined Natural Crude Oil Product [b]	375	410	440
Refined Natural Crude Oil Products	13,058	14,287	15,332
Synthetic Oil Products	38	48	56
Total Lubricants and Residuals	13,471	14,745	15,828
Total Petroleum Products [a]			
Distillates [c]	19,184	21,766	25,428
Lubricants and Residuals	13,471	14,745	15,828
Total Petroleum Products	32,655	36,511	41,256

a/ Net values for final consumption, allowing for distribution loss but without deduction for petroleum product consumption within the petroleum industry itself.
b/ Net storage increments assumed to be nominal and uniform for natural crude oil
c/ Excluding lubricating oil distillates.

TABLE B-5

Soviet Bloc

Estimated 1952 Indigenous Yields of Petroleum Products a/

Thousands of Metric Tons

	Natural Petroleum			g/ Synthetic Oil Products	Total Petroleum Products	Weight % Total Petroleum Products
	Estimated Natural Petroleum Production	Gas and Material Loss	Natural Petroleum Products			
Rumania	7,200	936	6,264	0	6,264	11.78
Austrian Sovzone	3,200	416	2,784	0	2,784	5.23
Hungary	600	78	522	0	522	0.98
Albania	310	40	270	0	270	0.51
Poland	186	24	162	15	177	0.33
Czechoslovakia	60	8	52	289	341	0.64
Bulgaria	20	3	17	0	17	0.03
German Sovzone	0	0	0	1,274	1,274	2.40
Total European Satellites b/	11,576	1,505	10,071	1,578	11,649	21.90
Total Asiatic Satellites c/	235	30	205	78	283	0.53
Total Satellites	11,811	e/ 1,535	e/ 10,276	1,656	11,932	22.43
USSR	d/ 47,000	f/ 6,283	f/ 40,717	539	41,256	77.57
Total Soviet Bloc	58,811	7,818	50,993	2,195	53,188	100.00

a/ Finished refined non-gaseous products; net values available for consumption, allowing for distribution loss but without deduction for petroleum product consumption within the petroleum industry itself.
b/ Natural crude oil only.
c/ Communist China.
d/ Natural crude oil plus natural gas liquids.
e/ Prorated to areas on basis of estimated total natural crude oil production within the areas, regardless of the area in which the natural crude oil was actually processed.
f/ Assumed to be indigenous; import-export balances for the natural crude oil with other countries neglected.
g/ As estimated for individual areas.

Table B-9

Soviet Bloc Satellites

Estimated Annual Yields of Petroleum Products a/

Thousands of Metric Tons

	1950	1951	1952
From Natural Petroleum			
Distillates b/	4,099	5,438	6,186
Lubricants and Residuals	2,710	3,595	4,090
Total Refined Non-Gaseous Products a/	6,809	9,033	10,276
Total Gas and Material Loss	1,018	1,350	1,535
Total Petroleum Production	7,827	10,383	11,811
From Synthetic Oil			
Distillates b/	1,057	1,275	1,507
Lubricants and Residuals	104	126	149
Total Synthetic Oil Products a/	1,161	1,401	1,656
Distribution Loss	24	29	34
Total Synthetic Oil Plant Production	1,185	1,430	1,690
Total Petroleum Products a/			
Distillates b/	5,156	6,713	7,693
Lubricants and Residuals	2,814	3,721	4,239
Total Petroleum Products	7,970	10,434	11,932

a/ Net values for final consumption, allowing for distribution loss but without deduction for petroleum product consumption within the petroleum industry itself.
b/ Excluding lubricating oil distillates.

Table B-10

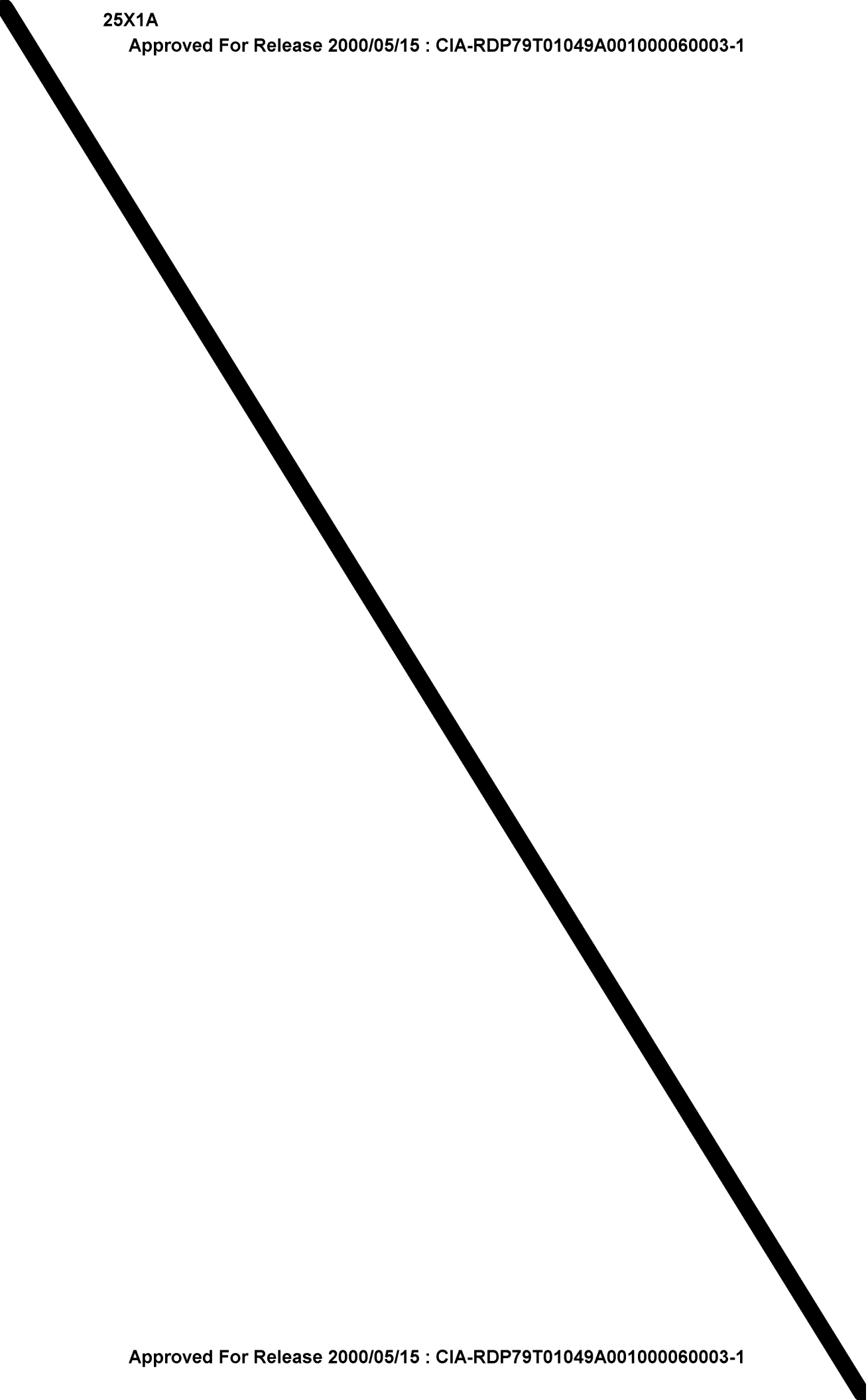
Soviet Bloc

Estimated Annual Yields of Petroleum Products a/

Thousands of Metric Tons

	1950	1951	1952
Distrillates b/	24,340	28,479	33,121
Lubricants and Residuals	16,285	18,466	20,067
Total Petroleum Products	40,625	46,945	53,188

a/ Net values for final consumption, allowing for distribution loss but without deduction for petroleum product consumption within the petroleum industry itself.
b/ Excluding lubricating oil distillates.



C. PETROLEUM PRODUCTION, RESERVES AND POTENTIAL

As in the case of petroleum products output, the estimated production, proved reserves and potential were shown in MP-108. Copies of this information are attached as Table C-1.

Since that time, production estimates have been projected through 1955 and a summary of this information is shown in the table below.

Production of Natural Crude Oil in the Soviet Bloc

1951-1955

Thousand Metric Tons

Year	USSR	European Satellites	Asiatic Satellites	Total
1951	41,000	10,125	183	51,308
1952	44,000	~~11,156~~ 11,676	235	55,751
1953	48,000	12,695	304	60,999
1954	52,500	14,175	400	67,075
1955	57,000	16,200	500	~~73,200~~ 73,700

Table C-1

Estimated Production, Proved Reserves, and Potential Resources of Petroleum 1/
In the Soviet Bloc and Comparison with the Free World

All quantities in million metric tons

Item No.	Country or Area	Estimated Production 1948	Estimated Production 1952	Annual Rate of Growth of Product 1948-1952 Percent	Estimated Proved Reserves Dec. 31, 1952	Ratio of Proved Reserves to Annual Production	Potential Geologic Resources	Potential Economic Capabilities to Convert Resources to Use.
1	USSR	29.2	47.0 2/	12.6 3/	1,000	21	Large	Fair
2	Rumania	4.2	7.2	14.4	70	10	Medium	Good
3	Sovzone Austria	0.9	3.2	37.0	12	4	Small	Good
4	Hungary	0.5	0.6	5.3	5	8	Medium	Fair
5	Albania	0.2	0.3	14.2	2	7	Small	Poor
6	Poland	0.1	0.2	7.4	2	10	Medium	Poor
7	Czechoslovakia	6/	0.1	18.9	1	10	Small	Good
8	Bulgaria	0.0	6/	n.a.	1	10	Small	Poor
9	China	0.1	0.2	33.0	5	25	Large	Poor
10	Total SovBloc	35.2	58.8	13.7	1,098	18.7	Large	Fair
11	USA	291.7	333.2 4/	3.4 5/	4,324	13.0	Medium	Good
12	Middle East	55.9	102.0 4/	16.2 5/	7,172	70.3	Large	Good
13	Total Free World	449.4	584.6 4/	6.8 5/	13,522	23.1	Large	Good

1/ Petroleum for this purpose is defined as crude oil plus natural gas liquids.
2/ Includes up to 3 million tons of natural gas liquids conserved in 1952. Most of these products were wasted in 1948.
3/ This growth rate reflects results of conservation program for saving natural gas liquids. Growth rate due to discovery and development of oil deposits is between 10 and 11 percent annually.
4/ Productive capacity of USA, Middle East and Free World is about 10 percent higher than actual production, not including 30 million tons annual production shut down in Iran.
5/ Growth in productive capacity is somewhat higher than the growth in production.
6/ Less than 0.05 million metric tons.

D. SOVIET BLOC TRADE AGREEMENTS AND OFFERS OF PETROLEUM AND PETROLEUM PRODUCTS

It is very difficult to equate trade agreements and offers to actual shipments of petroleum and petroleum products in Soviet Bloc-Free World trade. From the attached tables D-2 and D-3 it can be seen that most of the agreements with and offers to the Free World are made by the USSR. Actually, less than 20 percent of the shipments are made from the Soviet Union. Also, the time period involved in the commitments is rarely on a calendar year basis. Finally, a comparison of the actual shipments in 1953 with the quantities given in the agreements and offers rarely agree. There are, in addition, many unofficial barter deals made between individuals or industrial organizations and Bloc trading groups, either directly or through third parties.

A few typical comparisons are shown below.

Bloc Commitments vs. Actual 1953 Exports a/

Importing Country	Commitments	Exports
Argentina	500,000 tons of crude oil	None
Finland	558,150 tons of POL	608,657 tons of POL
France	400,000 tons of crude oil	19,654 tons of fuel oil
Greece	300,000 tons of fuel oil	17,000 tons of fuel oil
Iceland	200,000 tons of POL	51,259 tons of POL
Israel	100,000 tons of fuel oil	None
Italy	200,000 tons of crude oil	121,025 tons of crude oil
	100,000 tons of fuel oil	208,635 tons of fuel oil
Norway	75,000 tons of fuel	125,787 tons of fuel
		12,008 tons of gas/diesel oil
Sweden	130,000 tons of diesel oil	114,071 tons of diesel oil
	20,000 tons of kerosene	174,951 tons of fuel oil

a. Documentation for specific Bloc agreements may be obtained from ORR P/S/T-[illegible] upon request

The Soviet Bloc country, in nearly every incident, quotes price f.o.b. Black Sea ports, as shown in Table D-1. If the cost of shipping is added to these, most of the prices quoted approximate the prices of these commodities from Free World sources.

The offers are on a strictly "come-and-get-it" basis. In addition, since nearly 60 percent of the exports made in 1953 came from the Black Sea area, the importing country was faced with necessity of supplying the tankers to transport it.

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Table D-1

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USSR EXPORTS

OF PETROLEUM---PRICES

Information, regarding Soviet export prices of petroleum products is limited. The prices listed below for specific types of petroleum products are indicative of prevailing 1953 prices. 25X1A

[redacted]

I. Gas oil-- for domestic heating purposes--760.00 AS/ton ($29.23)

II. Fuel oil--Light (50 percent Gas oil-50 percent heavy f.o.-647.40 AS/ton ($24.90)

III. Fuel oil--heavy industrial--381.00 AS/ton ($14.65))
IV. Fuel oil--heavy industrial--338.00 AS/ton ($13.00)) Progressively smaller percentage of Gas oil f.o.b. prices
V. Fuel oil--heavy industrial--298.00 AS/ton ($11.46))

25X1A

[redacted]

French import--30,000 tons of motor gasoline as such from EUP sources at $45 equivalent per ton.

25X1A

[redacted]

Exchange of lists in connection with Greek-Soviet trade negotiations.

Exports from USSR--

Heavy and light fuel oil--300,000 metric tons approximate value in dollars 4,000,00.

25X1A

[redacted]

1) Moscow offered Swedish firm 10-30,000 tons fuel oil. Price SKR 59.57 ($11.46)

FOB Constanza

Specific gravity - - -	0.950
Flash point- - - - - -	100° C
Sulphur maximum- - - -	0.5 percent
Viscosity engler - - -	12 at 50° C
Pour point- - - - - - - - ---	10° C

2) Diesel oil SKR 137.27 f.o.b. Batum ($26.40)

Specific gravity - - -	0.85
Flash point- - - - - -	60-85° C
Viscosity engler - - -	1.3-1.7
Pour point- - - - - - - - -	(-10° C

SECRET

3) 20,000 tons gas oil (synthetic oil) $27.00/ton f.o.b. Szczecin

4) 20,000 tons Batum gas oil SKR 134.68/ton f.o.b. Batum ($25.90)

Specific gravity - - -	0.850-0.870
Flash point- - - - - -	60°-85° C
Viscosity engler at 20° C	1.3-1.7
Pour point - - - - - -	(-10° C)
Coke content - - - - -	0.05 percent
Sulphur- - - - - - - -	0.2 percent

5) 15-20,000 tons gas oil from Constanza or Batum $27.00/ton

Diesel index - - - - -	48
Specific gravity - - -	0.865
Flash point- - - - - -	60° C
Viscosity engler - - -	1.2-1.7

6) Freight costs

May 1953 6,500-9,000 tons fuel oil Constanza to Gävle-Sundsvall range--37 shillings/ton ($5.18) (Assumed to be Br. Shillings)

9,000 tons fuel oil from Constanza to 2 Swedish ports in July--26 shillings/ton ($3.64)

25X1A

[redacted]

Fuel oil 20-30,000 tons SKR 56.98 f.o.b. Constanza ($10,96)

Specific gravity - - -	0.95
Pour point - - - - - -	(-10° C)
Flash point- - - - - -	100° C

25X1A

[redacted]

Rumanian oil---

10,000 m3 (63,000 bbls.) viscosity 12° E/50° C SW KR. 94.60 per m3/ ($18.19) $2.90 per barrel/cif Skoghall--located at Lake Vanern (SW. KR. 3.40 m3/$0.10 per barrel) ($0.65)

Soviet trading agreement called for

1) Gas oil exports:

Specific gravity - - -	0.850-0.870 at 20° C
Viscosity engler at 20° C	1.3-1.7
Flash point- - - - - -	60-85°
Pour point - - - - - -	(-10 C Max.)
Carbon residue - - - -	0.05 percent

Sulphur- - - - - - - - 0.29

Colour according to Union Max. 3 marks

Price- - - - - - - - - $26.00 Metric Ton f.o.b. Batum

Delivery period- - - - June-December 1953

2) Synthetic gas oil

Diesel index- - - - - 40-42

Specific gravity - - - 0.865-0.870

Price- - - - - - - - - $26.00 per Metric ton f.o.b. Stettin

Delivery - - - - - - - June-December 1953

3) Water White Kerosene

Specific gravity - - - 0.835-0.850

Price may be fixed on an average quotation-

Platts Oil Gram f.o.b Gulf

4) Tractor fuel

Specific gravity - - - 0.840 Max.

Octane- - - - - - - - 50

Price- - - - - - - - - $30.00 per Metric Ton f.o.b. harbours of Black Sea

5) Motor gasoline (etylised)

Octane Res. Meth- - - 83

Specific gravity at 20° C 0.747 Max.

Sulphur- - - - - - - 0.05 percent

Price- - - - - - - - $38.50 per Metric ton f.o.b. Batum

6) Black Mineral Oil (Mazout)

Specific gravity at 15° C-about 0.950

Carbon residue - - - - - - - not more than 0.3 percent

Sulphur- - - - - - - - - - Max. 2.5 percent

Water and sediment - - - - - not more than 1.5 percent

Price- - - - - - - - - - - $12 per Metric Ton f.o.b. Constanta

[redacted] 25X1A

Offer from NAFTA of gasoline --- Octane No. 80,

Kerosene for lighting, gas oil minus 10° C

prices according to minimum quotation of f.o.b. Gulf on day of shipment from ports of Black Sea.

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25X1A

[redacted]

Red offers of Crude and Bunker oil (USSR-Argentina)

1,755,000 bbls. Bunker 'C' fuel— 9/10d per barrel (about $1.38 f.o.b. Constanta, Rumania)

Rated Used

Austrian Shillings - 26 to 1 US $

Swedish kroner - 5 to 1 US $

British Shillings 1 = 14¢

TABLE 12

USSR Trade Agreement Commitments and Offers of Petroleum Products to Free World Countries

1953 - 1954

Importing Country	Effective Dates of Trade Agreements and Offers	Total Petroleum Products	Crude Oil	Diesel Fuel	Gasoline	Kerosene	Fuel Oil	Lub. Oils	Petroleum Derivatives	Petroleum Products NEC
Afghanistan	A) July 1952-July 1953	(5,200 T (300,000 IMP Gal		200 T	5,000 T ($65 Per Ton)	300,000 IMP Gal				
	B) Signed 26 Dec 53 for next year (1954) (No quantities)									X No quantities but Afghan sought increase
Argentina 1/	Signed 5 Aug 53; 15 Aug 53; 15 Aug 54	500,000 MT $500,000	500,000 MT						$500,000	
Belgium	Offer of Petroleum Products in Negotiations for 3 years Extension of 1948 TA									X
Finland	A) Year 1953- Signed 23 Feb 53	558,150 MT		150,000 MT	246,400 MT	22,250 MT	130,000 MT	9,500 MT		
	B) Year 1954-Signed 25 Nov 53	774,200		230,000 MT	301,500 MT	74,200 MT	160,500 MT	8,000 MT		
France 2/	Signed 15 Jul 53; 1 Jul 53; 1 Jul 54	400,000 MT	400,000 MT							
Greece	Signed 28 Jul 53; 28 Jul 53; 28 Jul 54	300,000 T					300,000 T (Approx. Value $4,000,000)			
Iceland 3/	Signed 1 Aug 53; 1 Aug 53; 31 Jul 54	200,000 T		90,000 T	30,000 T		80,000 T			
India	Signed 2 Dec 53		X							X

TABLE D-2 (Cont'd.)

USSR Trade Agreement Commitments and Offers of Petroleum Products to Free World Countries

1953 - 1954

Importing Country	Effective Dates of Trade Agreements and Offers	Total Petroleum Products	Crude Oil	Diesel Fuel	Gasoline	Kerosene	Fuel Oil	Lub. Oils	Petroleum Derivatives	Petroleum Products NEC
Iran	A) Signed 10 June 53; 1 Apr 53; 31 Mar 54	2,000 T						A) 800 T		
	B) Supplement Signed 30 Sep 53							B) 1,200 T Total: 2,000 T		
Israel 4/	Barter concluded Dec 53	100,000 T (Option to purchase add. 100,000 T)					100,000 T (With option to purchase add. 100,000 T			
Italy	Concluded 27 Oct 53 for 12 months	300,000 T ($5,600,000)	200,000 T (2.5 bil Lire ($4 million)				100,000 T (1 bil Lire $1.6 million)			
Japan	Offers of Petroleum Prod. made to Jap firms during last Q tr. 1953.									
Norway 5/	Trade contracted over and above 1953 barter agreement Oct 1953- 31 Jan 1954	75,000 T					75,000 T			
Sweden 6/	Year 1953	100,000 T		80,000 T		20,000 T				
Turkey 7/	A) Barter deal reported in Nov 1953	77,000 T								A) 27,000 T
	B) Unconfirmed Report in Dec 1953 of contemplated barter deal for spring of 1954									B) 50,000 T

TABLE D-2 (Cont'd)

USSR Trade Agreement Commitments and Offers of Petroleum Products to Free World Countries

1953 - 1954

Importing Country	Effective Dates of Trade Agreements and Offers	Total Petroleum Products	Crude Oil	Diesel Fuel	Gasoline	Kerosene	Fuel Oil	Lub. Oils	Petroleum Derivatives	Petroleum Products NEC
West Germany 8/	A) Barter deal concluded in Nov 53 between Soviet trade organization and Frankfurt firm	88,000 T		A)66,000 T						
	B) Delivered by USSR earlier in 1953			B)22,000 T						

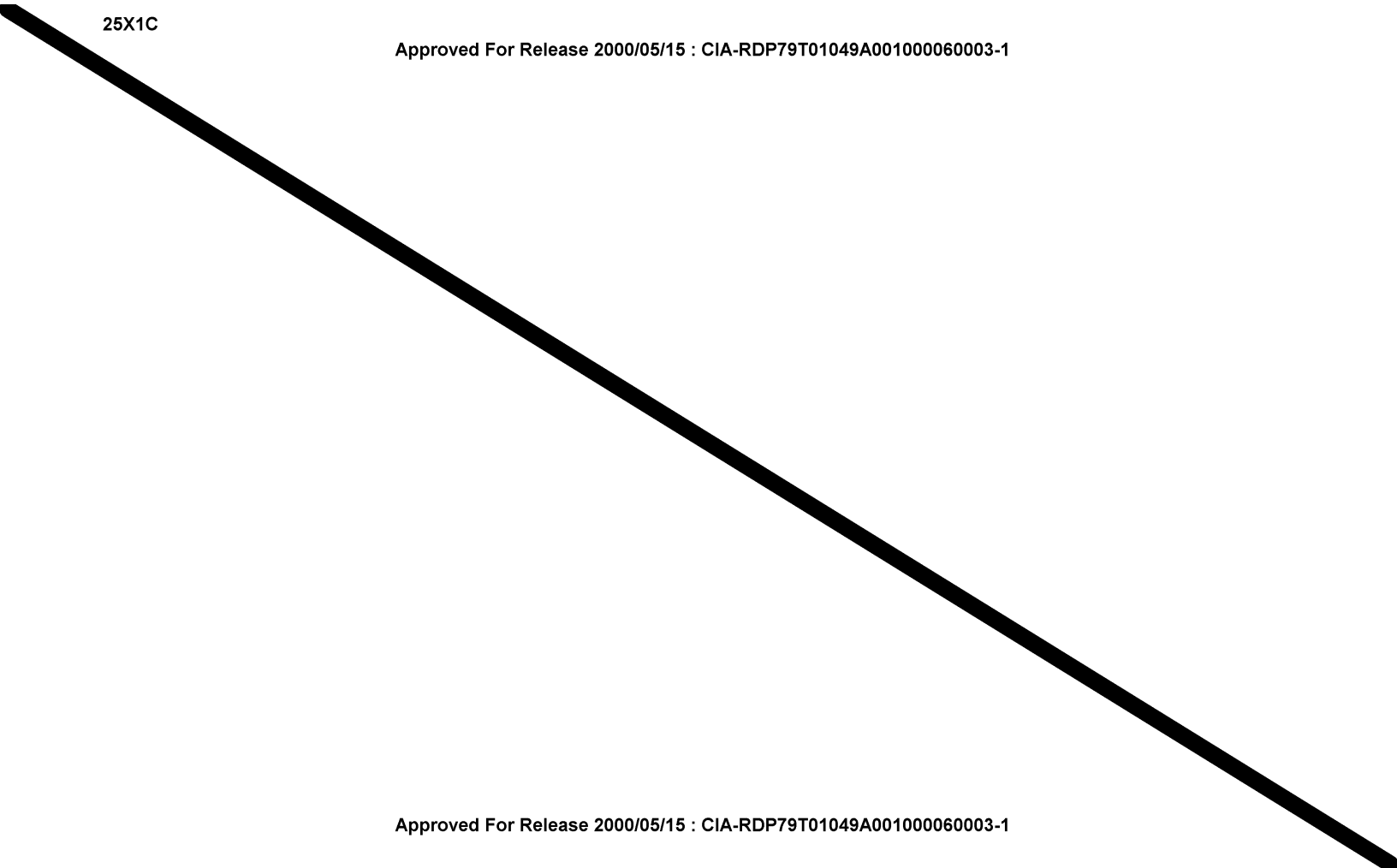

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Table D-3

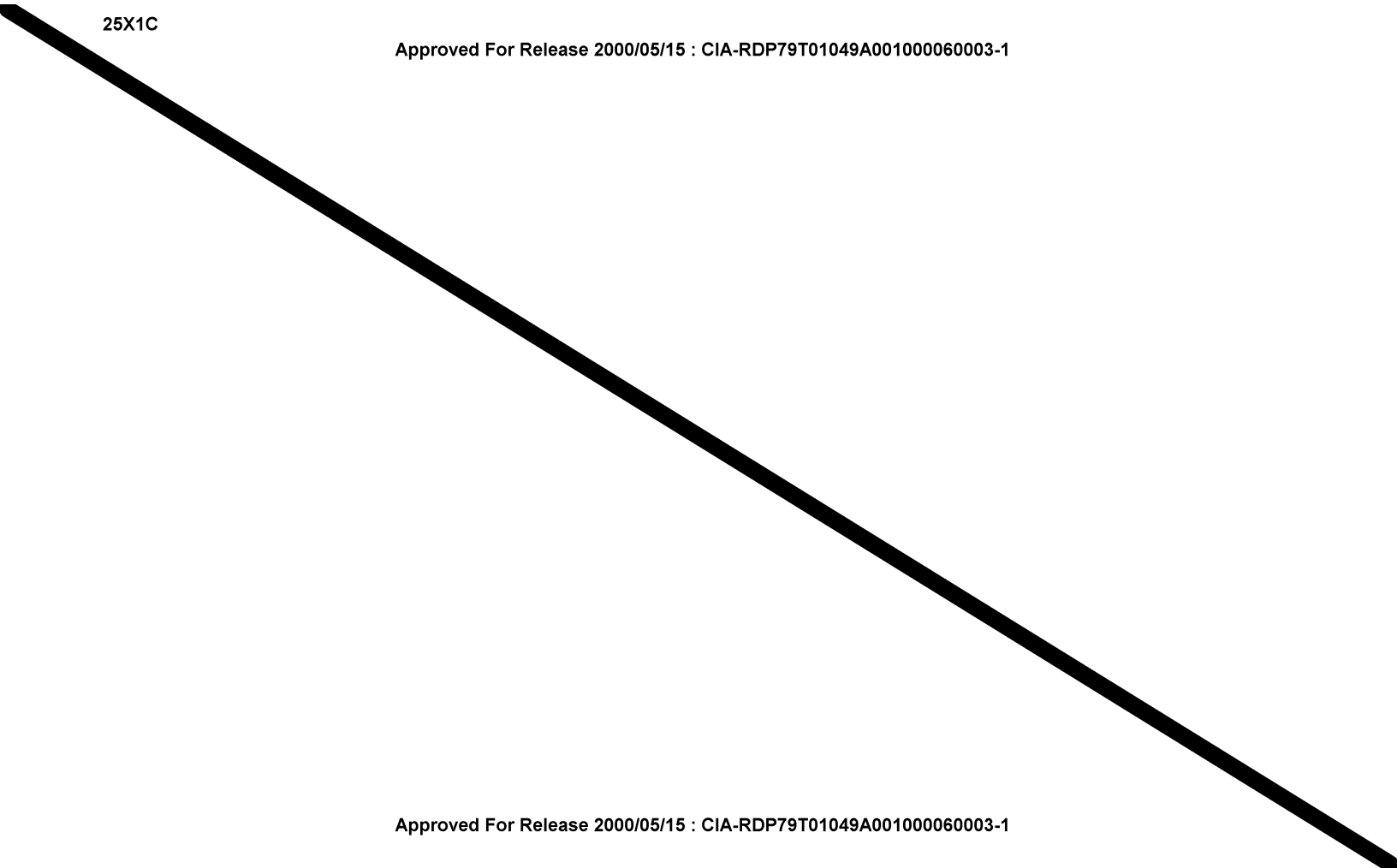
Satellite Trade Agreement Commitments of Petroleum Products to Free World Countries 1953-1954

Importing/Exporting Countries	Effective dates of Trade Agreements	Total POL Products	Crude Oil	Mazut	Diesel Fuel	Gasoline	Kerosene	Fuel Oil	Lub. Oils	Petroleum Derivatives	Petroleum Prod. NEC.
Bulgarian Import Quota											
West Germany	Signed 5 Aug. 52-1 Aug 52- 31 Dec 53								Lub. oils and Grease Incl. in category "Various". Total of "various" $500,000		
Czechoslovakian Import Quota											
Austria	Signed 3 Jul 53-1 Nov 52 31 Dec 53			p.m.	p.m.				p.m.	p.m. (Petroleum Distillates)	
E. Germany Export Quota											
W. Germany 1/	Intersonal Agreement	45,000 mt 8.3 mil clearing units			15,000 mt 8.3 mil clearing units *			30,000 mt			
Hungary 2/Export Quota											
W. German	Signed 19 Dec 52-Yr. 1953 $200,000							$200,000			
Greece	Signed 1 June 53-1Jun 53-$150,000 31 May 54							$100,000	$40,000 10,000 (Listed as differential Grease)		

* Includes both Diesel fuel and gasoline

Table D-3 (continued)

Importing/Exporting Countries	Effective dates of Trade Agreements	Total POL Products	Crude Oil	Mazut	Diesel Fuel	Gasoline	Kerosene	Fuel Oil	Lub. Oils	Petroleum Derivatives	Petroleum Prod. NEC.
Poland Export Quotas											
Norway	1 Apr 53-30 Apr 54			X							
Sweden	Signed 2 May '53 1 Mar 53-28 Feb 54	50,000 T						50,000 T			
Rumania Export Quotas											
Argentina 3/	See footnote	300,000 T						300,000 T			
Finland 4/	Signed 18 July 53 18 Jul 53-31Dec 54	430,000 MT			5,000 mt	20,000 mt		400,000 mt ($4 mil)	5,000 mt (grease)		
Egypt	Signed 24 Oct 53										X
Greece	Contract between Greek businessman and POL export 2 Jul 53-30 Sep 53	28,500 T	28,500 T								
Italy 5/	Renewal from 19 Dec 52-19 Dec 53	$800,000						500 mil lire ($800,000)			
Switzerland	1 Aug 52-1Aug 53	20,000 T						20,000 T			
Norway	Barter-1 Oct 52 31 Dec 53 See footnote							120,000 T 6/			



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F. SOVIET BLOC CAPABILITIES FOR TRANSPORTING PETROLEUM TO THE FREE WORLD

The attached detailed analysis of the transport capabilities of the Soviet Bloc indicates that in the foreseeable future the Bloc will not be able to handle trade with the Free World in petroleum and petroleum products by means of their own transportation facilities. In 1953, nearly 60 percent of the Soviet Bloc exports came from the Black Sea area. All of it was carried on Free World tankers. If the recent trend continues, this area will become increasingly more important as the source of Bloc exports. As indicated in the attachment, the estimated size of the Soviet Bloc ocean-going tanker fleet will only be 180,000 gross tons in 1955, and will all be utilized for intra-Bloc movement, as at the present time.

The limitation of the rail system of the Bloc is in the European Satellites. Virtually all rail facilities for the transport of petroleum and petroleum products are used now in support of internal Bloc requirements, and will be in 1955.

Since it is believed that any increase in exports will come from Rumania and the USSR, there seems little doubt that the Bloc will become more dependent on Western tankers. It is obvious that transportation facilities in the Soviet Bloc are barely sufficient now to meet internal needs. It appears equally obvious that the situation will not have improved by 1955.

TRANSPORT CAPABILITIES

An estimate of Bloc capabilities for transport of POL to the West, by the end of 1955, involves consideration of two principal factors, the availability of cargoes and the availability of transport capacity. Available cargoes may be estimated by analysing recent trends in Bloc POL exports. In 1952 exports totaled 2.0 million metric tons while 1953 exports reached 3.0 million metric tons; 1955 exports might reach 5.0 million metric tons.

To transport this tonnage, the Bloc will have by the end of 1955 a serviceable tank car park of about 90,000 units capable of lifting 2.18 million metric tons (USSR - 1.78, European Satellites - 0.40). If no consideration were given to domestic requirements, the USSR portions of this fleet could haul 89.5 million tons from Baku to the transloading points along the Western Soviet Border (2,800 kilometers). The Satellite portion of this fleet could haul 7.1 million tons from Ploesti to Paris (2,500 kilometers), without regard to domestic needs.

To carry by sea the POL available for export in 1955, the Western Soviet Bloc will have an ocean-going tanker fleet of 44 vessels, totaling 180,000 gross tons (USSR - 160,000, Poland - 20,000) capable of lifting about 250,000 cargo tons. On the basis of six voyages yearly, the fleet could carry 1.4 million metric tons annually from Batumi or Constanza to Rotterdam. This would require performance of 9.8 billion ton-kilometers. In addition, there is available on the Danube a Bloc tanker fleet of 260 units capable of lifting 227,000 metric tons of POL.

Assuming each barge can make 8 round trips during the operating season, it could carry ~~1.7~~ 1.5 million tons annually from Giurgiu, Rumania, to Regensburg, Germany. Operating entirely in western export traffic this fleet has a potential annual performance of ~~2.9~~ 3.3 billion ton-kilometers (227,000 tons, 80 percent loaded, X 120 kms. per day during 300-day season - S/TR estimate). There is thus available to the Bloc a transport lift potential of 2.6 million tons (rail - 2.18 million tons, ocean tanker - 250,000 tons, Danube barge - 227,000 tons).

It is considered, however, that Bloc water and rail transport capability will be fully utilized in 1955 as at present in support of Bloc POL requirements, leaving no appreciable transport capacity for Bloc-borne movement to Western countries. The degree of utilization varies somewhat from one type of transport to another. Despite the apparent substantial rail petroleum capacity, within the USSR if consideration is given only to finished products, it is believed that there is no appreciable capacity actually available for rail transport of POL to the West after intra-Bloc needs are satisfied. In any case, Bloc rail transport capability to move POL to the West is limited by the Eastern European Satellite capability as cargoes must be transferred from wide gauge to standard gauge equipment at the USSR border. In the case of water transport, it is estimated that Bloc POL transport requirements utilize virtually all Bloc tanker capacity, leaving little or none for sea transport of Bloc oil to the West. There are numerous indications of the accuracy of this judgment. Bloc tankers are not used to carry POL to the West. Virtually all exports to the West originate in Constanza and are carried in Western tankers, mostly under Italian and Finnish registry. (In 1952, Italy and Finland were the major consignees of this traffic.) If Bloc tanker

capacity were available [redacted] it is reasonable that it would be used instead of depending upon foreign bottoms. [redacted] indicates maximum loading of Bloc tankers in Bloc trade; the leading exception is the partial loading often noted in the Black Sea, from Constanza or Batumi to other Black Sea ports. Still further evidence is seen in the Soviet practice of chartering relatively large foreign tanker tonnages for its exports to the West. Furthermore, if the Soviet Union had been able to divert tanker tonnage from domestic requirements in the past year or so, to transport Iranian oil, it is probable that Bloc tankers would have been used, if only for their propaganda value, despite published threats of Anglo-Iranian Oil Company, Ltd., to prosecute such purchases. Actual capabilities for movements to the West by the Bloc Danube barge fleet are likewise estimated to be of little consequence. Despite considerable barge capacity theoretically available, rail hauls are of much more importance. There are several reasons why actual capacity of the barge fleet is low. Danube barges are necessarily loaded at levels which allow passage throughout the voyage course; shallow stretches make it necessary to keep loads low rather than at maximum load levels. Low water restricts traffic in some stretches to very shallow draft operations during four months of the year (February, September, October and November) and presents a barrier to fullest operations during other periods of the year. One measure of the potential of the Bloc Danube barge fleet for oil transport to the West is the volume of such traffic actually carried at present in Bloc bottoms. The main movement of POL from the Bloc to the West via the Danube is movement of refined products from Vienna to Linz. Virtually all this traffic (129,516 metric tons in 1952) moves in Austrian bottoms (some West German barges are involved). The Bloc fleet does not participate in the traffic. This is probably the most signi-

ficant indicator of actual capabilities of the Danube Bloc fleet to participate in POL movements to the West in addition to carrying its own Danube POL traffic. Since the partial lifting of the barriers to East-West Danube traffic which were imposed at the end of World War II there has been no apparent reason why the Bloc could not send their barges freely up into the Western Zone. Western vessels are sailing into the Bloc Zone and could be seized if the West should try to hold Bloc vessels. It appears reasonable, furthermore, that if at all possible the Bloc would attempt to move as much of this traffic as possible, in order to earn the freight charges and at the same time keep their barge fleet busy. The fact that there is no Bloc participation points logically to the conclusion that the Bloc fleet is unable to participate because it is already busy and has no free capacity to allocate to such traffic.

Export-Import Alternatives

The foregoing appraisals do not take into consideration the possible advantages to Bloc transport capabilities if they elect to increase their stocks of export oil by making certain choices which are available to them. Within the terms of reference they do not appear to be substantial but they should be examined. There are various choices, only two of which appear to be at all realistic. If tanker transport is available for Indonesian oil to the Soviet Far East, the USSR could sell Baku oil to the West and buy equivalent quantities from Indonesia to make up any Far East oil deficits, which are now supplied from Baku. The tank cars thus released from the Baku-Far East traffic could then be allocated to carry Baku oil to the West. The effect of the exercise of this choice upon exports to the West depends, however, upon the size of the deficit in Far East production. The quantity of Baku oil thus made

available to the West would have to balance the tonnage imported from Indonesia to make up the Far East deficit. Any other pattern would be wasteful of tank car transport. (Possible price advantages of selling Baku oil and buying Indonesian oil are not considered.) Another choice would allow the export of Rumanian oil to the West and the import of Soviet oil into the Eastern European Satellites to make up the deficit created by such exports. The transport economics of this choice are, however, completely unrealistic, involving as it would moving oil from close proximity to consuming areas and then importing oil into that area from a longer distance (this would involve a complicated movement from Baku by rail, pipeline or the Volga-Don Canal, then either around or across the Black Sea and up the Danube valley by rail, pipeline or barge). In view of the present apparent unwillingness of the USSR to take any unusual transport measures to increase the availability of oil for sale to the West, it is extremely doubtful that by the end of 1955 the USSR would adopt any such measures as those necessitated by the choices outlined above.

Documentation for Transport Capabilities Data in IWG 72

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[redacted]

5. Railroad Data:

(1) CIA/RR 22, 31 December 1955. The Production of Locomotives and Rolling Stock in the USSR and the European Satellites. S/US OFFICIALS ONLY.

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(2) [redacted]

(3) CIA/FDD 376768, from Voprosy prochnosti ustoychivosti Konstruktsii Vagonov, 1949, C.

(4) Holland Hunter, "Soviet Transportation Policy," 20 October 1955, U.

(5) CIA S/TR contribution draft to Project EIC-P-6, S/US OFFICIALS ONLY.

(6) [redacted]

25X1A

F. CIVIL CONSUMPTION OF PETROLEUM PRODUCTS IN THE SOVIET BLOC

Table 1 presents estimates of the civil consumption of petroleum products in the Soviet Bloc for the years 1951-1953. The range of error of the data in this table is considered to be plus or minus 10 percent for estimates for the Soviet Bloc as a whole, and plus or minus 15 percent for estimates for the component areas of the Soviet Bloc.

Table 2 presents a requirement - availability balance for petroleum products in the Soviet Bloc for the years 1951 - 1953. The range of error of estimates in this table is considered to be about plus or minus 10 percent.

In both these tables, total consumption is broken down into consumption of distillate products, and consumption of residual products. Distillates include gasoline, kerosene, jet fuel, ligroine, diesel fuel, distillate fuel oil, napthas, and solvents. Residuals include residual fuel oil, asphalt, waxes, lubricating oil, and miscellaneous compounds and lubricants.

Since the range of error in the estimates included in both tables is at least 10 percent, discrepancies which are not in excess of 10 percent of totals may be overlooked as being insignificant.

TABLE 1

ESTIMATED CIVIL CONSUMPTION OF PETROLEUM PRODUCTS

IN THE SOVIET BLOC

1950 - 1953

(Millions of Metric Tons)

	1951	1952	1953
USSR			
Distillates	18.2	21.0	23.8
Residuals	15.0	16.3	17.5
Total	33.2	37.3	41.3
EUROPEAN SATELLITES			
Distillates	1.7	2.3	2.5
Residuals	1.4	1.1	1.2
Total	3.1	3.4	3.7
ASIATIC SATELLITES			
Distillates	0.4	0.5	0.4
Residuals	0.1	0.1	0.2
Total	0.5	0.6	0.6
SOVIET BLOC			
Distillates	20.3	23.8	26.7
Residuals	16.5	17.5	18.9
Total	36.8	41.3	45.6

Data for this table from M/P files, and from the following documents:

CIA/RR PR-17(I-F), 19 June 1952, TS.

CIA/RR PR-17(II-F), 24 June 1952, S.

CIA NIE 33, 1951

ORR Project 25.24 (IWP), 23 Sept 1953, TS

CIA/RR PR-34, 17 July 1953, C.

TABLE 2

ESTIMATED REQUIREMENT - AVAILABILITY BALANCE FOR PETROLEUM PRODUCTS

IN THE SOVIET BLOC
1950 - 1953

(Millions of Metric Tons)

	1951			1952			1953		
	Distillates	Residuals	Total	Distillates	Residuals	Total	Distillates	Residuals	Total
Production of Products	28.9	18.3	47.2	33.2	19.8	53.0	38.7	19.6	58.3
Less: Distribution Losses	.6	.3	.9	.7	.4	1.1	.8	.4	1.2
Net Availability of Products	28.3	18.0	46.3	32.5	19.4	51.9	37.9	19.2	57.1
Plus: Imports from Outside the Bloc	neg.	.1	.1	neg.	neg.	neg.	neg.	neg.	neg.
Less: Exports Outside the Soviet Bloc	.5	.8	1.3	.7	1.0	1.7	1.1	1.5	2.6
Available for Domestic Requirements	27.8	17.3	45.1	31.8	18.4	50.2	36.8	17.7	54.5
Civil Consumption	20.3	16.5	36.8	23.8	17.5	41.3	26.7	18.9	45.6
Available for Military Requirements, Stockpiling, and Unaccounted for	7.5	.8	8.3	8.0	.9	8.9	10.1	(1.2)	8.9

Data for this table from M/P files, and the following tables of this report. Table 1, Section A, page 5; Summary Table, Section B, page 12; Table 1, Section F, page 45.