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 CENTRAL INTELLIGENCE AGENCY REPORT
 INFORMATION FROM
 FOREIGN DOCUMENTS OR RADIO BROADCASTS CD NO. []

50X1-HUM

COUNTRY USSR
 SUBJECT Transportation - Rail
 Economic - Coal, hauling
 HOW PUBLISHED Book
 WHERE PUBLISHED Moscow
 DATE PUBLISHED 1949
 LANGUAGE Russian

DATE OF INFORMATION 1949
 DATE DIST. 24 Jul 1951

50X1-HUM

NO. OF PAGES 5
 SUPPLEMENT TO REPORT NO.

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SOURCE Osnovi Planirovaniya Perevozok na Zheleznodorozhnom Transporte
 (Fundamentals of the Planning of Hauling on Railroad Transport),
 by Yu. I. Koldomasov, Moscow, Transzheldorizdat, 1949, pp 184-190,

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COAL FLOW PATTERNS ON SOVIET RAILROADS

In the railroad freight turnover coal hauling constitutes the most prominent proportion. The following table shows coal in percentage of all freight carried:

Year	Tons	Ton-Km
1913	19.9	19.4
1928	19.4	20.0
1934	25.8	26.2
1940	25.7	25.8
1945	36.0	31.4
1947	37.2	35.0

In recent years, the importance of coal in the fuel balance of the country has continually increased. In 1940, coal accounted for 70 percent of the total amount of equivalent fuel consumed, including firewood, peat, petroleum fuel, shale, and natural gas. In 1950, coal in the fuel balance of the country will account for almost 76 percent. More than two thirds of all the coal will be consumed by metallurgy, electric power stations, and transportation.

In 1950, carrying of coal on the railroads should increase to 51 percent, compared with 1940, and coal, as before, will account for the greatest proportion of railroad freight turnover.

The average length of coal haul on the railroad systems was as follows:

Year	Km	Year	Km
1913	485	1943	835
1934	658	1944	745
1940	701	1945	693
1941	750	1946	698
1942	886	1947	679

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The average length of coal haul of the various basins varies greatly. In 1947, when the average length of coal haul was 697 kilometers, Kuznetsk Basin coal was hauled to the Urals with an average length of haul of 1,800 kilometers, Karaganda coal was shipped to the Urals with an average length of haul of 1,350 kilometers, and Cherekhovo coal was sent to the Kuznetsk Basin with an average length of haul of 1,900 kilometers.

The following table shows the participation (in percent) of each region in the total coal dispatched on the railroads:

	<u>1940</u>	<u>1945</u>
South	51.0	22.6
Urals	7.9	17.7
Western Siberia	13.5	20.6
Center	4.3	13.9
Kazakhstan and Central Asia	5.2	8.8

Organization of Planning of Coal Carrying on the Railroads

The planning of coal carrying of the railroads is done by the Ministry of Coal Industry through the Main Administration of Coal Sales. Moreover, planning of coal carrying is done by ministries having their own coal mines. However, the proportion and total volume of the latter's coal carrying are insignificant.

On the basis of the norms for accounting for coal and the production programs, the state plan for supplying the national economy with coal fuel provides stocks of coal for each ministry as a whole for one year, broken down by quarters and coal basins. Coal consumer ministries and departments, guided by the separate coal stocks in each coal basin, present orders indicating stations and railroad systems of destination to the Main Administration of Coal Sales of the Ministry of Coal Industry. Shown in an order are the name of the freight shipper, the address of the consignee, the station and railroad system of destination, and the number of tons of coal to be carried, broken down by type of coal.

On the basis of the coal stocks established by the government for each ministry and department and on the basis of the orders from the consumers, the Main Administration of Coal Sales assigns the various coal combines and mines to the consumers. At the same time, for the Donets Basin, the Main Administration of Coal Sales of the Ministry of Coal Industry compiles a detailed carrying plan by station and railroad system of origin and by station and railroad system of destination. After confirmation of the general norms for carloadings of coal for each quarter, it sends the developed carrying plans directly to the coal combines and the railroad system administrations.

In other coal basins, the Main Administration of Coal Sales assigns the coal combines to specific consumers. The coal combines present a detailed carrying plan to the railroad system administrations. To indicate the complexity of compiling a carrying plan for coal on the railroad systems of the Donets Basin, it is sufficient to show that the carrying plan is made up for 40 types of coal and of over 15,000 consumers who receive coal from approximately 100 coal-loading stations of the Donets Basin.

A crucial aspect of the haulage planning is the assigning of mines of the Donets Basin to coke-chemical plants. The assignment should guarantee, on the one hand, the supplying of coke-chemical plants with a definite assortment of coking coals, and, on the other hand, should guarantee that a minimum of 40 percent of the coal dispatched to coke-chemical plants be sent in long-haul trains. Standard patterns of freight flow, which provide individual assignment of definite loading stations to the railroad sectors for coal types PZh, PS, K, and G,

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for high ash-content and low ash-content coals, are set up yearly for coking coals. There is also set up a list of coal-loading stations, coal trusts, and coal-cleaning plants, which ship coking coal in complete long-haul trains.

Assignment of coal mines to consumers is done according to the normal pattern of coal flow, and an effort is made to secure the maximum possible concentration of loading in stations for specific destinations to increase the percentage of long-haul coal carrying.

Normal Distribution of Coal Freight Flow on the Railroad Systems

In September 1947, the Council of Ministers USSR approved, by decree, the following zones for carrying coal:

1. Donets coal may not be carried beyond the following railroad systems: October, Leningrad, Yaroslavl', Gor'kiy (not beyond Gor'kiy rail center), Kazan' (not beyond Kazan' rail center), Kuybyshev (not beyond the station of Ul'yanovsk and the Kuybyshev rail center), Ryazan'-Ural (not beyond station of Ural'sk), Kirov, nor to stations south of Ochenchiri on the Transcaucasus system.
2. Moscow Basin coal may be carried to the following railroad systems: October (not beyond station of Bologoye), Yaroslavl', Gor'kiy (not beyond Gor'kiy rail center), Kazan' (not beyond station of Arzamas), Moscow-Ryazan', Moscow-Donbass (not beyond station of Yelets'), Moscow-Kursk (not beyond station of Orel), Moscow-Kiev (not beyond station of Bryansk), Western (not beyond stations of Smolensk and Roslavl'), Kalinin (to the sectors east of the stations of Zemtsy and Soblago), and to the Southeastern (to the Yelets-Sryazi sector and to the station of Ertil'). In May 1949, the government permitted the Ministry of Transportation, as an exception until the introduction of new coal freight flow routes, to carry Moscow Basin coal in the empty car flow directions to Kharkov, Valuyki, Rossosh', Gomel', Orsha, Vologda, Novosokol'niki, and also to Kanash, Gor'kiy, and Leningrad.
3. Kuznetsk Basin coal may not be carried beyond the following railroad systems: Perm', Gor'kiy (not beyond Gor'kiy rail center), Kazan' (not beyond Kazan' rail center), Kuybyshev (not beyond the station of Chishmy, and to the station of Bugul'ma for the Ministry of Agricultural Procurement); it may be carried to the South Ural System (to the sectors south of the Chelyabinsk rail center, coal for coking and gas coals only) and to the Orenburg, Turkestan-Siberia, Tashkent, and Ashkhabad systems.
4. Karaganda coal may not be carried beyond the following railroad systems: Sverdlovsk (for industrial purposes), Kuybyshev (not beyond the station of Ul'yanovsk and the Kuybyshev rail center), Ryazan'-Ural (not beyond station of Ural'sk), Orenburg, and Omsk (to the Petropavlovsk-Makushino sector).
5. Kizel coal may be carried to the following railroad systems: Perm'. Gor'kiy (not beyond Gor'kiy rail center); Kazan' (to the Balezino-Agryz-Kazan' sectors), and for the Ministry of Transportation, to the Yaroslavl' (not beyond station of Vspol'ye), and Northern (not beyond the station of Volodga).
6. Chelyabinsk coal may be carried to the following railroad systems: South Ural (except the following sectors, Shumikha-Makushino, Sinarskaya-Kurgan, Zolotaya Sopka-Aydyrlya, and Kartaly-Magnitogorsk), Kuybyshev (to the Kropachevo-Dema-Ishimbayevo sector), and Sverdlovsk (not beyond the Bogdanovich-Kuzino sector, but to Apparatsnaya, Asbest, Kunara, and Shuvakish stations).
7. Yegorshino coal may be carried to the following sectors of the Sverdlovsk Railroad System: Yegorshino-Tavda, Yegorshino-Sverdlovsk, Yegorshino-Kunara, and Yegorshino-Alapayevsk, and to the following stations: Nev'yansk, Bazhenovo, Asbest, and Verkhnyaya Saïda.

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8. Bogoslovskiy coal may be carried to all sectors of the Sverdlovsk Railroad System, except the sectors southeast of Alapayevsk, except the sectors south and east of the station of Shartash and except to the station of Apparatzaya.

9. Pechora coal may be carried to the following railroad systems: Pechora, Northern, October, Leningrad (not beyond Leningrad rail center), Kirov, and Gor'kiy (not beyond Gor'kiy rail center).

10. Central Asia coal may be carried to the Tashkent, Ashkhabad, and Turkestan-Siberia railroad systems.

11. Khakass coal may be carried to the following railroad systems: Tomsk (in the direction of the main flow of Kuznetsk coal, but not beyond the station of Novosibirsk to the west and Barnaul to the south) Krasnoyarsk (only to the Achinsk-Abakan-Mariinsk sectors), Sverdlovsk (for the gas generators of metallurgical plants), South Ural (for the gas generators of metallurgical plants), and Perm' (for the gas generators of metallurgical plants).

12. Cheremkhovo coal may be carried to the following railroad systems: Tomsk (in the direction of the main flow of Kuznetsk coal), Eastern Siberia System, Krasnoyarsk System (excluding the Achinsk-Abakan sector), Transbaykal System, Amur System, and Turkestan-Siberia System (not beyond Semipalatinsk).

13. Chernovskiy coal may be carried to the Transbaykal Railroad System and to the Petrovskiy Zavod-Ulan-Ude sector of the Eastern Siberia Railroad System.

14. Bukachacha coal may be carried to the Transbaykal Railroad System and to the east, but not beyond Volochayevka.

15. Kivda-Raychikhinsk coal may be carried to the Amur System and the Far Eastern System (up to and including the Khabarovsk rail center).

16. Suchan coal may be carried to the Primorskiy System and the Far Eastern System (to the Guberovo-Khabarovsk sector).

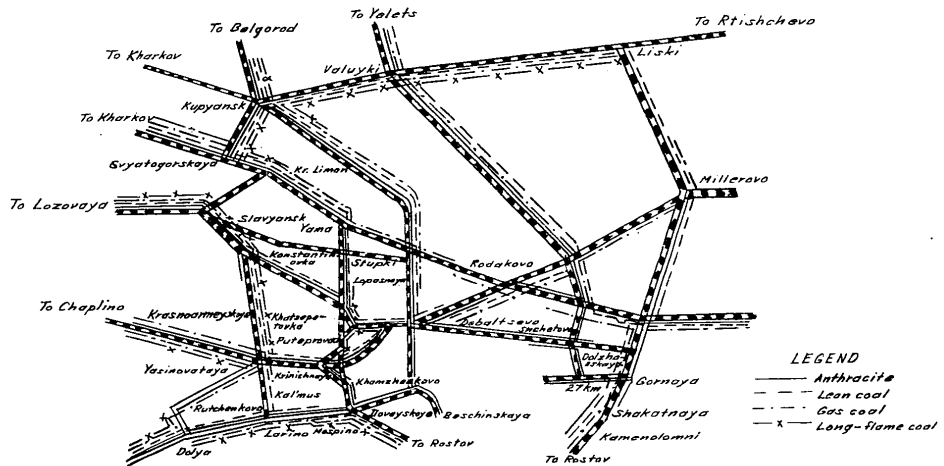
At the present time the indicated pattern of freight flows is based on the quarterly plans for coal carrying set up according to systems of origin and destination.

To prevent the inefficient carrying of coal of the same types on the railroads of the Donets Basin the freight flow patterns for Donets coals shown in the appended sketch are used.

[Appended sketch follows.]

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PLAN OF NORMAL HAULS OF DONETS BASIN COALS
(Omitting Hauls of Coking Coals)



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