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USSR Report

ENERGY

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USSR REPORT
ENERGY

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OIL AND GAS

MEETING OF PLAN TARGETS IN THE UKRAINE

Kiev NEFTYANAYA I GAZOVAYA PROMYSHLENNOST' in Russian No 1, Jan-Mar 84 pp 1-2

[Article: "The Third Year of the Plan Is Successful"]

[Text] "Now it is most important not to lose the acquired rhythm and the overall positive attitude toward work, and to develop the positive processes more actively."

Yu. V. Andropov

From the text of his address at the December (1983) CPSU Central Committee Plenum

During the third year of the 11th Five-Year Plan, the collectives of the Ukraine's oil, gas, oil refining and petrochemical industry enterprises and organizations participated actively in the All-Union socialist competition to meet plan targets ahead of schedule, to increase labor productivity, and to improve production quality, conservation of materials and thermal energy resources.

The third year plans of the 11th Five-Year Plan have been achieved for all basic technical and economic indices.

UkrSSR Ministry of Geology

The oil and gas exploration enterprises and organizations of the UkrSSR Ministry of Geology have fulfilled their 1982 assignments for adding to oil, gas and condensate reserves.

Reserves at five new oil and gas deposits were confirmed at the USSR GKZ [State Commission on Useful Minerals].

Six oil fields--Sementsovskoye, Volokhovskoye, Yaroshevskoye, Severoyaroshevskoye in the Dnepr-Donets depression and Lokachinskoye on the Volyno-Podoliya --were turned over to industrial exploitation. Ten new oil and gas deposits were discovered. Fifty structures with a total area of 831 km were made ready for deep drilling.

For the first time an industrial gas flow was obtained from a depth of 6,000 meters: this expands the prospects for the deep horizons of the Dnepr-Donets depression.

The 1983 plan for completion of oil-well construction has been fulfilled by 118 percent. Thirty-five producing exploratory wells have been handed over to oil and gas drilling enterprises.

As a result of efficient utilization of materials and energy resources, around 10 million rubles was saved over the course of the year; with this saving, tens of thousands of meters were drilled additionally for deep wells.

Brigade forms of labor organization were further developed. In 1983, 93 percent of drilling teams and all derrick-installer brigades were working on the contract brigade method.

The brigade of foreman M. D. Avramets, USSR State Prize winner, from the Krasnograd oil and gas prospecting expedition, completed the five-year plan for drilling footage in December 1983. Meanwhile, foreman V. I. Orishchak's brigade from the Novosanzharskaya oil and gas prospecting expedition completed the 4-year drilling plan in July 1983 and is striving to complete the entire five-year plan ahead of schedule.

Compared to the previous year, deep drilling speed made good progress; it increased by 8.5 percent in 1983. Due to introduction of new techniques and advanced equipment, plan tasks with respect to profit and increased labor productivity have been overfulfilled.

Ukrgezprom All-Union Industrial Association [Ukrainian Gas Industry]

The 1983 state plan for natural gas extraction was fulfilled by 25 December, and by 6 December for drilling and handing over the wells. Natural gas deliveries to enterprises in ferrous metallurgy, energy and electrification, municipal services and other consumers were provided at above plan levels. Planned assignments for producing light petroleum products were overfulfilled. Approximately 23 million rubles have been received in above-plan profit.

During 3 years of the 11th Five-Year Plan, profit in excess of the plan has amounted to around 64 million rubles, and labor productivity has increased by 3.3 percent over plan.

During the past year 2,100 km of gas pipeline have come on line, including 1,388 km of the Urengoy-Uzhgorod gasline; 2 gas condensate deposits and 56 wells have been put into operation. The plan for building housing and community service projects has been fulfilled.

In 1983 the contract brigade labor organization method was widely adopted for gas pipeline construction, gas transport, drilling wells and erecting derricks. Many drilling and derrick construction brigades where the contract brigade method was introduced completed the assignments of 3 or 4 years or of the entire five-year plan.

The Ministry of the Gas Industry fulfilled on schedule its task of drilling and transferring wells at the Urengoy fields.

In the fourth year of the 11th Five-Year Plan it is envisaged that there will be brought into operation a new gas condensate deposit, 40 wells, 1,600 km of gas pipelines, 13 compressor stations, and 8 motor vehicle filling stations.

In line with the plans for incorporating new techniques and advanced technology, 113 measures were carried out at the association enterprises in the past year alone. Among these measures was implementation of the recycling-process at the Novotroitskoye gas condensate deposit, connection of pipe branches to the gas main without interrupting operation, application of effective corrosion inhibitors, implementation of complex computerized calculation programs for engineering parameters of well drilling, a system for monitoring drilling operations, and adding a radio dispatcher system to the drilling installations, etc.

The annual savings from introductions of new equipment and advanced technology amounted to more than 11 million rubles.

Ukrneft' Production Association [Ukrainian Petroleum]

Enterprises and organizations of the Ukrneft' Production Association carried out the 1983 plan successfully according to all basic technical and economic indicators.

The plan for extracting oil and condensate was 100.8 percent fulfilled, that for gas--102.2 percent. The plan for achieving production was overfulfilled.

The drilling organizations drilled 16,500 meters of wells above plan, including 4,400 meters in Western Siberia.

The task regarding labor productivity has been 101.8 percent fulfilled.

In the course of the year over 40 measures involving new equipment and advanced technology have been implemented, with a considerable savings effect.

The coefficient of well operation in 1983 was 0.977. The output per worker in well workover brigades has increased. Between servicing period for wells reached 216 days, as against the plan's 204.

A considerable saving in material resources has been achieved through reuse of assorted petroleum pipes and drilling mud, as well as careful use of chemical reagents.

Association enterprises have carried out a series of measures to save fuel and energy resources; this made it possible to cut down on use of electric energy, thermal energy, boiler, furnace and diesel fuel, as well as gasoline.

According to the records of the All-Union socialist competition, the Ukrneft' Production Association was thrice awarded (for the first, second and third quarters) the Challenge Red Banner of the Petroleum Industry Ministry and the Central Committee of the Oil and Gas Industry Workers Trade Union.

Foreman Yaroslav Vasil'yevich Solodkiy's brigade from the Poltava Administration Drilling Works reported in April 1983 that 4 years of the five-year plan were completed.

UkrSSR Glavneftekhimprom [UkrSSR Main Petrochemical Administration]

The 1983 state plan has been carried out according to all the basic technical and economic indicators. Growth in production volume and labor productivity amounted to 102 percent, compared to the previous year. The plan has been overfulfilled with regard to high-octane gas, diesel fuel, fuel oil, industrial carbon, motor vehicle tires, molded and non-molded industrial rubber products, and consumer goods.

The entire increase in production resulted from growth in labor productivity.

The share of all production having the State Emblem of Quality was 39.6 percent in 1983.

A sum of 43 million rubles was saved in 1983, or a total of 161 million rubles over the 3 years of the 11th Five-Year Plan, as a result of new equipment and advanced technology, of inventions and proposals for rationalization.

On 22 December 1983, the plan for 3 years of the five-year plan was fulfilled ahead of schedule as to production volume, labor productivity, profit, and output of products with the State Quality Emblem.

Above and beyond the assignment under the five-year plan, thousands of auto tires were manufactured, and additional goods for public consumption worth 37 million rubles were produced.

Production efficiency has been improved: the maximum cost per 1 ruble of goods produced was decreased, and work-time losses were reduced by 40 percent from their 1980 level.

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USE OF DOWNHOLE SCREW MOTORS IMPROVES DRILLING INDICATORS

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 3, Mar 84 pp 3-5

[Article by Yu. V. Vadetskiy and D. F. Baldenko (VNIIBT), V. A. Kaplun, A. M. Kochnev, and L. D. Bogomazov (Perm affiliate of VNIIBT), and V. M. Shenberger (Glavtyumenneftegaz): "An Important Reserve for Increasing Drilling Indicators in Western Siberia"]

[Text] Many years of industrial tests have confirmed the high effectiveness of using ZVDs [downhole screw motors] in drilling oil and gas wells [1]. ZVDs are used most widely in the Ural-Volga districts. In 1982, for example, drilling enterprises of the Tatneft', Bashneft', Permneft', and Udmurtneft' associations drilled over 5,000 meters using ZVDs. When drilling in hard and tough carbonaceous rock using ZVDs in combination with GNU-series bits, the amount drilled per bit increased by 1.5 to 2.5 times everywhere, while the penetration rate decreased by 15 to 30 percent compared with turbo drilling indicators. The increase in the bit run rate and the reduction in the cost of drilling 1 meter permitted extensive use of D-195 motors in the 900-1,000-meter range and down to projected depth. An exception to this was Tatneft', where because of technological complications in drilling the productive horizon ZVDs are utilized primarily in flushing the well with industrial water before converting to clay drilling mud.

ZVDs underwent industrial testing in Western Siberia in 1979-1983 to assess the effectiveness of their use in drilling through soft rock during the sinking of stratigraphic-technological wells in the Fedorovskoye and Povkhovskoye fields of Surgutneftegaz Association and the Sutorminskoye fields of Noyabr'skneftegaz Association.

In the first stage of testing (the drilling of Nos 1497, 1535, and 1436 of cluster No 94 of the Fedorovskoye field), D2-172M motors were used. Although the D2-172M motors being used at that time were not sufficiently reliable, and the drilling was done using bits of the GNU type as well as series-produced high-RPM III215, 9MZ-GV and III215, 9S-GN bits, the overall results of the drilling were assessed as promising. In the 1,400-2,610-meter interval, for example, the amount drilled per bit increased by 1.5 to 2 times over the amount drilled in identical intervals of neighboring wells using the 3TSSh-195TL turbo drill, and the bit run rate increased by an average of 19 percent. Moreover, the number of bits was reduced from 11 to 6. At the same time, certain structural and technological shortcomings in the motors were found, in particular the necessity of a relatively high consumption of drilling mud (34 to 36 liters per second).

The second stage of testing of ZVDs was based on the use of the D1-195 motor developed at VNIIBT [All-Union Scientific Research Institute of Drilling Technology] and the Perm affiliate of the VNIIBT. It was characterized by important improvements compared with the D2-172M motor, having a lower rotation speed and higher torque [2]. Tests were conducted in 1981 at the Povkhovskoye site of Surgutneftegaz Association on cluster No 24. The wells were drilled using the Uralmash-3000 EUK rig.

Well 4144 (the first) was drilled using D1-195 motors from under the surface casing (500 meters) to the projected depth. It was found that the greatest effectiveness was achieved when using the D1-195 motor from the depth of 1,600 meters. This was taken into account when drilling wells 229, 276, 264, and 240. The drilling was done both with the III215, 9MZ-GV and III215, 9S-GN bits as generally used and with hermetically sealed III215, 9MZ-GNU bits. The technical-economic indicators for wells drilled at cluster No 24 using D1-195 and 3TSSh-195TL motors are presented in Table 1, which includes the results of testing bits of all types.

Table 1

(1) Показатели	(2) Двигатель Д1-195			(3) Турбобур 3ТССШ-195ТЛ					σ, %
	(4) Скв. 264	(5) Скв. 240	(6) Среднее	(7) Скв. 227	(8) Скв. 301	(9) Скв. 414	(10) Скв. 289	(11) Среднее	
(12) Проходка за долбление, м	316,9	234,7	257,6	200,1	221,2	177,1	226,8	204,6	125,9
(13) Скорость, м/ч:									
(14) механическая	23,8	30,0	26,5	23,0	30,9	27,0	27,3	26,8	98,9
(15) рейсовая	15,7	16,2	15,9	12,4	16,9	15,7	16,4	15,1	105,3

Note: σ is the ratio of the indicators of drilling by motor to the indicators of drilling by turbo drill.

Key:

- | | |
|-----------------------------|---|
| 1. Indicators | 9. Well No 414 |
| 2. D1-195 motor | 10. Well No 289 |
| 3. 3TSSh-195 TL turbo drill | 11. Average |
| 4. Well No 264 | 12. Amount drilled per slotting, meters |
| 5. Well No 240 | 13. Rate, meters per hour: |
| 6. Average | 14. Penetration |
| 7. Well No 227 | 15. Bit run |
| 8. Well No 301 | |

Of special interest are the results of drilling with low-RPM III 215, 9MZ-GNU bits. In Well No 229 they were used to drill in the 1,813 to 2,572-meter interval with a penetration rate of 18.2 meters per hour and an average amount of 189 meters drilled per bit. In the same sector, in Well No 240, using high-RPM III215, 9MZ-GV bits, the amount per run came to 144 meters, with an

average penetration rate of 17.8 meters per hour. Thus, with approximately the same penetration rate the amount drilled using the III215, 9MZ-GNU bit increased by 31 percent. The high penetration rates obtained, practically matching the rates of turbo drilling, were conditioned by a forced ZVD drilling mode through increased axial loads on the bit (180 to 240 kN versus 120-160 kN in the case of the turbo drill) and the rate of outflow of the mud from the nozzles of the jet drilling bits.

The possibility of increasing the pressure differential in the bit nozzles is due to the pressure reduction required by the ZVD.

At the same time, the results obtained were obviously influenced by organizational-technical shortcomings: the lack of constant multistage cleansing of the mud and an optimal range of bits, also unstable quality of the rubberized motor stators.

These shortcomings were eliminated in the third stage of testing, carried out in early 1983. The D1-195 motors were used with licensed bits constituting a rock-crushing tool that is best adapted for operation in combination with a low-RPM downhole motor. The tests were conducted on the Kholmogorskoye and Sutorminskoye fields of Noyabr'skneftegaz Association.

The first well was drilled in the Sutorminskoye field (cluster No 22-A) from under the surface casing to the projected depth (525 to 2,590 meters) using four III215, 9GNU R-01 bits. In doing so, a record was set for Noyabr'skneftegaz Association--an average of 516.2 meters per bit at an average penetration rate of 20 meters per hour. Calculations showed that the greatest effect can be achieved by using the D1-195 motor from a depth of 1,800 meters. This was confirmed by drilling several wells at the Sutorminskoye and Kholmogorskoye sites (Table 2).

A remarkable feature of the third stage of testing was the substantial drop in the amount of drilling mud expended--26 to 28 liters per second--also satisfactory cleansing of the mud. This latter factor helped to extend the motor's operating time between repairs to 50 to 70 hours and also to improve its reliability in operation.

The engines were simultaneously tested in Krasnoleninskneftegaz Association (Glavtyumenneftegaz). The technical means and the drilling modes were practically identical to those used in Noyabr'skneftegaz Association. The results of the tests are shown in Table 2.

An analysis of the results obtained in the third stage of testing confirms the considerable potential capabilities of screw motors. The amount drilled per slotting is increased by 2.7 to 3 times, and the bit run rate is higher. Especially noteworthy is the rise in indicators in the interval below 2,000 meters, where the bit run rate is increased by 25 to 32 percent. It may be presumed that as the quality of new low-RPM bits improves and drilling technology is perfected these indicators will continue to rise somewhat.

Table 2

(1) Показатели	(2) Интервал бурения, м								
	500—2700			1800—2800			2200—2800		
	(3) Двигатель Д1-195	(4) Турбобур 3ТССШ-195ТЛ	σ, %	(3) Двигатель Д1-195	(5) Турбобур 3ТССШ-295ТЛ	σ, %	(3) Двигатель Д1-195	(4) Турбобур 3ТССШ-195ТЛ	σ, %
(6) Объединение «Ноябрьскнефтегаз»									
(7) Проходка на долото, м	516,2	180,2	286	214,4	81,4	263	182,3	66,7	273
(8) Скорость, м/ч:									
(9) механическая	19,9	30,0	66	12,2	16,2	75	11,0	13,4	82
(10) рейсовая	13,2	12,9	102	7,9	6,4	123	7,0	5,3	132
(11) Объединение «Красноленинскнефтегаз»									
(7) Проходка на долото, м	—	—	—	106,3	35,9	296	—	—	—
(8) Скорость, м/ч:									
(9) механическая	—	—	—	6,2	8,1	77	—	—	—
(10) рейсовая	—	—	—	4,5	3,5	128	—	—	—
(12) Примечание. σ—то же, что в табл. 1.									

Key:

- | | |
|----------------------------------|---------------------------------------|
| 1. Indicators | 7. Drilling per bit, meters |
| 2. Drilling interval, meters | 8. Rate, meters per hour: |
| 3. D1-195 motor | 9. Penetration |
| 4. 3TSSh-195 TL turbo drill | 10. Run |
| 5. 3TSSh-295 TL turbo drill | 11. Krasnoleninskneftegaz Association |
| 6. Noyabr'skneftegaz Association | 12. is the same as in Table 1. |

Widespread, effective adoption of ZVDs in Western Siberia requires universal outfitting of drilling rigs with a three-stage system for cleansing the mud and assured motor quality.

Thus, the tests that have been carried out using low-RPM downhole screw motors with various types of bits, including licensed ones, have shown that these machines are completely suitable to the technology in drilling wells in Western Siberia and constitute a substantial reserve for improving the technical-economic indicators of drilling wells in that region.

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- Yu. V. Vadetskiy, M. T. Gusman, D. F. Baldenko, and S. S. Nikomarov, "Prospects of Using Downhole Screw Motors in the 11th Five-Year Plan," NEFTYANOYE KHOZYAYSTVO No 11, 1981, pp 7-9.

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OIL AND GAS

SYNOPSIS OF ARTICLES IN NEFTYANAYA I GAZOVAYA PROMYSHLENNOST'

Kiev NEFTYANAYA I GAZOVAYA PROMYSHLENNOST' in Russian No 1, Jan-Mar 84 pp 55-56

UDC 553.981.982.061.3

HYDROCARBON FLUIDS--INTERMEDIATE STAGE PRODUCTS OF CATAGENESIS PROCESSES

[Synopsis of article by R. M. Novosiletskiy, pp 11-14]

[Text] The article is devoted to current problems in contemporary hydrocarbon fluid geology--oil and gas formation and the spreading of their deposits in sedimentary formation strata. It is shown that hydrocarbon gas with AVPD [abnormally high formation pressure] is generated in late catagenesis deposits, while hydrocarbon fluid deposits form essentially in early catagenesis sedimentary formations. Petroleum development occurs in horizons with a high ROV [rare organic substances] content at an early catagenesis stage in a condition where gas is moving from lower-lying late catagenesis deposits. 11 references.

UDC 553.98:550.822.2:532.11(477+470.1)

FORECASTING AVPD FROM ENGINEERING DATA OF WELL-DRILLING

[Synopsis of article by Ye. V. Aronson and G. I. Fenin, pp 14-18]

[Text] Evaluation of abnormally high formation pressure and forecasting results in the Dnepro-Donets depression and the Timan-Pechora oil and gas territory are provided. Methods of improving the evaluation methodology for strata pressures utilizing engineering well-drilling data are examined. Some patterns of abnormally high formation pressure distribution by extent and formation conditions in the Russian platform are laid out. Provides conclusions on applicability of various AVPD estimating methods in the regions examined. 2 illustrations, 7 references.

UDC [553.982.23.052:550.83](477.8)

LITHOLOGICAL TRAPS IN VOLYNO-PODOLIYA TERRIGENOUS-CARBONATE COMPLEXES

[Synopsis of article by L. Ye. Fil'shtinskiy, pp 23-26]

[Text] The physical and geological assumptions concerning the existence of lithological type of traps within the limits of the given region are examined. The value of exploring for this class of objects is shown and a methodology for forecasting this is proposed, based on absorption of seismic waves and materials of detail gravimetry in combination with evaluation drilling. 1 illustration, 3 references.

UDC 665.765

SLUDGE AS FEEDSTOCK FOR INDUSTRIAL SURFACTANT PRODUCTION

[Synopsis of article by B. V. Kachmar, F. I. Teslyar and M. F. Chornyak, pp 46-47]

[Text] The feasibility of applying the potentiometric method of determining sulfuric acid in the presence of sulfo-acids for preliminary evaluation of sludge composition and properties. Sludge composition and group composition of their organic mass were analyzed, and preliminary results on group composition of sulfo-acids found in sludge were obtained. Test results show that sludge derived from sulfonating purified mineral oils with gaseous sulfuric anhydride contains a significant amount of valuable sulfo-acids and can be used as feedstock for industrial surfactant production. 1 table, 3 references.

UDC 541.18

RHEOLOGICAL PROPERTIES OF BENTONITE SUSPENSIONS IN PRESENCE OF KMTs-700

[Synopsis of article by B. Yu. Tretinnik, N. N. Kruglitskiy and A. D. Atayev, pp 30-32]

[Text] The influence of the new stabilizer reagent KMTs-700 on the structural and mechanical properties, and stability of montmorillonite clay water dispersions, whose exchange complex is saturated with sodium cations, is studied by means of physicochemical mechanics. The optimal additions of reagent that ensure stability and clearly defined thixotropic properties of suspensions were determined. 1 illustration, 2 tables, 3 references.

UDC 553.98:622.276.1/.4(477.8)

CONTINUED DEVELOPMENT OF FLOODED PRECARPATHIAN DEPOSITS FOR TOTAL RECOVERY

[Synopsis of article by B. G. Parakhin, pp 33-36]

[Text] The structure and specifics of working oil and dissolved gas reserves in complexly-evolved Precarpathian deposits are examined. Switching a system of developing flooded oil deposits from a water-injection mode to natural depletion is recognized as advisable; the latter makes it possible to increase oil and gas yield without special capital expenditures. 1 table, 6 references.

UDC 622.248.54

EXPERIENCE IN ELIMINATING MULTIPLE STICKING WITH THE AID OF THE GUM-162 UNIT

[Synopsis of article by Yu. V. Dublenich, V. D. Kruglov and N. M. Khlebnikov, pp 26-27]

[Text] Results on using hydraulic shock GUM-162 units for eliminating sticking of drilling tools. The effectiveness of combining use of these machines and traditional methods for eliminating multiple sticking of drilling tools is demonstrated.

UDC (621.891.23+621.9):661.185.1:665.7.038

SURFACTANT INFLUENCE ON PROPERTIES OF OILY ADDITIVE SUSPENSIONS

[Synopsis of article by G. T. Malinovskiy, V. P. Temnenko and G. I. Cherednichenko, pp 49-50]

[Text] It is shown that surfactants, depending on their chemical nature and concentration, can change the lubricating effectiveness significantly in oily lubricant and coolant liquid compounds. 3 references.

UDC 622.276.1/.4:552.54

DEVELOPMENT OF DEPOSITS WITH COMBINATION RESERVOIRS

[Synopsis of article by O. F. Martyntsiv, pp 36-38]

[Text] Based on development data for a number of oil deposits with a combined fractured, porous, and cavernous reservoir system, it was demonstrated that the basic development indicators for such deposits are determined by a parameter representing the ratio of reserves extracted from the porous segment to the total extractable reserves from the entire deposit. Empirical functions are derived from this parameter for basic indicators (flooding, periods of increasing and stabilized extraction). 1 illustration, 1 table.

UDC 534.2:532.542.4

SPECTRAL COMPOSITION OF SIGNALS GENERATED DURING LIQUID OUTFLOW

[Synopsis of article by V. D. Shiyan, p 43]

[Text] The methodology of experimental acoustic signal investigation is described, as generated by water jets flowing out through micron-size defects. An empirical formula is given for determining frequency of generated fluctuations as a function of the orifice area. This formula is useful for engineering calculations for fine-tuning diagnostic instruments.

RELATIONSHIP OF EARTH SURFACE DEFORMATION TO GAS EXTRACTION VOLUME

[Synopsis of article by I. Ye. Subbotin, P. M. Shevchuk and A. L. Bondar', pp 21-23]

[Text] Results of a repeat step 2 levelling are presented. Regression equations and correlation coefficients were found between settling of the earth's surface and the volume of gas extraction and the drop in formation pressure. 1 illustration, 1 table, 2 references.

UDC 519.2-7:553.98(477.86)

IDENTIFICATION OF PRODUCTIVE AND UNPRODUCTIVE STRUCTURES

[Synopsis of article by M. M. Chayka, A. M. Zhidenko and M. Yu. Stotskaya, pp 18-21]

[Text] Statistical criteria for oil and gas existence were examined for use in evaluating the prospects of local formations in Borislavsk-Pokutsk zone of the Ciscarpathian Trough, and the optimal formations were selected. It is demonstrated that the deciding factors for the presence of hydrocarbon accumulations in complex Ciscarpathian geological conditions are signs of intactness. 1 table, 4 references.

UDC 665.775.038

COKE-FORMING INHIBITORS IN THE PRODUCTION OF HIGHLY-LIQUEFIABLE BITUMENS

[Synopsis of article by A. N. Bodan, B. L. Kostyuk and I. P. Orishchin, pp 48-49]

[Text] Results of tests on various inhibitors against coke formation in the manufacture of highly-liquefiable bitumens are presented. The use of poly-methylsiloxane and lithium oxystearate as inhibitors was determined to be highly effective. 1 illustration, 2 tables, 3 references.

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COAL

DON COAL MINERS LAUDED FOR PRODUCTION FEATS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 20 Jan 84 p 1

[Article by M. Sadokov, deputy manager of the Coal Industry Section of the Rostov Oblast CPSU Committee (Rostov-na-Donu): "The Miners' Addition"]

[Text] During January's first 10 days the Don's miners increased the amount of anthracite mined by 19,000 tons over the same period of last year. This is the daily output of 10 underground mines of average capacity.

No new capacity was introduced during this period. Mine-geology conditions had not improved, some of the miners' collective had converted to thinner seams, and some had gone deeper underground. Just what is providing for the success?

This can be said definitely: first of all, there are the good adjustment of the collectives to highly productive labor, more active dissemination of advanced experience, and improvement of competition under the fighting slogan, "Work Without Lagging!" Discipline has become stronger, the work is better organized, and there is greater motivation toward the final results.

Our section conducted at the Gukovskaya Underground Mine imeni 50-Letiya Oktyabr' an analysis of socialist competition practice for high coal-mining effectiveness. This collective has something to teach. The innovators uncover reserves and bring them to bear without delay. During the new year the miners decided to surpass the planned growth for labor productivity by 4 percent. The intention was to improve brigade forms for organizing the work, reduce worktime losses, and prolong the service life of machinery and mechanisms. January's first 10 days showed that the collective was up to the planned growth. The underground mine is getting more than 6,000 tons of anthracite daily. This is not just the 4 percent growth in productivity of the commitment but 5 percent.

A third of all the oblast miners' collectives are following the example of the competition initiators and plan to insure a 3-4 percent increase in labor productivity over the plan. The rest are driving for above-plan productivity of

at least 1 percent. The thousand-tonner brigades, which are mining up to 60 percent of the coal, came out as usual as initiators of the competition.

I stayed at the Mayskaya Underground Mine for a couple of days with Brigade Leader Twice Hero of Socialist Labor Mikhail Chikh.

"The mining is going well," he said with satisfaction. "We have increased the daily load again...."

On transferring last year to a thin seam, the brigade, which had a commitment of 500,000 tons, produced 677,000 tons of anthracite during the year. The result was excellent. He would put any other seam in completely good order, but he is not a well-known miner in the country. Indeed he is accustomed to mining a million tons per year, not less. Now, having mastered the thin seam, M. Chikh is making a sound calculation, again he will go for a million tons of mined coal.

The brigade of Hero of Socialist Labor Kirill Markelov from the Underground Mine imeni 50-Letiya Oktyabr' also has committed itself to sending a million tons of anthracite to the top, through growth in labor productivity. A high pace is being sustained here for the fourth year in succession. Right now the brigade is producing up to 3,500-3,600 tons of fuel daily.

The Komsomol Youth Brigade of Viktor Frolov, which is from the Underground Mine imeni 60-Letiya Leninskiy Komsomol, intends to go right up to the goals of the celebrated miners. This is a very promising collective, it is energetic, its party buro is strong, and its tutorship is developed.

Today at the underground mines they consider not only production but also expenditures. The advanced brigades of Hero of Socialist Labor Andrey Belov from the Yuzhnaya Underground Mine, Petr Rybalko from the Komsomol'skaya Pravda Underground Mine and other collectives have offered to work one day per month on saved materials. Everywhere, personal accounts of savings have been opened up, following their example.

There was a time when it was predicted that our old mines faced inevitable extinction. But right now the Mayskaya, Yuzhnaya, imeni Krasin and many others are experiencing, it can be said, a second youth. Mining is not being reduced but is increasing. This is achieved through continuous in-house rebuilding, an expansion of mine floors, and the introduction of more modern equipment. But the main way is through people's creativity and fighting socialist competition.

11409
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COAL

STEPS TAKEN AT OKTYABR'SKAYA COAL MINE TO IMPROVE EFFICIENCY

Kiev PRAVDA UKRAINY in Russian 13 Jan 84 p 5

[Article by I. Pavlenko, director of the Kommunist Underground Mine of Oktyabr'ugol' [Oktyabr' Coal Production Association], and V. Neklyudov, secretary of the Party Committee: "A Guarantee of Stable Operation"]

[Excerpt] Miners of the Kommunist Underground Mine defined their tasks for the fourth year of the five-year plan in this manner: on the foundations of improving coal-mining technology, introducing advanced experience and reducing worktime losses, to increase labor productivity 1 percent above the plan. This will support the mining of 8,500 additional tons of coal. Save 4,000 rubles' worth of materials and 800,000 kWh of electricity and make repeat use of 175 tons of metal supports by intensifying savings and thriftiness at each workplace. The planned reduction of 0.5 percent in the prime cost of a ton of coal mined will yield, according to the figures, a saving of 62,000 rubles. The enterprise's collective has committed itself to completing the plans for the first 4 years of the five-year plan by 1 June 1984.

Experience has shown that the miners operate more successfully where there is integrated mechanization of breakage and development faces. That is why we are striving to transfer all the heavy, labor-intensive operations onto the shoulders of machines. IK-101 cutter-loaders are operating at two longwalls. The two other longwalls are equipped with KM-87 and KM-88 longwall miners. A plan for further reequipping production operations with machinery has been developed, in accordance with which we shall introduce this year still another highly productive coal-excavating KM-88.

The presence of thin high-ash coal seams does not allow excavation floors of sufficient length to be carved out. Frequent reblocking of longwalls and maneuvering about must be resorted to, increasing the amount of mining work and requiring additional people and material resources. Therefore, we try to have a reliable reserve of breakage-face line.

We put the main emphasis on speedy working of developmental excavations. All seven of our drifting brigades have been supplied with highly productive

machinery and have been fully manned. It is planned to do at least 200 meters of stripping and developmental work above the plan this year.

To increase the tunnelers' labor productivity, we have had to sort of expand their traditional range of responsibilities. Elements of tunneling brigades have attended special training classes and received the right to participate in loading blastholes alongside skilled blasters. This greatly speeded up the preparation of mine faces for blasting. Moreover, each element was manned with operators who had mastered the mechanic's specialty, thus reducing the brigades' dependence upon the associated repair services and enabling idle time caused by equipment malfunctions to be reduced.

The number of such points of the tunnelers' contacts with the miners of associated services have been increasing at the mine. The brigades of electric-locomotive operators, stationary-equipment operators, and so on are retaining their personnel, especially for high-speed tunneling. And their pay and the amount of bonus awards depend directly upon the tunnelers' operating indicators, in accordance with a special directive for the mine.

The improvement of the repair-service operation plays an important role in increasing labor productivity. At the end of last year a progressive work-order system for repairing mine machinery was introduced at the mine. Fortified by the scientific organization of work, it enables the mechanical engineers of the sections to keep their eyes on all the units, know their technical status and perform preventive maintenance in good time in order to avoid breakdowns. Moreover, a responsible person has been assigned for each unit and component, and the repair mechanic is issued a special card with the specific task for the shift. At the end of the shift, all the cards, with a list of the work performed and the recommendations of the repair mechanic, go to the section, giving an objective picture of the machinery's potential to operate without interruption during the week or month. This system has helped to reduce idle time at the mine faces considerably.

The party group, whose fighting efficiency depends greatly upon the person in charge, stands at the sources of all the work in the laboring collectives. So the party committee attributes special importance to improvement of the qualitative composition of party-group organizers. Right now most of them have higher, uncompleted-higher or secondary education. We have made the party groups small--this intensifies the feeling of responsibility of each communist for the assigned task and raises their fighting efficiency. Previously, when forming lower-level party elements, we often did not consider the extent of shiftwork, the commonality of production incentives, and technological singularities. Party-group members at times worked on different shifts and party-group organizers did not have an operating procedure for assembling all the communists for the solution of problems that had arisen in some particular section. We corrected this matter. Party groups were created in each section where there are three shifts.

When analyzing the enterprise's operation, we paid attention to the fact that ordinarily, during night shifts, the results are lower than in the daytime. So we arranged section party organizations so that the number of party groups and the party element would be not smaller during the night shift but larger.

The sociological service that was created recently at the enterprise will help us to solve skillfully a large number of engineering problems and matters of work organization and the selection, assignment and training of personnel. It has been called upon to study public opinion, to make recommendations on raising production effectiveness, to improve socialist competition, and to strengthen labor discipline. With its help, both we and the lower-level production chiefs will be able to get to know better the principles for psychologically restructuring people when technical equipment is being updated continuously.

Rationalizers are extending great assistance to the mine. Thus, at the suggestion of chief mechanical engineer A. A. Buchel', an invention for protecting belt conveyors from overloading and for automatically switching them to the idle was introduced. As a result, it has been possible to eliminate completely idle time caused by breakdowns and accidents on the main conveyor line and to increase its productivity. It has been decided to put into production about 200 rationalizers' suggestions at the enterprise this year.

11409

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COAL

KRASNOARMEYSK COAL MINERS' 1984 COMMITMENTS LAUDED

Kiev RABOCHAYA GAZETA in Russian 31 Dec 83 p 1

[Article: "Experience Is a Guarantee of Success"]

[Text] The 1984 Socialist Commitments of the Breakage-Face Mineworkers' Brigade of the Order of Lenin Krasnolimanskaya Underground Mine of Krasnoarmeyskugol' [Krasnoarmeysk Coal Production Association] under V. I. Ignat'yev

Having promoted widely socialist competition for the fulfillment of 11th Five-Year Plan tasks ahead of time and used skillfully the experience of advanced mineworkers' collectives that has been accumulated in the republic's coal industry, the brigade met its annual commitments ahead of time, on 7 December 1983, after taking from one longwall a million tons of coal, or, altogether, 2,635,000 tons of fuel in the first 3 years of the 11th Five-Year Plan, 370,000 tons of it above the plan.

The brigade's members adopted with great inspiration and enthusiastic approval the decisions of the December 1983 CPSU Central Committee Plenum and the documents of the Ninth Session of the USSR Supreme Soviet's Tenth Convocation. In striving to make a worthy contribution to providing the national economy with fuel and having designated 1984 as a shock-work year, the brigade is committing itself, with highly productive labor, to completing fulfillment of the annual task by 7 November and to mining 1 million tons of coal--140,000 tons of it above the plan--from one longwall.

Through the more effective use of mining equipment and a rise in the vocational skills of each brigade member, increase the workload at the longwall to 3,020 tons per day, and overfulfill the labor productivity plan by 2 percent. By thrifty consumption of materials, spare parts and electricity and by increasing the preservation of mining machinery, the prime cost of the coal mined is to be reduced by 0.5 percent and 12,000 rubles are to be saved. An economic benefit of at least 5,000 rubles will be obtained from introducing rationalizers' suggestions.

The brigade will extend sponsorship assistance to the breakage-face mineworkers of the underground mine under G. F. Tsaruk in fulfilling the plan and the adopted socialist commitments and increasing the workload at the longwall to at least 1,100 tons per day.

The socialist competition with the breakage-face mineworkers' brigade under Hero of Socialist Labor A. D. Polishchuk of the Trudovskaya Underground Mine of Donetskugol' [Donetsk Coal Production Association] will be continued.

The socialist commitments were discussed and adopted at a general meeting of the brigade's collective.

Commentary of P. M. Bigma, General Director of the Krasnoarmeyskugol' Association

The association's mineworkers are concluding the third year of the 11th Five-Year Plan with a feeling of a duty fulfilled. The national economy received 800,000 tons of fuel above the plan. Labor productivity exceeds that planned by 3 percent. There are no lagging collectives in the association. Since the start of the five-year plan, all the coal enterprises have coped successfully with the plans and commitments. Behind these achievements are selfless work and an innovators' search by our equipment operators, engineers and technicians.

In speaking about the successes of Krasnoarmeysk's miners, one cannot help but render the operators' brigade from the Krasnolimanskaya Mine, which is under USSR State Prize winner Communist V. I. Ignat'yev, its due. This year it has already mined from one longwall more than 1 million tons of coal. This collective is to us an explorer of the future; its innovating experience lights up the path to more coal for others. The brigade's breakage face has shown itself to be a constantly operating school of the highest mining skills.

The high vocational skills of all brigade members, model work and production discipline, and the skillful use of the newest progressive excavating equipment--all these are helping the success of V. I. Ignat'yev's brigade. Stopwatch observation at the underground mine has shown that a rise in the hourly workload at the longwall depends greatly upon auxiliary operations, which take up, all told, up to 4-5 hours daily. Therefore, at the section where V. I. Ignat'yev's equipment operators work, a plan for the scientific organization of work has been prepared that is aimed primarily at introducing small-scale powered equipment, shortening idle operating-equipment time, and reducing labor intensiveness.

Section plans for NOT [scientific organization of work] call for the introduction next year of various proposals, thanks to which, as calculations show, the machine time of a longwall can be increased by 6 percent and the labor intensiveness of coal mining reduced. The efforts of a council of young specialists that has been established in the brigade, which is under section chief N. S. Saplitskiy, also has given help to the mineworkers. The equipment operators are filled with resolve also to mine from one longwall in 1984 at least 1 million tons of fuel.

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COAL

PAST, PLANNED IMPROVEMENTS AT TOREZ ANTHRACITE MINE TOLD

Kiev RABOCHAYA GAZETA in Russian 31 Dec 83 p 1

[Article by V. Levin, chief economist of the Progress Underground Mine of Torezantratsit [Torez Anthracite Production Association] (Torez, Donetsk Oblast): "The Specific Goal of the 'Progress' Mine"]

[Text] During discussion of the draft plan for developing the USSR's economy during 1984, the CPSU Central Committee's Politburo sustained the proposal of party and trade-union organizations and of laboring collectives that labor productivity be increased by 1 percent above the plan and that the prime cost of output be reduced by 0.5 percent.

CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet Presidium Yu. V. Andropov characterized this initiative at the December 1983 CPSU Central Committee Plenum as an additional party task for the plan.

It is noteworthy that some of the first to promote competition for achieving the goal set by the party were the collectives of leading enterprises of order-winning Donetsk Oblast. Among them is the collective of Torez's Progress Underground Mine.

In December 1983, 10 years have passed since the day when the miners of the Progress mine of Torezantratsit Association sent its first tons of coal to the top. The collective is working steadily, aiming its efforts at improving the organization of production and work and at increasing the mining of fuel with a view to getting it with fewer expenditures.

Progress's miners have worked well in 1983. The plan for the first 3 years of the five-year plan was met ahead of schedule. During the first 11 months alone more than 200,000 tons of coal above the task were sent to the top, and labor productivity increased by 11.9 percent.

This success determined the content of the plans and the contemplated directions of the collective's work for 1984.

Just what is our program? With the task of mining 800,000 tons of fuel in 1984, we are preparing to produce 964,000 tons! According to the plan, 36.2 tons of coal should be mined per month per miner, but we are setting the goal of bringing this up to 41 tons.

As we see, the figures for the plan and for our commitments are remarkably different. However, one must not think that an understated goal had been set for the mine.

Then there arises the reasonable question: how does the collective plan to raise labor productivity and, on that basis, to increase mining?

All five of our longwalls have integrated mechanization. A. Baranov's brigade works at one of them. This collective has the most progressive organization for work, and the equipment is well taken care of. Working under a single work order, each member of the brigade is able at any moment to replace a comrade.

And the brigade does have, as they say, its production secrets. In order not to waste time and not to load up the people with the excavation of recesses--the most labor-intensive operation--Baranov's brigade uses two cutter-loaders. This frees eight persons. How is this reflected in the growth of labor productivity? It is not difficult to estimate. Right now the miners are mining coal directly, and for each of them it is already 41 tons per month per miner. For the year it is 4,000 tons. A big addition for the brigade!

Skills, experience, technical and technological innovations and--the main thing--great effort enable our advanced brigade to mine 1,500 or more tons of coal per day right now.

The experience is worthy of emulation. And now it has been decided to disseminate it also to other mining collectives. We shall begin with the eastern longwalls, where I. Shishkov's brigade is working. Although this is a young collective, it is capable of yielding more coal than is being mined, in any case, not the 780-820 tons of today, but more than 1,000 tons. The training of this brigade has been organized, and its mineworkers are frequent guests of Baranov's collective and vice versa. Section chiefs V. Razin and I. Amons, who also has rich experience, have found contact. In brief, here are the results: Shishkov's brigade has adopted a commitment to achieve an average daily workload of 1,100 tons per longwall in 1984.

We are planning to bring the average daily workload per longwall, on the average, per underground mine up to 810 tons versus the 660 tons achieved in 1983.

We have also calculated growth in productivity for the underground mine as a whole this way. The difference between what is planned and what is programmed is 100,000 additional tons of coal.

We have calculated no less thoroughly all the ways for reducing prime costs. Let us dwell on the main ones. Timber and heavy rolled metal section made of special steels that are used for excavation supports are the most expensive

materials. But it turns out that it is possible in some cases to economize on them, to use them a second time, and now and then several times. Usually, when making new excavations, wooden or reinforced-concrete tie beams are installed between the arch supports, to prevent the roof from raining down rocks. And where cutter-loaders are used for tunneling--not drilling and blasting operations--it is possible to get along completely with a metal network instead of the traditional wood and reinforced concrete.

Ordinarily we have used wooden sleepers at the 1,213-meter level, to withstand the rock pressure. Right now reinforced-concrete sleepers are being used for this purpose.

Roofs in recesses have always been held up by wood. Once or twice capping was used--and it had to be thrown out. We tried converting to metal capping--and it turned out well.

We have calculated these and other sources for saving materials, first with pencil in hand, and then in greater detail on electronic calculators. And it turned out that the collective can achieve a substantial reduction in the consumption of resources. For example, 600 cubic meters of timber saved at recesses alone promises a winning of 21,000 rubles, and each ton of mine rails yields a saving of 103 rubles, each set of metal arch supports 35 rubles.

The use of machines and mechanisms where previously only manual labor reigned will yield a saving of resources and, at the same time, a noteworthy addition to labor productivity. For moiling, for example, we have one moiling machine, which does the work of 15 persons. We expect a second machine.

Mining operations also are being concentrated at the underground mine. For each 1,000 tons of mining the length of the excavation supported is reduced as a result from 11 to 9 meters. And this means that expenditures of materials and human resources will be reduced proportionately.

And so, in considering not only major measures but also the smaller ones, we have come to the conclusion that we can reduce the prime cost of our output by 1 percent, and this will provide a saving of 270,000 rubles of state funds.

And there is no doubt that Progress's miners will cope honorably with the commitments adopted.

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COAL

DONBASS COAL FIELD REJUVENATION MEASURES TOUTED

Moscow TRUD in Russian 10 Jan 84 p 2

[Article by A. Dokukin, director of the Institute for Mining Affairs imeni A. A. Skochinskiy and corresponding member of the USSR Academy of Sciences: "The Tomorrow of the Donets Stokehole"]

[Text] Power engineering needs coal and lots of it. Today it is the basic fuel for both small boilerhouses and high-capacity thermal electric-power stations. Even those among them that burn oil and gas in their fireboxes are gradually being converted to coal. Until, as a matter of fact, the most valuable chemical raw material, our explored reserves of which are on the order of one-third our solid-fuel reserves, can be released literally "into the pipeline."

Of course we should like to find a better application for it also. But what will come to replace it? Hydropower is not omnipotent, nuclear electric-power stations are just getting on their feet, and the so-called "alternative" sources of energy (the sun, the wind, waves and hot water) still have not been developed enough....Coal is cheap and, like it or not, it still has to be burned.

Confirmation of its cheapness, it is true, needs substantial reservation. The price rises sharply if the coal has to be hauled over great distances. Although at times this is economically justified, it is truly transformed into "black gold." That is why thermal power stations, as a rule, are built close to the mining enterprises. We say that the power engineering of West Siberia depends greatly upon the coal of Ekibastuz and the brown coal of the Kansk-Achinsk basin, which are being excavated by the less expensive stripmining method.

It was the same also in the European part of the country, where long ago ties existed between the generators of electricity and the miners of the Donets basin. Many power stations were intended for the use of its steam coal and unique anthracites, which are no longer found anywhere. Power-unit fire-box facilities were designed precisely to take their specific properties into account: their calorific value, the tendency to form slag, and so on. Conversion to a new type of fuel would require greater expenditures on rebuilding the boiler.

That is why, unlike in Siberia, the situation that exists today in the Donbass [Donets Coal Basin] cannot help but be disturbing to economists and scientists. I have in mind the drop in the amount of solid fuel mined. It fell from 223.7 million tons--the maximum, which was obtained in 1976--to 200.1 million tons in 1982, that is, by 11 percent. The mining of the very valuable coking coal fell still more. And this despite the fact that 42 million tons of additional capacity per year were put into operation during the 1970's. Were it not for this substantial capital investment and the production reserves thereby created, we would not see even that much mining. Some people have even begun to speak about the fact that, they say, the basin "has no future," "its decline is not far off."

Is this so? I think not. According to the specialists' assessments, on 1 January 1982 the reserve stores of "black gold" available for the construction of new underground mines was more than 8 billion tons. To this must be added another 1½ billion tons which can be taken at longwalls that have been worked already, by "sectioning off," that is, by expanding the ground mine floor. This is completely adequate for maintaining coal mining at the Donbass's current level.

But with just one proviso: if labor productivity is raised throughout the basin as a whole. How? It is clear that the natural wealth will not come into one's hands by itself. Neither are enthusiasm and self-sacrifice enough for this. Especially in the Donbass, with its complicated mine geology: the commercial coal reserves here are represented by seams less than 1.2 meters thick, and more than half of them are gently sloping, with the coal dipping at less than 35 degrees. Practically one-third of the mines are 800 or more meters deep. The help of scientists, machinebuilders and representatives of other branches of the national economy is needed.

Specialists of the USSR Academy of Sciences and the industry's institutes have already done much to solve the problems of the struggle with high temperatures at great depths, mine pressure, gassing, rock bursts and sudden outbursts of coal, gas and rock. This has made the work much safer for the people. In the Donbass, the preliminary degassing of high gas content seams, using the captured methane in the underground mines and production boilerhouses, has been mastered. Wide propagation of this experience is opening up an additional source of energy. But this still is not enough.

For such an old coal basin, where most of the mines are more than 30 years old, rebuilding is of great importance. It has been called upon to change radically not only the face of old mines themselves but also to improve greatly the whole complicated mining activity. Rebuilding is a mandatory prerequisite to further technical progress at mine faces and for facilitating the people's work. And much still remains to be done.

The use of conveyor transport and longwall miners at breakage faces and of tunneling cutter-loaders must be expanded. Scientific and design-development work in the area of creating highly effective small-scale powered equipment for excavating extremely fine seams (70-90 cm thick) still lag behind the requirements of practice, and this, in particular, has led to the appearance in the Donbass of 200 longwalls that operate with chopping into the side rock,

increasing the ash content of the coal shipped. The mastery at Soyuzuglemash's Kamenka plant of serial production of the KM-103 longwall miner will enable chopping in to be greatly reduced and, possibly, entirely eliminated, more favorable conditions to be established, labor productivity at the mine face to be increased, and output quality to be improved. A speedup of creation of the KMT longwall miner for roofs that are difficult to control and an expansion of scraper-cutting excavation, especially with the use of mechanized supports, are required....The list of tasks of individual ministries and agencies could be made even longer, but we have one final goal--to remove people from the more difficult sections, where the pick-hammer still has to be operated, and to transfer the work to the shoulders of machinery and robots. The tasks set at the December 1983 CPSU Central Committee Plenum by Comrade Yu. V. Andropov of promoting labor productivity growth and of decisively focusing on problems of raising the technical level of production and on output quality relates fully to our scientists and specialists of scientific-research and design-development organizations.

In our discussions about the Donets Coal Basin's future we rely, naturally, on figures, and we cite purely economic reasons. But there is still another side of the question about which one cannot be silent. The Donbass is the oldest forge for qualified workers. The Stakhanovite movement was born here. The glory of the present-day "thousand-tonner" brigade has even moved beyond our country's borders. The underground miners' dynasty has become a good tradition. On the buses that ply between Makeyevka, Yenakiyev and Donetsk, we often hear talk about mechanizing and rebuilding mines and opening up new fields. People--workers, technicians and engineers--are worried: what about tomorrow? That is why hundreds and hundreds of them are rising into the ranks of rationalizers and inventors. That is why the news about exploration of the favorable Bogdanovskoye field in Voroshilovgrad Oblast, where the largest number of spent mines are located, was received with such great joy. The planning organs, in deciding the fate of the traditional operating regions, have no right to forget this.

The report of USSR Council of Ministers Chairman N. A. Tikhonov to the 26th CPSU Congress said, "Our duty, however great our natural-resources reserves, is to search for more rational ways to obtain them and to use them economically." In analyzing the technical status and the technical and economic indicators of the Donets underground miners' work, you come to the conclusion that not by far has everything been done yet to extend their life. And, primarily, it would seem, capital investment in introducing them should not only not be decreased but should be increased. This investment will be repaid a hundredfold.

11409
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COAL

EXCESSIVE COAL-HAULING DISTANCES CRITICIZED

Moscow EKONOMICHESKAYA GAZETA in Russian No 4, Jan 84 p 24

[Article by I. Fedik, chairman of the Ispolkom of the Urgal Settlement Soviet of People's Deputies: "Did You Come to a Conclusion? We Congratulate You!"]

[Text] The premises of a problem that I would like to give Soyuzglavugol' [Main Administration for the Supply and Marketing of Coal] under USSR Gossnab can be formulated as follows.

In Urgal, a new, well-appointed BAM [Baykal-Amur Mainline] settlement, there is a boilerhouse. The boilerhouse, it must be said, is sound: the climate is severe during these months, the winter is long, and there should be enough heat for all. Up to 140 tons of coal are burned daily during the winter. Fuel is shipped to the settlement by rail transport from Neryungri.

But now, comrade supplier, take a pencil and check whether I am figuring correctly. The price of Neryungri small-lump coal is 19 rubles and 90 kopecks per ton. We add to this the cost of bringing it to Urgal--4 rubles and 36 kopecks. We get the sum of 24 rubles and 26 kopecks. In my opinion, you are not mistaken. This is the first step of the problem.

The second step. Chegdomyn also ships small-lump coal. If they shipped it to Urgal it would cost 16 rubles and 70 kopecks.

It is also well known that the distance from Urgal to Neryungri is 1,700 kilometers, while it is 33 kilometers to Chegdomyn.

I will also add that the boilerhouses at Urgal, Solon', Suluk and other communities on the BAM's Urgal Division were designed entirely for Chegdomyn coal. But the quality of the fuel shipped from Neryungri is such that the settlement's boiler equipment periodically refuses to take it--it breaks down. This causes interruptions in heat supply, and it is good if the weather does not get colder during such intervals.

And so a question to Soyuzglavugol': from where is it more suitable to send coal to Urgal Division settlements (by the way, this is 200,000 tons per year)--from Neryungri, 1,700 km away, or from Chegdomyn, 33 km away?

Have you come to a conclusion, comrade suppliers? We congratulate you!

11409

CSO: 1822/204

COAL

BRIEFS

KUZNETSK-NOVOSIBIRSK COAL PIPELINE--Novokuznetsk--A pipeline for delivering coal from the Inskaya Underground Mine in the Kuzbass [Kuznetsk Coal Basin] to Novosibirskaya Heat and Power Central No 5, the erection of which is to start this year, should reduce somewhat the amount of fuel hauled by rail. Meanwhile, preparatory work is going on. The Novokuznetsk Integrated Section of VNIIGidrougol' [All-Union Scientific-Research and Design-Development Institute for Hydraulic Coal Mining] is preparing a portion of the design papers. It is preparing the data that touch upon the preparation of coal for transfer pumping over a distance of more than 200 kilometers and on the construction of pump stations. The first coal pipeline will be experimental. Scientists and designers are checking on the viability of the proposed technical solutions and are determining the desirability of the use of this type of transport for shipping fuel over still greater distances. [Text] [G. Shalakin] [Moscow GUDOK in Russian 10 Feb 84 p 4] 11409

NEW SOYUZ-19U TUNNELING MACHINE--Donetsk--At the Underground Mine imeni Aleksey Stakhanov of Krasnoarmeyskugol' [Krasnoarmeysk Coal Production Association], the largest in the Donbass [Donets Coal Basin], the first days of the new year were marked by the startup of the Soyuz-19U mine-tunneling complex. There is no larger underground equipment in our country for making excavations. In moving forward, the machine leaves behind it a finished tunnel with a cross-section of 20.6 square meters. Right now the underground Gulliver is taking its first steps at a depth of 1,000 meters. The machine's designers--A. Levin, G. Tul'chinskiy, V. Danilov and other staff workers of Dongiprougle-mash [Donetsk State Survey, Design and Experimental Institute for Coal Machinebuilding] are teaching it to "walk." Under the supervision of engineers and design developers, the mine-tunnelers brigade under N. Pavlov have undertaken to master the unique complex. [Text] [V. Grigor'yev] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Jan 84 p 2] 11409

CHAMBER THAWS COAL TRAINS--Vostochnyy Port, Primorskiy Kray--The turnaround of freight cars at Vostochnyy Port has been speeded up. A special chamber has been built here for handling flatcars with coal. The fact is that when coal from Siberia is brought to the port, it is often transformed almost into reinforced concrete: the cold welds the lumps of fuel to such an extent that it is difficult to separate them, even with a pick-hammer. The heating chamber has greatly facilitated and speeded up the dockers' work. Thirty-six cars at a time can be accommodated in this singular sauna. A train with coal is treated with steam for about 2 hours, and then the cars are turned over by

means of special platforms, and the coal goes by a conveyor into the holds of ships. [Text] [L. Vinogradov (TASS correspondent)] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian, 11 Feb 84 p 2] 11409

NERYUNGRI MINE'S THIRD PHASE--Neryungri, Yakutsk ASSR--The third phase of the Neryungri coal strip mine, which has been put into operation, has raised the mine's potential. Now 9 million tons of fuel will be mined here annually. This year's first trainloads of coal that has been taken from the mine faces of the new area have been dispatched to customers over the Little BAM [Baykal-Amur Mainline]. [Text] [TASS] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Jan 84 p 1] 11409

NEW KIROVOGRAD OBLAST MINE--Kirovograd Oblast--The first phase of the Medvedzherskaya Underground Mine of Aleksandriyugol' [Aleksandriya Coal Production Combine] was put into operation almost a month ahead of the planned deadlines. The brigades of S. Gusentsov, M. Popov and M. Matyushina from Pavlograd's Dneproshakhtostroy [Dnieper Mine Construction Combine] did the mining excavation at the underground coal deposits in a short time. The minebuilders introduced the use of metal instead of wooden supports, the delivery of materials along tunnels in containers and of concrete by pipes through holes to the site of its placement, and other technological innovations. The mine's designed capacity will reach 2.1 million tons of brown coal annually in the fourth year of the five-year plan when the second phase is introduced. [Text] [M. Stoykevich] [Moscow STROITEL'NAYA GAZETA in Russian 28 Dec 83 p 3] 11409

GAS PIPELINE HYDRAULIC TESTS--The signal marking the beginning of hydraulic tests at the Mariysk section of the Urengoy-Central Economic Region No 1 gas pipeline was sounded 3 months ahead of schedule. The units that pump water into the multikilometer underground artery have been turned on. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 51, Dec 83 p 2] 11409

TURNOVER OF KIROVOGRAD MINE--The first phase of the Medvezheyarskaya Underground Mine in Kirovograd Oblast--the largest in the Dnieper Brown Coal Basin--was turned over for operation ahead of schedule. Its designed capacity is 2.1 million tons of coal per year. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 51, Dec 83 p 2] 11409

VOROSHILOVGRAD OBLAST COAL EXPLORATION--Kommunarsk, Voroshilovgrad Oblast--Still another coal section--Borzhikovskiy Yuzhnyy--has been plotted on the useful-minerals map of Voroshilovgrad Oblast. The Kommunarsk Geological Exploration Expedition completed its detailed exploration at the end of the third year of the five-year plan. "The new section's reserves," says expedition chief V. Zhuravlev, "have been assessed at almost 230 million tons. This is enough to support the work of an underground mine with an annual productive capacity of 1½ million tons for more than 100 years." [Text] [A. Al'binskiy] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 21 Dec 83 p 2] 11409

DONETSK COAL-MINING RESULTS--Donetskugol' [Donets Coal Production Association] miners completed the production program for this year 3 weeks ahead of time. One million 300,000 tons of coking and steam coal above plan were produced. And the tunnelers operated well: they coped successfully with plans for

conducting basic mine excavations and produced almost 10 additional kilometers of underground corridors. Collectives of the underground mine and of the Underground Mine Administrations imeni Gorky, imeni Zasyad'ko and imeni Gazeta Sotsialisticheskiiy Donbass took first places in the association's socialist competition. [Text] [N. Lisovenko] [Moscow IZVESTIYA in Russian 17 Dec 83 p 1] 11409

GUKOVO ANTHRACITE MINING RESULTS--Rostov-na-Donu--The brigade of the renowned miner Hero of Socialist Labor and Delegate to the 26th CPSU Congress K. Markelov, from the Underground Mine imeni 50-Letiya Oktyabr of Gukovugol' [Gukovo Coal Production Association], is working with high smoothness. It has yielded the last tons of anthracite coal on its million-ton account that was promised under the socialist commitments made at the start of the year. Of the total amount of fuel, 85,600 tons were mined above the goal. The daily workload per mine face here is 3,022 tons--the highest for the coal-bearing Don region. Its monthly labor productivity per mine worker--419 tons--is much higher than for others. During the 11th Five-Year Plan the brigade has built up a high pace: this is now the third million tons of fuel in succession sent to the top in a year. In all, the customers have been sent 3,115,000 tons of high-quality anthracite. The advanced collective's basis of success is precision organization of the work, effective handling of the equipment, and mutual support. Creative cooperation with the brigade of the well-known tunneler USSR State Prize winner N. Petrenko, who prepares the breakage-face front, has produced much. F. Glushchenko, I. Sivets and A. Shelko had the best results among the miners. First Secretary of the Rostov Oblast Party Committee I. Bondarenko and the miners' work comrades enthusiastically greeted the miners after they left the mine at the end of the shock-work drive. [Text] [V. Uzhakin] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 10 Dec 83 p 1] 11409

LVOV-VOLYN COAL BASIN--Lvov--The collective of Velikomostovskaya Underground Mine No 3--the first communist-labor enterprise in the Lvov-Volyn basin--has won a major labor victory. It completed fulfillment 100 days ahead of time the program for the first 3 years of the five-year plan. The miners have sent to the top 3.76 million tons of fuel--326,000 tons of it above the plan--since the start of the five-year plan. What is the secret of this stable operation? The underground mine has become a distinctive testing ground for new equipment. A new coal-mining cutter-loader is being introduced here these days. Machinebuilders and designers are helping the miners. Among the breakage-face worker brigades, the best results have been achieved by the collective under Hero of Socialist Labor G. A. Naumchik. For 2 years in succession it has mined 500,000 tons of coal, which is a distinctive record for Ukrzapadugol' [Western Ukraine Coal Production Association]. [Text] [A. Rudenko] [Kiev RABOCHAYA GAZETA in Russian 19 Oct 83 p 1] 11409

DOBROPOLYE COAL-MINING RESULTS--Dobropolye--Each day of the fourth year of the five-year plan is a shock-work day. Working under this slogan, the miners of the Underground Mine Belozerskaya of Dobropol'yeugol' [Dobropolye Coal Production Association] has produced more than 15,000 tons of fuel above the plan since the start of January. All three mine sections here work with precision and coordination, but the best indicators were achieved by the mine section that Hero of Socialist Labor Yu. Glob heads. There are already 10,000 tons of

coal mined above the task to the account of this small collective, and the workload for the mine face has reached 3,000 tons of coal per day. The success has been achieved thanks to the precise work organization, skillful use of mining equipment and coordinated work by all production elements. [Text] [G. Dorofeyev] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Jan 84 p 1] 11409

KRASNOARMEYSK COAL-MINING RESULTS--The other day miners of Krasnoarmeyskugol' [Krasnoarmeysk Coal Production Association] were the first in the branch to send to the top the last tons of fuel on its annual-plan account. In 11 months, 8.5 million tons of coal were sent to customers, 750,000 tons above the plan. All the association's mines are carrying out the state plan with precision. Twelve mining brigades are working at a thousand-tons-per-day workload, providing more than 60 percent of all the coal mined throughout the association. Labor productivity has exceeded the prescribed level by 3 percent, and the prime cost for producing the coal has been reduced. The effective use of mining equipment, scientific organization of the coal-mining processes and maximum involvement of production reserves in the business are enabling Krasnoarmeyskugol' miners to carry out with precision the socialist commitments for this year that were published in PRAVDA UKRAINY on 2 January. [Kiev PRAVDA UKRAINY in Russian 15 Dec 83 p 1] 11409

NEW ALMA-ATA COAL MACHINERY--The collective of the Alma-Ata Heavy Machine-building Plant has made a New Year's gift to Siberia's miners. It sent to Yuzhkuzbassugol' [South Kuznetsk Coal Basin Production Association] the country's first rolling mill for producing reinforced screws for strengthening underground-mine arches. The Kazakhstan machinebuilders' innovation will help the miners to save each year thousands of tons of high-quality steel that formerly went to strengthening mine workings. The strong reinforced screws--two-meter "wood screws"--are lighter than the traditional metal fasteners. They are screwed into the rock stratum by a lightweight semiautomatic device and they firmly support the roof of the underground corridors. After full depletion of the raw material from the area, they are unscrewed and transported to another section. Prior to the end of the five-year plan 12 rolling mills of the Alma-Ata machinebuilders' brand will bring the production of reinforced screws up to 4 million per year. [Text] [KazTAG [Kazakh Telegraph Agency]] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 22 Dec 83 p 1] 11409

NERYUNGRI MINE'S FOURTH PHASE--Neryungri (Yakutsk ASSR)--The third phase of the enterprise, which has been put into operation, has raised the Neryungri coal strip mine's potential. Now 9 million tons of fuel will be mined here each year. This year's first trainloads of coal taken from the mine faces in the new area have been sent to customers. But Neryungri miners do not stop with this: there is no little that lies ahead. The builders have undertaken to prepare the strip mine's fourth and last phase. Thanks to this, the enterprise's total capacity will reach 13 million tons of coal per year by the end of the five-year plan. Moreover, it is planned to put into operation a huge coal-preparation plant that will be able to process the raw material locally. As a result, the next huge complex, whose workers will be able to give the country many millions of tons of Yakutsk coal, has appeared in this region. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 18 Jan 84 p 1] 11409

DEEP KAZAKHSTAN COAL MINING--Kazakhstan's miners have undertaken to master deep deposits of solid fuel. For the first time in the basin, the Stakhanovskaya Underground Mine has started to produce coal from the depth of a kilometer. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 84 p 3] 11409

TULA OBLAST COAL MINING--Miners of Novomoskovskugol' [Novomoskovsk Coal Production Association] in Tula Oblast have mined the 100,000-th ton of coal above the plan. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 84 p 3] 11409

DONETSK COAL MINING MACHINERY--Donetsk--The ANShch shielding units that the Dongiprouglesh [Donetsk State Design-Development and Experimental Institute of Coal Machinebuilding] built have proved themselves well on sharply dipping seams of the Donbass. And now a new modification--the 2-ANShch--has appeared. The unit covers completely the mine-face space, and it can be used where the side rocks are of average stability, providing for a high degree of work safety. This was confirmed in excavations of the Underground Mine imeni Lenin of Artemugol' [Artem Coal Production Association]. After successful tests, series production will begin at the Druzhkovka Machinebuilding Plant. Still another innovation for steep seams is the KS conveyor and scraper-cutter. It has advantages over its predecessors. Its operating implement is twice as long, and engine power has increased just as much, enabling productivity of the shield equipment to be raised from 2 tons of coal per minute to 3. And still another important detail--the unit is controlled remotely and automatically. And here now is miracle machinery--high-frequency V14-900 electric locomotives for underground mines, which are operating at the Underground Mine imeni Lenin in Voroshilovgradugol' [Voroshilovgrad Coal Production Association]. They do not have the batteries that are usually found on underground locomotives. Electricity is transmitted from the traction line to the electric locomotive by the contact-free induction method. The complex--the locomotive, traction line and high-frequency generators--have no counterparts either in domestic or foreign practice, and it is very economical to operate. These and other new developments by the institute are still more testimony of the concern shown in our country for easing the miners' working conditions. [Text] [Kiev RABOCHAYA GAZETA in Russian 8 Dec 83 p 2] 11409

COAL-DUST ABSORBER--Donetsk--The coal dust that is formed during cutter-loader operation is the miners' enemy: enough sparks and it can flare up. In order to suppress it, excavating machinery has been equipped with special systems that supply water to the mine-face space. But water is not always omnipotent, even with special additives. Chemists of the Donetsk State University have managed to find a substance, one gram of which dissolved in a liter of water binds up to 80 percent of the coal dust. This development was presented at the VDNKh SSSR [USSR Exhibition of Achievements of the National Economy] and received a high evaluation. Thus the search of the staff workers of the Coal Chemistry and Colloidal Chemistry Department under corresponding member of the UkSSR Academy of Sciences S. N. Baranov has been crowned with success. Research continues. Next in line is one that is cheap, not harmful to the health, and a still more active suppressor. [Text] [Kiev RABOCHAYA GAZETA in Russian 28 Dec 83 p 2] 11409

KIROVOGRAD BROWN COAL--Kirovograd, 10 Dec--The other day the Medvezheyarskaya Underground Mine of the Aleksandriyugol' Coal Production Association produced its first tons of brown coal. Construction of the new coal-mining enterprise went on under complicated mine-geology conditions. Water, shifting sand and quicksand became serious obstacles on the path to the coal seams. Vertical and sloping bores had to be made by freezing the rock. Mine-construction workers of Donetsk and Pavlograd came to the aid of the Aleksandriya miners. The first phase of the enterprise, with a capacity of 1.2 million tons of fuel per year, was turned over for operation earlier than planned. [Text] [M. Odi-nets] [Moscow PRAVDA in Russian 11 Dec 83 p 1] 11409

AZERBAIJAN THERMAL CRACKING PLANT--Azerbaijan SSR. The first phase of the complex of a thermal cracking plant went into operation at the Novo-Baku Oil Refinery imeni Vladimir Il'ich. The oil-refining technology will be practically wastefree. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 84 p 3] 11409

NEW COKEMAKING EQUIPMENT--Slavyansk, Donetsk Oblast--Coke can be obtained from coal previously considered unsuitable for this purpose on new equipment with the Slavyazhmash plant brand. The manufacture of the first industrial installation of this type has commenced. Baking such a "pie" by the traditional method requires at least 15 hours. The whole operation takes half as long at the new installation because of intensification of the process. [Text] [Mos-cow IZVESTIYA in Russian 21 Dec 83 p 1] 11409

DONETSK OBLAST MINING RESULTS--Donetsk--An entry in the daily journal of the controller of the Ukraine's Ministry of Coal Industry testifies to the miners' shock work and their high labor activeness: Donetsk Oblast miners have completed the mining of 250,000 tons of coal above the plan since the start of the year. Doing so fulfilled ahead of time the commitment adopted in honor of the forthcoming elections for the USSR Supreme Soviet. Twelve coal production associations are operating in the oblast, 9 of which are outperforming the work schedule. Collectives of Donetskugol', Krasnoarmeyskugol' and Sovetsku-gol' [Donetsk, Krasnoarmeysk and Sovetsk Coal Production Associations] and Shakhterskantratsit [Shakhtersk Anthracite Production Association] most of all sent above-plan output to metallurgical plants and electric-power stations. [Text] [TASS] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Feb 84 p 1] 11409

CSO: 1822/204

ALTERNATE FUELS

SYNOPSIS OF ARTICLES IN TORFYANAYA PROMYSHLENNOST'

Moscow TORFYANAYA PROMYSHLENNOST' in Russian No 2, Feb 84 p 32

UDC 662.812:65.012.42

COLLECTIVE FORMATION AT SOYNE PEAT BRIQUET PLANT

[Synopsis of article by V.I. Pis'mennyy, A.M. Mel'nik, pp 14-16]

[Text] Describes experiences on the formation of a collective at the Soyne Peat briquet plant, which began operations in June 1983. The leading workers and engineering-technical employees who won the socialist competition for 1983 are named. The role of the brigade form of the organization and compensation of labor in strengthening labor discipline in this young collective is discussed. 4 illustrations.

UDC 622.331:65.012.42 (477)

STRENGTHENING LABOR DISCIPLINE AT THE CHERNIGOV UKRTORF ASSOCIATION

[Synopsis of article by S.I. Tuzhik, pp 18-20]

[Text] Measures are described for strengthening labor discipline, reducing losses of work time, rational personnel utilization, and improving the forms of socialist competition. 4 illustrations.

UDC 553.97:626.86.002.5

HIGH CAPACITY MACHINE FOR DIGGING DRAINAGE CHANNELS

[Synopsis of article by V.K. Kirillov, Yu.V. Krasnov, Yu.N. Mizgirev, and others, pp 22-24]

[Text] This article documents the development of a high capacity machine for the digging of drainage channels at surface-type peat deposits in the presence of ridge and mochezhina formations. A brief description is presented of the design and technical specifications of an experimental model of this high capacity machine. Experimental results are given. 2 illustrations. 2 references.

UDC 662.812.001.57

PEAT BRIQUET INVENTORY MANAGEMENT

[Synopsis of article by B.A. Bogatov, V.K. Meleshko, V.I. Zarembo, pp 24-26]

[Text] The article surveys techniques for resolving the problem of choosing locations for the construction of new briquet storage facilities and the transportation problem in distributing the product. The special features of the management problems involved in briquet distribution are pointed out and different options to resolve the transportation problem are listed.
4 references.

UDC 662.812.002.5

INTRODUCTION OF MACHINERY AND EQUIPMENT FOR PREPARING RAW MATERIAL FOR BRIQUETING

[Synopsis of article by M.V. Molochko, I.O. Matvienko, pp 29-31]

[Text] Describes the developments of efficiency innovators at the Gantsevich-ckiy plant: machinery to take samples directly from freight cars at the raw material storage facility and equipment for the processing of raw materials in the preparation department of the briquet shop. A technique is presented for the approximate calculation of the productivity of a roller-disk screen in a peat production enterprise. 2 illustrations.

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NON-NUCLEAR POWER

RESULTS OF 1983 ELECTRIC POWER PROGRAM, PROSPECTS FOR 1984

Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 1, Jan-Mar 84 (signed to press 27 Feb 84) pp 1-5

[Article by V. I. Masumov, deputy chief of the Planning-Economic Administration, UkSSR Minenergo [Ministry of Power and Electrification]: "Results of the Third Year of the Five-Year Period"]

[Text] Thanks to the selfless labor of the Soviet people, the extensive political and organizational work of the CPSU, and the goal-oriented and fruitful activity of its Central Committee and the CPSU Central Committee Politburo in 1983, a major step forward has been taken in increasing the economic might of our country, in strengthening its defense capacity, in developing science and culture, and in ensuring the growth of well-being of the Soviet people.

Responding with practical works to the decisions of the November (1982) and June (1983) Plenums of the CPSU Central Committee, the workers of the Soviet Union have broadly developed socialist competition for the fulfillment of the five-year plan ahead of schedule and have marked the past year by their outstanding achievements in the realization of tasks presented by the 26th CPSU Congress. As a result of the measures implemented by the CPSU Central Committee on improving the style of management and strengthening discipline and organization, the growth rate of social production has increased and its economic effectiveness has improved.

The successful fulfillment of the five-year plan assignments by the Soviet people is facilitated to a significant degree by the high rate of development of electroneergetics as a sector which plays a leading role in implementing scientific-technical progress in the entire national economy.

By the end of 1983, the total established capacity of the power stations in the Soviet Union approached a limit of 295 million kW, while the production of electrical energy last year comprised 1416 billion kW·hrs. This represents a 36.2 percent increase as compared with the 1975 level. Today in the USSR the output of electrical energy in two weeks alone exceeds its overall level in the pre-war 1940. Our country occupies a strong first place in Europe in terms of production of electrical energy, and is second in the world. In the post-war years the gap in the output of electrical energy between the Soviet Union and the USA has been reduced to one-half its previous level.

The power engineers and power plant builders of the Soviet Ukraine are contributing a significant labor input into increasing the country's electrical power potential. The development of electroenergetics in the Ukraine is a clear example of the practical application of Lenin's timeless teachings about electrification. Guided by these teachings, the republic's power engineers and power plant builders are persistently working on expanding the energy base and increasing the reliability of power supply to the national economy. As a result of the realization of the target scientific-technical program "Energo-kompleks", in the elapsed 3 years of the 5-year period, 5.1 million kW of new generating capacities have been introduced into operation in the republic. These include 1.3 million kW in 1983. Considering the retirement of obsolete and physically worn out equipment, at the start of the current year the established capacity of all the power stations in the Ukraine reached 48 million kW. This marks a 25 percent increase over the 1975 level.

In accordance with Lenin's principles of electrification, a concentration of generating capacities is being sequentially implemented in the republic. The 12 heat and power plants [TES] have an established capacity of one million kW or more. Of the eight TES in the country with established capacity of 3 million kW or more, three power plants, or over one-third, are found in the Ukraine.

Technical retooling of the sector is proceeding at a rapid rate. There are already three atomic power plants in operation in the republic, with a total capacity of 5.8 million kW. Among these is one of the largest atomic power plants in the country -- the Chernobyl'sk AES [atomic power plant], as well as the Southern-Ukraine AES, which, in accordance with V. I. Lenin's well-known position regarding the fact that "modern leading technology persistently requires the electrification of the entire country and a number of neighboring countries -- according to a single plan," is being built in cooperation with Rumania. There is also the Rovno AES. In the past year, struggling to fulfill the decisions of the 26th CPSU Congress and the 26th Ukrainian Communist Party Congress, the collectives of builders and operators at the Chernobyl'sk AES proudly fulfilled their accepted socialist responsibilities and by the day of professional celebration of power engineers provided the inclusion of the fourth power block into the electrical network ahead of schedule, bringing the established capacity of the power station to 4 million kW.

In 1983 the output of electrical energy at the nuclear power plants of the Ukraine comprised over 25.6 billion kW·hrs, or already over 10 percent of the overall power production in the republic. Due to the operation of the AES in the past year alone, 12 million tons of coal have been freed for use in the national economy.

The collectives of builders and operators at the Dnestr GES [hydroelectric power station] achieved a notable labor victory in the past year. They fulfilled their socialist responsibilities for ahead-of-schedule introduction of the last two hydraulic units, each with a capacity of 117,000 kW. Thus, the Dnestr Integrated Hydraulic Development achieved its full project capacity -- 702,000 kW.

For purposes of increasing the reliability of power supply to the consumers in 1983, over 23,000 kilometers of electrical transmission lines of all voltage classes have been built, including 3,900 kilometers of 35 kV line or above. For the present day, the overall extent of overhead and cable electrical networks within the balance of the UkSSR Minenergo comprises around 900,000 kilometers. By their level of voltage, supply of modern electrotechnical equipment, means of automatic control and organization of centralized dispatch management, the electrical networks in the Ukraine meet all the current requirements of electroenergetics.

A special task of power engineers is to increase the reliability of electrical power supply to agriculture and timely fulfillment of measures ensuring the realization of the tasks set by the USSR Food Program. The work performed in this direction has made it possible to reduce the specific disconnection of kolkhozes and sovkhozes by 16 percent at the start of the Five-Year Plan. By the beginning of the current year, building of reserves for electrical power supply to all dairy farms has been completed.

The production of electrical power in the Ukraine has reached 243 billion kW·hr in 1983, or over 17 percent of the total output for the USSR. As compared with 1975, the production of electrical power has increased by 48.4 billion kW·hr, or by one-fourth. This growth is practically equal to the entire electrical power output volume at thermal electrical power stations in the republic in 1960.

In expanding socialist economic integration, the republic is annually increasing its supply of electrical power to the unified electrical power systems of the member states of the Council for Mutual Economic Aid. In the past three years of the Five-Year Plan alone, almost as much electrical power has been supplied to the CEMA member states as in the entire 10th Five-Year Plan, while the effect from combining the electrical load schedules with parallel operation of the USSR YeES [unified power system] and the OES [associated power system] of the CEMA member states reaches three million kW.

Due to the implementation of the planned organizational and engineering-technical measures, an improvement in a number of technical-economic indicators in the sector's operation has been ensured. The number of unplanned stoppages of power units has been reduced by 15 percent. By the degree of utilization of the established capacity for unit equipment, which in 1983 comprised 70.3 percent, the electrical power stations of the Ukraine are among the leading enterprises in the country. The specific expenditure of fuel for the production of electrical power has been reduced by 1.7 g/kW·hr since the beginning of the five-year period. This has made it possible to save around 870,000 tons of specific fuel as compared with the 1980 level. There has been a stable reduction in the number of accidents allowed through the faults of the personnel, and annual plans for labor productivity and profits have been fulfilled.

As a result of the work directed toward increasing labor productivity, over 1,500 people have been liberated in a single year at the power enterprises. Of these, 1,100 were liberated due to an increase in the technical level of

production. 1,700 workers have been shifted over from manual to mechanized labor, with a planned number of 1,600 persons. By the end of 1983, 13,000 persons were covered by the brigade form of organization and labor incentive, which is 1,400 persons over the plan.

Last year the power production associations continued work on improving the economic management mechanism and strengthening cost accounting, as well as intensifying state and plan-financial discipline. In accordance with the plans for social development, 12,100 workers were prepared and trained in secondary professions, 47,000 workers and engineering-technical personnel increased their level of training, over 168,000 square meters of residential housing were built, as well as three kindergartens and a number of other everyday social-cultural facilities.

The achievements in the development of electroenergetics in the Ukraine have become possible thanks to the constant concern of the Communist Party and the Soviet government on the planned development of the sector, and are a result of selfless labor by collectives of many thousands of power engineers and power plant builders throughout the republic.

The further increase in the efficiency of socialist competition has played an important role in mobilizing the workers toward the struggle for fulfilling the plan and the accepted socialist responsibilities. The labor slogans of the collectives at the Zaporozhye GRES [State Regional Hydroelectric Power Station], "For the 11th Five-Year Plan -- the highest economy with minimal expenditures," the Tripol'skiy GRES, "To power units -- reliable and economic operation," the innovators of Rostov Oblast, "To Work without Laggards," and others have become widespread at the power enterprises of the republic. Over 103,000 leading workers in the sector have been awarded the honored title "Shock Worker of Communist Labor". The title of "Collective of Communist Labor" has been given to 56 enterprises, 658 shops, and around 5,700 participants, shifts and brigades.

A number of power enterprises last year achieved honored standings in the all-union and republic socialist competition. Among these were the collectives of the Kurakhov, Zaporozhye, Tripol'skiy, Ladyzhin GRES, the Kiev TETs-5 [Thermal Power Station], the Novokakhov PES [portable power station] and others.

The results of the production-economic management activity in the sector for 1983 were examined at the expanded meeting of the UkSSR Minenergo collegium. An analysis of the work of power enterprises in light of the requirements of the December (1983) Plenum of the CPSU Central Committee and the January (1984) Plenum of the Ukrainian Communist Party Central Committee showed that, along with the general positive results, there are still significant shortcomings in the work of individual collectives.

Thus, there have been cases of untimely and poor quality repair of equipment, the number of forced energy unit stops was being reduced too slowly, and there were still cases of accidents at the fault of the personnel. The reserves for reducing the specific expenditures of fuel and the technological expenditure

of electrical and thermal energy for its transport in the networks have not been fully utilized. In a number of cases, control over the rational expenditure of energy by the consumers was not properly organized. In connection with the undersupply of power poles, the construction of electrical transmission lines for rural areas was performed behind planned schedule.

The collegium defined the measures for eliminating the discovered shortcomings in the work of the power enterprises and ratified basic organizational and engineering-technical measures directed at fulfilling the state plan for 1984, which is an important step in implementing the socio-economic program for the 11th Five-Year Plan.

The collegium noted that the Ukraine power engineers, like all the Soviet people, fully approve of and support the activity of the CPSU Central Committee Politburo on implementing the foreign and domestic policy worked out by the 26th Party Congress and the in-depth evaluations and conclusions on Basic Directions for the Further Development of the National Economy and the specific tasks for 1984 contained in the decisions of the December (1983) Plenum of the CPSU Central Committee and in the materials of the Ninth Session of the USSR Supreme Soviet, Tenth Convocation.

As indicated in the resolution of the December (1983) Plenum of the CPSU Central Committee, an important task is the realization of the USSR Energy Program, which was characterized at the June (1983) Plenum of the CPSU Central Committee as the major document of long-range significance, a sort of GOELRO [State Commission on the Electrification of Russia] under modern conditions.

The USSR Energy Program is called upon to ensure the implementation of a structural, technical and organizational-economic restructuring of the country's economy for the purpose of placing it as soon as possible on an intensive and energy-saving path of development. An important place in this program is relegated to restructuring the fuel-energy balance due to elimination of expensive petroleum products and sharp reduction in the output of electrical and thermal energy without the expenditure of organic fuel. Therefore, particular significance is given in the program to the development of atomic, and in the future — nuclear energetics.

In accordance with the tasks of the Energy Program, the development of an energy base will be continued in the Ukraine in 1984. For this purpose, the operational introduction of 3.4 million kW of new generating capacity is planned. The energy units at the Southern Ukrainian and Zaporozhye AES, and the Kiev TETs-6 will be placed into operation. Over 27,000 kilometers of electrical transmission lines of all voltage classes will be built, including 24,700 kilometers for electrification of farm areas.

This will make it possible in the current year to increase the overall level of electrical power production to 253.4 billion kW·hrs, or an increase of 4.3 percent. For the purpose of saving on organic fuel, the output of electrical power at thermal electric power stations will be somewhat reduced.

The planned growth in production of electrical power will ensure the further development of electrification of all sectors of the national economy, including the communal-domestic sector, as well as the necessary volumes of inter-republic and export supplies of electrical power to the CEMA member states.

The output of thermal energy to consumers from electrical power stations and boiler stations of the UkSSR Minenergo is planned in 1984 in a volume of 64.1 million Gcal. This represents a 5.6 percent increase over last year.

Great and crucial tasks have been placed before the republic's power engineers by the 1984 plan for accelerating the scientific-technical progress in the sector, for the widespread introduction of achievements in science and technology and foremost experience into production, for the fulfillment of tasks presented in the integrated target programs "Energokompleks," "Trud," "Materialo-yemkost'," for the creation of a sectorial system of diagnostic provision for the purpose of intensifying the reliability of equipment operation, and for increasing the economic effectiveness of power production.

The specific expenditure of specific fuel for the production of electrical power is to be reduced by 2.1 g/kW·hr, which is equivalent to freeing 380,000 tons of the specific fuel. For purposes of ensuring the rational application of fuel-energy resources, it is necessary to take all measures for economical expenditure of residual oil on coal equipment, for transition in 1984 to burning natural gas at the Ladyzhin, Burshtyn, and the 2nd phase of the Uglegorsk GRES, for rapid operational development of newly introduced power units at atomic power stations, for increasing the thermal output of electrical power, and for fulfillment of the plan on disassembly of outdated, uneconomical equipment.

Control over the rational application of electrical and thermal energy by consumers must be everywhere intensified. This will facilitate an increase in the reliability of energy provision and will make it possible to ensure the fulfillment of the 1984 plan on the whole throughout the national economy -- to reduce the expenditures of energy by 1.5 percent per unit of national income. One of the most important steps in this direction must be the experimental operational introduction of automated systems of control and management of the conditions of power consumption by enterprises in the city of Kiev.

It is necessary to continue work directed at improving repair servicing of electrical power stations, at further expanding the introduction of repairs on electrical power networks which are energized, at ensuring the timely implementation of all planned measures for protecting the environment, and at eliminating the bottlenecks and preparation of all of energy management for work in the fall-winter period of 1984-1985.

In accordance with the given equipment operation conditions, labor productivity throughout the UkSSR Minenergo is to be increased by one percent in the current year. Due to the introduction of measures for increasing the technical level of production and improving labor organization, 1,570 persons of the industrial-production personnel will be liberated, and 1,700 workers will be transferred from manual to mechanized labor. In implementing the practical realization

of the resolution by the CPSU Central Committee, "On the Further Development and Increased Effectiveness of the Brigade Form of Labor Organization and Stimulation in Industry, this form of labor will encompass 18,700 persons at the start of the Five-Year Plan, with a plan assignment of 18,000 persons. Work will continue on the social development of collectives in the sector. Seventy-six new facilities associated with solution of the Food Program will be introduced into operation, including five hog-feeding stations for 2,000 head, 30 hothouses with overall area of 5.1 Ha, 16 rabbit hutches for 1,900 head, and six poultry houses for 2,400 birds.

For purposes of improving the residential-domestic conditions of the workers, the construction of over 147,000 square meters of residential housing, two kindergartens for 640 pupils, a music school for 312 students, and a number of trade and public dining facilities is planned for 1984 according to the title sheets of the UkSSR Minenergo alone.

The successful realization of such an intensive program requires the mobilization of the efforts and skills of all workers in the sector, the further implementation of measures for increasing the level of personnel work, the development of a regional system of personnel training with the aid of computers, the intensification of state, labor and executive discipline, as well as high demands and personal responsibility by the work force for the assigned work. V. I. Lenin often spoke of the necessity of "working tirelessly on creating discipline and self-discipline, on strengthening organization, order, and matter-of-factness everywhere...". These words of Lenin must become the guiding force for action by each worker in the sector.

The materials and resolution of the December (1983) Plenum of the CPSU Central Committee stress that it is very important not to lose the pace which has been set, the general positive attitude toward the work, to be more persistent and sequential in continuing work on increasing the level of economic management, and to more actively develop the positive tendencies in growth of production effectiveness. Guided by Lenin's requirement on the necessity of organizing the work in such a way as to obtain the best results with the least expenditures, it is necessary in all collectives to ensure the timely implementation of the ratified organizational-technical measures, to continue efforts at improving analytical work, and to strengthen cost accounting and prevent unproductive expenditures. Claims work on fuel must be significantly intensified at TES.

It is necessary to broadly develop organizational and mass-political work at all levels of management toward mobilizing the labor collectives for active utilization of intra-production reserves in order to fulfill the plan and the party's extra-plan assignment -- the provision in 1984 of a one percent above-plan increase in labor productivity and an additional 0.5 percent reduction in product cost.

As V. V. Shcherbitskiy, member of the CPSU Central Committee Politburo and first secretary of the Ukrainian Communist Party Central Committee, indicated at the January (1984) Plenum of the Ukrainian Communist Party Central Committee, it is necessary to be more persistent in improving the style and methods of

management, to concentrate our main attention and all our efforts on viable organizational work directly at the labor collectives and on rendering them practical aid. Utilizing the labor and political uplift caused by the decisions of the December (1983) Plenum of the CPSU Central Committee and the Ninth Session of the USSR Supreme Soviet, it is necessary to everywhere ensure the further development of creative initiative by the personnel, to improve the organization and practice of summarizing socialist competition, and to increase the mobilizing and educational significance of moral and material stimulation of the competitors.

In answer to the call by the CPSU Central Committee, the collectives at the power enterprises of the Ukraine have broadly expanded socialist competition for fulfillment and over-fulfillment of the 1984 plan and the tasks of the five-year plan as a whole. They are making every effort to ensure reliable power supply to the national economy. Following the example set by the initiator in competition between power engineers -- the Tripol'skiy GRES -- they have accepted high socialist responsibilities and are persistently working toward their fulfillment.

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NON-NUCLEAR POWER

SYNOPSIS OF ARTICLES IN ENERGETIKA I ELEKTRIFIKATSIYA

Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 1, Jan-Mar 84 (signed to press 27 Feb 84), inside back cover

UDC 621.187

INCREASING THE EFFECTIVENESS OF ASH TRAPS IN LARGE POWER BLOCKS

[Synopsis of article by Ye. K. Yakushin and E. A. Grablyuk, pp 6-8]

[Text] The article examines the results of reconstruction of an electric filter intended for the purification of flue gases from a large coal-dust kettle. Test data are presented and the operational experience of gas purification apparatus after reconstruction is illuminated. The article is intended for engineering-technical workers at electrical power stations and workers at project design organizations and plants producing the equipment. 2 tables, 2 illustrations.

UDC 621.181.147.004.69.001.4

A STUDY OF THE OPERATION OF RECONSTRUCTED PVD [possibly air pressure indicators]

[Synopsis of article by R. A. Popkova and S. L. Flos, pp 9-10]

[Text] The optimal operational conditions of desuperheaters engaged according to the scheme of Rikar-Nekol'nyy-Datskovskiy are illustrated. An evaluation of the economic effectiveness of modernization is given for PVD of a 200 MW power block built according to the design of the UralVTI [Ural Branch of the All-Union Order of the Labor Red Banner Thermotechnical Institute imeni F. E. Dzerzhinskiy]. 1 table, 1 illustration, 3 references.

UDC 621.311.21-501.04

EFFECTIVENESS OF PUMPED STORAGE IN REDUCING START-UPS OF BLOCK EQUIPMENT

[Synopsis of article by Yu. A. Vikhorev and S. I. Potashnik, pp 24-25]

[Text] It is shown that pumped storage, being one of the most realistic methods today for transforming excess non-peak electrical power into peak

power, is an effective method for reducing start-ups, and consequently of increasing the reliability of block equipment. To achieve the allowable number of start-ups, it is necessary to unload the AES [atomic power station] more deeply than is done in charging the GAES [hydraulic accumulator power station]. 1 illustration, 2 references.

UDC 621.316.925

OPERATIONAL EXPERIENCE IN PROTECTION AGAINST SHORT-CIRCUIT TO GROUND

[Synopsis of article by V. V. Maslyanik, A. Ye. Bogachenko, V. A. Poznakhirko, D. Ya. Bedulev, pp 26-27]

[Text] The article presents materials on the constructive design of special fuses necessary for installation of zero series current transformers on overhead lines equipped with protection against short-circuit to ground. A fuse design consisting of three separate wires is proposed. A special scheme for testing protection against short-circuit to ground is described with the aid of which conditions are artificially created which are analogous to those which occur in protection circuits at the moment of short-circuit to ground. 2 illustrations.

UDC 621.311

DETERMINING THE ACTUAL ERRORS OF TT DZSh [expansion unknown] UNDER CONDITIONS OF EXTERNAL K.Z. [short circuit]

[Synopsis of article by L. G. Andryushchenko, pp 27-29]

[Text] The article examines the practical methods of determining the error of TT of a multi-coil differential 220 kV bar protector in a transitional mode of external k.z. Data are presented on the value of TT error for certain connections (having the greatest error) of the DZSh scheme in the presence or in the absence of an aperiodic component in the short-circuit current and residual magnetization of the TT magnetic leads. An analysis of the functioning of the DZSh relay apparatus is performed with existing errors and practical recommendations are given for increasing the reliability of their functioning. 1 table, 1 illustration, 2 references.

UDC 621.311.16

COMPUTATION OF ELECTRICAL POWER LOSSES IN ELECTRICAL DISTRIBUTION NETWORKS

[Synopsis of article by A. A. Potrebich, N. S. Ovchinnikova, pp 29-30]

[Text] A comparison is made between the methodologies for determining losses of energy in distribution networks. The results are obtained as computed for the actual network of the Belogorskiy RES [Regional Electrical Power Station] of Krymenergo. 1 table, 1 illustration, 3 references.

CONTACTLESS COMMUTATION OF INCANDESCENT LAMPS

[Synopsis of article by Ye. I. Malakhovskiy, pp 30-33]

[Text] The problems arising with contact-free commutation of incandescent lamps used in devices for transmitting information from power objects are examined. A scheme for two-step lamp commutation is described which makes it possible to increase the reliability and application factor for contact-free commutators and to lengthen the service life of these lamps in signaling light elements. Based on these studies, the optimal parameters of the developed commutation scheme are determined. 2 illustrations, 4 references.

UDC 621.395.49

INFORMATION DELAYS IN TRANSMITTING DATA OVER BUSY DISPATCH CHANNELS OF POWER SYSTEMS

[Synopsis of article by V. F. Skryl', A. G. Balyun, pp 42-44]

[Text] The obtained formulas are presented for computing informational delays in transmitting data over busy dispatch channels of power systems. Schedules for changes in information delays are given for real dispatch channels depending on the changes in the channel's telephone load. Schedules of relative reduction in information delays are presented when data are transmitted within pauses of the speech signal as compared with the method of data transmission only within breaks between busy channels. 4 illustrations, 4 references.

UDC 666.593.2

PROGRESSIVE DESIGN OF SUPPORT-TYPE INSULATORS AND THE TECHNOLOGY OF THEIR PRODUCTION

[Synopsis of article by B. I. Gaydash and V. A. Aleko, pp 54-56]

[Text] Designs of support-type insulators developed on the basis of unified insulating elements are described, and the basics for the technology of their industrial production from electrotechnical porcelain and glass are given. 1 table, 2 illustrations, 9 references.

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