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USSR Report

ENERGY

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USSR REPORT

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OIL AND GAS

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ECONOMIC EXPERIMENT EXTENDED TO GAS INDUSTRY

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 2, Feb 85 pp 2-4

[Article by Ye. K. Selikhova, chief, Economic Planning Administration, and member, Ministry of Gas Industry governing board: "Economic Levers of Control: Practice, Tasks"]

[Text] Considering the unfavorable influence exerted by natural factors, by changes in the production structure and by the faster rate of growth of fixed capital in comparison with growth of production volume, raising the effectiveness of gas industry would require a systems approach to introducing a complex of mutually associated measures to hasten scientific-technical progress, to improve planning, economic stimulation, financing and material-technical support, and to improve capital construction.

In recent years the sector did a great deal of work to form the basic directions of economic and social development of gas industry in 1986-1990. The technical-economic justifications and multivariant calculations that have been carried out prepared the foundation for drafting the 12th Five-Year Plan in relation to all directions of the ministry's activities.

It should be emphasized that the extremely complex program for intensively developing extraction of gas and condensate in West Siberia, for making new gas chemistry complexes operational at deposits of the Caspian basin, for developing oil deposits in the country's shelf zone, for developing gas transportation and for widening the network and volumes of underground reservoirs must be carried out with minimum outlays of money, materials and labor. The influence of negative factors upon technical-economic indicators will grow in intensity concurrently.

As in previous five-year plans, the tendency for gas extraction to move into ill-equipped regions of West Siberia, characterized by complex natural and climatic conditions, will continue to persist, as will the tendency for gas extraction centers to move farther away from the regions of consumption.

Consideration should also be given to change in the sector's production structure. The volume of industrial gas processing and of oil and condensate

extraction is growing sharply. This is happening at a time when a high mean annual increase in gas extraction must be preserved.

The proportion of new output capacities created to replace those being shut down in connection with natural depletion of their reserves in individual deposits and in entire regions is continually growing in practically all rayons. As a result of "aging" of the deposits, about half of the capital investments into oil and gas extraction are being earmarked to support the attained level.

By the end of the current five-year plan fixed productive capital will achieve a worth of 57 billion rubles. The expenses of renovation and overhaul will grow significantly in connection with the wear of this capital.

In the 12th Five-Year Plan, growth in the cost of fixed productive capital will significantly surpass growth of production volume.

The sector's economic services must correctly assess the serious changes which are occurring in gas industry, determine the key issues upon which improvement of the technical-economic indicators of the enterprises and associations depends, make a proper assessment of them and determine the paths of work in the future.

At the present stage, three basic directions should be distinguished in our activities: improving the system of planning and evaluational work indicators at the ministry-association level; introducing khozraschet into brigades, sections, shops and services; achieving direct participation in justifying the economic indicators of plans for developing and equipping deposits, building new facilities and seeking ways of comprehensively improving them.

First of all we need to find those levers and stimuli which would make it possible to most effectively utilize the enormous technical production and economic potential that has been created: the fixed productive capital and the labor, material and financial resources. Economic standards and limits were introduced into planning practice in recent years: A limit on outlays and a maximum level of material outlays per ruble of salable products are being set in industry; standards are also being set in gas transport on the cost of 10,000 m^3 of gas and the material outlays associated with 10,000 m^3 of gas.

Application of economic standards and limits in combination with stimulation is the most important direction of development of new business management methods; this direction is being continually improved.

An economic experiment was initiated in January 1984 in five industrial ministries--the UkSSR Ministry of Heavy Industry, Ministry of Electrical Engineering Industry and Ministry of Food Industry, the BSSR Ministry of Light Industry, and the Lithuanian SSR Ministry of Local Industry. In accordance with the terms of the experiment a limited number of indicators, differentiated with regard for the particulars of the work of the corresponding sectors, are being approved in the five-year and annual plans of the enterprises. The activities of enterprises participating in the experiment are being assessed

on the basis of product sales volume in accordance with delivery obligations, with regard for quality and deadlines foreseen by the signed agreements. The appropriate measures of material incentive and responsibility have been foreseen. Thus for every percentage point that the product sales plan is not met with regard to delivery obligations and signed agreements (or orders accepted for filling), material incentive funds will be reduced by 3 percent, while when agreements are fulfilled in their entirety, these funds will be increased by 15 percent.

Certain economic demands were imposed upon the enterprises in accordance with the experiment: All production growth must be achieved without increasing the number of workers, the labor productivity growth rate previously enjoyed must be maintained (as a minimum), and all steps must be taken to increase production volume. For this purpose the wage fund is formed on the basis of economic standards set as a rule on the basis of the condition that the entire increment in production must be achieved through growth in labor productivity, and that the established ratios between growth in labor productivity and growth in average wages must be observed. This means that enterprises at which production volume is decreasing must continually lay off personnel in order to maintain the attained level of average wages and to increase them. The experiment also foresees advance payments from an additional wage fund to cover the wages of workers involved in getting new output capacities ready for operation; later on, these advances are to be paid back.

Under the terms of the experiment the possibilities the enterprises have for reequipping their operations through their own resources have widened.

In order to intensify the the influence of the new economic mechanism upon acceleration of scientific-technical progress, in the immediate future the products of machine building sectors involved in the experiment will be subjected to state certification in two categories--top and first, which will significantly raise the demands on the technical level of the products. Moreover the requirements on the quality of new products are rising: As a rule these products must be in the top quality category.

Considering that the new conditions are having a positive influence upon the results of economic activity, a decision was made to extend, in 1985, the administrative conditions foreseen by the experiment to enterprises of machine building, to food and light industry, to local industry and to personal services to the public. In all, 26 union and republic ministries will be working under the terms of the experiment.

Preparations have also begun in the Ministry of Gas Industry. Calculations now being made will permit us to verify the acceptiblity of the basic provisions of the experiment to gas industry with regard for the unique features of the work of gas and oil extracting, gas refining and gas transportation enterprises. It may be possible that individual provisions will be modified, but obviously the orientation of the experiment toward raising the effectiveness of the work of the enterprises and organizations will provide a possibility for developing a more effective system for the sector's economic control.

Introduction of the new methods of planned management will produce the best results if we are able to combine the economic experiment "from above" with development of khozraschet at the grass-roots level. Khozraschet improves labor organization and production, promotes revelation of reserves for reducing outlays and improves the work indicators of main and auxiliary production. Khozraschet is most effective when it operates beginning with the lowest units--services, brigades, shops--and when it embraces all levels of management.

Efforts conducted at the sector's enterprises since 1983 to improve internal khozraschet in shops, services and brigades of industrial, pipeline transport and construction enterprises produced certain positive results. In subdivisions converted to khozraschet the efforts to standardize consumption of materials, fuel and energy resources were intensified, primary accounting of the fulfillment of khozraschet indicators was improved, and the indicators and terms of bonus payment were tied in with planned khozraschet indicators. Besides khozraschet personal accounts determining the basic planning quotas, personal economization accounts have been opened up for the shops, services and brigades. The norms for consumption of material resources and actual consumption as related to production volume are accounted for on a monthly basis in these personal accounts. These documents are the basis for paying bonuses to collectives for economizing on individual types of material resources.

Now that internal khozraschet has been introduced, the need has arisen for improving the organizational structure of production control. Thus in the Nadymgazprom and Ukrgazprom associations, operational and production services involved in gas extraction were reorganized into field services. The Nadymgazprom Production Association created brigade-watches, while other associations created integrated brigades for oil field equipment operation. More brigades are now being created in pipeline gas transport; they are integrated and specialized depending on the unique features of production. A tendency toward larger brigades has been noted, especially in internal contracting activities. percent of the workers are now involved in the brigade form of organization and stimulation of labor in industry, gas transport, drilling and construction, as compared to 53.3 percent at the beginning of 1983.

At the same time in some associations and enterprises internal khozraschet has not gone beyond the level of shops and services.

The tasks of introducing khozraschet at the lowest levels in the Glavvostoktransgaz, Glavyugtransgaz, Turkmengasprom, Soyuzuzbekgazprom, Urengoygazdobycha, Komigazprom and Yakutgazprom associations are not being completed satisfactorily. The executives of these associations and main administrations are not devoting adequate attention to introducing internal khozraschet. The technical and production-technological departments of the enterprises and of the services of the chief mechanic and chief power engineer are hardly participating in this work at all, and supply departments are not bearing responsibility for prompt, complete and quality provision of all resources needed by brigade workers. In a number of associations, khozraschet indicators have been set for grass-roots units, but bonus payment

provisions have not been foreseen, and a clear accounting of fulfillment of these indicators is not being maintained.

In most cases when khozraschet is introduced, attention is focused on the main production operation, and consideration is not given to the significance of auxiliary operations and services--mechanical repair shops and services, motor transport enterprises and steam, energy and water supply shops, which are often to blame for production failures. This is keeping us from making use of an important khozraschet lever of production control--imposing sanctions for failure to observe mutual obligations between subdivisions.

In the last 2 years a great deal of experience in introducing khozraschet was accumulated and the methodological problems were basically solved at the base enterprises with the active participation of permanent work groups. Universal application of this experience depends entirely upon the way this work is organized in the associations and enterprises. There are all grounds for completing introduction of khozraschet into the principal units in 1985.

Besides making the most effective use of the created production potential, the sector's economic services must make a more careful analysis of the technical-economic indicators of new facilities, new equipment and progressive production procedures, which will determine the economics of the 12th and subsequent five-year plans. The associations now play the role of clients for construction plans, and it is with their direct participation that planning quotas are formed. Many times, trying to build more facilities, they forget about the future cost of new fixed capital and about the influence of the latter upon product cost, profitability and the output-capital ratio. Planning institutes use old standards to determine the size the work force of new facilities, where progressive highly productive procedures and improved technical resources are employed.

The USSR Gosplan adopted new values for the final outlays on fuel and energy to be used in technical-economic calculations. The final outlays on gas significantly raise the effectiveness of gas industry within the country's fuel and energy complex. But assessment of economic effectiveness of new plans only on the basis of final outlays does not insure full orientation toward production intensification. We must also assess economic effectiveness in terms of wholesale prices, so that the particular work results of the enterprise, the region and the sector concerned with introducing new facilities and employing new equipment and progressive procedures could be determined.

Under these conditions, more-active interference in the economics of drawing up plans, outfitting deposits and building new facilities will make it possible to activate the efforts of scientific research and planning institutes aimed at making use of labor-saving and energy-saving procedures, creating production operations requiring the least materials and capital and developing economical technical decisions and effective new equipment. A firm consistent line must be pursued in regard to these issues: All innovations must improve the attained indicators.

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ACHIEVEMENTS, GOALS OF UKRAINIAN COAL INDUSTRY DISCUSSED

Kiev UGOL' UKRAINY in Russian No 1, Jan 85 pp 1-6

[Article by N.S. Surgay, first deputy minister, UkSSR Ministry of the Coal Industry: "The Ukraine's Coal Industry in the Final Year of the 11th Five-Year Plan"]

[Text] During the fourth year of the 11th Five-Year Plan, socialist competition to increase labor productivity and reduce production costs, and for a worthy greeting of important dates in the history of our country--the 40th anniversary of the Great Victory and the 50th anniversary of the Stakhanovite movement--was developed extensively among the mining collectives in our republic. Having embarked on the labor watch, the foremost collectives of 137 mines and open-pit mines extracted 9.2 million t of above-plan coal in the first 11 months of 1984. Steady work was done by the Donetskugol', Sovetskugol', Krasnoarmeyskugol', Shakhterskantratsit, Roven'kiantratsit, Sverdlovantratsit and Aleksandriyaugol' associations, which produced 3.3 million t of above-plan coal. At UkSSR Minugleprom's [Ministry of the Coal Industry] existing mines, 28 new levels and 1,053 longwalls were prepared and began to be exploited and 2,682 km of workings were driven which is 57 km more than specified in the plan and includes 1,827 km of stripping and preparatory workings. The average active number of complexly mechanized faces was increased to 8, and the level of extraction from them increased to 62.6 percent.

The front ranks of the competitors include the collectives of the Donetskugol' association, the Krasnolimanskaya Mine imeni 50-letiye Velikoy Oktyabr'skoy sotsialicheskoy revolyutsii (the Krasnoarmeyskugol' association), the Mine imeni Izotov (Artemugol'), the Mine imeni Izvestiya (Donbassantratsit), the Mine imeni 60-letiye SSSR (Sverdlovantratsit), the Mine imeni Stashkov (Pavlogradugol') and others that gained first place in the All-Union Socialist Competition.

A special place in improving production efficiency is occupied by those progressive collectives that achieved a daily extraction level of 1,000 t or more from the working faces. Those crews mined 40.2 million t of fuel, of which 3.4 million t was above plan. The Young Komsomol collectives led by V.I. Ignate'yev (the Krasnolimanskaya Mine), V.I. Polishchuk (the Krasnyy Partisan Mine, Sverdlovantratsit), A.D. Polishchuk (the Trudovskaya Mine, Donetskugol'), V.I. Yerokhin (the Belozerskaya Mine, Dobropol'yeugol') and others are rightfully called the best of the best.

Workings are being driven at a high rate of speed by 291 crews. The best results among them were achieved by the collectives headed by B.P. Voroshilov (the Tsentral'naya Mine, Krasnoarmeyskugol'), V.I. Pavlov (the Mine imeni Izotov, Artemugol'), A.A. Overchenko (the Mine imeni Frunze, Roven'kiantratsit) and V.M. Vernigorov (the Pavlogradskaya Mine, Pavlogradugol').

A total of 362 miners fulfilled their personal five-year plans ahead of schedule, including N.M. Kholostykh from the Mine imeni Dzerzhinskiy (Dzerzhinskugol') and F.M. Kushch from the mine imeni Izotov, who are already digging coal for the 13th Five-Year Plan.

However, while giving these leaders the proper recognition for their selfless labor, it should also be admitted that not all collectives are yet working up to the full extent of their capabilities and that inadequate use is being made of production reserves, reserves for increasing labor productivity, and progressive experience. The rates of improvement of the technical level of mines and renovation of mine resources are inadequate to overcome the negative effect on the technical and economic indicators of the branch's work of the natural deepening of the workings and the deterioration of the geological conditions.

In the last 10 years the average depth of the workings has increased almost 150 m and now exceeds 600 m. In the Mines imeni Skochinskiy, imeni Bazhanov and imeni Stakhanov and the Progress Mine, work is now being done at a depth of 1,000-1,200 m. The number of these mines is continually growing. The number of mines where there is a high risk from methane and where beds are being worked where there is a danger of sudden blowouts and mine shocks has reached two-thirds of the total number of active mining enterprises, the number of beds prone to sudden blowouts has almost doubled, there has been a significant increase in the number of faces where the temperature exceeds the norm if measures are not taken to reduce it, and the stability of the surrounding rock has deteriorated. The ever more increasingly complex geological conditions, the slow renewal of our mine resources, and inadequacies in the organization of production processes are creating a certain tension in our branch's work.

By analyzing the effect of negative phenomena on the coal industry's work and taking the experience of progressive mining collectives into consideration, it is possible to name the main problems that must be solved if our branch is to work successfully in the final stage of the 11th Five-Year Plan.

One of the crucial problems in the development of our economy is the acceleration of scientific and technical progress. Here are the basic reserves for increasing the effectiveness and improving the quality of the work of the entire national economy and, in particular, the coal industry, where technical progress is becoming essentially the only factor capable of exerting a positive effect on the dynamics of the indicators. It is only technical progress in all underground extraction processes, together with renewal of our mine resources, that can solve the long-term problems and have a deep and positive effect on many questions concerning the energy program.

Along with new construction, the main direction for the coal industry's further development is technical modernization of the existing mines. The Donbass is the oldest coal basin in the country and two-thirds of its mine resources were constructed in the prewar years, which makes it impossible to make effective use of new and highly productive equipment at the faces because of the presence of narrow places in the production workings. Therefore, technical reequipping and modernization are solving the problem of improving our mine resources and mine management, introducing progressive equipment and technology, and modernizing and replacing obsolete and physically worn-out equipment with new and improved models in order to insure intensification of production and an increase in coal extraction.

More than 3 billion R of capital investments were provided for these purposes in the 11th Five-Year Plan. We have already begun to exploit 205 levels with a total working face of more than 40.9 km. The introduction of new coal extraction capabilities has been insured, and the existing Dolzhanskaya-Kapital'naya Mine imeni Stashkov, the Medvezheyarskaya Mine and the second stage of the Komsomol'skaya Mine have gone into operation. The modernization of the Novodzerzhinskaya Mine was finished ahead of schedule. We have completed 498 technical reequipping projects, and more than 1,100 km of capital underground workings have been driven in existing mines. We have finished driving 39 vertical shafts. At a number of mines this work has made it possible to increase the capacity of hoists and surface production complexes, improve ventilation and power supply systems, modernize underground transport, introduce modern facilities for the complex mechanization and automation of production processes, and improve the miners' working conditions.

Great and critical tasks for the introduction of capacities and the modernization and improvement of mine management at existing mines must be carried out in 1985. Plans have been made for 1.42 billion R of capital investments, including 702.8 million R of construction and installation work. The effective investment and timely assimilation of these means will make it possible to eliminate bottlenecks in 17 mines, put into operation the existing first stage of the Yuzhnodonbasskaya No 3 Mine, complete the modernization of the Donbassantratsit association's Mine No 21, finish driving 14 shafts, bring into use 49 new levels, 32 main ventilation fans, 3 stationary cooling and 2 degasification units, and implement an extensive start-up program of projects of a social and domestic nature.

One of the important areas for technical progress in the branch is the improvement of mine management. At the present time, 55 percent of the working faces have been converted to column development systems, with the level of extraction from them having reached 69 percent, whereas for the columnless method the figure is 66 percent.

The volume of introduction of progressive technological methods has increased significantly. During the years of this five-year plan these methods have been used to prepare 130 extraction districts. An analysis of the operations in them shows that the average daily production from them increased by more than 50 t.

In order to increase the transport and ventilation traffic capacity of workings and insure repairless maintenance, the cross-sectional area of workings that are being driven has been increased. For instance, in the 11th Five-Year Plan the cross-sectional area of stripping and preparatory workings was increased by 0.6 percent, to an average of 9.6 m^2. As a result of the driving of workings with large cross-sections, the use of progressive methods for preserving them, and the introduction of substitutes for wood for timbering in the branch's mines, there has been a constant reduction in the proportion of workings that are substandard.

Underestimating the quality of planning decisions for the development of mining work reduces sharply the possibility of the effective exploitation of new technology and an improvement in the miners' productivity and safety. There still remains a great deal of work to be done to expand the use of the column system for working beds 0.71-0.9 m thick and for the efficient utilization of complexes on a new technical level (KM-103, KD-80). It is necessary to expand the use of the column system in beds where there is a danger of blowout and where only 35 percent of the faces are being worked by this method, even where the dip is a gentle one. This is caused by the lack of safe and highly productive techniques for driving preparatory workings for these beds.

A further improvement in preparation methods and development systems for deep levels, for the purpose of localizing the harmful effect of increased mine pressure, a high gas content in the beds and high temperatures in the wall rock, will be realized on the basis of field preparation of sloping and inclined fields, the outstripping development of relief longwalls, progressive technological systems with separate dilution of harmful substances at the sources from which they emanate, and a changeover to the preparation of columns with coupled drifts.

One of the basic factors determining the stability of the operation of any mining enterprise is an adequate and high-quality stock of working faces, including those in reserve. Experience indicates convincingly that the successful operation of a mine over an extended period of time is possible only when there is timely renewal of the line of working faces. This problem can be solved by the correct organization of shafting work and unremitting attention to this work on the part of the leaders and all the mine and association services. The area of utilization of entry-driving machines should be expanded and there should be an increase in the cross-sectional area and the rate of driving of workings.

Fast shaft-cutting crews make a significant contribution to the timely preparation of longwalls. In the 11th Five-Year Plan the number of shaft-cutting crews working in the high-speed mode increased unfailingly and reached 291. These crews drive up to 32 percent of the total amount of stripping and preparatory workings. The highest level of high-speed cutting was achieved at mines belonging to the Torezantratsit (40.8 percent), Shakhterskantratsit (40.7), Roven'kiantratsit (63.1 percent) and Pavlogradugol' (46.6 percent) associations.

The level of machine cutting of workings reached 30.8 percent, although this indicator is only half the level of complex mechanization of face work and is

considerably lower than for the country's other coal basins. The main reason for this is that there are no series-produced entry-driving machines capable of effectively fracturing rock that is stronger than 4-6 on the Protod'yakonov scale; that is, under the conditions that are most typical for most of the mines in the Ukraine. The area of utilization of the series-produced machines is on the threshold of being exhausted.

Further expansion of the machine driving of workings is being planned on the basis of the use of entry-driving machines of the 4PP-2Shch heavy type (for beds where there is a danger of blowout), the 4PP-5, KRT and GPK-4 and the KN-78 cutting complex, all of which are being built. In addition to these machines, the branch's shaft cutters expect the designers and machine builders to finish as rapidly as possible their work on other equipment: the PMK-3 loader, the B-100--200 and B-68K machines and others.

Even now, however, there are capabilities and reserves for improving all the shaft-cutting indicators through the efficient utilization of our fleet of entry-driving machines, the staffing of our crews of mechanics with qualified personnel, engineering support at the faces, the extensive dissemination of the progressive experience of high-speed crews, and the widespread introduction of facilities for the mechanization of manual labor. Technical reequipping at the working faces is continuing during the 11th Five-Year Plan. At the beginning of 1984, more than 140 operating faces had been equipped with complexes on a new technical level, including the KM-87um (62 faces), KM-88 (71), KMT (4), UKP, 1KM-103 (4) and KGU (3). The level of extraction from fully mechanized longwalls rose to 62.6 percent, as opposed to 57.7 percent in 1980. In the mines in this republic, every fifth fully mechanized face is located in unstable wall rock, and 60 percent in beds up to 1.2 m thick operate with 'prisechka' [cutting of the undesirable] wall rock. Therefore, in 1982-1983 it was specified that 85 1KM-103 complexes be manufactured in order to work thin, sloping beds that were 0.75-0.95 m thick, which would have given us the capability to reduce the number of longwalls with 'prisechka' of the wall rock, increase the load and the extraction of coal from totally mechanized faces, and improve its quality. It is necessary to mention here that a number of assignments for the mastery of the series production of the new complexes have been carried out with a delay of several years. The KMK-98 complexes have been recommended for series production since 1982, but to this day the Kamenskiy machine plant has not begun to manufacture them. The changeover to the series output of KD-80 complexes was delayed. Because of defects that were discovered during the testing period, it had to be redesigned. The plants are not producing KM-103 complexes at full speed. Right now there are 18 in operation, and in 1985 we expect to receive 22 1KM-103 and 13 KD-80 complexes.

When solving the problems involved in complex mechanization of the working faces, special attention should be given to raising the level of mechanization of all the production processes in the technological chain. For instance, a heavy proportion of manual labor is required for the preparation of niches at the working faces. At the same time, 90 faces are being worked without niches at the mines. There exists a real possibility of expanding the amount of nicheless technology by using self-notching combines and two-combine extraction.

Much is being done to reduce the amount of manual labor being performed and to mechanize auxiliary operations. In the mines we have introduced 52 KPM-8 timber-installing machines, 70 PLK timber-transportation units and 71 machines for cleaning cars. At 11 mines we have realized integrated plans for mechanizing the auxiliary processes, and at 14 we are using containerized package delivery of freight. Seven complexly mechanized warehouses and four mechanized flow lines are in operation. The increase in the mechanization of basic and auxiliary processes made it possible to carry out the planned assignments for reducing the amount of manual labor in the branch and to raise the level of mechanized labor to 35 percent.

An integrated approach to the solution of the problems involved in mechanizing labor-intensive processes, the scientific organization of labor, and the effective utilization of mining equipment and progressive experience give us an opportunity to achieve high indicators in our work. For a number of years the thousand-ton-a-day crews have been in the forefront of the socialist competition among extraction collectives. There are 95 such crews that overfulfilled their extraction plan by 10 percent. The assignments for the number of "thousand-tonners" were carried out by the Donetskugol', Shakhterskantratsit, Torezantratsit and Pavlogradugol' associations.

Of the "thousand-tonners," 15 collectives vowed to extract 500,000 t or more of coal in 1984. The half-million ton mark was exceeded by the crews led by USSR State Prize laureate V.I. Ignat'yev (the Krasnolimanskaya Mine, Krasnoarmeyskugol' association), Hero of Socialist Labor and UkSSR State Prize laureate A.D. Polishchuk (the Trudovskaya Mine) and V.I. Yerokhin (the Belozerskaya Mine).

The experience of 159 crews producing 500-700 t or more of coal from sloping and tilted beds up to 1.2 m thick deserves broad dissemination. In 1984 they extracted 36.6 million t of coal, including 2.6 million t more than was planned.

The leading mining collectives are given the opportunity to work efficiently because of the high level of mechanization of the basic and auxiliary work; general educational and professional training of the workers; carefully thought out production technology and organization; creative and inventive activities on the part of collective members; political consciousness; irreproachable labor discipline; a feeling of collective responsibility for the fulfillment of plans and obligations; a constant readiness to come to the aid of a labor comrade. All of these elements of a communist attitude toward labor are the result of the comprehensive and unremitting work done by party, trade union and Komsomol organizations and economic leaders.

At the present level of technical equipping of the mines and open-pit mines, questions of strengthening labor and production discipline are of great importance. Even the smallest disruption of it or deviation from the technological production conditions inflicts significant economic damage, disrupts the rhythm of the work, and is accompanied by losses in the extraction of coal. Under the conditions of scientific and technical progress in the branch, the value of working time is increasing, the interrelationship and

interconditionality of labor processes are intensifying, and the degree of responsibility of everyone for the collective's business is increasing.

Practice shows that the higher the level of organization of production and labor at an enterprise, the more effect it has on strengthening discipline (labor, technological, production). In order to strengthen labor discipline it is necessary to implement a complex of measures aimed at reducing outlays of manual labor and increasing its attractiveness and safety for all technological processes. Integrated NOT [scientific organization of labor] plans must be developed and introduced at all working places, sections and enterprises for the purpose of improving the utilization of working time and increasing labor productivity. Working and leisure conditions must be put in good order and there must be strict observance of established output schedules. A system for monitoring and analyzing the state of labor discipline must be introduced.

It has been assumed that most unfortunate cases in the production process occur because of organizational reasons and disruptions of discipline, and this is actually true. When a deeper analysis is made, however, one becomes convinced that there is a causal relationship between engineering preparations for production and the solution of engineering problems and technological and personal discipline. Without having solved the individual problems in the engineering and technological plan, normal conditions at the working place cannot be fully guaranteed. Therefore, UkSSR Minugleprom's board and the production associations' councils have intensified their monitoring and organizational work for the purpose of implementing the planned complex of measures for improving the status of mining management and safety precautions.

In the course of their realization at mines in the Ukraine, we have implemented large-scale engineering measures for technical reequipping, the improvement of mine management and the status of our stock of mines, workings and ventilation equipment, and intensification of the struggle against sudden blowouts, dust formation and high temperatures. For the normalization of heat conditions in deep mines alone, in the 11th Five-Year Plan we have built 16 stationary cooling units, introduced 260 portable air conditioners and manufactured 130 end-type air-cooling units, which made it possible to reduce the temperature to normal at 793 faces.

The introduction of modern complexes of machines and mechanisms, the continuous improvement of coal extraction technology, the improvement of the organization of production, and the heightening of labor discipline made it possible to improve the miners' working conditions and increase the safety of mining work, and reduce production injuries and profession-related sickness. In 1985 we will implement a series of engineering and preventive measures to prevent accidents caused by cave-ins and falls of rock in the workings and occurring on underground transport and when working with machines and mechanisms. We plan to complete the certification of working places according to their passport and planning data, improve the effectiveness of the competition for the best section with regard to labor safety regulations, and change over from the "Temporary Regulations on the Unified System of Preventive Work on Safety Precautions and Industrial Sanitation" to a new set of regulations that were developed with due consideration for the experience that has been amassed and the changed conditions in the mines.

The Ukraine's coal industry, which is an extraction branch, requires huge amounts of material and energy resources at the same time. Therefore, the problem of saving resources, even though it appears to be an insignificant portion at first glance, involves some impressive figures in the final account. The saving of 1 percent of the electricity used in a year is sufficient to extract 2.5 million t of coal. Reducing the consumption of rolled metal goods is sufficient for the production of 30 mechanized complexes, and so on.

Every year, the ministry's enterprises and organizations develop and realize organizational and technical measures to save material, fuel and energy resources that insure a reduction in consumption of about 200 million kWh of electricity, 40,000 t of fuel, 250,000 Gcal of heat, 20,000 t of cement and 20,000 t of rolled metal goods and other materials. About 200,000 t of metallic timbering is used repeatedly, along with tens of thousands of tons of metal pipe and rails, hundreds of thousands of bits and cutters, and thousands of tons of industrial and motor oil, saw mill by-products and others.

At 21 mines (52 boilers), gas is collected for burning in boiler rooms, and methods are being introduced for the utilization of gas from degasification when it has a low methane content. Power supply systems are being improved, increased current collector voltages (1,140 V and 10 kV) are being introduced, and mines with steeply sloping beds are being converted from pneumatic drives to electrically driven machines and mechanisms.

At the present time the ash content of the coals being extracted is increasing noticeably and there has been an increase in the amount of development of reserves that are not standardized as to quality, which has caused an appreciable deficit of low-ash coal, and coal of grades T, ARSh and ASh and slurry do not sell well and are accumulating in storage areas. Therefore, it has been decided to burn high-ash coal in the boilers of mines and enrichment factories. Boiler fireboxes are being rebuilt for the burning of coal in a low-temperature "fluidized bed." This makes it possible to burn all the combustible material out of fuel with a high ash content. Experience in operating 11 such boilers at UkSSR Minugleprom's mines has shown that the KPD [efficiency] of a boiler increases by about 10 percent, with the heat productivity increasing by 30 percent. Coal with an ash content of up to 60 percent is burned with adequate efficiency. The expense of equipping boilers with these fireboxes is not great and is recovered in 1-2 years.

Active work is being done to advocate progressive experience and economy, schools for the exchange of experience are being conducted, and we have created and put into permanent operation an exhibit entitled "Economy and Thrift in Things Large and Small," which demonstrates new ways and means for economy that have already been developed and introduced in all areas of economic activity.

All of this is producing a positive economic effect. Nevertheless, it is necessary to mention that the available reserves are far from being used completely and that formalism in the implementation of the planned economy measures is being manifested in a number of cases. The struggle for economy must be reinforced by organizational and technical measures. Primarily, we should reduce energy losses by reducing air leaks when ventilating mines, reduce the losses

of compressed air in pneumatic networks, introduce replacements for scarce and expensive materials more actively, increase the degree of recovery and repeated use of metal timbering, and strive to reduce losses and waste in the production process. The coal industry's workers greeted with great enthusiasm the speech made by Comrade K.U. Chernenko, CPSU Central Committee general secretary and chairman of the USSR Supreme Soviet, at the CPSU Central Committee Politburo meeting of 15 November 1984 and the decisions made at the second session of the USSR Supreme Soviet's 11th convocation.

In response to the party's summons for a specific and energetic search for ways to reduce output cost, curtail unproductive consumption and create assets of above-plan savings, this branch's working collectives assumed socialist obligations to work 2 days in 1985 using saved materials, raw materials, electricity and fuel, which will produce an additional savings of 5.1 million R.

In the history of the development of the Soviet coal industry, socialist competition and the dissemination of the work experience of innovators and progressive collectives have always played a decisive role. It is in the coal industry that the Izotovite and Stakhanovite movement originated and the first communist labor crews appeared. Following the glorious labor traditions of the heroes of the first five-year plans, at the enterprises in this branch there has been extensive development of socialist competition for the fulfillment of annual plans ahead of schedule and for a worthy greeting for the 50th anniversary of the Stakhanovite movement. The collectives of the Mine imeni XXII c"yezda CPSU (Stakhanovugol' association) and the Mine imeni Stakhanov (Krasnoarmeyskugol' association) have issued a call to develop a competition with the motto "To the 50th Anniversary of the Stakhanovite Movement--50 Weeks of Shock Labor!" An appeal to all mines in the republic has been published by the collectives of the Torezkoye sh/u [not further identified] (Torezantratsit), the Kommunist Mine (Oktyabr'ugol') and the Mine imeni Zasyad'ko (Donetskugol'), who have assumed obligations to fulfill the five-year plan by the 50th anniversary of the Stakhanovite movement and to greet this notable date with highly productive labor.

UkSSR Minugleprom's board and the Presidium of the Ukrainian Republic Committee of the Trade Union of Coal Industry Workers are doing a great deal of work to develop an anniversary competition in connection with the 50th anniversary of the Stakhanovite movement. Together with the Ukrainian Komsomol's Central Committee and creative allies, they have worked out a complex of measures in preparation for the celebration and developed the conditions for the conduct of a shock watch with the motto "To the 50th Anniversary of the Stakhanovite Movement--50 Weeks of Shock Labor!" and measures for the moral and material stimulation of the victors in the competition. Obligations to fulfill the five-year plan by the 50th anniversary of the Stakhanovite movement have been assumed by the collectives of 35 mines, 295 extraction sections, 398 extraction and 185 cutting crews and 5,641 miners. For the purpose of further improving the organization of the socialist competition, since the third quarter of 1984 there have been new conditions for the all-union and republic socialist competition that are aimed at improving production efficiency and work quality and the successful fulfillment of the assignments for the 11th Five-Year Plan. The new competition conditions are based on assignments emanating from the CPSU Central Committee's and USSR Council of Ministers' resolution on

observing contractual obligations for deliveries of output and increasing the responsibility of enterprises and organizations and the CPSU Central Committee's resolution on the further development of crew forms of labor organizations, as approved at the December (1983) and April (1984) Plenums of the CPSU Central Committee. Special attention has been given to intensifying the responsibility of competitors for increasing labor productivity growth rates, reducing production output cost and insuring outstripping rates of labor productivity growth over the increase in wages.

UkSSR Minugleprom, together with the Ukrainian Komsomol's Central Committee and the Ukrainian Republic Committee of the Trade Union of Coal Industry Workers, is working constantly to develop socialist competition among collectives of Komsomol members and young workers. Among the young worker-Komsomol collectives that are "thousand tonners," a competition has been organized for the prize awarded by the republic magazine KOMSOMOL'SKOYE ZNAMYA, the Prize imeni Aleksey Stakhanov, the Prize imeni Nikita Izotov (among young miners), the "Heroes of Space" Prize (among young worker-Komsomol collectives working on complexly mechanized longwalls in steeply slanting beds and among cutting crews in mines already in existence and under construction) and for the title "Stakhanovite."

Inspired by the CPSU Central Committee's resolution "On the 40th Anniversary of the Soviet People's Victory in the Great Patriotic War of 1941-1945," a number of collectives of leading mines and crews have come forward with an initiative--to fulfill the five-year plan by 9 May 1985--and have called on the republic's miners to follow their example.

The crew of face workers from Velikomostovskaya-Komsomol'skaya Mine No 8 of the Ukrzapadugol' association that is led by Hero of Socialist Labor A.A. Akimov is successfully mastering a KM-88 complex, which is on a new technical level, in a thin bed and has achieved a labor productivity level of 800 t per month, which is the highest in the republic. The crew's collective vowed to finish its five-year plan by 9 May 1985. The initiators of the anniversary competition also include the Mine imeni M. Gor'kiy (Donetskugol' association), the Vinnitskaya Mine (Shakhterskantratsit), the Kommunist Mine (Oktyabr'ugol'), the Mine imeni XXVI s"yezda CPSU (Pavlogradugol'), the extraction crews led by Hero of Socialist Labor P.S. Negrutsa (the Mine imeni Zasyad'ko), S.I. Novatskiy (the Kommunist Mine), P.Ye. Venger (the Vinnitskaya Mine) and others.

Carrying out the decisions of the December (1983) Plenum of the CPSU Central Committee, the labor collectives of the UkSSR's coal industry developed an extensive competition to insure an above-plan increase in labor productivity and a decrease in output cost. For the first 11 months of 1984, the worker labor productivity plan for industrial production personnel was 100.1 percent fulfilled, and an increase of 1.3 percent was achieved with the corresponding period the previous year. The collectives of 248 enterprises increased labor productivity above the planned figure by 1 percent or more. During this same period, output cost was reduced in comparison with the plan by 0.5 percent or more at 250 enterprises.

The party and the government are manifesting constant concern about the further development of the coal industry and have high esteem for mining work. Yet another indicator of this concern was the conferral of the 1984 USSR State Prize on the foremost people in the all-union socialist competition for face work in the mines: G.Ye. Abramov (the Mine imeni XXV s"yezda CPSU, Makeyevugol' association), A.A. Korolev (Mine No 13-bis, Sovetskugol'), Ye.A. Kosarev (the Mine imeni Stakhanov, Krasnoarmeyskugol') and V.I. Lapay (the Mine imeni Sverdlov, Sverdlovantratsit).

Responding to the party's and government's concern, the collectives of 4 associations, 90 mines, 474 extraction sections, 672 extraction and 498 shafting crews and 5,259 mines completed the plan for the first 4 years of this five-year plan by 15 December 1984.

The extensive scope of the socialist competition and the implementation of the complex of measures for technical reequipping and modernization of coal enterprises, the improvement of mine management, and the raising of the level of discipline, organization and order will make it possible for this republic's miners to carry out their assignments successfully and insure the fulfillment of their strenuous planned assignments and socialist obligations in the final year of the 11th Five-Year Plan.

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ECONOMIC PLANNING IN UKRAINIAN COAL INDUSTRY CRITIQUED

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[Article by V.N. Dyadyk, deputy chief, Economic Planning Administration, UkSSR Minugleprom, and Ye.V. Levina and V.A. Mikhal'skaya, candidates of economic sciences, IEP [probably Institute of Economic Planning], UkSSR Academy of Sciences: "Basic Directions for Intensification of the Utilization and Renewal of the UkSSR Coal Industry's Fixed Capital"]

[Text] The development and improvement of coal extraction equipment and technology and an increase in the capital-labor ratio caused a 15.6 percent increase in UkSSR Minugleprom's [Ministry of the Coal Industry] fixed production capital in 1983 in comparison with 1980, it being the case that gross production output increased by 1.9 percent. As a result of the outstripping rates of fixed capital growth in comparison with the increase in gross production output, the capital-output ratio decreased by 11.9 percent, which is indicative not only of a deterioration in production conditions, but also of inadequate utilization of the intensive factors of economic growth.

The effectiveness of the utilization of fixed capital is evaluated not only by its relationship to the amount of coal extracted, but also by by capital-labor ratio's relationship to labor productivity. In the 11th Five-Year Plan, the increase in labor's capital-labor ratio for the branch as a whole was accompanied by a decrease in labor productivity. However, for a number of associations it increased slightly as the result of the increase in the capital-labor ratio. For example, per 1 percent increase in labor's capital-labor ratio in 1982, the increase in productivity was: 0.19 percent (the Sovetskugol' association), 0.15 percent (Shakhterskantratsit), 0.09 percent (Krasnoarmeyskugol') and 0.04 percent (Pervomayskugol'). This situation confirms the necessity of better coordination when planning an increase in labor productivity as its capital-labor ratio increases, which is only one of the means for increasing productivity. Productivity, which is also affected by other factors, must increase at a higher rate than the capital-labor ratio, which in turn will determine the increase in the capital-output ratio.

The indicator of the economic effectiveness of fixed capital--the capital-output ratio--depends on reproducible factors that shape its level at the stage of creation of capacities and determines the cost of this capital, as well as on operational factors that characterize the degree of its utilization and

determine the amount of coal extracted. The former are manifested through the yield from capital put to use in a given period; that is, they affect the average level of the capital-output ratio through the cost per unit of new capacities and depend largely on the activities of the planners and builders. The latter characterize the organization, concentration and intensification of production in the process of using fixed capital and depend primarily on the mine workers' organizational and technical activities.

In the 11th Five-Year Plan we have seen a rise in price per unit of introduced capacity because of deterioration of the geological conditions, flaws in planning, lengthening of construction and modernization periods, dissipation of capital investments, and an increase in expenditures for the creation of safe working conditions and the protection of the environment. For instance, the cost per unit of capacity introduced during the 10th and 11th Five-Year Plans increased by a factor of 1.5 in comparison with the cost in the 9th Five-Year Plan. During this five-year plan, the cost per cubic meter of main stripping and preparatory workings in Donbass mines increased by 8.5 percent. The cost of fixed capital for newly introduced mines is increasing (in comparison with existing ones) because of the use of improved and expensive types of timbering, which--along with the greater cross-sectional area of the workings--causes them to cost more. At these mines the average cost per cubic meter of above-ground shaft buildings, ventilation buildings and administrative and domestic facilities, along with their area, size and total cost are also higher.

One objective factor in the increase in cost of fixed capital at the mines is the increase in expenditures for the simple renewal of capacities in connection with the depletion of beds with favorable geological conditions and the expansion of the scale of extraction under more complicated conditions. In the 11th Five-Year Plan, the depth of the workings in Donbass mines increased from an average of 611 m (on 1 January 1981) to 623 m (on 1 January 1983). It has been established that an increase in the depth of underground workings of 10 m causes a reduction of 0.4 percent in the capital-output ratio. Thus, the capital-output ratio dropped by 0.5 percent because of the deepening by 12 m.

A matter of importance for increasing the volume of coal extraction and improving the use of fixed capital is shortening the periods required to master planning and production capacities, particularly their active part (equipment). The quality of the planning and design work and the completion of construction projects have a great effect on the duration of the capacity assimilation period. In a number of cases, unfinished objects have been turned over for operational use. Organizational and technical measures for the timely assimilation of capacities must be directed at eliminating bottlenecks, improving equipment utilization, introducing progressive production technology and organization, and providing sufficient volumes of raw material and materials. In 1983, UkSSR Minugleprom's coefficient of average annual capacity utilization was 95.7 percent. Out of 258 mines, 147 (57 percent) did not work to full capacity. Working to full capacity will make it possible to increase the capital-output ratio by about 14 percent.

A significant increase in coal extraction and the capital-output ratio is insured by the better use of existing machinery and equipment. The results of an analysis made at the mines indicates that reserves are present (reducing

losses of working time, increasing machine-use time). In this branch, idle time caused by disruptions of the production process plays a significant role in the actual duration of the working day. In 1983, this idle time amounted to 19.7 percent at working faces with coal-extraction complexes, 19.9 percent at those with narrow-wedge machines, 17.1 percent at those with broad-wedge machines and 27.2 percent at those with plane-type equipment. Almost half the idle time was caused by breakdowns in mechanisms, delivery facilities and so on. A significantly substantial group of idle time causes was related to disturbances in the operation of intramine transport. In UkSSR Minugleprom in 1981-1982, plane equipment down time increased by 9.7 percent, whereas that of broad-wedge machines increased by 3.6 percent. Equipment down time for organizational reasons was reduced.

The most important condition for a further increase in production volume and an improvement in the utilization of equipment is the intensification of coal extraction by increasing the working rates and the time of machinery operation. In 1980-1982, the time of machinery operation of face equipment in UkSSR Minugleprom dropped by almost 8 percent, including a decrease of 6.5 percent in extraction time. In 1982 the highest level of machine time, in comparison with the average for UkSSR Minugleprom (26.1 percent) was achieved by the Krasnoarmeyskugol' (40.9 percent), Pavlogradugol' (34.6 percent), Dobropol'yeugol' (33.4 percent), Dzerzhinskugol' (32.4 percent) and Sverdlovantratsit (30.6 percent) associations.

The reduction of the number of inactive machines and mechanisms and the number of them under repair is a substantial reserve for improving the utilization of machines and equipment. In the coal industry in the Ukraine in 1984, 40.7 percent of the combines for face work were not in operation, along with 34.4 percent of the plane units and 29.7 percent of the mechanized timbers. There is much more uninstalled, unneeded and excess equipment that has long been in warehouses or in the process of being assembled and is becoming obsolete.

The presence of a large amount of machinery under repair because of the lack of durability of individual assemblies results in a shortening of the period between repairs because of the increased load and to a disparity between the repair base and state of modern equipment. Despite an improvement in the equipment and an increase in its quantity, the repair base is not provided with spare parts and separate assemblies. Some types of face equipment cannot carry a large load for an extended period of time, as a result of which the time between repairs is reduced sharply. This is explained by the fact that for a number of production processes, the coal industry does not have available equipment that meets modern requirements for productivity, reliability and durability. The problems involved in reducing the cost of mining equipment are being solved slowly.

The concentration of production exerts a positive influence on the capital-output ratio's level. At large mines there are greater possibilities for introducing new production equipment and progressive technology and for organizing production. For example, at the large mines (with an annual capacity of more than 1.6 million t) in the Donbass that are working sloping and tilted beds, the capital-output ratio was 69.5 percent higher in 1982 than at the small mines (up to 400,000 t). The concentration of mining work is

characterized by the average daily production load at the working face and in a sloping working, the average daily length and rate at which it is being driven, and the specific length of the workings being maintained. As a result of the reduction in the driving rate, the average daily load on a working face decreased by 7.3 percent in the 1980-1983 period, with the figure for sloping workings decreasing by 4 percent. The total length of workings being maintained increased by 5.5 percent, and their specific length (per 1,000 t of coal) by 6.4 m, which caused a reduction in the capital-output ratio of almost 7 percent.

Temporal concentration of the work is characterized by the mode of functioning of an enterprise. In the coal industry in the UkSSR, more than 90 percent of the existing enterprises use a three-shift coal extraction operation, about 9 percent have a four-shift operation and only 1 percent use only two shifts. The shift coefficient is 3.1. The mines' practically continuous mode of operation results in disruption in the schedules for performing preventive repair work on the equipment and workings.

One of the most important areas for increasing the capital-output ratio is technical improvement of the production process on the basis of replacing physically worn out and obsolete equipment with more productive and improved units. For instance, in 1982 the replacement of old equipment with new caused an increase in the capital-output ratio in sections of several mines: the Belozerskaya Mine (Dobropol'yeugol')--by a factor of 3.7, the Progress Mine and the Mine imeni Lutugin (Torezantratsit)--2.3 and 5.7, the Mine No 13-bis (Sovetskugol')--2.

The experience gained in renovating equipment at many enterprises indicates that this process is highly effective. For example, in 1982 at the Ukraina Mine (Selidovugol'), the KM-87D complex at the sixth southern longwall of the ℓ_3 bed (1.1 m thick) was replaced by a KM-88 complex, which made it possible to increase the daily production from the longwall to 1,000 t and the capital-output ratio by 9 percent, in addition to improving the production efficiency indicators. After the complex was mastered, in 1983 the amount of coal extracted rose by 13 percent, the average monthly labor productivity per extraction worker increased by 14.6 percent, the capital-output ratio rose by 10 percent, and the cost per ton of coal decreased by 14.4 percent. These indicators improve particularly well when there is an increase in the amount of progressive equipment used for thin beds (up to 1.2 m thick).

The renovation of the basic stock of existing mines is done during the process of modernization, technical reequipping and replacement of obsolete equipment. For the coal industry and an association, the concept of renovation also includes mine construction and the enlargement of mines on the basis of new technologies and technical facilities. A considerable amount of work is being done in this republic to renovate our basic stock of mines. In the 1981-1983 period, 85 percent of the capital investments were direct at this purpose, with more than half of them being expenditures for machines, equipment and transport facilities. The process of renovation of basic resources in the coal industry is proceeding at a faster rate than for industry as a whole. In the 1976-1983 period, the annual coefficients of renovation and abandonment of worked out basic resources were 8.2 and 4.2 percent, whereas for industry in

the UkSSR as a whole the figures were 7.2 and 1.5 percent. For machines and equipment these indicators reached 16.5 and 11.4 percent in the coal industry, whereas the industrial averages were 9.4 and 2.5 percent.

The higher intensity of renovation of basic resources (particularly their active part) in the coal industry is caused by the mobility of the working places, the effect of the aggressive environment and the unfavorable geological conditions. Therefore, the service life of equipment here is also considerably lower than the average branch figure. In 1983 the standard service life of machines and equipment in the coal industry was 7 years, whereas for industry as a whole it was 13.4 years. In the 10th and 11th Five-Year Plans, the basic face-working equipment with an operating life of up to 5 years amounted to 80-95 percent. The intensity of the abandonment of many groups of equipment is 25-35 percent per year, and for all practical purposes, equipment is completely worn out and removed from service in 3-4 years.

The high rates of renovation of basic resources caused a progressive change in their structure. From 1976 to 1983, the proportion of their active part in the coal industry in the UkSSR increased from 21 to 29.4 percent, primarily as the result of the outstripping growth of the percentage of machines and equipment. The predominant part of the capital investments in equipment is intended for the replacement of physically worn out and obsolete labor facilities. At the same time, the amount of new equipment to replace obsolete and worn out units is, on the average for the branch and for individual mines, less than that taken out of the production process.

For instance, in the 1981-1983 period 13.2 percent of the total amount of machines and equipment was discarded at the mines and only 8.5 percent was installed. For face combines these figures were 26.5 and 19.3 percent, whereas for mechanized complexes and timbering for face work they were 21 and 10.4 percent. The less intensive replacement of equipment is related to the concentration of production, an increase in the equipment's unit capacity and--in a number of cases--to the untimely introduction into exploitation of new levels in place of abandoned ones and the underfulfillment of plans for preparatory work and equipment delivery. The main thing is that the renovation of the basic resources is taking place under conditions where the area of application of the first-generation mechanized complexes has been exhausted at the mines and its further expansion under inappropriate conditions is not advisable.

At the present time, conditions contribute to the successful use of mechanized complexes at only 34 mines that were built after 1966. They are used in 185 mines, although in 122 of them the complexes are operating outside their area of efficient utilization (not under the mining conditions for which the equipment was designed), which results in a reduction in production at the face and deterioration of the coal's quality.

The problem of renovation of basic resources is very urgent for the coal industry. Under the influence of the deterioration of the geological conditions, the extraction of fuel is to an ever greater degree being done from thin and extremely thin sloping and tilted beds, in which about 83 percent of the reserves of high-quality Donbass coal are concentrated. More than 15

percent of the extraction is done at mines with steeply sloping beds where there is no high-productivity extraction equipment.

At the mines, Donbass, KMK-97, KMS-97, KM-87 and all their modifications are being replaced in sloping and tilted beds by 1KM-103, 1MKM, 1KM-88 and KMT complexes, low-productivity equipment for extraction of coal from beds 0.55-0.8 m thick or more are being replaced with plane and scraper-plane units that are on a high technical level and an improved power-worker ratio, as well as narrow-wedge combines, and new equipment is being built and introduced in beds with complex geological conditions.

By the beginning of 1984, more than 140 faces had been equipped with complexes on a new technical level. The scale of the use of progressive equipment is indicated by the increase in complex mechanization of face work in beds up to 1.2 m thick. In the 1981-1983 period the total number of complexly mechanized faces in beds with an angle of incidence of up to 35° increased by 53 (in beds up to 1.2 m thick the increase was 43, and it was from them that the entire increase in coal extraction from complexly mechanized faces was obtained). There was a rise in the level of the mechanized realization of preparatory workings, including that done with combines, and the level of conveyor technology for sloping workings was improved as the result of the installation of more powerful conveyors and the elimination of cable haulage in many workings.

At the same time, the growth of equipment renovation rates at the mines is being held back because of a lack or an inadequate amount of progressive equipment for the extraction of coal from sloping and tilted beds up to 0.8 m thick, beds with unstable surrounding rock and steeply slanted beds, and for operations without the constant attendance of people at the face. The machine building plants are still filling the mines' need for new and highly productive equipment in order to expand production and replace obsolete and physically worn out equipment. Orders for the delivery of new types of equipment are not satisfied completely. For instance, in 1980 only 2 highly productive KM-88 complexes for thin beds were received (instead of 27), and in 1981 and 1982 the figures were 20 (instead of 58) and 10 (instead of 38), respectively. In 1982 and 1983, 85 1KM-103 complexes for working thin sloping beds 0.75-0.95 m thick were supposed to be built. Actually, 5 were received in 1982 and 17 in 1983, although because of various breakdowns only 7 are in operation. The modernized KMK-97m complex is still not being produced, and it was only in 1984 that the series production of the KD-80 complex was planned. The series output of the BShU endless-screw drilling unit, with orientation equipment, is being delayed.

The level of manual labor is still high in the coal industry. The effectiveness of the renovation of basic resources increases when minor mechanization facilities are created and introduced, and the associations are doing this with their own forces. These facilities provide up to 30 percent of the mines' needs, which makes it possible to free a large number of workers from manual operations and transfer them to others; that is, to increase labor productivity.

A significant reserve for increasing labor productivity and the capital-output ratio and reducing output cost is the replacement of equipment that is being

kept in operation longer than its standard service life. The average service life of the face combines that were taken out of service in 1980 and 1981 was 7-7.9 years (the standard was 4.5 years), whereas for entry-driving machines it was 7.3 years (5 years) and for mechanized-timbering machines for face work it was 5.7 years (4.5 years). The use of obsolete equipment imposes a substantial loss because the duration of equipment repair and the expenditures for it increase, there is a decrease in the amount of time it is operated productively, and the introduction of new equipment is delayed.

A negative effect is exerted on the renovation of basic resources by the fact that this process is not planned and the resources are replaced only as physically worn out machines and equipment are taken out of service. Calculations show that the need for the replacement of the basic production resources for the UkSSR's coal industry was actually 17-18 percent for all basic resources in 1981-1982, and that the figure for machines and equipment was 14-15 percent.

New equipment is more costly than that being replaced. In the first 3 years of the 11th Five-Year Plan alone, the cost per unit of new equipment increased by a factor of 1.5 and exceeded the cost of the equipment being replaced by a factor of 1.6, but at the same time the new equipment's productivity increased considerably more slowly. The outstripping increase in the cost of the new equipment per unit of productivity in comparison with the equipment being replaced is one of the important factors that is lowering the capital-output ratio and other indicators of the effectiveness of the renovation of basic resources.

Thus, the intensification of the use and renovation of basic resources depends on both objective and subjective factors. When planning the amount of coal to be extracted it is necessary to take into consideration the objectively deteriorating geological conditions, which have a negative effect on the capital-output ratio's dynamics. It is necessary to develop measures to overcome the negative effect of natural factors that are based on improving the equipment and technology, accelerating the assimilation of introduced capacities and the elimination of bottlenecks, and improving the utilization of equipment. In order to reduce the negative effect of the outstripping growth of the cost of basic resources with respect to coal extraction, it is necessary implement a system of measures to reduce the cost of their production and utilization.

Exerting the appropriate planning and economic leverage is a matter of importance for realizing our reserves for increasing the effectiveness of our basic resources. Economic accountability principles for the utilization of basic resources and capital investments should be intensified, and the labor collectives' motivation for increasing the capital-output ratio should be improved. This indicator should be taken into consideration when planning and stimulating scientific and technical progress and developing the production process on all levels. Plans for capital construction and scientific and technical progress should be correlated with an increase in the effectiveness of public production and, consequently, with an improvement in the capital-output ratio.

In UkSSR Minugleprom's mines in 1983, 5,500 measures were developed to reduce losses of working time and 4,600 of them were implemented. The expected

economic effect is about 900,000 R. The implementation of measures to reduce equipment down time will make it possible to increase the capital-output ratio by approximately 1.5 percent. In order to reduce excessive amounts of equipment, both economic and administrative measures are necessary. It is also advisable to increase material stimuli for workers who are engaged in the realization of excess equipment and in accounting for its cost.

It is important to develop a methodological base for analyzing the renovation and utilization of basic resources in mines that allows for the specific features of this process, for evaluating the effect of renovation and utilization on the economic indicators of the operations of enterprises, and for planning economically substantiated requirements for renewal of capital.

Amortization deductions for renovation are a source of expenditures not only for the replacement of discarded basic resources, the value of which they exceed significantly, but also for the expansion of resources. A significant part of the amortization deductions that are intended for renovation serve as a source for expanded reproduction. It is necessary to establish for the enterprises, associations and the branch the scientifically substantiated value of the amortization capital that is directed at replacement. Amortization capital on the whole should be increased by raising the amortization norms for separate types of equipment having actual service lives that are considerably below the norm.

Reducing the cost of machines at all stages of their production and use is a task of primary importance. In coal machine building and mine construction and at UkSSR Minugleprom, it is advisable to create a special service for functional-cost analysis that will use the positive experience of the ministries of the electrical equipment, electronics and other industries.

Functional-cost analysis makes it possible to solve the problems involved in creating new and highly economical objects and prevent excess expenditures, beginning with the development stage. In production, it insures a level of expenditures that does not exceed the established one, reduces material- and labor-intensiveness, and improves the quality of objects that are created. When new objects are used, it is necessary to reduce operating expenses, eliminate economically unjustified expenditures and so on.

The system of measures for accelerating the creation and series production of a sufficient quantity of the most progressive equipment should be implemented more actively. Above all, this requires renewal of the basic resources in the coal machine building industry, where the rates of replacement of obsolete and worn out equipment are lower than the average industrial level by a factor of almost two. Calculations show that it is necessary to increase expenditures for replacement in machine building by a factor of 4-4.5 and to direct them primarily at technical reequipping; that is, at the introduction of progressive equipment and technology, complex mechanization and automation of the basic and auxiliary production processes, and methods for the progressive organization of labor and control of processes.

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UDC 622.766.002.5

HEAVY-MEDIA CYCLONE FOR CLEANING COARSE COAL

Kiev UGOL' UKRAINY in Russian No 1, Jan 85 pp 42-43

[Article by N.I. Abakumov, engineer, Ukrniiugleobogashcheniye, and Ye.D. Dudnik, engineer, Gipromashugleobogashcheniye: "On the Parameters of a Drum Heavy-Media Separator for the Enrichment of Coarse Coal"]

[Text] The problem of creating a heavy-media separator for the enrichment of coarse coal that is both simple in design and operationally reliable continues to be an urgent one. In 1982-1983 an improved design of the SBE-2 drum separator, which was developed by Gipromashugleobogashcheniye, Ukrniiugleobogashcheniye and IOTT [not further identified], was investigated on a testing unit at Ukrniiugleobogashcheniye's experimental base[1].

The experimental prototype of the SBE-2 separator (Figure 1) is a cylindrical drum 2,000 mm in diameter that is made as an integral unit with a hoist wheel and a spiral that is built in on the inner surface. The drum is mounted on four support rollers, and on both its sides there are end walls that are in the form of a truncated cone with holes for loading it with raw material and unloading the products of the separation process. The diameter of the opening for unloading the product that has floated to the top is 1,460 mm, and that of the opening for loading with raw material and unloading the product that has sunk to the bottom is 1,200 mm.

Sealing rings are attached to the cones' end faces, and elastic elements are used to fasten stationary baffle plates with rubber seals to them. The suspension that passes through the seals is directed into flow chutes that are located beneath the stationary baffle plates and the cones' sealing rings.

The walls of the enriching vat are suspended on a framework inside the drum. The wall on the side of the supports of the intake into the heavy medium has slits, the width of which is less than the lower limit of the incoming material's coarseness, and is fastened to the framework with hinges so that it can interact with the supports on the drum's inner wall. A spiral made of bars 10 mm in diameter is attached to these supports and to the drum's inner surface. The slits between them are smaller than the lower limit of coarseness of the

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[1]Engineers V.Ya. Andreyeva, A.S. Kostenetskiy and L.K. Tsymbarenko participated in the investigation.

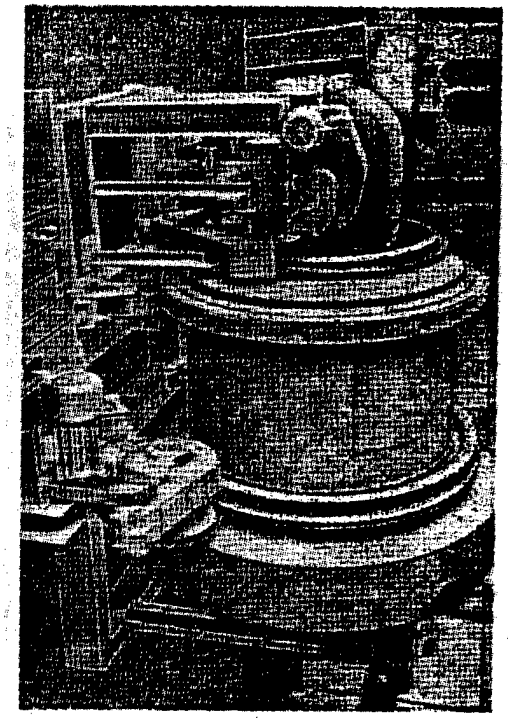

Figure 1. SBE-2 drum separator.

material being enriched. The height of the spiral is 180 mm and the vat's depth (the depth of immersion of its wall in the suspension) is 450 mm in the charging zone and 300 mm elsewhere. The drum is revolved by a drive, through a spool transmission.

Coal is loaded into the drum's inner cavity through a chute. Part of the working suspension is fed into the chute and the rest is in the drum, in the area where the coal winds up. The part of the product that sinks is transported by the spiral to the hoist wheel and discharged from the separator by perforated blades. The wheel has 16 perforated blades (the slit width is 8 mm) that are mounted at an angle of 30° to the radial direction in the direction of rotation. The part of the product that floats is discharged from the vat, by means of the flow of the suspension and revolving arms, through the stationary discharge baffle plate.

The individual structural assemblies of the SBE-2 separator were tested and the effect of the process's parameters on the effectiveness of the enrichment was investigated. The raw material was a mixture with a certain composition that had been prepared with anthracite and rock of coarseness 13-200 mm GOF "Miusinskaya" [not further identified], with a slurry content of coarseness 1-0 mm within limits of 0.4-0.7 percent. The coal was enriched in a heavy medium consisting of magnetite and water. The flow rate of the working suspension fed into the feed trough was 10 m^3/h.

The slurry content in the conditioned suspension was 66-110 g/ℓ.

After the tests, the defects in the enrichment vat's design were eliminated and the feed zone of the working suspension inside the separator was determined. From this zone the suspension is distributed in the vat without the formation of "dead zones" on its surface. The density of the suspension in the separator's vat and effect of the process's parameters on the effectiveness of enrichment were then investigated. A vacuum device was used to take samples at five points along the vat's axis and three depth points, at intervals of 100 mm below the surface. The measurement data and the results of a calculation of the suspension precipitation gradient showed that there is no layering of the suspension in the drum separator's vat and that its stability factor is unity.

The factors affecting the effectiveness of enrichment are the drum's frequency of rotation, the load on the separator of the initial, sinking and floating

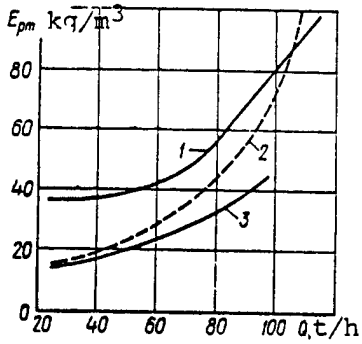

Figure 2. Dependence of average probable deviation E_{pm} on separator's productivity Q at drum rotation frequency: 1. 1.5 min^{-1}; 2. 2 min^{-1}; 3. 2.5 min^{-1}.

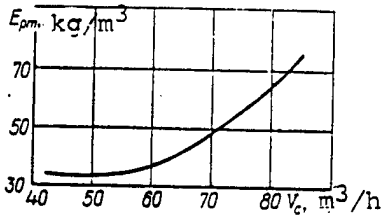

Figure 3. Dependence of average probable deviation E_{mp} on suspension flow rate V_c.

products, and the suspension's flow rate. The effect of the drum's frequency of rotation and productivity on the effectiveness of separation were investigated at frequencies of 1.5, 2 and 2.5 min^{-1} and a working suspension flow rate of 60 m^3/h; its density during the experiments was 1,930-1,980 kg^3/m^3 [sic]. The effectiveness of the separation was evaluated on the basis of the average probable deviation E_{pm}. A comparison of the experimental data (Figure 2) shows that as the load on the separator increases, the effectiveness of enrichment deteriorates. The derived relationships have the form of monotonically increasing functions. The most important conclusion is that for coal coarser than 13 mm, the effectiveness of enrichment E_{pm} improves as the drum's frequency of rotation increases. For instance, at a frequency of 2.5 min^{-1} the quantitative values of E_{pm} and the slope of the curve in the area of investigated loads are minimal.

With respect to the part of the product that sank, the effect of the load on the effectiveness of separation was investigated for a working suspension density of 1,960 kg/m^3 and flow rate of 60 m^3/h. The heavy product (more than 2,000 kg/m^3) in the raw material was 32, 39, 45, 50 and 66 percent. It was established that as the heavy product content increases the effectiveness of separation does not change for all practical purposes.

Investigations of the effect of the working suspension's flow rate through the separator on the effectiveness of separation were conducted for a frequency of drum rotation of 2.5 min^{-1} and a suspension density of 1,940-1,970 kg/m^3 (Figure 3). It was discovered that during the enrichment of anthracite with coarseness of 13-200 mm, satisfactory results can be obtained for a suspension flow rate per meter of vat width of 45-55 m^3/h. The relationship $E_{pm} = f(V_c)$ can be approximated satisfactorily with the expression

$$E_{pm} = K_0 - K_1 V_c + K_2 V_c^2,$$

where K_0, K_1, K_2 = proportionality factors that equal 58.7, 1.2 and 0.015, respectively, and are found by the method of least squares; V_c = suspension flow rate, m^3/h.

The proven qualitative relationships between the process's parameters and the effectiveness of enrichment that were found made it possible, within the range that was investigated, to determine the rational structural and technological

parameters of a drum separator with a productivity figure of 200 t/h: raw material coarseness--13-200 mm; maximum productivity for the part of the separation product that floats--75 percent of the original raw material; for the part that sinks--80 percent; density of separation--1,400-2,000 kg/m^3; working suspension flow rate when enriching coal of the indicated coarseness, per meter of vat width--45-55 m^3/h; drum diameter--2,800 mm; drum length--3,000 mm. These parameters were used during the development of the specifications for an experimental prototype of a drum separator with a productivity figure of 200 t/h (the SB-200). The separator will be built in 1985 by the Novocherkassk Machine Building Plant imeni Nikol'skiy and tested in 1986 at an enriching factory belonging to USSR Minugleprom [Ministry of the Coal Industry].

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SYNOPSES OF ARTICLES IN UGOL' UKRAINY, JANUARY 1985

Kiev UGOL' UKRAINY in Russian No 1, Jan 85 p 48

UDC 622.013.333:658.5.018.2

THE UKRAINE'S COAL INDUSTRY IN THE FINAL YEAR OF THE 11TH FIVE-YEAR PLAN

[Synopsis of article by N.S. Surgay, pp 1-6]

[Text] The author describes the labor achievements of mine collectives and the Ukrainian coal industry's assignments for 1985. He also presents information on leading collectives and the socialist competition.

UDC 622.658.387.61

ANNIVERSARY SOCIALIST COMPETITION AMONG THE MINERS OF THE UKRAINE

[Synopsis of article by V.A. Dubodelov, pp 7-8]

[Text] The author presents the results of the all-union and republic competition among collectives at Ukrainian coal industry enterprises. He also describes the best achievements of individual mines and crews.

UDC 622.01:658.3

YOUNG PEOPLE GO TO THE COAL FACES

[Synopsis of article by I.V. Striletskiy, pp 9-10]

[Text] The chief of the Ukrainian Komsomol writes about the coal industry.

UDC 622.274.064:831.322

EVALUATION OF METHODS FOR PREPARING STEEPLY SLOPING BEDS WHERE THERE IS A DANGER OF BLOWOUT

[Synopsis of article by B.Ye. Gretsinger, V.Ya. Potemkin and Ye.V. Kukharev, pp 12-13]

[Text] The authors explain the principles and quantitative characteristics of the effect of sudden blowouts on networks of mine workings. They also make recommendations for the improvement of methods for grouping steeply sloping beds, allowing for the gas-dynamics factor. 3 illustrations, 2 references.

UDC 622.817.46.031.55-118(477.61/.62)

DEVELOPMENT OF PROTECTIVE BEDS AHEAD OF SCHEDULE AT MINES IN THE CENTRAL REGION OF THE DONBASS

[Synopsis of article by T.A. Stepanovich, pp 14-15]

[Text] The author explains the effect of the gas-dynamics activity of coal beds on the results of the conduct of mining work in mines that are working steeply sloping beds. He analyzes the causes of work delays and makes suggestions for accelerating the construction of new levels in order to realize plans for working ahead of schedule at the stage of the protective development of beds.

UDC 622.275(088.8)

NATURE OF THE EFFECT OF WEAK DISTURBANCES ON THE STATUS OF A MINE MASS

[Synopsis of article by A.N. Zorin, V.V. Vinogradov and A.F. Bulat, pp 15-16]

[Text] The authors present the results of theoretical, laboratory and industrial investigations that make it possible to draw conclusions about the essential effect of weak disturbances on the status of the maximally stressed rocks in the area of a mine mass near workings. 1 illustration, 2 references.

UDC 338.4:622.01

BASIC DIRECTIONS FOR INTENSIFICATION OF THE UTILIZATION AND RENEWAL OF THE UkSSR COAL INDUSTRY'S FIXED CAPITAL

[Synopsis of article by V.N. Dyadyk, Ye.V. Levina and V.A. Mikhal'skaya, pp 17-20]

[Text] The authors analyze the utilization and renewal of fixed capital in the UkSSR's coal industry and make suggestions for the intensification of this process.

UDC 622.232:622.625.28-83:622.64

COMPLEX MECHANIZATION AND PROGRESSIVE ORGANIZATION OF LABOR: THE BASIS OF HIGH PRODUCTION FIGURES

[Synopsis of article by A.N. Oreshkin, P.G. Orlyanskiy and A.A. Loktionov, pp 20-22]

[Text] The authors present the basic directions for improving the technology and mechanization of coal extraction from the sloping beds at the Mirnoye sh/u

[not further identified] of the Rostovugol' association. They also analyze the work done by V.M. Pyatakov's crew during the 11th Five-Year Plan and the measures implemented to improve its work indicators.

UDC 622.232:658.53

REDUCING WORKING TIME LOSSES AT COMPLEXLY MECHANIZED FACES

[Synopsis of article by Yu.A. Litvyak, V.I. Makarov and S.K. Vorob'yeva, pp 22-24]

[Text] The authors describe the nature of the interaction of mechanized timbering having different resistances and roofs that are difficult to control. They also present analytical relationships between working time losses and timbering resistance that make it possible to predict these losses under the conditions of a roof that is difficult to control. 4 illustrations, 2 references.

UDC 622.284.001.4

TEST OF AN EXPERIMENTAL BATCH OF TYPE KI INDIVIDUAL TIMBERS

[Synopsis of article by P.I. Shestov, pp 24-26]

[Text] The author presents the results of tests conducted at four mines of an experimental batch of type KI individual timbers, which consist of series-produced metal uprights with a special upper support and spring roof timbers. Also presented are the design and specifications of the timber and the test conditions and results. 2 illustrations.

UDC 622.288:532:62-776

HYDRAULIC CLEANING OF MECHANIZED TIMBERING AND EQUIPMENT FOR WASHING UNITS IN MINES

[Synopsis of article by N.D. Kozenko and P.A. Yeliseyev, p 26]

[Text] The authors analyze methods for cleaning sections of mechanized timbering under mine conditions and describe a method for cleaning the bases of timbering sections with hydraulic monitors. 2 illustrations.

UDC 622.284.071(088.8)

SYSTEM FOR THE TWO-STAGE AUTOMATIC REGULATION OF THE RESISTANCE OF DRAW-KNIFE MECHANIZED TIMBERING

[Synopsis of article by V.M. Pilipenko, V.V. Kuznetsov and A.S. Chirskoy, pp 27-28]

[Text] The authors present the results of stand tests of a system for the two-stage automatic regulation of the resistance of draw-knife mechanized timbering

developed by Shakhtniui [Shakhty Scientific Research, Planning and Design Institute of Coal]. The tests were carried out on a hydraulic press. 1 illustration.

UDC 622.673.1.001.57

PHYSICAL MODELING OF UNDERGROUND MINE INSTALLATIONS

[Synopsis of article by Ye.S. Traube, A.F. Sidenko and I.Ye. Alistratova, pp 29-31]

[Text] The authors present the principles for the creation of physical models of ShPU [underground mine installations], as well as a theoretical substantiation of the similarity criteria used during the modeling. 3 illustrations.

UDC 547.415.1:697.975:621.574:622.01

USING COMPLEXONS FOR THE CHEMICAL CLEANING OF THE AIR COOLERS OF COMPRESSORS

[Synopsis of article by Ye.A. Tseytlenok, V.G. Morozova and G.A. Zubarevich, p 31]

[Text] The authors present the results of investigations of the removal of deposits from air coolers with DPF-1 complexon solvents, which are distinguished by their high degree of effectiveness and low corrosive activity. 1 reference.

UDC 622.831.322

ON THE ROLE OF MEKHANOEMISSIYA IN THE MECHANICS OF GAS-DYNAMICS PHENOMENA

[Synopsis of article by M.P. Zborshchik and V.V. Nazimko, pp 32-34]

[Text] The authors present a hypothesis about the manifestation in the blowout process of additional activation desorption of gas molecules under the influence of rock mekhanoemissiya [possibly mechanical emissions] and the results of an experimental test of the piezoelectric activity of rock in an area where there is a danger of blowout. They also point out areas for controlling the piezoelectric activity of rock during the performance of mining work. 1 illustration , 7 references.

UDC 622.817.47

DEGASIFICATION OF ADJACENT BEDS UNDER MINE CONDITIONS IN THE WESTERN DONBASS

[Synopsis of article by A.V. Shmigol', V.I. Beskrovnyy and S.N. Semakin, pp 34-36]

[Text] The authors present the results of experimental investigations of zones for relieving rock of mine pressure and areas of increased gas output from beds. They use an analytical-tabular method to determine the optimum

parameters of degasification boreholes. For the conditions prevalent in the Western Donbass, they present coordinates characterizing the zone of increased gas output. 2 illustrations, 4 references.

UDC 622.413.3

EFFECT OF THE ROOF CONTROL METHOD ON THE HEAT CONDITIONS IN EXTRACTION SECTIONS

[Synopsis of article by V.A. Kuzin, A.A. Martynov and I.R. Vengerov, pp 36-37]

[Text] The authors explain the techniques used for and the results of experimental investigations of the heat increase in air leaks in the worked-out space of extraction sections in deep mines in the Donbass that are working steeply sloping beds. The experiments were performed for different methods of controlling roofs in longwalls. The authors also evaluate methods for controlling mine pressure in extraction sections with respect to the thermal factor. 1 illustration, 3 references.

UDC 55.061.3:622.01

INTERNATIONAL GEOLOGICAL CONGRESS

[Synopsis of article by R.A. Galazov, pp 38-39]

[Text] The author lists the important problems in the Earth sciences that were discussed at the 27th International Geological Congress.

UDC 622.143:622.24.08.43:622.248(477.62)

DIVISION OF THE DONETSK-MAKEYEVKA REGION OF THE DONBASS INTO AREAS WITH IDENTICAL DRILLING CONDITIONS

[Synopsis of article by A.N. Boltyan and T.N. Filimonenko, p 40]

[Text] The authors explain the principles for dividing the Donetsk-Makeyevka coal-bearing region into areas with identical drilling conditions. They distinguish three groups of mine fields with simple, average and complex geological and technical conditions.

UDC 622.848→622.272.5

ON THE NECESSITY OF WATERTIGHTNESS OF WORKINGS WHEN TRAVERSING DISLOCATIONS WITH BREAKS IN CONTINUITY

[Synopsis of article by A.S. Vengerov and G.M. Smorodin, p 41]

[Text] The authors present a method for reducing influxes of water, by hydraulically insulating workings that are under construction, when traversing zones where there are dislocations with breaks in continuity.

UDC 622.766.002.5

ON THE PARAMETERS OF A DRUM HEAVY-MEDIA SEPARATOR FOR THE ENRICHMENT OF COARSE COAL

[Synopsis of article by N.I. Abakumov and Ye.D. Dudnik, pp 42-43]

[Text] The authors discuss the design of the experimental SBE-2 drum separator. They also present the results of investigations of the effect of the process's basic parameters on the effectiveness of enrichment of coal with 13-200 mm coarseness in the separator. 3 illustrations.

UDC 622.794.2:66.067.3.001.24

JOINT OPERATION OF THE VACUUM PUMPS OF A FILTERING UNIT

[Synopsis of article by V.I. Nadein, pp 43-44]

[Text] The author presents a method for evaluating the effectiveness and selecting the rational number of jointly operating vacuum pumps. He also suggests some ways for reducing energy consumption when operating filtering installations. 1 illustration.

11746
CSO: 1822/199

TECHNICAL INSPECTIONS REVEAL PROBLEMS AT ROSTOVSKAYA AES

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Apr 85 p 2

[Article by N. Gorshkov, group leader, author's supervision department, Atomtyeploelyektroproekt Institute in Volgodonsk: "Deviations Are a Habit"; under the rubric "Our Reporters' Office At the Construction Site. Rostovskaya AES"]

[Text] A commission that included representatives of Atomenergostroy technical supervision, the management of the Rostovskaya AES under construction, and the author's supervision group accepted reinforced ceiling structures of the transport aisle of the first reactor building only after the sixth inspection. The ceiling which had been constructed by M. D'yakov's brigade of the Gidromontazh Administration turned out to be 38 millimeters lower than the drawing specs. In any other building this defect might have gone unnoticed. However, at a nuclear electric power plant equipment is literally intertwined with the structures, therefore tolerances in this case are as strict as in machine building.

The inspectors were told, however, that the deviation was not a critical one, even though the designers not only put the specs on the drawing but also specifically warned that the lower elevation of the transport aisle ceiling has to be particularly accurate; otherwise the steel "drum" of the reactor that has to be transported down the aisle to the installation spot would not fit through--as simple as that.

G. Bobkov, chief of Gidromontazh Administration, in trying to save the situation suggested to lower the carriage for transporting the reactor, in other words, to change the equipment so that it fits the defective structure. An unsuccessful attempt was also made to "press the extra millimeters up" using jacks. In the end an acceptable solution was found by builders and designers, but it took half a month, almost as much as the reinforcement itself.

In the heat of arguments and insults because of the allegedly unreasonable customer and commission demands none of Volgodonsk Gidromontazh Administration managers remembered that the troublesome millimeters were a direct consequence of deviations from proper installation methods and procedures. Those deviations should have been spotted--there is such a thing as geodetic inspection--and corrected during the construction process by foreman N. Sumskiy and construction superintendent A. Khir'yanov. Defective engineering and management are evident.

This story might be told in fewer details had it been unique. Author's supervision by the Gorkiy branch of Atomtyeploelyektroproekt Institute performed at the Rostovskaya AES construction site noted last year 136 serious procedures violations and design deviations. And it was 136 times that Gidromontazh Administration directed efforts to try and convince inspectors that their demands were "excessive" or at least to correct the situation and get these emergency changes approved, but it never tried to prevent defective work nor let it happen in the future.

In accordance with the regulations in effect, if the technical inspectorate did not accept the work that was carried out, A. Usov, chief engineer of Atomenergostroy must be present in person during the repeat acceptance and take the necessary steps against defective work. In reality, the [Atomenergostroy] administration's chief engineer often takes the side of the negligent workers, who are seeking satisfaction against the "excessively strict" [quality] control personnel.

Even when a decision is made, at the inspectorate's demand, to penalize those responsible for defective work the management always tries to do it as lightly as possible. As an example I'd like to refer to the case of foreman I. Kolodkin. Technical inspection supervisor A. Romanishina suggested to penalize the foreman for defects that were his fault by docking his wages by one third. However, Atomenergostroy Chief A. Trofimenko limited the penalty to yet another reprimand.

A new statute of economic incentives for quality workmanship adopted for 1985 makes an attempt to make a percentage bonus for construction foremen and superintendents contingent upon the quality of construction. The full amount will be paid only if 80 to 90 percent of jobs were accepted as "good" or "excellent." If the grades are different the bonus amount is respectively lower. This is, of course, a serious step. However, the statute does not specify whether the quality is to be determined at the first, the second or the third inspection of the finished job. And this means that stories similar to the one described in the beginning would repeat themselves again and again. So far the commission accepts not more than 25 percent of all jobs at the first inspection, and the grades are very modest. Most of structural elements are brought up to specs after the second, third, and sometimes even sixth(!) reworking.

The acceptance commission is actually the only and the final barrier against defective construction. However, neither its technical Inspectorate members nor the author's oversight representatives have either administrative authority or right to use sanctions. The immediate chiefs of the subdivisions, as we saw in the case of the transport aisle do not always side with quality control. And this is cause of special concern. This year the construction volume at the Rostovskaya AES is twice that of the last year. The jobs are also more complex. So if the management's attitude towards quality does not change, and if the demands are not made more stringent, it would be hard to avoid errors similar to the ones that happened before.

12770
CSO: 1822/232

NUCLEAR POWER

IZHORA PLANT OUTPUT PRAISED

Moscow EKONOMICHESKAYA GAZETA in Russian 25 Feb 85 p 5

[Article by V. Berezin, Machine Tool Brigade leader, Izhorskiy Turbine Plant: "Order for AES--On Time"]

[Excerpt] We are doing the final process of preparing turbine shafts and generator rotors. There are about forty fully qualified members of the work crews including crane operators, welders, electrical equipment installers, and tool grinders. Work by a single order method has united the collective, and directed it toward attaining high-quality final results. One may judge the increased effectiveness of labor by the fact that the brigade has already completed its five-year plan goal.

In the comprehensive brigade there is an immutable law: fulfill all orders on schedule and do not let down the component manufacturers. We are proud that we finished the rotor shafts for the one million kiloWatt capacity generators.

I especially want to emphasize this--our brigade is nearing the finish line. In other words, we are completing the work of the steel producers, the coal miners, the heat treaters, the welders. Therefore we have come forward as the initiators of an intra-plant competition in the technological chain for timely and high-quality completion of jobs. The component manufacturers have supported us. We are trying to keep to a precise rhythm. This is now one of the basic concerns of the collective.

Certainly such a task has been set before. Now, with the association working under conditions of the large-scale experiment, a precise rhythm assures one hundred percent fulfillment of our contractual obligations, both moral and material. Supplementary payments depend on observance of delivery discipline.

In preparing to meet with pride the 40th anniversary of Victory Day and the upcoming 27th Party Congress, we intend to exceed our task for production output and for three days to work on saving resources and sharpening tools. As the figures for January and the course of competition for February have shown, these targets have been met. This means that the enterprise and the subcontractors will receive the hydroturbine shafts for the Cheboksarskaya and the Shul'binskaya GES's and the generator rotors for the Zaporozhskaya, Rostovskaya, and Yuzhno-Ukrainskaya AES's right on time.

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CSO: 1822/259

NUCLEAR POWER

FEARS OF NUCLEAR POWER ASSUAGED

[Editorial Report] Tbilisi KOMUNISTI in Georgian on 8 February 1985 carries on page 2 a 1,500-word article titled "The Era Demands It! Nuclear Power Plants and the Environment" by Academician V. Gomelauri, Physics-Mathematics Candidate G. Garsevanishvili (head of the Control Systems Institute's Department of Physical-Technical and Optimalization Problems), and N. Katamadze (head of the Radiation Safety Office of the Physics Institute's Test Nuclear Reactor), examining a few of the people's fears--stemming mostly from ignorance--about nuclear power's effect on man and the environment and laying them to rest with facts. The authors list a number of operating nuclear power plants in the USSR (including its European regions) and the socialist countries as well as "other developed countries of the world." Although the USSR has ample reserves of fossil fuels to generate electricity, they are increasingly difficult to exploit. Moreover--and this is a major theme in the article--nuclear power is far superior to thermopower on a number of counts, in particular its impact on the environment and on human health. Facts and figures are cited to show that coal- and oil-fired plants are far worse polluters of the environment and pose greater short- and long-term hazards to health (inter alia, they emit dangerous quantities of mercury; nuclear plants do not). Nuclear plants do vent small amounts of radioactive material but actually account for less environmental radioactivity than is given off by natural sources such as earth and water, color television, jet travel, and so on (fallout from atomic test blasts is included in the list). Over the years, the Soviet and foreign instruments have detected no significant environmental contamination from nuclear plants, and the same is corroborated by 25 years of measurements at the Test Nuclear Reactor in Mukhatgverdi (Mtskheta Rayon).

The authors then lay to rest another popular misconception--that atomic fuel is "buried." Fuel from the fuel plants is kept in small-diameter hermetically sealed "fuel elements" which are placed in the reactors to induce chain reaction and generate heat and power. Since the spent elements contain valuable substances, it would "make no sense to bury them"! Instead, they are sent back to radiochemical plants for processing.

CSO: 1830/684

DEPUTY MINISTER DISCUSSES GOALS, COST OF GRES MODERNIZATION

Moscow IZVESTIYA in Russian 3 Apr 85 p 2

[Interview with Deputy Minister of Power and Electrification A.N. Makukhin by IZVESTIYA Special Correspondent Yu. Grin'ko: "Modernization of Heat and Light Plants"; date and place of interview not given]

[Text] As has been reported previously, the Politburo of the CPSU Central Committee at its last regular session took up the program for rebuilding and re-equipping thermal generating plants of the USSR Ministry of Power and Electrification in the years 1986-1990.

[Question] How much work must be done? What is the Ministry actually faced with in the modernization of heating and light plants? A.N. Makukhin, deputy minister of the USSR Ministry of Power and Electrification, answers these questions for IZVESTIYA's special correspondent:

[Answer] Thermal generating plants comprise the largest part of our ministry's power-generating capacity. Suffice it to say that at the present time, they account for more than 72 percent of our power potential.

Naturally, over the years equipment wears out and becomes obsolete. Excessive equipment wear may lead to breakdowns, excessive fuel consumption, considerable outlays for repairs and less reliable power supply. Thus, it is necessary to modernize basic facilities in a timely fashion.

[Question] Aleksey Naumovich, what is the total capacity of the power plants nearing the end of their rated service life?

[Answer] Our data indicate that by the end of the next five years, the total will be above 120 million kilowatts, over half the installed capacity of all thermal power-generating plants. This gives some idea of the amount of work facing us in the near future.

[Question] Does this mean there is an unexpected factor involved here?

[Answer] Not at all. This work is a part of the USSR Energy Program. The government has assigned the following tasks for 1986-1990:

Extend the operating life of plants with a combined capacity of 22,580,000 kilowatts by replacing basic assemblies and parts of the turbines, boilers, steam tubes, pumps and electrical equipment which have exceeded their service life;

Remove obsolete equipment from power plants with a total capacity of 10 million kilowatts, where continued operation would be economically inadvisable;

Convert thermal power-generating plants producing a total of 1,300,000 kilowatts into heating and steam boiler facilities;

Modernize power-generating equipment at plants with a combined capacity of 25,000,000 kilowatts, simultaneously improving their financial condition and reliability; and

Modernize the monitoring and control systems at fifty units with a capacity of 300,000 kilowatts each and improve their handlability.

[Question] Who is involved in carrying out these tasks besides personnel in the power industry?

[Answer] Practically every machine-building ministry in the country. It has been decided to stimulate the manufacturing of machinery, assemblies and parts we need by sizable incentive increments to their wholesale prices. It is appropriate to mention that the payoff of these reconstruction and re-equipping projects will be attractive. Our project planners barely have enough time as it is.

[Question] How much will the entire modernization program for heating and light plants cost the government?

[Answer] The cost of this work will basically depend on the funds allocated for capital repairs. Outlays will come to around 1.4 billion rubles. It should be pointed out here, however, that the economic impact of extending the service life of power plant equipment will outweigh this cost. In addition, about 4.5 million metric tons of fuel will be saved.

The biggest payoff, of course, is that electrical power supply to the national economy and the public will be more reliable, and working and power conditions will be improved.

8844
CSO: 1822/225

NON-NUCLEAR POWER

KEY POWER GRID NEARS COMPLETION

[Editorial Report] Alma-Ata SOTSIALISTIK QAZAQSTAN in Kazakh on 16 January carries on page 1 a 200-word KazTAG brief entitled "An Energy System Is Being Constructed." The brief, dateline Alma-Ata describes progress on the Alma-Ata-Aqadyr Led-500 High Voltage System that will, when completed in 1986, link grids in European portions of the Soviet Union with systems in Central Asia and Kazakhstan. This will permit exchanges of electrical power on a national basis. According to the brief, the first 300 kilometers (among 16,000 kilometers of power lines installed during the current five year-plan) of the system are now in use.

EKIBASTUZ ENERGY UNIT BREAKDOWNS MORE THAN ANTICIPATED

[Editorial Report] Alma-Ata SOTSIALISTIK QAZAQSTAN in Kazakh on 20 February 1985 carries on page 3 a 1,500-word article by B. Zhanymbetov, published under the rubric "In the Footsteps of Stakhanov," entitled "Learning by Experience." The article describes current operations at the now complete Ekibastuz State Rayon Electrical Station No 1.

Zhanymbetov suggests that, by and large, builders and operators are more than satisfied with the new electrical station that is, in many areas, operating at better than planned efficiency and output. He does acknowledge, however, that certain plant subunits are breaking down more than anticipated and that this is creating problems since some are quite hard to repair. He also notes the tremendous accumulations of plant waste products (the plant burns 2,264 tons of coal an hour and produces while doing so 900 tons of ash and 48 tons of coal wastes) and the increased problems that this will present as the other site electrical stations are brought on line later this century.

CSO: 1830/683

BRIEFS

TRANSMISSION LINE IN SERVICE--High-Tension Transmission Line LEP-110 has been placed in service in Armenia. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 85 p 3] 8844

NEW GEORGIAN POWER PLANT--In seven years, the Khudonskaya Hydroelectric Power Plant, a project developed by the Tbilisi Division of Gidroproyekt, should be supplying power to the United Trans-Caucasus Power System. The capacity of the Inguri River plant will be 700,000 kilowatts for an annual output of 1.6 million kilowatt-hours. "The Inguri is the most promising river in Georgia for hydroelectric development," said Gidroproyekt's Tbilisi Division Director Anzor Chitanava. "During the construction of the first dam on this river, a lot was done to protect the ecological balance. The Khudonskaya Plant caused no such problems and blended smoothly into the environment." [By I. Dzhorbenadze] [Excerpts] [Moscow NEDELYA in Russian No 14, 1-7 Apr p 5] 8844

KOSTROMA POWER PLANT REPAIR--Kostroma--The experimental unit with a capacity of 1.2 million kilowatts at the Kostromskaya State Regional Power Plant has undergone major repairs. Representatives from scientific research and design institutes and manufacturers, together with Kostroma power personnel, will thoroughly analyze reports on the function of every component of the unit and effect a number of improvements. [Text] [Moscow IZVESTIYA in Russian 3 Apr 85 p 3] 8844

NON-POLLUTING POWER PLANT--Scientists frrm Krasnoyarsk University and the Siberian Division of the USSR Academy of Sciences have found an innovative solution to the problem of a waste-free generating process using coal from the Kansk-Achinsk Energy Complex (KATEK). They consider the key component of the future thermal power plant to be a magnetohydrodynamic generator, which simultaneously acts as both a heating unit and a power-generating unit. Utilization of this generator will eliminate noxious emissions normally given off by thermal plants. [By P. Zinkeyev] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 10 Mar 85 p 1] 8844

NOVOANGRENSKAYA PLANT IN SERVICE--Nurabad, Tashkent Oblast'--The first generating unit of the Novoangrenskaya State Regional Power Plant was placed in service today. Its capacity is 300,000 kilowatts. A large power complex is taking shape in the Angren River Valley, based on coal fields where fuel is being

efficiently mined by the open-pit method. The complex will help accelerate development of ore mining and smelting, machine building and chemical enterprises at the Tashkent oasis and in southern Kazakhstan and extend electrification of the Central Asian Railway. Eight power units with a combined capacity of 2.4 million kilowatts will be utilized at the complex. [Text] [Moscow TRUD in Russian 9 Apr 85 p 1] 8844

MUBARAK PLANT IN SERVICE--A new star has started twinkling on the Uzbekistan electrification map. It marks the Mubarak Thermal Power Plant in the Karshinskaya Steppe. Its first unit, which includes a boiler producing 500 metric tons of steam per hour and a 60,000-kilowatt turbine generator, has been placed in service. Boiler equipment for the Mubarak Plant was provided by the Krasnyy Kotel'shchik Association in Taganrog, and electrical equipment was manufactured by the 22nd Congress Leningradskiy Metallicheskiy Plant. Brigades from the Mubarak Mobile Machinists Column of the Uzbekgidroenergostroy Trust and the Sredazenergomontazh Trust finished general construction and installed this complex equipment in short order. Operating personnel are now in their places at the unit's single control panel. In the first few hours, the unit worked up to power. Steam was fed to the adjacent gas refinery, which had long been waiting for its availability. Now gas is being processed without interruption. Moreover, fossil fuel deliveries from the underground storehouses of the Karshinskaya Steppe to the industrial centers of Uzbekistan and neighboring republics will increase considerably. The increase will come to several billion cubic meters annually. Electricity produced by the unit will be used not only by factories, but also the state farms and pumping stations supplying water to virgin lands. The first unit is in service, and alongside it, on its own site, erection of a second boiler of the same capacity has already started. [Text] [Tashkent PRAVDA VOSTOKA in Russian 11 Apr 85 p 1] 8844

CSO: 1822/225

FIRST QUARTER ENERGY CONSERVATION RESULTS DISCUSSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 16, Apr 85 p 6

Electric Power Achievements Outlined

[Two-part article: "How Fuel and Energy Resources Are Utilized"; article by A. Nikolayev and G. Georgiyev: "Electric Power"]

[Text] This past spring forced power engineers to activate supplementary reserves to meet an unplanned level of demand for electric power. First quarter demand increased by 3.3 percent compared to the same period last year. Due to goals for conservation of fossil fuel the unplanned growth of power output was met by nuclear and hydroelectric plants.

Preliminary totals for power conservation during the first quarter were presented in EKONOMICHESKAYA GAZETA No 14. This work has not decreased in April. For almost half of April, the nation has saved 295.8 million kilowatt hours, or 0.6 percent of the stated task for maximum power use.

Savings in power are an important point in our obligation to work for 2 days using resources conserved from planned limits. According to operational data from Gosenergonadzor [State Inspection for Industrial Power Engineering and for Power Engineering Supervision], power saved since the beginning of the year could meet the demands of the economy and population of Armenia for 2.5 days; for Tajikistan for 1.3 days; for the RSFSR for 8 hours; and for Kazakhstan for 3 hours. Many enterprises here can operate during the subbotnik [voluntary working Saturday] on conserved power.

There was a different state of affairs during the first half of April in Estonia, where power consumption exceeded the plan by 7.4 percent; in Latvia where the excess was 4.9 percent; and in Georgia where it was 4.8 percent. Uzbekistan and Belorussia exceeded the limits. Control of assigned limits for power usage was poor in RyazanEnergo and Lenenergo. On the territories served by these associations, the April consumption norms were exceeded by 2.4 to 9.2 percent.

To provide 2 working days worth of power to enterprises and organizations using conserved power, leading organizations must maintain and increase the

achieved economies and the rest must try to comply with the schedule of obligations.

Now is the time to begin active preparations for the coming winter, to conduct an organized campaign of power plant maintenance. Power consuming enterprises and organizations must carefully analyze the totals for last winter in order to conserve this important type of resource.

Gas Conservation Achievements Discussed

Moscow EKONOMICHESKAYA GAZETA in Russian No 16, Apr 85 p 6

[Article by V. Tikhonov: "Natural Gas"]

[Text] A great deal of work which was done by the branches of the fuel-energy complex and its customers has allowed us to overcome difficulties in supplying the economy with the fuel demanded by the conditions of an unusually severe winter. Due to measures which were taken by party, soviet, and economic organizations and also due to the development of competition for resource conservation, many enterprises and branches, oblasts and republics have not only met the limits set for the first quarter, but have made significant savings in energy resources.

During the Lenin Communist subbotnik conserved natural gas will fuel industrial, agricultural, and communal enterprises in the Voronezh, Kalinin, Lipetsk, Vologda, Volgograd, Orenburg, Smolensk, Tula, Odessa, Kharkov, Cherkassk and many other oblasts; in the Bashkir, Mari, Mordovian, Tatar, and Komi ASSRs; and in the Belorussian and Tajik SSRs. These republics and oblasts have saved one or more days worth of gas expenditures.

However organized and oriented work in providing more rational and economic use of fuel resources is not universal. In the Belgorod, Kirov, Novgorod, Pskov, Sverdlovsk, Dnepropetrovsk, Zhitomir, Zaporozhye, Ivano-Frankovsk, Kiev, and several other oblasts; in the Krasnodar Kray; and in the Moldavian SSR demand for gas in excess of the plan for the January-March 1985 period was from two to five times daily norms.

The cause for excess fuel usage will be examined from all sides by commissions on the use of fuel-energy resources of executive committees of the Council of People's Deputies; by committees for people's control; and by societal organizations and workers' collectives. It is essential to mention that each organization must take steps directed toward eliminating the shortfalls which have taken place and toward providing decreased fuel usage and fuel savings.

9016
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POWER, FUEL EXPENDITURES LEVELS IN VARIOUS REPUBLICS DISCUSSED

Aspects of Natural Gas Consumption

Moscow EKONOMICHESKAYA GAZETA in Russian No 14, Apr 85 p 4

[Article by V. Tikhonov, "How to Utilize Fuel-Energy Resources: Natural Gas"]

[Text] A lag in the output of liquid and solid fuel, interruptions in transportation operations, and last winter's very severe weather conditions produced a very critical situation in the operation of the gas supply system. While first quarter tasks for gas extraction were overfilled by 1.6 billion cubic meters, and 2 billion cubic meters of it in excess of plan were drawn from underground reservoirs, many difficulties were encountered in supplying this type of fuel in specific rayons of the country.

The majority of enterprises and organizations strictly adhered to planned norms for gas use. According to operational data for March, 11 union republics and 10 autonomous republics reduced their consumption by more than 850 million cubic meters below allotted amounts. In a number of places, however, volumes of gas use exceeded established limits, especially in Azerbaijan and the Ukraine. Despite several attempts by the Ministry of the Gas Industry to regulate the planned delivery of gas to consumers in these republics, in the first quarter they drew down 185 million and 510 million cubic meters of gas respectively, which exceeded the amount of the daily requirement by factors of 4 and 1.7.

In the AzSSR this was the consequence of inadequacies in gas metering, as well as poor discipline in gas consumption. The republic's economic agencies and public organizations have not taken effective steps to impose the necessary order in the consumption of this fuel.

In the Ukraine, along with improving discipline in gas consumption, it is necessary to do some serious work to improve the planning of deliveries of gas and other types of fuel. The lack of correspondence between planned and actual fuel consumption in wintertime has meant that of the republic's 25 oblasts only 7 remained within the allotted limits for gas. Even with the substantial improvement in weather conditions in the last

10 days of March, many rayons continued to consume gas in excess of plan.

The coming summer must be used for serious preparations for next winter. State gas inspection agencies estimate that inefficient consumption of gas has amounted to 15 billion cubic meters per year, or 2.3 percent of its output.

Aspects of Electric Power Consumption

Moscow EKONOMICHESKAYA GAZETA in Russian No 14, Apr 85 p 4

[Article by V. Loginov: "How to Utilize Fuel-Energy Resources: Electric Power"]

[Text] Preliminary data reveal that in March all industrial ministries stayed within the limits set for them, and saved about 2.4 billion kWh of electric power. However, small enterprises under local jurisdiction and the general public consumed about one billion kWh in excess.

To a large extent the overall favorable total was aided by the warmup in the second half of the month, which led to a reduction in the level of power consumption. The decisive role was played, however, by strengthening discipline and imposing order in the use of electric power.

As in the past, the enterprises of the RSFSR have been in the lead, and saved more than 2 billion kWh in the month. Consumption of electric power in Belorussia, Latvia and Lithuania was below plan.

In the Ukraine, however, over-consumption for the month was more than 300 million kWh, in Kazakhstan about 140 million kWh, and in Armenia approximately 150 million kWh. The enterprises of Moldavia, Azerbaijan and Estonia did not remain within the set limits. It was the same situation in Krasnodar Kray and in Lipetskaya and Kemerovskaya oblasts.

The number of enterprises in violation of disciplinary limits in March increased by a factor of more than two in comparison with the previous month. They over-consumed more than 200 million kWh. Among them were 15 enterprises of the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry, 13 of the Ministry of the Automotive Industry, 12 of the Ministry of the Electrical Equipment Industry, 16 of the Ministry of the Gas Industry, and 17 of the USSR Ministry of the Coal Industry.

It should be mentioned that widespread efforts to increase the conservation of fuel-energy resources in February and March made it possible to compensate for the over-consumption of electric power that occurred in the first month, and even to effect savings of it in the amount of about 100 million kWh. The greatest contribution was made by enterprises in the RSFSR, Belorussia, Lithuania and Georgia. But in the Ukraine, Kazakhstan, Uzbekistan and Moldavia more than one billion kWh in excess were consumed.

Loads on power systems have remained below the fall-winter maximum. The strain on the energy balance has somewhat lessened. But there must be no letup in the intensity of efforts to conserve fuel and electrical and thermal energy.

Further Data on Power Consumption

Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 85 p 4

[Article by V. Loginov: "Electric Power"]

[Text] Electric power consumption in the country in the first half of March turned out to be nearly 200 million kWh less than planned. The greatest savings were achieved by the enterprises of the RSFSR, Belorussia and Georgia. The enterprises of Lithuania and Latvia kept within established limits.

As for the other republics, the results of electric power conservation were less noticeable. Moreover, in Kazakh stan and the Ukraine these efforts clearly worsened. The enterprises of the Kazakh SSR, which saved about 200 million kWh in February, consumed an excess of more than 100 million kWh in the first two weeks of March. The Ukraine went over by about 150 million kWh.

No positive changes have occurred in efforts to conserve fuel-energy resources in Krasnodar Kray or in Orlovskaya, Lipetskaya, Rostovskaya, Astrakhanskaya or several other oblasts.

As in the first two months, conservation of electric power was achieved by reducing consumption of it by the major power-intensive enterprises that are monitored daily by power inspection agencies. Thanks to this, all industrial ministries have again stayed within the limits allotted to them, even though the number of ministries in violation of plan discipline increased to 292 in this period. They over-consumed about 200 million kWh. Among them were 25 enterprises of the Ministry of the Gas Industry, 19 of the USSR Ministry of the Coal Industry, 17 of the USSR Ministry of Ferrous Metallurgy, 20 of the Ministry of Railways, and 10 of the Ministry of the Chemical Industry.

Several of these enterprises over-consume electric power month after month, but neither their managers nor the ministries to which they are subordinate have taken the proper steps to impose order. We could cite as examples the Kaustik Volgograd Industrial Association and the Yavanskiy Electrochemical Plant of the Ministry of the Chemical Industry, the Divnogorskiy Low-Voltage Equipment Plant of the Ministry of the Electrical Equipment Industry, and several others.

In the two weeks there was an excess of more than one billion kWh consumed by a large number of small-scale electric power users, and about 200 million kWh by the general public.

It should be mentioned that one of the main reasons for above-plan consumption of electric power is the widespread use of it for heating. Checks have shown that in many republics and oblasts less than half the required quantity of boiler and furnace fuel is delivered in the winter-preparation period.

Moldavia's Power Consumption Plans

Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 85 p 4

[Letter by B. Sabochko, CP Central Committee secretary, Moldavia: "Responses to Reviews by EKONOMICHESKAYA GAZETA On Resource Utilization"]

[Text] In previous issues of EKONOMICHESKAYA GAZETA reviews a number of republics, krays and oblasts were named where the electricity and gas usage guidelines had not been observed. Party organs in place handled the critical comments in a business-like manner. Taking into account the difficult climactic condtions of the winter period, the Moldavian CP Central Committee and the Council of Ministers of the Moldavian SSR, the local party and soviet organs, ministries and departments took additional measures to enforce monitoring observance of gas, electrical power consumption, and monitoring of performance of tasks relating to economizing of fuel-energy resources. Efforts have been activated in this regard in republic, city, and rayon operations groups. Strict daily monitoring of adherence to maximal power consumption, and adherence to set limits for gas, electric power and gas consumption have been established. Special attention is being given to maintaining housing and production facitilies in the required conditions, and improvement of street lighting and light-based advertising.

Udmurt Obkom's Energy Consumption Targets

Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 85, p 4

[Letter by Yu. Makarov, secretary, Udmurt Obkom CPSU: "Able to Stay Within the Limits"]

[Text] The Udmurt Obkom CPSU announces that it is true that an overconsumption of natural gas was permitted by republic consumers in January. Consequently, measures taken by party committees, UASSR Council of Ministers and its local organs, order was brought about in the rational utilization of energy resources. In February the republic was able to stay within the set limits for gas consumption, as noted in EKONOMICHESKAYA GAZETA No 8 in the article "How Resources Were Used in February."

At the present time the Obkom CPSU has set daily monitoring over usage of power and fuel. Chiefs of republic enterprises that allow infractions in the consumption of energy resources will be subject to party and administrative reprimand.

12697
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ENERGY CONSERVATION

BRIEFS

BLACKOUTS IN GEORGIA--[Editorial Report] Tbilisi KOMUNISTI in Georgian on 16 January 1985 carries on page 1 L. Kinkladze's 900-word interview with Gruzglavenergo Chief I. Chedia concerning wasteful overuse of electricity in Georgia, especially by industrial, trade, consumer service, agriculture, and automotive transport sectors. The strained fuel and energy situation in the fall and winter season is exacerbated by managers' apathy and negligence. Overconsumption reaches a peak in the evenings, as a result of which systems in the Unified Power Grid can automatically cut off "a certain portion of consumers"--and "not just in Georgia, either." Chedia lists a number of ministries, departments, and particular organizations (Tsekavshiri for one) and presents figures on overconsumption, totaling 7.429 billion kwh in 1984. One particularly unacceptable practice is that of using electricity for heating--often even in facilities that are already heated adequately by normal means. In December, Energonadzor logged and documented over 700 violations in this regard. An associated announcement box notifies enterprise officials which telephone numbers to call in the event of a power disruption or other related problem. [Text] [Tbiliski KOMUNISTI in Georgian 16 Jan 85 p 1]

CSO: 1813/404

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