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BARENTS SEA DRILLING FAILURE--Tromso (NORSK TELEGRAMBYRAA). The first attempt by the Russians at oil drilling in their section of the continental shelf in the Barents Sea ended with total fiasco, reports the newspaper TROMSO. Because of a failure in the automated positioning equipment onboard the drilling ship, the ship went adrift, and the drilling bit itself, which went down into the ocean floor, broke completely off. The drilling equipment suffered great damage, as well as did the fasteners onboard the ship, and the Russians have now interrupted drilling in the Barents Sea. The newspaper asserts it has gotten reliable information confirming this report. No one of the official level in Norway is able or willing to confirm the story on the Russians' drilling attempt, which has been undertaken in the far western area of the Barents Sea, but at a good distance from the disputed "gray zone." [Text] [Oslo ARBEIDERBLADET in Norwegian 8 Oct 82 p 11]

CSO: 3639/16

INTERVIEW WITH DEPUTY MINISTER, USSR COAL INDUSTRY

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 Aug 82 p 2

[Interview with M. I. Shchadov, deputy minister of the USSR Coal Industry: "Coal From Strip Mines"]

> [Text] Mining of coal by the very effective open-strip technique has recently been expanding at very rapid rates in the USSR. Today strip mining accounts for about 40 percent of the national production. Competing in honor of the 60th anniversary of the founding of the USSR, the strip-mine collectives have since the first of the year shipped over 3 million metric tons of fuel above plan to users. On the eve of "Miner's Day" M. I. Shchadov, first deputy minister of the USSR coal industry, talked with our correspondent on the tendencies, approaches and problems in further expansion of coal production.

C. Last year the CPSU CC and the USSR Council of Ministers adopted the decree: "On additional measures to accelerate the expansion of strip-mine coal production in the 1981-1990 period." How is this program going?

Sh. The decree of the CPSU CC and the USSR Council of Ministers gave a new impetus to increase coal production from the strip mines. In comparison with last year the output has increased by 8 million metric tons. The volume of stripping activities has also increased. The coal enterprises received a lot of highly-productive mine transport equipment. Efforts associated with equipping the Yuzhno-Yakutsk coal complex and the Ekibastuz and Kansko-Achinsk fuel-energy complexes, and also the efforts related with expanding the volume of strip-mine coal production in the Kuznetsk basin, were intensified.

The goal is to increase the coal output from the strip mines to 315 million metric tons in 1985 and to 390-400 million metric tons in 1990, which will be a significant part of the national coal production.

The largest object in the constellation of fuel-energy complexes will be KATEK [Kansko-Achinsk Fuel and Energy Complex]. Construction has already started here of the "Berezov" No 1 strip mine with a designed capacity of 55

million metric tons of coal a year. Implementation of the first phase of this coal giant is planned for 1985. The construction of several more large strip mines based on the Uryupinsk and Itatsk coal deposits in the Kansko-Achinsk basin is planned for the future. Ten large electric power stations will be constructed in the KATEK region.

Another large fuel and energy complex is the Ekibastuz project, which includes the already operating "Bogatyr" strip mine with annual output of 50 million metric tons of coal. Construction of the "Vostochnyy" strip mine with a capacity of 30 million metric tons a year has been started; together with the "Severnyy" strip mine now being reconstructed this will raise the Ekibastuz basin output to more than 100 million metric tons of coal a year. The electric power generated utilizing the Ekibastuz coal will be used in the Urals and in the central regions of the European part of the USSR by transmitting it over the so-called "Ekibastuz-Tsentr" energy bridge.

C. Our paper has often criticized the Ministry for the slow rates of development of the Yuzhno-Yakutsk coal complex. How are things going there now?

Sh. The projects are proceeding much faster. By the end of the present Five-Year Plan the "Neryungrinsk" strip mine with a capacity of 13 million metric tons will be in operation. It is part of the Yuzhno-Yakutsk coal complex, which is being developed on the "compensation" basis--part of the coal mined here will be exported to Japan to pay for the mine transport equipment being used today in the construction phase. In addition to these regions and basins, the Irkutsk basin and the Far East deposits will be developed considerably in the current Five-Year Plan. Development of the Turgaysk basin in Kazakhstan will be initiated in the more distant future.

C. What is the situation in general with the raw material base for open-pit mining of coal in the USSR?

Sh. Our nation has large geological fuel and energy reserves, among which coal occupies the dominant position. The overall verified coal reserves (explored to a depth of 1200 meters) are over 2 trillion metric tons. It is true that their territorial distribution is not particularly favorable: 90 percent of the deposits are in the eastern part of the country, while most of the population (about 75 percent) is concentrated in the European part of the USSR. Of the total known deposits about half are suitable for open-pit mining. It is probable that new deposits will be found in the future, and the overall coal reserves will increase even faster.

C. Mikhail Ivanovich, the decree of the CPSU CC and the USSR Council of Ministers provides for equipping the open-pit coal mines with new equipment with great unit capacity. Is this equipment adequate today to support the increasing volume of open-pit coal production?

Sh. No, this equipment is not yet adequate. However, the advances in equipping the open-pit coal mines with highly productive continuous-operation equipment--rotary and chain excavators, transport-dumping bridges, coal

stackers and conveyors--are significant. The general use of rotary excavators is one of the basic directions in development of the open-pit method. The share of coal extracted with the use of these machines is growing steadily. While in 1970 they were used to extract from the ground only 8 percent of the coal, at the present time the continuous-operation equipment is used to produce nearly 45 percent of the coal. Rotary excavators with a capacity of 2500 and 5000 cubic meters an hour are now in use in the "Ekibastuzugol" and "Krasnoyarskugol" Production association. Even more powerful machines will be developed in the future.

Use of the rotary excavators in place of the single-bucket excavators has considerable economic effect and increases labor productivity by a factor of 1.5-2. However the mining and geological conditions do not always permit use of the continuous-operation equipment. Therefore cyclic mining operation technology is still in use at the present time (and will be until 1990). To this end highly productive and efficient excavators, walking draglines and mine transport trucks of capacity 160-180 metric tons will be delivered to the open-cut mines.

Winterized versions of several models of mining and transport machines are being developed for operation in the Southern Yakutia mines. It is obvious that there are definite difficulties in the implementation of such a broad program directed toward re-equipping the coal industry and specifically coal production by the open-pit method; the construction of new plants, including the "krastyazhmash" Plant, will help in overcoming these difficulties.

C. An important factor in improving the effectiveness of equipment use in the coal strip mines is socialist competition among the excavator and transport brigades for achievement of the highest labor productivity. How is this competition developing at the present time?

Sh. The number of excavator and transport brigades which have adopted the increased productivity standards has reached 874, including 400 excavator brigades, 400 locomotive brigades and 328 truck brigades.

At the "Nazarovskiy" strip mine the ER-1250 rotary excavator brigade led by B. Aksenov, Hero of Socialist Labor, produced 4,080,000 metric tons of coal last year, with individual worker labor productivity being 28,300 metric tons a month. This is 1.5 times the industry average output for machines of this class.

The highest productivity was achieved by the BelAZ-548 dump truck crew of the Tomusinsk truck fleet, led by V. Dubinets. The drivers hauled more than a million metric tons of coal during the year, doubling the increased productivity standard. Competing in honor of the 60th anniversary of the founding of the USSR, this crew (named after the 26th CPSU Congress) promised to exceed the achieved goal, save more than 20 metric tons of fuel and contribute 1000 rubles of savings to the Five-Year Plan fund.

The locomotive brigade headed by A. Sosulin was outstanding in transporting coal; during the year this brigade transported more than 1.5 million metric

tons of coal from the "Bogatyr" strip mine to Ekibastuz. There are many such examples.

This year more than 880 excavator and transport brigades entered the competition for achieving the increased productivity standards. The increase in the number of brigades in comparison with last year is not large, but the competitors now include large integrated brigades, including excavator operators, truck drivers and also the bulldozer operators servicing the excavators. These brigades are bound together by their mutual pledges with regard to achieving their common goal--increased coal production.

The leaders today, as before, are the "Vostsibugol" and "Vakhrushevugol" Production Associations, they have been joined by the "Krasnoyarskugol," "Kemerovougol" and "Yakutugol" Production Associations. I would like to take this opportunity to congratulate the competition leaders and all Soviet miners on the "Miner's Day" and wish them continued success in their work.

C. One more important question. Won't large areas of land become barren deserts after the open-pit mining operations?

Sh. Not at all, such fears have no basis, since one of the important directions in the environmental protection field in the USSR is land recultivation. This has become a rule for the coal mining industry. In the last five years alone the enterprises of our Ministry have recultivated and returned to agriculture more than 24,000 hectares of land. During the present Five-Year Plan the volume of these operations will increase by 10.5 percent, and the expenditures on restoring damaged lands will double.

Collective gardens with dachas and a lake have been created on the recultivated lands of the former Baydanovsk and Mikhaylovsk strip mines in the Dneprovskyy basin. A rest home is being constructed at the location of the Fedorovskyy strip mine in the Karagandinskaya basin. Game, birds, mushrooms and berries have appeared in the forests planted on the worked-out slate deposits of Estonia.

Extensive measures have been developed in the industry and will be used between now and 1990 to return to life all the worked-out areas of land damaged by mining operations that are suitable for recultivation.

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HYDRAULIC TRANSPORT OF COAL

Moscow EKONOMICHESKAYA GAZETA in Russian No 33, Aug 82 p 19

[Article by correspondent B. Sidorenko, Donetsk: "Long-Distance and Short-Distance Hydro-Transport of Coal"]

[Text] The continuous and new specialized transport modes (conveyor and pneumatic container) include hydraulic transport. Plans are to accelerate hydrotransport development in the current Five-Year Plan. Efforts in this direction are being made at UkrNIIgidrougol [Ukraine Scientific Research Institute of Hydro Coal] (Donetsk), where there is a department of long-distance hydrotransport. In a conversation with our correspondent, the head of the department, Yu. Svitlyy, said: "Modern technical progress has opened up the possibility of delivery of coal and ore and ferrous and nonferrous metal concentrates over distances up to a thousand kilometers or more using mainline hydrotransport systems. We should note one limitation: the systems are intended for transport in one direction only and for transport only of those cargos whose commercial value does not suffer from long-term contact with water.

At the same time hydrotransport has significant economic advantages. These include, first of all, relatively short construction times and comparatively easy "adaptation" of the pipeline to the topographic conditions and the local relief.

As a rule the hydrosystems have high handling capacity with complete automation of all processes. Placement of the lines in underground trenches eliminates any dependence on the time of year and the weather conditions. Losses of the materials and also contamination of the environment are eliminated.

The hydrosystem construction costs are recovered particularly rapidly in those cases when it is necessary to deliver large amounts of coal over long distances, for example, from the eastern basins to the Urals and the central regions of the nation. We are certain that such mainline systems will in the future become an integral part of the unified transport system of the nation.

The decision was made two years ago to construct the first 259 kilometer experimental-commercial pipeline from Belyy to Novosibirsk. Up to 3 million metric tons of coal a year will be transported through this line from the "Inskaya" hydro-mine to the Novosibirsk TETs [Thermal Electric Power Station] Nearly 30 scientific-research and experimental-design organizations of USSR Minugleprom [Ministry of the Coal Industry] and the associated industries, academic institutes, scientists of the higher educational institutions and plants of the various ministries are working toward realization of this goal. At the present time the technical plan for the experimental-commercial pipeline has gone through the government expert review process. Initiation of construction is planned for next year.

We consider the realization of this project to be the initial stage of efforts directed toward the creation of a mainline hydrotransport system from Kuzbass to the Urals. Its handling capacity will be 25 million metric tons of coal a year. The economic effect from the 2000-kilometer pipeline in comparison with coal shipments by rail will be at least 240 million rubles a year.

In the process of the construction of the first experimental-commercial pipeline the technology of the basic processes for preparing the coal for transportation, as well as dewatering of the coal, will be worked out. Equipment of large unit capacity will be tested.

As for the operations preparatory to construction of the Belyy-Novosibirsk pipeline, on the whole they are proceeding satisfactorily, although certain vexing deficiencies still exist. For example, to date the "Uralmash" Production Association has not presented the specification for the piston pump required for the pipeline hydrotransport system.

As the hydrotransport systems develop and their technical level improves they will replace short-distance rail shipments. For example, at the present time up to 25 million metric tons of coal are transported each year between the mines and the coal industry processing plants, which leads to inefficient use of the rail cars. In the future, hydrotransport will be used to deliver coal to the thermal electric power stations. Then one or more supplier mines will be assigned to each GRES [State Regional Electric Power Station].

The immediate goal is to construct as rapidly as possible the experimental-commercial Belyy-Novosibirsk pipeline.

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LAG IN COAL MINE CONSTRUCTION IN DONBASS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA IN Russian 17 Jul 82 p 2

[Article by correspondent G. Dorofeev, Donetsk: "Improvization in Mine Construction"]

[Text] In the "Shakhterskantratsit" Production Association, Minugleprom Ukrainy [Ukraine Ministry of the Coal Industry] and UkrNIIproyekt [Ukraine Scientific-Research Planning Institute] (kiev) intensive efforts went into the preparation and design of a new plan for the "Shakhterskaya-Glubokaya" mine. The documents were corrected and approved at various meetings and conferences and were then bound into large portfolios. In early June they were sent by special delivery to Minugleprom USSR for approval.

At Shakhtersk the parting words to their envoy were: "Ask for money, promise that the first phase of the mine will be in operation by the end of the Five-Year Plan."

However, this parting instruction was not necessary; one of the bundles shipped to Moscow included protocol No 13 of a technical meeting held at Minulgeprom UkSSR "to examine the modified plan for construction of the 'Shakhterskaya-Glubokaya' mine." This document included a detailed description description of how much money would be needed, and for what. Specifically, it was noted that the mine construction cost has increased by 146 million rubles in recent years. Why?

"Shakhterskaya" was started in February 1970. In the first year only a little more than 2 million of the 5 million rubles allocated for its construction was expended. The construction crew was only a third of the planned complement, there were equipment shortages, there was no organization of even basic labor, the builders let down the assemblers and the assemblers let down the builders. And everything continued in this same vein in succeeding years.

At the time when the mine should have been shipping coal to consumers the builders and assemblers still had not reached the coal-bearing strata.

At the end of 1979 in an article entitled: "Information Instead of Mines" published in this paper there was mention of the poor construction of the "Shakhterskaha-Glubokaya" mine. Three years have passed since then without any changes. In place of working the coal strata the miners worked on a new plan for the mine, in which they re-examined all the previously approved technical and economic indexes. The construction cost more than doubled, while the capacity decreased by 600,000 metric tons of coal a year. In a word, "Shakhterskaya" was analyzed to death.

Let's make a little calculation. During twelve years of construction 100 million rubles were spent. Consequently, if we proceed at the same rates in the future (and changes for the better don't seem probable) nearly a quarter of a century more will be required in order to spend all the funds.

If we consider that the consumers are still waiting for the "Shakhterskaya" coal, this approach to the construction of new enterprises doesn't get us very far (to put it mildly).

The client and the planners agree on one thing: "All the changes were caused by the long construction schedule, by change in equipment prices, by increase in the allocations for housing construction and for social and cultural amenities."

Let's take a look at this. In the early years the constructors complained of the "diffusion" of manpower and funds. "At the present time we are building about thirty facilities," said the former manager of the Makeevshakhtostroy Trust. "We simply cannot increase the volume of the "Shakhterskaya" effort."

Several years later they justified the delays on the basis of the high "concentration" of manpower and funds on other facilities.

"All the efforts of the constructors are concentrated on construction of the "Zhdanovskaya-Kapital'naya" mine," they said at "makeevshakhtostroy". "We will finish this project, then we can think about the Shakhterskaya mine."

The "Zhdanovskaya-Kapital'naya" mine (now the "Komsomolets Donbassa" mine) was completed at the end of 1980. Now it is already the middle of 1982 and there are no major advances in the project.

V. Tashchilov, the new manager of the trust, explains: "The capacity of our trust is not large, and there are many errors in the plans; it seems to us that the customer did not clearly understand what he needed. So we first build, and then rebuild...."

Is this really so? The construction of coal mines and their planning and operation are in the hands of a single department--Minugleprom USSR. The Ministry is master of the situation and can resolve all questions independently. Consequently explanation of the missed schedules, first by "diffusion" of the manpower and funds, and then by their excessive concentration, is not very convincing, to say the least.

The increase in the construction cost and other "Shakhterskaya" problems are not only the result of change, for example, in the price of materials and equipment, but also the direct result of mismanagement and extravagance, inefficient use of material and labor resources. Quite frankly, this project is not wanting for funds. But the money is often not spent efficiently. Instead it is used to cover the costs of various sorts of construction improvisation.

For example, the first plans called for loading the coal at the 1294 meter level. And when all was arranged it was found that it would be better to shift the loading level higher. Thirty meters of already finished vertical shaft were in excess, and they decided to simply fill it in. If we consider that the drilling cost per meter is on the order of 5000 rubles, then we see that 150,000 rubles were simply buried 1000 meters underground. All in all, the cost increase connected with the change in the loading level was nearly 5 million rubles.

They say in the association that this scheme ensures more stable operation of the mine. Possibly this is so, but this technique for finding rational solutions is too expensive.

However, it seems that everything is done in reverse at "Shakhterskaya." They were going to use cable equipment in the primary and secondary shafts and then decided that it would be better to change over to rigid equipment. As always in such cases, there were proponents and opponents of the new idea. While the argument between them continued operations in the shafts came to a halt. The customer had to pay 300,000 rubles just for machinery and equipment downtime.

The delay in making the decision on the shaft equipment had a negative effect on the operations of the builders. They had to cut the galleries using a temporary scheme. The drilling rates slowed and labor productivity dropped, in addition the material and labor losses increased. The overall losses associated with re-equipping the shafts amounted to nearly 6 million rubles, and the construction schedules for this phase stretched out by nearly a year.

"These are justified costs," they say at the "Shakhterskantratsit" Production Association. "Today there are no cables available which can operate reliably at a depth of more than a kilometer."

But the fact that such cables are not available was known much earlier. Then why count on them? Unfortunately it was not possible to get an answer to such questions.

Among the first facilities of the new mine to be constructed was the administration and support complex. Today it is dangerous to approach the building. The walls and partitions have caved in, the roof has buckled, the gallery passages have become unusable. Only a few window frames, which were fabricated on special order, remain in good shape. Also intact (amazingly) were the discolored (from age) placards "Build rapidly, with high quality, and conscientiously."

"A mine is a mine," they say at the republic Minugleprom and at the "Shakhterskantratsit" Production Association, "you can't foresee every problem that may come up."

Unfortunately too many errors are made and, worst of all, they are repeated and become chronic. And this is the case not only at "Shakhterskaya-Glubokaya." Practically all the new Donbass mine construction projects are being built with considerable delay. For example, construction of the Voroshilovgrad "Dolzhanskaya-Kapital'naya" mine required twice the standard time, and it was constructed with major deviations from the original plan. The same can be said of the "Krasnoarmeyskaya-Zapadnaya," "Sukhodol'skaya," "Yuznodonbasskaya" and other mines. On the whole the cost of the new projects increased by hundreds of millions of rubles, simply because of the increased construction times and the design errors. For this reason the Donbass region is today operating below its capabilities.

In the guidelines: "Basic Directions of Economic and Socialist Development of the USSR in 1981-1985 and in the period to 1990" there is the phrase: "Achieve fundamental improvement in construction, improve the effectiveness of capital investments." And further on: "Strengthen the responsibility of the ministries and departments....by ensuring high technical and economic level of the plans, proper determination of the estimated construction cost." We see that this problem is not being well resolved in mining construction in the Ukraine.

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YUZHKUZBASSUGOL PRODUCTION CRITICIZED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Jul 82 p 2

[Article: "Problems at the Raspadskaya Mine"]

[Text] An article published on 26 May of this year and entitled "Raspadskaya Mine Problems" reported delays in one of the largest mines in the country and discussed the problems which the miners are encountering. Deputy Minister E. Rozhchenko of the USSR Ministry of the Coal Industry commented to the editors in response that the Ministry has studied the article in detail and considers the criticism directed to the mine management, the "Yuzhkuzbassugol" Production Association and Minugleprom SSSR [Ministry of the Coal Industry of the USSR] to be valid.

A group of Ministry specialists went to the Raspadskaya mine to examine the situation and recommend the adoption of specific measures to improve the operation of the enterprise. Instructions were given for further expansion of the mining operations and implementation of a coal delivery plan. Those responsible for the existing situation were reprimanded. A. Lyutenko, manager of the Raspadskaya mine, was severely censured. V. Yalevskiy, general manager of the "Yuzhkuzbassugol" Production Association, B. Nikishichev, chief engineer of the mine and A. Guk, supervisor of the preparatory unit, were censured, and N. Bol'shanin, deputy chief engineer for production, was removed from duty for a period of one year. A Petrov, supervisor of VPO [All-Union Industrial Association] "Kuzbassugol" and V. Abramov, chief engineer of the association, were reminded of the need to pay more attention to organization and conduct of the mining operations.

Plans are to increase in 1982 the volume of preparatory workings to 41 kilometers and prepare and put into operation a new extraction block. For this the number of workers in the preparatory sector will be increased to 750 and two additional drilling brigades will be formed.

There are also plans for rapid installation of several mechanized mining complexes, strengthening management of the equipment installation operations, increasing to 350 the number of workers involved with installation and disassembly of the mining complexes and conveyors. In order to reduce the operational losses of coal the mine has been allocated funds for seven

mechanized coal extraction systems, capable of removing coal through the entire thickness of the seam. Application of the pillar-free coal removal technology will be expanded. All this will make it possible to reduce the coal losses this year to 14.2 percent and to 13 percent by the end of 1985.

Plans have been made for an extensive program of capital construction of overhaul base facilities, increase of the conveyor transport handling capacity, and the construction of living quarters and social, cultural and communal facilities. Sibgiproshakht [Siberian State Planning Institute for Mines] has been directed to develop a plan for accelerated increase of the annual capacity of the mine to 7.5 million metric tons.

During the last two months the Raspadskaya personnel have improved their operations, delivering 30,000 metric tons of coal more than planned. The stoping face preparation plan has also been met.

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PROGRESS REPORT ON DONETSK COAL MINERS GIVEN

Moscow IZVESTIYA in Russian 29 Aug 82 p 1

[Article: "Miner Valor"]

> [Excerpts] At the new mine "Komsomolets Donbass" in the Donetsk Oblast mechanized complexes are operating, electronics controlling the production processes are widely used. All this significantly facilitates the work of the miners. The mine collective daily produces over 3,600 T of coal. About 55,000 T of fuel have been produced above the plan since the beginning of the year.

Hundreds of thousands of workers annually celebrate their professional holiday, Day of the Miner on the last Sunday in August. Surrounded by national honor, the Soviet miners are making a worthy contribution to strengthing the economic might of the mother land. In the 10th Five-Year Plan alone, the mines and open pits of the country extracted over 3.5 billion tons of coal, almost 260 millions tons more than in the 9th Five-Year Plan. This considerable increase in extraction has become possible primarily because of technical re-equipping of the sector. New equipment and advanced technology have radically changed the content of mine work. Today practically all the labor-intensive processes of cutting, loading and transporting coal with simultaneous reinforcement of the mine shafts have been mechanized. More than half of all the underground extraction of fuel is now done on longwalls equipped with highly productive complexes.

Important tasks face the miners in the new five-year plan. Coal extraction in 1985 will be 775 million T and will rise as compared to 1980 by 59 million T. The extracters of the "sunny" rock are full of decisiveness to reach this limit, and to produce more fuel, of better quality and lower outlays. In the first year of the 11th Five-Year Plan they have already sent to the consumers 704 million T of coal and 37 million T of shale.

In accordance with the decisions of the 26th CPSU Congress and the assignments of the five-year plan, the miners this year are faced with extracting coal for 24 million tons more than last.

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KARAGANDA COAL PRODUCTION LAGGING EXAMINED

Moscow PRAVDA in Russian 31 Aug 82 p 1

[Article by Yu. Razgulyayev, PRAVDA correspondent and A. Shurdumov, correspondent of INDUSTRIAL'NAYA KARAGANDA: "A Difficult Bet"]

> [Text] The collective of the mine "Churubay-Nurinskiy" from the production association "Karagandaugol'" has been obliged in the second year of the five-year plan to ship 16,000 T above the plan, and to bring the daily extraction from the longwall to 662 tons. Now the enterprise does not glitter with success and the debt of the miners is tens of thousands of tons of fuel. Why is the mine which was leading in the recent past now lagging, what is preventing the collective from fullfilling the adopted commitments?

We will see immediately that the bed here is not easy. The coal miners call these faces, "krutobad," steeply inclined faces. The angles of occurrence of the fuel layers here reach 47-50°. Just recently it was difficult to imagine a multiple-unit working on such steepness. However manual extraction is no longer convenient and the miners have begun to storm the bed.

Of course there were interruptions and failures. The section which was then headed by L. Shmetkov did not retreat: the miners "taught" the combine to travel on the steep faces. The Komsomol-youth section of G. Volkov achieved even more. They decided to develop not a cutting combine, but a stoping mechanized complex Z-OKP. Having successfully worked for 2 years on beds with angle of incidence to 30°, the miners switched to even greater steepness. In this longwall they brought daily average productivity to 1,160 T for the first time in a sector.

Nevertheless, the miners say that this equipment is not for "Churubay-Nurinskiy." Our industry has already created the unit OKP-70 which is capable of withstanding the capriciousness of the depths. At the request of the miners, one sample of this complex has been tested at the difficult mine and showed good results. During these tests, changes were made in the design which the authors of the unit, the workers of the Uzlov machine construction plant, agreed upon. As a result the sections that previously did not yield began to produce 700-800, and even 1,000 T of coal per day.

"We need more of these machines," G. Volkov, head of the leading section expressed the opinion of all the miners.

"We, entering the second year of the five-year plan, have just counted on equipping our brigades with these complexes," he was supported by the director of the mine V. Sidorenko. "We have already prepared the longwall for the sixth section. But the association allocated to us instead of the verified complex another, KM-130. As thought at the mine(and proved to the association) this machine did not work under conditions of steep incidence. As a result the strong section underproduced 80,000 T in 7 months.

In discussing the formed situation, neither the associations nor the heads of the sections, nor the machine operators denied that the collective in its work has its own miscalculations and omissions. The accident rate of equipment is still high, and not all brigades have the proper labor discipline. Nevertheless the main reason for this interruption in the fulfillment in the commitments is shortage of mechanized complexes. And not only the mentioned innovation OKP-70.

One can cite the same Komsomol-youth brigade of G. Volkov. It is a pioneer in the working of steeply-inclined beds, and was able to achieve remarkable results. In recent years its longwalls have stably produced 400,000-500,000 T of coal each. But today it is in a break-down, although the leading brigade tried and the mine supervision helped it.

The shortage of stoping equipping and other mining equipment is slowing down the work rhythm not only of "Churubay-Nurinskiy." Systematically first one then another mine in the basin are issuing warning sounds and dispatches are flying to the association: the plan is threatened!

In the association "Karagandaugol'" we were given the following information. This year the coal workers of the basin should obtain 40 complexes, and only 14 have arrived. As for units of the type OKP-70 which the miners of "Churubay-Nurinskiy" and other difficult mines need so acutely, only two have been obtained with a minimum need of 10.

No, the mine is not giving up and the people are full of decisiveness to make up for the omissions. The task has been set of starting up new longwalls in the near future. Great organizational work is being done at the enterprises and it is headed by communists. By using the experience and their good traditions the collective can fulfill the commitments. But it needs help.

9035
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MINERS INCREASE COAL EXTRACTION DESPITE MINE RECONSTRUCTION

Moscow PRAVDA in Russian 24 Aug 82 p 1

[Article by A. Bogachuk, PRAVDA correspondent: "The Beds Yield"]

[Text] It is well known at the open pit imeni Pyatidesyatiletiya Oktyabrya that after completion of the reconstruction, fuel extraction here will rise 3-5 fold and will reach 12, and then 20 million T per year. But it happens that in the actual period of reconstruction even the leading collectives often decrease the obtained level of production.

The engineering services of the enterprise, the entire mine collective have decided to dispute this unwritten rule and prove that during reconstruction one can increase fuel extraction from year to year.

Aleksandr Putintsev, machine operator of excavator No 114 happened to get exactly a free minute, the equipment loaded with rock had just been sent to the dump. The hereditary machine operator, the son of the famous brigade foreman, Hero of Socialist Labor N. A. Putintsev understands well that there is no such thing as light coal or light bread.

"Look and see," Aleksandr turns to the face. "There are two thin coal beds, and between them a rock intercalation. It is necessary to take out all the coal without moving it with the rock. But try and 'scoop out' a three-meters bed if the width of the bucket you have is almost two meters."

The crews of other excavators are experiencing simular difficulties. Reconstruction of the mine sections drastically reduced the possibilities for working more productive thick beds which previously yielded almost two-thirds of all the extraction. Instead they have to extract the low-productive reserves and remove coal, as they say, by crumbs. It would seem that a temporary decrease in extraction under these conditions is inevitable and quite explainable. At the same time increase in fuel extraction this year at the open pit will be one quarter of a million tons as compared to the level obtained by the end of the 10th Five-Year Plan.

The party organization and economic leaders of the open pit know about the imminent difficulties and were able to meet them fully armed. Last five-year plan, the engineering services of the enterprise in cooperation with the leading collectives of excavators I. Zhdanov, V. Nesterov, G. Khakhilev and D. Shilin began to develop methods for extracting coal from the thin beds. The complexity was that the beds here are steeply inclined.

They were first of all faced with considerable elevation in the qualification and skill of the excavators, and theoretical training of the machine operators. Take, for example, the brigade of excavator No 5427 which is headed by member of the party committee of the open pit I. Zhdanov. Ivan Mikhaylovich himself finished the mining technical school without interruption from production. Machine operator N. Kuvshinov recieved his diploma after him. M. Frantsuzenko is studying in the Kuzbass polytechnical institute, while I. Aksenov has just defended his diploma as a mining engineer. The majority of machine operators at other excavators now have secondary technical, and some higher education. The rise in skill in the machine operators made it possible to elevate by 20 percent the average output per each excavator.

The search for optimal variants required a change in the height of the benches in the face, review of the organization of drilling and blasting operations and engineering preparation of production. At each face there is a certificate for managing mining operations, a planned coefficient for extracting coal depending on conditions of occurrence and the thickness of the bed, and measures have been established to encourage a decrease of losses.

Section No 8, headed by communist A. Tokmakov, plans to produce over a million tons of coal in the second year of the five-year plan. Practically all the extraction here is done from thin beds. In this case the actual losses of fuel during extraction do not exceed 8 percent , which is considerably lower then the average for the basin.

"Collective creative search for reserves," relates the director of the open pit, Hero of Socialist Labor I. Litvin, "helped us to clearly define the future outlook for rising coal extraction. In the current five-year plan we will increase extraction of fuel by 2 million tons of coal per year before completion of reconstruction."

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DONETSK MINERS CELEBRATE HOLIDAY WITH INCREASED OUTPUT

Moscow PRAVDA in Russian 29 Aug 82 p 1

[Article by I. Tikhomirov, PRAVDA correspondent; "Donetsk Rhythm"]

[Text] The Soviet miners are marking their professional holiday with intensive labor. Since the beginning of the year they have extracted 4 million T of above-plan coal. Many collectives of the production associations have improved the use of mine equipment, and increased labor productivity. Holding sacred and multiplying the traditions of their fathers, hundreds of leading brigades of the Kuzbass, Donbass and other coal basins of the country have reported early fulfillment of the annual commitments and have adopted new increasedcommitments in honor of the 60th anniversary of the formation of the USSR.

This report discusses how the miners of the Donetsk Oblast have met their professional holiday.

Each time, coming to the Donetsk mine imeni Zasyad'ko, you find out something new. Now the thick longwall has been cut in short periods, now the preparatory shaft has been drilled in a record time. Today the director Ye. Zvyagil'skiy reports with pride that the collectives of all seven extracting sections have overfulfilled the assignment for a long time now. Because of this 207,000 T of coal have been recorded for the above-plan account.

It is not easy to set up work without laggers at any production. It is one hundred times more complicated to do this in the coal industry where the mining-engineering conditions are often very complicated. How did this mine then achieve success? Everyone that we talked to on this subject associates it with the introduction of new equipment.

When the automated complex arrived at the mine the brigade headed by one of the best machine operators I. Manekin began to introduce the innovation.

Almost a million tons have already been extracted by the new complex. The load on the longwall has been increased by a quarter. The number of workers has been decreased by 27. What can you say automation! Today the brigade of I. Manekin has over 70,000 T of above-plan coal on its account. Other sections have the same attitude towards work. Everything that is new and leading at the mine is mandatorily given the "green light." "There are more collectives like that formed at the mine imeni Zasyad'ko in the oblast," relates the secretary of the Donetsk Ukrainian Communist Party obkom N. Koval'. The miners of the associations 'Krasnoarmeyskugol','Shakhterskantratsit,' 'Makeyevugol',' 'Sovetskugol','Donetskugol','Torezantratsit' gladden us with their work. They have learned to skilfully use the mechanized complexes which every third longwall is now equipped with. Mechanization of drilling of the horizontal shafts has practically been completed, and the conveyers have been switched to remote control. All of this of course has a fruitful effect on the work. But the guarantee of the current success of the Donetsk miners who have extracted 1.7 million T of coal above the plan since the beginning of the year and have successfully fulfilled the initial annual commitments is the developed competition for worthy meeting of the 60th anniversary of the USSR."

"A Record Every Day!" This is the motto today for the face workers of Yenakiyevo. In Gorlovka, 66 foremen of the facehammer have reported completion of the personal annual assignments. The brigades of A. Polishchuk from the Donetsk mine "Trudovskaya," V. Igant'yev from the Rodinskiy mine Krasnolimanskaya," N. Reshtnikov from the Krasnoarmeyskiy mine imeni Stakhanov and many others have achieved new labor successes.

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INTERVIEW WITH P. S. NEPOROZHNIY

Tallinn SOVETSKAYA ESTONIYA in Russian 4 Sep 82 p 2

/Interview with P. S. Neporozhniy, USSR minister of power and electrification: "Implementing the Decisions of the 26th Party Congress: The Energy of the Atom"/

> /Text/ The developing economy of the Soviet Union requires more and more energy. The total capacity of USSR electric power stations by the end of the 10th Five-Year Plan reached 270 million kW and the annual production of electric power was one trillion 300 billion kW-hours. The USSR Unified Power System was created, which is unique in scale and reliability. According to the five-year plan the generation of electricity in 1985 will increase over 1980 by 260 billion kW-hours. What is more atomic electric power stations /AES/ will play an increasingly important role. Our correspondent has asked P. S. Neporozhniy, the USSR Minister of Power and Electrification, to say a few words about these "energy factories".

The 26th Party Congress decisions call for a radical improvement in the Soviet Union's fuel and power balance primarily by diminishing the use of petroleum products for generating power. Why is this being done? The Soviet Union possesses 55 percent of the world reserves of organic fuel and the development of the Soviet economy is entirely based upon its own fuel and power resources. All the same it is no easy matter to provide the electric power stations with fuel. After all at present nearly 80 percent of our electric power is produced at thermal electric power stations through the combustion of organic raw materials. The primary resources are to be found in the eastern regions of the country while four fifths of all energy is consumed in the European section and in the Urals. This complicates the work of the transportation system - especially the railroads.

Since supplies of organic fuels in the European section of the USSR are nearly exhausted, the growth in the production of electric power in this area and partially in the Urals will come chiefly through the construction of AES's. This will provide the national economy with

enormous savings in transport outlays. During the current five-year plan the generation of electricity at AES's is to nearly triple. To accomplish this it is necessary to introduce more than 20 million kW of reactor capacity. This is a very important matter, which is economically advantageous. It is sufficient to say that the production cost of electric power generated by nuclear fuel is fully comparable with the same indicator at thermal electric power stations.

The first stage in the development of the nuclear power industry requires that AES capacity reach 100 million kW. This is based upon on the use of fast neutron reactors. Uranium-235 is used in these units. But there is little Uranium-235 in natural uranium. For this reason in the future another direction in the nuclear power industry will be taken - using fast neutron reactors which are ten times more efficient in utilizing the supplies of natural uranium.

Recent research has led to the discovery of the feasibility of using nuclear fuel for both generating electricity and for central heating. The solution of this problem is also of great importance. For the expenditures of organic fuel for heating cities and for industrial needs are almost one and a half times greater than for generating electricity. In addition, small, inefficient units, which consume valuable types of fuel, especially petroleum products, are frequently used to generate heat.

From time to time we hear the question: aren't AES's dangerous for the environment and for man? On this score I must say that the expanding range of the atomic power industry, the pace and scale of its development, the increase in the per-unit capacity of power units, the locating of the power stations themselves in densely populated areas have made it necessary to develop comprehensive measures of an ecological nature. And I must note that the outlays in the atomic power industry for the protection of the environment are providing a greater benefit than in the classical thermal electric power industry. Atomic power stations do not pollute water or air; and their radiation and harmful emissions do not exceed permissible levels. Our levels are significantly below the established international norms.

I might add that the consumption of oxygen for the combustion of common organic fuel is approximately five times greater than the consumption of oxygen by the population of the entire world. An atomic electric power station does not require any oxygen at all for its technological processes. Thus the extensive development of the atomic power industry is justfied from both an economic and an ecological point of view.

And so what are we building today and what will be built tomorrow? During the current five-year plan we expect to introduce some six to seven million kW of capacity at AES's each year. During the next five-year plan this figure will rise to 10 million kW per year. Basically we plan to create large stations - four to seven million kW each using fast neutron reactors. We plan to enlarge the Kurskaya

and Chernobyl'skaya AES's and to build the Smolenskaya, Ignalinskaya, Yuzhno-Ukrainskaya, Kalininskaya, Zaporozhskaya, Rostovskaya, Balakovskaya, Khmel'nitskaya, Rovenskaya and other atomic power stations. The construction of the first atomic electric power and heating central /ATETs/, which generate both electricity and heat, has gotten underway near Odessa. In the cities of Gor'kiy and Voronezh we are building atomic power stations which will generate only heat.

The construction workers and the power industry workers have pledged to work diligently at a forced pace. The CPSU Central Committee and the USSR Council of Ministers have issued a special decree aimed at speeding up the construction of atomic power stations. Within the CPSU Central Committee a meeting was held that was devoted to this matter. The main task -within the 11th Five-Year Plan to complete two and half times more power capacities than in the 10th Five-Year Plan and to put power unit production on a series-basis. We have already developed a design for a series-production power station, the primary model of which is being built in Zaporozh'ye. In the vicinity of the construction sites we are creating atomic power station construction combines, which are to unify the interests of numerous contractor, industrial and transport organizations and to subordinate them to a common goal - to complete one power unit per year.

I should also say that in the field of building breeder reactors we are ahead of other nations. At the Beloyarskaya AES we have the world's largest reactor with a rated capacity of 600,000 kW. On the basis of this reactor we will be building series-produced units with a rated capacity of 800,000 kW. Still later we will see reactors with significantly larger capacities.

As a rule, atomic power stations must operate in the so-called base portion of the power load schedules. For this reason in the European portion of the Soviet Union it is necessary to have fully readied highly-maneuverable units with a capacity of nearly 20 to 25 percent of the established AES capacity to cover the alternating portion of the "peak" loadsschedules and to augment the "drops". Hydraulic, especially water storage power stations, handle this task best of all. The combining of an AES, GES and GAES provide considerable efficiency and reliability in the operation of the USSR's Unified Power System. Gas turbine units are used for this purpose, which are capable of being added to the system as required and which can quickly achieve the load.

A modern atomic electric power station is a complex enterprise. Only highly skilled, technically competent specialists can operate them. For this reason within the sector a great deal of attention is being given to the training of personnel for the AES. The energy "factories" are being built, started and operated largely by young people for the sector itself is rather young.

Within the system of our ministry there is an entire network of production-technical institutions and training combines, which, as a rule, are located directly at atomic power stations under construction. In the near future we will establish new production-technical institutions - at the Kurskaya, Smolenskaya, Rovenskaya and other atomic power stations.

Five institutes of the ministry are training personnel especially for servicing atomic electric power stations; and the same number of institutions are training personnel to build atomic power stations. Highly-skilled specialists are being graduated by such famous Moscow institutions of higher learning as the MEI /Moscow Order of Lenin Power Institute/ and MIFI /Moscow Order of Labor Red Banner Engineering and Physics Institute/ as well as the Tomsk, Ural, Gor'kiy, and Odessa polytechnical institutes.

The atomic power industry is a young but very promising and rapidly developing sector of the economy. I remind you that the world's first atomic power station, which we completed and put into operation in 1954, had a rated capacity of only 5,000 kW. Now we are reaching the milestone of introducing six to seven million kW of atomic power capacities each year.

The Soviet Union has subsequently fought and is continuing to fight to ensure that the energy of the atom is used for peaceful purposes and for the good of mankind.

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AZERBAIJAN GRES CONSTRUCTION REPORT

Baku BAKINSKIY RABOCHIY in Russian 25 Aug 82 p 2

/Article: "The Builders' Helper"/

/Text/ At the construction site of the Azerbaydzhanskaya GRES the most recent special edition of the city newspaper OGNI MINGECHAURA has been published. All of the printed materials have been combined under the general title of "Shock pace for a shock construction project". Only a month remained until the start-up of the second power unit, and the newspaper, which is an organ of the headquarters for the Mingechaur City Party Committee for managing the construction of the Azerbaydzhanskaya GRES, describes the progress in the mass competition, which has been organized on the "workers' relay race" principle. The 18 contract organizations of this gigantic construction project, several city labor organizations as well as numerous enterprises which are supplying the project in Mingechaur with equipment, construction materials and raw materials, are engaged in a labor competition aimed at putting the second power unit into operation in September.

"'The workers' relay race' names the victors" is the lead article in the special edition of the newspaper, which is devoted to the results of the socialist competition. The collective of the Construction and Installation Administration of the Azerbaydzhanskaya GRES has ended up in first place. The article describes the warm and solemn circumstance in which the flag was raised in honor of the victors and the brigade leader of the comprehensive Komsomol brigade, F. Mamedov, was presented with Honorary certificates. Also receiving awards were G. Masimov, a carpenter; P. Asadov, a stone mason; and O. Kuliyev, the operator of the concrete plant. These men were the winners in an individual competition.

The chief of the headquarters of the shock Komsomol construction project, A. Mirzoyev, reported on the work of the brigade of installers headed by A. Aliyev from the Kavkazenergomontazh /Caucasus Power Station Installation Trust/ Trust. In July alone this brigade, while seeking reserves to increase labor productivity, installed 13 enlarged units instead of nine. The labor success of this brigade was the subject of a subsequent edition of the "Molniya". Also working on the

"workers' relay race" principle is the collective of the Leningradskiy Metallicheskiy Zavod Association. The newspaper carries a report stating that the association has manufactured a rotor for the second power unit of the Azerbaydzhanskaya GRES ahead of schedule.

The commentary of the senior engineer for the Capital Construction Department's technical supervision at the GRES, T. Iskenderov, which was entitled "work according to your conscience", was contained in the newspaper under the rubric "at a sharp angle". The commentary provided a sharp criticism of the poor work being done by the Mingechaur sector of the Azerbaijan Installation Administration of the Gidrosantekhmontazh /hydroelectric sanitary and technical installation/ Trust on the construction of the engineering and general purpose building of the power station. This collective is letting its related industries down and is violating the primary principle of the "workers' relay race".

The special edition of the newspaper contains articles describing the progress in erecting the sports complex of the Azerbaydzhanskaya GRES, where the brigade of N. Mirzoyev is doing such an outstanding job, and the evening of rest and recreation in the dormitory of the builders and other stories.

The OGNI MINGECHAURA city newspaper is keeping a close watch over the progress of work at the construction site of the Azerbaydzhanskaya GRES.

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AZERBAIJAN GRES SETS MILESTONE

Baku BAKINSKIY RABOCHIY in Russian 26 Aug 82 p 1

/Article" "The First Billion is a Reality"/

/Text/ The guages of the Azerbaijan GRES have recorded the output of the first billion kW-hours of electricity since the start-up of the power station. This remarkable milestone was achieved ahead of schedule.

The basis of this recent success was created during the construction of the GRES and the installation of the equipment. The high quality of this work is a tribute to the workers of the Azenergostroy /Azerbaijan power station construction/ and Kavkazenergomontazh /Caucasus power station installation/ trusts. The power station operators, whose efforts are supported by a more rational operating mode of the first 300,000 kW power unit, have taken up the baton of shock labor.

The operation of the complex set of monitoring and measuring and automatic equipment is no simple matter; it requires skill from the service personnel. The cadres of workers and specialists were adequately trained at power enterprises in Leningrad, near Moscow, Stavropol', and in training courses offered in Mingechaur. At these training sessions power workers from other Soviet cities shared their experience with their Azerbaijan colleagues.

The Azerbaijan GRES now accounts for almost 15 percent of all electric power generated within the republic. The assimilation of the rated capacity of the first power unit has made it possible to shut down the outdated and inefficient equipment at the Severnaya GRES, the Krasnaya Zvezda TETs, the Kirovabadskaya TETs and several others without detriment to the power grid. This has made it possible to conserve 10,000 tons of conventional fuel already this year.

By the end of the year the Azerbaijan GRES will generate another 500 million kW-hours of electricity. Work on starting up the second power unit is proceeding at a rapid pace, as called for in decisions of the 26th Party Congress.

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TSELINENERGO GENERAL DIRECTOR

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 17 Aug 82 p 2

/Article by V. Levin, general director of Tselinenergo: "Putting Power Industry Reserves to Work: Thriftily and Economically"/

/Text/ The Tselinnaya power system is in an area served by the production association Tselinenergo. Nearly one half of the consumed power comes from its own electric power stations and the other half comes from the Pavlodar-Ekibastuzskiy power complex, which frequently, in connection with the assimilation of new equipment, does not operate at full capacity. The main electric power station of the power system is the Petropavlovskaya TETs-2, which never has enough steam capacity. The majority of the boilers of this station have long ago depleted the normative time resource, in connection with which the reliability of the operation of the primary and auxiliary equipment has dropped sharply.

At the new Tselinogradskaya TETs-2 for the first time in the Soviet Union they have installed experimental medium speed mills, which require further work. All of this has led to some difficulty in supplying consumers with electric power, particularly during the maximum load hours.

Already this year serious measures are being taken to improve the power supply. This includes the introduction of a sixth boiler assembly with a capacity of 220 tons of steam per hour at the Petropavlovskaya TETs-2, the introduction of a third power unit at the Tselinogradskaya TETs-2, and the introduction of a hot water boiler rated at 110 gigacalories at the Kokchetavskaya central boiler. In addition, at the Petropavlovskaya TETs-2 we plan to install a second line for recirculating fresh water and to switch to a closed system for separating ash from water, which will significantly improve the water mode of the station. The Tselinogradskaya TETs-2 will be switched to a peak mode. It is also planned to sharply improve the power balance of the region by accepting electric power near Kokchetav from the high voltage power transmission line now being built between Ekibastuz and the Urals. This line has a voltage of 1,150 kV. We will also transfer the Omsk to Petropavlovsk power transmission line to the planned voltage of 500 kV.

In this manner the power supply of the region will be improved, but this does not mean that the problem of the rational use of power resources will go away. Moreover, we must bear in mind that economy is not just doing away with poor economic practices; it also includes the struggle to more fully use all reserves. It is necessary to provide an additional reduction in the consumption of power and to develop and accomplish measures for conservation based upon the improvement of equipment and production technology, imposing a strict mode of thrift and eliminating various kinds of losses.

Toward these ends Tselinenergo is taking steps to motivate collectives which are seeking to conserve electric and thermal power and fuel. These steps include awarding space in classes and payments of cash awards to competition winners and participation in oblast and republic competitions for the best rationalizer suggestions for conserving energy resources.

The collectives of enterprises within the three oblasts served by Tselinenergo have done much to make rational use of energy. During the past year the industrial enterprises, which have established relative norms, used 2,900 million kW-hours of electricity against a norm of 2,983 million. The savings were achieved through the adoption of organizational-technical measures and the socialist competition that was initiated to conserve. Some 140 enterprises participated in the competition. The best results were achieved by the Makinskiy piston plant, the Shchuchinskiy mechanical repair plant and other enterprises.

But, unfortunately, there are other enterprises where electric power is still being wasted. For example, last year the Petropavlovsk Plant imeni M. I. Kalinin used 2,246,000 kW-hours of electricity above their allocation. This represents 21.6 percent of the established norm. The overexpenditure at the Stepnogorskiy Progress Plant amounted to 12.7 percent and at the Tselinogradskiy commercial equipment plant the figure was 8.8 percent. Among those overexpending electricity were the Pavlodar division of the Tselina Railroad, the Tselinogradskiy ceramic plant and other enterprises and organizations.

The Tselinenergo power inspectorate is, of course, engaged in a struggle to combat the waste of electricity. Last year alone the peoples' control organs handled 314 cases of various violations, which resulted in 287 individuals being punished. Nearly 1,100 cases were referred to the administrative commissions of the local Soviets of Peoples' Deputies, which punished 985 peope. Some 89 industrial and 897 agricultural units were shut down for various infractions.

In our work to instill order in conservation a bottle neck is the control over rural consumers. The installation of any kind of electrical heating device in a rural area has taken on immense dimensions. For example, in the area that we serve they have installed nearly 17,600 electric boilers, heaters and water heaters with a total capacity of 323,500 kW. This means that such a large electric power station as

the Petropavlovskaya TETs-2, which operates almost exclusively for the needs of rural heating units, which in many cases are not needed. In addition a large portion of these heating units was installed without permission from the power inspectorate.

It should be pointed out that one of the reasons for these violations is the realization by the oblast associations of Goskomsel'khoztekhnika of electrical heating devices without the coordination with the power inspectorate in spite of the fact that the Kazglavsel'khozkomplekt has issued special instructions on this matter.

The power inspectorate and the oblast associations of Sel'khozenergo have developed regulatory measures for reducing the power load during the morning and evening hours at sovkhozes and kolkhozes. But many farms do not turn their heating units off, which results in additional limitations for consumers both in agriculture and in industry. Among the farms guilty of this are the Anarskiy, Veselovskiy, Krasnosel'skiy in Tselinogradskaya Oblast; the Pobeda, 40 years of October, and Avangard in Kokchetavskaya Oblast; and the Karagandinskiy, Smirnovskiy, Mar'yevskiy and Obraztsovyy sovkhozes in the Northern Kazakhstansakaya Oblast.

This year some 66 rural consumers, including 16 each in Tselinogradskaya and Kokchetavskaya oblasts and 34 in the Northern Kazakhstanskaya Oblast, are to be switched to individual accounts within the Tselinenergo system. This will enable the farms to monitor the actual expenditure of electric power for both production and non-production needs and within the private sector.

The solution of these problems will make it possible to more completely and reliably provide industrial and agricultural enterprises, the transportation system, communications, construction organizations and other sectors of the national economy with electricity. It will also make it possible to fulfill socialist pledges, this year's plans and the plans for the 11th Five-Year Plan on the whole.

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PLANS FOR FURTHER DEVELOPMENT OF RURAL ELECTRIFICATION OUTLINED

Moscow ENERGETIK in Russian No 8, Aug 82 pp 1-3

[Article by Ye. I. Borisov, first deputy minister of power and electrification of the USSR: "Tasks for the Further Development of Agricultural Electrification in the USSR"]

[Text] The modern stage of development of rural electrification in our country found its beginnings in the March (1965) Plenum of the CPSU Central Committee. The Plenum pointed out that the development of the agricultural industry must proceed from the basis of extensive electrification and electromechanization, particularly in cattle breeding.

At the 26th CPSU Congress, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev noted that the major guidelines for forthcoming work in the area of agriculture were set in the resolutions of the July (1978) Plenum of the CPSU Central Committee and are still in force. It was emphasized at the Plenum that "the intensification of agricultural production based upon the maximum degree of mechanization and electrification and the chemization and reclamation of lands remains the major direction for the party's agrarian policies at this modern stage."

Electrification is of great significance in the implementation of the party's agrarian policies. Great strides have been made in the development of electrification over the last 16 years. Much work has been done to develop electric systems and to expand the application of electric power in agricultural production, in everyday life and in the sphere of services extended to the rural population.

The rapid pace of agricultural electrification has become possible only as a result of the uninterrupted development of the power industry in our country. It is enough to say that the installed capacity of all the country's electric power stations reached 277 million kW by the beginning of 1982. These stations generated 1.3 trillion kWh of electric power in 1981.

In January 1979 the CPSU Central Committee and the USSR Council of Ministers adopted a resolution "On Measures for the Further Development of Electrification in Agriculture." This document noted that "the development of state power systems and the connection of rural electric networks to them has made it possible to accomplish an important step in the electrification of agriculture and to provide electric power

to all kolkhozes, sovkhozes, interfarm and other agricultural enterprises and organizations as well as to the homes of the kolkhoz and sovkhoz workers."

The resolution also pointed out shortcomings hampering increases in the power-worker ratio, the further development of electric-power applications and the introduction of automated equipment in agricultural production, as well as increased reliability of the electric power supply to rural consumers.

The CPSU Central Committee and the USSR Council of Ministers have set tasks for the further development of rural electrification as a most important means of accelerating technical progress in agricultural production and of improving the cultural and domestic living conditions of the rural population. Plans have been made to carry out a gradual transition from the automation of individual production processes and operations to the total automation of shops and agricultural enterprises.

The USSR Ministry of Power and Electrification has developed and is now carrying out measures to implement the tasks which have been set. Considerable work is being carried out in collectives to develop electric power systems and to increase the reliability of the power supply. Socialist competition has been extensively expanded. Progressive methods are being introduced for the repair and servicing of electric power systems--total overhauls, work-team contracting and fixed tasking. Centralized-repair and traveling teams have become the primary form of technical servicing on electric power networks.

The work-team form of organization and payment has been introduced in electric power systems in recent years. Within the electric power systems of Kostromaenergo, 90 contract work teams consolidating 85 percent of the operational personnel have been formed over the last two years and are now working. Additionally, 88 percent of the electric power systems have been switched over to maintenance and repair servicing carried out under warranty. As a result, the number of disconnections in electric power networks was reduced by 25 percent, and labor productivity rose by 21 percent. This made it possible to reduce the number of personnel, increase the average salary by 11 percent, reduce personnel turnover and strengthen labor discipline.

Work carried out on the integrated automation of distribution networks in a number of power systems (Bashkirenergo, Belglavenergo, Mosenergo, Moldglavenergo, power systems of the Ukrainian SSR Minenergo, et al.) shows that it is one of the most efficient methods of increasing the reliability of the power supply to agriculture.

The extent of electric power networks intended for agricultural usage reached 3.8 million km, and the number of transformer substations and transformer points exceeded 800,000. The structure of electric power networks has changed qualitatively with respect to the materials used in the supports. There has been an increase in the extent of overhead lines hung on supports made of reinforced concrete and steel. At the present time, 77 percent of all 35-110 kV lines in operation are suspended on reinforced concrete supports. The corresponding figures for 6-20 kV and 0.4 kV lines are 45 and 19 percent, respectively.

The consumption of electric power in agriculture increased by a factor of 1.6 in comparison with 1975 and reached 118 billion kWh in 1981. The average annual

increase in consumption amounted to 7.2 billion kWh, or 10 percent. The power available per worker in kolkhozes and sovkhozes increased by a factor of 1.75 and reached 2,950 kWh per year.

As a result of measures which have been implemented, the reliability of the power supply to agricultural consumers has increased. The number of 35-110 kV substations with two transformers possessing dual power supplies and remote signaling has been increased. The average length of outgoing 6-20 kV lines has been reduced. The number of backup power supply lines has increased, and the number of disconnections for rural consumers has been reduced.

At the same time, there are considerable deficiencies in the development of agricultural electrification. The electric power supply is insufficiently reliable and there are difficulties and unsolved problems.

Because of inadequacies in the construction organization of electric power systems, the unsatisfactory delivery of materials and equipment and the poor equipping of construction and operations sections dealing with rural electrification, machinery and vehicle transportation, 70,000 km of electric power lines and 8 million kVA of transformer capacities were not put into operation in the 10th Five-Year Plan. Moreover, capital investments in the agricultural sector were not fully utilized.

Repair operations on and measures to improve the operational reliability of electric power networks are being carried out in insufficient volume. The construction of repair bases and maintenance-and-repair stations for electric power distribution systems as well as the implementation of automation within these systems is lagging.

The 26th CPSU Congress acknowledged that it was necessary to develop a special food-supply program in order to insure a continuous supply of foodstuffs to the population and raw materials to industry.

The May (1982) Plenum of the CPSU Central Committee approved the USSR Foodstuffs Program for the period to 1990. In the section entitled "Development of the Material and Technical Base of the Agricultural Complex" it was stated: "The most important condition for the successful realization of the USSR Foodstuffs Program is the acceleration of scientific and technical progress, the high-efficiency utilization of industrial potential and the strengthening of the material and technical base in agriculture and all sectors of the agro-industrial complex based on the further expansion of mechanization and chemization in industry, as well as on extensive land reclamation."

A task has been set to complete by 1990 the basic overall mechanization of farming and cattle raising as well as the re-equipping of the food-processing sectors of industry on a new technical basis.

During this period, the supply of electric power to agriculture must increase considerably. In 1990 it will amount to 210-235 billion kWh.

The fulfillment of these tasks will depend to a considerable degree upon how reliably agriculture and livestock breeders will be supplied with electric power.

In accordance with the State Plan for the Economic and Social Development of the USSR for the Years 1981 to 1985, plans have been made to carry out a great deal of work in the area of agricultural electrification during the 11th Five-Year Plan, increasing the extent of electrification in agriculture by a factor of 1.5.

The following are to be constructed and put into operation during the five-year period: 80,600 km of 35-110 kv lines; transformer substations with a total capacity of 35 million kVA; and more than 650,000 km of 0.4-20 kV distribution networks. Plans have also been made to carry out a great amount of work on the modernization of 0.4-20 kV lines and the construction of repair and production bases for construction organizations and power-system enterprises, as well as the construction of maintenance and repair stations for distribution networks.

Plans have been made to expand the construction of lines and substations for electric power supply to agriculture in the non-chernozem zone of RSFSR, regions of Siberia and the Far East.

In order to carry out the established plans for power system construction, it is necessary to introduce more extensively industrial methods of construction, to strengthen the production bases for mechanized columns and to expand the production of reinforced-concrete structural members.

Improving the quality of power-network construction is an urgent task.

Important measures must be implemented to further improve the reliability of the power supply to rural consumers. This task consists of insuring by the end of the five-year period a backup power supply to livestock complexes, poultry farms, large-scale livestock farms and other consumers who belong to Category I with regard to the need for power-supply reliability.

Plans have been made for the overall introduction of centralized combined maintenance and repair services for electric power systems along with a corresponding consolidation of repair and production bases (RPB's) and maintenance and repair stations (REP's), 895 of which are slated for construction.

The primary operational administrations, power systems and electric power enterprises must make power supply networks comply with the modern requirements of agricultural production, must extensively introduce progressive methods of operation and must automate power systems. They must constantly improve the skills of operational personnel, display concern for their welfare and develop plans of social measures to be implemented at RPB's and REP's for the 11th Five-Year Plan. These measures will provide for the construction of housing and children's facilities for the electricians and engineering and technical workers who service the distribution networks and who live in rural areas. The staffing of enterprises and power system sites with qualified specialists is an extremely important task.

It has become necessary to draw up standardized documentation and instructions to account for breakdowns in rural power systems, to create a system for evaluating the operational reliability of power systems and to develop norms for the expenditure of equipment, materials, machines and mechanisms for maintenance and repair services within rural power systems.

Great problems remain to be solved regarding power supply to agriculture in the non-chernozem zone of the RSFSR and the central chernozem regions of Russia.

A great deal of work in the area of power system construction remains to be carried out in 1982. Plans have been made to construct and commission 17,900 km of 35-110 kV power lines, 110-35/10 kV transformer substations with a total capacity of 8.47 million kVA and 128,000 km of 0.4-20 kV electric power distribution networks. Plans have also been made to utilize 667 million rubles of capital investment apportioned for agriculture, including 474 million rubles of construction and installation work.

Provisions have been made to modernize 0.4-20 kV transmission lines in the amount of 10.6 million rubles and to construct and commission 161 maintenance and repair stations, completing construction and installation work in the amount of 28.1 million rubles.

Particular attention is being devoted to the development of electric power systems in the non-chernozem zone of the RSFSR, where we must construct and commission 3,118 km of 35-110 kV lines, 110-35/10 kV transformer substations with a total capacity of 1,348 kVA and 22,800 km of distribution networks. We must modernize 0.4-20 kV power networks in the amount of 1.25 million rubles and construct and commission 33 maintenance and repair stations.

In an effort to solve problems associated with the realization of the USSR Foodstuffs Program, collectives from enterprises and organizations within the USSR Ministry of Power and Electrification have assumed socialist obligations which provide for: the commissioning of additional 0.4-6-20 kV rural lines; the completion of repair work and the rendering of organizational and technical assistance in the operation of electric power systems belonging to kolkhozes and sovkhozes in the amount of 350 million rubles over and above the plan; the completion of repair work on kolkhozes and sovkhozes and the rendering of organizational and technical assistance in the amount of 3 million rubles in the operation of threshing-floor electrical equipment, elevators and field machinery used in the 1982 harvest, as well as in the operation of cattle farms and complexes and poultry farms which provide for the wintering of cattle and poultry; the connection of no less than 400 newly commissioned threshing floors, grain-cleaning stations, enriched-flour units and other agricultural facilities in oblasts, krays and autonomous republics of the RSFSR to power systems by the beginning of the 1982 harvests.

Plans have been made to raise rural electric power consumption to 157 billion kWh by 1985. In order to insure the transmission of this power it will be necessary to construct a considerable number of 0.4-110 kV rural electric power lines in the years 1981-1985.

The further development of agricultural electrification in our country and the implementation of measures to increase the reliability of electric power supply will undoubtedly contribute to improving the operational efficiency of sectors in the agricultural complex and to solving problems regarding the supply of food products to the country's population and the improvement of the public welfare.

9512
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NON-NUCLEAR POWER

REDUCED FUEL QUALITY AT YERMAK GRES

Moscow EKONOMICHESKAYA GAZETA in Russian No 35, Aug 82 p 4

[Article by Ye. Kozlov, Yermak of Pavlodar Oblast: "The Yermak GRES"]

[Text] There was a time when the Yermak GRES was considered one of the best power stations in the system of the USSR Minenergo [Ministry of Energy]. Power engineers of Kazakhstan and other thermoelectric power stations of the country traveled here to learn about its labor organization and production. But now, unfortunately, it relinquishes that position.

For seven months of this year the station has underproduced for the plan more than 400 million kWh of electrical power. To generate each kilowatt-hour, 7.1 grams of coal more than provided by the standard are consumed. Because of this, 51.5 thousand tons of fuel are overconsumed. Mazut is used especially wastefully. Perhaps, the single index which "adorns" the seven-month report is the output of thermal energy: 15,000 gigacalories above the plan are released to the users.

What are the reasons for the unsteady operation of the station? One of the main reasons is the deterioration of the fuel quality of the fuel. The plan called for burning coal with an ash content of not more than 38.7%. Then the standard was reviewed, and now an ash content of 43% is considered normal.

On the average, the union "Ekibastuzugol'" [Ekibastuz coal] maintain the given standard, but in certain railcars that arrive half of the load is ash. And when such fuel is burned in the boilers, the equipment wears out ahead of time. Gas conduits, exhaust fans, electrostatic precipators, ash ducts, and pumps rapidly become inoperable. For example, this year the units were shut down 14 times for the premature repair of exhaust fans.

On the threshold of winter the power engineers become anxious that the coal miners will make a helpless gesture. At Ekibastuz it is necessary to construct normalizing stations in order to enrich and bring the coal up to "condition." But neither the union, nor the USSR Minugleprom [Ministry of the Coal Industry] has solved this problem for a long time. The coal miners prefer to pay the power engineers fines for the underloading of coal and the disruption of the GOST's, which reach 600-700 thousand rubles per year.

Now the collective of the station is getting ready for the approach of cold weather. The repair of the main equipment is carried out by the enterprise "Sevkazenergoremont" [Northern Kazakhstan Power Equipment Repair] of the administration "Pavlodarenergo" [Pavlodar Power] and, in an emergency, by its own section. They are managing to meet the planned schedule but with difficulty, because there are not enough repairmen. As a result, the work is rushed, and there occurs an excess in the transfer of people from section to section. And, as a consequence, the repair work rises in cost, and its quality deteriorates.

9978
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NON-NUCLEAR POWER

IRREGULAR CONSTRUCTION WORK ON DAM OF ROSTOV AES

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Aug 82 p 1

[Article by V. Dolgopolov, work superintendent; M. Los', operator of "KamAZ"; A. Bogdanov, work superintendent; L. Chebotareva, contributor to multi-edition newspaper ZNAMYA STROITELYA; V. Cherkasov, department manager of the newspaper VOLGODONSKAYA PRAVDA: "First We Wait, Then We Overtake"]

[Text] The newspaper SOTSIALISTICHESKAYA INDUSTRIYA recently reported on a cooling pond dam which is being erected in the Tsimlyansk Sea [reservoir] for the Rostov AES. Let us remember that this is a very complex engineering structure, which should become operational in the middle of 1984. The cooling pond dam is the most costly site of the construction. For example, the reactor section will cost 39 million rubles, but the dam will be 10 million rubles more than this figure.

In two years the construction workers so far have piled only 300,000 cubic meters of stone into the body of the dam, which is six times less than full capacity. And if one adds to this still another 1 mil m^3 sand and rubble, then it becomes clearly evident what an enormous task the contractors face.

Is this an actual fact? Absolutely. We have many reserves for speeding up the operations. Their use depends on different factors, both internal and external. The external factors include the work of collectives of the Repnyansk quarry administration and the Likhovskoy department of the railroad. And the internal factors pertain to work of the truckdrivers, machine operators and construction workers. Let us say frankly that none of them operates to full capacity, although their activity is authenticated by an agreement of collaboration, according to which 80,000-100,000 m^3 of debris, rubble and sand must be packed into the body of the dam each month. So far the greatest amount has been reached in June at 55,000 m^3.

The suppliers and railroad workers work irregularly. Usually in the first half of the month 20-25 screw impellers [rotators] are operating, but in the second half this number is doubled. Every month it is the same thing: first it is "hibernation" and then a feverish haste. Representatives of the special section entrusted with the dam erection are often in the quarry administration. Sometimes it is possible for them to quarry the needed materials, and more often it is not. The fact is that the capacity of the quarry for a long time

has not corresponded to the consumption demand. Decisive measures must be taken to increase the production of these materials. But, unfortunately, the quarry management is not doing this.

Many internal reserves are not being used. First of all, the track of special routes from the quarry to the construction site was very long. Now the impellers are turning around in 80 hours instead of 50. Several organizations are at their disposal: railroad workers of the Volgodonsk and Zavodskoy stations, the enterprise of railroad transport "Volgodonskenergostroy" and the transport workshop Atommash. Each of them tries to lay the blame for the time wasted on each other.

There are still many other disorders. At times the impeller with stone shipped to the Rostov atomic power station on order of the deputy manager of the "Volgodonskenergostroy" trust, V. Bunin, is suddently unloaded at another project, not having anything to do with the AES. The manager of the trust, Yu. Chechin, instead of stopping the outrage, defends his deputy: "The stone moves on order of the trust," he says. "We unload it where, in our opinion, it is needed more."

A great obstacle in the construction of the dam is the absence of the necessary number of transport vehicles. The motor vehicle operators do not pay attention to one of the largest and most important projects. Everyday 20-25 "KamAZ's" are required; and, actually, only 9-10 of the trucks are operating, and with many interruptions.

More than once we sounded the alarm. Our reports on the trouble at the construction site of the dam were published in the multi-edition newspaper ZNAMYA STROITELYA, in the city paper VOLGODONSKAYA PRAVDA and in the oblast paper MOLOT. The manager of the trust, Yu. Chechin, chief of the construction administration of mechanized operations, A. Kudryashov, chief of the motor transport enterprise, I. Murugov, director of the Repnyansk quarry, V. Yakimenko, and chief of the Likhovskoy department of the Southeastern Railroad, V. Krzhak, did not respond to our signals. We do not understand why the Party organs and, in particular, the Party committee of the "Volgodonskenergostroy" and the Volgodonsk gorkom, do not provide a fundamental evaluation to such an attitude toward the dam construction and the open ignoring of statements in the press.

9978
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NON-NUCLEAR POWER

BRIGADE WORK ON ROSTOV AES

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 20 Aug 82 p 1

[Article by V. Aksenov, our staff correspondent, Volgodonsk: "At the Foundation Mark"]

[Text] From the observation platform all sections of the main body of the Rostov Atomic Power Station are visible. Multicubic [meter] concrete trucks uninterruptedly feed the mix into the foundation pit. Cube after cube the brigade of Anatolyy Krasnopol'skiy packs the concrete into the body of the discharge channel. The construction workers adopted the "watch" method. This means that the teams work day and night. Such a method made it possible to increase the rates by 1.5-fold and receive daily 100 m^3 or more concrete instead of the planned 60 m^3.

"But still not all the reserves are used," says the brigade leader. And he share his plans. The essence of A. Krasnopol'skiy's proposal is for the projects to hire in succession not only construction workers but also brigades of drivers, and collectives of shifts of concrete mix plants. Then everyone will be interested in the fastest completion and delivery ahead of schedule. This is worth listening to, checking out in practice and organizing the work of the allied suppliers into one "team."

The construction workers noted the emergence of the foundation in the reactor section as a labor victory. Installation of the upper part of the structure was begun.

The comprehensive brigade of Nikolay Potapchik contributed much to the achievement of the victory. In one month the brigade pours more than 2,000 m^3 concrete, which is almost two times greater than that in other such collectives. The brigade is distinguished by high professional skill and exemplary discipline. In summing up the competition in honor of the 60th Anniversary of the USSR, a special report is filled out each week. So here in the course of 38 weeks, the word "no" is constantly written in the column "disruption of discipline." The feeling of solidarity and mutual help is highly developed in the brigade. Arriving recently in the brigade from the detachment imeni 19th Komsomol Congress was Sergey Dubovik. He was told about the traditions, and they tried to interest him in the good reputation

being formed by the whole collective. The veterans V. Voronin and A. Gorbachev willingly trained the new one in their skills.

The soul of the collective is the brigade leaders. Nikolay Potapchik loves the order and accuracy in the work. He himself labors on a level with everyone and is an example in any matter. Any business of the brigade he considers his own personal business. Once the first secretary of the gorkom A. Tyaglivyy, conducted a meeting for personal questions at the site. Potapchik registered for the meeting.

"It appears to me that the manager of the administration of the mechanized operations and automotive transport enterprise as yet do not satisfy the needs of the construction," said the brigade leader and gave his calculations of how to use more effectively the cranes and excavating equipment. Everything came to the creation of a single flow of vehicle and machine operators.

"So how is this a personal question?," asked the secretary.

Here is the kind of person Nikiolay Potapchik is. Recently, for the 12th time the brigade was presented with the banner of the victor of labor watch in honor of the 60th Anniversary of the Formation of the USSR.

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BRIEFS

PROBLEMS AT CHIRKEYSKAYA GES--Complex geological conditions of the Northern Caucasus and the high seismic activity of the region posed great problems for specialists of the Leningrad Department of the "Gidroproyekt" [Hydrodesign] Institute imeni S.Ya. Zhuk and construction workers of the Chirkeyskaya GES. USSR Gosstroy experts will later be calling the solutions that were found original and bold. Among them are the methods used here of strengthening the unstable rocky shore massif and erecting the cofferdam surrounding the foundation pit. The shoreline tunnel spillway is among the largest structures in the world of similar type. In its design there was developed an original structure of an end spillway, which made it possible to also solve the complex technical problem of joining the water races under conditions of deep and narrow gorges. The use of the leading equipment and technology provided high rates in the erection of the dam and labor productivity at the concrete works unsurpassed in Soviet practice until now. The 223-meter concrete arched dam on the Sulak River is among the four highest dams built in the world. The total economic savings from introducing the progressive decisions exceeds 20 million rubles. Creators of the Chirkeyskaya GES with a power of 1,000,000 kW, an important highswitching project of the Northern Caucasus, unified power system, have been awarded prizes of the USSR Council of Ministers for 1982. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian 34, Aug 82 p 18] 9978

SAYAN-SHUSHENSKAYA GES RECEIVES TWO IMPELLERS--Two diesel-powered boats by means of the pusher "Angara-59" delivered a gigantic barge with an unusual load to the Sayan-Shshenskaya GES. They delivered two rotors manufactured by the union "Leningrad Metallurgical Works." V. Dudenko quickly "accepted" the rotors on the shore near Karlov of the dam of the brigade of the Spetsgidroenergomontazh. The "steel rosettes" with a total weight of 300 tons made an enormous journey in less than two months--from the pier of the Sverdlovsk quay in Leningrad along northern waters through five seas up to Dudinka and then along the Yenisey blue meridian up to the upper reaches of the great river. In the journey the rotors completed several "transfers" from the marine floating crane "Bogatyr'-4" to the dry-cargo ship "Ponoy," and then to the multi-ton river barge, were raised in a "vat" of the ship raiser through the dam of the Krasnoyarsk GES, and overcame the rapids, stony river bed and shallow water of the upper Yenisey River. It is known that the first two units of the six operating at the Sayan-Shushenskaya GES are equipped with replaceable rotors, which were due to be replaced with permanent ones. So

here is one of the rotors now arriving going for replacement of the temporary one (the first replaceable one arrived already by the last trip), and the second one will become permanent in the future, eight hydro-unit. [Text] [Moscow IZVESTIYA in Russian 24 Aug 82 p 1] 9978

TURBINES FOR ZAPOROZHE AES--The opening of a new building at the plant imeni Kirov considerably accelerates the manufacture of turbines for nuclear power stations. The assembly of the first group of large-scale assemblies of turbines with a power of a million kilowatts was completed yesterday in the building. It is designated for the AES being constructed in the Zaporozhye Oblast and will be manufactured through a compressed schedule coordinated with the construction workers for celebration of the 60th anniversary of the formation of the USSR. The building, with an area of about 7,000 m^2, has assembly lines which join welding, mechanical, assembly, and other operations. Now the units and parts move from operation to operation as along a conveyor. The industrial equipment, created with participation of scientists of Moscow, Leningrad and Novosibirsk, processes the massive billets with great precision. There is not need for a frequent change in positions of the billets: the processing centers with numerical program control, equipped with tens of instruments, accomplish all the operations on site. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Aug 83 p 1] 9978

MARY GRES REACHES PLANNED POWER--Turkmen SSR. The largest electric power station of the Turkmen SSR, the Mary GRES, which supplies power to the unified ring of Central Asia, reached the planned power--1,260,000 kilowatts. The station feeds power to cities and settlements in the region of the 1100 km Karakum canal and provides current to the industrial west of the republic. Six power units are operating at the station now. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 34, Aug 82 p 2] 9978

NIZHNEKAMSK GES AHEAD OF SCHEDULE--Naberezhnye Chelny. Assembly of the tenth unit of the Nizhnekamsk GES began. The first subassembly, a stator weighing several tens of tons, was installed in four days. Earlier three times as much time was spent on this operation. At present the carpenters and cement workers are constructing a crater in the body of the dam, and assemblers are assembling an electrical machine on a bench. Each brigade assembles a specific subassembly. Specialization also makes it possible to gain time. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 22 Aug 82 p 1] 9978

POWER STATION IN CANYON--This hydraulic power system is not yet in the mountains of Dagestan. But in a few years a large workers' settlement will grow on the river Avarskoye Koycu and together with it, the Irganayskaya hydroelectric power station. Its general design was developed by specialists of the Leningrad Department of the "Gidroproyekt" [Hydrodesign] Institute. The station, with a power of 810,000 kilowatts, was designed in an original way. Its dam will be at one place of the river, and the station building itself will be several kilometers from it. The concrete ridge at 110 meters high reliably closes the canyon and forms a reservoir of 700 million m^3 water. Two 5-km delivery tunnels will be drilled through the mountains in parallel. The powerful flow will be carried downward along them to the hydraulic turbogenerators located more than 90 meters below the water mark of the

artificial sea. The efficient use of the water flow helps to feed 100 million m^3 water annually to the lands being irrigated. Putting the power station into operation will make it possible to save 650,000 tons of conventional fuel per year; supplying the whole Northern Caucasus power system with cheap electrical power has been improved. [Text] [Moscow IZVESTIYA in Russian 27 Aug 82 p 3] 9978

IMPORTANT ORDER FOR GES--The Shamkhorskaya GES being constructed in Azerbaijan is a new project to be supplied by the "Sibelektrotyazhmash" [Siberian Heavy Power Machinery] plant. Heading for the 60th Anniversary of the Formation of the USSR, the Siberian machine builders took upon themselves the obligation of completing ahead of time the order for the important power complex of the sister republic. Twenty flatcars with subassemblies for the Shamkhorskiy hydraulic turbogenerator are being sent from Novosibirsk to Azerbaijan. Ever newer batches of parts for the enormous machine, which the waters of the Kura River will bring alive, are being delivered from shops to the plant's loading dock. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 Aug 82 p 1] 9978

ELECTRIFICATION OF LANDS--Ashkhabad. The electrification of the agricultural regions on the right bank of the Amu-Dar'ya River in Turkmenistan has been completed. Current is fed to villages of the Gaurdak massif along a 34-kilometer power transmission line, which was put into operation. Electrification of the virgin lands is being conducted now in the area of the Karakum canal. Altogether in the 11th Five-Year Plan, it is planned to continue more than 3,500 kilometers of power transmission lines into the new agricultural regions. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 22 Aug 82 p 1] 9978

ROTORS DELIVERED--The diesel ship "Ponoy" traveled the Northern Sea Route to the artic port of Dudinka to deliver the seventh and eighth rotors of turbines--weighing about 150 tons each and manufactured at the "Leningrad Metal Works" combine for the Sayan-Shushenskaya GES. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 34, Aug 82 p 3] 9978

POWER LINE, EQUIPMENT INSTALLATION--A 500 kV power transmission line from the Stavropol GRES to substation "Tsentral'naya" in the Apsheron region of the Krasnoyarsk Kray has been brought up to industrial load. Installation of equipment has begun in the main building of the Neryungri GRES. The assembly of bridge cranes and block-pump station structures is being conducted in the turbine section. [Text] Moscow EKONOMICHESKAYA GAZETA in Russian No 34, Aug 82 p 3] 9978

GAS PIPELINES, OIL EXPLORATION--The Sokovskaya compressor station was put into operation on the Urengoy-Petrovsk gas pipeline. Siberian gas has arrived at the border of the Orenburg Oblast three months ahead of time. The first kilometers of pipelines have been welded on the 400-kilometer section of the Urengoy-Pomary-Uzhgorod gas pipeline, which passes over the territory of the Perm Oblast. A labor victory was achieved by the Sakhalinsk prospectors of mineral resources. The first well of the season has been drilled from the floating apparatus "Okha," and an oil flow has been produced

from a depth of more than 2000 meters. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 34, Aug 82 p 3] 9978

HEAT-UTILIZING APPARATUS--Turkmen SSR. The first experimental and industrial apparatus for heat utilization has been developed at the fourth power unit of the Mary GRES. Specialists have estimated that the operation of this apparatus at only one power unit will make it possible to save up to 30 million cubic meters of natural gas per year. In the 11th Five-Year Plan it is planned to put these apparatuses into operation at two more boiler units of the GRES. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 82 p 2] 9978

BILLION KILOWATT-HOURS--Meters of the Azerbaijan GRES have recorded the generation of a billion kilowatt-hours of electrical power since its beginning. This limit was reached a month earlier than planned. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 82 p 3] 9978

POWER TRANSMISSION LINES--The high-voltage power transmission line Razdan-Martuni has been brought up to industrial load. The power line will supply the farms and plants of the largest agricultural region in Armenia with current generated at the Razdan GRES. A high-voltage power transmission line of 170 kilovolts was put into operation in the virgin-land Gyaurskiy massif in Turkmen SSR. It fed power to the interfarm pump station. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 35, Aug 82 p 3] 9978

POWER AT NUREK GES--Fifty billion kilowatt-hours of electrical power have been generated at the Nurek GES. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 29, Jul 82 p 3] 9978

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PIPELINE CONSTRUCTION

KAZAN' GAS TURBINE PROGRESS REPORT

Moscow IZVESTIYA in Russian 7 Sep 82 p 1

[Article by G. Dimov, occasional correspondent of IZVESTIYA, from the Siberia-Central Asia pipeline segment: "The New Engine Is Here: Report for the First Page"; passages between slant lines appear in boldface in source]

[Text] /The Kazan' Engine Building Production Association has built the first gas-turbine engine for the West Siberia-West Europe Gas Pipeline./

The enterprise's shops swarm with activity as usual. But the gas-turbine engine remains the center of attention. Its final assembling is expected to end at two o'clock in the afternoon. And by that time folks from other shops are starting to stream in.

One can understand the feelings of people who left their work stations for a moment in order to behold with their own eyes the "emergence" of the first specimen of a machine new to the enterprise: everyone in the crowd is a personal participant in this event; everyone knows how much work it cost to prepare it.

Barely more than one and one-half months ago the collective of the engine-building association had adopted socialist pledges to organize the production of engines driving the pumping stations on the Urengoy-Uzhgorod export gas pipeline. Of course, these pledges were first thoroughly evaluated from the economic and engineering points of view. In principle, it was clear that, for example, that worn but still operable engines of TU-154 passenger aircraft should be used as the basis for the drive assemblies. But these engines produce thrust and operate on kerosene, whereas it was necessary to transfer 16,000 kw of power to the compressor, "teach" the aircraft engines to operate on gas, and consider reliability, service life and, last but not least, material- and energy-intensiveness. Experts know that this involves a tremendous number of design modifications, fundamentally different technological solutions, and new accessories--in effect, the development of a new chain of production. Owing to the efforts of the association's engineering services, all this was incorporated in the blueprints and, thanks to the skill of the workers, embodied in metal within a little more than 30 days of work!

A. Kirillov, senior foreman of the 17th shop, stands leaning against a pillar. It was he who, together with his comrades, machined the larger components of the housing of the so-called free turbine. Standing to a side and discussing something in a low voice are P. Istoplennikov, chief of the technical bureau at the 5th shop, and N. Shisherov, senior foreman of the precision casting shop. It was they who attended to developing the production technology of turbine blades with a fundamentally new geo-

metry. Other familiar faces are present, too, each of these people having accomplished something special contributing to the common outstanding accomplishment. Today their meticulous labors seem a thing of the past: all are impatiently watching the two teams of four fitters each from the assembly shop, headed by brigade leaders A. Fazylov and N. Gavrilov, as they work on the turbine "shroud."

And the assemblers work under the vigilant eye of the shop technologists,aware that it was not for some symbolic purpose that they were summoned from various brigades to the gas-turbine engine. Today they are still learning on the job so that tomorrow they can train their comrades. In the adjacent shops preparations are in full progress to assemble the next engines for the gas pipeline, all of which should be released for use in the third quarter. And the coproducing enterprises in Kuybyshev and Rybinsk will any day now ship accessories and components for the new engines. The "workers' relay race" is operating smoothly at all stages of the huge conveyer line for the great construction project.

The assembling was completed exactly on time. Brief applause resounded against the arches of the shop, and the speeches at the meeting were just as brief. In essence, it was declared that the Kazan' engine builders pledge themselves to produce several tens of gas-turbine engines for the West Siberia-West Europe gas pipeline during the current quarter and in the first quarter of the next year--engines which in their principal characteristics will be not inferior to the best foreign models.

This is a worthy response to the notorious "sanctions" of the Reagan administration!

1386
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PIPELINE REPORT FROM CHUVASHSKAYA ASSR

Moscow PRAVDA in Russian 9 Sep 82 p 1

[Article by Yu. Knyazev, occasional correspondent of PRAVDA: "Operating Trials Are Under Way" under the rubric "From the Site of the Event"; passages between slantlines appear in boldface in source.]

> [Text] /The super-long distance Urengoy-Pomary-Uzhgorod Gas Pipeline is not only a giant construction project. It also is a vast proving ground for testing under difficult field conditions new equipment provided to builders by workers of domestic industry. A semi-stationary pipe-welding facility is being tested on the Chuvash segment./

This facility was designed at the Kiev affiliate of the Gazstroymashina [Special Design Bureau for Gas Machinery and Equipment], and it was built in the capital of the Ukraine, too, at an experimental machinery plant. The equipment was assembled in record short time--within 3 weeks.

This distinctive "shop" is located not far from the small Chuvash village of Mikhaylovka in Tsivil'skiy Rayon. Large-load vehicles are loaded there with pipe of 1,420-mm diameter after it has been welded together into segments many meters long, and transport it to the pipeline route. This is a streamlined continuous sequence of operations.

V. Troshchin, the chief welder of the Kuybyshevtruboprovodstroy [Kuybyshev Pipeline Construction Trust], said: "At this new facility more than 15 kilometers of pipe have already been welded together into long segments. This is the first contribution of the facility's small work collective to the construction of the Urengoy-Uzhgorod gas pipeline."

The collective is indeed small. Only seven persons work during a work-shift. For comparison, consider that the welding installations normally used by builders have to be operated by 16 persons. This drastic increase in labor productivity was accomplished owing to automation. Even the extremely intricate so-called "root weld" is produced with the aid of automatic equipment. In comparison, at a nearby old-style installation this highly responsible operation is performed by several highly skilled "manual" welders.

After the "root weld" is produced, the automatic equipment performs the welding of the outer "coating" layer and the inner layer. It is worth noting that the outside and inside walls of the pipe are welded together at the same time. Duplex welding is an innovation applied here for the first time. What is more, the personnel work under good and even comfortable conditions, so to speak. They work under a roof and dread neither rain nor cold.

The welding of the inside surface of pipe is monitored with the aid of a special optical device resembling a periscope. The welding area is illuminated with the a beam of light called "the rabbit" by builders. With the aid of "the rabbit" the operator can correct the electrode position as the need arises.

The maintenance of the facility has been entrusted to the brigade of N. Sysketov. Every member of that brigade is enterprising and conscientious. Such qualities are especially needed when testing new equipment.

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PIPELINE CONSTRUCTION

DANISH CP PRESS: LAB PREFAB UNITS SHIPPED FOR PIPELINE

Copenhagen LAND OG FOLK in Danish 16-17 Oct 82 p 1

> [Text] While the interest and President Reagan's rage have been concentrating on West German, French and British supplies for the natural gas pipeline from Siberia to Western Europe, a Danish firm has been supplying equipment worth approximately 10 million kroner without any uproar having been created over it.
>
> It is the container firm of Norfrig, Inc., near Viborg, which, through a West German firm, has been supplying 50 special containers for mobile laboratories.

During the period that the work has been going on, the order has provided employment for 40 people, and the firm hopes for subsequent orders worth several times the amount of the order which has already been executed.

However, nothing concrete has been arranged as yet, Harmut Abl, export manager, who has just returned home from negotiations with the West German firm, tells LAND OG FOLK. However, the possibility of a new order for an additional 100 special containers has been discussed.

There is, however, nothing politically explosive about the order, Abl says. The prefab units contain no U.S. components, they have not been produced on any U.S. license, and it is a West German firm that is the customer.

The U.S. policy of sanctions, and the attempt by the United States to prohibit West European deliveries were recently commented upon by the chief of the government's security and disarmament policy committee, SNU [the State Disarmament Committee], Ambassador Skjold Mellbin. According to RITZAU, he says that the most recent sanctions by the United States do not serve their purpose, and that they are an example of the difference in views of the United States and its European allies on the international situation.

Mellbin deplores the fact that the efforts at detente have got as few advocates in the United States as is the case. He says, among other things, that, regardless of one's views on the regimes in the different countries, the fact that the Soviet Union is partly located in Europe and is one of the European superpowers cannot be denied.

7262
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PAVLODAR-CHIMKENT PIPELINE CONSTRUCTION

Moscow IZVESTIYA in Russian 4 Sep 82 p 1

[Article by G. Dimov, special correspondent of IZVESTIYA, from the route of the Siberia-Central Asia Petroleum Pipeline: "The Southern Leg: Preparations to Start the 1,600 km Long Pavlodar-Chimkent Petroleum Pipeline Are Under Way" under the rubric "Report on First Page"]

[Text] The Kazakhstan towns of Zhanatas and Dzhezkazgan are the termini of the railroad spurs extending into the desert of Betpak-Dala: the former running north from the Turkmen-Siberian Railroad and the latter south-west from the Mointy-Chu Railroad. Located near both stations are the pipe bases of the new petroleum pipeline under construction. These bases contain all that they are supposed to have: stacks of pipe, semi-automatic rotary welding frames, pipe loaders, conditioner carts. And steppe roads toward the pipeline route extend fanwise in a nearly identical pattern from both bases, to the north and south-west from Zhatanas and to the south-east from Dzhezkazgan.

I asked I. Saidzhanov, the leader of the pipe loaders brigade at Zhatanas: "What is the number of these roads?"

He answered: "There are as many roads as there are machines. This is a desert! And we have 20 machines, of the Urad and KrAZ kinds."

R. Mavlyudov, the leader of the truck drivers brigade from Dzhezkazgan added: "During peak hours of work 10 trips are made daily."

The Pavlodar-Chimkent Petroleum Pipeline....Its first leg to have been built ran from Surgut to the Obi-Omsk. Five years ago petroleum from West Siberia began to ascend to Pavlodar along the banks of the Irtysh. And even before then the builders' collectives of the Sredazneftegazstroy [Central Asian Petroleum and Gas Construction Trust] and the Moscow Welding and Assembling Administration started working on the route north of Chimkent. In December 1976 the first 25 km of the pipeline were laid, thus starting work on a long route. Currently the builders are about to make the final, concluding step.

From the very outset this has been an international project. The Volga Region and Bukhara gas industry construction trusts and the Bryansk and Kuybyshev pipeline laying trusts undertook to lay the first half of the route, from Pavlodar to the

settlement of Atasu at the Zhanaarka railroad station, a distance of 800 km. And the second half, also 800 km long, has been handled by the Tashkent Sredazneftegaz-stroy Trust,the well-known builder of the Bukhara-Tashkent-Alma Ata, Bukhara-Urals, and Central Asia-Central USSR gas pipelines, a long segment of the "Northern Glow" Pipeline, and the Moscow Circular Gas Pipeline. At the very outskirts of Chimkent the Moscow Trust, headed by the famous gas pipeline layer V. Bevzyuk, Hero of Socialist Labor, has encamped.

Each of these pipeline crews deserves commendation. Let me tell you about the heroes of the second, Southern leg.

The segment of the pipeline running from Atasu to Lake Karakain is 445 km long (plus 20 km which Uzbekistan builders pledged themselves to lay in order to help the Bryansk builders!). The SU-2 [Construction Trust No 2] is in charge of this segment. It is headquartered in Chimkent. I. Khidoyatkhanov, the chief of this administration, is a native of that city.

He said: "Desert is desert."

The principal project on this segment is the main pumping station in Chulakkurgan. If it is not completed on schedule, Siberian petroleum cannot flow south. This is understood there. The project is headed by power engineer E. Poraskevopopula, and it is being built by a subcontractor, the SU-6 of the same administration. The core of the work force there is represented by the comprehensive brigades led by three men bearing the name of Vladimir: Utemuradov, Amend and Kirsanov, as well as by the brigade of electric welders under the 53 years old Vasiliy Tikhonovich Bochenkov, a party member and chevalier of two orders of Lenin. It was largely owing to the enthusiasm and skill of these brigades that block-boxes--for which the equipment was supplied by Czechoslovakia--and a dormitory were erected and the surrounding land was developed, with an Artesian well having been dug on it and having started to gush.

A 174 km long segment of the petroleum pipeline running from the 939th to the 1,113th kilometer markers is headed by V. Tsarenko one of the most industrious builders on this pipeline. The labors of his collective, and especially of the brigade of insulation installers and pipe layers under V. Shishkin, and the brigades of installers under S. Temirgazin and A. Golovatskiy, as well as of the head of the welding crew A. Lapchenko, is justly called not only heroic but also pioneering. The temperature drops there are particularly drastic: sultry heat in the summer is followed by frosts in the winter. The subsurface waters are aggressive. Hence pipe laid on this segment is provided with extra insulation and the welds are inspected ultrasonically and by gamma radiation not selectively but thoroughly--a special assurance of strength is needed.

Currently, the champion crew is the one headed by N. Pak, which works on the segment between the 1,113th and the 1,295th kilometer markers. On this 180 km long segment more than 160 km of pipe has already been laid and, according to the builders, this has been due to the efficient coordination of activities between the prime contractor and the subcontractors and the resourcefulness of the welders under E. Bikineyev and pipe layers under N. Krasnov.

The segment handled by another prime contractor of the administration, running 330 km from Karakain to Chulakkurgan, is supplied with pipe trucked in from Zhanatas. Only 16 km of pipe remains to be laid there. On the leg from Chuzak to Kulakkurgan air tests of the pipe already commenced, and on one-half of the segment the pipe is being filled with water.

What has enabled this collective to proceed at a spearheading pace? A. Pivkin, the chief and main engineer of the administration immediately answers that this has been due to the continuous-flow method. The excavation of soil, the installation of pipe, the placement of insulation, and the operations of the cathodic protection facility--everything, starting with rotary welding at the pipe base and the filling up of the excavations, has been comprised in a single operations schedule, so that as many as 30 km of pipe instead of 12-13 km have been laid during some months.

Incidentally we stated that the pipe is being filled with water. This is something new to the construction crews. Ever since its establishment this trust has been building chiefly gas pipelines, which have always been tested with gas. Now not only petroleum pipelines but also gas pipelines are tested with water for strength. And to builders this always also is a test of character. Water has to be pumped under a pressure of more than 60 atmospheres into the completed segments of the pipeline. But before that, where can the water be obtained?

This problem has become particularly acute here. The Chu River, which the petroleum pipeline crosses at the town of Zhoantobe, has long since been denoted by a dotted line on the maps of this region: it dries up in the summer. After an impounding reservoir was built in the upper reaches of that river, its discharge has completely stopped. Water for pipeline tests had to be pumped in from the Sarysu River. And since it might not suffice, Artesian wells began to be dug. Soon they, fortunately, started to gush.

At his offices in Tashkent, on Kondrat'yev Street, R. Rakhimov is a hard man to find: he is the head of the Sredazneftegazstroy Trust. Its collective recently was given the priority task of linking up new major supply arteries from the sultry Predkopetdag regions to the Central Asia-Central USSR Gas Pipeline. Every second trip he now makes is to these regions. The Pavlodar-Chimkent Petroleum Pipeline is, as they say, already coming. In a telegram from the Trust I read: "Remains to be done: 49 km of pipe to be subjected to overhead welding, 40 km to be transported, and 66 km to be insulated." (Let it be borne in mind that this is all that still remains to be done on this 800 km long leg.) This is a matter of one to one and one-half months. But the builders pledged themselves to complete the work precisely within that period in honor of the 60th anniversary of the USSR. Hence the head of the trust along with the party members and experts at the trust make repeated flights to the north, to the pipeline route running across the desert wastes of Kazakhstan. And thence they travel by air or cross-country vehicles to any difficult spots that may arise. The final segment must be completed in one sustained effort!

The coming opening of the Pavlodar-Chimkent Petroleum Pipeline will be a major event in the region's economic life. The pipeline will relieve the burden on the railroads of Kazakhstan and open the way for the flow of provisions from the south to the Siberia, the Urals and the central regions, and thence to the south. Kazakhstan and Central Asia will begin to receive West Siberian petroleum "at home" from the refinery in Chimkent where, after the petroleum refinery now under construction will be completed, the production of gasoline will commence. The resulting sharp reduction in the distance of the supply of crude petroleum will help the Fergana Refinery to resume operating at full capacity. Siberian petroleum will be nearer to the Chardzhou Plant.

The construction of the transcontinental Urengoy-Pomary-Uzhgorod Gas Pipeline, which will subsequently be extended to the European countries, has been accompanied by an increase rather than a decrease in the scale of the construction of gas and petroleum pipelines for the nation's domestic needs, for the further intensification of the integrated national economic complex. The grandiose Siberia-Central Asia petroleum pipeline is being built. The completion of its next segment from Pavlodar to Chimkent will represent a substantial contribution of labor to celebrating the 60th anniversary of the USSR.

1386
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INSULATION ON PIPELINES

Moscow STROITEL'NAYA GAZETA in Russian 1 Sep 82 p 2

[Letter by Ye. Antonova, Chief, Technical Division of the Tyumen'gazmontazh (Tyumen' Gas Installation) Komsomol Youth Trust, with a commentary by STROITEL'NAYA GAZETA correspondent A. Zhdanov: "The Ice Under the Piping Is not Melting" under the rubric "Conservation and Thrift"]

[Text] In winter the routes of many underground heating networks can be easily seen in Tyumen' and other cities of the oblast, since they are not covered by snow, or the snow melts quickly and evaporates over them. Most of the network segments are insulated with mineral wool or bitumkeramzit. But owing to the high watertable characteristic of our oblast, such insulation offers poor protection against heat loss. One-fourth of all heat supplied is thus dissipated. The channels along which the pipe is laid turn into veritable underground rivers. They rapidly disintegrate the insulation and the pipes begin to leak and crack.

There is hardly any need to explain the consequences. The heat and electric power stations operate under an overload and stoppages occur in the supply of heating to enterprises and public and residential buildings.

In 1976 our Trust has, jointly with the SibNIPIGazstroy [Siberian Scientific Research and Design Institute of Gas Industry Construction], organized the production of pipe in foam-polyurethane casings for underground heating mains. In the two subsequent years 55 km of heating mains in Tyumen' and the oblast were covered with such casings prior to installation. However, the use of foam-polyurethane has been restricted by the shortage of raw materials and the high cost of the finished product, with one cubic meter costing 100 rubles.

Research by experts at the SIBNIPIGazstroy has resulted in a new plastic material whose insulating qualities are markedly superior to the traditional materials. The new material is a foam plastic based on the SFZhK-3016 Soviet-developed polymer. The production of this plastic has been organized at the Tyumen Plastics Plant and the technology of using it to insulate pipe, developed with assistance from the SibNIPIGazstroy, has been mastered by our Trust's plumbing fixtures plant.

What are the advantages of insulating heating mains with foam plastic? First of all, reliability increases and heat loss declines. This is achieved by reducing the coef-

ficient of heat conduction. When the mains are in operation that coefficient amounts to only 0.09-0.12 which is only a fraction of the corresponding coefficient for mineral wool and bitumkeramzit. Polymer-treated pipe weighs only one-third to one-fifth as much. Considering the lack of roads in Tyumen' and the numerous crossings, this is a highly important advantage. The industrialized off-site techniques of applying insulation have moreover reduced to a minimum the related on-site operations, which reduce to connecting the joints.

Prolonged observations of the condition of the heating mains coated with the new insulating materials while under continuous operation revealed that in winter the mains are surrounded by frozen soil [rather than by melted water]. Let me just say one thing without encumbering the reader with figures: last year we found no melted water surrounding any one of the mains treated with the new insulation.

In the last three years the Trust has laid more than 130 km of heating mains encased in foam-plastic jackets. The savings produced bu using this new heat insulating materials have exceeded 700,000 rubles. To us they represent,so to speak, our savings from construction. And how much heat has been saved owing to the trouble-free operation of the mains? We have not made such an analysis, of course. But I am convinced that in this respect too the effect has been tremendous.

We are now working to modify the composition of the foam plastic and improve its insulating qualities, and we also are refining the technology of coating pipe with polymers. The mechanization of this operation harbers a considerable potential. So far it has been done almost completely by hand. Hence, the quality of off-site insulation greatly depends on the qualifications of the workers. To minimize the effect of this factor, we are building a mechanized line and working on a special pouring-mixing installation. That installation will not, however, meet fully the present-day requirements. But we are not abandoning this project, solely because installations of this kind are produced by our industry in extremely small numbers and it is difficult to procure them.

We also have other problems. Analysis shows that the capacity of our Trust suffices for producing and installing up to 200 km of heating mains in foam-plastic casings each year. To this end, some 400-500 tons of foam plastic are needed. But the funds allocated for it suffice to acquire only 230 tons at present, and no increase is in the offing. According to the Tyumen' Plastics Plant, there is also a problem with the shortage of the principal ingredients--phenol, formalin, phenol resins, etc. Recently a representative of the Trust, while on an official trip to Moscow, inquired at the Soyuzglavkhim [Main Administration for Inter-Republic Deliveries of Chemical and Industrial Rubber Products] whether any plans exist for increasing the production of these ingredients for the needs of builders in the future. He received an extremely evasive answer implying that the increase, if any at all, will be insignificant.

Yet, in our oblast alone, according to rough calculations, up to 600 km of heating mains will have to be laid each year. I believe that my colleagues from the Nadymgazpromstroy and Spetsneftegazstroy construction trusts, who perform similar work and so far have had to rely on imports of polymers from abroad, will agree with me that the problem of improving the insulation of heating mains on the basis of progressive domestically produced plastics and increasing the output of these plastics requires special attention from the chemical industry, mechical machine building industry, and building materials industry.

Commentary By Our Correspondent

Heat is perhaps the most vital factor in the severe North. Not only in Tyumen' Oblast but also in Yakutiya and regions of the Baykal-Amur Railroad the author of these lines has personally witnessed the deplorable results of breakdowns in the insulation of heating mains when done with traditional materials and techniques. They often withstand neither the frosts nor the permafrost. This results in shut-down schools and kindergartens, heating devices turned on full blast in public and residential premises, and fires on the power transmission lines operating under such overloads.

A not unimportant factor among the causes of all this is the distinct lag in the introduction of reliable insulating materials and the cumbersome technology, which is not designed for extreme temperatures.

For this very reason, the experience of the initiators from the SibZNIIEP [expansion unknown], the SibNIPIGazstroy, the Tyumen' Plastics Plant, and the above-mentioned Trust deserves careful consideration and dissemination among the builders installing heating systems in cities and settlements of not only Tyumen' Oblast but East Siberia, Yakutiya, the Far East--in all the regions of long-range and growing importance to the national economy.

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BRIEFS

PIPELINE ACROSS MOUNTAINS--The first kilometer of pipe was laid on the Carpathian segment of the Urengoy-Pomary-Uzhgorod Gas Pipeline yesterday. The final segment of the pipeline is being built under difficult conditions. It is only 104 km long, but its greater part runs across mountain passes and rivulets as well as swampy terrain. It is not accidental that this work has been entrusted to the collectives of the Transcaucasian Pipeline Construction Administration, since they have gained considerable experience in building the Carpathian segment of the "Union" Gas Pipeline as well as pipelines in Armenia and Georgia. Using high-capacity equipment, the builders are currently developing the most inaccessible sectors, making it possible to harvest potato fields, orchards and vineyards. In the winter they will descend to the lowlands in order to complete all work by the spring and return fertile lands to grain growers. Having started to lay pipe inward from the western frontier of the USSR,, the builders are advancing to meet their fellow builders who are laying pipe from the opposite direction, from the adjacent Ivanov-Frankovsk Oblast. They are firmly resolved to achieve contact at the end of the next year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Sep 82 p1] 1386

SUPPLY SHORTAGES IN PIPELINE CONSTRUCTION--The builders from the Uralneftegazstroy [Ural Petrolem and Gas Industry Construction Trust], who are building the Gornozavodsk Compressor Station of the Urengoy-Novopskov Gas Pipeline, and who have pledged themselves to put it into operation on the 65th anniversary of the October Revolution, may not be able to keep their ambitious pledge. These days all work on this project is focused on receiving the concrete needed to lay the foundations for the equipment. But there is no concrete, because the mortar-concrete shop has depleted its stock of sand-gravel mixture. A total of 10,000 tons of that mixture is lying on the wharves of Perm' Port, but there is no means of transporting it--the Perm' Division of the Sverdlovsk Railroad is not assigning the needed rolling stock. The chief of that division, Comrade Shneyder, is making no promises to provide the freightcars in August either. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 11 Aug 82 p 1] 1386

NEW ULTRASONIC FLAW FINDER--The experimental plant of the Promavtomatika [Industrial Automation] Trust has produced its first lot of Ekho-2 ultrasonic flaw finders in the compact size. They are designed for operational monitoring of welded joints. The flaw finder consists of an ultrasonic scanner and a set of accessories for using it in remote areas. The weight of the Ekho-2 slightly exceeds 4.5 kg, exclusive of the power supply unit. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Aug 82 p 2] 1386

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