

KOLUBARA

newsletter



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Over 16.8 million tons of lignite excavated

In the open pit mines of Mining basin Kolubara, according to information obtained from the Production Department, in seven months 16,830,073 tons of was excavated, which is 3% more than planned.

The highest production, of 7.825.086 tons of lignite, was realized by "Tamnava West Field", by which the plan was over-fulfilled by about 14 percent. The greatest over-fulfillment of the plan, by about 25 percent, had the Field "D", in which 4,959,792 tons of coal was excavated. In the OPM "Veliki Crljeni", 2,621,602 tons of coal was produced, which is about 94 percent of the planned amount. The Field "B", because of the large amounts of interburden and sand floors within coal benches, gave 1,423,593 tons of coal, thus realizing about 54% of the plan.

In Tamnava OPMs ("Tamnava West Field" and the field "Veliki Crljeni") 10,446,688 tons of coal was excavated, i.e. eight percent more than planned.

The coal production of Mining Basin "Kolubara" in July amounted to 2,795,272 tons, which is slightly lower than planned. The OPM "Tamnava West Field" gave the most, 1,314,123 tons of coal, which is close to the amount envisaged by the plan. The Field "D" with the production of 774,693 tons of coal accomplished the largest over-fulfillment of the plan by cca. 23 percent. In that way, it was compensated a deficit which the Field "B" had due to problems in the coal system operation, and where only 241,144 tons of coal were excavated or 51 percent of the plan. The Field "Veliki Crljeni" produced 465,312 tons of coal, or 16 percent more than planned.

In the Mining Basin "Kolubara", in the first seven months 40,420,457 cubic meters of interburden was excavated and dumped, which is about five percent above the plan. In the Tamnava OPMs ("Tamnava West Field" and the Field "Veliki Crljeni") 2,247,366 cubic meters of interburden was excavated.

The highest overburden production of 19,467,717 cubic meters of and the greatest overfulfillment of the plan of about 33% was achieved by the OPM "Tamnava West Field". The second largest production of 14,586,348 cubic meters of overburden achieved the OPM Field "D", thus overfulfilling the plan by about nine percent. In the OPM "Veliki Crljeni" 1,514,676 cubic meters of solid mass was excavated, by which the plan was realization with about 69%. The field "B" gave 4,851,716 cubic meters of overburden and achieved the plan with 59 percent.



The July production of overburden in MB "Kolubara" amounted to 5,751,219 cubic meters or nine percent more than the balance. Out of that amount, the interburden quantities in the Tamnava mines amounted to 372,079 cubic meters.

In the OPM "Tamnava West Field" 3,070,200 million cubic meters of overburden was excavated and dumped, which is about 57 percent more than planned. In the OPM "Veliki Crljeni", at which production ceased in mid-May, 8,479 cubic meters of interburden was excavated on coal benches. July overburden production of the Field "D" amounted to 2,096,819 cubic meters, by which the plan was accomplished with about 89 percent. The Field "B" gave 575,721 cubic meters of solid mass, or about 60 percent of the planned quantities.

August production

According to the estimates given by the Production Department, for the first twenty days of August, 1,796,319 tons of lignite and 2,916,597 cubic meters of overburden was excavated in the Mining Basin "Kolubara".

The coal production plan was over-fulfilled by about 4%, while the overburden excavation was lower by about 9%. The August average daily coal production was about 90,000 tons.

The plan of stockpiles for the thermal power plant was over-fulfilled in August by 479,000 tons, and on 20th August, the stockpiles level compared to that at the end of July, was increased by 99,862 tons of lignite.

Sedimentation tank protects the ecosystem

The construction of a new sedimentation tank for depositing ash and slag from the Heating Plant of the Branch "Processing" is one of the scheduled investment tasks for this part of the Mining Basin "Kolubara" for this year.

According to the procedures, activities related to geodetic surveys and geological explorations of the site chosen for this facility were completed prior to the start of project documentation development. The experts of the "Processing Plant" had to determine the most optimal geometry for the sedimentation tank in a very narrow space bounded by end slope of the north side of Field "D", the service road and turning station of the ropeway, whereby taking into account the terrain stability. The development of the project documentation was entrusted to the Branch "Project", and the new sedimentation tank, unlike the old one, will have a drainage system for the deposited material.

In order to minimize the costs, at the same time with the project development activities, the earthworks were performed in the cooperation with "Processing Plant" and the Branch "Open Pit Mines", whose machinery was engaged in this important and comprehensive job.

The earthworks have been completed after two months of intensive activities, so the final contours of the new sedimentation tank have become visible.

– It is my pleasure to say that the great efforts we had put in completing these works were rewarded by savings of RSD 20 million – said for our journal Mr. Novica Momcilovic, the Head of the Development and Investment Sector in the Branch "Processing Plant", and particularly praised the construction group which managed to finish the job successfully in spite of facing everyday difficulties and volatile weather conditions. He also emphasized that the Investment Sector of the "Processing Plant" started for the first time in its history such a challenging job as it had to hire mining machinery and independently complete all the works.

In the next period, according to the EIA Study, the sedimentation tank will be coated with appropriate foil of high density in order to avoid penetration of leakage water into the underground watercourses. The foil that was made on the basis of the experience in work with the first two sedimentation tanks and necessary measurements performed, provided complete safety by preventing any change in the regime of underground water system.

It shall be also selected a contractor for craft works to build the collector and install the foil and drainage pipes with filter material, lay supply pipes and exhausts, as well as to connect the collector with the pump station tank. Completion of the works on the sedimentation tank means that one more step towards achieving secure and qualitative operation of the Heating Plant is made.



The appearance of the settlement of Baroševac is changing

OMP Field "C" is located in the southeastern part of Kolubara Basin, 20km away from Lazarevac, and only 60 km away from the capital. Regarding the natural and geological structural features of coal seams and other accompanying sediments, the deposit of this OPM represents a natural extension of the Field "B", further to the west and Field "E". The mining area of the Field "C" together with the excavation of the eastern dumpsite ("Istočna kipa"), occupies an area of about 4.5 square kilometers.

The area of the OPM Field "C" together with the protection zone occupies a part of Baroševac, the village which celebrated the 400th anniversary last year. It was necessary to relocate a part of the settlement inhabited by 1293 residents (according to the population census from 2000), together with the important infrastructure structures, in order to enable the opening of the new OPM. However, it should be pointed out that the number of 45 households, that were necessary to be relocated for the needs of the new OPM, is only a minor part of the total number of the relocated households in the past few years. Practically, two-thirds of Baroševac disappeared due to the progress of the mining works.

For the extension of the Field "C", in addition to the part of settlement, it will also be necessary to relocate the road of regional significance, Lazarevac-Arandelovac, local road network, industrial narrow gauge railways, the Peštan River and the old cemetery in Baroševac.

MB "Kolubara", as a socially responsible company, is aware of how much its mining operations impact the life conditions in this village. Therefore, respecting all the legal regulations and the Spatial plan for the lignite exploitation area in Kolubara Basin, MB "Kolubara" has committed to enable quality life conditions for the inhabitants of Baroševac as stated in the supporting documents. The president of the local community of Baroševac, Mr. Zoran Nikolić, spoke to us on this subject:

– Agreement on the implementation of the program concerning the relocation of a part of Baroševac village, by which the construction of the facilities necessary to improve the life conditions of the inhabitants



who remain to live in Baroševac. According to this document, the completion of works on the new school, the reconstruction of the main roads, water supply network and facilities are planned, as well as the settlement "Jelav" which is meant for the settlement of the relocated residents. Works on the rainwater sewage system are also planned, as well as the equipping of the new local cemetery at the location of Petkovača – says Mr. Nikolić.

Pointing out that this is only a minor part of the works envisaged, he explains that the scheduled works are divided into the several phases and their completion is expected in 2015, according to the dynamics. The local community has demanded the agreement to be fulfilled by the beginning of exhumation of the old local cemetery. One part of the envisaged works has been done; some works are in progress, while a big percentage of the planned works hasn't been started yet.

– The local community council is aware that "Kolubara" has to work and that coal has to be excavated, but we also demand that the provisions of the Agreement are met because of the future and the life quality of Baroševac inhabitants – Mr. Nikolić pointed out.



It is a fact that the relocation of the old cemetery in Baroševac is a precondition for the beginning of the coal excavation in the Field " C". Therefore, as we learn from the management of the oldest OPM Field "B", this process has a strategic importance for OPMs development in this part of the basin.

Inhabitants of Baroševac accepted a new location of 4 ha at Petkovača at Public consultations during the development planning phase, as well as in the referendum held on 23th in 2008. The cemetery of Baroševac was put out of service by the Decision of the the Municipal Assembly of Lazarevac, held on April 12th this year. The new cemetery on the location "Petkovača" has been built by the Kolubara's funds for new funerals and mortal remains relocation. The procedure and dynamics of the mortal remains relocation is going to be carried out according to the Operational plan made by the Institute of Architecture and Urban Spatial Planning of Serbia in 2008, and that job has been entrusted to PCU "Lazarevac" by the municipal decision.

The President of the Commettee for cemetery relocation from Baroševac, Mr.Đorđe Kučinar, says that since the old cemetery in Baroševac isn't legally regulated in terms of the existence of a gravesite purchase contract, the main task of the Commettee is to organize the declarations of the gravesite gardians and to agree with them,in writing, on the locations for the "gravesite" relocation.

– Purposefully constructed cemetery for the relocation is the new cemetery on the location "Petkovača" in Baroševac, but the guardians can choose that the gravesites they take care of , be relocated in any cemetery in use in the Republic of Serbia. During the agreement on the gravesite arrangement, in the new cemetery, it is taken care that the gravesites of the close and distant family are grouped in the same parcel, taking into account as much as possible under the technical limitations, all the suggestions and recommendations of the guardians. The most important role in the part of the agreement concerning the gravesite arrangement have the members of the committee delegated by the Local Community of Baroševac because of their knowledge of family and other relations among residents and guardians – Mr.Kučinar was explicit.

Old monuments and those damaged during the relocation, will be restored with due care and under the supervision of The Institute for Cultural Heritage Preservation.

Geologists estimate coal reserves

The opening preparations for the new mine within the MB "Kolubara" are well underway so the overburden operations in the OPM "Radljevo" are planned to start in the second half of the next year. The research of possibilities for the new mine opening was greatly contributed by the geologists of OPM "Tamnava West Field".

The Operation Geology department of "Tamnava West Field" is a part of the Geological Service of the Branch "Open Pit Mines" that also belongs to the Sector for production-technical affairs. The Geology department at the "Tamnava West Field" employs 11 geology engineers and a technician. The duty of Geological Service normally includes providing of adequate geological data and adapting them to the on-site situation by geological benches mapping.

The goal is to obtain a better quality and more accurate data of which shall be made the bases for the most rational mining of coal and extension of the OPMs.

The years of the extensive explorations in this area were 2007, 2010 and 2012. The task of geologists was to clearly define the coal bearing series, analyze the hydrogeological situation together with the drainage and to do calculations for all slopes and stability of the dumpsite.

The department manager Mr. Miodrag Kezović, MSc. says that OPM "Tamnava West Field" disposes with 315 million tons of mining reserves and 420 million tons of geological reserves, but that the area shows some complexity, particularly in the western part that is characterized by intense stratification. With the advancement of mining operations, the situation gets even more complex. To ensure the coal quality of 6,700 kJ/kg needed for use in thermal power plants, it is necessary to improve the original quality.

The department also deals with measuring of the groundwater level, which task is done by three workers from the department and five workers from the Department of Drainage. The measurements results are reported on daily basis, and the complete team of eight workers is engaged in the area of future OPM Radljevo.

The explorations in the area of the future OPM "Radljevo" were carried out in several stages, and now preparations for its opening are under way. At the beginning of the century, Radljevo area was also a worksite where the works in connection with the OPM "Tamnava West Field" were carried out. Summarized results of those works in



the Project Report for 2006 indicate an amount of 532 million tons of geological reserves as determined and certified by the Commission. The revised study that was certified in 2008 by the Ministry of Mining and Energy and has been valid since confirms that the balance geological reserves of the deposit "Radljevo-North" amount to 455 million tons of coal B + C1 category. The project of geological explorations developed by the "Project" was the basis for last year's exploration works, for the needs of geological reserves upgrade, geotechnical explorations, and recovery of previous hydrogeological structures and construction of new ones.

The problem of uneven lignite quality that we have in OPM "Tamnava West Field" also stands for the future mine "Radljevo" which has the greatest stratification out of Kolubara coal basin deposits, especially in its southern part, said Mr. Milan Planinčić, a hydrogeologist in charge of monitoring the explorations within the Field "Radljevo". The deposit of "Radljevo", which covers about 80 square kilometers, is deepest in its southern part where it has very unfavorable mining conditions. There will be problems relating to slopes stability and the hydrogeological situation. The 2006 Study refers only to the northern part, i.e. the area covering 58 km², of which coal-bearing area is 33 km² in size. Geological explorations of this field can be divided into those performed in the period from the sixties of last century to the year 2000 and after that.

New Gearbox Runs Flawlessly

Owing to the project that the young Božidar Ikonić developed with the support of his superiors Mimir Radišić, the Chief Mechanical Engineer and Dejan Radojević, Head of Mechanical and Technical Preparation Service of Baroševac, the reconstruction of the bucket wheel gearbox on the BWE "Glodar 10" operating in the OPM Field "D", was performed during the April overhaul. The imposing structure of nearly 30 tons was replaced by a respective gearbox from the excavator SRs 1200 of the same power and the same manufacturer, and it has been working since without any problems. Although it may need an entire season without downtimes to be quite certain, after several months of operation all indications suggest that this seemingly risky venture was not only justified but also very successful.

Namely, for many years since the installment, original gearbox used to give a headache to employees of the Field "D", having caused numerous downtimes that recently amounted to over 20 hours per month. According to the experts, the excavator produced in 1982 was generally in good condition when it in 2007 started to operate at the OPM of Kolubara, although technical solutions of its certain elements were

outdated. This was especially true for the gearbox, the shortcomings of which were detected at the very installation. The ensuing requests for its replacement were never honored, however, due to lack of funds.

Mr. Vladan Janković, Assistant Manager of Mechanical Maintenance at Field "D", explains that the problems in operation that appeared soon were reflected through rapid deterioration of bearings on the input shaft, which later spread to the other gearbox stages. Looking for a solution, the Faculty of Mechanical Engineering was consulted, that responded with an altered design that made a slight improvement in practice, but the main problem remained unsolved.

- Finally, on the basis of similarity of the bucket wheel shafts, we came up with the idea to replace the existing gearbox with its counterpart from the reserves for a similar machine, and assigned the task of reconstruction to the Department for Mechanical and Technical Preparation of Baroševac - explained Mr. Jankovic.

It was then when Mr. Ikonić, who was hired last year by the Mining Basin "Kolubara" under the EPS project for hiring "Hundred young professionals", performed a thorough analysis of the existing documentation and developed Detailed design that included creation of a 3D model for bucket wheel boom and both old and new gearbox. He also analyzed potential structural problems in connection with the replacement, and elaborated their solutions.

- The reconstruction involved a significant processing of the hollow shaft and the gearbox structure, as well as manufacture of new parts by the company Metal, which managed to complete the task in just ten days. In the case of mechanical structures, however, it is often that the designed and built states of the mining equipment differ. Given that and the fact that I worked at the scarcity of original documentation, no matter how carefully designer part of the job is done, there is always a great risk that the designed and accordingly manufactured do not match the situation on the site. In this case, however, the reconstructed gearbox fitted in millimeter the place of the original, which is a great success when you wrestle with thus clumsy mining machinery. I devoted several months of work to the whole project development, but successful and fast implementation with no downtimes recorded so far, are the greatest satisfaction – said Mr. Ikonić.

The success of this project that enabled smooth operation of the one of the largest mining machines is also reflected in a significant financial savings, since its development has cost €50,000 compared to almost one million euros what would be paid otherwise for a new gearbox.



Water supply for 8,000 consumers

Apart from the main activities that include production, processing and enrichment of coal, Mining Basin "Kolubara" performs other activities of a vital importance for the population of this region. The obvious example for that is Waterworks "Medosevac", which operates within the unit "Auxiliary Machinery". i.e. within the Branch "Open Pit Mines". The Waterworks was built in the year 1958 in order to supply the mining settlement Rudovci with drinking water. The number of drinking water consumers has been growing during the years, so it currently reaches the number of 8,000 consumers.

The Main Supervisor of the "Waterworks", Mr. Milisa Musicki says that this number of consumers get water from the systems of Medosevac and Junkovac. Open pit mines Field "D" and Field "B", Auxiliary Machinery, Center for professional activities in Barosevac as well as all industrial facilities and mining settlements at the edge of the open pits are supplied with this drinking water. The villages supplied with the water include: Medosevac, Zeoke, Barosevac, Mali Crljeni, Rudovci and Junkovac. Further elaborating on the details, Mr. Musicki said:

– To be able to provide enough water quantities for all consumers, the waterworks is consisted of five operating plants. The first plant that is situated in Medosevac has capacity of 25 l per sec., and has been operating without major problems since the very beginning, although having an outdated technology. The second Plant is a mobile one that was renewed in the year 2010, with a capacity of 10 l per sec. which is equal to that of the plant that was put in the operation at the end of the last year. The Plant "Nova Montaza" processes raw water from the source Zeoke. It was built in the year 2007 and its maximum capacity is 15 l per sec. The Plant in Junkovac of the capacity 10 l per sec dates to the year 1958. The water is distributed to the consumers through primary and secondary pipeline of total length 35 km.

There are four water sources used for this purpose and they include: Medosevac, Zeoke, Junkovac and Arapovac. Within these resources 17 wells were bored. The best resource is considered to be in Medosevac. Mr. Musicki emphasizes that the report of the Institute for health protection of the City of Belgrade put this water in line with the best ones in the greater area of Belgrade when it comes to water quality.

– These results are evident thanks to our intern Laboratory which takes care of our water quality by performing physical and chemical

analyses of water on daily basis. The Institute for public health protection of the City of Belgrade also takes the water samples two times a month. Apart from these chemical and physical analyses, residual chlorine state is controlled hourly. In the last year alone, 2,888 analyses were conducted in this laboratory – emphasized our dialog partner.

In the last year, the water production was impressive, with the waterworks plants of Medosevac leading the production with 1,046,330 l cubic meters, "Nova Montaza" came second with 403,597 produced, while Junkovac plant contributed with 258,832 cubic meters of water. The forecast for this year production based on all indicators suggest that the results will be even better, given the output of Waterworks "Medosevac" that managed to produce over million cubic meters in the first half of the year.

– Taking into account the number of water consumers and the quantity of the water produced, we have to point out that according to some European standards we produce four times more water than needed. Although we have enough quantity of processed water, our consumers need to use it rationally. For the smooth water production and non-disturbed distribution we should also thank to our maintenance service with the small number of workers who continue to give their best – says Musicki, adding that the help received from other services of "Auxiliary Machinery" and a good cooperation with Public Utility Company "Lazarevac" are very important for them.

The reconstruction of the old water pipeline from Medosevac to Barosevac is planned for the next period, but depending on the dynamics of open pit mines expansion.

Although Waterworks "Medosevac" is completely ready for the summer season, all consumers are asked to use water rationally in order to avoid restrictions.





Public Relations Office:
Radoš Lazarević,
tel. +381.11.8122.704,
rados.v.lazarevic@rbkolubara.rs