PANORAMA

CASPIAN PIPELINE CONSORTIUM

CASPIAN
PIPELINE
CONSORTIUM

CORPORATE MAGAZINE
№2 (49) May 2025

ISSUE'S FOCUS

INCREASING RESPONSIBILITY AS A FACTOR OF PRODUCTION EFFICIENCY

СОДЕРЖАНИЕ

DEAR COLLEAGUES AND FRIENDS!

The CPC main oil pipeline has been repeatedly tested for strength, and such "testing" has shown that our pipeline system is capable of maintaining effective operability in difficult conditions, both with the largest pump station out of order and with one single-point mooring. The secret of this oil pipeline's resistance to the rather complex challenges of the time is the professionalism of the operational personnel and the management of the company's structural divisions, readiness at any time to maximize concentration of efforts, the ability to make the right operational decisions, and high responsibility at each stage of the production hierarchy.

The year 2025 can be called the year of large-scale achievements in many areas of the Caspian Pipeline Consortium's activities. Together with domestic manufacturers which are part of the Transneft PJSC system, a non-standard mainline pump with an 8.3-megawatt asynchronous electric motor has been developed and is almost ready for serial production. Its certification marks the start of the practical phase of the program for replacing mainline pumps with gas turbine drives with mainline pumps with electric motors. This year, we also achieved a tangible economic effect from the use of frequency converters, in particular, optimization of the pumping schedule. We put into operation the replaced section of the pipeline in the Astrakhan region and cut in a new section in the Atyrau region. We opened a school in Atyrau for 900 students with a total area of 12 thousand m2 — with full equipment, libraries, workshops, gyms, a stadium and much more. We signed an agreement with the Akimat for another major construction project — the Youth House for young men and women of Atyrau and the region, we handed over equipment for city needs in Astrakhan. We are preparing to transship the billionth ton of oil in the second half of the year since the start of CPC operations.

In the year of the 80th anniversary of the Great Victory, the section "We will remember" was created on the CPC Panorama website with biographies of family members of the Consortium employees who took part in the Great Patriotic War. Viewing these materials brings the understanding that the war affected almost every family of our colleagues in Russia and Kazakhstan, and Victory Day is a truly common holiday.

The editorial board of the corporate magazine prepared a special issue dedicated to the Great Patriotic War and the Victory, and first of all to the front-line soldiers and home front workers from among the families of CPC employees. Several memorable reports were filmed, including about the legendary landing in Yuzhnaya Ozereyevka. In Novorossiysk and in other regions where CPC operates, CPC employees held campaigns to care for monuments and burial sites of Red Army soldiers.

In the year of the 80th anniversary of the Victory, I would like to congratulate the entire Consortium team on this great holiday and wish everyone good health, family happiness, and good luck in all endeavors!

N.N. Gorban
General Director
Caspian Pipeline Consortium

BRIEFLY

INTERNATIONAL AND LOCAL EVENTS WITH PARTICIPATION OF CPC

AKIMAT INSPECTION

On April 17, 2025, specialists from the Department of Ecology of the Akimat of the Atyrau Region inspected the Atyrau PS for compliance with the environmental legislation of the Republic of Kazakhstan. The visit of ecologists took place as part of an unscheduled inspection of industrial enterprises in the region, initiated by the Akim of the Atyrau Region Serik Shapkenov. The inspectors examined the territory of the PS, checked the condition of the tanks, and measured industrial emissions at the mainline pumps with a gas turbine drive.

As a result of the inspection, the air quality was noted to be in line with the maximum permissible concentration, the area and premises were clean and tidy, high environmental safety standards were observed, and separately, a large number of green spaces were found at the station and around it.

Atyrau PS Manager Daniyar Akhmetov informed the inspectors about the advanced technologies and practices used at the station. For example, the station uses floating roofs of tanks with high-density seals, which reduce oil vapor emissions into the atmosphere by 99% compared to traditional ones. Regular air quality measurements are carried out as part of monitoring the level of emissions and minimizing their environmental impact.

The inspectors were shown the implemented and successfully operating wastewater treatment system, which effectively processes both domestic and industrial wastewater. It includes preliminary settling, physical and chemical treatment, pressure flotation, five-stage filtration and ultraviolet disinfection. After treatment, the purified water is reused for irrigation of green spaces and dust suppression, which helps save water and other resources.

Lead HSE Engineer Yesen Kulshetov illustrated the commitment of the Consortium and the Atyrau PS team to high environmental standards and environmental protection. For example, as part of additional environmental initiatives, the station actively participates in landscaping campaigns. During the "Clean Shore" event, employees planted 400 seedlings, and the entire team of the CPC Eastern Region planted a total of one and a half thousand trees. Another campaign to clean the banks of the Ural/Zhaiyk River is scheduled for early June.

MEETING OF THE LEADERS OF CPC AND KTO

On March 17, 2025, in Astana, CPC General Director Nikolay Gorban and General Director (Chairman of the Management Board) of KazTransOil JSC Arman Kasenov held a working meeting.

The executives discussed issues of cooperation within the framework of the contract for the provision of services for technical maintenance, repair and emergency response at the facilities of the oil pipeline system of Caspian Pipeline Consortium – K JSC in the Republic of Kazakhstan. The companies have been working together in this area since 2018, and in 2023 this contract was extended for the next five years.

The KazTransOil team involved in the maintenance of facilities and the linear part of the CPC Eastern Region demonstrates a high level of compliance with labor protection and industrial safety requirements. In 2024, there were no accidents with temporary loss of working capacity and no registered accidents.

In the spring of 2024, during unprecedented floods in the Atyrau region, specialists from KazTransOil JSC professionally protected both the CPC production facilities and the city infrastructure.

In 2024, the CPC and KTO teams successfully implemented the project for the construction and connection of a new interconnector between the CPC oil pipeline and the Kasymov PS (KTO), which increased the reliability and flexibility of the CPC and KTO pipeline systems.

The project on tie-in of a new section of the linear part at the 266th km of the CPC main oil pipeline, where the pipeline intersects with a new section of the Atyrau-Astrakhan highway, was also successfully implemented.

During the year, KTO specialists successfully completed a full range of maintenance and routine repairs of CPC facilities, including the reconstruction of three sections during scheduled shutdowns with the replacement of electrical insulating inserts, which increased the reliability of the pipeline system.

During the meeting, the leaders also discussed the readiness of the units' forces and resources for the 2025 flood situation.

RESTORATION OF THE KROPOTKINSKAYA PS AFTER A UAV ATTACK

On February 17, 2025, the Kropotkinskaya PS located in the Kavkazsky District of the Krasnodar Krai was attacked by seven unmanned aerial vehicles filled with explosives and metal shrapnel. The largest CPC station in Russia was damaged and taken out of service; there were no casualties or injuries in the attack. Oil transportation through the CPC pipeline system continued in bypass mode, bypassing the damaged station.

On February 17, 2025, the Main Investigation Department of the Investigative Committee of the Russian Federation initiated a criminal proceedings on the grounds of a crime under par. "a", "b" of Part 2 of Article 205 of the Criminal Code of the Russian Federation. The case was opened against servicemen of the Main Intelligence Directorate of the Ministry of Defense of Ukraine, the Armed Forces of Ukraine and other military formations who, while on the territory of Ukraine under their control and carrying out criminal orders, carried out an attack using unmanned aerial vehicles on civilian infrastructure facilities.

The destruction at the station was inspected by the management and representatives of the Consortium shareholders. Within the operational period, a working group was formed from specialists of the CPC Western Region to restore the operability of all sub-facilities of the station with the involvement of contractors. The schedule of restoration work provides for the commissioning of the Kropotkinskaya PS by the end of May 2025.

AUTHOR
DMITRY KONSTANTINOV

SPRING INSPECTION

AT THE END OF APRIL, CPC GENERAL DIRECTOR NIKOLAY GORBAN AND REPRESENTATIVES OF THE DEPARTMENTS FOR OPERATION AND IMPLEMENTATION OF CONSTRUCTION PROJECTS CONDUCTED AN INSPECTION OF THE COMPANY'S PRODUCTION FACILITIES IN THE ASTRAKHAN OBLAST, THE REPUBLIC OF KALMYKIA, STAVROPOL KRAI AND KRASNODAR KRAI

Inspection of production sites traditionally took place along the oil flow in the pipeline. On April 26–27, the Consortium management inspected A-PS-5A in the Astrakhan Oblast; Komsomolskaya PS, PS-2, PS-3 in the Republic of Kalmykia and PS-4 in the Stavropol Krai. At the pump stations, the sites of the main and auxiliary equipment, the conditions for the accommodation of personnel in shift camps, and the preparation of facilities for the implementation of a large-scale project on switching to external energy supply were inspected.

Thus, at A-PS-5A, technical aspects of the operation of four VFD block boxes for electric drives of main pump units, which were recently put into operation during the implementation of the Debottlenecking Program, were discussed.

At the Komsomolskaya PS, the focus was on construction within the framework of the project for the transition to external power supply: new buildings for the mainline pumps, switchgear and transformer substation, additional cable lines, four VFD block boxes. External power supply facilities for the Komsomolskaya PS will be created by Rosseti PJSC at the expense of CPC-R. The project provides for the modernization of fire-extinguishing pump stations – they will be equipped with higher-performance pumps, a foam generator unit will be built, and water and foam extinguishing networks will be deployed. The company's management also inspected a new site for the pressure mitigating system, built at the Komsomolskaya PS under the Debottlenecking Program. Here in 2024, as part of a pilot project in the CPC Central Region, the station's canteen was equipped with additional equipment.

At PS-2, the station's operational personnel reported on the stable operation of all four VFDs commissioned in 2022. At the time of the visit to PS-3, the MPU frequency converters were almost ready for commissioning after recent testing. The CPC managers noted the reliable operation of the equipment and the high professional training of the station's specialists. During the working visit, unscheduled inspections of the readiness of personnel and contractors to eliminate emergencies were carried out.

On April 28–29, the Consortium's facilities in Krasnodar region were inspected: Kropotkinskaya PS, PS-5, PS-7, PS-8 and the Marine Terminal. The CPC General Director and representatives of the departments for operation and implementation of construction projects inspected the equipment of the stations, conducted unscheduled checks of the readiness of personnel and contractors at site facilities and on the linear part of the pipeline.

Thus, unscheduled exercises on extinguishing a simulated fire were conducted at the Kropotkinskaya PS. At the linear part of the oil pipeline, the readiness of forces and means of the operating personnel and contractors to localize and eliminate the consequences of an accidental oil spill was checked. At the CPC Marine Terminal, exercises were conducted to extinguish a simulated burning tank. In the mountainous area near the Tank Farm of the Marine Terminal, exercises were conducted on the linear part to localize and eliminate the consequences of a simulated oil spill.

At all facilities, the managers checked the operation of equipment at production sites, inspected administrative premises, workshops, fire stations and warehouses. At the Kropotkinskaya PS, the largest pumping station of the CPC with a total area of 16.5 hectares, the managers inspected the facilities being restored after the Ukrainian UAV strike, as well as held an operational meeting with the management of the contractors mobilized for the work. The deadlines for commissioning the facility remain within the framework previously announced by the CPC.

DURING THE WORKING VISIT, UNSCHEDULED INSPECTIONS OF THE READINESS OF PERSONNEL AND CONTRACTORS TO ELIMINATE EMERGENCIES WERE CARRIED OUT

In 2024, work was carried out at the pumping station to remove insulation and paint the process pipelines. The bunds around two SVRFT-20000 tanks were repaired. In 2025, a major overhaul of turbine units will be carried out at the Kropotkinskaya station, including the replacement of gas turbines on three main pumping units.

At PS 5 in 2025, variable frequency drives for electric motors of main pumping units and additional capacity of the pressure mitigating system will be put into operation. In February 2025, new rotors with an increased radius of

impellers were installed on the mainline pumps.

At PS 7 in 2024, the fire pump station and the warehouse premises were repaired. This year, work continues as part of the project to dismantle the thermal insulation coating of process pipelines.

At the CPC Marine Terminal, discussions were held regarding the elimination of deficiencies identified during a recent inspection by Rostransnadzor, preparations for the potential full replacement of single-point moorings (SPMs), delivery timelines for new caisson anchors and chains, as well as the procedure for the seasonal decommissioning of existing SPMs for maintenance. The maintenance includes the replacement of floating and subsea hoses, as well as servicing and repair of the internal equipment of the SPMs.

During the visit to the facilities, issues of prospective replacement of foreign-made equipment, which continues to be used at CPC facilities to this day, including control cabinets, turbines, pumps, etc., were also discussed.

Separately, the topic of protecting production sites from various threats, including terrorist attacks, was discussed with the management of the facilities in direct dialogue and remotely, as well as strengthening cooperation in this area with law enforcement agencies and the Ministry of Defense of the Russian Federation.

The company continues to dynamically improve the level of the Safe Work Culture (SWC) and develop leadership practices. More than 1.2 thousand employees have been trained in the practical training and mentoring in the application of leadership practices. Senior and middle managers have formalized 119 personal commitments in the field of SWC, the fulfillment of which in 2024 was 99%.

Following the inspection tour of the Central and Western regions of the CPC, it was noted that the sites and all equipment are in good condition, and that the employees and representatives of the CPC contractors demonstrate a responsible attitude to the implementation of assigned tasks and a high level of professional training.

AWARD FOR BRAVERY

COMBAT VETERAN, PS 7 SHIFT SUPERVISOR VADIM PROSKURIN WAS AWARDED THE MEDAL FOR BRAVERY OF THE 2ND DEGREE, ON APRIL 24, 2025, FOR COURAGE, BRAVERY AND DEDICATION SHOWN IN THE PERFORMANCE OF MILITARY DUTY DURING THE SPECIAL MILITARY OPERATION

Vadim Anatolyevich has been working in the oil and gas industry for 28 years, including 24 years at the Caspian Pipeline Consortium. He started as an instrumentation operator at the Kropotkinskaya PS, and was transferred to the position of shift supervisor in November 2009. In 2014, Vadim Proskurin became the shift supervisor at PS 7, a new station built and commissioned as part of the Expansion Project.

Colleagues at PS 7 and the management characterize Vadim Anatolyevich as a competent specialist who performs his work conscientiously and at a high professional level, possessing deep knowledge and practical experience in the field of equipment operation and management of the technological process of oil pumping. Vadim Proskurin regularly makes proposals for optimizing the operation of the dispatch control system, participates in the preparation of recommendations and proposals for the development of a new control system.

Since the beginning of 2022, with the active participation of Vadim Proskurin, the equipment for introducing antifriction additive was replaced at PS 7. Vadim Anatolyevich organized and personally supervised the commissioning works.

From September 2022 to October 2023, Vadim Proskurin was mobilized to participate in the Special Military Operation. After completing his military service, he received a combat veteran certificate.

"There was all sorts of stuff", says Vadim Anatolyevich, commenting on being awarded the Medal for Bravery of the 2nd degree. "It's simply the daily military duty and precise execution of combat missions assigned by the commander. I don't share the details of the operations even with my loved ones – not to emotionally burden them, and also because much of it simply can't be discussed".

In December 2023, Vadim Proskurin resumed his duties as shift supervisor at PS 7. From 2023 to 2024, he took an active part in the work to replace the electric motor of the main pumping unit D, organizational and preparatory work on cleaning and diagnostics of drainage tanks, the PMS platform, in accompanying dewatering work, in carrying out work on dismantling thermal insulation and medium repairs of the gate valve. The implementation of these projects significantly improved the reliability and safety of operation of PS 7 facilities.

Vadim Anatolyevich not only competently organizes and controls the work of subordinate operational personnel and makes rationalization proposals, but also skillfully transfers his experience to new employees. High production indicators and contribution to the work of the Consortium of Vadim Proskurin in 2024 were noted with an honorary diploma of the Ministry of Energy of the Russian Federation.

AUTHOR
PAVEL KRETOV

INCREASING RESPONSIBILITY AS A FACTOR OF PRODUCTION EFFICIENCY

IN THE SECOND HALF OF MARCH 2025, A MEETING ON THE RESULTS OF PRODUCTION AND ECONOMIC ACTIVITIES OF THE CASPIAN PIPELINE CONSORTIUM IN 2024 WAS HELD IN ASTANA. PARTICIPANTS IN THE TWO-DAY SESSION DISCUSSED THE RESULTS ACHIEVED AND COMPARED NOTES ON KEY AREAS OF WORK

The production and economic activities of CPC are focused on the reliable, uninterrupted operation of the 1,511-kilometer oil pipeline system, starting in Asia and ending in Europe. It is the "systemic" that serves as the key definition of the complex and responsible work of the Consortium's oil pipeline workers. It is the systemic solution of issues, and not the point "fire response" to situations, that allows the enterprise to work reliably and without accidents – this is what CPC General Director Nikolay Gorban emphasized to the meeting participants.

The summing up of 2024, marked by the completion of most of the facilities of the Debottlenecking Program, the launch of the Program for replacing gas turbine units of main pumps with electric drives, the commissioning of the first of the replaced fragments of the linear part, the 900-millionth ton of oil since the start of CPC operation and other events, traditionally began with reports from the heads of regional operation departments.

Mukhit Mazhenov, Manager of the CPC Eastern Region, reported that the CPC-K team and the personnel of contractors added 3.8 million man-hours to their indicators for the year (characteristic for the Atyrau region of the abnormally high flood of the Ural (Zhaiyk) River) without injuries and incidents. The facility's fleet of vehicles and special equipment passed 2.6 million km without accidents. Thus, the region's overall achievements in the field of industrial safety and labor protection reached 19.6 million man-hours (since 2020) and 22.8 million km (since 2007), respectively. In 2024, work continued at the oil pipeline facilities in the Atyrau region to improve the environmental condition – over 1.1 thousand trees were additionally planted here. Of these, the largest number (about 600) were planted at the Isatay PS.

From early April to early July 2024, the Eastern Region team carried out flood control work at the PS facilities and the linear part. In particular, nine pipeline block valve stations were protected by embankments, the beds of the nearest rivers and canals (Chernaya, Sokolok) were cleared, the existing protective dams were repaired and new ones were built to strengthen the Ural River coastline. It should be noted that these large-scale works with the use of special heavy equipment were carried out not only to protect the CPC pipeline facilities, but also to help the city, which faced the threat of flooding. The hard work of the Consortium employees was recognized with honorary certificates from the Akimat of the Atyrau Region.

In 2024, the modernization of pump station facilities continued in the Eastern Region. At the Tengiz PS, the lightning protection system was technically re-equipped and the old booster pump station was dismantled.

THANKS TO THE COMMISSIONING OF FREQUENCY CONVERTERS AT PS-3 AND PS-4, THE DELIVERY SCHEDULE ALONG THE TENGIZ-NOVOROSSIYSK PIPELINE WAS OPTIMIZED

At the Atyrau PS, the water treatment system was modernized and the fire-fighting water reserve tank was repaired.

The CPC Central Region team increased its injury- and incident-free performance by 9.1 million man-hours in 2024. Accident-free mileage of vehicles increased by 3.7 million km over the same period. Konstantin Rybak, Head of the Regional Operations Division of the Central Region, informed the meeting participants about this.

During the year, operational personnel and representatives of contractors in the region filled out 2,374 observation cards. The most active were the employees of the Astrakhanskaya PS, they filled out 735 cards. During the year, 336 fire-tactical training sessions with professional emergency response team units members of volunteer fire brigades were held at the Central Region PSs.

36 repairs were performed on the linear part of the pipeline in the region's area of responsibility during the year, of which one was performed using the coil cutting method and 23 were performed using the P1 repair structure. Among the most

ALEXEY PELIPENKO

IN 2024, TRANSPORT WORKERS OF THE WESTERN REGION REACHED

100

MILLION KM OF VEHICLE MILEAGE WITHOUT ACCIDENTS

important tasks for 2025 were in-line diagnostics of the pipeline section from the Russian-Kazakh border to the Volga River, as well as connection of a new section of the pipeline at the entrance to the Komsomolskaya PS.

Head of the Regional Operations Division of the Western Region Sergey Potryasov noted a kind of record: in 2024, transport workers of the Western Region reached 100 million km of vehicle mileage without accidents. The team worked almost 38 million man-hours without injuries and incidents, adding another 3 million man-hours by the end of the year.

In 2024, the Kropotkinskaya PS overhauled a turbine unit with replacement of the gas turbine and dismantled thermal insulation of process pipelines. At PS 4, variable frequency drives for the electric motors of the main pumps and additional capacity for the pressure mitigating system were put into operation.

In 2024, 11 diesel power plants were installed on the linear part of the Western Region (one was installed above the plan), and five defects identified by in-line diagnostics were also repaired. In 2025, another 11 diesel power plants will be installed on the linear part and new VFDs will be put into operation at PS-5.

According to Alexey Pelipenko, Head of the Regional Operations Division of the Marine Terminal, 332 of the 584 tankers shipped in 2024 were of the Aframax type and 252 were Suezmax. The total performance of the oil terminal team and contractors since the start of accounting and due to annual growth exceeded 10.8 million man-hours and 47.3 million kilometers of vehicle mileage without accidents.

In 2024, large-scale diving operations were carried out in the waters of the Marine Terminal to replace underwater and floating marine hoses on all three single-point moorings. The current year will see the diagnosis of the offshore subsea pipeline leading to SPM-1, anchor chains will be replaced on all SPMs, and new hexabits will be laid in the protective fence of the auxiliary vessel harbor.

Alexey Pelipenko also recalled that in 2023–2024, as part of the development of the Safe Work Culture at the Marine Terminal, a pilot project for the competition of operational shifts was implemented. The initiative of the regional operations department "Best Shift" received the approval of the CPC management and the status of a pilot project on a company-wide scale.

MUKHIT MAZHENOV

SERIKKALI MURINOV

Following the results of the traditional annual competition between the regional divisions of CPC, the Western Region won once again. Presenting a certificate to the head of the regional department operations department of the Western Region, CPC General Director Nikolay Gorban noted that the team has been deservedly recognized as the best more than once. The evaluation took into account such factors as compliance with industrial safety and labor protection requirements, mastering leadership practices, fire and environmental safety requirements, compliance with road safety requirements and others.

General Manager for Oil Transportation and Commerce, Serikkali Murinov named the replacement of the data collection and processing system of the lease automatic custody transfer unit at the branch of the KazTransOil JSC oil pipeline to the Atyrau PS among the positive results of the year. Also in 2024, the backup control system of the Marine Terminal was integrated into the SCADA system and – thanks to the commissioning of frequency converters at PS-3 and PS-4 – the delivery schedule along the Tengiz-Novorossiysk pipeline was optimized.

Dmitry Ryzhik, Head of the Procurement Division, reported that over the year the company's stock level of strategically important equipment has increased and the minimum level of excess inventory items has been reached for the entire observation period. The Consortium's material and technical support has received a high rating from the CPC shareholders' audit.

SERGEY POTRYASOV

As noted during the meeting, significant work was carried out in 2024 to improve the level of the Safe Work Culture and leadership development. As part of the training in the application of leadership practices, 1,250 people were trained. Senior and middle managers took on 119 personal commitments, the effectiveness of their implementation was 99%.

Summing up the meeting, CPC General Director Nikolay Gorban, in particular, proposed to strengthen the independence and initiative of facility committees for the development of the Safe Work Culture this year. He also noted the importance of personal commitments by each employee of the enterprise. It is equally important to improve the level of analysis of observation cards, including dividing them into positive and negative.

Responsible implementation of these and other tasks will allow the Consortium team to improve production indicators and work efficiency in the current 2025.

AUTHORS
ALEXANDER SESKOV, CHIEF PROJECT ENGINEER,
ROMAN SMOLNYAKOV, PROCUREMENT SERVICE HEAD

TESTED AND APPROVED

SUCCESSFUL TESTING OF A PUMPING UNIT CREATED FOR THE CPC PUMP STATIONS AS PART OF THE IMPORT SUBSTITUTION PROGRAM HAS BECOME ANOTHER SIGNIFICANT EVENT FOR THE DOMESTIC INDUSTRY

In February 2025, in Chelyabinsk, at the production sites of leading Russian manufacturers of pumping equipment Transneft Oil Pumps (TNN JSC) and electric motors Russian Electric Motors (REM JSC), with the direct active support of Transneft PJSC, a state shareholder of CPC-R JSC, the production of prototypes of the NM 4500-650 pump and an asynchronous electric motor with a capacity of 8.3 megawatts was successfully completed and preliminary tests were carried out.

These components of the main pumping unit (MPU) with a power electric drive were developed within the national import substitution program under CPC-R order for execution of the Program to replace gas turbine-driven mainline pumps with electric motor-driven MPU. Despite the complexity of the task of creating a non-standard pump and electric motor, as well as the tight deadlines for the project, all tasks were completed on time and took just 12 months.

The electric pump unit ANM 4500-650 comprises the pump NM 4500-650 and asynchronous electric motor AN860A-8300 fitted on a common skid, and includes auxiliary piping used by systems of lubricating oil, leak collection, hazardous vapor relief, pump drainage, product supply to pump mechanical seals, instrumentation, and temperature and vibration monitoring.

The teams of CPC-R, Ural Dynamic Machines LLC (UDM LLC – the management company of TNN JSC and REM JSC) and equipment manufacturers jointly carried out large-scale preliminary work within the framework of manufacturing the MPU prototype: hydrodynamic and strength calculations were performed, developed and approved design documents, built and tested a scale model of the prototype pump's flow section that demonstrated conformance to all rated Q-H characteristics.

After completion of manufacturing, the prototypes of the pump and electric motor successfully passed preliminary tests in the presence of specialists from CPC-R according to the program and methodology agreed upon by the parties. Based on the results of the preliminary tests, the compliance of all pressure and energy characteristics of the pump and electric motor with theoretical and calculated values was confirmed. The prototypes were admitted to comprehensive acceptance tests.

For use in comprehensive acceptance tests of the mainline pump unit CPC-R purchased and delivered to TNN JSC production site electric motor purging and cooling ventilation unit and VFD power equipment. The assembly of this equipment into a single system of the test center was carried out in the shortest possible time.

The testing center, which is part of the production facilities of TNN JSC, has no analogues not only in Russia, but also among a number of large international manufacturers. The testing center allows performing a full range of all types of tests of pump

THE COMPONENTS OF THE MAIN PUMPING UNIT WERE DEVELOPED WITHIN THE NATIONAL IMPORT SUBSTITUTION PROGRAM

units with a capacity of up to 15,000 m³/h.

12–13 March 2025 comprehensive acceptance tests attended by Caspian Pipeline Consortium experts and representatives were successfully completed of a prototype of the new model of electric pump unit ANM 4500-650. Test outcome established the pump unit's actual characteristics meet the manufacturer's production specifications, terms of reference for development of design documentation and manufacturing of MPU prototype, and requirements of GOST 32601-2022.

In April-May 2025 based on the range of tests completed the pump unit will be certified for compliance with manufacturer's production specifications, GOST 32601-2022 and will be cleared for mass production as one in a series of typical pumps.

The creation of the ANM 4500–650 electric pump unit was a response to the situation related to the restriction of imported equipment supplies. The team of designers and engineers of TNN JSC and REM JSC, in close cooperation with UDM LLC and CPC-R, developed a unit that is not inferior to, and in a number of parameters superior to, foreign analogues.

"We are proud that we were able to create a product that meets the highest modern requirements in a short time", said Igor Lisin, CPC Technical Director and DBNP Manager. "The tests showed excellent results, including the ability to operate the pump in a wide range of flow rates (using frequency regulation of 1500–3000 rpm), high efficiency, large cavitation reserve, and most importantly, domestic components, expertise, and technologies were used in the manufacture of the pump and electric motor. This is an important step towards gaining technological independence for both our company in particular and the country as a whole".

At present, in accordance with the project implementation schedule, within the framework of Phase 2 "Development", design is underway, questionnaires for equipment and materials of priority delivery have been developed. Based on the results of successful comprehensive tests of the MPU prototype, the next, third phase of the program for replacing main pumping units with GTUs with MPUs with electric motors will be launched – "Implementation" in terms of purchasing equipment with long manufacturing lead times in the customer's area of responsibility for delivery.

AUTHOR
PAVEL KRETOV

NEW SEASON WITH NEW ROTORS

IN FEBRUARY 2025, THE FOCUS OF THE DEBOTTLENECKING PROGRAM HEADQUARTERS WAS ON TWO STATIONS IN RUSSIA AND KAZAKHSTAN – PS-5 AND ISATAY PS, WHERE A PLANNED REPLACEMENT OF MAIN PUMP ROTORS WAS CARRIED OUT

At the PS-5 located in Stavropol Krai, the rotors were changed synchronously with the integration of the SCADA system with the new-built of frequency converters. Both the VFD, and the recently installed fifth 100-cubic-meter tank of the pressure mitigating system, and the new overpass of electric cables, and the new rotors with an increased radius of the working wheels – all of these were links in the same chain, means of increasing the productivity of a section of the main oil pipeline.

"Our station is the last one along the oil route where VFDs are installed, but not the last one where the rotor wheels are being increased", says Sergey Belotserkovsky, PS 5 Manager. "This process will continue at PS 7 and PS 8 in Krasnodar Krai".

Replacing four rotors of the main pumps takes three days. However, given that other work was being done in parallel, in addition to the 72-hour planned shutdown of the station, a preliminary 12-hour shutdown was also required. At the same time, the pipeline itself continued pumping oil without the participation of PS-5. For this purpose, the previous PS-4 along the oil flow worked in a more powerful mode: the amount of anti-turbulent additive introduced was increased.

Lead mechanical engineer Alexander Ezhikov arrived from the Krasnodar office of the CPC Western Region to PS-5 to monitor the progress of work.

"The professionalism and extensive experience of contractors allows them to cope with the maintenance and installation of equipment of any type and brand", notes Alexander Alexandrovich. "Even with their eyes closed, they can assemble and disassemble everything. They promptly solve any situationally arising issues, which, in particular, was evident during the recent replacement of mechanical seals".

The rotor replacement was carried out by two teams of four people, working twice as fast as the allotted time. Considering the fact that the weight of some parts reached 200 kg, a crane beam was almost constantly in demand. The situational complications also included the tight arrangement of equipment in the main pump station.

When performing work related to disassembling the main pump, double isolation of the station's process pipelines was ensured. This means that not only the secant gate valves of the units were shut off, but also inter-flange plugs were installed to cut off the equipment to be repaired from the process of the station. These works were performed by specialists of STARSTROY LLC, CPC's operating contractor.

SERGEY BELOTSERKOVSKY

During the same February scheduled shutdown of the pipeline at PS-5, the fifth tank of the pressure mitigating system was put into operation. The tank was filled with oil, checking the logic of the operation of the instrumentation devices.

From the beginning of April to May, the station switched over the electric motors of the main pumping units from the high-voltage motor shock-free starter to the rotor speed control system.

"Such an operation for each unit requires about a week", comments the Construction Headquarters Head Konstantin Boytsov. "The power cables are transferred from

CONTRACTORS PERFORM DOUBLE SEALING OF THE STATION'S PROCESS PIPELINES

THE PROGRAM TO REPLACE IMPORTED MPUS WITH GAS TURBINE DRIVES WITH DOMESTIC ONES HAS ENTERED THE IMPLEMENTATION STAGE

EQUIPMENT OF INDOOR SWITCHGEAR OF PS-5

the mechanical pressure control unit to the power cells of the VFD block box, from where, in turn, power is supplied to the units.

During such a period, if the station was operating at full capacity, it was necessary to abandon the pump in reserve, so the time for reconnecting the units was agreed with the Division of Oil Transportation and Commerce in Moscow.

Until all main pumps were connected to the VFD, adjustment was carried out using the mechanical pressure control unit. Only after the units were completely reconnected can they be transferred to the new scheme.

During his work at the headquarters of the Debottlenecking Program, Konstantin Boytsov has equipped the fifth CPC station with frequency control converters. Before that, he could be found at the construction sites of Astrakhanskaya PS, A-PS-5A, PS-2, PS-4.

"The stations are all the same, but each PS is still individual in its own way", explains Konstantin Vladimirovich. "There are difficulties in implementing identical projects. In some places the overpass is slightly different, in some places the drainage tank has been moved, in some places the diesel power plant has been installed differently. And this is only on the surface: everywhere it is necessary to conduct pitting for the safety of underground communications. We simply cannot do without close cooperation with the PS operating services".

KONSTANTIN BOYTSOV

Now this list of external differences between one typical PS and another will include one more: the air intakes of the cooling systems of the VFD transformers have different shapes depending on the natural and climatic conditions of the region in which the specific station is located.

Let us recall that before the DBNP, the pressure in the pipeline was regulated mechanically – by PCU valves. Now the pressure is controlled by changing the rotation frequency of the electric motors of the main pumps. There are many advantages from the introduction of VFD: it is more convenient to adjust process modes, the stations start up more smoothly and quickly after planned shutdowns, and there is a noticeable saving of electricity.

"Today, in our pipeline system, PSs operate simultaneously, the capacity of which is controlled by URD control valves, and stations with power regulation by changing the rotation frequency of electric motors", says Sergey Belotserkovsky, PS-5 Manager. "There is the following important difference between them: at low modes, main pump stations with VFDs are less likely to stop due to the activation of emergency protection".

The program to replace imported mainline pumping units with gas turbine drives with domestically produced MPUs with electric motors equipped with VFDs has now moved from the design stage to the implementation stage across the company. At the same time, imported MPUs are also used at stations with external power supply. What are the prospects for import substitution for them?

"Our station is young – it was put into operation in 2017", explains Sergey Vasilyevich. "It has modern, reliable equipment, including main pumping units. They undergo regular maintenance, and it is too early to talk about the need to replace this equipment".

AUTHOR
PAVEL KRETOV

THE MAIN SKILL OF A MODERN ENGINEER

IN HIS INTERVIEW, THE ASSOCIATE PROFESSOR OF THE DEPARTMENT OF STRUCTURES AND REPAIR OF GAS AND OIL PIPELINES AND STORAGE, PHD TECHNICAN MIKHAIL LEZHNEV TELLS US ABOUT THE TRENDS IN TANK CONSTRUCTION, METHODS OF DIAGNOSTICS AND ENSURING STRUCTURE SAFETY, AS WELL AS THE FEATURES OF «FIRMWARE» OF MODERN STUDENTS

Mikhail Aleksandrovich, your area of scientific interest is the problems of reliability and safety of storage tanks for oil and oil products. What topics are scientists working on today?

Mankind has accumulated a wealth of experience in the construction and operation of reservoirs. The first appeared in Ancient Greece – they were earthen barns for storing fresh water. Modern reservoir construction is associated with the name of Vladimir Shukhov. It was he who moved away from square reservoirs and developed a vertical cylindrical steel tank. Since then, only the connection method has changed fundamentally: riveting has been replaced by welding. But the same issues that worried engineers at the turn of the 19th and 20th centuries remain relevant today. These include the durability of materials, critical load, cracks and corrosion. Literally in recent years, another topic has been added to this list – protection from third-party impacts.

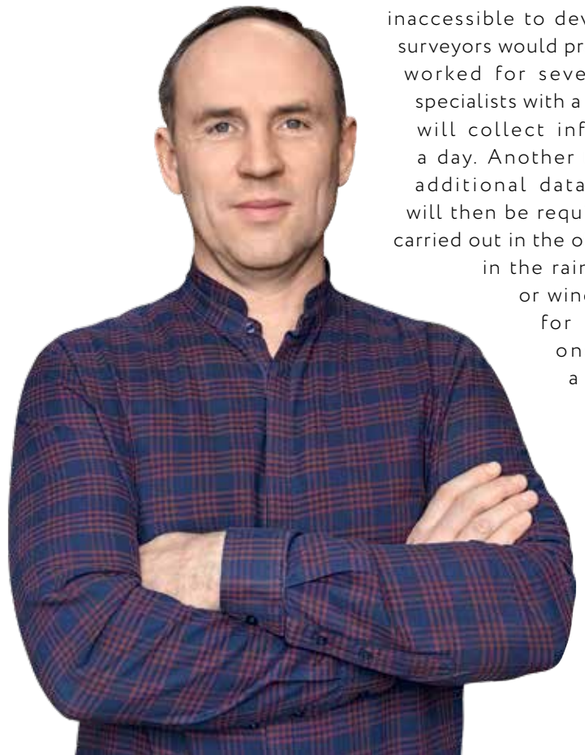
Science never stands still. Scientists are constantly testing new methods of welding, tank manufacturing, using various materials – composite, non-ferrous metals, etc. Current topics – development of tanks for storing liquefied gas and hydrogen.

How did the need for terrestrial laser scanning technology arise? When did it come to oil transportation facilities and the CPC?

In civil engineering, this technology appeared in the 60s of the 20th century. It was used both for diagnostics and for saving of time and financial resources.

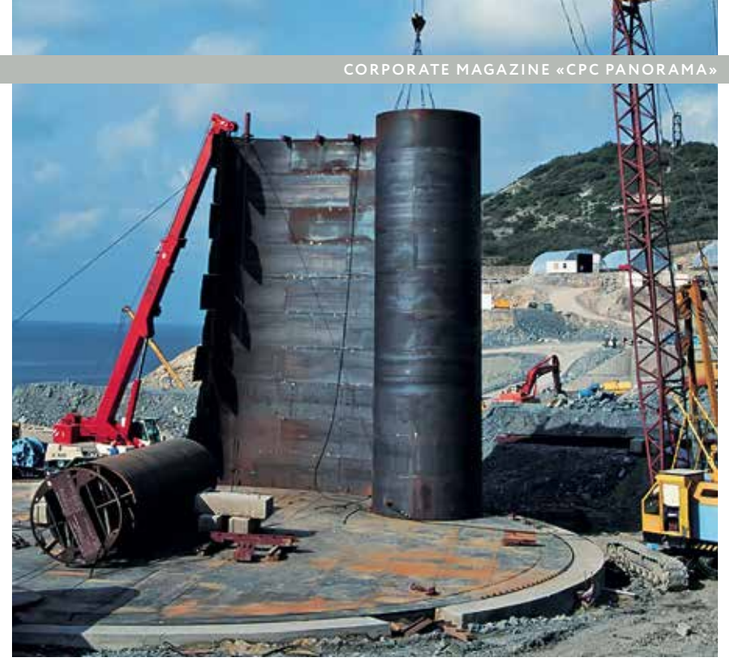
THANKS TO LASER SCANNING, IT IS POSSIBLE TO SAY FOR SURE WHETHER THE OBJECT CAN BE USED AT FULL CAPACITY WITHIN THE PARAMETERS THAT THE DESIGNER HAS PUT INTO IT

One of the tools for studying the reliability of tanks has become the introduction of terrestrial laser scanning technology. This technology makes it possible to obtain a 3D model with an accuracy previously inaccessible to devices. Where surveyors would previously have worked for several months, specialists with a laser scanner will collect information in a day. Another thing is that additional data processing will then be required, but it is carried out in the office, and not in the rain, snow, heat or wind. It is easier for people, and one can note a significant saving of time and financial resources.



Since the 1990s, Gazprom has been a pioneer in the fuel and energy sector. In the 2000s, scientists from Gubkin University developed laser scanning technologies together with Transneft and Transnefteprodukt. For example, the terrestrial laser scanning technique was improved at the Volodarskaya LPCS and the Taishet PS.

We worked on errors, studied various survey points, their required number, carried out measurements from the inside and outside of the tanks, investigated what distortions are caused by the presence of an aluminum dome roof, etc. We considered whether snow affects the result, where to place the scanners in the conditions of tanks with embankments, with a reinforced concrete square, what distortions are caused by the use of a hoist.



ROLLED INSTALLATION OF A 9500 M³ TANK

CPC is a young company in terms of operating its existing facilities and is only now approaching a period when its equipment and tanks, in particular, are beginning to require full diagnostics, including terrestrial laser scanning. The Consortium's marine terminal is a unique facility where tanks with a capacity of 100 thousand m³ are operated.

Did scientists from Gubkin University need to refine the terrestrial laser scanning method for diagnosing CTC objects taking into account their features?

We added the number of scanning points, calculated such parameters as determining the permissible angle of incidence of the laser beam on the surface of the measured object.

SPECIALISTS WITH A LASER SCANNER CAN COLLECT INFORMATION IN A DAY WHERE SURVEYORS WOULD PREVIOUSLY HAVE WORKED FOR MONTHS

Terrestrial Laser Scanning – does it require tanks to be cleared of oil?

It does not require it, and this is one of the main advantages of the method. We get the opportunity to examine the tank at different levels of implosion and get data on which level shows the most geometry defects. Where there is more bulging, where, on the contrary, there is flattening. After all, any wall deviation increases the likelihood of premature tank failure.

And, of course, thanks to laser scanning, it is possible to say for sure whether the object can be used at full capacity within the parameters that the designer has put into it. This ultimately affects the equipment operating factor.

Have you personally visited the CPC facilities? If so, what were the issues related to these visits? What impression did the Consortium facilities make on you?

I have visited the Caspian Pipeline Consortium facilities several times. The first time was when the coastal complex and the first four SVFRT 100000 tanks were being built at the Marine Terminal. I have a photo of this stage, and I often show it to CPC specialists at advanced training courses asking if they recognize their facility. In 2022, I went to the Kropotkinskaya PS with a large team from Gubkin University: two new advanced training programs were being prepared for the Consortium staff. I personally developed one of them – on the reliability and safety of tank structures. The second one, on issues of technological reliability of pipeline transport facilities, was prepared by employees of the Department of Design and Operation of Gas and Oil Pipelines.

What can you say about the success of the "students" from CPC in the advanced training courses at Gubkin University?

It is difficult to call them students, because we are talking about people from production, experienced, well-trained and at the same time always ready to expand their professional horizons. They know their production facilities well, but are never against studying the equipment that is missing at their PS. These include larger tanks or, for example, differences in the types of floating roofs, etc.

You combine your work at the Department of Construction and Repair of Gas and Oil Pipelines and Storage Facilities at Gubkin University in Moscow with the management of the Department of Design, Construction and Operation of Pipeline Transport Systems at the university branch in Tashkent. What part of your activity is occupied by teaching in Uzbekistan?

A branch of Gubkin University has been open in Uzbekistan since 2007. Now there are already 14 branches of Russian universities in this country, and back then, in the 2000s, the pioneers were Gubkin University and Lomonosov Moscow State University. Our branch has been operating since 2015. It is difficult to say what percentage of my labor activity is spent on its management, but it is a large volume. At least three times every six months I go there on a business trip and represent not only our department, but the entire faculty of pipeline transport. It is necessary to plan the educational process, select teachers, make sure that all orders are issued and our employees arrange business trips in a time, and there are also "Cs" in sessions, and this, accordingly, means retakes, etc. The first group of our students – very strong guys – graduated in 2019, and all were immediately employed. Later on, the level slightly decreased due to the pandemic, but now it is steadily increasing again.

And what about the new generation of Russian students? What can be said about them?

My teaching experience dates back to 1999. I started at the evening faculty, where I worked with production workers. It was mutually interesting: they were better versed in practice, and I was better versed in theory.

In my experience, students of all generations are similar in that there are always 10% of those who are persistent in their studies and 10% who are the opposite. Average students are also present, they determine their level of immersion in the subject by their interest. If it is interesting, they make an effort, if it is not interesting, they do not, and the results of the session depend on their personal abilities. I believe that modern students rely too much on gadgets. They try not to take notes from lectures, but to take pictures from the board, then try to find these photos.

Or now there are many applications for smartphones that allow you to get calculations using formulas. But ask a student what this figure is, not everyone will be able to explain what it is for. After all, not every job allows you to have gadgets with you, and what would such a specialist be worth without a phone in his pocket? Therefore, I try in different ways to get my students to put gadgets out of their hands and work with calculations themselves, in a notebook. Two years ago, I first conducted an experiment with students, which I then introduced into regular practice. I asked everyone to bring scissors, glue, paper, and we assembled a detailed model of a reservoir. At first, the students were hostile to the idea, but then they got carried away, agreeing that such practice helps them master the subject better. Computerization is very good, but a modern engineer should not lose his main skill – the ability to work independently.

PROFESSIONAL "PUMPING" TO INCREASE PUMPING

AUTHOR: ANASTASIA BELOVA, SERVICE HEAD, PERSONNEL DEVELOPMENT

EACH LARGE-SCALE PROJECT IN THE PRACTICE OF THE CASPIAN PIPELINE CONSORTIUM IS NOT ONLY KILOMETERS OF PIPELINE, TONS OF METAL AND THOUSANDS OF DRAWINGS, BUT ALSO HUNDREDS OF SPECIALISTS WHO NEED TO BE TRAINED SO THAT THE UPDATED EQUIPMENT WORKS LIKE CLOCKWORK

The implementation of the Debottlenecking Program required efforts from all CPC employees, and the Personnel Training and Development Department was no exception. The Consortium's specialists have repeatedly demonstrated high qualifications and professionalism in solving production problems, but new equipment requires new knowledge.

During the implementation period of the DBNP in 2019–2024, 1,062 specialists from the project team and other production units of the company were trained. The number of those trained included 375 specialists from the Operations Department.

Like the Expansion Project, the Debottlenecking Program required training of personnel not only in the classrooms of training centers, but also in the field – directly at the facilities, during supervision and commissioning works.

The training was mainly focused on working with new or modified equipment. Various formats were used, including face-to-face training conducted by equipment suppliers, online computer courses, and training developed and conducted by the company's internal trainers.

As part of the implementation of the DBNP, four new booster pump units (BPU) manufactured by Ruhrpumpen GmbH were put into operation at the Tengiz PS in November 2022. The Training Department was given an ambitious task: to train the Tengiz PS operational personnel in the operation and maintenance of the Ruhrpumpen BPUs in August-September 2022 before the start of comprehensive testing. The geopolitical situation and the lack of options

NIKITA BEZMATERNYKH

for organizing external training by the equipment manufacturer became special conditions for solving this task.

"We found ourselves in an extremely difficult situation – some equipment suppliers refused to conduct training, but nevertheless, the task of ensuring high-quality personnel training remained", comments Alexandra Rabinovich, Team Leader, Personnel Training and Development. "In such a situation, CPC employees once again proved that teamwork is not an empty phrase for us. Our experts, internal trainers took on the difficult task of developing and updating training programs for the operation of Flowserve mainline pump, Ruhrpumpen BPU, Schorch electric motors and a number of others".

ANDREY SAKHARNOV

Since the booster pump units of the Atyrau PS and the new BPUs of the Tengiz PS were similar in design, the practical part of the training in August–September 2022 was held at the technical service station of the Atyrau PS during the period of medium repair of the Ruhrpumpen BPU (disassembly of the unit, defect detection, replacement of worn parts). Participants in this training received unique practical experience: the opportunity to combine theory and practice in action, observing the operation of the units at the BPU site of the Atyrau PS.

For high-quality training of personnel at the facilities, Mechanical and Process Equipment Operations Service Head (Eastern Region) Gabiden Erbulekov developed and supplemented the training program and educational and

methodological materials for training in the operation of the Flowserve mainline pump, as well as the Ruhrpumpen BPU. Lead Vibration Diagnostics Engineer Andrey Sakharnov developed a training program and educational materials for familiarization with the operation of Schorch electric motors. Lead Electrical Engineer (Central Region) Pavel Soloviev prepared a program and educational and methodological materials for Siemens H-modyn electric motors. All this allowed our colleagues

GABIDEN ERBULEKOV

THE TRAINING PARTICIPANTS HAD THE OPPORTUNITY TO COMBINE THEORY AND PRACTICE IN ACTION, OBSERVING THE OPERATION OF UNITS AT THE ATYRAU PS

to gain the necessary knowledge.

Regular training was also conducted by service providers. Thus, specialists from Systems Oil and Gas LLC organized training for mastering the hardware and software of the measuring and computing complexes IMC-07, used in metering units. In addition, an electronic course "Measuring and computing complex IMC-07" was developed, which is currently available on the Portal of training and development in the section "Electronic training".

PAVEL SOLOVIEV

Special attention was required for training on high-voltage frequency converters of rotation of electric motors of main pumping units (VFD) manufactured by EKRA. In order to improve the quality of training in this profile, Alexandra Rabinovich, together with key CPC experts, developed a training program that provides detailed familiarization with the new equipment in several different formats.

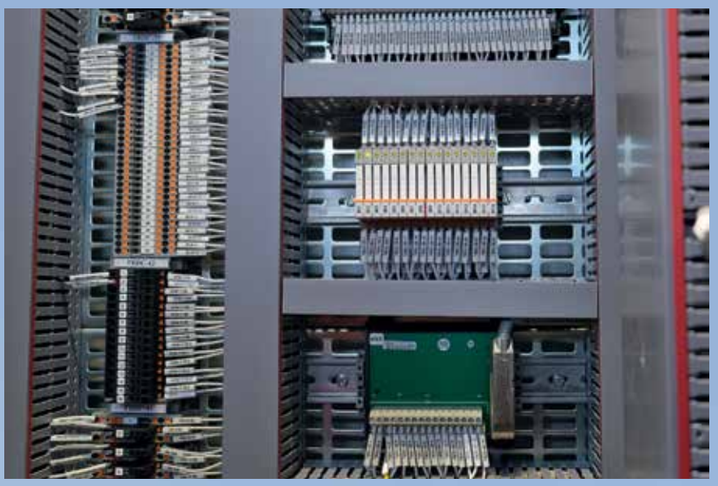
Key experts were trained in the VFD profile at the federal theoretical center of power electronics – Chuvash State University in Cheboksary (Federal State Budgetary Educational Institution of Higher Education "ChSU named after I.N. Ulyanov"). For most employees, training in frequency regulation systems was conducted at CPC facilities by the manufacturer's specialists. Over 170 people were trained during the implementation of the DBNP in 2019–2024.

An electronic course "Device and control of VFD" was developed for shift supervisors and linear part dispatchers. Nikita Bezmaternykh, Electric Equipment Operations Service Head, developed a program and training materials "Frequency converters for high-voltage asynchronous electric motors manufactured by EKRA LLC". This program is currently used to train newly hired employees.

Following the implementation of the DBNP in 2019–2024, internal training programs were updated for drinking water treatment plants, installation, commissioning and operation of Siemens H-modyn electric motors, as well as booster pump units (Ruhrpumpen).

In order to ensure coordinated work, CPC provided assistance in improving the competence of employees of contracting organizations. Thus, when organizing training by equipment suppliers at facilities on uninterruptible power supplies (UPS) and VFDs manufactured by EKRA, employees of KazTransOil JSC and STARSTROY LLC were included in the groups.

Based on the results of the comprehensive training of the CPC personnel on the specifics of the DBNP equipment, it can be said that the professional "pumping" and advanced training of hundreds of specialists effectively contributed to the fulfillment of the main task of the Debottlenecking Program, which has already been almost fully implemented to date: increasing the capacity of the CPC pipeline system to 83 million tons of oil per year.



AUTHOR
ANGELICA KIM

THE YEAR OF WORKING PROFESSIONS

IN PLACE

THE SERIES OF THEMATIC PUBLICATIONS IN THE YEAR OF WORKING PROFESSIONS OF THE REPUBLIC OF KAZAKHSTAN CONTINUES THE STORY ABOUT THREE SPECIALISTS OF THE EASTERN REGION OF CPC. HIGHLY APPRECIATING ITS EMPLOYEES, THE CASPIAN PIPELINE CONSORTIUM TRIES TO CREATE COMFORTABLE CONDITIONS FOR THEM TO WORK, SELF-DEVELOP, PROFESSIONAL AND PERSONAL GROWTH

Slinger Darzhan Dauletov is 61 years old. He has dedicated 45 years of his life to oil pipeline transportation. After graduating from eight-year school, the teenager from the village of Sarakamys entered the 101st vocational school in the city of Guryev, where he learned the profession of an electric gas welder. The young specialist's first place of work was the Sarakamys oil pumping station of the West Kazakhstan Main Oil Pipeline Administration (WKMOPA).

After being drafted into the army in 1984, Private Dauletov served in Moscow, in a construction battalion. After demobilization, he returned to work at WKMOPA. He worked as a welder in the Vodopodem division, an electrician, and a pump operator at the Aktobe PS. With the reform of the oil and gas industry of the Republic of Kazakhstan, Darzhan Zhuldaskalievich began working in the structure of KazTransOil JSC.

"The work of a pump operator is very important, especially if the station receives oil from a field", says Darzhan Dauletov. "A specialist in this position must be experienced, able to concentrate at the right moment in order to promptly identify equipment malfunctions. Nowadays, PS are equipped with modern technology, and specialists can see on monitors how oil is pumped, monitor pressure and temperature without leaving their offices. But back then, everything was done manually. Sometimes you sit near the pipeline and listen to extraneous noises, knocks or vibrations, and realize whether the process is going normally or there was a failure somewhere.

In 2001, when the Tengiz – Novorossiysk pipeline was built and put into operation, Darzhan Dauletov began working at CPC as a process pump operator. A year later, he became an operator at the Atyrau PS.

Today Darzhan Zhuldaskalievich works as a slinger at the CPC logistics base in Atyrau. An authoritative and respected specialist in the team, a veteran of the industry, he has developed qualities that allow him to solve problems of almost any complexity. These are responsibility, discipline, attentiveness, the ability to make quick decisions.

The master is proud of his students, who, having successfully passed the exams, are now working as operators of the CPC's PS. And at home, the Dauletov family will celebrate their "ruby wedding" next year – 40 years of married life. Darzhan and his wife Nursulu raised and educated four children, and are now enjoying nine grandchildren.

DARZHAN DAULETOV

RAPID RESPONSE ELECTRICIAN

Nikolay Danilov is an Electrician for electrical installations maintenance at the Kurmangazy PS. He has 30 years of experience in the oil and gas industry. Nikolay Anatolyevich grew up in a working-class family, and was interested in history and geography at school. On his father's advice, he entered the Gurevsky Railway College to study "automation, telemechanics and communications". The promising specialty came in handy already in the army.

"I did my urgent service in long-range aviation near Semipalatinsk, not far from the Kurchatov test site", Nikolay Anatolyevich recalls. "Since I had a signalman's diploma, the command assigned me to service the garrison ATS – 600. When I returned to "civilian life", and this was 1994, there was a shortage of work everywhere, and if I managed to find one, my salary was delayed, and sometimes I was paid in goods".

Like many others, the oil industry helped the young specialist out. Nikolay worked for seven years in a structural division of KazTransOil

AT HOME, THE DAULETOV FAMILY WILL CELEBRATE THEIR "RUBY WEDDING" NEXT YEAR. DARZHAN AND HIS WIFE NURSULU RAISED AND EDUCATED FOUR CHILDREN, AND ARE NOW ENJOYING NINE GRANDCHILDREN

JSC – the Atyrau Department of Water Treatment and Water Supply (ADWTWS). In 2002, he began working at STARSTROY LLC – a contractor of CPC for the maintenance of facilities and equipment of the oil transportation system. In 2016, when the Kurmangazy PS was built and commissioned during the Expansion Project, the Consortium's management did not doubt the candidacy of an experienced and responsible specialist for the position of electrician for the maintenance of electrical installations of the new station.

"At first, I was worried that I wouldn't be able to cope", admits Nikolay Danilov. "I had never encountered imported equipment before, so I had to study the diagrams of Schneider Electric power systems. The company also supported me in this matter – in 2018, they sent me to courses in Moscow".

According to Nikolay, working with electrical equipment at CPC is convenient, comfortable, reliable and, most importantly, safe. His responsibilities include monitoring the equipment at the Kurmangazy PS, monitoring electricity meters and entering readings into the log. He and his colleagues also perform work in the order of ongoing operation.

"Our area of responsibility also includes rapid response in the event of an emergency", says Nikolai Anatolyevich. "In such cases, we must ensure the safety of electrical equipment as quickly as possible before the repair team arrives. Electrical installations must always be under surveillance, since the uninterrupted operation of the PS depends on them.

According to the work production plan (WPP), Nikolay and his colleagues prepare electrical equipment for the maintenance contractor. This approach allows for timely detection and elimination of faults in the electrical circuits of the process equipment. There are five people on the shift, not counting the driver. All actions of the operational personnel are carried out according to the instructions of the shift supervisor – this is important for safety and coordinated work.

NIKOLAI DANILOV

"We work in 14x14 shifts: seven days at day, seven days at night", explains Nikolay Danilov. "Each shift begins with a medical examination, then we check the operation of the equipment, records of the previous shift, and so on. The work of operational personnel is very responsible, requiring discipline, attentiveness, and strict adherence to the instructions of the shift supervisor. Failure is unacceptable in our work".

The shift camp has comfortable conditions for work and living. On the territory there are residential complexes for operational and service personnel, a medical center, a canteen, sports grounds, a sauna, a recreation room. Everything is done like at home. As for the real house, Nikolay will find his beloved and... puzzles there.

"I honestly admit that this is my favorite hobby", says the electrician. "I especially like collecting paintings from the Hermitage. The largest one I collected consisted of three thousand parts".

Nikolay Danilov is a man who can assemble not only complex puzzles, but also his own destiny – bit by bit of knowledge, experience, and skill. He not only knows how electrical installations work, he feels responsible for the stable operation of the entire station. Attentive, thoughtful, passionate and friendly – these are the people who create the reliable foundation on which the energy security of an enterprise, industry, or country rests.

ILIADA KARZHAUOVA

He has decades of conscientious work behind him, respect for the profession in his heart, and the calm of a person who has found his place in life in his eyes. It is thanks to such professionals that the company confidently moves forward, maintaining the highest standards of quality and reliability.

POETRY OF PUMPING

Iliada Karzhauova has been working in the chemical analysis laboratory of the Atyrau PS (where oil from the Karachaganak and Kashagan fields, as well as other shippers, is added to the CPC blend) for over 10 years. Her total experience in the industry is 18 years.

"I always liked natural sciences, I loved chemistry at school, so choosing a profession was not difficult for me", says the test laboratory technician. "After graduating from the Atyrau University of Oil and Gas named after Safi Utebayev, having received a diploma of chemical engineer-technologist, I found a job in my hometown of Kulsary. Then I worked at customs, then in the laboratory of the Tengizchevroil company, where I worked for eight years".

In 2014, Iliada came to CPC with a solid 5th category for a laboratory assistant. Her shift begins with checking equipment and crude oil delivery schedules, followed by monitoring samples received from shippers. Chemical analysis of each such sample is carried out according to strictly defined regulations using various reagents and laboratory equipment. The work is quite painstaking, each analysis has a certain time – from 30 minutes to several days. The results of the analyses are recorded in reports, the process ends with the issuance of passports to suppliers.

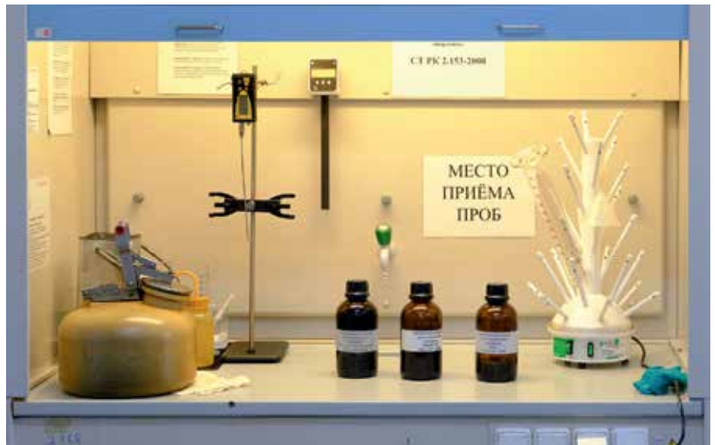
"Oil, like a person, must have an identification document", smiles Iliada Karzhauova. "On average, we issue 20–25 passports a day, and the samples are examined continuously and around the clock".

Fairly correlating the work of a test laboratory technician with the work of a diagnostician, Iliada Satybaldievna calls the main qualities of her profession responsibility, attentiveness, accuracy, competence in working with modern equipment, knowledge of the regulatory framework, and compliance with safety regulations. The laboratory works with various unsafe solvents, and oil itself is far from an inert substance.

"Our laboratory technicians are fully equipped with personal protective equipment: gowns, masks, gloves, glasses", notes Iliada Karzhauova.

In addition to her favorite job, she has a loving husband and four children. Three of them study at the Salamat Mukashev Polytechnic College, the youngest is five years old and goes to kindergarten. Iliada is also a caring daughter-in-law: her husband's father, who is already 83 years old, lives with them.

There are plenty of family chores, but she still manages to please her men with delicious dishes, go to the cinema with them, and go on a picnic. Her hobbies include gardening and walking: at this time, Iliada relaxes, enjoys nature, and recharges her batteries to take up her shift with renewed vigor.



AUTHOR
ANTON GLINYANOV, LEAD PROJECT ENGINEER

DBNP PROJECTS IN RUSSIA – AT THE FINAL STAGE OF IMPLEMENTATION

THE CASPIAN PIPELINE CONSORTIUM IS ACTIVELY IMPLEMENTING LARGE-SCALE PROJECTS FOR THE MODERNIZATION AND TECHNICAL RE-EQUIPMENT OF ITS FACILITIES AIMED AT INCREASING THE RELIABILITY AND SAFETY OF OIL TRANSPORTATION AND INCREASING THROUGHPUT CAPACITY. AT THE PRESENT TIME, THE DBNP PROJECTS FOR THE INSTALLATION OF VARIABLE FREQUENCY DRIVES AND AN ADDITIONAL 5TH TANK OF THE PRESSURE MITIGATING SYSTEM AT PS-3 AND PS-5, AS WELL AS THE CONSTRUCTION OF THE THIRD PRESSURE CONTROL UNIT AND THE THIRD PRESSURE DUMPING STATION AT THE SHORE FACILITIES OF THE MARINE TERMINAL ARE AT THE FINAL STAGE OF IMPLEMENTATION

At PS-3, testing of the mainline pumps equipped with newly installed variable frequency drives (VFDs) has been successfully completed. April tests showed flawless operation of the equipment in various operating modes, confirming the effectiveness of the implementation of this technology. The use of VFDs allows for smooth regulation of the rotation speed of the pumps, optimizing energy consumption and minimizing hydraulic shocks in the pipeline system. This not only increases energy efficiency, but also extends the service life of the equipment. A positive Industrial Safety Expert Review conclusion confirms the soundness of the selected technical solution and the high quality of the work performed.

At PS-5, a complex transition stage has been successfully completed, shifting the mainline pumps from soft-start units for high-voltage motors to new variable frequency drives. The work included disconnecting the pumps from obsolete systems, installing a frequency control system, conducting high-voltage tests, connecting and adjusting control and automation devices. At the time of writing, three main pumps operating from VFDs have been put into operation. Completion of work on connecting and adjusting the last pump is scheduled for mid-May, after which readiness for comprehensive testing of the main units from VFDs will be ensured.

ALEXANDER MARDYNSKY

The implementation of VFDs at PS 5 will achieve the same results as at PS-3 – increased energy efficiency and reduced risks associated with hydraulic shocks.

At the Shore Facilities (SF) of the Marine Terminal, preparatory work is underway for the commissioning of an additional pressure control unit (PCU) and pressure differential system (PDS). The scope included readiness activities for a highly critical operation – connecting the newly constructed process section to the existing pipeline system of the Shore Facilities of the MT, scheduled for May of this year. The installation of new PCU and PDS, which prevent pressure drops in the system, will provide an additional level of safety, which is especially important when maneuvering tankers and changing the pipeline operating mode. It is important to note that all commissioning work was carried out without stopping oil pumping through the CPC pipeline, which indicates the high professionalism and coordinated work of the engineering teams.

The implementation of these projects is an important step in the CPC strategy to modernize infrastructure and improve safety. The use of modern technologies, such as VFD, will significantly increase the efficiency of pump stations, reduce energy consumption and ensure more reliable and safe transportation of oil.

Behind the successful implementation of the project stands a well-coordinated team of professionals: designers, procurement specialists, builders, commissioning engineers, operating personnel, labor protection – the list goes on. Every link in this "machine" is essential, and among them are the customer's construction supervision specialists, who, throughout the entire duration of the DBNP project, carried out inspections to ensure that the work complied with design documentation, regulatory requirements, and technical standards. Another key area of their responsibility was ensuring quality control throughout the construction process.

The customer's construction supervision at DBNP project sites is managed by true professionals in their field – Evgeny Pyshkin, Lead Quality Engineer of the Moscow office, who organizes work on construction supervision at all facilities of CPC-R, as well as Denis Karlin and Yuri Klimenko – quality engineers who directly supervise and interact with all project participants on issues of construction supervision in the Central Region and at the Marine Terminal, respectively.

DENIS KARLIN

"During the inspection, supervisors not only record the stages of work performed, but also point out mistakes and shortcomings to the contractors, offering guidance on how to correct them and prevent them in the future", says Denis Karlin.

We would also like to express our gratitude to the Lead Specialist, As-buit documentation acceptance, Central Region DBNP Construction Headquarters, Alexander Mardynsky, a true professional, who carries out a huge amount of work on organizing and monitoring the execution of executive documentation for completed work by specialists of contracting organizations. The collection and processing of documentation is a labor-intensive task that requires time and the involvement of many individuals, and Alexander's competent approach to identifying and analyzing potential issues – including those caused by human error during the documentation process – helps minimize the risk of project delays.

We would like to wish our colleagues working on the DBNP project further development, participation in new ambitious CPC projects and professional growth.

AUTHORS
GRIGORY SENOEDOV,
TEAM HEAD, PHYSICAL SECURITY
PAVEL MASLOV,
SENIOR PHYSICAL SECURITY SPECIALIST

COMPETITION OF PROFESSIONALS

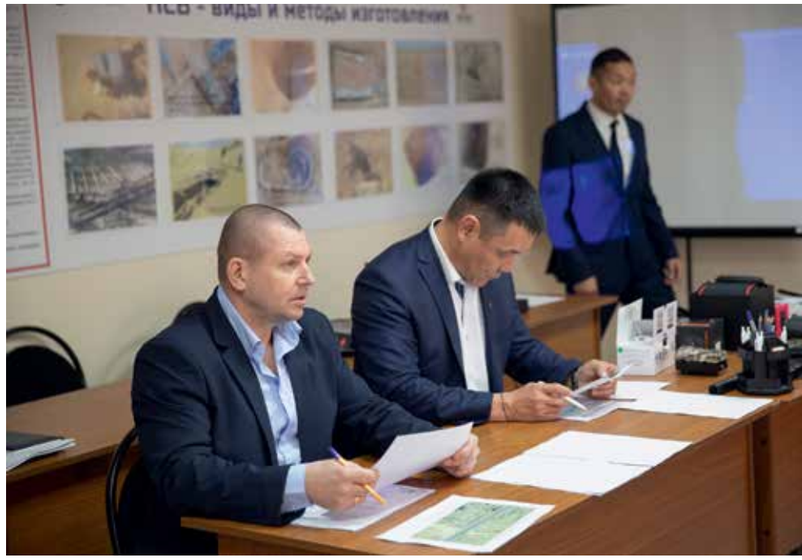
FROM MID-FEBRUARY TO EARLY APRIL 2025, THE CPC CORPORATE SECURITY DIVISION HELD THE FIRST INTERREGIONAL COMPETITION OF PROFESSIONAL SKILLS FOR SPECIALISTS ENSURING THE SECURITY OF THE TENGIZ-NOVOROSSIYSK PIPELINE SYSTEM FACILITIES ON THE TERRITORY OF THE RUSSIAN FEDERATION

The interregional competition of professional skills of specialists in the security of fuel and energy complex facilities was held at the sites of the Educational and Training Complex in Elista, in the Tank Farm of the Marine Terminal, in Astrakhan, Ipatovo, Izobilny and the village of Novotitorovskaya in Krasnodar Krai. The competition was attended by 96 employees of Nachin private security organization, a contractor providing security for CPC production facilities in the Russian Federation.

Regional security and safety specialists, heads of security areas, senior security shifts, and duty officers have passed the testing of their level of competence and professional training, knowledge of legislation and corporate regulatory documentation, practical skills in anti-terrorist protection and actions in emergency situations.

The theoretical stage of the competition tested knowledge of federal legislation, government resolutions, orders and local regulations of the CPC in the area of physical protection and antiterrorist security of fuel and energy facilities. Testing was carried out on computers using a special program developed by the Corporate Security Division together with the contractor.

The practical competition stage gave the participants the opportunity to demonstrate their skills in providing anti-terrorist protection of CPC facilities, actions in case of emergencies, actions upon detection of sabotage and reconnaissance groups, as well as precedents of illegal interference, including sabotage and terrorist acts using unmanned aerial vehicles. During the practical classes, the tactical and technical characteristics of the UAV countermeasures used were reviewed.



The results of each contestant were assessed by a committee consisting of representatives of the Corporate Security Department, managers and founders of the security organization. In general, the theoretical knowledge of the participants was assessed as sufficient, and their practical skills as satisfactory. The contestants also had the opportunity to share their proposals for improving the efficiency of protecting CPC facilities.

On April 24, 2025, the winners of the first Interregional Competition of Professional Skills of Workers Ensuring the Security of CPC Facilities were awarded with diplomas and valuable prizes. The best region, section and security facility were identified in the collective championship. In the individual competition, the winners were determined in the nominations of "security specialist", "head of the security section", "senior security shift manager", "operational duty officer". According to the best performance in solving theoretical and practical tasks, the strongest "practitioner" and "theoretician" were additionally determined.

"Such competitions not only allow us to determine the professionalism of employees, but also stimulate them to improve themselves", summing up the results of the competition, the Head of CPC Regime and Internal Security Service Sergey Kudinov emphasized. "The participants demonstrated excellent skills in working with equipment and the ability to act in non-standard situations".

"Having analyzed the results of the first competition, we see its value both in terms of regular testing of professional knowledge and skills, and in terms of professional communication and exchange of experience", noted the Head of the Physical Security Team Grigory Senoedov. "A decision has already been made to make this competition an annual event. As is known, in the CPC Eastern region it is planned to create a training complex for security service employees similar to the Elista training complex. It is logical that a professional skills competition for specialists responsible for the security of fuel and energy complex facilities will be possible and in demand at this site.

The CPC Corporate Security Division carries out systematic work to ensure the security of the company's facilities and improve the competencies of the security personnel. In 2023, the Educational and Training Complex was built in Elista through the joint efforts of CPC and Nachin private security organization. Every year, the Consortium holds visiting seminars on issues of ensuring the physical security of fuel and energy complex facilities. The company actively interacts with industry educational institutions in Russia in this area.

REGIONAL SECURITY AND SAFETY SPECIALISTS, HEADS OF SECURITY AREAS, SENIOR SECURITY SHIFTS, AND DUTY OFFICERS HAVE PASSED THE COMPETENCY AND PROFESSIONAL TRAINING TESTS

AUTHOR
ARINA NIKOLAEVA,
TEAM LEADER, ECOLOGICAL SAFETY AND RATIONAL ENVIRONMENTAL MANAGEMENT, CANDIDATE OF GEOGRAPHICAL SCIENCES

PIPELINE CARBON FOOTPRINT

AN INDEPENDENT ASSESSMENT OF GREENHOUSE GAS EMISSIONS AND THE CARBON FOOTPRINT OF THE CASPIAN PIPELINE CONSORTIUM'S PRODUCTS IN THE RUSSIAN SEGMENT OF THE OIL PIPELINE SYSTEM FOR 2022–2023 CONFIRMS THAT THESE INDICATORS COMPLY WITH ENVIRONMENTAL STANDARDS AND ARE RELATIVELY LOW FOR COMPANIES IN THE OIL AND GAS INDUSTRY

CLIMATE AGENDA IN THE OIL TRANSPORTATION SECTOR

The oil and gas sector is one of the largest contributors to global greenhouse gas (GHG) emissions, accounting for approximately 15%[1] of global energy-related emissions.

Oil pumping is a vital step in the hydrocarbon supply chain, linking oil fields to refineries and end consumers. However, the process is accompanied by significant GHG emissions, making it a subject of intense scrutiny in the context of the global fight against climate change.

Since the beginning of 2023, Russia has enforced a requirement for mandatory reporting by enterprises emitting more than 150,000 tons of CO_2-equivalent per year (Federal Law No. 296-FZ). As part of the effort to improve the greenhouse gas monitoring system, the reporting threshold has been lowered: starting from January 1, 2025, new regulations have come into force requiring companies with annual emissions exceeding 50,000 tons of CO_2-equivalent to submit the corresponding reports to regulatory authorities.

Increasing regulatory requirements, consumer expectations and changing market demands are driving the industry to account for and monitor GHG emissions. By quantifying GHG emissions and product carbon footprints (PCF), companies can identify opportunities to reduce them, improve operational efficiency and align with national and international climate change goals.

In the context of growing demand for "green" oil and the desire to comply with international environmental standards, oil suppliers and consumers are increasingly interested in obtaining data on the transport component of the carbon footprint, since this affects the overall environmental reputation of the product. Therefore, for CPC-R, as an environmentally responsible company, an accurate assessment of GHG emissions, calculation and verification of the carbon footprint of oil transportation allows not only to assess the environmental impact of production activities, but also to comply with the requirements of investors and regulators, as well as the requirements of the climate agenda and international standards.

[1] IEA (2023), https://www.iea.org/reports/emissions-from-oil-and-gas-operations-in-net-zero-transitions

For this purpose, CPC-R carried out work to assess GHG emissions and PCF for 2022–2023, the results of which made it possible to assess the potential contribution to global warming of oil transportation through the CPC pipeline system in Russia.

The need to assess two indicators at once — GHG emissions and PCF — is due to their complementarity. The combined use of these two methods provides a more comprehensive and detailed understanding of the climate impact.

The assessment boundaries include the Consortium's operational sites for which CPC-R has the right to make management decisions (11 PS in Russia and the Marine Terminal). The carbon footprint resulting from transportation in Kazakhstan, as well as transportation from fields to CPC-K facilities, is assessed separately.

ASSESSMENT OF GREENHOUSE GAS EMISSIONS OF CPC-R

The main sources of GHG emissions (mainly carbon dioxide CO_2, methane CH_4 and nitrous oxide N_2O) at the stage of oil transportation are:

- energy consumption of pump stations: powerful main pumping units running on electricity or fossil fuel are used to pump oil through pipelines;
- methane emissions during loading of tankers and bleeding of the gas-air mixture on separate process equipment during pipeline operation;
- fuel combustion in gas turbine units, diesel power plants, as well as emissions during the operation of motor vehicles;
- indirect emissions arising from the production of equipment, construction of infrastructure and servicing of main pipeline facilities.

The main international standard regulating the process of GHG emissions assessment is The GHG Protocol Corporate Accounting and Reporting Standard (hereinafter referred to as the GHG Protocol).

Estimating GHG emissions involves quantifying all emissions associated with the oil transportation process at the organization level. According to the GHG Protocol, the approach to estimating includes three scopes of emissions. Scope 1 includes direct emissions occurring directly from sources owned by the company. Scope 2 includes indirect energy emissions associated with the production of electricity, heat and steam that the company purchases from suppliers. Scope 3 includes all other emissions associated with the supply chain, such as emissions from transportation to the CPC-R facilities, waste disposal, and even emissions from the use of oil after its sale. The Russian methodology for estimating GHG emissions provides for an assessment only for the first two scopes.

As part of the study, the selected operational boundaries for calculating the volume of GHG emissions of the company included:

- Scope 1 — direct GHG emissions from sources managed by the Company;
- Scope 2 — indirect energy GHG emissions arising directly from the consumption of thermal and electrical energy by CPC-R facilities and equipment from the power grid.

Scope 1 emissions were calculated for facilities directly burning fossil fuels — stationary installations (gas turbine units, diesel power plants), automobile and other transport and equipment. Fugitive emissions from various technological processes were also assessed as sources of direct GHG emissions. In particular, emissions were assessed that arise during oil transportation when bleeding gases to maintain pressure, degassing during equipment cleaning/maintenance, and emissions from wastewater placed in evaporation ponds. Since the international methodology does not take into account greenhouse gas emissions from tank cleaning separately, these emissions were taken into account in the overall coefficient for oil transportation. In addition, emissions from refrigeration equipment (consumption and leakage of refrigerants) and the use/recharging of carbon dioxide fire extinguishers were assessed.

When calculating GHG emissions in the category of indirect energy emissions (Scope 2), the use of purchased electric and thermal energy was taken into account. The calculation was based on actual consumption data for electricity and thermal energy in physical units during the reporting period, along with the corresponding emission factors for both types of energy. The regional approach was applied in the GHG assessment, meaning that emission factors reflected the characteristics of the country's overall energy system.

The conversion of the mass of emissions of individual GHGs into CO_2 equivalent was carried out using the corresponding global warming potentials published in the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

RESULTS OF THE ASSESSMENT OF GREENHOUSE GAS EMISSIONS OF CPC-R

In addition to the assessment according to the Russian methodology, which CPC-R has been carrying out since 2021 as part of the preparation of mandatory environmental reporting, in 2024 an assessment of greenhouse gas emissions for Scopes 1 and 2 was also carried out according to the international GHG Protocol methodology, in accordance with

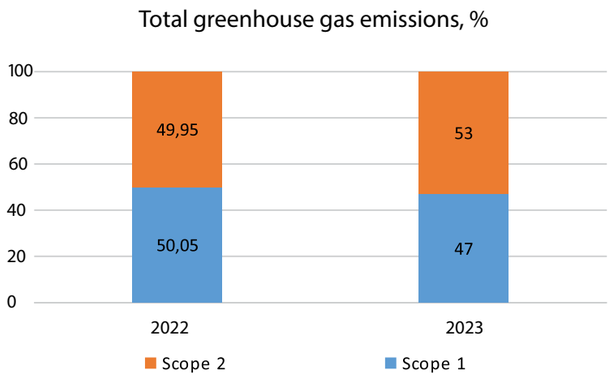


FIGURE 1. TOTAL GREENHOUSE GAS EMISSIONS FOR SCOPE 1 AND SCOPE 2

the requirements of the ISO 14064 standard, which ensures comparability of the results with global practices.

The results of the GHG emissions assessment showed that the volume of emissions for 2022 and 2023 for Scope 1 for CPC-R is 296 thousand tons of CO_2-eq. and 318 thousand tons of CO_2-eq., and for Scope 2 – 295 thousand tons of CO_2-eq. and 360 thousand tons of CO_2-eq., respectively (Fig. 1).

Based on the calculation results, it was determined that in the category of direct GHG emissions, the largest contribution is made by fuel combustion in stationary sources for the purpose of energy generation (stationary fuel combustion) – more than 93-96%. Fugitive emissions are the next most significant, with a share of less than 3%.

It should be noted that CPC-R is one of the few oil transportation companies that calculates not only direct GHG emissions, but also indirect energy emissions. This is especially important, since the category associated with emissions generated as a result of the use of purchased electricity accounts for a significant share of total GHG emissions. Thus, in 2022 and 2023, the volume of emissions in this category amounted to 50% and 53% of the total value, respectively. This is due to the fact that CPC-R facilities have a high level of electrification of the main production processes within the framework of oil transportation activities.

Accordingly, greenhouse gas emissions from electricity consumption and stationary combustion of fossil fuels for electricity generation account for 98.55% of total GHG emissions. Therefore, when planning measures to reduce the carbon footprint, the main focus should be on these sources.

For an objective assessment of the obtained research results, a comparative assessment of specific GHG emissions was carried out with key American oil transportation companies – Enbridge[2], TC Energy[3], Kinder Morgan[4]. It is important to note that when comparing GHG emissions indicators among oil transportation companies, it is essential to account for industry-specific factors and operational parameters, such as transportation distance and the volume of oil transported. The selection of companies for comparison was based on the availability of relevant data in corporate reports published in open sources.

Specific GHG emissions are expressed in tons of CO_2-eq per unit of oil transportation – one thousand ton-kilometers (thousand t-km).

When comparing specific greenhouse gas emissions per 1 t/km of oil, it is clear that specific emissions from the transportation of oil by CPC-R are significantly lower than similar indicators of oil transportation companies (Fig. 2).

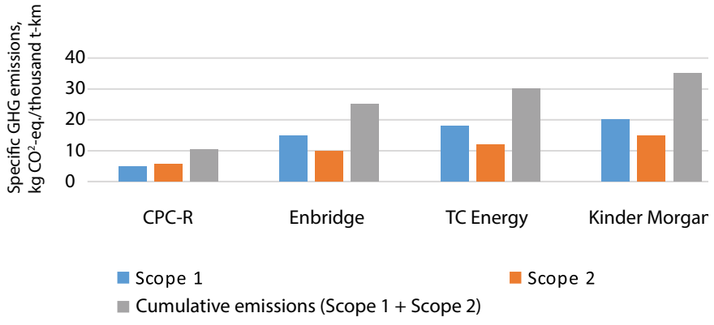


FIGURE 2. COMPARATIVE INDICATORS OF SPECIFIC GHG EMISSIONS OF OIL TRANSPORTATION ENTERPRISES

[2] https://www.statista.com/statistics/1267242/greenhouse-gas-emissions-of-select-oil-companies/

[3] https://www.statista.com/statistics/1267242/greenhouse-gas-emissions-of-select-oil-companies/

[4] https://rhg.com/research/preliminary-us-greenhouse-gas-estimates-for-2024/

ASSESSING THE CARBON FOOTPRINT OF OIL PUMPING

The PCF is the total GHG emissions generated during the transportation of 1 ton of CPC Blend crude oil through the CPC-R pipeline system. The purpose of calculating the PCF is to determine the contribution to climate change that oil transportation through the Russian part of the CPC-R pipeline system may make.

Evaluation of PCF – is an environmental management method that is applied in accordance with the ISO 14067 standard.

The assessment of the PCF requires a primary consideration of the technologies used from the standpoint of accounting for processes leading to GHG emissions. The identification of such processes occurs at the stage of inventory analysis of the oil life cycle within the CPC-R pipeline system.

The assessment of the PCF takes into account all processes and operations required for the functioning of the CPC pipeline system, including contractor activities that also result in GHG emissions. Thus, the PCF assessment includes an assessment for Scopes 1 and 2, as well as some categories of Scope 3, which relate to the activities of contractors at CPC-R facilities. In addition, when modeling oil transportation processes for assessing the PCF, international database coefficients are used, including the carbon intensity of the resources used at CPC-R facilities: antifriction additive, fuel, process oil.

For each production process, an analysis of the input and output flows of material and energy resources is carried out and is accompanied by the development of a basic diagram and resource distribution matrix.

The matrix displays the flows of input resources and output final and by-products included in production processes that produce significant greenhouse gas emissions, calculated per functional (declared) unit.

Based on the completed resource distribution matrix, the carbon intensity of processes at all stages of oil transportation within the boundaries of the CPC pipeline system is calculated and, thus, its carbon footprint is determined.

The Ecoinvent 3.10 database processes were used to model the oil life cycle during the transportation phase. The study used the IPCC 2021 GWP100 life cycle impact assessment method, which determines the global warming potential (GWP) over a 100-year horizon.

RESULTS OF THE CPC-R PCF ASSESSMENT

This year, CPC-R also completed a comprehensive assessment of the carbon footprint of its products. The study was conducted for one ton of transported oil within the gate-to-gate boundaries in accordance with the ISO 14067 methodology for the carbon footprint of products. Such an assessment involves an analysis of the environmental impacts associated only with those operations that are carried out directly within CPC-R. The assessment scope covers all the main stages and processes associated with the transportation of oil through the CPC pipeline system and includes the following main stages of the oil life cycle:

· transportation through the CPC pipeline system in Russia (from the Kazakhstan–Russia border to the CPC-R Marine Terminal);

· receipt of oil at the Marine Terminal and loading onto tankers.

For the PCF assessment, input data included annual figures for actual resource consumption during the respective reporting periods, used to calculate CO_2-equivalent emissions per ton of transported product.

The PCF calculation included GHG emissions associated with the consumption of such material and raw material resources as:

· drag reduction agent (DRA) used to reduce the coefficient of hydraulic resistance in the pipeline;

· process oil, which is used to provide fluid friction in the bearings of turbines, generators, turbo pumps and gearboxes;

· water used for domestic and industrial needs, including, but not limited to, cooling pump units, cleaning oil storage tanks, hydraulic testing of tanks and oil pipelines, ensuring the standard reserve of water for fire extinguishing.

Based on the results of the life cycle analysis, a scheme (matrix) of resource distribution was formed in accordance with the Technological Regulations for the operation of CPC facilities and the Reports on the inventory of stationary sources of pollutant emissions into the atmospheric air of CPC facilities. Thus, during the assessment, the life cycle of one ton of oil within the company's boundaries was divided into two stages:

· transportation through the CPC pipeline system in Russia (from the Kazakhstan–Russia border to the CPC-R Marine Terminal);

· receipt of oil at the Marine Terminal and loading onto tankers.

The assessment results demonstrate that the largest contribution to the total PCF is made by the stage of transportation through the CPC pipeline system on the territory of Russia – from the Kazakhstan–Russia border to the Marine Terminal (Table 1).

Electricity consumption (66.9%), along with fuel usage for process equipment (30.1%) and transportation (1.6%), together account for 99% of the total carbon intensity. A comparative assessment of absolute carbon

TABLE 1. ASSESSMENT OF THE CONTRIBUTION OF THE STAGES OF THE LIFE CYCLE TO PCF

Life cycle stage	Absolute value, kg CO_2-eq.	Share in the estimated PCF, %
Transportation of oil through the CPC pipeline system	17,1	98%
Receipt of oil at the Marine Terminal and loading onto tankers	0,35	2%

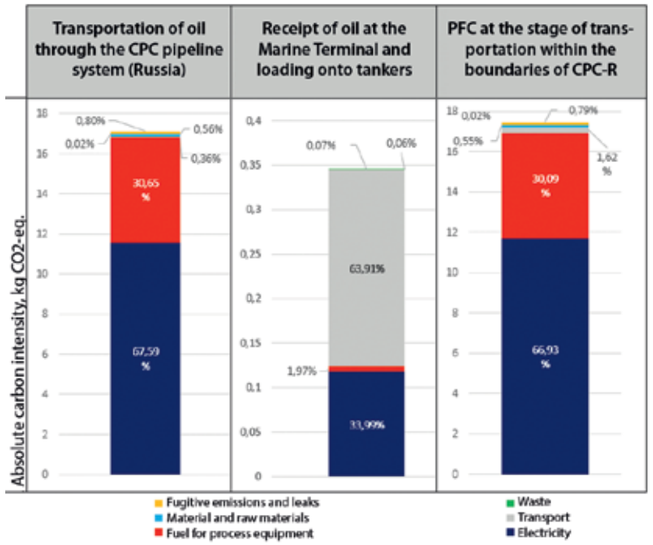


FIGURE 3. COMPARATIVE ASSESSMENT OF THE ABSOLUTE CARBON INTENSITY OF VARIOUS STAGES OF OIL TRANSPORTATION

intensity across different stages of oil transportation and for the CPC-R pipeline system as a whole is presented in Figure 3.

VERIFICATION

The results of the GHG emissions and Product Carbon Footprint (PCF) calculations successfully underwent independent third-party verification conducted by TUV AUSTRIA Standards & Compliance Ltd, confirming their compliance with established requirements (Fig. 4).

CONCLUSION

Based on the results of the calculations, it was determined that the contribution of oil transportation within the CPC pipeline system on the territory of Russia to global warming, expressed in units of environmental impact assessment in the category of climate change (carbon footprint), is significantly lower than the industry values.

To track the dynamics of greenhouse gas emission reduction, CPC-R has defined 2023 as the base year, as it provides the most complete and accurate data on the Company's GHG emissions and reflects typical operational conditions. The inventory record and the quantitative volume of greenhouse gas emissions in 2023, which is the base year, will be used to track progress in reducing greenhouse gas emissions in subsequent periods. The inventory and quantitative assessment will be used by CPC-R personnel to carry out future GHG evaluations based on identified emission sources and to assess the effectiveness of decarbonization measures aimed at reducing greenhouse gas emissions.

In the future, the data obtained will form the basis for developing a decarbonization program aimed at reducing the carbon footprint of oil transportation within the CPC pipeline system. ●

FIGURES 4. CERTIFICATES OF VERIFICATION OF GHG EMISSIONS AND PCF CALCULATIONS

AUTHOR
MARIA GNEZDILOVA,
SENIOR SPECIALIST, MASS MEDIA RELATIONS

MEDIA PROJECT "CPC ENCYCLOPEDIA"

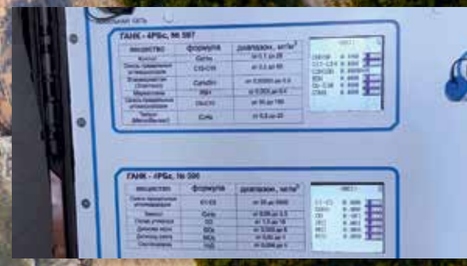
THE PILOT EPISODE OF THE NEW MEDIA PROJECT OF THE CASPIAN PIPELINE CONSORTIUM PRESS SERVICE "CPC ENCYCLOPEDIA" HAS BEEN PUBLISHED ON CORPORATE CHANNELS IN VIDEO HOSTING SERVICES AND SOCIAL NETWORKS. IN A SERIES OF POPULAR SCIENCE PROGRAMS IN SIMPLE LANGUAGE UNDERSTANDABLE TO A WIDE AUDIENCE, WE WILL TELL ABOUT THE COMPLEX PRODUCTION PROCESSES OF CPC

The main goal of the project is to show viewers the versatility and often uniqueness of the pipeline operation. For example, it was CPC that was the first in Russia to use laser scanning technology for tanks of such scale, and in general, in Russia it is rare to find tanks with a capacity of 100,000 m3. What is the "CPC Blend"? How exactly is it shipped and with what equipment? Why are pumping stations so important? How does a pump work? What is a gas turbine unit used for, what is flaw detection – this and much more will be discussed in the video reports. And, of course, the central figures of the project will be CPC specialists– highly experienced professionals dedicated to their work.

The CPC Encyclopedia project is designed to introduce the company's office employees – those not directly involved in its technological operations – to the production side of the business, positively contributing to the strengthening of internal corporate connections. Thanks to the clear and visual presentation of the material, the project will be of interest to a wide audience – from CPC specialists and students of specialized universities to curious external viewers eager to broaden their horizons.

In the pilot episode of the CPC Encyclopedia we covered the Ecoinformer project. For residents of the suburbs of Novorossiysk, the smell of «mercaptans» in the air is a sensitive issue. We talked in detail about the causes of the foreign smell, clearly showed the results of the air sample, which correspond to all the standards established by law, tried to find a solution to the "problem", and also explained why smelling mercaptan gas (which is really released when oil is loaded onto tankers) cannot cause serious health problems.

The second episode of the CPC Encyclopedia will be released very soon. We dedicated it to ground-based laser scanning of the tank – a unique process that has no analogues in the Russian industry. Follow the updates and enjoy watching! ●



Watch on RuTube

SCIENTIST AND INSPIRER

CPC PRESS SERVICE

ON MARCH 12, 2025, PROFESSOR OF GUBKIN UNIVERSITY, DOCTOR OF TECHNICAL SCIENCES, HONORARY OILMAN GENNADY GERMANOVICH VASILIEV CELEBRATED HIS 70TH BIRTHDAY. PANORAMA CPC JOINS CONGRATULATIONS FROM COLLEAGUES

Nikita Golunov, Vice-Rector of Gubkin University for Additional Professional Education:

Gennady Germanovich is one of those active scientists who raise the prestige of Russian science with their daily hard work, continuing the baton started by Lomonosov, Mendeleev, and Gubkin. In 2024, he was recognized as the best scientist in terms of publication activity with a Hirsch index of 34. Gennady Germanovich is the author of 136 scientific and educational-methodical works. For over 40 years, he has been training engineering personnel and highly qualified specialists for oil and gas construction. Under the scientific supervision of G.G. Vasiliev, dozens of scientists have successfully defended their candidate and doctoral theses. Thanks to his creative energy and constant search, Gennady Germanovich constantly strives for new scientific heights. I am proud to work next to such a talented scientist, tireless organizer and wonderful teacher. I would like to wish Gennady Germanovich new discoveries, devoted students, inexhaustible energy, good health and well-being!

Nikolay Gorban, CPC General Director:

This year, Gubkin University celebrated its 95th anniversary, and I would like to emphasize that Gennady Germanovich Vasiliev is one of those people thanks to whom this renowned higher education institution for the oil and gas industry in Russia has earned its well-deserved high reputation, both domestically and internationally. As a scientist and teacher, Gennady Germanovich has done a lot. At the turn of the century, he participated in the expert review of the CPC project, effectively giving the project the green light, and we strive to conduct our work in a way that fully upholds the high standards once recognized by one of the leaders of Russian science.

Aleksandra Rabinovich, Team Leader, Personnel Training and Development (Training Manager):

In March, we celebrated a special date – the 70th anniversary of the birth of our esteemed head of the department of "construction and repair of gas and oil pipelines and storage facilities", professor, doctor of technical sciences Gennady Germanovich Vasiliev. Over the years of work at the university, he became not only an outstanding teacher and leader, but also a person who has gained real recognition among students and colleagues. Although I did not cross paths with Gennady Germanovich as a student, fate brought us together at different stages of our professional careers. Having worked at the same faculty for several years, I had the opportunity to see what kind of teacher, scientist and inspirer Gennady Germanovich is. His passion for the subjects he teaches and his sincere desire to pass on knowledge to students make him a true Teacher in every sense of the word.

Today, many years after graduation and working together, I appreciate that we still have friendly relations. I can always turn to Gennady Germanovich for advice, and his support and wisdom remain a source of inspiration for me.

The staff of the department he heads constantly share knowledge and experience with our colleagues creating a strong bridge between our experience and their knowledge. This is not just professional support, but genuine friendship, built on mutual respect and a shared commitment to growth.

Congratulating Gennady Germanovich on his anniversary, I want to express my sincere gratitude for everything he has done for us, his students and colleagues. Your work and dedication to your work have left an indelible mark in the hearts of many people. I wish you health, happiness and new achievements. May there be many interesting projects ahead, and may your department continue to develop and prosper under your wise leadership!

AUTHOR
DMITRY KONSTANTINOV

A SCHOOL THE CITY NEEDS

ON MARCH 20, 2025, ON THE EVE OF THE NAURYZ HOLIDAY, A NEW SECONDARY GENERAL EDUCATION SCHOOL NO. 51 WAS OPENED IN ATYRAU. THE RIBBON AT THE ENTRANCE TO THE BUILDING WAS CUT BY THE CPC GENERAL DIRECTOR NIKOLAY GORBAN AND THE AKIM OF THE ATYRAU REGION SERIK SHAPKENOV

The construction of a 900-seat school in the rapidly developing Talgayran microdistrict began in 2022. A project of this scale was traditionally timed for CPC to coincide with the next stage of increasing the capacity of the pipeline system – the Debottlenecking Program. Over three years, construction contractors, using funds allocated by the Consortium, built a facility with a total area of over 12 thousand m2, consisting of two three-story blocks A and B and one two-story block C, designed taking into account the differentiation of the school into three levels: primary general education (grades 1–4), basic general education (grades 5–9), upper secondary education (grades 10–12 or grades 8–12).

The school, officially numbered 51, provides the opportunity to obtain a complete secondary education based on an 11-year general education cycle starting at the age of six. The three-block building accommodates 36 classrooms designed for 25 people.

All classrooms are equipped with modern equipment. The chemistry, physics and biology laboratories have running water, additional ventilation systems and compressors. Language labs are equipped with multimedia equipment. There are several school workshops. Thus, the technology lab for boys has machine tools, workbenches and a muffle furnace. Sewing machines, mirrors and mannequins are installed for girls. The culinary lab is equipped with tables with sinks, shelves, an electric stove, a refrigerator and kitchen appliances.

In addition to classrooms, the school has two libraries, a medical center, two gyms, an assembly hall designed for 210 people, and a cafeteria for 312 people.

"Three years ago, we laid the foundation stone for the construction of this school. And today it opened its doors. Today, President Kassym-Jomart Tokayev has entrusted large businesses with the task of strengthening social responsibility. The Consortium has previously implemented large-scale charity projects, supports the construction and reconstruction of social facilities. In this regard, I would like to thank the company for the work carried out for the benefit of people. There is a saying: "People who think a year ahead plant wheat; people who think a hundred years ahead plant trees, and people who think a thousand years ahead raise an intelligent generation". Our President often says that now is the time for competition of the mind. Let the new educational institution become a place for educating the best minds. I wish the teaching staff creative heights!", said the Akim of the Atyrau region Serik Shapkenov at the opening ceremony of school No. 51.

The school territory covers 3 hectares. It includes a stadium with a football field, a running track, a sports training area, a tennis court and a volleyball court. The school has its own transformer substation, a garbage collection area, a 30-space parking lot, and parking spaces for buses. The school's green area exceeds 4 thousand m².

EQUIPMENT OF THE LANGUAGE LABORATORY

MACHINES IN THE TECHNOLOGY CLASSROOM FOR BOYS

TECHNOLOGY CLASSROOM FOR GIRLS

TEACHING STAFF OF SECONDARY SCHOOL NO. 51

Handing over the symbolic key to the school's principal, Gulshara Tolzhanova, CPC General Director Nikolay Gorban noted that cooperation between the oil transportation company and the regional administration will continue.

"It is symbolic that we are handing over a large educational facility to the authorities of the Atyrau region on the eve of Nauryz, the holiday of renewal", Nikolay Nikolaevich emphasized. "Three years ago, we laid the first stone on this site and today we see how a beautiful and comfortable school with excellent equipment, sports halls, workshops and modern classrooms opens its doors. The cooperation between the Caspian Pipeline Consortium and the Atyrau region has been going on for decades, and it will continue in the future. Soon, we will launch another major project – in three years we will build a Youth House for young men and women of Atyrau and the region".

"Let this wonderful, modernly equipped school become a center of knowledge and education for our children! Thank you, CPC, for this great gift", expressed Serik Shapkenov, Akim of the Atyrau

ONE OF THE SPORTS HALLS IN THE NEW SCHOOL

FROM 2001 TO 2024, CPC-K INVESTED **16** BILLION TENGE IN CHARITABLE PROJECTS IN THE ATYRAU REGION

Region, in gratitude to the Consortium representatives.

The school opening ceremony was decorated with bright creative performances by dance and music groups, among which were the winners of the Jas Tolqyn competition and the finalists of the international competition "CPC for Talented Children". At the end of the ceremony, the CPC General Director and the Akim of the Atyrau region signed an agreement on the construction of the Youth House in the city of Atyrau.

Since 2001, CPC has annually allocated about $3 million for charitable projects in Kazakhstan. Among these projects are the construction and reconstruction of schools, kindergartens and medical institutions. Among the 12 recently built ones are kindergartens in the Samal microdistrict and Birlik village in Atyrau, in the city of Kulsary, in the village of Ganyushkino and in the village of Akkol in the Kurmangazinsky district, two kindergartens in the village of Akkistau in the Isataysky district. Schools were also built in the village of Zhastalap in the Kurmangazinsky district, the village of Kurylys in the Indersky district, the village of Aktogay in the Makhambetsky district, the Youth House and a family-type children's village in Atyrau.

Due to the fact that the Consortium's oil transportation facilities are located in the Atyrau region, in 2024 alone, the budget of the Republic of Kazakhstan received $85 million in tax payments. From 2001 to 2024, CPC-K invested about 16 billion tenge in charitable projects in the Atyrau region, including the construction and reconstruction of schools, kindergartens and hospitals. ●

DEPUTY AKIM OF THE ATYRAU REGION, DARYN SHAKMURATOV, COMMENTS ON THE SCHOOL OPENING TO REPORTERS

AUTHOR
ILONA LATSUZHBA

LANDSCAPE TRIGGERS

IN ALMOST EVERY ISSUE WE LEARN ABOUT NEW TALENTS OF OUR COLLEAGUES. CRAFT BREAD AND CHEESE, COFFEE AND TEA, AND NOW ALSO HAND-MADE GARDEN FURNITURE, SO ESSENTIAL IN THE COMING SUMMER SEASON. ITS AUTHOR IS MIKHAIL PYLENOK, A TECHNICIAN AT THE ADMINISTRATIVE AND TRANSPORT DIVISION

Mikhail Yuryevich, how did you come up with the idea of making furniture with your own hands? What do you see as the main advantage of such furniture over store-bought furniture?

My father worked in a factory making cabinet furniture. I became interested in it as a child, and after school I went to college, where I received the profession of "carpenter – cabinetmaker". That's when I realized that I loved working with wood. Years later I got a summer house, and then I thought: why not make furniture with my own hands? After all, I want to and can do it.

The main advantages of my furniture over store-bought furniture are availability, quality, individual design. And uniqueness, because it is made by hand, and not on a CNC machine at a factory.

What kind of furniture do you make? We've only seen summer garden exterior furniture. Do you do interior design?

Mainly it is garden furniture and some cabinet furniture for the home. I have not been particularly involved in interior solutions, since there you need to strictly and precisely adhere to the drawings, observe the dimensions and correlate the design of the product you are making with the general style of the premises. That is why I like making garden furniture more: there you can fantasize and the result will be something unique, something that others will never have.

What is more important to you: function or form in furniture?

Probably, more the form. Because through these forms you can express this or that state of mind, what is happening around you, what your mood is, etc. And the functionality, I think, of such furniture can be either decorative (as an exterior decoration) or utilitarian.

How would you formulate the style(s) you work in?

Today, there are many furniture styles: loft and minimalism, modern and classic, Biedermeier, Art Deco, Provence and others. I would call my style author's eclecticism. This means that it is not a specific style that dominates the landscape, but the landscape that sets the direction and often a combination of styles. The resulting furniture makes the landscape individual and adds extravagance to it.

In your opinion, what is the difference between a cabinetmaker and a carpenter and joiner, and which of these professions do you consider yourself to be more?

All of the above are united by working with natural materials, such as wood. Then each one begins to have their own subtleties and wisdom. A cabinetmaker works more with valuable tree species, is engaged in furniture restoration, makes custom furniture. A cabinetmaker must draw well, which cannot be said

about me. A carpenter is someone who makes large structures (houses, ships, something voluminous and massive) and all their elements. A joiner is mostly engaged in the manufacture of standard furniture, windows, stairs, cornices, while using different types of wood. The main difference is that a cabinetmaker does more delicate and painstaking work, and a joiner and carpenter are engaged in rougher processing of wood and the creation of large (large) wooden structures.

How long have you been creating furniture, what kind of preparation did you need for this?

Relatively short, somewhere around 10 years. Preparation is not that difficult, it is a desire to work with your own hands and education in this field.

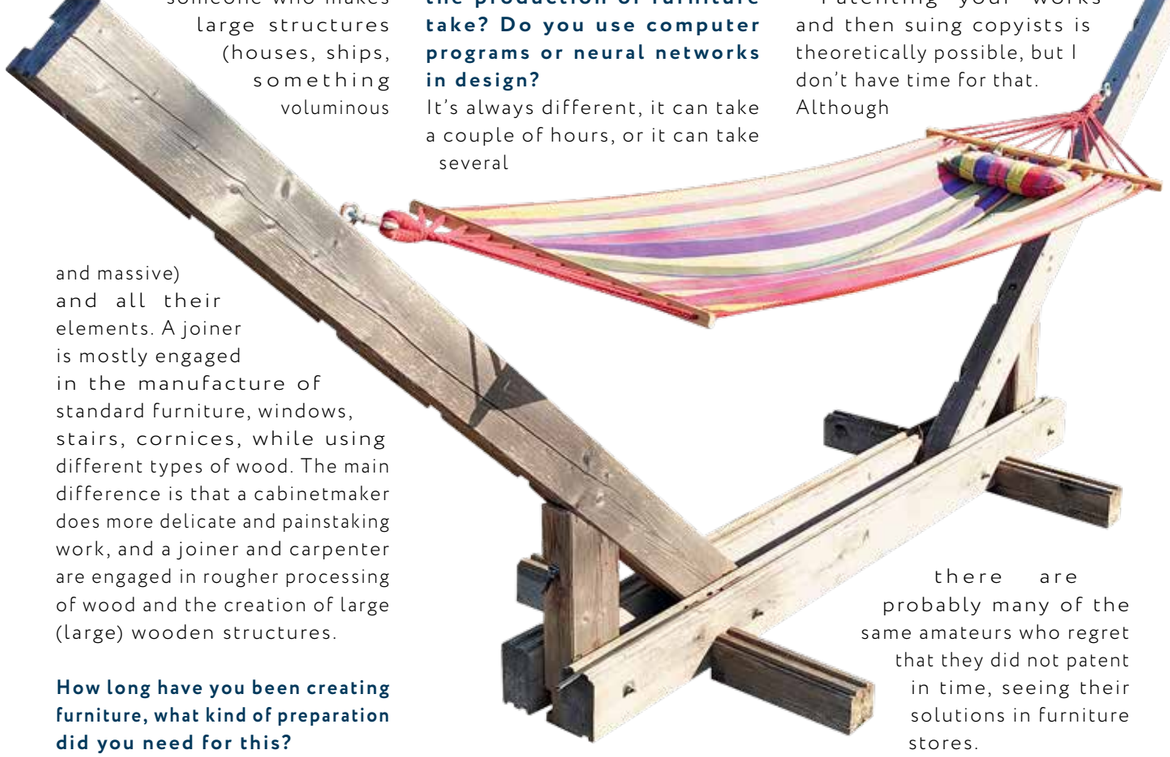
How long does the project and the production of furniture take? Do you use computer programs or neural networks in design?

It's always different, it can take a couple of hours, or it can take several days, or even weeks. It all depends on your imagination, how much it makes itself known during work, making adjustments to the initial vision of the subject. As for programs and neural networks, I don't use them. I just take a pencil and paper, start making a sketch, a drawing, sketches of what I want to get in the end.

How do you protect your models from environmental influences and unauthorized copying?

Nowadays, it is quite easy to do: the market offers a large number of different impregnations and stains for wood for any budget. I also like to burn the finished product – this gives the wood a more expressive texture. After that, I cover it with an antiseptic impregnation in several layers. This makes the furniture more beautiful, expressive and less attractive to various bugs and worms.

Patenting your works and then suing copyists is theoretically possible, but I don't have time for that. Although there are probably many of the same amateurs who regret that they did not patent in time, seeing their solutions in furniture stores.



Where and what kind of wood and fittings do you get?

I take the simplest, most ordinary wood from a construction market, base or large construction hypermarkets. I buy fittings exclusively from a construction hypermarket, because there you can hold it, turn it in your hands and choose what really suits my project.

You also have metal structures among your furniture solutions. Do you make them yourself or order somewhere?

All by myself. Anyone can now afford tools for cutting and welding metal, and mastering a welding machine is not that difficult, the main thing is to follow safety precautions.

Do you have any idols – inspirations in the world of design? Bauhaus, for example, or Wright, or anyone else?

I don't have any idols in world design. Again, I do what I like and the way I see it. Sometimes, when I see a picture of a chair, a swing, or a bench, I will make them in my own way, in my own individual style, which will not be like others.

What is the estimated lifespan of your furniture?

The estimated service life with proper care can be at least 10-15 years. Everything will depend on many factors: where the furniture is stored, outdoors or under a canopy, whether it is often exposed to precipitation, whether it is treated with paints and varnishes, whether the furniture is used for its intended purpose or not.

For us, safety is a sacred concept. What are the main safety rules for furniture manufacturing?

The main rules are, of course, preparing the workplace and using personal protective equipment. Maintaining electrical safety when working with power tools. Keeping bystanders away (children, parents, and those who just like to watch). No flammable liquids nearby. Use of machines for their intended purpose. Stopping work if the tool malfunctions. Compliance with fire safety rules.

Tell me, as a designer, what trends in furniture await us this summer. Will something shift in style or will everything remain as last year?

It is possible that designers will experiment with furniture color solutions as usual. In my opinion, nothing should change dramatically in the design in the coming season. If you look at garden furniture over the past 30 years, the same ideas, solutions, shapes and trends are popular here year after year.

WE WILL REMEMBER

TO MARK THE 80TH ANNIVERSARY OF THE GREAT VICTORY, THE CPC PANORAMA WEBSITE HAS LAUNCHED A GALLERY FEATURING FAMILY MEMBERS OF COMPANY EMPLOYEES WHO PARTICIPATED IN THE GREAT PATRIOTIC WAR

Abrosimov Mikhail Romanovich

Aymurzaev Tuktibay

Arsenyev Vasily Dmitrievich

Velichko Dmitry Vasilyevich

Barkalov Ivan Vasilyevich

Bobrov Boris Dmitrievich

Buzyun Ivan Mikhailovich

Vinogradov Ivan Yakovlevich

Vozhov Dmitry Timofeevich

Garshin Konstantin Ivanovich

Gerasimenko Vasily Ivanovich

Gvozdev Petr Artemyevich

Dosanov Sadyk Aymakovich

Evdasyev Nikolay Pimenovich

Eremenko Mikhail Ilyich

Yeskov Nikolay Vasilyevich

Ignatkin Daniil Seliverstovich

Izmailova (Tsyganova) Sarra Suleymanovna

Kabyldin Maksut

Kagirov Zakri Tsogavich

Kamitov Izim Kamitovich

Kanatkaliev Begali

Kapakov Salim Dzhakiyalievich

Kimirilov Ivan Sergeyevich

Klyucharov Ilya Nikolayevich

Kozlov Mikhail Mikhailovich

Kostandyan Ivan Gaykovich

Leybenko Petr Petrovich

Lyakhin Fedor Nikolayevich

Markosov Georgy Dzhemshudovich

Mukhlaev Ulyumzhi Kekeevich

Nazarenko Pavel Trofimovich

Nemchenko
Viktor
Stepanovich

Odinokov
Vladimir
Pavlovich

Papulovsky
Nikolay
Fedorovich

Podkorytov
Georgy
Grigoryevich

Popov
Ivan
Ilyich

Puzhaykin
Ivan
Vasilyevich

Sinaiskiy
Sergey
Alexandrovich

Sinenkov
Vyacheslav
Vasilyevich

Sirotkin
Alexander
Petrovich

Suvorov
Sergey
Avramievich

Uzhegov
Georgy
Maksimovich

Ukrainets
Vasily
Dmitrievich

Feklistova
Vera
Pavlovna

Frolov
Ivan
Mikhailovich

Khalipov
Dmitry
Alekseevich

Shanin
Sergey
Vladimirovich

Sharafutdinov
Khamza
Abasovich

Sharov
Konstantin
Mitrofanovich

Shiryaev
Leonid
Ivanovich

Yakovlev
Konstantin
Maksimovich

WEBSITE “CPC PANORAMA” https://cpc-online.ru/

“CPC PANORAMA” – VK

“CPC PANORAMA” – ZEN

CPC-R, MOSCOW OFF ICE
Bldg. 1, 7 Pavlovskaya Str.,
Moscow, 115093, Russian Federation
tel.: +7 (495) 966-50-00
fax: +7 (495) 966-52-22
e-mail: Moscow.reception@cpcpipe.ru

CPC-R, WESTERN REGION
Budennogo Str., 117/2, Krasnodar,
350000, Russian Federation
tel.: +7 (861) 216-60-00
fax: +7 (861) 216-60-90
e-mail: Krasnodar.reception@cpcpipe.ru

CPC-R, REPUB LIC OF KALMYKIYA
Suite 608, V.I. Lenina Str., 255a, Elista,
358000, Russian Federation
tel.: +7 (8512) 27-13-89
e-mail: Elista.reception@cpcpipe.ru

CPC-R, NOVOROSSIYSK
Isaeva Str., 1a, Novorossiysk,
Krasnodar Krai, 353900, Russian Federation
tel.: +7 (8617) 29-43-00
fax: +7 (8617) 29-40-09
e-mail: Novorossiysk.reception@cpcpipe.ru

CPC-R, STAVROPOL KRAI
Suite 208, Ryleeva Str., 7, Stavropol,
355000, Russian Federation
tel.: +7 (861) 216-60-00
e-mail: Krasnodar.reception@cpcpipe.ru

CPC-K, EASTERN REGION
Business center «Grand Asia»,
Abilkhair Khan Ave., 92b, Atyrau, 060097,
Kazakhstan
tel.:+7 (7122) 76-15-00, 76-15-99
e-mail: Atyrau.reception@cpcpipe.ru

CPC-R MARINE TERMINAL
Marine Terminal Primorsky District Territory,
Novorossiysk, Krasnodar Krai, 353900, Russian
Federation
tel.: +7 (8617) 29-40-00
fax: +7 (8617) 29-40-09
e-mail: MarineTerminal.reception@cpcpipe.ru

CPC-R, CENTRAL REGION
Kuibyshev Str., 62, Astrakhan,
414040, Russian Federation
tel: +7 (8512) 31-14-00, 31-14-99
fax: + 7 (8512) 31-14-91
e-mail: Astrakhan.reception@cpcpipe.ru

CPC-K, ASTANA
10th floor, Kunayev Str., 2, Astana,
010000, Kazakhstan
tel.: +7 (7172) 79-17-00
fax: +7 (7122) 76-15-91
e-mail: Astana.reception@cpcpipe.ru

PANORAMA
CASPIAN PIPELINE CONSORTIUM

людиpeople

CPC PANORAMA Corporate Magazine. No 2 (49) MAY 2025. The issue is prepared by the CPC Press Service.
Editor: Dmitry Konstantinov. E-mail: Dmitriy.Konstantinov@cpcpipe.ru; Pavel.Kretov@cpcpipe.ru.
Tel.: +7 (495) 966 50 00 (ext. 5323 and 5220); www.cpc-online.ru
Publisher: LL C Media Service. 111024, Moscow, ext. ter. Lefortovo municipal district, Aviamotornaya str., 50, p. 2, room. 29/2.
www.vashagazeta.com. Tel.: +7 (495) 988 18 06. E-mail: ask@vashagazeta.com. General Director: Vladimir Zmeyushchenko.
Managing Editor: Julia Kuznetsova. Editor: Larisa Solodovnikova. Art Editor: Juliya Osintseva. Designer: Gulnara Aglyamutdinova.
Translator: Ildar Nasyrov.
Photos: CPC Press Service, Shutterstock/FOTODOM.
Printed in the «A2Press»: 2d Yuzhnoportovy pr., 26a, building 12, 115088, Moscow.

CASPIAN PIPELINE
CONSORTIUM:

A TIME-TESTED INTERNATIONAL PROJECT

CASPIAN
PIPELINE
CONSORTIUM