PANORAMA

CASPIAN PIPELINE CONSORTIUM

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КАСПИЙСКИЙ ТРУБОПРОВОДНЫЙ КОНСОРЦИУМ
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CASPIAN PIPELINE CONSORTIUM

HAPPY NEW YEAR!

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DEAR COLLEAGUES AND FRIENDS!

Please accept my sincere congratulations on the upcoming New Year!

The outgoing year turned out to be complicated, in its own way a test for our close-knit team. It is gratifying to note that both people and facilities of the oil pipeline system have passed various tests with honor.

In very difficult conditions, our team managed to ensure the pumping and shipment about 57 million tons of oil for export. In addition, 2022 was the "first launch year" in the context of the implementation of the Debottlenecking Program. General construction work within the framework of DBNP at a number of PSs has been completed, pilot operation of equipment has started.

This summer, the CPC Marine Terminal shipped the 800 millionth ton of oil since the start of the international project. To ensure the required level of pumping and shipment, the Consortium team and contractors have done a large amount of work, some of which were carried out for the first time in the history of the company. Thus, more than 760 thousand m^2 of the seabed were surveyed, explosive objects were eliminated, components single-point moorings were replaced.

As part of improving the preparedness of the Consortium and contractors' personnel for emergency situations, 24 scheduled and unscheduled drills were held — twice as many as usual.

In the context of a multifold increase in construction activity at CPC facilities in connection with the implementation of the DBNP, it is impossible not to note the role of the Safe Work Culture Committee established in 2022 in the pursuit of zero injuries. The third meeting of this organization was held with the participation of not only contractors, but also shareholders. The progress of the company on the Bradley scale to the position of conscious commitment of the team to the values of the Safe Work Culture is noted.

Our non-production, but also significant record is over 18,000 young talents who took part in the CPC for Talented Children 2022 festival. The competition, which was held online due to epidemiological restrictions, in the outgoing year regained its full-time format and ended with a bright gala concert in Moscow.

The year 2023 is coming, and I want to sincerely wish it to be calm, stable and productive. I wish you and your loved ones a good and kind atmosphere of the New Year holiday. May it be held in a cozy family circle, may dreams and plans come true in the new year!

N.N. GORBAN,
GENERAL DIRECTOR
CASPIAN PIPELINE CONSORTIUM

AUTHOR
PAVEL KRETOV

BEGINNING OF TIME

LOCATED IN THE STEPPES OF KAZAKHSTAN AT THE MILE ZERO OF THE CPC PIPELINE SYSTEM, THE TENGIZ PS IS NOT ONLY A LAUNCH PAD, BUT ALSO A VISITING CARD OF THE ENTIRE CONSORTIUM

It is here that oil producers delivering hydrocarbon raw materials to the Tengiz station get an idea of the scale of the international project, its technical equipment, and the professionalism of the team.

"We all feel a special responsibility here", says Ondasyn Shakan, Tengiz PS Manager. "By the quality of work – people and technical systems – our partners judge the operation of the oil pipeline as a whole. We work closely with the operational personnel of shippers, coordinate with them the modes of receiving raw materials".

During the Expansion project completed in 2018, the station doubled its capacity. A new main pumping station, a unit for launching cleaning devices and other facilities were built here.

"The Tengizchevroil company is increasing production", Ondasyn continues. "With one oil treatment plant, the volumes were up to 13 million tons per year, after the construction of the second-generation plant, TCO reached the level of first 25, and then 29 million tons. The third-generation plant currently under construction will allow to produce up to 40 million tons of oil annually.

Today, responding to the needs of the oilmen, the head PS of the Consortium continues to dynamically increase its transport potential. During the implementation of the Debottlenecking Program (DBNP), in October 2021, a pressure control unit was commissioned at Tengiz. The technical re-equipment of oil quantity and quality measuring system was also carried out. In November, it is planned to commission a new backup pumping station to replace the old one, where four more powerful units will also operate. Together with the pumping station, the platform for frequency-controlled converters will start working.

Askhat Khamzin, CPC-K Lead Project Engineer, shows CPC Panorama correspondents a large-scale construction site where about 300 employees of contractors work. Workers are preparing a foundation pit for a pumping station, laying engineering communications and technological pipelines to a new group of tanks. Two SVT-20000, still without corporate coloring, picturesquely dominate the common field of activity. Only the masts with searchlights and lightning receivers are higher, they stretch upwards, reaching 65 m in height.

"The presence of many existing communications on the territory of the station requires excavation of the soil, without which it is impossible to proceed to the mechanical method of excavating the pit", Askhat Khamzin nods at the excavator, frozen in standby mode. "In addition, we protect cables located on overpasses from sparks and "mask" fire sensors for the period of hot work.

All these operations are carried out by contractors for the implementation

ONDASYN SHAKAN

of DBNP in close cooperation with the operational personnel of the Tengiz PS – with a preliminary assessment of all risks and the obligatory execution of work permits.

300
WORKERS

ARE INVOLVED AT THE CONSTRUCTION SITE IN AUTUMN

The DBNP group, which is constantly present at the facility, consists of six specialists in all areas: a coordinator for work permits, a process engineer, engineers for labor protection and industrial safety, for instrumentation and electrical, civil works. Construction is supervised by representatives of architectural and technical supervision.

Askhat Khamzin has extensive experience in implementing projects

ASKHAT KHAMZIN

at the facilities of the CPC Eastern Region. Since 2010, he participated in laying a new section of the linear part of the oil pipeline, built the Isatai and Kurmangazy pump stations.

"There were difficulties during the construction, but mostly climatic ones", Askhat recalls. "In summer, the heat is above 50 degrees, in winter – heavy snowfalls. In the off-season, the pits were flooded with rain – they had to be pumped out".

It will not be long before the new objects created as part of the implementation of DBNP will appear on the monitors of the dispatchers of the Operations Control Center. The Debottlenecking Program is progressing according to schedule and here, at Tengiz, it is clear that, as in Russia, in Kazakhstan it has also reached the finish line.

AUTHOR
PAVEL KRETOV

THE SECOND MAIN

UPDATES OF THE ATYRAU PS IN THE FRAMEWORK OF THE DEBOTTLENECKING PROGRAM ARE NOTICEABLE EVEN AT THE ENTRANCE. IN SEPTEMBER 2022, A BEAUTIFUL STELE WITH THE NAME OF THE INDUSTRIAL FACILITY AND FLAGS WAS INSTALLED HERE

Nearby, numerous seedlings rustle their leaves in the wind: CPC management, representatives of shareholder companies and Akim of Atyrau Region Serik Shapkenov have established a good tradition of planting trees in the surrounding area.

Modernization of the production equipment of the PS is carried out no less rhythmically within the framework of the Debottlenecking Program (DBNP). Project Engineer, Construction Supervision Representative Vladislav Zherebnenko spoke about the final stage of work on DBNP at the station.

"Now about 50 highly qualified specialists are already involved in the construction: installation supervisors, welders, electricians and others", he says. "As of today (September 12, 2022. – Ed. note), the pressure control unit has been put into operation – all its main elements are connected to the SCADA system with the dispatcher and shift supervisor displaying signals. Minor finishing touches on insulation, landscaping and lighting remain".

The builders were preparing at full speed for the commissioning of the fifth main pump in December. After testing under the recycling scheme, this equipment will be connected to the transportation of oil through the main pipeline, which will increase the throughput of the station from 9 thousand to more than 12 thousand m³ per hour.

CONNECTION TO THE MAIN PIPELINE WILL INCREASE THE THROUGHPUT OF THE STATION FROM 9 THOUSAND TO MORE THAN

12

THOUSAND M³ PER HOUR

Vladislav Zherebnenko knows everything about the construction of oil and gas facilities. For decades of work in the industry, having received the specialty of a mechanical engineer for oil and gas pipelines and oil and gas storage facilities, he took part in the development of the Karachaganak, Kashagan, Tengiz fields.

"At Kashagan, I started as an assistant driller. The "Island D" known today did not yet exist. I worked on the very first man-made islands of Aktoty and Kairan, which appeared in the early 2000s after the successful exploration of the Sunkar drilling barge", recalls Vladislav.

Vladislav Zherebnenko devoted many years of work to expanding the production capacity at the Tengiz field. In order to receive all additional volumes of black gold from this field in time, CPC is now implementing the Debottlenecking Program.

Works within the framework of the DBNP at the operating station are carried out in close cooperation with the operation service. They are proud of the fact that thanks to strict mutual control at the pumping station, no lost-time incidents were allowed.

"We attach great importance to gas analysis, which is carried out before starting work. And then, depending on their type, once every half an hour or every hour", continues Vladislav.

All crossings of equipment through existing communications are reinforced with concrete slabs. Welding work is carried out in special tents impregnated with non-combustible materials. The same composition is used to process the wooden flooring of timber structures. Planned shutdowns of the pipeline system are used to carry out tie-ins into existing pipelines with maximum efficiency and safety, according to their annual schedule.

Asylbek Berdikozhin, PS Deputy Manager, accompanies the correspondents of CPC Panorama throughout the territory of the facility. 10 years ago, he entered here as an intern after graduating from the Eurasian National University with a degree in automation and control. Passed the steps of instrumentation technician, shift supervisor.

"In the CPC system, the Atyrau PS, being the second head station, provides transit transportation of oil from the Tengiz field and receives oil from other shippers", says Asylbek. "Reception is carried out in accordance with the itinerary order and the readiness of oil suppliers".

Oil is received from suppliers into tanks – there are four of them at the station, with a capacity of 20 thousand m³ each. But raw materials are not stored there, but in transit, with pumping through back-up pumps, they are fed to the main pumping station. As noted above, four main pumps operating according to the 3 + 1 scheme are still in operation. The units are driven by gas turbine units that operate both on gas and on liquid fuel. Stable operation of the equipment is ensured with the help of an automated gas distribution station located on the adjacent territory. It maintains the necessary parameters of gas pressure and temperature. It happens that the supplier of gas fuel carries out preventive maintenance, then oil pipeliners switch to diesel fuel. It is stored in two reservoirs on the territory of the PS.

Information from all sensors and instruments that control the main and auxiliary equipment at the station and another 112 km of the linear part of the oil pipeline enters the control room.

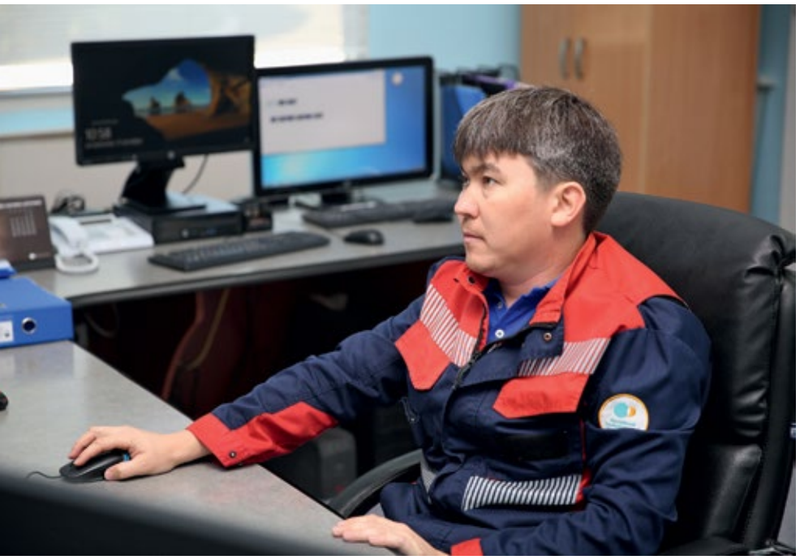
ASYLBEK BERDIKOZHIN

Dauren Galiev, PS Shift Supervisor, demonstrates his workstation. Just like Asylbek Berdikozhin, he started as an intern in 2009.

"This is my third station in the Eastern region. I had a chance to work both at the Tengiz PS and at the Kurmangazy PS, and now I'm at the Atyrau PS", Dauren smiles.

The operating personnel of the PS work in shifts – deputies of PS Manager, shift supervisor, technical equipment operators, PS operator, instrumentation technician, electricians and laboratory technician. Since September, HSE engineers switched to shift work. Also at the station there is personnel of contractors who perform maintenance work on equipment and other areas.

"The staff smoothly and confidently performs all assigned tasks, which is the main indicator of its professionalism and competence. Among the employees there are those who have been working for more than 20 years and today continue to pass on experience to new generations of pipeliners. We are always ready to back each other up, advise, lend a shoulder", sums up Asylbek Berdikozhin.



DAUREN GALIEV

VLADISLAV ZHEREBNENKO

AUTHOR
PAVEL KRETOV

FROM THE BUILDERS' CALENDAR

IN AUTUMN 2023, THE DEBOTTLENECKING PROGRAM WILL BE COMPLETED AT THE CPC MARINE TERMINAL. IN OCTOBER 2022, ABOUT 200 REPRESENTATIVES OF CONSTRUCTION CONTRACTORS WITH MORE THAN 20 UNITS OF SPECIAL EQUIPMENT WAS APPROVING THIS DAY

Two projects are being implemented within the framework of the DBNP at the Marine Terminal: the modernization of the existing pressure control units (PCU) and the construction of three new units of the oil quantity and quality measurement system (LACTs) and related facilities.

"The modernization of the PCU has actually been completed", says Andrey Banduryan, Deputy Construction Office Manager. "Installation of new pipelines and shut-off and control valves was carried out. During the planned shutdown, the shut-off valves and control valves were replaced. The act of the acceptance committee was signed. Now the object is in pilot operation".

Andrey Banduryan is a builder with a wealth of experience. In 2010–2017, he worked as Deputy Head of the Directorate of Chernomortransneft JSC for managing the CPC Pipeline Capacity Expansion Project, taking part in the construction and modernization of 11 Consortium PSs on Russian territory. Previously, he was Deputy General Director for Construction of Chernomortransneft JSC, where he participated in major projects, including the construction of systems of oil quantity and quality measuring system, similar to those currently being built at the Shore Facilities of the CPC Marine Terminal.

The LACTs also accounts for the bulk of the work on the implementation of the DBNP in Yuzhnaya Ozereevka. Contractors have developed 170 thousand m^3 of rock. Taking out 12.5 thousand m^3 of soil per month, the builders lowered the site to a level of 39 m above the sea surface. The builders involved up to 60 dump trucks in this operation.

During the construction process, its participants overcame many difficulties associated with the relief and geology of the area. Partially somewhere they had to change tactics, somewhere – to perform additional amounts of work.

"There turned out to be more rock than originally planned", says Sinisha Mikashinovich, project manager at VELESSTROY LLC, Marine Terminal, Shore Facilities. "Where it was supposed to pass with buckets, we had to actively use hydraulic hammers".

ANDREY BANDURYAN

A specialist from Serbia has been building various oil and gas facilities in Russia for about 10 years. Participated in the installation of three pump stations of the Zapolyarye-Purpe pipeline, built a tank farm at the Grushovaya TTF and other facilities.

"In addition to LACTs, DBNP at the CPC Marine Terminal includes the installation of an operator building, safety valve platforms, drainage tanks and tanks for collecting untreated domestic wastewater", Andrey Banduryan lists. "A technological overpass, retaining walls and other objects with technological pipelines and engineering networks are being built".

SINISHA MIKASHINOVICH

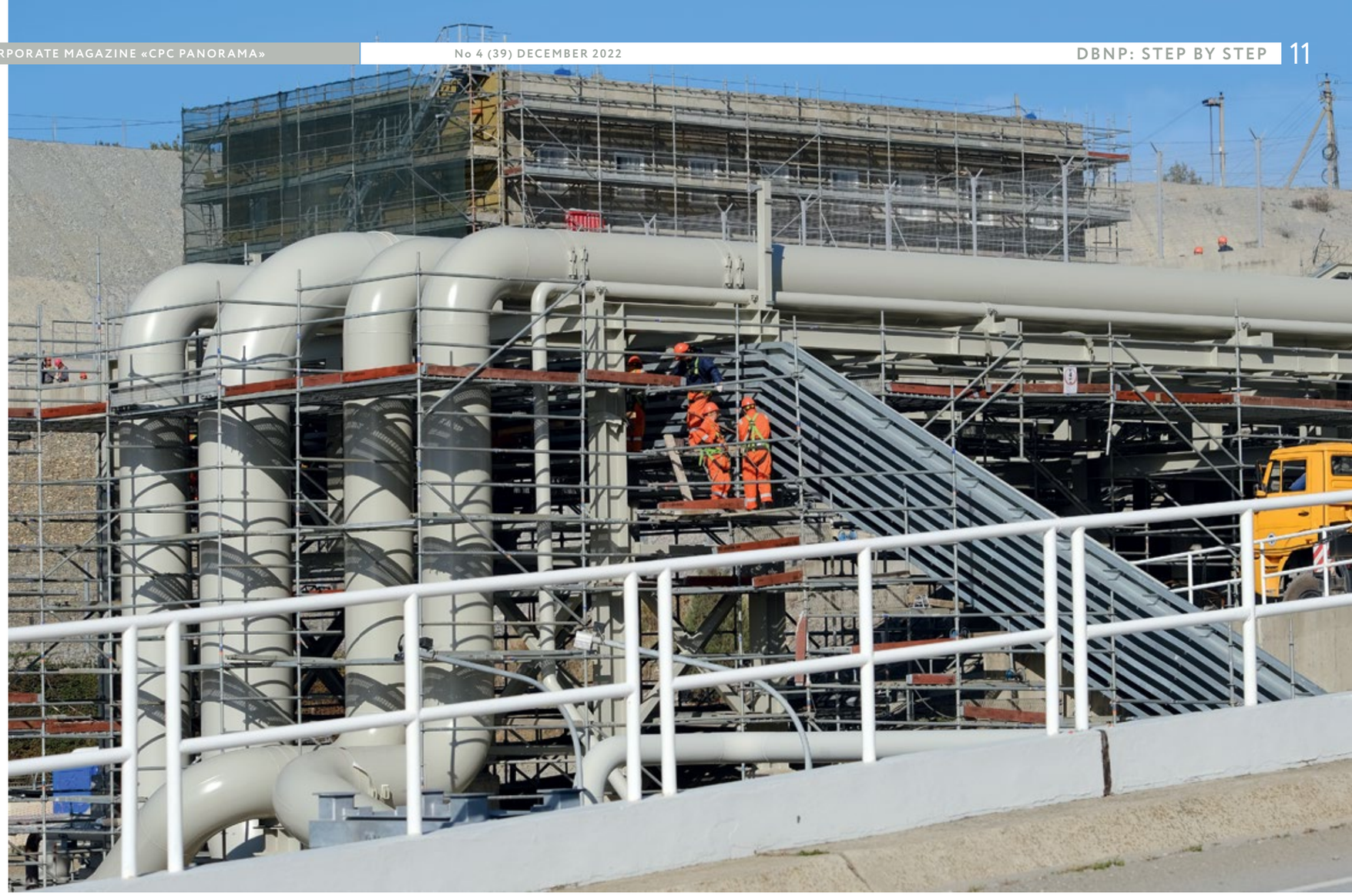
By mid-autumn, the contractors approached the line of 76% readiness of the LACTs. At the same time, technological pipelines were installed by 95%, and concrete work was completed by 90% – the builders poured about 7.5 thousand m^3 of the mixture.

The installation of all 12 measuring lines was completed, they passed hydraulic tests. The thermal contour of the control room building was closed, which made it possible to proceed to the interior decoration.

"The peak in general construction work has already been passed, but the most stressful period in electrical installation is still ahead", comments the Deputy Construction Office Manager. "It is necessary to lay 130 km of cables in trays".

On average, installers lay about 300 m of large-section cable per day and almost 1.8 km of small-section cable.

High rates have been achieved in welding work. There are four units operating on the site, which welded 900 joints of large diameter pipes (from 500 to 1000 mm). Making 30–40 joints per day, in November-December they will have to perform about 1 thousand more joints of small diameter pipes.



Great importance is attached to the safe performance of work at such a round-the-clock facility as the CPC Marine Terminal. After all, the Shore Facilities are not only densely saturated with technological equipment, but also represent a customs and border control point, being a transport security enterprise on a par with railway stations and airports.

"Our site is divided into two parts – "A" and "B". In the first one, which is among the existing facilities, the requirements are the most stringent both for the execution of permits and for the qualifications of employees", Andrey Banduryan explains. "Work permits are mandatory checked and signed by specialists from the CPC Operations Department, who also constantly control the builders".

Near existing communications, trenches are developed only by hand. Crossing points are additionally reinforced with concrete slabs. The analysis of the gas-air environment is carried out regularly.

The next important milestone for builders under the Marine Terminal Debottlenecking Program is April 2023. During the planned shutdown of the main line, all installed new LACTs will be connected to the pipeline and filled with oil.

AUTHOR
PAVEL KRETOV

AT THE JUNCTION OF TECHNOLOGIES

IN THE LAST DECADE OF OCTOBER 2022, PREPARATIONS STARTED IN NOVOROSSIYSK FOR A UNIQUE UNDERWATER OPERATION TO REPLACE BUOYANCY TANKS AT CPC FIRST AND SECOND SINGLE-POINT MOORINGS. RESPONSIBLE WORK UNDER DIFFICULT CONDITIONS OF AUTUMN-WINTER STORMS DEMANDED A HIGH CONCENTRATION OF ADVANCED TECHNOLOGIES FROM THE GENERAL CONTRACTOR ALLIANCE LLC AND ITS SUBCONTRACTORS

The multi-purpose vessel Commander, equipped with a dynamic positioning system, was involved in the operation. This means that the ship has a complex set of navigation and control equipment that allows you to automatically and with high accuracy maintain a given position even in adverse weather conditions without the use of anchors or mooring equipment, using only ship propulsion.

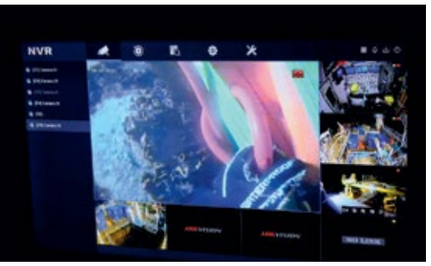
"Our ship is equipped with a class II system", says Commander Captain Sergey Paramashkin. "This implies a complete redundancy of all its elements, so the failure of one of them will not lead to the loss of the vessel's position. We can safely repair the damage and get back to work".

The Commander left the stocks in 2006 as an offshore oil platform supply vessel. However, the ship did not work in this role for a single day, but was immediately converted for underwater engineering operations, and was subsequently used on international projects in the Baltic and Black Seas. A year ago, the Commander was acquired by a Russian shipowner: the vessel received a registration in the port of St. Petersburg.

In order to perform tasks in the water area of the CPC Marine Terminal, everything needed was delivered on board in record time — more than a thousand items of various materials and equipment from all over the Russian Federation. The Russian mobile container diving complex MCDC-60 was used with two decompression pressure chambers, with a chamber and an antechamber, as well as all life support systems that meet all international requirements.

"The peculiarity of this project lies in the fact that it is located at the junction of different technologies", comments Nikolay Konyushkov, Head of the Beluga Project Group. "This includes underwater, shipboard work, and gyro navigation. And all together we are a close-knit team that, acting in sync, overcomes any difficulties".

A team of experienced divers of European Diving Company LLC (EDC LLC) – 19 people – was also involved in replacing buoyancy tanks on single-point moorings. Their previous successfully completed project was the installation of support blocks on piles of the offshore field named after V.I. Greifer in the Caspian Sea.



"Our divers worked in a confined space at a depth of 20 m", explains Andrey Kudryavtsev, EDC General Director. "On an industrial scale, for the first time, a Russian innovative development was used – an underwater mechanized semi-automatic welding machine. With the help of this equipment, we welded 1.5 km of seam in a month and a half.

But, for example, the diving doctor Alexander Zavyalov participated in operations in the Sea of Okhotsk. There divers operated at a depth of 90 m. The complex of works was carried out by the method of long-term stay: the divers lived in a pressure chamber for about 30 days, breathing a mixture of oxygen and helium.

This time, in the water area of the CPC Marine Terminal, the depth of divers' work did not exceed 40 m, however, the participants of the operation faced a large number of objective difficulties. Firstly, this is the neighborhood with a working single-point mooring, which continues to load tankers. Secondly, sea waves, constantly changing wind, as well as strong currents that change their strength and direction in different layers of the marine environment. Therefore, even before the start of the operation, special transponder sensors were installed on the SPM, the buoyancy tank (BT) and the seabed for accurate positioning of the Commander vessel, which allowed all work managers to confidently navigate in the digital space.

"There are really a lot of complex factors", Andrey Novozhilov, a diving specialist, lists. "This is the depth that requires attention to the effects of nitrogen narcosis. And a rapid change of currents, reaching up to two knots, which affects the entire technology of work. And the height of the wave, reaching up to 2 m in the moonpool".

In such conditions, even three cables are not able to securely hold the "gazebo" with the diver, and he has to be lifted to the surface in 5 minutes, followed by decompression in the pressure chamber. And if the Commander was not equipped with such a through shaft-moonpool in the hull, and the divers dived from the ship, then the question of suspending work would have arisen already with waves in the water area equal to 0.75–1 m.

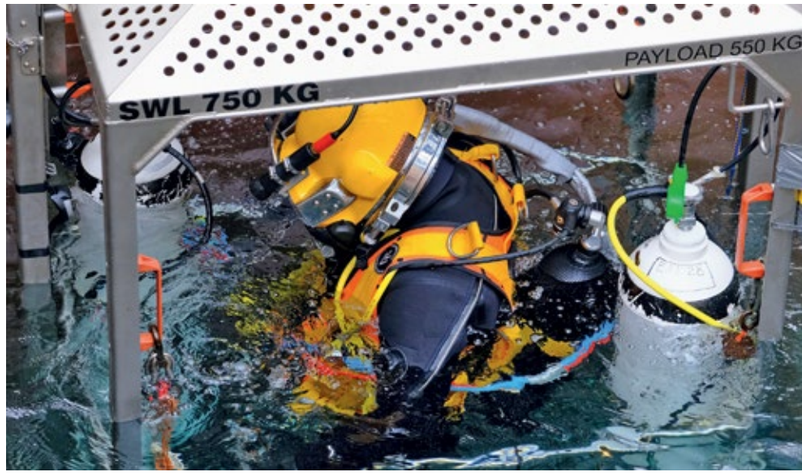
A diver going down into the water is connected to the vessel with the help of three multi-colored cables. Blue provides it with a breathing mixture. Yellow is connected to the diver's pneumatic depth gauge – these indicators are closely monitored on the ship. By red, the dive control receives an image from the camera on the helmet.

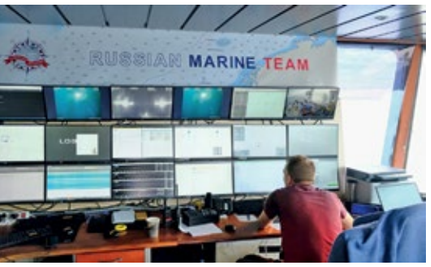
From this camera, colleagues saw online on their monitors the same thing that the diver himself sees: the diver's hands started the slings and hoists, or, using a cassette hydraulic tool and impact wrenches, unscrewed the fastening bolts. They call it "give away the bolts".

And how to get a general picture of the entire area of work, and even in the right perspective at the moment? For this task, a remote-controlled uninhabited underwater vehicle (RUUV) served as a constant companion for divers. The machine feels like a fish in water at depths of up to 3,000 m. It has a camera, lighting devices, a sonar, a manipulator and other equipment, control and power supply was provided by cable.

"Before the start of work, the RUUV performed an underwater survey, which made it possible to conclude which areas and stages of the operation would require special attention", says Maxim Pustovoitov, RUUV supervisor of the Morspassluzhba FSBI. "Further, the device remained a faithful assistant to divers: for example, during the last descent, with its manipulator, it passed lines to a person. It is also important that RUUV illuminates the diver's path on his way from the "gazebo" to the place of work. After all, the operation goes around the clock and only during the day can a diver count on 30-meter visibility in the water.

Thus, working in two shifts at a depth of 35–40 m, on October 28, divers connected the former SPM buoyancy tank to the anchor system and the so-called underwater parachutes to underwater hoses. The well-coordinated work of the contractors and the crew of the Commander vessel made it possible to move on to the stage of lifting the worn-out buoyancy tank and installing a new one.





A particular difficulty in the organization of work was that the operation required about two days of a continuous process and was limited by weather conditions – the wave height is not higher than 1.5 m in the autumn-winter period of the year.

Based on the results of the operational meeting on board the ship (which was attended by CPC General Director Nikolay Gorban and representatives of the management of the contractors involved in the operation), as well as a comprehensive risk assessment, it was decided to continue work within the established phasing of a single cycle.

By the evening of October 28, 2022, divers removed a total of 48 bolts from two flange mounts, preparing the former buoyancy tank for lifting onto the ship.

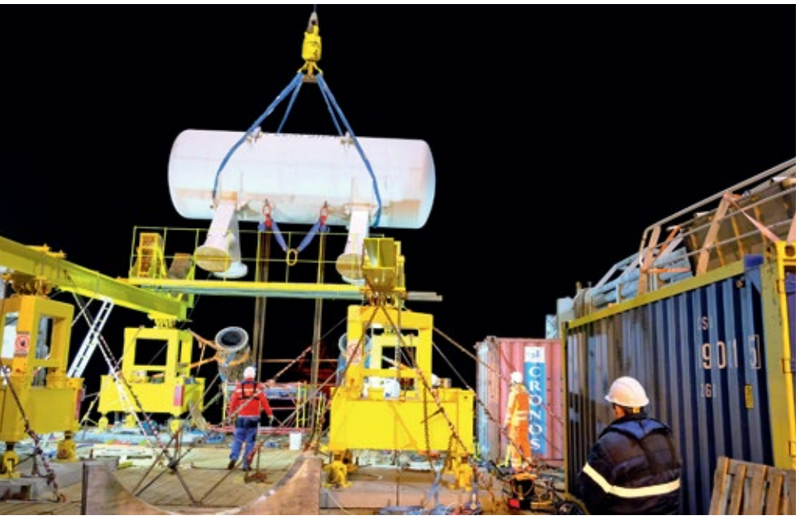
On October 29, 2022, with the involvement of the multifunctional vessel Commander, the SPM-1 buoyancy tank was raised from a depth of 40 m. The lifting was carried out using a 140-ton crane installed on the Commander. The buoyancy tank was raised to the surface and installed at the stern of the Commander vessel on a specialized structure – a lodgment made specifically for this type of work. After the work on disconnecting the marine underwater hoses from the worn-out BT, a new buoyancy tank was installed on lodgment to replace the old BT and work was performed to connect the marine underwater hoses.

On the night of October 29–30, 2022, a new buoyancy tank was launched and, through the installed rigging on concrete anchors, was sunk to a predetermined depth for the subsequent reduction of flanges. The stage of positioning the new buoyancy tank at depth and the reduction of flange connections has begun.

On November 11, 2022, work on the replacement of the buoyancy tank on the SPM-1 was completed in full. Successfully completed hydrostatic tests allowed the equipment to be put into operation and oil was loaded onto the first tanker – MINERVA SOPHIA.

As Nikolay Gorban, CPC General Director, noted, all engineering calculations, manufacturing, installation of auxiliary and main equipment, high-tech operations for dismantling, installation and positioning of the buoyancy tank at depth were carried out exclusively by Russian specialists – CPC and the contractor Alliance LLC using both Russian software support, and equipment manufactured in the Russian Federation: lodgment, rigging and anchors.

Work on replacing the buoyancy tank on SPM-2 was successfully completed by the time the issue was put into print. Hence, all three Single Point Moorings of CPC Marine Terminal ensure oil transshipment in standard mode.



CPC PRESS SERVICE

THREE DAYS AND NIGHTS

IN THE PERIOD FROM 4 TO 7 OCTOBER 2022, A 72-HOUR SCHEDULED SHUTDOWN OF THE TENGIZ-NOVOROSSIYSK PIPELINE WAS CARRIED OUT. DURING THIS TIME, CPC SPECIALISTS AND CONTRACTORS HAVE COMPLETED A SIGNIFICANT AMOUNT OF WORK UNDER THE DEBOTTLENECKING

New collectors DN 1000 were connected at the Tengiz PS in the tank farm, and the blind plug of the DN 800 ball valve was turned onto the through ring. To prepare for commissioning at the booster pumping station and drainage tank, the software and hardware of the Fire and Gas Detection System (FGDS) was updated based on the Russian-made KTS-2000 Fire and Security Alarm and Fire Fighting Control System. FGDS mnemonic panels were installed in the control room and fire station. Equipment for drainage tanks and ESV valves is integrated into the Emergency Protection System (EPS) of Tengiz PS. At the same time, the control panels of the FGDS were replaced with integration into the station's control system.

At Atyrau PS, two DN 700 plugs and one DN 500 plug were rotated onto the through rings. The control module of the main pump station (MPS) is integrated into the FGDS. Also, MPS is integrated into the existing Control and Communication System (CCS) with the possibility of monitoring from the Operations Control Center (OCC). Performed work on updating the hardware and software of programmable logic controllers (PLC) of general-purpose systems and emergency protection.

At Astrakhanskaya PS, new technological sections were connected to the station's existing pipelines, followed by oil filling. 14 tie-ins were completed, which ensured the inclusion of a new mud strainers site (MS), drainage tanks of the MS and a backup quality control unit (QCU) into the process flow diagram of Astrakhanskaya PS.

The hardware and software of the general-purpose PLC systems and emergency protection systems were updated, which made it possible to connect new CCS equipment that provides management and control of the new MS site and MS drainage tanks. During the integration work, functional testing of the equipment was performed.

At Komsomolskaya PS, a power supply scheme has been finalized to connect new MPS equipment. The MPS control module is integrated into the FGDS, a new station emergency stop panel and emergency protection systems (EPS) are installed in the control room. Also, MPS is integrated into the existing CCS with the ability to control from the MCC. Updated hardware and software for general purpose PLC systems and emergency protection. The equipment of the new capacity of the pressure mitigating system (PMS) is integrated into the CCS, followed by oil filling, testing and comprehensive approbation.

The work on the integration of the equipment of the Astrakhanskaya PS and Komsomolskaya PS into the SCADA system has been carried out in the OCC. Updated dispatcher applications, hydraulic model, simulator and Leak Detection System (LDS).

An additional 10/0.4 kV transformer substation with a complete switchgear was put into operation at the CPC Marine Terminal. In order to ensure the launch of the main tank for scheduled repairs at the site of the onshore facilities of the MT, equipment was installed and integrated into the SCADA system, followed by functional testing of a new 800 m^3 tank.

AUTHOR

VLADIMIR GUSEV,
CHIEF METROLOGIST OF STARSTROY LLC

FOR THE SAKE OF PRECISION

THE SAFETY OF THE HYDROCARBON TRANSPORT SYSTEM IS ENSURED BY INSTRUMENTATION THAT CONTROLS PRESSURE, TEMPERATURE, VIBRATION AND OTHER PROCESS PARAMETERS. METROLOGISTS ARE RESPONSIBLE FOR THE MEASUREMENT ACCURACY OF INSTRUMENTATION. THIS ESSAY GIVES AN IDEA OF HOW THE ACTIVITIES OF THE METROLOGICAL SERVICE OF STARSTROY LLC ARE ORGANIZED AT THE FACILITIES OF THE CPC PIPELINE SYSTEM

In 2003, a metrological service was established within the structure of STARSTROY LLC to provide services for metrological maintenance of CPC-R facilities. The main tasks of this service included organizing and carrying out verification and calibration work at CPC facilities by third-party organizations, primarily regional centers for standardization, metrology and testing (CSM) and other organizations accredited for the right to verify and calibrate measuring instruments.

Such a scheme for organizing metrological maintenance of CPC facilities was very cumbersome, inflexible and inefficient. To eliminate these problems, at that time, the Deputy General Director — CPC Project Manager Boris Zabuldin decided to carry out verification and calibration of measuring instruments of the Consortium's facilities on their own.

For this purpose, a metrological laboratory was created based in two places: in the State Unitary Enterprise STARSTROY LLC in Novorossiysk and the Maintenance Department of the Central Region in Astrakhan. The staff of the metrological laboratory was trained at the Academy of Standardization and Metrology with the right to verify and calibrate measuring instruments by type. Standards, auxiliary equipment, mobile equipment were purchased, and at the end of 2004, the metrological service of STARSTROY, accredited for the right to carry out calibration work in the Russian Calibration System (RCS), began independent activities for calibration of measuring instruments installed at CPC facilities. Alexander Starshinov, manager for operation and maintenance of CPC instrumentation, provided great assistance in the development of the metrological service of STARSTROY.

THE STAFF OF THE METROLOGICAL LABORATORY WAS TRAINED AT THE ACADEMY OF STANDARDIZATION AND METROLOGY

CALIBRATION OF PRESSURE MEASURING INSTRUMENTS

Initially, the accreditation certificate had a small amount of opportunities for calibration of measuring instruments. Units for measuring pressure, temperature, level, physical and chemical composition (gas analyzers) were calibrated.

In 2008, the scope of accreditation for the right to carry out calibration work has expanded significantly. During the next certification by the RCS, new types of measurements were introduced into the accreditation certificate, the measurement ranges of calibrated instruments were increased, their accuracy class was increased due to the acquisition of new standards. But at the same time, verification of measuring instruments installed at CPC facilities was carried out mainly by regional CSMs. One of the factors limiting the verification of measuring instruments by accredited non-state metrological laboratories was the state regulation of metrological support at hazardous production facilities.

A qualitative leap in the development of the metrological service of STARSTROY occurred in 2009, when the organization was one of the first in the region to be accredited for the right to carry out calibration work by the Federal Accreditation Service (Rosaccreditation).

After the abolition of laws regulating the requirements for verification of measuring instruments at hazardous production facilities, the scope of accreditation, in addition to the existing types of measurements (pressure, temperature, level, physical and chemical composition), was replenished with such new parameters as verification of electrical measuring instruments; verification of measuring units for vibration parameters; verification of gas flow calculators; verification of frequency and time measuring instruments; verification of measuring channels based on Allen Bredly controllers, as well as measuring channels based on Syncross controllers and Bently Nevada monitors.

Measuring instruments installed on the technological equipment of CPC facilities are distinguished by their modern design, high accuracy class, and intelligent microprocessor control. The list of manufacturers includes Siemens, Fisher-Rosemount, Krohne, Magnetrol, Bently Nevada, Saab, Controlotron and others.

After the competence test of the metrological service of STARSTROY carried out in 2014 by Rosaccreditation, the latter was issued a perpetual accreditation certificate with the need to check for competence every two years.

The commissioning of new CPC facilities under the Expansion Project accordingly increased the fleet of measuring instruments to about 15,000 units. The metrological maintenance of such a fleet of measuring instruments required an increase in the number of relevant personnel: one more workplace of a metrologist was added in the Department of Technical Maintenance of the Western Region in the village of Girey.

The process of pumping oil is almost continuous, many devices are involved in emergency protection and blocking systems, which does not allow dismantling measuring instruments for their verification in stationary laboratory conditions. In this regard, the requirement of the customer to verify and calibrate such devices at the place of operation looked quite logical. For this, the metrological service of STARSTROY purchased compact field standards that allow verification and calibration of measuring instruments in the field.

Thus, almost 95% of measuring instruments installed at CPC facilities are verified by the metrological laboratory of STARSTROY at the sites of their installation on process equipment. In 2019, the metrological laboratory verified and calibrated 12,357 measuring instruments installed at CPC facilities.

HUMAN FACTOR

Such managers and specialists as the head of the metrology laboratory D.M. Nastaev, metrology engineer Yu.N. Panasyuk, leading metrology engineers V.A. Shebolkov and M.V. Chernyavsky. The average experience of metrological maintenance of CPC facilities for these employees exceeds 15 years, their experience is invaluable. But even the youngest employee of the metrological service is distinguished by professionalism, responsibility, and diligence, which makes it possible to calibrate measuring instruments of proper quality without control by experienced employees.

The metrological service of STARSTROY in its activities is not limited to verification and calibration of measuring instruments. Based on extensive experience in verification and calibration of measuring instruments in the CPC system and considering the specificity of the equipment operated at CPC facilities, the division took an active part in the preparation of regulatory and technical documentation, developing several fundamental regulations with the Consortium

VERIFICATION OF ELECTRICAL MEASURING INSTRUMENTS AT THE PLACE OF THEIR INSTALLATION

specialists, such as “Regulations. The procedure for assigning measuring instruments to be verified or calibrated, as well as test equipment and indicators to the corresponding list”, establishing the recommended interval for verification and calibration of measuring instruments, ensuring the stability of readings of measuring units with rated accuracy, as well as the “Regulations for the maintenance of mechanical power equipment, automation systems and instrumentation part 3”, which determines the frequency of maintenance of instrumentation systems, as well as setting time standards for verification of measuring instruments, which is very important for an enterprise in which the technological process is ongoing. There is another area of work: in order to meet the accreditation criteria, the metrological service of STARSTROY participates in interlaboratory comparative tests with organizations such as the Nizhny Novgorod CSM and the Rostov CSM.

In 2019, in the CPC Central Region, on the initiative of Andrey Saprykin, a metrological engineer, a pilot program was launched to enter data on verification and calibration of measuring instruments into the MAXIMO system with reference to completed work orders. This program allows you to conduct various samples of measuring instruments, to form the necessary plans and schedules. Its implementation is expected in other CPC regions as well.

РОСАККРЕДИТАЦИЯ

ФЕДЕРАЛЬНАЯ СЛУЖБА ПО АККРЕДИТАЦИИ № 0000137

АТТЕСТАТ АККРЕДИТАЦИИ

№ РОСС RU.0001.310466 21.08.2014

Настоящий аттестат выдан Обществу с ограниченной ответственностью «СТАРСТРОЙ»

ИНН 2308063783

353991, Краснодарский край, г. Новороссийск, Промзона «Кирилловская», ул. 5-я Промышленная, д. 3

и удостоверяет, что Общество с ограниченной ответственностью «СТАРСТРОЙ»

353991, Краснодарский край, г. Новороссийск, Промзона «Кирилловская», ул. 5-я Промышленная, д. 3

соответствует требованиям ГОСТ ИСО/МЭК 17025-2009

аккредитован(о) в области обеспечения единства измерения для выполнения работ и (или) оказания услуг по поверке средств измерений

в соответствии с областью аккредитации, область аккредитации определена в приложении к настоящему аттестату и является неотъемлемой частью аттестата.

Дата внесения сведений в реестр аккредитованных лиц 11 августа 2014 г.

М.П.

Руководитель (заместитель Руководителя) Федеральной службы по аккредитации М.А. Якутова

STATE REGULATION

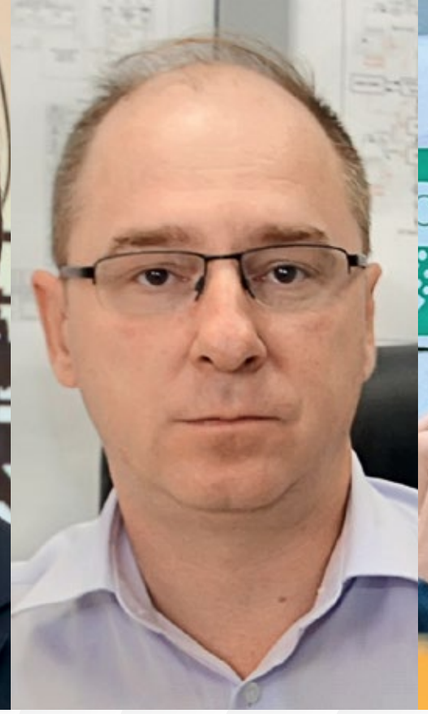
In recent years, much attention has been paid to the calibration of measuring instruments at the federal level. On April 19, 2017, the Decree of the Government of the Russian Federation No. 737-r “On Approval of the Strategy for Ensuring the Uniformity of Measurements in the Russian Federation until 2025” was adopted. The document primarily defines integration with international metrological organizations, relying on an increase in the volume of calibration work in Russia.

Since September 1, 2019, the interstate standard GOST ISO / IEC 17025-2019 “General requirements for the competence of testing and calibration laboratories” was put into effect. The specified standard, in accordance with the order of Rosstandart dated July 15, 2019 No. 385-st, is put into effect as the national standard of the Russian Federation.

Resolution of the General Assembly of the International Laboratory Accreditation Cooperation (ILAC) dated November 4, 2016 No 15 established a three-year period for the transition of testing and calibration laboratories to the activities of the new version of the international standard ISO/IEC 17025: 2017 “General requirements for the competence of testing and calibration laboratories” (hereinafter also ISO/IEC 17025:2017). In accordance with these requirements, testing laboratories (centers) must be assessed for compliance with the new standard ISO/IEC 17025:2017 by November 2020.

ALMOST 95% OF MEASURING INSTRUMENTS INSTALLED AT CPC FACILITIES ARE VERIFIED BY THE METROLOGICAL LABORATORY OF STARSTROY

The metrological service of STARSTROY, accredited for the right to carry out calibration work by the Federal Accreditation Service, is also participating in the process of transition to the new version of the international standard ISO/IEC 17025: 2017, which, in turn, will ensure the output of works on metrological maintenance of objects CPC to a qualitatively new level.



IGOR LISIN

For his great personal contribution to the development of the fuel and energy complex and many years of conscientious work, Igor Lisin, CPC Technical Director, DBNP Manager, was awarded the title of Honorary Oilman.

Igor Yuryevich started working at CPC in the spring of 2010. Prior to that, he had many years of experience working for Transneft in the construction and reconstruction of pump stations and linear part within framework of BTS-1 and ESPO-1 projects. Igor Lisin is associated with the implementation of the CPC Pipeline Capacity Expansion Project to 67 million tons of oil per year and the Debottlenecking Program, which increases the pipeline capacity to more than 80 million tons per year, as well as the CPC Safety Days that have been held since 2012 and much more.

"The fusion of advanced technical solutions with the richest experience of professionals and the growing level of the Safe Work Culture is the main secret of both the successful operation of CPC and the company's resilience to the challenges of the time", Igor Lisin believes.

OLEG SIDORCHUK

Oleg Sidorchuk, Oil Measurement Lead Engineer of the Central Region, was awarded a certificate of honor from the Ministry of Energy. Oleg Vladimirovich has a quarter of a century of work experience in the oil and gas industry, he has been working at CPC for 21 years.

Oleg Sidorchuk worked as a metrology engineer at Chernomortransneft JSC. He built, set up and maintained metering stations, including as part of the restoration of the Baku-Tikhoretsk oil pipeline. Oleg Vladimirovich started working at CPC on January 9, 2001 as an oil measurement engineer. He took an active part in the construction of the first stage of the oil pipeline system and the Expansion Project, commissioned the LACTs and laboratories.

"Colleagues are qualified, experienced people who can work in a team", says Oleg Sidorchuk. "The volume of current tasks the service performs qualitatively, specialists are always ready to help related departments as needed. We are currently providing metrological support as part of the implementation of new DBNP facilities.

ALEXEY SITNIK

For his great personal contribution to the development of the fuel and energy complex and many years of conscientious work, Alexey Sitnik, CPC Offshore Maintenance Manager, was awarded a Certificate of Merit from the Ministry of Energy of the Russian Federation.

Alexey Igorevich has been working for the Caspian Pipeline Consortium since 2006, his first position was as an oil spill response coordinator, then as a marine operations specialist. Maintenance and repair of single-point moorings, exercises in the water area of the CPC Marine Terminal, interaction last summer with the EMERCOM of Russia on the survey of the seabed and much more – all this is within his competence.

"How to characterize the work at the Marine Terminal and in general in the Consortium? Excellent relations in the team, experienced professionals in the environment, an inspiring amount of work with great prospects", says Alexey Sitnik.

ALEXANDER ANTONOV

Alexander Antonov, Quality Control Team Leader, was thanked by the Russian Ministry of Energy for his great personal contribution to the development of the fuel and energy complex and many years of conscientious work. Alexander Leonidovich has been working for CPC for more than 18 years, both in the Russian Federation and in the Republic of Kazakhstan.

"In the course of work on the implementation of the tasks of the core activity and the Expansion Project, there were many cases when it was necessary to quickly find optimal solutions", says Alexander. "Today, as part of the implementation of the Debottlenecking Program, new challenges are emerging. We faced Covid-19, which affected all aspects of work – from the timing of the conclusion of contracts and the organization of deliveries to the stages of construction, installation and commissioning of facilities. Nevertheless, thanks to a well-coordinated and experienced team, all emerging issues are successfully resolved".

LEONID SVERDLOV

For a great personal contribution to the development of the fuel and energy complex and many years of conscientious work, the gratitude of the Ministry of Energy was announced to Leonid Sverdlov, Lead SCADA Analyst. A detailed story about Leonid Yuryevich's career was published in the last September issue of CPC Panorama. The main stages of this path are Rosatom, Gazprom, CPC. Leonid Sverdlov's work experience in the Consortium is 23 years. He characterizes CPC control and communication systems as the most advanced in the industry, he appreciates the team for professionalism, sociability and readiness to always come to the rescue.

"Now the work has increased due to the connection of new DBNP facilities to the SCADA", notes Leonid Yuryevich. "Recently, the fifth turbine unit was added to the PLC operation logic at the Komsomolskaya PS. At the same time, we are engaged in the modernization of fire-fighting systems on linear valves. In the future – renovation of other stations. The work is painstaking, but moving towards completion.

VLADIMIR TSUKANOV

Vladimir Tsukanov, Labor and Industrial Safety Lead Engineer, was awarded the Letter of Appreciation from the Russian Ministry of Energy. Vladimir Ivanovich joined the Caspian Pipeline Consortium in November 2009, starting with the Expansion Project. In 2015, he moved to the Operations Department, to the HSE Team.

"We see how the Safe Work Culture is being formed and developed at CPC, and we see the result – stable key indicators of the state of labor protection and industrial safety. First of all, this is due to the professionalism of colleagues and the significant resources that the company allocates to maintain the declared zero-injury course, which greatly facilitates the involvement of CPC employees in the exciting process of conscious safe behavior. Our service has developed and implemented several practices that help to reinforce this skill, both among CPC staff members and outsourced personnel", points out Vladimir Tsukanov.

AUTHOR
PAVEL KRETOV

TIME OF THE FIRST ONES

THE CITY OF ATYRAU BECAME THE VENUE FOR THE 10TH ANNIVERSARY OF CPC SAFETY DAY. IN SEPTEMBER 2022, LEADERS IN THE FIELD OF SAFE WORK CULTURE FROM DOZENS OF COMPANIES INVOLVED IN THE CPC INTERNATIONAL PROJECT ARRIVED HERE IN ORDER TO THEN PASS ON THE EXPERIENCE GAINED AND ACQUIRED SKILLS TO THE WORKFORCE

At the opening ceremony of the Safety Day, General Director of the Caspian Pipeline Consortium Nikolay Gorban noted that the venue for the event was not chosen by chance. Atyrau region is the beginning of the CPC pipeline system both geographically and temporally. Here is the mile zero of the pipeline, here in the late 80s of the XX century the main facilities of the Tengiz-Novorossiysk oil pipeline were built.

"Safety Days contribute to the formation of a special attitude to the Safe Work Culture of our personnel, give employees the opportunity to communicate and share experience. Over the past 10 years, such events have already shown their high efficiency, after which employees return motivated for new achievements and not only in labor protection", Nikolay Gorban emphasized in his speech.

Representatives of shareholder companies take an invariably active part in the CPC Safety Days.

"Chevron Corporation also pays serious attention to labor protection and industrial safety issues", said Nathan McKinley, Director of Production of the Eurasian division of Chevron Munaigas Inc. "Over the past 25 years, I have had the opportunity to work in eight countries, but nowhere have I seen such a large-scale event as in CPC".

Director of the Oil Transportation Department, Head of the Oil Transportation Department of NC KazMunayGas Daniyar Berlibayev added that the tradition of holding Safety Days is a matter of special pride for all Consortium members.

336 people came to the start of the competitive part of the program as part of 28 teams: KING JSC and SRDI Kaspimunaygas JSC; KazTransOil JSC, Nachin PJSC LLC, MM Security LLP, STEM LLC, Zaman Quantor LLP, Eurostroy LLP, Agropromtekhnika LLP, VELESSTROY LLP, VELESSTROY LLC, STARSTROY LLC, Prom Expert LLC, Southern Transport Enterprise LLC, GPVN JSC, "CIS" LLC, Master-Service LLP, Dos Support LLP, SPE EKRA LLC, Sintek LLC, ASPMK-519 LLP, Supply LLP, Main Water Supply LLP, Promstroy-Energo LLP, and Premium LLC, the teams of the Eastern, Central, Western regions and the CPC Marine Terminal, the CPC DBNP team.

"We are proud that over the 10 years of the tradition of holding Safety Days, not a single competition has ever been repeated", Igor Lisin, Technical Director of the Consortium, commented to CPC Panorama. "This year the program of the event was drawn up taking into account the seven goals of the strategic plan for labor protection, industrial safety and environmental protection. The event turned out to be the largest of all that we have held. Both in terms of competitions, and in terms of the total number of participants – there were almost 700 people".

The "Impossible is Possible" competition allowed participants to demonstrate the skills to effectively manage work and medical support in the context of emerging pandemics.

"The company has gained significant experience in combating the spread of COVID-19. We have all become more responsible in matters of compliance with sanitary standards both at home and at work. And here, at the Safety

Day, we modeled the practices existing in the CPC", said Khakim Kasymov, CPC Deputy General Director for General Business, who supervises the competition.

"Safety is the key to victory" was the name of the competition dedicated to improving the risk management process, evaluating the effectiveness of risk barriers, the operation of the work permit system, the process of investigating and identifying the root causes of incidents. Participants of the Safety Olympiad were able to fully demonstrate their competence and skills in the field of HSE.

"The best came to Atyrau", said Mikhail Grishankov, CPC Deputy General Director for RF Government Relations. "The best, first of all, because they never stop learning and improving themselves. They were able to demonstrate their commitment to corporate values and the desire for development at the Safety Olympiad".

"Together" was the name of the competition on the theme of improving the management system of contractors in the field of labor protection, industrial safety and environmental protection. The "Time of the First Ones" competition was dedicated to improving the system of motivation and responsibility, automation and integration of HSE business processes.

"At the "Time of the First Ones" contest, we recalled all the CPC Life Saving Rules", said Dmitry Dolgushin, Administration Manager. "Each team member was motivated and was responsible for all his colleagues".

The tasks of the "Step Forward" competition were oriented towards increasing the level of environmental safety of the Consortium's production activities.

"Since the first days of operation of the CPC pipeline system, we have attached great importance to environmental safety", emphasized Alexei Khodakov, CPC Chief Accountant. "Compliance with high international requirements is ensured not only by advanced technologies, but also by the high environmental culture of our employees".

In the "Games of the Elements", the competitors tested their emergency preparedness and emergency response.

"Permanent readiness to competently and promptly respond in an emergency is regular training and methodical work to strengthen human resources", said Vladimir Shmakov, CPC Operations General Manager.

The course of the tense struggle, which required high professional skills from all participants, was observed by the heads of the shareholder companies of the international consortium, contractors, and representatives of the Kazakhstani media. And the contestants themselves cheered for their colleagues going to the start — and then changed places. Participants demonstrated team spirit and good theoretical knowledge, showed ingenuity and resourcefulness in intellectual competitions.

"The main focus of today's event is industrial safety", says Nurlan Kurmangali, HSE Manager of Promstroy-Energo LLP. "And this is the main principle of our work, since human life is priceless".

Guests of Atyrau were given the opportunity to get acquainted with the culture and customs of the Kazakh people. The territory of the Safety Day was decorated in a traditional ethnic style: yurts with national attributes and decorations, batyrs, Kazakh heroes in full combat attire, who met the participants. One of the yurts was called the "Bureau of Good Offices". Here everyone could leave their wishes and proposals to the international consortium, including in the field of labor protection, industrial safety and environmental protection. As a reward for the initiative, each guest received a memorable gift.

There were photo zones and game activity zones on the territory of the event, where you could practice archery and the national game of asyks, as well as become a spectator of a concert program with the participation of local artists and creative teams. Panoramic LED screens took the participants to any corner of the country — to the mountains, to Alakol Lake, to the center of Astana.

336
PEOPLE
CAME TO THE START OF THE COMPETITIVE PART OF THE PROGRAM

In the evening the jury announced the results of the competition. In the team standings among CPC divisions, the team of the Debottlenecking Program won. DBNP-specialists were ahead of their colleagues from the Central and Eastern regions of the Consortium, who took second and third places, respectively.

In the team standings among contractors, the final protocols of the judges recorded the best result for the Zaman Quantor LLP team. The team of VELESSTROY LLC became the silver medalist. GPVN JSC is in third place, ahead of KING JSC and SRDI Kaspimunaygas JSC, respectively. STEM LLC finished fifth.

Memorable gifts and valuable prizes were given to all participants of the CPC Safety Day. There were no losers — members of all teams benefited from the new knowledge and skills in the field of labor protection.

"There is always an intrigue about who will take prizes, but no matter how hard the struggle is, it is not always the main thing", said Nikolay Gorban, CPC General Director. "The main thing is our communication, which allows us to exchange experience, share best production practices. Returning to their work teams, the participants of the event will share their new vivid and memorable experience with their colleagues. They will be leaders by which the rest will be equal. You are the first and this is your time".

At the closing ceremony, it was announced that the next CPC Safety Day would take place in a year at the end point of the Consortium's main pipeline — the city of Novorossiysk.

AUTHOR
IVAN KOROLKOV,
CPC-R LEADING COORDINATOR FOR THE IMPLEMENTATION OF THE SAFE PRODUCTION CULTURE PROGRAM

TRAINING FOR TRAINERS

ON SEPTEMBER 15, ATYRAU HOSTED THE III MEETING OF SAFE WORK CULTURE COMMITTEE. THE PARTICIPANTS SUMMED UP THE RESULTS OF THE YEAR, ASSESSED THE EFFECTIVENESS OF THE COMMITTEE'S WORK, FORMED AND DISCUSSED COMMITMENTS TO DEVELOP A CULTURE OF SAFE PRODUCTION FOR 2023

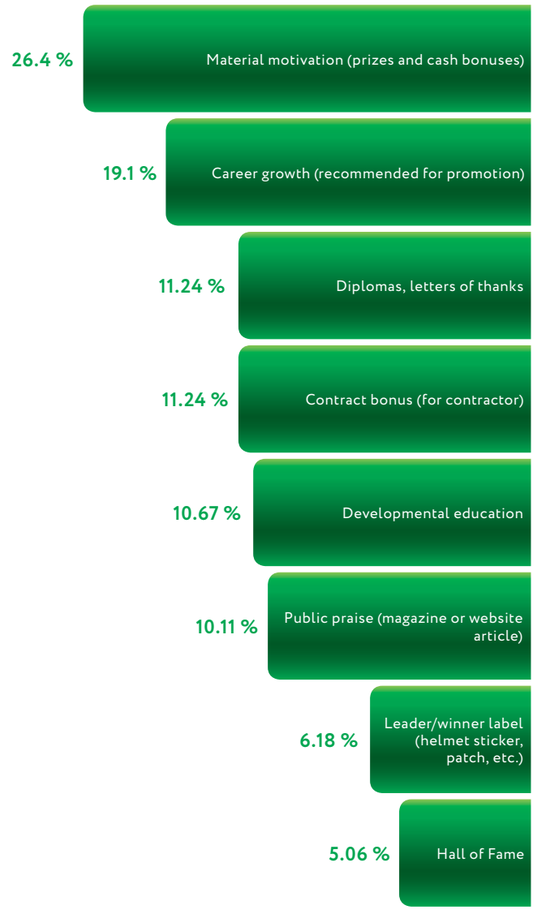
The meeting of Safe Work Culture Committee was chaired by CPC General Director Nikolay Gorban. The event was attended by heads of departments and structural subdivisions of CPC, heads of contractors and subcontractors, as well as, for the first time in the history of the Committee, representatives of the Consortium shareholders.

Traditionally, the meeting was opened with a "five-minute security" session by Sergey Polovkov, Deputy General Manager of HSE. The audience jointly discussed the simulated situation and, using the proposed seven methods for forming and breaking habits, together chose the option of the most correct reaction.

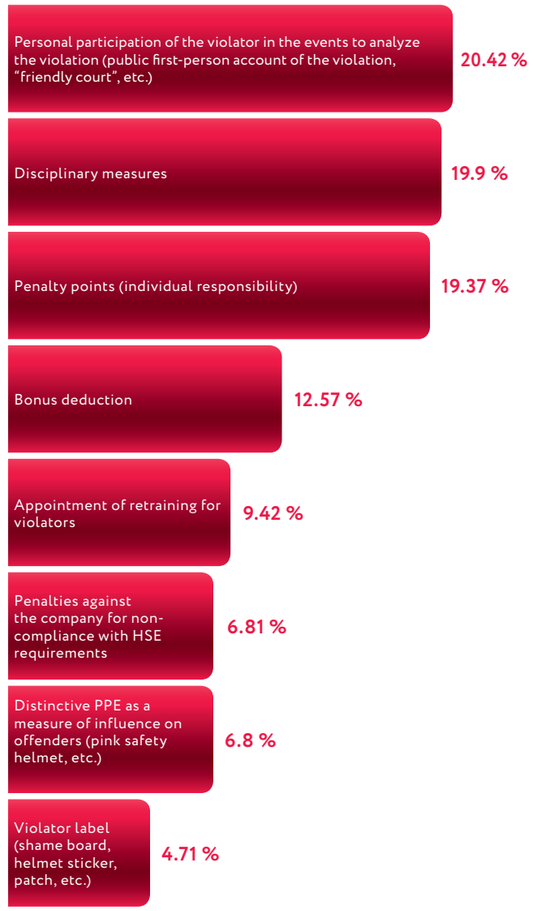
After that, the status of implementation of the CPC HSE Strategic Plan for 2022–2024 was discussed. The basic goal "Improving the level of safe production culture and developing leadership" supervised by the General Director of the Consortium was discussed. Based on the results of the discussion, it was decided at each subsequent meeting of the Committee to give the floor to one of the curators of other goals of the Strategic Plan to report on the status of their implementation.

As part of her presentation, Labor and Industrial Safety Manager Elena Bulatova analyzed in detail the annual

WHAT MEANS OF POSITIVE TYPES OF MOTIVATION SHOULD BE DEVELOPED MORE ACTIVELY?



WHAT MEANS OF NEGATIVE TYPES OF MOTIVATION SHOULD BE DEVELOPED MORE ACTIVELY?



statistics of receipt of observation cards, checklists and instructions, noting trends in violations with the highest risk level. In particular, the goal was to reduce the number of violations associated with the use of personal eye protection by 20% from the current level, and to ensure the timely issuance and replacement of protective glasses, both darkened and transparent, to the heads of contractors.

The timeframe for the implementation of the Debottlenecking Program imposes certain time limits on the activities of the contractors responsible for the performance of the work. At the same time, the requirements of labor protection should not be sacrificed to the deadlines for the completion of the facility. In this regard, CPC management, contractors and subcontractors are required to actively apply the "Plan vs. Safety" leadership practice when planning work and implementing it.

During the meeting, an increase in the involvement of contractors of the CPC Operations Department in the development of a safe production culture was noted. Thus, the largest number of observation cards were filled in by the employees of the Master-Service and STARSTROY companies. Both companies also "left behind" among contractors in terms of the number of implemented leadership practices, if we count from the Committee meeting held in Moscow in July this year. Based on the noted results, the heads of CPC subdivisions and contractors were offered a personal example and support to contribute to the implementation of leadership practices in the daily lives of employees.

Labor and Industrial Safety Manager Elena Bulatova presented the draft Procedure for managing individual responsibility in the field of labor protection, industrial safety and environmental protection, having discussed it with the meeting participants. An important part of the Procedure is the scheme for assessing the influence of the human factor. This assessment is extremely important in the analysis of violations. The combination

of personal characteristics and behavior of an employee can cause incorrect (intentional or unintentional) actions of a different nature in the course of work, ultimately leading to dangerous incidents and situations, casualities, road traffic crashes, accidents and occupational diseases.

The participants of the Committee meeting were presented with benchmarking of motivational practices and the results of studies of the influence of types of motivation on human behavior in the context of the long-term effect and the strength of its impact. As part of achieving goal No 5 of the HSE Strategic Plan "Improving the system of motivation and responsibility", a survey was conducted on the topic "What means of positive and negative motivation should be developed more actively in CPC?". The survey was conducted among the participants of the meeting in real time, and according to its results, a certain list of positive and negative methods of motivation was included in the obligations for 2023.

As you know, the performance indicators of the enterprise in the field of labor protection, industrial safety and environmental protection are divided into reactive and proactive. The first include numerical data or calculated coefficients that reflect the state of the security level over the past period. The second includes quantitative and qualitative design indicators aimed at preventing the occurrence of incidents and injuries.

The participants of the meeting were presented for discussion examples of the distribution of proactive and reactive indicators in industrial groups and leading global companies in the fuel and energy complex, such as AES Corporation, United Metallurgical Company JSC and Gazprom Neft PJSC. Based on the examples given, the dependence of the applied key performance indicators (KPIs) on the level of development of a safe production culture in companies was studied.

As part of the assessment of the work of the cascade-hierarchical structure of the Safe Work Culture Committee, it was noted that, in general, meetings of site and regional committees are held regularly. The use of an electronic template for the analysis of observation cards, checklists and prescriptions has added consistency to the work of these committees and now problems are solved more comprehensively. Representatives of contracting organizations are permanent members of the site and regional committees, which increases their involvement in CPC campaigns aimed at developing labor protection, industrial safety and environmental protection, as well as developing a Safe Work Culture.

As practice has shown, the organization of committees for the development of Safe Work Culture at CPC facilities generally has a positive impact on the general atmosphere in the staff of the PS and regional offices. New occasions and channels of communication make it more open and friendly, which, in turn, affects the further development of a culture of safe production at CPC. These new stages of development are quite distinguishable: an open dialogue is emerging, there is a trend of "increasing transparency" in the discussion and analysis of hazardous activities and conditions between representatives of the customer (CPC Operations Department, DBNP group) and contractors.

An increasing number of CPC employees from various functional areas, such as mechanics, instrumentation specialists, power engineers, and operational personnel, are involved in the process of forming and improving a Safe Work Culture and leadership in this area. The process is gradual, but progress is being made. And most importantly, the stereotype inherent in some employees that safety is a matter exclusively for the HSE service is becoming a thing of the past.

COMMITMENT TO THE SAFE WORK CULTURE AND LEADERSHIP FOR 2023

1. LEADERS BY PERSONAL EXAMPLE AND SUPPORT TO PROMOTE THE IMPLEMENTATION OF LEADERSHIP PRACTICES IN THE DAILY LIVES OF EMPLOYEES.
2. REDUCE THE PERCENTAGE OF VIOLATIONS ASSOCIATED WITH THE USE OF PPE OF THE ORGANS OF VISION BY 20% FROM THE CURRENT LEVEL. CONTRACTOR MANAGERS TO ENSURE TIMELY ISSUANCE AND REPLACEMENT OF PROTECTIVE GLASSES (BOTH DARK AND LIGHT).
3. INCREASE THE INVOLVEMENT OF CONTRACTORS IN THE DEVELOPMENT OF SAFE WORK CULTURE THROUGH PARTICIPATION IN TRAININGS, SEMINARS AND PRACTICAL TRAINING OF PERSONAL PERSONNEL, BOTH AT THE MANAGEMENT LEVEL AND AT THE LEVEL OF OPERATIONAL PERSONNEL.
4. REDUCE THE NUMBER OF VIOLATIONS RELATED TO NON-COMPLIANCE WITH FIRE SAFETY REQUIREMENTS: MANAGERS ENSURE TIMELY INSPECTIONS AND THE AVAILABILITY OF SERVICEABLE PRIMARY FIRE EXTINGUISHING EQUIPMENT.
5. TO REDUCE THE NUMBER OF VIOLATIONS ASSOCIATED WITH WORK AT HEIGHT: TO THE HEADS OF CONTRACTOR ORGANIZATIONS TO ENSURE A SUFFICIENT NUMBER OF EXPERIENCED SCAFFOLDING PERSONNEL AND THE REQUIRED NUMBER OF SCAFFOLDING COMPONENTS.
6. TAKING INTO ACCOUNT THE SHORT TIME FRAME FOR THE IMPLEMENTATION OF THE DBNP AND THE PRESSURE EXERTED ON THE CONTRACTORS, THE PROACTIVE USE OF THE "PLAN VS SAFETY" IS REQUIRED IN THE PLANNING OF WORK AND THE IMPLEMENTATION OF WORK BY THE HEADS OF CPC AND CONTRACTORS/SUBCONTRACTORS
7. DEVELOP AND IMPROVE METHODS OF STAFF MOTIVATION:

Positive types of motivation:	**Negative types of motivation:**
• material motivation;	• personal participation of the violator in the events to analyze the violation (public first-person account of the violation, "friendly court", etc.);
• career growth;	• disciplinary measures;
• diplomas and letters of thanks;	• penalty points (individual responsibility)
• contract bonus for organizations	

8. DEVELOPMENT AND UPDATING OF THE LEADERSHIP STANDARD, TAKING INTO ACCOUNT THE RESULTS OF ITS IMPLEMENTATION
9. JOINT PARTICIPATION OF CONTRACTORS AND CPC EMPLOYEES IN THE WORKING GROUP ON THE DEVELOPMENT OF AN ELECTRONIC WORK PERMIT

SCHEDULED CPC EXERCISES IN 2022

IN THE LAST ISSUE, PANORAMA CPC TOLD ABOUT 10 UNSCHEDULED SUMMER DRILLS AT THE CONSORTIUM'S FACILITIES IN THE CENTRAL AND WESTERN REGIONS. HERE IS INFORMATION ABOUT 13 PLANNED DRILLS S IN 2022 ALONG THE ENTIRE ROUTE OF THE TENGIZ – NOVOROSSIYSK OIL PIPELINE: WHAT, WHERE AND WHEN

LEGEND
PARTICIPANTS
ACTIONS

May 13. Isatai PS

Fire on an area of 5 m² in the switchboard of the residential block "B".

VFB of CPC-K, "Semser – Ort sondirushi" LLP, Territorial Subdivision of the Department of Emergency Situations.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts B), cooling of adjacent structures of neighboring residential blocks (shafts A and B). Fire suppression, elimination of consequences

July 26. Atyrau PS

Oil seepage at the site of the main pumping station, spill (100 m²), fire.

VFB of CPC-K, "Semser – Ort sondirushi" LLP, Territorial Subdivision of the Department of Emergency Situations.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts Purga-30, Purga-5, GPS-600, LS-P-20U, MID FORSE). Cooling of main pumps and neighboring buildings (shafts A). Fire elimination, localization and spill response.

August 12. Ural River (209th km)

Oil seepage in the area of the underwater passage. Spill on land (200 m²) and water (2500 m²).

Atyrau ERC, Territorial Subdivision of the Department of Emergency Situations, MM Security LLP.

The patrol group took priority measures. The oil pipeline was stopped by the OCC dispatcher, the section was cut off by ball valves, security posts were set up. Spill containment and liquidation, repair of the oil pipeline section.

August 17. PS-7

Depressurization at the filter site, oil spill (744 m²), fire.

VFB of CPC-R, Kuban Fire Protection LLC.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A), cooling of structures (shafts B). Fire suppression, localization and spill response.

May 30. Astrakhanskaya PS

Depressurization of equipment during repair of dirt filters at the site, oil spill, fire.

VFB of CPC-R, Protection LLC.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A), cooling of structures (shafts B). Fire suppression, localization and spill response.

September 21. 32nd km

Oil seepage at the 32nd km of main oil pipeline with an approximate volume of 10 m³ on an area of 50 m². Excavator fire and oil-contaminated soil. 1 victim.

Tengiz ERC, Territorial Subdivision of the Department of Emergency Situations, MM Security LLP.

ER security service has introduced a restricted access mode to the accident zone. The patrol group took priority measures. The oil pipeline was stopped by the OCC dispatcher, the section was cut off by ball valves, security posts were set up. The victim received medical assistance. Spill containment and liquidation, repair of the oil pipeline section.

June 30. Kurmangazy PS

Fire on an area of 5 m² in the switchboard of the residential block "B".

VFB of CPC-K, "Semser – Ort sondirushi" LLP, Territorial Subdivision of the Department of Emergency Situations.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A), cooling of adjacent structures of neighboring residential blocks (shafts B). Fire suppression, elimination of consequences.

June 15. PS-4

Oil seepage at the filter site of main pipelines, spill (744 m²), fire.

VFB of CPC-R, Spetsmontazhavtomatika LLC.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A), cooling of adjacent structures of neighboring residential blocks (shafts B). Fire suppression, elimination of consequences.

November 16. 873rd km

Oil seepage from the pipeline in the immediate vicinity of the valve V0872. Spill on land.

VFB of CPC-R, STARSTROY ERC, Nachin Private security company LLC.

The patrol group took priority measures. The oil pipeline was stopped by the OCC dispatcher, the section was cut off by ball valves, security posts were set up. Spill containment and liquidation, repair of the oil pipeline section.

September 7. PS-2

Depressurization of equipment during the repair of the main pumping station. Oil spill, fire.

VFB of CPC-R, Cryoservice LLC.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A), cooling of structures (shafts B). Fire suppression, localization and spill response.

October 25. Komsomolskaya PS

Explosion of a steam-air mixture as a result of a discharge of static electricity in a tank with diesel fuel (1000 m³), oil spill on land, fire. 1 victim.

Volunteer Fire Brigade (VFB) of CPC-R, Cryoservice LLC.

Stop pumping, evacuation. The victim received medical assistance. Fire extinguishing using calculations of mobile equipment (shafts A), cooling of structures (shafts B). Fire suppression, localization and spill response.

June 30. Emba River (83rd km)

Oil seepage in the area of the underwater passage on the left bank with ingress into the water (100 m²).

Tengiz ERC, Territorial Subdivision of the Department of Emergency Situations, MM Security LLP.

The patrol group took priority measures. The oil pipeline was stopped by the MCC dispatcher, the section was cut off by ball valves, security posts were set up. Spill containment and liquidation, repair of the oil pipeline section.

September 22. Tengiz PS

Short circuit in the closed switchgears 10 kV cell, fire.

VFB of CPC-K, "Semser – Ort sondirushi" LLP, Territorial Subdivision of the Department of Emergency Situations, TCO Fire and Emergency Service.

Stop pumping, evacuation. Fire extinguishing by crews of mobile equipment (shafts A and B), cooling of structures (shafts B). Fire suppression, elimination of consequences.

AUTHOR
DMITRY KONSTANTINOV

COMPLETE CONTROL

NOVEMBER 23 MARKED THE 60TH ANNIVERSARY OF IGOR MISHCHENKO, HEAD DISPATCHER OF THE OCC, THE PERSON WHO ACTUALLY KEEPS HIS FINGER ON THE PULSE OF THE TRANSCONTINENTAL OIL PIPELINE 1511 KM LONG

Igor Ivanovich, CPC Panorama congratulates you on your anniversary and asks you to share the details of your biography.
Thank you. I was born in Transbaikalia, the village of Dauria. The nomadic lifestyle of the officer's family — many times we moved to the place of service of the father. I graduated from the Ulyanovsk Higher Military Technical School named after Bogdan Khmelnitsky with a degree in mechanical engineering. Then 22 years in the army, pipeline troops, East Germany. I finished my service as a unit commander, head of a fuel depot. In December 2000, I started working at CPC.

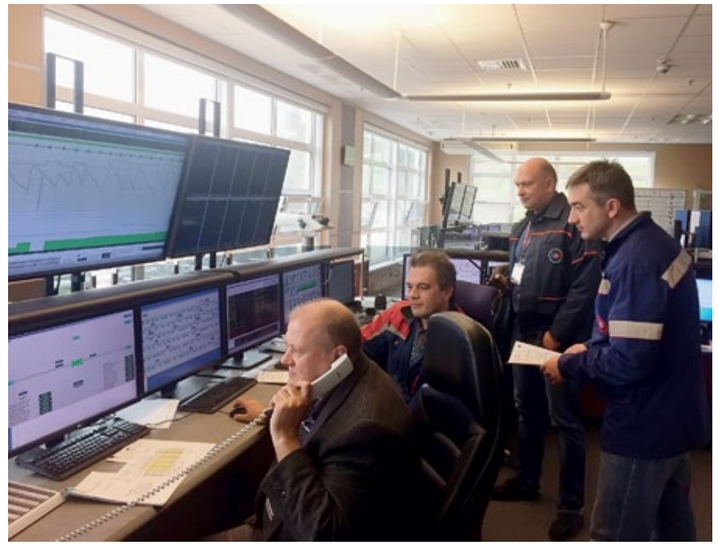
When and how did you head the OCC?
The management of the Consortium recruited 10 dispatchers, we were trained at the Chevron Corporation. I was appointed chief dispatcher in the spring of 2001. I had to comprehend a lot on my own, build the work of the dispatch service with my own hands, create the Operations Control Center at the Marine Terminal.

That is, the oil has not yet been shipped, but the OCC was already working?
Yes. Since March 2001, the pipeline has been filled with oil from the Tengiz field. Initially, there was one Tengiz pump station in operation, then the Astrakhanskaya PS was connected. For some time they worked as two stations and there were two consoles in the OCC — two dispatchers per shift. In autumn 2001, the first tanker was shipped. Then there was the Expansion Project, new pump stations and the third SPM were launched. We currently have three dispatchers on a shift. Two manage the linear part (sections of Tengiz PS — Komsomolskaya PS and Komsomolskaya PS — MT Tank Farm), the third controls the Marine Terminal Tank Farm and shipment from SPM.

What responsible decisions have to be made by the OCC — the leader and the team?
The main task of the dispatch service is to maintain safe remote control of the pumping and unloading process. The experience of exercises and real situations shows that in an emergency, the dispatchers of the OCC act promptly and efficiently. In general, we cope with the challenges of the time.

The SCADA system - how difficult is it to master?
SCADA is a well-designed, conveniently organized tool. In order to work in this system, the dispatcher does not need special training courses, it is enough to study the methodological manual. With the modernization of 2016, our SCADA has become even better, more convenient, more intuitive.

Does the corporate training program provide special training for dispatchers?
Yes, our specialists annually undergo training at specialized universities, such as the Russian State University of Oil and Gas (NRU) named after I.M. Gubkin and Ufa State Oil Technical University.



it will be possible to ship oil from three SPMs to three tankers simultaneously. Will the dispatching staff be expanded in connection with this?
The management is aware of this issue and the decision will depend on the increase in loading volumes. With an increase in the load, it will be necessary to introduce additional tanker loading dispatchers into the service. This will increase the safety level of the tanker loading process.

NOVOROSSIYSK IS FIRST OF ALL A HARDWORKING CITY

During the pandemic period, the OCC had a special mode of operation, how effective was it?
The main idea was to protect and restrict dispatchers from contacts with other CPC personnel and with the outside world in general. To do this, we have allocated personal transport for each shift. Dispatchers did not intersect with each other, the shift was transferred remotely, every day they passed PCR tests. If at normal times outsiders were allowed into the OCC by agreement, then no one was allowed in during the pandemic. During the period of epidemiological restrictions, no questions or problems arose in the work of the OCC.

When three LACTs start operating at the Marine Terminal, if necessary,

Igor Ivanovich, you are a direct participant in all of CPC's more than 20-year production activities. What period, in your opinion, was the most labor-intensive, what event was the brightest?
It was interesting to learn everything new. And when the work entered the usual rhythm, in my opinion, all periods were relatively even in saturation and all events were bright. The oil pipeline constantly increased its capacity, new stations were put into operation, new equipment was introduced, new shippers were connected. The people who control the entire pipeline system actually come across something new every day, so you don't get bored.

Do you have time for hobbies?
In my youth I played volleyball and basketball, now my main hobby is fishing. From time to time we go out to the Volga, to Astrakhan, to the Oka, where my children live. If the desire to go fishing spontaneously comes - then to the Kuban River or the sea.

What is your biggest catch?
Once, from a boat, I caught a 12 kg katran shark in the Black Sea. That was about 10 years ago, now such are not found. Horse mackerel pecks mainly.

How does a local resident think — can Novorossiysk be considered a resort city?
Of course not. Novorossiysk is first of all a hardworking city. I would like further improvement in the field of recreational areas, but there is no way to get away from industrial sites. Over the past 20 years, the city has certainly changed for the better. From friends who come to visit, we hear only raptures: how clean the streets are, what a beautiful embankment!

AUTHOR
PAVEL KRETOV

APPROACH WITH INTEREST

IN SEPTEMBER 2022, THE MANAGER FOR OPERATION AND MAINTENANCE OF THE WESTERN REGION PAVEL MOSKATOV CELEBRATED HIS 50TH ANNIVERSARY. TELLING ABOUT HIS LIFE AND LABOR WAY, HE MOST OFTEN SAYS THE WORD "INTERESTING"

It was interesting to study as a system engineer at the Krasnodar State Technological University, which Pavel Georgievich graduated from in 1994. It was interesting to start working at Transneft PJSC as an instrumentation locksmith at the Krymskaya LODS.

"Transneft is a good school, where they taught everything that was not in the university program. I gained valuable experience in the fields of instrumentation, electrochemical protection, automated control systems", says Pavel Moskatov.

The 1990s were a difficult period in the history of the largest oil transportation company, whose team made heroic efforts in the full sense of the word to maintain numerous operating facilities in working order, ensuring readiness for a new stage of growth and development. Employees were actively involved in the repair of equipment, introduced additional methods of diagnostic control, newest automation system for PS's and linear part. In Transneft Pavel Moskatov worked way up from instrumentation locksmith to the ACS TP service head.

A new interesting period in the life of Pavel Georgievich began in 2001, when he moved to work at CPC.

"In the Consortium, I started working anew as an instrumentation technician at Kropotkinskaya PS", continues Pavel Moskatov. "In terms of the composition of the facilities, it was similar to the Krymskaya LODS: a tank farm, main and back-up pumps, but, of course, with more modern imported equipment. The main difference is gas turbine units. They provided and continue to provide the entire need of the station for electricity.

It was with the laying of the CPC trunk line that the branch of oil pipeline transportation came to the predominantly agricultural Caucasian region with the center in the city of Kropotkin. And it was founded here by former employees of the Krymskaya LODS.

For five years at Kropotkinskaya PS, Pavel Moskatov worked as a shift supervisor and managed all auxiliary equipment. Then, after completing an eight-month training course, he became a dispatcher at the CPC Operations Control Center in Yuzhnaya Ozereevka.

"Managing the entire oil pipeline from Tengiz to Novorossiysk is also extremely interesting", Pavel Georgievich notes. In the OCC you are one on one with all the equipment. Of course, you can be prompted if necessary, but physically everything depends only on you, especially at night, when changing technological modes, starting and stopping objects".

Pavel Moskatov learned the profession of a dispatcher thanks to all his previous work experience at Transneft and CPC. Even being 1.5 thousand km away from the valve being opened at the Tengiz PS, he imagined it not as an impersonal diagram on a computer monitor, but as a line-of-sight mechanism set in motion.

The same craving for live work

in production, the constant need to keep the equipment in sight outweighed the passion for the work of the dispatcher, and Pavel Georgievich returned to Kropotkinskaya PS two years later as deputy manager of the station.

In the first half of the 2010s, Kropotkinskaya PS went through a period of major modernization as part of the CPC Pipeline Expansion Project. Additionally, a pressure mitigating system, three gas turbine pumping units, one back-up unit, a fire station, two SVT-50 000 tanks were built.

"The work was in full swing, the project was carried out by a large number of builders, so I had a lot of live communication with contractors", Pavel recalls. "The experience gained was useful later, when I was appointed head of PS-8".

In 2015, they began to mount PS-8 from scratch – Pavel Moskatov was at the construction site, as they say, from the first peg. This process was not easy: the construction was carried out according to an atypical project: the site was located in the foothills at several levels. Contractors from VELESSTROY LLC advanced at an accelerated pace, even despite the fact that only about 2,000 minor changes had to be made to the construction project. Adjustments were made, for example, to the slope finish, the road between the station and the additive injection site, the culvert system, etc.

"Today, PS-8 is one of the most beautiful CPC stations, where the operating personnel are comfortable, pleasant and, most importantly, safe to work", Pavel Moskatov is convinced.

Now Pavel Georgievich is working in the Krasnodar office as Manager for Operations and Maintenance for the Western Region of CPC. And it's not office work either. At least once a month, he personally visits all facilities located in the Krasnodar and Stavropol Krai: five oil pumping stations, four emergency recovery points, start-up and reception cameras for diagnostic devices, linear valve assemblies, underwater crossings, mountainous areas, etc. And everywhere the daily systematic work continues to improve the overall level of reliability of the CPC pipeline system.

AUTHOR
DMITRY KONSTANTINOV

AHEAD OF THE CURVE

IN NOVEMBER, EVGENIY ANATOLIEVICH MALYSHEV, SERVICE HEAD OF THE TRANSPORT SECURITY, CELEBRATED HIS 60TH BIRTHDAY

Evgeniy Malyshev was born on November 4, 1962 in the Rostov region. In 1986 he graduated from the Kiev Higher Military Engineering School of Communications named after M.I. Kalinin, then served in the airborne troops. After being transferred to the reserve in 2002, he joined the Maritime Security Service.

"At first, there was not enough knowledge on the organization of the work of the seaport, I had to independently study everything from scratch using textbooks for cadets of maritime academies", Evgeniy Malyshev admits. "While going on business trips, I met the captains of seaports and heads of maritime administrations, who taught me a lot. These were unique people, managers and specialists at the same time, who knew absolutely everything about maritime transport, ports and ships. I still remember with gratitude and respect Yuri Vladimirovich Lebedev (seaport of Vostochny), Vladimir Vladimirovich Erygin (seaport of Novorossiysk), Vasily Grigoryevich Belyaev (seaport of Kaliningrad), Sergei Sergeevich Yastrebtsev (seaport of Arkhangelsk), Alexander Vitalyevich Dmitriev (seaport of Murmansk)".

In the Maritime Security Service, Evgeniy Malyshev headed the Port Facilities Security Department. The main task of the department was to organize the implementation of the requirements of the International Ship and Port Facility Security Code, which was adopted by the International Maritime Organization (IMO) after the terrorist attacks in the United States on September 11, 2001.

OSIJEK AIRFIELD, 1995

"There was an introduction of requirements to ensure the safety of ships of international voyages and sea terminals interacting with them", Evgeniy Malyshev recalls. "In the process of getting acquainted with the seaport of Novorossiysk, I also visited the CPC Marine Terminal. At that time, there were only two terminals with single-point moorings in Russia: at CPC in Yuzhnaya Ozereevka (three SPM) and at Rosneft in De-Kastri (one SPM). Over the years of work in the Maritime Security Service, I had a chance to visit many oil terminals of the seaports of Kaliningrad, Arkhangelsk, St. Petersburg, Slavyanka, and, in my opinion, they are the most technically complex facilities".

In 2010, Evgeniy moved to work at FORS Research Center. The organization conducted expert research for various ministries and departments, designed and implemented complexes of technical security equipment at industrial facilities, seaports and terminals. In addition, FORS Research Center carried out analytical work related to the assessment of the vulnerability of a number of facilities of the Ministry of Transport, the Ministry of Energy and the Ministry of Defense of Russia, including Sochinskaya TPP, Kaliningrad TPP, Sredne-Nevsky Shipbuilding Plant, Severo-Zapadnaya TPP, Tiksi Airport, a number of sea terminals in Russian ports.

"Considering the increased terrorist threat at the beginning of the 21st century in relation to various objects of transport and industry, the department that I headed at FORS Research Center LLC, based on information received from open sources about terrorist acts committed by various groups in Russia and foreign states, developed own methodology for assessing the vulnerability of industrial, energy and transport facilities", Evgeniy Malyshev shares his experience. "This allowed a more objective approach to determining the category of an object and developing the necessary preventive security measures".

Evgeniy Malyshev has been working at CPC since 2017. He says that the scale of the company, which he previously knew only from the Marine Terminal, pleasantly surprised.

IN THE MARITIME SECURITY SERVICE

"There is a special atmosphere in CPC, not similar to my previous places of work", Evgeniy Anatolyevich admits.

In 2020, Evgeniy Malyshev headed the Transport Security Service of Corporate Security Department. As he explains himself, the division was formed in connection with the latest version of the 2007 Federal Law No. 16-FZ "On Transport Security", which introduced specific requirements for marine terminals, which include the transport infrastructure facility "Marine Terminal – Shore Facilities (TIF MT-SF).

ON A RAID BOAT

A.V. BEREZHANOV, V.A. SHMAKOV, E.A. MALYSHEV

The service is staffed by personnel with higher military and naval education. The range of tasks for ensuring the security of the TIF MT-SF has expanded due to the emergence of threats to the use of UAVs, as well as potential threats associated with the expansion of the circle of persons with access to the facility. In addition, a checkpoint across the state border of the Russian Federation has been established on the territory of the TIF MT- SF, which imposes on the Service a special responsibility for organizing and monitoring compliance with regime requirements within its borders.

allowed to apply a fairly wide range of measures, then in relation to, for example, UAVs, such measures are largely limited by the current legislation".

The competence of the Service includes participation in the recruitment of personnel directly related to ensuring transport security, organization of training and certification, exercises, control of duty by the personnel of the transport security unit.

AT PRESENT, THE SECOND LEVEL OF SECURITY HAS BEEN ESTABLISHED ON THE TERRITORY OF THE TIF MT-SF

"At present, the second level of security has been established on the territory of the TIF MT- SF, which implies a number of restrictions for CPC personnel and contractors", emphasizes Evgeniy Malyshev. "At the same time, if in relation to individuals and vehicles that are violators of the safety requirements established by law, the personnel of the transport security unit are

"I would like to express my special gratitude to the CPC engineering and technical staff for their help in studying technological processes", says Evgeniy Malyshev.

The quality of security today directly depends on equipment and technology. Threat sources are technically improving every year, security services must work ahead of the curve.

"The level of equipping TIF MT- SF with technical security equipment, in my opinion, is quite high and continues to increase annually", notes Evgeniy Anatolyevich. "I have witnessed such situations when sea terminal operators (stevedoring companies) considered the technical equipment of their facility to be a secondary matter. This is understandable: technical systems that provide even an average level of facility security are very expensive and there is a great temptation to save money. And such systems do not bring profit, but they still need to be serviced and repaired... At the same time, I must note that the inextricable link between the stable operation of the oil pipeline and the transfer of oil to tankers with ensuring safety is understood by the company's management.

Thanks to this, the equipment with technical security means is at a high level, not inferior to such facilities as the St. Petersburg Oil Terminal, Kozmino Special Marine Port, terminals in Aniva Bay and in the port of Primorsk.

Evgeniy Malyshev has a hobby: he collects coins with images of people. There are no rare ones in the collection, but there are interesting ones, for example, the Czechoslovak 50 and 100 crowns of 1947 - the only coins in the world where the profile of Stalin was minted. There is an English 25 shilling, the coin minted in honor of the wedding of Prince Charles and Princess Diana. There are 10 Chilean pesos in 1973 with an angel tearing the shackles (the coin was issued not by the Allende government, but by the Pinochet regime on the anniversary of the coup).

You can talk with Evgeniy Anatolyevich about Russian ports and Venezuelan bolivars for a long time, learning a lot of interesting things.

AUTHOR
PAVEL KRETOV

DISTANCE, INTUITION, OPTIMISM

THE DECISION-MAKING PROCESS IS RARELY SIMPLE. EVEN THE MOST DEFINITE PEOPLE SOMETIMES HAVE DIFFICULTIES IN UNDERSTANDING WHAT IS BEST TO DO. HOW TO INCREASE THE EFFICIENCY OF DECISION-MAKING AT WORK?

The Russian "resolve" comes from the Old Slavic word "reshiti", which meant "to untie, to free". The English decide has its roots in the Latin caedere, meaning "to cut off". In fact, the decisions made free us or cut us off from other options that we have considered in the process of thinking. It is important to distinguish between reversible and irreversible solutions. Former Amazon CEO Jeff Wilk called them one-way doors and two-way doors. Having entered the first, one cannot return to the original state; in the second case, the solutions are reversible and allow one to experiment.

When preparing to make an important and responsible decision, experts advise, first of all, to try to psychologically distance yourself from it, because, as the poet Sergei Yesenin accurately noted, "You cannot see a face face to face. The big one is seen at a distance". in more detail. Secondly, imagine that you are considering this decision not for yourself, but advise a friend. Third, try to imagine that you are not making a decision, but

BY MAKING DECISIONS IN THE ALLOTTED TIME, YOU CAN INCREASE THE PRODUCTIVITY OF THE ENTIRE WORKING DAY

Back in the 16th century, the Spanish priest and theologian, founder of the Jesuit order, Saint Ignatius Loyola, proposed three ways to achieve such detachment. First, you can immediately exclude the most preferred option in order to consider the rest are evaluating a choice already made many years ago. Would you approve of it today?

A similar methodology is followed by one of the most successful investors of our time, Warren Buffett. When making critical decisions, he uses the 10/10/10 method. To begin, ask yourself how you will feel about today's decision in 10 days. Will this attitude change in 10 months? And in 10 years?

Renowned psychologist and researcher Gary Klein believes that to make any important decision, the first step is to overcome excessive optimism. He suggests imagining yourself in the future and that the choice you made led to failure, trying to describe the gradual development of negative tendencies. So you can identify previously invisible flaws in the plan.

One of the most common mistakes when making important decisions at work, experts consider constant obsession with the problem, distracting from all other tasks in the background. The fact is that the "RAM" of the human brain has a limited resource and, focusing on something, people literally "go blind", not noticing other obvious things.

Christopher Chabry and Daniel Simons described in their book "The Invisible Gorilla" an experiment involving thousands of subjects. They were shown a short report on a basketball game, and asked to count the number of passes made by the players of only one of the teams, ignoring their opponents. About halfway through the video, a man dressed as a gorilla ran out onto the set. As a result, almost half of the viewers, immersed in the count, did not notice anything unusual at all. The participants of the experiment, who did not receive such a task, in turn, saw the "gorilla".

This means that by making decisions in the allotted time, you can increase the productivity of the entire working day. It could be your lunch or a 15-minute break that you take to get up from the table and take a walk. Put aside your routine work and give yourself a certain amount of time to make one or two choices instead of letting them distract you all day.

There is another extreme. When making an important decision, we are tempted to make a quick choice, succumbing to a perceived sense of urgency. In this case, most likely, even the most non-lazy brain will prefer an intuitive answer to a rational one. Nobel Prize winner Daniel Kahneman described how it works in his book "Thinking, Fast and Slow".

American university students were given a simple problem: "A ball and a baseball bat cost $1.10 together. The bat costs a dollar more than the ball. How much does the ball cost? The answer "10 cents" automatically comes to mind. But if you double-check yourself: 10 cents for the ball, 1 dollar (which is their difference in price) and 10 cents for the bat, then the total cost will be 1 dollar 20 cents, which contradicts the condition of the problem. So, more than 50% of students at leading US universities – Harvard and Princeton universities and the Massachusetts Institute of Technology – gave the wrong answer. And in simpler educational institutions, more than 80% of the participants in the experiment trusted the wrong hint of intuition.

However, this does not mean at all that intuition should be discarded. Kahneman recalls that for a professional with extensive experience, intuition is recognition, rapid work with information stored in memory. It is the intuition who allows the fireman to jump out into the street a moment before the collapse of the burning building, the scout – with one glance to identify the point of an enemy ambush on the ground. It's not a miracle that a grandmaster determines the complexity of a position in a second – it's at least 10,000 hours of hard chess training.

This advice of experts will not be unexpected: it is better to make decisions not alone, but together, especially when the result will affect the entire team of people. Brainstorming will deepen the analysis, lead to new ideas.

ALEXANDER NEMKOV,
SERVICE HEAD, CAPITAL CONSTRUCTION AND REPAIRS FOR MARINE TERMINAL, CPC-R:

«When making an important decision, there should be two aspects. The first is to study the topic from a technical point of view, collecting the opinions of all relevant specialists. The second is to form your own opinion. The more important the decision, the more carefully you need to listen to your inner voice.

Therefore, I spend a lot of time collecting comprehensive information and discussing it with colleagues. I try to keep nothing to myself and get as many points of view as possible. Collective risk assessment is not an empty phrase. I do this both at work and outside of it, for example, when planning something in family life. After all, the best decisions are always collegial. When you make decisions collectively, colleagues are more enthusiastically involved in their implementation.

After collecting information, a new stage begins. It is necessary to abstract a little, to look at the task from the side. I think that it is impossible at the moment of making a decision to be completely immersed in this topic – for greater objectivity.

LIDIYA ISMAGILOVA,
SERVICE LEADER, ELECTRONIC DOCUMENT MANAGEMENT SYSTEM, CPC-R:

«There are many effective methods and tools for choosing a solution to achieve the goal. These include risk analysis (quantitative and qualitative assessment), decision tree (graphical display of alternative actions), theory of preferences and benefits (change in individual attitude to risk) and others.

Personally, I try to follow an intuitive decision-making pattern. In the long term, when the deadlines are set, but there is time for reflection, it is necessary to understand the availability of available options, analyze for pros and cons, develop criteria for evaluating results, evaluate options and choose the best.

But when it comes to risk uncertainty and tight deadlines, the worst strategy is to succumb to emotions! Here you need to turn on logic and critical thinking to suppress impulsivity: distance yourself from the hustle and bustle, not give in to panic, no matter how force majeure the situation may be. It is important to keep in touch with positive people; personally, such communication can push me to generate new ideas. Team spirit, cohesion and discussions with colleagues, like nothing else, helps to make the right decisions in difficult situations.

And proactivity is also important, when you think through the consequences of the decision in advance: "what result will I get?" or "what will I lose or gain?". In this case, I imagine for a couple of minutes that the choice has already been made and how it affected the overall situation – in a positive or negative way.

AUTHOR
PAVEL KRETOV

GUARDIANS OF NATURE

IT'S EARLY MORNING IN THE BLACK LANDS NATURE RESERVE. ARMED WITH CAMERA WITH "LONG-RANGE" TELEPHOTO LENSES CPC PANORAMA CORRESPONDENTS SET UP IN SKRADKA. THIS IS SUCH A MINIATURE SHED OF BOARDS, SLIGHTLY ASKEW, BUT NOT FROM OLD AGE AND WIND, BUT BECAUSE OF WILD HORSES WHO LOVE TO SCRATCH ON THE SIDE DESIGN

The purpose of our photo hunting is saigas coming to the watering hole. Animals are fast and timid, their caution largely depends on the air temperature. If in the heat they literally rush to the channel with water, being little distracted by external stimuli, then on a cooler day the steppe antelopes are "picky", approaching the water only when they are completely sure of their safety. Today is a relatively cool day. This means that you need to be especially quiet in skradka.

And here are the saigas. The distance to them is more than a kilometer, and only through binoculars can one understand that the herd is moving towards the reservoir. Minutes stretch in tense expectation. The animals are getting closer, the sounds they make are already clearly audible – something between lowing and grunting. But suddenly, a few meters before the canal, when the photographers' fingers were already on the shutter buttons, the herd suddenly turns around and, raising columns of dust, rushes back.

"It is not at all necessary that the saigas have discovered any real danger", explains Bataar Ubushaev, director of the reserve. "Since predators can wait for them at watering places, saigas are very timid here and they can be frightened even by a bird suddenly fluttering out of the bushes, or reeds swaying from a sharp gust of wind".

Someone had plenty of caution that day: three more times the herd, literally from the last frontier, ran into the steppe before settling down for a watering place. And that's when the photography finally began.

CPC has been cooperating with the Black Lands Nature Reserve since 2016. During this time, artesian wells were drilled (the water from which not only saigas, but also wild horses, wolves, foxes, hares, larks, cranes), and special equipment was purchased. In 2022, as part of the environmental education project "Protect Nature of Our Native Land", CPC once again handed over various equipment to scientists for air patrolling the reserve, scientific research and protection of the territory. 2022 list includes DJI Mavic 3 quadcopter and SEELOCK S308 camera traps.

"We were really waiting for the new drone, because the old one broke down", says Sergey Bogun, deputy director of the reserve for scientific work. "DJI Mavic 3 belongs to mass models, but compares favorably with increased battery capacity, good photo and video quality".

Another important advantage of the new quadcopter is its low noise. This makes it possible to observe saigas and colonial bird species on the islands of Lake Manych-Gudilo closer. During nesting, scientists try not to disturb them, and the drone will allow them to continue to conduct effective accounting.

The camera trap is also an indispensable modern device for the workers of the reserve. About 50 pieces daily transmit information to scientists, allowing them to record new species of animals, study their habits, and use mathematical methods to calculate the number of saigas.

From 2015 to 2022, the number of almost extinct steppe antelopes in Kalmykia almost quadrupled and now numbers about 18,000. Of these, 19.5% are adult stags, which corresponds to the best indicator achieved in Soviet times. This balance allows us to continue to expect good growth rates. For example, this year there are 1.3 young animals per female. For comparison: in the USSR, the same coefficient was no more than 1.2.

BATAAR UBUSHAEV

"I hope that the day is not far off when saigas, following their genetic memory, will return to their former habitats in Kalmykia: Sarpinsky, Ketchenerovsky, Yustinsky, Oktyabrsky. And there the inhabitants of Elista will see them", Bataar Ubushaev says this dreamily and with visible enthusiasm.

In order for such dreams about the future to come true as soon as possible, the effective work of other environmental structures in Kalmykia is also important. This year, within the framework of the project "Protect Nature of Our Native Land", CPC purchased a quadrocopter, radio stations, a camera and other necessary equipment for the Directorate of Specially Protected Natural Areas. A subordinate institution of the republican Ministry of Natural Resources and Environmental Protection controls nine nature reserves, ten natural monuments and one natural park.

VLADIMIR BADMAEV

"This equipment will help us control nature almost throughout the entire territory of Kalmykia, on an area of 7,400,000 hectares", notes Vladimir Badmaev, Acting Director of the institution. "The climate on the planet is changing, we cannot influence natural phenomena, but we are quite capable of reducing the anthropogenic factor".

The steppe republic is one of the driest Russian regions, the issue of water supply is acute here. As an aid to the region of its presence, this year CPC donated and installed drinking water purification systems in ten educational institutions in the Iki-Burulsky and Chernozemelsky districts of Kalmykia. This equipment was installed in kindergartens "Torga" and "Bair" in the village of Komsomolsky, kindergarten "Bairta" in the village of Iki-Burul, as well as in secondary educational schools: Sarulskaya, Yuzhnenskaya, in schools named after N.S. Mandzhieva and B. Basangov in the village of Komsomolskoye, in the Orgakinskaya secondary school named after E. Chonoskaev and in two buildings of the Iki-Burul secondary school named after A. Pyurbeev.

CPC Panorama reportes talked to Lidiya Lidzhiyeva, director of the school named after A. Pyurbeev.

FROM 2015 TO 2022, THE NUMBER OF STEPPE ANTELOPES IN KALMYKIA ALMOST QUADRUPLED, AND TODAY THERE ARE ABOUT 18 THOUSAND ANIMALS

The cooperation of the oil transportation company with this school has a long history. In August 2022, a major overhaul was nearing completion in the senior school building, and therefore the conversation took place in a room for younger students, which, in turn, was reconstructed in 2014 with the Consortium's charitable funds. And in 2022, oil pipeline workers built a modern multifunctional sports stadium for schoolchildren.

LIDIYA LIDZHIYEVA

"Previously, we had to buy water, but now we are fully provided with it for both cooking and drinking", notes Lidia Lidzhieva with gratitude. "After purification, the water is soft, pleasant to the taste".

Every year, CPC replenishes the budget of Kalmykia by about 2.5 billion rubles from tax deductions. This year, the head of Kalmykia, Batu Khasikov, and CPC General Director Nikolay Gorban signed a new five-year Cooperation Agreement between the Consortium and the Republic. In accordance with the document, the CPC continues to actively support a number of socially significant areas of the life of the republic: healthcare, education, culture, children's sports, as well as providing targeted assistance to the least socially protected groups of the population.

AUTHOR
PAVEL KRETOV

ON TOUR WITH ARANZAL

THE DANCE ART OF KALMYKIA IS A REAL TREASURY OF THE CULTURAL HERITAGE OF A NOMADIC PEOPLE WITH A CENTURIES-OLD HISTORY. FOR MORE THAN 30 YEARS THE UNIQUE TEAM OF THE STATE DANCE THEATER "OIRATS" MADE A SIGNIFICANT CONTRIBUTION TO THE PRESERVATION, DEVELOPMENT AND POPULARIZATION OF NATIONAL STAGE CREATIVITY

The Oirats are the ancestors of modern Kalmyks, an ancient nomadic people with a distinctive culture. The founder and artistic director Petr Nadbitov tells about the first steps of the theater.

"In 1990, we created the theater on pure enthusiasm: we had no transport, no costumes, no financial resources, no salary", recalls Petr Timofeevich.

For the first time, Petr Nadbitov presented his performances (as part of the Tulip Ensemble) in Moscow in 1978 and they were viewed by a representative commission headed by the outstanding choreographer of the Bolshoi Theater Igor Alexandrovich Moiseev. The master, who himself created the Kalmyk dances "Soaring Eagle" and "Two Horsemen" in his USSR Folk Dance Ensemble, immediately highly appreciated the dance of the cranes. And the performer of the hare dance, shown on all-Union television, the very next day became known throughout the country, from Kaliningrad to Vladivostok.

The career of Petr Nadbitov was marked by high titles and awards: Honored Artist of the Russian Federation, Honored Artist of the Chechen Republic, Honored Artist of the Kalmyk ASSR, Laureate of the State Prize of the Kalmyk ASSR named after O.I. Gorodovikova, laureate of the prize of the "Ballet" magazine in 2016 in the nomination "Knight of folk dance", holder of the Order of Friendship, Hero of Kalmykia.

PETR NADBITOV

As a choreographer, Petr Nadbitov created such musical and choreographic performances that the audience loved, such as "The Kalmyk Friend of the Steppes", "The Great Silk Road", "Journey through the East and the Countries of the Himalayas", "Pushkin and the Kalmyk Woman". According to art historians, these works have become not only an event in the cultural life of the Republic of Kalmykia, but also an innovative experiment, a bold step forward in the development of folk dance art in Russia. Today, performances by choreographer Vladimir Nadbitov have organically joined the theater's repertoire.

"I try to convey what I see and feel", says Vladimir. "An idea, a plot is born from images. Here, for example, is "Old Photography", set to a rhapsody by the first professional composer of Kalmykia, Petr Chonkushov.

The libretto is based on the story of a Russian army officer preparing for the First World War. Before leaving, the wife offers to invite a photographer and take a photo together. Fixing her hair in front of the mirror, she sees her reflection in mourning attire. Although the photo shoot did not work out, the story still ends happily – years later, the officer returns unharmed from the war.

Another new performance is "The Legend Revived", which had the working title "Night at the Museum". The story begins with a night guard walking around a hall with statues in picturesque armor of Dzungarian warriors. Not noticing anything unusual, the watchman leaves. The clock strikes midnight, and the museum hall becomes the center of magical events. The statues come to life, start dancing, compete in combat skills. This goes on for quite some time. The guard, disturbed by the noise, hurries into the hall, but does not have time – with the first ray of dawn, the statues again freeze in their places.

Today, the dance and musical art of the Oirats has become even more accessible to the audience. In August 2022, the Caspian Pipeline Consortium presented the creative team with a comfortable 59-seat MAN bus worth about 28 million rubles. Mikhail Grishankov, CPC Deputy General Director for RF Government Relations, handed over the keys to the new vehicle to the Oirats State Dance Theater of Kalmykia in the presence of the head of the Republic, Batu Khasikov. Mikhail Ignatievich wished the artists that the bus would become a convenient second home on trips, and asked them to share photos from the tour: CPC employees, feeling their involvement, would be happy to follow the creative activity of the dance theater.

"We have big plans for the further development of the republic in all areas, but everything always starts with culture. And it is important to support those who preserve and transmit our culture. I consider Petr Nadbitov and the state dance theater "Oirats" to be the real symbols of Kalmykia, our heritage", Batu Khasikov said and added that the implementation of the charity project for the purchase of a bus was greatly simplified by the artists' clear idea of what exactly the vehicle should be equipped with.

Together with Petr and Vladimir Nadbitovs, the correspondents of Panorama CPC walked through the bus cabin. The 40-degree heat on the streets of Elista was replaced by the pleasant coolness of the air-conditioned cabin. The headrests of the chairs are decorated with beautiful Oirats embroidery. For a pleasant pastime on the road, each of the passenger seats is equipped with two USB ports. No matter how long the journey is, passengers will not get bored with the multimedia system, and those who get hungry can use the on-board mini-kitchen.

Driver Nikolay Andrusik sequentially switches four options for interior lighting.

"Driving such a bus is a real pleasure", he says. "The car is a serious, three-axle, with a rear axle thruster, it requires special driver training. We will take care of it, keep it clean, timely service".

"We will take care of it", Vladimir Nadbitov nods. "We have already given the bus a nickname – Aranzal, because for us it is like a thoroughbred horse, which the Kalmyks have always treated as a friend".

The engine power of the MAN bus is 440 horsepower. Travel safety will be ensured by a tachograph, inertial seat belts, a hill-climb assist system, a rear-view camera, ABS, a stability control system.

The State Dance Theater of Kalmykia "Oirats" went on its first tour in a new bus in September 2022. The artists presented their original art to the audience of the Golden Ring of Russia festival in the Vladimir oblast.

AUTHOR
DMITRY KONSTANTINOV

WINTER HEALTH

FORECASTERS WARN THAT THIS WINTER WILL BREAK THE RECORD FOR FROSTS. FOR THOSE WHO WILL NOT ONLY SIT AT HOME BY A HEATER, BUT ALSO GET OUT INTO NATURE FROM TIME TO TIME – A FEW TIPS ON HOW TO MAINTAIN STRENGTH AND HEALTH IN THE COLDEST TIME OF THE YEAR

Roald Amundsen and Robert Scott are two clear examples of the fact that success, as well as failure, of a 3000 km polar expedition directly depends on training and equipment. The cold does not forgive mistakes, and the subjects of Queen Victoria made a lot of them, unlike the Norwegians. As the main transport, Scott chose ponies (rather than dogs) and motor sleds , which broke down almost immediately. The warehouse, vital on the way back, was placed too close to the shore, and there was not enough strength to reach it. He also didn't bother with sunglasses to protect against snow blindness. At the last moment, he took the fifth person on the expedition, despite the food supply designed for four.

Amundsen, although he landed on the coast of Antarctica later than Scott, reached the South Pole a month earlier – on December 14, 1911. And he returned alive with the whole team, albeit with shattered nerves, a half-frozen face and 10% of the original number of dogs. Unlike Scott, whose group completely died on the way back from hunger, cold and injuries.

Goran Jakus/Shutterstock/FOTODOM

DRESS CODE

The basic principles for choosing winter clothes have not changed much over the past century. Many of them were formulated by the same Roald Amundsen in his book "The South Pole", published in Christiania in 1912. In particular, the principle of three-layer clothing.

Why exactly three layers? The human body is "designed" as a heat exchanger that releases moisture through the pores of the skin when overheated. In the field, you need to be prepared for both the alternation of activity with immobility, and for sudden changes in weather conditions and external temperatures. At the same time, the clothes remain the same and, if they are not three-layered, you sweat on the run in it, you freeze on the halt and, as a result, you quickly catch a cold and get out of action.

The first, base layer is thermal underwear, woolen, synthetic or combined. No "bikini", long sleeves, full body coverage, tight fit. The "thermo" part of the word doesn't mean that the base layer is supposed to keep you warm. Its task is to remove moisture and control the microclimate, that is, thermoregulation.

By absorbing sweat, ordinary cotton underwear dries slowly and stays wet for a long time. Thermal underwear has a specially designed fiber structure that accelerates the process of moisture evaporation. Due to this, the material absorbs sweat more efficiently, dries faster and retains heat, rather than cooling, unlike a wet t-shirt.

Heritage Images/The Print Collector/akg-images/East News

THE EXPEDITION OF ROBERT SCOTT WAS A SAD EXAMPLE OF UNSUCCESSFUL PREPARATION AND EQUIPMENT

The second, middle layer of clothing should perform a warming function. The choice of materials at the current level of technology is quite extensive: wool, fleece, fluff, fur, siliconized synthetic fibers with "anisotropic" properties. At the beginning of the 21st century, synthetic heaters primaloft, hollow fiber and a number of other similar ones were experimentally obtained and widely used. Their main advantage is that underwear should not condense, but be removed to the outside.

The third, outer layer of winter clothing is designed to protect against wind and precipitation. Ideally, this should be a durable waterproof jacket and trousers made of a membrane type material with a vapor permeability function. Due to this, the middle warming layer does not get wet, and sweat vapors finally leaves the three-layer "suit".

Arms and legs, according to Amundsen, require special attention in winter conditions. In severe frost, mittens are more reliable than gloves, since fingers are faster to warm together than one by one. Legs at a certain stage of hypothermia lose sensitivity, and a person may not suspect for a long time that frostbite has already occurred.

In hard shoes, the feet will freeze faster than in soft shoes, which do not interfere with the movements of the fingers. The sole must be not only durable and wear-resistant, but

FOR A WINTER FIELD DRESS CODE, FUNCTION COMES FIRST, AND IT IS CUSTOMARY TO THINK ABOUT "STYLE" LAST

Nikita Rubilev, Jiang Zhongyan, anmbph/Shutterstock/FOTODOM

the air coming from the outside heats up, passing through the fabric with insulation, and leaving back, it does not give off heat. If such a material gets wet (in a downpour or during a river crossing), it will dry faster and even wet will not lose its warming properties, unlike down jackets and sweaters. For the middle layer of winter clothing, moisture and vapor permeability are also important, since the evaporation of thermal

FROM ROALD AMUNDSEN'S "SOUTH POLE" (1912)

"We took particular care that our sacks were made of the best grade of fur, and we took great care that the thin skin was cut from the belly. I have seen sleeping bags made of excellent deerskins deteriorate in a relatively short time because they contained pieces of thin skin from the belly in places. Cold, of course, penetrates more easily through this thin fur, and moisture forms in the bag in the form of frost from the warmth of the human body. These pieces of fine fur remain moist all the time the person is in the bag, and therefore the hair comes off in a comparatively short time. Moisture spreads further, like rotting in a tree, and more and more affects the surrounding fur, as a result of which one fine day a person finds himself lying in a shabby and bald sleeping bag. You have to be extremely careful when choosing skins. To save skins, the manufacturers of reindeer-skin sleeping bags usually sew them with a nap to the opening of the bag. This is beneficial, of course, because it more closely matches the shape of the skin. But this is disadvantageous for

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the one who will use the bag. It's already difficult to get into a sleeping bag, which is sewn so that you can barely get into it. And if you also get into the bag against the pile, then getting into it is twice as difficult. I ordered all the bags to be sewn single, with lacing around the neck. The upper part of such a thick sleeping bag was made of thinner reindeer fur so that it could be tightened more tightly around the neck. Thick fur cannot be pulled together and tied tightly around the neck as well as thin fur".

also thermally insulated. Beloved by fashion designers and British special agents, natural rubber turns out to be the least practical in winter, since it lets the cold through with air and also begins to dissolve if you step into a puddle of gasoline.

Rubber in its pure form is also a poor heat insulator, polyurethane soles or leather/plastic/rubber "sandwiches" behave much better in the cold. Size matters here, because shoes that fit perfectly on the foot without gaps will knock that foot into blood after just 10 km of walking. For the "field" you need to choose shoes one size larger, and in winter conditions try them on a "thermosock", consisting of cotton and fairly thick woolen. Like winter clothes, winter shoes should also have a warming and waterproof membrane layer. It is rightly believed that a cold comes through the legs, so it is strictly forbidden to leave them cold and wet for a long time.

Summing up the features of the winter field dress code, it is worth emphasizing that function comes first here, and it is customary to think about "style" last. The main task of such clothes is to protect the body from cold provocations and maintain health and strength to perform the main task.

DAILY BREAD

The diet of a polar explorer must necessarily include fresh meat, Roald Amundsen believed, this gives strength and improves mood. Eating sled dogs was a revolutionary idea that contributed to the success of the Norwegian expedition, but not everyone now agrees to such an extreme menu. Yes, this is not necessary, the food in the field ration should be only high-calorie, balanced according to the parameters of the CPFC and easily transportable, since you carry it on your own shoulders in a backpack.

Nuts and chocolate, by the way, have entered the menu of glamorous coffee shops from emergency ration of polar pilots. Canned meats (protein) packaged in airtight foil and paraffin paper boxes weigh less than cans. Biscuits replenish the supply of carbohydrates. Powdered milk and the same nuts with chocolate are fats. There is no need for all the remaining food variety, and, frankly, powdered milk can be unloaded from a backpack.

Coffee and tea have a tonic effect, but they are a strong diuretic. This should be taken into account if you have a non-stop driving trip or long-term covert observation of nature. Medicine believes that it is much better in such conditions to use simple boiling water that was once popular in Smolny.

It is better to boil water, even spring water, in unfamiliar places on a fire, it will not take much time, but it will save health, and sometimes life.

Alcohol in winter field conditions is prohibited. Intoxication gives a feeling of euphoria, but reduces the speed of reaction, including possible frostbite.

SELF RESCUE TECHNIQUE

Going on a hike or expedition, especially in winter, you need to understand that any injury, illness, etc. the situation may turn out to be a problem of a completely different scale than in the city.

First of all, you must know how to call for help and have the means to call for it. In the city and in general populated areas, in case of an emergency medical situation, it is better to use the number 103 (ambulance service), but far from civilization - 112 (rescue service). The same numbers are valid on the territory of the Republic of Kazakhstan. At the same time, you need to be prepared for the fact that in some cases help will not come quickly, which means that you will have to help yourself or your companions.

Sergey Alferenko

Therefore, you should have a first aid kit with you. There are a lot of recommendations on how to fill it on the Internet; but the main principle is that you should be able to use what you have in your first aid kit. No newfangled means will save you if you do not know how to use them. For those who go hiking and participating in expeditions, first aid training and regular training are a must.

The pharmacy bag, ideally, should not lie in a backpack under a bunch of things, but be attached to it from the outside or even to the belt. Everything you need in an emergency should be at hand. The list of contents is opened by medical disposable gloves, preferably nitrile, preferably several pairs. To get to the damaged area of the body, it is often necessary to cut clothes. It is better to have medical atraumatic scissors with rounded ends. Tweezers will also be useful, this tool is useful not only for pulling out splinters.

An integral part of a winter hiking first aid kit is a thermal blanket made of metallized fabric. Such a blanket measuring 2100x1500 mm weighs 50 g and, when folded, easily fits in the palm of your hand. Its task is to temporarily stop the loss of heat of the human body and avoid hypothermia. Another know-how is a hydrogel anti-burn bandage with a size of 200x300 mm. Applied to the burn area of I–III degrees, this bandage will relieve pain and prevent the lesion from penetrating deeper into the tissues of the body.

SolidMaks/Shutterstock/FOTODOM

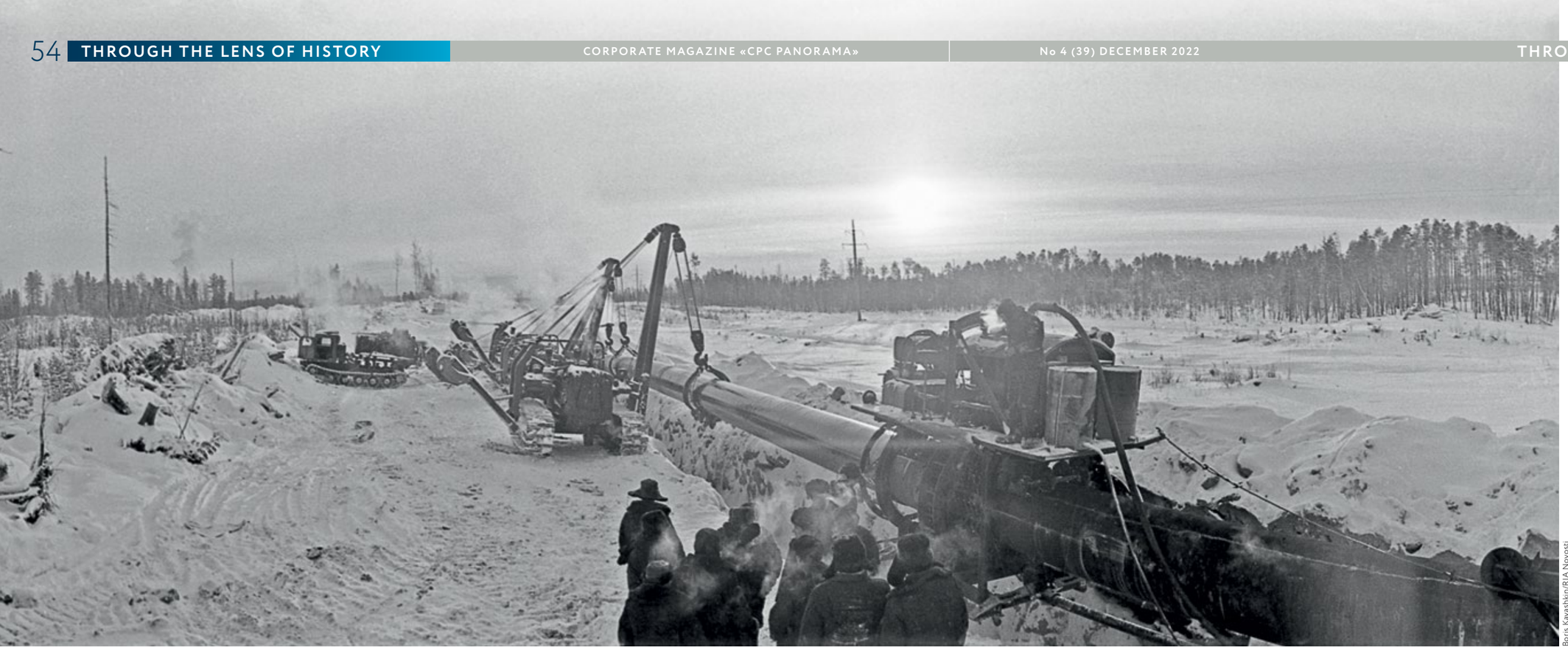
The dressing package should be preferred the most modern, compression. Additionally, non-sterile bandages of different widths and sterile gauze wipes will come in handy. An elastic bandage should also not be forgotten – it will help with sprains and other injuries. We also need all possible types and sizes of plasters: from corns, bactericidal, coil. A tourniquet that stops heavy bleeding is better than a simple tourniquet. It will be difficult to provide assistance in the dark without a headlamp, and you should not forget about the supply of batteries for it. Cotton swabs and marker? Believe me, they will come in handy too.

Medicines are needed, but only essentials. Chlorhexidine or miramistin are required for antiseptic bandaging. Analgesics will help to cope with pain, antidiarrheals will help to cope with gastrointestinal disorders, antipyretics will bring down the temperature. It's also a good idea to have gels like panthenol (for minor burns, abrasions, etc.) and voltaren (for muscle and joint pain) with you.

If the expedition member is prescribed any medications for regular use (for example, antihypertensive), they must also be taken with them. And with a margin, since the time spent on the road may not justify the calculations.

There are no medicines for depression or melancholy in the field first-aid kit, but these states of mind are completely absent in Amundsen's book. Apparently, a good amount of physical activity and the absence of individual means of communication at that time contributed to the healthy spirit of the expedition. Now, probably, the expedition leader needs to take away phones, or teach companions to sift the flow of information through a sieve of skepticism and be patient, since bad news received in the morning, as a rule, is refuted by evening.

If there is still a reason for sadness, but there is no connection, the path was covered with snow, the fuel ran out and the batteries ran out – such an antidote as the "Zeno-Pelevin" concept of worldview, which admits that events in life, if happen, they are distorted beyond recognition by the distorting mirror of our mind.



Boris Kavashkin/RIA Novosti

AUTHOR
PAVEL KRETOV

GIANT OIL PIPELINE

HALF A CENTURY AGO IN 1972 CONSTRUCTION OF THE TRANSCONTINENTAL OIL PIPELINE UST-BALYK – KURGAN – UFA – ALMETIEVSK (UBKUA) STARTED IN SIBERIA. "GIANT OIL PIPELINE" – WAS THE NAME OF THE CONSTRUCTION SITE IN NEWSPAPER PUBLICATIONS

The history of the Ust-Balyk – Kurgan – Ufa – Almetyevsk pipeline is closely connected with the development of the largest Samotlor field in the USSR, discovered in 1965. In order to create a new oil transportation route, Soviet builders in 1970 began to create a heavy-duty Alexandrovskoye – Anzhero-Sudzhensk oil pipeline. However, even before the welding of its "golden joint", the Samotlor oil workers reported that they had achieved equal indicators with the "eldest" oil producer of the country – Baku. It became clear: one oil pipeline is not enough, it is necessary to urgently build other hydrocarbon arteries.

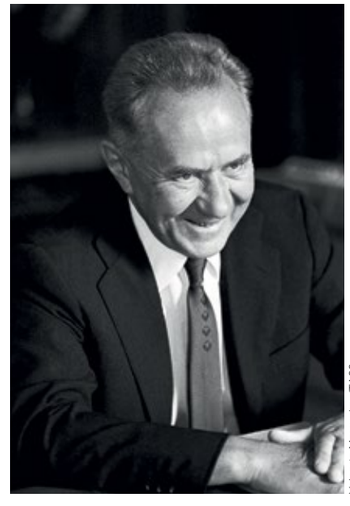
The government set the task of building a pipeline with a diameter of 1220 mm and a length of 1.8 thousand km in just 18 months, of which almost a thousand were in marshy and watered areas. The route crossed six large and almost 200 medium and small rivers, almost a thousand active communications. Overcoming the Ural Range required the development of more than 1.4 million m^3 of rock.

But it was the swamps that became the main difficulty for oil pipeliners. So, on the territory of the Tyumen region, heavy equipment could operate only in the cold season. Great hopes were pinned on the winter of 1973.

COLD WINTER OF '73

The builders prepared for the winter with all responsibility, changing the control system and gathering impressive forces. 11 general contractors and 10 specialized trusts were involved in the construction of the pipeline. The entire route was divided into four construction areas, uniting 34 sections, each of which was a complete set of technological flow, carried out under a single management without any departmental linkages. It was at UBKUA that the flow method of work production was first tested, which later became mandatory. For the installation of pumping stations, complexes for the construction of oil pumping stations were created – they were led by the heads of general contracting trusts.

And yet, the long-awaited winter began for the builders with continuous disappointments. After an unusually warm autumn of 1972 with muddy dirt roads, severe frosts immediately broke out almost without crossing – up to –50 ° C. All attempts to speed up the construction led to the breakdown of more than half of the equipment – more than 1.3 thousand machines failed. Under conditions of extremely low temperatures, it became brittle and could not withstand the metal: pipelayer booms broke, tracked tracks flew apart, engines were destroyed.



Valentin Mastyukov/TASS

ALEXEY KOSYGIN

At the end of January, Chairman of the USSR Council of Ministers Alexey Kosygin flew to the construction sites of the most important oil pipeline for the country. He held meetings in Tyumen, Ufa and Orenburg. Having learned about the difficult situation in the Tyumen region, he ordered to allocate more than 1.5 thousand pieces of equipment and about 700 different engines. The head of the Soviet government had to personally intervene in the problem of pipe shortage – then the construction of long trunk oil and gas pipelines was carried out simultaneously in different parts of the country, and metallurgists simply did not have time to satisfy all the needs. For UBKUA, the issue of extreme importance was positively resolved by a call from Kosygin

THE GOVERNMENT SET THE TASK OF BUILDING

1,8

THOUSAND PIPELINE KM
IN JUST 18 MONTHS

Ivan Sapozhkov/TASS

ON ONE OF THE SAMOTLOR DRILLING RIGS. 1970

to the director of the Chelyabinsk Pipe Rolling Plant.

The personal participation of the Chairman of the USSR Council of Ministers gave a new impetus to the construction, which again unfolded along the entire length of the route. During February 1973, workers laid more than 300 km of pipeline in the trench, but given the previous delays, these rates were no longer enough. It was necessary to find new reserves to switch to a two-shift mode without days off. In March, the Minneftegazstroy (Ministry of Oil and Gas Construction) of the USSR organized the delivery of an additional 10 insulation-laying columns, over 300 bulldozers, excavators and pipelayers to UBKUA. By order of the government, for laying trenches in the mountainous areas of the Urals, the Ministry of Transport and Minmontazhspetsstroy quickly deployed more than 50 brigades of explosives to UBKUA.

AND PEOPLE CAME OUT

At the peak of the work, the number of construction participants reached a colossal figure — 17.5 thousand people. As a result, only in March 1973 they laid 560 km of the pipeline. The next month, the last 80 km remained to be welded. Work continued at the limit of human and technical capabilities. The April days are especially memorable for the builders of the Surgut section of the oil pipeline, where the construction of the linear part was being completed. People didn't leave the route for days. One evening, when only half a kilometer of the track was left before the meeting of the two welding teams, the chief engineer of the SU-14 Ivan Kapitonov came to the builders.

"500 meters left. Guys, we need to finish today. All hope is in you. I ask you, if you agree, to go to work after dinner", he said.

And people came out. By 11 pm the wind picked up and sleet began to fall. Water oozed from the lashes, forming slag on the welded seams of the pipes. The quality laboratory forbade work, but the welders were not at a loss: they pulled canvas awnings, drove the Urals and turned on the headlights. So they worked all night, not even stopping for a smoke break. The last 200-thousandth joint was welded on April 21, 1973. The "Fiery autograph" was entrusted to the brigade of Nikolay Kushnarev from the same SU-14.

MAY 22, 1972. POWERFUL STALK TRUCKS TRUCKS DURING DELIVERY TO THE ROUTE FOR WELDING STEEL PIPES

Ivan Sapozhkov/TASS

Evgeniy Logvinov/TASS

ALMETYEVSK. CEREMONIAL COMMISSIONING OF THE UBKUA OIL PIPELINE. 1973

Even before the completion of construction, Alexey Kosygin set an additional task for Minneftegazstroy — to develop measures to increase the throughput capacity of the UBKUA from the originally planned from 72 to 90 million tons per year. This would make it possible to do without laying new routes for transporting additional volumes of raw materials for three years. The oilmen of the Ob region have already increased their production by 30 million tons annually, which threatened to quickly exhaust the entire surplus of capacity in pipelines.

As a result, the capacity of UBKUA was increased by building additional pumping stations and reducing the step between them. In 1973, the pipeline was brought to a capacity of 30 million tons per year, in 1974 — by 72 million, and in 1975 it was brought to 90. In 1976, a new large oil pipeline Nizhnevartovsk — Kurgan — Kuibyshev was launched in the region, which allowed to unload UBKUA. Three years, which Kosygin asked for, was enough.

The government deservedly noted the contribution of the builders: six people became Heroes of Socialist Labor, about 700 were awarded orders and medals.

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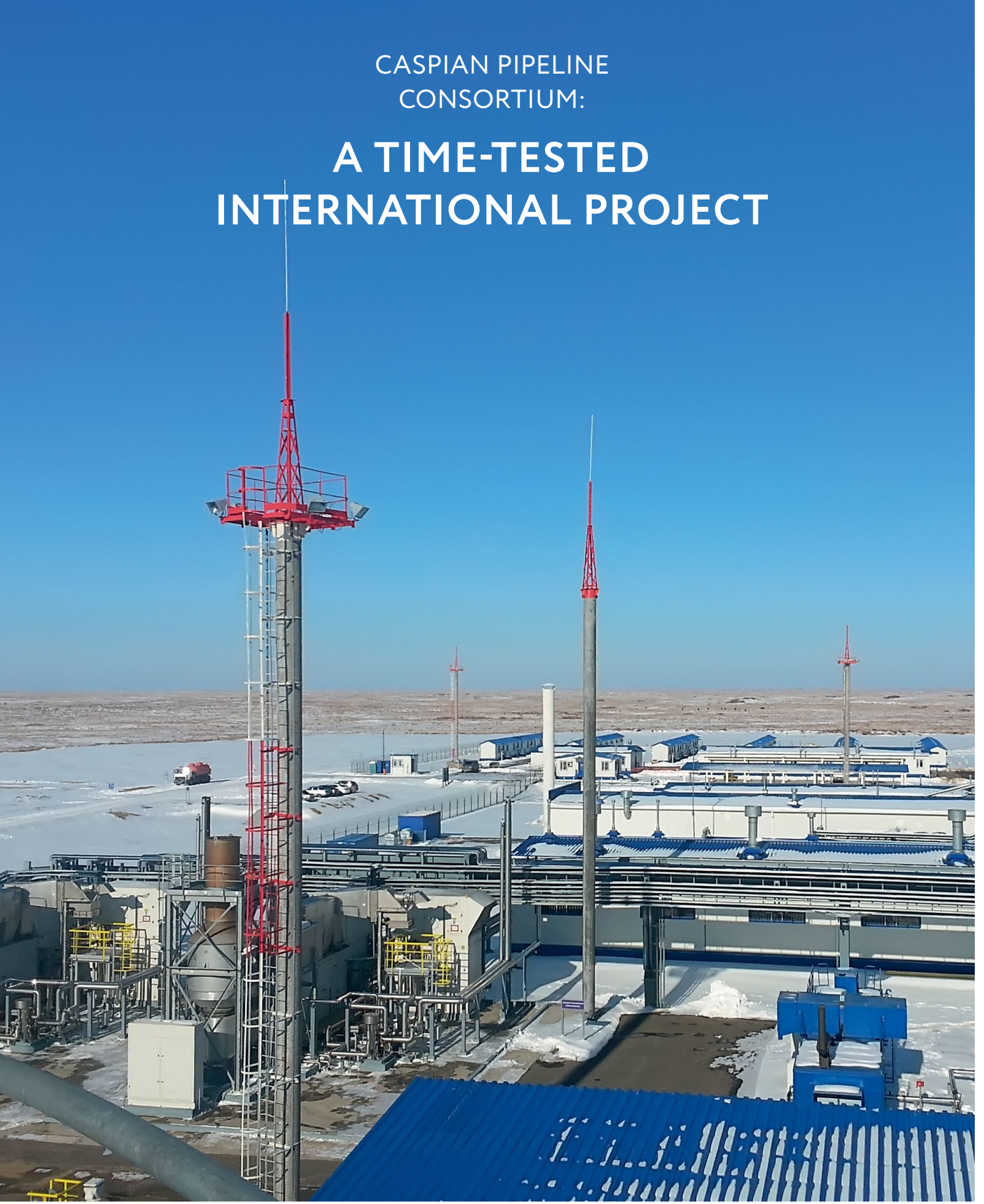
A TIME-TESTED INTERNATIONAL PROJECT



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