Karachaganak

Karachaganak: sustainable development **today**

KPO Sustainability Report

2019

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INTRODUCTION

OUR ACHIEVEMENTS IN 2019

This Report is the twelfth sustainability report issued annually by Karachaganak Petroleum Operating B.V. Kazakhstan Branch (KPO). The Report outlines our 2019 performance through the prism of three pillars of sustainable development: environmental, social and economic. Furthermore, here we disclose our management approach, social partnerships as well as environmental initiatives and projects, implemented though stakeholder engagement.

0.06
Lost Time Incident rate

0.28
Total Recordable Incident rate

0.02
Road Traffic Incident rate

Stabilized liquid hydrocarbons produced
10,147 kt

Local Content share in purchases
57%

Gas utilisation
99.91%

Local Content in staff:

management
79%

professional and supervised workers
96%

Fig. 1. Achievement of sustainable development goals through principles developed in KPO sustainable development charter

ABOUT THIS REPORT

"We are committed to the principles of sustainable development as set in our Sustainable Development Charter. These principles meet the widely acknowledged definition of Sustainable Development "development that meets the needs of the present without compromising the ability of future generations to meet their needs".

OUR MISSION

Mission of the Karachaganak Petroleum Operating B.V. (further as KPO) is to develop the Karachaganak field in an environmentally and economically sound manner while simultaneously creating the socio-economic development opportunities for local communities.

To support the achievement of our mission, we are embedding sustainable development thinking into the way we do business. This means that in all our activities we shall:

- look to minimise impacts and maximise opportunities linked with its presence;
- consider the consequences of our decisions in the long-term;
- engage our stakeholders in a constructive dialogue;
- incorporate strong governance and transparency.

KPO is guided by 10 principles of sustainable development that have been established in the Charter and align with 12 Sustainable Development Goals of the United Nations.

Report scope and boundaries

/ GRI 103-1, 102-1, 102-50, 102-51, 102-52 /

The boundaries of the KPO Sustainability Report relate to all Company operations in the area of the Karachaganak Oil & Gas Condensate Field and export pipeline systems: Karachaganak Orenburg Transportation System (KOTS) and Karachaganak Atyrau Transportation System (KATS).

The Sustainability Report is for the 2019 calendar year. This document presents an overview of our performance in 2019 and plans for the following 2020 year. The data disclosed in the Report is shown in comparison with previous years to showcase our sustainability commitments. Traditionally we describe both achievements and issues. Our material topics are reflected in the Contents of the Report and listed in the relevant chapter.

Our previous Sustainability Report for 2018 was issued in September 2019. All our earlier issued sustainability reports are available on KPO website in *Sustainability section*. Moreover, our reporting is available on the GRI website *www.globalreporting.org* and at the Corporate Register web database, one of the largest global online directories for corporate responsibility reports *(www.corporateregister.com)*.

KPO is Karachaganak Oil & Gas Condensate Field operator, which was incorporated in the Netherlands in 1998 on behalf of its shareholders. Currently the international consortium comprises of Shell, Eni, Chevron, Lukoil and KazMunayGas. KPO acts in accordance with the Final Production Sharing Agreement (FPSA) signed between the shareholders and the Government of the Republic of Qazaqstan. Funding for the Branch is provided by the shareholders, and all capital assets constructed or purchased by KPO are not depreciated, depleted or amortized given the retained right to use the assets by the shareholders as per the FPSA. The FPSA does not foresee capitalisation in terms of debt and equity. Accordingly, no sales and results are recorded in the financial statements of KPO. Revenues from the KPO activities are shared between the Government of the Republic of Qazaqstan and the shareholders, who report about their financial accounts, including revenues, net sales, capitalisation, etc. in their own financial reports. **/ GRI 102-7 /**

The Sustainability Report 2019 was approved by KPO Directors` Committee and reviewed by Sustainability Sub-Committee.

Applicable global reporting initiative standards **/ GRI 102-54 /**

This Report has been prepared in accordance with the requirements of GRI Standards on disclosure of numerous indicators with KPO most significant material topics. In preparation of the Report the main target was to ensure the appropriate level of transparency and reliability as required by GRI Standards.

We also apply some of the GRI G4 Oil & Gas Sector Disclosures in the Report.

Regarding the KPO Sustainable Report preparation, the previous publications for 2017 and 2018 were issued in accordance with the requirements of GRI Standards. In the period from 2013 through 2016, KPO reports were issued in accordance with the fourth Guideline of the Global Reporting Initiative (GRI G4), meanwhile KPO was one the first companies in Qazaqstan to have applied the requirements of GRI Guidelines G4. Earlier publications were made in line with the GRI Guidelines 3.

Independent assurance

/ GRI 102-56 /

KPO applied to Ernst & Young (EY) for independent assurance of selected information disclosed in this Report according to international GRI standards. EY assurance letter of selected disclosures is presented in the body of the report on p. 143.

This Report has been prepared in accordance with the requirements of GRI Standards on disclosure of numerous indicators with KPO most significant material topics

LETTER FROM GENERAL DIRECTOR

/ GRI 102-14 /

Edwin Blom

KPO General Director

Dear Readers,

It is my pleasure to present to you the 12th issue of the Sustainability Report of the Karachaganak Petroleum Operating B.V. Kazakhstan Branch.

This document gives an opportunity to readers to learn more about the Company's achievements in environmental, economic and social areas. We report on the issues that matter most to our business and our stakeholders.
/ GRI 102-15, 103-1 /

The 2019 reporting year was an anniversary – we celebrated the 40th Anniversary of the Karachaganak field discovery, and was a tremendously successful year for KPO in many ways. The following is a brief overview of the key areas of activity.

Safety

Our goal is zero injuries, zero leaks. All KPO and its contractor's personnel contribute to delivering health and safety performance. We focus on continuous commitment to the value of people in order to safeguard health, safety, environmental protection and integrity of our asset.

In 2019, we achieved excellent HSE performance. No Tier 1 serious failures of nodes and equipment were recorded while all required repair and maintenance scope was fully completed during the 2019 turnaround, the biggest one in KPO history. Our systematic approach to maintaining the safety of our processes and used barriers allow employees to observe required regulations in operating plant thereby assuring its high operational reliability. KPO integrated HSE Management System is independently audited to international standards every year.

In order to encourage behaviour change and improve safety leadership culture in KPO, we have launched a new Safety Leadership Journey Plan. Safety Leadership and Coaching Programme is one of the essential means of this Plan.

KPO has been using a railway service for a second year to safely transport personnel between Aksai and Uralsk (renting a separate train). Since the end of 2019, Company employees are allowed to take family members with them on the train.
As for statistics, compared to 2018, KPO attained a significant reduction in Lost Time Injuries (from 0.29 to 0.06) and relative decrease of Total Recordable Injuries (from 0.50 to 0.28). Our Road Traffic Incident rate (RTI) decreased from 0.03 to 0.02, with one RTI recorded in 2019.

In the past year, KPO actively engaged with the other O&G Joint Ventures operating in Western Qazaqstan Region on the issues of HSE and local content. We established a joint HSE network collaboration between KPO, TCO, NCOC to build a pervasive culture of safe behaviour and promote learning by sharing information and good practice. Besides, in September 2019 KPO took part in the First Symposium of Society of Petroleum Engineers (SPE) in Qazaqstan dedicated to health, safety, security, environment and social responsibility in the Caspian region.

During the reporting year, the Company has demonstrated numerous times its genuine care about health of employees and their families working on improving quality of medical support. A new contract for health insurance enables employees to independently choose a health care provider while members of the same family can use funds on their insurance account by themselves. Aksai hospital upgrade project commenced by KPO in 2019 is aimed at improving quality of emergency response capability both in the interests of company staff and local community.

Operations, sales and field development projects

In 2019, we continued our programme of drilling wells and hooking them up to our production facilities with a focus on production optimisation. Two rigs were utilised in the field for drilling and workover needs. We successfully commissioned first gas injection well for a new fifth trunk line and drilled two new wells. Three old wells were side-tracked and completed as horizontal producers. The Permian Phase I campaign, targeting a less

KPO was recognized as a company with high level of transparency in terms of environmental performance of its operations

Since signing the Final Product Sharing Agreement up to end 2019, over

$26 bln

been invested in the development of the Karachaganak Field

exploited formation in the reservoir including three workover and two side-tracked well was successfully completed. New technologies have become an integral part of our drilling processes.

In 2019, KPO produced 138 million barrels of oil equivalent of stabilized and unstabilized liquid hydrocarbons, raw and fuel gas. Volume of gas reinjection to maintain the reservoir pressure totalled 8,710 million cubic metres. The total sales reached 134.7 mln BOE. Some 99.8% of liquid production was sold as stabilised oil to the Western markets via the Caspian Pipeline Consortium pipeline, the Atyrau – Samara pipeline and further through the Transneft system. Delivery of raw gas reached 9.1 bln m^3, which was all sold to KazRosGas for processing at the Orenburg Gas Plant.

In order to maintain the reservoir pressure and to enhance the liquids recovery rate in 2019, KPO re-injected 8.7 bln cubic meters of gas into the reservoir, a volume exceeding 47% of the total gas extracted.

In autumn 2019, we successfully completed the largest Turnaround ever executed in the company covering all our main facilities. All of the planned work scope was accomplished without delay and incidents what significantly improved asset integrity and plant reliability. During turnaround, we managed to complete all mechanical tie-ins for new projects.

It is worth noting that in 2019 the partners in the Karachaganak project signed the agreement sanctioning the Fourth Injection Compressor (4IC) Project in Unit 2. This gave rise to a new milestone in the continued development of the Karachaganak field. The Fifth Trunk Line was started up which will help maintain maximum production levels. Two other Plateau Extension Projects: Karachaganak Gas Debottlenecking project and Fourth Injection Compressor project are under the implementation stage. Karachaganak Expansion Project (KEP-1) passed the Front End Engineering Design (FEED) stage.

Environmental performance / GRI 102-15 /

The Company strongly focuses on emissions reduction measures, waste management, biodiversity conservation actively using latest technologies in our environmental activities.
In 2019, KPO's gas utilization rate reached 99.91% while gas flaring volume was only 0.09% out of total volume of gas produced. Owing to the use of technologies for oil and gas recovery while well testing and clean up we achieved reduction of the direct GHG emissions by 224 thous. tonnes having exceeded the target almost twice. Specific emissions per unit of production amounted to 0.29 tonnes per 1,000 tonnes of produced hydrocarbons. When comparing reports of the International Association (IOGP), KPO's actual specific GHG emissions in 2019 were 23% lower than European indicators and 52% lower than the international indicators.

An important milestone in the preservation of cultural heritage was the archaeological research conducted by the Company in 2019 with the aim of locating and surveying historical and cultural heritage sites within the Karachaganak Field and its Sanitary Protection Zone. Obtained findings of the research will be used for updating field maps and keeping track of historical and cultural heritage sites during expansion of Company production capacities. It is also worth underlining that the Company regularly delivers activities on disturbed lands remediation.

From 1998 until the end of 2019, KPO has invested US$ 405 million into various environmental protection actions and initiatives, including waste reduction. In average, a production process at the Field annually generates about 60 thous. tonnes of waste, of which 55 thous. tonnes are treated, recycled, reused and safely disposed at company facilities. KPO hands over to external enterprises only about 5 thous.tonnes of waste, of which more than 3 thous.tonnes is sent for reuse.

KPO was recognized as a company with high level of transparency in terms of environmental performance of its operations. In 2019, a mandatory environmental audit was held. We take active part in the various environmental ratings and contests. During 2018–2019 KPO came second best in the Ecological Rating of Environmental Responsibility of the O&Gs companies in Qazaqstan, organised by World Wildlife Fund Russia and CREON Group supported by the Ministry of Energy of the Republic of Qazaqstan. In 2019, as part of Qazaqstan's delivery of the international initiative for cooperation in the field of green economy, KPO was awarded a special symbol "Recommended by the Green Bridge Partnership Programme".

For three years in a row, KPO has been holding an International Environmental Green Forum (UGF) in Uralsk, which became an effective communication tool to discuss environmental issues with subsoil users, state authorities, experts and NGO.
A key topic of discussion of the forum held on 6th June 2019 was a new Environmental Code. For 2020, we plan a discussion on various aspects of the application of the best available technologies in the field of environmental protection. Throughout the past year, KPO has been actively participating in working groups on development of environmental and subsurface use laws and regulations.

Employee development / GRI 102-15 /

Attracting and retaining highly qualified employees is the competitive advantage and an area of implementing innovations. KPO strives to build fair and trusting relationships with employees. In 2019, KPO set up a new team in Human Resources Controllership regulating industrial relations. This became an important step in ensuring observance of rights of contractors' employees.

As part of the Programme for Increased Local Content in Staff, 20 expatriate positions were nationalised, i.e. substituted by local employees. Five positions previously held by expatriates were abolished. As of end 2019, Qazaqstani employees accounted for 96% of technical staff and supervisors and 79% of managers, with a total average national headcount of 93%.

The training and development programmes initiated earlier were continued in 2019, among which there were the Enhanced Development Programme, Professional Development Programme in production and maintenance, international qualification programmes in drilling, emergency response and C&P as well as HSE certification and audit.

As of the end 2019, since the FPSA signing the Company has invested over US$ 225 mln in professional training and skill enhancement of the national workforce. Training is delivered using both own training centre and best international academic institutions.

Digitization / GRI 102-15 /

KPO developed a Digitalization Road Map aimed at near, medium and long-term implementation of digitization opportunities. The Roadmap outlined main stages of transition to digital technologies and improvement of business processes in the areas, such as production, well operations, future projects, local content and production infrastructure.
The current work streams are focused on the areas of production optimization, well surveillance, smart plant and digital transformations for project delivery, minimization of paper-intensive processes and maximization of the automated workflows, warehouse management, improvement of the monitoring and intervention activities, and collaboration with Qazaqstani iniversities and institutions to stimulate digital ecosystem and development of local resources.

The Digitization Programme incorporates an approach for the foundational digital capabilities 'must have' to remain competitive. In addition, it is envisaged that digitization initiatives will stimulate local content by targeting local enterprises with the long-term objective of creating an IT industry cluster in WQO and developing local resources.

A Memorandum of Cooperation was signed between KPO, WQO Akimat and the RoQ Ministry of Education & Science on further development of local content through training new personnel and start-ups support.

Investment into economy and community engagement

/ GRI 102-15 /

The Company applied significant efforts to maximize local content in the Karachaganak project and support local manufacturers.

Over the reporting year, import substitution indicator in KPO's procurement of goods, works and services was 57%, equal in monetary terms to US$ 683.5 mln. The overall KPO local content share in goods, works and services has exceeded US$ 7.7 bln since the signing of the Final Production Sharing Agreement in 1997.

Previous initiatives on localization of goods, works and services started by the Company have been successfully advanced throughout the year. KPO procured 30% of goods made by Qazaqstani producers in total volume of procurement. Moreover, seven contracts were awarded for procuring locally produced goods and 32 Qazaqstani tenders were initiated exclusively among local companies.

Annually implemented by KPO social infrastructure projects in the West Qazaqstan Oblast include construction and repairs of roads, streets, bridges as well as healthcare, education, culture and sports facilities. Only Qazaqstani contractors are involved in these projects. In 2019, KPO completed three social infrastructure projects and commenced executing 12 new projects in WQO. For a period of 2018–2022, additional US$ 50 mln were allocated for social infrastructure projects in the Oblast and a new list of social infrastructure projects worth US$ 15.3 mln was approved at the expense of previously unspent funds.

As of end 2019, KPO's investments in the WQO social infrastructure reached the total of US$ 400 mln.

KPO seeks to provide the necessary assistance to the local community through both charity projects and support of local production capacity. During the year in cooperation with the local authorities, KPO held 10 Public Hearings on the environmental impact assessment for wells hook-ups and construction projects. As part of the sponsorship programme, 200 health resort packages were purchased for the elderly community members and 78 vouchers for schoolchildren in Uralsk summer camp.

Throughout 2019, the Company continued monitoring of communities resettled from former villages of Berezovka and Bestau to Aksai. We render all kind of assistance and support with settling in new homes including supply of black soil for homestead lands, fixing construction defects and improvement of local social facilities. KPO specialists hold six Village Councils' meetings in the six communities neighbouring the Karachaganak Field including Priuralnoye, Uspenovka, Zhanatalap, Zharsuat, Karachaganak, Dimitrovo. Among the topics discussed during these meetings there were social support, environment, emergency response and other concerns.

As of the end 2019, the Karachaganak Partners have invested US$ 26 bln into the development of the Karachaganak Field, whilst mandatory payments and taxes paid to the RoQ budget totalled US$ 1.6 bln.

At the end of 2019, KPO received an award for winning the IX Annual Reports Contest arranged by the QRA Qazaqstan Rating Agency for 2018 Sustainability Report in the nomination "The Best Disclosure of Sustainability Management issues". It is already our third winner award in this contest over the last three years.

KPO intends and will continue to maintain good neighbour relations with all stakeholders, provide decent working conditions to its personnel, contribute to improving local community welfare and minimise its environmental impact.

It is worth also mentioning about KPO reaction to the COVID-19 outbreak in 2020. At the time of issuing this Report, we have taken all the necessary actions in order to prevent the spread of the virus in our operations, including but not limited to compliance to all regulations of the state authorities, sanitary measures, and social distance restrictions. We continue operating in strict compliance to all safety requirements and production targets set for 2020. Undoubtedly, in order to master the emerging challenges, KPO will have to review its priorities and business processes.

Edwin Blom
KPO General Director

IN CONTEXT OF OPERATIONS

The Kazakhstan Branch of Karachaganak Petroleum Operating B.V. (KPO) is an international oil and gas condensate company that carries out production and exploration activities in West Qazaqstan Oblast of the Republic of Qazaqstan. KPO operates Karachaganak, one of the world's largest oil and gas condensate fields in north-west Qazaqstan covering an area of over 280 km^2. / GRI 102-3, 102-4, 103-1 /

The Karachaganak oil and gas condensate field (KOGCF) is located in a remote and challenging working environment with the ambient temperature ranging from minus 40° Celsius in winter to plus 40° in summer. The field is some 1,600 m thick and very complex and unique with its top at a depth of around 3,500 m. The hydrocarbons contain up to 4.5% of highly toxic and corrosive hydrogen sulphide (H_2S), as well as carbon dioxide (CO_2) which can be highly corrosive in certain conditions.

To date, KPO as the Contractor of the Karachaganak Field is represented by the five Parent Companies – Eni, Shell, Chevron, Lukoil and KazMunayGas – jointly working under the Final Production Sharing Agreement (FPSA) and the Karachaganak Settlement Agreement.

According to the latest Reserves Re-Determination Report for the Karachaganak field accepted by the RoQ State Reserves Committee (GKZ) on 17.11.2017, it is estimated that the Karachaganak Field contains 13.6 billion barrels of liquids and 59.4 trillion cubic feet of gas, of which approximately 13% has been recovered as of 2019. / OG-1 /

The Company annually invests the funds in the application of leading-edge technologies to maximize sustainable economic value and minimise environmental impact. The total investment in the development of the Karachaganak oil & gas condensate field since the signing of the FPSA in 1997 to 31.12.2019 has totalled over USD 26 bln. As of end 2019, 4,532 people worked in the KPO organisation. / GRI 102-7 /

KPO facilities / GRI 102-7, 102-4 /

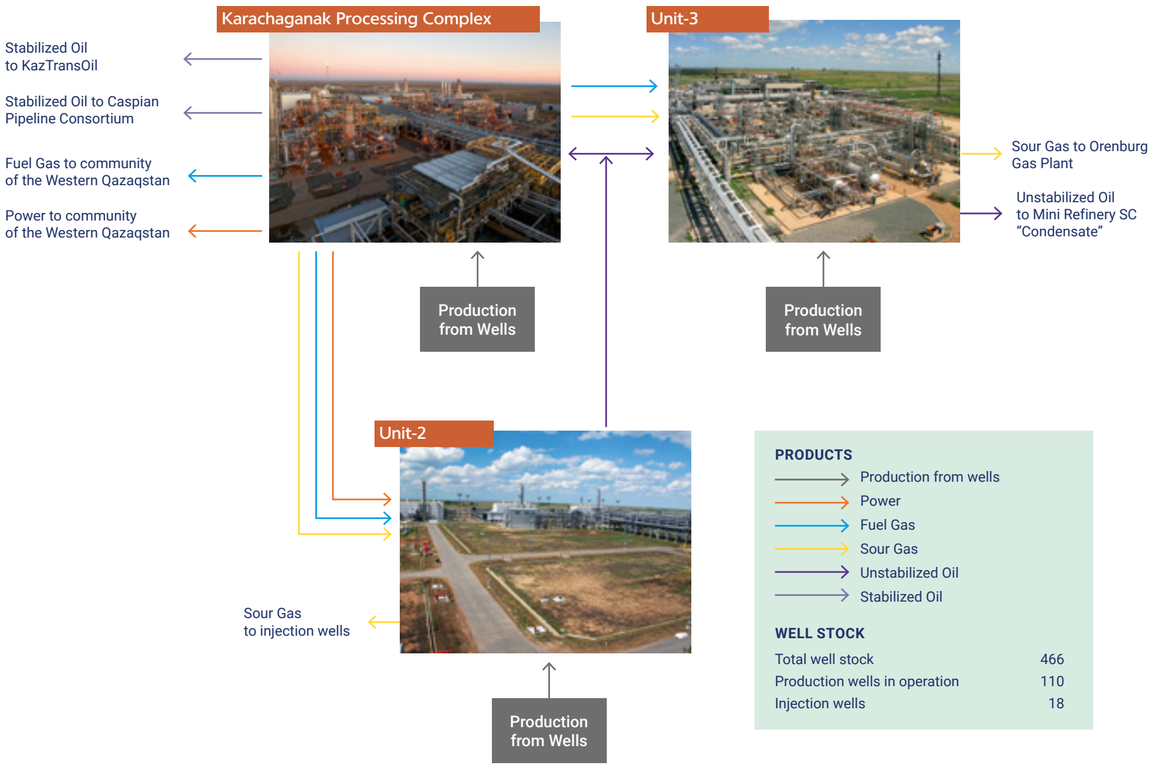
Hydrocarbon production and processing occurs at the three major interconnected units: the Karachaganak Processing Complex (KPC), Unit-2 and Unit-3. Approximately 2,000 kilometres of pipelines make up the infield system linking the major facilities and allowing efficient flows of production from the wells and among the units. Amongst the facilities, there is an Early Oil Production Satellite (EOPS) and Eco Centre. An overall view of the facilities is graphically presented on the figure 2.

The transportation system operated by KPO includes the main export route for stabilised liquid hydrocarbons Karachaganak – Atyrau Transportation System (KATS) with two pumping stations: one at KPC and the other at Bolshoi Chagan, and a receiving and storage facility in KPO Atyrau Terminal. The other export route is the Karachaganak – Orenburg Transportation System (KOTS), which is used by KPO for transporting gas to Orenburg Gas Plant in the Russian Federation.

As of end 2019, 110 producing and 18 re-injection wells were online at Karachaganak, from a total well stock of 466 wells. In December 2019, as part of the Karachaganak Plateau Extension projects, KPO has successfully launched the fifth trunk line connected to the three new gas injection wells. The fifth trunk line provided an upgrade of the gas injection capacity in order to increase field-wide liquids recovery.

The increase in well stock by 4 wells with respect to the previous year (466 wells in 2019 vs 462 wells in 2018) was mainly due to drilling of new horizontal wells (production well stock), one vertical injection well for the new fifth trunk line and drilling shallow monitoring wells (special well stock). The lower increase in well stock versus previous years is due to the fact that in 2019 most of the drilling activity has been on side-tracks or workovers of existing wells.

Fig. 2. Karachaganak facilities and products / GRI 102-7 /



Our products and export routes / GRI 102-2, 102-6 /

KPO extracts and processes stabilised and unstabilised liquid hydrocarbons, raw gas and fuel gas. The majority of hydrocarbons produced in the Karachaganak Field are exported to maximize net sales revenues.

In 2019, around 99.8% of liquid production was sold as stabilised oil to the Western markets via the following routes:

- the Caspian Pipeline Consortium (CPC) pipeline and
- the Atyrau – Samara pipeline and further through the Transneft system.

The CPC pipeline delivers KPO oil to the Black Sea port of Novorossiysk (Yuzhnaya Ozereyevka), whereas the Atyrau-Samara pipeline is used to deliver oil to the Ust-Luga port in the Baltic Sea (see fig. 3).

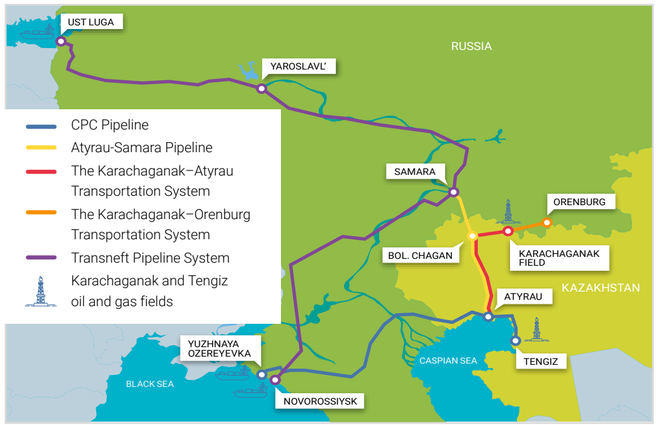
The key marketing objective was to maximize oil exports and sales via CPC, the highest netback route. The Atyrau-Samara route, although providing slightly lower netbacks than CPC, was important as an insurance back-up in case of disruptions in CPC exports.

In 2019 continuous focus on oil sales optimization enabled KPO to export a record 10.08 mln tonnes of stabilised oil out of total 10.16 mln tonnes through CPC, the more profitable export route. Thus, nearly 0.08 mln tonnes of oil were exported via the Atyrau-Samara pipeline in that period – a record low volume in KPO history. The remaining liquids were exported as unstabilised condensate to Russia via Orenburg and delivered to the local market.

The gas produced from the field is either re-injected into the reservoir to maintain reservoir pressure, sold as raw gas to KazRosGas LLP under the long-term Gas Sales Agreement, or sweetened (i.e. cleared from H_2S) to generate electricity for KPO facilities and for local power distribution companies.

In 2019, KPO sold 9.1 bln m^3 of raw gas to KazRosGas for processing at the Orenburg Gas Plant despite a major turnaround. In KPO history that was the second highest volume of raw gas sold in KPO history after the record 9.5 bln m^3 sales to Orenburg in 2018.

Fig. 3. KPO export routes / GRI 103-1 /



KPO ceased the delivery of unstabilised condensate to Orenburg starting from 17 September 2018 due completion of the Delinking Project. This resulted in the increased sales revenue thanks to diversion of liquids from Orenburg to the CPC route and to a processing facility of Condensate SC.

The Karachaganak Field contains

13.6 billion barrels

of liquids and

59.4 trillion cubic

feet of gas, of which approximately

13%

has been recovered

Operations and sales in 2019

/ GRI 102-2, 102-7 /

In 2019, KPO produced 137.9 mln barrels of oil equivalent (BOE) in the form of stable and unstable liquids and gas. Delivery of gas in 2019 reached 9.1 bln m^3.

Tab. 1. Production in 2019

		2017	2018	2019*
Total Production**	Mboe	145.8	147.5	**137.9**
Total equivalent stable oil	Kt	11, 247	10, 953	**10, 147**
Total gas production	Mscm	18, 924	18, 913	**18, 614**
Gas Injection *Gas re-injected into a reservoir*	Mscm	9, 289	8, 589	**8, 710**
Sweet Gas *used at the Field for internal needs*	Mscm	739.5	723.6	**685.4**

** Turnaround year*

*** Total production does not include gas injection*

Tab. 2. Sales in 2019

		2017*	2018*	2019
Total Sales	Mboe	142.3	143.5	**134.7**
Unstable Liquids *Unstabilised condensate to Orenburg Gas Plant and Condensate SC`s refinery*	Kt	657	615*	**9.9****
Stable Liquids *Oil and stabilised condensate to CPC and Atyrau-Samara*	Kt	10, 715	10, 365	**10, 160**
Raw Gas *to Orenburg Gas Plant*	Mscm	8, 782	9, 493	**9, 113**
Sweet Gas to the WQO community	Mscm	97.7	95	**89**

**From September 2018 condensate deliveries to Orenburg route were stopped.*

***Condensate supply to the SC 'Condensate' refinery only.*

Technologies in drilling

In 2019, our Well Operations department achieved a 2.8 mln man-hours mark. Unfortunately, our continuous efforts on safety were not enough to prevent every incident possible: two minor injuries and one high potential incident had happened on our sites. From the road safety side we were able to demonstrate remarkable performance by accomplishing 4,500 incident-free trips, totalling over 3.5 mln km driven.

KPO continues its work on minimization of a negative impact from drilling and well services operations on the environment. As in previous years, in 2019 we continued our path towards zero emission ambition and applied measures presented below to reduce greenhouse gas (GHG) emissions, and consumption of water and resources:

- Application of hydrocarbon based completion and stimulation displacement fluid instead of water;
- Post-stimulation milling of downhole hardware (balls and baffles), which previously was done with coiled tubing unit and fluid displacement motors, is now replaced with wireline milling with the use of electrical devices, hence no contaminated fluid to dispose and no flaring.
- Use of highly efficient environmental friendly burners, where flaring is inevitable;
- High Gas Volume Factor (HGVF) pumps to reinject produced hydrocarbon in high-pressure production line instead of burning them on the flare;
- Evaporation of produced water.

KPO continuously works on developing technology and innovations aimed at improving drilling performance. In these terms, the following was achieved throughout the year 2019:

- The new design gas injector well was delivered in 2019. It is capable to provide higher injection rates above 10 Mscm/d;
- Two new oil producing wells and three wells were sidetracked to enhance production;
- The Permian Phase I campaign, targeting a less exploited formation in the reservoir, was successfully completed.
- New drilling technologies have been applied for the first time in the field, such as RFID activated circulation valve, which helped improving overall performance and efficiency of drilling operations.
- To achieve high quality of zonal isolation a special light-weight cement slurry was designed by KPO engineers and our cementing contractor. The light slurry technology enables additional improvement opportunities allowing significant reduction of well construction time and cost.

In 2019, about **99.8%** of the extracted liquid hydrocarbons were sold as stabilized oil to Western markets

Over 8.7 mln m^3 of raw gas was injected into the reservoir, representing 47% of total gas produced

Turnaround

The KPO Shutdown strategy is focused on optimisation of production and minimisation of cost by extending intervals between shutdowns and reduction of actual shutdown durations whilst ensuring safe continuous operations and regulatory compliance.

KPO Turnaround in 2019 was the biggest in the KPO history and included a full field shutdown of Gathering, Karachaganak Processing Complex, Unit-2 and Unit-3. Up to 12,000 people per day were involved in turnaround activities in day and night shifts.

Under continuous supervision of KPO personnel 2,300 inspections have been conducted safely with no major incidents and no leaks to environment.

The total man-hours of the 2019 shutdown activities made up to 3.2 mln. Unfortunately, two medical treatment cases were recorded. Luckily, both workers were able to continue full duties next day after the incident.

Prior the turnaround, the Turnaround HSE Commitment Charter has been adopted by KPO and Contractors' Management to accept the challenge of completing the 2019 Turnaround scope without harm to people or the environment and ensuring no damage to plant or machinery. Thus, a number of measures have been taken including, but not limited to:

- Massive pre-turnaround training performed by KPO involved 212 companies including 2,216 training courses arranged and over 33,000 certificates issued.
- KPO management conducted 101 HSE tours to communicate the strong Company's commitment on safety.
- Five Safety stand-downs were conducted and attended by 9,229 personnel including contractors.
- 3,178 HSE inspections performed on site for compliance with the Life Saving Rules.
- 35 process safety risks were closed in the Barrier Model, and all KPO process facilities were checked to ensure that all barriers are in place after the shutdown activities.
- 495 transport inspections were held.

The turnaround activities included mandatory maintenance and inspections, plant modifications, implementation of tie-ins for Karachaganak Debottlenecking project, Fourth Injection Compressor, Fifth Trunk line and KEP projects. All the planned work scope was achieved safely and ahead of time.

Water management

Managing produced and industrial effluent water is one of the main challenges faced by KPO in the Karachaganak field.

KPO's field wide water management strategy is aimed at a balanced solution of issues both in wastewater handling and disposal and in the continuous supply of industrial water for production needs. The strategy consists of the implementation during the next few years of a portfolio of interconnected projects, the aggregate effect of which will allow the Company to operate stably in constantly changing conditions.

In 2019, two projects out of 10 planned by 2022 have already been implemented: Upgrade of the oil treatment system improve water separation and start-up of new cartridge filters at the wastewater

As of end 2019, 110 producing and 18 re-injection wells were online at Karachaganak from a total well stock of 466 wells

KPO SUCCESS STORY 1

SHOCKS AND VIBRATIONS REDUCTION TO COMPLETE 6" OPEN HOLE SECTION IN ONE RUN

Context / short description of issue:

Drilling the well is quite an expensive operation. KPO Well Operations team always strives to minimize time and cost of the wells in order to create more value for the Company. A lot of improvement had been done in the past, and it is becoming more and more challenging to improve drilling performance on every following well.

Goal:

The goal was to identify and eliminate unnecessary operational steps to drill wells cheaper and faster maintaining high safety and quality standards.

Solution / actions:

Well Construction Team together with service providers and experts from Parent Companies worked to completely re-design bottom hole tool assemblies, customized standard products and equipment to fit KPO specific conditions. They tested new cutting edge downhole equipment with Radio-frequency identification (RFID) technology. This allowed to drill and simultaneously evaluate reservoir properties with sensitive and gentle tools in harsh drilling environment. Alongside this, precise modelling of downhole conditions and endless laboratory tests for new ultralight cement slurry have resulted in well design shift which enabled further simplification of well construction process.

Result:

These initiatives were successfully implemented on recent well #9871 where:

- long 7" liner (2,260 m) was set in one single run and successfully cemented without losses using ultralight cement with glass microspheres;
- 6" open hole section drilled with minimal downhole shocks and vibrations and logged in one single run.

As the result showed, well construction phase was completed 7 days faster compared to the previous best results.

In 2019, KPO produced

137.9 mln barrels

of oil equivalent (BOE) in the form of stable and unstable liquids and gas, of which total equivalent stable oil reached

10,147 Kt

and total gas –

18,614 Mscm

In 2019, KPO sold

9.1 bln m^3

of raw gas for processing at the Orenburg Gas Plant

treatment plants at KPC. These projects have reduced the risk of exposure to harmful production factors on workers, and also created potential for increasing oil production.

In 2020, KPO plans to implement four more projects which will remove production restrictions, reduce operator exposure and improve compliance with discharge of wastewater quality:

- workover of two water injection wells;
- start-up of a modification to gasoline demercaptanization processing units;
- construction of a new 10-inch water injection line;
- treatment of wastewater at Unit-3 for removal of H_2S.

Also, in 2020, KPO intends progressing with the design and execution of several additional projects aimed at improving our ability to safely handle increasing volumes of wastewater in the long term.

Power generation

For production needs within the Karachaganak field KPO generates electrical power at its own Gas Turbine Power Plant (further as GTPP). Generated power is transmitted to the own production units throughout the Field, which include Karachaganak Processing Complex, Unit-2, Unit-3, Gathering system, Eco Centre, Pilot Camp, and the Karachaganak – Atyrau transportation system covering the oil pumping station in Bolshoi Chagan and block valve stations 1-26.

Four turbines, three of which are dual-fueled, are installed and operating at the KPO Gas Turbine Power Plant. In addition, KPO supplies electricity for the needs of the Western Qazaqstan Oblast population with capacity of circa 42 MW in winter and from 27 to 42 MW in summer.

In 2019, KPO carried out the total overhaul of the Turbine 3 and a minor inspection of the Generator 3, and also an inspection (repair) of combustion chambers of the Turbines 1 and 4.

In 2019, the Company continued the initiated in 2018 comprehensive study of existing and additional energy supply opportunities for future KEP-1 projects, including through renewable energy sources and by installation of Heat Recovery Steam Generation on existing gas turbine generators. In 2019, the study passed the second stage of economic assessment (or VAR2), including the choice of a concept.

KPO SUCCESS STORY 2

UPGRADE OF OIL TREATMENT SYSTEM

Context / short description of issue:

KPO experienced some constrains in hydrocarbons production as a consequence of an increase in water produced from wells, which could not be handled due to KPC design restrictions.

Goal:

The goal was set to increase water-handling capacity of the Karachaganak Processing Complex such that the incremental produced water would not restrict oil production and revenue generation.

Solution / actions:

The Company achieved the goal by introducing additional three-phase separators, which were installed at the inlet to KPC and allowed separation of produced water at early stage and let it to be sent directly to Water Treatment Plant bypassing the desalters. This resulted in removing restrictions in the desalters' water-handling capacity, thus, improving KPC water-handling capacity in general.

Result:

KPO created the intended potential for future production enhancement by increasing water-handling capacity of the Karachaganak Processing Complex.

Also, installation of three-phase separators resulted in a tangible decrease in fouling of the Oil Train reboilers (40-50% less reboiler washes). In addition to production enhancement, this contributed to asset integrity risk mitigation and operational safety because operators are now less exposed to harmful and dangerous factors during necessary reboilers washes.

Field development projects

KPO has an obligation, as the Contractor to the Republic of Qazaqstan, to conduct all operations necessary to carry out the development and production of petroleum in the contract area in accordance with International Good Oil Field Practice[1]. Following the completion of the Karachaganak Phase II Initial Programme in 2003, KPO has been funding and implementing the Phase II Maintenance Programme (Phase IIM). This phase includes the further activities, such as drilling of new development wells, undertaking workovers on existing wells, upgrading production facilities and other projects required to maintain a high production level for the benefit of the Republic of Qazaqstan.

Additional facilities, field infrastructure and wells are required to avoid the increasing gas-oil-ratio causing the existing facilities to become gas constrained and thus cause a liquids production decline. In response to this, in 2014 KPO developed a programme of production Plateau Extension Projects (PEP).

In 2019, the maturation of the PEP projects portfolio was continued. The 5th trunk line and gas reinjection wells component of the Unit-2 Gas Injection Upgrade Project was started up in December with first of the three injection well.

Final Investment Decision was taken on the Unit-2 Fourth Gas Injection Compressor Project in April 2019. Since then the contractor has been mobilised, part of civil works has been completed in the year, piping fabrication has started, pipeline activities are ongoing and partial delivery of compressor to site has been made.

Detailed Engineering and Pipeline were completed in 2019 for the KPC Gas Debottlenecking Project. Construction is well underway with civil scope nearly completed, Drizo® and Modular Substation installed on site. The Project completed the all tie-in during the turnaround and has started the piping hydro-test.

Karachaganak Expansion Project

The phase 1 of the Karachaganak Expansion Project (KEP-1) is planned to create additional value for the Karachaganak Parent Companies and the Republic of Qazaqstan by maintaining the stabilised liquid plateau through the provision of additional wells, process facilities and gas reinjection to manage the increasing gas oil ratio of the field.

The proposed facilities design is aimed at reduction of risks to the lowest practicable level.

The main objects in KEP-1 will cover:

- Inherent safety features in the design of systems and equipment to minimise the exposure of personnel to process safety risks (including toxic gas risks) throughout the life of the new facilities.
- Environmental impact minimization. Best practices in air dispersion modelling of KEP-1 emissions are undertaken to assess any impact on the boundary of the Sanitary Protection Zone (SPZ) around the field.

In September 2019, the project successfully completed passed the Front End Engineering Design (FEED). The FEED is an incremental maturity of Engineering and Project Scope providing a more detailed understanding of the project risks in activities, such as brownfield works, simultaneous operations, Long Lead Items definition, compression unit, gathering system design and Early Works identification. Following successful completion of the FEED engineering phase, KEP-1 will progress to the value assurance review 3 (VAR3), which is scheduled for 2020 in order to propose the project being sanctioned.

In April 2019, to pursue development of KEP-1 local content, KPO held an Electrical Equipment and Cables Workshop for both international and local manufactures in its Uralsk Office.

[1] *International Good Oil Industry Practices means the good, safe and efficient operations and procedures commonly employed by sensible and diligent operators in the international petroleum industry, mainly regarding aspects related to the use of adequate methods and processes for obtaining maximum economic benefit in the final recovery of reserves, for minimizing losses, for operational security and for environmental protection. This definition is given in the "Agencia Nacional de Hidrocarburos, Hydrocarbon Exploration and Production Contract No. 09 OF 2008, la Cuerva".*

KPO SUCCESS STORY 3 AUTOMATED SYSTEM FOR COMMERCIAL ACCOUNTING OF POWER CONSUMPTION

Context / short description of issue:

The Company had to allocate a large amount of resources for collecting electricity readings from metering devices at remote sites. On a monthly basis, KPO personnel were required to visit all the points at the field to take readings on power consumption. On the average, it took from 3 to 5 days including active wells. In this regard, there appeared a need to implement an automated system for measuring electricity.

Goal:

- To provide remote collection of consumed electricity data from meters
- To bring the data collection system in line with legal and market requirements
- To decrease transport costs and to reduce risks for personnel's safety

Solution / actions:

KPO Power Generation and Distribution Department installed electricity meters and modems for transmitting data over the GSM network from the meters to the servers. Thus, online data collection was provided, allowing the generation of reports and their transmission to the KEGOC database in accordance with the Programme for Commercial Power Accounting Automated System. The installed KPO automated system has been connected to the automated system of the grid operator in line with technical requirements.

The project has lasted for a few years due to expansion of the zone of production facilities having ended in 2019, when data transfer from the remaining meters at the 6 kV inputs in Unit-2 was implemented during a complete turnaround.

Result:

Currently the data on electricity generated at the Gas Turbine Power Plant and consumed at the field facilities, the Gathering system and at the Karachaganak – Atyrau transportation system, is sent automatically to the server.

Thanks to the Automated System KPO engineers and technicians are now able to remotely control the workstation, to process and disseminate information as required by the needs of KPO and external stakeholders. Travels to take readings were canceled, thus reducing transportation costs and eliminating the associated safety risks.

In 2019, the KPO automated measurement system was certified and entered into the register of the grid operator KEGOC JSC.

Implementation of an automated system for accounting power consumption has allowed KPO to ensure a higher quality measuring of power consumption in accordance with requirements of the legislation and energy market.

GOVERNANCE

MATERIAL TOPICS AND STAKEHOLDER ENGAGEMENT

MATERIAL TOPICS

/ GRI 102-44, 102-46, 103-1 /

Sustainability Report is one of the main tools for building effective communication with stakeholders. The aim of this document is to raise awareness of stakeholders about material topics that represent mutual interest both to the organization and to its stakeholders, and how they are resolved through engagement of the two.

KPO published its first Sustainability Report in 2008. Since then, we annually report to stakeholders about activities executed in sustainable development area. While working on the Report we rely on extensive experience of our Parent Companies and follow the requirements of the recognized best practices in non-financial reporting.

The Sustainability reporting process involves exchange of information, collection of data and interdisciplinary communication both internally and externally. / GRI 103-1 / For many years we have identified a number of topics material for us and continue sharing their progress dynamics. In 2019, having analysed the list of topics to share, we concluded that all of them remain important in the reporting period. Figure 4 outlines all the topics essential for us in 2019.

Another instrument for defining boundaries of our material topics for us is the Standards of the Global Reporting Initiative or the GRI Standards. The most critical Key Performance Indicators are disclosed compared to those of the International Association of Oil and Gas Producers (IOGP). We report on the applicable GRI Standards taking into account management approaches and Key Performance Indicators of the Company. At the same time, risk and opportunities assessment is held, as well as set goals are quantified in comparison with achievements of previous periods.

Regardless of Standards` requirements, we do our best to provide more detailed information about the Company`s activities and material topics in sustainable development. Therefore, the presented information goes far beyond the GRI Indicators.

Considered in the Report material topics tend to address issues related to the economic, environmental and social impacts of KPO's activities generally, as well as separately in the process of implementation of particular production operations. The Company's interaction manifests both internally and externally. The significance of material topics can be seen from the stakeholders' level of interest in them (figure 5).

Regardless of Standards` requirements, we do our best to present more detailed information about Company`s activities and material topics in sustainable development. Therefore, the presented information goes far beyond the GRI indicators

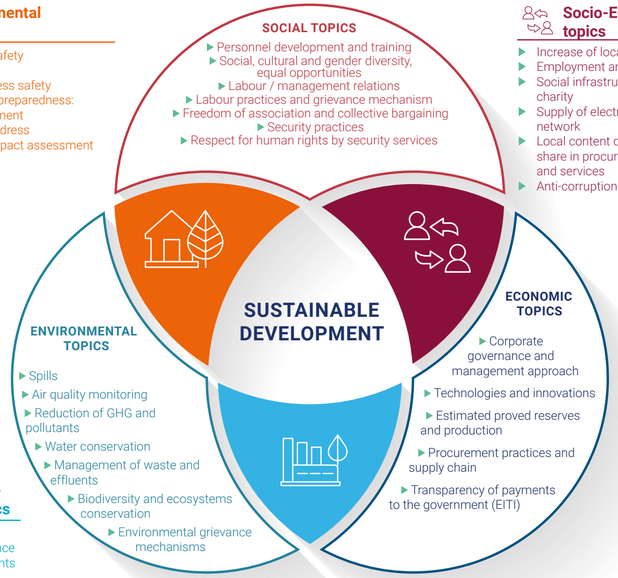
Fig. 4. Material topics of KPO sustainable development / GRI 102-47, 102-44, 102-46 /

Socio-Environmental topics

- Labour protection and safety
- Protection of health
- Asset integrity and process safety
- Community emergency preparedness: mechanisms of engagement
- Community grievance redress
- Community relations: impact assessment and mitigation

Socio-Economic topics

- Increase of local content in staff
- Employment and compensation
- Social infrastructure projects and charity
- Supply of electrical power to regional network
- Local content development and its share in procurement of goods, works and services
- Anti-corruption



Environmental-Economic topics

- Energy efficiency
- Environmental compliance
- Environmental investments
- ISO 14001 and 50001 certification

The topics disclosed for the reporting period are annually tracked in the process of multilateral interaction with KPO Parent Companies, the PSA LLP Authority, various regulatory bodies, contractors, business partners, local communities and the media. The stakeholders raise their issues at various sessions, from meetings of the Village Councils to forums, conferences, public hearings, open days, audits, and social surveys and by direct addressing them to the Company. / GRI 102-43 /

As part of the Report's preparation, we aim to continuously raise our stakeholders' awareness of the material topics disclosed in the Report, both internal and external. Inside the printed copies of our Sustainability Reports for the last two years there are loose-leaf feedback forms for readers to fill in. We have also placed an online feedback form on our website.

Stakeholder engagement

/ GRI 102-42, 102-43 /

Success of sustainable development depends on effective dialogue of business and its stakeholders. We are bound with our stakeholders by multiple ties and are interested to hear their opinions.

Given the scale of the KPO's activities, our stakeholders are a large number of diverse groups and organizations. The most significant groups of stakeholders and ways of interaction are presented on the figure 5. The following topics, which involved most part of stakeholders are safety, emergency response, environmental protection and compliance with environmental requirements.

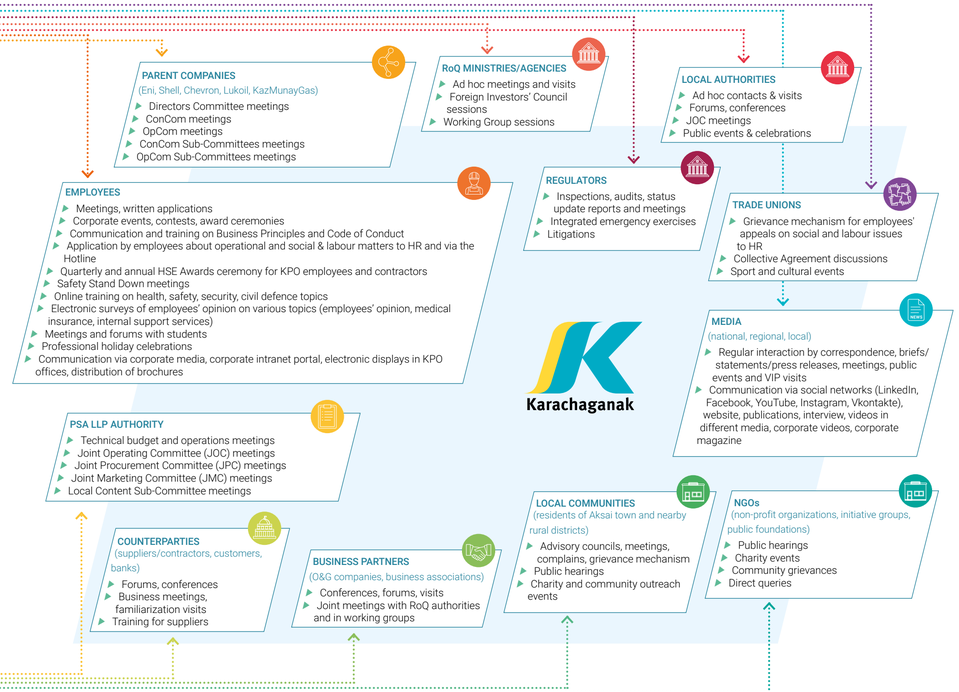
Our interaction with stakeholders is a daily practice as part of the current Company`s activities and is carried out in accordance with the legislation and internal policies. KPO departments determine their stakeholders on their own, and share their experience of engagement in this Report. This is an organized and regulated process, which involves planning and documenting.

Feedback on the issued Sustainability Reports is obtained using different channels, including telephone and e-mail communications through Sustainability@kpo.kz, address, as well as KPO's official website www.kpo.kz. All received comments and suggestions are reviewed in preparation of the next Report.

Our interaction with stakeholders is a daily practice as part of the current Company`s activities and is carried out in accordance with the legislation and internal policies

Fig. 5. KPO engagement with stakeholders in 2019
/ GRI 102-40, 102-42, 102-43, 102-44 /

Material topic	Parent Companies	PSA LLP	Employees	Local authorities	RoQ Ministries / Agencies	Regulators	Counterparties	Business partners	Media	Local communities	NGOs	Trade Unions	Total
Corporate governance and management approach	✓	✓	✓										3
Labour protection, safety & asset integrity	✓	✓	✓	✓	✓	✓	✓	✓				✓	9
Technologies and innovations	✓	✓			✓		✓	✓					5
Management systems (compliance with ISO 45001, ISO 50001 and OHSAS 18001)	✓		✓			✓	✓				✓		5
Community emergency preparedness	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	10
Protection of health	✓	✓	✓	✓	✓	✓	✓					✓	8
Employment and compensation	✓		✓	✓	✓	✓				✓		✓	7
Personnel development & training	✓	✓	✓			✓						✓	5
Social, cultural & gender diversity, equal opportunities	✓		✓				✓			✓		✓	5
Labour / Management relations	✓		✓									✓	3
Freedom of association and collective bargaining	✓		✓									✓	3
Security practices	✓		✓			✓	✓		✓			✓	6
Respect for human rights by security services	✓		✓				✓						3
Anti-corruption	✓		✓		✓		✓	✓	✓		✓		7
Environmental protection	✓		✓	✓	✓		✓		✓	✓	✓		8
Environmental compliance	✓	✓	✓	✓	✓	✓			✓	✓	✓		9
Community relations: impact assessment & mitigation	✓			✓					✓	✓			4
Grievance mechanisms: impacts on local communities, labour practices, environmental topics	✓		✓	✓						✓	✓	✓	6
Procurement practices and supply chain	✓	✓					✓	✓					4
Increase of local content in staff	✓	✓	✓	✓	✓	✓	✓			✓			8
Local content development and its share in procurement of goods, works and services		✓		✓	✓		✓		✓				5
Social infrastructure projects and charity	✓	✓	✓	✓	✓				✓	✓			7
Supply of electrical power to regional network		✓	✓	✓					✓	✓			5
Transparency of payments to the government (EITI)	✓	✓		✓	✓				✓		✓		6



MANAGEMENT APPROACH

Governance structure / GRI 102-18 /

Karachaganak Petroleum Operating B.V. Kazakhstan Branch was established in 1998 as a Joint Venture to operate the Karachaganak Oil and Gas Condensate Field (further as Karachaganak Field or the KOGCF) in accordance with the Final Production Sharing Agreement (FPSA). / GRI 102-5 /

KPO established an integrated and effective system of governance, risk management, business planning, internal control and compliance, in order to achieve sustained organizational success. The integrated management system approach enables appropriate decision-making and provides adequate control mechanisms to ensure strategies, directions and guidance from senior management are carried out systematically and effectively.

KPO organisational structure was designed to enable KPO to meet its business objectives for the benefit of the Republic of Qazaqstan (the Authority represented by the PSA LLP) and the Contracting Companies by continuously assess current external environment. / GRI 102-44 /

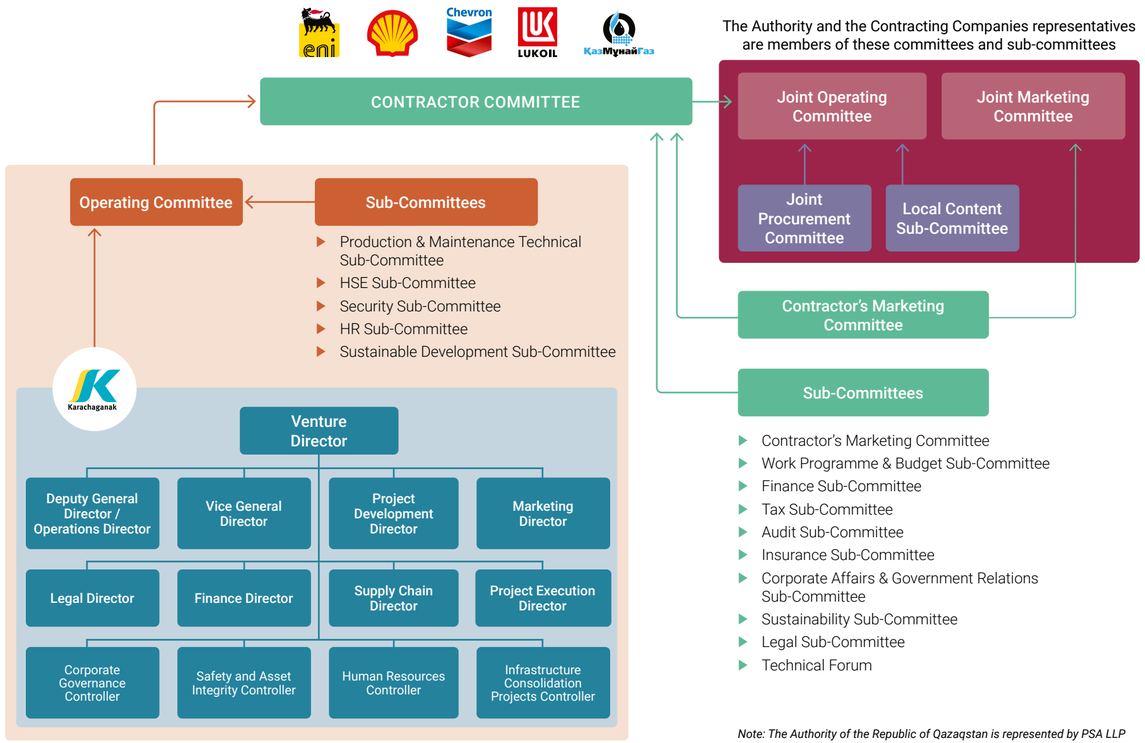
KPO brings expertise from five international oil and gas companies (hereinafter referred to as the Contracting or Parent Companies):

Eni	Shell	Chevron	LUKOIL	KazMunayGas
29.25%	29.25%	18%	13.5%	10%

KPO has two main governing bodies, the Joint Operating Committee (JOC) and the Joint Marketing Committee (JMC), are formed by representatives of each of the five Contracting Companies and representation of the Authority under the FPSA. In particular, at JOC & JMC level, the Authority has one vote and the Contracting Companies, as a whole, have one vote. An affirmative vote on both sides is required for a decision.

In addition to the above, there has been established certain sub-committees dealing with specific matters. Functions of the committees and sub-committees were described in detail in the Sustainability Report 2018 (pp. 33-34). Graphics of the full governance framework is given on figure 6.

Fig. 6. Karachaganak venture senior management structure *(as of 31.01.2019)* / GRI 102-18, 102-44 /



Note: The Authority of the Republic of Qazaqstan is represented by PSA LLP

KPO management systems

/ GRI 103-2 /

In all aspects of its activities and in accordance with the FPSA, KPO operates to internationally recognized standards, which are implemented through a number of policies, procedures and appropriate best practices embedded in KPO's management systems.

In respect of sustainable development, KPO management systems address sustainable development matters and issues as shown in the following table:

Karachaganak Corporate Management System

Karachaganak Corporate Management System Manual sets out a common understanding of the way that KPO is organised and how the business is managed through its processes, assets and people. This document defines the Assurance and Compliance control framework to provide clarity to KPO management and shareholders that the principles of conducting business in KPO align with the foreign practices applicable to the shareholders and legislation of Republic of Qazaqstan and to ensure that KPO employees are aware of their responsibilities under the Code of Conduct and KPO compliance framework.

Corporate Governance Controllership Management System

This Management System provides a structure to maximise contribution to the business by everyone involved in the activities of the Corporate Governance Controllership. The document describes its mission, objectives and deliverables, such as assurance of KPO's internal control framework as well as value assurance reviews of projects; external document and correspondence management, business planning and performance monitoring, and translation services.

Tab. 3. Management systems relevant to sustainable development

Corporate Governance	Operations	HSSE and Asset Integrity	Social Performance	Ethics & Compliance
▸ Karachaganak Corporate Management System Manual; ▸ Corporate Governance Controllership Management System.	▸ Management System Manual for Operations Directorate; ▸ Marketing Directorate Management System; ▸ Finance Directorate Management System; ▸ KPO Competency Management System Policy.	▸ Health, Safety and Environmental Policy and Rules; ▸ KPO HSE Annual Improvement Plan; ▸ Occupational Health and Health Promotion Policy; ▸ Energy Management System Manual and KPO Energy Policy; ▸ Security Management System Framework.	▸ Local Content Policy; ▸ Nur-Sultan Office Controllership and JOC Secretariat Management System; ▸ KPO Social Performance Policy and Standards; ▸ KPO Sponsorship and Donations Policy; ▸ HR Management System Manual; / GRI 103-2 / ▸ Social Projects Department Management System.	▸ KPO Code of Conduct; ▸ Conflict of Interest Policy; ▸ Compliance Assurance Policy.

- **Integrated HSE Management System / GRI 103-2 /**

KPO has an integrated HSE Management System, which is certified to meet the requirements of the OHSAS 18001:2007 international standard. The certificate is valid until 2020. After that, KPO plans a process of certification for compliance with the new ISO 45001:2018 standard published in 2018.

In 2018, in order to identify gaps in compliance with ISO 45001:2018, KPO conducted the first stage of analysis of the existing HSE Management system documentation. In 2019, KPO conducted the second stage of analysis of the HSE Management system in order to check the Company readiness for certification and compliance of amendments introduced in the internal HSE documentation after the first analysis. Based on results of the two analyses, the identified gaps were scheduled to be addressed prior to the re-certification audit in 2020.

In 2019, KPO held 12 internal audits and 16 audits of contractors.

Risk management / GRI 102-15 /

Petroleum operations must be carefully managed with respect to people, the environment, assets. As a responsible oil and gas operator, KPO pays particular emphasis on managing risks on personal and process safety, air emissions, water and soil pollution, and generation of waste. Besides, such risks include, but are not limited to:

- Personnel safety: potential emissions of hydrogen sulphide (H_2S);
- Asset integrity risk from illegal taps;
- Environment: potential spills, generation of waste, and emissions to air;
- Ethics & Compliance of our own personnel, our contractors, and subcontractors;
- Attracting and retaining qualified local Qazaqstani personnel.

Within KPO a formal Risk Management process is in place to identify and effectively manage business risks. The Risk Management Procedure defines and describes this process, as well as roles and responsibilities.

Corporate Governance Controllership facilitates the development of a risk management system and is responsible for maintaining the Corporate Risk Register. The Corporate Risk Register contains a list of potential risks, as well as relevant action plans aimed to mitigate those risks. / GRI 102-29 /

All risks are reported to and reviewed in the quarterly KPO Risk Committee meetings participated by KPO senior management. After each Risk Committee meeting, the Corporate Governance Controller provides the ConCom with the Quarterly Risk Register Report, outlining the details on the KPO's top risks. / GRI 102-33 /

Detailed disclosure on measures for specific risks' reduction is provided in the relevant chapters of this Report.

Assurance / GRI 103-3 /

KPO utilises audit as one of the tools to provide assurance. The KPO Internal Audit Department provides an assurance designed to reveal the organisation's control gaps and failures in mitigating its risks. It supports KPO to deliver its business objectives by bringing a systematic, disciplined approach to evaluate and improve the design and operating effectiveness of risk management, control, and governance processes.

KPO implements its annual audit plan, which includes topics, such as efficiency of business processes, compliance with law, regulations and internal procedures, reliability of financial and management reporting, and follow-up of audit actions. In addition, KPO Parent Companies conduct an annual audit to provide additional assurance to the areas of risk management, control, and governance. The results of the audits are reported to KPO management and Parent Companies at the Audit Sub-Committee.

Another tool that KPO utilises is a Value Assurance Review (VAR). This tool is applied to all relevant KPO projects and is a scalable process assisting project leaders to maximise the value of investments for the venture. Besides, Value Assurance Reviews, functional technical reviews, peer assists and workshops are held to assure projects go through the necessary stages from 'identification' to 'operation'. Parent Companies' representatives are involved in value assurance for larger capital projects, whilst for smaller projects the value assurance is performed by independent teams within KPO.

Extractive Industries Transparency Initiative

KPO supports the Extractive Industries Transparency Initiative (EITI), which focuses on ensuring transparency of incomes and overall chain of value creation in the management of the natural resources of the Republic of Qazaqstan (RoQ).

As reported in the 15th National Report on Implementation of the Extractive Industries Transparency Initiative for 2019, in 2019 KPO paid taxes in the amount totalling US$ 1.6 bln (at the RoQ National bank exchange rate on 31.12.2019). / GRI 102-13 /

KPO has been solely submitting the EITI reports on its tax obligations to the RoQ authorised bodies since 2014. In table 4 one can see the history of KPO payments in the period from 2014 to 2019.

Data about taxes paid by KPO to the state budget is publicly available at egsu.energo.gov.kz (section 'Final Report on tax and non-tax payments/ incomings from payers of oil & gas and mining sectors of the Republic of Qazaqstan').

Tab. 4. Taxes and mandatory payments paid by KPO to the RoQ Budget in 2014-2019 *(in US$)*

2014	2015	2016	2017	2018	2019
2.1 bln	1.2 bln	369 mln	897 mln	1.9 bln	1.6 bln

BUSINESS ETHICS / GRI 102-16 /

KPO Business Principles

KPO conducts its business based on KPO Business Principles introduced in 2019.

Our Business Principles govern how we conduct our business and set high standards of performance and ethical behaviour. We also expect all of our stakeholders, including contractors and suppliers, to respect and adhere to these Business Principles.

The full KPO Business Principles and a short video are available on our website by following *link*.

Code of Conduct / GRI 103-2 /

The KPO Compliance Framework regulates and provides guidance on all aspects of compliance throughout the Company. Code of Conduct is the fundamental document within the Compliance Framework, which establishes the core ethical principles, values and behaviours in the process of working inside and outside of the Company and when contacting with vendors, suppliers or other counterparties.

Our Code of Conduct is read in conjunction with our Business Principles and gives KPO staff more detailed guidance on how to apply our Business Principles and the standards and behaviours required of our staff. It covers areas including international trade, health and safety, communications and gifts and hospitality. The copy of Code of Conduct is available on our website by following *link*.

Our Business Principles cover seven categories:

Awareness training on the Code of Conduct and anti-corruption / GRI 412-2, 205-2 /

KPO insists on creating a fair and equitable business environment where the ethical business principles in the KPO Code of Conduct are the foundation for all its relationships.

All new starters in KPO receive an introductory training course on the Code of Conduct. Each KPO employee is required, on an annual basis, to make a Compliance Declaration acknowledging their familiarisation with their personal compliance obligations. The Code of Conduct and other ethical compliance policies and practical tests are available on the KPO intranet for each employee. By the end of December 2019, 99% of KPO employees had completed their Compliance Declaration.

As part of raising awareness on ethical compliance and engagement amongst the contractor companies, KPO held its annual Contractor Ethical Compliance Workshop in June and September 2019. The workshop was attended by 61 delegates from 58 contractor organisations, together with Operator representatives from Shell and Eni.

Hotline and other compliance measures / GRI 102-16, 102-17, 103-3 /

To support the Company's legal compliance programme, KPO has a toll-free, anonymous and confidential Hotline in place since 2012.

The Hotline provides an important tool for KPO's employees, contractors and stakeholders to ensure a fair and safe working environment. The topics may include discrimination, sexual harassment, conflicts of interest, safety or environmental violations and/or improper financial practices or bribery. The caller can report on the alleged misconduct either by telephone or by completing an online report form. The report is then sent to the KPO Legal Compliance Counsel and Compliance Coordination Manager for review and to determine the appropriate action. In some cases, employees report concerns directly to the Legal Directorate.

All the reports received during 2019 were duly considered and where the matter has been concluded appropriate action taken when justified. The complaints mostly related to Human Resources issues, and these were addressed in accordance with KPO's Regulations on Individual and Collective Labour Disputes and Discipline Handling Policy, depending on the nature of the situation. Those matters that related to allegations of ethical misconduct were investigated in terms of the Compliance Assurance Investigations Guidelines and were reported to the KPO Compliance Committee.

Anti-corruption due diligence process / GRI 102-16, 205-2 /

Since 2012, KPO has implemented an Ethical Due Diligence programme to determine the risks associated with each potential business partner and to identify appropriate mitigation measures for those aspects that may pose a risk.

Each potential business partner receives a questionnaire asking information about its ownership, management and conduct of business including its ethical business practices. KPO uses an international Dow Jones risk and compliance database and other databases (including tax and court databases) to confirm the company's corporate information and whether there were any negative reports regarding its business conduct. Then, a risk assessment is performed to determine the acceptability of the business partner and, if relevant, mitigation measures to be applied to any residual risks.

Moreover, KPO requires its business partners to comply with applicable Qazaq and international laws combatting corruption and bribery through obligations incorporated in KPO's standard contracts.

We are confident that these activities have alerted our business partners to KPO's high standards of ethical business. We cooperate with and support our business partners to prevent corruption and bribery.

RESPONSIBLE OPERATOR

SAFETY / GRI 102-15 /

Health, safety and asset integrity are critical success factors in developing and operating any oil, gas and condensate field. As a socially responsible company, KPO is fully committed to maintaining effective HSE culture. Everyone must return home safely and there must be no leaks in our facilities.

Tab. 5. Our targets in safety / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
SAFETY				
▸ Conduct a Surveillance audit for ISO 14001:2015 and OHSAS 18001:2007 in May 2019. ▸ Conduct a second stage of gap analysis of HSE Management System's compliance with the new ISO 45001 standard requirements. ▸ Organise training for relevant staff on ISO 45001. ▸ Conduct a Management Review before certification.	completed	All activities were completed by 100%	▸ Conduct a re-certification audit for ISO 14001:2015 and a surveillance audit ISO 45001:2018 in 2020. ▸ Organise training on ISO 45001 for relevant staff	
Implement HSE competency assessment of the KPO front line supervisors (40% planned for 2019)	completed	In 2019, HSE competency assessments of the KPO front line supervisors were conducted covering 10 HSE elements. Due to the 2019 Turnaround there was done 30% supervisors' assessments out of the planned 40%.	Implement 100% HSE competency assessment of the KPO front line supervisors in Operations Directorate	
Maintain contract owner's awareness on the HSE requirements in the contract management process	completed	Five sessions were held for contract owners, contract administrators, and C&P specialists. The sessions included an overview of entire contracts and procurements process in KPO from the HSE critical viewpoints and also legal requirements.	Update the Contractor HSE Performance Management Strategy and arrange training workshops	
Implement Safety Continuous Improvement Journey	completed	All planned activities of Safety Continuous Improvement Journey were implemented. The details are provided further in section 'HSE Engagement and Communication'.		
Implement short term actions of the Road Safety Implementation Plan	completed	12 short term actions planned for 2019 were taken under the Road Safety Improvement Plan. The details are given further in the section 'Road Safety'.	Implement activities of the Road Safety Implementation Plan	

Safety performance / GRI 103-3, 403-2 /

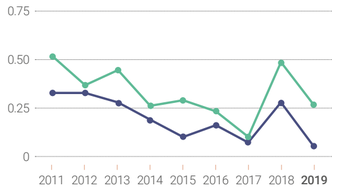
This section presents safety performance in the period of 2011–2019 with a focus on the 2019 activities. We plan our activities based on trends and dynamics analysis. We measure our success by frequency of incidents that occurred over a set amount of work performed in man-hours.

The Graph 1 shows both Lost Time Injury Frequency (LTIF) and Total Recordable Injury Frequency (TRIF).

In 2019, KPO experienced a significant reduction of Lost Time Injuries and a relative decrease of Total Recordable injuries. In 2019, KPO LTIF was 0.06 (versus 0.29 in 2018) and TRIF – 0.28 (versus 0.50 in 2018).

We investigate all incidents in order to prevent their recurrence. Besides, we share our lessons learned with our contractors and other interested parties, and adopt practices from others to improve safety in KPO.

Graph 1. LTI Frequency and TRI Frequency: KPO and Contractors, 2011-2019 / GRI 403-2 /



Note: Calculation method applied in KPO for LTI and TRI frequencies:

LTI Frequency (LTIF) = Number of LTIs (Lost Work Day Case + Fatality) x 1,000,000/man-hours;

TRI Frequency (TRIF) = Number of TRIs (Lost Time Injury + Medical Treatment Case + Restricted Work Day Case) x 1,000,000/man-hours.

Table 6 shows KPO LTIF versus contractors LTIF for the last three years. KPO and Contractors data is presented separately. To get a consolidated figure a formula should be applied, but not totalizing numbers.

Tab. 6. Lost Time Injury Frequency: KPO versus contractors, 2017-2019 / GRI 403-2 /

Performance Indicators	2017	2018	2019
Lost Time Injury Frequency (KPO)	0.14	0.53	**0.13**
Lost Time Injury Frequency (Contractors)	0.05	0.20	**0.04**

Table 7 shows KPO TRIF versus the contractors' TRIF.

Tab. 7. Total Recordable Injury Frequency: KPO versus contractors, 2017-2019 / GRI 403-2 /

Performance Indicators	2017	2018	2019
Total Recordable Injury Frequency (KPO)	0.14	0.66	**0.13**
Total Recordable Injury Frequency (Contractors)	0.10	0.44	**0.33**

Note: First Aid Cases are not included in occupational injury calculations.

KPO strives for an injury-free workplace; however, during 2019 we had 10 incidents, which caused various injuries, nine of which were suffered by contractors' employees and one – by a KPO employee.

Tab. 8. Incidents in 2019 / GRI 403-2 /

Type of injury	Description	Number
2 Lost Time Injuries	Eye injury as a result of the fallen object (portable radio) from height	1
	Head injury as a result of falling down at work site	1
8 other recordable injuries to personnel, who could continue work after medical treatment (5) or being transferred to light duties (3)	Hand injury as a result of falling from stairs	1
	Head injury as a result of being struck by pipe handling bails	1
	Foot injury as a result of improper closure of gate	1
	Finger pinched between fencing (handrails)	1
	Ankle injury as a result of stumbling	1
	Minor cut of palm	1
	Knee injury as a result of falling	1
	Worker was trapped by fallen pipe and sustained a minor injury	1
TOTAL		**10**

In 2019, KPO vehicles travelled 42.7 mln km as opposed to 38 mln km in 2018.

Road Traffic Incident Frequency (RTIF) per mln km driven decreased from 0.03 in 2018 to 0.02 in 2019. This related to implementation of a number of activities aimed at improving road safety (described further in Road Safety section). Besides, transport mileage was increased because of the 2019 Turnaround and expansion of the Karachaganak Gas Debottlenecking Project (KGDBN).

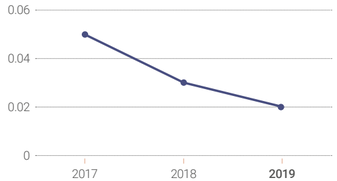
In 2019, one severe RTI took place – while overtaking a third-party vehicle a contractor driver of the Toyota Prado lost control, which resulted in vehicle roll over into the ditch.

KPO 2019 Lost Time Injury Frequency was

0.06

vs 0.29 in 2018

Graph 2. Road Traffic Incident Frequency: KPO and contractors, 2017-2019 / GRI 403-2 /



Our calculation of RTIF: Road Traffic Incident Frequency = number of RTIs (severe) x 1,000,000/kilometres driven.

2019 Total Recordable Incident Frequency was

0.28

vs **0.50** in 2018

Tab. 9. Road Traffic Incident Frequency: KPO versus contractors, 2017-2019 / GRI 403-2 /

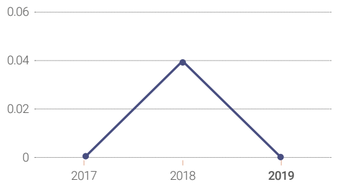
Performance Indicator	2017	2018	2019
Road Traffic Incident Frequency (KPO)	0.00	0.00	0.00
Road Traffic Incident Frequency (Contractors)	0.06	0.03	0.03

Note: from 2017 on, in accordance with the guidance of the International Association of Oil and Gas Producers (IOGP), RTIF is calculated based on km driven only when performing work under a contract with KPO

Tab. 10. Fatality Frequency: KPO versus contractors, 2017-2019 / GRI 403-2 /

Performance Indicator	2017	2018	2019
Fatality Frequency (KPO)	0.00	0.00	0.00
Fatality Frequency (Contractors)	0.00	0.05	0.00

Graph 3. Fatality Frequency: KPO and contractors, 2017-2019 / GRI 403-2 /



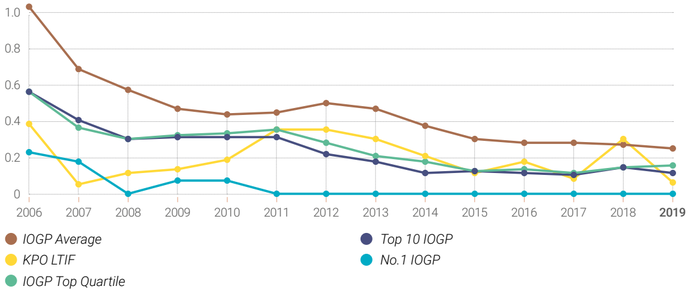
Note.: Our calculation of fatality frequency: Fatality frequency (per million man-hours worked) = Number of fatalities x 1,000,000 / man-hours worked. KPO had one fatality in 2018.

PEER Comparison / GRI 103-3 /

We annually review our safety performance against other Oil & Gas production operators. KPO Key Performance Indicators (KPIs) are compared to the data annually published by the International Association of Oil and Gas Producers (IOGP) based on the operators' performance collected worldwide.

In 2019, the number of Lost Time Injurers in KPO was reduced significantly. If compared with other peer companies in 2019, KPO LTIF is better versus the performance indicators of Top 10 IOGP and IOGP Average for 2019 (see graph 4). IOGP Safety Performance Indicators are posted annually at *www.iogp.org*.

Graph 4. KPO Performance versus IOGP, 2006-2019 / GRI 403-2, 103-3 /



In 2019, the competence of lower-level KPO managers in the field of HSE was assessed for 10 elements of HSE

2019 HSE improvement plan

/ GRI 102-11, 103-3 /

When designing annual HSE Improvement Plan, KPO selects actions, which are over and above KPO's day-to-day business activities, and aimed at further improvement. The Plan is built on the lessons learned over the past years and on best practice.

A new 'theme' approach has been adopted in the preparation of the 2019 HSE Improvement Plan to ensure both Plan and KPIs support each other and the KPO HSE improvement priorities are achieved. To reach a goal of no harm and no leak, main improvement themes have been grouped in four blocks of 'focus areas'.

I. Leadership and safety culture;
II. Risk management;
III. Environment and energy-zsaving;
IV. Transport.

The 2019 HSE Improvement Plan consists of 33 key actions and improvements developed to ensure implementation of themes of each focus element. 94% of the Plan was completed; delivery of a number of other actions will be progressed as part of the 2020 Plan.

HSE engagement and communication / GRI 102-11 /

In order to step up HSE performance and enhance safety culture among the company staff and contractors, in 2019 KPO initiated a Safety Leadership Improvement Journey consisting of six elements:

- Consolidation of rule sets;
- Consequence management;
- Safety leadership and coaching;
- Management presence on site;
- Reward mechanism;
- Soft barrier management.

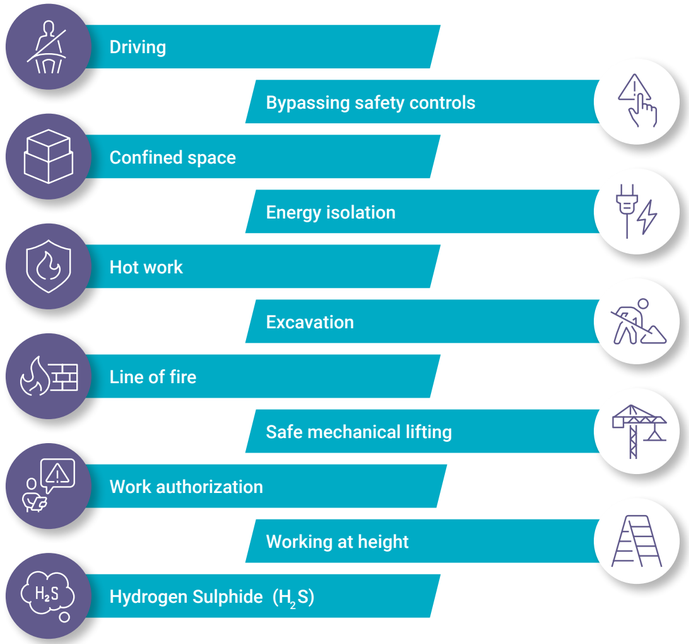
Consolidation of rule sets

In 2019, in addition to three Golden Rules, KPO introduced 11 Life Saving Rules.

With the aim of enhancing safety culture, standardization across all organizations in the oil and gas industry, as well as improving the exchange of knowledge, experience and lessons learned, KPO has decided to adopt Life Saving Rules designed by the International Association of Oil and Gas Producers (IOGP). Life Saving Rules underpin Golden Rules and focus attention on 11 types of high-risk activities.

Golden Rules and Life Saving Rules are applicable to all KPO, contractor and subcontractor personnel since employees' behaviour both positive and negative has a big impact on HSE performance.

Types of high-risk activities:



Consequence management

To ensure a just culture and fair approach, the HSE behavioural accountability and consequence management model was updated. This model ensures a systematic examination of employee's behaviour that has had either positive or negative consequence, and determines the appropriate level of reward or sanction. The new model includes the following:

- Analysis form of HSE behaviour,
- Description of more detailed results and consequences of positive and negative behavior,
- Examples of non-compliance to Life Saving Rules and possible consequences.

Leadership and coaching

In 2019, a Safety Leadership and Culture Programme was successfully launched. Over 1,000 front line supervisors of KPO and contractors' completed this course where they improved their knowledge and skills on coaching, engagement and intervention. In order to increase personnel awareness Corporate Safety department together with the Project Execution HSE department produced a Safety Leadership and Coaching Programme video.

Management presence on site

HSE Leadership and Management Tours programmes define a necessity for all KPO management to be visible in the workplace and interact with the workforce to monitor overall HSE performance and encourage continuous improvement in line with the KPO Policy, regulatory requirements and industry best practice.

HSE tours are conducted at two levels: HSE leadership tours intended for KPO Directors, Controllers and contractor Managers, and HSE Management Tours for KPO Front-line Supervisors.

In 2019, the total number of HSE Leadership Tours was 85 versus the target of 60 (142% of the target) while number of the HSE Management Tours reached 476 versus the target of 350 (136% of the target). As part of HSE Leadership Improvement Programme, a Guidance on HSE Tours was updated.

Reward mechanism

KPO Management encourages achievement of safety leading indicators by developing employees' skills to timely identify, intervene and report any unsafe situation, such as unsafe condition, unsafe act/behaviour or near miss. Reward mechanism is presented in the form of a Success Story.

Soft barrier management

As a part of the Company's policy to assure personnel's competency involved in engineering, construction, operation and maintenance of assets, a document defining the main principles of competency development and assurance, and areas of improvement identification was produced. In addition, HSE competency of front-line Supervisors was assessed. This activity will be continued in 2020.

In 2019, KPO conducted 12 internal audits and 16 audits of contractors

Engagement with peer companies

In 2019, three major joint ventures, TCO, KPO and NCOC successfully continued a collaboration effort in the HSE with a sole purpose to build jointly a sustainable culture of safe behaviour. On top of that, exchange of information, lessons learned from incidents and best practices took place. This initiative also is aimed to simplify, standardize and implement uniform requirements and develop industry-wide practical solutions.

During the year 2019, three meetings of JV HSE were organised in Aksai (KPO), Atyrau (NCOC) and Tengiz field (TCO). In the course of these meetings, such topics were considered as learning from incidents, safety culture and safety leadership, contractor management process, road safety, employee health and welfare, and emergency response. All parties found HSE collaboration of mutual benefit. The initiative will be continued in 2020.

Road safety

To ensure sustainable road safety performance, KPO continues implementation of its Road Safety Improvement Plan. In 2019, 100% short-term activities of this plan were performed, including the following:

- Key objectives in road safety were identified in the 4-year HSE Strategic Plan;
- Road Safety Steering Committee was set up;
- Two Transport Safety Inspectors were employed to control quality of technical inspections, maintenance and repair of contractors' vehicles;
- Settings in In-Vehicle monitoring systems were aligned with the IOGP criteria; KPO Directorates receive weekly reports on driving behaviour of drivers, which are also published on the Intranet;
- Road safety risks of major KPO travel routes were asessed.

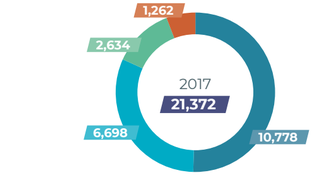
Besides, as part of engagement with the local community the following events took place:

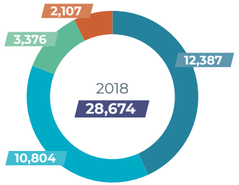
- Five Road Safety billboards were installed in Aksai;
- KPO organized: a Road Safety campaign dedicated to the International Children's Day in June, and the meetings with schoolchildren of the Burlin District schools jointly with Road Safety Police in September and October;
- Audio adverts on a local radio were broadcasted on topics, such as: use of seat-belts, speed enforcement, safe pedestrian crossing, use of a child-seat, danger of smoking while driving, drunk driving, etc.

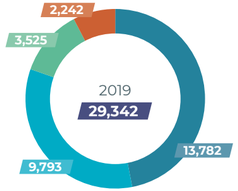
HSE card programme / GRI 102-11, 103-3 /

Graph 5 shows analysis of the observations made through HSE card mechanism over a period of 2017–2019. The number of observations in 2019 slightly increased as compared to 2018.

Graph 5. HSE Cards by type of observations, 2017-2019







- *Hazard*
- *Good practice*
- *Unsafe act/behavior*
- *Suggestion*

KPO SUCCESS STORY 4 HSE INCENTIVE SCHEME

Context / short description of issue:

KPO introduced an incentive scheme in 2012 as a tool to motivate personnel in achieving HSE leading indicators and participating in programmes that promote HSE. The programme provides for annual rewarding of personnel with monetary and commemorative prizes for their high performance.

Goal:

- Encourage and motivate employees to demonstrate positive safety behaviour, as well as to take a proactive part in KPO HSE programmes and initiatives.
- Develop safety culture within the company and among the contractors.
- Carry out safe operations and achieve high HSE performance indicators.

Solution / actions:

In 2019, KPO Management selected the following leading indicators:

1. ***The ratio of Near Misses reported to Total Recordable Injuries shall not be less than the annual target of 11:1.***
   Investigation of serious incidents often reveals earlier minor events, which were ignored. Investigation and tracking of near misses allows learning from zero-cost lessons and preventing any kind of injury.
2. ***100% completion of HSE Card E-learning by all KPO employees.***
   Completion of E-Learning enables personnel to identify and timely intervene when unsafe condition or unsafe behaviour and near miss is observed.

Result:

In 2019, as part of the Incentive Scheme 1,715 KPO and contractors' employees were awarded with promo gifts for active engagement. 88 employees received money rewards for contribution to safety improvement in the Company.

Over 2019, the number of Near Misses (NM) reported to Total Recordable Injuries (TRI) was 11: 1 (111 NM vs 10 TRI). 100% of Company staff successfully completed the HSE Card E-learning.

Achievement of the set objectives demonstrates a greater engagement of personnel in observation of unsafe behaviour. This, in its turn, increases the likelihood of more effective incident prevention and raise the level of overall safety culture in the Company.

Rewarding employees for the contribution in HSE

Over

29,342

HSE observations were raised throughout 2019 using HSE Cards mechanism

Road Traffic Incident Frequency (RTIF) per mln km driven decreased from

0.03

in 2018 to

0.02

in 2019

KPO SUCCESS STORY 5

HSE CARDS PROGRAMME – 2019 RESULTS

Context / short description of issue:

The Company gives the highest priority to personnel safety and prevention of near misses. The HSE Card Programme has been in place since 2012 and has become one of the key tools of a proactive approach to HSE risk management across KPO. Thanks to this programme every employee can make own contribution in identifying and eliminating hazardous conditions. Initially HSE card was available in a paper form, but as time progressed, an electronic card became available online to all employees.

Goal:

- Prevention of incidents and injuries, identification and elimination of unsafe conditions;
- Development of safe behaviour culture, encouragement of personal account-ability for safety and showing care for the environment.
- Obtaining feedback and suggestions on improving safety in the Company.

Solution / actions:

To prevent incidents and ensure safe working conditions the HSE Card Programme was introduced in the Company in 2012. This programme allows personnel to observe, to intervene, where required, to stop work and report via HSE Card about any noticed unsafe condition/behaviour and near miss, and also to make suggestions.

KPO set up HSE Card Committees at units that analyse observations, determine corrective actions and monitor their closure.

In addition, the Committees identify root causes of unsafe behaviour and arrange training on identifying and classifying unsafe situations.

Result:

Until present, the HSE Card Programme has been successfully functioning. Engagement of personnel annually increase, as the card is the most user-friendly and simple tool for addressing safety issues and making suggestions.

KPO contractors' personnel also participate in the HSE Card Programme. In 2019, 69 Contractors reported 19,676 observations, which made up about 70% of all received cards.

- At year-end 2019, 4,145 employees were engaged in the HSE Card Programme.
- Throughout 2019, 29,342 observations were made.
- 61 Near Misses were reported via the HSE Card and further investigated in order to prevent potential incidents.
- Over 17,308 interventions were made resulting in corrective actions; 92% of actions were closed at the end of the year.
- 100% KPO employees completed the HSE Card E-learning.

Emergency response system

/ GRI 103-1, 103-2, 102-11 /

Emergency preparedness and response address possible emergencies and incidents, their prevention and minimization of impact on people and the environment.

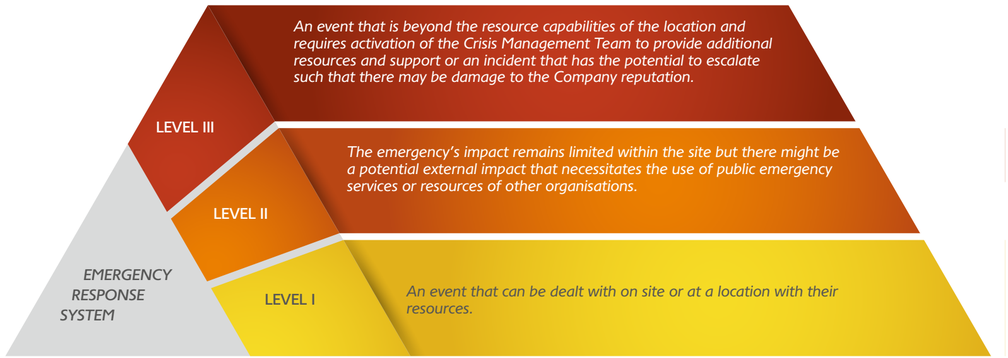
Aiming at reduction of H_2S risks while potential emergency emissions of hydrocarbons at the Karachaganak Field, in December 2018 KPO issued a Strategy of H_2S protection of KPO and contractors' personnel. To put into action this Strategy, the Company has bought gas masks and portable multi-gas monitors for own personnel and for the contractors. A special RPE Distribution Centre was opened in Aksai to ensure a centralized issue of personal protective equipment for personnel.

From May 2019, when entering the Karachaganak Field every employee of KPO or recruitment agency and official visitors of the Company should have a filter hood and a personal gas detector provided by KPO. Since February 2020, this requirement became mandatory also for KPO contractor organizations.

KPO operates a robust three-level Emergency Response system used to trigger a prompt response in case of any accident, incident or emergency, to assess its scale and to work out solutions how to contain and control it. The system is presented on the figure 7.

The KPO emergency response system is annually validated through various emergency drills and exercises in line with the Company's Level I, II and III Emergency Response Training and Exercise Plan. In addition to regular onsite emergency response drills, larger-scale exercises were conducted in 2019 with the involvement of emergency response groups of different responsibility levels. Also, weekly table-top exercises were held both in the Field and in Aksai where the Incident Management Teams brainstormed various emergency scenarios to address the requirements of Units' Emergency Response Plans.

Fig. 7. KPO Emergency Response System / GRI 103-2 /



Moreover, within 2019 in line with the approved 2019 annual schedule, the Emergency Response team conducted the monthly theoretical training sessions with the Emergency Control Centre's personnel at the KPO Emergency Coordination Centre. The training was attended by specialists from KPC, Unit-2, Unit-3, Eco Centre, Well Operations and Gathering departments.

Throughout the year, theoretical sessions and practical drills took place on a weekly basis with engagement of the KPO Emergency Response System teams, including:

- Fire Fighting Service,
- Gas Rescue teams,
- Voluntary Gas Rescue teams,
- Medical staff.

In 2019, KPO continued with training of staff on civil protection via an e-learning system as required by the RoQ legislation. The KPO management team and the leaders of Emergency Rescue teams and units passed the civil protection training at the WQO Department of Emergency Situations and had refresher courses at the Emergency Situations Committee's training centre under the RoQ Ministry of Internal Affairs. Furthermore, 36 members of Emergency Management teams passed a specialised Major Emergency Management Response training this year.

The list of emergency response activities is provided in detail on our website at *https://www.kpo.kz/en/sustainability/hse/safety/emergency-response-management.html*.

Community preparedness

/ GRI 102-11, 103-3 /

KPO specialists hold regular meetings with the officials of the rural districts located in the vicinity of the sanitary protection zone of the Field and along the Karachaganak – Atyrau (KATS) pipeline to provide clarifications on matters, such as the importance of the KPC – Bolshoi Chagan – Atyrau export pipeline, emergency response system, community preparedness in case of an emergency at the export pipeline.

In 2019, 32 meetings were held in 28 settlements with engagement of 131 people.

In 2019, in accordance with the approved Emergency Response Drill Plan, the community evacuation exercises engaging 78 people were conducted. Over 10 meetings with the authorities and the residents of settlements located along the perimeter of the Field were held. In total, 103 people attended those meetings. The discussion topics covered the issues of fire safety and danger of wild animals.

Undertaken activities helped in raising awareness on community response in case of an emergency at KOGCF among all the residents.

Within the year, KPO Emergency Response specialists jointly with contractors' representatives performed monthly testing of the alarm signals to maintain continued readiness of the public alarm stations located in the settlements.

In 2019, KPO initiated and finalized a project to enhance the public alarm system in the Priuralnyi, Zhanatalap, Uspenovka and Zharsuat villages by installing additional loud speakers in order to enable verbal communication to the residents.

KPO continues its active engagement with local authorities in the periods of high water, fire danger and winter. The information on engagements can be found at our website at *https://www.kpo.kz/en/sustainability/hse/safety/emergency-response-management.html.*

ASSET INTEGRITY AND SECURITY

Asset Integrity / GRI 103-2, 102-11, OG-13 /

KPO is committed to monitoring potential threats to its operations and continue working on mitigation of high risks through the safety barrier system. KPO's Asset Integrity department continuously assess the 'health status' of the safety barriers to identify 'holes in the barriers' and to prevent any accidents.

Tab. 11. Targets in Asset Integrity / GRI 102-11, 103-2 /

2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
Finalize implementation of the new Barrier Model software and start a test phase	completed	During 2019 configuration of the software was customised. In the end of 2019 the initial functional test on cloud-based environment was finalised.	Perform a Final Acceptance Test for a new software of Barrier Model	
Finalize impact assessment and define scope for enabling use of Performance Standards	completed	Operation Performance Standards (OPSs) developed 2017/2018 were updated in 2019. Total 32 Operation Performance Standards were re-issued. OPSs implementation into SAP is ongoing by CMMS team. OPSs handovered to PED.		12
Finalize phase II and prepare phase III (implementation of changes) of the Alarm Rationalization Project (in 2020)	in progress	During 2019, KPO continued with the Alarm Systems performance measurement (KPIs). Main deliverables were Master Alarm Databases, Critical Alarms Response Handbooks and Alarm Rationalization Implementation Reports.	Implement defined changes of the Alarm Rationalization Project (Phase III)	
▶ Embed Process Safety Fundamentals in the 2019 Shutdown activities and daily work; ▶ Start implementation of action plan for barrier reinforcement	in progress	A number of measures to raise awareness on Process Safety Fundamentals was implemented: videos, pre-turnaround sessions, dissemination of handbooks and communication of guideline.	Continue the Process Safety Awareness campaign and develop an action plan based on the analysis of the feedback collected to reinforce barrier control and monitoring	
Develop Integrity Operating Window for Caustic Neutralization Unit at KPC	completed	A document defining integrity operating window for Caustic Neutralization Unit (CNU) was issued for use at the Karachaganak Processing Complex (KPC).	Develop Integrity Operating Window for Caustic Neutralization Unit at Unit-3	

KPO Asset Integrity Management System is a set of measures to prevent major accident hazards and to raise hazard awareness amongst the KPO employees, all contractors and subcontractors working at the Karachaganak field.

As part of the Asset Integrity Management System commenced in 2014 the following core tools are used in the process:
1. Barrier Model;
2. Asset Integrity Key Performance Indicators (KPIs);
3. Management of Change system for brownfield modifications (eMoC);
4. Process Safety Fundamentals campaign.

KPO Asset Integrity Barrier Model / GRI 102-11, 103-2 /

KPO Asset Integrity (AI) Barrier Model is a database designed as a single source of information for the collection, management, assessment and reporting of Asset Integrity and Process Safety related issues based on their risk level.

KPO Asset Integrity Barrier Model database was introduced in 2014. As the next stage of development, the main KPO Assets' maps were uploaded on interactive maps to visualise process safety status. The Barrier Model database is routinely used by the Field operations and at corporate level to facilitate decision-making and implementation of short-term and long-term mitigations (control measures) and solutions (projects).

To enhance the database functionalities and operability, Asset Integrity department decided to replace the existing programme in 2019. During 2019, Asset Integrity worked on a customised configuration of the software with the developer (RiskPoynt).

The new Barrier Model software will be rolled out with increased functionality, thus enabling KPO to improve efficiency of the process with increasingly "live data" and reduce the response time to potential hazards. In the year end, the initial functional test on cloud-based environment was finalised. Final Acceptance test is planned in 2020.

Thanks to application of the Barrier Model **19** out of **114** overall risks were eliminated

Only one Tier 2 case in Loss of primary containment (LOPC) occured in 2019

Asset Integrity Key Performance Indicators / GRI 103-3 /

The objective of our Asset Integrity Key Performance Indicators (KPIs) is to identify precursor events or conditions that could ultimately lead to higher level consequences or to enable prevention of their occurrence. KPO monitors both lagging and leading indicators, as per the Recommended Practice API RP 754, recommendations of the IOGP 456 standard, and Eni and Shell guidelines on the Asset Integrity KPI reporting. The new KPI format was introduced and effective from March 2018.

Since using the restructured scorecard and dashboard in 2018, there is a visible increase in ownership of Asset Integrity and Process Safety issues in the field. This has resulted in renewed attention to several themes, with new action plans and projects:

1. EX equipment inspection and replacement: consolidated programme established to inspect and replace faulty EX equipment.
2. Alarm Rationalization Project: phase I finalized in 2018, phase II started and continued in 2019, and phase III is to be started in 2020.
3. Overrides management: updated procedure rolled out following industry best practices.
4. The Safety Critical Element maintenance grace period has been reduced from 7 days to 48 hours, and still the amount of overdue maintenance has not increased, showing a dramatic increase in compliance.

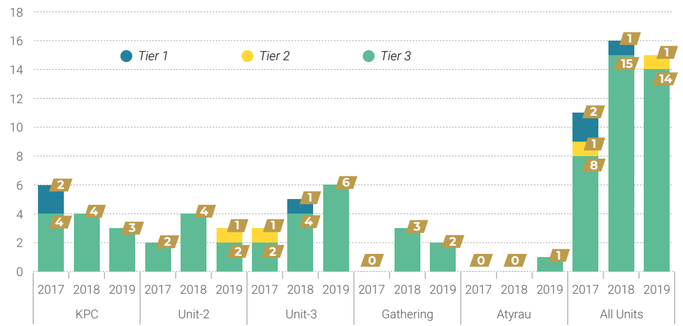
In 2020, as part of the overall KPO Digitization programme, Asset Integrity aims to identify opportunities for digitization of inputs to the scorecards and dashboards, and automatic processing with increased functionality.

Loss of Primary Containment / OG-13 /

Management and analysis of major accident hazards is the key to prevent or reduce the likelihood and severity of process safety events. Once a Process Safety event occurs, the investigation process is initiated with logging it in the KPO Synergi database. KPO investigation team analyse the root causes and develop recommendations and an action plan. Further implementation of actions is monitored via Synergi.

The statistical analysis for 2017–2019 shows that the number of Loss of Primary Containment (LOPC) events decreased by 6% in 2019 against the 2018 performance and the incidents severity was also reduced. Only one Tier 2 Process Safety event occurred in Unit-2. The gas leak was found on the stem of ball valve RB-0041 on 2" by-pass line of the reinjection gas line (see graph 6).

Graph 6. Loss of Primary Containment at KPO by process facilities, 2017-2019



Note: For Process Safety Event definition (Tier-1/2/3), please refer to the International Standard IOGP 456.

KPO SUCCESS STORY 6 — KPO ASSET INTEGRITY BARRIER MODEL

Context / short description of issue:

The active and robust management of the functional, mechanical, and operational integrity of the complex, capital-intensive assets such as the Karachaganak Field is fundamental to the long-term sustainability of KPO's business.

In order to raise operational efficiency and sustainability the Asset Integrity department was formed within the KPO structure. Once the Asset Integrity strategy was devised, KPO has launched the development of a Barrier Model database based on James Reason's model for process safety risks management established by the International Association of Oil and Gas Producers (IOGP) in their report 415.

This model is based on the safety critical systems or barriers represented as "Swiss Cheese" slices. The model is a set of barriers, each of which represents a grouping of risk controls. Every barrier has its weakness shown by the "holes in cheese". Every single barrier can have "holes" if the related Safety Critical Element is not working properly.

Goal:

Process Safety management tool is aimed to prevent and control incidents, such as toxic exposures, fires or explosions that could result in serious incidents or accidents, including fatalities, injuries, property damage, and environmental damage. The goal for Asset Integrity and KPO management was to eliminate Major Accident Hazard risks at KPO facilities to as low as reasonably possible level.

Solution / actions:

To create a database to control and reduce Major Accident Hazard risks at KPO production facilities where Process Safety risks are to be defined, risk ranked according to the KPO Risk Matrix and monitored at all management levels.

Actions:

1. KPO Asset Integrity Barrier Model was created in Excel based file with more advanced features, which included maps of the main KPO production facilities where all risks were distributed throughout all areas on the plants. This feature of mapping enabled to provide an integrated and coherent overview of the risks within the KPO Production sites.

2. During 2018 and 2019 KPO worked on development of a customised software for the Barrier Model, which would enhance the database functionalities and operability. The roll-out is planned in 2020.

Result:

The introduced process has improved the control measures implementation and communication between KPO departments. In 2019, this led to reduction of total risks (very high, high and medium) by 17% (19 issues reduced from 114 to 95).

The following results of Barrier Model's application are worth noting:

- Structured approach to the successful delivery of the KPO strategy for safe and sustainable operating performance as an integral part of the business risk management process;
- Reduction of major accident hazards to people, environment, asset damage and the Company reputation.

Alarm Management / GRI 103-3 /

During 2019, KPO continued with the Alarm Systems performance measurement and carried out the second phase of the Alarm Rationalization Program. A series of workshops were completed by a multidisciplinary team, containing representatives from Asset Integrity department, Central Maintenance department, Technical Authorities and Control Room Operators. Main deliverables were Master Alarm Databases, Critical Alarms Response Handbooks and Alarm Rationalization Implementation Reports. These documents are the input for the Implementation Phase III, to be started during 2020 by Central Maintenance department.

Integrity Operating Window

Integrity Operating Window is the operational limits aimed at maintaining the integrity or reliability of process equipment.

Integrity Operating Window was developed in 2019 in order to ensure the integrity of Caustic Neutralization Unit at KPC. The defined in this document Integrity Operating Window permits a better control of the main technological parameters of a unit, thereby ensuring its integrity and reliability.

Management of Change system for brownfield modifications

Management of Change is a system to evaluate, authorise and monitor changes related to equipment modifications before they are implemented. This system also allows Asset Integrity department to ensure the changes are documented and closed properly. Today, the Management of Change system is widely used by the KPO departments involved in the process of equipment modifications.

At the end of 2019, out of 1,756 electronic changes opened in the MOC system 678 were closed and 221 were raised. The flow of high number of eMoCs in the year was stipulated by bigger scopes implemented in the 2019 Turnaround.

Through intensive use of the eMoC system by all departments involved there is a backlog of 600 eMoCs at all stages. The 2020 target of the Asset Integrity department is to improve the system efficiency in order to reduce the backlog and prevent its further accumulation.

Process Safety Fundamentals campaign / GRI 103-3, 102-11 /

The Process Safety Fundamentals (PSFs) campaign was started in 2017. This campaign is focused on raising awareness of the operations frontline personnel about the hazards that may occur while operating the process facilities.

In continuity of the PSFs campaign, the following activities were implemented in 2019:

- Educational video about 10 PSFs with real LOPC examples released;
- Pre-Turnaround PSFs awareness sessions conducted (~700 frontline employees attended);
- 1,800 PSFs Handbooks printed and distributed;
- PSFs Guideline was issued;
- 753 HSE cards related to PSFs category registered and reviewed.

KPO Asset Integrity department will continue implementation of the PSFs campaign next year to reinforce a proactive process safety culture in KPO.

Today, the Management of Change system is widely used by the KPO departments involved in the process of equipment modifications

Security

KPO takes every possible effort to ensure integrity of operational facilities and security of all personnel including contractors.

Tab. 12. Our targets in security / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
Ensure zero illegal taps in the KPO export pipelines	completed	No illegal tapping took place. Daily inspections were carried out at all export pipeline sections by mobile teams and the Optasense notification system. Interaction with local communities and police departments of the settlements situated along the pipeline was carried out.	Ensure zero illegal taps in the KPO export pipelines	
Upgrade software and hardware of the Optasense system	partially completed	The contract for upgrade of software and hardware was signed for 2020.	Upgrade software and hardware of the Optasense system	
Continue training on Human Rights and Security Principles for security service providers including newcomers and ensure that the Principles are complied with in full	completed	In 2019, all KPO contractor security personnel passed the HRSP training.	Ensure that all newly hired security personnel of the new security service providers are familiar with Human Rights and Security Principles	
Complete the design and start installing the Security Management System (Phase 2)	partially completed	Contract for engineering, procurement and installation of electronic security systems as part of Phase 2 (strategic field facilities) was executed. Basic engineering was completed.	Complete detailed engineering and minimum 50% construction and installation of electronic security systems Initiate preparation of work scope for installation of safety fencing and electronic security systems in Bolshoi Chagan	
▸ Install and put the Electronic Access Control System in operation at all the Company facilities; ▸ Upgrade and revamp two check points in the field.	completed	▸ Sensitive installations in areas of public gathering were 100% covered. Additional equipment was purchased and used; read algorithms and procedure for data upload were changed. ▸ Two checkpoints were successfully upgraded and revamped.		
	New target		Introduce a new-type badges with chips and advanced capabilities	
Procure and introduce an SVA-Pro risk assessment tool	New target completed	Tender for purchasing a risk assessment tool was completed, the risk assessment tool purchased.	Carry out security risk assessments for all Company facilities	

In 2019, work on implementing

phase 2

of the Security Management System was continued

All employees of the two KPO security contractors annually undergo special training on human rights compliance

KPO Security Department conducts regular risk assessments based on the analysis of both own experience and international security events. Following these assessments, KPO develops, implements and improves security measures to prevent potential risks.

In 2019, KPO Security department purchased a fully-featured tool for assessing security risks. This software is based on experience and practices at international projects, latest security challenges, and has a flexible interface.

Over 850 professional security personnel are deployed to ensure security for the Company facilities, offices and pipelines by way of continuous access control and patrolling of facilities. The activities carried out by the Security department in 2019 have revealed the following violations:

- Violation of the existing access control and material asset movement requirements (103 cases);
- Unauthorized entry into the Karachaganak Field's territory (14 cases);
- Violation of alcohol policy (31 cases);
- Unauthorized property removal (15 cases).

In 2019, KPO conducted 10 internal investigations and registered five applications to the law-enforcement agencies. Following the applications to law-enforcement agencies, two individuals were taken to court and brought to the criminal liability for committing infringement on the property in the Field.

Apart from prevention of the unauthorized removal of property from the Company facilities, the activities undertaken by the Security department and Burlin District law-enforcement agencies helped to return the earlier stolen property.

In 2019, implementation of the Security Management System Phase 2 progressed. Basic and detail engineering activities were completed in order to proceed with the construction and installation of all the necessary systems in 2020. / **GRI 103-2, 103-3** /

Besides, two external security checkpoints were upgraded over the past year: Gate 4 and Gate 1. The upgraded gates were equipped with advanced electronic security systems aimed at improving and speeding up the control of access to the KPO facilities.

As part of the preventive measures in relation to extremism or other illegal actions, KPO regularly liaises with RoQ law enforcement authorities at all levels: local, regional and national. For example, in 2019 a seminar meeting engaging representatives of security departments from all KPO Parent Companies and the Western Qazaqstani Law Enforcement authorities was held. During the seminar participants discussed topical issues in the areas of security and methods of interaction while emerging incidents.

Another outstanding example of engagement was a support provided to KPO by the local law enforcement authorities during the turnaround 2019. Thanks to the synchronized actions of both parties in this period no any security incident was allowed in the Field. Valuable support was made to KPO also in road traffic organization.

KPO SUCCESS STORY 7

SECURITY OF KPO EXPORT PIPELINES

Context / short description of issue:

In view of the previous illegal tapping into the export pipelines and their elimination practice, KPO takes every effort to reduce recurrence of such incidents to zero.

Goal:

Prevent illegal pipeline tapping attempts, and, should there be one, ensure timely detection and response as per the set instructions and procedures.

Solution / actions:

The Company performs daily inspection of all sections of the Karachaganak-Atyrau and Karachaganak-Bolshoi Chagan export pipelines by means of the mobile teams and using the Optasense online notification system.

Engagement and support of the local communities in ensuring security of KPO export pipelines are highly important. In 2019, regular interaction with the local communities and police departments of the settlements located along the pipelines was improved to exchange up-to-date information. During the meetings with the residents of neighbouring regions KPO informs the stakeholders about the evacuation procedures in case of real emergencies and emergency response drills. We ask that community members proactively and immediately notify us of any suspicious activities in the vicinity of the pipeline. / **GRI 102-44** /

Result:

The implemented activities enable to significantly reduce the risks of unauthorized access to the KPO protected export pipelines facilities. With significant efforts made to ensure the pipeline security, no illegal tapping into KPO export pipelines has been registered since 2012.

Two external checkpoints 4 and 1 were updated with modern electronic security equipment that help speed up the control process to the Company facilities

Over **850** professional security personnel ensure protection of facilities, offices and pipelines at the Karachaganak Field

Since 2012, thanks to improved pipeline security, no any case of illegal tapping into KPO export pipelines have been recorded

KPO SUCCESS STORY 8

TRAINING ON HUMAN RIGHTS AND SECURITY PRINCIPLES / GRI 410-1 /

Context / short description of issue:

KPO follows the Voluntary Principles on Security and Human Rights (VPSHR) issued by the United Nations. This practice was adopted from the Parent Companies in 2015.

Goal:

Familiarize and train all current security contractor personnel in the response protocol provided by the Voluntary Principles on Security and Human Rights, thus ensuring that all security personnel use a competent approach in performing their job duties within the context of respect for human rights.

Solution / actions:

All personnel of the two contractors providing security services at the KPO facilities in the field, in Aksai and along the export pipelines undergo both primary and refresher training in the Voluntary Principles on Security and Human Rights applicable to the Company operations.

Every first quarter of the year a 'Voluntary Principles on Security and Human Rights' training is organized for the security personnel. The training is provided to both shifts as part of the HSE Programme. Every new hired employee has to undergo this training and confirm the completion of the training in writing. A separate reminder is given during daily operational meetings.

KPO intends to continue cooperation with security contractors in this aspect, and the VPSHR training requirement is included in the respective contracts. Thus, training programmes have been developed to cover all personnel. As of 2019-end, 100% of security personnel have completed the VPSHR training.

Result:

All personnel of the two security contractors regularly get familiarized with the Voluntary Principles on Security and Human Rights. This measure is a good practice that has a positive impact on the quality of the provided security services within the Karachaganak field.

PROTECTION OF HEALTH

KPO is actively working on implementation of all possible measures to protect employees' health from hazards and to promote healthy lifestyle in general.

Tab. 13. Targets in health protection / GRI 103-2 /

Our 2019 targets	Status	Actions taken in 2019	Targets for 2020	UN SDG
Continue health promotion with the focus on resilience, fatigue management and cardiovascular diseases	completed	Presentations were given during safety meeting at the facilities. Thematic posters were placed on information boards and postings were made on the Intranet. Visual information was displayed in canteens and conference rooms.	▶ Implement a Global Challenge programme; ▶ Develop and introduce a mental health programme "Something is wrong with me"; ▶ Conduct Health Days with engagement of specialists	
Continue Health Risk Assessments	completed	Activities covered ergonomic assessment of workplaces, air quality tests in work areas and other.	Consider engaging an expert to assist in implementation of international standards in industrial hygiene	
Continue implementation of measures on the Legionella management and control for personnel and contractors	completed partially	Legionella Risk Reduction Plan is under implementation	Conduct an audit on Legionella Risk Reduction Plan	
Continue the Resilience Programme implementation	completed	From the start of the programme in 2018, over 115 facilitators obtained training and carried out more than 314 sessions having engaged 2,864 employees.	Continue the Resilience Programme implementation	
Set up "Care for People" (CfP) Committees to monitor and coordinate CfP activities and ensure the Programme integration and full coverage	completed partially	The Committee was created in PED, sanitary inspections of contractors were carried out with the participation of Health Department.	Continue setting up the Care for People committees in other KPO departments	
Continue implementing the Fatigue Risk Management Programme	completed	Three modules of the online training were launched. Workshops were conducted for the top management. Pilot project on risk assessment and Fatigue Risk Reduction Plan development have been carried out in Transport Department and Operations HSE Department.	Implement the Fatigue Risk Management programme in other department based on the pilot project results	
Continue the Automatic External Defibrillator (AED) Installation Programme	ongoing	Medical examination of instructors was conducted, and training for first aid personnel with the use of AEDs were started. AED have been installed in five buildings.	Complete implementation of the Automatic External Defibrillators' Installation Programme	

Primary health care at workplaces

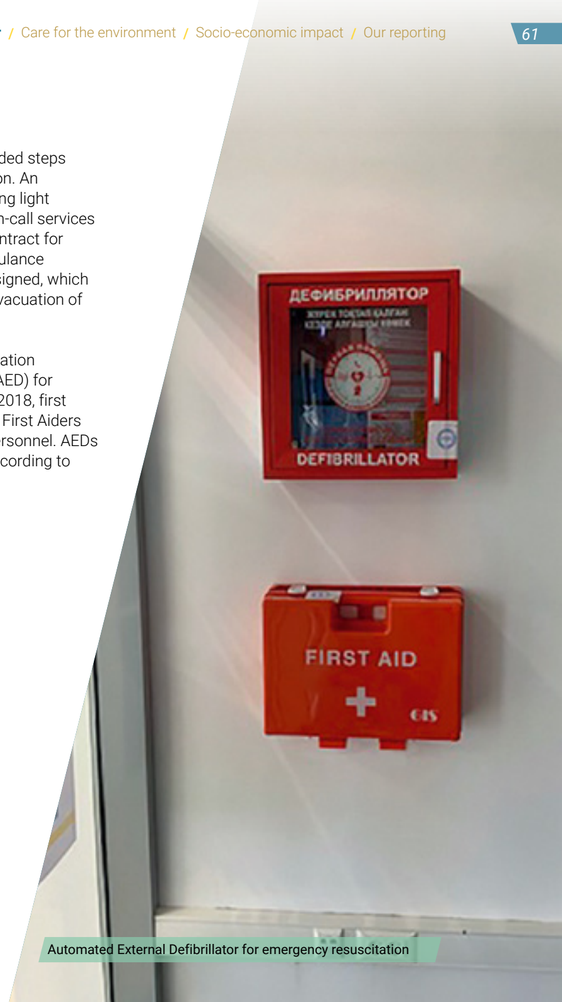
KPO medical clinics on site and in Aksai are the primary link in the medical care of the Company employees. In addition to first aid, pre-shift check-ups of the site personnel, including random alcohol testing are performed there. KPO Medical Support team have both regular and all-terrain heavy ambulances equipped as resuscitation units. In 2019, all personnel of the emergency medical service received training in Pre-hospital Advanced Cardiac Life Support (ACLS) and International Trauma Life Support (ITLS) in line with set international standards. Apart from that, all ambulance drivers completed three-day training in driving vehicles equipped with devices for supplying special light and sound signals.

HSE improvement Plan for 2018 included steps on enhancement of medical evacuation. An assessment of a possibility of attracting light aviation was made and a helicopter on-call services provider was selected. In 2019, the contract for the provision of medical aviation ambulance services for medical evacuation was signed, which allowed us to carry out one medical evacuation of the Company employee.

As a part of the Programme for Installation of Automated External Defibrillators (AED) for emergency resuscitation launched in 2018, first aid training with the use of purchased First Aiders AED-simulators was carried out for personnel. AEDs were installed in five KPO buildings according to the Plan.

Tab. 14. Medical support indicators, 2019

Healthcare indicators	
Number of patients, visited clinics	2,169
Number of patients, transported to medical facilities	84
Exercises and drills participated	402
Personnel, who received First aid training	287
Pre-shift medical examinations (drivers/operators/electricians)	
Number of visits	91,300
Unfit	8
Random alcohol tests	1,308
Positive random alcohol test results	0



Automated External Defibrillator for emergency resuscitation

KPO policy prohibits employees from being in a state of alcoholic or drug intoxication. It was often the case that during a medical examination, when confirmation of the fact of intoxication in a public medical institution was required, critical time was lost. In 2019, it was decided to conclude the contract with Burlin Central hospital according to which a medical worker, who has all permits and is on the field territory 24/7, will carry out medical examination.

In 2019, Health Department initiated contract conclusion for delivery of electronic health check-up system. This system is hardware and software system, which allows carrying out pre-shift medical examination automatically in a short time. Within one minute, an employee gets measurement of blood pressure, pulse, body temperature, the presence of alcohol in the exhaled air and the use of narcotic substances are detected. All data is provided centrally to line managers of an employee. Initially, it is planned to purchase two units. In case the pilot project is successful, five more units will be purchased.

In 2019, KPO started the Aksai Hospital Upgrade Project. The decision to implement this project was made on the recommendation of the Shell and Eni parent companies based on the analysis of 254 cases of injured KPO employees admitted to the Aksai hospital from 2014 to 2018. The analysis showed that the intensive care unit did not meet the required international standards and the inability to provide a prompt and qualified medical care to people injured from serious incidents or major accidents. The project foresees execution of the needs assessment by independent experts, based on which KPO will develop a plan of intensive case equipage. The plan will also include staff training and maintenance of equipment.

Management of ill health
/ GRI 403-3, 403-4 /

In 2019, the Company signed a new medical insurance contract. Amended conditions included:

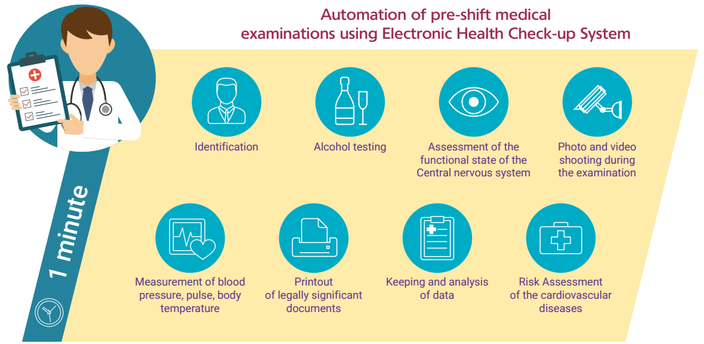
- Insured employees have an opportunity to choose a medical service provider;
- Reimbursement limits for dental services and medicines were increased by 30%, and unused funds can be distributed among family members.

The medical insurance service provider submits daily hospitalisation and patient follow-up reports to the KPO Health Department including KPO employees and their family members. The Health Department also monitors sickness absence by analysing sickness certificates, which is then used to identify trends.

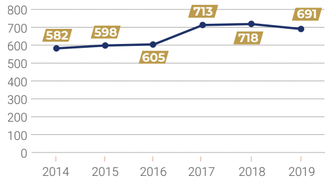
Absenteeism monitoring
/ GRI 403-2, 403-3 /

Absenteeism rates in KPO did not show a significant increase compared to previous years. However, they are significantly higher than the industry average. This requires change in approach to the management of morbidity with temporal disability.

In 2019, new practise has been introduced in the Company. If during the reporting year the employee has three or more sickness lists, this employee is invited to the doctor by the occupational pathologist in the Health Department to discuss his health status. Occupational pathologist offers options for organizing a deeper examination or treatment in specialized clinics of Qazaqstan, if required and preferred by an employee. This practice is carried out on a voluntary basis.



Graph 7. KPO Absenteeism rate, 2014-2019



Note: The following method is applied in KPO to calculate the Absenteeism rate:

- *The absenteeism rate = actual number of days lost due to absence in the workplace (because of illness) x 100 / total quantity of workers. Data of days missed for other reasons is not available.*
- *Calculation method for absenteeism adopted in KPO is based on the number of employees (not man-hours) as required by regulatory authorities.*

Year	KPO Absenteeism rate
2014	582
2015	598
2016	605
2017	713
2018	718
2019	691

Occupational Diseases / GRI 403-2, 403-3 /

There were no occupational diseases diagnosed in KPO in the period of 2017–2019.

Health risk assessments
/ GRI 403-3, 403-4 /

Health Risk Assessment (HRA) is a key element of KPO health management system.

In 2019, experts of the Shell Parent Company conducted an analysis of compliance of the KPO's industrial hygiene system with international standards. Both advantages and disadvantages were noted. One of the recommendations was to introduce changes in the methodology of health risk assessment in order to cover hazards, its quantity assessment more fully and to rank risks more precisely.

Fitness to work

The requirements for passing mandatory medical examinations to determine their fitness to work were unified for all employees, and the medical examination itself is now not tied to certain periods, i.e. employees can pass it at a convenient time, taking into account the validity of the previous medical examination report. KPO Fitness to Work procedure was reviewed to match the IOGP guidelines.

Health promotion / GRI 103-2 /

Care for People Programme

Care for People (CfP) Programme defines a shared organizational value that drives individuals' behaviour, and attitude towards HSE and business performance. The aim of the programme is to take every effort to ensure that each employee has everything he needs to perform his job best in terms of hardware (facilities, equipment, tools) and software (respect and recognition).

The programme strategy included phased implementation of six elements:

- Adoption of a framework,
- Development of a charter,
- Establishment of committees,
- Employee opinion polling,
- Development of plans,
- Monitoring of plans' implementation.

Unfortunately, not all Company directorates have yet taken part in the programme. Project Execution Directorate was the most active participant. In 2019, with support of Health Department, sanitary inspections were carried out at the workplaces, canteens and accommodation facilities of contractors.

Despite the impact on this programme by the coronavirus pandemic, the basic principles of fair work and rest conditions for employees remain unchanged.

Fatigue Risk Management programme

In 2019, the following activities were carried out on the Fatigue Risk management procedure:

- E-learning courses were developed and launched;
- Workshops for top management were carried out;
- Pilot project in Transport Department and Operations HSE Department was implemented.

In 2020, it is planned to implement the procedures in other departments.

The coronavirus pandemic also has significantly impacted this programme. For instance, in some cases shift personnel had to work longer shifts, which in turn elevated the fatigue risks. In such cases line managers were expected to display flexibility and out-of-the-box thinking in order to allow personnel recover from hectic work schedule. The examples of such decisions – a short day, planned days off, attraction of additional human resources.

Operational control of industrial facilities

KPO regularly controls sanitary-hygiene conditions of production facilities. Table 15 shows monitoring data for the past three years.

In 2019, the total number of measurements of environmental indicators at workplaces was increased; there was a slight increase in non-conformances in these indicators.

Exceeding permissible noise levels was observed in production facilities, where noise sources are running compressors, generators, hoisting-and-transport equipment, auxiliary equipment (ventilation units, air conditioners), etc. In all these facilities intermittent work is carried out, such as periodic readings of measuring instruments and equipment maintenance.

All production facilities where noise-generating equipment is installed are indicated with warning signs, and work is performed with the mandatory use of the hearing PPE.

As part of measures to reduce the effects of in-plant noise, a Hearing Protection Programme was developed and implemented to prevent workers exposed to industrial noise from hearing loss. In this regard, the following measures are carried out to protect hearing organs at production facilities:

- Sanitary and hygienic monitoring of production sites with equipment generating noise is carried out.

Tab. 15. Monitoring of physical factors, 2019

Physical factors	2017		2018		2019	
	No. of surveys	No. of non-conformances	No. of surveys	No. of non-conformances	No. of surveys	No. of non-conformances
Noise	426	106	400	93	440	114
Vibration	81	19	69	14	78	25
Electromagnetic fields	3,936	11	3,888	44	4,164	36
Electrostatic fields	2,133	0	2,129	0	2,322	0
Lighting	2,741	765	2,879	815	3,085	703
Microclimate	6,630	387	6,522	336	6,630	502
Workplace air	Not measured	Not measured	14,595	0	15,471	0
Total	**15,947**	**1,288**	**30,482**	**1,302**	**32,190**	**1,380**

KPO SUCCESS STORY 9

RESILIENCE PROGRAMME

Context / short description of issue:

Stress may have a negative impact on the health and performance of people, and as a result on the efficiency of the entire Company.

Resilience is a skill that can be developed using methods of positive psychology. This is the basis of the Resilience Programme that was launched at KPO in 2018.

Goal:

- To increase the number of resilient people in the Company,
- Develop employees' resilience skills and minimize the risk of stress-related illnesses and conditions: depression, alcoholism, suicide risk.

Solution / actions:

KPO Resilience Programme is a voluntary thirteen-modular programme developed for small teams. Participating employees may choose to become resilience facilitators by undertaking a short and engaging training class run by Health Department. Following the training, facilitators themselves run the modules for their colleagues with support from the Health Department.

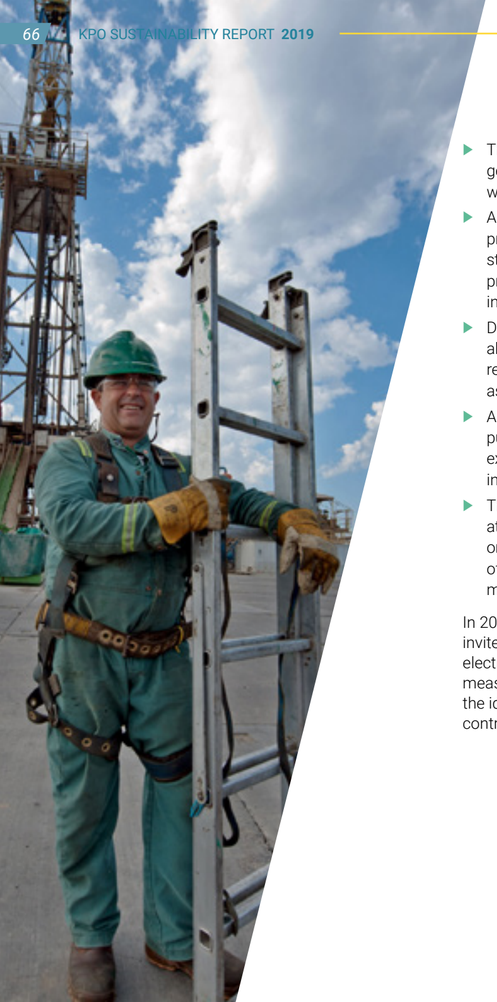
Teams' resilience levels are measured by a validated test – Dispositional Resilience Scale, DRS-15. This test is carried out by facilitators at the start and end of the programme. Health Department registers and monitors participants' resilience level.

Result:

After the preparatory work, over 110 volunteer facilitators were trained, who then created groups to conduct sessions for each of the modules.

In 2018 and 2019, 314 sessions were carried out with participation of 2,864 employees.

At initial stage, a disposition stability scale of 15 was used to assess the level of stress resistance. This is the most popular and tested stress tolerance assessment system by psychologists and researchers around the world. According to this system, KPO participants' stress resistance level showed 30.7 points, which corresponds to an average of those countries where it was applied. An interim assessment conducted at the end of 2019 amounted to 32.5 points, showing an increase in the level of stress resistance and confirming the effectiveness of the programme.



- The main production facilities where the noise-generating equipment is installed are marked with warning signs.
- All personnel working in noisy areas are provided with PPE complying with international standards. According to the Company procedures, staying without hearing protection in such areas is prohibited.
- During the annual periodic medical examination, all employees working in a noisy area receive audiometry with further audiometric assessment and monitoring.
- All facilities have "noise maps" available for public viewing, where sections with noise levels exceeding the maximum permissible level are indicated.
- The agenda of induction and planned instruction at each facility at all times includes matters on organizing work in noisy areas, rules for the use of hearing PPE and a demonstration of noise maps of the facility.

In 2019, support and electrical services were invited to determine causes of high levels of electromagnetic fields. Based on the survey results, measures were taken to eliminate the causes of the identified deficiencies, followed by instrumental control of the effectiveness of corrective actions.

Analysis of the results showed that the bulk of the low level of illumination is observed at workplaces in administrative buildings. In order to reduce the harmful effect of this factor on workers, measures were taken to optimize the lighting environment at workplaces; an analysis of the condition of the existing lighting system was made.

The Company is modernizing lighting systems at facilities. So in 2019, phased replacement of luminescent lamps with LED lamps with more efficient light output was continued.

Microclimate parameters (temperature, relative humidity, air velocity) were determined only in production facilities and at workplaces. The greatest number of non-conformances in microclimate indicators were recorded at production sites that are not permanent workplaces. In these areas, features of the plant process include maintenance of certain temperature parameters that differ in value from standard levels. The work in these areas include periodic and short-term monitoring of the operation of the installed processing equipment, thus, the adverse effect of low and high temperatures on the health of workers is limited in time.

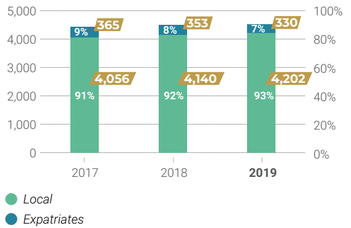
PEOPLE AND SKILLS

The success in achieving the Company's business objectives depends primarily on the professionalism and dedication of its people. Our employees are essential for the development and operations of the Karachaganak Field.

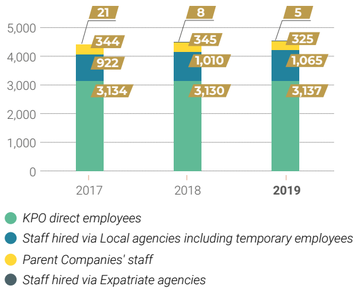
In accordance with the FPSA, KPO has an obligation to ensure the development and training of local staff. The Company pursues various means for personnel development from sharing Parent Companies' expertise to organizing mandatory professional training with involvement of educational institutions, both local and international. / **GRI 103-1** /

The total number of employees in KPO, both within the Company and those working on temporary projects, as of end 2019 made up 4,532 people with 4,202 of them being Qazaq nationals and 330 expatriates. / **GRI 102-7** /

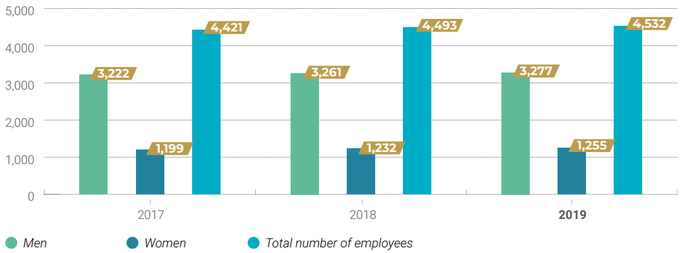
Graph 8. KPO employees, 2017-2019 / **GRI 102-8** /



Graph 9. KPO employees by type of employment, 2017-2019 / **GRI 102-8** /



Graph 10. KPO employees by gender, 2017-2019 / GRI 102-8 /



Graph 10 shows the ratio of employees by gender. In 2019, 3,277 men and 1,255 women worked at KPO. / GRI 102-8 /

In 2019, the number of temporary employees[2] totalled to 138. / GRI 102-8 /

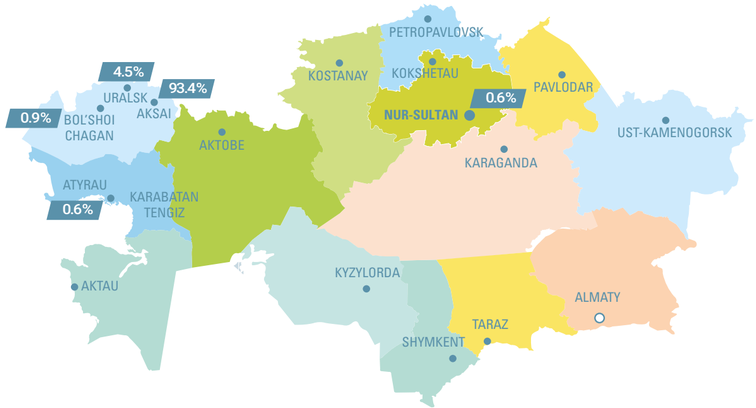
Graph 11 shows the turnover of local employees in 2019 broken down by age groups regardless of the type of contract. / GRI 401-1 /

Graph 12 shows the total number of employees by gender in 2019. The newly hired employees made up 5.9% of the average number of employees throughout the year. The turnover made 1.7% in 2019 versus 1.8% in 2018 (see Graph 13). / GRI 401-1 /

According to the RoQ legislation, the turnover indicator includes the number of employees, who resigned on a voluntary basis.

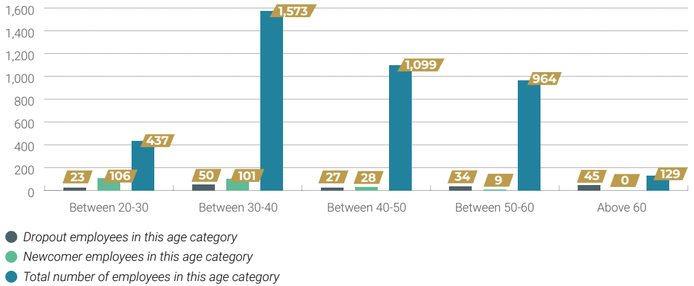
The map describes the geography of where KPO employees reside across the country.

Fig. 8. KPO employees by region, % / GRI 102-8, 103-1 /

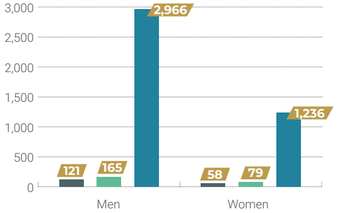


2 *Temporary employees are external candidates, hired for a limited time to replace a directly hired employee, who is on unpaid or maternity leave or seconded to a Parent Company.*

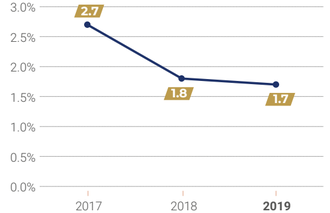
Graph 11. Personnel turnover by age, 2019 / GRI 401-1 /



Graph 12. Personnel turnover by gender, 2019 / GRI 401-1 /



Graph 13. Dynamics of local personnel turnover, 2017-2019 / GRI 401-1, 103-3 /



96%
positions of professional staff/qualified workers and

79%
of executive management are occupied by local employees

Development of national personnel / GRI 405-1, 103-3 /

Development of the national personnel is a continuous process in the Company. Professional competency in KPO is maintained and developed through the system of training and skill improvement.

KPO continues implementing its 2015–2020 Programme for Increased Local Content in Staff, which is aimed at maximizing job opportunities for local communities and investing into their training. In 2019, 20 positions previously held by expatriate personnel were nationalised, five positions were abolished. Local employees made up 93% of the total staff as of December 2019. In total, over 210 expatriate specialists were replaced with national employees and 185 positions held by expatriate employees were abolished in the period of 1999 – 2019. The breakdown by categories is presented in Table 16. / GRI 103-2 /

Tab. 16. Increase of Local Content in staff by categories of employees / GRI 202-2, 103-3 /

Category	Description	RoQ legal requirements	Local content in staff in 2017	Local content in staff in 2018	Local content in staff in 2019
1+2	Executive management and their deputies, Department / Unit management	Minimum 74%	76%	77%	79%
3+4	Professional staff / Qualified workers	Minimum 92%	95%	95%	96%

KPO applies various tools for developing and promoting its staff across all business units. Herewith, the focus is made on the development of talented and high-potential local employees.

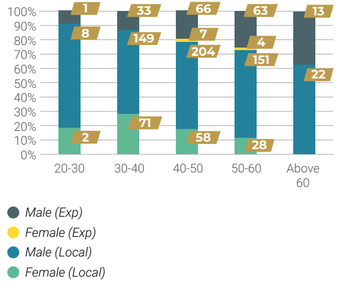
Additionally, in accordance with the goals set in this Programme, KPO keeps tracking the local content in contractors registered in the West Qazaqstan Oblast. In 2019, the quarterly, biannual and annual monitoring was conducted in 40 companies. The increase of Local Content in staff within these organizations made up to 78% in the category "Executive management and their deputies Department / Unit management" and 92% in the category "Professional staff / Qualified workers".

790 employees with technical qualification passed the initial assessment and received certificates of competency

KPO made 87% compliant to competency standards for technical personnel

Graph 14 presents the total number of expatriate and local senior and middle management split by age and gender. This includes KPO core structure and temporary projects.

Graph 14. Number of local and expatriate managers by age and gender, 2019 / GRI 405-1 /



Competency management system / GRI 103-2, 103-3 /

KPO competency management system is one of the most efficient methods of assessing the competency level of personnel.

The aim of the system is to achieve the required level of competency among technical staff, who operates hazardous industrial facilities, and to reduce and prevent any chances of potential incidents and accidents caused by lack of competency. Given the results of conducted competency assessment, the system enables developing tools for further training of personnel and ensuring funds are spent as intended.

According to the Competency Management System (CMS) policy, any of contractor companies with a high or middle risk level of the contract working on Company sites or equipment shall develop and operate its Competency Management System. The contractors' personnel will have the ability to demonstrate knowledge and practical skills to work safely, technically sound and within the defined boundaries of responsibility. In 2019, KPO has started the requisite activities. The key requirements and rollout stages are identified during the HSE audits of contractors.

KPO CMS was certified by OPITO (Offshore Petroleum Industry Training Organization) in 2013. OPITO auditors conduct a compliance audit in KPO annually. In August 2019, the KPO accreditation of the competency management system was extended till 30th September 2022.

The OPITO's accreditation scope includes:

- Five profession-oriented specialties: production operators, electrical technicians, instrument technicians, mechanical technicians and foremen. In 2019, a supervisor position in Production & Maintenance was included in the scope.
- Six production units and departments, including KPC, Unit-3, Unit-2, Maintenance and Gathering. In 2019, the Eco Centre was encompassed into the scope of accreditation.

In 2019, 790 employees with technical qualification completed initial assessment and received CMS certificates. As a result, KPO reached 87% of the competency standards' compliance required for technical personnel.

Training and development / GRI 103-1, 103-3 /

One of the main and continuous challenges for ensuring safe and effective production activities is preservation of the personnel`s professional skills and knowledge obtained at the Company by retaining the best Qazaqstani staff.

Individual approach to the needs of each employee is applied in training and development. The Company offers its employees specialised development programmes, including professional training inside and outside the organization, as well as opportunities for internship in the Parent Companies` assets. Such approach requires

continuous assessment and adaptation of development plans to each employee's individual needs in certain areas of the Company activities. This also ensures effective monitoring of plans and budget, and training and development results in terms of personnel`s efficiency and competency.

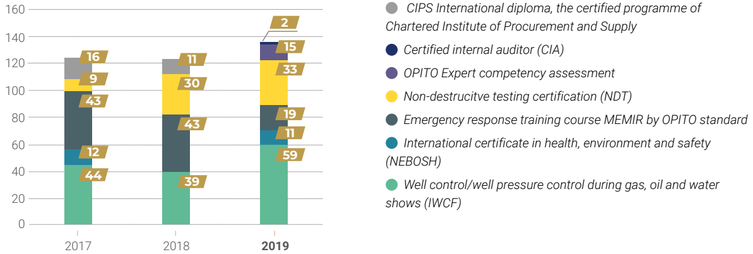
During 2019, the Company implemented several specialized certified training programmes (see Graph 15) as well as professional and HSE mandatory courses.

Training statistics / GRI 404-1 /

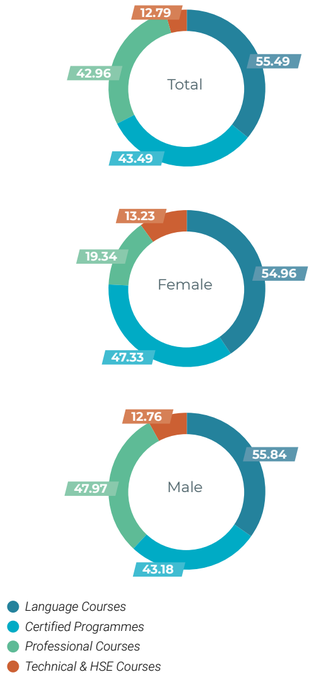
In 2019, 686,708.6 hours of training (454,470.97 hours in 2018) were held, of which 363,285.6 were provided to KPO employees (286,788.97 in 2018). The remaining 323,423 hours (167,682 hours in 2018) were spent on the HSE mandatory courses for the employees of the KPO contractor organizations. As responsible organization, KPO ensures mandatory HSE training for its contractor organizations.

Totally, in 2019 28,620 people were trained, 3,605 of them – KPO employees and 25,015 – contractor personnel. Average training hours per Company`s employee are given in Graph 16.

Graph 15. Number of KPO personnel trained on the International Qualification certified programmes in 2019



Graph 16. Average number of training hours per KPO employee by type, 2019 / GRI 404-1 /



KPO SUCCESS STORY 10 COMPETENCE ASSESSMENT OF PRODUCTION & MAINTENANCE SUPERVISORS IN THE FIELD DEPARTMENT

Context / short description of issue:

As part of the Competence Management System, KPO conducts regular assessment of technical personnel for compliance of actual and approved standards.

In 2018, following the recommendations of KPO Parent Companies' auditors, KPO developed the P&M Supervisors' Competency Assessment Standards and launched the assessment process aimed to ensure safe and efficient performance and appropriate oversight of activities in hazardous industrial facilities.

The Competency Assessment Standard includes:

- Personal and leadership competences;
- Technical skills;
- HSE competences.

An individual training and development plan of an employee is developed based on the results of conducted assessment.

In addition, in 2019 introduction of the Competency Management System for contractor companies with medium and high HSE risks contracts was rolled out. The contractor companies' personnel make up a large proportion of personnel who operate in the Field, thereby their competency level significantly effects safety performance.

Goal:

1. To define areas for development and achievement of competence level in line with the approved standard;
2. To introduce a Competency Management System in contractor companies with high or medium level of risk.

Solution / actions:

2018:

- 10 P&M Supervisors of Eco Centre were assessed for competency compliance.

2019:

- OPITO accreditation scope was expanded to include the Eco Centre. Competency assessment of P&M Supervisors was commenced at Unit-3, KOTS, Unit-2 and Gathering.
- Seven contractors of the Field department with high and medium HSE risk were audited and recommended to further develop and to introduce their internal Competency Management Systems.

Competency assessment of KPC P&M Supervisors and Central Maintenance Engineers is scheduled for 2020–2021. Competency assessments should be conducted at least once in 5 years unless other is recommended with Company's requirements.

Result:

1. 2018–2019 – Competency assessment process of P&M Supervisors at Eco Centre was completed and initiated at Unit-3, Unit-2, KOTS and Gathering.
2. Results of development and introduced Competency Management System of seven contractor companies were presented at the KPO quarterly meetings.

Training arranged for KPO employees in 2019 by categories is shown in Table 17.

Tab. 17. Training of employees by categories, 2017–2019 / GRI 404-1 /

Category	2017	2018	2019
1. Managers and supervisors	125 people (29.27 hours per 1 employee)	172 people (54.84 hours per 1 employee)	161 people (66.60 hours per 1 employee)
2. Qualified specialists / supervisors	1,749 people (59.64 hours per 1 employee)	1,364 people (67.96 hours per 1 employee)	1,250 people (88.96 hours per 1 employee)
3. Technical personnel	1,356 people (113.43 hours per 1 employee)	1,494 people (121.07 hours per 1 employee)	2,044 people (111.73 hours per 1 employee)
4. Office and administrative personnel	138 people (18.96 hours per 1 employee)	84 people (44.99 hours per 1 employee)	150 people (86.53 hours per 1 employee)

Enhanced Development Programme for 2017–2020

Enhanced Development Programme (EDP) for 2017–2020 is aimed at identifying high-potential local employees and further developing their skills. While implementing the programme, the participants` individual development plans are created with the view of further appointment to managerial positions, which would help the Company successfully reach its business objectives.

In 2019, KPO Training and Development Department continued carrying out training and development of the EDP participants. The focus was made on applying development tools, such as formal training, internship at the Parent Companies' assets, certified programmes and coaching.

As a personnel development tool, in 2019 considerable attention was given to coaching. The seminar 'International tendencies in coaching' was held and had positive feedback from participants. By the year-end, the percentage of engaged personnel trained with coaching tools reached 72%.

In 2019, within this programme KPO started the second group for development of leadership competencies conducted by Shell University. This programme is aimed at development of leadership skills in managing yourself, team, and business.

While implementing the programme, all information on the existing Enhanced Development Programme was transferred to the SAP System, and application forms were created for participants to interact with assigned coaches and line management, as well as for process management by Training and Development Department.

It is worth noting that the participant of Enhanced Development Programme Bekzhan Gabdulov, an instrumentation engineer, who as part of its development plan became a member of the UK Institute of Engineering and Technology, a multidisciplinary professional global engineering institution, in January 2019. The Institute of Engineering and Technology supports global technological innovations and comprise over 168 thousand members in 150 countries. Nowadays, Bekzhan is a technical engineer (EngTech) of the Institute. He plans continuing his personal development in accordance with the Institute's requirements and achieving the status of a Certified Engineer in future.

Dual education in KPO

The programme of dual education has been practiced in KPO since 2005. In 2019, we continued the started in 2018 training in the Professional Development Programme for Production Operators and Mechanical Technicians in accordance with the international standard of the OPITO Oil & Gas Academy.

In May 2019, 48 trainees completed the theoretical module under this Programme on specialties of Production Operator and Mechanical Technician after which were directed to internship in Production & Maintenance departments. By the end of 2019, 19 trainees were successfully hired by the Company.

In 2019, 36 trainees started the training Programme on Production Operator and Instrument Technical and Electrical Technician.

Compensations and benefits

The Company maintains fair work conditions, which are ensured mostly by competitive salary and various benefits.

KPO provides a package of benefits to all employees, who have an employment agreement with the Company. The package consists of monetary and non-monetary rewards. / GRI 401-2 / For the employees hired at KPO via recruitment agencies, the collective agreements of these agencies are applied.

Most of rewards are included in the Collective Agreement that was updated in 2019 and remains effective for the period 2019–2021. / GRI 102-41 / Changes introduced in the new Collective Agreement mostly address remuneration, social payments and benefits. Amongst the most substantial changes, there were an increase of minimum base salary by 10%, an annual base salary increase for 2019–2021, the increase of maximal rates of the 8-11 grades, additional productivity bonuses, social benefit for employees with three and more schoolchildren in a family, rise in payment for health-resort treatment, and other.

Non-monetary rewards are of special importance in promoting value and recognition of employees and their engagement into the Company activities. KPO has different ways of rewarding its personnel, such as Certificates of merit, Letters of gratitude, HSE awards, personal performance award ceremonies and professional holidays, etc. For instance, in 2019 KPO employees from different departments received industry-sponsored awards from the RoQ Ministry of Energy, Ministry of Industry and Infrastructure Development, Qazaqstani Association of Oil and Gas sector "KAZENERGY" and local executive bodies.

According to the 2019 annual benchmarking for compliance with the market level of remuneration in oil and gas sector in Qazaqstan, the average salary in KPO is three times higher than average salary in the Western Qazaqstan Oblast (WQO). As a result of this analysis, no additional salary adjustment was proposed in 2019. / GRI 202-1 /

Pursuant to the approved procedures, every year KPO offers an upgrade on the employees' remuneration, including the cost-of-living salary increase at the beginning of the year, annual performance review bonus for those, who received positive ratings based on annual performance, and also individual pay rises and additional lump sum payments.

In 2019, the overall salary increase was 7.3% to make it up for inflation during the previous 2018. The Company additionally paid 2% in accordance to the provisions of the Collective Agreement.

The individual salary increase based on the employees' performance review is yet another motivation tool. Employees, who reached maximum of their grade, may receive lump sum payment.

In 2019, unscheduled bonuses attributed to the remarkable dates and achievements in production performance were paid to all KPO and agency employees. The bonus attributed to the 40-years anniversary of Karachaganak Field worth 70% of monthly base salary was paid in May 2019. An unscheduled bonus worth 70% of monthly base salary was paid in August 2019. Additionally, in November 2019 in recognition of successful completion of the largest turnaround in KPO, all the employees received a bonus of 80% of monthly base salary.

Personnel development review

/ GRI 404-3, 103-3 /

Personnel development review (PDR) remains the important tool of feedback and enhancement of work efficiency. The process covers Qazaqstani employees who have an employment agreement with KPO for no less than half a year.

Apart from the PDR bonus, the results of this process directly impacted the productivity bonus. One of the main conditions is that not less than 80% of personnel eligible for PDR cumulatively should have ratings "exceptional", "strong", "fully effective".

For those employees holding managerial positions there is a separate process to monitor their Key Performance Indicators against the set targets.

Employee relations / GRI 102-44 /

Collective bargaining plays an important role in the Company. KPO respects the rights of its employees to organize a trade union and participate in negotiations of the collective agreement. Three Trade Unions represent the interests of employees:

- Public Association "Local Trade Union of KPO employees",
- Public Association "Karachaganak Local Professional Union of KPO employees and contractors",
- Public Association "Local Trade Union of Karachaganak Petroleum Operating B.V. employees and contractor companies "TRUST"".

Trade unions develop draft Collective Agreements addressing various aspects of social and labour relations and lead negotiations with the Company. In 2019, the Collective Agreement signed for 2019–2021 was effective. / GRI 102-41 /

Provisions of the Collective Agreement are applied to all KPO employees regardless of their membership in the Trade Unions. / GRI 103-2, 103-3 /

KPO has a few grievance mechanisms: applications to HR Controllership either directly or through Trade Union, and via the anonymous Hotline. In 2019, HR received 35 grievances and applications. The received grievances addressed such issues as labour misconduct, employment, conflict resolution, abuse of power, misconduct with contractor employees. All received grievances were reviewed and resolved. / GRI 102-17, 103-2 /

In accordance with the Collective agreement, KPO has the obligation to raise a minimum two-month (8 weeks) notice to Trade Unions in case of liquidation of the Company with a subsequent reduction in staff, system or amount of remuneration leading to deprivation of employees' conditions. / GRI 402-1 /

In 2019, 42 KPO employees applied for the voluntary dissolution of labour relations (24 employees in 2018, 45 employees in 2017) as part of the Voluntary Dissolution of Employment Relationship Programme of Collective Agreement, pursuant to the RoQ Labour Code dated 2017 (Art. 52).

Industrial relations / GRI 407-1 /

KPO has implemented the 'Care for People' Programme aimed at creating and maintaining favorable working conditions for employees of contractor/ subcontractor organisations.

The programme mainly focuses on creating the healthy work climate, ensuring compliance with the Code of Conduct, commonly recognized norms and standards of behavior, and also preventing causes and prerequisites contributing to manifestation of discontent and emergence of social unrest within the KPO contractors/ subcontractors' staff.

In July 2019, a new Industrial Relations division was established as part of the KPO Human Resources Controllership. Its main duties include:

- Continuous monitoring and analysis of the work environment in contractor/ subcontractor organizations;
- Communication and hands-on interaction with the management and representatives of employees of contractor/ subcontractor organizations and people responsible for organization of work processes and compliance with labour legislation, and also with collective bargaining associations (trade unions, working committees, industry councils).

Pursuant to the documents developed in 2019 and approved by the RoQ Ministry of Energy – Industrial Relations Policy and Integrated Actions Plan for resolving of socio-economic issues and for prevention of protest actions in KPO contractor organizations, KPO has set the following targets:

- Minimize risks of conflicts and escalation/ complication of socio-economic situation within the KPO presence;
- Timely detect and rectify causes and prerequisites for the creation of social unrest due to degradation of staff morale;
- Ensure compliance of the current contract/ subcontractor production and economic activities with the labour regulations and internal KPO policies and procedures in industrial relations.

To achieve the Company's ambition for 2019, KPO initiated regular on-site tours to operational worksites, where contractor/subcontractor companies' representatives perform their production and business activities with engagement of the larger number of people. In the course of such tours KPO representatives visit and inspect workplaces, bus muster points, rest and meal facilities, accommodation camps (if available), and first-aid stations.

Also, regular random surveys were conducted addressing matters, such as completeness and timeliness of salary payments and other benefits, satisfaction with quality and assortment of meals, accommodation conditions, and provision of personal protective equipment.

Based on the received data, four KPO departments (contract holders) and the management of nine major contractors were issued notifications to eliminate identified shortcomings in terms of provision to personnel adequate social and living conditions addressing sanitary and hygienic requirements.

Therefore, activities conducted during 2019 since the establishment of the Industrial Relations division has been contributing towards social stability within the area of KPO responsibility and to prevention of social unrest among contractor/ subcontractor personnel.

Representatives of KPO HR Department, Employment Center of Burlin district, Coordination department of employment and social programmes of WQO, experts from Almaty and students-interns at the meeting in Aksai

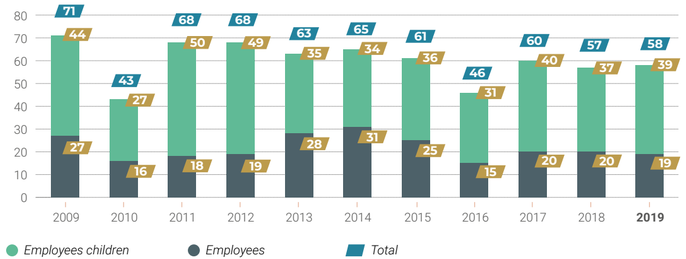
Scholarship programmes / GRI 404-2 /

KPO Scholarship Programme for national employees and their children is one of the constituent incentives for professional development and further education of employees.

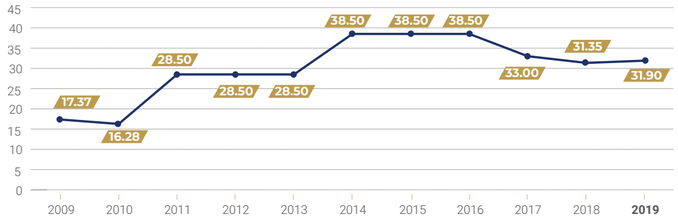
In 2019, 20 positions held by expatriate personnel were nationalised

In 2019, within this programme KPO allocated KZT 31.9 mln (equivalent to US$ 82.3 k) to sponsor scholarships for 19 KPO employees and 39 children.

Graph 17. Dynamics of participation in the KPO Scholarship Programme, 2009-2019



Graph 18. Funds allocated by KPO for the Scholarship Programme, 2009-2019 (KZT MM) / GRI 404-2 /

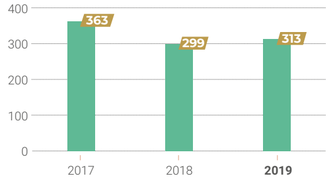


KPO partnership with Qazaqstani universities / GRI 102-44 /

KPO continues its cooperation with the Qazaqstani universities in order to attract young specialists. Interaction with universities is made through the Student Placement Programme based on the relevant agreements.

In 2019, 313 students from 31 educational institutions had practical and pre-graduate internship with 24 specialties in various departments of KPO. In the period from 2013 to 2019, the Company has employed 172 people out of those, who had passed the student placement.

Graph 19. Number of students who completed internship at KPO, 2017-2019



Besides, KPO is involved in the National Youth Placement Programme, thereby supporting those graduates, who are residents of the Burlin district. Since the start of this programme in 2009, 175 young professionals completed such internship in KPO. In 2019, six graduates out of 33 who had completed internships were hired at KPO and four graduates were hired by KPO contractor organisations.

KPO SUCCESS STORY 11

ENGAGEMENT OF STUDENTS IN THE COMPANY`S ACTIVITIES

Context / short description of issue:

Attracting young generation to search for innovative ideas is beneficial for any competitive organization. The year 2019 was declared in the Republic of Qazaqstan as the Year of Youth. KPO on its part has received students from various educational institutions for the industrial and youth internship, as well as hired those, who actively engaged and provided support during the internship.

Goal:

- To raise awareness of students of the Western Qazaqstan about KPO environmental activities,
- To attract advanced young people for promotion of sustainable development goals and resolution of live issues,
- To motivate students for research activities.

Participants of the first International "Solar Fest Qazaqstan" festival in Borovoye

Solution / actions:

The Contest of Innovative Environmental Ideas among students of the West Qazaqstan Oblast (WQO) was initiated as part of the Cooperation Agreement signed between KPO and WQO Akimat. This event provided opportunities for the younger generation to present their vision of sustainable development of the region and thus contribute to its future. The award ceremony was held at the third Uralsk Green Forum (UGF) on 6th June 2019.

On 11th June, KPO held a meeting with participants of the contest and students of the Western Qazaqstan. At the meeting KPO representatives presented a review of its environmental activities, showed the environmental video “Start with ourselves”, winner of the contest, and held a masterclass on environmental leadership. The students, whose work was high ranked, were awarded with diplomas and souvenirs.

Result:

Winners of the KPO contest of innovative environmental ideas took part in the First International Business Festival «Solar Fest Qazaqstan», which was dedicated to development of the renewable energy (RES) industry in Qazaqstan. The festival took place in the Borovoye resort area on 4th June. During the festival a meeting of students and their coaches with experts in the development of RES industry was held.

As noted by the Vice Rector for Research of the West Qazaqstan University of Innovation and Technologies, Vera Alexeyevna Burakhta, such contests allow attracting advanced young people in order to resolve live issues and to motivate students for research activities.

CARE FOR THE ENVIRONMENT

Production and processing of hydrocarbons impose high accountability on any company in terms of environmental protection. KPO is committed to minimizing its impact on the environment while developing the Karachagnak oil & gas condensate field.

KPO carries out its operations by ensuring the principles of sustainable development and complying with the high environmental standards. The key environmental commitments of the Company's HSE Policy include:

- prevention of the environmental pollution,
- continuous improvement in environmental performance,
- conservation of biodiversity and ecosystems, rational use of natural resources,
- ensuring environmental safety. / GRI 103-2 /

The Company is focused on reduction of greenhouse emissions and conservation of natural resources by applying state-of-the-art methods and world-class technologies. / GRI 103-1 /

The Company is focused on reduction of greenhouse emissions and conservation of natural resources by applying the modern methods and world-class technologies

ENVIRONMENTAL PROTECTIVE MEASURES PLAN / GRI 103-2, 102-44 /

To achieve the goals set in the area of environmental protection, KPO annually develops Environmental Protective Measures Plans (hereinafter referred as the EPMP).

In accordance with the RoQ Environmental Code regulations, KPO provides the Licensing authority with the EPMP for the permit's validity period to obtain an Environmental Emissions Permit. The Plan's measures focus on ensuring environmental safety, improving environmental protection methods and technologies, rational use of natural resources and maintaining compliance with the ISO 14001 and ISO 50001 international standards.

In 2019, KPO performed its operations according to the obtained Environmental Emissions Permits and developed EPMPs as presented in table 18. The 2019–2020 Environmental Protective Measures Plans were scheduled according to the validity terms of the permits obtained.

Tab. 18. KPO Environmental Protective Measures Plans and Permits issued for 2019-2020 / GRI 307-1 /

No.	Environmental Protective Measures Plans agreed for 2019	Valid Permits for 2019	Authority Agency issued the permit
1	2019 KPO EPMP for the Karachaganak Field (KOGCF)	Environmental Emissions Permit No. KZ68VCZ00223819 dated 27.12.2018 (effective period: 01.01.2019 – 31.12.2019)	Republican State Enterprise Committee for Environmental Regulation and Control of the RoQ Ministry of Energy
2	2016–2020 KPO EPMP for the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (West Qazaqstan Oblast (WQO))	Environmental Emissions Permit No. KZ68VDD00021755 dated 12.08.2015 (effective period: 01.01.2016 – 31.12.2020)	WQO Akimat, WQO Administration of Natural Resources and Nature Use Control
3	2016–2020 KPO EPMP (Atyrau Oblast)	Environmental Emissions Permit No. KZ87VDD00021510 dated 07.08.2015 (effective period: 01.01.2016 – 31.12.2020)	Atyrau Oblast Akimat, Atyrau Oblast Administration of Natural Resources and Nature Use Control

In 2019, the total actual costs of the environmental measures implemented at the KOGCF amounted to KZT 9.64 bln, i.e. 66% funds spent and 109% scope of work of the activities planned was completed. The 2019 target costs for KOGCF amounted to KZT 14.53 bln. Variance between the 2019 target and actual costs results from the partial expenditure under the 'Air pollution control' section (59%), meanwhile 120% of scope of work was completed. Using the up-to-date equipment for well operations the Company managed to reduce air emissions by 11 thous. tonnes instead of expected 8 thous. tonnes though spent less funds than planned.

In 2019, total actual costs of the environmental measures implemented at Karachaganak Field amounted to KZT 9.64 bln

The 2019 KPO EPMP execution is shown by sections in Table 19.

Tab. 19. 2019 Environmental Protective Measures Plan implementation, % / GRI 102-44, 103-2 /

No.	Sections of Environmental Protective Measures Plan	KPO measures implementation percentage:		
		- within the Karachaganak Field	- on the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (WQO)	- on the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (Atyrau Oblast)
1	Air pollution control	**120%**	**100%**	**100%**
2	Conservation and rational use of water resources	**100%**	N/A*	N/A*
3	Land conservation	**88%**	N/A*	N/A*
4	Subsoil conservation and rational use	**100%**	N/A*	N/A*
5	Flora and fauna conservation	**100%**	N/A*	**100%**
6	Management of waste production and consumption	**110%**	**30%**	**43%**
7	Radiation, biological and chemical safety	**140%**	N/A*	N/A*
8	Introduction of management systems and best safe technologies	**100%**	N/A*	N/A*
9	Scientific researches and design-survey activities in environmental protection	**87%**	**100%**	**100%**
10	Environmental awareness and promotion	**148%**	**100%**	**100%**
TOTAL:		**109% (KZT 9.64 bln / US$ 25 mln)**	**83% (KZT 11.20 mln / US$ 29 k)**	**89% (KZT 22.40 mln / US$ 58 k)**

** N/A – measures are not applicable.*

EPMP implementation results are provided in Table 20.

Tab. 20. Results of KPO's Environmental Protection measures implemented in 2019 / GRI 102-44 /

Air emissions	Waste and wastewater management	Land reclamation / GRI 304-3 /
▶ Use of high pressure separators during the test and clean-up of 11 wells helped reducing the amount of air polluting emissions by 7,986 tonnes vs the expected 6,770 tonnes; ▶ Use of high pressure pump for pumping oil at 13 wells helped reduce the amount of air polluting emissions by 402 tonnes from expected 404.3 tonnes; ▶ Use of hydrocarbon-based fluid for the reservoir operations (Lamix or Deisel) helped to reduce the amount of air polluting emissions by 722 tonnes from expected 394 tonnes.	▶ 849.2 tonnes of municipal and production waste not suitable for recycling, which was 13.3% more compared to 2018 (736.5 tonnes), was sorted and sent for incineration in General Purpose Incinerator (GPI); ▶ The following was sorted and sent for processing and reuse as recyclable materials: ▶ 100.3 tonnes of waste paper, which is by 4.6% more compared to 95.6 tonnes in 2018; ▶ 10.8 tonnes of scrap metal, which is by 21% more compared to 8.5 tonnes in 2018; ▶ 30.4 tonnes of plastic, which is by 17% more compared to 25.2 tonnes in 2018; ▶ 7.5 tonnes of glass waste, which is by 4.6% less compared to 7.8 tonnes in 2018. ▶ In 2019, the total volume of treated liquid waste amounted to 6,207.72 tonnes. ▶ In 2019, the transfer of accumulated waste from the Solid Waste and Spent Drilling Mud Site to the Solid Waste Burial Landfill continued. 3,758 tonnes of waste was treated throughout the year. ▶ In 2019, 38,545 m³ of treated wastewater was reused for technical needs, most of which used for making drilling muds. This volume amounted to 8.9% of the volume of consumed industrial water from Konchubai gully. Thus, the Company reduces the intake of fresh water for industrial needs.	▶ In 2019, 63.3 ha of land disturbed because of well operations and construction activities was reclaimed.

Environmental fines / GRI 307-1 /

KPO runs its business in accordance with the environmental legislation of the Republic of Qazaqstan. As part of its operations, the Company annually requests and obtains an Environmental Emissions' Permit (EEP) from the RoQ Ministry of Environmental Protection, Geology & Natural Resources. This permit sets the limits for air emissions, discharges and storage of production and consumption waste.

It is worth highlighting that in 2019, same as in previous years, the Company did not exceed the limits of emissions set in the Environmental Emissions' Permits.

At the same time in 2019, following the results of the four inspections held to check compliance with environmental regulatory requirements the Company paid administrative fines totalling KZT 19.3 mln (events related to 2018). KPO expressed its disagreement with the charged violations and appealed the fines at the superior authority and court following the established procedure. However, the superior authority and the courts did not uphold the KPO appeals. In addition, in 2019 KPO made the payments of the two civil claims charged on environmental matters totalling KZT 3.5 mln with regard to events in 2017–2018.

SANITARY PROTECTION ZONE

Tab. 21. Our targets in environmental protection / GRI 103-2 /

Targets for 2019	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
SOIL				
▶ Carry out survey works on detecting and studying historical and cultural heritage sites within the KOGCF and SPZ areas; ▶ Commence development of the project for organisation and improvement of the estimated SPZ in the Karachaganak Field	completed	Archaeological research carried out on the area of 722 km². The activity report describes the current state and determines the exact location of the cultural heritage sites. A historical and cultural reference plan was drawn up within the boundaries of the surveys; measures were proposed for protection and study of the identified sites. The necessary reviews and approvals from interested parties were received.	Complete the development of the project for organisation and improvement of the estimated SPZ in the Karachaganak Field	
Undertake tending to earlier planted trees	completed	Tending to plantings completed in the area of 126.01 ha; mechanical planting activities and caring for the trees done in the area of 57.30 ha; fire prevention measures for 2006–2014 tree planting were carried out on the 426.66 ha area.	Undertake tending to 2016–2019 tree planting in the area of 183.31 ha and fire prevention measures for 2006–2014 tree planting in the area of 426.66 ha	

Effective from 1st January 2018, a new sanitary protection zone (SPZ) was established within the Karachaganak Field.

Since 2018, KPO carries out the upgrade of Unit-2 and drilling new wells located within the previous SPZ boundary. Prospective facilities of the future field development – KEP-1A and KEP-1 are scheduled post 2020.

The residents of Berezovka and Bestau villages, which fell within the boundaries of the estimated SPZ, were resettled in 2015–2017 to Aksai in locations with more favorable housing conditions in terms of the sanitary and hygienic standards.

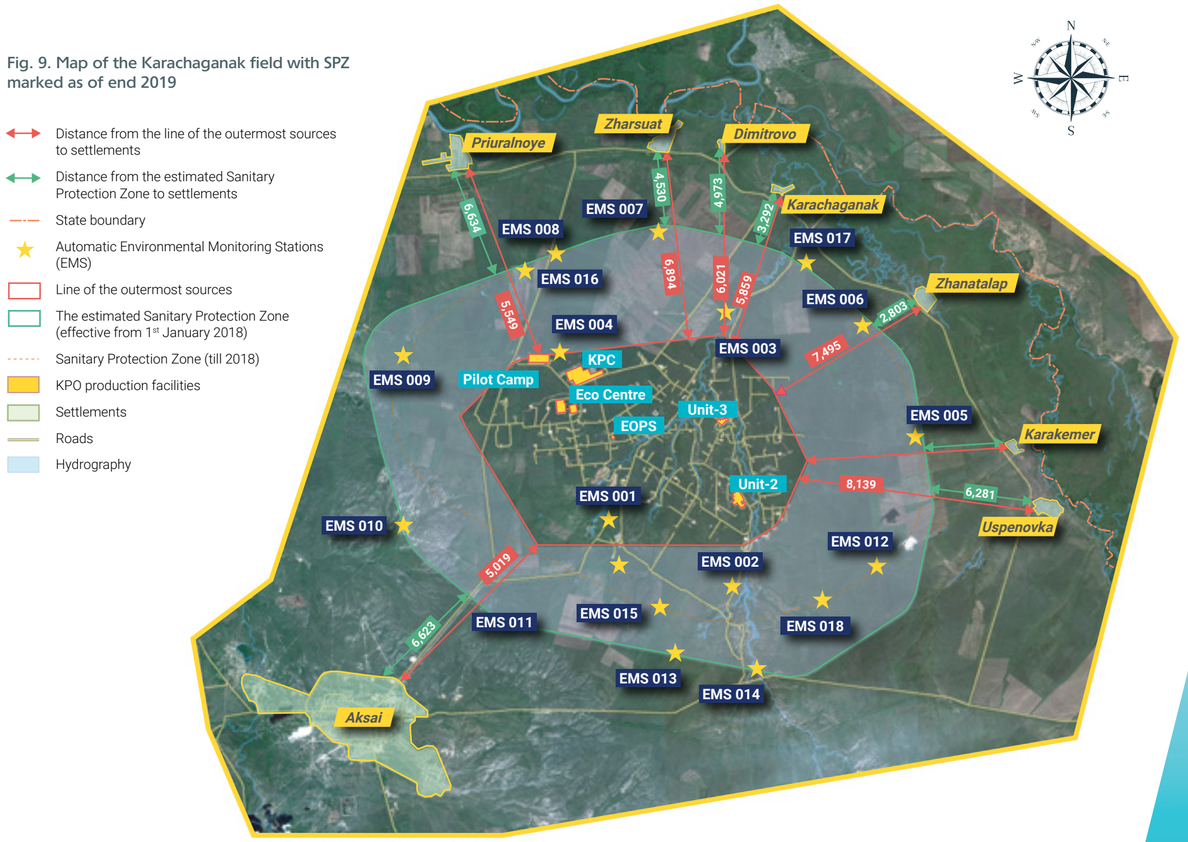
The dimensions of the Karachaganak SPZ are not the same in different directions and vary from 5,000 m on south-west to 9,440 m on south-east. In other words, size of the estimated SPZ is between 5,007 m and 7,579 m from the line of the outermost sources. The new SPZ map is shown in fig. 9.

In 2019, KPO continued the phased move of the existing environmental monitoring stations (EMS) to the new boundaries of the SPZ area. In total, 11 stationary EMSs were subject to relocation. In December 2018, three existing EMS Nos. 10, 13, and 14 were moved and hooked up. In 2019, KPO relocated three more stations – Nos. 11, 16, and 18. All relocated stations function as normal. The remaining five stations will be moved during the 2020 as per the 2020 EPMP for KOGCF.

In 2019, as part of the implementation of the KOGCF SPZ further development plan for 2018–2026 KPO organized archaeological research within the KOGCF and SPZ area with the involvement of the KAPE LLP together with the specialized co-executor the Archaeological Expedition LLP.

The activities were conducted in order to exclude negative impact on the historical and cultural heritage sites (further as HCH), as well as to identify such sites, clarify their characteristics and location, and issue recommendations for their protection and/or study. The identified HCH sites will be taken into account during the prospective design, excavation and construction works.

Fig. 9. Map of the Karachaganak field with SPZ marked as of end 2019



KPO SUCCESS STORY 12 RESEARCH ON PRESERVATION OF HISTORICAL AND CULTURAL HERITAGE SITES

Context / short description of issue:

In the longer term of further development of the Karachaganak Field (KOGCF) KPO plans enhancement of the current production infrastructure, construction of new assets including the planting of new trees as part of the project for improvement of the sanitary protection zone (SPZ).

KPO supported survey works on detecting and studying historical and cultural heritage sites within the KOGCF and its SPZ areas in 2019 in order to complete the Plan on further development of SPZ in the period 2018–2026. Survey works were implemented in 2019.

Goal:

- To exclude potential negative impact of KPO economic activity on the historical and cultural heritage sites;
- To take into consideration identified historical and cultural heritage sites (HCHS) and their protective zones whilst conducting the design of new assets at the Field.

Solution / actions:

Archaeological survey works were conducted in order to identify historical sites, to clarify their characteristics and actual location, to give recommendations on their security and/or study. The Kazakhstan Agency of Applied Ecology LLC ("KAPE" LLC) and the Archaeological Expedition LLP carried out the activities.

Archaeological exploration was held on the basis of the Law of the Republic of Qazaqstan 'On the protection and use of historical and cultural heritage sites' and was roughly divided into three stages:

Preliminary stage included the preliminary activities with historical and scientific resources and the list of monuments from the National Registry, exploration of the topographic area maps and space images.

On-field stage included:

- visual inspection of the research area and adjacent territory with the purpose of identification and check pointing of the HCH sites;
- photo shooting, preparation of sketches, fixing of geographical coordinates, description of all found HCH sites, documentation and analysis of the stratigraphic situation;
- collection of artefactual remains, description of the findings (if any).

Final stage included office studies of received data, analysis and interpretation of detected HCH sites.

In the course of the archaeological exploration the following 53 HCH sites in total were detected and documented:

- 34 archaeological significant sites,
- 3 landmarks of urban development and architecture,
- 16 sacred local objects.

Most part of the detected archaeological monuments are presented by funeral monuments of the early iron century and belong to the Sarmatian group of tribes, two monuments relate to the middle ages and three belong to the ethnographic period.

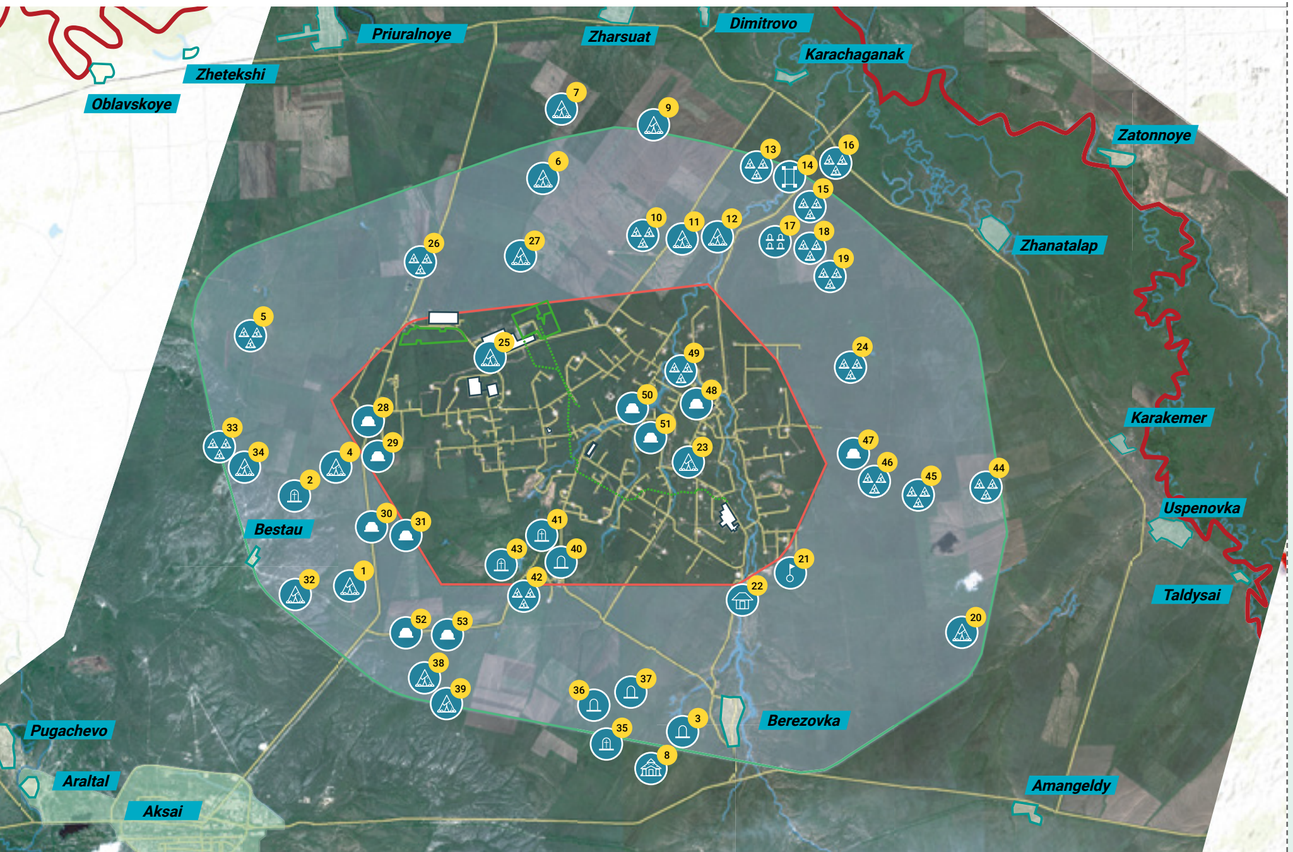
Result:

In result of the research, it was established that the most historical and cultural heritage sites were destroyed under environmental factors and were influenced by human activities, roads construction, tree planting, etc. The additional technogenic factor is the Field's modern infrastructure (highways, communication, etc.) It is worth noting that 12 archaeological monuments are under threat and were recommended to the full archaeological research in order to preserve their historical and cultural potential.

Based on the results of the archaeological survey works the Company has carried out the following activities:

- Maps of the HCH locations throughout the field and the sanitary protection zone were developed, the design project of security signs in accordance with the RoQ standards was completed;
- Dimensions of the protection zones of each HCH site and the number of the required security signs were defined;
- The need to receive land allocation for establishment of protection zones for the archaeological monuments was determined;
- Report on the results of archaeological surveys was prepared and concurred with the KSU 'State Inspectorate for the protection of historical and cultural heritage of the WQO'. The report was reviewed by the Institute of Archeology named after Margulan A. Kh. and the Ministry of Education and Science of the Republic of Qazaqstan.

Fig. 10. Scheme of the location of identified historical & cultural heritage sites and sacred monuments of local importance



Legend

- Burial mound
- Single mound
- Medieval necropolis
- Cemetery of the ethnographic period
- Manor of the ethnographic period
- Fortification complex
- Locally-respected object
- Monument
- Contemporary cemetery
- Memorial monument

Objects of future construction

- Pipelines
- Production facilities
- Main facilities of the Karachaganak field
- Survey territory
- Field boundary
- State boundary
- Settlements

ENVIRONMENTAL MONITORING / GRI 413-1 /

KPO places a greater focus on environmental safety in its operations. In accordance with the RoQ environmental legislation, KPO has implemented a number of environmental programmes, which cover all areas of the KPO production activities. Among the core programmes, there is a Production Environmental Control (PEC) Programme developed in line with RoQ Environmental Code requirements to meet the following objectives:

- obtaining reliable data about emissions and impact of production operations on the environment;
- reducing the impact on the environment and human health;
- rapid and proactive response on emergencies;
- communication to stakeholders (local communities, state regulatory bodies, company partners) about the environmental activities of the Company and risks for human health.

As part of the PEC implementation, the environmental monitoring includes observations of both the environmental emissions – air emissions, wastewater discharge, waste treatment and disposal, and the quality of environmental components – air, surface and ground water, and soil. In 2019, as part of the PEC more than 100,000 samples, 118,000 laboratory analyses and 28,000 measurements have been taken by the laboratory.

Particular attention the Company pays to protection of air quality across the Karachaganak Field, at the Sanitary Protection Zone boundaries and by the adjacent settlements.

KPO monitors air quality by sampling and analysis carried out by the accredited laboratory and also by 18 automatic Environmental Monitoring Stations (EMS).

Air quality is assessed based on a maximum permissible concentration (MPC) specified in the sanitary and hygienic standards.
To identify the level of air pollution, the recorded concentrations of monitored components are compared against the maximum permissible concentrations and then the values are expressed in percentage. MPC of an air pollutant is a concentration, which does not cause a direct or indirect lifelong negative impact on the present or future generations, does not reduce the work capacity of a person and his/her medical condition and does not deteriorate his/her sanitary and living conditions.

Air monitoring by automatic Environmental Monitoring Stations / GRI 413-1 /

18 automatic EMS are installed within the Karachaganak Field and along the perimeter of the SPZ (EMS 001 – 018). The environmental monitoring stations are integrated into the single automatic environmental monitoring system.

Following the establishment of a new sanitary protection zone (SPZ) from 1st January 2018, a project of relocating EMS to the new SPZ boundary was rolled out. By the end 2019, nine EMS were located along the SPZ boundary: 007, 008, 010, 011*, 013, 014, 016, 017 and 018. The remaining stations – 005, 006, 009, 012 and 015 will be relocated in steps during the 2020.

Tab. 22. The average annual concentrations of the monitored air components recorded by EMS in 2019*

Monitored components	Actual average annual concentration, mg/m³	MPC one-time[3], mg/m³	Exceedance of MPC**
H_2S	0 – 0.001	0.008	no
SO_2	0.003 – 0.005	0.5	no
NO_2	0.002 – 0.007	0.2	no
CO	0.2 – 0.3	5.0	no

* *The data from EMS 011 is not included in the Table since its relocation has been finished on 26 December 2019.*

** *Criteria of air quality at the SPZ boundary is MPC one-time*

[3] *MPC one-time is a maximum permissible one-time concentration of chemical substance (mg/m³) in the ambient air of settlements. This concentration should not cause a reflex response in human bodies (delay of a breath, irritation of eyes, upper respiratory tract and other) in case of 20-30 min of inhalation.*

Average concentrations of the monitored air components at the boundary of the SPZ in 2019 are shown in the table 22. The column 'Actual average annual concentration' shows the minimum and maximum average concentration values of the monitored air components by each EMS.

All EMSs take measurement of the four main pollutants (H_2S, SO_2, NO_2, CO) on a continuous basis, i.e. 24 hours per day. According to the data received from the EMSs in 2019, the actual daily, monthly, quarterly and annual average concentrations of the monitored components did not exceed the average daily MPC; although a one-time short period (measured during 20 minutes) exceedance of MPC was registered. It is worth noting that the most part of exceedances shown in table 23 were not related to KPO operations.
A conducted inspection of the KPO field operations with account of meteorological parameters at the time of MPC one-time exceedances showed that all production facilities were operated in normal regime, with no flaring, and equipment failures or emergencies were not registered.

Air quality data from all 18 KPO automatic EMSs are transmitted online to the West Qazaqstan Oblast Environmental Department via the *Ecomonitor* portal.

Air monitoring at the boundary of the SPZ of the Karachaganak field

Along with the continuous monitoring of air quality run by automatic EMS at the boundary of the KOGCF SPZ the accredited Contractor laboratory conducts air sampling made per 8 compass points (rhumbs). Sampling at the SPZ border is performed daily at the route monitoring stations[4] with the following frequency:

- at the sampling points of N, E, S, W – 4 times per day;
- at the sampling points of NE, SE, SW, NW – once a day.

In 2019, at the route monitoring stations over 44 thousand samples of air were taken and analysed by the laboratory. The samples are analysed for the content of the same components measured at the EMSs: hydrogen sulphide (H_2S); sulphur dioxide (SO_2); nitrogen dioxide (NO_2); carbon monoxide (CO). Additionally, air samples are analyzed for methane (CH_4) and methylmercaptan (CH_3SH).

In 2019, according to the results of air monitoring at eight route monitoring stations at the KOGCF SPZ no exceedance of maximum permissible concentration of the monitored components was recorded.

Average concentrations of the monitored air components at the SPZ boundary in 2019 are shown in the table 24. The column 'Actual annual average concentration' shows the minimum and maximum average concentrations values of the controlled air components per 8 points.

Tab. 23. Exceedances of one-time MPC recorded by EMS in 2019

№ EMS	Monitored components	Actual one-time concentrations recorded in 2019, mg/m³	MPC one-time, mg/m³	Frequency ratio of MPC exceedance, one-time *	Number of exceedances
EMS-007	H_2S	0.016	0.008	1.25 - 2.0	12
	SO_2	0.606	0.5	1.212	1
EMS-008	H_2S	0.010	0.008	1.125 – 1.25	8
EMS-010	H_2S	0.009	0.008	1.125	1
EMS-013	H_2S	0.025	0.008	3.125	1
	NO_2	0.523	0.2	2.1 - 2.615	2
EMS-016	H_2S	0.011	0.008	1.125 – 1.375	4

[4] *A route monitoring station is used for continuous air sampling by observing with portable equipment in the fixed locations.*

Tab. 24. Annual average concentrations of the monitored air components recorded at route monitoring stations at the SPZ boundary in 2019

Monitored components	Actual annual average concentration, mg/m³	MPC one-time, mg/m³	Exceedance of MPC
H_2S	0.002	0.008	no
SO_2	below MDL* – 0.003	0.5	no
NO_2	0.026 – 0.027	0.2	no
CO	below MDL*	5.0	no
CH_3SH	not detected	0.006	no
CH_4	1.104 –1.110	50**	no

** Measurements recorded were below the method's minimal detection limit (MDL).*
MDL for SO_2 – 0,003 mg/m³;
MDL for CO – 0,6 mg/m³;

*** Determined approximate safe level of impact. MPC for methane is not determined.*

Atmospheric air monitoring in the villages adjacent to the Karachaganak field / GRI 413-1 /

There are stationary air monitoring posts in six settlements located around the field: Zharsuat, Zhanatalap, Dimitrovo, Karachaganak, Priuralnoye, Uspenovka, and in the Aksai city. At these posts, the certified contractor laboratory makes sampling four (4) times a day at 1, 7, 13 and 19 hours according to the State Standard. Air sampling is carried out by the permanent personnel of the contracted laboratory, who reside in the villages. Approximately 52 thousands of air samples were taken and analyzed at the stationary stations in 2019.

Air samples are delivered to the laboratory in the city of Aksai where the samples are chemically tested for the content of the five main components in accordance with the State Standard and Ruling Documents: hydrogen sulphide (H_2S), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and methylmercaptan (CH_3SH). In addition, once in 10 days the air is monitored for concentration of volatile organic components: benzene (C_6H_6), toluene (C_7H_8), xylene (C_8H_{10}).

Monthly results of air monitoring are published in local print media and distributed to the villages for posting on the information boards. If any complaint from the communities about gas odour is raised, an unscheduled air sampling is performed at stationary posts.

No MPC exceeding of the average monthly concentrations of NO_2 was recorded in 2019. However, there was one time on 01.01.2019 when average daily concentration of NO_2 exceeded MPC in 1.275 times in Uspenovka village. Average daily concentration was 0.051 mg/m³ against the daily average MPC of 0.04 mg/m³.

MPC exceedance of other monitored components was not recorded.

Annual average concentrations of the monitored air components in the seven villages in 2019 are shown in table 25. The column 'Actual annual average concentration' shows the minimum and maximum values of average concentrations of the controlled air components.

In 2019, according to the results of air monitoring at eight route monitoring stations at the KOGCF SPZ no exceedance of the maximum permissible concentration of the monitored components was recorded

Tab. 25. Annual average concentrations of monitored air components in the villages adjacent to KOGCF in 2019 / GRI 413-1 /

Monitored components	Actual annual average concentration, mg/m³	MPC daily average[5], mg/m³	Exceeding MPC daily average
H_2S	0.002	0.008[7]	no
SO_2	0.003 – 0.004	0.05	no
NO_2	0.025 – 0.026	0.04	no
CO	below MDL[6]	3.0	no
C_6H_6	from 0,151 to 0,173	0.3[7]	no
C_7H_8	below MDL[6]	0.6[7]	no
C_8H_{10}	below MDL[6]	0.2[7]	no
CH_3SH	not detected	0.006[7]	no

[5] *MPC daily average - maximum permissible daily average concentration of chemical substance [mg/m³] in the ambient air of settlements. This concentration should not have direct or indirect adverse effect on human body in case of inhalation during indefinitely long-term period (years).*

[6] *Measurements recorded were below the method's minimal detection limit (MDL). MDLs for monitored parameters are the following:*
CO – 0.6 mg/m³; C_7H_8 – 0.14 mg/m³; C_8H_{10} – 0.14 mg/m³.

[7] *MPC one-time. MPC daily average for hydrogen sulphide and methylmercaptan is not established, therefore, MPC one-time is referred to for comparison purpose; MPC one-time is also applied in order to assess the concentration of benzene, toluene and xylene in the air given as the frequency of components' analysis is once in ten days.*

In 2019 more than 44 thousand of air samples were taken and analysed by the laboratories at route monitoring stations and approximately 52 thousand of air samples were taken and analysed at stationary stations

Monthly results of air monitoring are published in local print media and distributed to the villages to be posted on information boards

AIR EMISSIONS / GRI 305-7 /

Tab. 26. Targets in environmental protection / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
AIR EMISSIONS & GHG				
Achieve reduction of GHG emissions by 280 thousand tonnes of CO_2	completed	Greenhouse gas emissions were reduced by 464 thousand tonnes of CO_2.	Achieve reduction of GHG emissions by 285 thousand tonnes of CO_2	
Ensure that specific GHG emissions do not exceed 67 tonnes of CO_2 per one thousand tonnes of produced hydrocarbons	completed	Specific GHG emissions amounted to 64 tonnes of CO_2 per one thousand tonnes of produced hydrocarbons.	Ensure that specific GHG emissions do not exceed 67 tonnes of CO_2 per one thousand tonnes of produced hydrocarbons	
Ensure that the throughput losses do not exceed 3.82%	completed	Throughput losses amounted to 3.62%.	Ensure that the throughput losses do not exceed 3.82%	

Why it matters

Activity of such industrial enterprises as KPO is always associated with air emissions. High concentration of toxic substances in the air leads to environmental degradation. In this regard, KPO has set the goal to minimize the negative impact of its activities.

KPO manages air emissions based on the limits established in the Environmental Emissions Permit. Most emissions are generated as a result of combustion of fuel gas in gas turbine units, boilers, process heaters, compressors, and gas and liquid flaring.

In 2019, the total amount of air emissions decreased by 2% compared to 2018, totalling 7,597 tonnes. This reduction of emissions is explained by the shorter operating time of equipment due to the turnaround. Table 27 shows data on the permissible and actual KPO's emissions for the period of 2017–2019.

In KPO, emissions are calculated using the methods specified in the Emissions Limits Project and recommended for use in the Republic of Qazaqstan.

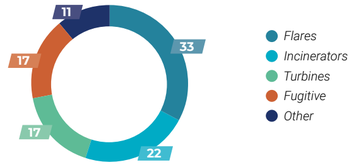
Tab. 27. Permitted and actual volumes of pollutant emissions, 2017–2019

Annual volume of emissions by pollutants, in tonnes:	2017	2018	2019
Permitted:	**26,538**	**19,986**	**18,544**
Actual, including:	**8,569**	**7,759**	**7,597**
Nitrogen oxides	1,967	1,931	1,636
Sulphur dioxide	3,641	3,138	3,281
Carbon monoxide	1,266	1,249	1,205
Volatile organic compounds	1,533	1,315	1,329
H_2S	27	3	3
Solid particles	48	65	80
Other	87	58	63

Note: Emission volumes data is provided in accordance with the data of statistical reports «2-TP Air».

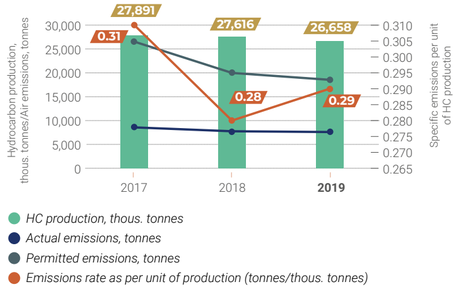
Graph 20 shows pollutant emissions broken down by main air pollution sources.

Graph 20. Distribution of pollutant emissions in KPO in 2019 by main air pollution sources



In 2019, the specific emissions per unit of production amounted to 0.29 tonnes per 1,000 tonnes of produced hydrocarbons (HC). A slight increase in specific emissions in 2019 compared to 2018 is explained by a decrease in production due to the turnaround.

Graph 21. Volumes of HC production and environmental emissions in 2017–2019



In 2019, the total amount of flared gas was only

0.09%

of the total volume of gas produced

GHG emissions were reduced by

464

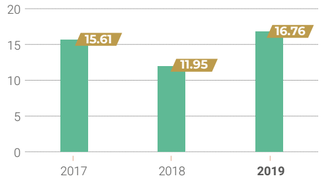
thous. tonnes of CO_2-equivalent

Specific GHG emissions amounted to

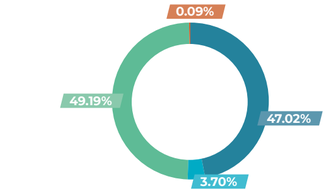
64 tonnes

of CO_2 per 1 thous. tonnes of produced hydrocarbons

Graph 22. Volume of associated gas flared, mln m³



Graph 23. Gas utilization and flaring in 2019



Gas flaring / OG-6 /

In 2019, the total amount of flared gas made 0.09% of the total volume of gas produced or 0.56 tonnes per thousand tonnes of produced hydrocarbons. Such an emission rate in result of flaring is an evidence of a very high performance when compared to the worldwide industry average of 10.5 tonnes per thousand tonnes and European average of 3.2 tonnes per thousand tonnes[8], as reported in the IOGP Report 2018.

In 2019, KPO continued using high-pressure separators, high-pressure pumps and hydrocarbon-based fluid contributing to reduction of air emissions when cleaning up (completing) the wells. Because of using this equipment and materials, the volume of liquid flaring decreased by 98 thousand tonnes, which was 97% of the volume produced during the wells clean-up. The volume of flared gas during the wells' clean-up decreased by 54 mln m³ (or 76% of the volume produced during the wells clean-up). The increase in gas flaring compared to 2018 was due to the turnaround.

Gas Utilization / OG-6 /

In 2019, the KPO gas utilization rate reached 99.91% (99.94% in 2018). The performance target approved by the RoQ Authority as part of the 2019 Associated Gas Processing Development Programme is 99.61%. Gas utilization in the Republic of Qazaqstan in 2018 amounted to 98.7%[9].

Direct greenhouse gas emissions / GRI 305-1 /

KPO direct greenhouse gas (GHG) emissions are regulated under the national quotas trading system in place. For 2018–2020 KPO obtained a quota on GHG emissions based on the specific emissions' indicators (or benchmarks) in the volume of 6,927,159 tonnes. In 2018 – 2019, total actual emissions amounted to 3,441,245 tonnes of CO_2, which made 50% of the quota obtained.

The GHG emissions are accounted for carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) using the calculation method on the basis of the Company's operations data (in terms of fuel consumption and laboratory data on fuel composition).

According to the verified GHG Emissions Inventory Report for 2019, the total volume of GHG emissions amounted to 1,870,324 tonnes of CO_2-equivalent, of which CO_2 accounts for 1,710,330 tonnes of CO_2-equivalent (91.4%), CH_4 – 151,653 tonnes of CO_2-equivalent (8.1%), and N_2O – 8,342 tonnes of CO_2-equivalent (0.5%).

Information on the dynamics of generated GHG emissions is provided in Table 28. A slight decrease in GHG emissions (by 1.2%) in 2019 compared to 2018 was owing to less consumption of fuel by stationary sources due to the total shutdown of the Field facilities (turnaround) in the reporting year.

[8] *Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – 'Environmental Performance Indicators – 2018 Data'.*

[9] *Data source – the RoQ Energy Minister's Order No.571 dated 28.12.2016 'On the Strategic Plan of the RoQ Ministry of Energy for 2017 – 2021'.*

KPO SUCCESS STORY 13

CAMPAIGN FOR THE MONITORING OF FUGITIVE EMISSIONS

Context / short description of issue:

The campaign for the monitoring of fugitive emissions[10] has been started at KPO since 2015. Earlier in 2015 and 2016, the scope of work was executed by Eni jointly with KPO. The detection of unintended leaks because of failure equipment integrity was the reason of this campaign.

Whilst monitoring, the full analysis of technical documentation of all equipment, which is the potential resource of fugitive emissions, was carried out. In result, KPO created a database that has been acknowledged to be the basis of further monitoring of fugitive emissions.

Goal:

- To analyse a database of technical documentation for detection and assessment of potential modifications before the monitoring measures of fugitive emissions are started;
- To identify possible leaks by means of thermal imaging and using the method of optical search for gas leaks.

Solution / actions:

In 2018 and 2019:

- Required equipment for monitoring was purchased; the personnel were trained.
- Internal procedures of monitoring fugitive emissions and Instruction of fugitive emissions' calculation were prepared.
- Monitoring of fugitive emissions was carried out at Unit-2 and Unit-3.
- Results of calculation were concurred with Eni representatives.

Result:

Thanks to the campaign for monitoring of fugitive emissions the following results were achieved in 2019:

- Three leaks were detected from 10,525 potential emissions at Unit-2.
- Four leaks were detected from 15,127 potential emissions at Unit-3.

Timely identification and elimination of detected leaks and early repairs of equipment made possible the reduction of emissions to the environment and prevention of an emergency.

[10] *Fugitive emissions is an unintentional industrial release that enters the atmosphere in the form of non-directional gas flows. Industrial oil and gas facilities can release methane (CH_4) and volatile organic compounds (VOCS) on equipment components where leakage is possible (such as valves, connectors, pumps, sampling sites, compressors, pressure relief devices, and open-end pipeline lines).*

KPO new environmental emblem

Tab. 28. Dynamics of GHG emissions generated as a result of KPO production activities

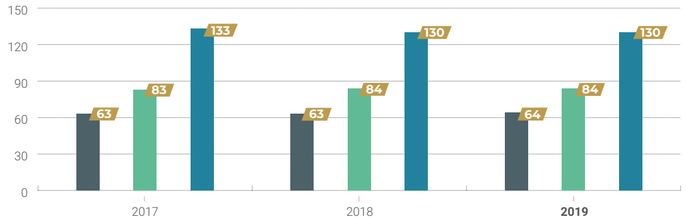
Total volume of greenhouse gas emissions (tonnes of CO_2 equivalent)					
From fuel combustion at flares and incinerators	From fuel combustion at stationary sources	Fugitive emissions	**Total GHG emissions in 2019**	Total GHG emissions in 2018	Total GHG emissions in 2017
146,751	1,574,585	148,988	**1,870,324**	1,893,447	1,928,700

Specific greenhouse gas emissions / GRI 305-4 /

In 2019, KPO specific GHG emissions amounted to 64 tonnes of CO_2 per thousand tonnes of produced hydrocarbons, which is fully consistent with the target indicator on specific GHG emissions of no more than 67 tonnes of CO_2 per thousand tonnes of hydrocarbon produced.

Graph 24 shows the dynamics of specific GHG emissions comparing to the specific emissions data provided by the International Association of Oil and Gas Producers (IOGP). The actual specific GHG emissions in KPO are lower than the European indicators by 23% and lower than the international indicators by 52%.

Graph 24. Dynamics of specific GHG emissions per unit of produced hydrocarbons (HC)[11]



[11] *The data was sourced by Annual report of the International Associations of Oil and Gas Producers (IOGP) – "Environmental Performance Indicators – 2018 data". The 2018 data was used for comparison purpose, as the 2019 IOGP Report was not available at the time this issue was prepared.*

Reduction of greenhouse gas emissions / GRI 305-5 /

In 2019 as part of consistent reduction of GHG (CO_2) emissions, KPO set a target to reduce direct GHG emissions by 280 thousand tonnes through implementation of a number of production optimization and energy efficiency projects.

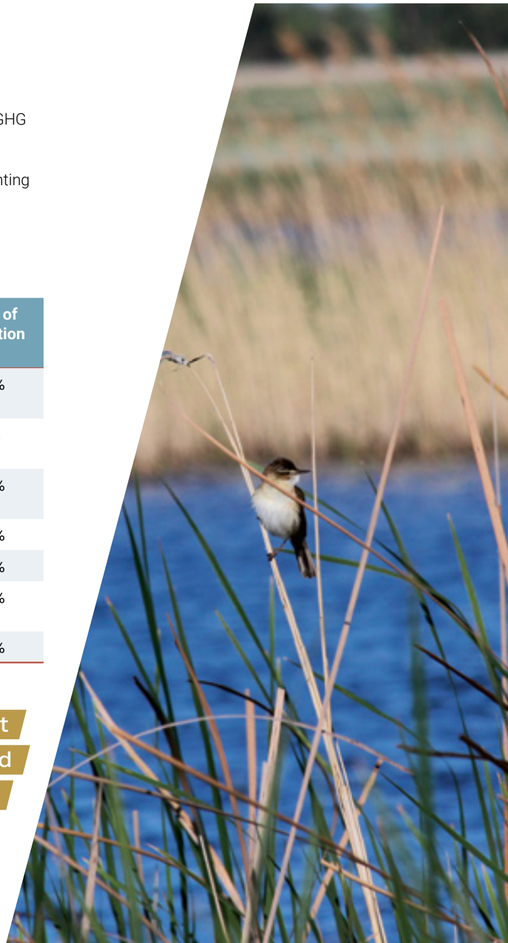
Thanks to implementation of the six projects listed in Table 29, the actual reduction of the GHG emissions exceeded the target almost twice. The reduction of GHG emissions (87%) was mainly achieved through the measures preventing the hydrocarbons flaring at wells.

Tab. 29. The GHG emissions' reduction measures in 2019

No.	Activity	GHG emissions' reduction, thous. tonnes/year		Status of completion in %
		Target	Actual	
1	Use of high pressure separator during wells' clean-up	167	367	220%
2	Use of high-pressure pump when cleaning up the wells	18	17	94%
3	Use of hydrocarbon-based fluid to stimulate the formation (new)	18	19	106%
4	Repair of flare headers' valves at KPC	19	24	126%
5	Adjustment of a steam flow meter at Train 4	10	16	160%
6	Upgrade of the Unit 2 turbo-compressors' piping	8	21	263%
	Total:	240	464	193%

Due to the use of high-pressure separator when cleaning up the wells, emissions reduction reached 367 thousand tonnes per year

In 2019, the total amount of air emissions decreased by 2% compared to 2018



ENERGY EFFICIENCY

Tab. 30. Targets in energy efficiency / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	SDG UN
ENERGY EFFICIENCY				
▶ Conduct a surveillance audit of the Energy Management System for compliance with the ISO 50001:2011 standard; ▶ Bring the KPO Energy Management System in line with the requirements of the new ISO 50001:2018 standard version.	completed	Surveillance audit of the KPO Energy Management System for compliance with ISO 50001:2011 standard was conducted. Following the audit, a conclusion on the compliance of the KPO Energy Management System with the requirements of the ISO 50001:2011 standard was received. KPO Energy management system was brought in line with the requirements of ISO 50001:2018 by reviewing and updating the main processes and documents.	▶ Conduct the next energy audit, determine the potential of energy saving and develop energy saving and energy efficiency improvement action plan for the period of 2021–2026 ▶ Conduct a certification audit of the Energy Management System for compliance with the new ISO 50001:2018 standard version	7, 12
Implement an Agreement on Cooperation among the WQO Akimat, KPO and International Center for Green Technologies and Investment Projects signed at the II International Environmental Forum "Uralsk Green Forum"	completed	The Agreement on Cooperation among the WQO Akimat, KPO and International Center for Green Technologies and Investment Projects was implemented though the Contest of Innovative Environmental Ideas among students of the West Qazaqstan Oblast (see "KPO partnership with Qazaqstani universities" chapter).		17

Why it matters

To ensure the growing demand for energy while making the transition to low-carbon technologies is one of the challenges facing the global community.

Our goal is to reduce the environmental impact and effectively use energy resources in the main production and other ancillary processes. The implementation of measures to improve energy efficiency contributes to achievement of the goal.

Energy management system / GRI 103-2,103-3 /

In 2019, KPO conducted surveillance audit for compliance with ISO 50001:2011 'Energy management systems' standard requirements. The audit confirmed KPO's compliance with the requirements of this standard. The ISO 50001 certificate is valid until the next certification audit in September 2020.

ISO certification contributes to enhancement of the KPO business reputation as a reliable partner of the Republic of Qazaqstan that takes appropriate action to meet both regulatory requirements and international standards.

Energy consumption / GRI 302-1 /

In 2019, the energy consumption totalled 1,021,957 tonnes of coal equivalent compared to 1,040,603 tonnes of coal equivalent in 2018. Table 31 shows the energy consumption volumes broken down by energy type.

Tab. 31. KPO energy consumption in 2017–2019 / GRI 302-1 /

Type of energy	Unit of measure	Energy consumption, physical units			Energy consumption, tonnes of coal equivalent			Energy consumption, GJ		
		2017	2018	2019	2017	2018	2019	2017	2018	2019
Fuel gas	Km^3	850,765	841,943	826,806	1,048,142	1,037,274	1,018,625	30,721,053	30,402,505	29,855,886
Electric power (purchased)	MW/h	6,892	6,707	7,244	848	825	891	24,846	24,181	26,115
Diesel fuel	m^3	772	839	739	911	1,058	932	26,696	30,997	27,468
Gasoline	m^3	287	245	226	316	271	249	9,274	7,934	7,301
Heating (in rented offices)	Gcal	7,468	8,219	8,731	1, 068	1,175	1,249	31,301	34,449	36,595
Total					**1,051,285**	**1,040,603**	**1,021,946**	**30,813,170**	**30,500,065**	**29,953,365**

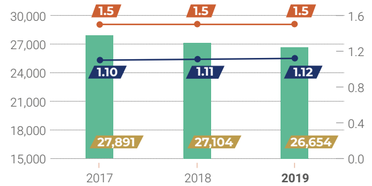
In 2019, the energy consumption was somewhat lower than in 2018 due to the major turnaround conducted. In 2019, KPO energy intensity indicator was 1.12 GJ/tonnes of hydrocarbons, which was below the average energy intensity indicator of the companies that submit their reports to the IOGP (1.50).

Energy saving activities

Pursuant to the approved KPO's Energy Saving and Energy Efficiency Improvement Action Plan, the Company took the following actions in 2019:

- The activities on replacement of traditional lamps with LEDs bulbs at production and ancillary facilities were continued. In 2019, 4,785 lamps were replaced at Company`s facilities. Estimated economy of energy consumption from the traditional lamps replacement was about 383,680 KW/h.
- The works on improvement of fuel gas accounting including early works on the metering device installation were conducted.

Graph 25. Dynamics of energy intensity in 2017-2019 / GRI 302-3, 102-48 /



Hydrocarbons production, kilotonnes
KPO energy intensity, GJ/per tonne of production
Average energy intensity of IOGP companies, GJ/per tonnes of production

WATER USE

Tab. 32. Targets in environmental protection / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
EFFLUENTS				
▶ Develop a single concept for treating injected industrial wastewater as alternative to the stripping column. ▶ Develop a design of the stripping column for the H_2S removal from the industrial wastewater at Unit-3 (design to be completed and approved in 2020).	completed	More rational solution to reduce H_2S concentration in Unit-3 wastewater to 50 mg/m³ was selected and developed as alternative to the stripping column. The stripping column project was suspended.	Develop the project, complete the construction and commissioning of the equipment intended to reduce H_2S concentration in Unit-3 wastewater to 50 mg/dm³	
▶ Deliver the Roadmap schedule for the revision of the Project of the KOGCF Industrial Wastewater Injection into deep-laying aquifers and the Environmental Impact Assessment (EIA) to it; ▶ Write a geological report on the completed additional exploration works (follow-up exploration) at Polygon No.1; ▶ Develop the Appendix No.2 to the KOGCF Industrial Wastewater Injection Project concerning the revision of the project parameters and the section of EIA to it.	completed	Polygon No.1 follow-up exploration report was drawn up and approved at the session of the State Subsoil Expert Review Committee of the Committee for Geology and Subsoil Use of the Ministry of Investment and Development of the Republic of Qazaqstan. Appendix No.2 to the existing Injection Project concerning the revision of the project parameters and the section of the Environmental Impact Assessment to it was developed by the Design Institute. The draft document passed a state environmental expert review.		

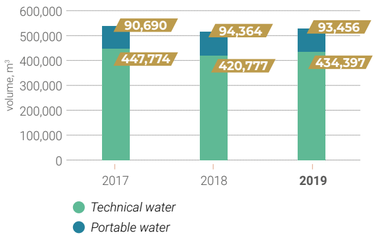
Why it matters

Our target is to use water resources rationally with the aim to preserve them. KPO controls the use of clean water within the Company by undertaking a set of measures on conservation of water resources and re-use of treated water, wherever possible.

In 2019, the total water consumption in the Company amounted to 527,853 m³, of which 434,397 m³ was the technical water and 93,456 m³ was the potable water. / GRI 303-1 /

In 2019, the volume of water used by KPO for production needs was 3.1 % higher than in 2018. The domestic needs' water consumption was slightly less compared to 2018.

Graph 26. KPO water consumption, 2017-2019 / GRI 303-1 /



The main source of water supply for production needs in the Karachaganak field is a holding pond No.1 at the Konchubai gully, for household and domestic needs it is a Zharsuat water intake. The source of water supply for domestic and production needs of the Bolshoi Chagan OPS is the Serebryakovskiy water intake, for Atyrau Terminal OPS is the Kigach water intake.

Water intake from other sources is ensured through contracts with water suppliers. According to the Special Water Use Permit with the validity period until 22.09.2020 for water intake from the Konchubai gully for industrial needs, the annual intake limit is 595,047 m³.

The potable water is used exclusively for domestic needs of the KPO facilities. At the Bolshoi Chagan OPS the potable water is supplied by the RSE KazVodKhoz WQO Branch and, due to absence of alternative sources of water supply, is used only to replenish the fire tanks for fire safety purposes.

Table 33 shows KPO water consumption broken down by sources.

Tab. 33. KPO water consumption in 2017–2019 broken down by sources, m³ / GRI 303-1 /

№	Source	Facility	Water quality	Consumption		
				2017	2018	2019
1	Zharsuat water intake facility *(domestic needs)*	KOGCF	groundwater, potable	89,034	92,888	**91,851**
2	Serebryakovskiy water intake facility	OPS Bolshoi Chagan	groundwater, potable	1,656	1,476	**1,605**
	Domestic needs			931	980	**924**
	Production needs			725	496	**681**
3	Konchubai gully water intake facility *(production needs)*	KOGCF	surface water, technical	445,591	417,232	**431,616**
4	Kigach water intake facility	Atyrau OPS	surface water, technical	2,183	3,545	**2,781**
	Domestic needs			1,054	933	**777**
	Production needs			1,129	2,612	**2,004**

Discharge of treated wastewater

/ GRI 306-1 /

KPO uses special man-made facilities for collecting treated domestic and industrial wastewater and storm runoffs. These facilities exclude a possibility of contaminants soaking into the soil and reaching groundwater as well as allow collecting the treated wastewater for their re-use for technical needs, thereby reducing the fresh water intake. Types of wastewater collection facilities were presented in the 2018 Sustainability Report (Tab. 40, p. 105).

Formation water, produced with crude hydrocarbons, and process wastewater are treated and injected into the deep-lying formations of the KOGCF industrial wastewater burial sites 1 and 2. Wastewater injection is the international practice of disposing wastewater, avoiding the formation of salt-containing waste on the surface during the treatment. Due to the reliable water shutoff and soil properties, which are ideal for the injection of wastewater, the migration of wastewater into upper aquifers is ruled out. According to the RoQ legislation, the volume of discharged wastewater and amount of discharged contaminants are regulated by the special permits.

Wastewater generated as a result of the KPO economic and production activities is not discharged into the natural water bodies.

Table 34 shows the KPO discharge volumes in 2017–2019 by wastewater types and receiving facilities.

Tab. 34. Total discharge volume and contaminants by wastewater type and receiving facility, 2017–2019, m³ / GRI 306-1 /

Receiving facility	Type of wastewater	2017		2018		2019	
		Discharge volumes, m³	Amount of contaminants, tonnes	Discharge volumes, m³	Amount of contaminants, tonnes	Discharge volumes, m³	Amount of contaminants, tonnes
Holding ponds	Treated domestic wastewater	63,935	40.94	68,752	38.8	**68,763**	**35.72**
Subsurface Waste Water Disposal Polygons	Industrial wastewater, process and associated formation wastewater	582,400	32,891.2	663,706	42,239.72	**628,819**	**39,645.09**
Terrain of Bolshoi Chagan and Atyrau Terminal OPSs	Rainfall and snow melt wastewater	2,862	0.92	2,694	1.51	**3,546**	**2.05**
Total discharge		**649,197**	**32,933.06**	**735,152**	**42,280.03**	**701,128**	**39,682.86**

In 2019, the volume of discharged wastewater decreased by 4.6% as compared to 2018. Of that, in 2019, the volume of injected industrial wastewater decreased by 5.3% as compared to 2018. The decrease of industrial wastewater in 2019 was due to the facilities shutdown during the turnaround. The types of treated wastewater and contaminants were presented in the 2017 Sustainability Report (p. 93).

In 2019, the discharge of contaminants amounted to 39,682.86 tonnes (which was 6.1% less compared to 2018 – 42,280.03 tonnes). Of them, 35,732.12 tonnes were discharged within the maximum permissible discharge (MPD) limits, while the excess discharge amounted to 3,950.74 tonnes.

The excess discharge of contaminants results from the exceeded MPD concentration on nitrite nitrogen and nitrate nitrogen contained in domestic wastewater discharged into the holding ponds as well as exceeded annual MPD limits of suspended solids, oil products, sulphides, iron, copper, aluminium, zinc, and chlorides in wastewater discharged into the Subsurface Waste Water Disposal Polygon No.1 due to increase in their volumes. As provided by the RoQ Tax Legislation, the Company effected necessary payments for the rated and exceeded discharges of contaminants.

In general, wastewater injection has no effect on the environmental components such as soil, flora and fauna, as wastewater is injected into effectively isolated deep horizons with high-mineralized groundwater that is not used for domestic and potable, balneological, process needs, irrigation or livestock farming.

Reuse of treated wastewater

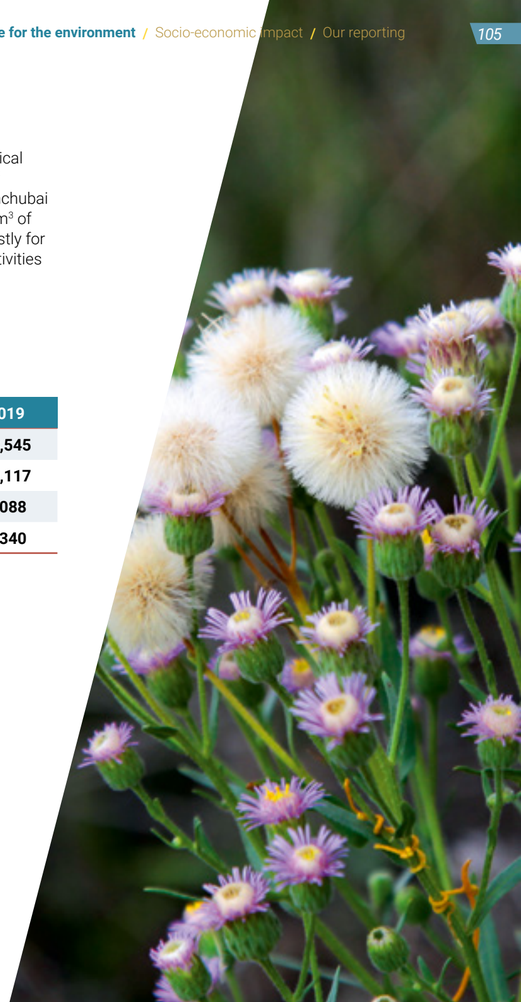
In order to reduce fresh water intake for such works and operations like drilling, drilling muds preparation, watering of planted trees, dust suppression on roads and constructed sites KPO uses treated domestic, production storm wastewater and storm runoffs. The wastewater is reused at the Company facilities in line with the 2018–2022 Operating Procedure.

The volume of wastewater reused for technical needs by KPO in 2019 amounted to 8.9% of the technical water consumed from the Konchubai gully. In 2019, the Company reused 38,545 m³ of treated wastewater for technical needs, mostly for making drilling mud. Table 35 shows the activities that utilize treated wastewater.

Tab. 35. Reuse of treated wastewater in 2017–2019, m³ / GRI 303-3 /

	2017	2018	2019
The total volume of reused treated wastewater, including:	**50,476**	**18,241**	**38,545**
For drilling and drilling mud preparation	32,130	8,825	**30,117**
Irrigation, hydro tests, and replenishing of fire tanks	6,506	1,040	**1,088**
Dust suppression	11,840	8,376	**7,340**

In 2019, the Company reused 38,545 m³ of treated wastewater for technical needs, mostly for making drilling mud



WASTE MANAGEMENT

Tab. 36. Targets in environmental protection / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
WASTE				
Ensure implementation of the activities scheduled for 2019 as per the 2018–2020 Waste Management Programme	completed	During the year, all the activities scheduled for 2019 including separate collection, segregation, reuse, processing, reduction of volumes and hazardous properties of waste were completed.	Ensure implementation of the activities scheduled for 2020 as per the 2018–2020 Waste Management Programme	12
Continue the research studies into the development of methods for the reuse of clay drill cuttings of the oil and water-based drilling mud	partially completed	The Project "Medium repair of the test section paving of the access road to the village of Zhanakonys of the WQO Burlin district using clay drill cuttings of the oil-based drilling mud after thermomechanical treatment" was developed. The semi-industrial testing programme was drawn up.	Carry out semi-industrial testing of clay drill cuttings	

Why it matters

Waste handling in KPO is focused on reducing the real and potential hazards the generated waste may impose on people and the environment. We constantly explore and apply new and most advanced techniques and technologies in waste management.

Our target is to treat and recycle waste at our facilities, cut down amount of transfer to landfills and reduce negative impact from burial.

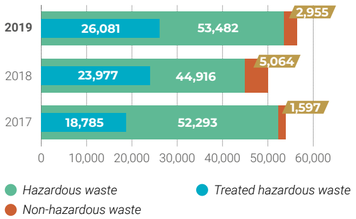
The KPO Waste Management Programme for 2018–2020 provides indicators and measures to gradually reduce the accumulated and generated waste volumes and level of hazardous properties. The Company applies the following waste management methods:

- waste recovery to process stream;
- waste treatment at the Eco Centre facilities;
- waste disposal at the Eco Centre facilities;
- waste handover to specialist contractor organizations for further disposal, processing and destruction. / OG-7 /

In 2019, the volume of waste generated at KPO facilities totalled 57,786 tonnes. Compared to 2018 the amount of waste generated at the KPO facilities in 2019 increased by 6,690 tonnes. Graph 27 shows all types of waste generated in KPO. Total amount of waste generated in 2019 includes both newly produced and waste after treatment.

According to the Unified republican form of the waste information reporting system, the total volume of waste generated in 2018 included both waste generated and waste after its treatment. Due to the change in reporting, the volume of waste in this chart increased in comparison with the data presented in the KPO Sustainability Report for 2017 (see p. 96) and 2016 (see p. 87).

Graph 27. Waste generated at KPO facilities in 2017-2019, tonnes / GRI 102-48 /



Waste treatment and disposal

The Company's treatment of production and consumption waste is carried out at the Eco Centre facilities or Waste Management Complex. The facility ensures cost-efficient and environmentally safe recycling and treatment of drilling cuttings and fluids and is truly considered to be an example of the best drilling waste management practice in the West Qazaqstan Oblast. The best available technologies are applied at the KPO Eco Centre facilities for treating production and consumption waste allowing not only reducing the volume and hazards of waste, but also extracting valuable components as well as treating waste for further reuse. Waste recovery to the process stream exercised by the Company is the best possible way to reuse the waste generated in drilling operations.

DURING 2019, THE FOLLOWING ACTIVITIES WERE COMPLETED AT THE ECO CENTRE:

- Owing to separation of base oil and water from the treated oil-based drilling cuttings, in 2019 the quantity of KPO disposed waste was reduced by 15% from the originally generated volume.
- In 2019, 12,507 tonnes of waste were treated, 1,621 tonnes of base oil and water were separated, and 9,375 tonnes of waste treated at the TCC were disposed at the Solid Industrial Waste Landfill.
- By applying the technology of the treatment and neutralization of drilling and production waste at the Rotary Kiln Incinerator, the volume of waste (from the originally generated amount) was reduced by an average of 23%. In 2019, 9,672 tonnes of drilling and production waste were treated; 7,440 tonnes of waste treated at the Thermo-mechanical Cutting Cleaning Facility were disposed at the Solid industrial waste landfill.
- Resulting from waste incineration in the Rotary Kiln Incinerator, quantity of waste was reduced by an average 91%. Over 2019, 883 tonnes of waste were sent for incineration, following which 84 tonnes of ash were disposed at the Solid industrial waste landfill.
- In 2019, 6,373 tonnes of liquid waste were treated. The process resulted in 5,080 tonnes of treated brines and muds, which were sent for reuse – preparation of drilling brines and muds.
- In 2019, 882 tonnes of 1,419 tonnes of solid domestic waste were sent to GPI for incineration, 164 tonnes including waste paper, metal scrap, glass and plastic were sorted for handing over to the specialist organizations for treatment and reuse. Only 89 tonnes of solid domestic waste were handed over to the specialist's of organizations for disposal at the Solid Domestic Waste Landfill. At the end of 2019, 70 tonnes of solid domestic waste were disposed at the temporary storage sites.
- 12 cells of the Solid industrial Waste Landfill were capped and closed at the end of 2019.

The KPO Eco Centre comprises five waste treatment facilities, as well as a Landfill for their safe disposal:

1. Thermo-mechanical cutting cleaning facility (TCC),
2. Rotary Kiln Incinerator (RKI),
3. General Purpose Incinerator (GPI),
4. Liquids Treatment Plant (LTP),
5. Waste Segregation Unit (WSU).

Specialised contractors make their own decisions on the further waste handling methods once the waste is accepted from KPO. They report to KPO on a quarterly basis about the waste handed over to third parties. Depending on the type, specialised enterprises hand over the waste for treatment with subsequent production of consumer goods, demercurization, regeneration, heat treatment, incineration, physical and chemical treatment, dismantling into component parts with further transfer to concerned enterprises as recyclables.

Since 2011 until the end of 2019, for the whole period of the waste paper segregation, about 540 tonnes of the waste paper has been collected and transferred to local enterprises for production of consumer goods. The segregation of spent batteries was arranged in all Company office premises. In 2019, 67 kg of batteries were collected.

In accordance with the Article 301 of the RoQ Environmental Code, which became effective on 01.01.2019 that prohibits disposal of waste plastic, plastic, polyethylene and polyethylene terephthalate packaging, waste paper, cardboard, paper waste, cullet at the landfills, KPO carries out the segregation of these types of waste in rented buildings. These types of waste are handed over to specialized enterprises to be used as recyclables.

KPO continues the transfer of waste generated at the old Solid Waste Storage Site and spent drilling liquids to the Eco Centre's Solid Industrial Waste Landfill. In 2019, the waste was continued to be moved from the old site for further treatment at the Thermo-mechanical Cutting Cleaning Facility, and Rotary Kiln Incinerator and disposed at the Solid Industrial Waste Landfill. The waste is disposed at the Landfill according to the RoQ environmental legislation requirements.

In 2019, 3,777 tonnes (as compared to 6,156 tonnes in 2018) were sent for treatment from the Solid waste and Spent Drilling Liquids Storage Site. In 2020, further processing of waste from the site will continue.

Tab. 37. The KPO waste treatment methods in 2019, in tonnes / GRI 306-2 /

No.	Waste treatment techniques	Generated hazardous waste	Generated non-hazardous waste	Municipal waste	TOTAL
1	Available waste e at the beginning of 2019	321,255	2,073	0	**323,328**
2	Generated during the reporting year	53,482	2,955	1,349	**57,786**
3	Reused at the enterprise	6,256	0	0	**6,256**
4	Treated at facilities	26,081	95	9	**31,610**
5	Incineration in the General Purpose Incinerator	71	3	882	**955**
6	Disposed and buried at waste disposal facilities	27,843	0	0	**27,843**
7	Handover to specialised contractors	2,564	3,985	380	**6,929**
8	Available waste at the end of 2019	339,835	946	0	**340,781**

KPO waste is mainly produced during the wells drilling and workover activities. Concurrently, the water or oil base of the drilling cuttings depends on the type of the drilling mud used for well operations. The solid and liquid drilling waste generated in 2019 amounted to 26,196 tonnes (75% from the initially generated waste, i.e. initial waste volume before treatment).

Table 38 shows the main types of drilling waste broken down by the handling methods. As the table shows, only water-based muds and cuttings are subject to disposal. Oil-based drilling cuttings are subject to burying after pre-treatment and extraction of the oil base.

Tab. 38. Waste generated from well operations by handling methods, 2017–2019 / OG-7 /

No.	Type of waste	Generated quantity, tonnes			Handling method
		2017	2018	2019	
1	Spent water-based drilling mud	2,943	324	427	Sent for treatment at Liquid treatment plant (LTP)
		4,471	1,251	1,014	Disposal
2	Water-based drilling cuttings	2,554	546	925	Burial
		–	–	182	Heat treatment in the Rotary Kiln Incinerator (RKI)
3	Spent oil-based drilling mud	2,043	1,618	2,676	Treatment at the Thermo-mechanical Cutting Cleaning Facility (TCC) and Liquid Treatment Plant (LTP)
4	Oil-based drilling cuttings	12,808	8,049	9,022	Treated at the TCC with extraction of oil base, water and followed by the burial of the solid part
5	Spent brines	3,546	6,309	4,866	Treated at the Liquid Treatment Plant
		353	578	2,837	Disposal
6	Oil cuttings	0	7	44	Heat treatment in the Rotary Kiln Incinerator (RKI)
7	Off spec oil	2	0	0	Handover to a specialised contractor

Studies of soil conditions at vegetation monitoring sites did not reveal soil contamination with petroleum products, sulphur, and water-soluble salts

BIODIVERSITY

Tab. 39. Targets in environmental protection / GRI 103-2 /

Our 2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
BIODIVERSITY				
Perform the monitoring of flora within the Karachaganak Field including rare and endangered plants; conduct laboratory analyses of soil and plants for contamination	completed	Monitoring of flora was performed in May 2019 and at the same time laboratory analyses of soil and vegetation were carried out for the content of chlorides, nitrates, sulphates, sulphur and oil products.	▶ Perform monitoring of etnomofauna at the Karachaganak Field ▶ Develop a Biodiversity Action Plan for 2021–2023	

KPO is committed to carry out its production activities with minimal impact on biodiversity and ecosystems. At the same time, the Company has taken over the responsibility for conducting the biodiversity research in the territory of its activities. / GRI 304-1 /

The Biodiversity Action Plan (BAP) is one of the measures aimed at preventing the ecosystem destruction and biodiversity loss. This plan is based on the risk assessment of activities and potential environmental impact. It is developed in accordance with the methodology stipulated in Standard 1.3.1.47 ESHIA and the Guide to biodiversity action plans for the oil and gas sector published by IPIECA/IOGP associations.

As part of the BAP scope of work, in 2019 KPO conducted the research to study the dynamics of changes in plant communities. Alongside with that, the monitoring of land cover was carried out for the first time, which aimed to determine whether there were any significant, measurable changes in its condition to adjust the Company's activities and to preserve biodiversity in this area.

In the stage of studies conducted between 2013 and 2017 within the territory of the Karachaganak field, the key vegetation types were selected, the sites to be observed were determined, and the vegetation monitoring was carried out. Soil monitoring was done in these areas for the first time.

In 2019, based on the results of soil and vegetation monitoring at the selected 27 sites, the vegetation was analysed in comparison with previous years. Soil and vegetation samples were taken for the content of chlorides, nitrates, sulphates, sulphur and petroleum products. / GRI 304-2 /

There were no signs of the Field's impact on the Russian grouse population involving any significant changes in the environment after the initial study in 2010

Tab. 40. Soil and vegetation monitoring in the territory of Karachaganak field in 2019

Types of events	Monitoring results	Conclusions
Soil monitoring	In spring 2019, the soil monitoring along with the vegetation monitoring was started in the territory of the Karachaganak field. The purpose of soil monitoring was to obtain analytical information about the state of soils to assess their quality as a medium for the growth and development of plants and human life.	Studies of soil conditions at the vegetation monitoring sites did not reveal soil contamination with petroleum products, sulphur, and water-soluble salts. The medium reaction corresponds to the characteristics of soils in the territory of the Karachaganak field. Monitored ingredients, in the quantities they are contained in the Karachaganak field soils, are not limiting for the plant growth and development.
Vegetation monitoring	Five (5) species listed in the Red Book of Qazaqstan and endangered species were registered in the research area: carnation andrzejowskianus (Dianthus andrzejowski), Schrenk's Tulip (Tulipa shrenkii), Bieberstein's Tulip (Tulipa biebersteiniana), Spring adonis (Adonis vernalis), Fischer's star of Bethlehem (Ornithogalum fischeranum). Out of the endemic species, there is a short-bladed Astragalus (Astragalus brachylobus). In addition to the rare species, which grow on monitoring sites, the Russian grouse (Fritillaria ruthenica), a rare species confined to the territory of the water protection zone, was also recorded. In 2019, this species was registered on four sites near the tributaries of the Berezovka river. The total number was six (6) specimens. There were no signs of the Field's impact on the Russian grouse population involving any significant changes in the environment after the initial study in 2010. The overall increase in the number of plants suggests that this species is not under immediate threat of extinction in the territory of the Karachaganak field. It should be noted that individual populations in each study area are very vulnerable to catastrophic impacts, such as disturbances of the earth surface; therefore, it is necessary to continue considering their presence when planning projects in this part of the Field.	The results of monitoring the vegetation cover show that the main negative impact factor on vegetation as a result of production activities at the Karachaganak Field is the physical impact: grazing, agricultural activities and mechanical disturbances associated with KPO activities (laying trenches, pipelines, construction of facilities, roads, etc.). The most disturbed communities are distributed near the Field's infrastructure and along the outskirts of roads. The soil and vegetation cover`s monitoring data of 2019 did not reveal any negative impact from air pollutant emissions associated with KPO's production activities. The state of vegetation in the Karachaganak Field can be described as satisfactory.

SOCIO-ECONOMIC IMPACT

SOCIAL INVESTMENT

Supporting social infrastructure / GRI 203-1 /

Annually KPO implements social and infrastructure projects in the West Qazaqstan Oblast (WQO) under the terms of Annex 5 to the Final Production Sharing Agreement (FPSA). / GRI 103-2 /

Following the decision of the Joint Operating Committee (JOC), since 2010, KPO has been allocating US$ 20 mln per year for social and infrastructure projects in the region. For the period from 2018 to 2022, the JOC took a decision to allocate additional funding of US$ 50 mln for social and infrastructure projects in the WQO. Besides, an additional list of social and infrastructure projects totaling US$ 9.6 mln was approved in 2019 owing to unused funds.

The list of social projects for implementation is annually approved between KPO and the West Qazaqstan Oblast Akimat based on priorities of the Oblast's social development. The list is compiled by the WQO Akimat in accordance with state priorities and considering the needs of developing the Uralsk city infrastructure, systems of education, healthcare and sports in the region.

KPO conducts the projects' design, procurement and management of the full process up to completion of construction and the subsequent handover to the Republic of Qazaqstan. All social projects were implemented by local companies. In case of failure to complete implementation of the projects by the end of the year as scheduled, the unspent funds are carried over to the next calendar year.

Within 2019 year, KPO launched 12 social and infrastructure projects in the WQO including new big long-term projects, having completed three social and infrastructure projects worth over KZT 3 bln (equivalent to US$ 7.9 mln). The long-term projects included the reconstruction of the overpass across the railway and access road pavements in the Neftebasa district, the construction of a school for 450 children, the construction of a multifunctional Cultural Centre, the capital repair of a city hospital No.7, the capital repair of Moldagulova Street, the reconstruction of Uralsk International Airport, the construction of Sports & Health Centres in Zhangala and Zhanibek villages, the development of design and estimate documentation for Upgrade Project of the Aksai Hospital Emergency Care. The list of projects completed in 2019 is shown in table 41.

Tab. 41. Social infrastructure projects in Uralsk and adjacent villages completed by KPO in 2019 / GRI 203-1 /

Area	Project name	Actual costs (mln KZT)*
Construction and repair of roads	1. Capital repair and construction of the 12.3 km highway to the Beles village, Zelenovskiy district of WQO	**2,164.7**
	2. Capital repair of the highway on the 3 km Yesenzhanova street from Konkin street to the final stop of M-10 in Uralsk	**542.5**
Development of design estimate documentation	1. Development of design estimate documentation "Industrial zone of the West Qazaqstan Oblast"	**323.3**
TOTAL		**3,030.5**

**Amounts are VAT including.*

Energy supply to Western Qazaqstan / GRI 203-1 /

In addition to providing the primary production needs of the Karachaganak field, KPO generates and supplies electricity for the West Qazaqstan Oblast. This is implemented in accordance with the terms of the Karachaganak Final Production Sharing Agreement (Art. I, Section 1.1) providing for sale to Aksai and surrounding villages no less than 20 MW power generated at the KPC Gas Turbine Power Plant. The implementation mechanism of this obligation was set in the Joint Operating Committee's Resolution of March 2005.

KPO supplies electricity to the energy supply organizations such as Aksaienergo LLP and Batys Energoresursy LLP, which in turn supply it to end users in the West Qazaqstan Oblast.

During 2019, KPO has been supplying 36 to 43 MW of electrical power to the regional network. In 2019, the total electricity supply was 330.26 mln KWh. The supplies of electrical power and fuel by KPO in the period of 2017–2019 are presented in Table 42.

In 2019, the volume of electricity for the WQO increased and reached 330.26 mln kWh, which is 8% higher (25.2 mln kWh) than in 2018. The increase was achieved due to planned repairs of turbines and generators in a shorter timeframe, as well as due to the postponement of the overhaul of GTG No. 3 for the period of full-scale shutdown. This allowed all four generators to generate electricity in the spring without reducing the supply of electricity to the region.

Since the volume of electricity production for Aksaienergo LLP in 2019 amounted to 26.28 mln kWh at the rate of 3 MW, for Batys Energoresursy LLP, electricity production increased by the above 25.2 mln kWh.

In 2019, electricity generation was mainly produced using own gas produced at the KPC plant. Purchases of gas from a third-party supplier for the production of electric energy for the needs of the region amounted to about 20.5% of the total gas consumption at the GTPP and were carried out mainly during the shutdown, when KPO's own gas was not produced.

In the reporting year, the Company did not experience any production losses due to the influence of external power grids or problems with turbines.

Tab. 42. KPO supplies of electrical power and fuel gas, 2017–2019

Description	2017	2018	2019
Electrical power supplied to the WQO (in GWh) including the volumes supplied to:	**307.64**	**305.06**	**330.26**
Aksaienergo LLP	35.04	29.90	26.28
Batys Energoresursy LLP	272.60	275.16	303.98
Fuel gas used for generation of power supplied for WQO needs (in Mscm), including:	**102.63**	**101.82**	**112.06**
sales of own gas for power generation at the GTPP for WQO	97.72	94.91	88.98
purchase from third party supplier for power generation at GTPP for WQO	4.91	6.91	23.08

KPO SUCCESS STORY 14 in 2018 — PLAYGROUND FOR BOARDING SCHOOL IN AKSAI

Context / short description of issue:

KPO employees together with contractors initiated the Karachaganak Children's Welfare Committee. For a number of years, members of the Committee have been raising funds by organizing charity events in support of children from low-income families and boarding schools in the Burlin district. In 2014, volunteers of the Welfare Committee decided to arrange building of a new playground for children of the Boarding school No. 5 in Aksai: there was nothing but old broken pullup bars and supports for swings.

The Committee has done a tremendous work on selection of up-to-date high-quality equipment, layout design, as well as on the purchase, delivery and installation of equipment and materials.

Goal:

To build an equipped sports playground for children of the Boarding school No. 5 in Aksai

Opening of the childen sports ground for Aksai boarding school #5

Solution / actions:

In the period from 2014 to 2018, a variety of fund raising events were held to realize the idea of building a playground, such as lotteries, quiz nights, sports' competitions, music evenings, discos, etc. By 2018, the required sum was collected for the purchase and implementation of the project. Overall, KZT 10.3 mln was attracted to finance this initiative.

Hundreds of employees both from KPO and its contractors were involved in raising funds and preparing the playground construction namely, Weatherford, KMG Parker Drilling Company, Elzhas LLP, BatysMunaiStroy Service Company LLP, Batys Kazakhstan Kuat Service LLP, MontazhSpetsStroy Company JSC, AksaiGasProject LLP, BONATTI SPA - MONTAZHSPETSSTROY JSC, Akbarys, Schlumberger, Welltec, Halliburton, KazBurGas, Baker Hughes, Filter Source, Nalco, NSC, KIOS & SMAPE and other.

The new modern play structure, built on the place of the old playground by the Boarding school, includes both elementary modules for younger and older children, as well as an equipped site for playing football, volleyball, pullup bars, swing stairs and multifunctional outdoor physical training self-weight equipment. Sport activities will help children of the boarding school strengthen their health and gain self-confidence.

The playground was built by skilled KPO contractors with consideration of all safety regulations. The outdoor simulators were also installed to ensure safety of children during operation.

Result:

On 4th September 2018 the formal ceremony of a new playground opened by the KPO General Director Edwin Blom was held on the premises of the Aksai Boarding school No. 5. Including children, the ceremony was attended by sponsors, representatives of the Karachaganak Children's Welfare Committee and of the local Akimat.

This initiative is a bright example of cooperation and active engagement of the employees of KPO and its contractors in life of the younger generation in Aksai.

COMMUNITY ENGAGEMENT

KPO works to prevent or minimize the negative impacts and maximize the benefits from its presence by strengthening engagement with local communities, thus creating opportunities for societal development.

In its social activity, KPO pays special attention to the zone of its immediate impact, i.e. the villages located in the closest proximity from the Karachaganak Field. These villages are Priuralnoye, Uspenovka, Zhanatalap, Karachaganak, and Dimitrovo related to the Burlin District. Village Councils engaging the community leaders have been established in these villages since 2005. At the Village Council meetings the local community leaders submit their proposals targeting improvement of the local social infrastructure and social life of the villagers. Such councils work as efficient mechanisms of considering the interests of the local communities and minimizing social risks.

Tab. 43. Targets in community engagement / GRI 103-2 /

2019 targets	Target achievement	Actions taken in 2019	Targets for 2020	UN SDG
Implement community development projects for 2019 as per approved budget / GRI 413-1 /	completed	All programmes, including health treatment for elderly people in Akzhaiyk Health Resort and vouchers to Eurasia Summer Camp for schoolchildren were fully completed. / GRI 413-1 /	Implement the Community Development Programme for 2020 as per approved budget Sign a trilateral Memorandum of Cooperation with the Burlin District Akimat	
Conduct 12 Village Council meetings on social, environmental and economic development aspects with the three village communities: Priuralnoye, Zharsuat, Uspenovka rural districts	completed	In 2019, six Village Council meetings on the raised by local residents social, environmental and economic development aspects with the three village communities (Priuralnoye, Zharsuat, Uspenovka rural districts) were hosted by KPO. Yet, additional meetings were held with the residents of the three rural districts outside the framework of Village Council in order to answer all their questions of concern. / GRI 413-1 /	Conduct 12 Village Council meetings on social, environmental and economic topics with the three rural district communities: Priuralnoye, Zharsuat, Uspenovka	
Review and timely close all in-coming community grievances	completed	All received grievances were reviewed and effectively closed out	Review and timely close all in-coming grievances and suggestions from the communities	
Continue the post-resettlement monitoring of the households in Aksai and Araltal and assess whether additional livelihood restoration support is required	completed	The planned post-resettlement monitoring was executed in full.	Continue the post-resettlement monitoring of the households in Aksai and Araltal and assess whether additional livelihood restoration support is required	

Dialogue with the local communities / GRI 102-44, 103-2 /

KPO policies, standards and procedures in the area of corporate social responsibility are based on the Performance Standards of the International Finance Corporation (IFC). KPO's Stakeholder Engagement Operating Procedure, Involuntary Resettlement Operating Procedure, Grievance & Suggestion Management Procedure are guidelined by the IFC standards. / GRI 102-12, 103-2 /

To develop confidence and trust, KPO pays its utmost care to establishing a dialogue with its stakeholders. As part of the exisiting Village Councils, in 2019 six meetings were held in the six settlements located around the Karachaganak Field: Priuralnoye, Uspenovka, Zhanatalap, Zharsuat, Karachaganak, and Dimitrovo. Social, environmental and emergency evacuation issues were the main topics of discussion. Special consideration was given for socially vulnerable groups of the community.

As part of the community development programmes, 200 vouchers to Akzhaiyk Health Resort were provided to the elderly people of the Burlin Disrtict, and 78 schoolchildren were placed within Eurasia Summer Camp.

Public hearings

While planning and constructing new facilities it is important for KPO to take into consideration the public opinion on environmental issues and use of natural resources. Transparency of state environmental expertise and publics' engagement in decision-making are ensured through public hearings. KPO provides an opportunity to all interested citizens and public associations to express their opinion at public hearings. Public comments and suggestions are reviewed by the Company and contribute to better quality development of project documentation.

During 2019, in conjuction with the Burlin District authorities KPO hosted 10 public hearings on Environmental Impact Assessment (EIA) of its 41 various construction projects including production and gas reinjection wells, field and technology pipelines, environmental monitoring stations, as well as reconstruction and turnaround of the existing drilling units, facilities, roads.

200
vouchers
for Akzhaiyk Health Resort were provided to the elderly people

78
schoolchildren
were placed with Eurasia Summer Camp

In 2019, KPO hold six Village Council meetings with residents of six communities around Karachaganak Field

KPO provided

11,600

tonnes

of black soil for resettlers of 100 detached houses Aralta as part of Post-Resettlement and Monitoring Measures

Public hearing sessions are attended by local authorities` representatives, concerned regulatory bodies, media, general public, KPO and its contractor project companies. People in the audience have an opportunity to receive information concerning the KPO scheduled projects, environmental activities and raise their questions. Representatives of KPO and project companies address all questions in full. Mostly, the public is interested in matters about the projects' timelines, volume of emissions and measures to reduce them, methods of waste management and soil reclamation after the activities` completion.

All the projects discussed at the public hearings in 2019 were approved by the audience and recorded in the relevant meeting minutes, which are available on the website of Burlin District authorities and KPO website at *https://www.kpo.kz*.

Community feedback mechanism

/ GRI 103-2, 103-3, 413-1 /

KPO has a formal policy in place for handling feedback related to impact of the Venture's operations.

Any resident of the Karachaganak neighbouring villages grouped in three rural districts of Priuralnoye, Zharsuat and Uspenovka can provide feedback to a KPO Community Liaison Officer (CLO) verbally by phone or in writing using dedicated forms and the boxes installed in public places of the villages. The feedback can be a positive comment, suggestion or request. Through this mechanism the residents can also lodge their complaints/ grievances related to KPO activity.

The contact numbers of CLO are normally communicated to local residents during the community engagement activities and displayed on KPO Information Boards installed in public places in the six villages. Contacting the CLO by phone has proved to be the most popular and preferred way of providing a feedback or lodging a complaint. The Company reviews all grievances/suggestions and takes actions to resolve the issues.

100 detached houses in suburbian microregion of Aralta and 2 nine-storey apartment buildings in Aksai were built for resettlers

KPO SUCCESS STORY 15

MOVE OF THE MONUMENT FROM BEREZOVKA VILLAGE TO ARALTAL NEIGHBOURHOOD

Context / short description of issue:

As a part of the monitoring of the resettled community of Berezovka, the local residents requested the Company to help move the statue of the World War II (WWII) Soldier from Berezovka village to Aksai town of Burlin district.

Goal:

To keep historical memory of the former Berezovka village residents and their future generations

Solution / actions:

KPO allocated funds for full restoration of the statue and its move to the new location. The works on restoration of the statue and its pedestal with the carved names of 70 soldiers – participants of WWII, the residents of Berezovka Village (Burlin District of West Qazaqstan Oblast) were performed by Dmitriy Volkogonov from Uralsk, who is the Honoured Architect/Designer, a Member of International Designers' Association.

The new location for the statue was chosen by an initiative group consisting of the former residents of Berezovka and the representatives from local authorities and KPO. They decided to place the statue near the school in Aralta, where children from the former Berezovka study. A new public park will be developed there in the coming few years. The renovated statue of the WWII Soldier was relocated ahead of the 75th anniversary of Victory Day in the WWII, celebrated on 9th May 2020. This will hopefully be a meeting place for the former residents of Berezovka village.

Result:

Local authorities representatives, residents and mass media participated in the opening ceremony on 11th September 2019. Zulfiya Muzafarova, Community and Local Authority Relations Manager noted in her opening speech: "As a socially responsible business, KPO supports the state programme 'Spiritual renewal' aimed at preservation of the people's cultural and historical heritage".

Residents of the former Berezovka and KPO representatives at the moved of the Second World War Soldier Monument in Aralta

KPO has built a new school in Aralta for 300 schoolchildren resettled from former Berezovka and Bestau

Monitoring of resettled communities / OG-12 /

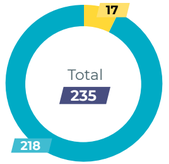
Post-resettlement monitoring of resettled community members of the former two villages of Berezovka and Bestau relocated to the town of Aksai and Araltal microregion at the end of 2017 is continuing. One hundred detached houses in Araltal and two nine-storey apartment blocks in Aksai were built for resettling households. The relocation was done in line with international best practice and involved substantial community engagement, which included an explanation of how the Grievance Procedure works. In total, 465 households were resettled in the period of 2015-2018.

The monitoring helps receive feedback from resettled community members on how they are adapting to new places of residence and ensure the relevant support is given through actions taken by construction companies to comply with warranty obligations. In line with the mentioned Grievance Procedure, 218 grievances were registered and all closed out in 2019 (Graph 28). The grievances mainly related to minor construction defects in the new houses identified after moving in. KPO directed all complaints to relevant construction companies responsible for the warranty maintenance. The remedial works included repairs to the roofs, septic tanks in Araltal, installation of children playgrounds and heating meters at the entrances of the two nine-storey apartment buildings in microregion 10.

As part of livelihood restoration programme, the residents of Araltal requested KPO to provide additional volumes of black soil for their vegetable gardens. In 2019, KPO supplied 375 trucks of black soil for the residents of Araltal to support the livelihood restoration and kitchen gardening activities on individual land plots.

Socially vulnerable community members, who moved to Aksai and Araltal, are in particular focus of attention in KPO's monitoring process. KPO Community Liaison Officer visits the elderly residents living alone in order to provide assistance in resolving their issues by social care workers, or help fix construction defects. For example, KPO helped an elderly woman with registration at the Aksai Hospital and get a medical check-up. The old lady was resettled from Berezovka in 2017 and lives alone in one of the flats in Aksai. KPO helped her get a medical nurse assigned to visit her at home for regular medical services.

Graph 28. Grievance and suggestions received from the local community in 2019 / GRI 103-3 /



- *Air quality*
- *Resettlement*

KPO SUCCESS STORY 16 HELP FROM THE VOLUNTEERS

Context / short description of issue:

In context of the monitoring of socially vulnerable community members relocated from the former villages of Berezovka and Bestau, a KPO Community Liason Specialist interacts with the residents, meeting with them individually and answering their phone calls and letters. During one of the trips to Araltal, the Community Liason Specialist paid attention to the snow-covered path leading to the gate of an elderly woman living alone.

Goal:

Monitoring of vulnerable and low-income families is aimed at timely identification of problems that arise in the process of their adaptation to new conditions and solve them in cooperation with the competent local authorities in order to minimize the negative impact of resettlement.

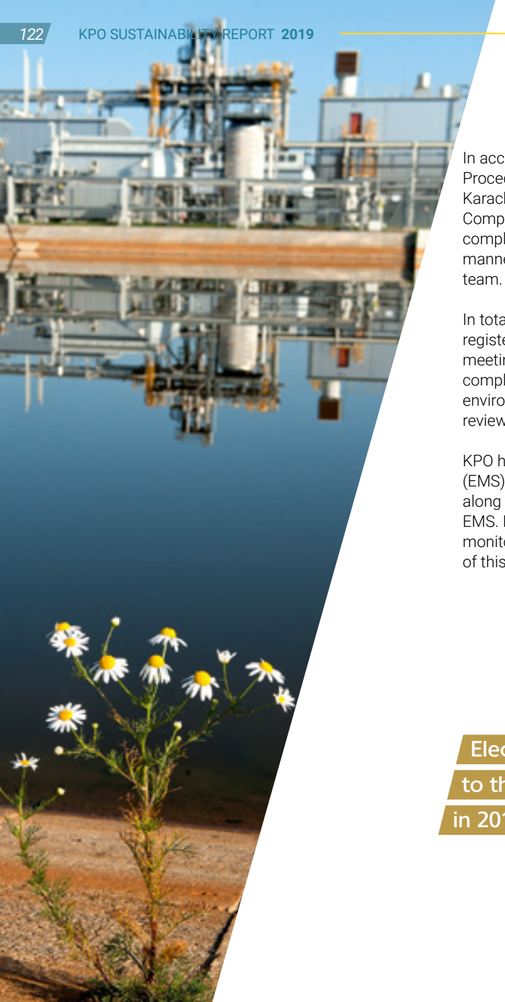
Solution / actions:

In order to help the lonely woman remove the snow, KPO Specialist sent a photo of a snow-covered path to the Department of Employment and Social Programmes of the Burlin District that forwarded an application to volunteers of a local association. The boys responded immediately, and the next day the area was cleared off the snow. The help of volunteers from the Gold Volunteer Organization did not remain unnoticed. KPO invited them to its quarterly HSE Awards ceremony. At the ceremony, the volunteers were awarded with certificates and gifts.

Result:

Now the pensioner knows whom to call when she needs help. The youth organization of volunteers 'Gold' included the woman's name into the list of persons who need assistance. In addition, both young people received encouragement from management, which is also an incentive for further work and a best example for other volunteers.

Participants of the "Gold" volunteer corps at the HSE rewarding



In accordance with Gas Odour Management Procedure for Communities Adjacent to the Karachaganak Field, during the reporting year the Company worked to ensure that all community complaints are reviewed and closed out in a timely manner, responding to residents through KPO CLO team.

In total, 17 gas odor related grievances were registered in 2019. KPO CLO held follow-up meetings with each individual who made a complaint, sharing information about the environmental monitoring and actions taken to review the complaint.

KPO has 18 Environmental Monitoring Stations (EMS) within the the Karachaganak Field and along the Sanitary Protection Zone and two mobile EMS. Please see more about the KPO's air quality monitoring in the Environmental Monitoring section of this Report.

Electrical power supplied to the West Qazaqstan Oblast in 2019 reached 330.26 mln GWh

Complaint filed with the OECD

/ GRI 102-44 /

In our Sustainability Reports in the past five years, we mentioned that Crude Accountability NGO lodged a complaint against KPO with the Organisation for Economic Cooperation and Development (OECD) in 2013.

In order to implement recommendations of the UK National Contact Point (NCP) noted in the Final Statement of December 2017 to "regard both households as entitled to resettlement arrangements consistent with the current IFC standard for Involuntary Resettlement, and follow the steps identified in the standard to remedy any deficiencies in the arrangements actually offered to them", in 2019 KPO engaged with the Burlin District authorities on the issue of compensations for the two households mentioned in the NCP Statement.

In July, 2019 KPO sent a letter to UK NCP informing the latter of the formal steps undertaken by the Consortium regarding the implemention of recommendations mentioned in the NCP Statement and negogiations held by KPO with local authorities in relation to compensations for two households in accordance with the recommendation.

On 25th September 2019, the UK NCP published the Follow Up Statement on its website stating that "the consortium has made reasonable efforts to progress the process of resettlement arrangements" for the two households "and the steps taken are consistent with the IFC PS for Involuntary Resettlement".

SUPPLY CHAIN

/ GRI 102-9, 102-44 /

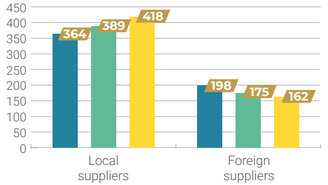
KPO is committed to conducting its business ethically and in compliance with all applicable laws and regulations in the Republic of Qazaqstan. Therefore, KPO enters into contractual relationships with suppliers, who operate in accordance with our values and who maintain high standards and demonstrate commitment to the personal and process safety, ethics and compliance and sustainable growth. These fundamental principles are incorporated in and are evaluated at every stage of contract and procurement process until closure of the contract.

KPO has an extensive supply chain with over 700 current suppliers with a pool of sub-contractors that perform a significant proportion of activities.

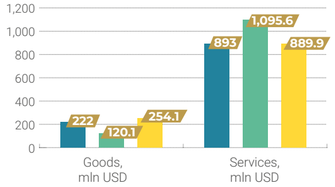
In 2019, KPO awarded contracts and contract amendments to 580 contractors and suppliers, of which 418 (72%) – local entities; 162 (28%) – foreign entities.

In 2019, KPO signed 1,037 contracts and contract amendments for delivery of goods worth US$ 254.1 mln, 658 contracts and contract amendments for services worth US$ 889.9 mln.

Graph 29. Contractors and suppliers engaged by KPO, 2017–2019



Graph 30. Dynamics of turnaround by awarded values through contracts and contract amendments, 2017–2019



2017 2018 2019

KPO representatives at the official ceremony of RT Alliance nitrogen production plant opening in Aksai

KPO performs its contracts and procurement activities in compliance with the RoQ legislation and the Karachaganak Joint Operating Committee's Tender Procedures, which provide a set of rules for the procurement of goods, works and services for the Karachaganak Project. In order to promote awareness of these rules and ensure better competition, KPO has been working to increase a number of structured pre-tender engagement sessions to clearly explain its tender requirements to the tenderers as well as to share lessons learned, such as past tenderers' rejections or disqualifications due to typical mistakes and inaccurately submitted information. / GRI 103-2 /

Since 2018, to extend its reach towards the contractor/supplier community, KPO has been conducting pre-tender webinars via the KPO-designated YouTube channel[12], which helps simplifying the process of communication, especially with the tenderers from remote locations and enabling provision of clarifications to multiple tenderers at the same time.

In 2019 KPO launched 12 Social Infrastructure Projects worth US$ 7.9 mln

Particular focus is given to market development in the Republic of Qazaqstan. At KPO dedicated workshops and when communicating with Atameken, KazService and other organisations or associations within the oil and gas sector, KPO presents its requirements to the local market participants and encourage their development through cooperation with internationally recognised and experienced suppliers of goods, works and services. This becomes especially important in view of the upcoming Karachaganak Expansion Projects.

Delivering Local Content targets is important as a commitment to the RoQ and is well recognized by KPO as an opportunity to keep our costs lower in a sustainable manner.

As a transparent operator, KPO annually publishes its procurement plans at the website www.kpo.kz.

Potential suppliers interested in participating in KPO tenders for the provision of goods, works and services are encouraged to register or update their "vendor's profile" in KPO Vendor database (please see details at KPO website) or directly in Kazakhstan Unified Vendor ALASH Database[12], which is growing and becoming one of the biggest vendor data sources in RoQ. It is therefore very important for potential vendors to provide accurate and relevant information on their technical competencies and experience to be considered for inclusion into the appropriate tender.

[12] *From mid of 2020 i) pre-tender webinar via YouTube channel will not be further held as will be replaced by Skype or other applicable software, ii) KPO will no longer be subscribed to Alash database.*

LOCAL CONTENT DEVELOPMENT / GRI 203-2, 102-44 /

KPO Local Content Policy is aimed to maximise procurement of local goods, works and services to cover the Karachaganak project demand. The Company intends expanding local potential and reducing import by implementing the following tasks:

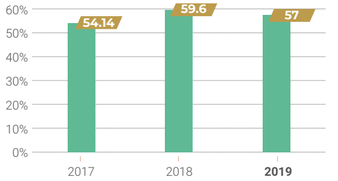
- Identify potential local manufacturers and service suppliers to cover KPO needs;
- Contribute in building local capabilities for production of materials and equipment in Qazaqstan, including high-tech manufacturing;
- Facilitate creation of joint ventures that would enable development and transfer of technologies as well as provision of new jobs;
- Cooperate with state authorities and associations responsible for Local Content development.

In line with the state initiatives for the mechanical engineering development, industrialization and digitization programmes, KPO develops and implements a two-year Local Content Development Programme for the Karachaganak project in order to achieve the goals set in the KPO Local Content Policy. / GRI 103-2 /

The Programme identifies the target areas for local content development, and also the key indicators for monitoring and assessing performance. KPO local content development initiatives have led to achieve the following results:

- In 2019, the Local Content share in Karachaganak project reached 57% (US$ 683.5 mln) as shown in the graph 31.
- 30% of total goods procured by KPO are locally produced (US$ 86 mln) with 11.9% Local Content share confirmed by the SR-KZ Certificate.

Graph 31. Local Content Share in total KPO purchases of goods, works & services, 2017–2019 / GRI 204-1 /



Since signing the FPSA in 1997 by the end of 2019, the cumulative Local Content share in goods, works and services had exceeded US$ 7.7 bln. / GRI 204-1 /

With support from KPO, the Qazaqstani JSC Aksaigasservice Company was certified in accordance with ASME international standard for the production and repairing of pressure vessels

Purchased goods locally made in Qazaqstan in amount of $86 mln, which is 30% of total scope of goods procured by KPO

In 2019, KPO initiated 32 so-called 'Qazaqstani tenders' to be held exclusively among local companies for a total value of US$ 204 mln. As a result, KPO awarded 25 contracts to the local companies worth US$ 77.7 mln. Such option as a 'Qazaqstani tender' is indicative of local capability development and competitiveness in the local market.

KPO intentionally contributes to the sustainable development of the West Qazaqstan Oblast manufacturers. Within the framework of the Memorandum of Understanding on cooperation for the development of mechanical engineering in oil and gas industry, KPO closely interacts with enterprises participating in the 'WQO Mechanical Engineering for Oil & Gas Industry" sub-cluster. During the 2019, 26 invitations to participate in the market research were issued to six mechanical engineering manufacturers of WQO, as well as invitations to 32 tenders for deliveries of goods, works and services.

Under the current contracts, in 2019 KPO payed US$ 410 mln to the WQO enterprises for deliveries of goods, works and services, and Local Content share reached US$ 291.6 mln or 71.1%, which includes:

- Contract with Zenittechstroy LLP for provision of the specialized operation services of machine processing was awarded based on results of a tender among the WQO mechanical engineering manufacturers;
- Long-term contract with Ural Transformer Plant LLP for production and supply of transformers;
- Contract with Aksaigasservice JSC for fabrication of six buffer vessels for caustic and water awarded based on results of the 'Qazaqstani tender', which was held among mechanical engineering enterprises in Western Qazaqstan.

Development of local suppliers' potential

The ability to attract competitive local suppliers is one of the critical factors for successful implementation of the localization initiatives. Competitiveness of local manufacturers and service providers can be developed or enhanced through implementation of internal quality management standards and technical standards, and also advanced business management practices.

As part of the KPO Development of Local Suppliers' Potential Programme, Petropavlovsk Heavy Engineering Plant and Aksaigasservice successfully implemented requirements of the ASME standards and passed certification for production and repair of pressure vessels in accordance with ASME, and obtained the rights of U and R stamping.

In order to attract investment for development of local production in the Republic of Qazaqstan, KPO continued working with international associations, such as the UK Department of International Trade, the Italian-Qazaq Trade Association and others, to raise the interest of international companies in establishing partnerships or creating joint ventures with Qazaqstani companies.

For example, on 23rd September 2019 KPO facilitated the organization of Qazaq-Italian Forum held by KazService and Eni in Nur-Sultan. KPO also took part in joint meetings, where provided information about its current and future activities.

Long-term initiatives

In the reporting year 2019, KPO continued activities on implementation of long-term initiatives approved within the Memorandum of Understanding on development of domestic industry (MoU), which was signed between KPO, PSA LLP and KAZENERGY Association and the Memorandum of Understanding on localization of the OEM[13] goods signed between the RoQ Ministry of Energy, PSA LLP and KPO.

Examples of successful projects are presented further in more detail.

In 2019 the Local Content share in Karachaganak project reached 57% (equivalent to US$ 683.5 mln)

[13] *OEM – original equipment manufacturer*

KPO SUCCESS STORY 17 CONTRIBUTION TO LOCAL MANUFACTING

Context / short description of issue:

In order to develop local content as a contribution to the economy of Qazaqstan, it is essential for KPO to increase within its purchases the share of goods, works and services made in Qazaqstan.

The Ministry of Energy and the Ministry of Industry and Infrastructure Development of the Republic of Qazaqstan have launched the initiative to maximize the range of products produced in the country including production of original equipment and spare parts, as well as licensing services.

As part of these initiatives, KPO has identified a preliminary list of 33 continuous demand products. In result of analysis of the list for compliance with criteria, such as presence of continuous demand and economic feasibility of product localization, eight of the OEM manufacturers were identified.

Goal:

To promote the development and growth of Qazaqstani mechanical engineering industry by attracting original equipment manufacturers to localize production of goods required at the Karachaganak field in the Republic of Qazaqstan. Localization implies both production itself and assembly of equipment.

Solution / actions:

Under the initiative of the RoQ Ministry of Energy and PSA LLP, a round table on localization of original equipment production was held with the participation of KPO, TCO and NCOC. During the round table, a Memorandum of Understanding was signed between KPO, the RoQ Ministry of Energy and PSA LLP.

Pursuant to the Memorandum of Understanding and the decisions reflected in the protocol as the outcome of the round table, KPO had negotiations with seven OEM manufacturers interested in localization. The Company started working with each of the manufacturer on Localization Roadmap.

Result:

At the end of 2019, some agreements were reached with OEM manufacturers as part of the development of roadmaps' localization. The categories of goods and spare parts for potential localization, timing of implementation and the estimated production scope in Qazaqstan with companies such as Petrovalvz, John Crane, Baker Hughes, Flowserve, Honeywell were defined.

Implementation of the roadmaps in the next two years depends on KPO's production and project needs, the contracting strategy for major projects, and meeting the conditions of original equipment manufacturers, namely:

- signing of a long-term contract between KPO and an OEM manufacturer;
- guaranteed annual purchase scope during the contract life;
- exemption from relevant taxes or acceptance of equivalent rate increases.

KPO senior management at Local Content conference in Atyrau

KPO SUCCESS STORY 18

IMPLEMENTATION OF EARLY TENDERS AND TRIAL ORDERS

Context / short description of issue:

In July 2014, in support of the RoQ government initiatives to develop production and service clusters and taking into account potential expansion of projects in the Karachaganak field, KPO, PSA LLP and KAZENERGY Association signed a Memorandum of Understanding on the National Industry Development.

Goal:

- Expand the range of products manufactured in Qazaqstan through early tenders and trial orders;
- Provide conditions to local suppliers for production of new goods and services for KPO needs through a contract award with a guaranteed order scope from KPO and provision of time for creating a production.

Solution / actions:

In its contract strategy, KPO has identified 15 types of goods, works and services that have potential for localization using mechanisms, such as early tender and trial order. A mandatory requirement for early tenders and/or trial orders is that goods, works and services are to be produced in Qazaqstan.

Result:

Since the implementation of the Memorandum in 2015 using early tenders and trial orders, KPO has awarded localization contracts for 29 types of works and services worth US$ 490 mln and 22 categories of goods worth US$ 61 mln, which were previously imported. In 2019, among the goods seven contracts were awarded worth US$ 11.2 mln for production in Qazaqstan of the following goods required at the Karachaganak field:

- fastening materials,
- gaskets,
- flanges,
- filter elements,
- cable trays,
- engine oils,
- rescue hoods.

OUR REPORTING

GRI INDEX

GRI standards content index / GRI 102-55 /

This report has been prepared in accordance with the GRI Standards: Core option. / GRI 102-54 /

UNIVERSAL STANDARDS				
GRI Standard	**Disclosures**	**References, comments**	**Omissions**	**External assurance**
GRI 101 Foundation 2016				
GRI 102 GENERAL DISCLOSURES 2016				
102-1	Name of the organization	Report scope and boundaries (p. 5)		
102-2	Activities, brands, products, and services	Our products and export routes (p. 13), Operations and sales in 2019 (p. 14)		
102-3	Location of headquarters	Contacts (back cover), In context of Operations (p. 11)		
102-4	Location of operations	In context of Operations (p. 11)		
102-5	Ownership and legal form	Governance structure (p. 27)		
102-6	Markets served	Our products and export routes (p. 13)		
102-7	Scale of the organization, including: i. total number of employees; ii. total number of operations; iii. net sales; iv. total capitalization broken down in terms of debt and equity; v. quantity of products or services provided.	i. People and Skills (p. 67), In context of Operations (p. 11); ii. KPO facilities (p. 11), Fig. 2. Karachaganak facilities and products (p. 12), Karachaganak Operating Facilities in 2014 (Sustainability Report 2014, pp. 12-15); iii - iv. Report scope and boundaries (p. 5) v. Operations and sales in 2019 (p. 14).		
102-8	Total number on employees and other workers, by employment contract, by gender, by employment type, by region.	People and skills (pp. 67-68) including graphs 8, 9, 10 and Fig. 8, p. 68		
102-9	Supply chain	Supply chain (p. 123-124)		
102-10	Significant changes to the organization and its supply chain	No significant changes		

UNIVERSAL STANDARDS				
GRI Standard	**Disclosures**	**References, comments**	**Omissions**	**External assurance**
102-11	Precautionary principle or approach	2019 HSE improvement plan (p. 39); Asset Integrity (pp. 50-54); HSE engagement and communication (pp. 40-41); HSE card programme (p. 42); Emergency response system (pp. 48-49); Community preparedness (p. 49)		
102-12	External initiatives	Dialogue with the local communities (p. 117)		
102-13	Membership of associations	KPO is a member of KAZENERGY Association, Extractive industries transparency initiative (EITI) (p. 31), Business partnerships and membership in associations (p. 9 of the Sustainability Report 2015)		
102-14	Statement from senior decision-maker	Letter from General Director (pp. 6-10)		
102-15	Key impacts, risks and opportunities	Letter from General Director (pp. 6-10), Risk management (p. 30), Safety (pp. 34-47)		
102-16	Values, principles, standards, and norms of behavior	Business ethics (pp. 32-33)		
102-17	Mechanisms for advice and concerns about ethics	Hotline and other compliance measures (p. 33), Employee relations (p. 76)		
102-18	Governance structure	Governance structure (pp. 27-31)		
102-40	List of stakeholder groups	KPO engagement with stakeholders in 2019 (Fig. 5, p. 26)		
102-41	Collective bargaining agreements	Compensations and benefits (p. 75), Employee relations (p.76)		
102-42	Identifying and selecting stakeholders	Stakeholder engagement (pp. 25-26)		
102-43	Approach to stakeholder engagement	Stakeholder engagement (pp. 25-26)		
102-44	Key topics and concerns raised	Material topics (pp. 23-24), Stakeholder engagement (pp. 25-26). Key issues raised by stakeholder's groups are presented in the following chapters: ▶ Parent Companies, PSA LLP Authority – in 'Governance structure' (pp. 27-28); ▶ Community engagement – in 'Dialogue with the local communities' (p. 117); Complaint filed with the OECD (p. 122); ▶ Employees – in 'Employee Relations' (p. 76); ▶ Students – in 'KPO partnership with Qazaqstani universities' (p. 78); ▶ State bodies – in 'Security' (KPO Success Story 7 p. 57), 'Environmental Protective Measures Plan' (pp. 82-84); ▶ Counterparties – in 'Supply chain' (pp. 123-124), 'Local content development' (pp.125-129); ▶ Business partners – in 'Local content development' (pp. 125-129); ▶ Trade Unions – in 'Employee relations' (p. 76).		

UNIVERSAL STANDARDS				
GRI Standard	**Disclosures**	**References, comments**	**Omissions**	**External assurance**
102-45	Entities included in the consolidated financial statements	This Report covers the Operations and Projects of the KPO B.V. Branch in Qazaqstan		
102-46	Defining Report content and topic boundaries	Material topics (pp. 23-24)		
102-47	List of material topics	Material topics, 'Material topics of KPO sustainable development' (Fig. 4, p. 24)		
102-48	Restatements of information	Average energy intensity indicator of the IOGP companies for 2017 in 'Dynamics of energy intensity in 2017-2019' (Graph 25, p. 101), volumes in 'Waste generated at KPO facilities in 2017-2019, tonnes' (Graph 27, p. 107)		
102-49	Changes in reporting	No significant changes		
102-50	Reporting period	Report scope and boundaries (p. 5)		
102-51	Date of most recent report	Report scope and boundaries (p. 5)		
102-52	Reporting cycle	Report scope and boundaries (p. 5)		
102-53	Contact point for questions regarding the report	Contacts (back cover)		
102-54	Claims of reporting in accordance with the GRI Standards	Applicable Global Reporting Initiative standards (p. 5), GRI Standards Content Index (p. 131)		
102-55	GRI Standards Content Index	GRI Standards Content Index (pp. 131-142)		
102-56	External assurance	Independent assurance (p. 5), Verification Report (p. 143)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
GRI 200 Economic Topics 2016 *This reference to GRI 103: Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 applies to the material topics Market presence, Indirect Economic Impacts, Procurement Practices, Anti-corruption, Reserves.*				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its boundary	KPO impact boundary covers West Qazaqstan Oblast. Report scope and boundaries (p. 5), maps on p. 13 (Fig. 3. KPO export routes) and p. 68 (Fig. 8. KPO employees by region, %), In context of Operations (p. 11)		
	103-2 The management approach and its components	Annex 5 to the FPSA: 'Supporting social infrastucture' (p. 113), Joint Operating Committee's Tender procedures: 'Supply chain' (p. 124), FPSA provisions on local content increase: KPO Local Content Policy (p. 125), KPO management systems (p. 29)		
	103-3 Evaluation of the management approach	Assurance (p. 30)		
Market Presence				
GRI 202 Market Presence 2016	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	Compensations and benefits (p. 75). Karachaganak O&G condensate field located in the Western Qazaqstan Oblast (Republic of Qazaqstan) relates to 'significant location of operations'.	202-1-a. Not applicable There are no differences in salary levels by gender.	
	202-2 Proportion of senior management hired from the local community	Development of national personnel (p. 70); By 'senior management' is meant to be Executive management and their deputies' given in category 1+2 in 'Increase of Local Content in Staff by categories of employees' (Tab. 16, p. 70). 'Local' in the context refers to national employees, the citizens of the Republic of Qazaqstan.		
Indirect Economic Impacts				
GRI 203 Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Supporting social infrastructure (p. 113), Energy supply to Western Qazaqstan (p. 114)		
	203-2 Significant indirect economic impacts	Local Content development (pp. 125-129)		
Procurement Practices				
GRI 204 Procurement Practices 2016	204-1 Proportion of spending on local suppliers	Local Content development (p. 125), 'Local Content share in total KPO purchases of goods, works & services, 2017-2019' (Graph 31, p. 125)		✓

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
Anti-corruption				
GRI 205 Anti-corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	Awareness training on the Code of Conduct and anti-corruption (p. 33); Anti-corruption due diligence process (p. 33)		
Reserves				
G4 O&G Sector Disclosures	OG-1 – Volume and type of estimated proved reserves and production (partial disclosure)	In context of Operations (p. 11)		
GRI 300 Environmental topics 2016 *This reference to GRI 103: Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 applies to the material topics: Energy, Water, Biodiversity, Emissions, Effluents & Waste, Environmental Compliance*				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers West Qazaqstan Oblast. Care for the environment (p. 81)		
	103-2 The management approach and its components	Care for the environment (p. 81); Our targets in environmental protection (Tab. 21, 26, 30, 32, 36, 39, pp. 85, 94, 100, 102, 106, 110); 2019 Environmental Protective Measures Plan (p. 82), '2019 Environmental Protective Measures Plan implementation, %' (Tab. 19, p. 83); Energy management system (p. 100)		
	103-3 Evaluation of the management approach	Energy management system (p. 100)		
Energy				
GRI 302 Energy 2016	302-1 Energy consumption within the organization	Energy consumption (p. 100), 'KPO energy consumption in 2017-2019' (Tab. 31, p. 101). KPO applies standards, methods and convensions regulated by the RoQ normative documents in energy saving and energy efficiency.	302-1 - c (ii, iii, iv), d. Not applicable. KPO does not keep separate records on steam consumption and energy consumption for cooling; this data is included in the total amount of electricity consumption. KPO does not sell electricity, heat, air conditioning and steam.	✓
	302-3 Energy intensity	'Dynamics of energy intensity in 2017-2019' (Graph 25, p. 101)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
		Water		
GRI 303 Water 2016	303-1 Water withdrawal by source	Water use (p. 102), 'KPO water consumption, 2017-2019' (Graph 26, p. 102), 'KPO's water consumption in 2017-2019 broken down by sources' (Tab. 33, p. 103)		
	303-3 Water recycled and reused	'Reuse of treated wastewater in 2017-2019, m^3' (Tab. 35, p. 105). The volume of wastewater reused for technical needs by KPO in 2019 amounted to 8.9% of the technical water consumed from Konchubai gully.		✓
		Biodiversity		
GRI 304 Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity (p. 110)		
	304-2 Significant impacts of activities, products, and services on biodiversity	Biodiversity (p. 110)		✓
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	Species essential for nature conservation registered within the Karachaganak Field within the 1990-2016 research are shown in the relevant table available on the website www.kpo.kz in the section 'Sustainability / HSE / Protecting the Environment / Biodiversity'.		
		Emissions		
GRI 305 Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Direct greenhouse gas emissions (p. 96)		
	305-4 GHG emissions intensity	Specific greenhouse gas emissions (p. 98)		
	305-5 Reduction of GHG emissions	Reduction of greenhouse gas emissions (p. 99)		✓
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Air emissions (p. 94)		
G4 O&G Sector Disclosures	OG-6 Volume of flared and vented hydrocarbon	Gas flaring (p. 96), Gas Utilisation (p. 96)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
		Effluents and Waste		
GRI 306 Effluents and Waste 2016	306-1 Water discharge by quality and destination	Discharge of treated wastewater (p. 103)		✓
	306-2 Waste by type and disposal method	Waste disposal 'KPO waste treatment methods in 2019, in tonnes' (Tab. 37, p. 108)		
	306-3 Significant spills	In 2019, no cases of significant spill were recorded at the territory of the Karachaganak field. The definition of a significant spill is applied to an incident, which has caused contamination of the environment through hydrocarbon/chemical spills to land or water and volume of spilled hydrocarbon/chemical exceeding 1,000 litres (as per KPO Incident classification).		
G4 O&G Sector Disclosures	OG-7 Amount of drilling waste and strategies for treatment and disposal	Waste generated from well operations, by handling method, 2017-2019 (Tab. 38, p. 109)		✓
		Environmental Compliance		
GRI 307 Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	Environmental fines (p. 84). There were no cases of non-monetary sanctions applied to the Company during the reporting period. 'KPO 2019-2020 Environmental Protective Measures Plans and issued Permits' (Tab. 18, p. 82)		
		GRI 400 Social topics 2016		
GRI 103 Management Approach 2016 *(The covered material topics by this Management Approach are Employment and Labour/Management Relations)*	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers Qazaqstani citizens, in particular of the West Qazaqstan Oblast. People and skills (p. 67).		
	103-2 The management approach and its components	HR Management System Manual (p. 29); Competence management system (p. 71); Development of national personnel (p. 70); Collective Agreement for 2019-2021 (p. 76)		
	103-3 Evaluation of the management approach	Personnel Development Review (p. 75), Competency management system (p. 71); Collective Agreement (p. 76), Dynamics of local personnel turnover, 2017-2019 (Graph 13, p. 69); 'Increase of Local Content in staff by categories of employees' (Tab. 16, p. 70).		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
		Employment		
GRI 401 Employment 2016	401-1 New employee hires and employee turnover	People and skills (pp. 68-69); Graphs on personnel turnover (11,12,13)		
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Compensations and benefits (p. 75)		
		Labor/Management Relations		
GRI 402 Labor/ Management Relations 2016	402-1 Minimum notice periods regarding operational changes	Employee Relations (p. 76)		
		Occupational Health and Safety		
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers KPO facilities at the Karachaganak field of the West Qazaqstan Oblast and export pipeline in Atyrau Oblast. The topic covers KPO and contractors.		
	103-2 The management approach and its components	'Our targets in Safety' (Tab. 5, p. 35); 'Targets in health protection' (Tab. 13, p. 60), Health Promotion (p. 63).		
	103-3 Evaluation of the management approach	Safety performance (p. 36); 'KPO performance vs IOGP, 2006-2019' (Graph 4, p. 39); 2019 HSE Improvement Plan (p. 39); HSE card programme (p. 42).		
GRI 403 Occupational Health and Safety 2016	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Safety performance (p. 36), Absenteeism monitoring (p. 62), Occupational Diseases (p. 63)		✓
	403-3 Workers with high incidence or high risk of diseases related to their occupation	Management of ill health (p. 62); Absenteeism monitoring (p. 62); Occupational Diseases (p. 63); Health risk assessments (p. 63)		
	403-4 Health and safety topics covered in formal agreements with trade unions (partial disclosure)	Management of ill health (p. 62); Health risk assessments (p. 63)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
		Training and Education		
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers Qazaqstani citizens. People and skills (p. 67)		
	103-2 The management approach and its components	HR Management System Manual (p. 29); Collective Agreement (p. 76); KPO Programme for Increasing Local Content in Staff (p. 70); Competence Management System (p. 71).		
	103-3 Evaluation of the management approach	Development of the national personnel (p. 70); Training and development (p. 71).		
GRI 404 Training and Education 2016	404-1 Average hours of training per year per employee	Training statistics (p. 72)		✓
	404-2 Programs for upgrading employee skills and transition assistance programs	Scholarship programmes (pp. 77-78)		
	404-3 Percentage of employees receiving regular performance and career development reviews	Personnel development review (p. 75)		
		Diversity and Equal Opportunity		
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers Qazaqstan		
	103-2 The management approach and its components	Code of Conduct (p. 32); Collective Agreement for 2019-2021 (Employee relations, p. 76)		
	103-3 Evaluation of the management approach	Terms of the Collective Agreement are reviewed every 2-3 years		
GRI 405 Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Development of national personnel (p. 70). 'Number of local and expatriate managers by age and gender, 2019' (Graph 14, p. 71)		
	405-2 Ratio of basic salary and remuneration of women to men	Karachaganak O&G condensate field located in the Western Qazaqstan Oblast (Republic of Qazaqstan) relates to 'significant location of operations'. Basic salaries are established for employee categories regardless of gender, and hence basic salaries for women and men are equal.		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
Freedom of Association and Collective Bargaining				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers West Qazaqstan Oblast		
	103-2 The management approach and its components	Collective Agreement for 2019-2021 (p. 76)		
	103-3 Evaluation of the management approach	Terms of the Collective Agreement are reviewed every 2-3 years		
GRI 407 Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Industrial relations (p. 76)		
Security Practices				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	The impact boundary covers KPO and contractors within the facilities of the Karachaganak field, the West Qazaqstan Oblast and the export pipeline facilities in the Atyrau Oblast		
	103-2 The management approach and its components	'Our targets in security' (Tab. 12, p. 55); Security Management System (Security, p. 56)		
	103-3 Evaluation of the management approach	Security Management System (p. 56)		
GRI 410 Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	KPO Success Story 8 (p. 59)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
Local Communities				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	The KPO impact boundary covers the local communities in villages along the perimeter of the Karachaganak field and Aksai town in the Burlin district of WQO		
	103-2 The management approach and its components	Dialogue with the local communities (p. 117); 'Targets in community engagement' (Tab. 43, p. 116); KPO Stakeholder Engagement Operating Procedure; Involuntary Resettlement Operating Procedure; Community feedback mechanism (p. 118)		
	103-3 Evaluation of the management approach	Community feedback mechanism (p.118); Grievance and suggestions received from the local community in 2019 (Graph 28, p. 120). KPO local community engagement procedure are developed in accordance with IFC standards.		
GRI 413 Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programmes	'Targets in community engagement' (Tab. 43, p. 116), Community feedback mechanism (p. 118), Environmental monitoring (pp. 90-93)		
G4 O&G Sector Disclosures	OG-12 Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process (partial disclosure)	Monitoring of resettled communities (p. 120); Resettlement of Berezovka and Bestau communities (2017 KPO Sustainability Report, pp.105-106)		
Emergency response preparedness				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	KPO impact boundary covers KPO facilities at the Karachaganak field, the export pipeline in West Qazaqstan and Atyrau oblasts. The topic covers KPO and contractors. Emergency Response system (p. 48)		
	103-2 The management approach and its components	Emergency Response system (p. 48); 'KPO Emergency Response System' (Fig. 7, p. 48)		
	103-3 Evaluation of the management approach	'Emergency response exercises conducted in 2019' (https://www.kpo.kz/en/sustainability/hse/safety/emergency-response-management.html); Community preparedness (p. 49)		

TOPIC-SPECIFIC STANDARDS				
GRI Standard	**Disclosures**	**References, Comments**	**Omissions**	**External assurance**
Industrial safety and integrity management				
GRI 103 Management Approach 2016	103-1 Explanation of the material topic and its Boundary	The KPO impact boundary covers KPO facilities at the Karachaganak field, the export pipeline in West Qazaqstan and Atyrau oblasts		
	103-2 The management approach and its components	Asset Integrity Management System Framework (2016 KPO Sustainability Report, p. 42); Targets in Asset Integrity (Tab. 11, p. 50); KPO Asset Integrity Barrier Model (p. 51)		
	103-3 Evaluation of the management approach	2019 HSE Improvement Plan (p. 39); Asset Integrity Key Performance Indicators (p. 52); Alarm Management (p. 54); Process Safety Fundamentals campaign (p. 54)		
G4 O&G Sector Disclosures	OG-13 Number of process safety events, by business activity	Asset Integrity (p. 50); Loss of Primary Containment (p. 52)		✓

VERIFICATION REPORT

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Independent Assurance Report on the KPO Sustainability Report 2019

To the Management and Stakeholders of Karachaganak Petroleum Operating B.V. Kazakhstan branch

Subject matter

At the request of Karachaganak Petroleum Operating B.V. Kazakhstan branch (hereinafter 'KPO' or 'Organization') we have obtained a limited level assurance on the following qualitative and quantitative information disclosed in the 'KPO Sustainability Report 2019' (hereinafter 'the Report'):

- The compliance of the Report with the sustainability reporting principles described in the 101 Standard of the Global Reporting Initiative (hereinafter "GRI");
- The sustainability performance indicators identified in the Section "GRI Standards content index" of the Report and marked by the symbol "✓" (hereinafter the "Indicators"):
  - Proportion of spending on local suppliers;
  - Energy consumption within the KPO;
  - Water recycled and reused;
  - Significant impacts of activities, products, and services on biodiversity;
  - Reduction of emissions of greenhouse gases;
  - Water discharge by quality and destination;
  - Amount of drilling waste and strategies for its treatment and disposal;
  - Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities;
  - Average hours of training per year per employee;
  - Number of process safety evets, by business activity;

The indicators were selected by KPO's management based on the KPO's sustainability principles and reporting methods.

Applicable criteria

The criteria of our engagement were the GRI Standards and the KPO Sustainable Development Charter which is available at KPO's corporate website. We believe that these criteria are appropriate given the purpose of our assurance engagement.

Management's responsibilities

The management of the Organization is responsible for the preparation of the Report and for its compliance with the sustainability reporting principles described in GRI 101 Standard, and that the Indicators present fairly in all material respects performance of the Organization for the year ended December 31, 2019 in compliance with the GRI Standards and the sustainability principles of KPO that are described in the section "About this Report" on page 4 of the Report. This responsibility includes designing, implementing and maintaining internal controls relevant to the preparation of a sustainability report that is consistent with the sustainability reporting principles described in the GRI 101 Standard and Indicators that are free of material misstatements. The management of the Organization is also responsible for selecting and applying appropriate reporting principles and using measurement methods and estimates that are reasonable in the circumstances.

Our responsibilities

Our responsibility is to independently express conclusions that:

- The Report corresponds to the principles disclosed in the GRI 101 Standard.
- The Indicators were disclosed fairly, in all material respects.

We apply International Standard on Quality Control 1 and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

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Summary of work performed

Our engagement was conducted in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised), *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by IFAC, and accordingly included the following procedures:

- Interviews with representatives of the Organization management and specialists responsible for its sustainability policies, activities, performance and relevant reporting,
- Analysis of key documents related to Organization sustainability policies, activities, performance and relevant reporting,
- Obtaining understanding of the reporting process for the Indicators, and other engagement circumstances by reviewing the reporting process used for preparation of sustainability reports,
- Analysis of stakeholder engagement activities of the Organization,
- Benchmarking of the Report against sustainability reports of selected international and Kazakhstani peers of the Organization and lists of sector-specific sustainability issues raised by stakeholders,
- Review of a selection of corporate and external media publications with respect to the Organization sustainability policies, activities, events, and performance in 2019,
- Analysis of material issues in field of sustainable development identified by the Organization,
- Identification of sustainability issues material for the Organization based on the procedures described above and analysis of their reflection in the Report,
- Review of data samples regarding the Indicators for the year ended December 31, 2019, to assess whether these data have been collected, prepared, collated and reported appropriately,
- Assessment of compliance of the Report with the sustainability reporting principles described in the GRI 101 Standard.

Our evidence gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement.

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that:

- The Report does not correspond to the sustainability reporting principles described in the GRI 101 Standard;
- The Indicators are not disclosed fairly, in all material respects in compliance with the GRI Standards and the KPO Sustainable Development Charter.

Translation of the original Russian version

Ernst & Young Advisory LLP

Almaty
28.07.2020

GLOSSARY

ABBREVIATION	DESCRIPTION
AED	Automated External Defibrillator
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
BAP	Biodiversity Action Plan
BOE	Barrels of oil equivalent
CMS	Competence Management System
ConCom	Contractor Committee
COVID	Corona Virus Disease
CPC	Caspian Pipeline Consortium
C&P	Contracts and Procurement
DRS	Dispositional Resilience Scale
EDP	Enhanced Development Programme
EEP	Environmental Emissions Permit
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
eMoC	Electronic changes in the Management of Change system
EMS	Environmental Monitoring Station
EOPS	Early Oil Production Satellite
EPMP	Environmental Protection Measures Plan
FEED	Front End Engineering Design
FPSA	Final Production Sharing Agreement
Gcal	Gigacalorie
GHG	Greenhouse Gases
GRI	Global Reporting Initiative
GPI	General Purpose Incinerator
GTG	Gaz Turbine Generator
GTPP	Gas Turbine Power Plant
GWh	Gigawatt-hour

ABBREVIATION	DESCRIPTION
GWS	Goods, works and services
HC	Hydrocarbons
HCH	Historical and Cultural Heritage
HGVF	High Gas Volume Factor
HRA	Health Risk Assessment
HSE	Health, Safety and Environment
IMS	Integrated Management System
IOGP	International Oil and Gas Producers' Association that collects safety incident and environmental data from its member companies globally since 1985.
ISAE 3000	International Standards on Assurance Engagement 3000
ISO 14001	Internationally accepted standard that sets out requirements for putting in place an effective Environmental Management System
ISO 50001	Internationally accepted standard that sets out requirements for putting in place an effective Energy Management System
JMC	Joint Marketing Committee
JOA	Joint Operating Agreement
JOC	Joint Operating Committee
KATS	Karachaganak Atyrau Transportation System
KEP	Karachaganak Expansion Project
KEGOC	Kazakhstan Electricity Grid Operating Company
KGDBN	KPC Gas Debottlenecking Project
KOGCF	Karachaganak Oil and Gas Condensate Field
KOTS	Karachaganak Orenburg Transportation System
kt	kiloton
KPC	Karachaganak Processing Complex
KPI	Key Performance Indicators
kV	kilovolt
KWh	Kilowatt hour

ABBREVIATION	DESCRIPTION
LOPC	Loss of primary containment
LTI	Lost Time Injury
LTIF	Lost Time Injury Frequency
LTP	Liquid Treatment Plant
MDL	Minimal Detection Limit
MoU	Memorandum of Understanding
MPC	Maximum Permissible Concentration
MPD	Maximum permissible discharge
Mscm	Million standard cubic metres
MWH	Megawatt hour
NCOC	North Caspian Operating Company
NGO	Non-governmental organisation
O&G	Oil & Gas
OHSAS 18001	Internationally recognised assessment specification for occupational health and safety management systems
OPITO	Offshore Petroleum Industry Training Organisation
OPS	Oil Pumping Station
Parent Companies or Contracting Companies	ENI, Shell, Chevron, Lukoil and KazMunayGaz National Company
P&M	Production and Maintenance
PDR	Personnel Development Review
PEC	Production Environmental Control
PEP	Plateau Extension Projects
Phase IIM	Phase II Maintenance
PPE	Personal Protective Equipment
PSF	Process Safety Fundamentals
RES	Renewable Energy Industry
RFID	Radio-frequency identification

ABBREVIATION	DESCRIPTION
RKI	Rotary Kiln Incinerator
RoQ	Republic of Qazaqstan
RTI	Road Traffic Incidents
RTIF	Road Traffic Incident Frequency
SDG	Sustainable Development Goals
SIMOPS	Simultaneous operations
SPE	Society of Petroleum Engineers
SPZ	Sanitary Protection Zone
TCC	Thermo-mechanical cutting cleaning facility
TCO	Tengizchevroil
TRI	Total Recordable Injuries
TRIF	Total Recordable Injury Frequency
VPSHR	Voluntary Principles on Security and Human Rights
VAR	Value Assurance Review
WQO	West Qazaqstan Oblast
WSU	Waste Segregation Unit
CH_3SH	Methylmercaptan
CH_4	Methane
C_6H_6	Benzene
C_7H_8	Toluene
C_8H_{10}	Xylene
CO	Carbon monoxide
CO_2	Carbon dioxide
H_2S	Hydrogen Sulphide
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
SO_2	Sulphur dioxide

At the Road Safety event on Children's Day in Aksai

Your opinion is important for us!

Please fill in a Feedback Form on our Sustainability Report 2019

Karachaganak

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All our sustainability reports are available at: www.kpo.kz/sustainability

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