



KARACHAGANAK SUSTAINABILITY REPORT

2016



TOWARDS SUSTAINABLE FUTURE





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Russian fritillary, a rare species of flora in the Karachaganak Field

OUR ACHIEVEMENTS IN 2016



Sunset at Karachaganak Processing Complex

Stabilized and unstabilized liquid hydrocarbons' production – **139.7 mln BOE**

Lost Time Incident rate – **0.17**

Total Recordable Incident rate – **0.24**

Road Traffic Incident rate – **0.02**

Gas utilisation – **99.84 %**

0 significant spills

Local Content share – **51.6 %**

Nationalisation of personnel in:

■ management – **80 %**

■ professional and supervised workers – **96 %**



INTRODUCTION

ABOUT THIS REPORT

REPORT SCOPE AND BOUNDARIES

This is the ninth sustainability report issued by Karachaganak Petroleum Operating B.V. Kazakhstan Branch (KPO) to demonstrate our continuous commitment to sustainable development. This Report is aimed to provide a complete picture of KPO activities with disclosures on the management approach and stakeholder engagement; as well as performance indicators in the economic, environmental and social spheres, and in matters of personnel management and engagement with society.

This report presents our indicators for 2016 and plans for the following year; the indicators are shown in dynamics over several years; the coverage of issues reflected in previous reports has continued. We remind that the Company publishes its Sustainability Reports on an annual basis.

In 2009, KPO was the first company in Kazakhstan to issue an independently assured sustainability report in accordance with international standards. In 2014, KPO became the first company in Kazakhstan to issue the Sustainability Report in accordance with the Guideline 4 of the Global Reporting Initiative (GRI G4). Our Sustainability Report for 2015 was issued in June 2016. All our previous sustainability reports are available at the Corporate Register website www.corporateregister.com, one of the largest global online directories for corporate responsibility reports.

While working on the Report for 2016, we pursued the goal to improve its quality, while maintaining transparency and balance – the document traditionally describes both achievements and issues.

GLOBAL REPORTING INITIATIVE

KPO non-financial reports have been issued in accordance with the fourth Guideline of the Global Reporting Initiative (GRI G4), starting from 2013. KPO was one of the first companies in Kazakhstan to have applied the requirements of the GRI Guidelines G4.

The Sustainability Report 2016 has been prepared in accordance with the requirements of the G4 GRI Guidelines in the «core» option. We worked to ensure the report contains the required level of transparency. To ensure the quality required by the GRI standards, when preparing the input materials the Company followed the principles of comparability, accuracy, clarity and reliability.

STAKEHOLDERS AND MATERIAL ASPECTS

Sustainability Report is our most important tool of engagement with stakeholders. Given the scale of the KPO's activities, our stakeholders include a large number of groups and organizations. The most significant groups are represented in the section of this Report «Stakeholder Engagement», pages 8-13.

The Company has various channels for receiving feedback based on the results of the Sustainability Reports publication, including telephone and e-mail communications, as well as through the KPO official website which address is indicated on the back cover of the Report. All comments and suggestions received are taken into account in preparation of the future Report.

INDEPENDENT ASSURANCE

Reliability of information presented in the Report is ensured by independent verification done by a third party.

The process of external assurance implies a limited level of assurance of the content of the Report in accordance with the International Standards on Assurance Engagement (ISAE) 3000. Since 2009, to assure actuality of the information and data provided in the Report, KPO has been hosting a group of auditors of the expert organization. As a result of the verification audit, an assurance certificate of reliability of information is issued, which is attached to the final version of the Report.

Verification of the Report for 2016 was carried out by the audit company EY. The scope and terms for the limited assurance of information are specified in the Independent Assurance Report of the Karachaganak Sustainability Report 2016 on pages 128-129.

OUR COMMITMENT TO SUSTAINABLE DEVELOPMENT ^{G4-3}

KPO's mission is to develop the Karachaganak field in an environmentally and economically sound manner whilst simultaneously increasing the socio-economic development opportunities for local communities.

As a business, we consider our contribution to sustainable development to be:

- Minimising impacts and maximising opportunities linked to its presence;
- Considering the long-term consequences of its decisions;
- Engaging its stakeholders in a constructive dialogue; and
- Incorporating strong governance and transparency.

Using 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”*, KPO continuously demonstrates commitment to the following ten principles of sustainable development as set by our Sustainable Development Charter:

1. Work to ensure that benefits are endured throughout the lifetime and beyond the duration of the Final Production Sharing Agreement.
2. Where required, build capacity to facilitate benefits to society from our presence.
3. Give balanced consideration to local, regional and national priorities as well as taking into account international policies and recommendations.
4. Engage with local stakeholders to understand their needs and the local context in which we operate.
5. Recognise the geography and timescale of our environmental, economic and social impacts.
6. Ensure our decision making is conducted in an inter-disciplinary manner.
7. Take into account the protection and/or the enhancement of environmental resources.
8. Recognise gender and ethnicity issues.
9. Incorporate strong governance and transparency and aspire to influence external governance processes.
10. Report to our external stakeholders a full and honest review of performance in an annual sustainability report.



Red Footed Falcon, the species included in the IUCN Red List

LETTER FROM GENERAL DIRECTOR

Dear readers,

I am very pleased to present to you the latest Sustainability Report of the Karachaganak Petroleum Operating B.V. Kazakhstan branch, published annually since 2008.

Despite the tight economic conditions in 2016 our Company demonstrated the ability to remain stable in the challenging and dynamic business environment. All social and financial obligations have been met in full with high operational goals achieved. It is worth mentioning that had it not been for our continuous engagement with our stakeholders these high results wouldn't have been accomplished. 2016 saw an increase in number of conferences, meetings with counterparties, employees and other stakeholders who were interested in the Company operating successfully.

In February 2016, Royal Dutch Shell joined the Karachaganak Project, following its combination with BG Group, one of the KPO shareholders. This was a significant change in the oil and gas industry. As well as a leader on the energy global stage, Shell is one of the largest investors in Kazakhstan and we are sure this combination will also bring further capability to the Venture.

In this edition we disclose our performance in social, environmental and economic aspects achieved in 2016. These are presented in this chapter in brief and discussed further in more detail.

SAFETY AND ASSET INTEGRITY

Throughout 2016 KPO remained set on its primary and invariable target of conducting operations in a safe way and working towards a zero incident practice.

In 2016, the KPO's and contractors' lost time injury (LTI) rate was 0.17 (versus 0.11 in 2015). Road traffic incidents (RTI) rate decreased from 0.03 in 2015 to 0.02 in 2016. Total recordable injuries (TRI) frequency decreased from 0.30 in 2015 to 0.24 in 2016, which is higher when compared with the same 2016 IOGP average indicator of 1.03 and regional indicator (Russia and Central Asia) of 0.52. At the same time, last year we had 7 recordable cases, none of which though was process-related.

To prevent any high potential incident and to raise hazard awareness both amongst the KPO employees and all our contractors and subcontractors working in the Karachaganak field, KPO continued consolidating the Process Safety and Asset Integrity areas in 2016, whereby the Asset Integrity management system had been implemented across all the units. Upon the outcomes of 2016, KPO Asset Integrity Department and Safety and Asset Integrity Controllorship won a



special prize for the project “Barrier Model and Barrier Model for Individual Areas” awarded by Exploration & Production Subdivision of Shell. Furthermore, our employees from Production & Maintenance, Well Operations, HSE and Relocation project departments received recognition awards from Shell – “Goal Zero Hero” and “HSE & Social Performance Leadership Special Merit”.

2016 saw the continuation of development and implementation of Security Management System (SMS). Technical engineering and installation of the fencing for KPO major production facilities commenced.

PRODUCTION AND SALES

In 2016, the hydrocarbon production in Karachaganak reached 139.7 million barrels of oil equivalent (BOE). 8 bln cubic meters (BCM) of dry sour gas were injected into the reservoir, the volume equivalent to approximately 46% of the total gas produced. In 2016 our deliveries of stabilised oil to western markets maintained at 10 mln tonnes, i.e. on par with 2015. In the past year KPO delivered 8.9 bln cubic metres of raw gas to Orenburg Gas Plant, having reached the highest record in the history of KPO gas supply.

The 2016 shutdown activities were carried out on schedule and without any incidents. KPC, Unit-2 and Gathering were fully shut down in April and May 2016, and a complete Unit-3 shutdown was made in September. Unit 2 compressors were upgraded, which has contributed in reduction of emissions and energy consumption and improved efficiency.

In 2016 the following milestones were achieved during the drilling operations:

- In well 449-1 the subsurface assembly was lowered to the record depth of 6,603.5 m;
- Use of the Lamix drilling mud (oil-based mud) in three wells helped reduce the flaring volumes during the well clean-up;
- Application of well tractor WellTec in eight wells along with reduction in the volumes of fluids being pumped for quick clean-up helped reach world-class performance in terms of ball and baffle milling per one trip of the bit – 9 pieces.

ENVIRONMENTAL PERFORMANCE

In 2016, the KPO gas utilisation rate was 99.84% (99.85% in 2015), which again demonstrates a world-class performance versus the target of 99.6% approved by the RoK authorities as part of the Gas Processing Development Program for 2016. KPO specific GHG emissions amounted to 72 tonnes per kiloton of hydrocarbons produced. According to the data published by International Association of Oil & Gas Producers (IOGP), KPO remains better than the average European and international levels.

In order to reduce the fresh water intake for technical needs, the Company has been reusing the treated wastewater. In 2016, the volume of reused wastewater for preparation of drilling mud and dust suppression amounted to 12.8% of the total consumption of technical water from the Konchubai gully hence less water intake from natural water resources. Among others, a KPO Project “Reuse of Wastewater at the Karachaganak field” was recognized as one of the most significant environmental projects at the Eni Safety and Environmental Award event held on June 05, 2017 in Milan.

In 2016, KPO pursued its efforts to prepare Energy Management System, so that it could successfully pass certification for the compliance with ISO 50001. These works covered activities planned for 2016 including the upgrade of Unit-2 compressors and the replacement of incandescent lamps with LED bulbs at Atyrau Terminal.

EMPLOYEE DEVELOPMENT

As the largest employer in the Western Kazakhstan Oblast, KPO provides thousands of long-term local jobs with competitive salaries. In 2016 as part of the programme aimed at increasing local content in staff, 12 positions held by expatriate specialists were nationalized. As of end 2016, national personnel made up 96% of total professional and supervisory positions and 80% of all managerial positions.

In the period reported we continued providing mandatory training courses, ongoing international and professional programs initiated in previous years, and internship at Parent Companies.

In April 2016 a new Collective Agreement was signed between Trade Unions and the Company for the period of 2016-2018. Despite the adversity of the general oil & gas market conditions, KPO managed to enhance the terms and conditions of the Collective Agreement: additional provisions related to remuneration, social payments and benefits were added to the Agreement.

INVESTMENT INTO ECONOMY

To improve liaison with local authorities KPO opened a new office in Uralsk in June 2016. First group of personnel was moved to the new office. The Company’s presence in the regional centre will provide impetus for the development of local infrastructure including small and medium-scale businesses in the tertiary sector.

Over the reference period KPO developed and implemented the Local Content Development Programme for 2016-2017 and it has already proved to be effective.

In 2016 the local content in goods, works and services at KPO reached 51.6 % or USD 530 mln in monetary terms.

As part of our FPSA obligation on the social infrastructure development, in 2016 KPO has completed the social projects in Uralsk, Aksai and other districts in the West Kazakhstan Oblast totalling USD 30.7 mln. Overall, since signing the FPSA in 1997 to the end of 2016, KPO spent USD 310.7 mln into the social infrastructure development in the WKO.

COMMUNITY ENGAGEMENT

Our engagement with the local communities and authorities was successful. Throughout 2016 KPO held 18 Village Council meetings with local communities and implemented its annual Social Performance Plan. With the support of the Burlin District authorities KPO hosted a series of public hearings where a number of operation projects were discussed and concurred by the local communities.

As was already mentioned in our Sustainability Report 2015, resettlement of two villages Berezovka and Bestau was ongoing. The process was led by the West-Kazakhstan Oblast authorities while KPO provided funding. Within the scope of the Phase 2 of the Resettlement Project, the construction of two nine-story apartment blocks in the Karachaganak micro region and 100 detached houses in Araltal micro region of Aksai was started in 2016. In addition, the construction of a school in Araltal and a kindergarten in Aksai was commenced in the reporting year.

Throughout 2016 there were meetings and consultation sessions with the residents of Berezovka and Bestau. In June and October 2016 the Burlin district officials and KPO jointly hosted the

consultation sessions with the residents dubbed as “The Open Days”. These meetings were attended by over 400 residents of the affected villages.

Furthermore, following the Phase I of the Resettlement project completed at the end of 2015 KPO conducted the follow-up tours which included visits to the apartments and door-to-door interviews. Based on the outcomes of these meetings a condominium was set up to address ongoing house management issues and remedial actions on the faults revealed after the resettlement.

Also, throughout the year KPO implemented several community development projects aimed mainly at supporting the elderly and children.

I would like to assure our readers that we will carry on with the activities related to all aspects of sustainable development to the benefit of all our stakeholders, in a nutshell, all those who are inextricably linked with the Karachaganak and our activities in Kazakhstan.

In summarizing the results of 2016, I would like to sincerely thank all people, who have contributed to achieving the deliverables presented in this Report. These are the results of joint efforts made by the well-knit team of thousands of KPO employees as well as our contractors, co-workers and partners. We are proud to share our past achievements and look forward to working with all our stakeholders to remain open, honest and transparent on our sustainability performance while delivering Karachaganak, a fascinating and truly outstanding world class operation.

Renato Maroli
KPO General Director

MATERIAL ASPECTS AND STAKEHOLDER ENGAGEMENT

MATERIAL ASPECTS ^{G4-18}

Each year we work on improving both our sustainability report and the reporting process itself. When preparing the report, we follow the best practice of non-financial reporting recognized in the world. To define the material aspects and their boundaries in the annual Sustainability Report, we adhere to the Guidelines 4 of the Global Reporting Initiative (GRI G4), and also disclose relevant data on sustainable development compared to those of the International Association of Oil and Gas Producers IOGP.

The reporting process includes information exchange, collection of data and interdisciplinary communication both internally and externally.^{G4-21} Our material aspects are identified in the process of multilateral interaction with various regulatory bodies, KPO Parent Companies, the PSA LLP Authority, business partners, contractors, local communities and the media. The stakeholders can raise their concerns at various meetings, from meetings of the Consultative Councils to forums, public hearings, audits, and directly addressing them to the Company. At the same time, we develop goals and comparative criteria that allow us to quantify the contribution of the various KPO units to sustainable development. An analysis of risks and opportunities is also conducted during work on the content of the Report.

Material aspects touch upon the problems related to economic, environmental and social impact of both the KPO activities in aggregate and separately by produced products, services, relationships, including influence that these factors have on the opinions and decisions of the parties concerned. Both internal and external manifestations of such impacts are identified.^{G4-19}

Further, the material aspects are arranged in order of priority, and the applicable GRI standards are determined taking into account management approaches and key performance indicators of the Company. Material aspects for the previous reporting period are analysed considering the received feedback.^{G4-26}

Last year, when distributing the Sustainability reports 2015, we attached the feedback forms to the printed copies for readers to fill. In order to raise the awareness of our employees about the Company's activities in the spheres of sustainable development and to receive their feedback, an online survey was conducted from December 2016 to February 2017. Based on the results of this survey, 24% of the total number of employees took part in the survey. This exercise helped us to know the opinions of employees about the Report and obtain feedback on the aspects of sustainable development they wanted to be included in the new report.

The survey revealed some material issues that have been reflected in this Report as well. According to the employees' views, the most important issues include such as the introduction of renewable energy resources and energy-saving technologies in production process, waste processing, the process and results of optimization of the organizational structure, the resettlement of Berezovka and Bestau villages, landscaping and charity. The material aspects including the obtained feedback are summarised in Table №1.

Table №1. Material aspects of sustainable development ^{G4-20}

		MATERIAL ASPECTS
SOCIAL AREA	LABOUR PRACTICES AND DECENT WORK	Occupational health and safety of employees (also material for our contractors)
		Protection of employees' health
		Employment and compensation
		Personnel development and training
		Social, cultural and gender diversity, equal opportunities
		Labour / Management relations
		Labour practices grievance mechanisms
	HUMAN RIGHTS	Security practices
		Freedom of association and collective bargaining
		Human Rights' training for contractors
	SOCIETY	Anti-corruption
		Grievance mechanisms on the Project's impacts on local communities
		Interaction with exposed local communities, methods of assessment and mitigation of impact
		Emergency preparedness, mechanisms of involvement of local communities
		Asset integrity and Process safety

	MATERIAL ASPECTS
ENVIRONMENTAL AREA	Reduction of GHG and pollutants
	Air quality monitoring
	Management of waste and effluents
	Spills
	Water use
	Energy management
	Biodiversity and ecosystems conservation
	Environmental grievance mechanisms
	Environmental investments
	ISO 14001 and OHSAS 18001 Certification
ECONOMIC AREA	Increase of local content in staff
	Impact of infrastructure investments in the territories with our presence, including support for local communities
	Electrical power supplies to the local communities
	Local content development and its share in procurement of goods and services
	Procurement practices and supply chain
	Transparency of payments to the government (EITI)
	Estimated proved reserves and production

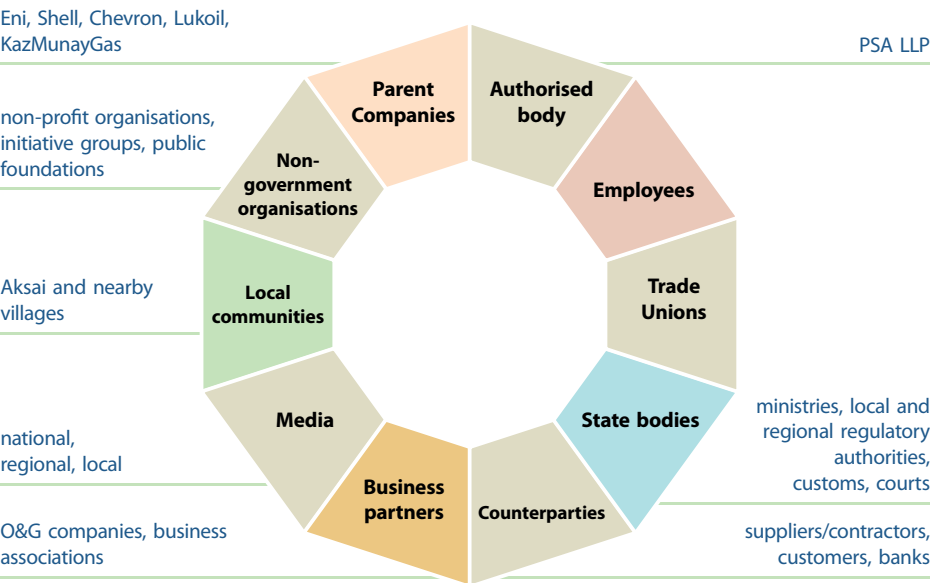
STAKEHOLDER ENGAGEMENT

As recognized by the world practice, engagement with stakeholders sets the basis for sustainable development and is the key to successful business. We are bound with our stakeholders and are interested in their opinion.^{G4-26}

Our interaction with stakeholders is a daily practice in the framework of the current activities and is carried out in accordance with the legislation. This is an organized and regulated process based on the planning and documenting the relevant information. KPO departments independently determine their stakeholders and share experience of engagement with them in this Report.

We have a continuous dialogue with the 10 main groups of stakeholders presented in Pic. №1.

Pic. №1. Our stakeholders ^{G4-24}



KPO methods and forms of stakeholder engagement vary from correspondence and meetings to conferences, forums, open days, social surveys and other.^{G4-25}

Table №2 demonstrates a brief overview of the engagement with stakeholders during the 2016.

Table №2. Overview of stakeholder engagement in 2016

STAKEHOLDER GROUPS <small>G4-24, G4-26, G4-27, G4-16</small>	ENGAGEMENT MECHANISMS	MAIN ENGAGEMENT TOPICS AND EVENTS IN 2016
Parent Companies (Eni, Shell, Chevron, Lukoil, KazMunayGas)	<ul style="list-style-type: none">• Board of Directors meetings;• ConCom meetings;• OpCom meetings;• ConCom Sub-Committees meetings;• OpCom Sub-Committees meetings	<ul style="list-style-type: none">• Safety and security issues;• Production performance optimization;• Environmental protection issues;• Annual Work Program and Budget, additional funds request (AFR), authorisation for expenditure (AFE);• Major and minor development projects;• Transportation, processing and sales of petroleum products;• 5-year Business Plan
PSA LLP Authority	<ul style="list-style-type: none">• Joint Operating Committee (JOC) meetings;• Joint Procurement Committee (JPC) meetings;• Joint Marketing Committee (JMC) meetings;• Local Content Sub-Committee meetings	<ul style="list-style-type: none">• Approval of the Annual Work Program and Budget, AFR;• Approval of contract assignment;• Approval of Social and Infrastructure projects
Employees	<ul style="list-style-type: none">• Electronic surveys of employees’ opinion on various topics;• Information through corporate media, corporate intranet portal, issuing and distribution of brochures, electronic screens/displays in the Company’s offices;• Annual information and training on the Code of Conduct and Conflict of Interest Policy;• Application by employees about operational and social and labour matters and to the Hotline;• Meetings and forums with students;• Day of Languages of the People of Kazakhstan	<ul style="list-style-type: none">• Online survey of employees’ opinions on the quality of medical insurance; survey of the IT&T department on the quality of their helpdesk services; online survey of employees’ opinion on the Sustainability Report;• Online training on health, safety, security, civil defence topics, etc.;• Safety Stand Down meetings with participation of employees of KPO and contracting organizations;• Quarterly HSE Awards ceremony for KPO employees and contractors on achievements as part of improving the safety culture;• Meeting between the representatives of KPO and the West Kazakhstan Agrarian & Technical University after Zhangirkhan for signing a Cooperation Agreement for joint activities to support the Society of Young Petroleum Engineers (SPE)

STAKEHOLDER GROUPS <small>G4-24, G4-26, G4-27, G4-16</small>	ENGAGEMENT MECHANISMS	MAIN ENGAGEMENT TOPICS AND EVENTS IN 2016
State bodies (ministries, local and regional regulatory authorities, customs, courts)	<ul style="list-style-type: none">• Working meetings, visits;• Reports, meetings;• Integrated emergency exercises;• Participation of KPO in the Ministries’ Working Groups	<ul style="list-style-type: none">• In February 2016, the Minister of Energy of the RoK V. Shkolnik visited the social projects implemented by KPO in Uralsk. As a result of the visit, KPO was praised for execution of the social projects in the region.• In November 2016, KPO presented its operational achievements in the Low Chamber (Mazhilis) of the Parliament of the Republic of Kazakhstan, which included KPIs on production, safety and environment, development of local content in staff and works, goods and services, and implementation of social infrastructure projects in WKO.• In November 2016, KPO participated in the conference “Kazakhstan: New Investment Opportunities” under the auspices of the Ministry of Investment and Development of the Republic of Kazakhstan. In the framework of the conference, the best foreign investors in 2016 were awarded including KPO who became a winner of the nomination for investment activity in the local content development in Kazakhstan.• As part of the program of interregional cooperation, a number of joint agreements were signed on local content development between KPO and representatives of regional bodies.• Within 2016, KPO conducted a series of integrated emergency response exercises at the Karachaganak field in cooperation with the regional emergency response agencies (for more information, see the section Management of Emergency Response and Civil Protection).• Issues of GHG emissions regulation, safety systems in discussions of the Working Groups at the ministries.

STAKEHOLDER GROUPS <small>G4-24, G4-26, G4-27, G4-16</small>	ENGAGEMENT MECHANISMS	MAIN ENGAGEMENT TOPICS AND EVENTS IN 2016
Counterparties (suppliers/contractors, customers, banks)	<ul style="list-style-type: none">• Forums, conferences;• Work meetings, visits.	<ul style="list-style-type: none">• In March 2016, KPO held a conference “Management of Significant Environmental Aspects in the Performance of Contractual Obligations: Control Measures” participated by the representatives of 53 Kazakh and foreign contracting companies of KPO. The attendees of the conference learnt about the KPO plans for implementation of new requirements of the ISO 14001: 2015 standard and recommendations for obtaining a new certificate.• In April 2016, the KPO delegation visited the Akimat of Atyrau to discuss the prospects for the increase of local content in the KPO projects.• In April 2016, KPO took part in the IV International Investment Forum “Karaganda Invest – 2016” held in Karaganda.• In June 2016, as part of interregional collaboration the KPO delegation has visited Petropavlovsk. During the visit the parties discussed the opportunities for participation of the North Kazakhstan companies in the development of the Karachaganak Field.• In July 2016, KPO hosted a delegation of official and business representatives from the Pavlodar Oblast headed by the Akim. The visit was an example of successful cooperation providing an opportunity for Pavlodar Oblast manufacturers in supplying their products to Karachaganak.• In October 2016, KPO took part in the launch of the Tenaris Global Services plant in Mangistau as part of the support for the local content projects (for more information, see section Local Content development).
Business partners (O&G companies, business associations)	<ul style="list-style-type: none">• Meetings, conferences, forums, competitions	<ul style="list-style-type: none">• In May 2016, KPO took part in the V Anniversary Conference “Kazneftegazservis – 2016” in Atyrau.• Within the 2nd Forum of the Kazakhstani manufacturers ‘Uly Dala Yeli’ held in November 2016 in Astana, KPO received an award in the nominated category «A Reliable Partner». KPO was the first international oil and gas company to have received this award.• In December 2016, the rating agency RAEX held the VI Annual Reports Contest for 2015, and KPO became the winner and received the award in the nomination “Best Sustainability Report”.
NGOs (non-profit organizations, initiative groups, public foundations)	<ul style="list-style-type: none">• Meetings, seminars, events	<ul style="list-style-type: none">• Cooperation and financial assistance to “Zhas Daryn” public organization of the Burlin district specialized in programs for socialization and development of creative abilities of disabled children.

STAKEHOLDER GROUPS <small>G4-24, G4-26, G4-27, G4-16</small>	ENGAGEMENT MECHANISMS	MAIN ENGAGEMENT TOPICS AND EVENTS IN 2016
Media (national, regional, local)	<ul style="list-style-type: none">• Regular interaction in the format of correspondence, informing, responding to media inquiries, meetings, events	<ul style="list-style-type: none">• In June 2016 KPO held a media tour for editors-in-chief of the national media, which included a visit to the Karachaganak field, KPO office in Uralsk and the social projects in Uralsk.• In July 2016 KPO, the WKO Akimat and the NC Social-entrepreneurial corporation “Oral” JSC jointly organized an innovation forum “Akzhaik Invest”. The forum was attended by regional and local media.• In August 2016, in the Uralsk office KPO held a conference “Development of Gas Industry in Kazakhstan” with engagement of the Prime Minister and members of the government of the Republic of Kazakhstan. The conference was also attended by representatives of the business community, national, regional and local media.
Local communities (residents of Aksai town and nearby rural districts)	<ul style="list-style-type: none">• Advisory councils, public hearings, social support activities for the communities	<ul style="list-style-type: none">• 18 Village Councils were held with the local communities of the villages located along the perimeter of the Karachaganak field on their social and infrastructure support.• Public hearings were conducted on 33 working projects, on implementation of individual technical projects for the construction of wells, on working projects for modernization of the emergency alert system in the villages.• Implementation of projects of support to the local communities in health, education and art spheres (for more information, see the section Local Communities Engagement).• As part of the KPO Sponsorship Program, the KPO handed over a minibus, concert costumes and a collection of national musical instruments to the Aksai Children’s Music School.• In November 2016 KPO organized an excursion to the Karachaganak field for the City Council of War and Labour Veterans of Uralsk and the Burlin district.
Trade Unions	<ul style="list-style-type: none">• The grievance mechanism for employees’ appeals on social and labour issues to the Employees Relations unit of HR Controllershship;• Collective Agreement;• Sport and cultural events.	<ul style="list-style-type: none">• Signing of a new sole Collective Agreement between the Trade unions and KPO for the period of 2016-2018.• During the year, various competitions, tournaments, events for various sports, such as cross-country skiing, bicycle racing, football, volleyball, table tennis, chess, etc. were held.• Participation of employees in the citywide events, festive processions, neighbourhood clean-up days.



OVERVIEW OF OPERATIONS

The Kazakhstan Branch of Karachaganak Petroleum Operating B.V. (KPO) is an international oil and gas company with production and exploration activities in Kazakhstan. KPO operates Karachaganak, one of the world's largest oil and gas condensate fields. It is located in north-west Kazakhstan covering an area over 280 square kilometres. ^{G4-5, G4-6, G4-21}

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

According to the latest Reserves Re-Determination Report for the Karachaganak field accepted by the RoK State Reserves Committee (GKZ) on 18.03.2014, it is estimated that the Karachaganak Field contains 13' billion barrels of liquids and 57 trillion cubic feet of gas, of which approximately 12% has been recovered to date.

As of end 2016, 4,339 people worked in the KPO organisation. To date, the Contractor of the Karachaganak Field is represented by the five Parent Companies – Eni, Shell, Chevron, Lukoil and KazMunayGas – jointly working under the Karachaganak Settlement Agreement and the Final Production Sharing Agreement. Since the signing of the Final Production Sharing Agreement (FPSA) in 1997, the Contractor has invested over USD 21.9 billion to develop the field, applying leading-edge technologies aimed at maximizing sustainable economic value and minimising environmental impact.

KPO OPERATING FACILITIES

Hydrocarbon production and processing occurs at the three major 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.

'The difference in data as compared to previous periods is due to updated information of geological exploration.'

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 hydrocarbons to Orenburg Gas Plant in the Russian Federation.

As of end 2016, 119 operating wells and 17 sour gas re-injection wells were online at Karachaganak, from a total well stock of 412 wells. More details about the facilities can be viewed in our Sustainability Report 2014 (pp. 6-8).



OUR PRODUCTS AND EXPORT ROUTES ^{G4-4, G4-8}

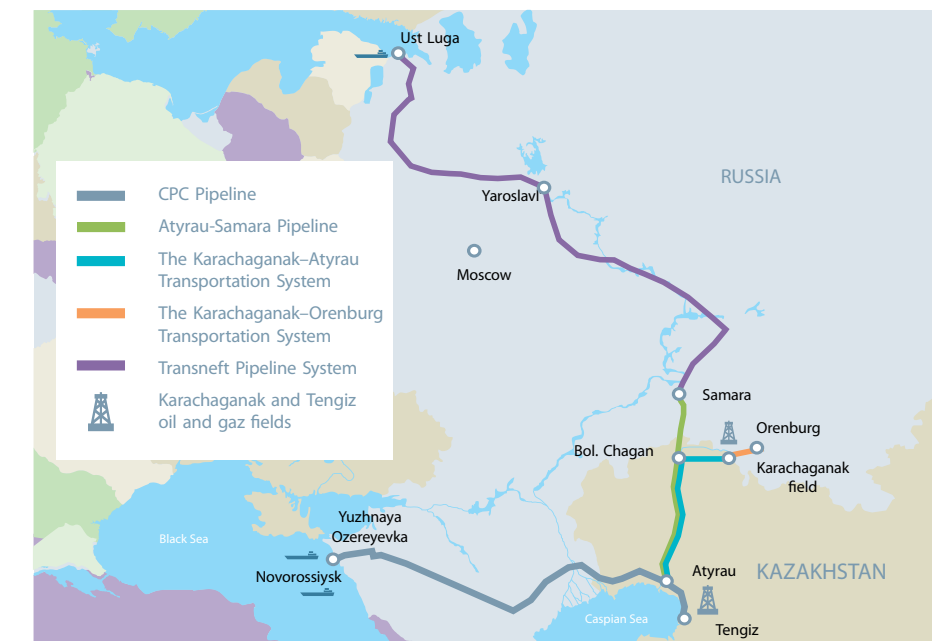
KPO extracts and processes stabilised and unstabilised liquid hydrocarbons, raw gas and fuel gas. The majority of hydrocarbons produced in the Karachaganak Field are exported to maximize net sales revenues.

In 2016, around 92% 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, whereas the Atyrau-Samara pipeline is used to deliver oil to the Ust-Luga port in the Baltic Sea (see Pic. №2).

Pic. №2. Our export routes



Continuous focus on oil sales optimization enabled KPO to export a record 9.5 mln tonnes of oil through the more profitable CPC pipeline in 2016. Nearly 0.2 mln tonnes of oil were exported via the Atyrau-Samara pipeline in that period. The remaining liquids were exported as unstabilised condensate to Russia via Orenburg and delivered to the local market. Starting from January 2016, KPO successfully commenced lifting of the Republic of Kazakhstan's share of Karachaganak oil through the CPC pipeline.

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 hydrogen sulphide) to generate electricity for KPO facilities and for local power distribution companies.

Since 2014, KPO has been implementing the Summer Gas sales programme during the period of planned maintenance at the Orenburg Gas Processing Plant in May-October. The programme involves sales of gas produced in addition to the committed volume as part of the contract with KazRosGas LLP. As a result of the programme in 2016, KPO produced incremental 206 mln standard cubic meters of raw gas and 68 kt of associated liquids during May-October 2016. The total incremental production following the Summer Gas sales in 2016 (including associated liquids) was about 1.8 mln barrels of oil equivalent.

In 2016, KPO delivered 8.9 bln cubic metres of raw gas to Orenburg, being the highest record in the history of KPO gas supply.

During the period of shutdown of the condensate stabilization facility at the Karachaganak Processing Complex in April-May 2016, deliveries of unstabilised condensate through the Orenburg Gas Processing Plant and Small Refinery of Condensate JSC were increased to maximize revenue.

In order to maintain reservoir pressure and increase future liquids' recovery rate, within 2016 KPO re-injected 8 billion cubic meters of gas into the reservoir, a volume equivalent to about 46% of the total gas extracted.

OPERATIONS IN 2016 ^{G4-4}

In 2016, KPO produced 139.7 million barrels of oil equivalent (BOE) in the form of stable and unstable liquids, and gas. Delivery of gas in 2016 reached 8.9 billion cubic meters.

Table №3. Production in 2016		2014	2015	2016*
Total Production**	Mboe	142.5	141.7	139.7
Total equivalent stable oil	Kt	11,004	10,796	10,466
Total gas production	Mscm	18,248	18,234	17,659
Gas Injection	Mscm	8,818	8,652	8,040
Gas re-injected into a reservoir, not sold				
Sweet Gas used at KPC for internal needs	Mscm	689	687.5	605.4

* Shutdown year

** The total figure of production does not include the volume of gas injection

Table №4. Sales in 2016		2014	2015	2016
Total Sales	Mboe	137.9	137.6	137
Unstable Liquids	kt	732	677	898
Condensate to Orenburg Gas Plant and Small Refinery				
Stable Liquids	kt	10,269	10,127	9,697
Oil and stabilised condensate to CPC and Atyrau-Samara				
Raw Gas to Orenburg Gas Plant	Mscm	8,594	8,799	8,934
Sweet Gas to the WKO community	Mscm	114.3	68.1	50.8

SHUTDOWN

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

In planning the shutdown activities KPO applies a risk based inspection (RBI) approach. Extending the shutdown intervals is made on adoption of risk based intervals covering all main equipment types while meeting applicable requirements in Kazakhstan. Other activities include installation of new or upgraded equipment and ‘engineering out’ shutdown activities through necessary modifications.

In 2016, planned shutdown activities were successfully executed on schedule and incident free. This involved total shutdown of KPC, Unit 2 and the Gathering network in April and May; and a complete shutdown of Unit 3 in September.

DRILLING ACTIVITIES IN 2016

In the first half of 2016 three drilling rigs were used in operations. One rig was released in June 2016 and two drilling rigs continued the operations.

The programme of well workovers to optimise production and re-injection in the Field was continued until June 2016. Seven new wells and two side track wells were successfully drilled and completed with swelling packers. Ten wells were hooked up. Four of the new wells were drilled in the Western build up zone of the Field.

In the past year KPO increased the local content in well operations through a local drill bits company Zhigermunaiservice (ZMS). KPO drilled the 16” hole section with the ZMS’s bit in well 9853 with good result. The second trial of the bit was run in January 2017 in well 9856, which confirmed its good performance.

During the year 2016 the following achievements have been made in drilling:

- Five wells started in 2016 were top quartile thanks to the continued innovation and study to reduce dynamic vibrations in bottom hole assembly (BHA) – that lead to a longer durability of logging while drilling (LWD) tools and the reduction of flat time;
- Reduction of flat time, bottom hole assembly (BHA) – optimisation plus stinger bit in 6” hole section led to reduction on the vibration stick slip (VSS);

- The deepest completion was run in well 449-1; the bottom of the lower completion string is at 6603.5 meter measured depth;
- Well 9850 had the longest 7” flush liner set (1900 m) thanks to the application of the ceramic centralizer;
- The application of high pressure system (high pressure separators and pumps) in the well clean-up allowed the significant reduction of the flared volumes and accordingly the level of emissions to air (details are provided in the Air Emissions section). Continued implementation of the reinjection High pressure (HP) pump allowed to send hydrocarbons through the flow line as soon as flowing tubing head pressure was over the flow line pressure;
- The use of Lamix (oil base) in 3 wells enabled the reduction of the flaring during the clean-up;
- Fiber Optics permanent downhole gauges were successfully deployed in well 9852;
- Milling (balls & baffles) in 8 wells using the WellTec tractor or minimizing injected fluid volume for a quick clean up ran to a world record of 9 balls and baffles milled out of one bit run.

These were all achieved with zero recordable incidents.

WATER MANAGEMENT STRATEGY

Managing produced water is one of the main challenges facing the Karachaganak field where increasing produced water rates combined with a production facility which was not originally designed to handle significant water production is resulting in production losses, risks to asset integrity, and environmental compliance.

An additional challenge for KPO is locating sources of sufficient water required for production as well as potable water both for production personnel as well as personnel engaged on the construction of new facilities.

KPO has developed a field wide water management strategy that addresses the issues of both produced as well as consumed water in the short, medium and long term to the end of the FPSA. This strategy is being implemented through a number of small projects and operational initiatives.



At the Rig № 249



View of Karachaganak Processing Complex

POWER GENERATION STRATEGY

KPO has been producing and exporting electric power for the community of the West Kazakhstan Oblast since 2001. The average electric power supplied is 45 MW in winter and from 27 to 45 MW in summer.

Production and processing of oil and gas is a complex process that places strict requirements on uninterrupted power supply. The smallest deviations and interruptions in power supply may cause a process shutdown where restart takes a long time as it involves coordinated actions of several units' personnel.

KPO Asset Integrity Department has determined a safe value for generation of electric power at the KPO Gas Turbine Power Plant as a result of the risk assessment carried out in 2013 on the negative impacts on stable operation of the Karachaganak field facilities from the external electric grids caused by short circuits and other deviations from normal operation mode in the

regional power system. The determined value amounted to 46 MW. Exceeding of this value can lead to unacceptable deviations of the grid's parameters and result in shutdown of process flow in the event of short circuits of external grids.

Power supply and transmission companies of the West Kazakhstan Oblast have been regularly informed about existing technical restrictions and risks for KPO operations in response to their inquiries to increase the volumes of electric power transmitted from the KPO Gas Turbine Power Plant (GTPP).

KPO is responsible for fulfilling its obligations under the FPSA and makes every effort to provide the maximum possible values of power for WKO provided that there are no technical restrictions and risks for process safety in response to the requests of Batys Energoresursy LLP power supply company.

DEVELOPMENT ACTIVITIES

As the Contractor to the Republic of Kazakhstan, KPO has an obligation 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. Following the completion of the Karachaganak Phase II Initial Program, KPO has been funding and implementing the Phase II Maintenance Program (Phase IIM) since 2003. This phase includes the further activities, such as drilling new development wells, undertaking workovers on existing wells, upgrading production facilities and other projects required to maintain a high production level to the economic benefit of the RoK.

These 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 a programme of production Plateau Extension Projects (PEP) has been developed in 2014.

In 2016 KPO continued the maturation of the PEP projects portfolio. The concept for the trunk line and gas reinjection wells component of the Unit 2 Gas Injection Upgrade Project was selected, and plans for Front End Engineering Design (FEED) prepared. The Unit 2 Fourth Gas Injection Compressor Project was matured, with both concept selection and contracting strategy selection milestones achieved in the year. Finally, for the KPC Gas Debottlenecking Project, FEED was completed and Detailed Engineering Design commenced. In addition, early execution works were started and are well advanced.

KARACHAGANAK EXPANSION PROJECT (KEP)

KPO works to continue the development of the Karachaganak field via the Karachaganak Expansion Project (KEP), scheduled in a phased manner. This development plan is consistent with KPO's obligations to the Republic of Kazakhstan in the longer term. The KEP project creates additional value for the Karachaganak Parent Companies and the Republic of Kazakhstan to the end of the FPSA period and the duration of the Field life. This is achieved by optimising stabilised liquid sales through the provision of additional wells, process facilities and secure gas export routes, in a manner that is aligned with the objectives of all stakeholders.

The concept assessment and selection activities include the development of a quantitative risk assessment (QRA) model to evaluate the risk exposure of personnel during the construction and operation of the proposed new facilities. The outputs from the model are used to assist in the demonstration that the layout, segregation and design of the new facilities will reduce

risks during these activities to the lowest practicable level.

KEP will utilise inherent safety features in the design of systems and equipment and this will minimise the exposure of personnel to process safety risks (including toxic gas risks) throughout the life of the new facilities.

Another principle objective of KEP is to minimise any environmental impact. Best practices in air dispersion modelling of KEP emissions are being undertaken to assess any impact on the boundary of the Sanitary Protection Zone (SPZ) around the field.

In 2016, the studies have been further progressed with the objective to optimize the configuration of the future KEP1 facilities. Studies have had the focus to optimize the capital spending over the time (phasing the installation of compression capacity), reduce the overall capital costs and maximise recovery in order to improve the project economics.

The next phase of the project will be the Front End Engineering Design (FEED), where incremental maturity will be achieved with a more detailed understanding of the project risks (brownfield works, SIMOPS (simultaneous operations) activities, Long Lead Items definition, compression unit, gathering system design and Early Works identification) and engineering will be developed in order to propose the project for sanction.



Work process in the Main Control Room at the Karachaganak Processing Complex



RESPONSIBLE OPERATOR

GOVERNANCE and MANAGEMENT APPROACH

GOVERNANCE STRUCTURE ^{G4-7}

Karachaganak Petroleum Operating B.V. Kazakhstan Branch (hereinafter referred to as KPO) has been established in 1997 as a Joint Venture to operate the Karachaganak Oil and Gas Field (hereinafter referred to as the Karachaganak Field or the KOGCF) in accordance with the Final Production Sharing Agreement (hereinafter referred to as the FPSA).

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

- Eni (29.25%),
- Shell (29.25%),
- Chevron Corporation (18%),
- LUKOIL (13.5%),
- NC KazMunayGas (10%).

From February 15, 2016 as a result of the acquisition of BG Group, Shell (through its 100% affiliated company BG Karachaganak Limited) became a joint Operator of Karachaganak Petroleum Operating B.V. headquartered in Hague (Netherlands). Shell is an international group of companies comprising of energy and petrochemical companies.

KPO established an integrated and effective system of governance, risk management, internal control and compliance which is a key to achieving sustained organizational success. Our overall management approach is aimed at enabling appropriate decision making and providing control mechanisms to ensure that strategies, directions and instructions from senior management are carried out systematically and effectively.

The organisational structure of our Company was designed to help us in meeting our business objectives for the benefit of the Republic of Kazakhstan, the Authority represented by the PSA LLP, and our Contracting Companies by continuously adjusting to the current operational and economic environment.

The overall supervision and control of petroleum operations is guided by the Joint Operations Committee (the JOC) represented by each of the Contracting Companies and the Authority as

regulated by the FPSA. All decisions related to transportation, processing, swap and sale of oil and gas are governed by the Joint Marketing Committee (the JMC). ^{G4-34}

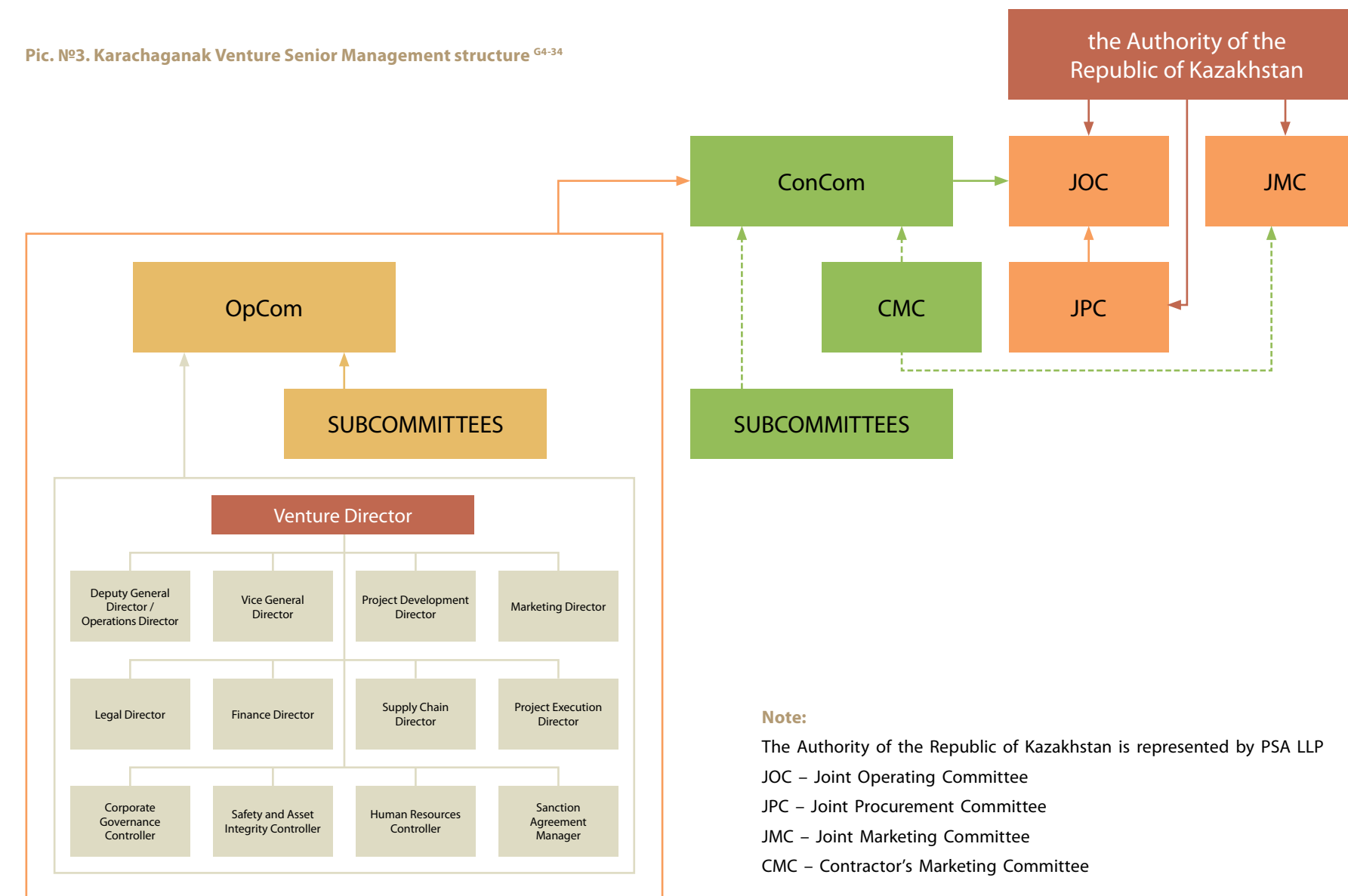
According to the FPSA, the Karachaganak Joint Venture is covered by the two layers of the management and decision-making bodies with regard to the joint operations. The lower layer body is the Operating Committee ("OpCom"), which oversees the management of the venture and ensures the FPSA's compliance. The top layer body is the Contractor's Committee ("ConCom"), which is responsible for determining the Contracting Companies' position on all matters subject to the decisions of the JOC.

The general governance framework remained the same in 2016 compared to the past year except for the emergence of Sanction Agreement (SA) division responsible for implementation of strategy to ensure successful Projects' sanctioning. The core function of this role is the delivery of legal, commercial and technical support within the negotiations with the Authority to agree the final Sanction Agreement for the next major phase of development of the Karachaganak field.

The chart on Pic. No.3 reflects Venture's governance structure in 2016. Graphic representation of the structure has been modified as compared to the 2015 Sustainability Report; however no amendments to the governance structure itself took place.



Pic. №3. Karachaganak Venture Senior Management structure ^{G4-34}



Furthermore, a number of sub-committees both for the ConCom and the OpCom are in place to provide professional advice and assurance in specific areas of expertise at operational and corporate levels as detailed below: ^{G4-34}

ConCom	OpCom
<div>1. Contractor’s Marketing Committee (CMC)</div> <div>2. Work Program and Budget</div> <div>3. Finance</div> <div>4. Tax</div> <div>5. Audit</div> <div>6. Insurance</div> <div>7. Corporate Affairs and Government Relations</div> <div>8. Legal</div>	<div>1. Operations</div> <div>2. HSE</div> <div>3. Security</div> <div>4. Technical</div> <div>5. HR</div> <div>6. Sustainable Development</div>

MANAGEMENT SYSTEMS

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. These are embedded in our management systems and include the following, but not limited to:

- Karachaganak Corporate Management System Manual,
- Operations Management Systems,
- Health, Safety and Environment (HSE) Management System and HSE Policy,
- KPO Energy Policy,
- KPO Code of Conduct.

Our Occupational Health and Safety Management System and Environmental Management System are certified to comply with the OHSAS 18001 and ISO 14001 standards respectively.

Sustainability activities in KPO are defined by the Sustainable Development Charter in place since 2009. This Charter sets the guiding principles of the Company on sustainable development; and was drawn from international best practice and the Operator Companies’ experience. The recent update of the Charter was made in 2015.

RISK MANAGEMENT ^{G4-2}

Generally, petroleum operations need to be carefully organised with respect to the environment, people and local communities and taking care on issues such as air emissions, generation of waste, water and soil pollution. For KPO, as a responsible oil and gas operator, managing sustainability risks is of paramount importance. Such risks include, but are not limited to:

- personnel safety and asset integrity risks, mainly coming from potential emissions of hydrogen sulphide and illegal taps;
- environmental risks, mostly arising from potential spills, generation of waste and emissions to air;
- risks of ethical compliance both of our own personnel and of our contractors; and
- attracting and retaining qualified national personnel.

Within KPO a formal Risk Management process is established to identify and effectively manage business risks, which could be experienced by the Company during its activities. This process, as well as roles and responsibilities, is defined within the Risk Management Procedure.

Corporate Governance Controllershship facilitates the constant development of risk management system and is responsible for maintaining the Corporate Risk Register. Corporate Risk Register contains the risks, which may occur, and associated action plans to mitigate those risks.

The top risks are reported to and discussed on the quarterly KPO Risk Committee meetings with KPO senior management. After each Risk Committee, Corporate Governance Controller provides the ConCom with the Quarterly Risk Register, which details the main information on KPO top risks in a concise manner ensuring information reliability and actuality.

Detailed information on the measures on specific risks’ reduction is reflected in the relevant chapters of this Report.

ASSURANCE

KPO systems and business processes are subject to an annual audit plan aimed to provide assurance to the KPO management and the Contracting Companies that effective and efficient processes are in place to identify and manage risks, including sustainability risks, and to ensure compliance with approved processes.

Assurance activities are undertaken by the Internal Corporate Audit department. Internal Audit focuses its efforts on identifying shortcomings in the control processes and checking corporate compliance. Specific areas are identified for audit each year using KPO’s internal risk management process, discussions with departments’ management, previous audit outcomes and KPO’s own Audit Model, which details KPO process areas and the required audit frequency for each area.

Every year KPO’s governance and assurance activities deliver to all KPO stakeholders the necessary confidence that effective controls over business processes are in place. Such activities include, but not limited to:

- value assurance reviews, assists and workshops,
- capital project forums,
- internal audits.

Assurance reviews also occur on a regular basis, including an annual Parent Companies Audit (PCA) to give assurance that KPO complies with its own policies, standards and industry best practices, and regulatory reviews to ensure conformance to the applicable legislation of the Republic of Kazakhstan. The 2016 PCA was conducted in November 2016 and reviewed such areas as: pre and post-contract award processes, project management, cost control, financial reporting and IT business infrastructure.

As an additional tool for analysing the assurance coverage of all KPO departments, Corporate Governance maintains an Integrated Assurance Map to collect information on all assurance activities across all KPO departments.

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE

KPO continues supporting the Extractive Industries Transparency Initiative (EITI) aimed at ensuring transparency of incomes and overall chain of value creation in management of the natural resources of the Republic of Kazakhstan (RoK).

KPO has been solely submitting the EITI reports to the RoK authorised bodies since 2014. Prior to that our Parent Companies reported on our behalf. In line with the procedure on preparation of the EITI report issued in January 2015, the latest KPO report for 2016 was provided to the Committee for Geology and Subsoil Use of the RoK Ministry of Investments and Development and to the RoK Ministry of Energy on 18 April 2017.

In 2015 KPO paid taxes in the amount totalling USD 1.2 billion (at the RoK National bank exchange rate on 31.12.2015) as reported in the 11th National Report on Implementation of the Extractive Industries Transparency Initiative for 2015.

In 2016 KPO paid taxes in the amount totalling USD 369 million (at the RoK National bank exchange rate on 31.12.2016) as reported in the 12th National Report on Implementation of the Extractive Industries Transparency Initiative for 2016.

Submission by Subsoil Users of the EITI Reports has been carried out through the web portal of the integrated information system of the Single National Management System of Subsoil Users in Kazakhstan. The Final EITI National Reports are available online to any stakeholder on the website of the Ministry of Investments and Development at <http://eiti.geology.gov.kz/en/>.

The EITI reporting mechanism provides a public access to the information about taxes paid by KPO to the state budget via <http://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 Kazakhstan’).

KPO MANAGEMENT



Renato Maroli
General Director

Renato has over 20 years of experience in the oil & gas industry including domestic and international assignments in Libya and Egypt. Renato has extensive experience working within different environments and cultures. In his most recent assignment Renato held the position of Chief Executive Officer of Enimed, Eni's sister company that operates onshore and offshore assets in Sicily, Italy.

Andrew Wiper

Operations Director & Deputy General Director

Andrew Wiper has considerable experience in executive roles and has a solid technical and managerial background combined with international experience gained in various companies such as BG Group, Shell and Schlumberger. Prior to this assignment Andrew held senior roles at the Karachaganak project, most recently as Field Manager.



Marat Karimov
Vice General Director

Marat Karimov has joined KPO as Vice General Director in August 2015. Prior to this assignment, Marat Karimov worked as Deputy Akim of the Western Kazakhstan Oblast. Marat graduated from the Atyrau Institute of Oil & Gas, studied at the universities of Oklahoma and Louisiana in the US. His professional career in oil and gas industry started up in 1994. Over the previous years Marat worked in various positions in North Caspian Project, as Director of North-Caspian project of KazMunaiTeniz IOC JSC and afterwards as First Deputy General Director of the same company, Deputy General Director of KMG Kashagan B.V., General Manager of exploration projects of KazMunaiGas National Company.

Shahram Jahanbani

Finance Director

Shahram has been working for BG Group since 2006. Before taking the current position he held the post of Vice-President Finance BG India. Shahram has worked at managerial positions for over 15 years, during which he has gained extensive international experience in the upstream and downstream Oil and Gas sectors in the areas of Financial control, Treasury, Budgeting and Planning, M&A, Taxation and Audits having worked in various countries worldwide including the UK, Egypt, Algeria, Czech Republic and Russia.



Alberto Castelli
Marketing Director

Alberto Castelli has been working for Eni and its subsidiaries since 1998. Before his appointment he held the position of Commercial and Business Development Manager in Eni Petroleum in the USA working on projects in Venezuela, Trinidad & Tobago and the USA. Alberto has broad experience in marketing, commercial and business development. Alberto's professional background includes managerial roles in Eni affiliates in Italy, UK, Netherlands and Nigeria.

Matteo Grassani

Legal Director

Matteo gained an extensive cross-industry experience throughout the value chain by managing legal governance, risk and compliance, working on large infrastructure projects and by leading legal teams in multinational and multicultural organizations. Over the years he has occupied a number of senior legal roles, including Vice President Legal and Branch Director for BG Kazakhstan between 2013 and 2016. Matteo is qualified both as Solicitor of England and Wales and as Italian advocate.



Robert Shelton
Project Execution Director

Robert has 20 years of experience with Shell and BG Group in technical and management roles on a number of assets in North America, Africa and Europe. Prior to this assignment, Robert worked as a Project General Manager in Queensland Curtis LNG project in Australia.



**Maurizio Pinna****Project Development Director**

Maurizio joined Eni in 2004, and has worked in Italy, Great Britain, Kazakhstan and North Africa. During his career he has covered several roles across technical and operational area with extensive experience in project management. Prior to his assignment at KPO, Maurizio worked in Algeria as Project Director at Sonatrach-First Calgary Petroleums Association.

**Lorenzo Tomada****Supply Chain Director**

Lorenzo joined KPO from Eni. His previous position at KPO was Senior Contracts & Procurement Controller while earlier he has worked for Agip KCO as Procurement Director.

Lorenzo has worked at Eni for over 20 years and gained vast experience in contracts & procurement, strategic sourcing and planning handling regional procurement for North & South Americas, cross-business strategic sourcing and planning for upstream, downstream, gas & power. Among other, Lorenzo managed ICT and e-business services in Technical Directorate of Eni Upstream.

**Alistair Patterson****Corporate Governance Controller**

Alistair has worked in the oil & gas business for over 30 years. His previous assignment was as Commercial Manager for BG Brasil in Rio de Janeiro. Alistair has worked in managerial positions in the last 15 years, four of which were as in Oil Export Manager KPO Marketing. Alistair's overall experience crosses the commercial, operational, economic, financial and technical areas.

**Alex Stillavato****Corporate Governance Controller**

Alex joined KPO as Corporate Governance Controller in May 2015 from Eni where he has been working since 2004. Prior to this Alex worked in Eni Upstream Business Line as Manager of Community and Territorial Initiatives. Alex is an economist by background and his current areas of expertise – investors' relations, audit and compliance management, business planning and development – add to his previous experience, which focused on sustainability issues, management of ethical stakeholders and financial shareholders, carbon/air emissions management and gas flaring.

Luciano Carcaiso**HR Controller**

Luciano joined KPO from Eni where he has been working since 2002. He brings an extensive international experience in the area of HR Management and Organization. His last appointment was Vice-President of HR, Procurement HSEQ (London, UK) and UK Branch Manager at Eni Trading and Shipping SpA. At the same time he covered the position of Vice-President International HR Management at Eni SpA Midstream (Milan, Italy). Over the past years he has occupied a number of senior positions in the industry, including Vice-President International Industrial Relations of Eni SpA and Head of HR, Organization & IT for Eni in Germany, Romania and Italy (Rome and Gela).

**Suriyanarayana Rajagopal****HR Controller**

Suriyanarayana has over three decades of experience in HR leadership roles across multiple industries. His last assignment at Royal Dutch Shell was HR Vice President, Change & Engage for Project & Technology 2020 Programme, based in the Netherlands. Suriyanarayana joined Shell in 2011 as HR Vice President - India Operations after 7 years at BG Group where he was based in the UK and India as Vice President HR BG Asia. Earlier his leadership roles included that of Director HR at Carrier Aircon, United Technologies and the hospitality sector in India.

**Graham Roberts****Safety and Asset Integrity Controller**

Graham has been working for BG Group (Royal Dutch Shell) since 2002. His previous position was Head of Asset Integrity at BG Reading, United Kingdom. He is a Chartered Engineer, with a professional background that includes managerial roles in the area of Asset Integrity, HSSE, Combined Heat & Power, Generation and Transmission.

**Armando Sechi****Safety and Asset Integrity Controller**

Armando joined Eni in 1992, covering several technical and operational roles. Armando has over 20 years of experience in the area of HSE and sustainability, three of which in AGIP KCO in the position of Experimental Programme Offshore HSE Manager. His previous assignment was Production HSE Manager for Eni.



ETHICAL CONDUCT

CODE OF CONDUCT G4-56

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

The Code of Conduct was most recently updated in February 2015.

Our corporate values include the following:

BEHAVIOUR	We conduct our business in compliance with legal, regulatory and license requirements applicable to KPO and its Parent Companies.
PEOPLE	We treat each other with fairness, respect and decency. We trust, respect and support each other and the different cultures of our colleagues.
HSE	We are concerned for the health and safety of one another and will ensure that we work in a healthy, safe and secure environment. We will act to minimize any adverse effects our actions may have on the environment.
PARTNERSHIP	We are focused on maintaining productive, collaborative and trusting relationships with the Republic of Kazakhstan, our Parent Companies, and the local communities where we work. We work with and seek to provide benefits to the local communities.

CODE OF CONDUCT AND ANTI-CORRUPTION AWARENESS AND TRAINING G4-HR2, G4-SO4

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.

Providing training on ethical norms and standards to personnel is important for KPO as for an international company due to the multinational nature of their staff. All KPO new starters must complete an introductory training course on the Code of Conduct which is held on mandatory principle. The objective is to ensure that all KPO employees are aware of KPO's expected standards and requirements of behaviour.

The Code of Conduct and other ethical compliance policies are available on the KPO intranet for each employee to read. Each KPO employee is required, on an annual basis, to make a Compliance Declaration acknowledging their familiarisation with their personal compliance obligations. Employees who do not have access to the intranet are provided with hard copies and a signed acknowledgement is obtained. By the end of December 2016, over 95% of KPO employees had completed their Compliance Declaration.

KPO also has online training modules on ethical compliance for all KPO employees. These modules focus on the Code of Conduct, conflicts of interest and anti-corruption.

In the framework of organising ethical compliance training for contractor companies, KPO held its annual Contractor Ethical Compliance Annual Workshop in September 2016. The Workshop has been run annually since 2013. In 2016 the Workshop was attended by 13 senior contractor representatives from 10 of our contractors, a mix of major contractors and smaller local contractors. The workshop program included issues on anti-corruption laws and also on KPO's Code of Conduct and ethical compliance standards.

HOTLINE AND OTHER COMPLIANCE MEASURES G4-57, G4-58

A toll-free, anonymous and confidential Hotline has been functioning in KPO since 2012 as another step in the Company's legal compliance programme. For KPO the Hotline is administered by a leading accredited international supplier of this service – NAVEX Global.

The Hotline provides an important tool for KPO's employees, contractors and stakeholders to ensure a fair and safe working environment.

Available 24-hours a day the Hotline provides a means for employees, contractors and other stakeholders to report potential legal or ethical offences, including discrimination, sexual

harassment, conflicts of interest, safety or environmental violations and/or improper financial practices or bribery. The caller can make their report of 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.

During 2016, KPO received 27 reports on the Hotline and a further 10 reports directly to the Legal Directorate. All of the reports were duly considered and the appropriate action taken. The complaints mostly related to Human Resources issues, and these were addressed in accordance with KPO's Grievance Handling Procedure and Discipline Handling Procedure, 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 the reports were provided to the KPO Compliance Committee.

The Legal Directorate also maintains a set of compliance registers, including for example, hospitality and travel provided to non-KPO persons, thefts of KPO property, corporate gifts and hospitality received by KPO personnel, and allegations of corruption.

ANTICORRUPTION DUE DILIGENCE PROCESS G4-SO4

KPO has to comply with both Kazakh laws combatting corruption and bribery as well as corresponding international laws which are applicable in the home countries of our Parent Companies. In this regard, KPO seeks assurance that all its business partners – suppliers, vendors, contractors, service providers and other contract counterparties, are acceptable from an ethical compliance perspective and agree to adhere to ethical business practices.

One aspect of this assurance process is to “know our business partners”.

On this basis 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.

A questionnaire is sent to each potential business partner requesting information about its ownership, management and conduct of business including its ethical business practices. KPO also uses international compliance and other databases to confirm the company's corporate information and whether there are any negative reports regarding its business conduct. A risk assessment is then performed to determine the acceptability of the business partner and, if relevant, mitigation measures to be applied to any residual risks.

For existing and new business partners the ethical due diligence is refreshed regularly so that necessary steps can be taken to address any material change in the risk evaluation. In 2016 KPO reviewed its Ethical Due Diligence Procedure to ensure it remained up to date and to incorporate improvements that had been identified since it was last issued. These included reducing the period for refreshing ethical due diligence from three to two years to provide a more frequent review of contractors.

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

KPO offers assistance to local companies to comply with KPO's ethical requirements. The Contracts & Procurement Department provides local companies with pro-forma documentation, through which they are able to draft their own Code of Conduct and update their contractual documents, including those that may be used for subcontracting services or for the procurement of equipment or materials, to conform to KPO's standards.

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.



SAFETY

Table №5. Targets in safety

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Conduct a surveillance audit for ISO 14001:2004 and OHSAS 18001:2007 in June 2016	Yes	The second surveillance audit against the HSE MS Standards ISO 14001:2004 and OHSAS 18001:2007 was held on 8-12 August 2016 by the “Bureau Veritas Certification” body. Based on the results, the confirmation of the KPO HSE MS certification was recommended.	Conduct a re-certification audit for ISO 14001:2015 and OHSAS 18001:2007 in July 2017
Continue to provide technical safety support for the following projects: <ul style="list-style-type: none">• 4th Gas Re-injection Compressor at Unit 2;• Karachaganak Expansion Project (KEP);• KPC Additional Flare and Segregated Maintenance;• KGDBN Project;• Unit 3 Future Development.	Yes	Provided technical safety support to projects in concept select/ FEED stage on as and when required basis by reviewing project HSSE documents, developing scope of work and supporting the PMT through the VAR process. The project for KPC Additional Flare and Segregated Maintenance did not progress any further in 2016.	Continue providing technical safety support to Operations: <ul style="list-style-type: none">• Unit 3 ALARP Demonstration,• KPC ALARP Demonstration. Deliver the Declaration for Safety for Industrial Units (DSIU) in line with the RoK requirements for the following facilities: <ul style="list-style-type: none">• KPC;• Wellstock; and• Eco Centre.
Continue implementation of the Minimum Manning Strategy	Ongoing	Completed stage I – Relocated personnel from the Field Administration Building (FAB) to the Pilot Camp and Aksai; Completed stage II – Relocated personnel from the KPC plant to the FAB.	Provide advice and monitor the implementation of the Minimum Manning Strategy during the manning of projects (4 th Injection and KGDBN). Continue stage III – relocate intermittent and non-essential personnel from KPC and Unit 2.
Continue implementation of the HSE Competency Enhancement Program for line supervisors and integrate it with Operations Competence Management System	Ongoing	HSE Competence assessment was completed and the feedback was provided.	<ul style="list-style-type: none">• Follow up the HSE Competency with the contractors and KPO Supervisors.• Investigate the possibility of integrating the KPO Supervisor HSE Competence activity into the Production & Maintenance Competency Assurance System database.

SAFETY PERFORMANCE

In this section we present the review of KPO Safety performance in the period of 2009-2016 with a highlight on the 2016 data. The Graph №1 shows the Lost Time Injury Frequency (LTIF) and Total Recordable Injury Frequency (TRIF) in KPO.

In 2016, KPO LTIF was 0.17 (versus 0.11 in 2015) and TRIF – 0.24 (versus 0.30 in 2015).

Graph №1. LTI Frequency and TRI Frequency: KPO and Contractors, 2009-2016 ^{G4-LA6}



The following method is applied in KPO for calculation of LTI and TRI frequencies:

- *LTIF Frequency (LTIF) = Number of LTIs (Lost Work Day Case + Fatality) x 1,000,000/man-hours;*
- *TRIF 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. It should be noted that the data of KPO and contracting organizations is presented here separately and may not be added together to get a joint number, but a formula is to be applied.

Table №6. Lost Time Injury Frequency: KPO versus contractors, 2009-2016 ^{G4-LA6}

PERFORMANCE INDICATORS	2009	2010	2011	2012	2013	2014	2015	2016
Lost Time Injury Frequency (KPO)	0.21	0.00	0.71	0.42	0.58	0.14	0.14	0.00
Lost Time Injury Frequency (Contractors)	0.10	0.23	0.21	0.30	0.17	0.22	0.10	0.23

Table №7 shows KPO TRIF versus contractors’ TRIF.

Table №7. Total Recordable Injury Frequency: KPO versus contractors*, 2009-2016

PERFORMANCE INDICATORS	2009	2010	2011	2012	2013	2014	2015	2016
Total Recordable Injury Frequency (KPO)	0.43	0.11	1.00	0.42	0.58	0.14	0.27	0.27
Total Recordable Injury Frequency (Contractors)	0.69	0.47	0.36	0.36	0.41	0.32	0.31	0.23

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

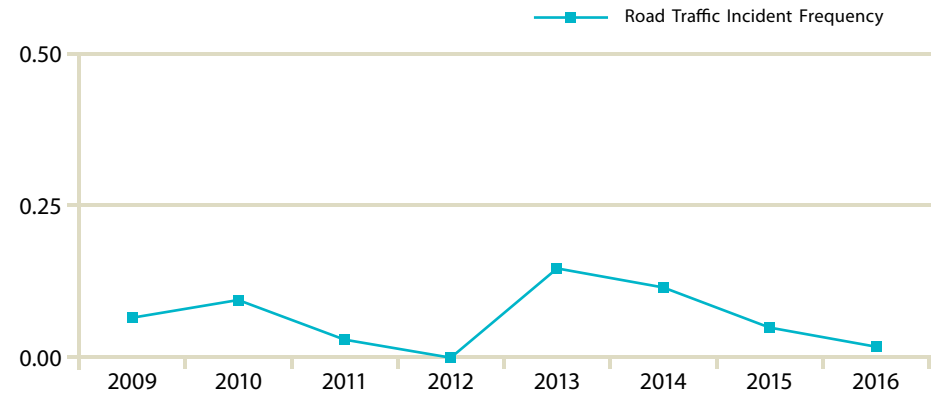
Our objective is for no one to be injured at work. During 2016 seven (7) people were injured. There were five (5) Lost Time Injuries (Lost Work Day Cases), which involved a slip on icy surface, two (2) falls from height, one (1) fall as a result of tripping and an injury on the face skin. The other two (2) recordable incidents involved minor injuries to personnel resulting in restricted work (light duties) or medical treatment: pinched finger and a head injury. Out of the seven (7) injuries, five (5) related to contractor employees and two (2) – to KPO employees.

Road Traffic Incident Frequency (RTIF) per million kilometres driven decreased from 0.03 in 2015 to 0.02 in 2016.

Although there continues to be a number of very minor road traffic incidents (RTI’s), such as scratches and bumps, only one (1) reportable RTI occurred in 2016 – rollover of a subcontractor’s light vehicle in result of lost control.

In 2016, KPO vehicles travelled a total of over 65 million kilometres.

Graph №2. Road Traffic Incident Frequency: KPO and contractors, 2009-2016 ^{G4-LA6}



The following method is applied in KPO for calculation of RTIF:

- Road Traffic Incident Frequency = Number of RTI (recordable) x 1,000,000/kilometres driven.

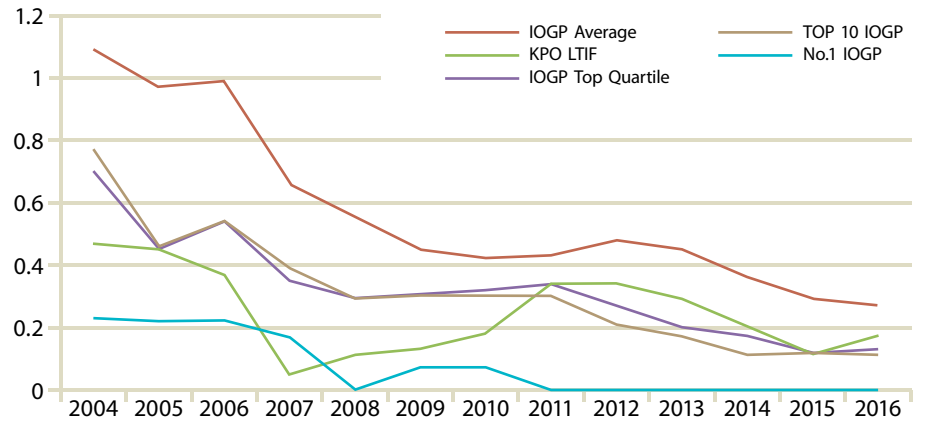
Table №8. Road Traffic Incident Frequency: KPO versus contractors, 2009-2016 ^{G4-LA6}

PERFORMANCE INDICATOR	2009	2010	2011	2012	2013	2014	2015	2016
Road Traffic Incident Frequency (KPO)	0.12	0.13	0.00	0.00	0.00	0.00	0.25	0.00
Road Traffic Incident Frequency (Contractors)	0.03	0.09	0.02	0.00	0.14	0.10	0.02	0.02

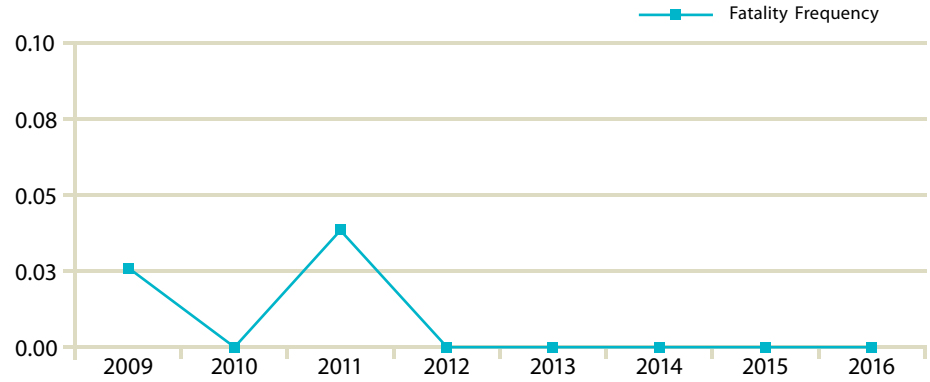
We annually review our HSE performance against other oil & gas production operators. KPO HSE Key Performance Indicators (KPIs) are compared to statistical data reported by the International Association of Oil and Gas Producers (IOGP) based on data collected from many worldwide exploration and production operators.

The number of the KPO Lost Time injuries in 2016 has slightly increased versus 2015; though when compared to other operators our LTI still remain below the IOGP average (see Graph №3). Details of the IOGP statistical average indicators, top 10 IOGP and No. 1 IOGP indicators are available online at www.iogp.org.

Graph №3. KPO Performance vs IOGP, 2004-2016



Graph №4. Fatality Frequency: KPO and contractors, 2009-2016 ^{G4-LA6}



The following method is applied in KPO for calculation of fatality frequency:

- Fatality frequency (per million man-hours worked) = Number of fatalities x 1,000,000 / man-hours worked. KPO had 1 Fatality in 2009 and 1 fatality in 2011.

Table №9. Fatality Frequency: KPO versus contractors, 2009-2016 ^{G4-LA6}

PERFORMANCE INDICATOR	2009	2010	2011	2012	2013	2014	2015	2016
Fatality Frequency (KPO)	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
Fatality Frequency (Contractors)	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00

INTEGRATED HSE MANAGEMENT SYSTEM

KPO has an Integrated HSE Management System that was introduced in 2009 with the aim to reduce health, safety and environmental risks associated with petroleum operations. An integrated management system helps us in meeting requirements of several international standards and ensuring continuous development.

Our integrated HSE management system includes a number of elements defined by international standards: ISO 14001 (first certified in 2008) and OHSAS 18001 (first certified in 2009). Our second and third certification for both standards was confirmed in 2011 and 2014 accordingly. Since then we have been passing annual surveillance audits on our Integrated MS to make sure we maintain the certification level in pursuing our business goals.

The new standards ISO 14001:2015 and 45001:2017 (replacing OHSAS 18001:2007) will establish new requirements for the integrated management system (IMS) on environment and occupational health and safety. In 2016 we have started the process of transitioning our integrated HSE MS to the new standards. As part of internal system of controls, we have regular internal audits held to ensure our operational activities are conducted in line with the set targets and in compliance with the established corporate and HSE management systems.

In 2016 KPO implemented 12 internal audits and 14 audits of contractor organisations in line with the Audit Programme 2016 approved by General Director. Surveillance audit of the integrated HSE management system was conducted in August 2016. The results of audits both internal and external are used to work on identified gaps and further improvement of our HSE management system.

In September-October 2016 our Operator companies Eni and Shell conducted their HSE audit to verify that we effectively manage our HSE risks when conducting our operational and business activities, comply with Operator companies' requirements, apply best practices in HSE and comply with international standards including the applicable versions of ISO, OHSAS and IOGP. Within this audit, the management process of KPO HSE internal audits was recognised as 'best practice'.

2016 HSE IMPROVEMENT PLAN ^{G4-14}

The 2016 HSE Improvement Plan consisted of 37 key actions and improvements distributed and shared throughout all company Directorates. 84% of the Plan was implemented. The core activities are summarized below.

I. Compliance with HSE Management System

As part of improvement of the PPE management process, a bespoke module was developed with further tests in 2017. Once tested, it will be implemented in SAP to cover all KPO requirements for PPE including warehouse operations control and new acquisitions.

To raise hazard awareness among employees, the new Life Saver on «Stored Energy» was developed with all supportive training materials, posters and presentation in three languages. «Stored Energy» e-learning was launched.

To raise awareness on near misses and incidents' classification and reporting requirements introduced with the new HSE Card reporting form, awareness sessions were conducted for departments engaged in the HSE Card committees. The number of near misses has been increased.

II. HSE Leadership & Supervision

HSE Competence assessments were continued in the first quarter of 2016. In total 270 KPO supervisors were assessed. Assessment of supervisors was performed on 10 Key HSE critical areas:

1. HSE leadership and behaviour,
2. HSE risk management,
3. Safe systems of work,
4. Emergency response,
5. Incident and Near Miss investigation & reporting,

6. HSE inspections and audits,
7. Environmental controls,
8. Health & hygiene management,
9. Contractor / Sub-contractor management,
10. Life Savers & other company rules.

The assessments identified the level of competence of supervisors and improvement opportunities. Feedback sessions were held with all KPO department managers and proposed development plan was presented too.

III. Contractor HSE Management

A gap analysis of Contractor HSE Performance Management was conducted during 2016 to align with the IOGP guidelines and the industry best practices. The following documents were updated:

- Contractor HSE Performance Management Strategy;
- Contractor Mode and HSE Risk Assessment Guidance;
- Schedule D for high, medium and low risk contracts;
- Guideline for preparation of Contractor HSE Plan.

The following updates of the Contractor HSE Performance Management Strategy were made for implementation in 2017:

- Mandatory implementation of HSE competence assessment of Contractors' supervisors, reinforced requirements for Vehicle Monitoring System installation;
- Standardised HSE questionnaires with evaluation criteria for each Contract Mode in Tender Evaluation Plan;
- Introduction of mandatory HSE performance evaluation to measure Contractors' compliance with the requirements of Schedule D and HSE Plans;
- Introduction of mandatory pre-mobilization HSE inspection.

The progress of the updated Strategy will be continued in 2017 to ensure effective Contractor HSE management whilst giving priority attention to the higher risk contractors.

Management of the 22 High HSE Risk contractor company were visited by KPO in 2016 to verify their HSE competence assurance systems, 59% of which required significant improvement. Instructions on HSE competence assessment and recommended guideline were provided to contractors. Contractors' management assessed their supervisors and delivered training to fill the identified gaps. The assessment details were provided to KPO and contract owners to encourage improvements in contactors' HSE competence.

IV. Asset Integrity and Risk Management ^{G4-OG13}

The Escape, Evacuation and Rescue Assessments (EERA) were issued for KPC and Unit-2 and improvement plans in the form of strategies will be developed in 2017. The studies identified improvements in the current muster point arrangements in the event of a Major Accident Hazard.

The procedure for identifying safety critical elements (SCE) was updated and issued. Following which, a review of the list of SCEs for Unit 3 and Eco-Centre was completed. In 2017, a review of Unit 2 and KPC SCEs will be undertaken.

Contract for the provision of Independent Verification Body (IVB) services on Asset Integrity Barriers was awarded in 2016 to verify that the requirements for Barriers, SCEs, Performance Standards and Written Scheme of Examination have been met in accordance with the Written Scheme of Verification.

The second phase of Minimum Manning philosophy for personnel based at KPC Plant and in the Field Administrative Building (FAB) was implemented to reduce personnel exposure from major accident hazards in the field. 64 people were relocated from KPC FAB to Aksai, and 139 were relocated within the Field in 2016.

The project for installation of 12 new "Road Closed" traffic light signs on main field routes was initiated and the scope of work was identified.

V. Occupational Health

To encourage that health and environmental risks at workplaces are understood and controlled, the following activities were implemented in 2016:

- Asbestos survey of KPO facilities and buildings was conducted in September – October 2016. An electronic ‘Asbestos Register’ was prepared as per international good practice listing all KPO buildings and uploaded onto online management system. Asbestos Containing Materials (ACM) were identified, a detailed findings report with recommendations to reduce the risk of ACM to personnel was presented.
- Benzene personal quantitative exposure risk assessment was conducted. Personal sampling and background monitoring were arranged and conducted in July 2016 in a selection of worker groups and process facilities. The samples were analysed in specialised laboratory and the analysis results showed that the exposure levels in all samples were within acceptable limits. It was recommended that another round of personal monitoring is conducted next year to confirm the results.

VI. Environmental Management

A field survey for flora monitoring in the affected zone of the Karachaganak Field and examination of rare species was performed in accordance with the KOGF Biodiversity Action Plan for 2015-2016. No obvious negative impact of KPO operations activities on flora and fauna species habitats was revealed.

The project on identification of the ways of topsoil further use was progressed. In order to define physical and chemical properties of soil kept in the storage pits, the laboratory studies of soil horizons (layers) samples were performed. Options of further utilising/transportation of topsoil were identified and agreed with the WKO and Atyrau oblast authorities.

As a part of the Environmental Awareness campaign, the Environmental Conference on significant environmental aspects was held in March 2016, Environmental Emissions Permit Limits Road Show session was organised for the Field units’ managers and other responsible personnel, the environmental movie “Karachaganak: in Harmony with Nature” was developed and released.

In view of ensuring a consistent approach to identification of environmental aspects and impacts, determination of environmental risks and development of new control measures in KPO, the Environmental Aspects Identification Procedure and Key Environmental Aspects Registers

were updated. Detailed information on the aspects is provided in the section ‘Environmental Management System’ of this Report.

The field survey on fugitive emission monitoring campaign was carried out for the recognition and the quantification of fugitive emissions at Unit 2 and Unit 3 in 2016. Following the performed activities the report containing proposals for improvement was developed and distributed to units’ management.

VII. Road Safety Management

To ensure sustainable road safety improvement, 80% of targeted actions of Road Safety Improvement Plan were completed. The following activities were implemented:

- Upgrade of the vehicle monitoring system (VMS) (red button and hard braking alarm for emergency message);
- Reduction of kilometres travelled on roads for KPO activities by both KPO and transportation service contractors;
- Organisation of Driving Safety stand-down meetings;
- Repair of Aksai – Pugachevo road surface from the bridge across the Karatoba river to Burlin;
- Improvement of field roads and installation of speed bumps in the Karachaganak Field;
- Road Safety campaigns among KPO employees (pop-up messages, defensive driving courses) and the local community (Children’s day celebration, presentations for the junior forms conducted in all Aksai schools);
- Journey risk assessment;
- Load haulage campaign.

VIII. Project HSE Management

In 2016 the implementation of the actions on Projects HSE has not progressed much following the delay of the FEED phase in KEP 1 project.

IX. Security

To ensure compliance with the RoK legislation on antiterrorism protection, the Close Circuit TV (CCTV) was installed at all field units and in Pilot Camp, Bolshoi Chagan and Atyrau Terminals.

The new Security Management System (SMS) contractual strategy was developed and agreed to improve security interaction. SMS is an integrated set of physical protective measures (fence, hostile vehicle barriers) and electronic subsystems (access control, CCTV, perimeter intrusion detection, public address) implemented for monitoring and managing security processes in the efficient and proactive way from a centralized control room. The SMS implementation will satisfy strict state regulatory requirements on security, enable a robust upgrade of security infrastructure, address increasing security threats and mitigate associated risks to a reasonably practical level.

With the aim to improve management of security risks, an independent party was selected to carry out a comprehensive risk assessment in coordination with Parent Companies. This process was completed in October 2016. As a result of risk identification and assessment, mitigation measures were proposed, which were reviewed and consolidated in the Action Plan. These actions have been built into work programs and translated into practical activities, e.g. within the SMS framework, additional training, etc.

For raising general awareness on terrorism among KPO and contractor personnel, the updates on terror related risks and advice on specific issues were regularly issued; seven antiterrorism drills were conducted in accordance with the plan on performance of personnel evacuation exercises.

2017 HSE IMPROVEMENT PLAN ^{G4-14}

KPO annual HSE Improvement Plan in place since 2011 is aimed at continuous improvement and sets a list of actions that are over and above the day-to-day business activities. The Plan

is based on the lessons learned from the previous period and the introduction of international best practices.

In view with the long-term nature of KPO initiatives, the Plan’s overall structure does not change significantly, while each year some new elements are added depending on the emerging issues identified when implementing the previous Plan. Each element is actioned by relevant KPO divisions according to their role in the company-wide projects. The progress of the HSE Improvement Plan is monitored and reported on a monthly basis to KPO senior management and Parent Companies.

A Security element was added into the 2017 KPO HSE Improvement Plan that covers the following:

1. Compliance with HSE Management system,
2. HSE Leadership and Supervision,
3. Contractor HSE Management,
4. Asset Integrity & Risk Management,
5. Occupational Health,
6. Environmental Management,
7. Road Safety Management,
8. Project HSE Management,
9. Security.



HSE ENGAGEMENT AND COMMUNICATION

HSE meetings are regularly held at various levels in the Company to discuss HSE topics and concerns and to share lessons learnt from incidents' investigation. We also engage our contractors in various meetings and discussions related to HSE.

KPO Contractor Senior Management HSE Forum took place on 27 July 2016. The theme of the forum was 'Getting to Zero' with the objectives to ensure safety of personnel and achieve high HSE performance. Table discussions held at the forum were dedicated to prevention of incidents, improvement of HSE culture and communication and initiatives of contractors towards a safer work environment. Based on the brought up suggestions the common pledge was signed stating a commitment of contractors to:

- Establish effective two-way communication mechanisms to improve HSE culture;
- Simplify HSE procedures and communicate at all levels;
- Consider applying the lessons learned from incidents in daily activities;
- Set simple safety rules in their companies.

Five Safety Stand Down meetings were conducted by top management at all KPO work locations and production facilities in 2016. The aim was to discuss altogether the importance of everyone's involvement in safety with a focus on major hazards and behaviour change. The meetings engaged over 3,000 KPO and Contractors personnel.

The Slip, Trip and Fall Prevention campaign was run in 2016 with a purpose to remind employees and contractors about causes leading to falls and safety precautions at the work place and in everyday life.

HSE Leadership and Management Tours programmes have been set for all KPO Management to be visible in the workplace and interact with the workforce, to monitor the overall HSE performance and coordinate action for continuous improvement in line with the KPO Policy, regulatory requirements and industry best practice. In 2016 the number of the HSE leadership tours exceeded the minimum target set for the year: 53 leadership tours were conducted by Directors and Controllors against the planned 35. The exceedance was also for the HSE Management Tours held by facility and department managers: 422 tours were conducted against the planned 355 (the estimate was made assuming that one tour corresponds to one person's visit to a location).

The following safety video films were rolled out for KPO and contractors' personnel working in the Karachaganak Field:

- Fall from height;
- Safe load transportation;
- Stair Safety.

HSE CARDS PROGRAMME ^{G4-14}

In 2016 the implementation of the HSE Card Programme was continued and included an overall review. Significant changes were made in order to avoid improper treatment of near miss cases, to improve near miss reporting and to upgrade an intervention process and the quality of observations. As a result, near miss reporting was incorporated in the HSE Card system as one of the types of observation, particularly:

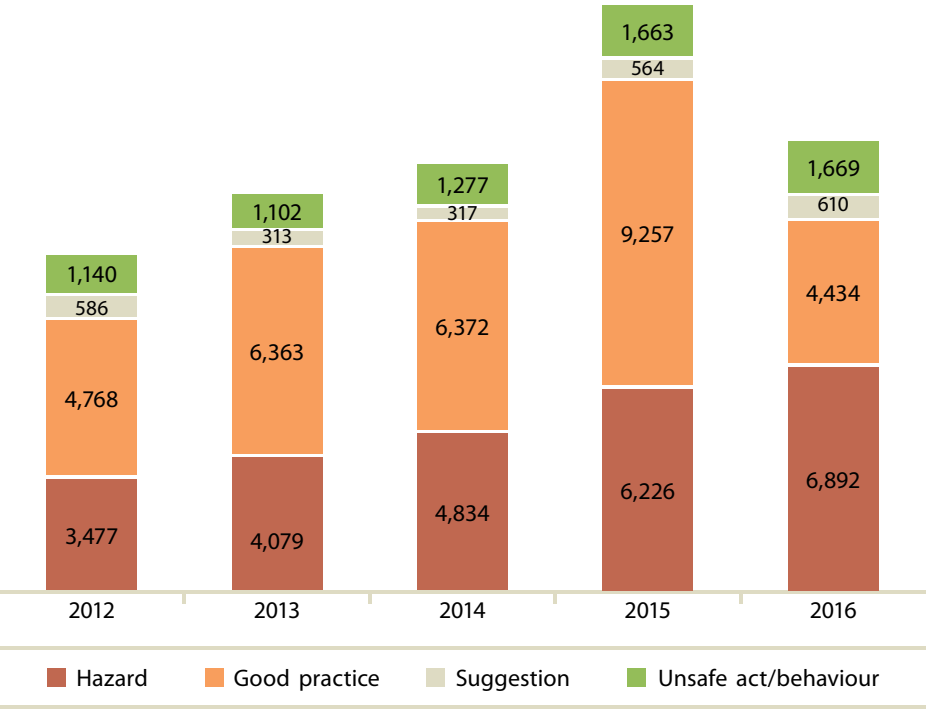
- Near miss was added as a type of observation in the HSE Card as alternative reporting tool. As a result, the number of reported near miss cases has significantly increased that enabled to learn the lessons in good time and thus prevent incidents.
- Observation categories were reviewed and updated: the number of categories increased from 21 to 30.)
- Additional fields were added in the Card with prompting questions to improve intervention process.

In 2016 13 HSE Card Committees worked on implementation of the HSE Card within KPO departments. There were 86 HSE Card Committee meetings held and 66 additional actions/ initiatives were assigned based on the trend analysis of cards and discussion of significant issues; out of them 63 actions have been already completed.

An effective method of encouraging employees to use the HSE card mechanism is an award nomination "Best HSE Card of the Month" as part of the HSE Incentives Scheme. The winner receives a "Dinner for winner" voucher worth US\$ 50.

In 2016, 13,605 cards were submitted by KPO and contractor personnel and processed accordingly. Out of the 6,902 HSE cards registered in 2016 6,832 corrective actions were implemented (98%).

Graph №5. Analysis of HSE Cards by type of observations, 2012-2016



MANAGEMENT OF EMERGENCY RESPONSE AND CIVIL PROTECTION ^{G4-14}

Operations at the Karachaganak Oil and Gas Condensate Field (KOGCF) are associated with process safety hazards. As the KOGCF Operator, KPO has a special focus on the emergency response and prevention.

KPO is responsible to ensure personnel are prepared to respond to any potential emergency in the short and the long term. It is also important to monitor the Company's effectiveness in implementing the business contingency planning.

KPO has a 3-level Emergency Response system in place required to undertake prompt actions in case of any risk of an incident, accident and emergency situation, and to assess their scale, work out solutions for their containment and control.

Level I:	An event that can be dealt with on site or at a location with their resources.
Level II:	The emergency's impact remains limited within the site but there might be a potential external impact that necessitates the use of public emergency services or resources of other organisations.
Level III:	An event that is beyond the resource capabilities of the location and requires activation of the Crisis Management Team to provide additional resources and support or an incident that has the potential to escalate such that there may be damage to the company reputation.

In addition, every year we carry out special exercises. As part of the 2016 Training and Exercise Plan, the following exercises were conducted:

- In July 2016, the "Mercury" integrated exercise involving many levels was conducted. The exercise was focused on practicing the response of all teams to a major accident in the Field. It involved all KPO Level II and III Incident Management Teams, Unit-2 Level I Emergency Response (ER) Team as well as the firefighting, emergency rescue and medical teams.
- A special tactical exercise was carried out to practice oil spill response on the water surface of the Ural River in July 2016. The units successfully deployed the booms and an oil skimmer in the Ural River. A unique practical experience was obtained on actions taken in the strong current conditions.

- In September 2016 an integrated exercise was held in the Field in order to practice “The actions of the KPO command centre, District and Oblast local sub-systems for Emergency Prevention and Control in case of a major accident in the Field. Evacuation of a settlement”. The exercise was carried out with the participation of the Heads of the WKO Department of the Committee for Industrial Development and Industrial Safety, the Department of Internal Affairs, Akimat of Burlin District, “Ort Sondirushi” JSC and a Blowout Response service. Interaction between the departments was practiced; the readiness of machinery and special equipment was tested. In the course of the integrated exercise the emergency rescue teams and units demonstrated their readiness to perform tasks as expected.
- In December 2016, a “Neptune” table top exercise was conducted with the purpose to exercise emergency response to a large-scale fire at the NALCO chemical warehouse in KPC.
- Throughout the year weekly table top exercises with the Incident Management Teams were held both in the Field and Aksai, where various emergency scenarios were discussed.

The Management of KPO and the RoK Emergency Situations authorities recognized the high professional level of all integrated exercises.

In the reporting year 76 persons – Field and Aksai IMT members had a special Incident Management Teams training. For the purpose of improving the record logging and prompt communication between the Field and Aksai Incident Management Teams a new electronic event log was developed.

Besides, in line with the RoK Legislation, the work continued on raising the company personnel awareness in the field of civil defence and emergency situations via the e-learning system. In 2016 the collection process of the e-learning system statistics was improved that allowed to speed up the analysis and monitoring of passing the training by personnel.

In addition, in the reporting year competence assessment of the Level 1 Emergency Response Team members was carried out to evaluate the level of their readiness act effectively in case of an emergency.

Due to the change in the operatorship from BG Group to Shell Kazakhstan the Crisis Management Interface Protocol was re-signed between KPO and the KOGCF Operators (Shell Kazakhstan and Agip Karachaganak B.V.). This Protocol is regularly agreed between KPO and the Operators with regards to emergency response. In addition, a Crisis Management Mutual Aid Agreement was signed between KPO, TCO and NCOC.

COMMUNITY PREPAREDNESS G4-14

With a view to maintain continued readiness of the public address stations in the settlements, KPO emergency response specialists were running monthly tests of the alarm signals throughout the 2016. Furthermore, in order to ensure uninterrupted functioning of the public address system, KPO carried out scheduled maintenance works on the equipment of these stations as well as proceeded with the upgrade of the stations in the Priuralnoye, Dimitrovo, Karachaganak, Zhanatalap, Zharsuat, Bereзовka and Uspenovka villages.

In 2016 KPO specialists held a number of meetings with the officials of the rural districts based in the vicinity of the Field and the KATS pipeline. The details on those meetings are described in Table №10.



At the Integrated emergency exercise in the Karachaganak Field

Table №10. KPO engagement on emergency response with the officials of the rural districts based near the Karachaganak Field in 2016

№	PURPOSE	QUANTITY	INVOLVED COMMUNITY GROUPS
1	Informing the officials of the Priuralnyi, Zharsuat, Dimitrovo, Karachaganak, Zhanatalap, Uspenovka, Amangeldy, Bereзовka, Bestau, Karakemir settlements and Tungush LLP – on the capabilities of the local KPO public address system and the necessary safety measures	165 meetings with the participation of 220 people in total	Akims and employees of the Rural District Akimats, responsible persons and officials
2	Informing the officials of the Priuralnyi, Zharsuat, Dimitrovo, Karachaganak, Zhanatalap, Uspenovka, Amangeldy, Bereзовka, Bestau, Karakemir settlements and Tungush LLP about the procedure for safe implementation of agricultural activities during the fire hazard period	12 meetings with the participation of 139 people in total	Employees of Akimats and agricultural units
3	Informing the officials of the settlements based along the Karachaganak – Bolshoi Chagan – Atyrau (KATS) export pipeline on the functions of the public address system and the interaction procedure in case of an emergency	29 settlements visited, 207 people participated in total	Akims and employees of the Rural District Akimats, responsible persons and officials

Apart from the above KPO works closely with the local authorities in the periods of high water, fire hazard and in winter.



KPO employees at the KPC operation facility

ASSET INTEGRITY G4-14

Table №11. Targets in Asset Integrity

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Further work on refining the Barrier Model and extending it to export pipelines and Eco Centre. Establish a process for management and monitoring soft barriers	Partially	The Barrier model tool for KPC, Unit-2, Unit-3 and Gathering was further refined to demonstrate issues at the area level. Work has commenced to incorporate Export pipelines in the Barrier Model.	Finalise implementation of the Barrier Model for Eco Centre and export pipelines.
Continue implementation of the process for independent verification of Asset Integrity barriers and associated safety critical elements	Partially	Internal Review of safety critical elements was performed for Unit-3 and Eco Centre. Two Operational Performance Standards have been finalised and now should be implemented in the CMMS.	Perform independent verification of implemented operational performance standards.
Introduce the methodology for monitoring of Integrity Operating Window	No	Activity was postponed to 2017.	Issue the Integrity Operating Window standard and trial its implementation at KPC
Further develop and incorporate the requirements of Asset Integrity Management framework in the Projects Value Assurance Process.	Yes	All requirements have been identified. Value Assurance Review framework should be updated in 2017 to incorporate the requirements.	
Hold quarterly meetings on completion of reporting of quarterly asset integrity performance data	Yes	Asset Integrity Management Committee conducted in Q2, Q4. All quarterly reports were completed. Major items were elevated to the Quarterly Risk Committee meetings, which were all conducted for 2016.	

Assurance of the active and robust management of the functional, mechanical, and operational integrity of KPO production facilities remained the main focus area of the KPO Asset Integrity Department in 2016.

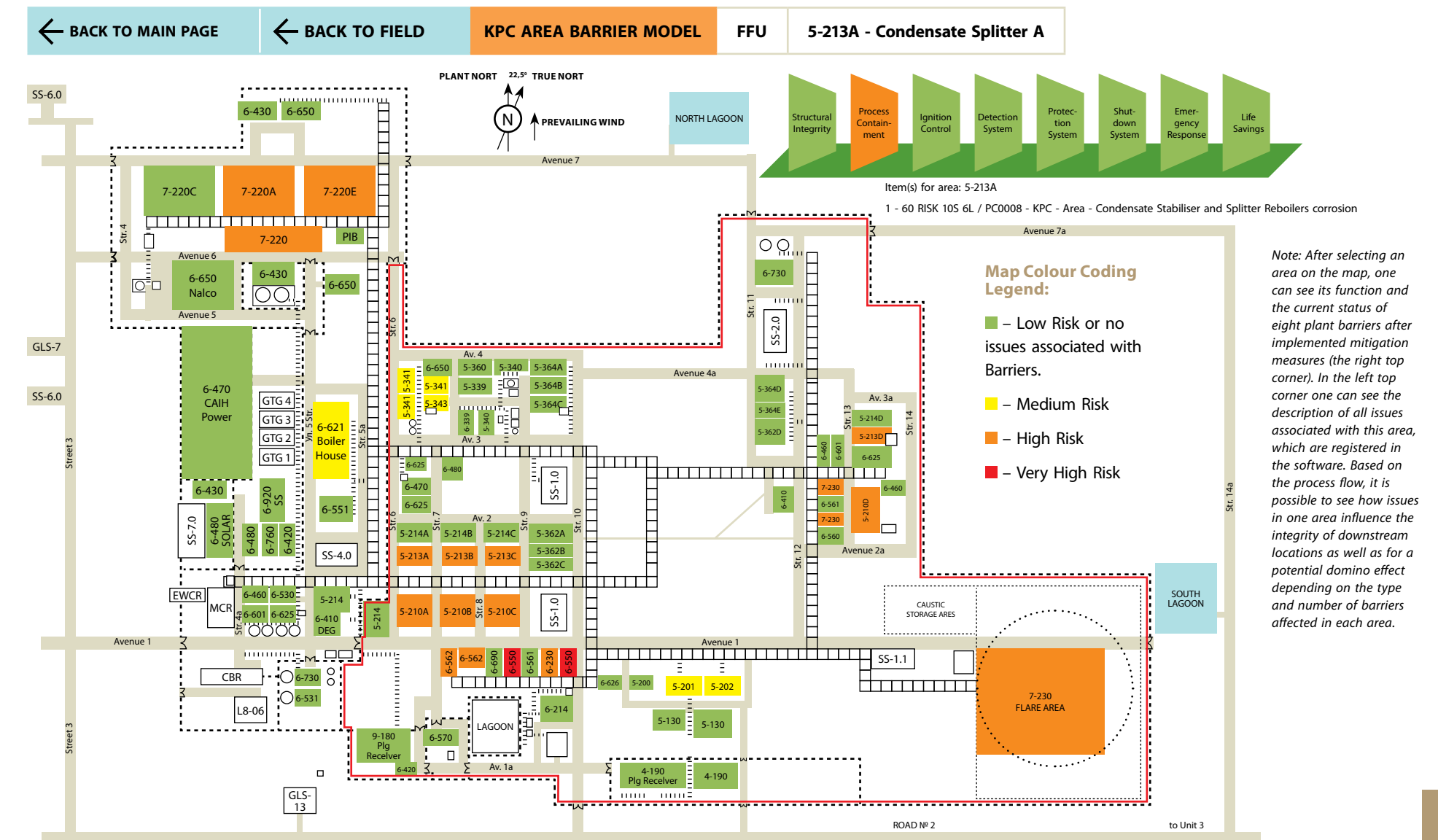
The Asset Integrity Management Framework (AIMF) has been further implemented in 2016. The AIMF is a high level KPO document to govern Asset Integrity on all KPO assets that provides an integrated and structured approach to support the delivery of safe and sustainable operating performance. As a part of the AIMF, the Barrier Models for operational units are used to assess the “health status” of barriers in place to prevent or control major accident events. The Asset Integrity Barrier Model is used to collect issues from all KPO facilities to provide a coherent high level risk-oriented analysis of plant status. ^{G4-14}

In 2016 the major efforts in improvement of Asset Integrity barriers were associated with:

1. Evolution of the Asset Integrity Barrier Model

The asset integrity barrier model first introduced in 2014 has been further improved in 2016. It is now routinely used at both Field and Corporate level as the main tool to drive the discussion and decision making in the area of asset integrity risk reduction. The Barrier Model ownership has increasingly been assumed directly by the Units. Area specific Barrier Models available on the KPO Portal have been introduced for each of KPC, Unit 2, Unit 3 and Gathering & EOPS with “clickable” access to the integrity status for individual functional areas within a Unit. This enables enhanced decision making at unit level based on understanding of local risk picture. The barrier status reporting process is built into the organisation workflow to ensure bottom-up communication and escalation of top issues to the attention of the senior management. An example of the area specific barrier model for Karachaganak Processing Complex is presented in the Pic. №4:

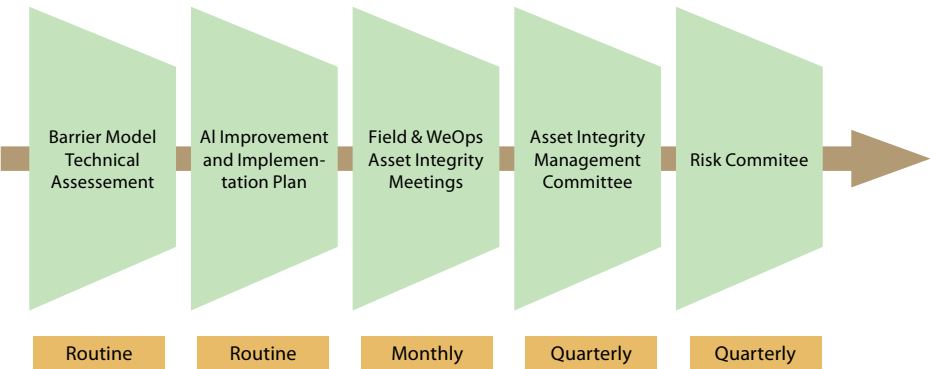
Pic. №4. Area Specific Barrier Model for Karachaganak Processing Complex (KPC)



The main benefits of the tool are summarised as follows:

- Categorises plant issues against the individual asset integrity barriers;
- Risk ranks the issues and subsequently prioritises the activities based on risk;
- Provides a database for managing the risks and risk reduction measures;
- Presents to management at both unit and corporate level a cumulative risk picture, including “Top Risks”;
- Provides a risk picture for each Unit location in support of daily risk assessment activities at Unit level.

Pic. №5. Barrier status reporting in KPO organisation structure



Further development of the barrier model tool in 2017 will include the following activities:

- Revising the safety critical equipment inventory contained in the Computerised Maintenance Management System (CMMS) and Risk based inspection databases and rationalising the planned maintenance to ensure barrier effectiveness. This will be completed in 2017.
- Understanding of gradual aging and deterioration of plant and the effect this has on plant capacity (compared to Integrity Operating Window – API 584);
- Establish the process for monitoring the effectiveness of soft barriers (management processes and people influencing the integrity of the plant); Soft barrier management to be introduced in 2017.
- Extend the Model application to export pipeline systems and Eco Centre.

2. Monitoring of Asset Integrity Performance

The effectiveness of barriers’ performance is monitored via leading and lagging key performance indicators. Both sets are monitored on a monthly basis through the Asset Integrity Scorecard and reviewed by senior management at the quarterly Asset Integrity Committee meetings. In 2016 the following improvements were achieved:

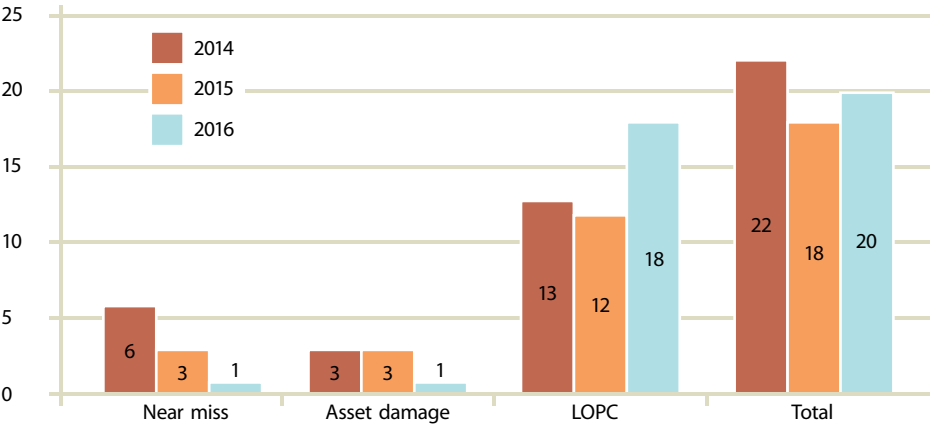
- Reduction in the number of overdue Safety Critical Element (SCE) maintenance work orders – 5 in 2016 versus 20 in 2015.
- Reduction in the number of safety systems overrides – 9 in 2016 versus 14 in 2015.

This reduction was achieved as a result of the improved focus on Asset Integrity KPIs and the Barrier Model (BM) through the respective plans of each field unit’s KPIs. Both KPIs and the BM are summarised in the monthly reports. The report is discussed in detail, at the monthly Field Asset Integrity Meetings led by the KPO Unit managers and chaired by the Field Manager. At this meeting the Unit Managers report on their dashboard and articulate their KPI improvement plans.

The areas of focus for 2017 remain:

LEADING INDICATORS	LAGGING INDICATORS
Timely execution of SCE preventive and corrective maintenance work orders	Demands on Safety Systems
Overrides and inhibits	Loss of Primary Containment

Graph №6. Breakdown of process safety events by type, 2014-2016 G4-OG13



Losses of Primary Containment (LOPC)

Management of major accident hazards, or “Asset Integrity”, is the key to prevent or reduce the severity of process safety events. The statistical analysis for 2015-2016 indicates no increase in the number of LOPC events reportable to OGP (Tier-2 on the diagram). Increased number of minor leaks (Tier-3 LOPC on the diagram) is related to the inclusion of Eco Centre statistics, and several incidents associated with quality of design and assembly works. Reducing the number

of LOPC events is a complex process, which requires contribution by all KPO directorates at design/build, operate and sustain stages of the plant life-cycle. Work will continue in 2017 to address weaknesses in the management system that lead to process safety events.

Table №12. Losses of Primary Containment by process facility, 2014-2016

TIER TYPE	KPC	UNIT-2	UNIT-3 (KOTS)	GATHERING	ECO CENTRE	TOTAL
2014						
Tier 1	0	0	0	0	0	0
Tier 2	1	1	0	0	0	2
Tier 3	3	3	4	1	0	11
2015						
Tier 1	0	0	0	0	0	0
Tier 2	2	0	0	0	0	2
Tier 3	5	2	1	2	0	10
2016						
Tier 1	0	0	0	0	0	0
Tier 2	2	0	0	0	0	2
Tier 3	7	4	1	2	4	18

Legend: **Tier-1** refers to a number of Losses of Primary Containment events related to the process with greatest consequences;
Tier-2 refers to a number of Losses of Primary Containment events related to the process with lesser consequences;
Tier-3 refers to a number of other Losses of Primary Containment events related to the process. These events are not reportable to OGP and are collected by Company for internal analysis and lessons learning.

3. Management of Change (MOC) system for brownfield modifications

The new electronic MOC system was successfully introduced in KPO to increase the efficiency of the process, reduce bureaucratic burden on operational personnel and yet providing a comprehensive, documented process for controlling the changes to plant hardware, software, operating procedures and people. Activities in 2016 have included an upgrade of the electronic MoC tool based on the lessons learned. The upgrade addresses findings from the 2014 audit

conducted by Eni/BG on the MOC process as well as feed-back from MOC users to improve the process. The overall performance has been significantly improved since the electronic MoC system went live in January 2015.

SECURITY

Table №13. Our targets in security

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Maintain zero illegal taps in the KPO Export pipeline	Yes	Patrolling of pipeline sections; monitoring pipeline alarm system in live regime; cooperation with local authorities and population from local communities located along Export KATS Pipeline.	Maintain zero illegal taps in the KPO Export pipeline
Continue training on Human Rights and Security Principles for Security service providers	Yes	As of the end 2016, the percentage of trained Security personnel reached 100%.	Continue training on Human Rights and Security Principles for Security service providers, including newly hired employees
As part of the implementation of the Security Management System (SMS): ■ Deliver work packs for installation of fencing at KPC, Unit 2, Unit 3 and EOPS; ■ Install fencing at Unit 2 and EOPS; ■ Start tender process for the SMS design.	Ongoing	In cooperation with Project Engineering Department work packs for installation of fencing at KPC, Unit 2, Unit 3 and EOPS were delivered. To ensure compliance with the new amendments in environmental legislation, public hearings were conducted for the SMS project, which affected the planned deadlines for installation of fencing started with delay. The required tender documents were prepared and tender process was started.	Complete 1st phase of Security Management System (SMS) Project: ■ Finalise fencing installation at Unit 2 and EOPS; ■ Install fencing at KPC and Unit 3. Start Phase 2 of SMS project: ■ Complete tender for the SMS Phase 2 engineering, procurement and installation. ■ Progress engineering stage of the project.

Since 2010 KPO had no registered cases of illegal taps in the export pipeline. This achievement demonstrates the effectiveness of the work performed by our security service and KATS specialists involved in maintaining an elevated standard of security along the export pipeline.

According to the order dated 12.04.2016, in the past year the RoK Ministry of Energy had formed an Intergovernmental Working Group (IWG) on oil and gas pipelines security and anti-terrorist protection of the Kazakhstan sector of the Caspian Sea. The group involved representatives of the KPO Security, the other O&G companies, and the RoK special forces and law-enforcement bodies. Two meetings of the working group were conducted in 2016. At one of the meetings, KPO Security shared experience on our security risk assessment. As a result, the member companies were recommended to consider application of the KPO expertise as one of the measures of improving efficiency of security measures.

Since 2015 KPO has been supporting an initiative of its Parent Companies in following the Voluntary Principles on Security and Human Rights (VPSHR). In 2016 the newly hired personnel of the two KPO Security providers involved in security services in the Field, Aksai, and export pipeline have received the dedicated training in human rights policies/procedures that are relevant to operations. As of end 2016, 100% security personnel were trained ^{G4-HR7}.

In 2016, the work on development and implementation of the Security Management System (SMS) has progressed. In the year, the activities for fence design and installation at the main production facilities have been started and are ongoing. The SMS project implementation is planned till 2019. As reported in 2015, in addition to fencing the project scope will include further installation of a broader system of electronic security means integrated into a dedicated control points. As part of the general improvements in electronic access control, badging of contracting organizations was updated in 2016 to comply with the latest requirements.

With a view of safety of personnel working in the field, Corporate HSE department together with Security team had developed a new electronic system recording personnel on board (POB) which will allow determining the exact number of people at master points in case of emergency. As of today the installation of equipment in the production facilities and testing has been completed. Activities for placing maintenance contract to cover the equipment are in progress.

Nowadays, a potential risk of extremist activity against the Company remains our big concern. Interrelation between KPO and the RoK law enforcement authorities at the local, regional and national levels are essential for our forewarning and preparedness. Regular meetings, development of new procedures, and anti-terrorist exercises in the past year had all assisted in raising awareness in this area and will continue in 2017 along with computer based awareness training and terrorist attack drills.



At the security point in KPO office

PROTECTION OF HEALTH

Organisations have a legal duty to put in place suitable arrangements to manage health and safety. In KPO, this is achieved through an Occupational Health Management System as defined by OHSAS 18001. It includes:

- a written health and safety policy;
- assessments of the risks to employees, contractors, customers, partners, and any other people who could be affected by the organisation's activities;
- arrangements for the effective planning, organisation, control, monitoring and review of the preventive and protective measures that come from risk assessment;

- access to competent health and safety advice;
- providing employees with information about the risks in your workplace and how they are protected;
- instruction and training for employees on how to deal with the risks;
- ensuring there is adequate and appropriate supervision in place;
- consulting employees about their risks at work and current preventive and protective measures.



Evacuation of personnel during the emergency exercise

Table №14. Targets in health protection

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN	TARGETS FOR 2017
Continue implementing the Healthy Heart programme; analyse the 3-year results of the Healthy Heart Program and review it	Yes	Healthy Heart program was continued with an array of educational and awareness-enhancing means: posters, presentations, pop-up messages. Risk group individuals were regularly invited to the clinics for control check-ups. The data was analysed and the results reviewed.	Complete the final year of the programme; develop health improvement actions based on the analysis the 4-year results
Continue the Back pain programme; encourage employees to embrace responsibility for own health	Discontinued	The program was discontinued due to low participation rates.	Re-evaluate the Back pain program to identify deficiencies and consider other ways to tackle the back disorder problem
Analyse the results of medical screening to detect trends with subsequent review of existing health promotion activities	In progress	Medical screening for office staff was continued during the year.	Continue promotion activities aimed at increasing employee attendance of medical check-ups
<ul style="list-style-type: none">• Continue the annual Health Risk Assessment (HRA) activities; review risk assessments, which are due for revision• Develop a health risk register for each unit	Yes	<ul style="list-style-type: none">• 72 HRA were carried out in 2016.• Ergonomic assessments were conducted at Uralsk office, Main warehouse and Gas Rescue Building.• Health risk registers for each unit were created.	Continue the Health Risk Assessment activities
Review the monitoring program to include benzene personal sampling	In progress	Personal monitoring was conducted in the Field units. The analysis results of all samples showed that the exposures were within the safe limits.	Conduct a series of personal monitoring for various exposure scenarios
Conduct Legionella risk assessment of water systems in all company facilities. Develop Legionella management plan and procedure	In progress	A tender was initiated; the contract awarding is underway.	Complete the risk assessment for legionella; develop a Legionella management program and action plan

PRIMARY HEALTH CARE AT WORKPLACES

KPO Medical Support clinics in the Field and Aksai provide first line medical care to KPO employees. In addition, the definitive treatment of KPO personnel is covered by medical insurance.

functioning around the clock throughout the year. They have regular and all-terrain heavy ambulances equipped as resuscitation units.

24/7 EMERGENCY MEDICAL CARE

KPO Medical Support team provides emergency medical care to company employees from on-scene first aid to medical evacuation and repatriation through five fully equipped clinics

Stabilised patients are then transferred to one of the hospitals with which KPO has agreements, which are Aksai Central hospital and West Kazakhstan Oblast hospital. In 2016 a contract was signed with Orenburg Burns Centre (Russian Federation), the nearest such clinic to the Karachanagak Field.

Our Company pays particular attention to the continuous training of emergency personnel. Seven doctors successfully completed mandatory emergency medicine training in Astana. Three feldshers completed refresher courses in Uralsk Medical College. All of the Medical Support medical staff was successful in completing international Advanced Trauma Life Support and Advanced Cardiac Life Support training courses in 2016.

Table №15. Medical support indicators, 2016

MEDICAL SUPPORT INDICATORS	
Number of patients, visited clinics	2,447
Number of patients, transported to medical facilities	93
Exercises and drills participated	513
First aid training provided for Company employees	182
PRE-SHIFT MEDICAL EXAMINATIONS (DRIVERS/OPERATORS/ELECTRICIANS)	
No. of visits	88,198
Unfit	7
Random alcohol tests	1,255
Positive random alcohol test results	0
MEDICAL SUPPORT EMERGENCY INDICATORS	
Number of Emergency calls	35
Average response time	6.5 min

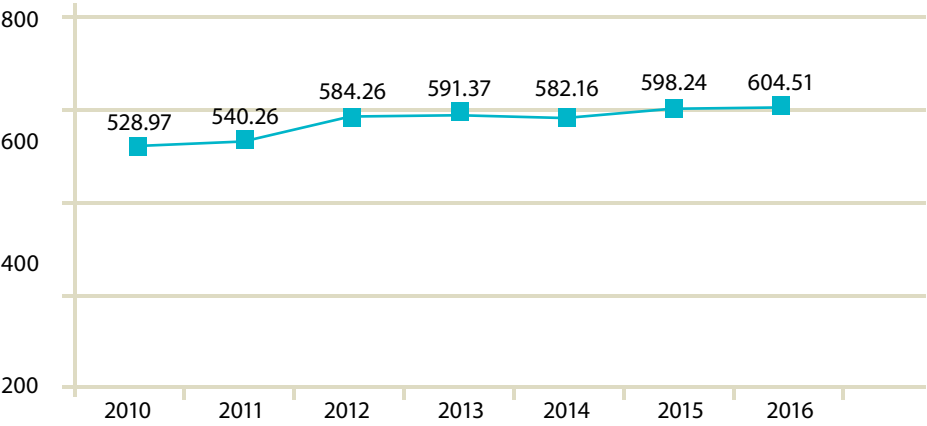
MANAGEMENT OF ILL HEALTH

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

ABSENTEEISM MONITORING G4-LA6

Absenteeism rates in KPO remain stable as given in Graph №7. The small increase over the last six years may be explained by the gradually increasing uptake of medical services, and a change in legislation.

Graph №7. KPO Absenteeism rate, 2010-2016



YEAR	NUMBER OF EMPLOYEES	DAYS LOST	ABSENTEEISM
2010	2,689	14,224	528.97
2011	2,655	14,344	540.26
2012	2,764	16,149	584.26
2013	2,911	17,215	591.37
2014	3,067	17,855	582.16
2015	3,187	19,066	598.24
2016	3,173	19,181	604.51

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.

FOOD AND DRINKING WATER SAFETY

Potable water testing remains to be an important activity in KPO. In 2016 all 900 samples taken from various outlets in the Field and Czech Camp facilities were in compliance with the normal values.

In addition to the current water monitoring program, plans are underway to assess hot and cold water systems in order to manage the risk of Legionella.

Food safety inspections were continued with greater emphasis on identifying and eliminating the root causes of non-conformity with the hygiene regulations. In 2016, 104 inspections were conducted and 139 out of 223 recommended corrections were completed by the end of the year; the closure of 84 pending corrective actions is in progress.

HEALTH RISK ASSESSMENTS

A key element of any health management system is health risk assessment (HRA). In KPO, our approach is to evaluate similar exposure groups (job groups) by a team consisting of the assessment unit representative, HSE professional and Occupational Health and Hygiene specialist. Mitigation measures as a result of the HRA are owned by the line management and their closure is monitored by the action tracking system, Synergi. All operational activities are subject to HRA with regular reviews and re-assessments.

The Occupational Health and Hygiene team also carries out ergonomic assessments, both as part of the planned program and at the request of employees. 205 workstations were assessed in 2016 (163 planned and 42 “at request”).

Table №16. Ergonomic Assessment Reports

YEARS	2013	2014	2015	2016
Number of assessments	43	74	77	163

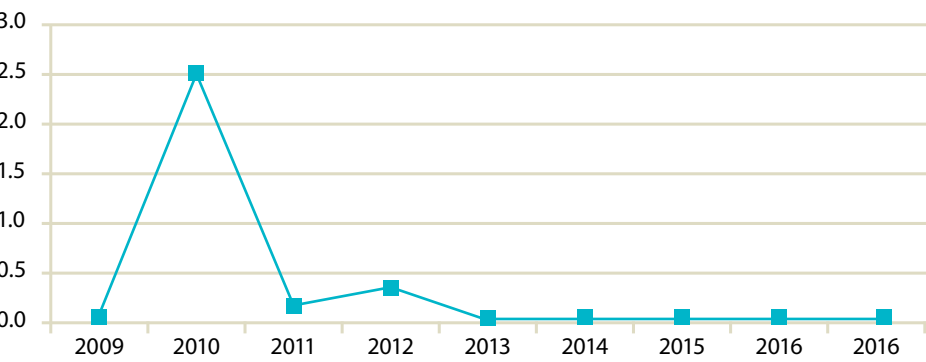
FITNESS TO WORK

Under the Kazakh regulations, all newly-recruited employees undergo medical examination, while those workers whose job is associated with exposure to harmful factors must also undergo annual periodic evaluations. This activity is closely supervised and monitored by the Health Department. In addition to statutory examinations, all KPO employees were also offered free medical screening to determine one’s general health status.

OCCUPATIONAL DISEASES G4-LA6

There were no occupational illness observed in KPO in the period of 2013-2016.

Graph №8. Occupational diseases in KPO, 2009-2016



KPO applies the frequency of occupational diseases calculated as follows:
Occupational diseases frequency (per million of man-hours) = number of occupational diseases x 1,000,000 / man-hours.

HEALTH PROMOTION

The importance of employee education in occupational and general health matters cannot be overestimated. Our Health Department continues to play an active role in raising the employee’s awareness of work-related illnesses and lifestyle changes necessary to improve their health and wellbeing. It not only helps employees but also translates into a more responsible attitude towards own health in their respective families.

We use the following means of promotion: delivering presentations at toolbox meetings in the Field units, displaying posters on information boards and using electronic resources, such as

email, Intranet, PC start-up messaging. The topics included World Health Organisation campaigns such as World Diabetes Day, World Asthma Day, World HIV/AIDS Day and others; occupational disease prevention (e.g. legionnaire’s disease, food poisoning, back pain etc.); general illness prevention (e.g. influenza and vaccination, prevention of dehydration in summer, heart disease, stroke symptoms); provision of first aid for frost bites, etc.

Table №17. Health promotion activities in 2016

CAMPAIGN	NUMBER OF TOPICS	NUMBER OF PEOPLE INVOLVED
Health bulletins	9	All KPO
Health posters	20	All KPO
Start-up messages	42	All KPO
Toolbox presentations	12	All KPO

INDUSTRIAL HYGIENE AND CONTROL OF WORKPLACE EXPOSURES

Our company is one of the few large companies operating in Kazakhstan that has its own hygiene laboratory. Established over 10 years ago for compliance monitoring purposes, it has since greatly expanded its activities to become a highly-qualified and well-equipped industrial hygiene service. The following are some of the laboratory’s functions:

- Sanitary compliance monitoring;
- Workplace assessments (including health risk assessments);
- Food safety inspections;
- Water monitoring;
- Ionising radiation monitoring;
- Workplace attestation;
- Consultancy support;
- HSE audits;
- Liaison with the authorities.

Sanitary compliance monitoring is divided into two main categories: workplace air testing for chemical substances and the measurement of physical factors.

Table №18. Monitoring of physical factors, 2016

PHYSICAL FACTORS	2015		2016	
	NO. OF SURVEYS	NO. EXCEEDING MPL***	NO. OF SURVEYS	NO. EXCEEDING MPL
Noise	444	109	452	103
Vibration	102	17	93	19
EMF*	3,956	44	3,824	50
ESF**	2,107	0	2,062	0
Lighting	2,890	843	2,741	767
Microclimate	7,992	574	7,644	498
Total	17,491	1,587	16,816	1,437

**EMF – electromagnetic fields*
***ESF – electrostatic fields*
****MPL – maximum permissible level*

Table №19. Workplace air testing in 2016

MONITORING ACTIVITIES	NUMBER OF TESTS
Planned measurements	13,563
Completed measurements	13,239*
Number of exceedances	0
Percentage of measurements exceeding maximum permissible limits (MPL)	0

* *The difference between the number of completed and planned measurements is due to such events as a drilling rig move to another location, introduction of a new restricted access procedure, unplanned machinery/equipment maintenance or repair which eliminates exposure conditions, etc.*

PEOPLE and SKILLS

KPO business objectives can only be achieved through dedication, hard work and professional skills of its people. Our employees are essential and fundamental for the development and operations of the Karachaganak Field. We continue our efforts on staff development by adopting practices of our Parent Companies, organizing necessary training and attracting educational institutions.

Table №20. Our targets in personnel development and remuneration

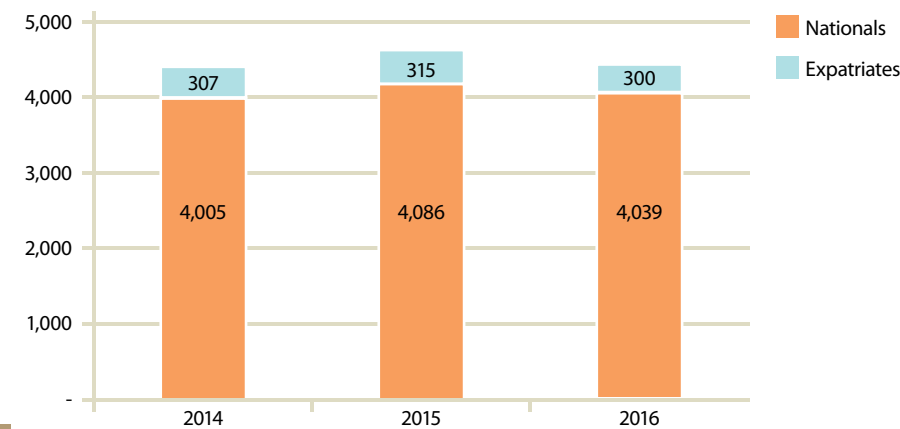
OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016 TO ACHIEVE TARGETS	Targets for 2017
Continue implementation of the Programme for increasing Local Content in staff for 2015-2020 and achieve ≥ 75% in Category 1+2 in 2016	Yes	In 2016 80% was achieved in the Category 1+2 (executive management and their deputies, department / unit management).	Continue implementation of the Programme for increasing Local Content in Staff for 2015-2020 maintaining performance ≥ 75% in the Category 1+2
Conclude a new Collective Agreement	Yes	The new Collective Agreement was signed in April 2016.	Conduct a monitoring of timeliness and due fulfilment of provisions of the Collective Agreement
Conduct a benchmark analysis of remuneration levels in KPO based on current market levels and make an adjustment if necessary	Yes	Based on the comparison analysis made, salaries of local staff are at a comparable level with salaries in the O&G sector of the Republic of Kazakhstan.	Continue the analysis of pay levels in KPO compared to the current market levels and make adjustments if necessary
Continue reviewing efficiency of organizational processes	Yes	Reorganization of the Project Development Directorate and Project Execution Directorate was made. Centralization of the work of secretaries and translators was completed.	Review the work made by HSE units to improve cooperation and efficiency



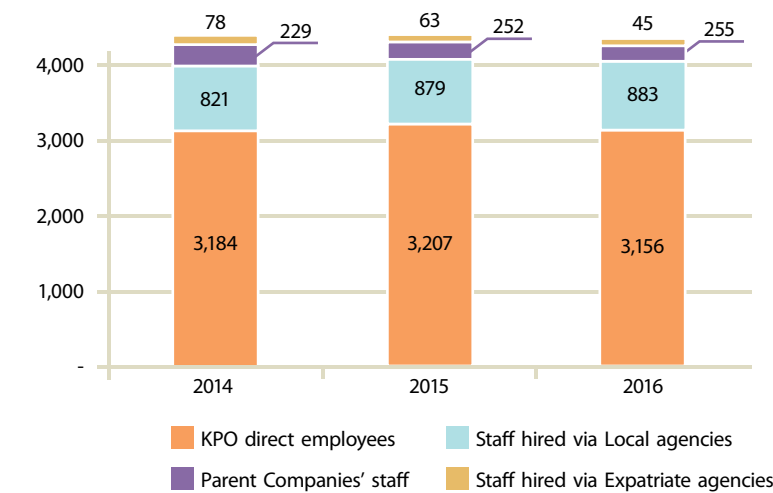
In 2016 some KPO personnel not directly involved in the operations were moved to Uralsk office. The presence of KPO in the regional centre is essential for the Company's long-term development plans. Uralsk offers good opportunities for work, leisure and development of our employees.

The total number of employees in KPO both within the company and those working on temporary projects as of end 2016 amounted to 4,339 employees with 4,039 of them being Kazakh nationals and 300 expatriates. ^{G4-9}

Graph №9. KPO workforce, 2014-2016

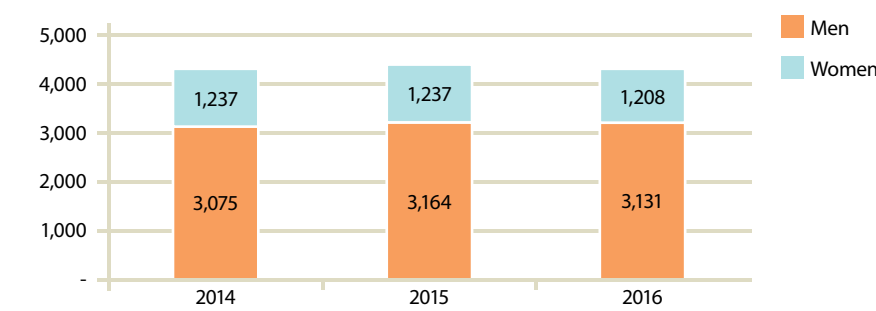


Graph №10. KPO employees by type of employment, 2014-2016



Graph №11 shows the employees by gender. In 2016 3,131 men and 1,208 women worked at KPO. ^{G4-10}

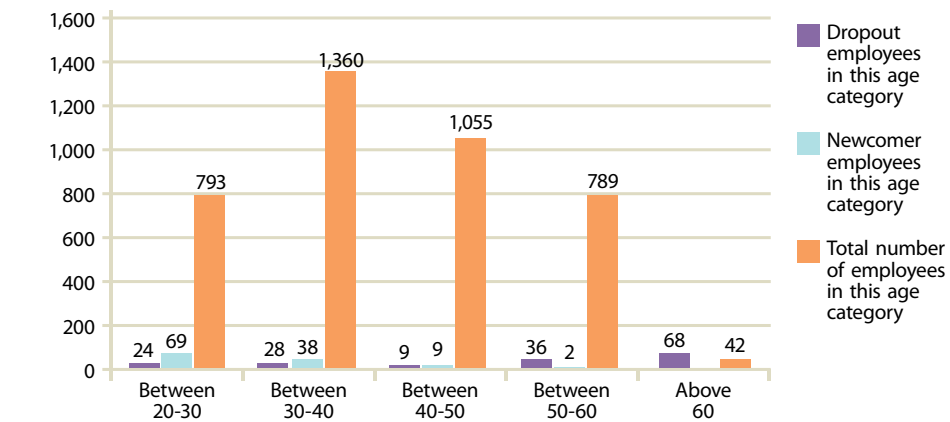
Graph №11. KPO workforce by gender, 2014-2016



Temporary employees are external candidates, hired for limited time period to replace the direct employee, who is on unpaid or maternity leave or seconded to one of the Parent Companies. In 2016, the number of temporary employees totalled to 84. ^{G4-LA2}

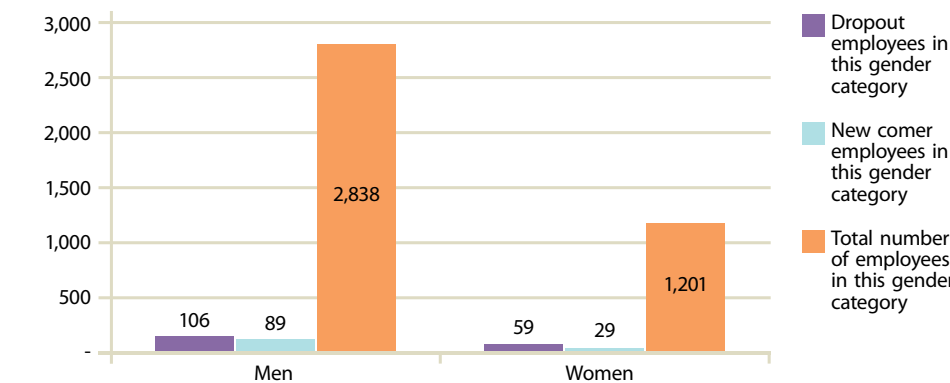
The total number of employees leaving employment and newcomers, by age groups for the reporting period is shown in Graph №12. This graph includes local staff, regardless of the type of contract, and excludes expatriate staff. ^{G4-LA1}

Graph №12. Personnel turnover by age, 2016

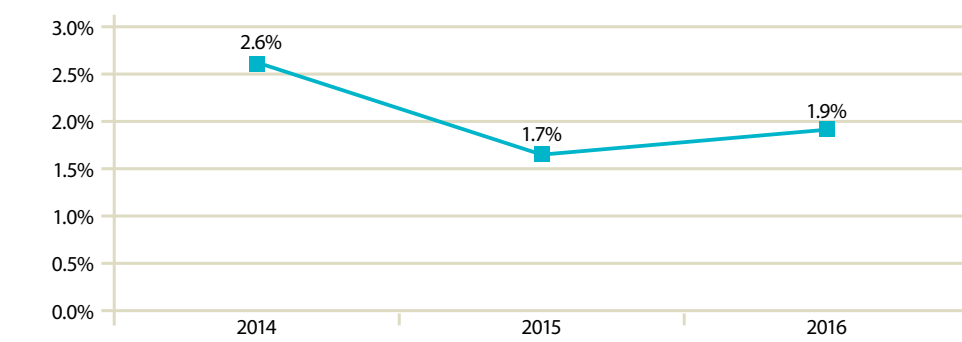


Graph №13 shows the total number of employees, who left the company and newly hired employees by gender for 2016. The newly hired employees at KPO made up 2.9% in 2016.

Graph №13. Personnel turnover by gender, 2016



Graph №14. Dynamics of local personnel turnover, 2014-2016



Note: According to the RoK legislation, the turnover indicator is calculated based on the number of employees who resigned voluntarily in 2016.

DEVELOPMENT OF NATIONAL PERSONNEL G4-LA12

Pursuant to the FPSA obligations, starting from 1998 the Company has successfully implemented two nationalisation programmes in the periods of 1998-2007 and 2008-2015. As a result the share of local workforce in staff reached 71% in the categories 1+2 and 95% in the categories 3+4. This calculation is presented in accordance with the employees' categorization applied in the validity periods of the programmes. Overall, in the period from 1999 to 2015, over 158 expatriate specialists were replaced by local staff, and 99 positions occupied by expatriate personnel were reduced.

The revised KPO Programme for Increasing Local Content in Staff for 2015-2020 aims at maximizing job opportunities for local communities and investing in local workforce.

In 2016 in the framework of the subject programme, 12 positions held by expatriate personnel were nationalised i.e. substituted by local workforce. Alongside with this, 55 positions previously held by expatriates were abolished. As a result of KPO efforts, local employees made up 93% of the total staff as of end 2016. Indicators by categories are shown in Table 21.

Table №21. Implementation of KPO Nationalization plan in 2016 by categories of employeesG4-EC6

CATEGORY	DESCRIPTION	ROK LEGAL REQUIREMENT	2016
1+2	Executive management and their deputies, Department / Unit management	No less than 74%	80%
3+4	Professional staff / Qualified workers	No less than 92%	96%

Increasing of the Local Content in staff is an important element in creation of the KPO economic heritage. The Company uses many development tools for personnel to promote them to management levels across all business units. The focus is made on development of the talented and dedicated local employees. In the period 2015-2020 it is expected that the strategy will allow achieving the following goals:

- Improve effectiveness of the training and development process of local employees;
- Increase the number of local KPO employees, contractors and subcontractors.

In line with the Resolution No. 45 of the RoK Government of January 13, 2012 KPO has taken

a commitment for monitoring the dynamics of local content in staff among KPO contractors starting from the end 2015.

In 2016 the Company embarked on an awareness campaign targeting contractors and subcontractors through a number of seminars to update them about the changes in the RoK regulations and obligations set by the Republic with respect to training, re-training and advanced training of Kazakh nationals. In addition, there was a discussion about fulfilment of conditions regarding the increase in local content in staff under the Joint Operating Agreement.

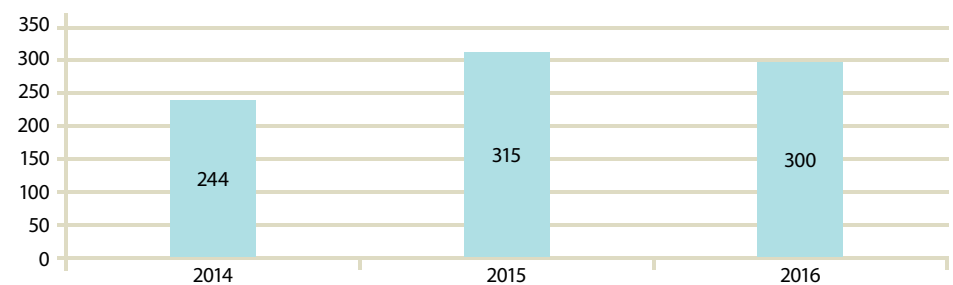
KPO monitors the implementation of the set goals under the Programme for Increasing Local Content in Staff and tracks its performance among 39 contractors and subcontractors registered in WKO on a quarterly, by-annual, and annual basis. Performance of local content in staff for contractors and subcontractors is provided by categories in the Table 22.

Table №22. Aggregated share of Local Content in staff for contractors and subcontractors, registered in WKO, in 2016

CATEGORY	DESCRIPTION	2016
1+2	Executive management and their deputies, Department / Unit management	62%
3+4	Professional staff / Qualified workers	93%

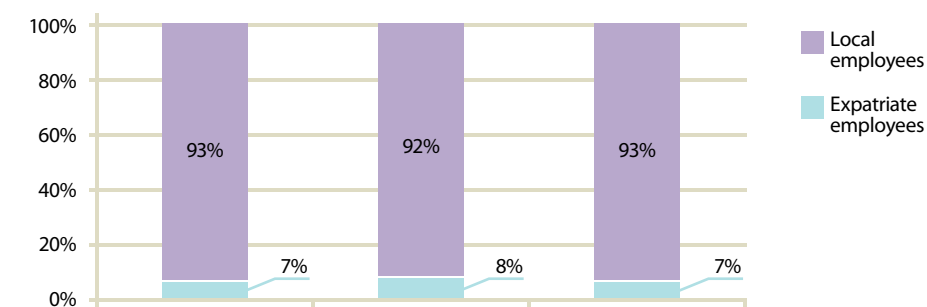
Graph №15 shows the total number of expatriates in KPO including personnel involved in the temporary projects according to the KPO Programme for increasing Local Content in staff for 2015-2020.

Graph №15. Number of expatriate staff, 2014-2016



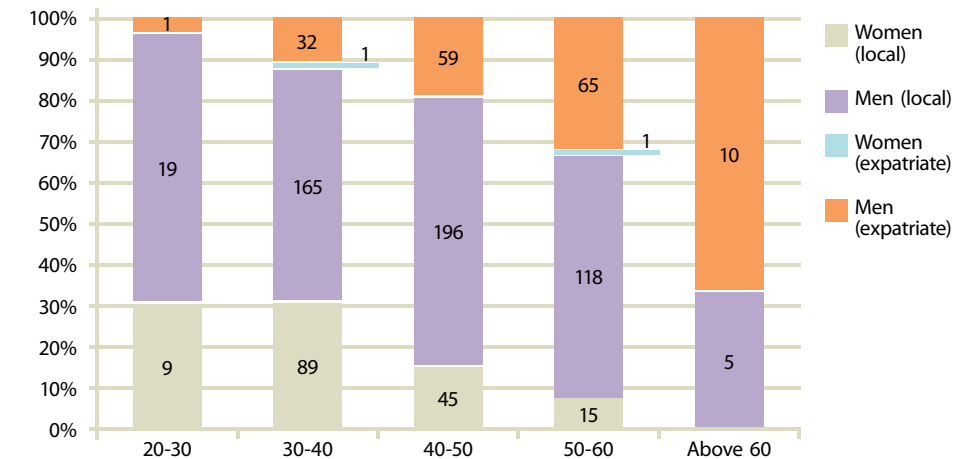
Graph №16 shows data on the number of local and expatriate staff in KPO.

Graph №16. Share of local and expatriate staff, 2014-2016



Graph №17 shows the total number of senior and middle management in KPO organisational structure (including the main organization and temporary projects) by expatriates and locals, divided by age groups and by gender.

Graph №17. Number of local and expatriate managers by age and gender category, 2016 G4-LA12



TRAINING AND DEVELOPMENT

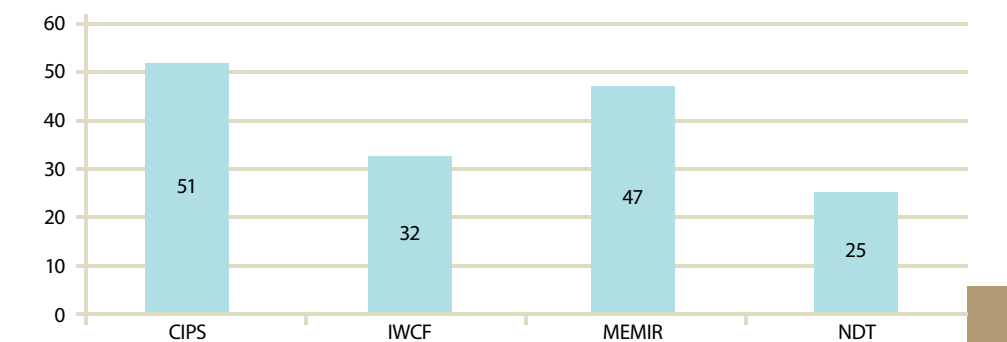
KPO strives to support employees in their continuous professional development by addressing their training and professional development requirements. Despite that continuous professional development of local staff is a priority for KPO, the process of optimising costs in 2016 was continued in development of training programmes and mandatory training courses. The training is organised to meet the operational needs and safety requirements in line with the FPSA.

KPO Training and development programmes provide opportunities for employees to improve their knowledge and competency, considering the strategic plans of Parent Companies and relevant needs of personnel. These include training, retraining and advanced training. In addition, Company uses a method of personnel development, such as Internship Programme.

In 2016 KPO implemented the following training and development programmes:

- International qualifications presented in Graph №18 including:
 - ✓ CIPS – International qualification from CIPS institute related to procurement and supply, basic course of studies;
 - ✓ IWCF – well control / well pressure control during gas, oil and water shows;
 - ✓ MEMIR – Emergency Response training (OPITO standard);
 - ✓ NDT – Non-destructive testing certification;
- Professional training;
- HSE Mandatory training;
- Internship programme for local staff.

Graph №18. Total number of personnel trained at the certified programmes of International Qualifications in 2016



Internship programme for local staff

In the framework of the KPO strategy for increasing local content in staff, the Internship programme is a tool to develop national employees with high-potential for further filling managerial and core positions at KPO.

Internship programme for local staff is a way of on-job training targeting development of technical and managerial skills of the national employees. The programme enables the employees to gain international experience, improve personal effectiveness and enrich cross-cultural communication skills.

The internship provides for a temporary assignment of an employee from KPO to one of the Operator, Parent Company or its affiliates to occupy a role (other than senior level) in petroleum operations.

Implementation of the Internship programme has been acknowledged both by employees and KPO as effective in career growth, personal development and enhancement of the Company's skill base.

During 2015-2016 seven KPO national employees participated in the internship programme and were assigned to various countries. Upon their return to Kazakhstan those employees were assigned to higher roles, including the leading positions. This is an indicator of their successful career advancement and demonstrates effectiveness of the internship programme. Its further implementation is considered as integral for development of local employees.

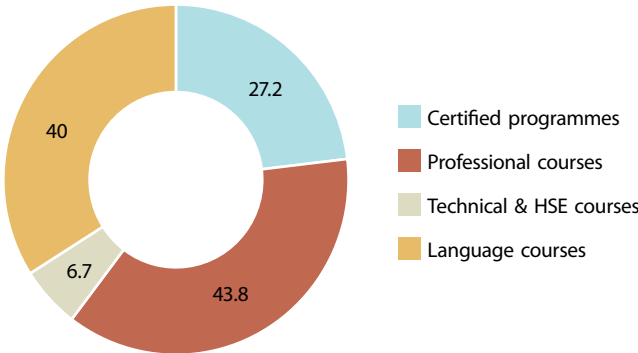


Training statistics ^{G4-LA9}

In 2016 406,402 man-hours of training (325,339 man-hours in 2015) were held, 220,706 man-hours of which were provided to KPO employees (168,799 man-hours in 2015). The remaining 185,696 hours (156,540 man-hours in 2015) were provided to contractors for HSE mandatory courses. On the average in 2016 USD 115 (USD 162 US in 2015) per employee was spent for training.

The average number of training hours per employee is shown in the following graph.

Graph 19. Average number of training hours per employee by type, 2016



Training conducted for the Company employees in 2016 by categories is given in Table №23. In total in 2016, 46,317 man-hours of courses were conducted, 31,709 man-hours of them – for contractors. The data is presented in comparison with 2014 and 2015.

Table №23. Training of employees by categories, 2014-2016

CATEGORY	2014	2015	2016
1. Managers and supervisors	251 persons (37.8 hours per 1 employee)	219 persons (39.64 hours per 1 employee)	293 persons (52.91 hours per 1 employee)
2. Qualified specialists / supervisors	1,873 persons (74.2 hours per 1 employee)	1,682 persons (49.13 hours per 1 employee)	1,019 persons (41.85 hours per 1 employee)
3. Technical personnel	1,283 persons (85.4 hours per 1 employee)	1,045 persons (92.1 hours per 1 employee)	1,233 persons (105.94 hours per 1 employee)
4. Office and administrative personnel	259 persons (21.7 hours per 1 employee)	421 persons (16.5 hours per 1 employee)	265 persons (38.99 hours per 1 employee)

Competency management system

KPO management recognize the Competency management system as one of the most relevant methods to determine and identify the competency levels for technical and non-technical personnel. The system defines the requirements for personnel training and development and sets the following objectives:

- To create an effective planning tool for training and development of KPO employees with involvement of line managers;
- To improve safety culture by all personnel involved in operations to reach the required level of competency at workplace;
- To ensure effective planning of funds for personnel training and development purposes.

In June 2016 KPO obtained a confirmation of the validity of the awarded OPITO accreditation for the Competency Management System (CMS). The accreditation is valid until June 2019 and includes the regular annual reviews.

In 2016 KPO has continued the application of the Competency management system in both non-technical and technical areas.

For non-technical departments, the CMS envisages the assessment of personnel once every three years based on the specialist competency assessment models. Professional development needs identification (PDNI) is made using an online survey. Based on the survey output the PDNI system will generate individual reports with regards to certain professional development measures required for each single employee. These reports will be used for future training and development planning. For instance, in 2016 the PDNI was done in Translation Services department, for which a customized competency model was developed.

For technical departments, the assessment process is in place. Assessment is performed to identify and ensure that technical personnel possess the required level of competency and to minimize occurrence of incidents and accidents in the Field associated with lack of involved personnel's competency.

In 2016 KPO has achieved 91% of competence standards' compliance required for technical personnel. As a result, 768 employees with technical qualification have completed initial assessment and received the CMS certificates.

To maintain and validate the achieved level of competency of technical staff and identify new requirements to the competency development KPO initiated and launched a periodic competency assessment process. This allowed revising the existing requirements and developing three additional technical standards for Production & Maintenance personnel.

In addition, an electronic database was developed and put in place in 2016 for tracking changes against the assessments conducted and defining frequency. Electronic database made it possible to provide an easy generation of the reporting data in various presentations.

For the purpose of sustainable development, cost effectiveness and continuous improvement of the CMS in 2016 KPO developed and deployed a process of the CMS internal audits involving OPITO certified auditors. These auditors are the 14 KPO national employees who successfully passed the training and received the OPITO certificates in 2015.

Dual education in KPO

Dual education programme has been practiced in KPO since 2005. In December 2015, eight students successfully completed the Drilling Supervisors programme and in 2016 all the graduates were employed by KPO in the Well Operations department.

As part of the professional development programme “Production Operations and Maintenance Technician” certified by the OPITO Oil & Gas Academy, in the period 2014-2015 63 trainees have completed the training and internship at the KPO production facilities. They were subsequently employed within KPO in 2016.

In summer 2016, 50 graduates with higher and secondary vocational education from the West-Kazakhstan Oblast were selected to participate in this programme via a series of tests and technical interviews on the following disciplines: electrical and instrument technician, production operator and mechanical technician. Upon successful completion of the programme and internship the students will be offered employment at KPO.

CASE STUDY №1: DRILLING SUPERVISORS PROGRAMME

Aim: PREPARE THE HIGHLY SKILLED DRILLING SPECIALISTS

Approach: Drilling Supervisors Programme has been pursued by KPO since 2007. Since then the Company has admitted three groups of students: first – in 2008, second – in 2010 and third – in 2015. The admission of participants was done by using step-by-step testing and interviewing. According to the programme the training was provided by mentors from Eni Corporate University succeeded by internship on drilling rig sites. Alongside with this, participants completed the training modules below as well:

- Introduction to drilling;
- Geological, geophysical studies;
- Drilling rigs and equipment;
- Drilling muds and cementing jobs;
- Drilling technology (2 parts) and deviated wells;
- Well completion;
- Well work over;
- Wire line logging, coil tubing;
- Reservoir development – sand control – well testing;
- International Well Control Forum (IWCF) modules of Levels 2 and 4 (specialised programme).

Result: The results of the Drilling Supervisors Programme are outlined below:

RESULTS OF THE PROGRAMME	I INTAKE (2008)	II INTAKE (2010)	III INTAKE (2015)
Completed the training and were employed by the Company	18 people	10 people	8 people
Filled the engineering and managerial positions	10 people	9 people	-*
Substituted expatriate personnel	2 people	1 people	-*
Left the Company	6 people	-	-*

**Note: As the programme was launched in 2015, and the employment was in 2016, the results of professional growth of students from the third intake are planned to disclose in subsequent periods.*

EMPLOYEE RELATIONS

KPO respects the rights of KPO employees to organize a trade union and participate in negotiations of the collective agreement. Trade Unions play one of the key roles in supporting and protecting the rights of employees.

Two Trade Union organizations represent the interests of KPO employees: Public Association «Local Trade Union of KPO employees» and Public Association “Karachaganak local professional union of KPO employees and contractors”. As part of their obligations the Trade Unions develop their draft Collective Agreements addressing various aspects of social and labour relations. The provisions of the Collective Agreement apply to all KPO employees regardless of their membership in Trade Unions. ^{G4-11}

For the purposes of work on the new Collective Agreement in accordance with applicable provisions of the RoK Labour Code one single body was set up to represent the two existing trade unions. As a result of long negotiations, in April 2016 a new Collective Agreement was signed between the Company and the Trade Unions for the period 2016-2018.

The terms and conditions of the new Collective Agreement have remained the same apart from the provisions on remuneration, social payments and benefits which were revised and amended. More details are given in the section “Compensation and Benefits” hereof.

The obligation with regards to a minimum 2 months’ notice to Trade Unions in case of liquidation of the company with subsequent reduction in staff or change of the type, system or amount of payment leading to deterioration of employees’ conditions, has remained the same. ^{G4-LA4}

In 2016 nine grievances and applications were received via the feedback tools established at KPO, such as filing requests to HR Controllershship either directly or through Trade Union and an anonymous “Hotline”. The grievances received primarily addressed such issues as the transfers to another position, conflict situations within the department, exceeding one’s authority in job duties, misconduct with contractors. All the grievances and appeals have been considered and resolved within the year by Employee Relations group. ^{G4-57, G4-58, G4-LA16; G4-HR12}

The new Collective Agreement envisages the following provisions on Health, Safety and Environment: ^{G4-LA8}

- Development and implementation of HSE procedures;
- Provision of training to personnel to take relevant actions in the event of HSE-related issues;
- Provision of appropriate first aid means;

- Provision of regular medical check-ups;
- In the event of fire or any other emergency at workplace and at the existing production facilities all required actions should be taken in line with HSE requirements;
- Provision to employees with personal protective equipment (PPE) including safety coveralls, boots, etc.;
- Provision of medical insurance to employees to protect from occupational injuries and occupational diseases.

As a general customer in Karachaganak, KPO regularly provides clarification sessions on legislation requirements, internal procedures and policies to all contractors to prevent any potential risk of forced labour and/or violation of employees’ rights to hold meetings or have a collective bargaining. These are not excluded in case of insufficient attention to legislative requirements in some contracting and subcontracting companies. As of 2016, employees from 14 contractors were the members of the Karachaganak Local Professional Union of KPO employees and contractors. ^{G4-HR4}

In 2016, 18 KPO employees applied for the voluntary dissolution under the KPO Pension plan involving the Voluntary Dissolution of Employment Relationship Programme (12 employees in 2015) according to the Collective Agreement.



Celebration of the Languages Day of the people of Kazakhstan, September 2016

COMPENSATIONS AND BENEFITS

Over 20 years KPO has been involved into the economy of the region and interested in promotion of the competent local staff.

KPO provides social benefits package to all employees signed an employment agreement with KPO. Every year the Company makes a review of employees' remuneration, including the cost-of-living salary increase at the beginning of the year, annual bonus payment to employees, who received positive performance evaluation, as well as individual pay rises and additional payments as part of the Annual Pay Review process. In 2016 the overall salary increase made up 13.6%, which reflects the inflation rate for the previous year of 2015.

In addition to the above, in January 2016 the Company paid the bonus to employees following the excellent HSE and Operating Efficiency performance. In May 2016 the employees were granted with an additional bonus for achieving the LTI-free performance and timely completion of the shutdown.

As part of the research analysis of the labour market in 2016 and in view of the low level of staff turnover, no additional salary adjustment was made: the turnover made 1.9% in 2016 versus 1.7% in 2015 (see Graph №14 on turnover). ^{G4-LA1}

The social package is an essential part of employment and consists of financial and non-financial benefits (the details of all benefits and payments are provided in the Sustainability Report 2015). ^{G4-LA2}

In accordance with the terms of the new Collective Agreement for 2016-2018 the sums of payments on the following benefits were increased:

- Payment for sanatorium treatment;
- Payment for a child birth;
- Financial aid to a deceased employee's family;
- Financial aid in case of an employee's family member death;
- Financial aid in case of a KPO pensioner's death;
- Social aid to KPO pensioners;
- Monthly allowance for Afghan War veterans;
- Monthly loyalty allowance for KPO seniority.

Additionally, the following items were added to the actual list of benefits:

- Mandatory professional pension contributions in favour of employees whose positions are mentioned in the approved Resolution of the RoK Government № 1562 of December 31, 2013 and who worked in harmful or very harmful labour conditions not less than 80% of working time per month;
- Compensation for termination of an employment contract with employees who reached a retirement age.

With the view of continuous improvement of performance the Company conducts an annual Personnel Development Review (PDR). This process covers all employees who have employment agreements with KPO and worked at least six calendar months in the year preceding the PDR evaluation. For those employees holding managerial positions there is a separate process to monitor their Key Performance Indicators against the set targets. ^{G4-LA11}

For those employees hired in KPO via recruitment agencies the collective agreements of these agencies are applied. Independently planned benefits to cover allowances for employees hired via recruitment agencies are agreed between KPO and the agencies as part of the approved budget. ^{G4-LA2}

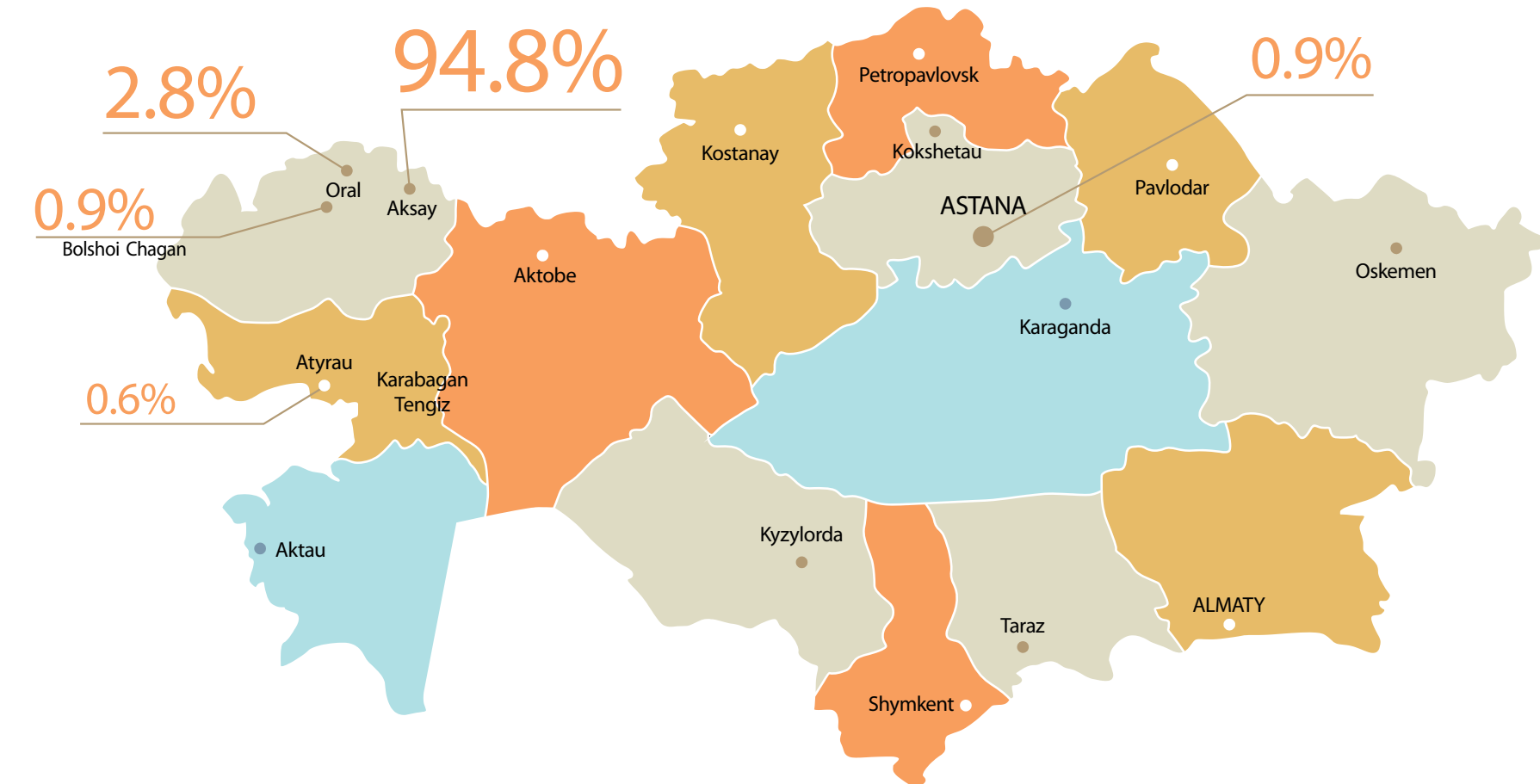
Pursuant to the Collective Agreement the minimum salary of the young specialists in the Company is established as KZT 155,000. Based on the 2016 annual benchmarking analysis with statistics data, an average salary in KPO is 2.9 times higher than an average salary in the Western Kazakhstan Oblast.

Optimization of organizational structure and work processes

In July 2016 a new KPO Office was opened in Uralsk. Opening of the new office will improve cooperation between KPO and local executive authorities and help in addressing issues relating to the Company's involvement in the social and economic development of the region. By the end 2016 the number of employees in KPO Uralsk Office totalled 123, which was 2.8% of the total headcount.

The map below shows the percentage of KPO personnel distribution by region. ^{G4-10}

Besides, in 2016 the organizational structures of the Project Development Directorate and Project Execution Directorate were optimized; the work of secretaries and translators was completely centralized, allowing them to consolidate their work and distribute the workload more effectively.



SCHOLARSHIP PROGRAMMES FOR NATIONAL EMPLOYEES AND THEIR CHILDREN G4-LA10

KPO takes continuous efforts to upgrade skills of employees and provide opportunities of professional development and contributes to their sustainable professional growth. Introduced in 2002, KPO Scholarship Programme for national employees and their children has been recognized as one of the important incentives for professional development and further education of employees.

In 2016, within the framework of these programmes 46 KPO employees and their children were provided with scholarships, comprising 15 employees and 31 children. Over the last three years, in 2013-2015, the additional education obtained through the KPO scholarships helped 13 KPO employees in changing their positions thus develop their careers and continue working for the benefit of the Company.

KPO PARTNERSHIP WITH KAZAKHSTANI UNIVERSITIES

Cooperation between universities and employers is seen as a long-term mutually beneficial activity aimed to target preparation and adaptation of young specialists' in scientific, technological and production process.

Cooperation between KPO and universities is based on the Student Placement Programme following the relevant agreements. In 2016, 485 students on 23 specialties from 31 educational institutions passed internship in different departments of the Company.

Alongside with this, KPO is involved in youth placement programme of the Republic of Kazakhstan thus supporting graduates from professional colleges – citizens of the Burlin District. From the start of the program in 2009 145 young specialists passed youth internship in KPO.

By way of cooperation with various universities of Kazakhstan KPO employees liaise with high skilled specialists and actively engaged in various joint projects on exchange of best practices. Thus, in April 2016 the Industry Week took place in the West-Kazakhstan Agrarian-Technical University after Zhangir khan and the Career Day in the West-Kazakhstan State University after M. Utemissov. KPO employees made presentations outlining their work in the Company and conducted a workshop to describe internship-focused programs.

On October 5, 2016 a meeting involving Andrew Wiper, KPO Operations Director and Nurlan Sergaliyev, Principal of the West-Kazakhstan Agrarian-Technical University after Zhangir khan took place. At the meeting the parties signed an agreement on cooperation between the

West-Kazakhstan Agrarian-Technical University and KPO for joint efforts to support the Society of Petroleum Engineers (SPE). The Society of Petroleum Engineers is primarily focused on the high quality internship and tours on well sites as well as visits to petroleum engineering and well operations departments. In addition, the emphasis is made on training and placement of young teachers of the university, and arrangement of workshop sessions by KPO managers and supervisors.

An agreement was reached to work together as part of the SPE framework.



Students of the West-Kazakhstan Agrarian-Technical University after Zhangirkhan after the meeting with KPO management, October 2016



CARING FOR THE ENVIRONMENT

The production and processing of hydrocarbons impose high accountability on KPO for protection of the environment. The development of such a technically complex Karachaganak field in harmony with the environment is not an easy challenge. In order to succeed the Company utilizes advanced techniques and world class technologies.

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

- to minimize adverse impacts on the environment;
- to reduce the environmental pollution;
- to ensure the environmental safety.

The Company focuses its efforts on reduction of greenhouse gas emission and conservation of natural resources by applying the best available technologies. Operational targets for ensuring the environmental protection principles are listed in Table №24.

Table №24. Our environmental targets

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
MANAGEMENT SYSTEMS			
Verify compliance of the KPO Environmental Management Systems with the requirements of the ISO 14001 standards as part of the Surveillance audit	Yes	Following the conducted Surveillance audit, the Environmental Management System was verified for compliance to the ISO 14001:2004 standard. No any environmental incompliance was revealed. KPO has started preparation for the transition to the new environmental management standard – ISO 14001:2015.	Obtain the re-certification of the KPO Environmental Management Systems in compliance with the new environmental management standard – ISO 14001:2015
AIR EMISSIONS & GHG			
Achieve reduction of greenhouse gas emissions by 200 thousand tonnes of CO ₂ - equivalent	Yes	According to the 2016 year-end results, owing to the implementation of the five measures, the actual reduction of GHG emissions amounted to 337 thousand tonnes of CO ₂ - equivalent, which was 58% higher than the target.	Achieve reduction of greenhouse gas emissions by 203 thousand tonnes of CO ₂ - equivalent
Ensure that specific GHG Emissions do not exceed 70 tonnes CO ₂ per one thousand tonnes of produced HCBs	Yes	In 2016 the specific GHG emissions amounted to 66 tonnes of CO ₂ per one thousand tonnes of the produced HCB	Ensure that specific GHG Emissions do not exceed 69 tonnes CO ₂ per one thousand tonnes of produced HCB

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Ensure that the throughput losses do not exceed 3.82%	Yes	In 2016 the actual throughput losses amounted to 3.56%.	Ensure that the throughput losses do not exceed 3.71%
ENERGY MANAGEMENT			
<ul style="list-style-type: none">• Monitor implementation of the 2016-2020 Energy Saving and Energy Efficiency Action Plan that was developed following the Energy Audit;• Continue implementation of the Energy Management System as per requirements of the ISO 50001 standard.	In progress	<p>The implementation of the Action Plant included the upgrade of piping at Unit-2 and the replacement of incandescent bulbs with LED bulbs at the Atyrau terminal.</p> <p>During the year the preparation was ongoing for the certification of the Environmental Management System to the ISO 50001 standard.</p>	<ul style="list-style-type: none">• Carry out energy saving and energy efficiency activities scheduled for 2017 as part of the 2016-2020 Plan.• Obtain certification of the KPO Environmental Management System to the ISO 50001 standard.• Carry out research works and study possibilities to introduce renewable energy sources at the remote Company locations.
EFFLUENTS AND WASTE			
Commission the sodium hypochlorite injection unit at the Unit-3 BIO-50 wastewater treatment plant	In progress	Commissioning of the sodium hypochlorite injection unit at the Unit-3 BIO-50 wastewater treatment plant was suspended until a decision is made on the further use of the BIO-50 taking into account the reduced number of personnel at Unit-3 and the decline in output of the wastewater treatment plant. Two options are being reviewed thought the development of a feasibility study: the wastewater treatment plant to be upgraded or mothballed with the wastewater taken to the wastewater treatment plants in Pilot camp.	Develop a feasibility study for the upgrade of the Unit-3 BIO-50 plant and the Pilot camp treatment plant for the purpose of making a decision on the optimization of wastewater treatment and further use of BIO-50
	New target		Develop an operating procedure for reuse of the wastewater at the KOGCF in the 2018-2022 period
	New target		<ul style="list-style-type: none">• Conduct a scientific and technical research on the possibility of reducing the concentration of H₂S in the Unit-3 wastewater injected into formation at Injection Site 1;• Participate at the Expert Council of the WKO Environment Department on the regulation of injected industrial effluents.

OUR 2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Construct 3 new cells at the Landfill	Yes	Construction of 3 new cells at the Landfill has been completed.	Cover at least 6 cells the Eco-Centre Solid Industrial Waste Burial Site
	New target		Develop a 2018-2020 KOGCF Waste Management Program
SOIL			
For the purpose of planting, prepare 28 ha of soil along the Aksai-Priuralnyi motor road as part of the Work Project for Phase I Tree-planting along the Established SPZ and setting out of its boundaries	In progress	Due to the heavy precipitation in 2016, it was possible to implement only the part of the scheduled activities on the preparation of land for revegetation along the motor roads in the total area of 28 ha.	For the purpose of planting, as part of the Work Project for Phase I Tree-planting along the Established SPZ and setting out of its boundaries, prepare 28 ha of soil along the Aksai-Priuralnyi motor road, including the early spring ploughing, disk plowing, cultivation, harrowing, autumn re-ploughing of fallow land
	New target		Produce the Plan of further development of the Sanitary Protection Zone (SPZ)
	New target		Conduct a research into the pathology of green plants within the KOGCF as required by the RK Forest Code
Complete the scientific research activities specified in the Programme for “Identification of ways for further use of the piled fertile topsoil”	Yes	Activities completed on the identification of the properties of top soil that was removed during the construction of the KPO main production facilities and is now being stored in piles. The possible ways for further use of the top soil have been defined.	
	New target		Continue the research studies into the development of methods for the reuse of clay drill cuttings of the oil and water-based drilling mud following the thermo-mechanical treatment
BIODIVERSITY			
Conduct the following research studies into the conservation of the KOGCF flora: <ul style="list-style-type: none"> Monitoring of plants in the KOGCF impact area against the potential influencing factors; Study into the expansion of the rare Fritillaria ruthenica that grows in the riverside ecosystems. 	Yes	In 2016 KPO had completed its works on the implementation of the 2015-2016 Biodiversity Conservation Plan. The studies mainly focused on the vegetation monitoring and the study into the expansion of the rare species, including Fritillaria ruthenica.	Develop a Biodiversity Conservation Plan 2018-2019 as per the Guidance to the biodiversity conservation plan for the oil and gas sector issued by IPIECA/OGP

ENVIRONMENTAL MANAGEMENT SYSTEM

Management of environmental protection system in KPO has been carried out in the framework of the integrated HSE management system that has been certified to comply with the ISO 14001 international standard since 2008. For eight years in a row, KPO has been successfully proving the efficiency of the Environmental Management System (EMS) and obtaining the ISO 14001:2004 certificate of conformity.

In 2015, a regular surveillance audit was conducted at KPO, which has proved the compliance with the ISO 14001:2004 requirements. No any inconformity in terms of the environmental protection in KPO was found during the audit.

In September 2015, the International Organization for Standardization adopted the third edition of the ISO 14001. The new standard has a number of substantial variations from the previous edition. The certified organisations will be required to analyse the degree of compliance with the new requirements and to take actions in order to achieve high performance indicators in environmental protection. In this view, to ensure an effective process of transition to the new standard, prior to certification audit, KPO EMS Controllership carried out a GAP analysis and assessment of the existing system in light of the new requirements.

The certification audit for compliance with the ISO 14001:2015 requirements is planned in the second half of 2017. In this audit, the Company will have to demonstrate that all the elements of the actual management system function effectively and successfully. This is a prerequisite condition for verifying the compliance of the management system with the ISO 14001:2015 requirements.

In the new edition of the ISO 14001:2015, the requirements in terms of leadership, risk assessment, accounting of product and waste life cycle have been expanded. Particular attention has been given to communication both internally and externally.

On 10 March 2016 in view of maintaining an open dialogue with stakeholders, KPO held an annual conference “Managing significant environmental aspects in the performance of contractual obligations: control measures”. Representatives of 53 national and foreign KPO contracting companies attended the conference. This event enabled exchanging of opinions and experience on various approaches to identification and assessment of the environmental aspects applied by different companies. Based on the results of the conference, and within the continuous improvement of the environmental management system, KPO revised all the 17 Environmental Aspects’ Registers related to its operational departments and divisions.

Following the facilities’ registers, in 2017 KPO will update its Consolidated Significant Environmental Aspects’ Register, within which all aspects of the KPO’s activities that may significantly affect the environment will be analysed and summarised.

To control all the elements of the integrated HSE management system pursuant to the approved annual programmes and plans, external and internal audits are carried out as well as audits of KPO’s contractors. In 2016, the EMS Controllership conducted 15 internal and external environmental audits and contractors’ audits, and based on the results of those the degree of the KPO’s EMS compliance to the requirements of the RoK legislation and international standards was evaluated. In 2016 aiming to improve the competence of the KPO’s HSE management system auditors and operations personnel, a training course “New version of Standard ISO 14001:2015. Training of internal EMS auditors” was organised for 26 specialists of various KPO departments involved in the process.

In 2017, KPO will continue training on the new standard and the initiated set of activities as part of the continuous improvement of the EMS.



KPO Letter of Gratitude for contractors participated the Environmental Conference, March 2016

ENVIRONMENTAL PROTECTIVE MEASURES PLAN for 2016

To achieve the set environmental protection goals, KPO develops the Environmental Protective Measures Plan (further as EPMP) on an annual basis.

In order to obtain an Environmental Emissions Permit, KPO submits the EPMP to the authority for the permit's validity period, as provided by the RK Environmental Code (chapter 8). The Plan's measures focus on ensuring the environmental safety, improving the environmental protection methods and technologies, the rational use of nature and implementation of the ISO 14001 и ISO 50001 international standards.

In 2016 KPO performed its operations in accordance with the obtained EEPs and developed EPMPs as mentioned in Table №25.

Table №25. KPO Environmental Protective Measures Plans and issued Permits in 2016 G4-EN31

NO.	DEVELOPED AND AGREED ENVIRONMENTAL PROTECTIVE MEASURES PLANS FOR 2016	PERMITS OBTAINED FOR 2016	PERMIT ISSUED BY
1	KPO EPMP 2016 for the Karachaganak Field	Environmental Emissions Permit No. KZ37VCZ00037652 dated 08.10.2015 (validity: January 1 – August 24, 2016)	Committee for Environmental Regulation and Control of the RoK Ministry of Energy
2	KPO EPMP for the Karachaganak Field in the period of August-December 2016	Environmental Emissions Permit No. KZ56VCZ00099681 dated 25.08.2016 (validity: August 25 – December 31, 2016)	Committee for Environmental Regulation and Control of the RoK Ministry of Energy
3	KPO EPMP 2016-2020 for the KPC-Bolshoi Chagan-Atyrau export condensate pipeline in the West-Kazakhstan Oblast (WKO)	Environmental Emissions Permit No. KZ68VDD00021755 dated 12.08.2015 (validity: January 1, 2016 – December 31, 2020)	WKO Akimat, West-Kazakhstan Oblast Administration of Natural Resources and Nature Use Control
4	KPO EPMP 2016-2020 for the Atyrau Oblast	Environmental Emissions Permit No. KZ87VDD00021510 dated 07.08.2015 (validity: January 1, 2016 – December 31, 2020)	Atyrau Oblast Akimat, Atyrau Oblast Administration of Natural Resources and Nature Use Control

In 2016 there were two KPO Environmental Protective Measures Plans (EPMP) for the Karachaganak Field developed for the validity term of each Environmental Emissions Permit (EEP). The environmental protection measures foreseen for by the KPO EPMP for the Karachaganak Field (or KOGCF) were agreed by the Committee for Environmental Regulation and Control of the RoK Ministry of Energy. The primary EPMP 2016 for the KOGCF was revised for the August-December period.

Environmental Emissions Permits were received for the Export Condensate Pipeline facilities at the WKO Bolshoi Chagan OPS and the Atyrau Terminal OPS valid from 01.01.2016 till 31.12.2020. Accordingly, the Environmental Protective Measures Plans were agreed for 2016-2020.

In 2016 the total actual expenditures for the implementation of environmental measures within the KOGCF amounted to KZT 6,257,968,449. Expenses planned for the KOGCF in 2016 amounted to KZT 4,283,971,298. Compared with the year 2015, in 2016 KPO's investments into environmental protection measures more than doubled. This is explained with implementation of such activities as: new measures with the use of high pressure separators in the well clean-up, increase of the scope of work on GPI maintenance, waste segregation and handover for reuse, shutting down of waste cells, increase of expenses for the LTP operations, and enlarged areas of reclaimed land plots.

Expenses broken down by sections of the KPO EPMP 2016 are shown in table №26.

Table №26. Expenses for implementation of the 2016 EPMP, in thousands KZT G4-EN31

NO.	SECTIONS OF THE EPM PLAN	ACTUAL EXPENSES FOR IMPLEMENTATION OF KPO MEASURES IN 2016:		
		WITHIN THE KARACHAGANAK FIELD	ON THE KPC-BOLCHOI CHAGAN-ATYRAU EXPORT CONDENSATE PIPELINE (WKO)	IN ATYRAU OBLAST
1	Air conservation	2,300,763	4,817	6,727
2	Conservation and rational use of water resources	16,695	N/A ¹	N/A ¹
3	Land conservation	415,291	N/A ¹	N/A ¹
4	Subsoil conservation and rational use	219,079	N/A ¹	N/A ¹
5	Flora and fauna conservation	63,571	357	11,015
6	Production and consumption waste management	2,941,296	62	13
7	Radiation, biological and chemical safety	4,796	N/A ¹	N/A ¹
8	Introduction of management systems and best safe technologies	70,527	N/A ¹	4,655
9	Scientific research and survey and design works on environmental protection	212,025	4,300	4,355
10	Environmental awareness and promotion	13,926	N/A ¹	N/A ¹
TOTAL		6,257,968	9,537	26,765

¹ N/A – measures are not applicable.

The results of the EP measures implemented in KPO in 2016: G4-EN13

Air emissions

- Use of high pressure separators during well development helped reduce the amount of air pollutants by 9,272 tonnes;
- Use of the high pressure pump for pumping oil helped reduce the amount of air pollutants by 436 tonnes;

Management of waste and effluents

- 722.38 tonnes of municipal and food waste was sorted and sent for incineration at the General Purpose Incinerator (GPI).
- The following was sorted and sent for processing and reuse as recyclable materials:
 - ✓ 75.32 tonnes of waste paper which is by 60 % more compared to 29.9 tonnes in 2015;
 - ✓ 14.04 tonnes of scrap metal which is by 80 % more compared to 2.18 tonnes in 2015;
 - ✓ 23.18 tonnes of plastic which is by 60 % more compared with 9.3 tonnes in 2015;
- 3 cells constructed at the Eco-Center Solid Waste Burial Landfill and accepted by the State Commission on October 16, 2016; besides, 4 cells filled with wastes covered and isolated;
- The total volume of treated liquid waste and wastewater amounted to 13,443 tonnes which allowed reducing the volume of the liquid wastes disposed within the environment, and reducing the additional water usage in drilling. Out of the total quantity of liquid waste and wastewater received for treatment there was created 8,703 tonnes of treated water that was then sent for preparation of drilling mud and fluids. Annual quantity of liquid waste and wastewater received for treatment depends on the operational needs of the Company.
- KPO continues transfer of waste accumulated in the Eco-Center Solid Waste and Spent Drilling Mud disposal site. The waste is treated prior to disposal on the site. In 2016 5,733 tonnes of wastes were treated. The transfer of waste through treatment will continue in 2017.
- In 2016 the volume of treated wastewater reused at the KOGCF for making drilling muds, irrigation of forests and dust control amounted to 48,023 m3 which is by 35% more compared with the previous period.

Land reclamation ^{G4-EN13}

- 85.5 ha of land disturbed as a result of well operations and construction activities has been reclaimed, i.e. the area of the reclaimed land has increased by 13% compared with 2015;
- Scientific research work with regard to “Identification of ways for further use of the piled fertile topsoil” has been completed. Owing to the WKO Akimats of Burlin and Zelyonovskiy Districts being concerned with the further use of the fertile topsoil, a further strategy is to be developed regarding its handover for the needs of these Districts.

Environmental management system

- ISO 14001 Surveillance Audit was successfully conducted in August 2016.

No changes on expansion of the Sanitary Protection Zone (SPZ) were made in 2016 taking into account the resettlement of the citizens of the Beryozovka and Bestau villages.

ENVIRONMENTAL FINES ^{G4-EN29}

KPO carries out its activity pursuant to the environmental legislation of the Republic of Kazakhstan. As part of its production activities, every year the Company applies for and obtains from the RoK Ministry of Energy an Environmental Emissions Permit, which sets the limits on air emissions, discharges and waste disposal. To obtain the Environmental Permit, KPO submits to the Ministry a documentation package including the Environmental Protective Measures Plan, the conclusions of the State environmental expert review on the limits projects (please see details in the EPMP section).

State-of-the-art technologies of hydrocarbons production and processing provide for flaring of the associated gas in order to ensure safety and integrity of equipment operation. The controlled gas flaring, according to the design solution, is an integral part of oil and gas condensate field operations around the world.

The available technologies for production of hydrocarbons provide for operation of different types of equipment, the processes on which are thoroughly controlled from the design parameters’ point of view. While conducting different operations, such as startup or shutdown of compressors, pumps, units, bringing a well into production, maintenance, etc. temporary step out of design parameters takes place. This may entail a controlled gas flaring. Thus, technologically unavoidable flaring of associated and (or) natural gas in its treatment process depends on the existing

process scheme of the field and executed operations. It is worth noting that KPO technological infrastructure as well as continuous efforts in environmental safety facilitates achieving a high level of gas utilization annually (99.84% in 2016).

In the period of 2007-2016, KPO did not exceed the limits of air emissions set in the Permits. However, for the last ten years, the Company had to pay fines and claims for pollutants emissions related to short time technological breakdowns, failures and malfunctions of process equipment. Such emissions were interpreted by the environmental protection regulatory body as “excessive emissions”. Yet, KPO develops and obtains approvals for the required environmental documentation in full pursuant to the regulatory and legal framework of the RoK, and the projects are implemented on the basis on the legally approved requirements to the project documentation.

It should be noted that, when conducting compliance inspections, the state environmental authorities do not take into account the statutory provisions on allowing the gas flaring by a subsurface user provided that it complies with the project documents within the limits and volumes and is approved by the Authority controlling the project on behalf of the Republic of Kazakhstan. The applicable laws provide for high rates of payments for emissions from gas flaring, which is the reason for high amounts of fines for comparatively low amounts of the flared gas. Notwithstanding the fact that the involved volumes of flaring were within the limits approved for KPO, like in the previous periods, in 2016 the Company had to pay the fines charged by the regulators while still challenging the claims in the higher instances and in court. For instance, in 2016 the disputed amount was KZT 1.9 bln including:

- KZT 0.52 bln – the amount of administrative fines following the unscheduled environmental inspections in 2016;
- KZT 1.38 bln – the amount of civil claims brought against KPO in 2016 to compensate for environmental damage.

In 2014, pursuant to the RoK President’s directive, in order to improve the regulatory and legal framework and harmonize the legislation in this area with the internationally accepted norms, a Working Group was established at the Ministry of Oil and Gas. KPO took an active part in the group’s activity together with the Parent Companies, other oil and gas operators, and the Kazakhstan Association of oil, gas and energy sector organizations “KAZENERGY”. As a result of such interaction, in April 2016 the RoK Law “On Subsoil and Subsoil Use” was amended, thus granting the right to subsoil users to regulate the gas flaring related to technological breakdowns, failures and malfunctions of process equipment. Such amendments provide for classifying as

unavoidable process flaring all cases of flaring due to failures and malfunctions of the process equipment. In line with these amendments, the volumes of emissions of pollutants from gas flaring due to technological breakdowns will not be considered as ‘excessive emissions’. In May 2016, the amendments came into effect.

In the past year, KPO revised the Associated Gas Processing Development Programme, having included the limits of process emissions in it. Pursuant to that, the Company also revised the Maximum Permissible Emissions (MPE) Project and the design and estimate documentation. Starting from 2017, KPO will not have to pay fines for pollutant emissions into the air due to process flaring provided the set limit is observed.



Carnation andrzejowskianus, included in the Kazakhstan Red Data Book, the rare species for the Karachaganak Field

AIR EMISSIONS ^{G4-EN-21}

KPO manages air emissions based on the limits established in the Environmental Emissions Permit. Most air emissions are generated as a result of combustion of fuel gas in the course of operations of gas turbine units, boilers, process heaters, compressors, and also the process flaring. In 2016, the total amount of air emissions increased by less than 1% compared to 2015, totaling 11,400 tonnes. The table №27 shows data on the permissible and actual KPO’s emissions for the period of 2014-2016.

Table №27. Permitted and actual volumes of pollutant’s emissions, 2014-2016 ^{G4-EN21}

ANNUAL VOLUME OF EMISSIONS BY POLLUTANTS, IN TONNES:	2014	2015	2016
Permitted:	16,168	14,807	21,876
Actual, including:	14,005	11,314	11,421
Nitrogen oxides	2,240	1,594	1,934
Sulphur dioxide	7,346	6,113	5,819
Carbon monoxide	2,229	1,723	1,850
Volatile organic compounds	1,718	1,515	1,449
Hydrogen sulphide	31	29	28
Solid particles	325	90	89
Other	116	249	252

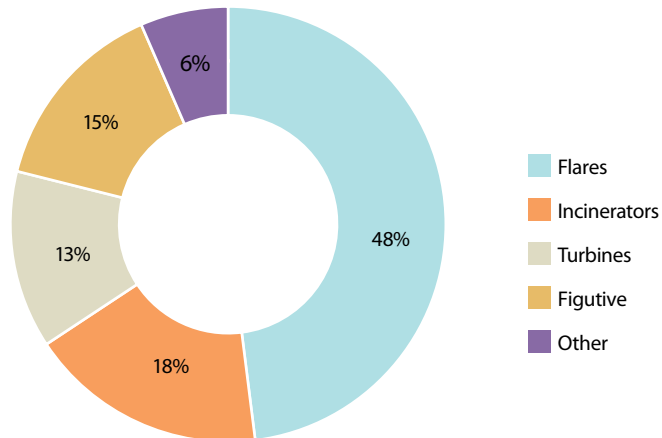
Notes: 1. Emission volumes data for 2014-2016 are provided in accordance with the data of statistical reports ‘2-TP Air’.
2. In 2016, KPO (Permit for the KGOCF) operated under two permits – No. KZ37VCZ00037652 from 01.01.2016 to 24.08.2016; No. KZ56VCZ00099681 from 25.08.2016. The total permissible volume was calculated as a total of actual emissions in the first period and permissible emissions in the second period.

KPO estimates environmental emissions using the calculation method based on the initial data on consumption and composition of the fuel and equipment operation time. The calculation method is used because of the absence of certified devices in the RoK for continuous monitoring at the emission sources.

The flow rate of the combusted fuel is calculated by applying the method of continuous measurements and fuel balance; diesel fuel consumption – based on the data of statutory accounting, and the equipment operation time – based on the daily operator reports. The oil and gas composition is determined by the certified internal laboratory.

Componential calculations of emissions are carried out on the basis of the data on every substance and type of emission sources using the methods recommended for application in the Republic of Kazakhstan. Graph №20 shows pollutants emissions broken down by main air pollution sources.

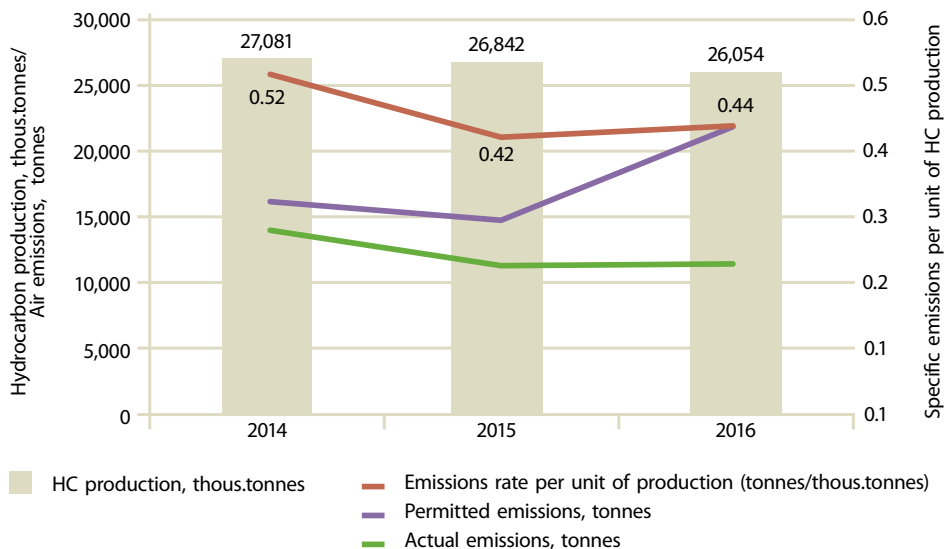
Graph №20. Pollutant emissions in KPO in 2016 by main pollution sources



In 2016, the specific emissions per unit of production amounted to 0.44 tonnes per 1,000 tonnes of hydrocarbons (HC) production.

A slight increase in the specific emissions in 2016 as compared to 2015 is explained by smaller production volumes and larger volumes of flared gas due to a total shutdown of the facilities.

Graph №21. Volume of HC production and environmental emissions in 2014–2016



GAS FLARING G4-OG6

As in previous years, the main contributors to the KPO total emissions’ volumes in 2016 were emissions resulted from flaring of hydrocarbons at flare stacks at the process facilities and from flaring during well operations. In 2016, however, the total amount of flared gas was only 0.16% of the total volume of produced gas by KPO or 0.97 tonnes per thousand tonnes of produced hydrocarbons. Such an emission rate as a result of flaring in 2016 is an evidence of a very high performance when compared to the worldwide industry average of 13.6 tonnes per thousand tonnes and a European average of 3.8 tonnes* per thousand tonnes, as stated in the 2015 report of the International Association of Oil and Gas Producers (IOGP).

KPO continues to look for further technologies of emission reduction, especially in the areas of well testing and well clean-up.

In 2016, KPO extensively used high pressure separators and high pressure pumps, which led to reduction of air emissions when cleaning up (completing) the wells. As a result, the volume of liquid hydrocarbons flaring decreased by 72 thousand tonnes, which totaled 77% of the oil

volume produced during the wells completion. The volume of gas retained during the wells clean-up using the high pressure system made up 38 mln m³ (or 57% of the volume produced during the wells completion).

** Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – “Environmental Performance Indicators – 2014 Data” and “Environmental Performance Indicators – 2015 Data. Due to the fact that the IOGP 2016 report had not been released at the time this issue was published, the 2015 data was used for comparison purpose.*

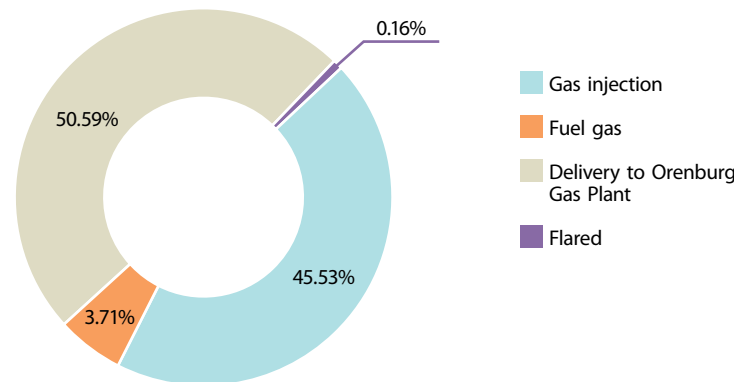
Graph №22. Volume of associated gas flared in 2014-2016, mln. m³



GAS UTILIZATION

In 2016, the KPO gas utilization rate reached 99.84% (99.85% in 2015). This once again proves the KPO’s world-class level compared to the 99.6% performance target approved by the RoK regulatory authorities within the 2016 Associated Gas Processing and Development Programme.

Graph №23. Gas utilization and flaring in 2016



DIRECT GREENHOUSE GAS EMISSIONS G4-EN15

Across KPO the direct greenhouse gas (GHG) emissions are regulated under the national quotas trading system in place since 2013. From 2013 to 2015, KPO obtained the GHG emission quotas.

According to Article 324.9 of the RoK Environmental Code, the quota system has been suspended until 01.01.2018. In view of that no quota for GHG emissions for 2016 was granted. Thus, no base year for obtaining the quota has been officially established. To compare the GHG emissions and maintain the principles of reporting in this issue, we assumed the year 2015, i.e. the year preceding the reporting year, as the base year.

In accordance with the approved Monitoring Plan for 2016-2020, KPO performs quarterly assessment of GHG emissions for carbon dioxide (CO₂), methane (CH₄) and nitrogen oxide (N₂O). The emission assessment was performed using the calculation method on the basis of the Company’s production data (in terms of fuel consumption and lab data on fuel composition) applying the effective Methodology No. 280 dated 05.11.2010 approved in an Order of the acting RoK Minister of Environmental Protection.

According to the verified GHG Emissions Inventory Report for 2016, the total volume of GHG emission amounted to 1,870,041 tonnes in CO₂-equivalent, of which CO₂ contribution equaled to 1,717,790 tonnes of CO₂-equivalent (91.9%), CH₄ – 144,228 tonnes of CO₂-equivalent (7.7%), N₂O – 8,023 tonnes of CO₂-equivalent (0.4%).

For converting the GHG emissions into the carbon dioxide equivalent (CO₂-equivalent), the global warming potentials (GWP) of Intergovernmental Panel on Climate Change (IPCC) of 1995 were used based on the climate impact of greenhouse gas for a 100-year period.

The information on the dynamics of the GHG emissions’ generated is provided in Table 28. The main contributors (up to 80%) are emissions generated through combustion of the fuel gas at the gas turbines of the gas re-injection system, gas turbine power plants and high-pressure steam generation plant. Compared to 2015, in 2016 some decrease of the GHG emissions was observed mostly due to smaller fuel consumption by the main stationary sources because of the total facilities’ shutdown.

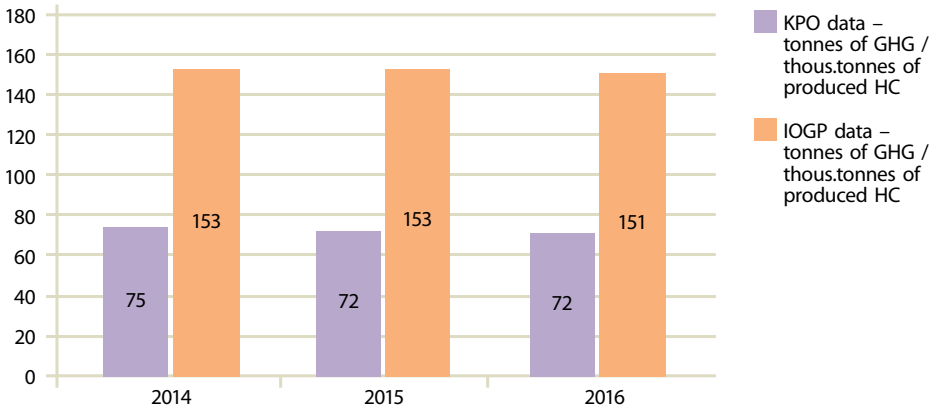
Table №28. Dynamics of GHG emissions generated as a result of KPO production activities

TOTAL VOLUME OF GREENHOUSE GAS EMISSIONS (TONS OF CO ₂ EQUIVALENT)					
From fuel combustion at flares and incinerators	From fuel combustion at stationary sources	Fugitive emissions	Total GHG emissions in 2016	Total GHG emissions in 2015	Total GHG emissions in 2014
219,109	1,509,559	141,373	1,870,041	1,944,165	2,027,367

SPECIFIC GREENHOUSE GAS EMISSIONS G4-EN18

In 2016, similarly to 2015, the specific greenhouse gas emissions per unit of production amounted to 72 tonnes per 1,000 tonnes of crude hydrocarbons produced. Dynamics of the specific greenhouse gas emissions is shown in Graph №24.

Graph №24. Dynamics of specific GHG emissions per unit of produced hydrocarbons (HC)



Note: The data was sourced by Annual reports of the International Association of Oil and Gas Producers (IOGP) – “Environmental Performance Indicators – 2014 Data” and “Environmental Performance Indicators – 2015 Data”. Due to the fact that the 2016 IOGP Report was not available at the time this issue was prepared, the 2015 data was used for comparison purpose.

Table №29 shows the KPO GHG specific indicators when comparing them with the data provided by the IOGP. The actual GHG emissions rate in the Karachaganak Field in 2016 was lower than the European indicators by 30% and lower than the averaged international indicators by 53%.

Table №29. Comparative analysis based on the specific GHG emissions per unit of hydrocarbons (HC) produced, in tonnes per 1,000 tonnes of produced HC

GHG DESCRIPTION	IOGP DATA (EUROPE)*	IOGP DATA (IN TOTAL)*	KPO DATA		
	2015	2015	2014	2015	2016
CO ₂ + CH ₄ + N ₂ O (CO ₂ e)	102	151	75	72	72
CO ₂	91	130	69	67	66

Note: The data was sourced by Annual reports of the International Associations of Oil and Gas Producers (IOGP) – “Environmental Performance Indicators – 2014 Data” and “Environmental Performance Indicators – 2015 Data”. Due to the fact that the 2016 IOGP Report was not available at the time this issue was prepared, the 2015 data was used for comparison purpose.



Grey heron

REDUCTION OF GREENHOUSE GAS EMISSIONS G4-EN-19

In order to consistently reduce the GHG emissions, KPO set the following objectives for 2016 in the “Greenhouse Gas Emissions Reduction Programme for 2016-2020”:

- to reduce the emissions of CO₂ by 213,558 tonnes through implementation of a number of projects of production optimization and energy efficiency improvement;
- to ensure that the volumes of specific emissions do not exceed 70 tonnes of CO₂ per 1,000 tonnes of HC production.

In 2016, the KPO’s specific indicator of CO₂ emissions totaled 66 tonnes of CO₂/thousand tonnes of HC production (Table 29). As a result of implementation of the five projects listed in Table №30, the actual reduction of the GHG emissions exceeded the target by 58%.

Table №30. GHG emissions’ reduction measures in 2016

NO.	MEASURES	EMISSIONS REDUCTION, TONNES/YEAR		STATUS OF COMPLETION IN %
		Target	Actual	
1	Use of high-pressure separator when cleaning up the wells	121,200	278,466	230%
2	Use of high-pressure pump when cleaning up the wells	59,200	19,288	33%
3	Repair of valves of KPC flare headers	17,299	17,986	104%
4	Adjustment of the steam flowmeter at processing train No. 4	9,145	7,608	83%
5	Monthly washing of the operating axial-flow compressors of gas turbines with water in spring and summer periods	6,714	13,823	206%
Total:		213,558	337,171	158%



Fragaria viridis

ENVIRONMENTAL MONITORING

KPO performs large-scale environmental monitoring as set in the Production Environmental Control (PEC) Programme. Within the PEC scope, monitoring of both the environmental emissions (emissions to air, discharge of wastewater, and the treatment and disposal of wastes) and the quality of environmental components (air, surface and underground water and soil) is conducted to assess the impact of production activities on the environment. The PEC Programme determines the sampling and measuring locations, the list of components to be identified and the monitoring frequency.

The Production Environmental Control is conducted within the Karachaganak field, at the Sanitary Protection Zone boundary, in the nearby villages, along the pipeline route and at the facilities of the KPC – Bolshoi Chagan – Atyrau export condensate pipeline.

Air quality monitoring at the boundary of the SPZ of the Karachaganak field and adjacent villages is arranged and carried out in accordance with the requirements of the RoK State standard GOST 17.2.3.01-86 «Nature protection. Atmosphere. Air quality control regulations for populated areas» and the Ruling Document 52.04.186-89 «Guidelines for the control of air pollution».

Pursuant to article 132, item 9 of the RoK Environmental Code, environmental monitoring shall be carried out by the production or independent laboratories, certified as per the procedure established by the RoK Law on technical regulation. KPO conducts air monitoring by means of a contracted certified laboratory, which performs sampling, sample analysis and performs instrumental measurements in accordance with the PEC Programme.

To evaluate the air quality, the health-based exposure limits or maximum permissible concentrations (MPC) are used. Recorded concentrations of controlled components are compared with the maximum permissible concentrations, indicating the level of pollution in parts.

MPC of an air pollutant is a concentration, which does not cause a direct or indirect lifelong negative impact on the present or the future generations, does not reduce the working capacity of a person and his/her health and does not deteriorate the sanitary and living conditions of human beings.

In addition to legislative compliance, KPO carries out continuous air monitoring by means of 18 stationary automatic environmental monitoring stations (EMS). Each station has four (4) analysers designed for continuous measurement of hydrogen sulphide (H2S), sulphur dioxide (SO2), nitrogen dioxide (NO2) and carbon monoxide (CO) content in the air. The EMS also activates a warning alarm in case of high concentration of emissions in the air.

Mobile air monitoring is conducted when required at individual sites using one of two fully equipped mobile environmental monitoring laboratories.

AIR MONITORING AT THE BOUNDARY OF THE SANITARY PROTECTION ZONE OF THE KARACHAGANAK FIELD

Along with the continuous air emissions monitoring run by the 18 EMS, the accredited Contractor laboratory conducts air sampling at the boundary of the SPZ once a day. Air sampling at the SPZ is made per 8 compass points (rhumbs): N, NE, E, SE, S, SW, W, and NW. The samples are analyzed for the content of the same four components measured at the EMS: hydrogen sulphide (H₂S); sulphur dioxide (SO₂); nitrogen dioxide (NO₂); carbon monoxide (CO), methane (CH₄) and methylmercaptan (CH₃SH) content.

In 2016 no exceedance of the maximum permissible air concentration of the monitored components at the KOGCF SPZ was recorded.

Average concentrations of the monitored air components at the boundary of the SPZ for 2016 are given in the Table №31. The column ‘Actual annual average concentration’ shows the minimum and maximum values of average concentrations of the controlled air components per 8 points.

Table №31. The average annual concentrations of the monitored air components recorded at the SPZ boundary in 2016

MONITORED COMPONENTS	ACTUAL ANNUAL AVERAGE CONCENTRATION, MG/M ³	MPC ONE-TIME, MG/M ³	EXCEEDANCE OF MPC
H ₂ S	0.002	0.008	no
SO ₂	0.004	0.5	no
NO ₂	0.029 – 0.030	0.2	no
CO	0.474 – 0.495	5.0	no
CH ₄	1.304 – 1.339	50**	no
CH ₃ SH	Below limit of detection*	0.006	no

* below the limit that the method can detect.
** determined approximate safe level of impact. MPC for methane is not determined.

ATMOSPHERIC AIR MONITORING IN THE VILLAGES ADJACENT TO THE KARACHAGANAK FIELD

The certified Contractor laboratory also has stationary air monitoring stations in 8 villages located around the field (Berezovka, Bestau, Zharsuat, Zhanatalap, Dimitrovo, Karachaganak, Priuralnoe, Uspenovka) and in the town of Aksai which perform air sampling 4 times a day (at 1:00 am, 7:00 am, 01:00 pm and 7:00 pm). Sampling of air is carried out by the permanent personnel of the contracted laboratory who reside in the villages where the stationary air monitoring stations are located.

Moreover, unscheduled air sampling is performed at the stationary monitoring stations if a complaint is received from the residents, such as a complaint regarding an unusual odour. Air samples are taken to the laboratory located in the town of Aksai where the samples are chemically tested for the content of the 4 main components: hydrogen sulphide (H₂S), sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and carbon monoxide (CO) that are monitored in accordance with the State Standard and Ruling Documents. In addition, once in 10 days the air is monitored for concentration of volatile organic components: benzene (C₆H₆), toluene (C₇H₈), xylene (C₈H₁₀). In the village of Berezovka, monitoring also includes the air concentration of methylmercaptan (CH₃SH).

Monthly results of air monitoring are published in local printed media and sent to the villages for posting on public information boards. The disclosure includes details of local community complaints received in relation to emissions and odours.

While the average monthly MPC of NO₂ was not exceeded in 2016, there were a total of four exceedances of the daily average MPC measured out of 54,053 measurements:

- 1 occurrence in Berezovka village – by 1.1 times,
- 1 occurrence in Priuralnoye – by 1.325 times,
- 1 occurrence in Zhanatalap village – once by 1.125 times, and
- 1 occurrence in Aksai town – by 1.15 times.

MPC exceedance of other monitored components was not recorded throughout 2016.

Annual average concentrations of monitored air components in the nine villages in 2016 are given in Table №32. The column ‘Actual annual average concentration’ shows the minimum and maximum values of average concentrations of the controlled air components per 9 villages.

Table №32. Annual average concentrations of monitored air components in the villages adjacent to KOGCF in 2016

MONITORED COMPONENTS	ACTUAL ANNUAL AVERAGE CONCENTRATION, MG/M ³	MPC DAILY AVERAGE, MG/M ³	EXCEEDANCE OF MPC DAILY AVERAGE
H ₂ S	0.002	0.008*	no
SO ₂	0.004	0.05	no
NO ₂	0.029-0.031	0.04	no
CO	0.429-0.499	3.0	no
C ₆ H ₆	0.101-0.131	0.3*	no
C ₇ H ₈	0.014–0.018	0.6*	no
C ₈ H ₁₀	0.015–0.018	0.2*	no
CH ₃ SH	Below the limit of detection**	0.006*	no

* 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 evaluate the concentration of benzene, toluene and xylene in the air given the frequency of components analysis of the samples, which is once every 10 days.
** below the limit the method can detect.

AIR MONITORING BY AUTOMATIC ENVIRONMENTAL MONITORING STATIONS (EMS)

KPO Automatic Environmental Monitoring Stations that perform continuous air monitoring is an additional source of information on the air condition at the boundary of the SPZ and in the village of Berezovka.

Annual average concentrations of monitored components recorded by EMSs in 2016 are given in Table №33 and Table №34. The column ‘Actual annual average concentration’ in both tables shows the minimum and maximum values of average concentrations of the controlled air components per each EMS.

Table №33. Annual average concentrations of monitored components in 2016 recorded by EMS

MONITORED COMPONENTS	ACTUAL ANNUAL AVERAGE CONCENTRATION, MG/M³	MPC DAILY AVERAGE, MG/M³	EXCEEDANCE OF MPC DAILY AVERAGE
H₂S	0 – 0.002	0.008*	-
SO₂	0.004 – 0.010	0.05	no
NO₂	0.003 – 0.006	0.04	no
CO	0.1 – 0.4	3.0	no

* MPC one-time. The MPC daily average for hydrogen sulphide is not determined, therefore, MPC one-time is used for comparison purpose.

Table №34. Annual average concentration of monitored components recorded by EMSs № 013, 014 in the Berezovka village in 2016

MONITORED COMPONENTS	ACTUAL ANNUAL AVERAGE CONCENTRATION, MG/M³	MPC DAILY AVERAGE, MG/M³	EXCEEDANCE OF MPC DAILY AVERAGE
H₂S	0.001	0.008*	no
SO₂	0.004 – 0.005	0.05	no
NO₂	0.004 – 0.016	0.04	no
CO	0.2 – 0.5	3.0	no

* MPC one-time. The MPC daily average for hydrogen sulphide is not determined, therefore, MPC one-time is applied for comparison purpose.

All existing 18 EMSs measure four main pollutants (H₂S, SO₂, NOₓ, CO) on a continuous basis, i.e. 24 hours per day. According to the data received from the EMSs in 2016, the actual daily average concentrations of H₂S did not exceed the MPC; although a one-time short-period (20 minute) exceedance of MPC was registered.

Other ingredients did not exceed the MPC level in 2016.

Table №35. Exceedances of one-time MPC of hydrogen sulfide (H2S) recorded by EMS in 2016

EMS NO.	ACTUAL ONE-TIME CONCENTRATIONS RECORDED IN 2016, MG/M3		NUMBER OF EXCEEDANCES	FREQUENCY RATIO OF MPC EXCEEDANCE, ONE-TIME
	min	max		
EMS-006	0	0.023	2	1.125 – 2.875
EMS-017	0	0.011	1	1.375

One-time MPC is 0.008 mg/m³.



Chirling blue-throated warbler

ENERGY MANAGEMENT

ENERGY CONSUMPTION

In 2016, the energy consumption of KPO totaled 971,700 tonnes of coal equivalent compared to 994,590 tonnes of coal equivalent in 2015. Table №36 shows the energy consumption volumes broken down by energy type.

Table №36. Energy consumption in 2014-2016 G4-EN3

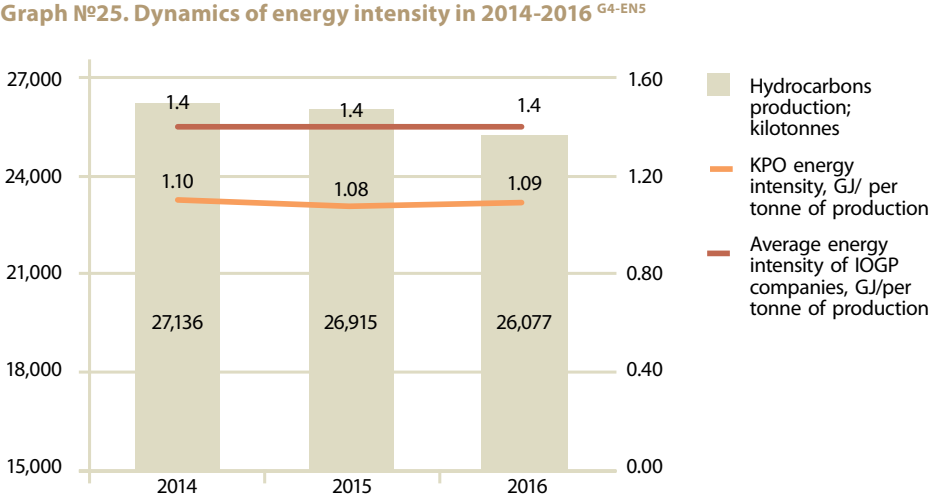
TYPE OF ENERGY	UNIT OF MEASURE	ENERGY CONSUMPTION, PHYSICAL UNITS			ENERGY CONSUMPTION, TONS OF COAL EQUIVALENT			ENERGY CONSUMPTION, GJ		
		2014	2015	2016	2014	2015	2016	2014	2015	2016
Fuel gas	K m³	831,050	804,002	785,007	1,023,854	990,531	967,129	30,009,149	29,032,455	28,346,542
Electric power (purchased)	MW/h	6,672	7,575	10,841	821	932	1,333	24,055	27,308	39,085
Diesel fuel	m³	1,779	1,215	1,436	2,244	1,532	1,811	65,767	44,901	53,074
Gasoline	m³	351	321	264	387	354	291	11,344	10,386	8,535
Heating (in rented offices)	Gcal	8,338	8,678	7,943	1,192	1,241	1,136	34,949	36,373	33,292
TOTAL					1,028,498	994,590	971,700	30,145,264	29,151,423	28,480,528

In 2016 shutdown of production facilities resulted in a slight decrease in fuel gas consumption compared to 2015. The total electricity usage was increased due to the shutdown activities and the move of personnel from the field to Aksai, which lead to a larger number of employees in the rented offices. At the same time, the actions were taken to optimize transportation costs resulted in a substantial decrease of gasoline consumption in 2016.

In 2016, KPO’s energy intensity indicator (or a ratio of the quantity of consumed energy) in GJ and the quantity of output production in tonnes of crude hydrocarbons slightly increased compared to 2015, but it still remained below the average energy intensity indicator of the companies that submit their reports to the IOGP.

ENERGY MANAGEMENT SYSTEM

In 2016, the Company continued to work on preparation of the Energy Management System for certification to ISO 50001 requirements. The preparation activities included development and approval of the key energy management system documents, carrying out the energy review and defining the energy performance indicators, and conduction of internal audits of the energy management system. As part of the employees’ engagement in the energy saving matters, a contest for the Best Energy Saving proposal was held among the Company’s and its contractors’ employees. The contest winners were awarded at an HSE ceremony dedicated to the year results. KPO’s energy management system certification is scheduled for July 2017.



ENERGY SAVING EFFICIENCY ACTION PLAN

- Pursuant to the approved KPO’s Energy Saving and Energy Efficiency Improvement Action Plan for 2012-2016, the following actions were taken in 2016:
- Unit 2 compressor piping upgrade, which is anticipated to result in larger injection volumes, while the increase of fuel gas consumption in the turbines operations is not going to be considerable. Thus, a decrease in the specific flow rate of fuel gas per unit of injected gas is expected, which will lead to annual decrease in fuel gas consumption.
 - Replacing of incandescent light bulbs with LED ones at the Atyrau terminal in order to reduce the electric power consumption.
- Monitoring of the actual reduction of energy consumption as a result of the actions taken above is planned to take place in 2017.

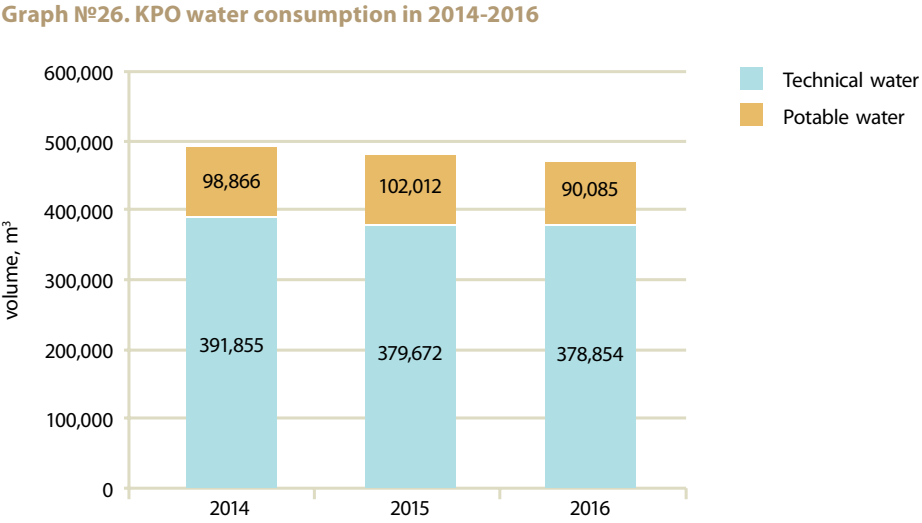


Spring adonis, the rare species at the KOGCF

WATER USE

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

In 2016 the total water consumption in the Company amounted to 468,939 m³, of which 378,854 m³ was the utility water and 90,085 m³ was the potable water.



The source of water used by KPO for technical needs is Konchubai gully as specified by the Special Water Use Permit, issued for industrial needs, which sets the water intake limits. In this case KPO is a primary water user. The water intake from other sources (Zharsuat, Serebryakovskiy and Kigach water intake facilities) is ensured though contracts with potable water suppliers. In this case the Company is a secondary user of water.

Water is accounted at the facilities by means of water metering devices and is recorded in the log books according to the primary accounting rules of the RoK.

Table №37 shows KPO’s water consumption broken down by sources.

Table №37. KPO’s water consumption in 2014-2016 broken down by sources, m³ ^{G4-EN8}

NO.	SOURCE	FACILITY	WATER QUALITY	CONSUMPTION		
				2014	2015	2016
1	Zharsuat water intake facility	KOGCF	groundwater, potable	97,359	100,304	88,415
	Domestic needs			97,359	100,304	88,415
2	Serebryakovskiy water intake facility	Bolshoi Chagan OPS	groundwater, potable	1,507	1,708	1,670
	Domestic needs			1,144	1,454	1,165
	Production needs			363	254	505
3	Konchubai gully water pond	KOGCF	surface water, technical	389,026	377,020	374,956
	Production needs			389,026	377,020	374,956
4	Kigach water intake facility	Atyrau OPS	surface water, technical	2,829	2,652	3,898
	Domestic needs			1,118	845	1,053
	Production needs			1,711	1,807	2,845

DOMESTIC WATER

The sources for KPO domestic water supply are: Zharsuatskiy water intake – the Karachaganak field, Serebriakovskiy intake – in the Bolshoi Chagan OPS and Kigach intake – at the Terminal Atyrau OPS.

In 2016 the volume of water consumption for KPO domestic needs totaled 90,633 m³, which was 11.7% lower compared to the water consumption in 2015 (102,603 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 WKO Branch and is used only to replenish the fire tanks for fire safety purposes.

TECHNICAL WATER

The main source of water supply for technical needs in the Karachaganak field is the holding pond No.1 at Konchubai gully. As per the Special Water Use Permit for industrial needs valid until 22.09.2020, the annual intake limit is 595,047 m³. The total volume of water intake from the Konchubai gully in 2016 amounted to 374,956 m³.

The Konchubai gully is not included in the list of local fishery water bodies according to the Resolution of the West-Kazakhstan Oblast Akimat No.269 dated December 25, 2012. Konchubai gully is not fed by ground water; it is replenished only during spring by melting snow and rainfalls.

In case of low amount of precipitation in winter, there is a risk that the water level required for water intake for the needs in the Karachaganak Field will lower. In case of water shortage and in order to avoid the suspension of the Company operations, KPO has two backup wells № W-9 and № W-4 that can be used for technical water intake.

The Kigach water intake supplies the Atyrau Terminal OPS with technical water via the Astrakhan – Mangyshlak trunk pipeline, where it is used for domestic and technical purposes.

In 2016 the volume of water consumption for technical needs totaled 378,306 m³, which was 0.2% lower compared to 2015 (379,081 m³).

DISCHARGE OF TREATED WASTEWATER G4-EN22

After being used for production or domestic needs, water contains additional impurities that change its primary composition or physical properties, and it turns to wastewater. Waters that run from industrial facilities during atmospheric precipitation and waters produced along with hydrocarbons are also considered as wastewater.

In 2015 the Company developed and agreed with the regulatory authorities the projects on the maximum permissible contaminants discharge (MPD) limits and wastewater quality monitoring schedules for KOGCF for 2016-2017, for Bolsjoi Chagan OPS and Atyrau OPS for 2016-2020. The MPD limits projects specify the types and volumes of the generated wastewater, locations of its discharge, and set the concentrations of contaminants and their discharge limits.

KPO uses special man-made facilities for treated domestic and industrial wastewater and storm runoffs: holding ponds (at Pilot camp, KPC), evaporation ponds (in Atyrau Terminal and Bolshoi

Chagan OPS), seasonal tanks (at Unit-3), irrigation lagoons (at Pilot camp, Unit-2 and KPC). These facilities exclude the 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.

Formation water produced together 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, migration of wastewater into upper aquifers is ruled out.

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

Table №38 shows the KPO 2014-2016 discharge volumes with the indication of wastewater types and receiving facilities.

Table №38. Total volume of discharges by wastewater category and receiving facility in 2014-2016, m³

RECEIVING FACILITY	TYPE OF WASTEWATER	2014	2015	2016
Holding ponds	Domestic wastewater	75,858	66,213	62,767
Wastewater subsurface disposal polygons	Process and associated produced water	330,636	377,086	413,399
KOGCF terrain*	Industrial and storm wastewater, melt and rain water	-	-	-
Terrain of OPS Bolshoi Chagan and Terminal Atyrau	Melt and rain wastewater	1,945	3,297	5,543
Total discharge volume		408,439	446,596	481,709

* Starting from 2014 the discharge to the KOGCF terrain was removed from the MPD Limits Project in order to reduce water intake from the surface sources and increase the volume of reused water.

KPO monitors the content of contaminants in the formed and treated wastewater at its facilities, such as:

DOMESTIC WASTEWATER	INDUSTRIAL AND STORM WASTEWATER, MELT AND RAIN WATER	PROCESS AND ASSOCIATED PRODUCED WATER
pH, suspended solids, oil products, ammonia nitrogen, nitrates, nitrites, BOD5 (biological oxygen demand) and BOD20, total ferrum, synthetic surfactants, sulphates, chlorides, phosphates, dry residue, COD (chemical oxygen demand), dissolved oxygen	pH, suspended solids, oil products, dry residue, sulphates, chlorides	suspended solids, oil products, sulphides, sulphates, chlorides, hydrogen sulphide, methanol, ferrum, cooper, zinc, aluminum

The 2016 Environmental Emissions Permits do not specify the limits of the discharge wastewater. The limits were set for the contaminants in tonnes. In 2016 the volume of discharged wastewater with contaminants totaled:

FACILITY	LIMIT, TONNES		ACTUAL, TONNES	
	2015	2016	2015	2016
KOGCF	31,915.92	57,272.71	14,780.25	17,094.78
Bolshoi Chagan OPS	6.37	3.66	1.81	0.99
Atyrau OPS	5.99	2.37	0.78	0.85
TOTAL:	31,928.28	57,278.74	14,782.84	17,096.62

In 2016 the discharge of contaminants amounted to 17,096.62 tonnes, which was 16 % higher compared to 2015 – 14,782.84 tonnes. Of them, 16,939.98 tonnes were discharged within the MPD limits, while the excess discharge amounted to 156.64 tonnes. The excess discharge of contaminants results from the exceeded MPD concentration on BOD, ammonia nitrogen and nitrates contained in domestic wastewater discharged to the holding ponds. The injected wastewater mainly contained excessive MPD concentrations on hydrogen sulphide, and on rare occasions on suspended solids and oil products.

In 2016 the volume of injected industrial wastewater was increased by 9.6% compared to 2015, and the quantity of contaminants was increased by 28%. The increase in industrial wastewater results from the fact that the current producing wells in the field are with high water cut. The increase in contaminants is due to high concentration of soluble salts in the associated

water produced with hydrocarbons as well as in wastewater re-injected into the formation. The increased volume of industrial wastewater at the Industrial wastewater injection site 1 resulted in the exceeded annual MPD limits of suspended solids, oil products, hydrogen sulphide, ferrum, cooper, aluminum, zinc, sulphates and chlorides. High-mineralized groundwater is not used and cannot be used for domestic and drinking, balneological, process needs, irrigation or animal breeding. Therefore, the injection has no effect on the environmental components such as soil, flora and fauna.

As provided by the RoK Legislation, the Company made calculations and effected a tenfold payment for the exceeded discharges of contaminants.

REUSE OF TREATED WASTEWATER

In order to reduce fresh water intake for such works and operations like drilling, making of drilling muds, watering of planted trees, dust suppression on roads and constructed sites, KPO uses treated domestic, industrial wastewater and storm runoffs. The wastewater is reused at the Company facilities in line with the 2014-2017 Operating Procedure.

The technical water volume reused by KPO in 2016 amounted to 12.8% of the technical water consumed from the Konchubai gully. Table №39 shows the activities that utilize treated wastewater.

Table №39. Reuse of treated wastewater in 2014-2016, m³ G4-EN10

	2014	2015	2016
The total volume of reused treated wastewater, including:	123,419	31,213	48,023
For drilling and drilling mud preparation	108,799	23,744	30,655
Irrigation and hydro tests	2,555	-	1,553
Dust suppression	12,065	7,469	15,815

In 2016 the Company reused 48,023 m³ of treated wastewater for technical needs, mostly for making drilling mud. In 2016 the volume of reused wastewater, compared with 2015, was higher due to the treated domestic wastewater being used to refill the holding ponds of the well № 9816D, which then were used to supply water for well drilling in the western part of the Field in order to avoid the hydraulic fracturing of formation.

CASE STUDY №2:

EFFECTIVE MANAGEMENT OF WATER DISCHARGE

Aim: IMPROVE THE BIOLOGICAL TREATMENT OF CONTAMINANTS IN THE DOMESTIC WASTEWATER

Approach: Every year the Company undertakes technical measures on reducing the discharges of contaminants in order to meet the MPD limits. The holding ponds at the Pilot camp are the wastewater discharge facilities, for which the MPD limits are set. Aiming to improve the operation of the Pilot Camp's biological wastewater treatment facilities, the KPO 2016 Environmental Protective Measures Plan and the Plan of technical activities provided by the MPD Project included the measures to upgrade the ventilation systems of the sewage treatment plants STP-1 and STP-2 in the Pilot camp.

Outcome: In view of improving the wastewater treatment in the STP-1 and STP-2, additional ventilation openings with controlled dampers ensuring the fresh air inflow directly to the biological contactors were installed in 2nd quarter 2016. As a result, following the installation no excessive MPD limits were recorded at the point of discharge to the Pilot Camp's holding ponds 1 and 2 and further confirmed by the outcomes of the Production Environmental Control. Thanks to the implementation of technical solutions for enhancing the quality of wastewater KPO managed to mitigate the impact of wastewater on the environment.



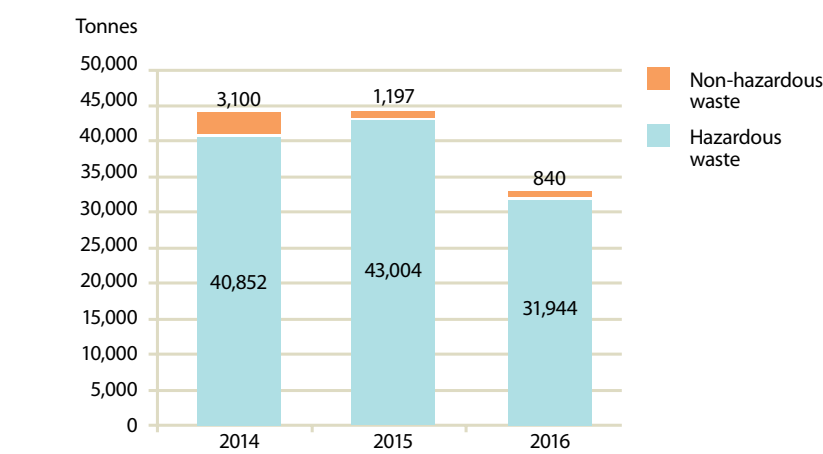
WASTE MANAGEMENT

Waste handling in KPO is focused on reducing the real and potential hazards the generated waste may impose on people and the environment. 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 specialized contractor organizations for further disposal, processing and destruction.

The Graph №27 shows the dynamics of waste generation for the last three years. In 2016 the volume of waste generated at KPO facilities totaled 32,784 tonnes.

Graph №27. The volume of waste generated at KPO facilities in 2014-2016, tonnes G4-EN22



In 2016 the volume of waste, generated at KPO facilities, was minimized due to the decrease in the generation of drilling waste because of the reduced number of the operated drilling rigs.

WASTE TREATMENT

KPO Eco Center is truly considered as an example of the best drilling waste management practice in the West-Kazakhstan Oblast. The facility ensures cost-efficient and environmentally safe recycling and treatment of drilling cuttings and fluids.

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 re-use the waste generated in drilling operations.

The KPO Eco –Centre’s waste treatment facilities are presented further.

Thermo-mechanical cutting cleaning facility (TCC)	Function	Performance in 2016
	Treatment of oil-based drill cuttings with the separation of base oil and water	In 2016, 18,245 tonnes of waste were treated; 1,590 tonnes of base oil and water were separated; and 15,584 tonnes of treated waste at the TCC were disposed at the Solid industrial waste landfill.

Thanks to separation of base oil and water from the treated oil-based drilling cuttings the quantity of KPO disposed waste was reduced by 15% (from the originally generated volume).

Rotary Kiln Incinerator (RKI)	Function	Performance in 2016
	Treatment and neutralization of drilling and production waste	In 2016, 8,634 tonnes of drilling and production waste were treated; and 6,986 tonnes of waste treated in the TCC were disposed at the Solid industrial waste landfill.

By applying the technology of the treatment and neutralization of drilling and production wastes at the RKI the volume of wastes (from the originally generated amount) was reduced by circa 20%. This waste is disposed at the Solid waste burial landfill.

General Purpose Incinerator (GPI)	Function	Performance in 2016
	Incineration (neutralization and destruction) of waste	In 2016, 722.5 tonnes of waste was sent for incineration, following which 96.1 tonnes of ash was disposed at the Solid industrial waste landfill.

Incineration of wastes in the General Purpose Incinerator helps reduce the volume of wastes by 87% (at the outlet).

Liquid treatment plant (LTP)	Function	Performance in 2016
	Treatment of liquid waste and wastewater for the reuse of treated products in making drilling muds and brines	In 2016, 6,070 tonnes of liquid waste was treated. Following the treatment, 3,193 tonnes of the reusable muds and brines were produced.

Waste Segregation Unit (WSU)	Function	Performance in 2016
	Sorting of the Company's municipal waste aimed at reducing the quantity of waste to bury, with the separation of reusable components such as paper, textiles, plastic bottles, glass, polyethylene, ferrous and non-ferrous metals	In 2016 out of 982 tonnes of solid domestic waste, 722 tonnes were sent to GPI for incineration, 111 tonnes, including waste paper, metal scrap, and plastic was sorted for handing over to the specialized organizations for treatment and reuse.

Specialized Contractor Companies make their own decisions on the further waste treatment methods once the waste is accepted from KPO. They report to KPO on a quarterly basis on the wastes handed over to third parties.

In 2016 owing to the segregation and sorting of waste paper, the total quantity of the Company municipal waste sent to the city dump was decreased by 82 tonnes. The collected waste paper was handed over to the local companies for recycling.

WASTE DISPOSAL G4-EN23

Waste is disposed at the Eco Centre Solid Industrial Waste Landfill in compliance with the RoK environmental legislation. In 2016 the planned scope of work on construction and commission into operation of the 24 cells for waste burial was completed at the Landfill. The cells are shut-off once filled. As of end 2016, six cells were shut off.

The Landfill cells comprise a geomembrane placed over the clay layer that stops the waste or infiltrate from penetrating into the environment. Once filled with wastes the cells are covered with a sealing layer, and a drain system is installed for collecting the landfill gas. The Landfill has a melt and rain water drain system in place.

In 2016 the waste accumulated in the previous years continued to be moved from the Solid Waste and Spent Drilling Mud Disposal Site to the Eco Centre Landfill to ensure safe and final burial. In the period from 2013 to the end of 2016, 50% of the accumulated wastes were moved.



At the Waste Segregation Unit in the Eco Centre

Table №40. KPO waste generated, treated, disposed and recycled in 2016, in tonnes G4-EN23

WASTE HANDLING METHODS		GENERATED HAZARDOUS WASTE	GENERATED NON-HAZARDOUS WASTE	ACCUMULATED HAZARDOUS WASTE	ACCUMULATED NON-HAZARDOUS WASTE	PRODUCTS OF TREATMENT	TOTAL:
1. Sorting of waste prior to the incineration in GPI	Sent to WSU	855	0.34	127	0	0	982
	Difference following the re-weighing of waste after the sorting	14		-		-	-
	Waste sorted for handing over to the third party for further treatment	111		-		-	-
	Waste sorted and handed over to the third party for burial	134		-		-	-
2. Incineration	Waste sent for incineration in the GPI after the sorting	722		-		-	-
	Unsorted wastes sent for incineration in the GPI	0.12	0	0	0	0	0.12
	Of which	96		-		-	
	Of which	626		-		-	-
3. Treatment	Sent for treatment at the RKI, TCC and LTP	18,756	30	13,359	0	805	32,949
	Of which	4,456					-
	Of which	805					-
	Of which	328					-
	Of which	2,609					-
	Of which	1,910					-
	Of which	22,841					-
4. Reuse and recovery of wastes to the process stream		72	30	0	0	0	102
5. Neutralization at the facilities and drying at the sludge beds		783	0	20	0	0	803
6. Burial at the Landfill without treatment		1,994	0	23,239	0	0	25,233
7. Accumulated by the company (waste disposed in cells 35 A/B during the year, and remaining waste stored till the handover in 2017)		6,224	46	104	0	0	6,374
8. Waste handed over to the third party for further recycling, use, incineration and burial		3,262	734	162	127	235	4,520

The KPO waste is mainly produced during the wells drilling and workover activities. It should be noted that the water or oil base of the drilling cuttings depends on the type of the drilling mud used for the well operations. In 2016, 26,159 tonnes of solid and liquid drilling waste was generated, which was equivalent to 80% of the total waste quantity.

Table №41 shows the main types of drilling waste broken down by the handling methods. As it can be seen from the table, only water-based muds and cuttings are subject to disposal. Oil-based drilling cuttings can only be buried after the treatment and extraction of the oil base.

Table №41. Waste generated from of well operations, by handling method, 2015-2016 ^{G4-OG7}

WASTE DESCRIPTION	GENERATED QUANTITY, TONNES		HANDLING METHOD
	2015	2016	
Spent water-based drilling mud	392	950	Treated at the Liquid Treatment Plant
	3,413	4,188	Disposal
Water-based drilling cuttings	1,199	1,994	Burial
	6	0	Thermal treatment in RKI
Spent oil-based drilling mud	2,216	2,156	Treated at the LTP and TCC
	7	0	Thermal treatment in RKI
Oil-based drilling cuttings	17,688	12,026	Treated at the LTP by extraction of oil base, water and followed by the burial of the solid part
Spent brines	9,280	3,802	Treated at the Liquid Treatment Plant
	2,371	984	Disposal
Oil cuttings	133	60	Thermal treatment in RKI
	12	0	Treated at the TCC

BIODIVERSITY ^{G4-EN11}

Preservation of biodiversity and ecosystems is one of the priority streams of sustainable development nowadays.

The Karachaganak Oil and Gas Condensate Field (KOGCF) is situated in the dry steppe zone in the North-West of Kazakhstan with an area in excess of 280 km². KPO carries out its business activities within a limited territory, whereas the areas surrounding the KPO facilities are the property of a number of other parties and are managed by them.

Past and present land-use management formed the existing landscape, biodiversity and ecosystems, which continue to be affected by the processes and activities both at the local and global levels. Overall landscape and historical aspects play an important role in understanding the reasons behind the current status of the environment, as well as the activities that continue to impact biodiversity and ecosystems.

Various flora and fauna species inhabit the KOGCF area, including the species red-listed by the International Union for Conservation of Nature (IUCN), in Kazakhstan, as well as rare species at the KOGCF. It is vital for KPO to take these species into consideration when planning and implementing activities in this region. However, it would be unreasonable to view the existence of species or their number as criteria to measure the Company's environmental performance since the population of species may change due to the reasons of global or local level, not directly related to KPO's activities. Any changes in number of such species must be studied in the wider context of the dynamics in the development of species population. KPO in its turn strives to organize the operations in such a way that they do not directly or indirectly impact the population of certain species.

By way of attaining the goal of effective ecosystem management within the boundaries of the Field KPO implements actions aimed for biodiversity preservation pursuant to the Biodiversity Conservation Plan (BCP). The key purpose of the BCP is to conserve flora and fauna species and their habitats in the KOGCF in conjunction with the KPO activities. Starting from 2011, under the BCP, KPO conducts a phased assessment of the status of biodiversity and assessment of the impact of KPO's operations on it.

In 2016 KPO continued to implement the second stage of the Biodiversity Conservation Plan for 2015 – 2016. The research in 2016 was dedicated to the monitoring of the vegetation. The BCP identifies four key research subjects based on potential factors of changes associated with KPO operational activities and works in the Field performed by third parties:

1. Whether there are any significant changes in the steppe ecosystem associated with air emissions.
2. Whether there are any significant changes in the steppe ecosystem associated with the physical impact of external factors.
3. Whether there are any significant changes in the properties of the vegetation observed in the water intake areas and not characteristic to the locations where no water intake is performed.
4. Whether there are any changes in the grassland farming, and whether they significantly affect the steppe ecosystems.

These impact factors were assessed by way of analyzing the 'indicator types' of vegetation, which serve as the indicators of the changes. The results of the vegetation cover's monitoring in 2016 demonstrated that the main negative factor of impact on the vegetation resulting from the KOGCF activities is the physical one. This factor manifests itself in the form of mechanical destruction of the vegetation while the open pits are mined, the pipelines are laid, industrial sites and access roads to them are constructed, and also while the soil is ploughed up for planting green belts. The disturbed areas are of local areal or linear nature.

The sites located near settlements (the Priuralnoye village) and operating farms (near the former Tungush village) are characterized by varying degrees of disturbance resulting from grazing. The degree of disturbance varies depending on the mode of use. Vegetation near settlements is degrading progressively year by year. The areas near farms are affected to the lesser degree, there is hardly any negative impact on the vegetation, and in some areas farms can actually have a positive impact, preventing excessive development of turf cover in the grassy areas.

At the current stage of monitoring the area there is no evidence of a trend for drying-up as a result of KPO's water intake. All fluctuations in the percentage composition of the ecobiomorphs (life-forms of plants inhabiting in the similar environmental conditions) sensitive to humidification of the environment are due to the degree of humidification in a specific year.

No obvious signs of impact of air emissions on the vegetation were observed. ^{G4-EN12} In addition, it is important to pay attention to such an indicator of the environmental situation as lichen. A considerable amount of lichen on the trees and large stones within the KOGCF is evidence of the air purity.

Comparing the observations of the vegetation in different sites on the fallow land corroborates

the general trends of restoration of the nominally primary vegetation as a result of cessation of agricultural use of the lands. It manifests itself in a decrease in proportion of weeds species and an increase in proportion of steppe vegetation species. During the spring observations in 2016, an increase in the occurrence of rare and key species of flora was observed, which had been caused by more favourable humidification conditions in 2016.

In 2016 a new spot with sporadic key species of *Fritillaria ruthenica* was registered. For the first time within the field, near the pools in the eastern part of the area, in gramineous-mixed-herb communities, snake's head fritillaries (*Fritillaria meleagris*) were found. Also, the Hairy adonis (*Adonis villosa*) and Spring adonis (*Adonis vernalis*) were registered within the monitoring sites and in the neighbouring areas.



Beaver, the species included in the IUCN Red List

The main significant species registered within the KOGCF during the studies of 1990-2016 are shown in Table №42. All these species can also be found beyond the Karachaganak Field.

Table №42. Species essential for nature conservation registered within the Karachaganak Field G4-EN14

№	SPECIES	IUCN CATEGORY	THE KAZAKHSTAN RED DATA BOOK	LOCAL RARE SPECIES (IN KOGCF)	YEARS OF RECORD
FLOWERING PLANTS					
1	Carnation andrzejowskianus (Dianthus andrzejowskianus)	-	KRDB	✓	2008, 2010, 2015, 2016
2	Woodland tulip (Tulipa biebersteiniana)	-	KRDB I	✓	2007, 2008, 2010, 2013, 2015, 2016
3	Eastern pasqueflower (Pulsatilla patens)	-	KRDB	✓	2010, 2015, 2016
4	Fritillary (Fritillaria ruthenica)	-	-	✓	2010, 2013, 2015, 2016
5	Schrenck's tulip (Tulipa shrenkii)	-	KRDB	✓	2007, 2008, 2010, 2013, 2015, 2016
6	Hairy adonis (Adonis villosa)		KRDB	✓	2016
7	Spring adonis (Adonis vernalis)		KRDB	✓	2016
8	Fischer's star of Bethlehem (Ornithogalum fischerianum)		KRDB	✓	2013, 2016
9	Snake's head fritillary (Fritillaria meleagris)		-	✓	2016
BIRDS					
10	Demoiselle crane (Anthropoides virgo)	-	KRDB VI	✓	1990, 1991, 2003, 2004, 2005, 2008, 2010, 2015, 2016
11	The Eurasian eagle-owl (Bubo bubo)	LC	KRDB II	-	1991
12	Imperial eagle (Aquila heliaca)	VU	KRDB III	✓	2002, 2003, 2010
13	European roller (Coracias garrulous)	NT	-	✓	2001, 2010
14	Lesser kestrel (Falco naumanni)	LC	-	✓	2004

№	SPECIES	IUCN CATEGORY	THE KAZAKHSTAN RED DATA BOOK	LOCAL RARE SPECIES (IN KOGCF)	YEARS OF RECORD
15	Little bustard (Tetrax tetrax)	NT	KRDB III	✓	1990-1991, 2002, 2004, 2008, 2010, 2015
16	Mute swan (Cygnus olor)	LC	-	✓	2003,2004, 2008, 2010, 2013, 2015, 2016
17	Osprey (Pandion haliaetus)	LC	KRDB I	-	1990
18	Pale harrier (Circus macrourus)	NT	-	✓	2002, 2003, 2004, 2005
19	Red-footed falcon (Falco vespertinus)	NT	-	✓	2001, 2002, 2003, 2004, 2005, 2008, 2010, 2015, 2016
20	Steppe eagle (Aquila nipalensis)	LC	KRDB VI	-	2002, 2008, 2010
21	White-tailed eagle (Haliaeetus albicilla)	-	KRDB III	✓	2004, 2008, 2010, 2015, 2016
MAMMALS					
22	Beaver (Castor fiber)	-	-	-	2003, 2005, 2008, 2010, 2012, 2015, 2016
REPTILES					
23	Orsini's viper (Vipera ursini renardii)	VU	-	✓	2001, 2002, 2003, 2008, 2010, 2016
INSECTS					
24	Emperor dragonfly	-	KRDB	-	2010
25	Short-winged bolivaria (mantis)	-	KRDB	-	2010

The following categories are used in the table:

- **NT: Near Threatened** – species whose decrease in the population is near the threshold of the higher risk category as per criteria of the International Union for Conservation of Nature and Natural Resources (IUCN).
- **VU: Vulnerable** – species that are facing a high risk of endangerment in the wild.
- **LC: Least concern** – species evaluated against the IUCN criteria that do not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category (species in this group are not included in the count of internationally rare species).
- **KRDB: Kazakhstan Red Data Book** – species that are recognized as nationally rare in the Red Data Book of Kazakhstan, Roman numerals indicate the various rarity categories: Category I – the rarest species, and Category V – the least rare.

In general, it should be noted that within the Field there is a process of natural restoration of reservoirs as a result of cessation of agricultural use of the steppes. The vegetation of the territory is characterized by a heterogeneous spatial structure, rich flora and a quite high degree of biological diversity. Rare species of plants within the KOGCF continue to remain at a constant level.

During the flora and fauna monitoring work at the Karachaganak field being carried out by the Company on a continuous basis since 2011, no obvious negative effect on the flora and fauna representatives' habitats from the KPO's production activities has been observed. On the contrary, the absence of agricultural activity, overall protection of the territory, almost complete absence of the human disturbance factor – has contributed to creating favourable conditions for the life cycles of local flora and fauna in the field, in their turn facilitating conservation of rare species. ^{G4-EN12}

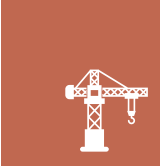
In 2017 KPO works on developing a Biodiversity Conservation Plan for 2018-2019 in accordance with the Guide to developing biodiversity action plans for the oil and gas sector published by IPIECA and IOGP. In addition to the continued monitoring of fauna and flora in order to obtain the data on the dynamics of the state of species diversity, the BCP for 2018-2019 will include recommendations on carrying out further research of ichthyofauna in the water bodies of the KOGCF, recommendations on the species diversity of Invertebrata, and also on the observations of the dynamics of the riverside vegetation for a complex assessment of the biodiversity and general condition of the field ecosystems.



Moor frog, inhabitant of the Karachaganak Field



Mayflower, the endangered species with reducing distribution area, included in the Kazakhstan Red Data Book



OUR SOCIAL & ECONOMIC IMPACT

LOCAL COMMUNITY ENGAGEMENT

LOCAL COMMUNITY ENGAGEMENT STRATEGY ^{G4-27}

KPO approach is to prevent or minimise adverse impact of its operations on local community and to maximise benefits through improved liaison with local community and creation of opportunities for social development. ^{G4-15}

Over the last seven years, we have been working based on the annual Social Performance Plan for the benefit of the local communities living in the proximity of Company production facilities. The Plan aims to align the Company goals with governmental programs and the needs of the local communities. This plan takes into account the interests of the local communities and sets priority targets for their development with the view of mitigating potential social risks.

This Plan includes implementation of KPO programmes relating to education, public health and social support for vulnerable groups, such as elderly: former combattants of war, veterans of labour or retirees; and children: disabled or poverty-stricken. In addition, the Plan envisages consultation sessions with local communities regarding environmental issues and the Grievance and Suggestion management process. The 2016 Plan goals and objectives have been detailed in the Table №43.

Table №43. Targets for local communities’ engagement

2016 TARGETS	TARGET ACHIEVEMENT	ACTIONS TAKEN IN 2016	TARGETS FOR 2017
Secure the 2016 budget for the development of local infrastructure and develop Social Performance Plan for 2016	Yes	Social Performance Plan for 2016 has been 100% completed.	Implement KPO Social Performance Plan for 2017 subject to budget approval
Conduct Village Councils sessions on a quarterly basis for exchange of information about KPO operations	Yes	18 village council sessions were held with local people living in five rural districts of the Burlin District adjacent to the Karachaganak field.	Until the end of 2017 to conduct 16 Village Council sessions on environmental, social and economic aspects with local people living in five rural districts of Burlin District located nearby the Karachaganak field
Continue monitoring of the KPO Community Grievance and Suggestion Management Procedure	Yes	A total of 36 complaints were received from local residents in 2016. 31 of them were odour complaints received from nearby villages. For more details please read the Section «Dealing with Grievances and Suggestions» further in the text.	Continue community engagement according to the Community Grievance and Suggestion Management Procedure
Implement the second phase of Berezovka and Bestau resettlement project in 2016 in line with applicable Kazakh legislation and international standards	In progress	Throughout the year consultation sessions were held with local residents from the affected villages of Berezovka and Bestau concerning the resettlement project. More detailed information is provided further.	Assist KPO management and the Burlin District authorities in implementing the second phase of Berezovka and Bestau resettlement project in line with applicable Kazakh legislation and international standards

CONSTRUCTIVE DIALOGUE

Meetings and consultation are fundamental for the Company performance as part of our social responsibility.

In 2016, we conducted a series of consultation sessions and meetings with local residents living in five rural districts located in the vicinity of the Karachaganak Field. 18 meetings with the Village Councils were conducted throughout the year whereby members of the Village Councils and the KPO Community Relations team discussed local infrastructure development programs as well as KPO air monitoring and other environmental issues.

In February 2016, KPO presented a detailed report on the implementation of 2015 KPO Social Performance Plan for the attention of local residents of each rural district. In February, upon approval of the 2016 budget, KPO discussed the 2016 Plan with local residents. Proposals / suggestions of rural residents were recorded in the meeting notes and taken into consideration during the implementation of the above Plan. Thus, on 12 May 2016 at the Village Council session the local residents highlighted the need to have a heating system in Zharsuat primary school building repaired. KPO supported the suggestion raised by local people and the heating system was repaired during summer vacations in 2016.

PUBLIC HEARINGS

In 2016 with the support of local authorities of the Burlin District KPO held a number of public hearings concerning 33 design projects, including implementation of individual projects related to well construction, upgrades of the Alarm System deployed in the villages.

The above projects included sections detailing a set of environmental protection measures.

The communities were notified about the public hearings from regional newspapers, such as Priuralye, Oral Oniri, and district newspapers, such as Budni Aksaya, Panorama Karachaganaka, Borli Zharshysy.

All the stakeholders concerned such as local residents, representatives of mass media, the Burlin Akimat and Maslikhat, NGOs, relevant authorities in charge of environmental protection, public health, construction, and land use are invited to the public hearings.

All the above projects were supported by everyone in attendance, and this was duly recorded in the relevant minutes.



Environmental monitoring presentation for the Zhanatalap villagers

DEALING WITH GRIEVANCE AND SUGGESTIONS ^{G4-SO11; G4-EN34}

The formal procedure for processing complaints and suggestions arising out of Company operations is available in KPO. Any resident living in a village around the Karachaganak field may communicate his/her grievance to KPO Community Relations Specialist either verbally or in writing by filling in dedicated forms and using the dedicated boxes installed in the villages. The Company will subsequently review a grievance received and bring forward a solution to address the concern raised.

Alongside with this, a robust air monitoring system is in place. Detailed information about the system is disclosed in the Environmental Monitoring Section hereof.

KPO places major emphasis on dealing with grievances and concerns raised by the residents living in villages near the Karachaganak field. All details are evaluated. Those residents who complain about gas odour receive timely feedback from KPO Community Relations representative.

Pursuant to the KPO Community Grievance and Suggestion Management Procedure, 36 complaints were registered in 2016, including:

- 31 complaints dealt with gas odour with most coming from Zhanatalap (details are provided in Table №44 and in below sections);
- Five suggestions were raised in relation to social investment and infrastructure. The residents asked KPO to help repair roads in Zhanatalap and Uspenovka, mend a heating supply system in Zharsuat primary school, or clean the roads off snow in winter season. All the requests were fully or partially satisfied.

Table №44. Grievances from local communities registered in 2016 G4-EN34

VILLAGE	NUMBER OF GRIEVANCES	2016 GRIEVANCES REGISTRATION DATES
Bestau	1	February 13
Berezovka	6	April 18*; June 22, 25; July 4**
Karachaganak	3	February 21, April 02, August 10
Uspenovka	2	March 17, June 30
Zhanatalap	14	February 04, 26; April 15, 24; May 07; July 05***, 12, 14; September 07; October 01, 03; November 05, 22
Zharsuat	2	April 20, 21
Priuralnoye	3	March 05, 23; October 26

Note: *2 complaints from the residents of Berezovka were registered on April 18, 2016.
**2 complaints from the residents of Berezovka were registered on July 04, 2016.
***2 complaints from the residents of Zhanatalap were registered on July 05, 2016.

All the above complaints about gas odour were thoroughly reviewed and duly settled by KPO with prior agreement with complainants. This was achieved through communication by phone, or during in-person meetings with KPO Operations Environment department, Emergency Response team and Community Relations group. Concentrations of sampled substances did not exceed statutory limits for maximum permissible concentrations (MPC). The information provided to the residents was based not only on the readings from automated EMS deployed at different locations around the Field’s SPZ , but also on the readings received from mobile EMS’s and the results of air sampling carried out by an accredited laboratory both on the Field’s SPZ boundary and within the villages.

In September 2016, KPO presentated the highlights of KPO Environmental Monitoring System to the residents of Zhanatalap as part of an ongoing engagement with the Village Council of Uspenovka Rural District. During the session, KPO experts briefed the villagers about advanced flaring monitoring technologies and air monitoring systems introduced by Company as well as procedures that KPO would normally follow upon receipt of a gas odour complaint.



After the ceremony of donation of a bus and musical instruments to Aksai Music School

KPO conducts full-scale environmental monitoring in accordance with the Production Environmental Control Programme. Results of air monitoring along with gas concentrations readings received from the Environmental Monitoring Stations are disclosed in the chapter Caring for the Environment hereof.



At the public consultation on resettlement for Beryozovka citizens

BEREZOVKA AND BESTAU RESETTLEMENT PROJECT

As was already mentioned in our Sustainability Report 2015 the resettlement of the two villages is led by the Western Kazakhstan Oblast and KPO who provides the funding. A dedicated Committee comprising the Burlin District authorities, members of Maslikhat, KPO and NGOs was set up to manage the resettlement including applications and grievances raised by the residents of Berezovka and Bestau.

The resettlement to Aksai is being implemented in two phases. The vulnerable groups of the community who voluntarily decided to move within the Phase 1 were resettled at the end of 2015.

Phase 2 of the Resettlement project will be delivered upon completion of the construction of the two 9-storey apartment blocks in Micro District Karachaganak-1 in Aksai and 100 detached houses with land plots in Micro District Araltal.

Meetings and consultancy sessions with the residents of the affected villages were held throughout 2016. In June and October 2016, the Burlin District local authorities and KPO conducted joint consultation sessions with the community during the so-called Open Days. Over 400 residents of Berezovka and Bestau attended the event. During the meetings, people were briefed of the resettlement options available by using leaflets and information boards. Every family was provided with a leaflet that contained detailed description of new apartments and houses as well as answers to the most frequently asked questions.

In 2016, KPO did the monitoring of the Phase 1 after its completion at the end of 2015 and visited the apartments where people had moved in. In the course of the follow up meetings KPO helped people to establish their own condominium and to address issues raised by the residents with respect to construction deficiencies.

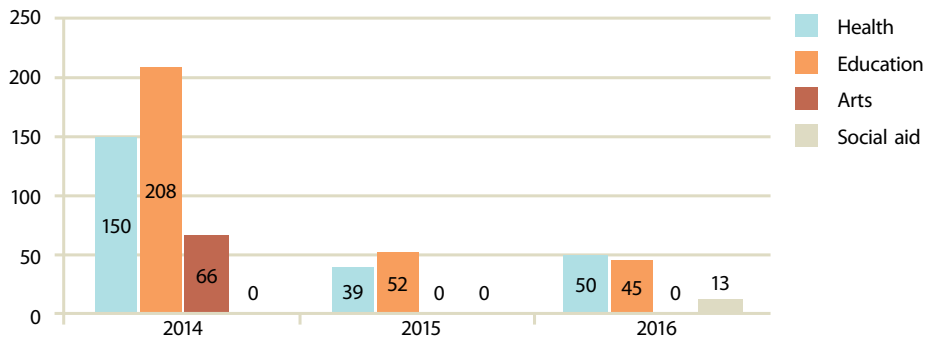
COMMUNITY DEVELOPMENT PROJECTS G4-EC7, G4-SO1

KPO makes strong efforts to improve living conditions of people living near the Karachaganak field.

Local residents use the Village Councils to propose projects aimed at improving basic infrastructure and social conditions. KPO reviews the proposals received and evaluates them to ensure those meet the community's real needs and common priorities are feasible and that there is the Company's budget available to support with.

Diagram №28 shows the KPO invetsments into local community development programmes in 2016.

Graph №28. KPO Investments into Local Community Development Programmes, 2014-2016, in thousand USD



Below are described the KPO initiatives implemented in 2016 as part of local community development in the areas of health, education and arts.

Social support for elderly people and children

One of the most important Local Community Development projects looks to provide medical care for elderly people at health resorts and recreation for schoolchildren at a summer camp . The project targets the elderly and schoolchildren living in the villages nearby the Karachaganak field: Berezovka, Uspenovka, Zhanatalap, Zharsuat, Dimitrovo, Karachaganak, Priuralnoye, and Bestau.

In 2016, KPO provided vouchers to a health resort called «Akzhaiyk» for 200 senior citizens and veterans of war and labour from the Burlin District. About 100 schoolchildren from the above villages were able to spend 10 days in the summer camp Talap in Uralsk.

In addition to this, in 2016 KPO presented 108 rucksacks filled with stationary to schoolchildren who come from either low-income or large families on the Knowledge Day as well as around 1,090 sets of New Year sweets for the kids below 14.

Congratulations to the Veterans of War on the Victory Day

Starting from 2003 it has become a tradition for KPO to visit the veterans of war and the widows of the former combattants living in the nearby villages. Every year on the eve of the Victory Day, the Company representatives call on them and present some gifts to mark the occasion. In 2016, it was 11 food hampers.

Education

One of the focuses of the Community Development Programme is to provide development opportunities for the young people. A long-term investment into human capital will help address strategic business goals whilst promoting economic growth. In 2016, KPO continued to pursue its Scholarship Programme targeting local school graduates and support of Public Foundation «Zhas Daryn» with whom KPO has been cooperatings for over last 3 years.

The mission of «Zhas Daryn» is to help disabled and disadvantaged children. It is important for our Company to enable for the contunious development of organizations that provide care to disabled children.

CASE STUDY №3
PUBLIC FOUNDATION «ZHAS DARYN»

Aim: SPONSORSHIP SUPPORT OF A BURLIN DISTRICT BASED NGO IN IMPLEMENTING SPECIAL PROGRAMS AIMED AT SOCIAL INCAPACITATION AND DEVELOPMENT OF DISABLED AND DISADVANTAGED CHILDREN.

Approach: Public Foundation «Zhas Daryn» was set up in Burlin District in 2011 with the mission to provide a comprehensive protection of the rights and interests of children with disabilities and kids with deprived backgrounds of the age from 7 to 16.

Over the last 3 years with KPO sponsorship «Zhas Daryn» did a lot of good things and delivered many projects helping the most vulnerable groups of children and teenagers in the Burlin District and in Aksai. Significant contribution in the institutional and professional development of the above foundation was provided by one of the KPO Parent companies – Shell. Owing to the financial support from Shell a social commercial project «Golden Triangle» aiming at developing children's creativity was implemented.

Results: Thanks to KPO sponsorship, the kids from vulnerable groups can attend creative workshops at school No. 3 in Aksai and at schools of the villages of Kanai, Kentubek, Burlin and Zharsuat of the Burlin District. Not only do kids learn the fundamentals of fine art there, but they also learn choreography, dressmaking, knitting, acting, and develop communication skills. The fine arts studio project was widely supported by Akimat, Maslikhat and Educational Department of Burlin District. Based on the 2016 performance the Public Foundation «Zhas Daryn» won the competition as «The Best Social Project» in the WKO and was recognized as one of the best foundations in the country.

The example of Ayazhan Gumar is admirable. Ayzhan joined «Zhas Daryn» being diagnosed with infantile cerebral paralisy at the age of four. The girl could not walk unless she was supported by someone. She could not hold her head but she was keen to be in good health. Over the four years she spent with the foundation not only did she learn drawing, but also she managed to hold her head, walk on her own without the support from other people and even attend the school classes. With the sponsorship of Zhas Daryn, Ayazhan underwent rehabilitation courses eight times. The amount of financial support is c. KZT 800 k. In addition, the foundation provides support to her by giving stationary and school supplies, clothes and shoes during charity events.

Last year with the support provided by KPO «Zhas Daryn» conducted over 30 different events dedicated to sports, patriotic themes and national festivities and memorable dates as well as exhibitions to display works by children who attend creative workshop classes.

SUPPORTING SOCIAL INFRASTRUCTURE

Annually KPO implements the social and infrastructure projects in the West Kazakhstan Oblast (WKO) under the terms of Annex 5 to the Final Production Sharing Agreement.

Following the decision of the Joint Operating Committee (JOC), since 2010, KPO has been allocating USD 20 mln per year for social and infrastructure projects in the WKO. For the period from 2014 to 2016, the JOC decided to allocate additional funding of USD 30 mln for social and infrastructure projects in Burlin district, USD 10 mln each year.

The list of social projects is annually approved between KPO and the WKO Akimat based on the priorities of the Oblast’s social development.

Table №45. Social infrastructure projects in Uralsk completed by KPO in 2016

AREA	PROJECT NAME	PROJECT DESCRIPTION	ACTUAL COSTS (MLN KZT*)
Social and economic development	Construction of the Palace of Youth and Schoolchildren in Uralsk	The Youth and Schoolchildren's Palace is an educational and entertainment complex complementing a school program. It provides for various study classes of sports, arts and technical areas.	3,371
	Reconstruction of a water pipeline at the Eurasia Avenue from 2nd base to the Dostyk Avenue, length 3,000 m	The project covered the replacement of a water pipeline section passing under the road at the Eurasia Avenue. The water pipeline supplies the city center.	525
	Major repair of a road at the Eurasia Avenue (from the Mukhit street to 2nd base), length 2,800	The project included the installation of a new roadway pavement and repair of sidewalks at the Eurasia Avenue, one of the primary streets in Uralsk.	747
	Reconstruction of gravity flow sewer at the Eurasia Avenue from 2nd base to the Petrovskiy Street, length 1,400 m	The project included the replacement of a sewage conduit section running under the road at the Eurasia Avenue	199.3
	Medium repair of the Tsiolkovskiy Street from the Sholokhov Street to the Abulkhair Khan Avenue in Uralsk	The project included a new roadway pavement and repair of sidewalks at the Tsiolkovskiy Street, one of the main city streets.	86
	Medium repair of a road at the Dzhambeytinskaya and Chkalov Streets (from the Shubin Street to the Kaztalovskaya Street) in Uralsk	The project covered a new roadway pavement and repair of sidewalks at the Dzhambeytinskaya and Chkalov Streets, main city streets.	71.4
	Reconstruction of the right bank of the Chagan river in the City Park of Culture, Uralsk (Phase I)	The project included a new roadway pavement 800 m in length and the bicycle track 2,700 m in length. In addition, utility networks were placed with regard for future development.	256.2

KPO is responsible for project’s design, procurement and management of the full process up to completion of construction and the subsequent handover to the Republic of Kazakhstan. All social projects are to be 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 the next calendar year.

The list of social projects completed in 2016 is provided hereunder in Table №45 and Table №46.



General Director with pupils of musical study group, the Youth and Schoolchildren’s Palace, December 2016

Table №45 continued

AREA	PROJECT NAME	PROJECT DESCRIPTION	ACTUAL COSTS (MLN KZT*)
Sport	Designing of a football arena for 3,000 seats in Uralsk	The project included a design project of a football arena for 3,000 spectators with a high quality field surface.	126.4
Education and training	Design of the Library in Uralsk	The project involved a design project of a new city library and premises for the Oblast archives as well.	167.4
	Major repair of SI Secondary School No.2 after Moldagaliyev located at the Chingirlauskaya Street, 7A in Uralsk	The project covered the repair of a school building, including exterior finishing and provision of classroom equipment required for educational process.	445
		Total	5,994.7

*Amounts are VAT including

Table №46. Social infrastructure in the Burlin District and other districts of WKO completed by KPO in 2016

AREA	PROJECT NAME	PROJECT DESCRIPTION	ACTUAL COSTS (MLN KZT*)
Social and economic development	Construction of a boiler-house for heat supply for the micro districts №4 and №5 in Aksai	The project covered the construction of a boiler house and equipping it with the components required for heating supply for 4th and 5th micro districts of Aksai.	1,517
	Construction of roads at the Depovskaya street, major repair of the Lineinaya Street in Aksai	The project was aimed at new road surfacing and the repair of barrier fences and sidewalks, and the restoration of city infrastructure elements.	871
	Major repair of the Dzhambulskaya Street in Aksai	The project was aimed at the installation of a new road surfacing and the repair of barrier fences and sidewalks, and the restoration of city infrastructure elements.	434
Sport	Major repair of SCE “Sary-Arka” Sports Club at the Syrym Datuly Street in Aksai	The project covered the repair of a sports club building with a swimming pool and the provision of fitness equipment.	245
Education and training	Major repair of the school after Shakir Zheksenbayev in the Uyaly village	The project covered the repair of a school building and the provision of equipment required to ensure full functioning of water supply, heating and power supply systems.	154
	Construction of a kindergarten for 140 children in the Burlin village (Burlin district, WKO)	The kindergarten was designed as a two-storey building for 140 children, which includes several playgrounds with sunshades, gaming equipment and a sport ground. The building was fully equipped with required materials and furnished on a turn-key basis.	483
		Total	3,704

*Amounts are VAT including

SUPPLY CHAIN ^{G4-12}

To ensure delivery of the best goods, services and works for the Karachaganak operations we cooperate with a large number of contractors, vendors and counterparties both in Kazakhstan and worldwide. We acknowledge the impact of our presence in the West Kazakhstan region and contribute to local sustainability goals by developing local content and creating procurement opportunities.

We conduct our activities in the procurement of goods and services in accordance with the Final Production Sharing Agreement (FPSA) and the approved KPO Tender Procedures. Procurement is carried out through tenders based on the principles of competitiveness, objectivity and confidentiality. The stages of procurement process are presented in the following graph.



The procurement planning process includes strategic planning of detailed activities in terms of expenses and cost savings, target reserves and quality. The contracting strategy is aimed at identifying the required actions to ensure relevance of procurement needs for KPO departments in compliance with regulations and policies.

The vendor management system is oriented at implementation of contractual work and procurement in compliance with KPO requirements in terms of ethical principles, local content and financial stability.

The process of requisitioning begins with a KPO department’s inquiry to the Contract and Procurement Department (C&P) requesting to initiate the procurement process aiming to receive goods and/or works and/or services.

The phase of tendering and awarding covers the processes of requisitioning, the process of identifying and inviting suitable suppliers to participate in a tender, the analysis of received proposals and contract awarding and conclusion stages.

Hereinafter, the process of contract management and administration defines roles and responsible parties for contract execution, including a contract holder, contract administrator and participants from C&P department.

The final feedback review on the contractor’s performance provides an assessment of contractual performance, including the quality of services rendered, commercial management, HSE, cooperation with KPO, etc. The review provides a possibility to update and revise the qualification status of the supplier.

KPO attracts a large number of contractors to perform the major works and services at Karachaganak, including construction, drilling operations, transportation and maintenance services.

Since the beginning of the Karachaganak project development and up to end of 2016, 8,000+ potential suppliers of goods, works and services have been registered in the KPO Vendor database. In total, more than 400 companies were registered and over 450 companies were assessed for ethical due diligence in 2016.

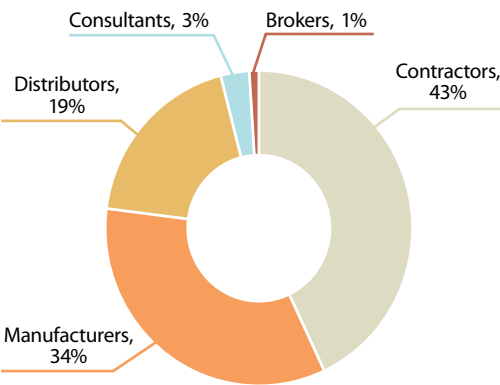
In 2016, the contracts and amendments were awarded to more than 599 suppliers, of which 360 (60%) were the local vendors (registered in the Republic of Kazakhsta n) and 239 (40%) were the foreign ones.

In 2016 KPO placed more than new 890 contracts for supply of goods worth over USD 136 mln and over 240 new contracts for provision of services worth over USD 450 mln.

Major contracts for provision of services in 2016 were signed with the companies registered in Kazakhstan, as noted above. However, the geography of the countries, with which contracts for supply of goods and services have been signed, is quite diverse. Besides Kazakhstan, these include Italy, UK, France, Hungary, Germany, UAE, Russia, USA, Netherlands, Czech Republic.

The Graph №29 shows the distribution of suppliers by type of vendor.

Graph №29. Vendors engaged by KPO in 2016 by type



LOCAL CONTENT DEVELOPMENT ^{G4-EC8}

KPO has been actively working towards the local content enhancement aiming at reduction of import and increase of Kazakhstani goods, works and services (GWS) in total volume of those procured for the needs of the Karachaganak project.

KPO Local Content Policy is intended to support businesses in the West Kazakhstan Oblast and across the Republic of Kazakhstan (RoK) generally by pursuing the following objectives:

- Support in establishing joint ventures to create new jobs and transfer technologies;
- Assistance in the development of manufacturing new types of equipment and materials in Kazakhstan;
- Creation of jobs in the field of design, construction and production;
- Determination of the nomenclature and supply of localized GWS for KPO needs («Kazakhstani tenders»);
- Arrangement of training and professional development of Kazakhstani personnel;
- Close cooperation with the RoK regulatory authorities and industry associations on local content issues.

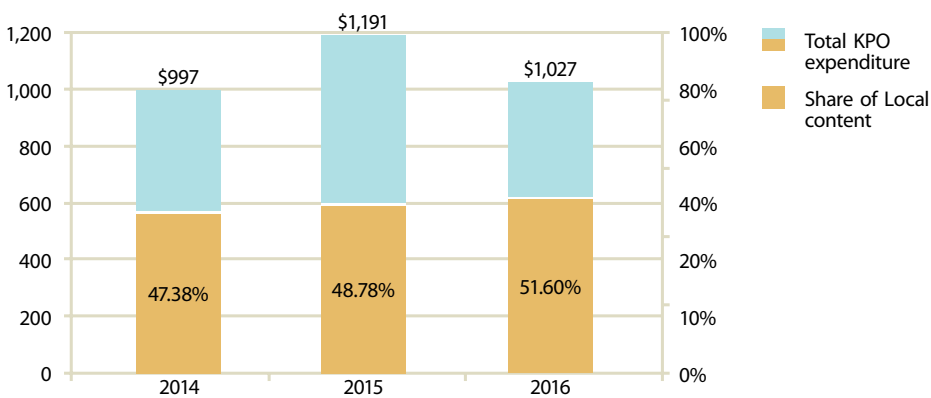
KPO puts significant efforts to maximize local content in the Karachaganak project in accordance with the FPSA and KPO Local Content Development Policy.

KPO Local Content Development Policy is intended to achieve the following goals:

- Increasing the share of local content both at the current phase of the KOGCF development and in the forthcoming expansion projects, which should also contribute to the development of the economy of the West Kazakhstan oblast and the Republic of Kazakhstan as a whole;
- Development of domestic production capacities in the oil and gas sector with the purpose to create mutually beneficial conditions within the current phase of the KOGCF development by KPO and during implementation of the expansion projects;
- Creation of a healthy competitive environment by development of Kazakhstani personnel and increasing the local suppliers’ potential in favor of long-term orders;
- Optimization of operating costs and improvement of logistics and procurement support through the localization and import substitution.

In 2016 KPO developed and implemented the Local Content Development Programme for 2016-2017, the active implementation of which is already bearing fruit. Thus, in 2016 the local content share in the Karachaganak project was 51.6% (circa 530 mln US Dollars) as shown in the graph. ^{G4-EC9}

Graph №30. Share of Local Content out of total KPO expenditures in 2014-2016, in mln USD



In order to support state and industry-specific development programmes KPO implements several long-term projects and initiatives. Thus, in 2016 the Company continued its activities in accordance with the existing agreements under the Local Content Development Programme for 2016-2017, such as:

- The Aktau Declaration dated September 2012 signed jointly with Tengizchevroil LLP, North Caspian Operating Company (NCOC) and the National Company KazMunayGas JSC;
- Memorandum of Understanding (MoU) on the national industry development of July 2014 signed between KPO, PSA LLP and the KAZENERGY Association;
- Memorandum of Understanding signed in December 2015 with the Karagandy Oblast Akimat.

Within the interregional cooperation in 2016 KPO management held a number of meetings with the representatives of five Kazakhstan regions in order to familiarize with the capabilities of local manufacturers, first of all oil oilfield service companies and machine-building enterprises.

A number of important events that took place in 2016 should be noted:

- KPO became an award winner in the nomination «For investment activity in the development of local content in the Republic of Kazakhstan» at the ceremony of awarding the best foreign investors as part of the conference «Kazakhstan: New Investment Opportunities” which involved the representatives of the government, leading international organizations, development institutions, diplomatic missions, mass media and the business community.
- On October 13, 2016 in Aktau the Tenaris Global Services Premium Threading Plant for oil and gas industry was launched. For the plant project implemented under the contract signed between KPO and Tenaris Global Services in July 2014, the attracted investments amounted to 40 mln US Dollars and over 40 jobs were created. It is worth noting that the plant’s products will be supplied not only to KPO, but also to other big oil and gas projects. The plant’s product range covers about 90% of the demand for pipes with premium connections required for most wells within the exploration facilities throughout the Caspian region.
- Within the 2nd Forum of the Kazakhstani goods producers «Uly dala eli» held in November 2016 in Astana KPO received an award in the nominated category «A Reliable Partner».

In 2016 KPO laid the foundation for the development of local content in the upcoming Karachaganak Gas Debottlenecking Project (KGDBN). Its implementation will allow attracting new investments in the Kazakhstan, the liquid hydrocarbons production plateau extension at the Karachaganak Field and creating additional jobs. In December 2016 KPO agreed on the local content strategy and action plan within the KGDBN project with all the parties concerned and started their implementation. The strategy provides for the targets and mechanisms for the local content development, performance indicators for the project and the basis for the GWS procurement from Kazakhstani producers and joint ventures.



KPO award in the nomination «For investment activity in the development of local content in the Republic of Kazakhstan»

The similar local content strategies and plans have been as well developed for the other expansion projects, which are currently under approval with the involved stakeholders.

In the reporting year 2016 the Company carried out significant work on the localization of the GWS, including:

- In May 2016 a workshop dedicated to the Karachaganak Gas Debottlenecking Project (KGDBN) was held for Kazakhstani companies. During the workshop the local goods producers and service providers were informed about the upcoming scopes of work within the KGDBN project and of the KPO requirements for pre-qualification, procurement and local content;
- As part of the International Investment Forum «WestKazInvest-2016» in September 2016 in Uralsk a panel session of the project «Attraction of foreign investments through the establishment of joint ventures and new production in the West Kazakhstan Oblast (WKO)» was held. The session was conducted with support from the WKO Akimat and the UK Department for International Trade;
- Localization project for drilling and the related activities within the Well Operations Roadmap is at the completion stage (see Case Study No.5);
- Facilitated technology transfer from ABB (Switzerland) to Ural Electric LLP for establishing production of electrical equipment under the ABB brand in Uralsk. About 150 new jobs are expected to be created (see Case Study No.6);
- Assistance is provided in the establishment of partnership between the British William Hare and Atyrauneftemash LLP for manufacturing metal structures in accordance with the international standards in the Republic of Kazakhstan (see Case Study No.6);
- The service for training personnel to work with explosion-proof equipment in accordance with standard IEC 60079 was localized;
- The trial order was placed for the production of street energy-efficient lighting devices for the needs of the Bolshoi Chagan and the Atyrau Terminal OPSs.

The Company contributes in the development of local suppliers of goods and services and implements a number of projects in order to support local manufacturing companies. These projects are targeted to have a collaborative relationship between foreign and domestic commodity producers, enabling them to integrate and transfer advanced technologies for further strengthening the industrial sector of the RoK economy.

Some examples of such projects are given further.



At the introduction workshop for Karachaganak Debottlenecking Project, May 2016

CASE STUDY №4 (continued from 2015) IMPLEMENTATION OF EARLY TENDERS AND TRIAL ORDERS (ET/TO) ACCORDING TO THE MEMORANDUM OF UNDERSTANDING (MOU) ON DOMESTIC INDUSTRY DEVELOPMENT

Aim: CONTRIBUTE IN THE DEVELOPMENT OF NEW GOODS AND SERVICES THROUGH CREATION OF THE NEW OR MODERNIZATION OF THE EXISTING KARACHAGANAK FACILITIES.

Approach: In July 2014 KPO, PSA LLC and the KAZENERGY Association have entered into a Memorandum of Understanding (MoU) on domestic industry development to support the RoK Government's initiatives for development of manufacturing and service clusters, and also considering a potential increase of needs as part of the further Karachaganak expansion projects. This collaboration relationship is aimed to identify goods, works and services (GWS) at early stages of the KPO projects, to create the GWS clusters and to initiate early tendering and/or trial ordering among the local suppliers. Such approach provides the interested local suppliers with time and opportunities required to develop new goods, works and services in Kazakhstan.

Result: The Working group created by the MoU parties reviewed and identified fifteen types of goods, works and services that might be localized and a list of equipment having a long supply lead time for KPO to initiate the pilot early tendering and/or trial ordering. The identified 15 GWS were split into three batches – short, middle and long term. The mandatory requirement for early tenders and/or trial orders is production of the goods, works and services in Kazakhstan.

In 2015, KPO started the activities on the GWS specified in Batch No.1. To facilitate the support to local companies in early tendering and / or trial ordering, KPO held the

meetings with potential local suppliers to clarify the MoU principles, early tender/trial order strategies, and also KPO technical requirements for each type of goods and materials.

In 2016 in the framework of Batch 1 (GWS), KPO worked on the following projects:

- Tender on the provision of fireproof personal protective equipment (PPE) was started;
- In result of the early tender for fencing manufactured in accordance with international standards held among the WKO machine-building enterprises, a contract was awarded to UralskAgroRemMash LLP.
- Trial procurement and testing of drilling bits manufactured by the RoK company Zhigermunaiservice LLP. Following the positive testing results of two drilling bits, a long term contract for manufacture and supply of the Kazakhstani drilling bits is planned to be awarded.
- Barite made in Kazakhstan by various local producers was laboratory tested for compliance with the KPO requirements. KPO started to procure the domestically produced barite through the drilling fluid contractor.
- Capabilities of the Kazakhstani cement plants to produce oil well cement that meets the API specification have been studied. Works on testing and potential procurement of the Kazakhstani oil well cement was postponed to 2017 due to the planned modernization of major cement plant in Kazakhstan.

In December 2016, the MoU Working Group approved implementation of six GWS types specified in Batch No.2.

CASE STUDY №5 (continued from 2015)

WELL OPERATION ROADMAP INITIATIVE

Aim: PROMOTE AND FOSTER THE DEVELOPMENT OF LOCAL CONTENT IN THE KPO WELL OPERATIONS BY CREATING PARTNERSHIPS BETWEEN THE KAZAKHSTANI AND INTERNATIONAL CONTRACTORS ON WELL OPERATION SERVICES.

Approach: For a range of services selected at the pre-tender stage, some international well operation service companies have been invited to create joint ventures (JV) where participation of the Kazakhstani oil service companies is mandatory in order to develop local content and assist in transfer of well operations technologies to a Kazakhstani party.

Result: In 2016 KPO tendered the following well operation services with a mandatory requirement to create the joint ventures involving domestic oil service companies:

- Producing of drilling fluids used in well injection;
- Standard well testing and clean-up;
- Coil-tubing services;
- Lowering pipes;
- Mudlogging services.

This strategy led to creation of the joint ventures between the Kazakhstani and international companies to participate in tenders for provision of well operation services. Based on the tender results within the roadmap at the end 2016 – beginning 2017 five contracts have been awarded to three joint ventures for a total value of USD 137 mln.

In 2017 KPO plans to conduct a tender for provision of the land drilling rigs with a mandatory condition for creation of JV with participation of the Kazakh oilfield service company.

CASE STUDY №6

INITIATIVE TO SUPPORT A TECHNOLOGY TRANSFER

Aim: CONTRIBUTE IN DEVELOPMENT OF PRODUCING THE NEW GOODS AND EQUIPMENT IN THE REPUBLIC OF KAZAKHSTAN BY TRANSFERRING THE CUTTING-EDGE INTERNATIONAL TECHNOLOGIES TO A KAZAKHSTANI PARTY.

Approach: Following the results of some work seminars held in 2015 targeting in localizing the manufacturing of metal constructions and electrical equipment within the Republic of Kazakhstan needed for the Karachaganak expansion projects in 2016, KPO facilitated the technologies transfer and setting up partnerships on two projects.

Result: Following the work seminar on development of the metal constructions production, KPO facilitated creation of a partnership between William Hare (United Kingdom) and Atyrauneftemash LLP to manufacture metal constructions in Kazakhstan for the needs of the Karachaganak expansion projects. In March 2016, KPO signed a Memorandum of Understanding with the William Hare - Atyrauneftemash partnership to upgrade the capacities to produce metal constructions in Kazakhstan.

As a result of the work seminar for implementation of electrical equipment manufacturing in Kazakhstan, in 2016 KPO assisted in conclusion of an agreement on technology transfer from ABB (Switzerland), a leading global manufacturer of electrical equipment, to Ural Electric LLP, to start producing medium and low-voltage electrical equipment under the ABB brand. The project will enable to provide electrical equipment to the O&G and other sectors of the RoK economy including engineering, and adopt export-oriented products.

In the framework of the Aktau Declaration on joint actions between the major O&G operators in Kazakhstan - TCO, NCOC, KPO and KazMunayGas NC JSC, further localization of the top-10 goods, works and services was continued in 2016. It should be noted that implementation of the top-10 GWS coincides with other KPO initiatives on the GWS localization, such as: Well Operations Roadmap, Tenaris plant commissioning, technology transfer on producing the electrical equipment to Kazakhstani and other.

Moreover, according to the initiative of the RoK Ministry of Energy, KPO launched the Single Supplier Database ‘Alash’ in February 2016, which is used as one of the main sources to find suppliers for market research and invitation for tender.

SUPPLIES OF ENERGY RESOURCES TO WEST KAZAKHSTAN

Generation and supply of the electrical power to the West Kazakhstan Oblast is made by KPO in addition to the primary power delivery to maintain operations in the Karachaganak Field.

Four generators are installed and operated at the KPO Gas Turbine Power Plant (GTPP), whilst three generators are dual-fuelled, i.e. operated by gas and diesel, when required.

Power generated at KPO GTPP is transmitted to the own units throughout the Field, which include KPC, Unit-2, Unit-3, Gathering system, Eco Centre and the Pilot Camp. The power is also transmitted to the two energy supply organisations: Batys Energoresursy LLP and Aksaienergo LLP. These organisations, in their turn, supply electrical power to the final consumers in the WKO.

During the 2016 KPO has supplied 40-45 MW of electrical power to the regional network. The supplies of electrical power and fuel by KPO in the period of 2014-2016 are presented in Table №47.

Table №47. Supply of electrical power and fuel gas by KPO, in 2014-2016

DESCRIPTION	2014	2015	2016
Electrical power supplied to the WKO (in GWh) including the volumes supplied to:	345.5	233.94	294.1
– Aksaienergo LLP	40.8	29.62	35.49
– Batys Energoresursy LLP	304.7	204.32	258.61
Fuel gas used for generation of power supplied for WKO needs (in Mscm), including:	115.8	76.199	98.064
– sales of own gas for power generation at the GTPP for WKO	114.3	68.05	50.808
– purchase from third party supplier for power generation at GTPP for WKO	1.5	8.147	47.256

In 2016 the volume of electric power supplied to the WKO has increased as compared to the 2015. This became possible following the commissioning of the GTG transformer №3.

It should be noted that not the full volume of electrical power for the WKO community was generated with the use of the KPO gas. Part of the electrical power for the region was generated using the gas from a third-party supplier due to KPO process units’ restrictions. This explains a smaller volume of the KPO fuel gas used in 2016 for generation of the power for the WKO needs.

In the Sustainability Report for 2014 (p. 133) and 2015 (p.100) we described the scheme of the KPO investment in the project of upgrading of the regional electrical power grids and its implementation phases. According to this project the West Kazakhstan Regional Electricity Company (WKO REK) completed partial upgrade of the equipment of the four 110 kV overhead lines and four 110 kV substations between the KPC GTPP and the Poima substation, where additional elements on the overhead lines were installed, and certain parts of obsolete protection equipment and devices at substations were replaced.

As the result of the works carried out in 2016 the negative impact from the WKO REC network on the number of unplanned flaring was significantly reduced. In the past year there was no any case of emergency shutdown in the Field because of the WKO REC as had taken place previously on multiple occasions.

Urgent works on the maintenance of gas-supply system, switchgears and 110/35/6kV transformers were performed at GTPP during the planned Field units’ shutdown in May 2016.

Furthermore, works on increase of reliability of existing grids throughout the field being currently performed along with Aksaigaspromenergo JSC (AGPE). In particular, AGPE has installed eight additional poles on the OHL-137 with KPO support.



THE WAY WE REPORT

GRI CONTENT INDEX

KPO Sustainability Report 2016 meets the requirements of the 'Core' option of the Global Reporting Initiative's (GRI) Guidelines 4. The table below demonstrates the disclosures against the 'Core' option.

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
GENERAL STANDARD DISCLOSURES			
G4-1	Statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability	Letter from General Director (pp.5-7)	✓
G4-2	Description of key impacts, risks, and opportunities	Risk management (p.22), Letter from General Director (pp.5-7)	✓
ORGANISATIONAL PROFILE			
G4-3	Name of the organization	Our Commitment to Sustainable Development (p.4)	✓
G4-4	Primary brands, products, and services	Our Products and Export Routes (p.15), Operations in 2016 (p.16)	✓
G4-5	Location of the organization's headquarters	Back cover, Overview of Operations (p.14)	✓
G4-6	Number of countries where the organization operates	Overview of Operations (pp.14-15)	✓
	Names of countries where either the organization has significant Operations and Projects or that are specifically relevant to the sustainability topics covered in the report	Overview of Operations (p.14-15)	✓
G4-7	Nature of ownership and legal form	Governance Structure (pp.20-21)	✓
G4-8	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)	Our Products and Export Routes (p.15)	✓

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ORGANISATIONAL PROFILE			
G4-9	Scale of the organization, including: Total number of employees	People and Skills (p.54)	✓
	Total number of Operations and Projects	KPO Operating Facilities (p.14), KPO Facilities in 2014 in the Sustainability Report 2014 (pp.6-8)	✓
	Net sales (for private sector organizations) or net revenues (for public sector organizations);	Not reported due to FPSA confidentiality restrictions	✓
	Total capitalization broken down in terms of debt and equity (for private sector organizations);	Not applicable	✓
	Quantity of products or services provided.	Operations in 2016 (p.16)	✓
G4-10	Total number of employees by employment contract and gender	People and Skills (p.54)	✓
	Total number of permanent employees by employment type and gender	People and Skills (p.54)	✓
	Total workforce by employees and supervised workers by gender	People and Skills (p.54)	✓
	Total workforce by region and gender	People and Skills (p.63), Graph №11. KPO workforce by gender, 2014-2016 (p.54)	✓
	Whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than employees or supervised workers, including employees and supervised employees of contractors	No	✓
	Any significant variations in employment numbers (such as seasonal variations in employment in the tourism or agricultural industries)	Not applicable	✓

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ORGANISATIONAL PROFILE			
G4-11	Percentage of total employees covered by collective bargaining agreements	Employee Relations (p.61)	✓
G4-12	Description of the organization's supply chain. This Standard Disclosure sets the overall context for understanding an organization's supply chain.	Supply Chain (p.105)	✓
G4-13	Significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	No significant changes	✓
G4-14	Explanation of whether and how the precautionary approach or principle is addressed by the organization	2016 and 2017 HSE Improvement Plans (pp.34-37); Asset Integrity (pp.42-46); HSE Engagement and Communication (p.38); HSE Cards Programme (pp.38-39); Management of Emergency Response and Civil Protection (pp.39-40); Community Preparedness (p.40-41)	✓
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	Local Community engagement strategy of the Sustainability Report 2013 (p.72)	✓
G4-16	Memberships in associations (such as industry associations) and national or international advocacy organizations in which the organization: * Holds a position on the governance body; * Participates in projects or committees; * Provides substantive funding beyond routine membership dues; * Views membership as strategic	KPO is a member of KazEnergy Association. Table №2. Review of our engagement with stakeholders in 2016 (pp.10-13); Business partnerships and membership in associations (p.9) of the Sustainability Report 2015).	✓
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES			
G4-17	List all entities included in the organization's consolidated financial statements or equivalent documents. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	This Report covers the Operations and Projects of the KPO B.V. Branch in Kazakhstan	✓

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES			
G4-18	Process for defining the report content and the Aspect Boundaries	Material Aspects (pp.8-9)	✓
	Explanation of how the organization has implemented the Reporting Principles for Defining Report Content;	Material Aspects (pp.8-9)	✓
G4-19	List all the material Aspects identified in the process for defining report content.	Material Aspects (pp.8-9)	✓
G4-20	For each material Aspect, report the Aspect Boundary within the organization, as follows: report whether the Aspect is material within the organization	The boundaries for material aspects relate to the whole KPO organisation. Material Aspects (pp.8-9), Letter from General Director (pp.5-7)	✓
G4-21	For each material Aspect, report the Aspect Boundary outside the organization, as follows: Report whether the Aspect is material outside of the organization. If the Aspect is material outside of the organization, identify the entities, groups of entities or elements for which the Aspect is material.	Material Aspects (pp.8-9)	✓
	Description of the geographical location where the Aspect is material for the entities identified	Overview of Operations (pp.14-19)	✓
G4-22	Explanation of the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	None	✓
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	No significant changes	✓
STAKEHOLDER ENGAGEMENT			
G4-24	List of stakeholder groups engaged by the organization	Stakeholder Engagement (p.9)	✓

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
STAKEHOLDER ENGAGEMENT			
G4-25	Basis for identification and selection of stakeholders with whom to engage	Stakeholder Engagement (p.9)	✓
G4-26	Approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	Material Aspects (pp.8-9), Stakeholder Engagement (pp.9-13)	✓
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	Stakeholder Engagement (pp.9-13); key issues raised by local communities are presented in the chapter ‘Local community engagement’ (pp.96-101)	✓
	Report the stakeholder groups that raised each of the key topics and concerns	Stakeholder Engagement (pp.9-13), Material aspects (pp.8-9)	✓
EXECUTIVE SUMMARY			
G4-28	Reporting period (such as fiscal or calendar year) for information provided	Letter from General Director (p.5), Report scope and boundaries (p.3)	✓
G4-29	Date of most recent previous report (if any)	Report scope and boundaries (p.3)	✓
G4-30	Reporting cycle (such as annual, biennial)	Report scope and boundaries (p.3)	✓
G4-31	Contact point for questions regarding the report or its contents	Feedback Form, Back cover	✓

GENERAL STANDARD DISCLOSURES			
MATERIAL ASPECT / INDICATOR	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
EXECUTIVE SUMMARY			
G4-32	Report the ‘in accordance’ option the organization has chosen	Global Reporting Initiative (p.3), GRI Content Index (pp.112-127)	✓
	Report the GRI Content Index for the chosen option	GRI Content Index (pp.112-127)	✓
	Report the reference to the External Assurance Report, if the report has been externally assured	Assurance Statement (pp.128-129)	✓
G4-33	Organization’s policy and current practice with regard to seeking external assurance for the report.	Independent Assurance (p.3)	✓
CORPORATE GOVERNANCE			
G4-34	Governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	Governance Structure (pp.20-22)	✓
ETHICS AND COMPLIANCE			
G4-56	Organization’s values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	Ethical Conduct (pp.28-29)	✓
G4-57	Report the internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines.	Hotline and other compliance measures (pp.28-29), Employee Relations (p.61)	✓
G4-58	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines.	Hotline and other compliance measures (pp.28-29), Employee Relations (p.61)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ECONOMIC PERFORMANCE			
Economic performance	Disclosures on Management Approach (hereinafter as DMA)	Aspect covers KPO; Supporting Social Infrastructure (pp.102-104)	✓
G4-EC4	Financial assistance received from government	No assistance received	✓
Market presence	DMA	Aspect covers KPO; Development of National Personnel (pp.56-57)	✓
G4-EC5	Ratio of standard entry level wage by gender compared to local minimum wage at significant locations of operation	Compensations and Benefits (p.62); There are no differences in salary levels by sex. Karachaganak oil & gas condensate field located in the Western Kazakhstan Oblast (Republic of Kazakhstan) relates to 'significant location of operations'.	✓
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	Development of the national personnel (pp.56-57); By 'senior management' is meant to be 'Executive management and their deputies' given in category 1+2 in Table №21 'Implementation of KPO Nationalization plan in 2016 by categories of employees' on page 56. 'Local' in the context refers to national employees, the citizens of the Republic of Kazakhstan.	✓
Indirect economic impacts	DMA	Aspect covers KPO; Supporting Social Infrastructure (pp.102-104); Community Development Projects (pp.100-101)	✓
G4-EC7	Development and impact of infrastructure investments and services supported	Supporting Social Infrastructure (pp.102-104)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ECONOMIC PERFORMANCE			
G4-EC8	Significant indirect economic impacts, including the extent of impacts.	Local Content Development (pp.106-110)	✓
Procurement practices	DMA	Aspect covers KPO; Local Content development (p.106)	✓
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	Local Content Development, graph on Share of Local Content out of total KPO expenditures, 2014–2016 (p.106)	✓
Reserves	DMA		✓
G4-OG1 (partial)	Volume and type of estimated proved reserves and production	Overview of Operations (p.14)	✓
ENVIRONMENTAL PERFORMANCE			
Energy	DMA	Aspect covers KPO; Energy management (pp.81-82)	✓
G4-EN3	Energy consumption within the organization	Energy consumption in 2014-2016 (p.81). KPO applies standards, methods and conversions regulated by the RoK normative documents in energy saving and energy efficiency.	✓
G4-EN5	Energy intensity	Graph №25 on Dynamics of energy intensity (p.82)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ENVIRONMENTAL PERFORMANCE			
Water	DMA	Aspect covers KPO; Environmental Protective Measures Plan for 2016 (pp.70-71)	✓
G4-EN8	Total water withdrawal by source	Table №37. 'KPO's water consumption in 2014-2016 broken down by sources' (p.83)	✓
G4-EN9	Water sources significantly affected by withdrawal of water	Water withdrawal does not significantly affects the water sources	✓
G4-EN10	Percentage and total volume of water recycled and reused	Table №39. Reuse of treated wastewater in 2014-2016 (p.85). Approximately 12,8% of the water taken from surface sources was reused in 2016.	✓
Biodiversity	DMA	Aspect covers KPO; Environmental Protective Measures Plan for 2016 (pp.70-72), Biodiversity (pp.90-95)	✓
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity (p.90)	✓
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	No significant impacts, see Biodiversity (p.94)	✓
G4-EN13 (partial)	Habitats protected or restored. Report the size and location of all habitat protected areas or restored areas, and whether the success of the restoration measure was or is approved by independent external professionals.	The results of the EP measures implemented in KPO in 2016 (p.72)	✓
G4-EN14	Total number of IUCN red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	Table №42. Species essential for nature conservation registered within the Karachaganak Field (pp.92-93)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ENVIRONMENTAL PERFORMANCE			
Emissions	DMA	Aspect covers KPO; Environmental Protective Measures Plan for 2016 (pp.70-72), Air Emissions (pp.73-74)	✓
G4-EN15	Direct greenhouse gas (GHG) emissions	Direct greenhouse gas emissions (pp.75-76)	✓
G4-EN16	Indirect greenhouse gas (GHG) emissions	Indirect greenhouse gas emissions are not considered material due to their very small number (less then 0.005%).	✓
G4-EN18	Specific greenhouse gas (GHG) emissions	Specific greenhouse gas emissions (p.76)	✓
G4-EN19	Reduction of greenhouse gas (GHG) emissions	Reduction of greenhouse gas emissions (p.77)	✓
G4-EN21	NOx, SOx, and other significant air emissions	Air emissions (p.73)	✓
Effluents and wastes	DMA	Aspect covers KPO; Environmental Protective Measures Plan for 2016 (pp.70-72)	✓
G4-EN22	Total water discharge by quality and destination	Discharge of treated wastewater, (pp.84-85)	✓
G4-EN23	Total weight of waste by type and disposal method	Waste disposal (pp.88-90)	✓
G4-EN24	Total number and volume of significant spills	In 2016 no cases of significant spills were recorded in the territory of the Karachaganak field. The definition of a «significant spill» is given in the Glossary.	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
ENVIRONMENTAL PERFORMANCE			
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the basel convention annex I,II,III, and percentage of transported waste shipped internationally	KPO does not have any imported or exported wastes	✓
G4-OG6	Volume of flared and vented hydrocarbon	Gas Flaring (pp.74-75)	✓
G4-OG7	Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal	Table №41. ‘Waste generated from of well operations, by handling method, 2015-2016’ (p.90)	✓
Compliance	DMA	Aspect covers KPO; Environmental Protection Measures Plan for 2016 (pp.70-72)	✓
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations	Environmental fines (pp.72-73); There were no cases of non-monetary sanctions applied to the Company.	✓
Overall	DMA	Aspect covers KPO; Environmental Protective Measures Plan for 2016 (pp.70-72), Environmental Management system (p.69)	✓
G4-EN31	Total environmental protection expenditures and investments by type	Table №26. ‘Expenses for the implementation of the 2016 EPMP, in thousands KZT’ (p.71)	✓
Environmental grievance mechanisms	DMA	Aspect covers KPO; Dealing with Grievance and Suggestions (pp.97-98)	✓
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	Aspect covers KPO; Dealing with Grievance and Suggestions (pp.97-98)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
LABOUR PRACTICES AND DECENT WORK			
Employment	DMA	Aspect covers KPO; Employee Relations (p.61)	✓
G4-LA1	Total number and rates of new employee hired and employee turnover by age group, gender and region	People and Skills (p.55), (p.62)	✓
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	Compensations and Benefits (p.62)	✓
Labor	DMA	Aspect covers KPO; Employee Relations (p.61)	✓
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	Employee Relations (p.61)	✓
Occupational Health and Safety	DMA	Aspect covers KPO and its contractors; Integrated HSE Management system (p.34), 2016 HSE Improvement Plan (pp.34-37), 2017 HSE Improvement Plan (p.37)	✓
G4-LA6 (partial)	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	Safety Performance (pp.31-33), Protection of Health (pp.50-51)	✓
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	Management of ill health (p.50); Management of ill health in the workforce in the Sustainability Report 2015 (p.40).	✓
G4-LA8 (partial)	Health and safety topics covered in formal agreements with trade unions	Employee Relations (p.61)	✓
Training and Education	DMA	Aspect covers KPO; Training and Development (pp.57-60), Compensations and Benefits (pp.62-63), Scholarship programmes for national employees and their children (p.64); KPO Partnership with Kazakhstani universities (p.64)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
LABOUR PRACTICES AND DECENT WORK			
G4-LA9	Average hours of training per year per employee by gender and by employee category	Training and Development (pp.58-59). Data is not provided by gender as it is not considered viable since the personnel training plan is developed regardless of gender.	✓
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	Scholarship programmes for national employees and their children (p.64)	✓
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	Compensations and Benefits (p.62)	✓
Diversity and Equal Opportunity	DMA	Aspect covers KPO; Development of National Personnel (pp.56-57)	✓
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	Development of National Personnel (pp.56-57)	✓
Diversity and Equal Remuneration	DMA	Aspect covers KPO; Code of Conduct (pp.28-29), Employee Relations (p.61)	✓
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	Basic salaries are established for employee categories regardless of gender, and so basic salaries for women and men are equal.	✓
Labor Practices Grievance Mechanisms	DMA	Aspect covers KPO; Ethical Conduct (pp.28-29), Employee relations (p.61)	✓
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	Employee Relations (p.61)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
HUMAN RIGHTS			
Investment	DMA	Aspect covers KPO; Code of conduct and Anti-corruption awareness and training (p.28)	✓
G4-HR2 (partial)	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	Code of conduct and Anti-corruption awareness and training (p.28)	✓
Freedom of Association and Collective bargaining	DMA	Aspect covers KPO; Employee Relations (p.61)	✓
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	Employee Relations (p.61)	✓
Security Practices	DMA	Aspect covers KPO; Security (pp.46-47)	✓
G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	Security (p.47)	✓
Human Rights Grievance Mechanisms	DMA	Aspect covers KPO; Hotline and other compliance measures (pp.28-29), Employee Relations (p.61)	✓
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	Employee Relations (p.61)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
SOCIAL PERFORMANCE			
Local Communities	DMA	Aspect covers KPO; Local community engagement (pp.96-101)	✓
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	KPO Community Relations department implements development programs for local communities; Local Community engagement (pp.96-101)	✓
Anti-corruption	DMA	Aspect covers KPO and its contractors; Code of conduct; Anti-corruption awareness and training (p.28)	✓
G4-SO4	Communication and training on anti-corruption policies and procedures	Code of conduct (p.28); Anti-corruption awareness and training (p.28); Anticorruption Due Diligence Process (p.29)	✓
Public Policy	DMA	Aspect covers KPO; Local Community Engagement strategy (p.96)	✓
G4-SO6	Total value of political contributions by country and recipient/beneficiary	No contributions	✓
Grievance Mechanisms for Impacts on Society	DMA	Aspect covers KPO; Dealing with grievance and suggestions (pp.97-98)	✓
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	Dealing with grievance and suggestions (p.97)	✓

SPECIFIC STANDARD DISCLOSURES			
DMA AND INDICATORS	GRI G4 INDICATORS DESCRIPTION	REFERENCES AND COMMENTS	EXTERNAL ASSURANCE
SOCIAL PERFORMANCE			
Emergency preparedness	DMA: mechanisms used to involve local communities in the development of emergency plans, response to an incident, trainings	Aspect covers KPO; Safety: Management Emergency Response and Civil Protection (pp.39-41); Item IV of 2016 HSE Improvement Plan 'Asset Integrity & Risk Management' (p.35);	✓
Asset Integrity and Process Safety	DMA: Asset integrity and process safety procedures, investigation results of potential incidents.	Aspect covers KPO; Safety: Item IV of 2016 HSE Improvement Plan 'Asset Integrity & Risk Management' (p.35), Asset Integrity (pp.42-46)	✓
G4-OG13	Number of process safety events, by business activity (the integrity of oil and gas company assets and the prevention of process safety events such as spills, fires and gas releases are of the utmost importance)	Asset Integrity (p.45)	✓
	Report procedures for assuring asset integrity as an essential element of safe operations. Report on the application of nationally and internationally accepted asset integrity and process safety disciplines. The emphasis of asset integrity and process safety is to prevent unplanned releases that could result in a major incident. Report processes for identifying, reporting, management review and follow-up on investigation results of near-accidents; these are also referred to as near misses or potential accidents.	Asset Integrity (pp.42-46); background details on Asset Integrity are presented in Sustainability Reports 2014 and 2015.	✓



Independent Assurance Report on the Karachaganak Sustainability Report 2016 of Karachaganak Petroleum Operating B.V.

To the management and stakeholders of Karachaganak Petroleum Operating B.V.

Subject matter

At the request of Karachaganak Petroleum Operating B.V. (hereinafter 'KPO' or 'Organization') we have obtained a limited level assurance on the qualitative and quantitative information disclosed in the 'Karachaganak Sustainability Report 2016' (hereinafter 'the Report').

Applicable criteria

The criteria of our engagement were the GRI Sustainability Reporting Framework (hereinafter 'the GRI Framework'), including version G4 of the Sustainability Reporting Guidelines (hereinafter 'the GRI G4 Guidelines'), sustainability reporting principles of KPO which are identical to the reporting principles contained in the GRI G4 Guidelines as set out in the section 'About this Report' on page 3 of the Report, 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 the information therein to present fairly in all material respects sustainability policies, activities, events and performance of the Organization for the year ended December 31, 2016 in compliance with the GRI Framework and the sustainability reporting principles of KPO that are described in the section 'About this Report' on page 3 of the Report. This responsibility includes designing, implementing and maintaining internal controls relevant to the preparation of a sustainability report that is free of material misstatements, 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 conclusion that:

- Sustainability performance summary information and data included in the Report, in all material respects, provide reliable and sufficient representation of sustainability policies, activities, events and performance of KPO in 2016;
- The reporting processes related to the information and data collection on key performance indicators regarding human resources, environment, health and safety, national content of the goods and services purchased, charity and social investments are in place and are compliant with relevant principles of the GRI G4 Guidelines;
- Sustainability related policies and procedures corresponding to the KPO Sustainable Development Charter, and described in the Report, adopted,
- The Report is prepared 'in accordance' with the GRI G4 Guidelines using the Core option.

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.

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 process used to prepare the information on sustainability performance indicators of the Organization and other engagement circumstances by reviewing the reporting process used for preparation of sustainability reports,
- Analysis of the Organization stakeholder engagement activities,
- Benchmarking of the Report against sustainability reports of selected international and Kazakhstan peers of the Organization in oil and gas industry 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 2016,
- 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 key human resources, environment, health and safety, national content of the goods and services purchased, charity and social investments indicators for the year ended December 31, 2016, to assess whether these data have been collected, prepared, collated and reported appropriately,
- Visit to KPO's offices in Uralsk and Aksai, drilling rig # 249, Unit 3 and workshop of the KPO contractor – Welltec in order to conduct interviews and gather evidence supporting the assertions on the Organization's sustainability policies, activities, events, and performance made in the Report,
- Collection on a sample basis of evidence substantiating other qualitative and quantitative information included in the Report at the headquarters level,
- Assessment of compliance of the Report and the underlying reporting processes with relevant sustainability reporting principles of the GRI G4 Guidelines used by KPO, and

- Assessment of compliance of information and data disclosures in the Report with the requirements of the Core option of reporting 'in accordance' with the GRI G4 Guidelines.

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 our work described in this report, nothing has come to our attention that causes us to believe that:

- The sustainability performance summary information and data included in the Report, in all material respects, do not provide reliable and sufficient representation of sustainability policies, activities, events and performance of KPO during 2016 in accordance with the GRI G4 Guidelines and the KPO Sustainable Development Charter;
- The reporting processes related to the information and data collection on key performance indicators regarding human resources, environment, health and safety, national content of the goods and services purchased, charity, and social investments are not in place and not compliant with relevant principles of the GRI G4 Guidelines;
- Sustainability related policies and procedures corresponding to the KPO Sustainable Development Charter and described in the Report, are not adopted;
- The Report is not prepared 'in accordance' with the GRI G4 Guidelines using the Core option.

Ernst & Young Advisory LLP

Almaty
14.09.2017

GLOSSARY

	ABBREVIATION	DESCRIPTION
A	ACM	Asbestos Containing Materials
	AIMF	Asset Integrity Management Framework
	AI	Asset Integrity
	ALARP	As low as reasonably possible
B	BAT	Best available techniques
	BCM	Billion cubic meters
	BHA	Bottom hole assembly
	BOE	Barrels of oil equivalent
C	CCTV	Close Circuit Television
	CMC	Contractor's Marketing Committee
	CMMS	Computerised Maintenance Management System
	ConCom	Contractor's Committee
	CPC	Caspian Pipeline Consortium
	C&P	Contract and Procurement Department
D	DSIU	Declaration of Safety for Industrial Units
E	EACS	Electronic Access Control System
	EERA	Escape, Evacuation and Rescue Assessments
	EITI	Extractive Industries Transparency Initiative
	EMS	Environmental Monitoring Station
	EOPS	Early Oil Production Satellite

	ABBREVIATION	DESCRIPTION
E	EPMP	Environmental Protection Measures Plan
	ER	Emergency Response
F	FAB	Field Administration Building
	FEED	Front End Engineering Design
	Figutive emissions	Industrial emissions in the atmosphere as non-directional gas flows (according to the State Standard GOST 17.2.1.04-77)
	FPSA	Final Production Sharing Agreement
G	Gcal	Gigacalorie
	GHG	Greenhouse Gases
	GPI	General Purpose Incinerator
	GRI	Global Reporting Initiative
	GTPP	Gas Turbine Power Plant
	GWS	Goods, works and services
H	HC	Hydrocarbons
	HP	High pressure
	HPP	High pressure pump
	HPS	High pressure separator
	HRA	Health Risk Assessment
	HSE	Health, Safety and Environment

	ABBREVIATION	DESCRIPTION
I	IEC	Industrial Environmental control
	IMS	Integrated Management System
	IMT	Incident Management Team
	IOGP	International Oil and Gas Producers' Association that collects safety incident and environmental data from its member companies globally since 1985
	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
J	IVB	Independent Verification Body
	JMC	Joint Marketing Committee
	JOC	Joint Operating Committee
K	JV	Joint Venture
	KATS	Karachaganak - Atyrau Transportation System
	KEP	Karachaganak Expansion Project
	KGDBN	KPC Gas Debottlenecking Project
	KOGCF	Karachaganak Oil and Gas Condensate Field
	KOTS	Karachaganak - Orenburg Transportation System
	kt	kiloton
	KPC	Karachaganak Processing Complex

	ABBREVIATION	DESCRIPTION
K	KPI	Key Performance Indicators
	Kscm	Thousand standard cubic meters
L	LOPC	Loss of primary containment
	LTI	Lost Time Injury
	LTIF	Lost Time Injury Frequency
	LWD	Logging while drilling
M	MOC	Management of Change
	MPC	Maximum Permissible Concentration
	MPC one time	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 the eyes, upper respiratory tract and other) in case of 20-30 minutes of inhalation.
	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).
	MPL	Maximum Permissible limits
	mMD	Meter measured depth
	MPD	Maximum Permissible contaminants discharge
	MS	Management System

	ABBREVIATION	DESCRIPTION
M	Mscm	Million standard cubic metres
	MWH	Megawatt hour
N	NGO	Non-governmental organisation
O	OHSAS 18001	Internationally recognised assessment specification for occupational health and safety management systems
	OpCom	Operators Committee
	OPS	Oil Pumping Station
P	Parent Companies or Contracting Companies	Eni, Shell, Chevron, Lukoil and KazMunayGaz National Company
	PCA	Parent Companies Audit
	PEP	Plateau Extension Projects
	PDNI	Professional development needs identification
	PDR	Performance and Development Review
	POB	Personnel on Board Control System
Q	QRA	Quantitative Risk Assessment
R	RBI	Risk based approach
	RoK	Republic of Kazakhstan
	RTI	Road Traffic incidents
	RTIF	Road Traffic Incident Frequency

	ABBREVIATION	DESCRIPTION
S	SCE	Safety Critical Element
	Significant spill	As per the KPO Incident classification, the definition of a 'significant spill' is applicable to an incident, which has caused contamination of the environment through hydrocarbon/chemical spills to land or water with the volume of spilled hydrocarbon/chemical exceeding 1,000 litres.
	SMS	Security Management System
	SPZ	Sanitary Protection Zone
	SR	Sustainability Report
T	TCC	Thermo-mechanical cutting cleaning facility
	TRI	Total Recordable injuries
	TRIF	Total Recordable Injury Frequency
U	UK	United Kingdom
V	VMS	Vehicle monitoring system
	VAR	Value Assurance Review
	VPSHR	Voluntary Principles on Security and Human Rights
	VSS	Vibration stick slip
W	WKO	West Kazakhstan Oblast
	WSU	Waste Segregation Unit



FEEDBACK FORM ON THE KPO SUSTAINABILITY REPORT 2016

We genuinely believe that your feedback will facilitate improving our performance.^{G4-31}

1. Name, surname Organisation

2. In your opinion, which material aspects or issues important for you were disclosed in the KPO Sustainability Report 2016?

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3. Which of above, if any, you would like to see again in the KPO Sustainability Report 2017? Any additional aspects?

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Please send your feedback, comments to this edition or contribution to the Report 2017 to the below address or by email at Sustainability@kpo.kz.

KPO Sustainability Reporting
Karachaganak Petroleum Operating B.V.
Kazakhstan Branch
Aksai, 090300
Burlin Region
Western Kazakhstan Oblast
Republic of Kazakhstan





Little bustard, the rare species in the Karachaganak Field, included into the Red Book of Kazakhstan and the IUCN Red List

Our address:

KPO Corporate Affairs

Karachaganak Petroleum Operating B.V.
Kazakhstan Branch
Aksai, 090300
Burlin Region
Western Kazakhstan Oblast
Republic of Kazakhstan

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