

KPO to undertake the world's largest total shutdown

In September, KPO will undertake a major facility shutdown in accordance with legislative requirements of the Republic of Kazakhstan.

Shutdown activities are common practice at oil and gas fields throughout the world. KPO being a flagship project for Kazakhstan's economy is doing its best to bring together expertise, state-of-the-art technologies, financial resources and a skilled workforce to realise the huge potential of Karachaganak.



Antonio Baldassarre, KPO Operations Director

The goals of the maintenance programme are to ensure equipment asset reliability, continued production integrity, and reduce the risk of unscheduled outages.

The second phase of the Karachaganak development has been in operation since 2004, during which time KPO has undertaken one significant shutdown in 2006.

According to KPO Operations Director Antonio Baldassarre, "Each shutdown brings new challenges but KPO is focused on not only integrating the lessons learned from previous shutdown activities, but also meeting international best practice in this area. This year it will be important that we are focused on health and safety. While safety should always be top of mind, shutdowns are irregular and infrequent events, and so it is important that we pay particular attention to safety during this time."

KPO Field Manager Paul Meech said, "Our shutdown is a planned outage of the equipment and assets for essential maintenance and

statutory checks. The work which will happen here at Karachaganak in September will represent the largest single total shutdown in the world this year. While preparations have been ongoing for some time, the shutdown is to commence on the 15 September and we anticipate that it will take between 30 and 35 days to complete. At the same time we will complete the tie in work at the Karachaganak Processing Complex for the fourth stabilisation train, which is due to be commissioned in 2009. Train 4 will enable KPO to increase its liquids production. However, one of the major challenges we face is managing this technically complex field in a safe way."

Karachaganak is a sour gas condensate field which means that the hydrocarbons have high concentrations of hydrogen sulphide present – this represents a major technical challenge as H2S is both extremely dangerous



Paul Meech, Field Manager

and also highly corrosive. KPO's gas reinjection scheme at Unit 2 is one of a kind – up to 21 million cubic metres per day of sour gas is injected at pressures of up to 550 bar. This makes it one of the highest pressure sour gas injection schemes in the world.

Given these challenges and risks, it is vital that safety remains at the core of everything KPO does.

Shutdown and Planning Manager, Paul Jackson also stated, "Planning for this major shutdown has been ongoing for some 18 months and we currently have a dedicated team of 15 people – from maintenance specialists to engineers and logistics experts

working to ensure it runs as smoothly as possible. Essentially, the role of the Shutdown and Planning group is to not only manage the schedule and costs associated with the shutdown, but to ultimately, ensure safe access to vessels for our team of inspectors.

A vessel is a closed container designed to hold gases or liquids at



Paul Jackson, Shutdown and Planning Manager

a pressure which is different to that of the ambient pressure. Of the 800 vessels at Karachaganak, KPO will be inspecting over 200 and some 170 pressure safety valves during the shutdown. It will involve every major piece of equipment within the Karachaganak Processing Complex, Unit 2, Unit 3, infield and gathering pipelines as well as sections of the export lines. In the lead up to and throughout the shutdown it is anticipated that some 2000 additional people will be working either at the field or in Aksai to support the implementation and execution.

Planning for the Shutdown is broken down into three main components: Infrastructure and logistics; Planning; and Preparation. Around 2000 additional personnel will be involved in the execution, and this will require additional accommodation, catering, security and transportation. Coordination and management of the logistics is a key component of the shutdown plan and it is managed by the KPO Infrastructure and Services department. Security will be particularly important during this period and will cover not only the field facilities but also the expanse of export pipelines.

The KPO Security department,

together with the CATS team is currently introducing new fibre optic technology along the pipeline route to CPC. This technology will enable the team to detect any disturbance around the line and respond to illegal taps quickly with minimal or no loss of oil or impact to the environment.

Secure pipeline operations is important from both a safety and environmental perspective. In addition to this new technology, KPO will also be increasing mobile patrols along the right of way during the shutdown period. The planning phase seeks to integrate the various operational components taking account of the preliminary works, the implementation and post-shutdown activities.

Given the complexity of the operations, it is not as simple as 'flicking' a switch – the facilities have to be made safe for normal operations and this takes a comprehensive and integrated approach. The final phase is the preparation – building and resourcing the plan and identifying the critical path.

KPO employees and contractors will need an understanding of the potential impacts in undertaking their roles. They will be provided with the tools and equipment to appropriately clean vessels, handle chemicals, protect against spills and manage associated waste.

Rashid Gabdeyev, KPO Planning Engineer, has been with KPO for around seven years, and this will be his first shutdown of this scale. "I joined the shutdown team as a planning engineer last year and I am one of around 15 planning engineers working on these activities. I work closely with the Unit 3 team to create and manage a detailed shutdown schedule for that facility. My job involves a lot of different stakeholders in addition to those at the Unit. We need to interface with Operations HSE, Plant Integrity and General Projects, just to name a few. Our ability to work together as a team is vital during this period as the shutdown activities touch almost every aspect of the business", said Rashid.

Summing up the results of the



Discussing shutdown issues

KPO's Environmental Management System, which is currently being implemented to ISO 14001 standards, will dictate how KPO will protect the environment throughout this work programme. It raises environmental awareness and ensures that people understand their roles and impacts and the environmental risks associated with the various activities. Both

meeting, Antonio Baldassarre noted that the shutdown activities require a tremendous amount of resources and a huge team effort. "To all of those departments who have been involved, I would like to extend my sincere thanks. Without your hard work and dedication, we would not be in a position to implement this programme."

On 19 July Karachaganak Petroleum Operating B.V. (KPO) hosted a graduation ceremony for twenty five local employees who successfully completed a certified programme in management, delivered by the UK Institute of Leadership & Management (ILM).

The ceremony was attended by KPO General Director Roger Fox and other top managers of the company. On this occasion, Roger Fox, congratulated the graduates on their successful completion of the programme, saying; "At Karachaganak we focus on the community in which we live and we aim to share our knowledge and expertise with our Kazakh colleagues, partners and contractors. Capacity building through sustainable development and skills transfer are central to the way we work".

"We have put in place long term development programmes

Local employees prepare to lead KPO



KPO Marketing Director Peter Costello congratulates graduates

and we are pushing forward with our nationalisation agenda. It enhances local capabilities and

brings additional benefits to the region and local community. We have met the targets set by the

Republic and we are already setting new benchmarks that will see Kazakh managers steering the future course of Karachaganak", added Roger Fox.

ILM Programme Director, Michael Derry, said: "The ILM course complements the on-the-job technical training that KPO provides to its local personnel, as part of the Nationalisation Programme. I am confident that the development of management skills will increase the professional competence of the participants of the programme and, as a result, will accelerate the development of their careers within KPO".

A further thirteen students are currently immersed in the ILM programme's second intake, which will be completed next year. In

addition to the ILM programme, KPO employees are given tremendous opportunities to gain professional qualifications in Petroleum Technology (The Oil and Gas Academy OPITO), Finance (Chartered Institute of Management Accountants); Human Resources Management (Robert Gordon University); Business Administration (Edinburgh Business School); Safety and Environment (NEBOSH qualification).

In cooperation with the Karachaganak partners, KPO has also implemented a Drilling Supervisor programme. Fifteen graduate engineers will gain international experience through placements with parent company organisations. On completion of the 18 month programme, these individuals will be integrated into the KPO well operations department.

KPO General Projects Department – Stepping up to the challenge

Operating a facility the size of Karachaganak requires a huge amount of support – from logistics and services to finance and manpower. Earlier this year, one of KPO's key departments underwent a dramatic organisational change designed to better equip the department to support the ongoing management of Karachaganak.

Formerly known as the Engineering and Projects department, the 470 strong General Projects team focuses on delivering projects associated with optimising and modifying the existing Karachaganak facilities.

KPO General Projects Manager, Gary Morgan, stated, "Only six months after the reorganisation we are seeing improvements in efficiency and the way in which we are delivering support to our clients. Our new matrix structure is providing flexibility and helping us to respond to challenges faster than previously possible."

Among other achievements, there has been good progress in planning and resourcing as well as improvements in internal processes.

While the department is broadly focused on implementing projects associated with the existing facility, it is also currently managing the construction of the Uralsk Gas Pipeline (UGP) – a 148 kilometre major infrastructure project which will link Karachaganak with the West Kazakhstan Oblast centre of Uralsk. While KPO will manage the construction of this strategically important Social Project, the West Kazakhstan Oblast Akimat will be responsible for the regasification of villages and towns along the route.

Almaty based KazStroyService (KSS) has been contracted by KPO to construct the main line and following completion of this phase, the pipeline will be passed to a specialist transmission and distribution firm selected by the West Kazakhstan Oblast Akimat. This firm will subsequently be responsible for operating and maintaining the line.

Over time, it is expected that the



Deputy Akim Nurlan Nogayev, Mr Dysembaev, Mannesmann Factory Manager, Sales Manager, Gary Morgan.

supply of natural gas will encourage further industrial growth and expand the Oblast's economic potential. Gas supply from Karachaganak will also reduce Kazakhstan's dependence on Russian imports and eventually enable the delivery locally produced natural gas to towns & villages.

The 20 inch pipeline will tie into the existing Karachaganak Processing Complex (KPC) and will share a similar corridor to the existing KPC – Atyrau export condensate pipeline for a large proportion of the length.

At the end of July, some 40 kilometres of the 70 kilometres of pipeline already produced had been delivered to site by a leading German pipe manufacturer, Mannesmann. Mannesmann started manufacturing the pipeline in May and over the course of the next three months, the remaining part of the main line pipe will be produced and railed to Kazakhstan from the factory in Germany.

Recently, the UGP Project management team accompanied the West Kazakhstan Oblast First Deputy Akim, Mr Nogayev and the Director of the Department of Energy & Municipal Engineering, Mr Dysembaev to the Mannesmann pipe factory in Germany.

The trip provided an opportunity for the Akimat representatives and KPO management to see first hand the manufacturing process and quality of the workmanship. The steel pipeline is electric welded to API international standards.

Mobilisation of the construction workforce continues and it is expected that some 530 workers will be required during peak construction activities. In both Uralsk and Aksai, construction teams are currently completing inductions and safety training to KPO standards.

As with any KPO project, safety is central to the way in which it is executed. The general projects team has a particularly difficult

challenge in this area due to the very short construction season in Kazakhstan. By November temperatures could be as low as zero degrees Celsius bringing weather conditions which inhibit safe progress. This challenge has been compounded even more in 2008 with upcoming shutdown activities. In September KPO will embark on the world's largest single total facility shutdown. Some 2000 additional people will be required on

site and in Aksai to implement the month long shutdown programme.

As part of an ongoing organisational effectiveness initiative General Projects will be relocating non-operational positions from field locations to Aksai over the course of the next year. This will reduce the number of people required to travel to the field and enable many people to assume a normal five and two work pattern in line with other departments based in Aksai and Uralsk.

KPO Management, together with the Human Resource department, is currently developing appropriate policies and a transition plan to address changes in schedules amongst other factors impacting the move. General Projects is broadly structured into five project teams which are functionally supported by specialist engineering, construction, project services, permits & licenses, quality assurance and administrative teams.

The team of 470 people provides services to a number of internal departments including plant enhancement, field operations, well operations, infrastructure and services and the project directorate. They deliver work programmes with the support of an average additional workforce of 550 personnel.

The work which General Projects is undertaking today is positioning it well for tomorrow. The team are working hard to develop a flexible and responsive department which supports the optimisation of the existing facilities.



Pipe delivered for the Uralsk Gas Pipeline Project.

First step in a journey to work with KPO



HR controller James Clark greets graduates

On 19 July, KPO held the first award ceremony for fifty eight students currently undertaking post-graduate training within the KPO Operations Directorate. They

have successfully completed the first stage of a training programme based on OPITO, the UK Oil & Gas Academy. This programme is delivered for KPO by Abiryo

Technical Training, which is the only provider in the CIS authorised by OPITO to deliver technical training in Russian.

The official ceremony was attended by KPO top managers including James Clark (Human Resources Controller), Andrew Breeze (KPC Manager), Oksana Rastorgueva (Training and Development Manager) who warmly congratulated trainees on the completion of their first stage and passed on their best wishes for future studies. In his welcoming speech, James Clark, stressed the importance of serious efforts to study technical disciplines and said: "This is your first step in a big journey to work with KPO."

Over the past two years, Karachaganak has spent over \$21 million on local staff development. In 2007, KPO delivered over 288,000 training hours to staff. In



Congratulation from KPC Manager Andrew Breeze

addition to formal education, KPO also utilises 'on the job' training and parent company placements.

Earlier this year, KPO launched the largest graduate development

programme in Western Kazakhstan. Over 150 graduates are undertaking training in three main areas including engineering, operations and maintenance.