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Oil sector complex to undergo changes in line with international environmental criteria.
KPC World

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Mission

Kuwait Petroleum Corporation (KPC) is a corporation of economic character, run on a commercial basis and fully owned by the State. It is one of the world’s major oil & gas companies and its activities are focused on petroleum exploration and production, refining, marketing, petrochemicals, and transport. KPC’s mission is to manage and operate these integrated activities worldwide in the most efficient and professional manner, in addition to growing shareholder value whilst ensuring the optimum exploitation of Kuwait hydrocarbon resources.

Vision

KPC future vision is based on the following items:

• Be a highly profitable and performance driven company.
• Contribute significantly to the support and development of the Kuwaiti economy.
• Strengthen the world class reputation of all KPC operations.
• Encourage continuous learning in all areas related to KPC’s business.
• Become a regional leader in HSE performance and apply the latest and the most appropriate technologies in KPC’s operations.

Values

KPC seeks diligently to accomplish a number of values as follows:

Commitment
Motivation
Corporate Thinking
Flexibility
Excellence
Partnership
Integrity

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Following the sharp decline in oil prices, the State of Kuwait is faced with several challenges. To confront and efficiently overcome these difficulties it is essential to reinforce and reinvigorate the team spirit among all employees. Accordingly, KPC has undertaken a number of initiatives to restructure the oil sector to improve performance and achieve its goals and directions, and to set a clear economic vision for sustainable development.

One of the key goals that KPC and its subsidiaries are keen on achieving is, empowering national personnel so that they can clearly recognize and efficiently manage the challenges posed by the current phase. This will allow them to shoulder the responsibility of maintaining the status of Kuwait's oil sector, both regionally and internationally, with the limited resources available under the current scenario.

KPC and its subsidiaries are also unrelentingly focused on fulfilling His Highness the Amir's desire to carry out projects in a sustainable manner, such as by utilizing solar energy as a clean and alternative source of energy. Consequently, they have signed a contract with Kuwait Institute for Scientific Research to apply a photo-voltaic system, which generates electricity from solar energy, in the parking areas of KPC. This system has the potential to produce approximately 10 percent of the annual electricity consumption of KPC.
Chief Executive Officer of Kuwait Gulf Oil Company (KGOC) Mr. Abdulnaser Al-Fulaij revealed the company has finalized designs for the seismic survey project for the marine area under its purview and is currently preparing to float a tender for the project to specialized companies. He also indicated that the company diligently seeks to achieve its strategic plans that are closely aligned with the strategic directions of Kuwait Petroleum Corporation’s (KPC). To throw more light in this regard, KPC World Newsletter interviewed Al-Fulaij who answered questions as follows:

Could you highlight the strategic directions of KGOC and its future plans in the coming phase?

KGOC adopts a number of strategic plans which stem from KPC 2030 strategic directions; they include the following:

- Increasing production to 350,000 bpd which will represent the company’s share of total production from Al-Khafji Operations and Al-Wafra Joint Operations.
- Producing 400 million cubic feet of non-associated gas by 2020 and increasing it to 500 million cubic feet by 2030.
- Compensating production by adding 100 percent of equivalent oil reserves.

Accordingly, KGOC has allotted plans and programs to achieve the aforementioned directions such as:

- Injecting steam in first Eocene reservoir.
- Injecting water in Ratawi reservoir in south Fawaris Oilfield.
- Developing Ratawi reservoir.
- Using chemical injection for Ratawi reservoir in Wafra Oilfield.
- Developing new oilfields like Lulu and Al-Hout in Al-Khafji Joint Operations.
- Exploring new gas and oil fields.
- Developing new non-associated gas fields.

The company has also put in place several procedures and steps as per their priority to carry them out in the coming phase. These procedures include the following:

- Reinforcing cooperation and coordination with partners to soon resume production operations.
- Improving internal capabilities to develop the heavy oil projects through acquiring relevant technologies.
- Reducing the huge volumes of water used in production operations.
- Quickly developing Lulu and Al-Hout in Al-Khafji Joint Operations.
Accelerating drilling operations in the joint marine fields in Lulu and Al-Khafji Joint Operations.

Do you have specific plans to develop personnel, or is the issue still under study?

KGOC pays special attention to its manpower and hence it organizes training courses and programs to improve employees’ skills to the company’s efficiency standards. Consequently, it has managed to provide training courses inside the company and at the Petroleum Training Center for about 1750 personnel in 2015. In addition to this, the company has organized external courses in cooperation with other subsidiaries of KPC. The company is also currently assessing the efficiency of its personnel as per the project titled “Unified Generic Competencies” which is one of the initiatives under KPC 2030 HR strategy. Also, by sending employees to join projects inside and
outside Kuwait, the company provides personnel with excellent opportunities for on-field training, so that they have the chance to exchange experiences, as well as develop and improve their skills.

**Based on your viewpoint and experience in the oil sector, how would you sum up the challenges that KGOC confronts?**

The biggest challenge for the company’s administration is the suspension of oil production from Al-Wafra and Al-Khafji Joint Operations. There are also other challenges arising as a result of this suspension of operations. However, the administration, along with concerned authorities in Kuwait Petroleum Corporation, tackles these challenges by applying appropriate directions for each of them. Some of the challenges the company faces arise from suspending new capital intensive projects; reducing operational expenditure and optimizing manpower recruited for locations under joint operations during the suspension period.

**What are the results of the seismic survey which KGOC conducted recently?**

As for the 3D seismic survey project which has been conducted on the entire land area in the Divided Zone between the State of Kuwait and the Kingdom of Saudi Arabia, we can say that the results are encouraging and positive; however, we are still implementing the first phase of the project and the surveys have covered large parts of the area. In other words, we are still collecting data and information to analyze the results as per such data.

**Is there a plan to conduct a marine seismic survey?**

With regard to the project for seismic survey of the marine area that extends about six miles in Al-Wafra...
Joint Operation is an important issue for all concerned authorities, in both the State of Kuwait and the Kingdom of Saudi Arabia. Therefore, when tackling this issue, they prioritize the common good for the two countries and we trust in the desire and ability of the two sides to settle the issue under their wise leaderships.

Finally, could you throw light on the steam flooding project?

We have completed the study on the model of steam flooding for 1st Eocene reservoir in Al-Wafra oilfield with results confirming that the percentage of extracting oil is improving. Moreover, the primary information collected from the thermal model of layer (B) shows positive results from the steam flooding project for 1st Eocene reservoir. We have also finalized the second phase of the study conducted on the project for Al-Wafra oilfield; in addition, a common specialized team from KGOC and Saudi Chevron Co have reviewed the study.

Joint Operation, we can say that the phase of allotting the design has been finalized and we have agreed with the partner about the final design. As for the seismic survey in the marine area off Al-Khafji Joint Operation, I would like to point out that though the project is of great significance and strategic importance to the company, our current priority is to resume production from the area. Nevertheless, KGOC is coordinating with our Saudi partner to identify steps in the short and mid-term for new explorations in the area.

Is it true that appropriate solutions have been identified for resolving the problem of production suspension in Al-Khafji?

The suspension of oil production in Al-Khafji Joint Operations is important issue for all concerned authorities, in both the State of Kuwait and the Kingdom of Saudi Arabia. Therefore, when tackling this issue, they prioritize the common good for the two countries and we trust in the desire and ability of the two sides to settle the issue under their wise leaderships.
As per ambitious plans to increase productivity

Al-Attar: KOC has a production target of 2 billion cubic feet of non-associated gas by 2030

The State of Kuwait has set a production target of 2.5 billion cubic feet of natural gas by 2030; the major part of this target will be met by Kuwait Oil Company (KOC) which aims to produce 2 billion cubic feet of natural gas to meet the increasing needs of Kuwait local market.

Accordingly, KOC has adopted a precise exploration and production strategy aimed at developing existing projects and designing future ones to fulfill its targeted rates of gas production.

To shed more light on this strategy, KPC World Newsletter recently interviewed Mr. Bader Al-Attar, Manager of Planning Group at KOC. He began by emphasizing that the company had allotted specific plans to develop non-associated gas reserves found in the Jurassic reservoirs of north Kuwait. In addition, the company has intensified explorations to find new reserves in line with the KPC 2030 strategy, which aims to increase gas production in Kuwait to 2.5 billion cubic feet daily.

He went on to indicate that as part of this 2030 strategy, KOC would produce 2 billion cubic feet of gas daily while Kuwait Gulf Oil Company (KGOC) would meet the remaining target by producing 500 million cubic feet daily, mainly by developing the Al-Durra field. Noting that the first phase of developing the Jurassic reservoirs in north Kuwait to produce non-associated gas had been completed, Al-Attar revealed that it currently produces about 175 million cubic feet of gas along with 65,000 barrels of light oil and condensates daily. He added that the second phase of the development program is expected to be completed by 2021 when daily production would go up to 500 million cubic feet of non-associated gas.
First phase of developing Jurassic reservoirs of non-associated gas in north Kuwait finalized

He went on to say that to meet the increasing needs of the local market and to provide the Ministry of Electricity and Water with gas required to run its power stations, KOC will add a number of new production units to increase gas output in the coming two years. He added that KOC is also currently reviewing plans for phase three of the Jurassic reservoir development, which, when completed in 2022, will take daily production to one billion cubic feet of non-associated gas. Moreover, it is expected that an additional one billion cubic feet per day could be realized through ongoing exploration operations.

Amount of production
With reference to the current total gas production, Al-Attar disclosed that at present the production by KOC represented the country’s total output, as productions at KGOC are currently suspended. At present, the total gas production by KOC is around 1.5 billion cubic feet, including from both associated and non-associated gas.

Asked about the prospects of Kuwait achieving self-sufficiency and becoming a gas exporting country in the future, Al-Attar pointed out that Exploration and Production Sector at KOC has clarified that current amount of gas production, and even taking into consideration production projected for the future, will not be sufficient to meet the gas needs of Kuwait. Consequently, the ongoing New Refinery Project in Al-Zour and the Clean Fuel Projects gain added significance, because when fully operational they will be able to provide fuel-oil with low sulfur content to meet the fuel needs of power stations. He added that in other words, all the gas produced in the country would be needed for local consumption and the chances of being able to export gas is very limited.

Oil production development
Speaking about the strategy on developing oil production to reach 3.65 million barrels by 2020, Al-Attar said the plan was based on the following factors:

- Developing current reserves to reach the targeted rates and maintaining them.
- Developing Jurassic reservoirs of light oil.
- Developing the first phase of producing heavy oil to increase production to 60,000 bpd.
- Developing the newly explored reserves to reach the targeted production, estimated at 200 to 300 thousand bpd in 2020.

Work challenges
With regard to the challenges which Planning Group confronts while allotting future plans and strategies for the company, Al-Attar pointed out that the nature of work at the group involved exerting efforts to achieve the tasks allotted in this domain in the most efficient manner. For example, the task of allotting future strategies for a large company such as KOC needs an integrated approach that combines intense effort and strong coordination among the various support groups of the company. In fact, the state of being always ready is one of the characteristics that distinguishes Planning Group
and allows it to surmount challenges and obstacles. Accordingly, the staff allotted to the group are selected carefully based on their advanced skills and in line with specific criteria.

Regarding the cost of producing associated and non-associated gas, Al-Attar revealed that the cost of producing associated gas is calculated along with the cost of producing the equivalent barrel of oil, which is relatively low when compared to that of other companies operating in the region and on the international level. However, when it comes to non-associated gas, the cost is more expensive as it is produced from the deep Jurassic layers that are characterized by extreme pressure and temperature. The geologic composition and technical complexities involved in retrieving this gas makes the process far more expensive than extracting associated gas.

However, there is a benefit to producing non-associated gas as the oil found in this reservoir in high-quality light oil, which is more profitable to market. This also helps to save large quantities of crude oil and liquid fuel currently used for generating energy in power stations.
Future explorations

Talking about the future explorations, Al-Attar said the company has allotted an ambitious exploration plan that aims to add new oil reserves so as to increase production to 3.65 million bpd by 2020 and maintain this production level to 2030. Moreover, the company seeks to augment this production with 700,000 bpd of oil and one billion cubic feet of gas by 2030, through developing newly explored oil and gas reserves. Consequently, the company is conducting a seismic survey program which covers the various marine and land areas of the country. This program includes a 3D seismic survey in North Kuwait, an aerial survey of the marine and land areas, 2D seismic survey of the marine area, and 3D seismic survey for Kuwait’s Bay and Kuwait City.

It is worth mentioning that KOC has realized a number of achievements in the past few years, including new explorations in the Mutriba oilfield, Kabd oilfield, west Umm Qadir oilfield, Umm Niqa oilfield and Umm Al-Rous oilfield.
Al-Mulla: KUFPEC investments in Wheatstone LNG project boosts its presence in Australia

Kuwait Foreign Petroleum Exploration Company (KUFPEC) signed an agreement in 2014 to purchase 8 percent equity of Royal Dutch Shell in Wheatstone-Iago Joint Venture and a further 6.4 percent share in Wheatstone LNG project, in which it already owned 7 percent. These two purchases in Western Australia, along with its 35 percent share in the associated Julimar/Brunello Gas Development Project, helps the company bring added value to the oil sector in Kuwait by both, increasing oil reserves and introducing latest production technologies and experiences to the country’s oil and gas sector.

To learn more about these new possessions and the activities of KUFPEC in Australia, KPC World Newsletter interviewed Mr. Khaled Al-Mulla, Manager of Far East & Australia Region at KUFPEC. At the onset, Al-Mulla underlined the fact that the new shares which the company purchased in the Wheatstone LNG project and in Wheatstone-Iago Joint Venture were intended to reinforce the company’s presence in Australia, as well as support Kuwait’s oil sector through increasing production, which is an important aspect of Kuwait Petroleum Corporation’s (KPC) strategy. The investments also help in sharing latest technologies and providing new opportunities to Kuwaiti manpower so as to develop and improve their skills.

Furthermore, he indicated that the acquisitions will increase production and cash flows thereby stabilizing the company’s revenues well into the future.

**Julimar-Iago project**

Al-Mulla pointed out that Wheatstone-Iago project, located 12 kilometers west of Onslow in Western Australia is considered one of the most important and largest projects of KUFPEC. This project, along with the associated Julimar/Brunello Gas project, in which KUFPEC owns a 35 percent stake with the remaining 65 percent owned by Apache Corporation, enables the company to grow its assets in the lucrative Australian oil and gas sector. He added that the company’s initial involvement in project was only $28 million but it proved a wise investment as explorations have so far yielded good results.

He went on to note that the reserves of the project
KUFPEC’s strategic goals aim to increase production, convey advanced technology and provide development opportunities for Kuwaiti personnel.

are estimated at 500 million barrels of oil equivalent and KUFPEC’s share in this is about 150 million barrels. He added that at the time of the venture oil was trading for US$100 per barrel and this reflected the feasibility of such an investment.

Expanding on the operations conducted by KUPEC in Australia, Al-Mulla said that results from initial explorations of the offshore Julimar/Brunello fields were good and this encouraged developing the project further. However, there were a few obstacles to further development, including the fact that there was the need to establish a land center for the offshore production and a unit to manufacture liquefied natural gas (LNG). As the cost of establishing such a center was prohibitively high, about US$30 billion, it became necessary to find a suitable partner. In the search for a partner, KUFPEC gave priority to large companies that owned nearby explorations such as Royal Dutch Shell and US Chevron, which already owned the neighboring Wheatstone field – the largest in the region and almost four times the size of the oilfield owned by KUFPEC. In addition, Shell also owned the smaller Iago oilfield.
The two international oil giants decided to share the cost of establishing the land center and the LNG unit, as well as the marine utilities needed for the project. Subsequently, KUFPEC, Apache and Chevron along with Shell established a partnership to form one of the largest energy resource projects in Australia, with the foundation share of KUFPEC being 7 percent of the LNG plant, equivalent to the 35 percent share it had in the oil reserves in Julimar/Brunello project.

In 2015, Apache sold its share in the project to Woodside, an Australian oil and gas company with a global presence. After buying Shell’s share, KUFPEC became a partner of Woodside in the project. The ownership changes did not effect the operations as all the partners involved were keen to achieve the project in a successful manner.

Al-Mulla clarified that the project would add about 139 million barrels of oil equivalent to the strategic reserves of KUFPEC and that this would help achieve...
KPC 2030 strategy. He pointed out that the average daily production of KUFPEC is expected to reach 38 to 40 thousand barrels of oil equivalent by 2018 and this production would be maintained right up to 2048. He also disclosed that the first experimental production of LNG is expected to start by mid-2017 and the first cargo would be exported by late 2017.

He confirmed that investment in this project also had the strategic option of being able to supply Kuwait directly with its needs for LNG on a commercial basis.

**Financial return**

Asked about the financial returns from the project, especially given the recent decline in oil prices, Al-Mulla emphasized that the project is still economically profitable despite the slump in oil prices. He indicated that more than one feasibility studies on the project have shown its viability and profitability, including the latest report which was submitted just prior to the 2016/17 budget and took into consideration the low oil price scenario.

He went on to say that two different kinds of feasibility studies are usually conducted for such mega projects; the first kind is the feasibility study which is conducted on the entire project from its beginning to its last phase, to consider the possibilities of profit and loss under the fluctuations of oil prices. The second kind of feasibility study is conducted after finalizing each phase of the project to assess the profit or loss of the next phase of the project. This takes into account prevailing oil prices and leads to making strategic decisions, including whether to abandon the project, sell part of it or other options so as to protect the interests of the company as well as that of KPC.

**Future vision**

With reference to the company’s future vision regarding the project, Al-Mulla said, “Despite sharp decline in oil prices since the middle of 2014, which saw oil lose nearly 75 percent in value, the future prospects of the project still remain good. In addition, despite oil sector investments all over the world suffering as a result of the oil price slump, we still expect the project to be profitable, though not on the scale we estimated at the beginning of the project.”

Regarding the possibility of KUFPEC providing Kuwait with its LNG needs from its investments in Australia, Al-Mulla indicated that the project can strategically provide good quantities of natural gas. Moreover, though the State of Kuwait has the right and priority to buy the natural gas from this project, KPC has so far not indicated any desire to purchase natural gas from Australia. He added that the company also does not have any official document from Kuwait expressing its intent to purchase natural gas produced from this project; nevertheless, this huge investment offers a strategic reserve of large quantities of natural gas that can be used to meet the needs of the Kuwait anytime in the future.
Dashti: Heavy oil project aims to produce 60,000 bpd in 2019 and to eventually reach 250,000 bpd in future

Ever since heavy oil was discovered in Al-Ratqa oilfield in north Kuwait, the country’s upstream oil operator, Kuwait Oil Company (KOC), has been interested in extracting and utilizing this oil. The company was keen to use oil from this huge reserve, estimated at between 7 and 15 billion barrels of heavy oil, to contribute to Kuwait Petroleum Corporation’s (KPC) long-term strategy of producing four million barrels of oil per day by 2020. Accordingly, KOC drew up plans to develop the oilfield, especially the Lower Fars reservoir which was found to contain the bulk of heavy oil. In January, 2015, KOC signed the first phase of the Lower Fars heavy-oil development program, which was reportedly the first investment project for heavy oil in Kuwait.

When completed in May 2019, the project is expected to produce 60,000 bpd of oil and help in fulfilling KPC strategy allotted in this domain.

To throw more light on this project, KPC World Newsletter interviewed Mr. Yacoub Ahmed Dashti, Manager of Major Projects III at KOC, who clarified that the project is aimed at developing the heavy-oil reserves available in the Lower Fars reservoir of Al-Ratqa oilfield.

Pointing out the historical significance of the project, Dashti said that for the first time in its history, KOC will be able to produce commercial quantities of heavy oil. This, he said, will assist the company to develop its technical and operational capabilities and enable it to develop other heavy oil reserves available in the country.
Four main oil tanks, each with a capacity of 300,000 barrels, are to be established in South Tank Farm located in Al-Ahmadi City.

Noting that when fully operational in 2019, the first phase of the Lower Fars project will produce 60,000bpd, Dashti added that from there on production would gradually be ramped up to reach 270,000 bpd. He went on to indicate that the project would include a steam injection unit, a central processing facility (CPF) and associated infrastructure, as well as a production support complex for the heavy-oil. The project also includes a pipeline of around 162km to transport oil from the CPF in north Kuwait to South Tank Farm located in Al-Ahmadi City. He further clarified that KOC would have the option of sending the oil from Al-Ahmadi storage facility to the upcoming new Al-Zour refinery complex in south Kuwait to produce fuel with low sulfur content or to export it directly to international markets.

Elaborating on the project, Dashti said that the endeavor requires specialized technology to deal with specific characteristics of heavy-oil, including its high viscosity and sluggish flow rate. He noted that the project will employ the latest Cyclic Steam Injection technology which works in three stages. In the first stage large volumes of steam will be injected into the well for about three weeks. In the second phase, the oil well will be closed for a period of one or two weeks, so that heat from the steam spreads uniformly through the well and thins the oil. In the final production operation, the thinned oil will be pumped up the well.

Dashti pointed out that steam injection process would utilize around 300,000 barrels of water daily and that this water would be supplied by the Al-Sulaibiya station affiliated with the Ministry of Public Works. He also added that the operation would be environmentally friendly, as associated water would be treated and used in future to meet the project’s water needs.
With reference to the sections of the project, Dashti clarified that the project is divided into two sections: the first section will have a building for support production services, including for electricity, which will be provided by the Al-Raudhatain power station. The building, which will be located on 374,000 square meters of land and will provide working space for 460 personnel, is expected to be completed in 36 months from the start of project implementation.

The second section of the project will include the following facilities:

- Central Production Treatment Unit.
- Two Heavy Oil Gathering Units.
- Steam and gas pipelines for the wells no 2 and 3.
- Pipelines to export oil and fuel gas; besides pipelines to supply and dispose water.
- 72 megawatts from a sub-power station.
- 4 new tanks and manifolds, as well as a new control center for crude oil along with pumps in the southern oilfields.

He added that second section of the project is expected to be completed in about 53 months after the date of project commencement. He also indicated that the large area targeted for development — Group number 02 and 03 in Al-Ratqa oilfield — necessitated first dividing it into groups of wells and then dividing it on the basis of type and finally into a number of wells as follows:

- The first group includes 19 types, which include 732 oil wells.
- The second group includes 16 types, which include 600 wells.

As for the main pipelines installed in the project, Dashti clarified that they are classified as follows:
• A pipeline of around 162km in length to export oil from north Kuwait to Al-Ahmadi in the south.
• A water pipeline of about 123 kilometers from Al-Sulaibiya station to North Kuwait.
• A gas pipeline of about 80 kilometers from Kaza station to North Kuwait.

With reference to the main oil tanks, he noted that four tanks will be established in the South Tank Farm in Al-Ahmadi with capacity of 30,000 barrels each; in addition, a new building will be established to control the operations.

Challenges of the project and national personnel

Speaking about the challenges which the project confronts, Dashti said, “In fact, one of the main challenges in carrying out the project is finding enough skilled manpower. Qualified personnel are in short supply as several essential projects are being implemented at the same time, including the New Refinery Project, the Clean Fuels Project and the new Gathering Centers. In addition to this there is also the difficulty in providing the necessary equipment needed to accomplish these projects.”

He further indicated that among KOC’s strategies for the coming phase is to provide jobs for national personnel by making it mandatory on contractors to recruit a certain percentage of Kuwaiti employees. This is part of the ‘Kuwaitization’ program and aims to develop and train national personnel to help develop the Kuwaiti oil sector.

He also added that the equipment and operations required to carry out developing the heavy-oil project will utilize a large percentage of locally sourced products. This would have a positive impact on the national economy and has the potential to increase the rate of growth and revenues of the country in the future.
KPC launches Unified Generic Competency Framework to develop efficiency, performance

Kuwait Petroleum Corporation (KPC) and its subsidiaries recently launched the ‘Learning and Development Strategy’ program, which is considered a major step in the human resource strategy of Kuwait’s oil sector. This strategy aims to achieve organizational development by implementing a unified generic competency culture throughout the oil sector. The program helps create an appropriate work environment where employees gain skills and experiences to develop competencies, achieve career aspirations and improve their performance.

Underlining the belief that human resources are the true capital of the organization, and the main pillar upholding success of the oil sector, KPC has been keen on bolstering cooperation with all concerned parties to develop employee efficiency. In this regard, the Corporation has sought the help of experts who can provide effective mechanisms for learning and development so as to achieve the organization’s business strategy.

Learning and development strategy identifies new development criteria for all employees. In addition to re-inforcing the concept of change in the oil sector, this strategy also provides an added value to the business activities of KPC and its subsidiaries.

KPC launched this strategy after it had successfully allotted the basic guidelines aimed at realizing its strategic directions and providing a proper work environment for learning and innovation. Consequently, the unified generic competency framework, which is also called ‘Learning & Development Strategy’, was reviewed in detail by experts and consultants in human resources.

- The strategy of learning and development is based on a number of principles that include the following:
  - The employees are responsible for driving their own learning and development process.
  - KPC and its subsidiaries are tasked with providing work processes, resources and opportunities to support the development of employees.
  - KPC and its subsidiaries are responsible for allotting the key capabilities that employees should have in each phase of their career development.
  - All managers are responsible for applying the learning and development processes to ensure employees develop the competencies required for their jobs.
  - All managers are tasked with facilitating employee development.
  - HR and Training and Career Development depart-
ments will work alongside managers and experts in respective subject matters, to identify needs and provide learning and development solutions to employees.

- HR and Training and Career Development departments are tasked with assessing such learning and development processes in cooperation with the concerned departments.

- The investment in learning and development aims to focus on developing capabilities of national workforce to ensure talent is available for all levels.

- The Unified Generic Competencies Framework or ‘Learning and Development Program’ is tasked with identifying the level of competency needed for each job, so as to assist employees in preparing clear paths to reach the required efficiency. These levels reflect the increasing need to meet the efficiency criteria, such as knowledge, skills and behavior of each employee.

In addition to basic competency in Information Technology and English language skills, which are key elements for any job, the program comprises six unified competencies. Also, the efficiency of an employee is identified on the basis of four proficiency levels that start from the date of joining work until he/she achieves the proficiency level four, which is that of a team leader.

The program has identified proficiency level three as criteria for supervisors, therefore, the employee who is eager to reach this level will need to achieve the proficiency for this position. Moreover, the program has allotted two years as a period for the personal development plan. During this period, employee are required to be in touch with the department manager so as to review and update their personal development plans in line with the work requirements.
It is implemented in collaboration with McKinsey & Company

Business Interruption Project provides solutions to oil sector’s hazards

The Business Interruption Project, which Kuwait Petroleum Corporation (KPC) recently implemented, is considered one of the most important projects in the oil sector. The project is aimed at assessing the potential risks and challenges that may occur in future and which could have a bearing on the work environment and assets of the oil sector. It is also intended to avoid the negative impacts which could affect the operational businesses of KPC and hence impact the profit and cash flow of the company and the State of Kuwait.

Business Interruption Project is part of the Risk Management Department’s strategy stemming from KPC 2030 strategic directions and aims to follow up, anticipate, analyze and approach any interruptions that may take place as a result of changes in the business environment. By following up on procedures allotted in this regard, such risks can be controlled or, in the event that such an interruption does occur, it can be surmounted effectively.

Beginning and Goals

To learn more about the project, KPC World Newsletter interviewed Mr. Bader Al-Shumaimri, Manager of Risk Management Department, and Mr. Saleh Al-Rashidi, Team Leader of Risk Engineering and the manager for the project, who talked extensively on various phases of the project and its importance to the Kuwaiti oil sector.

Clarifying that the project took around 16 months, from October 2014 to January 2016, to be completed, Al-Shumaimri added that it was carried out in collaboration with McKinsey & Company Limited, one of the top global management consultancy firms.

He added the project, which targeted KPC and its subsidiaries, aims to provide an insurance cover for any business interruption that may take place in the operational activities inside the oil sector. He went on to note that though KPC and its subsidiaries currently have insurance coverage on their assets, the idea of insurance cover-
age for business interruption was a new concept that had not been applied before.

Pointing out that serious interruption to activity at any of its subsidiaries has a direct impact on the operations of KPC, Al-Shumaimri said that this necessitated a complete assessment to identify the amount of loss and provide appropriate solutions. This, he said, was needed in order to prevent the occurrence of such events or at least reduce the negative impacts of such interruptions.

He went on to add that the goals of the project could be summed up in the following points:

- Spreading awareness on the concept of business interruption across all levels in KPC, its subsidiaries and the State of Kuwait.
- Establishing a mechanism to discuss the ways of dealing with the probable scenarios of business interruption, and building technical capabilities to identify and assess such scenarios.
- Assessing the amount of risk and the probable loss scenarios, as well as their financial influences and reflections across all levels.
- Establishing electronic forms to support the business interruption scenarios.

He disclosed that two teams had been assembled to carry out the project; the first team was from KPC and included Eng. Saleh Al-Rashidi, Team Leader of Risk Engineering and manager of the project, Eng. Ahmad Haider, Senior Analyst at Risk Engineering and Eng. Mohammed Al-Naqi, Senior Analyst at Risk Engineering. The second team was composed of a number of specialized groups from KPC’s subsidiaries.

He further indicated that the teams had been specifically selected based on the distinguished experience of the employees and their capability to accomplish the project efficiently. He added that from the beginning the project targeted the goal of identifying the five most hazardous areas in which potential for business interruption was highest, so as to study them thoroughly and provide appropriate solutions. Following tremendous effort, the concerned teams managed to complete assessing the five areas by the end of January 2016.

Revealing that the teams involved had begun by identifying 60 hazardous areas, Al-Shumaimri said they then classified these areas based on the degree of risk in line with a number of criteria, including:

- The influence of risk and its limitations, based on whether it would influence operational activity of KPC or more than one oil company.
- The amount of material loss, which was set at a minimum of KD50 million; though a few areas crossed this number.
- The period of suspension of operational activity and the time required to restart these activities.

**Precise studies**

Noting that the areas of oil production, refining and export were classified as among the most hazardous areas in the oil sector, Al-Shumaimri added these highly hazardous areas were earlier identified without conducting a quantitative analysis. However, by applying the Business Interruption
Project, a quantitative analysis could be conducted for the areas of high risk and the results were subsequently referred KPC higher administration and the higher administrations of oil companies with suggestions to reduce the risk of such areas. He also clarified that the oil companies had asked for allotting a schedule to study the proposed solutions, so they can agree on the best solution to apply in the targeted areas.

Al-Shumaimri also extended his appreciation to the teams and to the project’s manager Mr. Saleh Al-Rashidi, for their diligent efforts. He noted that once they had been recruited for implementing the project the teams immediately began coordinating with the oil companies.

**Phases of the project**

For his part, Mr. Saleh Al-Rashidi, Team Leader of Risk Engineering and manager of the project, said the Business Interruption Project included several phases which were as follows:

- Identifying the most hazardous areas in the oil sector as per certain criteria.
- Studying the first area and obtaining results in collaboration with the consulting company.
- Studying the remaining four areas and reaching appropriate conclusions by the concerned team.
- Preparing training documents so as to train teams which will carry out the steps of the project in the future.

He pointed out that after identifying the most hazardous areas and studying them thoroughly, the team proposed appropriate solutions to reduce the amount of risks as much as possible. Following this, the proposed solutions were referred to the consulting companies to select the most appropriate ones.

He made clear that the purpose of allotting such solutions was to reduce the amount of loss that could result from long-term suspension of activities at units. This, he noted, could harm the operations of KPC and its subsidiaries and in turn reduce cash flow. He indicated that the project helped to reinforce cooperation among the oil
companies in the field of risk management through exchanging experience, knowledge and best practices.

With reference to the schedule of implementing the proposed solutions, Al-Rashidi said that the approved solutions are closely related to their financial cost and the time needed to implement them. Therefore, such issues are tackled by KPC and its subsidiaries; however, priority is always given to the areas that need immediate solutions. In addition, they will be carried out under the supervision of Risk Committee in KPC.

Revenues

He further indicated that the plans allotted to handle risks play an important role in achieving the revenues targeted from oil projects, as the plans and solutions allotted in this regard increase reliability and trust in achieving the desired goals.

“Undoubtedly, the step of identifying the risk locations has impelled oil companies to prioritize these areas. Accordingly, the companies will increase awareness among their employees who work at these sites, so they can deal with them in a careful manner so as to reduce potential casualties as much as possible,” he noted.

He emphasized that the positive results gained from such projects will urge the oil sector’s higher administration to make evidence-based decisions that will work to the benefit of KPC and its subsidiaries.

In conclusion, and on behalf of the project team, he extended his appreciation to Mr. Bader Al-Shumaimri for his unlimited support to the project; this, he said, helped to achieve the project in a short time. He also extended appreciation to the members of Risk Committee in KPC for their positive cooperation and interaction with the project.
The initiatives involved in converting existing installations into green buildings are considered a major challenge for the service sector of any institution. The initiatives involved in renovating an existing building and making it eligible for certification as a green building, include a number of practices, programs and processes. When fully implemented, these procedures help make a building environmentally responsible and energy efficient, while protecting employee health and improving productivity.

The Service Sector at Kuwait Petroleum Corporation (KPC) realizes its crucial role in this domain, as it is tasked with providing a comfortable and appropriate work environment for personnel, while providing high-quality services in line with standards allotted in this regard.

To learn more information on green buildings and the efforts exerted by Service Sector at KPC to rehabilitate the Oil Sector Complex headquarters and convert it into a green building, KPC World Newsletter interviewed Mr. Ahmad Al-Maraghi, Electrical Engineer at Services & Commercial Department. He began by clarifying that the term ‘green building’ refers to buildings that are designed and certified according to international criteria regarding reducing their environmental impact, achieving sustainability and being resource-efficient.

Based on its belief in the importance of converting the Oil Sector Complex into a green building, KPC and its subsidiaries have harnessed all its efforts and capabilities to help achieve the initiative and make it a sustainable success. Accordingly, KPC higher administration approved the project of rehabilitating the Oil Sector Complex as per specification of the Leadership in Energy and Environmental Design (LEED) criteria. In this regard, KPC has contracted with Kuwait Institute for Scientific Research (KISR) to act as a consultant for the project.

Al-Maraghi clarified that the initiative is aimed at achieving the following specific goals:
The first phase of fixing 2630 sq/m of thermal insulation film on the glass facades finalized to help reduce thermal loads on the building’s cooling system

- Reducing consumption of energy and water, as well as natural resources, by using them appropriately.
- Guiding consumer consumption so as to reduce their negative influence on environment.
- Applying recycling so as to safely and efficiently get rid of waste.
- Improving quality of the internal environment as per the international criteria allotted in this domain.
- Applying best practices that help convert the Oil Sector Complex into a sustainable building, in line with public health, environment, safety and security criteria.
- Using systems and equipments that comply 100 percent with environmental criteria.

Using energy efficiently

With reference to using energy efficiently, Al-Maraghi indicated that the efforts of KPC to reduce energy consumption, in fact, began in 2005, with the move to the new headquarters in the Oil Sector Complex. From the beginning, the management was keen on operating the building’s A/C systems through the Building Automation System (BAS), which achieves the lowest level of energy consumption. The corporation also applied advanced technologies to reduce water consumption, by fixing auto-taps to control water flow and ultrasound meters to accurately monitor the consumption of water. In addition, the Six Sigma methodology introduced in the corporation helped to reduce the amount of water used to irrigate plants, including through the use of desalinated seawater.

KPC has also taken a number of steps to achieve efficiency in electricity consumption by installing 2236 Light-emitting diode (LED) lamps at an estimated cost of KD90,000. This helped reduce power consumption in the building by up to 63.5 percent and had the added benefit of indirectly influencing the effectiveness of A/C and reducing their consumption of electricity.

Furthermore, Al-Maraghi made clear that the Service Sector had also finalized a contract for developing a building monitoring system, as well as fixing 900 remote-sensors to monitor offices and corridors, and fixing 222 units of ENC and 1,050 transformers to monitor electricity consumption in all areas in the building. This is designed to identify areas where the rate of electricity consumption is high and accordingly manage it by providing appropriate solutions. It also fixed 1000 thermostats with special specifications to measure the rate of moisture in the building and LON cards for the main machines of A/C systems to help provide accurate measurements on the performance of A/C systems and to improve quality of the building's internal environment.
Projects fulfilled
He further indicated that other important projects have been achieved in the oil sector, including the no-smoking policy which has been applied inside the building; using environment-friendly gases in the A/C systems and using high-quality air filters. In addition, a system has been fixed to assess the percentage of CO2 inside the building, and to complement indoor air with a percentage of fresh outdoor air in the A/C systems.

The sector also managed to finalize the first phase of fixing 2630 square meter of thermal insulation film on the glass facades to help reduce thermal loads on the building's cooling system. Moreover, an estimated 629 square meters of inclined exterior surfaces have been painted with thermal insulators to further reduce thermal loads on A/C systems.

Future projects
With reference to the future projects allotted in this domain, Al-Maraghi said the sector is currently planning to implement a number of projects, including, in cooperation with KISR, fixing solar panels in the parking areas of the Oil Sector Complex. He indicated that the percentage of electricity produced from this project would be equivalent to 9 percent of power consumption in the Oil Sector Complex and would help achieve power sustainability during emergencies. In addition, the second phase of installing LED lamps in the Complex will be undertaken, especially since the first phase was so clearly successful.

Asked about the purchasing policy for the project, he said the purchases are done in compliance with respective bylaws in this domain. He pointed out that one of the bylaws necessitated purchasing goods that were distinguished with a minimum 40 percent Energy Star rating. He clarified that Energy Star is a joint program between the US Environmental Protection Agency and Energy Management in America, which helps protect environment through using highly-efficient products and practices.

Achievements
For his part, Mr. Salem Al-Shammeri, Supervisor Office Services at Services & Commercial Department, highlighted the accomplishments made in successfully converting the Complex into a green building. These achievements include the following:

1- Applying all stipulations specified for LEED certification by revamping cleaning services in the Oil Sector Complex, through a number of ways including as follows:
   • Using environment-friendly, battery-operated systems to reduce the amount of water consumed.
   • Providing chemical cleaning substances that do not negatively influence environment or a person’s health.
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• Using recycled and high-quality tissues and papers in the toilets.
• Fixing plastic floors as per LEED criteria to keep the building safe and clean.
• Applying waste recycling project which managed to recycle about 85 percent of waste collected from the building.
• Applying, on experimental basis, the recycling of organic waste collected from the building and converting it into organic manure used in the surrounding green areas.

2- Applying the stipulations of photocopying services in KPC through the following:
• Using recycled paper made from 100 percent Forest Security Council accredited products.
• Replacing 6 percent of ordinary photocopiers with environment-friendly photocopiers that work with dry ink.

3- Applying stipulations allotted to provide consumer resources through:
• Focusing on locally-made products to reduce the environmental impact of carbon emissions, such as procuring local juices and dairy products, which represent more than 53 percent of consumer products that the Complex buys.

Other projects
Al-Shimmari also highlighted a number of other projects that have been accomplished by the Services Sector, including the project for reducing the amount of paper used inside KPC, by spreading awareness among employees and encouraging technological alternatives that save time and effort, as well as protects the environment. This has also helped in improving the level of productivity and performance of employees.

He went on to indicate that the paper conservation project had helped save over one million sheets of paper in 2014. He revealed that recycling waste produced inside the building was also another project that the sector was keen on, as part of its journey to qualify the Oil Sector Complex for LEED certification. This project, which was launched in March, 2013, is fully supported by KPC administration, as it has achieved clear positive results in reducing negative environmental impacts.

The project of fixing solar panels in the parking areas of Oil Sector Complex reinforces sustainability, and saves power during emergencies.

![Monthly Paper Consumption Vs Saving from Annual Target (2014/2015)](chart.png)
Kuwait Aviation Fuelling Company (KAFCO), which was established in July 1963, is one of the subsidiaries of Kuwait Petroleum Corporation (KPC). The company is committed to provide high-quality jet fuel, as well as deliver maintenance services and lend technical support to all aircraft that use Kuwait International Airport. As KAFCO has the sole responsibility for providing support services to aircraft in Kuwait International Airport, the company is keen on delivering the highest level of services to its customers in line with the standards established by the International Air Transport Association (IATA) and Joint Inspection Group (JIG).

KAFCO won the 2015 Excellence Award in the best ground services provider category during the 9th annual Aviation Business Awards ceremony held in Dubai in October 2015. The aviation award recognizes pioneering individuals and outstanding companies in the Middle-East aviation sector. In addition, the company has won several other awards, including obtaining the ISO 9001-2000 certification.

It is worth pointing out that KAFCO provides over 2.2 million liters of jet fuel to around 130 flights that land daily in Kuwait International Airport. Moreover, the company provides private planes, military aircrafts and helicopters with their needs for specialized jet fuels. Also, the company recent-
ly signed a contract to provide jet fuel to aircraft belonging to the Amiri Diwan at airports, both inside and outside the country.

To throw more light on the company’s future expansion plans, KPC World Newsletter interviewed Mr. Mukhtar Redha, Team Leader of Planning, Sales and Marketing at KAFCO. He began by clarifying that the company’s operations include receiving jet fuel from Mina Al-Ahmadi and Mina Al-Shuaiba refineries and storing it in a tank depot, set up in an area of about 140,000 square meters of land, in order to readily deliver fuel to aircraft at Kuwait International Airport.

He added that the fuel is transported through underground pipelines extending over 37 kilometers and the pipes are specially coated on the inside to maintain quality of the jet fuel. Moreover, he pointed out the fuel is replenished on a continuous basis from the refineries.

Asked about the company’s operational capability and the mechanism of providing jet fuel to aircraft, Redha said that there are two ways to provide aircraft with fuel: the first is through the ‘Hydrant System’, which is the latest method of fueling aircraft as it takes considerably less time than the traditional method for the same quantity of fuel. The second way of fueling aircraft is the traditional way which depends on using refueling trucks to transport fuel to the aircraft. However, this traditional system is now used only in cases where the aircraft is parked outside the hydrant system area due to rush hour at the airport gates during certain periods.

He added that a new network of jet fuel pipelines have been installed in line with the Directorate General of Civil Aviation’s (DGCA) plans to open a second terminal with new aircraft parking lanes.
He went on to say that KAFCO is exploring ways of streamlining and updating its services in the wake of the government suspending the 10 percent subsidy offered to airlines using Kuwait International Airport. He noted that this cut in rebate has negatively influenced the amount of sales at the airport. Nevertheless, he added, the DGCA has drawn up a plan to deal with this situation through sales promotion drives aimed at attracting new clients and opening new sales outlets. Accordingly, it managed to increase its profits by 66 percent despite the challenges and difficulties which it confronted in this domain.

In this context, the company began searching for other resources to increase its revenues, said Redha. As a result, the company managed to successfully sign a contract to provide the 16 aircrafts that belong to the Amiri Diwan with jet fuel while they are outside Kuwait. The company accomplished this by signing agreements with international companies to supply the planes with jet fuel at overseas stations on a round-the-clock basis.

Pointing out that the Amiri Diwan had extended its appreciation and admiration for the high quality and level of services provided to its planes, he added that KAFCO had formed a specialized team to meet the demands of the Amiri Diwan. The company is able to provide this efficient level of service to the Amiri Diwan mainly on account of its good relations with various companies working in the same field in destinations around the world.
Redha confirmed that this not only helped the company collect more revenue, it also saved the Amiri Diwan from having to pay exorbitant rates for international fueling services.

He also revealed that the company is currently in discussion with the two Kuwaiti-owned airlines, Kuwait Airways Corporation and Al-Jazeera Airlines, with the aim of getting them to sign similar contracts to that of the Amiri Diwan. He added that agreements are likely to be signed in the coming months with these airlines, as well as with the Ministry of Defense for military aircraft, on fueling their planes while abroad.

He added that the company also managed to attract a number of new customers whose planes use specialized fuel. These planes are mostly military aircrafts and they are provided with specialized fuel labeled JP8 at Kuwait International Airport. The JP8, he pointed out, is different from the Jet A-1 which is provided to civilian aircrafts. The new customers formed an additional source of revenue for the company, said Redha.

He concluded by saying that the new plans which the company has adopted and continues to implement succeeded in collecting revenues of over $2.5 million. He stressed that KAFCO always seeks to provide the highest quality of service to its customers and aims to enhance its performance so as to maintain the good reputation that the company has in front of clients. In turn, this service and reputation helps the company increase its revenues and thereby provide added value to Kuwait’s economy.
Kuwait Oil Company (KOC) diligently seeks to optimize its oil and gas reserves by applying the latest techniques and technologies that can deliver high-quality and precise results. In this context, Exploration Group at KOC has been conducting necessary exploration studies so that the company can assess the potential oil and gas reserves on Kuwait’s land and marine areas. The group has also been conducting specialized studies on developing oilfields and on assessing risks related to the country’s hydrocarbons.

To throw more light on exploration into Kuwait’s hydrocarbons, KPC World Newsletter interviewed Mr. Abdulaziz Sajer, Team Leader of Prospect Evaluation at Exploration Group at KOC. He began by emphasizing that the goal of exploring hydrocarbons is to identify the oil and gas reserves of the country in both, horizontal reserves and deep vertical geological reservoirs.

He noted that Exploration Group drills several exploratory wells in order to assess the hydrocarbon stocks available in Kuwait’s oil and gas reservoirs. Explaining that hydrocarbon reserves are formed over millions of years by decomposing organic matter below the Earth’s surface, Sajer added that this organic matter eventually forms into natural gas and oil. He further added that the oil could be categorized as heavy, middle and light oil, while the gas could be labeled as associated or non-associated, depending on whether the gas found in the reservoir also contained oil.

With regard to the mechanism of assessing hydrocarbons, Sajer said Exploration Group applies a number of advanced mechanisms based on the international criteria fixed in this regard. The processes could be summed up through the following steps:

1. Identifying the layers which may include rocky strata that have the potential to contain hydrocarbons.

Abdulaziz Sajer: KOC provides non-traditional ways to deal with oil reservoirs
2. Conducting several geophysical surveys such as magnetic and 2D seismic surveys to identify the nature of geological structures of underground layers.

3. Depicting each reservoir through elaborate subsurface maps after collecting all geological and geophysical data and information.

4. Allotting maps for the geological reservoirs based on the results of the seismic survey through the latest technologies applied in this domain.

5. Conducting a geochemical study to understand the source and time of hydrocarbons' migration to the geological traps.

6. Identifying areas which are rich with hydrocarbons to calculate accurately the expected reserve and its economic feasibility.

7. Drilling exploratory wells after collecting all results to make sure of the presence of oil or gas reserve of the reservoir.

As for the difficulties which the exploration and assessment team confronts, Sajer said the team faces several difficulties while extracting hydrocarbons, including the vast depth of the Jurassic reservoirs. Some of these reservoirs are located at depths of between 14-20,000 feet and moreover, they are characterized by extremes of temperature and pressure. In addition, these reservoirs also contain a high percentage of H2S and CO2 which makes them potentially hazardous. However, he noted, that the team has various efficient means of tackling and reaching these reservoirs.

Asked about the elements which help identify and assess the location of hydrocarbons before beginning the drilling operations, Sajer said these could be summed up in the following points:

1. **Source Rock:** The rocks that hold hydrocarbon reserves have organisms that over millions of years have decomposed within it. During this extended period the rocks can be subject to high pressure and temperature that lead to the formation of oil or gas.

2. **Migration:** Hydrocarbons migrate from the source rocks and seep upwards to the less dense upper layers due to density-related mechanisms, including over-pressure, buoyancy and expansion. The hydrocarbons could seep to the surface or get trapped in lower layers.

3. **Reservoir:** The trapped hydrocarbons are contained in porous reservoir rocks such as limestone or sandstone. The reservoir also needs to be permeable so that the oil can flow to surface during the production process.

4. **Trap:** Because of its buoyancy the hydrocarbons have to be trapped within the reservoir. This is done through the presence of a trap cover or cap-rock that is impermeable to the upward flow of hydrocarbons.

With reference to 3D seismic surveys and their relation to the process of assessing hydrocarbons, Sajer clarified that the results of the 3D seismic survey are considered one of the key sources of information and data to identify geological structures. These surveys help to precisely identify the sites where hydrocarbons are likely to be available and are also important in effectively evaluating the characteristics of the underlying hydrocarbon reservoirs.

He went on to disclose that recently KOC, which was represented by the Exploration Group, conducted a 3D seismic survey on a large area of around 4,500 square kilometers. This survey, which represents roughly 25 percent of the total land area of the State of Kuwait, was a huge step in the exploration of oil and gas reservoirs in the limestone layers of Jurassic and Permian era rocks. He further revealed that the results from these surveys were very positive.
Eng. Mudhi Al-Ajmi, Team Leader of Reservoir Studies of North Fields at Kuwait Oil Company (KOC), confirmed that the company is aiming to produce about one million barrels of crude oil from the northern oilfields by the financial year 2018/2019, as part of its input to Kuwait Petroleum Corporation’s (KPC) strategy of increasing oil production to 4 million bpd by 2020.

She indicated that KOC is currently implementing a number of projects in north Kuwait to fulfill its goals, including establishing three new gathering centers in Al-Raudhatain and Al-Sabriya oilfields. In addition to this, the company is carrying out second phase of the project for injecting associated water for enhancing production, especially after the company managed to successfully achieve the first phase in 2014.

To throw more light on the reservoir studies and nature of her work in such a specialized field, KPC World Newsletter interviewed Al-Ajmi. At the onset, she clarified that her team is composed of reservoir engineers, geologists, geophysicists and petro-physicists, who are in charge of conducting extensive studies using latest technologies available in this field with the aim of realizing the nature of each reservoir.

She went on to elaborate that the key task of the Reservoir Studies Team is to carry out medium- and long-term studies to develop the major and minor reservoirs in Al-Sabriya and Al-Raudhatain oilfields. In addition, the team is tasked with making sure that all pilot studies conducted to develop the oil reservoirs are effective and accurate, by making certain the data and information collected on the sites are precise, so as to provide appropriate ways to develop current production and prolong the lifespan of wells.

She confirmed that the team is conducting several studies, including criteria studies, geographical and mechanical studies and other related studies that help maintain and enhance production from the oil reservoirs. She added that, in order to conduct more comprehensive studies, the team occasionally seeks the advice of external experts, who have extensive experience in this field.
Al-Ajmi indicated that the team also provides support to Oilfields Development Team in the operations of drilling and developing oil wells, adding that they are keen on increasing production from the oil reservoirs by applying the latest technologies such as Inflow Control Device (ICD), radial drilling and horizontal drilling.

Elaborating on the means of assessing oil reservoirs and identifying the location of the oil/water contact, Al-Ajmi made clear that KOC has a professional team specialized in building reservoir-maquettes that help simulate the flow of fluids in the reservoir. In addition, all related data and information collected in the
process is saved in the form of 3D samples that help during analysis of seismic surveys conducted on the reservoirs. After that, maps are drawn to help understand the nature of the reservoir, depending basically on the well logs to identify oil from water. The drilling logs used in this regard are obtained mainly using neutron porosity and gamma ray logging tools that help the team to identify the specifications of the different layers in the borehole during drilling.

With reference to the mechanism of connecting the reservoir studies to the lab studies that are conducted on the rock samples, she clarified that an elaborate analysis is conducted in this domain. The results of studies are used widely to identify the sites of new wells; moreover, it is possible to insert the results of studies to the static geological sample.

As for the tests of wells and the inner photography and their relation to the reservoir studies, she said the results of these tests provide the data which help in identifying the remaining oil in each reservoir, as they identify the quantity of oil flow, percentage of associated water, thickness of the layer and other related information.

She added the well logs are a key part of the data and are used in a wide range of studies conducted on the reservoir to determine its characteristics accurately. These logs and studies are crucial in helping identify the possibility of producing oil from each well.

With regard to the future vision of Reservoirs Studies Team, Mudhi Al-Ajmi said the team seeks to diligently carry out vital projects for the good of the Kuwaiti oil sector. These include projects for water pumping installations and production installations that are considered the most important at the current time. She disclosed that there are other projects that will be carried out in the future to extract the remaining quantities of oil from reservoirs, including pumping chemical substances and certain kinds of gas, as per the specifications of each reservoir, to extract such remaining quantities.

She further added that experiments will be conducted on new projects in the coming two years and accordingly they will be generalized on all reservoirs to increase their production as much as possible.
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