The Kuwaiti Digest

July - September 2018

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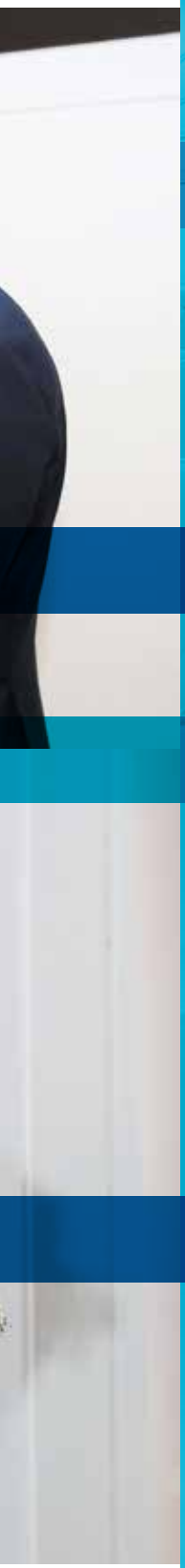
The Kuwaiti Digest is a quarterly magazine published by the Kuwait Oil Company (K.S.C.) since 1973.



The Kuwaiti Digest

Letter From The Editor

Ahmad Abdulazeem Alhamad
Deputy Managing Director
Administration & Finance

By the time this issue of The Kuwaiti Digest reaches your desk, we will be in the midst of another long Kuwaiti summer. As we brace ourselves against the heat, we should also take the opportunity to look back on the blessful completion of the Holy Month of Ramadan. This year, the Holy Month occurred at a time when the days were longer and the temperature was soaring. This time of year is challenging under normal circumstances, and even moreso for those who are fasting. It is my sincere hope that this past month was one filled with goodwill and self-reflection for you and your families, and on behalf of the Company's senior leadership, please allow me to extend my best wishes to you all. In Kuwait, the months of July and August are by far the country's hottest, and as the temperature increases, it is natural for the usual hustle and bustle of our lives to slow down a bit – at least during the day. The pace of work at KOC, however, must carry on as usual. It is true that in order to remain a reliable supplier of energy to the world, our Company must re-double its efforts over the summer months to ensure we remain a global leader in the oil and gas industry. This is a difficult task when the weather is fair and our employees are eating regularly – it is an even more difficult task when the weather approaches 50°C and the majority of our employees are fasting. With this in mind, I would like to commend all KOC employees for their efforts over the summer months. Our Company is entirely reliant on the hard work and dedication displayed by faithful employees like you, and for that, KOC thanks you all. In the pages that follow, regular readers of The Kuwaiti Digest will have the opportunity to learn more about the important work their colleagues are conducting around the Company. Our lead story for this issue covers the CEO HSSE Award Ceremony, which was held under theme of "Safety First - Dare to be Aware." The ceremony is important to KOC for a number of reasons, the most important of which is the fact that issues related to Health, Safety, and the Environment are critical aspects of the Company's strategic objectives as they relate to the protection of human life and natural resources. The Supreme Winners of this year's event focused on eliminating unnecessary oil leaks throughout the Company's areas of operation, and I encourage all employees to learn more about the important work they have done for KOC and Kuwait.This issue also features a number of technical submissions that were submitted by employees who have worked hard over the past year to ensure KOC's 2040 Strategic Objectives are met. Some of these articles include an overview of an ambitious project which focuses on the management of microorganisms in water systems, which was completed in collaboration between the Research & Development Group, the Kuwait Institute for Scientific Research, and the Danish Technological Institute. Other articles include a submission from the Production Excellence & Planning Team about the important work they have conducted recently in the field of holistic loss management processes. I would like to close by once again extending my best wishes to all KOC employees, and I would also like to extend my thanks and appreciation to each and every one of you who continue to work hard for the benefit of KOC and Kuwait.

KOC Holds 21st CEO HSSE Award Ceremony

The 21st KOC CEO Award for Health, Safety, Security and the Environment (HSSE) was held recently at the Hilton Resort and Hotel in Mangaf. The event, which is hosted by the Company on an annual basis, plays an important role for KOC by recognizing some of the most outstanding initiatives made by Company employees in the field of HSSE. This year's event was held under the theme of: "Safety First - Dare to Be Aware."

During a videotaped speech he delivered at the event, KOC CEO Jamal Jaafar told the audience that good HSSE practice was at the heart of the Company's values and that the award ceremony harmful impacts on the environment and health in general.

Raising the levels of awareness among employees and creating a Company culture that lends importance to personal safety, health and the environment. This is done through awareness programs which demonstrate the importance of important matters such as safe driving, not exceeding the speed limit, and the use of safety belts, in addition to other traffic related campaigns.

The CEO went on to say that in order to motivate contractors to work in alignment with

initiatives as examples:

The implementation of the Global Information Security Management System (ISO 27001: 2013), which helps KOC avoid break-ins and accidents at the Company.

The implementation of a program to monitor and measure air pollutants emitted from production facilities. This is a milestone in the analysis of data and the identification of the sources of pollution according to the requirements of the Ministry of Oil and the Environment Public Authority.

KOC's Waste Management Project, which limits marked KOC's continuous effort to improve and enhance HSSE standards in order to protect the lives of employees, contractors, and surrounding communities.

"While KOC is committed to upholding the safety and security of our employees and the surrounding environment, there is no doubt that such efforts face challenges. However, we believe we can overcome these challenges through the creation of initiatives that contribute to the protection of our society and the environment," the CEO said.

In his speech, the KOC CEO listed the following

Senior officials from various K-Companies and governmental institutions attended the event.

these principles, KOC began including HSSE regulations and conditions within Company contracts. As a result, KOC has managed to reduce the rate of lost time due to injuries, which has been reflected in the number of work sites around the Company that have registered new records in terms of work with no lost time due to injuries or accidents.The KOC CEO then thanked all members of the HSSE Award Committee for their efforts in organizing the event. He also thanked all employees who continue to work toward helping KOC maintain its commitment to matters related to HSSE.

Meanwhile, Manager Ahmadi Services Group Nouri Al-Khatrash, who also served as Chairman of the Award Committee, said that the choice for this year's theme, "Safety First - Dare to Be Aware", reflects the depth of KOC's relationship with its employees and the environment in which they operate.

The Ahmadi Services Group Manager went on to say that some of the vital projects that have been implemented within the Company include air quality, soil remediation, and waste management projects. In addition, KOC has established a system for pre-employment and periodical medical examinations for all contractors based on health-critical job categorizations.

Nouri Al-Khatrash then told the audience that the Organizing Committee received 207 applications which covered seven categories while the total number of winning projects was 17. The event featured the participation of 200 KOC employees and 97 children of employees, in addition to seven educational institutions. Six subcommittees were formed to evaluate participants.

A video was then presented about the winning projects in which a number of project participants talked about the importance of their achievements. Honorary prizes were presented to representatives of ministries and government bodies that contributed to the promotion of the concepts of health, safety and environment, and to other categories of winners, i.e. contractors, youth and children, as well as some figures who had an active role in the field of HSSE awareness.

2018 CEO HSSE Supreme Award Winner:

Project Title: Improve Surface Safety for PCP & SRP.

Members: Abdul Aziz Najaf, Abdullah Al-Jabri, Hind Al-Aswad, Akchaylal Pandit, Fajer Al-Salem (Well Surveillance).

Abstract:

There were frequent incidents of oil leaks observed during the years 2016 and 2017 in SRP/PCP System. An initiative was established by the Artificial Lift Team (S&EK/WK) to design and install four varieties of new safety equipment that work together to be the first of its kind to be implemented worldwide. They include Dual Ram BOP, Flapper Valve Assembly, Leak Detector,

and Safety Clamps. This smart and automated system avoids any leakage effected from damage related to any piece of the PCP/SRP system along with sending an alarm for immediate action. Simultaneously, a new detailed Standard Operation Procedure was implemented. As a result of this initiative and the efforts carried out on more than 80 wells, not only were there no more leakages recorded, but it also launched a new era of an outstanding management of wells with production capacity of 30,000 BOPD in S&EK with reduced downtime and adding to oil gain.

About the KOC CEO HSSE Award

The KOC CEO HSSE Award was created in order to recognize outstanding achievements at KOC in the fields of Health, Safety, Security and the Environment. The awards are open to employees and teams of up to five key members, and applications are invited to be submitted on an annual basis. Applications from cross departmental teams is highly encouraged.

Applications from the following fields of work are encouraged:

Health: Initiatives or programs that promote and enhance health. Applications should be submitted under one of the following sub-categories:Occupational Health: Improvements in the work place, home or community environment of KOC that enhance health, fitness and hygiene.

Medical Health: Improvements by medical policy & personnel that improves the health, fitness and hygiene. Safety: Changes to behavior, procedures, design or operations that raises safety standards. Applications should be submitted under one of the following categories:

General Safety

Process Safety

Security: Changes to behavior, procedures, design or operations which raise security standards. Environment: Activities which help protect and conserve the environment and minimize the impact of KOC's activities, including activities to reduce waste, emissions and environmental improvement schemes in the community. HSSE Awareness: Programs designed to educate and motivate employees, contractors, students and the public. Applications are judged on the following guidelines: Performance: Has the activity contributed to the improvement of HSSE performance at KOC? Reputation: Has it enhanced KOC’s reputation/ image?Outreach: Has the activity contributed to awareness or improvement of HSSE issues among employees, contractors, students or the public?Transferability: Can the activity be applied to other KOC activities?

Cost Efficiency: Has HSSE improvement been implemented in the most cost efficient manner?

The 2018 CEO HSSE Supreme Award winners.

KOC Launches Microbe Management Project

Kuwait Oil Company, through the Research & Development Group, has launched an ambitious project which focuses on the management of microorganisms in water systems, bringing KOC to the forefront of the development of microbial monitoring. This project will markedly improve the identification of microbial corrosion "hot spots" to focus mitigation activities, and through this prolong the lifetime of pipelines and production facilities, ultimately reducing expenses for replacement of failed bends and pipelines.

The project was completed in close collaboration between KOC's R&D Group, the Kuwait Institute for Scientific Research – Petroleum Research Centre (KISR-PRC) and the Danish Technological Institute (DTI Oil & Gas).

Microorganisms Cause Corrosion in Pipelines

Kuwait holds some of the largest oil reserves in the world, efficiently produced by Kuwait Oil Company. Similar to other oil companies around the world, KOC water handling systems are subject to attack from microorganisms which can cause significant pitting corrosion – a phenomenon termed "microbial influenced corrosion." On a global scale, microbial influenced corrosion is responsible for 20-50% of corrosion-related failures in process systems. The main culprits are sulphate-reducing microorganisms growing in biofilm on the inner walls of well tubing, pipes and bends, threatening flow assurance, and thus oil production.

Prioritized Mitigation Efforts Yield Reduction in Operational Costs

Traditionally, it has been difficult to survey the presence and activity of microorganisms. However, new molecular technologies offer a pronounced improvement of microbial monitoring. In this project, new technologies are applied to KOC systems to optimize management of troublesome microorganisms. This not only ensures stability in production, but also reduces the overall costs for maintenance and replacement of installations, by enabling operators to prioritize microbial mitigation activities (e.g., biocide treatment and mechanical scrapings). Furthermore, it enables operators to reduce sampling frequency of sites not heavily affected by microorganisms, thereby reducing operational costs.

Creating Overview Through Intelligent System Mapping

The project focuses on North Kuwait seawater handling systems such as the Seawater Treatment Plant (SWTP) and the Central Injection Plant Facility (CIPF), and South Kuwait effluent and brackish water systems at Gathering Centers GC-4 and GC-21. The total number of microorganisms and typical MIC culprit organisms have been evaluated, and microbial communities have been sequenced by the use of next generation sequencing technologies.

Corrosion Threat Management

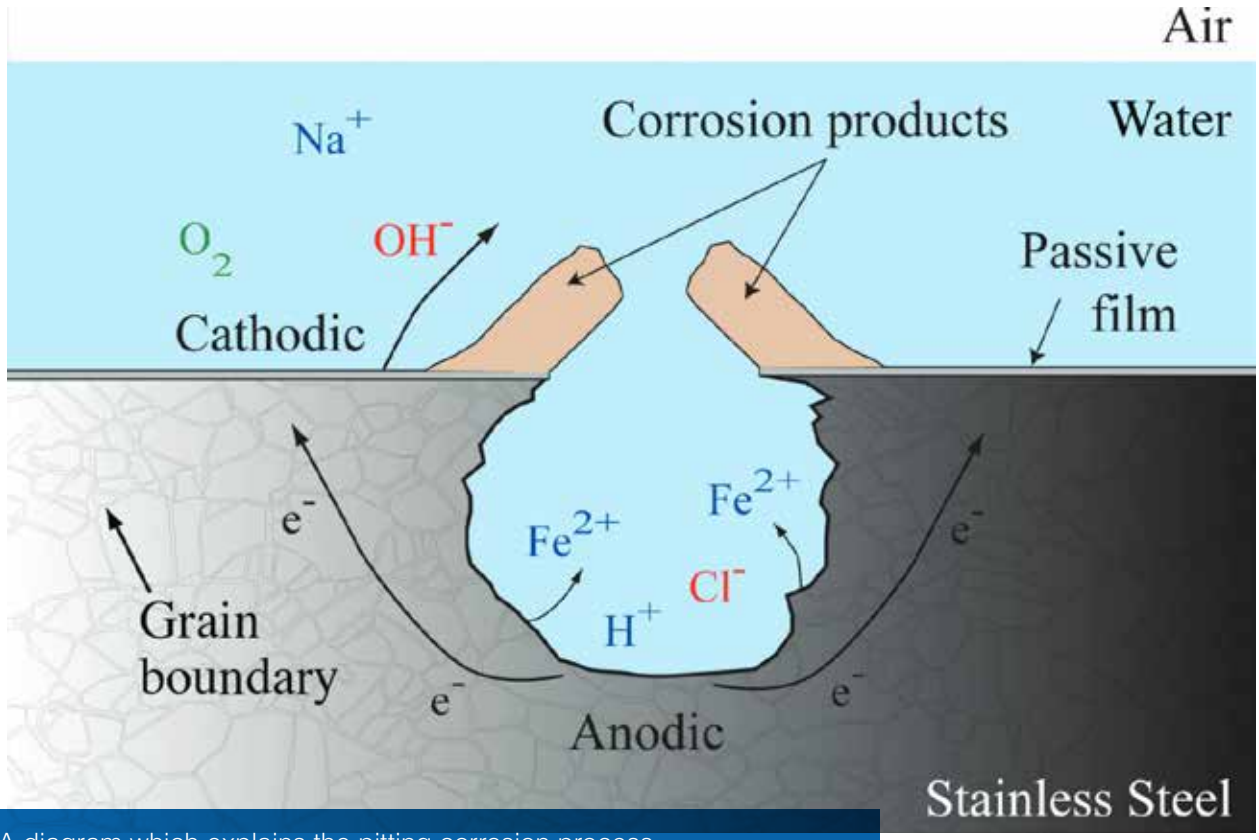
The outcome of the evaluations are detailed maps of systems that reveal microbial growth "hot spots" and high-threat pipelines. The maps are now used as a basis for the optimization and prioritization of mitigating activities including pigging operations and biocide treatments. All data retrieved from the systems is incorporated into a KOC-specific online-available microbial monitoring tool that enables a continuous overview of the microbial status in systems. The monitoring tool will expectedly be incorporated into daily corrosion monitoring and threat assessment practices.

Defining the Optimal Microbe Mitigation Strategy

Ongoing work includes in-depth analysis of current chemical mitigation strategies to fully understand the conditions leading to microbial issues, and to optimize current chemical strategies. The studies are conducted in Denmark in a laboratory set-up that simulates the conditions found in Kuwaiti pipelines.

Improving Daily Practices

Upon implementation of new mitigation



A diagram which explains the pitting corrosion process.

strategies, further monitoring of the systems is beneficial in order to evaluate the efficacy of the mitigation activities. Sites that currently do not pose problems are also monitored to ensure stability in microbial status and to allow for fast response, if changes for the worse should arise.

The overall monitoring approach and threat assessment system is already now ready for enrolment to other KOC systems.

Experts in Oilfield Microbiology

The Danish Technological Institute (DTI) is a self-owned institution approved as a technological service institute by the Danish Ministry of Science, Technology and Innovation. DTI operates under the patronage of HM Queen Margrethe II of Denmark.

Since 1906, DTI has developed, applied and disseminated research and technologically-based knowledge for Danish and international business sectors. DTI is home to 1,050 employees, of which 50 are involved in oil and gas-related topics organized in DTI Oil & Gas, hereunder water control, inter-well tracers, conformance and enhanced oil recovery. The microbiology management system is developed in close collaboration with North Sea operators, and is now used with operators all over the world including Norway, Great Britain and since 2010 also the Middle East (Saudi Arabia, Qatar and now also Kuwait).

With the work conducted in Kuwait, DTI Oil & Gas consolidates its position as a proven technology supplier to Middle East operators.

KISR-PRC

KISR is a pioneering, independent, national institute of scientific excellence. Today, KISR is home to more than 580 researchers and engineers and more than 100 laboratories. The goal of KISR Petroleum Research Center (KISR-PRC) is to build the center's capacity in selected technical fields, specifically in enhanced oil recovery technology, advanced reservoir characterization, petroleum chemistry, reactor engineering, and materials science. That is achieved through collaboration with international partners, including academic and research institutions, and selected specialized oil companies that have extensive experience in process and product

development, commercialization, and marketing to ensure that the output of the center reaches the commercialization stage.

Successful Collaboration Across Boundaries

In 2015, KOC, KISR-PRC and DTI initiated discussions regarding collaboration, and a contract was concluded at the beginning of 2017. The collaboration exemplifies how an open mindset can induce technology development and knowledge transfer across boundaries and between institutions located far from each other. The collaboration also demonstrates how projects can be successfully completed, despite geographical separation between parties, when top project management is combined with skilled and experienced project participants.

The Middle East has an enormous potential as driver of technology development within the oil and gas industry. Kuwait has large oil resources still to be produced, and there is a constant demand for optimizing production technologies to maintain high production from mature fields. In combination with the presence of competent and skilled people with innovative mindsets, this makes the Middle East a melting pot and facilitator for the development of new ideas and technologies, and the place-to-be for serious technology developers and providers.

KOC's Green Buildings Will Help Turn H.H. the Amir's Vision into Reality

Submitted by the Ahmadi Projects Group

His Highness the Amir of Kuwait Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah recently called for a practical action plan to produce 15% of the total energy needs of the State of Kuwait from renewable energy sources by 2030. In light of this, KPC CEO Nizar Al-Adsani recently initiated a directive that, because of the capabilities of the K-Companies, Kuwait's oil sector could meet a minimum of 15% of the country's total energy consumption by 2020.

To learn more about this topic, The Kuwaiti Digest met with Ahmad Al-Zaabi, Manager Ahmadi Projects Group, Abdulrahman Al-Kandari, Team Leader Corporate Projects (I), and Khalid Al-Mousa, Senior Engineer Projects to further discuss and elaborate on their plans to achieve KOC's 2020 vision.

What is a Green Building?

A "Green Building" is a construction in which all the materials and integrated systems are designed to reduce the impact on the surrounding environment and the building's occupants. There are numerous reasons behind using this type of construction as indicated below:

• Green buildings are designed to save energy and resources, recycle materials and minimize the emission of toxic substances throughout its life cycle.

• Green buildings are meant to exist in harmony with the local climate, traditions, culture and surrounding environment.

• Green buildings are able to sustain and improve the quality of human life whilst maintaining the capacity of the ecosystem at local and global levels.

• Green buildings make efficient use of resources, have significant operational savings and increase workplace productivity.

• Lastly, building green enhances an organization's image and brands them as pioneers in sustainability and green living.

Benefits of Green Buildings

With global concerns of global warming and depleting hydrocarbon reserves, green buildings are becoming a quintessential practice utilized by many organizations. Building green is the optimal option to preserve natural resources and protect the environment. The benefits of green buildings are categorized along three classes: environmental, economic and social.

Many of the benefits of green buildings are

interlinked with each other. Implementation of integrated design leads to reducing the initial costs of building; on the other hand, providing intelligent design and suitable materials will improve the quality of the internal environment and will provide a better way to preserve building occupants' health.

Green buildings reduce the environmental impact of the construction industry by using materials that are selected based on their life-cycle environmental impacts, using renewable energy resources, minimizing the use of mined rare metals and persistent synthetic compounds, using recycled materials in all phases of construction and demolition. They also reduce harmful waste products produced during construction.

Despite the common conception of green buildings being too expensive to be considered as economically feasible, studies have shown that the cost of green buildings is not substantially higher than regular development projects. When studying the economic feasibility of green buildings, both the initial cost of the building and payback period should be considered.

One of the economic benefits of green buildings is saving energy and water. This is made possible by the efficient, sustainable design and technology that leads to reducing the operation cost, which in turn offers long-term saving. Also, the low energy, low operating costs, and easy maintenance of green buildings factors into increasing the property's value.

The building environment can either have negative or positive impacts on the occupants' quality of life. Negative impacts include illness, absenteeism, fatigue, discomfort, stress, and distractions resulting from poor indoor air quality, thermal conditioning, lighting, and specific aspects of interior space design (e.g., materials selections, furnishings, and personnel densities). Reducing these problems through sustainable design often improves health and performance. Improved indoor air quality and "increased personal control of temperatures" and ventilation have strong positive effects. In addition to reducing risks and discomforts, buildings should also contain features and attributes that create positive psychological and social experiences.

Finally, at a community level, the social benefits of sustainable design include knowledge transfer, improved environmental quality, neighborhood restoration, and reduced health risks from pollutants associated with building energy use levels.

Initiatives for Energy Saving & Green Living

The Green Buildings Technical Task Force of the Corporate Projects (I) Team, Ahmadi Projects Group, took the lead in carrying out comprehensive studies to assess transforming KOC to a sustainable company. This resulted from the leading role of Kuwait's leadership and its commitment to environmental sustainability and protection for future generations.

The way forward to implement the Green Buildings initiative will be carried out as per the following mechanisms:

• KPC Green Buildings Guidelines for New Construction and Existing Buildings were developed and approved by KPC in February of 2017. The newly established guidelines were converted into recommended practices (KOC-G-001) in coordination with the Standards Team and published in KOC's portal.

• By following the new "Green Standards" all of KOC's future buildings will be Green and sustainable.

• Current non-industrial buildings will be converted into green building through a service contract that is currently in the process of being drawn up.

Furthermore, several workshops, seminars and awareness sessions were conducted by members of the task force on different levels to share the knowledge and encourage other teams to adapt green practices.

Adapting applications of sustainable technology/ systems and utilizing renewable resources is vital in order to reduce/produce 15% energy consumption through renewable sources. All Company employees and their families are encouraged to consider sustainability and initiate sustainable behaviors in their daily lives.

By following the guidelines, KOC buildings will save a minimum of 15% energy consumption and reduce water consumption by 30%. According to this plan, Ahmadi will be environmentally friendly by 2020 with all the initiatives currently being developed and implemented.

The Production Excellence (PX) Journey:

Setting the Foundations for the Future of Production Management

Submitted by the Production Excellence & Planning Team

"A strong production excellence function will provide the foundation for the transformation of our production operations. No longer can we afford 'unknowns', and consistent visibility of our performance and actionable information is critical to reaching our targets."

Abdullah Al-Sumaiti
Former DCEO SE&K

"The future production challenges and opportunities is a very significant issue not only for Kuwait, but for all E&P players. It is of the utmost importance for us to understand key drivers and risks involved in optimizing production from our fields."

Bader Al-Munaifi
DCEO S&EK

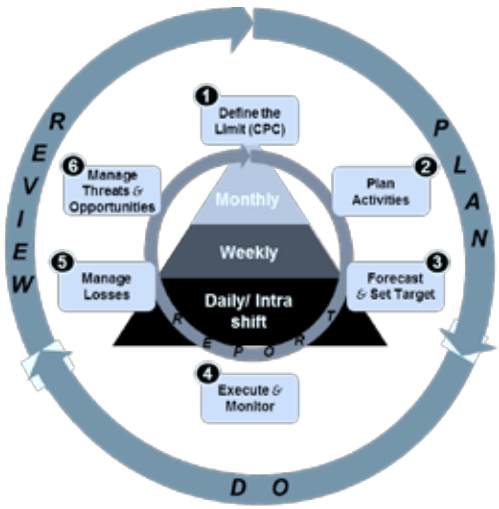
Kuwait has been blessed with bountiful natural resources, with its prolific oilfields continuing to have some of the lowest lifting costs in the world. As custodian of these resources, KOC must reflect on our nation's rich history and recall the need to remain prepared for an ever-evolving and increasingly challenging world.

Today's headwinds include not only a complex macro-economic environment but also increasing operational challenges; both of which we must embrace if we are to continue our success story.

Oil prices are expected to remain subdued and volatile in the foreseeable future. This is mainly due to a complex mix of supply competition in the form of shale producers in the US and constrained growth of oil demand due to the increasing penetration of renewables and electric vehicles. These challenges arise at a time where the Giant and Super Giant Fields, which still provide the bulk of KOC's production, are showing signs of increased maturity. The continued investment in both wells and facilities being testament to both the challenge and significant remaining potential of these fields. Fully exploiting these existing fields whilst bringing on production from 'new reserves' requires enhanced co-ordination across KOC Assets and Teams. Technology, being central to both supporting collaboration and ensuring best practices and expert insights, are consistently applied across the Company.

KOC's senior officials understand that delivery of KOC's ambitious growth target of increasing production capacity from 3.15 MMBOPD in 2017 to 3.65 MMBOPD in 2020 requires a step change in performance, which is only possible through a holistic transformation of the way we work. In recognition of these challenges, the KOC Leadership Committee created the Production Excellence and Planning Team (PE&P).

The aim of the PE&P Team is not only to co-ordinate KOC's response to the "KPC call" and in doing so providing assurance to short and medium-term production commitments; but also to support management decisions to ensure maximum crude production is achieved by providing systematic visibility of production capacity and constrains across the entire KOC production value chain. Working together with Accenture Strategy Energy as well as KOC's Asset organizations, the PE&P Team has developed and deployed a holistic closed loop Production Excellence framework.



"With the support of the Production Excellence Framework and the IOX program, we herald a new mindset of transparency, consistency and efficiency in the way we manage operations across KOC."

Fuad Al-Shaikh
Manager Operations (SK)

"Today, Digital Transformation is a key enabler in the Oil & Gas Industry to reduce costs, make faster and better decisions, and increase workforce productivity. Many oil companies are undertaking digital transformation programs to drive efficiencies in core operations. Most are focusing on a range of digital technologies such as analytics, cloud, big data and mobility."

Issa Al-Jadi
TL Production Excellence & Planning

The framework not only outlines data standards and governance, but also includes supporting tools designed to provide management with the insights required to exploit additional production opportunities and mitigate threats. This is only possible through the consistent and transparent view of companywide production, capacity (wells and facilities), constraints and loss numbers.

Until recently, respective KOC Teams were using different processes to quantify and classify the amount of oil production loss, despite having a global database in the form of FINDER, which contains all the required production data to estimate the amount of production loss (ie: well status, closure reason, oil, water, and gas production). Today, by working closely with all the Asset Groups of Production Operation and Field Development with the support of Exploration & Production Information Management Team, PE&P Team has created a holistic losses management process that utilizes classified and quantified losses directly from FINDER to provide consistent and powerful insights.

Efficiently deriving actionable insights from the vast amounts of data generated upon a daily basis is a strategic priority for KOC. The ongoing digital transformation across KOC is one lever to attain the step change in performance required to meet KOC's targets. In line with this endeavor, KOC S&EK in cooperation with Schlumberger, recently launched the Integrated Operational Excellence Program (IOX) in S&EK, sponsored by Fuad Al-Shaikh, Manager Operations Group (SK) and Issa Al-Jadi, Team Leader PE&P. This work acknowledges that critical asset management processes span across multiple Teams and therefore, focus on standardization and automation of processes as a critical enabler.

As part of the launch of the program, a strategic alignment workshop was held on Jan 25, 2018 at the Kuwait Hilton, during which the IOX program was introduced to a delegation from across S&EK's Groups and Teams.

Technology and innovation continues to be the foundation of KOC's success. Business requirements mandate that the Company further incorporate the transformational opportunities of the digital revolution, by leveraging key advances in areas such as big data, advanced analytics, and the digitally connected workforce into our daily workflows. The PE&P Team will play a central role in the identification and development of 'Proof of Concepts' to integrate innovative solutions into today's operations.

Building on the powerful Production Excellence Framework and the consistency and transparency it generates, KOC can achieve its ambitions around the Digital Oil Field of the future.

The digital revolution encompassing our industry will touch the ways in which all KOC Teams work both individually and collectively. As one of the few cross-functional, cross Asset Teams, PE&P will continue to act as a natural integrator and looks forward to support KOC on the exciting journey on which we have only just embarked.

An Interview with Dr. Abdul Malik

On the sidelines of the health lecture he delivered at the Ahmad Al-Jaber Oil & Gas Exhibition on the "50 Health Rules", the Information Team recently met with Dr. Ahmad Abdul Malik, Family Doctor Specialist at Ahmadi Hospital, in order to learn more about the trajectory of his successful career path. Dr. Abdul Malik studied medicine and graduated with honors from the Royal College of Surgeons in Dublin, Ireland, in 2005.

He returned to Kuwait as soon as he completed his studies and was accepted to the board of family medicine. He then worked for a year in one of Kuwait's public clinics before he joined the medical team at Ahmadi Hospital as a family doctor in the Family Medicine Department.

In the last three years he has published a number of books he has written which have gone on to become best-sellers. He is also a leading personality on social media, where his medical-related pages on Instagram and Twitter have amassed a following of some 900,000 followers. He has also appeared on several shows and interviews on national television broadcasts. Dr. Abdul Malik's social media posts are generally aimed at raising health and nutrition awareness.

Dr. Abdul Malik picked an uncommon major in Kuwait, which is Family Medicine, because of its uniqueness, richness and diversity. While most doctors tend to choose more technical or in-demand medical specialties such as Surgery, Dermatology, and others, Dr. Abdul Malik decided to follow his own path. According to Dr. Abdul Malik, Family Medicine combines a variety of majors and disciplines, which means the family doctor should be knowledgeable in Pediatrics, Surgery, Dermatology, and Internal Medicine, amongst other disciplines as well. His work as a family doctor requires him to receive all types of medical cases, diagnose them, and treat or refer them to specialized doctors depending on the case's complexity. These cases could range from a simple flu to a heart attack, or a minor flesh wound to a severe car accident injury. Throughout the treatment of all these different types of cases, one must have adequate knowledge in order to fully understand the best course of treatment, which is what attracted Dr. Abdul Malik to Family Medicine.

Dr. Abdul Malik views his decision to take a job at Kuwait Oil Company as one of the best choices he has made in his life. For him, the work environment at KOC is excellent, and the Family Medicine Department is very organized and structured. The employees at KOC are in continuous development due to the ongoing training programs and courses provided by the Company to its employees, he added.

Dr. Abdul Malik described his choice to join KOC as a turning point in his career. Another turning point in his life, which he did not plan, was his popular presence on social media platforms that first started four years ago. The first spark on social media initiated when he was with his friends at a coffee shop, where his friends were smoking shisha. This pushed him to write about this matter on his personal account on Instagram, where he said "Shisha is an official disease transmitter of epidemics such as hepatitis, etc." Back then, he only had 100 followers, but after having written this post, his follower base started to grow until it reached 10,000 in one month. The journey of health awareness began from that moment on, where his followers on Instagram reached approximately 900,000, and on Twitter he has around 50,000 followers.

Dr. Abdul Malik still recalls what the late Dr. Abdul Rahman Al-Sumait, who dedicated his life to charity work, had told him once when Dr. Abdul Malik was 15 years old and on a school trip, volunteering. "What do you want to become?" Dr. Al-Sumait had asked. The young Dr. Abdul Malik replied, "I want to become a doctor." Dr. Al-Sumait then said, "My son, medicine is a good major but take this advice from me, don't keep your clinic within four walls - the whole world should be your clinic!" These words still resonate in Dr. Abdul Malik's ears and heart, as he now views the social media platforms as tools to spread health awareness in all its forms. This is one of the privileges Family Medicine provides, as it allows the doctor to be knowledgeable in all medical sections. Dr. Abdul Malik considers diversity in his topics as contributing to the success and growth of his personal accounts on social media.

When his follower base reached half a million, he decided to think of a new

challenge, especially because this platform contains enormous numbers of personal accounts that tackle health awareness and education. He was determined to set out on a new adventure of writing a book. This adventure resulted in publishing his first book, Medical Myths. He then wrote Green Banana vs. Yellow Banana. His latest release was The 50 Health Rules, and all books were published in Arabic.

The Three Publications

Medical Myths was released in 2016 and written in a very simple and exciting style. The background story of the book happened when he was a young boy and suffered from vision problems. So, he drank carrot juice for an entire year, yet nothing improved. Dr. Abdul Malik asserts that the carrot juice cannot restore vision as the myth states. In his book, he tackles many other myths to challenge the minds and wrong convictions on medicine that are widespread in our society, such as administering vitamin C for the flu, or that TV causes blindness, or that acidic water burns fat. The book contains 100 medical myths, 100 medical truths, and 100 explanations of those truths.

The second book was released in 2017, and the background story of the book is based on a time when he was invited to "Qouzi" one day with friends. One of his friends asked to replace rice with bread because he was on a diet. Dr. Abdul Malik laughed and said. "If we put rice and bread on the nutritional scale, healthy rice will trump bread in term of caloric count, sugar, sodium and other factors. That is how the idea of Green Banana vs. Yellow Banana came about. The book discusses the scientific way for making health and nutrition choices in our lives, such as opting between ketchup and mayonnaise, Coke vs Diet Coke, rice vs bread, fresh oranges vs vitamin C pills, and other options. Knowing that he ascribed the reason to write this book to the shortcoming of medicine in general in spreading awareness on nutrition and health choices, especially when he found out that most health problems in people are caused by wrong nutrition choices. He figured this out during his journey in the medical field; therefore, he decided to utilize the social media platforms to reverse these shortcomings. Although he majored in Family Medicine and not nutrition, he responds to criticism by saying that a doctor who does not tackle nutrition is a doctor with shortcomings.

His last book is The 50 Health Rules that was released this year. It discusses 25 health rules and 25 nutritional rules. The slogan of the book is "Change Your Life in 30 Minutes." It contains the essential facts on health and nutrition.

Weakness to Strength

When Dr. Abdul Malik was four years old, he was injured and lost a part of his hand due to an accident where he put his hand inside a juice blender, resulting in the loss of parts of his fingers. When he applied to join the Royal College of Surgeons, he passed the verbal interview with excellence but was labeled as incapable during the test because of the accident, although he was sent out on a scholarship. The point was the doctor should use his hands when performing his duty.

However, he did not give in and requested to meet the Dean, but his request was rejected because it had to be by scheduled appointment. He insisted on his request and said that he would not leave the place before seeing the Dean. He finally entered and met Dean Hays and delivered to him his pre-prepared speech. He said to him that medicine is not exclusive to surgeries but also includes other disciplines. He pleaded and asked for one year to prove his merit and if he failed, they could dismiss him out of the faculty. Two days later, he received a phone call from Professor Hays welcoming him to the faculty.

A Message to Readers

Dr. Abdul Malik has delivered a message to Kuwaiti society stating that each individual must have a minimum amount of health and nutrition

Dr. Abdul Malik delivers a speech in the auditorium of the Ahmad Al-Jaber Oil & Gas Exhibition.

education, especially mothers. Mothers are the house managers who generally run the household, which includes deciding what the family will eat on a daily basis. Mothers provide healthcare to family members, administer to them their medications, and take them to the doctor. If mothers have the minimum amount of health education, then it is a natural consequence that she would enjoy good health and will share this good health with her husband and children. Only then can society rise and develop further, all because of mothers.

He also gave advice to employees in the oil sector asking to be aware and selective of their food quality during their eight hours at work. Our health habits during working hours affect our present and future health status. He also provided insight into matters related to occupational health in terms of the healthy way of sitting for long hours and proper posture when working behind a computer screen.

The Crime of Antibiotics

Dr. Abdul Malik was keen to clarify some of the common misconceptions on antibiotics, which he maintains also means “antilife.” Antibiotics kill the good and harmful bacteria and several studies have proven that our digestive system needs three months to remake the good bacteria and get back to its normal count. The common conception was that good bacteria is connected with the digestive function only, whereas it is proved that it is also related to our immunity system and mental development.

It is not recommended to take doses of antibiotics unless necessary for the patient because taking antibiotics to treat influenza and the common cold is a crime. Here comes the role of an aware and educated mother because the uneducated mother would practice a sort of urging demand on the doctor to prescribe for her child an antibiotic course, while all that is actually needed for a cold is plenty of fluids, rest and antipyretics.

One of the side effects of antibiotics is the immunity that the body develops against the type that has been taken, and this presents a major challenge. The discoveries on developing new types of antibiotics has been limited for the last ten years, therefore, the World Health Organization stressed in the past to refrain from prescribing antibiotics unless absolutely necessary. Dr. Abdul Malik also recommended eating yoghurt while on antibiotics because it is a source of probiotics to remake the good bacteria that was killed due to antibiotic intake.

An Interview with the Czech Ambassador to Kuwait

H.E. Martin Dvořák

As part of a series of interviews which aim to shed light on the various diplomatic missions in Kuwait, The Kuwaiti Digest recently sat down with H.E. Martin Dvořák, Ambassador Extraordinary and Plenipotentiary of the Czech Republic to the State of Kuwait (residential) and to the State of Qatar (non-residential).

During the interview, which can be found in full below, the Czech Ambassador discussed Kuwaiti-Czech relations, the history of the Czech Embassy in Kuwait, and the ways in which Kuwait and the Czech Republic can work together to further develop cultural and economic relations.

TKD: Can you briefly provide an overview of Kuwaiti-Czech relations?

H.E. Martin Dvořák: I suppose the date we should be most proud of - which is a paradox because it involves some difficult memories - is the 1990/91 invasion of Kuwait. At the time, the Czech Republic sent a unit to Kuwait which assisted in the liberation effort. In fact, the Czech Embassy in Kuwait just recently had the honor of receiving a delegation of 11 Czech war veterans who took part in the 1991 Gulf War, who were invited to Kuwait by the Kuwaiti government as guests of honor on the occasion of the 27th anniversary of the liberation of the country. At the time, members of the Czechoslovak anti-chemical unit made significant contributions to the effort to liberate and rebuild Kuwait.

While the Czech contribution in 1990/91 is perhaps the highlight of our relations so far with Kuwait, it should be noted that we have had a presence in Kuwait since at least 1963, which is when the Czechoslovak Embassy was opened, making it one of the first socialist countries to have a presence in Kuwait. Then, in 1993, the embassy was officially changed to the Czech Embassy, which involved a very intricate negotiation between the Czech and Slovak sides.

TKD: What is the primary function of the Czech Embassy in Kuwait?

H.E. Martin Dvořák: Our bilateral relations are excellent and therefore very quiet, and as there are no tensions or problems, we do not often deal with complicated issues. As such, we mostly promote the Czech Republic for business and cultural exchange purposes, and we are ready to help encourage the promotion of business and cultural exchanges.

One of our main functions is organizing business missions and cultural projects. For example, we are working with the National Council for Culture, Arts And Literature. Recently I met with a number of Kuwaiti partners in the field of art and culture to discuss possible performances which feature Kuwaiti and Czech artists and musicians.

Kuwait is home to a very interesting performer named Ghazi Al-Mulaifi, who comes from a long line of men who were historically pearl divers. He is currently preparing a project which features the bahri or traditional music of pearl divers, but with a modern twist which infuses current sounds and positive energy into the performance, so the result is this fusion of traditional and new. Al-Mulaifi actually studied in New York, and by coincidence one of his professors in New York was a friend of mine, so when I first arrived to Kuwaiti he was one of the first people I wrote to and met. Today we are trying to organize a performance between Al-Mulaifi and a Czech artist who is also doing something similar by blending modern and traditional music. Our hope is that we can have a concert in Kuwait that features the performance of both artists as a way to promote cross-cultural exchanges, cooperation and understanding.

The concert I mentioned is just one project of many that we have in mind. Music has the ability to connect people everywhere, and you don't even necessarily have to know the language to understand the message. What is positive for me is that both sides have agreed to try and we are now looking for an available time to put on the performance. Another idea I have in mind involves presenting a symphony orchestra in Kuwait from the Czech Republic.

TKD: What are some activities the Czech Embassy has organized in the past?

H.E. Martin Dvořák: Since I became ambassador we have had two business missions. One was focused on spas and health, which is an easy thing to promote in Kuwait because many Kuwaitis I have spoken to, including His Highness the Amir, are aware of or have been to spas in the Czech Republic.

What makes spas so special in the Czech Republic is the fact that we have excellent water and natural resources, such as healing springs. Combined with a commitment to health education and experienced masseuses, doctors, and professional staff, our spas are all very professional and can make your stay very relaxing. Of course, the environment is a bonus because the weather is nice and the people are friendly. These spas are mostly in Western Bohemia

Czech soldiers and Kuwaitis celebrating Kuwait's liberation.

and North Bohemia, and they specialize in physiotherapy and other specialty areas.

We are therefore trying to promote this image of the Czech Republic as a destination for spa treatments, and in addition, I would like to add that our medical facilities are of the highest caliber, so the potential for medical tourism to the Czech Republic is also a possibility. The possibility of bringing more Czech doctors to Kuwait is also something we can look into, as Kuwait and the Czech Republic do have experience over the years in exchanging medical knowledge.

We have also conducted a certain amount of work to promote Czech food producers, and we believe they can be helpful and successful in Kuwait. The Czech Republic grows a wide variety of fruits and vegetables, and meat production, dairy and cheese are also major industries that we can collaborate with Kuwait on.

Of course, the Czech Republic is also quite famous internationally for another industry – glass production. Swarovski, for example, is a company founded by Daniel Swarovski, who was born in Bohemia in the Czech Republic. Many famous glassmakers are based in the Czech Republic or have Czech roots. Recently, on a visit to the Amiri Diwan, I was pleasantly surprised to learn that the chandelier there was made of Czech glass, and the same can be said of the chandelier in the White House. Here in Kuwait, we are examining the ways in which we can continue to promote Czech glass, which is some of the finest in the world.

In terms of other areas where Czech companies can assist Kuwait, I believe that the field of Information Technology is one which the Czech Republic can provide some assistance. Today, there is an increasingly robust tech sector in the Czech Republic which focuses on IT solutions and technologies, software, and more. This is another area where we could be good partners with Kuwait, and in fact we are currently working on a number of ventures with Kuwaiti parties.

In terms of oil and gas services, companies from the Czech Republic can play a role in assisting Kuwait in this field. The Czech Republic manufactures a number of systems that can benefit Kuwait. These include solar systems which focus on smaller integrated units, like valves and pipelines and remote

control management systems which need electric supplies, so it is very appropriate to link them to solar systems, especially if they are off or far away from the grid, as is the case sometimes in the field.

In addition, we have companies which manufacture coating for PV panels, remote sensing technologies, and these are all integrated, so I think these things could be successful in the oil and gas industry here. We are also very focused on waste management and environmentally friendly solutions, and as Kuwait has soil rehabilitation efforts underway, we have competent companies in this field who could be successful in helping Kuwait in this effort.

TKD: In what areas can the relationship between Kuwait and the Czech Republic grow?

H.E. Martin Dvořák: We can always find new potential for business collaboration, but the area of tourism is something I am also interested in – not only for Kuwaiti tourists to come to the Czech Republic, but for Czech tourists to visit Kuwait. I appreciate the fact that Kuwait is becoming more attractive for tourists, and I believe there is huge potential for Kuwait in this particular field. People from the Czech Republic love to travel, and Kuwaiti's love to travel as well, and the best way for people to see and understand other cultures is to get them to visit new places, so this is an area where we can create better channels of cooperation and understanding, simply through travel.

About the Czech Ambassador

H.E. Martin Dvořák was born in Prague on November 11, 1956. His family moved to Pardubice not long afterwards, where he completed his primary and secondary education. In 1978, he was accepted to the Faculty of Finance at the Prague School of Economics, from which he graduated with honors in 1982.

In March of 1990, he was chosen as Vice-Chairman of the National Committee for the District of Hradec Králové. In the communal elections of 1990, he was elected to the position of Mayor of Hradce Králové. In the municipal elections of 1994, he successfully achieved re-election as Mayor. He was present at the conception of the Association of Towns and Municipalities of the Czech Republic, served as a member of its presidency from 1992 to 1996, and served as its Vice-Chairman between 1994 and 1996. He was a member of the Scientific Board of the University of Pardubice and the University of Education in Hradec Králové. From 1992-1998 he was a substitute

A Czech officer meets with his Kuwaiti counterparts at the Czech Embassy.

Czech soldiers who participated in Kuwait's liberation were recently invited to Kuwait to commemorate Liberation Day.

delegate to the European Chamber of Regions.

In the summer of 1999, he was invited by the European Chamber to participate in the United Nations Administrative Mission in Kosovo (UNMIK), where he served as the administrator of the cities Istog/Istok and Gjakovë/Đakovica for the next 28 months, and for a short time also headed the Department of Development of the Local Authority in the Pejë/Peć region. He described his experiences of this mission in the book Kosovo, *Under My Skin*, which was published in Czech in 2001, with a foreword written by President Václav Havel, and published in English later that same year. Subsequently, it was also translated into Albanian and Slovak. After the conclusion of his mission, he became the first foreigner to be named an honorary citizen of the Istog/Istok municipality.

From July of 2003, he worked in Iraq as one of the Czech experts helping the Coalition Provisional Authority (CPA) in Basra establish local government in the provinces of Maysan, Basra, Dhi Qar and Muthanna in the southern part of Iraq, and was later invited to join the administrative team of the Council for International Coordination (CIC) in Baghdad, where he worked as Deputy Director of the Donor Coordination Department. During his work in Iraq, he published a series of articles on the post-war reconstruction of Iraq in the MF Dnes daily.

He has been employed by the Ministry of Foreign Affairs of the Czech Republic since April 1st, 2004. In the autumn of the same year, he briefly worked in Ukraine as an OSCE observer during the first and second rounds of the presidential election. From January 2005 to August 2009, he worked as a business counselor at the Czech Embassy in Washington DC. After returning from this mission, he was appointed Director of the Department of Bilateral Economic Relations and Export Support at the Ministry of Foreign Affairs of the Czech Republic. He remained in this position until August 2012, when he was appointed Consul General to the United States of America in New York. He finished this mission in July 2017.

In September of 2017 he became the Czech Ambassador to Kuwait and Qatar.

Visit the Czech Republic

The Czech Republic's beauty could easily be enjoyed for a

lifetime. In fact, many people come to the city and decide to make Prague their home. However, for most who visit, a few days will have to suffice. While the entirety of this charming city cannot be covered in a few simple days, there is much that can be seen.

For those who have never been to Prague, Prague Castle is an absolute must-see. By many accounts, Prague Castle is the largest castle area in the world. Its three courtyards and a number of magnificent buildings cover more than 18 acres, so be prepared to see a lot and do a considerable amount of walking. Charles Bridge is also a sight that every visitor to the city should see. Charles Bridge is a stone Gothic bridge that connects the Old Town and Lesser Town. It was actually called the Stone Bridge during its first several centuries of existence. Its construction was commissioned by Czech King and Holy Roman Emperor Charles IV and began in 1357.

The rich artistic heritage of Prague and the Czech Republic can be admired in Prague's many museums and galleries. The numerous expositions of the National Gallery, Municipal Gallery, National Museum, and other institutions contain extensive collections of art of all styles and eras, ranging from fine art to sculpture, and spanning over two millenniums.

Spas

The Czech Republic's three most famous spa towns are located in the region of Bohemia, set along the country's western edge. Karlovy Vary, Marianske Lázně, and Frantiskovy Lázně - also known as Carlsbad, Marienbad, and Franzenbad, respectively - each still boast the ornate architecture and regal charm of their 18th to early 20th century heydays, and also still offer the authentic water treatments that had the elite of those times flocking to Bohemia. Today, many doctors still prescribe the area's carbonated waters as treatment for everything from sinus and joint problems to obesity, digestive tract issue, infertility, and even gum disease; note that the unique mineral content of each town's water makes them effective for different ailments, so patients are typically prescribed a visit to a specific town. While relaxing massages and other standard spa services can be enjoyed at these spas, these doctor-overseen services favor long-lasting health results over pampering, and are often more "traditional" (read "clinical") over luxurious. For those seeking wellness, however, the results speak for themselves.

8 Inspiring FEMALE Victories

The Influence of Female Accomplishments in Kuwait Society

In order to commemorate the recent celebration of International Women's Day, The Kuwaiti Digest recently sought out a number of female role models in Kuwait from various fields who have created their own success stories through sheer determination, skill, and hard work.

While Kuwait has a rich history of humanitarian work and social activists who sought to create a better society for all, it is still somewhat rare to come across young individuals who have decided to dedicate their lives to charitable work in their communities – especially when those individuals themselves have faced extreme hardship in their own lives. The story that follows provides an overview of Shaima Al-Eidi, a strong young woman who, despite her triumph over her battle with cancer, found the power and inspiration to continue on by rededicating her life to humanitarian work.

In a recent presentation she delivered at the Ahmad Al-Jaber Oil & Gas Exhibition, Shaima Al-Eidi discussed her passion for helping children and how this passion was developed. According to Shaima, her interest in helping autistic children and children with Down syndrome began before she was diagnosed with cancer. After completing high school, Shaima decided to enroll in a specialty that focused on educating children with special needs. When she graduated with honors at the top of her class from university, and with her degree in special education, Shaima began to search for work that was specific to her area of training. Shortly thereafter, Shaima accepted a position at the Ministry of Education, and though her work there did not deal specifically with special needs, she was able to work on and

Shaima Al-Eidi during her visit to KOC

enjoy reasonable success with the cases that were presented to her.

Soon after, Shaima was invited to participate in a conference on autistic children in the United Arab Emirates. She accepted the invitation and saw an opportunity to demonstrate her knowledge and experience at the regional level and promote her ideas. She then initiated a study on the subject titled: "Transforming Special Needs to Special Joy." This work was very well received, and went on to win awards because of the positive way in which it addressed the issue of working with those with special needs.

Upon her return to Kuwait, Shaima was diagnosed with cancer. While the physical and emotional pain of learning news such as this is almost indescribable, Shaima says that what hurt her most was having to deliver the news to her mother. It was not long after being diagnosed that Shaima decided she would prevail in her fight against cancer and use the ordeal as a learning experience that would allow her to help others. During her treatment in Great Britain, she was determined to not only beat cancer, but dedicate her life to helping children who were diagnosed with cancer.

In addition to receiving medical treatment, those diagnosed with cancer must also receive a different kind of treatment, one which lends itself more to emotional healing, as the weight of a disease like cancer and the fragility of life can weigh heavy on an individual. In this regard, Shaima upheld the power which faith and love can play on those going through hardship. During her presentation, Shaima recalled an instance in the UK when she was invited to deliver a talk at an Islamic center. In her speech, Shaima discussed the important role that feelings of love can play in the healing process. For example, the love that exists between family members can be a wellspring that is tapped, and this love is amplified through close communication amongst friends, family, and even co-workers, as talking about the worries and problems that are set before us can help in the healing process. Shaima also indicated that the majority of her inspiration and positivity during this difficult time was derived from the Holy Quran, Sunnah, and religious figures such as Omar Abdulkafi and the late Sheikh Mohammed Al-Shaarawi. Prayer, she said, also played an enormous role in leading her down her path of recovery.

Shaima was able to achieve a long-term dream when she managed to integrate children with special needs into everyday settings, such as in the home, classroom, or in public places. In particular, Shaima was confident in her ability to integrate children with autism, because she was able to see beyond the problems at the surface and understand the true individual. In addition, Shaima reminded the audience that children diagnosed with autism, while deficient in some areas, can display true acts of genius in others. The main hurdle, she said, was being able to communicate and connect with children with autism. Once this milestone was crossed, Shaima found that she was better able to help the children integrate into their surroundings.

Dr. Abdul Rahman Al-Sumait, the Kuwaiti humanitarian who dedicated his life to helping those in need, especially on the African continent, was a major role model for Shaima her entire life. Her experience with Al-Sumait and his organization, Direct Aid, taught Shaima about the true meaning of giving. While Shaima considers herself a simple person, her work toward raising funds for various charitable projects has touched the lives of thousands.

During her presentation, Shaima recalled an incident she witnessed on the border between Jordan and Syria. She was on a trip with a number of university students who were there to provide aid to Syrian refugees. During this incident, Shaima came across a child who asked her if she could help him. After enquiring about the child, Shaima came to learn that a Kuwaiti family had assumed responsibility for the child and would do everything in the way of caring and providing for him. Shaima was happy to hear this, but also saddened because she would have liked to be the one to provide care to the innocent boy. Despite this, Shaima was determined to provide care for a child, and she asked God to deliver a case to her that she could handle. Soon after, Shaima came to learn about a three-year-old girl who was the sole survivor of a devastating bomb attack on her home. Shaima thanked God for the opportunity to sponsor the little girl, and she remains in contact with her, helping her in any way she can.

Shaima Al-Eidi is the first Arab woman to create a website dedicated to the donation of stem cells to children. She says this is perhaps her best achievement so far, and the feeling of finding the right donor for the right child is comparable she says to a mother finding an organ donor for a child who is dying. The number of people who have benefited from stem cell donation through the site so far is approximately 71,400, a monumental achievement by any standards.

During her time in the UK, Shaima was able to effectively make a name for herself as a speaker and lecturer who tackled a number of issues facing the youth. For instance, Shaima was able to spread knowledge far and wide about the dangers of the recreational use of the drug "Lyrica", which has been abused by young people in Kuwait and around the world. In addition to shedding light on drug abuse, Shaima was also successful in bringing young people together in the UK by organizing a setting where they could discuss a host of issues which affect their lives.

Usually when one finds recognition or fame, they have worked locally in their own communities before expanding out into the world. However, the reverse has been true for Shaima, who gained recognition internationally before she was well-known in Kuwait. What is more interesting and meaningful is that she has obtained recognition for work that is humanitarian in nature.

In the closing part of her speech, Shaima upheld the need and responsibility for family members to care for their children or relatives with special needs, or those who may be experiencing life-threatening illnesses. In addition, Shaima reiterated the importance of providing education to those with special needs, and that equal treatment and opportunity should especially be provided to those in our community who need it most.

Shaima Al-Eidi receives a commemorative gift from Manager PR&I Mohammad Al-Basry.

Tahani Al-Hajri:
Making Headway in the Field of Nano-Technology

In December of 1959, Physicist Richard Feynman described a process to manipulate and control individual atoms and molecules, which he entitled "There's Plenty of Room at the Bottom." More than 20 years later, Professor Norio Taniguchi coined the term nanotechnology after being able to "see" individual atoms by developing the scanning tunneling microscope. The field of nanotechnology grew bigger since then. Today, nanotechnology is one of the fastest growing markets in the world with more than hundreds of articles and new innovations being developed every year. According to the UNESCO Science report, "Switzerland has some of the highest output in nanotechnology with 198 scientific articles in 2013."

Tahani Al-Hajri was a high-school biology teacher at the Ministry of Education when she first came across the term "nanotechnology." As someone who dedicates herself to science and the acquisition of knowledge, Al-Hajri has the following to say about herself: "I was always a devoted student who strove to be distinct by dedicating myself to my studies and by presenting unique ideas. Eventually I became a teacher myself and I encourage students to be critical thinkers as my main objective."

Recently, His Highness the Amir Sheikh Sabah Al-Ahmad Al-Sabah declared that Kuwait is to become an international financial hub, and Al-Hajri answered this call by promoting the notion that this could be done in part through the development of new inventions and technology.

The Patent

Tahani's intention was to aid critically ill patients, however her lack in medical facility accessibility was a difficult hindrance to overcome. Nevertheless, she set off to design an external medical tool. Diabetic ulcers are a common issue in Kuwait, as 27% of the population suffers from

different types of diabetes, and hence Tahani found her upcoming piece of research. Through hard work and investigation, Tahani discovered how to employ nanotechnology in her invention by manipulating the characteristics of a local herb to treat ulcers. Her first task was to create a bandage with the curing herb and a graphene-based biosensor. She then approached Dr. Sultan Al-Otaibi, Family and Occupational Medicine Specialist, to create a bandage that benefits both physicians and patients.

Tahani established her own in-house workshop which utilized affordable tools because using Kuwait University's laboratories was restricted. However, she managed to make use of the Faculty of Engineering Labs with the help of Dr. Jalal Al-Shammari, Associate Professor at the Petroleum Engineering Department. At the time, she was able to prepare the nano-herbal drug by contacting specialists from Germany and Jordan.

She then encountered Dr. Maryam Adnan, associate research scientist at Kuwait Institute for Scientific Research (KISIR), who lent a hand in implanting the graphene based biosensor in the bandage that was tested on animals in different veterinary clinics in Kuwait. After being able to form the pilot product, it was time to patent her invention.

Unfortunately, the nano-herbal drug was rejected by the Sabah Al-Ahmad Center for Development and Innovation (SACGC). On the other hand, SACGC is now cooperating with her to obtain her permission in testing her bandage officially on humans. They also plan to sponsor the production of her patent and launch it on the international market.

Archimedes

The Moscow International Inventions and Innovative Technology Salon was established in 1998. It is considered one of the largest international exhibitions of inventions and innovative technologies in the world with more than 1,000 inventions and bodies of research. It has 15 partners in Russia and 21 partners abroad, such as The British Society of Inventors (UK), World Intellectual Property Organization (WIPO) and The Korean Association of Promotion of Inventions. Tahani applied to the fair with the help of Global Exhibitions, Saudi Arabia, and is the first Kuwaiti inventor to participate in Archimedes in 2018. Among 800 patents, with 100 patents in nanotechnology, she was surprised to win the bronze medal for an excellent presentation of inventions at the exhibition, a Diploma in Nano Green Healer and a gold medal at the international salon for new technologies.

What's Next?

Back in Kuwait, Tahani was honored by the Nano Club of the SACGC and the Minister of Commerce and Industry Khaled Al-Roudhan. While in the process obtaining permission to produce the medical tool, Tahani also established an organization directed by the Ministry of Education to nominate and support creative students and develop their creative and productive abilities. In June of 2019, Tahani and a group of selected talented students will attend the Korea International Women's Invention Exposition (KIWIE). The exhibition is developed for women inventors to fund and promote creative women leaders from all over the world.

Hawraa Al-Qallaf during her visit to KOC.

Inside the Culture of Deafness

In the 17th century, educators and scientists focused more on developing sign language and establishing public schools to enable deaf people to interact with the outside world. However, in 1869, T. Hawksley, Ltd., a firm which is still in business as a supplier of medical and laboratory equipment, made several hearing devices that could be incorporated into everyday items or worn on the person in order to conceal their purpose. This field of science expanded to become the core business of many manufacturers such as Siemens, Gem Ear Phone Company, and Maico. However, the concept of cochlear implantation, which is a device that allows the deaf to hear, was never discussed before the 1950s, when the first cochlear implantation surgery was performed in France by André Djourno, an Algerian Surgeon. The surgery was approved by the US Food and Drug Administration 27 years later. Today, based on WHO statistics, there are 360 million people in the world with disabling hearing loss. However, they all have the chance to benefit from the technological explosion which created a great shift for their social and professional lives. Deaf people now are able to make phone calls, use devices to translate their sign language to regular people, and use microphones connected directly to hearing aids that can cut out the background noise while a speaker's voice becomes clearer. One of the most innovative inventions related to deaf communication is the Convo Light App. This application is connected to the smart house system to change the color of lights in the house or make them flash when a call or a message is received on a smartphone.

Kuwaiti Contributions to Deaf Inventions

In the Middle East region, an intriguing deaf-education invention was made by Muhammed Hassan Al-Jufairi. The "Interactive Robot for Deaf Education" provides innovative instructions for learning sign language for deaf children in an important stage of growth. His invention won the gold medal at the 10th International Exhibition of Inventions in the Middle East that was held in Kuwait last February. It also won the first prize at the GCC Patent Office.

As *The Kuwaiti Digest* aims to shed light on the latest deaf inventions, we approached Hawraa Al-Qallaf, the young Kuwaiti inventor of the Alarm Bracelet for Deaf People, in order to better understand her contribution to the deaf world. As a student, Al-Qallaf was too young and busy with her studies to fully dedicate her time to being an inventor. However, as a member of the Kuwait Science Club, the facilities there became her gateway to develop her idea into a patent. The idea was simple: Design a bracelet that produces

An instructor teaches deaf students how to use sign language.

different pulses based on an infant's temperament. Throughout her research, Hawraa recorded more than 5,000 noises from infants of different sexes and ages, where all were recorded at the same pitch. All these noises were uploaded to a specific software to transfer noises into pulses based on the pitch's level which determines the infant's mood.

Hawraa participated for the first time in the 2010 Annual Intel Science Competition - Arab World that was held in Alexandria, Egypt, where she won the first place prize for best presentation and third place for best invention award. This inspired Hawraa to apply for the London International Youth Science Forum where she succeeded in obtaining the second best invention award. In 2012, Hawraa was enrolled in the Intel ISEF, held in Pennsylvania. Among 1,500 patents, she obtained the second best invention award. This unique opportunity enabled her to become nominated as the first Arab and youngest member of the American Association of Phonetic Sciences.

As a graduate of the Faculty of Science - Microbiology, Hawaraa devotes herself today to humanitarian causes while also pursuing more inventions. Her new career encouraged her to design new inventions in the field of microbiology and criminal investigation, while she is in the process of launching her product to the market sponsored by the association.

Special Education in Kuwait
Inside Al Amal School for Girls

Over the years, the government of Kuwait has dedicated much time, money and resources to assisting those with special needs. For example, the Ministry of Education established Al-Noor Institute for Boys in 1955, which is a school specialized for the blind. At the time, the school only had 36 students when it opened. The school followed the same curriculum of public schools, with the addition of teaching the Braille reading and writing system. In 1960, the Ministry decided to establish a complex for special needs education that included all disabilities for vocational training. In that regard, Al-Amal School was established in 1960 to educate deaf individuals. At the time, only 18 boys and four girls were registered as students. The school began with teaching students lip reading, and they had their own special curriculum. Enrolled students underwent medical tests to measure their hearing difficulties, along with testing their hearing aid efficiency as well. The institute was equipped with tools and devices to fulfill all deaf education requirements.

It should also be mentioned that one of the most noteworthy figures in Kuwait's educational history is Abdul Aziz Shaheen Yousef Al-Shaheen. He was one of the first educators in Kuwait's history and is the first Kuwaiti individual to work in the field of special education since the establishment of Al-Noor School in 1955. Even though he became the Vice Minister of the Ministry of Education in 1976, he continued his work in this field.

Sheikh Sabah Al-Salem Al-Sabah was also concerned with special education, as he used to pay visits to special education schools regularly, accompanied by prominent figures such as King Khalid bin Abdul Aziz, the former King of Saudi Arabia, and Anwar Sadat, the former President of Egypt. Sheikh Sabah Al-Salem often said how

happy he was to visit the educational institutes for those with special needs. He often expressed his pride for the individuals who were doing the important work of caring for Kuwait's sons and daughters who would not otherwise be receiving the special care they required if it were not for the specialized institutes and the instructors who dedicated their lives to special needs education.

The Kuwaiti Digest visited Al-Amal School for Girls to investigate the quality of special education in Kuwait. The most significant classroom in the school is the Sign Language Laboratory that was established in 2017 by Naema Al-Obaid and managed by Dr. Najat Hussain. The room is designed to coach sign language for both learners (of all levels) and tutors as well. Its consists of certified sign language dictionaries in hard and soft copies, sign language cards and training tools. The laboratory's objective is to observe the students' proficiency levels of sign language, improve their knowledge, and rectify their errors. It also provides different courses to coach sign language for all school members and new recruits. The school also consists of an Audio Clinic where audiologists are committed to assess learners' hearing difficulties and hearing aids efficiency as well. In the clinic, learners can find the right hearing solutions, test their hearing-depth, and complete hearing aid evaluations. Audiologists also coach learners to improve their speaking and lip reading skills with the help of their hearing aids and other special audio tools.

Al-Amal School Visits KOC

Al-Amal School for Girls recently observed National Deaf Day at KOC, where the event was held in an atmosphere of celebration as the students participated in different games and activities, which included sports and mentally stimulating games. KOC also provided the school with gifts for all students and teachers.

What it is like to be Deaf

Teachers and students at the school were asked the following questions: How does one prepare students for the outside world after graduation? What curriculum does the school follow? The responses received from the teachers questioned the efficacy of imposing public education curriculums on special education students. Some teachers noted the challenges and hurdles and expressed their belief that deaf students were not able to acquire knowledge in the same way regular students do and require special assistance, and they cite this as the reason behind the sharp drop in educational outcomes and performance. Teachers have asked the Ministry to form a special curriculum that befits the needs of deaf students; however, the response has been slow so far. Consequently, deaf graduates are unable to follow up in their academic work because of their lack of skills and knowledge.

Kuwait University Administration has requested sign language translators in order to accept deaf students regardless of the lack of teachers in Al-Amal School and other special needs schools. Accordingly, special needs students have lower chances of obtaining degrees in Kuwait compared to other countries in the world.

Aisha, a Grade 11 deaf student, was excited to express her experience as a deaf person. "My deafness is not a curse, and I'm glad to be able to turn off my hearing aid when what I hear is nonsense," she said. "What I love about being deaf is that I developed my skill in body language. When I travel to foreign countries with my family, sometimes I'm the only one who understands people since body language is a global language. I always ended up interacting more with people compared to my healthy sister."

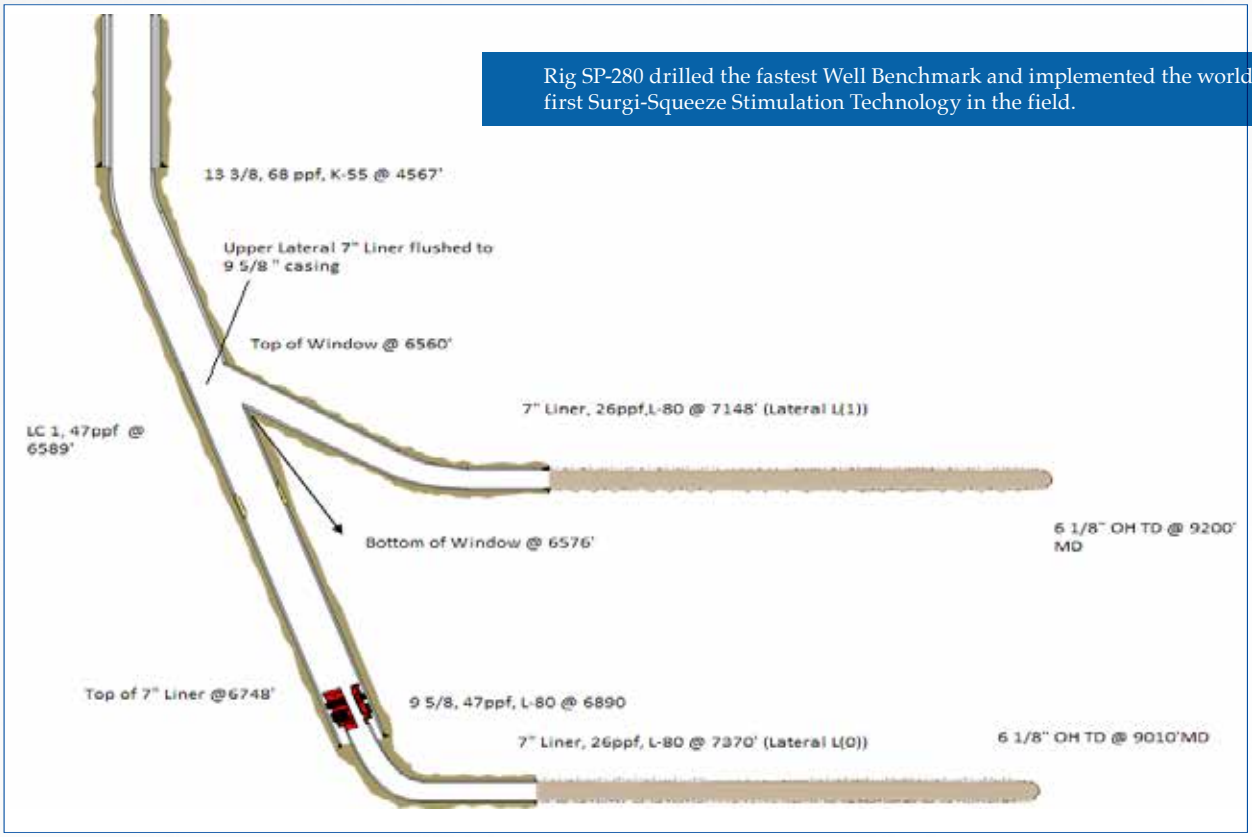
As Aisha communicated, she used every means of creative body language to express her thoughts, concerns, and aspirations. When it was revealed to Aisha that a blind Saudi girl named Roqaya Ajjaj had obtained her master's degree in Human Resources from the University of Minnesota and is now a PhD candidate, it became clear how limited Aisha's current opportunities were. Aisha aims to be a deaf tutor and has no plans to interact regularly with the outside world. In fact, this was also the aim of Fatma, a senior student who has the same plan because studying at Kuwait University is an opportunity that is not available to her.

According to teachers and students at Al Amal School, the disability of deafness is somewhat overlooked by Kuwaiti society, despite the existence of the Kuwait Club for the Deaf. Members of the club believe that deaf learners do not lack the intelligence required to obtain higher education. However, what stands against them is the lack of educational resources at their disposal, and the difficulty of being accepted at Kuwait University.

In parting, however, there was a glimmer of hope from Fatma, who said, "Being deaf is not a tragedy. I'm normal but in my own way. I see the world differently and my imagination is unleashed. This is how deafness shaped my life."

Development Drilling Group I Registers Major Achievement

Submitted by the Development Drilling Group I



Rig SP-280 drilled the fastest Well Benchmark and implemented the world's first Surgi-Squeeze Stimulation Technology in the field.

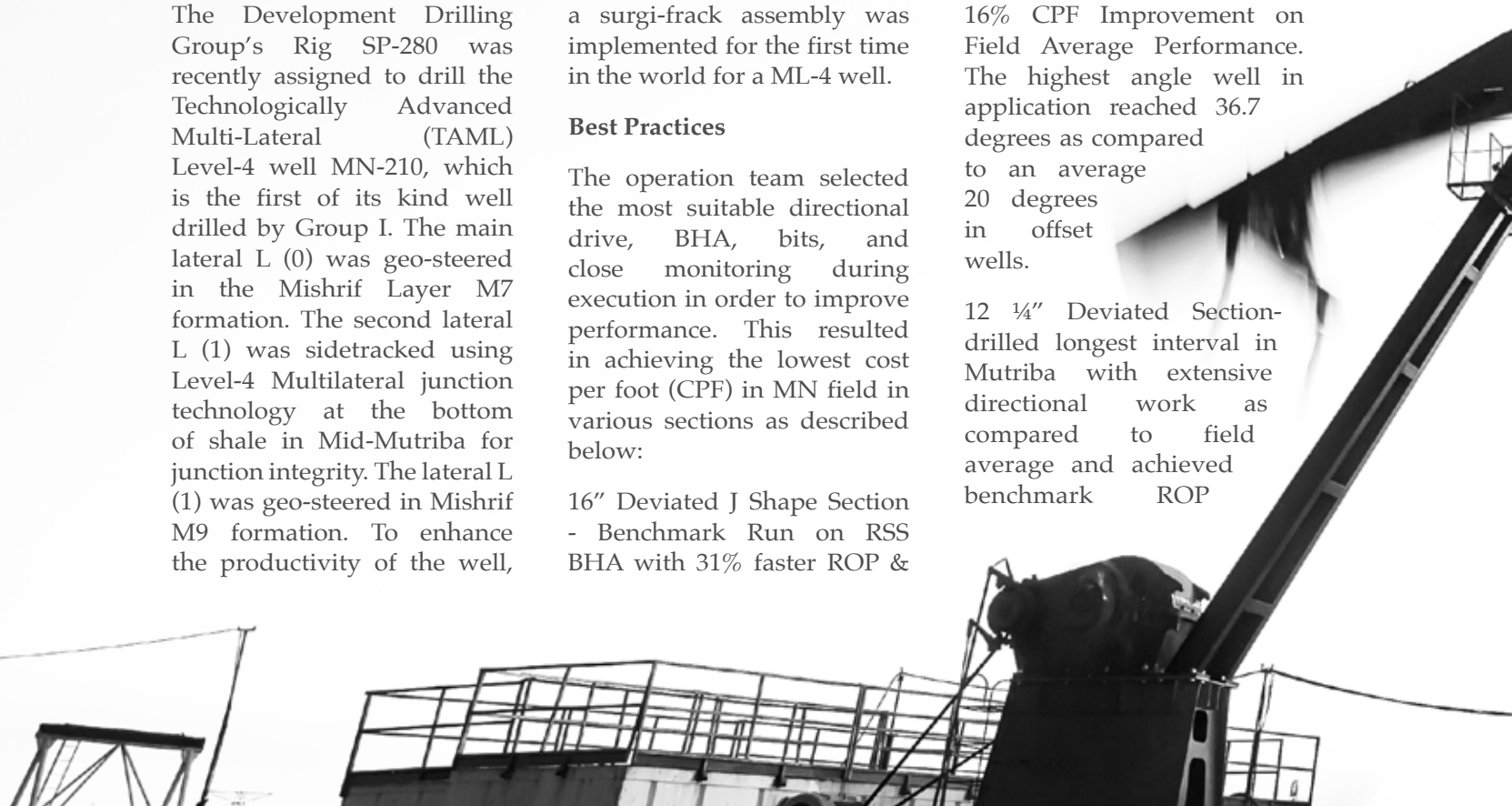
The Development Drilling Group's Rig SP-280 was recently assigned to drill the Technologically Advanced Multi-Lateral (TAML) Level-4 well MN-210, which is the first of its kind well drilled by Group I. The main lateral L (0) was geo-steered in the Mishrif Layer M7 formation. The second lateral L (1) was sidetracked using Level-4 Multilateral junction technology at the bottom of shale in Mid-Mutriba for junction integrity. The lateral L (1) was geo-steered in Mishrif M9 formation. To enhance the productivity of the well, a surgi-frack assembly was implemented for the first time in the world for a ML-4 well.

Best Practices

The operation team selected the most suitable directional drive, BHA, bits, and close monitoring during execution in order to improve performance. This resulted in achieving the lowest cost per foot (CPF) in MN field in various sections as described below:

16" Deviated J Shape Section - Benchmark Run on RSS BHA with 31% faster ROP & 16% CPF Improvement on Field Average Performance. The highest angle well in application reached 36.7 degrees as compared to an average 20 degrees in offset wells.

12 ¼" Deviated Section-drilled longest interval in Mutriba with extensive directional work as compared to field average and achieved benchmark ROP



resulting in 27% less CPF.

6 1/8" both lateral sections (L0 – main bore TD 9,010 ft. MD & L1 – TD 9,200 ft. MD) – drilled with new technology Axe Blade Bit (Smith) Trail Run which proved to be efficient with good steer ability resulting in faster ROP with less CPF than filed average.

Precise positioning of Latch Coupling (LC) in 9 5/8" casing for sidetracking (8 ½" section) Lateral L1 was selected to ensure junction integrity as well and minimize the risk of drilling hazards through the challenging 8 ½" L(1) section.

Well plan was meticulously designed to simple profile for challenging hole sections and compensated in other less drilling hazardous sections.

Mud weights for each section were studied from offset wells and similar sections in the fields to decide the best mud weights for the section.

Well Stimulation

The operation team took initiative with FD to use the new Stimulation Technology - Surgi Squeeze, which is more cost effective than conventional Multistage Fracking Stimulation. This technology has been implemented successfully for the first time in the world for a Level 4 Multilateral well in Kuwait. This technology offered a quick and effective method to help boost production from Mishrif's tight reservoirs open hole horizontal completions by creating micro fractures.

The main advantages included the following:

Multilateral junction is exposed to minimal pressures.

Add new production more quickly by creating multiple fractures with no sealing required between zones.

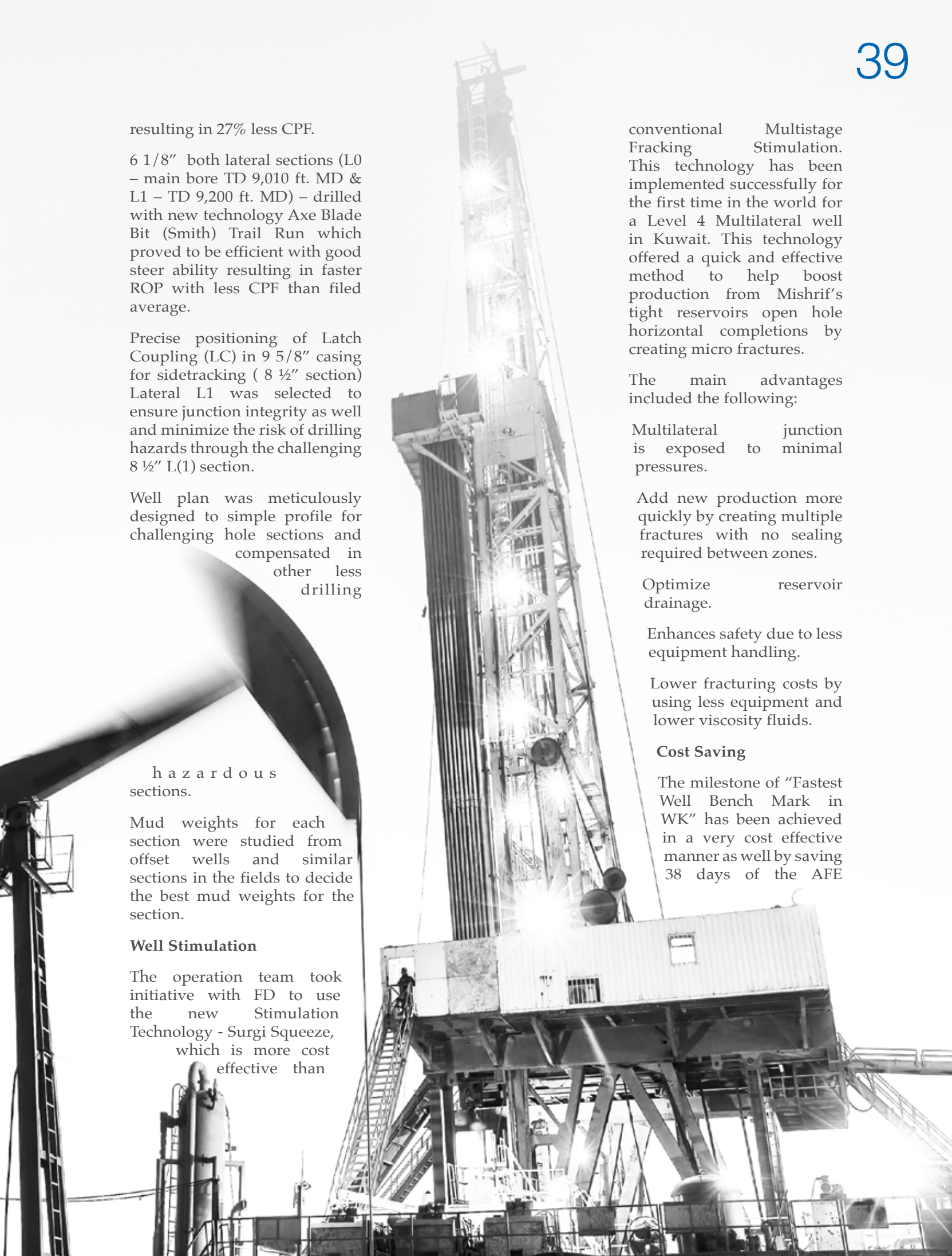
Optimize reservoir drainage.

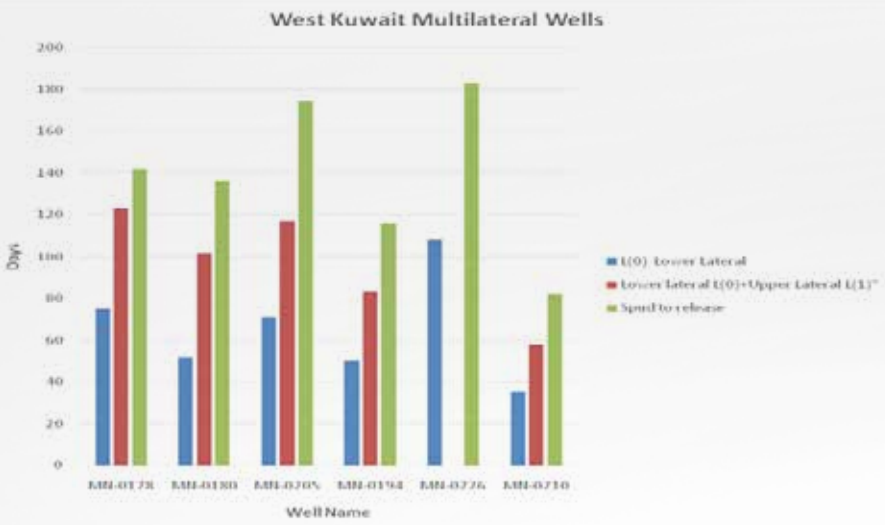
Enhances safety due to less equipment handling.

Lower fracturing costs by using less equipment and lower viscosity fluids.

Cost Saving

The milestone of "Fastest Well Bench Mark in WK" has been achieved in a very cost effective manner as well by saving 38 days of the AFE





budgeted rig day rate and new technique Surgi-Squeeze Stimulation. Total estimated cost saving achieved is KD 1.8 million against the budgeted drilling cost and conventional coil tubing stimulation.

By implementing Surgi-Squeeze technology over conventional fracking, the production of 2,973 BLPD with 65% WC was observed in flow testing.

An Interview with the Development Drilling & Workover Team (IV)

TKD: *Can you provide us with an overview of the project? Where did the idea for this initiative come from?*

DD&WO Team: The Development Drilling Team (IV) Rig SP-280 successfully drilled a Technologically Advanced Multilateral (TAML) Level-4 well MN-210 with Benchmark performance as the fastest Level 4 Multilateral well in West Kuwait. These wells require acid stimulation to boost production so the Drilling Team, in coordination with Field Development, explored options of stimulation technology proposed by the vendor, and thus Surgi-Squeeze technology came into the picture as an initiative to implement in L4 multilateral well for the first time globally.

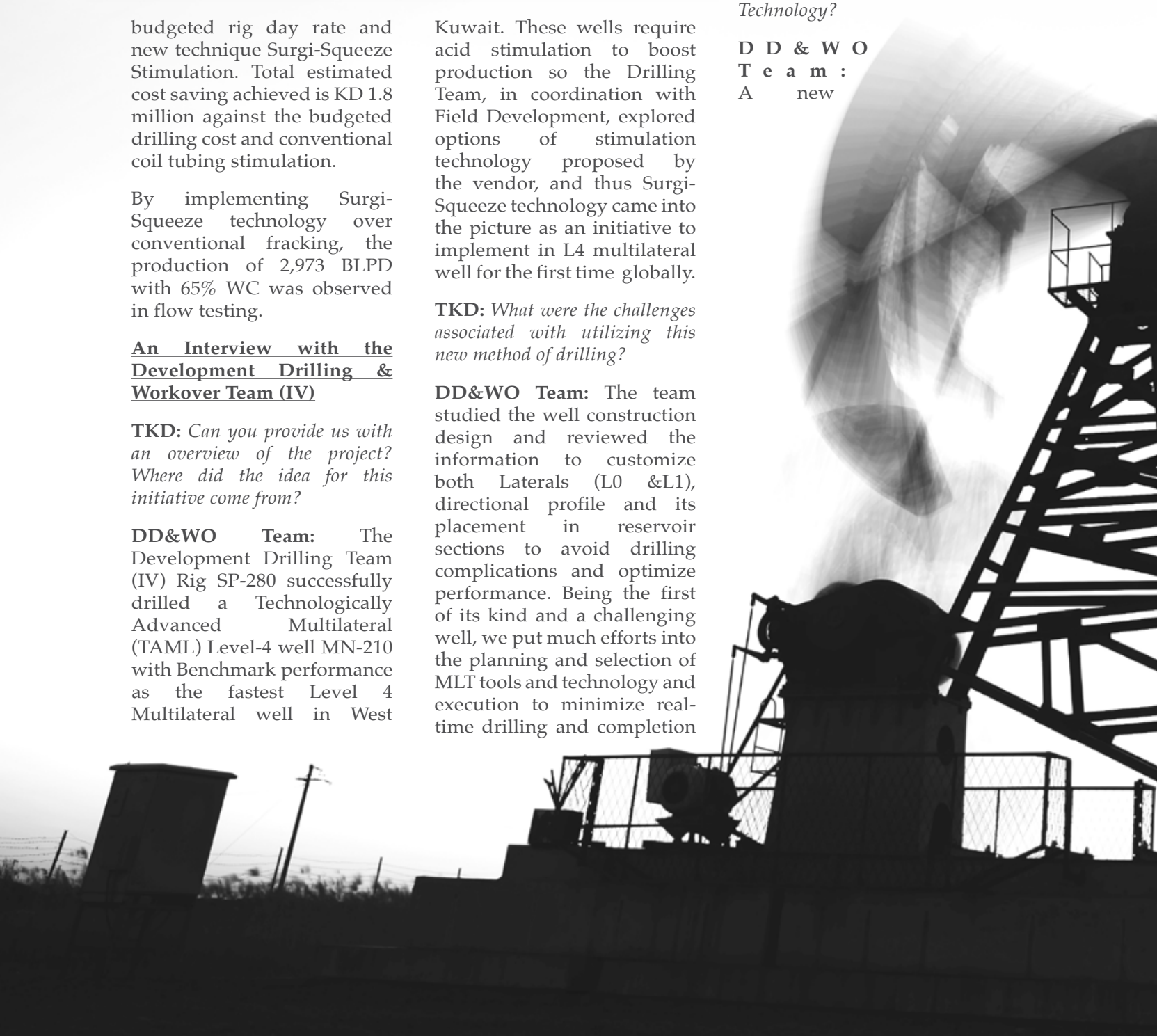
TKD: *What were the challenges associated with utilizing this new method of drilling?*

DD&WO Team: The team studied the well construction design and reviewed the information to customize both Laterals (L0 &L1), directional profile and its placement in reservoir sections to avoid drilling complications and optimize performance. Being the first of its kind and a challenging well, we put much efforts into the planning and selection of MLT tools and technology and execution to minimize real-time drilling and completion complications associated with technologically advanced multilateral wells.

The operation team selected the most suitable directional drive, BHA, bits, and close monitoring during execution in order to improve performance. This resulted in achieving the lowest cost per foot (CPF) in MN field in various sections

TKD: *Can you explain the significance of "Surgi-Squeeze" Technology?*

DD&WO Team: A new



technology stimulation called the "Surgi-Squeeze technique" is very cost effective in comparison to conventional Fracking Stimulation. This technology assists in boosting production from tight reservoirs with open hole completion by creating micro fractures. This initiative gave advantage of low annular pressure exposure of Level-4 Multilateral Junction and direct cost saving and safety to the rig crew due to less equipment handling as compared to multistage frack stimulation.

TKD: *Was this the first application of this technology at KOC or was it a worldwide first?*

DD&WO Team: Yes, this is the first time this application has been used worldwide and in KOC as well. This was the first successful application in any Level 4 Multilateral well. The well stimulated with this technology met the objectives of production.

TKD: *Will this method of stimulation be used in other areas of KOC's operations?*

DD&WO Team: Yes, and being the first of its kind, all data and lessons learned will be saved and shared with other assets for the benefit of KOC's overall operations.

TKD: *Why is this achievement important for KOC? Will it affect how other wells are drilled in the future?*

DD&WO Team: This achievement is important as it puts KOC in the forefront globally for implementing new technology for cost optimization and enhancing production quickly. The initiative resulted in considerable cost savings of about KD 1 million. In this regard, drilling operation team members took the initiative to implement this technology after an evaluation of all associated risks and planning to minimize stimulation and completion hazards without compromising well objectives. We also would like to mention that this achievement is the Fastest Multilateral Well Benchmark in WK with considerable cost optimization which meet the well's objective. We also hope that in the future our achievement will contribute to having more efficient wells delivered to meet production targets in the days to come.

Particulars	Surgi-squeeze High Rate Matrix	Multi Stage Fracturing
L0	$ 1,469,313	$ 3,200,000
L1	$ 1,875,444	$ 3,600,000
Job cost	$ 3,344,757	$ 6,800,000
Rig days	7	2
Rig rate/day	$ 26,250	$ 26,250
Rig cost	$ 183,750	$ 52,500
total cost	$ 3,528,507	$ 6,852,500
Total Saving		**$ 3,323,993**

Archaeological Discovery in Kuwait Reveals the Origin of Seafaring

The Histories, a book published in 440 BC by the Greek historian Herodotus, is considered the founding work of Western history for being the earliest document chronicling maritime history. Herodotus narrated the routes between the Phoenicians and Africa used in maritime trade, travel and military transportation. In pre-history, the first maritime route began from Madhya Pradesh (central India), where ships were transferred from Bharuch (a city in Gujarat in western India) to Iran. Ships then traversed the Gulf of Aden and the Levant and stopped at the Red Sea in Africa.

In the early Middle Kingdom of Egypt (2,050 – 1,710 BC), pharaohs were the first to construct warships. Ancient manuscripts illustrated the sophisticated ship manufacturing process which included rams, ports, covered rower decks, steering oars along with sculpted bows. This shows that boat manufacturing and sailing routes existed much earlier than when Egyptian civilization flourished. Archaeologists also unearthed seagoing reed boats in Iraq, Egypt and the Indian Ocean which were used between 4,000 and 3,000 BC, and they were believed to be the oldest until the discovery of the Sabiyah site in Kuwait in 2001.

Dr. Fahad Al-Wohaibi, an archaeologist at Kuwait University, discovered a Neolithic occupation at Sabiyah in the 1980s. The area, which he named "H3" consisted of stone structures used for various survival requirements. The excavation project was delayed due to the Gulf War, and later it was delayed even further due to the shortage of an adequate excavation team. Kuwaiti archaeologists

began the preliminary dig at the site in 1998 in association with a British team from UCL, Cambridge and York Universities lead by Robert Carter, a professor of Arabian and Middle Eastern Archaeology. However, to fully understand the context and history surrounding the remnants that were found, an understanding of the Neolithic and Ubaid period is required.

The Neolithic and the Ubaid Period

As stated by Bellwood Peter in *First Farmers: The Origins of Agricultural Societies*, "The Neolithic was a period in the development of human technology, beginning about 10,200 BC, according to the ASPRO chronology, in some parts of the Middle East, and later in other parts of the world and ending between 4,500 and 200 BC." By way of explanation, it is the end of the Stone Age when populations became aware of farming, primitive metal tool production and domesticating animals.

The Ubaid period began from 5,000 – 3,800 BC, i.e. during the Neolithic, in South Mesopotamia and "Extended from the Middle of the Tigris and Euphrates to the shores of the Arabian Gulf, and then spread down past Bahrain to the copper deposits at Oman," (Parker, Adrian G.; et al. 2006). The civilization was primitive and was characterized by vast un-walled village settlements consisting of cellular chambers used for living. Of note, it is believed the Ubaid was the first population to allocate public temples for worshipping. The most distinct feature in the Ubaid period was the prevalence of pottery found in different sites. However, evidence also supports the theory that seagoing and fishing practices first appeared in Kuwait during that period.

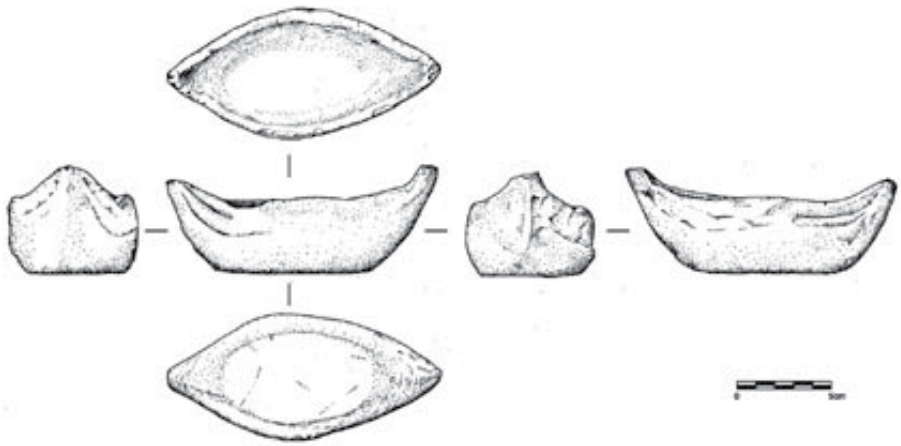
Neolithic Ruins Found in Kuwait

The Sabiyah Site (H3): In the Neolithic period, the Sabiyah area was a narrow peninsula that enclosed a shallow bay. It contained diverse plants and animal resources, and as such, became a highly important location for inhabitants of that era. Dr. Fahad Al-Wohaibi pointed out that "The site represents a milestone in the history of Kuwait archaeological exploration." The site survey was carried out between 1998 and 2002 in four seasons of fieldwork. Archaeologists determined that 7,000 years ago, the landform H3 extended above the surrounding terrain which they named "Isle of Tabija." What is even more thought-provoking is that it went through four historical stages by the same race of individuals, with each lasting for around 500 years, which affirms the geographic importance of the area. The population mainly depended on sea resources for subsistence. Investigators unearthed tuna bones (which have long since vanished from this area today), pearls, and seashells used as jewels and food resources as well.

As mentioned previously, the settlement consisted of various chambers built from local raw resources from the land and sea rocks, while palm fronds and other local trees and bark were used for constructing ceilings. "Some of the chambers were used for living and eating, but the function of others remains unknown" (Carter, R. A., 2002. The Neolithic Origins of Seafaring in the Arabian Gulf. 6, pp.44-47. DOI).

Boat-Related Findings in Site H3

Boat Model: Among the varied remnants found in the site, the Sabiyah Boat is the most noteworthy. This unique 7,000-year-old model is described by Dr. Al Wohaibi as "One of the world's most significant examples of an archaic boat model and an example of which is unparalleled to date." The boat is 14.4 cm in length and 6.5 cm in width and is characterized by "incised parallel lines running along the outside of the hull. On both sides the clay between the lines has been modelled to show long cylindrical shapes." (Carter, R. A., 2010. Maritime Interactions in the Arabian Neolithic). Archaeologists have deemed that this represents the shape of the reed bundles in the reed boats used from that era. In terms



of constructional information, Dr. Al-Wohaibi assumes that people tethered reed-bundles to form the structure of the sailing boats.

"On one side of the H3 model, where the bundle shapes are particularly well-defined, a cylinder can be seen to terminate before the end of the vessel is reached. This is unlikely to be accidental, and may reflect a specific constructional technique. During the construction of the 13m Bronze Age prototype in Ravenna, experiments were conducted to reproduce the tapering shape seen at the ends of reed-bundle vessels known from Bronze Age iconography. One solution was to use tapering bundles, and the other was to use some shorter bundles, which terminated before they reached the end of the vessel. This latter technique produced the same configuration as that seen on the H3 model," (Vosmer 2003a:56-57:fig 6).

The H3 model was locally made out of fired clay called Arabian Red Ware associated with the Central Gulf. It has long tips on both sides, yet the frontal side seems to be fractured. In other examples, long tips are formed to help in breaking waves during sailing as boats were used for long, far-distanced transportation.

What grasped Dr. Al-Wohaibi's attention is that the H3 model was intentionally inurned close to the wall of chamber 15 in the H3 site. This indicates that the boat model was stowed away and cared for, yet the reason remains unknown. The function of the model is unknown. It might have been made as a toy, yet Dr. Al-Wohaibi also has posited that it might be sanctified or serve some form of protective significance related to guarding the seafarers.

The 7,000 year-old Sabiyah boat model carries significant historical importance.

The H3 model structure bears a resemblance to Al-Warchiya, a simple Kuwaiti sailing vessel used in the early 1930s. The surface was made of palm leaves tethered with coconut fibers while each side is no more than three meters in length. The lugger contains two paddles and a short mast for the light sail.

Painted Pottery Disc: Furthermore, archaeologists reported a painted ceramic disc 7 cm in diameter reshaped from a broken bowl. The design displays a two-footed masts vessel. The painting portrays the ancient vessels of the fourth Ubaid period. Research indicates that it is the earliest known demonstration for the use of a mast and sail. In Mesopotamian legends, bipod masts were adjusted to reed vessel constructions to support a socket mast since the frame was not strong enough. Other evidence from different sites certify that there are at least two types of vessel masts (bipod and socketed) that were known in that period.

The Bituminous Boat Remains: Nearly 80 fragments of bituminous boat remains (including small slabs and chunks) were located at the H3 site, all of which are related to the four historical stages. Dr. Al-Wohaibi maintained that boat builders accumulated bitumen in pottery after locating it on or near the surface of the surrounding land. The bitumen was then heated and coated onto the vessel's frame to prevent water absorption and reed growing." Mature barnacles were also identified, which implies that they were submerged in seawater for several months. Some fragments bear marks of strings or ropes on the site, which were ties used from the hull. Archaeologists also revealed that boat builders reused pieces from damaged boats in renovating and constructing new vessels since some stripped off pieces had been stored deliberately.

Other Explanations

In the Ubaid period, boats were sailed to reach pearl hunting zones in Kuwait Bay (Umm an Namil Island, Akkaz Island) and South Kuwait (Khairan area today). Archaeologists dug up a considerable amount of oyster and mussel shells at the H3 site, which demonstrates that shells were splintered in the village rather than on the sailing vessels.

While no human skeleton parts were detected at the site, Dr. Al-Wohaibi presumes that the population's ethnicity was local and that

they lived in a primitive, closed community. However, the considerable amount of unearthed pottery that seemed to be imported affirms their communication with the Mesopotamian civilization. According to Dr. Carter's article in Archaeology International, the pottery found was definitely Mesopotamian and "was made by the earliest known farming communities of south Mesopotamia, now in Iraq."

Archaeologists also found pierced pearls along with seashell jewels such as bracelets and necklaces that were strong clues that people at that time were familiar with jewel manufacturing and commerce. During excavation, many bones of domesticated animals were discovered, such as goats, sheep, rabbits and even cows. It seems the population in that era understood cow milking and meat cooking, yet domesticating horses and camels was not yet present. In a site in Saudi Arabia of the same period, archaeologists found donkey skeletons as well, which indicate that they were also domesticated in that era. Moreover, the spindles identified in the H3 site are related to wool and rug weaving.

The settlement at H3 consists of 20 chambers, which implies a small population lived there with no more than 150-200 people in each historical stage. Therefore, each citizen's role was critical, and transportation was limited. Where water was sourced remains vague, as unsalted water sites were most likely at a great distance. However, Dr. Al-Wohaibi hypothesized that people either collected rainwater in pottery or that it was transferred from the Jal Az-zor waterholes.

Hi-Tech

Are Hypersonic Planes Around the Corner?

Boeing has revealed its first-ever concept for a hypersonic passenger plane that could cross an ocean in two hours for military or commercial customers. Debuted at an aerospace conference in Atlanta recently, the design shows that the aerospace giant is ready to compete for this high-flying piece of the aviation future.

Boeing is the industry leader in terms of hypersonics, the name for the technology that allows for flight faster than Mach 5. The company has been working on this research since 1956, breaking speed records with the X-15 and moving on to other experiential planes like the X-43 and X-51. Today, Boeing is pulling knowhow from those decades of testing, as it competes with not only American firms like Lockheed Martin but also with Chinese and Russian engineers in this new hypersonic race.

Although the airplane Boeing presented is just a concept and will certainly change before its possible flight in 20 or 30 years, the company can showcase the engineering decision-making that goes into such a vehicle. Boeing's designers envision using a commercial turbofan engine capable of a wide range of speeds that can be bypassed when it's time for the airplane to really go fast. Besides, a traditional engine's fan blades would disintegrate at such velocities. While traveling at hypersonic speeds, you don't need fan blades to compress air anyway because the speed of the craft does that for you.

That's why most modern hypersonic jet designs rely on a ramjet, which uses the plane's forward motion to compress air, to reach truly incredible speeds. Such speed influences the design in radical ways that can be seen in the render. For one thing,

as airplanes go faster, the ratio of lift–to-drag (the thing that makes airplanes fly) drops.

The tails of hypersonic airplanes represent an inherent challenge as well. The top sides of the wings generate expansion waves that distribute the flow away from the airplane. This creates very-low-pressure zones that hinder a tail in doing its job of stabilizing and steering.

A tail doesn't work in low pressure air as it needs that pressure to be effective, so hypersonic planes must be designed so that the tail is always grabbing high pressure flow. Boeing's solution is to split the tail, splay them, and put them in areas that can capture higher air pressure, which accounts for the funky rear of the render.

The faster an airplane goes, the less thrust its engine produces from the same amount of air. This is one reason engines get larger as an airplane is designed to go faster. The render shows an airplane that is designed to route as much air as possible into the engines, effectively making the sloped fuselage a route to find the engines' air intakes.

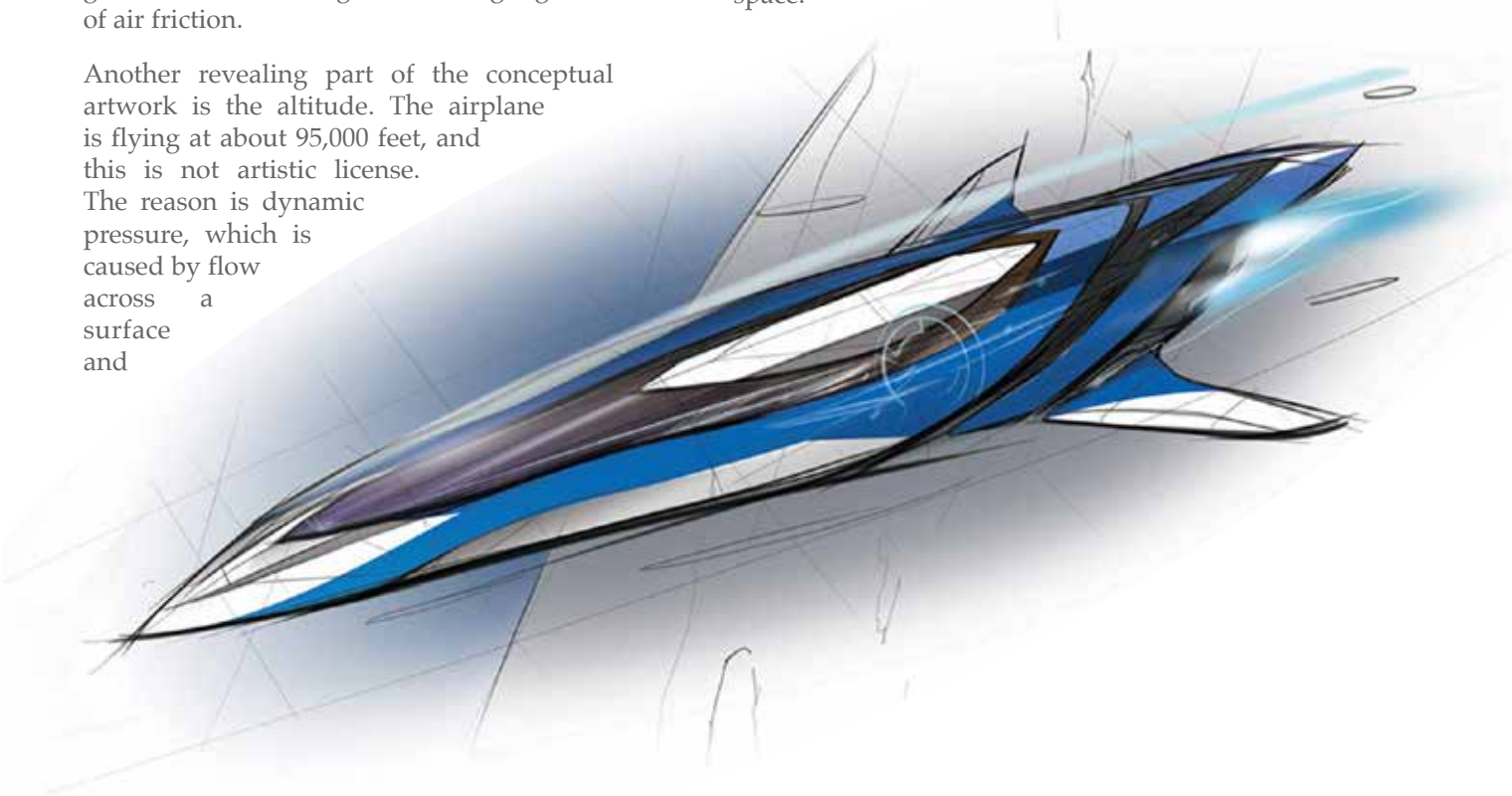
That high-speed airflow slows down once it gets inside the engine, and that produces unwanted heat. The airplane will need a cooling system to handle that heat, and Boeing is looking into ways to use fuels like liquid methane to double as coolants, instead of water. The presence of passengers also makes cooling a major part of future research, since the skin of the aircraft (probably made of titanium) gets as hot as 1,100 degrees F during flight because of air friction.

Another revealing part of the conceptual artwork is the altitude. The airplane is flying at about 95,000 feet, and this is not artistic license. The reason is dynamic pressure, which is caused by flow across a surface and is the key to all flight. Air density is a key determinant on the dynamic pressure equations that keep airplanes flying. As the speed goes up, the dynamic pressure also goes up to dangerous levels. A hypersonic aircraft flying at 30,000 feet would likely disintegrate from the stress. But with thinner air at 95,000 feet, the dynamic pressure equations balance out and the same airplane can fly safely.

Boeing's pursuit of hypersonics has gone public in 2018. Earlier this year, the company revealed a hypersonic spy drone that will rival Lockheed Martin's unmanned replacement for the SR-71 Blackbird.

Boeing faces several competitors for these high-speed passenger planes. The farthest along is Nevada-based Aerion Corporation, backed by Airbus, and its AS2 supersonic business jet. That aircraft is expected to reach Mach 1.5 — but only fit 12 passengers. The company estimates it will be ready to fly in 2023. This year China unveiled a unique design for a hypersonic passenger plane. The jet has an entire extra tail to handle the aerodynamic stress of high-speed flight.

One thing that may change is the presence of windows. Passengers and maybe even pilots could have virtual windows instead of physical ones, using cameras to show the world outside, where the view would allow you to see the curvature of the earth and the blackness of space.



Alan Villiers at sea on a Kuwaiti *boom*.

Memories of a Master Mariner's Time in Kuwait

Some years ago in a charity fundraiser I won a raffle prize: a book entitled *Sons of Sinbad*. Written by Australian journalist and master mariner Alan Villiers, the book vividly recounts a voyage from 1938 to 1939 on Al-Bayan, an old Kuwaiti sailing ship, known locally as a *boom*. With the blessing of the Al-Hamad brothers, the Kuwaiti merchant family who owned Al-Bayan, the 35-year-old Villiers set sail from Aden spending the next months travelling to ports in East Africa, Oman and finally, Kuwait.

Villiers was an intrepid mariner determined to document the last days of sail, shooting both stills and cine film of his journey, recording the hardships and the heroism of the Kuwaiti crew and the infinite skills of the captain, Ali bin Nasr Al-Najdi. His humor and humanity filled the book. On land too, he captured daily life in Kuwait in the last decades before independence.

Captain Najdi navigated with no modern instruments, using the stars, winds and ocean currents as his guide. In dangerously shallow waters, a line weighted with a block of camel fat was dropped from the bow periodically to check depths. If the fat picked up sand, the captain knew to change course.

Villiers' respect for the Kuwaiti crew was evident, no more so when an infant falls overboard and he tells how the captain deftly maneuvers the huge vessel around in time to save it from the shark-infested seas.

After reading Villiers' book in 2016, it struck me it was almost 80 years since his journey. Over the weeks and months I traced the large archive of Villiers' films and photographs and started to put together a proposal for a project that included a TV documentary that would celebrate Alan Villiers' contribution to maritime heritage in the Gulf.

A chance trip to the dhow-makers diwaniya in Sharq introduced me to an apprentice carpenter called Mohammed Al-Qallaf. Villiers had photographed one of his family members, Khaleel, who had been the ship's carpenter on that same voyage. Even today, Kuwaitis hold Villiers in high esteem.

After a long search, I was put in touch with the Villiers family in England, where Alan had settled

after World War II. They loved the idea of the project and offered to meet me.

One bright May weekend, I found myself in the company of Alan Villiers' daughter Kathy Chetwynd, and his sons Peter and Christopher 'Kit' Villiers. They had just attended the Alan Villiers Memorial Lecture held annually at a college in Oxford. We talked about Alan's life and work; they were affable, supportive and gracious enough to invite me to the family home, where they care for Nancie, Alan's wife, who is 103 years-old.

Alan Villiers' former home in north Oxford turns out to be two houses not one, next door to each other. This arrangement, explains Kit Villiers cheerfully, allowed his father to live in one house and go next door to a study overlooking the River Cherwell to write his books. A blue memorial plaque dedicated to Alan hangs by the front door in official recognition of Alan's maritime contributions.

At the house I was joined by a fellow Villiers enthusiast and Kuwaiti historian Dr. Hasan Ashkanani and his nephew, who were visiting Oxford. They had brought from Kuwait a first edition copy of *Sons of Sinbad* signed by Alan. As the talk turned to Kuwait, Alan's daughter Kathy produced from the closet some unexpected souvenirs from the 1930s: an old model dhow, light Yemeni-style *dishdashas*, two old-fashioned types of *agal*, one of black Iraqi silk and one of white rope, and a variety of cotton *guttrah*. To my surprise, they mentioned that their father and mother had returned to Kuwait in 1967.

Kit and Kathy then took us down to the riverbank to the small boathouse just a few meters from Alan's study. Even after a life at sea, it seems Alan Villiers could not be separated from water. Alan died in 1982 having prolifically documented the last years of sail, and not just in Arabia. Throughout his life, he steered countless ships, circumnavigating the globe twice. He was courageous too - he could not swim.

As we said our farewells and left the upstairs living room filled with paintings, model ships, family photos and sailing mementoes, hidden in the corner I caught sight of a large *sandouq*, a traditional Kuwaiti wooden chest with brass rivets.

Maybe just as the memory of Alan Villiers remained with the young ships' carpenters in Kuwait, a part of Kuwait had remained with him in Oxford in the form of that *sandouq*; a legacy of an extraordinary voyage made 80 years ago; a journey borne of courage and humanity that should not be forgotten.

This article by Charlotte Shalgosky first appeared in an issue of Kuwait Times.

Alan Villiers (center) posing for a photo with young Kuwaiti boys.

1966

A man prepares for the annual KOC Gardening Competition.

KOC's Annual Gardening Competition

KOC, represented by the Community Services Team, recently honored winners of the 2018 Annual Gardening Competition at an award ceremony which was held in the presence of Team Leader Community Services Jassim Al-Nasser, Team Leader Roads & Support Abdul Aziz Al-Otaibi, and members of the jury and garden owners.

The competition, which witnessed strong competition among 16 home garden owners in four categories, aimed to enhance environmental awareness and emphasize the importance of beautifying green spaces in our environment. The competition has become an annual tradition that has been observed by the Company since the late Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah was Governor of Ahmadi.

This year, Khalid Al-Hanif ranked first in the category of Best Flower Garden, while Kushanilat Muidu ranked first for Best Vegetable Garden. Meanwhile, Khader Shaban ranked first in the category of Best Fruit Garden, while Asim Hussein ranked first in the all-round category.

The Benefits of Home Gardening

In addition to providing relaxation, fresh food, and time to bond with your family members, gardening supplies a total-body workout, which allows KOC employees to ensure they keep their health in check. In addition, gardening provides an opportunity to reconnect with nature and family members by working and spending time together after work and on the weekends.

No matter your age, gardening is an excellent way to boost physical activity. It can help:

- Strengthen bones, muscles, and joints
- Improve our ability to do daily activities
- Prevent falls among older adults by improving balance
- Improve mental health and outlook
- Decrease lifestyle diseases such as obesity, high blood pressure, type 2 diabetes, osteoporosis, heart disease, stroke, and some cancers
- Promote longer, healthier lives

Just 150 minutes of moderate-intensity aerobic activity weekly can have a big effect on our lives. That's where gardening comes in. Unlike many everyday activities that only involve the arms, gardening uses the whole body as you move around digging, planting, weeding, and watering. If you choose an exercise you like which is convenient for your lifestyle, you're more likely to do it. And you can eat the results!

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