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a weekly Aramco publication for employees

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EMSR visits Khurais

Overcoming several major challenges, the Khurais Central Processing Facility has won several national and international awards, showing the determination and resilience of the company and its employees.

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Prosperity Well "Lucky 7"

March 4 is the anniversary of "Lucky 7" starting commercial production of oil (in 1938), launching Saudi Arabia on its journey to become the world's largest oil producing nation.

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Ithra offers new PiCon Science Communication Program

In celebration of International Pi Day, Ithra launches a new science communication program, running from March 10 to 14.

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Al Assaf reflects on a ‘tapestry’ of a career as he bids farewell after 36 years



(Photo: Ding/MPD)

Vice president of New Business Development (NBD), Mohammad I. Al Assaf, is retiring after 36 years with the company.

Al Assaf was honored by Saudi Aramco president and CEO Amin Nasser and other members of corporate management at a recent ceremony in Dhahran.

Prior to leading NBD, Al Assaf served as vice president of Pipelines, Distribution and Terminals (PD&T).

Al Assaf joined Aramco in 1985 after obtaining a Bachelor of Science degree in Chemical Engineering from King Fahd University of Petroleum and Minerals.

During the course of his career, Al Assaf completed a number of leadership development programs, including the Senior Executive Program at INSEAD.

Experience

From 2009 to 2016, until his appointment as the vice president of PD&T, Al Assaf served in various leadership roles in Oil Supply Planning, Corporate Planning, and the Strategic Transformation initiative. He also led Gas and NGL Planning and Domestic Marketing from 2006 — a position he held for almost three years.

Al Assaf’s company experience spans the Upstream and Downstream sectors, and he has served or acted as a manager for a number of facilities.

In reflecting on a rich career, he described as a colorful tapestry, Al Assaf said: “This is a lifetime job that we took, so Aramco means everything. It took me from being a fresh graduate from college into working life.”



It’s a sweet spot to get off the boat and allow someone else to join. The company is always in a process of change and transition; it has never been a cruising boat, and it will never be.

— Mohammad I. Al Assaf

Philosophy

He spoke of the great opportunity of having worked in a wide array of positions, and said he believed the appointment as NBD vice president brought all of that experience together.

“It seems that everything was destined to be this way for me, because the jobs that I held were always preceded by the right experience,” he said.

Al Assaf was philosophical on retirement, which he called simply a destination.

In retirement, Al Assaf looks to spend quality time with family and relieve his wife from the hard work and responsibility she has bore throughout his career. “She was my true partner, and she was single-handedly behind my success,” he said, adding that he also plans to spend more time with his children, as well.

Al-Hadrami speaks of his pride of being involved in ‘the company family’



(Photo: Ding/MPD)

With more than 30 years of experience in the oil and gas industry, Said A. Al-Hadrami is retiring as vice president of Retail and Lubes Development.

Al-Hadrami, who was honored at an event attended by Saudi Aramco president and CEO Amin Nasser and other members of management, spoke of his pride of being involved in “the company family.”

“Being associated with Aramco is something that is big for any one of us,” he said.

Al-Hadrami further spoke of the remarkable dedication Aramcons show to their work and company, something he said is unmatched despite the numerous challenges the industry faces.

Roles

As part of his work over the years, Al-Hadrami led major investments in North America, China, Malaysia, India, Indonesia, Korea, and Japan, working in refining and retail to expand the company’s downstream portfolio, as well as developing and executing Downstream strategies that have helped the company succeed globally.

Through the years, he served as president and CEO of a number of downstream companies, both in-Kingdom and around the globe. He has also been chairman of the board for Aramco Overseas Company, Aramco Service Company, and Saudi Aramco Total Retail Company, and served as a board member on a number of other corporations.

He has also participated in key negotiations, helped create organizations to oversee and coordinate global investments, and played a key role in negotiating

a number of domestic joint ventures, including Petro Rabigh.

Al-Hadrami is a graduate of King Fahd University of Petroleum and Minerals, and continued his management training at Harvard University.

Retirement

On retirement, Al-Hadrami said: “It’s a boxer’s retirement — boxers hang their gloves up for a few weeks! It’s good to end your career on a high note and that’s what matters to me. It’s all about contribution and applying what you learned for the past 30 years, to your family, your community, and to the Kingdom. I’m really looking forward to using that knowledge for the future.”

He plans to spend time enjoying his fishing and dedicating time to his family.



It gives you a sense of pride because of its achievements. The sense of being a part of Aramco’s achievements is something I am very proud of.

— Said A. Al-Hadrami

Success in the face of adversity at Khurais Producing

Executive Management Safety Review (EMSR) hears of resilience, grit and determination in the face of unprecedented challenges

By Eamonn Houston

Saudi Aramco president and CEO Amin Nasser expressed his appreciation for the determined efforts of the Khurais Producing Department's (KhPD) employees in the face of major challenges at an Executive Management Safety Review (EMSR) earlier this week.

The Khurais facility, alongside Abqaiq, was the scene of attacks in September 2019 and rebounded successfully with an impressive restoration program, before grappling with last year's global COVID-19 pandemic outbreak without any recorded active cases.

"After the attacks," Nasser said, "what was achieved by the team was amazing and you made us all proud. This is a great story that needs to be shared with future generations."

Tour

Nasser was joined on a tour of KhPD by vice president of Southern Area Oil Operations (SAOO), Khaled A. Al Buraik, acting general manager of SAOO, Abdulaziz Al Saleh, manager of KhPD, Salah A. Al Juaidan, Aali M. Al Zahrani, vice president of Safety & Industrial Security, and Motaz A. Al Mashouk, executive director of Engineering Services.

In the opening presentation, Al Juaidan listed the major achievements at the facility during testing times, including the full restoration of the Khurais Central Processing Facility to its original state prior to the 2019 attacks; the winning of several national and international awards, including the World Economic Forum's IR 4.0 Lighthouse designation, and the King Abdul Aziz Quality Award at gold level.

The successful completion of the Khurais Increment was also highlighted.

The BI-1506 Increment Project is one of the key projects at the facility and has contributed to the increase in Khurais production by 300,000 barrels per day of crude oil, despite suspension in 2016 and the COVID-19 pandemic.

Al Juaidan also revealed that KhPD exceeded its target for cybersecurity compliance by 2%.

Presentations

Bader Albabtain, operation foreman, gave a presentation titled "When Health, Safety and Environment (HSE) Push the Envelope beyond Excellence."

Among the major strengths he touched upon were KhPD's Business Continuity and Risk Management System, material procurement and administration, and localization.



Amin Nasser is joined by other members of management at the EMSR in Khurais earlier this week. (Photo: Hasan Al-Mubarak)

KhPD's commitment to the environment was also highlighted.

Mohammed Abdulmohsin, senior operation advisor, gave an overview of "Safety in the Era of Digital Transformation," noting the facility's smart well completions, advanced robotics, machine learning and SAOO's Corporate IR 4.0 Center.

Khurais' "IOT Solution for Field Safety & Optimization" was the subject of a presentation by Faris Tulbah, production engineer.

Plant engineer Hatem Bajuaifer gave a poster presentation on "Safe Operations with Bypassed Stabilizer," while Abdullah Alzahrani, plant engineer, explained the safe demolition of the facility's OT4 Stabilizer.

Moath Mahmood, environmental coordinator, explored the KhPD journey toward dropping greenhouse gas emissions, while Yasser Alshaalan, plant engineer, gave a demonstration of a forklift balancing device.

A Portable Blind Swinging Device was described by Bandar Alharbi, senior welder, and Omar Aljalal, field engineer, gave an update on Nonmetallic Deployment and Progress.

Challenges

At the EMSR debriefing, Nasser said that 2020 had been a year of challenges, but that employees had made the difference.

"2020 was one of the worst years ever,

and the impact was severe for the energy industry."

He reaffirmed Aramco's commitment to diversifying its business and reducing emissions, and spoke about the company's vaccination program through its health care joint venture, Johns Hopkins Aramco Healthcare.

Nasser urged all employees to continue to pay attention to their well-being and that of others during the COVID-19 pandemic.

In his closing remarks, he said the deployment of digital technologies will increase field operations in helping the company to achieve its goals and targets.

"And, we would like to see the deployment of more and more technologies."

Closing the EMSR, Al Juaidan said, "Please allow me to conclude by highlighting our proudest moment in executing the effective and safe emergency response that was crucial in minimizing the damages of the attacks on the Khurais facility. All four fire incidents were extinguished within four hours. This reduced the magnitude of the damage and facilitated the faster production restoration."

Determination

The KhPD manager told executive management that the completion of the Increment Project during the pandemic was an example of the determination and resilience of the company and its employees.

"These achievements were again a testimony of our committed and dedicated workforce in facing the challenges," Al Juaidan said.

"These achievements reached a new height with recognitions both nationally and internationally last year.

"Moreover, I would like to mention that Khurais is a homeland to different fauna and flora where our operations span the breadth of the Kingdom's environmental and biodiversity zones — so we consider the protection and preservation of the natural environment for future generations as vital to our continued success."



The completion of the Increment Project to increase Khurais production by 300,000 barrels per day of crude oil during the pandemic was an example of the determination and resilience of the company and its employees.

Strong signs for the New Year after virus impact

By Michael Ives

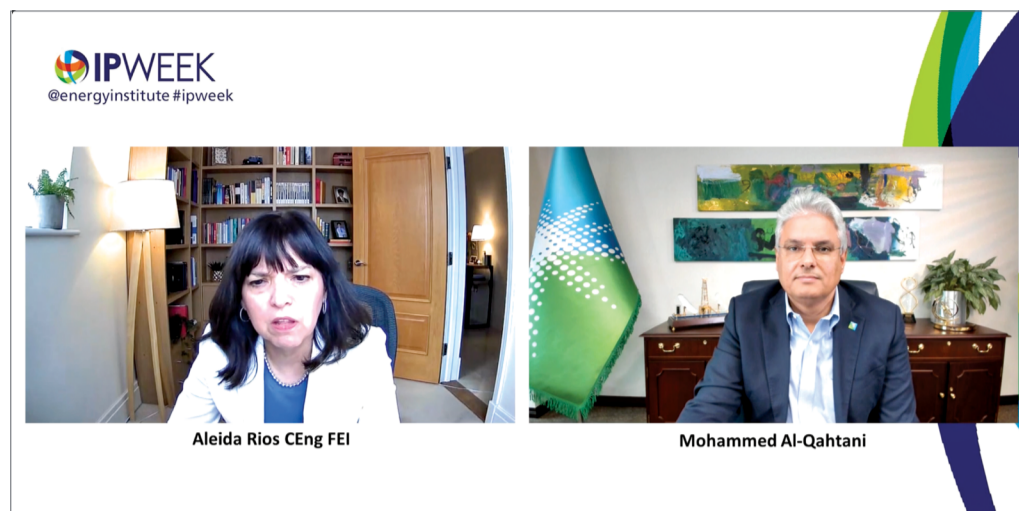
Speaking in a one-on-one conversation entitled "Opportunities for Transformation in a Post-COVID-19 World" as part of International Petroleum Week, senior vice president of Downstream, Mohammed Y. Al Qahtani, highlighted the devastating, and unprecedented, impact the pandemic had on global oil demand in 2020, while expressing optimism on the future.

"China has recovered significantly and countries across Asia continue to do well, such as Japan and Korea. Some demand challenges remain in Europe and the United States, but I expect the oil recovery to gain pace."

A note of caution

He added that the market was already responding and that the oil and gas industry was starting to see shrinking inventories.

Despite his optimism, Al Qahtani



warned that risks surround worldwide underinvestment in Upstream. Compounding the potential problem was that recent investments have been predominantly in brownfield and short-term cycles.

"This will have consequences with an oil production base getting weaker and weaker," he said.

Looking to the future and the energy transformation that is underway, he observed that new sources of energy face many technical and investment challenges. It is critical that there is plentiful and affordable energy available for the world. Accordingly we should not ignore existing energy sources, which must form part of the world's energy mix. "The world

needs practical and balanced energy policy," he said.

He said it was critical that there was plentiful, affordable energy available for the world, and existing energy sources should not be ignored.

Future looks strong

Al Qahtani noted that Aramco's carbon intensity in oil production was one of the lowest in the world.

"It is the result of many years of meticulous reservoir management and methane leak detection and repair."

Al-Qahtani said that Aramco's future is expected to be very strong indeed, and with full integration of the Downstream, with SABIC a major part, this is expected to lead to increased profitability.

"I am very optimistic for this year," he added.

Energy reimaged at Aramco's 2021 Virtual Energy Forum

By Michael Ives

Held Feb. 22, Aramco's Virtual Energy Forum saw company leadership joined by specialists in the fields of medicine and energy studies to discuss how our industry is evolving in a new landscape.

The online forum saw remarks and a question-and-answer session from Aramco's vice president of Marketing and Sales, Ahmed A. Al-Subaey, as well as its chief technology officer (CTO), Ahmad O. Al-Khowaiter.

"The events of the past year demonstrated how resilient our industry is," said Al-Subaey. "Not only did Aramco succeed in its day to day operations in 2020, it also completed one of the biggest deals in the industry, securing a majority share in SABIC."



Al-Subaey highlighted that Aramco is committed to environmental performance, with one of the lowest carbon intensive Upstream operations in the industry.

Al-Khowaiter built on this theme, highlighting that Aramco is well positioned to seize low carbon opportunities.

From investing in technology that may reduce emissions, extracting greater value from in-Kingdom resources by diverting a growing percentage from combustion to materials, to investing in lower carbon products such as blue ammonia, Aramco plans to make a contribution to a lower carbon future.

Opportunities from blue ammonia to carbon capture and beyond

Citing blue ammonia, Al-Khowaiter noted that it is a challenge to transport and was still a nascent market. "However, with the number of exciting projects in this area around the world, we believe it has the potential to impact the energy mix by 2030, and make dramatic inroads from 2040," he said.

The CTO highlighted areas where the

company is investing in reducing carbon, such as investing in carbon capture, flaring reductions and investments in co-generation plants. And with the technological strides the company — and the world — is making in increasing the cleanliness of fuels, Al-Khowaiter said that we will be using liquid hydrocarbons for many decades to come.

In support of this prediction, he pointed to the impressive efficiency gains already made in engines and fuels since the 1970s, noting that the industry has a history of continuing to find new ways to deliver cleaner fuels to the world.

Reflecting on the past year, with the world struggling with COVID-19, Al-Subaey ended on a positive note, "I am an optimist, and it is human nature to seek growth."

Innovation crucial in a post-pandemic world

By Michael Ives

What does the future of work look like? Are we going to forever be in front of screens rather than in front of people? How do you have diversity and inclusion conversations these days?

These questions were posed by the host of the Future of Work panel held as part of IP Week.

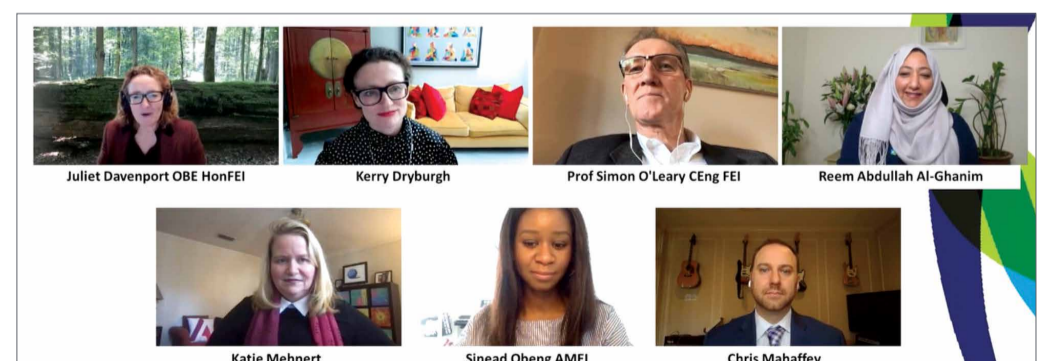
Attended by Reem A. Al-Ghanim, Aramco's head of HR and Support Services, Chemicals Business, and five other delegates from across government, academia, and industry, the panel explored a wide array of topics ranging from career advice to leadership in an era of energy transformation.

Discussing the skills required as part

of the transition to net-zero and in the post-pandemic era, Al-Ghanim pointed to the power of innovation, citing an article published by MIT Sloan that noted as quality communication, transparency and honesty have increased during COVID-19, greater emphasis needs to be placed on agility.

"Technology will undoubtedly be at the forefront of innovation and future workforce skills," said Al-Ghanim, who further noted that as part of the W20 communique last year, one of the key measures for economic recovery is to increase women and girls' access to technology, especially in rural and remote areas. This requires building infrastructure, connectivity, and capacity for training.

Al-Ghanim also spoke about the



Gulf Region Organization for Women (GROW) and its efforts in diversity and inclusion, and in encouraging more young women to join the energy industry and tackle more STEM classes. She added that there has been evidence of substantial change in these areas, as witnessed at the Annual Leadership Excellence for Women Awards and Symposium last year, with

more men and organizations championing the cause.

Speaking about post-pandemic efforts, Al-Ghanim noted that training will be critical, adding that at Aramco "We've been able to switch many of these programs to online learning" to maintain and grow skills even when "face-to-face learning wasn't an option."

Aramco leadership share new economic map at CERAWeek

Nasser says oil markets are tightening but highlights concern about fragile recovery



cinics is cause for optimism.

"After last year's drop in oil demand there are positive signs now that the market is improving," Nasser said.

Aramco has followed through on and will continue to follow through on its efforts to develop cleaner energy solutions that help to reduce carbon emissions, Nasser said, including increasing the production of natural gas as a cleaner fuel source for domestic and international energy markets. Aramco will see a "huge potential" for the development of hydrogen as a fuel source, Nasser said. With its groundbreaking deliveries of blue ammonia to Japan last September, Aramco has taken its carbon reduction stand to new levels, he added.

Achievements in clean fuels are just one example of the way in which Aramco takes its role as a global industry leader seriously. Its Environmental, Social, and Corporate Governance (ESG) policies are designed to have positive impacts both globally



H.E. Yasir Othman Al-Rumayyan
Governor of the Public Investment Fund
Chairman, Saudi Aramco

By Scott Baldauf

Aramco's top executives discussed economic and industry trends as well as energy transition, at one of the world's premier energy conferences, CERAWeek 2021.

The digital edition of the conference follows an extraordinarily difficult year in 2020, in which the global COVID-19 pandemic exerted profound impacts on the global economy and on the energy industry. Yet 2020 was also a year in which Aramco made a number of achievements, completing the acquisition of a 70% stake in SABIC, reaching a historic peak in single day crude oil production, and continuing to deliver the energy the world needs reliably and safely.

HE Yasir O. Al-Rumayyan, chairman of the Board of Saudi Aramco, and Amin Nasser, president and CEO of Saudi Aramco, participated in the conference, which is being held this week, March 1-5. Other participants included senior executives, government officials, thought leaders, academics, technology innovators, and financial leaders.

More appetite for investment

In a question and answer session with IHS Markit vice chairman and CERAWeek chairman, Daniel Yergin, Al-Rumayyan said that Aramco's IPO in 2019 may be just the beginning of the company's entry into global markets as a publicly traded company.

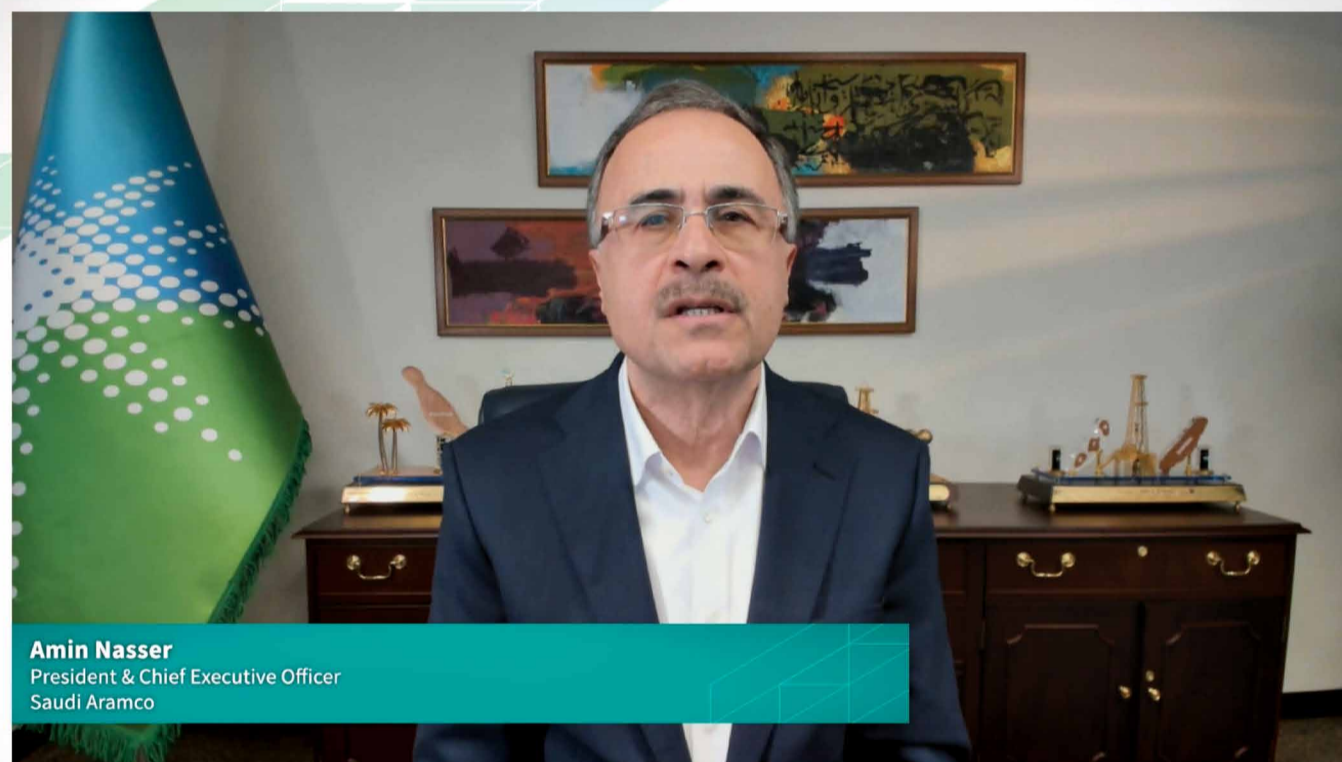
"The IPO of Saudi Aramco in 2019 was the largest, and I think, still is the largest of IPOs in history," Al-Rumayyan said. "I think once we see the economic conditions improving, once we see more appetite for investment from institutions and investors, we may consider selling more shares of Aramco. It is for the government of Saudi Arabia to decide that."

The conference comes at a time of dramatic change for the global economy, and for the energy industry's place as a driver of growth. Advanced technologies, new and emerging industries, shift-

ing consumption patterns, and a growing demand for low carbon solutions are all changing the landscape in which energy leaders must make decisions. The COVID-19 pandemic only sharpened these issues, as they forced industry

leaders to adapt and innovate to keep the world's economic engines running.

Fortunately, technological innovation is one of Aramco's strong suits. In the past year, for instance, Aramco's Khurais



Amin Nasser
President & Chief Executive Officer
Saudi Aramco

plant joined 'Udhailiyah as a Lighthouse of innovation for its implementation of Fourth Industrial Revolution technologies, such as intelligent field sensors, machine learning, and remote inspection robots. In addition, the company has implemented other groundbreaking technologies, such as digital helmets for inspectors, which allows real-time reporting from on the ground inspectors, while avoiding the risk of exposure that a larger inspection team might require.

In a virtual panel session with Mike Wirth, chairman and CEO of Chevron, moderated by Yergin, Nasser said the COVID-19 pandemic had exposed some "harsh realities for the world," but that it had also "sharpened our focus on resilience, which gave us the agility to respond quickly to volatile markets."

"We were faced with one of the biggest crisis in a century, but our industry is used to challenging situations," Nasser said.

COVID-19 has made businesses improve their ways of doing business, Nasser added. "COVID-19 also accelerated our plans to digitalize operations in deploying and utilizing artificial intelli-

and in the communities where we operate.

Cause for optimism

On the economic front, while Nasser worries about the prospects of a jobless recovery, he sees signs of economic expansion, with growing demand for oil in China, East Asia, and India in particular. The economies of Europe and the U.S. are slower to recover, Nasser added, although the rapid deployment of vac-

and in the communities where we operate.

"ESG is a big part of Aramco's corporate strategy," Nasser said. "Our focus has always been on the stakeholders' interest."

"We are all for ESG, but a one-size-fits-all ESG framework or too many of them won't work. It must be stakeholders focused and more importantly, be inclusive," Nasser added. "For example, our customer base is global, but almost three-quarters of our customers are in emerging markets, and this is why a balance is needed in developing a common framework."

This year's CERAWeek sessions and themes were inspired by Yergin's new book "The New Map: Energy, Climate, and the Clash of Nations."

March 4 marks the anniversary of production at Dammam Well-7

Was it full speed to prosperity after Lucky 7?

Deepest drill, oil well fire, air raid reveal the tenacity of early Aramco employees

By Stuart Burt

On March 4, 1938, "Lucky 7" started producing and Saudi Arabia was launched on its journey to become the world's largest oil producing nation. Or so runs the widely accepted version of history. But the two years after Lucky 7 were incredibly difficult. The author reveals three major events the early employees had to overcome in those critical years.

Search for all-important second oil field

The second time is the charm

By October 1938, the Dammam field was proven and formally declared to the world. So far, so good. But for the Standard Oil Company of California (SOCAL), the company that had signed the Concession Agreement and went on to become one of the four owners of Aramco, a single oil field was never going to be enough. Back in the 1930s, Dammam and al-Khobar were tiny fishing villages with no 20th century infrastructure whatever. Everything SOCAL needed, they had to bring or build. As a single oil field wasn't going to satisfy the shareholders, and to justify the colossal expenditure, SOCAL needed to find a second oil field.

Flushed with success at the Dammam Dome, they chose Abu Hadriya, some 160 kilometers (km) northwest of Dhahran, and started drilling there early in 1939. One of the young geologists in the team was the multitalented Thomas Barger, who rose to become Aramco's CEO in the 1960s — his skill with a rifle impressed even the finest Bedouin hunt-

ers and his ability to learn Arabic likewise impressed King Abdulaziz.

Barger had secretly married just before he left America, and like any newlywed, he wanted to share his life with his new wife, albeit separated by more than 11,000 km. His letters home (preserved and published by his son) are an amazing treasure trove of what life was like for the earliest oil explorers.

Barger noted on Feb. 26, 1939, that "if the [Abu Hadriya] well is a dry hole, it will have a tremendous adverse effect ... it would infinitely decrease the chances of finding oil in some other places." The drilling team got to work. Expectations were raised as they reached the same depth as Lucky 7. Nothing. They remembered Max Steineke's message when the whole company was in despair with Well-7 in Dammam: drill deeper. So, they drilled. War broke out in Europe in September and still they drilled.

In early 1940 the drill bit reached 3 km — more than twice the depth of Lucky 7, and at that time, an incredible depth and virtually unheard of anywhere else in the world.

Division in the ranks

Barger recalls senior staff having "a big argument ... with one faction in favor of deepening the hole and another group saying that the well was already at 10,000 feet." The argument was decided by the SOCAL board who sent a terse instruction to Dhahran: shut down. The drillers reluctantly acknowledged the order and looked at the last pile of drill-



The fire at Dammam Well-12 on July 8, 1939, burned so hot that the 41-meter-high derrick collapsed after roughly 10 minutes.

pipes ready for use; six pipes each of 90 feet. Then they looked at each other. Without a word, they made their decision and someone (never identified) conveniently misplaced the telegram. Before they finished using those last pipes, they struck oil.

Barger reflected on the massive significance of this in his famous letter of March 3, 1940: "The oil at Abu Hadriya means a great deal ... now the company will start drilling another structure at a place called Abqaiq. This is going to be a great oil company."

How right he was.

Tragedy at Well-12 A summer afternoon like no other

On July 8, 1939, just two months after

the very first tanker of Saudi crude oil had left Ras Tanura under the watchful gaze of King Abdulaziz, morale was high in the Dhahran camp. Saudis and Americans worked side-by-side, knowing they were developing probably the most exciting oil exploration site in the world. The camp had been set up six years earlier and was so well organized that a significant number of American wives and children had been living there for two years. Hundreds of Saudis were being employed and the local economy was buoyed by the enormous growth in activity. Everything looked rosy.

No one knows exactly what caused the explosion at Well-12. The crew were preparing the test-perforating gun when there was an enormous explosion, heard everywhere in the camp, and moments later, flames shot 200 feet into the air. Oil at tremendous pressure, coming from a mile down,

was feeding the fire at the rate of about 8,000 barrels a day. The derrick melted and collapsed after roughly 10 minutes.

The acting resident manager quickly realized that the fire could cause the whole oil field to lose pressure and channel water into the oil zone, which would be financially disastrous. It was even possible that the well could spray burning oil and destroy the whole camp, which would be even worse. But he had no specialist firefighters to turn to.

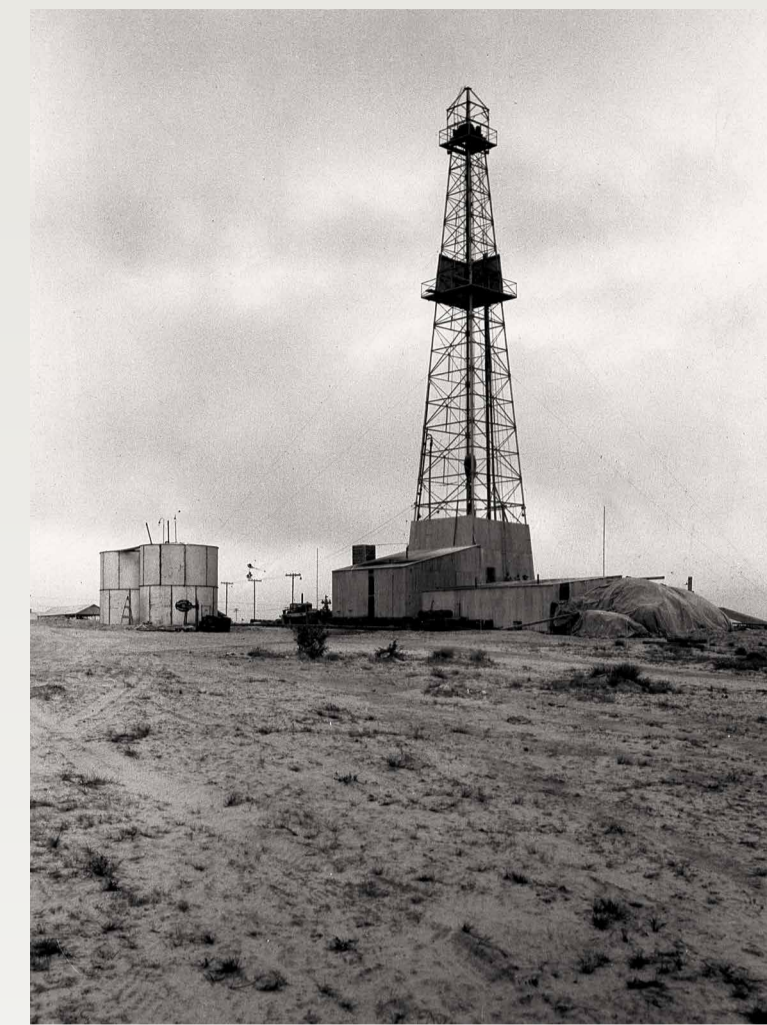
Amateurs to the rescue

The company called for asbestos shields and suits from its sister operation in Bahrain and organized themselves into teams who, incredibly, advanced right up to the heart of the fire, with water hoses spraying over them, and devised a series of attempted fixes for the next seven days, each time reducing the size of the flames. By this time, the world-famous firefighter from Texas, Myron Kinley, had announced that he was preparing to fly the Atlantic (a daring feat in those days), and make his way to Dhahran to kill the fire.

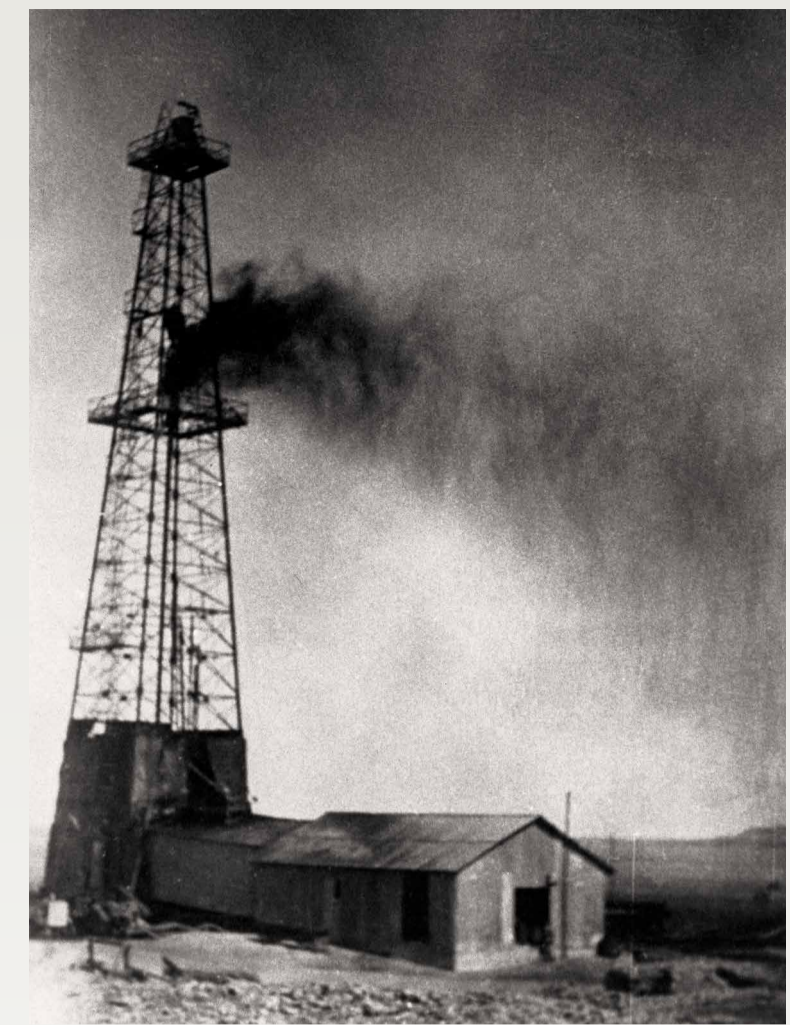
As the professionals prepared themselves, the amateurs in Dhahran tried one last desperate ploy to fit a hot tap onto the bypass line, which would, if successful, force mud down into the well. They watched anxiously as the bit broke through the pipe — and the flames disappeared instantly. The telegram to the head office in California was modestly to-the-point: "Fire extinguished, hole full of mud. Professional firefighters not needed."



On May 1, 1939, a submerged pipeline delivers crude oil from Ras Tanura to the tanker D.G. Scofield, which is moored about one kilometer offshore.



A drilling crew at Abu Hadriya, 161 kilometers northwest of Dhahran, struck commercial quantities of oil in 1939 at about 3,050 meters, more than twice the depth of Dammam Well-7.



An unidentified well in Dhahran blows traces of oil in early 1938. A test of Well-7 on March 3, 1938, signaled the beginning of a new era: Saudi Arabia had joined the ranks of oil producing nations.

The 10 days of hell were over. Unbelievable courage and extraordinary ingenuity had saved the oil field, and the entire community was wildly elated when the fire was finally extinguished. There is no doubt, however, that this was a defining moment in the early history of our company. Every employee and dependent was shocked and saddened by the event. Many procedures were overhauled and a culture of safety became, and remains to this day, a vital part of daily working life. Moreover, the sense of pioneering excitement of the early years was over.

In a very real sense, Dhahran came of age in July 1939.

Air raid on Dhahran: Terror descends from sky

When France and the U.K. declared war on Nazi Germany on Sep. 3, 1939, it seemed to the Dhahran employees to be essentially a European affair. Even when Italy joined Germany on June 10, 1940, it did not seem to signify very much. All that was to change dramatically on the night of Oct. 19, 1940.

On that evening, Italian bomber planes took off from Rhodes (the island was then owned by Italy). Their

mission was to disrupt the oil supply to the British navy in the Arabian Gulf and their target was the Bapco oil refinery in Bahrain. As they flew over the mountains of Lebanon, one of the planes got separated from the others, but carried on and spotted oil flares. The plane descended and dropped about 30 bombs ... on the *jebels* of Dhahran.

Saudi Arabia was officially neutral; as was the U.S. at this point — the Japanese attack on Pearl Harbor that brought the U.S. into the war happened on Dec. 7, 1941. Therefore, the bombing that night was, to the Dhahran residents, not only terrifying, it was also totally inexplicable. Shortly after the raid, they heard on the radio that the bombing had been an accident by the lost plane — the crew thought they were over Bahrain. As it happened, the damage to Dhahran was minimal.

Dhahran counts the cost

The impact of the raid was considerable. The company immediately started to scale back operations, and within six months the number of Americans was less than a quarter of what it had been on that fateful night. With such a large reduction

in staff, the company had to shelve plans to increase production. It also closed the new Ras Tanura refinery and eventually sealed 10 of the 16 wells on the Dammam Dome. Consequently, the government of King Abdulaziz suffered a considerable reduction in income, which delayed numerous public works projects.

The sense of danger was amplified by the difficulties the head office in California had in shipping essential supplies to Saudi Arabia. This physical isolation, though hard to bear, did not break the spirit of "the remainders." They started drilling at Abqaiq early in 1941 and discovered an oil field that looked to be far bigger than Dammam. They had no resources to develop it of course, but the news of the extraordinary flow rate at Abqaiq No. 1 (9,720 barrels per day) convinced them that persevering was worthwhile.

Those early employees had overcome three massive hurdles after Lucky 7: They had survived the stakeholders' pressure to find a second (and indeed a third) oil field; they had extinguished the terrible fire at Well-12; and they had survived an air raid.

Nothing could stop them now.



Ithra begins registration for PiCon Science Communication Program

The King Abdulaziz Center for World Culture (Ithra) has opened registration for its first PiCon Science Communication Program, which will run from March 10-14, 2021. The program is held to coincide with International Pi Day (March 14) and will provide an opportunity for science and technology enthusiasts, as well as creative individuals.

PiCon will last for five days. The program will feature exciting talks, riddles, and scientific experiments

to enhance the understanding of science, and the communication of science, knowledge and innovation.

The speakers will take part virtually. Mishaal Al-Shemimry, an aviation engineer, will talk about interplanetary travel and provide participants with an overview of the various types of rockets, as well as her own experience in developing propulsion systems.

Astronaut Chris Hadfield will fo-

cus on space science and his experience with the International Space Station, while Professor Brian Green will introduce some of the wonders of science. Diana Alsindy, a specialist in rocket propulsion systems, will discuss working in the space sector. There will also be a session containing a film screening where engineer Rakan Al-Shaya will discuss the positioning of science in cinema.

PiCon will also include a series of interactive presentations and experi-

ences, including a robot barista serving coffee as well as the "Maestro Robot" playing musical instruments. There will also be scientific riddles and tasks focused on stimulating the audience's interest in science and building cognitive skills.

For more information, please visit: www.ithra.com. Follow Ithra on social media: Facebook (King Abdulaziz Center for World Culture), Twitter (@Ithra) and Instagram (@Ithra) #Ithra.

Your voice

The importance of memories

We live our lives day by day without knowing what the future holds. We wake up every morning, follow a certain routine in our day, and finally, go to bed. We follow that same cycle over and over. Every minute in this daily routine becomes a memory, encoded and stored. At a later stage, these memories will be retrieved. Memories make each of us unique, and they give continuity to our lives. Sometimes these memories won't have much value, but at other times they can make us burst into tears, or smile with joy.

The ability to create new memories, store, and recall them allows us to learn and interact with the world. Consider for a moment how many times a day you rely on your memory, from starting your car to logging on to your workstation.

The three main forms of memory storage — sensory, short-term, and long-term — are stored across different, interconnected brain regions. Long-term memories are either ex-

PLICIT or implicit. Explicit memories involve facts, concepts, and events, and must be recalled consciously. Implicit memories are sensory and automated behaviors.

In 2019, I lost a family member, and I have been struggling with my emotions whenever a memory of the lost one is triggered. I keep trying to shift my mindset into something positive to continue my day without breaking down. If we experience traumatic events, we actually prefer to forget them. Unfortunately, it appears to be impossible to delete memories at will. In fact, such memories tend to be imprinted more strongly. When we feel delight or anger, vivid recollections are often more possible than when we feel little emotion. Our emotional state at the time of an event can affect our ability to remember it.

Studies support this idea. In 1977, researchers at Harvard University published a paper entitled "Flashbulb Memories," in which they found that people were often able to vividly rec-

ollect where they were when something significant to them happened. They used the example of the assassination of U.S. President John F. Kennedy. Many people remember where they were and what they were doing when they heard he was killed. Unlike a photographic memory, these "flashbulb memories" tend to occur only when the event is of particular significance or very surprising, supporting the idea that a person's emotional state at the time can influence whether or not it is encoded as a memory (Brown and Kulik, 1977).

So, during your everyday routine, enjoy every single second, don't hold grudges, smile no matter what, and positively contribute as much as you can. Strive to create memories with your loved ones that are linked to happiness and joy because that's the way you want to be remembered.

May everyone we have lost rest in peace and may everyone we live with be blessed with all things good.

By Sara N. Kadeeb
Dhahran

Sara.Kadeeb.1@aramco.com

Your Voice reflects the thoughts and opinions of the writer, and not necessarily those of the publication.

Aramco engineer wins technical innovation excellence award in Kingdom first

Soliman M. Almadi, a senior engineering consultant with the Process and Control Systems Department (P&CSD), has won the International Society of Automation (ISA) Excellence in Technical Innovation Award.



Soliman M. Almadi

The award recognizes Almadi's contributions to the development of an edge computing device prototype, which acquires and controls data from remote and in-plant subsystems as part of an automated industrial process.

The prototype was successfully tested at Aramco's IR4.0 Center in Dhahran, and is considered one of the leading initiatives incubated in the new facility, named for the Fourth Industrial Revolution.

The device, considered a disruptive digital transformation technology for instrumentation and industrial automation, was based on one of Almadi's shared U.S. patents.

Edge computing is performed at or near a data source, reducing data volume and distance transportation. This proximity improves response times, saves bandwidth and storage costs, and strengthens security. An edge computing device is a piece of hardware, and its

accompanying software, granting access to a network.

Founded in 1945, the ISA is a global, nonprofit organization that sets the standard for automation. Based in North Carolina, USA, the society develops standards, certifies industry professionals, and provides education and training to promote innovation.

Almadi's win is the first awarded by the ISA Saudi Arabia Section, which was formed in October 1980 by Aramco instrumentation engineers.

Jamil J. Al-Bagawi, the chief engineer with Engineering Services, congratulated Almadi on his award and praised the work of all the company's engineers.

"Digital transformation has inspired many new concepts in the technology domain and our engineers are the catalyst to innovate above and beyond what is possible," he said.

The IR4.0 Center is the home of many new concepts. Testing of the edge computing device was conducted virtually in 2020 to capitalize on the latest real-time collaboration capabilities.

"It is a great win to see IR4.0 Center capabilities facilitate the testing and bridge the gap — not to mention overcoming COVID-19 — in conducting hardware and software development tests," said Bassam M. Al-Dossary, manager of P&CSD.

The device has significant potential for many applications in Aramco plants' sensing and controlling applications, as well as in utilities, transportation, and power systems.

"The edge computing device has the potential to be the foundation for smart plants of the future," said Bander R. Al Youssef, general supervisor of the Process Automation Systems Division and leader of the Smart Plant Track.

let's catch a phish

Hammad A. Alazmi among first to identify phishing email

The urgent message of "Update to Saudi Aramco Recreation Facilities" may have tricked some employees to click on a link to view the information concerning the new booking requirements, but not **Hammad A. Alazmi**. The Aramcon, working in the NGL Recovery Unit of the Khursaniyah Gas Plant Department, was among the first in the company to identify the recent email as a potential phish.

The email offered several enticing elements looking to lure its recipients into responding inappropriately and clicking on one of its links. Tipoffs that the email might be nefarious included:

- A suspicious domain (Community Service <community-services@aranco.com>)
- An attractive subject line (Update to Saudi Ar-

- amco Recreation Facilities)
- An external tag indicating it had been sent from an outside source
- An embedded link (Click Here)
- An urgency indicator stating that booking will be done on a "first come first serve basis"
- Several misspelled words throughout the message and poor grammar.

the top 3
positive performing
admin areas

1. Northern Area Oil Operations
2. Safety & Industrial Security
3. Power Systems

thank you
NA Industrial
Security
Operations
Department

The Information Security Department would like to extend its gratitude and appreciation to the **NA Industrial Security Operations Department** for their noticeable efforts in scoring 0% negative behavior; along with the highest positive behavior for the February test. Such efforts reflect positively on Aramco cybersecurity user behavior and elevates the resilience of Aramco's core business.

cybersecurity tip of the month

We all have a role to play in national online protection

By Tarfah Al Assom

The National Cybersecurity Authority (NCA) was established by Royal Order and has a direct link to The Custodian of the Two Holy Mosques King Salman bin Abdulaziz Al-Saud.

The NCA is a pioneering step in maintaining the security and stability of Saudi Arabian society, ensuring the protection of online systems against cyberattacks.

With the tremendous technological developments in, and our daily use of smart devices and computers, the need for cybersecurity is more important than ever.

Increased connectivity has led to a surge in the exchange of data

around the world, according to the Saudi Press Agency.

Positive behavior

The Custodian of the Two Holy Mosques and HRH Prince Mohammed bin Salman bin Abdulaziz Al-Saud made the decision to establish the NCA to transform government dealings in the Kingdom. The national economy has benefited from secure online transactions so that everyone can access services safely and securely.

Information hazards have different types of challenges that must be considered when building and developing equipment and systems.

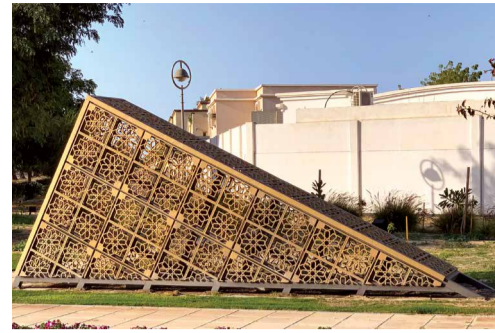
As users of cyberspace, the citizens and residents of Saudi Arabia



have a crucial role to play in fostering a culture of prudent online behavior.

Our role entails raising awareness and promoting positive

cybersecurity behavior. All these efforts lead to a safer and more secure cyberspace, and support the Kingdom's mission to protect electronic infrastructure and services from online threats.



Sunny, Sandy, Scenic Jubail

From left to right, A bird spending the day in Al-Deffi Park. Birds can be heard tweeting among the trees. Opposite to Al-Fanateer Corniche is the downtown, which has plenty of restaurants and retail. There are amenities and parking across the different beaches. Jubail Industrial City has a number of street sculptures. The city is located 110 km north of Dhahran. The Al-Nakheel Corniche tends to be quieter and ideal for relaxing and picnicking.

By Musherf Alamri

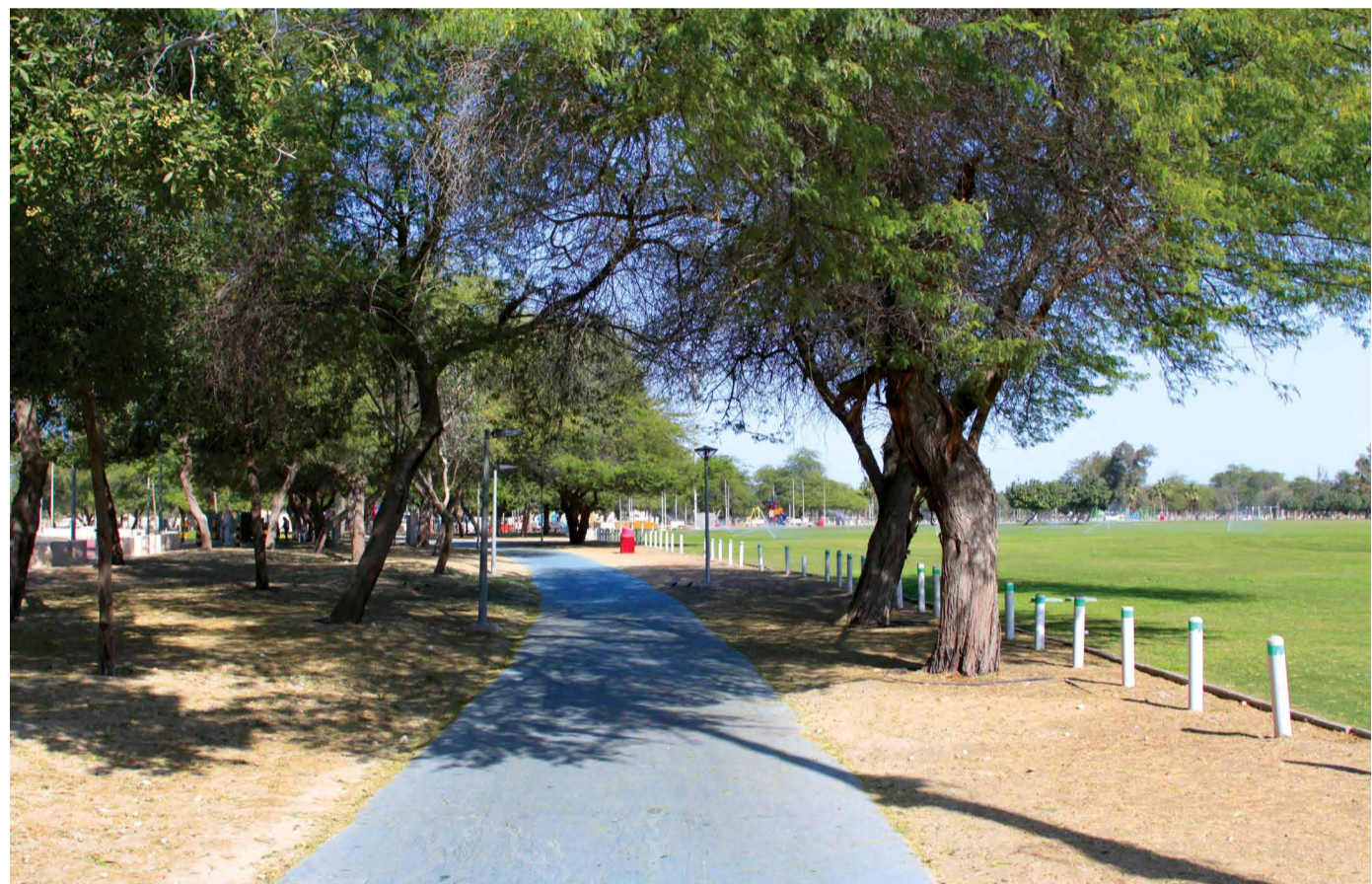
Everyone knows Jubail is one of the largest industrial cities in the world. What is less well-known is that the city has beautiful recreational areas, including its beaches and parks.

The city, which has a population of 150,000 residents, is 110 kilometers (km) north of Dhahran and possesses 40 km of coastline dotted with sandy beaches, walking trails, and other recreational facilities.

The Al-Nakheel Corniche is the first beach in the south of Jubail. It tends to be quiet and is ideal for relaxing and picnicking.

The Al-Fanateer Corniche is livelier. It is opposite the downtown area and has plenty of restaurants and shops. There is always a stream of people walking and jogging here at night. Its beauty is augmented by the well-kept landscape. While certain beaches are clearly designated for swimming, this is a public area and visitors should dress appropriately.

A number of beach camps and business centers have been constructed on the southwest of Al-Batinah Island, the second largest island in the Arabian Gulf. Once across the causeway,



Al-Deffi Park has numerous picnic areas and running trails covering a total area of 451,600 m². The designers minimized structures to allow people to reconnect with nature. (Photos by Musherf S. Alamri)

the island is pristine and calm. Access is restricted to the largest island in the Gulf, Abu Ali Island, which is further north.

The area between Abu Ali Island

and Ras al-Khair is the Jubail Marine Wildlife Sanctuary, which covers a total of 2,410 km², including five atolls, according to the National Center for Wildlife. The center supervises the reserve, and people can apply to visit via the website. Check first as visits might be restricted due to COVID-19.

A 10-minute drive west of the parks, a new campus for Jubail University College is in the late stages of construction and will eventually accommodate up to 18,000 students. Across the highway, crews are working on mixed use high-rise buildings and a tower for SABIC.

Ancient, Industrious Jubail

In 1968, an archeological site with a pottery complex was discovered near Jubail.

The site provided evidence of a thriving human civilization from the late sixth to early fifth millennium B.C. It is only one of 60 sites discovered around the Gulf.

The Jubail site is important because it contains 15,000 ceramic shards, and there is a potential for more. The shards are mostly fragmented, but scientists were able to piece them, and the inhabitants, together.

The ancient people traded with Ubaid, a civilization in South Mesopotamia. Some scholars argue that this relationship forms one of the oldest marine trading networks in the world.

In an article published in 2014, in the *Proceedings of the Seminar for Arabian Studies*, researchers found that 80% of the materials were attributed to Ubaid. The remaining 20% came from a different source, which scholars interpret as an independent, indigenous ceramic tradition.

In the aftermath of the Gulf War oil spill in 1991, studies showed the need for a marine sanctuary to monitor the impact of pollution and preserve the area's biodiversity, according to the center's website. Research has shown a recovery in marine life.

For those wanting an inland experience, there are many parks, including Al-Deffi Park and Al-Andalus Park. They are opposite to each other, and have numerous picnic areas and running trails. The designers of Al-Deffi Park minimized structures to allow people to reconnect with 451,600 m² of nature.

Driving gives a visitor perspective on the sheer size of the industrial accomplishment. After going up the empty Jubail-Dhahran highway, passing by Jubail City, and then entering Expressway 1, you will be surrounded by gigantic factories and associated infrastructure.

Jubail Industrial City is an impressive feat of engineering and urban planning. It is the fruit of the leadership's vision to diversify the economy beyond exporting crude oil. The 1975 Royal Decree to establish the Royal Commission of Jubail and Yanbu' was the birth of twin cities on opposite coasts.



Al-Fanateer Corniche has lovely sand beaches and running trails. It is a lively area and a stream of people walk or jog during the nighttime, and beach beauty is augmented by the well-kept landscape.

VAST continues winning streak

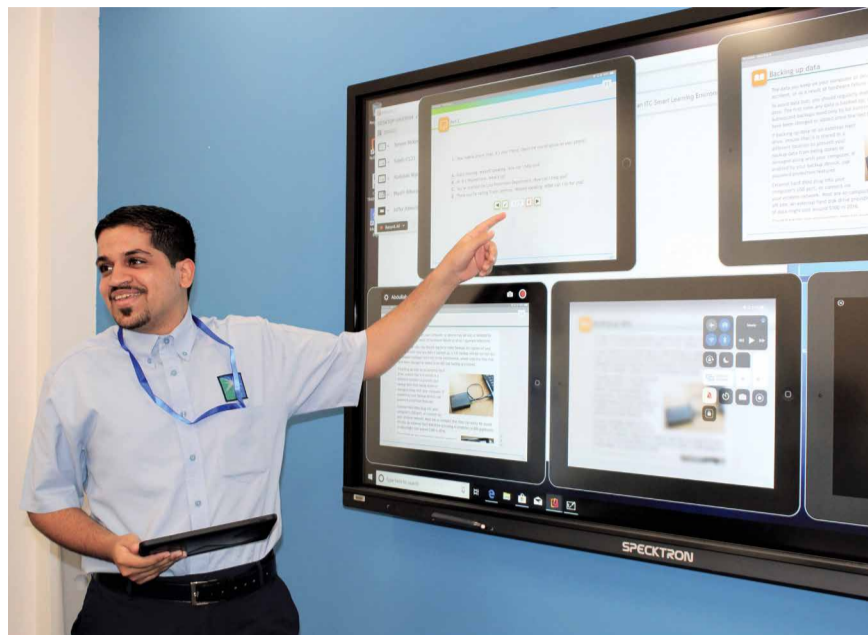
Aramco's digital industrial training program wins more awards

By Jim Cook

Aramco's Vocational Academic Skills Training (VAST) Program continues to win accolades from prestigious international organizations, recently garnering two prizes from the Future Workplace Awards, which recognizes organizations that contribute to the improvement of the human resources profession in the Middle East.

Launched in 2018, VAST is a performance-based program developed by Training and Development (T&D) and uses custom content developed in-house that is delivered digitally to provide foundational academic, job-related, and soft skills training to the company's industrial workforce.

VAST has won 10 awards from respected Human Resources and Learning and Development (L&D) organizations, including the two from the Future



An Industrial Training Center trainee interacts with VAST content in classrooms prior to the COVID-19 pandemic.

“These wins reinforce that VAST ... better prepares program graduates to hit the ground running.”

— Susan Hamade van der Merwe

Workplace Awards. VAST won the Best L&D Technology Implementation award and was recognized with a mark of excellence in the Best Innovative L&D Initiative category.

Interactive and engaging

Susan Hamade van der Merwe, an analyst in the Program Development and Evaluation Division of T&D, said the in-house program is an excellent example of educational best practice.

“These wins reinforce that VAST successfully attracts higher caliber candidates to the program, reduces program attrition and absenteeism, and better prepares program graduates to hit the ground running,” she said.

“This collection of performance-based programs is designed to be culturally

appropriate, contextually relevant, highly interactive and engaging, and aligned with business line needs.”

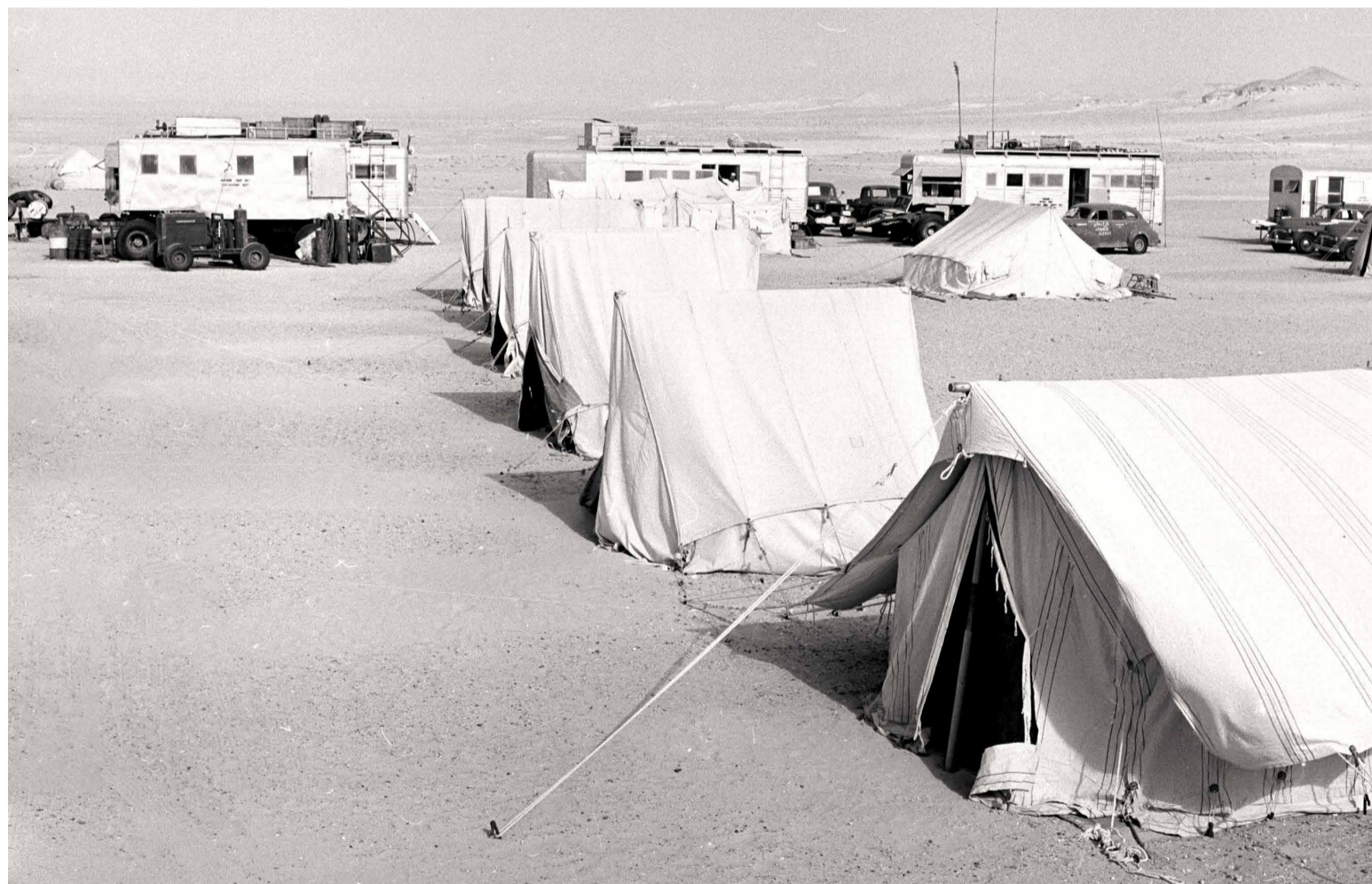
The COVID-19 pandemic has shown that having strong digital delivery systems for learning content is important to learning and development organizations, van der Merwe added.

T&D continues to refine VAST and is currently exploring options to make the program platform neutral, so that it will work with devices regardless of what operating system they use. The interactive content is currently only available on iPads.

VAST interactive training outcomes include:

- Reduced attrition and absenteeism rates
- Increased satisfaction of stakeholders
- 70% reduction in commercial content use
- Drastically reduced revision time
- \$400,000 cost savings each year.

The awards recognize the results VAST has obtained, including reduced attrition and absenteeism rates; increased satisfaction of stakeholders; increased satisfaction in apprentices' English, clerical, and soft skills by supervisors; a 70% reduced reliance on commercially developed training content; a drastically reduced revision time for VAST courses; and cost savings of about \$400,000 per year.



Photographic memory

Tent camp near Hofuf: Early exploration field parties lived in field camps such as this one photographed in 1950 outside Hofuf.



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Editors: William Bradshaw, Jamsheed Din, Todd Williams
Editorial staff: Musherf Alamri, Eamonn Houston, Scott Baldauf, Dalia Darweesh, and Rawan Nasser.
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the arabian sun



Sunny, Sandy and Scenic Jubail

Al-Fanateer Corniche has lovely sand beaches and running trails. It is a lively area where people walk or jog during the nighttime.

see page 10



800-305-4444 | www.jhah.com

JHAH COVID-19 Vaccination Program

The COVID-19 vaccine is available to all Saudi Aramco employees, retirees, and their eligible dependents aged 18 years and over.

English



العربية



Scan the QR code to visit our COVID-19 Vaccination page. You can register online, or use the quick link to access and register on your MyChart account.

Please continue to follow infection prevention measures to keep everyone safe and well.



مركز جونز هوبكنز
أرامكو الطبي
Johns Hopkins
Aramco Healthcare

Facial recognition

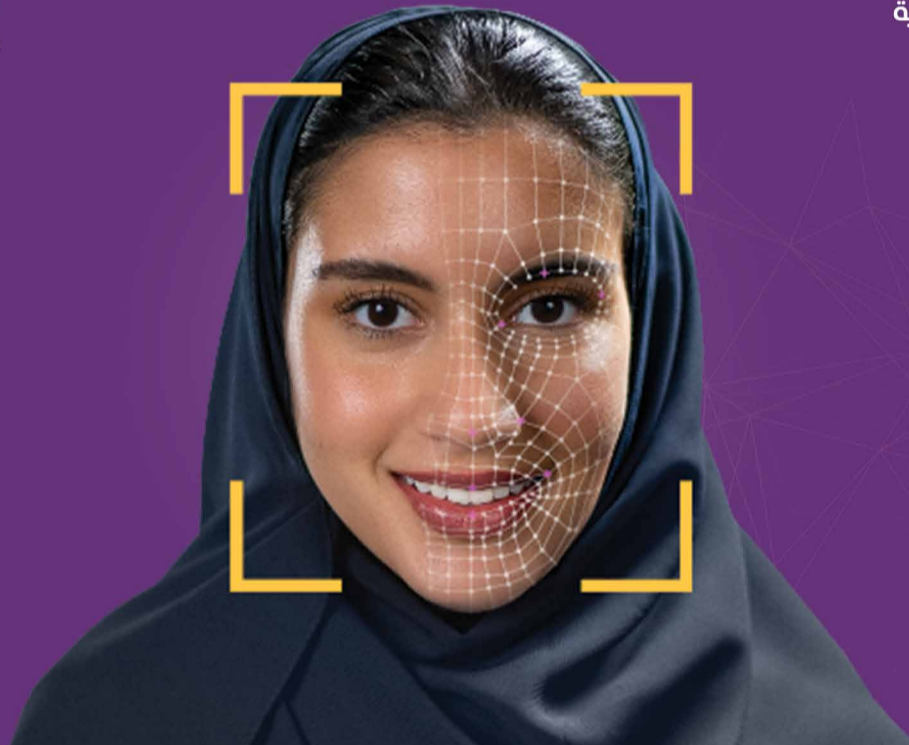
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One of many rock cut temples

Vikrant P. Ambatkar, a vibration technician in the Ju'aymah NGL Fractionation Department, captured this image of the "Kailasa Temple" (Cave #16) at the Ellora Caves site. The Kailasa Temple is the largest rock cut temple at the site. Ellora is a UNESCO World Heritage Site located in the Aurangabad district of Maharashtra, India. Ambatkar used his Nikon D5600 to take the photograph. He has been with the company more than six years.