

the arabian sun

June 26, 2019 | vol. LXXIV, No. 25

a weekly Saudi Aramco publication for employees

Company-sponsored students **make their mark** in the U.S.

Aramco-sponsored students at U.S. universities are making their mark by winning notable prizes for their rigorous scientific work.

see page 3



Saudi Aramco Driving Center **trains thousands** in first year

The Saudi Aramco Driving Center in Dhahran marks its first year, not only helping women employees drive themselves to work, but also creating opportunities for those who will become trainers.

see page 5



making masters in the Gulf barge jack training in global spotlight

see page 9

inside this issue

Aviation launches onboard internet services for passengers

Looking to enhance productivity and the onboard experience of its customers, the Saudi Aramco Aviation Department introduces Sky-Fi internet service onboard its Boeing 737-800 fleet.



see page 4

Green Matters: safeguarding the air that we all breathe

The company takes its environmental protection duties serious, especially when it comes to ensuring clean air — whether that's significantly reducing flaring across its operations or using science to produce cleaner engines.

see page 6

Drilling and Workover celebrates Rig Operations Program graduates



Several dozen recent Rig Operations Program graduates get a chance to demonstrate what they learned in the three-year comprehensive program at a ceremony held by Drilling and Workover.

see page 7

Laying the groundwork for future

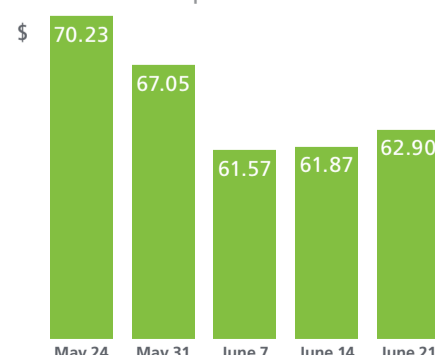
CEOs at Ithra Summer Camp

Young participants in the Ithra Summer Camp program in Dhahran get an opportunity to see what it is like to be an entrepreneur in the real world. The Junior CEO Camp is just one of several programs looking to prepare the youngsters for a bright future.

see page 13



OPEC basket five-week price trend 2019



Saudi Aramco by the numbers

10 million

is the number of views the Saudi Aramco YouTube channel recently surpassed.

Saudi Aramco to explore carbon-free ammonia production in the Kingdom

Omar Al Amudi, representative director of Aramco Asia-Japan, fourth from left, and Masakazu Toyoda, chairman and CEO of the Institute of Energy Economics in Japan, fifth from left, exchange documents following a signing ceremony to jointly pursue production of carbon-free ammonia in Saudi Arabia. Pictured are, from left, HE Ibrahim Al Omar, Governor of the Saudi Arabian General Investment Authority; HE Khalid A. Al-Falih, Saudi Arabia Minister of Energy, Industry and Mineral Resources and Chairman of the Saudi Aramco Board of Directors; HE Mohammed Al Tuwairji, Minister of Economy and Planning; Amudi; Toyoda; and HE Hiroshige Seko, Minister of Economy, Trade, and Industry for Japan.



“It is crucial to promote the partnership between Saudi Arabia and Japan, leading toward sustainable energy and a carbon-free society.”

— HE Hiroshige Seko

Tokyo — Saudi Aramco and the Institute of Energy Economics in Japan (IEEJ) have signed a Memorandum of Understanding (MoU) for a pre-feasibility study of carbon-free ammonia production in the Kingdom of Saudi Arabia.

The MoU exchange ceremony was held in Tokyo, during the Saudi-Japan Vision 2030 Business Forum organized by the Saudi-Japan Vision Office, the Saudi Arabian General Investment Authority, Japan's Ministry of Economy, Trade and Industry, the Japan External Trade Organization, and the Japan Cooperation Center for the Middle East.

The ceremony was witnessed by HE Khalid A. Al Falih, Minister of Energy, Industry and Mineral Resources, HE Mohammad Al Tuwairji, Minister of Economy and Planning, and HE Ibrahim Al Omar, Governor, Saudi Arabian General Investment Authority.

The ceremony was hosted by HE Hiroshige Seko, Minister of Economy, Trade and Industry for Japan, as well as top executives from related organizations. More than 200 attendees gathered at the ceremony, ranging from Saudi Arabia and Japanese government officials to Japanese investors, and members of various academia fields.

'promoting partnership'

"Today we witness the pivotal MoU signing between Saudi Arabia and the Japanese parties," Seko stated in his opening remarks. "It is crucial to promote the partnership between Saudi Arabia and Japan, leading toward sustainable energy and a carbon-free society."

His remarks were followed by the MoU exchange ceremony and a photo session with Aramco Asia-Japan representative di-

rector Omar Al Amudi, on behalf of Saudi Aramco chief technology officer Ahmad O. Al-Khowaiter, and IEEJ chairman and CEO Masakazu Toyoda.

The IEEJ is a world-leading think tank in energy and environment, providing objective and factual analyses and recommending appropriate policies based on future energy and environmental outlook.

Saudi Aramco and IEEJ have worked together in recent years exploring the potential use of hydrogen and ammonia with the support of Japan's Ministry of Economy, Trade, and Industry, which pursues cooperation with oil producing countries to promote the decarbonization of fossil fuels.

Both parties will explore the possibility of carbon-free ammonia production in the Kingdom to enable decarbonization of the energy system and effective use of fossil fuel resources at the same time.

your voice

boosting 'meeting efficiency' through integration



by Francois Pretorius
Dhahran

Francois.Pretorius@aramco.com

Feedback and learning is an essential process to manage an organization's strategy — one that includes articulating its shared vision, supplying strategic feedback, and facilitating strategy review and thinking.

The problem, or opportunity, lies in how organizations set up the mechanism to execute this process, i.e., reviewing business performance measures, analyzing data, and identifying improvement opportunities.

In many organizations, "meeting overload" creates a problem where performance reviews lose their value and become inefficient. In a July-Aug. 2017 article in the *Harvard Business Review*, 182 managers surveyed responded that meetings keep them from completing their own work, with 71% concluding that meetings are unproductive and inefficient. Another 64% said meetings come at the expense of deep thinking, and 62% said meetings miss opportunities to bring the team closer together.

Often, regular communication meetings focus on day-to-day business, whereas business review meetings (normally conducted quarterly) focus more

on strategic focus areas and performance measurements. They provide a venue for analysis of key performance metrics and help identify opportunities for improvement.

Both types of meetings can be inefficient, as research shows weekly meetings can last up to 2 1/2 hours, and typical business review meetings can last a full day. Add that to a 1998 study that showed U.S. employees spend an average of six hours a week in meetings and senior managers nearly 23, and efficiency can be hard to achieve.

One way to combat this is to integrate business performance reviews into typical communication meetings.

In 2018, account management strategist and coach, Warwick Brown argued that such meetings should be kept separate because of meeting length restraints. However, through integration, the number of meetings can be reduced, increasing effectiveness, and efficiency.

After integration, it is important to schedule a maximum of two to three process performance measures per meeting (five minutes max). This ensures 15 minutes spent on review, and the rest will be

business as usual. The schedule will depend on the need of the organization, and some performance areas (safety, cost and profitability, etc.) must be reviewed more frequently than others.

With only five minutes allowed per presentation, process owners must be prepared to provide analysis, summaries, and to field potential improvement actions at a brisk pace. Preparation can be in the form of a quick one-to-one discussion with the process owner. Using a checklist covering items such as key performance indicators, targets, and other measurements can be helpful.

During the actual meeting, monitor presentation times closely, and make sure process owners present all the critical information, and reward and recognize individuals responsible for actual process improvements.

Approached in the right way, integrating a business review into communication meetings can help by reducing the number of meetings. There might be limitations of integrating strategy and operational meetings. However, future research may want to focus on how to even further optimize combined meetings.



“I was so honored to be the commencement speaker for the class of 2019 at the Colorado School of Mines. I am thankful to everybody at Saudi Aramco and the university for all of their support and advice these last few years.

— Sarah A. Alhumaidan

Saudi Aramco students show leadership at U.S. universities

by Terry Wade

Houston — Saudi Aramco students at U.S. universities won a series of notable prizes this year for their rigorous scientific work and one gave the keynote speech at her graduation ceremony.

an international first for Aramco

Sarah A. Alhumaidan became the first international student at the Colorado School of Mines to give the annual commencement speech for the senior class. Her peers and academic leaders chose the draft of her speech after a competitive process that included dozens of students and two auditions.

Alhumaidan, who studied geophysical engineering and is now on Saudi Aramco's Exploration team, delivered the speech May 10 at the Mines' campus in Colorado. She spoke about how experiences matter more than results and the importance of overcoming challenges.

She urged her classmates to stay hopeful amid adversity, to get help when they are lost, and to use their experience to make the world safer, more efficient, and more developed.

“I was so honored to be the commencement speaker for the class of 2019 at the Colorado School of Mines. I am thankful to everybody at Saudi Aramco and the university for all of their support and advice these last few years,” Alhumaidan said.

a Da Vinci award winner

In other news, Ali A. Alhajji was part of a four-person team at Michigan State University to win the Mechanical Engineering Department's Da Vinci award for the best student project.

The goals of the project were to design, build, and test a device that could pick up and hold a variety of different balls balanced on a tube stand. His team's device

proved to be faster and more effective at picking up balls than devices designed by other teams.

Alhajji, who in the future will be part of Saudi Aramco's Drilling and Workover organization, said he has always been fascinated by physics, science, and engineering. He is also studying computational fluid dynamics and related software systems.

“I am doing a summer research project on designing and improving water pumps for cars using computational fluid dynamics software. I believe this is going to help me in my future work with Drilling and Workover in Saudi Aramco,” he said.

publishing and presenting

Anwar S. Alghamdi, graduated in May with a degree in petroleum and natural gas engineering from Pennsylvania State University and coauthored a technical paper called “Experimental Evaluation of the Impact of Oil-based Mud Residuals on Cement Forma-



Ali A. Alhajji stands with members of his team that won a prestigious engineering award at Michigan State University.

tion Bonding Strength.” The paper, an outgrowth of his thesis project, was published by the American Association of Drilling Engineers and presented at the organization's

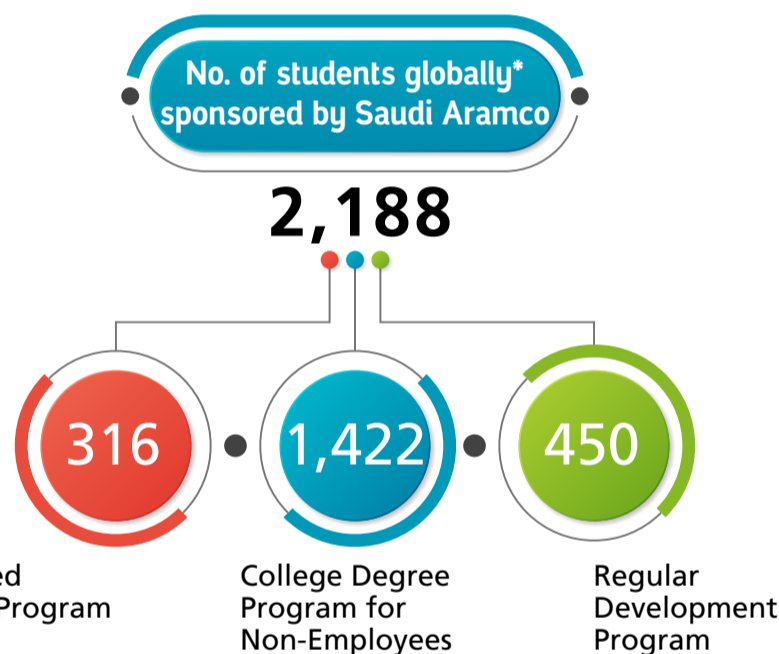
annual technical conference. Alghamdi joined Saudi Aramco's Production and Facilities Development operations in June.

“Studying overseas was a great experience culturally, in terms of the connections you make with international students and with Saudis from all over the country,” he said.

Saudi Aramco recruits top students from Saudi Arabia to participate in study abroad programs that the company sponsors. There are currently 2,188 people sponsored by Saudi Aramco studying in 14 countries around the world.

Of these, 316 are in the Advanced Degree Program, 1,422 are in the College Degree Program for Non-Employees at top-tier universities, and the rest are in the Regular Development Program.

In the U.S., there are currently 898 people sponsored by Saudi Aramco who are pursuing a bachelor, master, or doctoral degree, or participating in technical training programs at various American institutions. Each year in the U.S., Saudi Aramco sponsors approximately 400 people for undergraduate studies and 150 for postgraduate studies.



* Saudi Aramco sponsored students in 14 countries around the world

KFUPM students get up close look at the future in R&DC tour



Students from King Fahd University of Petroleum and Minerals listen to a presentation on the internal combustion engine and the many tools and methods Saudi Aramco uses to test and enhance their performance during a recent tour of the company's Research and Development Center in Dhahran.

by Niall A. Higgins

Dhahran — Saudi Aramco's Research and Development Center (R&DC) was recently visited by a small group of fourth-year mechanical engineering students from King Fahd University of Petroleum and Minerals (KFUPM).

Led by Professor Ahmed Abdelhafez, the

group of 20 students got an up-close look at the company's transport and robotics technologies as part of their coursework. The visit exemplified the existing strategic and academic relationship between KFUPM and R&DC.

The visit highlighted the company's robotic technologies such as SAIR and SWIM-R,

real model development form, and a number of other technologies and video animations. The students showed a real sense of enthusiasm for the cutting-edge Fourth Industrial Revolution technologies.

engine and transportation technologies

The students also visited the R&DC's Engine Combustion Laboratory and saw the tools and methods that are used for testing the performance, fuel economy, and emissions of fuel and engine systems. A number of our engine experts were on hand to discuss their motivations and interest in engineering, especially related to internal combustion engines (ICEs).

The visit closed with an overview presentation on the Transport Technologies portfolio, showcasing the leading engine and fuel options Saudi Aramco is pursuing, such as Gasoline Compression Ignition, Octane-on-Demand, and the in-house work done with the FUELCOM team based at the King Abdullah University of Science and Technology.

The company's recent successes at auto shows in Detroit and Geneva were shown

to the students as proactive examples of how Saudi Aramco is taking their technologies to the general public and seeking to inform and engage on a more efficient and lower emission future in the transport industry, with ICEs being at the forefront of our developments.

future employees

Amer A. Amer, chief technologist in R&DC's Transport Technologies Division, shared the important messages surrounding the work being undertaken by Saudi Aramco.

“Having mechanical engineering students visiting our centers is playing a vital part in helping encourage potential future employees to get an appetite in research and innovation around ICEs,” he said.

“These labs are a great testing platform for our strategic and sustainable inventions and technologies, and when a young and aspiring engineer enters one and sees firsthand the types of intricate and sophisticated work we are doing to modify, modernize, and improve the ICE, you can see the enthusiasm and their eyes lighting up,” he added.

shaping the future of pipelines with nonmetallic applications

“

With the increase in the demand for steel-reinforced thermoplastic pipe (s-RTP) products, extensive efforts are being exerted to entice manufacturers to localize the manufacturing of s-RTP in-Kingdom through the In-Kingdom Total Value Add program.

by Anwar Parvez and Abdulaziz Asiri

Nonmetallic products are shaping the future of oil production pipelines in the industry that typically relies on steel.

In oil and gas production, water is typically used as an injection fluid. The corrosion that is caused by water to the conventional steel pipelines is a major issue for the oil and gas industry, as corrosion compromises the integrity and reliability of the pipelines over time. Nonmetallic pipelines, immune to corrosion, make them an ideal product to mitigate this issue.

One of the high-impact nonmetallic products in oil production pipelines is reinforced thermoplastic pipe (RTP). The first RTP deployment by Saudi Aramco was successfully installed in Khurais in 2015.

The reliability and track record of the initial deployment set the ground for many other nonmetallic RTP projects for the company. The Consulting Services Department (CSD) nonmetallic team has worked closely with several vendors to expand the operating envelop of RTP to be used in high-pressure and high temperature applications such as water injection.

effective alternative solution

To avoid the cost of corrosion and any production interruption, CSD has assessed several nonmetallic products that could be used in higher internal pressure water injection applications.

However, steel-reinforced thermoplastic pipe (s-RTP) provides one of the most cost-effective alternative solutions to the traditional steel pipelines. The s-RTP is a nonmetallic pipe comprised of three layers — an internal layer, which acts as a bladder that contains the water, an intermediate layer, which reinforces the pipe structure, and an outer layer, which protects the pipe from any external damage such as wear and impact. Furthermore, spoolable s-RTP combines ease of installation — requiring a smaller crew — and a longer operational life, making s-RTP the material of choice for this application.

Until 2015, only small diameter sizes of RTP — up to 4 inches — were available for higher internal pressure and high tempera-



Steel-reinforced thermoplastic pipe (s-RTP), shown here being deployed in the Hawiyah area, provides a more reliable and proven way to transport crude oil under high-pressure, high temperature conditions.

ture applications. CSD worked with several manufacturers to entice the development of larger diameter RTPs for Saudi Aramco's higher pressure water disposal and injection systems.

Based on this CSD initiative, two new piping products — 6 inch and 8 inch — were developed for Saudi Aramco water systems.

"CSD is currently supporting manufacturers to continue developing the RTP technology for larger diameter pipes," said Gusaï H. AlAithan, Nonmetallic Deployment Group leader.

Accordingly, CSD collaborated with the Safaniyah Onshore Producing Department to successfully deploy the first s-RTP in higher pressure applications at seven new water disposal lines in early 2018.

expanding capabilities

Realizing the benefits of the s-RTP in Saudi Aramco water disposal systems, CSD — in collaboration with the Sea Water Injection Department (SWID) — successfully deployed an 8-inch 3,000 psig rated pipe in water injection applications in Q4 of 2018. Deployment of this new product at SWID marked the first worldwide deployment of the largest diameter 3,000 psig rated s-RTP pipe.

Approximately 80% of the work needed

to construct an equivalent steel pipeline was eliminated by utilizing this nonmetallic s-RTP product.

"The deployment of s-RTP in SWID represents a successful collaboration between CSD, SWID, and the manufacturer to develop a product that can meet the requirements of this challenging application," noted Waleed I. Al-Otaibi, CSD Nonmetallic Engineering Division coordinator. "We will continue similar collaborations to expand the nonmetallic operating envelop and boost deployment in more oil and gas applications."

deployment opportunities

Realizing the numerous benefits of the s-RTP pipe, CSD, in collaboration with the Production and Facility Development Department, the Onshore Maintain Potential Projects Department, Southern Area Oil Operations, and Northern Area Oil Operations, worked together to increase s-RTP deployment.

Recently, a total length of 260 kilometers of s-RTP pipe was selected for various water system applications. With the increase in the demand for s-RTP products, extensive efforts are being exerted to entice manufacturers to localize the manufacturing of s-RTP in-Kingdom through In-Kingdom Total Value Add program..

Saudi Aramco Aviation launches onboard internet service



The Saudi Aramco Aviation Department has introduced Sky-Fi internet service onboard its Boeing 737-800 fleet. The new service will enhance productivity and the onboard experience of customers through

the use of KA-band satellite connectivity.

The new service features download speeds of up to 16 megabytes (MB) per second (Mbps).

On routes where the service is available, business customers will have unlimited internet access, contingent on their specif-

ic plans. Nonbusiness customers will have access to 10 MB of data at no cost.

In addition to free services, nonbusiness customers will have the option to subscribe to one of three data packages, including:

- \$4.49 for 20 MB
- \$9.49 for 50 MB
- \$14.49 for 100 MB



driving center celebrates first anniversary with more than 2,100 grads

by Jim Cook

Dhahran — For Nour O. Baqader, getting behind the wheel has been a life changer.

"I am free to go anywhere anytime without constraints," she said. "I can plan my day better and I can have a better life, free of dealing with the hustle and bustle of getting a driver. I am the queen of my own decisions now."

Baqader is one of the more than 2,100 women who have graduated from the Saudi Aramco Driving Center (SADC) in its first year of operation. SADC was opened in response to a recent change in Saudi law allowing women to drive — a major milestone in the Kingdom's development and an important part of the Vision 2030 plan for economic development.

exemplars of safe driving

SADC currently offers driving training to female employees and dependents. The training offered at the center is among the best in the world and uses curriculum developed based on international best practices in driving instruction. Women trained at the driving center aren't just good drivers. They're also exemplars of safe driving for the rest of the Kingdom.

"We have set up a driving training center for females that is a role model, not only for the Kingdom, but for the rest of the world," said Faisal A. Al-Hajji, Training and Development general manager. "The quality of both our instructors and graduates is among the best in the Kingdom."

Baqader, who works as a petroleum scientist, said having the opportunity to drive has greatly improved her life and her ability to contribute to Saudi Aramco.

"As a Saudi female who is working for Saudi Aramco from 7 a.m. to 4 p.m., commuting every day to work is a must," she said. "I do not have my own driver. Before I got my license, I had to deal with local drivers every day, which cost me a lot. Plus, outside work hours, when I wanted to visit shopping centers, the gym, or visit friends, I had to think about my transportation method again."

Many women who have gone through SADC and obtained driving licenses have stories of empowerment similar to Baqader's.

'a dream come true'

Reem A. Saad, a planning and programs analyst, said the training she received at SADC helped her obtain her driving li-

cense, which has vastly improved her ability to coordinate family and work schedules.

"As a mother, to have your kids in the car and be able to take them somewhere is like a dream come true," she said. "You don't have to wait for anyone, anymore."

SADC's beginner program is divided into two sections — theory and practical training. In the theory portion, students spend about four hours per day over three days learning the rules of the road. An online test is given at the end of the theory portion of the program. In the practical training portion, students receive about 18 to 20 hours of supervised driving training over several days. This training is followed by a mock test and then a final road test.

Much of the training involves getting students acclimated to being behind the wheel and increasing their confidence and skill.

"I would say the biggest challenges are breaking the fear of being behind the wheel — especially for the beginners with no experience — and driving along the road with other vehicles and trucks, knowing that any mistake can cost you or the others their lives," said Lamah F. Khayyal, head of SADC. "I also hear that parallel parking is always a challenge for our trainees."

Saad was impressed with the training she received at SADC.

"It was amazing," she said. "The scheduling, the flexibility — all of it was beyond my expectations."

Khayyal said the program is constantly being reviewed and modified to ensure it meets the needs of its customers, maintains high safety standards, and adheres to Saudi traffic rules and international standards.

tangible benefits to the company

SADC offers clear, tangible benefits to the company. Because female employees can now drive themselves to work, punctuality and absenteeism related to transportation issues should improve, Khayyal said. At present, non-driving female employees need to arrange transport when their presence is required elsewhere in the company. Khayyal stated that such logistical challenges will be alleviated as more women get behind the wheel.

"Aside from the obvious benefits, such as allowing females to get to work and



Two Saudi Aramco Driving Center (SADC) instructors demonstrate a driving simulator used at the SADC in Dhahran. The center, which is marking its first year in operation, is on track to produce 6,000 qualified drivers per year. So far, more than 2,100 women have graduated from the center.

meetings on their own, I truly believe that driving teaches tolerance, respect for rules, and patience," Khayyal said. "It shifts one's perspective and makes you more aware, vigilant, and understanding. Hopefully our female drivers will have a positive influence on other drivers on the road."

SADC also provides excellent employment opportunities to Saudis, particularly Saudi women. About 75 to 80 people work at SADC, including driving instructors, examiners, senior assessors, and support staff.

SADC is currently on track to produce 6,000 qualified drivers per year, but the center isn't resting on its laurels. Plans are being discussed to open a new driving range at the center to offer intermediate driving skills training. The company is also involved with plans to open another driving center at al-Hasa that will be open to the public.

"Saudi Aramco is always working to promote a positive work environment and implement employee engagement strategies to make employees feel that they belong, and are appreciated for their contributions," Baqader said. "For female employees, SADC is one of these wonderful examples."



“Saudi Aramco is always working to promote a positive work environment and implement employee engagement strategies to make employees feel that they belong and are appreciated for their contributions. For female employees, SADC is one of these wonderful examples.”

— Nour O. Baqader



green matters

safeguarding the air that we breathe

“

Saudi Aramco will strive to conserve natural resources and minimize emissions and the environmental footprint of its activities through continuous optimization of company operations, and leveraging technology advancements and industry best practices.

“green matters” is a regular column offered by the Environmental Protection Department highlighting challenges and potential solutions to some of the most pressing environmental issues of the day.



In 2016, Saudi Aramco joined nine other members of the Oil and Gas Climate Initiative in announcing a collective \$1 billion investment over the coming decade to develop and accelerate the commercial deployment of innovative, low emissions technologies. Here, Saudi Aramco president and CEO signs the Climate Investments initiative. Over the years, the company has dedicated significant resources to ensuring clean air and environmental protection through a wide variety of measures.

by Abdulaziz J. Ansari

Breathe in the air with confidence. It may be a little dusty, but rest assured, Saudi Aramco is doing everything possible to safeguard it from pollution. In fact, reducing emissions and our overall environmental footprint has been a high priority for decades now.

Managing its operations and projects in a manner that protects the environment and health of its employees and the public, the company allocates the necessary capital to meet environmental and health standards.

This is especially true for addressing air pollution, which is the theme for World Environment Day 2019. According to the U.N. World Environmental Day organizing body, 7 million premature deaths are caused by air pollution each year.

Fortunately for the Kingdom, Saudi Aramco's work to prevent air pollution occurs across its many areas of operation and takes place through many different programs.

reducing flaring

One example, flaring, occurs when the need arises to control waste gas safely by burning it. Sometimes, flaring results in some emissions. However, Saudi Aramco has one of the lowest flaring rates globally compared to other international oil companies.

Saudi Aramco's Flaring Minimization Program comprises three main elements:

- Spearheaded in the mid-1970s, the Master Gas System has enabled recovery

of 4 billion standard cubic feet per day of gas associated with oil, which is equivalent to about 95% of total flaring. It also reduced CO₂ emissions by 98.4 million tons per annum.

- Saudi Aramco rolled out its Corporate Flaring Minimization Road Map in 1986, followed by an in-house Corporate Flaring Monitoring System program that allows for real-time monitoring of all company flaring events. Saudi Aramco also mandated each facility to identify and implement mitigation measures to minimize routine flaring. As a result, Saudi Aramco has managed to keep its flaring well below 1% of processed gas.

- Today, Saudi Aramco minimizes flaring via substantial investments made in the Near Zero Flaring technologies and installations of flare gas recovery systems at some of its existing plants.

good for the environment and the economy

These activities also add value to the Kingdom's economy. Reduced flaring means more gases are stored and used in industries such as petrochemicals, desalination plants, etc., to provide new products for global markets, thereby pumping revenue back into Saudi Arabia's coffers via sales of new oil-based products. Also, cutting flaring and supporting new industries brings new technologies to the Kingdom, thereby creating more value-added jobs.

Saudi Aramco has also invested in energy efficient technologies and research to

minimize combustion rates and byproducts that cause air pollutants, developing cleaner fossil fuels such as gasoline and diesel for industrial and municipal uses that match the specific types of engines more efficiently.

The company also works to minimize fugitive emissions created by leaks in pipes, valves, etc., by adhering to a strict maintenance schedule at its facilities, as well as conducting site surveys. By committing to a clean energy supply, the company ensures a healthier society in general.

backing good clean air policy

Committed to reducing air pollution, the company is an active member of the Oil and Gas Climate Initiative, an international group of oil companies committed to reduce greenhouse gas emissions from operations.

Indoor air quality (IAQ) is something Saudi Aramco also takes seriously. Good IAQ in buildings is critical to maintaining a healthy indoor environment, contributing to a productive atmosphere for building occupants and giving them a sense of comfort, health, and well-being. Studies have shown that worker productivity increases significantly when air quality is adequate.

The Environmental Protection Department's (EPD) industrial hygienists have the expertise and equipment to properly evaluate indoor environments, and can provide recommendations to improve working conditions if necessary. EPD regularly conducts IAQ assessments to prevent poor indoor air quality, mitigate problems, and maintain healthy and comfortable environments.

The company also works diligently to ensure its ambient air quality meets government standards and is adequate to safeguard employee, community, and overall environmental health guidelines. Saudi Aramco operates a network of stations that monitor five regulated air pollutants.

Saudi Aramco is doing its part to minimize air pollution. Be sure to do yours. Everyone should do his or her part by avoiding wasting water, energy, and food, so as to reduce any emissions associated with these industries, e.g., cutting back on power demand is a key step to combatting air pollution.

Power Systems, JVs come together to bolster cybersecurity

Power Systems recently conducted a one-day forum in Dhahran to increase the awareness of cybersecurity in Saudi Aramco joint ventures (JVs). The event was attended by representatives from Sadara, SASREF, AGCO, YASREF, and Petro Rabigh. In addition, Trend Micro and Palo Alto Networks firms have attended the event and enriched the discussion with their industrial exposure and global trends.

“This initiative is in line with Power Systems' continuous efforts to build resilient business relationships and support to Saudi Aramco JVs by providing quality and reliable power services,” said Abdulaziz A. Al Naim, Aramco Power Department manager.

Information security has become a more pressing concern in recent years, especially in the power industry, as it is a key national economic driver. Although utility companies are spending significantly to mitigate the risk of cyberattacks, it is difficult to say they

are countering and avoiding all cyber risks.

Saudi Aramco has already implemented cybersecurity controls and leading industry practices to minimize undesirable potential events that could impact its reputation, achievement of business goals, the reliability of operations, and employee security.

The forum originated after recent engagements with JVs and the realization of the need to share experiences, as well as the implemented cybersecurity controls to help minimize undesirable potential events that can impact the JVs — which ultimately could affect Saudi Aramco's business, economics, and reputation.

Also, a roadshow launched to visit all Saudi Aramco JVs to strengthen the relationship with them and create mutual business opportunities related to power supply and services, with Power Systems presenting information about its core service, new Power Systems capabilities, and unique tools and technologies that can be offered.





I enjoyed my time in the ROP program as it introduced me to the drilling society and offered me the chance to see how drilling is accomplished in different departments, and performed differently with the same objective of delivering wells safely and efficiently.

— **Khalid Alajmi, toolpusher**



It was a pleasure going through this program, we learned numerous practices, which will in turn help enhance our wells' execution more safely and cost-effectively in a timely manner.

— **Rashed Almutairi, assistant foreman**



Being a participant in the ROP program has enabled us to establish the understanding of Drilling and Workover core business, obtain necessary engineering skills and practices to contribute to the very important role of the organization within Saudi Aramco.

— **Adam Alawwami, drilling engineer**



When you exceed your own expectations, you know that you are working surrounded with professionals who spent their life working in harsh environments to the rise of our country. It's my pleasure to be a team player alongside the Saudi Aramco family.

— **Yaqoob Mubark, toolpusher**

Drilling and Workover celebrates 119 Rig Operations Program graduates

by Mallee Howaidi

Dhahran — Drilling and Workover (D&WO) recently held a graduation ceremony for 119 young drilling engineers and toolpusher talent from its three-year comprehensive training.

The ceremony for graduates of the Rig Operations Program (ROP) was held at the Plaza Conference Center in Dhahran, and was attended by Saudi Aramco's senior vice president of Upstream, Mohammed Y. Al Qahtani, D&WO management, as well as representatives from the Upstream Professional Development Center, and Upstream Continuing Excellence.

The ceremony included an exhibition of graduation projects under the theme "stuck pipe" — a critical operational challenge — which resulted in seven researched and delivered projects that addressed various stuck pipe challenges from technical and business opportunity perspectives. The teams spent more than five months of planning, research, and study guided by D&WO Training Division mentors and D&WO subject matter experts. The projects allowed the graduates to gain technical knowledge, learning about project planning, and to gain an understanding of business acumen.

valuable feedback

The teams presented their projects as e-posters during the event and engaged their audience in a technical dialog. D&WO managers and other guests had an opportunity to challenge these proposals and studies, and enlighten the teams with valuable feedback on the way forward.

Omar S. Al Husaini, general manager of D&WO Operations, directed the Drilling Technical Department to adopt all seven projects for further study and implementation. Other D&WO departments showed interest and support, further demonstrating D&WO's engagement as role models for motivation and investment in human capital.

More than 450 young Saudis have graduated since the launch of the program in 2006 to develop a pool of Saudi rig foremen and drilling engineers.

For both disciplines, operational, health,

safety, and environmental related tasks are embedded in a blend of classroom training, e-Learning, fieldwork, engineering assignments, and hands-on training. As part of a holistic and experiential learning approach, the program addresses top class technical development as well as leadership and soft skills aspects required for participant's future job roles.

young Saudi foremen

Al Husaini shared D&WO's vision for developing young local talent, and commended the Saudization efforts and addressed the graduates by emphasizing the importance of safety.

"In addition to the development of drilling engineers, this program came about to expedite the training and development of our young Saudi foremen in particular," said Al Husaini. "The foremen we have in the field are the result of this program. The people who were in the field before, they are all here. This is a very unique program; it will expedite your advancement to becoming a leader in the future."

He also recognized the ROP structure in focusing on hands-on experience.

"The drilling business is a very unique business, whereby it relies heavily on hands-on operational experience, requires knowing its ins and outs, mastering the drilling business, and knowing every operation that takes place, no matter how simple. I thank the D&WO Training Division for a good job and our partners in training for putting together this impressive training program, for bringing up a young generation that will definitely lead D&WO," said Al Husaini.

two winning teams

The event included technical presentations from two winning teams, selected after a thorough assessment by stuck pipe subject matter experts from D&WO. The teams were recognized for their originality of submission, impact on business, and quality of presentation.

The second place team presented on "The business implication of stuck pipe and using the managed pressure drilling tool" while the winning team presented on



Saad Algarni explains to Drilling and Workover management his team's idea during a recent ceremony recognizing 119 young drilling engineers and toolpushers recently graduated from the Rig Operations Program.

"Data analytics approach to eliminate stuck pipe."

'you will be a key player'

Chief drilling engineer Khalid A. Al-Abdulgader extended his appreciation and congratulations to the graduates. Al-Abdulgader also encouraged the graduates to assume their roles in the organization with the multiple upcoming projects that D&WO is embarking on.

"Your involvement in the execution phase of our programs is instrumental and you will be a key player, to help meet the company's commitment to the whole world in the delivery of oil and gas," said Al-Abdulgader.

He also thanked the program participants, D&WO Training Division, UPDC, and Training and Development for their participation, in addition to training partners from Rowan and Sanad for developing the people in the field.

Abdul Hameed A. Al-Rushaid, D&WO vice president, envisioned the importance of the training role in realizing national and strategic goals across the many diverse organizations of the company. The program, he said, is a result of aligning national and business needs with company goals and objectives.



This graduation project challenged us to utilize our three years of learning experience to be evaluated as a business impact. I'm proud to be part of the first place winning team awarded for best submission and presentation.

— **Mohanad Alazeb, drilling engineer**



The Rig Operation Program gave us confidence to show our strength and all I needed to raise my knowledge and start working as a drilling engineer in a three-year period.

— **Mohammed Alateq, drilling engineer**



It was my pleasure to be an OOK participant in the U.S. We had long working hours in difficult weather conditions. I was trained on different operations than what we have in Saudi Arabia. We were trained on various evacuation plans, job risk assessment plans, safety procedures, and procedures that would enhance operations.

— **Hamad Alkhaldi, assistant foreman**



In this impressive experience, I received more knowledge and skills in the form of implementation, leadership, and safety. I will convey what I learned to my colleagues as it is our responsibility to transfer the knowledge and skills we gained abroad to our working environment.

— **Abdulrahman Shehri, assistant foreman**



The ROP gave me the chance to experience every job in the offshore rigs. It changed my understanding of the hard work people are doing in the oil field, but most importantly, how we perform safely and efficiently as a team. In school I had the chance to learn the theoretical view of the drilling operations and the ROP helped me apply what I learned in real operations.

— **Ahmed Almustafa, toolpusher**

Riyadh Refinery dedicates week to benchmarking



“As we continue to promote best practices to help sustain a culture of excellence, benchmarking is equally important to gauge our excellence level, capture new opportunities, and ensure continuous improvement.”

— Husam K. Al Dulaim

Riyadh — As part of Saudi Aramco's continuous efforts to enhance Operational Excellence (OE), the Riyadh Refinery Department (RRD) recently hosted a Benchmarking and Best Practices Week.

With the theme to “Meet Corporate Subject Matter Experts, Learn, Engage, and Exchange,” the event was held with the collaboration of a number of corporate subject matter experts.

The event was conducted via the OE methodology in the benchmarking process.

More than 580 delegates and experts from 81 departments, in addition to eight local government entities, attended the event, with a total of 67 speakers representing major program owners, as well as the top performers in the company.

The conference served as a platform for sharing knowledge, exchanging expertise, and developing synergies among subject matter experts and employees to raise awareness and best practices through technical papers, activities, and discussions at all levels.

experts and opportunities

RRD manager Abdulrahman A. Al Fadhel urged participants to use the company's top performers to model best practices. “This event is an opportunity for self-learning, where we provide the experts explaining the importance of this subject from all levels,” Al Fadhel said.

The sessions were designed to provide a mix of case studies, best practices, and technology applications on major program tracking and implementation.

benchmarking: a structured approach

Husam K. Al Dulaim, head of the Corporate



Karl Parker from Operational Excellence is one of 67 subject matter experts and top performers that presented over the weeklong Benchmarking and Best Practices Week recently in Riyadh. The conference served as a platform for sharing knowledge, exchanging expertise, and developing synergies among subject matter experts and employees.

Center OE Support Division, spoke on the OE program, governance, assessment, and implementation phases, highlighting that OE is not a destination but rather a journey.

“As we continue to promote best practices to help sustain a culture of excellence, benchmarking is equally important to gauge our excellence level, capture new opportunities, and ensure continuous improvement,” Al Dulaim said. He shared plans for the company's benchmarking programs, which will utilize a Corporate Benchmark Dashboard to host the most recent benchmark data companywide.

presentations and progress

The conference featured presentations on OE and other major programs, including implementation, risk management, business continuity management, management of change, safety management, process safety, energy, knowledge transfer, total plant reliability, turnaround and inspection, data protection, asset integrity management, knowledge management, communication of policies, and innovation.

The sessions were distributed in three tracks for the week, where every track started with a keynote speaker from the supporting organization, followed by the top performers in the company sharing their best practices and initiatives to implement the program.

A total of 67 presenters featuring subject matter experts and top performers engaged and exchanged ideas and best practices during the program.

Keynote speakers included Ashraf Mohammad from Consulting Services; Nawaf Alfouzan from Engineering Knowledge and Research; Karl Parker and Majeed A. Saleh from OE; Mater Mutairy, Gerado Abaide, and Ali Albulayhi from Loss Prevention; Abdullah Abdullah from the Technology Management Division; Nezar Aofi from OSPAS; Muhammad Abbas from Process and Control Systems; Matthew Horton from Learning Solutions Systems; Michel Beneddine from Downstream's Planning and Performance Management; Hamzaali Khandwala and Rafiq Ayman from Corporate Maintenance Services; and Wael Atraji from Information Protection.

Following the keynote speakers, 52 of the top performers from 45 departments shared their best practices.

fighting traffic dangers with awareness in Safaniyah

Some 400 employees from various organizations in Tanajib, Manifa, Khursaniyah and the Industrial Training Center listen intently to a presentation on traffic safety during a recent campaign conducted by the Safaniyah Onshore Producing Department. Presentations focused on topics such as the importance of seat belts, obeying traffic signs and rules, staying well rested as a driver, and the hazards of using mobile phones while driving.



In collaboration with the Traffic Safety Signature Program (TSSP) and Safaniyah Area Producing, the Safaniyah Onshore Producing Department recently sponsored a traffic safety awareness campaign.

Held over two sessions in one day, the campaign was conducted by a pair of distinguished speakers from TSSP who shared informative statistics about traffic safety through the showing of a documentary

film, a safety presentation, and an overview of traffic safety rules and regulations.

The campaign was inaugurated by Faisal I. Al Dhabaiban, manager of the Northern Area Technical Support Department, who emphasized the importance of traffic safety. He reflected on the alarming accident statistics and the unfortunate number of deaths every day in the Kingdom.

Raising community awareness about this problem, Al Dhabaiban said, is of paramount importance and would represent a major step toward reducing the tragic number of road deaths due to avoidable road accidents.

The sessions were attended by approximately 400 employees from multiple organizations in Tanajib, Manifa, Khursaniyah, and the Industrial Training Center.

The program consisted of presentations that showed the audience demonstrations of what could happen in various scenarios when people are not committed to fastening their seat belts, focused on driving, and obeying traffic signs and rules.

Al Dhabaiban also emphasized the importance of having adequate rest during

shifts and avoiding driving after long working hours.

Another key focus on the campaign was to educate the participants about the hazards of using mobile phones while driving — a major cause of traffic accidents.

help keep the trend going

According to a report from the Saudi Ministry of the Interior, the number of traffic deaths decreased from 7,000 in 2017 to 6,025 in 2018, with traffic-related injuries down almost 10% to approximately 30,000 in 2018.

The Kingdom has one of the highest rates of road deaths in the world, with some 26 people dying for every 100,000. However, continued efforts are seen as the answer to promoting highway safety and a continued reduction in the number of traffic fatalities and injuries.

In concordance with Saudi Vision 2030, the Ministry of the Interior has set a target to reduce road-related fatalities to eight per 100,000.



training barge jack masters in the Arabian Gulf

first ever certified program puts Safaniyah Offshore's Operational focus into global spotlight

by Faisal Hijazi

The Safaniyah Offshore Producing Department (SOFPD) owns and operates Saudi Aramco repair barges ARB-1 and ARB-3 for carrying out offshore platform maintenance services and other critical activities in the world's largest offshore oil field.

Both are self-elevating, non-self propelled jack-up units. ARB-1 is hydraulically powered, and ARB-3 is electrically powered.

Around the world, a barge's jacking operation has proven to be one of the most challenging activities onboard the vessel due to the high risk involved, especially when confronted with the harsh environment often seen in the Kingdom's waters.

A shutdown can cascade into costly delays.

Moreover, these barges are often confronted with harsh environmental conditions during the execution of offshore activities, and their safe operation is a challenging task. A shutdown of any of these barges could cascade into subsequent delays in the maintenance of offshore production facilities.

"Jack-up barges are prone to failure if not operated according to the manuals or if they are not maintained to meet the inspection requirements," said Abdullah S. Al-Qahtani, SOFPD manager. "The ability to understand the complex chain of events that may lead to a major accident is essential for mitigating risk."

the jack master

A barge's jack master is the person responsible for carrying out this critical operation every time the vessel moves to and from an offshore location. SOFPD's barge jack masters have been learning and practicing jacking operations for several years while carrying out the routine operations associated with the barges.

Their skill sets are unique and require specific training and knowledge that evolves during the use of the jacking system, understanding the maintenance condition and op-



Omar Al-Joaid, ARB-3 Barge foreman and jack master, calls the shots from the bridge. Skilled jack masters can be difficult to find, as it is one of the most challenging activities onboard a vessel due to the high risks involved.

erational readiness of the barges and planning needed repairs and overhauls.

the need for training

Given the important role barge jack masters play, SOFPD realized the urgent need to arrange for formal training for them.

Historically, jack masters haven't had any prequalification requirements and were trained as part of the in-house succession programs. The Safaniyah Offshore Maintenance Services Division (SOFPD) undertook the challenge of designing and developing a customized jack master training program for each of its barges — each being tailored to the technical specifications of the barges.

Developed by SOFPD's Maintenance Engineering Support Unit, this in-depth program was designed with a strong focus on safety, optimization, and improved communication onboard the barge for safe and sustainable operation.

a best-in-class example

After the program's conceptualization and development, SOFPD worked to make this a best-in-class example of successful collabo-

ration between the oil and gas and maritime industries. It was decided that the course would be delivered by the world's leading authorities on jacking system commissioning — a course for the jack masters, by the jack masters, and delivered onboard the barges.

SOFPD zeroed in on jacking system subject matter experts from Det Nor Veritas-Germanischer Lloyds (DNV-GL) in Germany to deliver the course onboard the barges.

The program's main objective was to develop the competence of SOFPD's jack masters onboard the barges and prepare them for various operational eventualities that would eventually result in a safer jacking operation. It also looked to identify young aspiring barge jack masters who could potentially become lead jack masters in the near future.

"We noted that improved barge inspection and maintenance is not realized on documents alone," said Al-Qahtani, who sponsored the training course. "We need to spread understanding and awareness by engaging our barge jack masters in experience and exchange this with the world's leading subject matter experts."

This training program helps qualify jack masters who will be able to undertake a jacking operation with in-depth knowledge of design, basic barge engineering, risk handling, operational checks, maintenance, and critical safety elements of the barge. It also gives a platform for employees to engage in improved communications onboard, feel motivated, improve workplace relationships, and bring their strengths to focus in operations.

standard training modules

Standard training modules were developed to address the normally expected job responsibilities related to the work of a jack master.

The program consists of the following course modules:

1. Basic barge design and engineering
2. ARB-1 and ARB-3 barge jacking system
3. Jacking operations and rig moving
4. Site specific assessment, leg penetration, and extractions
5. Safety-critical components and barge leg structure
6. Basic practical training onboard the barge

The training is followed by a two-hour examination, with certification awarded to successful candidates. But the program doesn't end there. The jack masters are required to undergo an annual refresher course throughout their career to maintain their certification.

With this, SOFPD is looking to operate its maintenance barges with zero downtime without compromising on health, safety, and the environment.

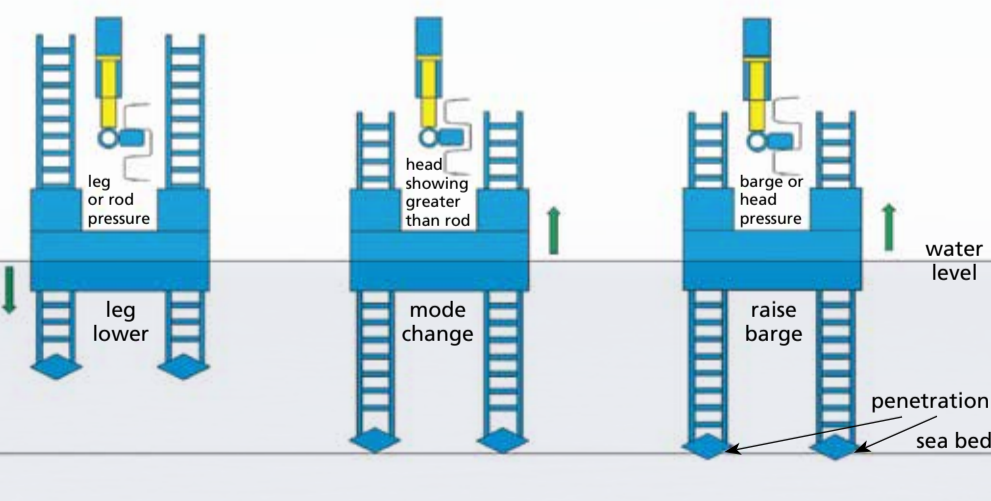
"The training imparted to the jack masters offers a platform for sharing conceptual understanding of jacking systems and provides a learning opportunity in a systematic manner," said Saif S. Al-Zuabi, acting division head of SOFPD. "Opting for this training was a very conscious decision, it was not a matter of chance, but about making the right choice."

“Safety is the key to operational success. At Safaniyah Offshore, we strive to be the best-in-class when it comes to providing professional training and development. Barge jacking is a safety-critical operation, and the inauguration of this unique professional certification program is proof of our commitment.

— Abdullah S. Al-Qahtani, SOFPD manager



ARB-1 Barge Jacking System



A graphical representation of barge ARB-1 jacking operations.

The Safaniyah Offshore Producing Department owns and operates Saudi Aramco repair barges ARB-1 and ARB-3 for carrying out offshore platform maintenance services and other critical activities in the world's largest offshore oil field.



Some of the 37 professionals recently recognized for their critical Fourth Industrial Revolution contributions pose for a photo with Petroleum Applications Services Department management at a ceremony held for them at the Technical Exchange Center. The program covered six key areas, including Improvement and Excellence, Development, Citizenship, IR 4.0, Safety, and Collaboration.

Petroleum Applications Services steps up with IR 4.0 solutions

by Amell A. Al-Ghamdi

Dhahran — As part of acknowledging individual and team behaviors in supporting the organization, Saudi Aramco’s Petroleum Applications Services Department (PEASD) recently celebrated 37 professionals during a recent recognition ceremony at the Technical Exchange Center in Dhahran.

“I want to thank you all for your incredibly hard work last year,” PEASD manager Abdallah H. Eidi told attendees. “I am

proud of the determination to succeed that all of you have shown. You delivered results across the spectrum of our customer base that had a meaningful impact for our company business.”

a year of achievements

It was a year of achievements in line with EXPEC Computer Center’s Fourth Industrial Revolution (IR 4.0) initiatives.

PEASD successfully deployed the Saudi

Arabic Intelligent Rig Optimizer on all live rig operations. The new smart machine learning engine was developed in-house to classify rig operations using surface-sensor readings to enhance drilling efficiency.

In the area of citizenship, two PEASD employees were awarded first and second place in EXPEC ARC’s 2018 Upstream Hackathon. Another PEASD employee earned second place in the Wa’ed Hackathon that was held in Dhahran, and further partici-

pated as a contestant in the Hajj Hackathon.

The PEASD recognition program for 2019 covers six key areas: Improvement and Excellence, Development, Citizenship, IR 4.0, Safety, and Collaboration.

The recognition was extended to also include the department support team of Lisa Rippin, Majd Olaqi, and Ali Bakri.

Eidi congratulated all of the awardees for their achievements.

Award Winners				
Improvement and Excellence Ali Taiban, Mazen Nofal, Sualeh Hasan, Ali Wuhaimeed, and Alwaleed Alharbi	Development Santiago Ganis, Basel Mustafa, Khaled Nasser, and Bader Otaibi	Citizenship Firas Abussaud	IR 4.0 Razen Harbi, Muhammad Readean, and Majed Zahrani	Safety Seba Maghlouth, Razan Boodi, Hessa Alqahtani, Eman Barqi, Reem Ibrahim, Ridwan Jalali, Hussam Gharawi, Khalid Albuaian, and Khaled Hammad
Collaboration: The awardees in the area of collaboration are:				
Field Development Team — (Menhal Ismael, Keyang Dai, and Fouad Abouheit). The team successfully completed the project of an integrated well planning platform for field development activities, which consist of sweet-spot identification and automated well placement.	Special Studies Team — (Hassan Hussain, Obi Isichei, and Bayan Momtan). The Special Studies Team has been granted a patent to estimate the productivity index in multilateral completions with a successful implementation for the novel method that resulted an actual oil gain, water reduction, and cost savings.	WASL-X Team — (Mohammad Buraik, Ghassan Zahdan, and Salim Rihabe). The team successfully completed a platform that is built on a solid foundation to support all well log data types. The streamlining of the process improved the productivity of publishing, and within a couple of weeks of production usage, the backlog was reduced by 50%.	DrillEye Planning Team — (Abdullah Ali, Mohammad Rabiah, Khaled Alterish, and Haroon Idrees). The DrillEye team extended the platform to include more business processes and impact more users. The team successfully completed a set of new modules to streamline the whole process.	

partners hit the mark in meeting Saudization efforts

“I’m extremely glad to witness the focus on capitalizing on the local Saudi manpower.”

— Abdulkhkim A. Al Gouhi

Abdulkhkim A. Al Gouhi and other members of management recognize the efforts of its contractor partners and their continuous efforts to meet Saudization performance marks set forth by the Transportation and Equipment Services Department. (Photo: Yara Ziyad/MPD)



Dhahran — Saudi Aramco’s Transportation and Equipment Services Department (T&ESD) recently conducted an award ceremony in Dhahran to recognize the efforts of its business partners with regard to enhancing local content in service contracts by increasing manpower Saudization.

The T&ESD Contractor Saudization Task Force, established last year, successfully increased the department Saudization performance during 2018. This was done by facilitating the hiring of more than 480 Saudi contractor male and female employees from throughout the Kingdom, by conducting hiring workshop campaigns — starting from the Eastern Province all the way to Jazan.

Through the workshop campaigns, T&ESD drove its Saudization percentage to more than 40% compared to 32% in 2017. T&ESD administers more than 5,500 con-

tractor employees, which puts the department in the upper echelons of the Saudi Aramco corporate scale.

The award ceremony was attended by the Industrial Services vice president Abdulkhkim A. Al Gouhi, and T&ESD manager Sultan N. Al Ghadery, along with the Industrial Services managers, business partner owners and CEOs, as well as their management teams.

developing Saudi careers

Each of the business partners exceeded the mandated Saudization percentage set by their contract terms and conditions. In addition, multiple contractors went the extra mile to develop Saudi career ladders, professional training programs, and employee reward and recognition programs to provide a better work environment to their Saudi workforce.

The awarded companies were Abdulla NASS & Partners Co., Abdullah H. Al Shuwayer Sons Company, Al-Habbas Trading, Transport and Contracting Company, Al Jazirah Vehicles Agencies Co., Al Khaldi Holding Company, EARADAT Transport Co., Saad Al-Essa Trading and Contracting, Sons of Sulaiman Hamad Al Saif Co., Universal Motors Agencies Co., and Yusuf Bin Ahmed Kanoo Company.

Al Gouhi said that Industrial Services not only wants to meet the short-term Saudization manpower target of 50% by the end of 2019, but also exceed it.

female bus attendants

Al Ghadery pointed out that T&ESD has recently hired female school bus attendants, in coordination with local charity groups.

This function in Saudi Aramco bus operations used to be performed by around 60

expatriate females at Ras Tanura, Dhahran, Abqaiq, and ‘Udhailiyah, and is now being filled by Saudi females.

launch of Saudization steering committee

T&ESD Contractor Saudization Taskforce champion Abdulrahman Z. Arfaj expressed his appreciation to the business partners.

“I stand here on behalf of the hired Saudi dependents, wives, and families, to extend their appreciation and simply say thank you for putting the smiles on their faces, and joy and hope to their lives,” said Arfaj.

Arfaj also announced the establishment of a Saudization steering committee — including all business partners — to ensure that Saudi Aramco’s iktva program mandate is met, while complying with the Local Workforce Development Department’s key performance indicators at the same time.

one in five diabetic Saudis at risk of blindness

JHAH combines comprehensive care, case managers, and technology to protect their vision

Dhahran — It is estimated that 20% of Saudis living with diabetes are at risk of developing diabetic retinopathy (sdea.org.sa), also known as diabetic eye, which affects both Type 1 and Type 2 diabetes patients and can lead to blindness.

“Diabetic retinopathy is a condition in which the retina is damaged due to diabetes mellitus,” said Dr. Ramiz Al Hindi, Johns Hopkins Aramco Healthcare (JHAH) consultant ophthalmologist and Ophthalmology Clinic physician manager.

Diabetic retinopathy is due to structural changes in the blood supply to the retina, which receives the light coming into the eye. As a result, the blood supply can become weak and/or leak important elements.

Diabetic retinopathy can also cause the blood vessels to narrow. This causes changes in the cells of the retina that cause new vessel formation and can cause bleeding inside the eye, called vitreous hemorrhaging.

prevention and intervention

Careful management of diabetes is the best way to prevent diabetic retinopathy. Fortunately, JHAH Primary Care is one of the highest performing health care providers in the Kingdom for diabetes management.

The Multidisciplinary Care Team model means that doctors, nurses, case managers, practice coordinators, and schedulers work together as a team to support continuity of care. JHAH Primary Care connects people living with diabetes with diabetic educators, nurse-led clinics, and wellness programs to help them achieve their health goals.

Blood sugar tests indicate that more than 80% of JHAH patients manage their diabetes. This is better than general diabetes control in the U.S., where 52% control their diabetes. It is also significantly higher than the regional average (Carls et al., *Diabetes Therapy*, 2017).

starting early

“We have been doing the Pediatric Diabetes Fun Day for nearly 20 years now,” said Ahlam Sarhan, Nursing supervisor with diabetic educators and case managers, speaking of the popular annual event that brings together diabetic children, their families, and caregivers.

The event includes motivational speeches from high achievers who have not let diabetes stand in their way, and prizes are given to recognize those children who have managed their blood sugar.

“It is clear the Fun Day provides moti-



Photographic screening is one of the ways JHAH addresses the risk of diabetic retinopathy. This technology enables the identification of potential cases of diabetic retinopathy before symptoms appear.

vation and gives them the opportunity to meet other kids with diabetes. We’ve also noticed that families used to be reluctant to talk about their child’s diabetes. Now we see families sharing information and phone numbers,” said Sarhan.

The positive reinforcement and support plays a key role in successful outcomes and empowering families to share strategies to help each other overcome the day-to-day challenges of life with diabetes.

symptoms

In the early stages of diabetic retinopathy,

a person may have no symptoms. As the disease progresses, they may notice the following:

- Spots or strings floating in your vision (floaters)
- Blurred vision
- Vision changes
- Impaired color vision
- Dark or empty areas in your vision
- Sudden loss of vision.

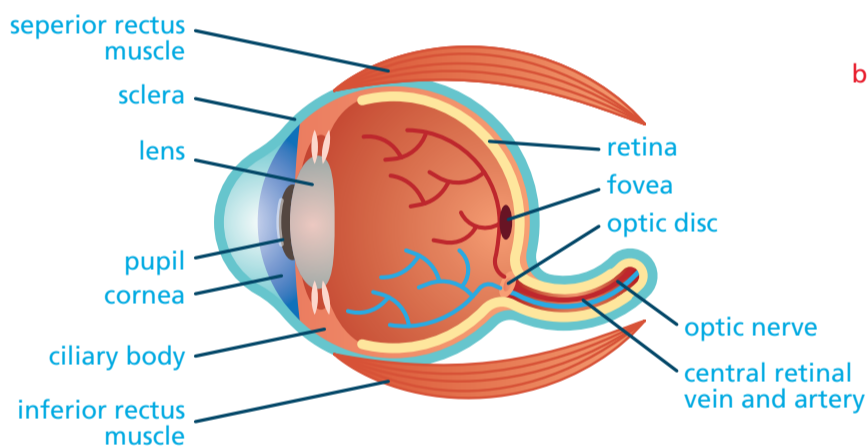
when should you see your doctor?

If your vision changes suddenly, contact your doctor.

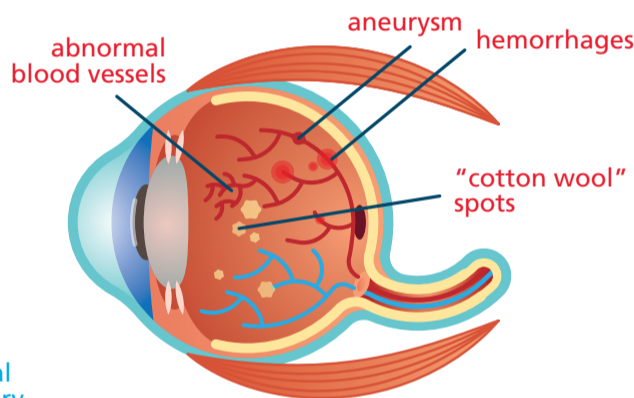
If you are a diabetic, JHAH recommends that you have your eyes checked at least once a year. As in most diseases, early detection is a key to the quality of life. Pregnancy may worsen diabetic retinopathy. If you are pregnant and have diabetes, talk to your doctor who may prescribe more frequent examinations.

JHAH Ophthalmology Services

The JHAH Eye Clinic provides all of the services you need to care for your eyes, from annual eye examinations to advanced laser treatments and surgery. Learn more at <https://www.jhah.com/en/care-services/specialty-care/ophthalmology>.



healthy eye



diabetic eye

Saudi Aramco women excel at Dubai’s government games

Dubai — Patriotism served as a major motivator for a Saudi women’s team participating in the second round of the Government Games in Dubai.

A group of female Saudi Aramco employees who picked up various sporting activities to de-stress after work experienced a surge of patriotic feelings after being sent to participate as one team representing the government of Saudi Arabia in an official capacity.

Lujain Kashgari, a business system analyst with Saudi Aramco, served as team captain. Kashgari expressed her deepest gratitude to the support the team had from the General Authority for Sports, Mass Participation Federation, and Saudi Aramco’s various departments for empowering female employees in sports.

a test of teamwork, skill, and more

The competition was a real assessment of teamwork, physical expertise, speed, mental dexterity, problem solving skills, and sharpness in conquering different obstacle courses.

There were nine stumbling obstacles for both male and female teams. Each hurdle

had to be completed within 10 minutes and athletes were given an eight-minute break before dealing with the next obstacle.

“I was the base when we had to build a human ladder to reach a top stage. Before I realized it, I was physically carrying three of my teammates over my shoulder, which was excruciating,” said Lujain Alghannam, a geophysicist with the company’s Emerging Unconventional Assets Department who is also a crossfit instructor. “At that moment, I didn’t think it through. All I knew is we had a goal and we had to reach it.”

a strong showing

A total of 106 men’s teams and 62 women’s teams competed, which included the first-ever Saudi female team. The Saudi female team ranked 18th overall, and second across international teams after a team from Thailand.

Hala Alwagdani, a runner who is a geologist with the Eastern Area Exploration Department, said that “the differentiation between geoscientists and engineers, conventional explorationist versus unconventional, was all discarded, and all we thought about was getting to the end point together.”



Members of a team composed of Saudi Aramco employees recently competed in the 2019 Government Games in Dubai. The Saudi female team ranked 18th overall, and second across international teams after a team from Thailand.

and in 2020 ...

The 2020 Government Games will be expanded to include global city teams to engage global communities to participate and be an example of teamwork, fitness, and tolerance. The Games are organized by the Executive Council of Dubai in partnership with the Dubai Sports Council, with the message “One Team, One Spirit.”

festival gets kids off electronics and into art

The inaugural Art Festival for Kids featured creative endeavors in six different categories of art, which were set up for children to explore, including fused and stained glass, mosaic, acrylic painting on canvas, clay hand building, wheel throwing, and crafts. (Photos: Ching Yeh)

“

We tried very hard to organize each station for children to enjoy. It was a chance for kids to steer away from their iPads and other electronic devices.

— Eman Al Moghrabi



by Ching Yeh

Dhahran — Children were giving their full attention and concentration, but it wasn't on an iPad or for video games. Instead, it was artwork that they were creating at this year's first Art Festival for Kids in Dhahran.

Nearly 7,000 children and adults recently gathered at King's Park for a festival organized by the Central Community Services Department (CCSD) and the Dhahran Art Group (DAG). More than 1,500 individual art supplies were prepared for children to paint, draw, glue, build, and just have fun in creating their art pieces.

all kinds of mediums

Six categories of arts were set up for children to explore, including fused and stained glass, mosaic, acrylic painting on canvas, clay hand building, wheel throwing, and crafts.

"The purpose of the activity is to provide resources for children to explore and develop passion for art," said Meshal S. Al

Khalidi, manager of CCSD. "Community Services is committed to bringing cultural and entertainment events catered to families into the community. We want to serve the residents and employees here the same way businesses serve their customers."

a strong response to the arts

Community Services was very happy with the turnout.

"I am very excited to see the crowd," said Ali Al-Qahtani, acting supervisor of the Dhahran Recreation Unit. "This is what I had envisioned."

Al-Qahtani noted that with such an excellent turnout, it might be possible to make the event even more frequent than an annual festival.

Eman Al Moghrabi, an organizer from DAG, noted the success was a good reward for the amount of time and effort put into decorating the park with flags and banners designed by artists from the self-directed group.

an alternative to electronics

"We tried very hard to organize each station for children to enjoy. It was a chance for kids to steer away from their iPads and other electronic devices," said Al Moghrabi.

The young participants and their parents agreed.

"This is the best festival for children in Saudi Aramco. All the kids have the opportunities to create their artwork and they get to take home their creation after they finish," said Rawiah Al Hamad, mother of 11-year-old, Badar, who created an abstract art on canvas.

"I like to express myself through different shapes and colors," said Badar.

Aishlin Johanna, 10, spent more than three hours at the festival where she made mosaic art, painted acrylic on canvas, and experienced throwing clay on a potter's wheel. "I learned to put the thumbs in the center of the clay and use other fingers to shape the bowl to make it bigger and wider," said Aishlin, a do-it-yourself craft enthusiast.

The festival also served as an outdoor gallery and bazaar for artists and shoppers.

a showcase for local art

Dozens of Saudi artists were invited to showcase their skills with a paint brush and then offered their art for sale.

"I was extremely impressed with the skill level of our local artists, and I look forward to having more of these engagements for our community," said Halah Albetairi, head of the Recreation Division.

Shoppers could also browse the art bazaar area where vendors sold handcrafts, calligraphy, mosaic, jewelry, bags, soap, carpets, and clothes, while food trucks served dinner, snacks, and drinks at the park.

Young children who were too little to participate in art creation were able to enjoy the playground facilities and inflatable games.

Dhahran Chess Club finds a new home



Adults and children alike have been taking advantage of the Dhahran Chess Club's new location at 4165 Lilac Avenue. Classes and weekly tournaments have been a steady staple for members of the self-directed group, with more than 50 students of various ages taking part.



Dhahran — It has been a momentous time for members of the Dhahran Chess Club (DCC).

As a result of the active participation of various community members and families in Dhahran, Saudi Aramco's Recreation Department has accommodated a need for a new space by providing DCC with its own permanent location.

Chess classes and weekly tournaments have been offered year-round in recent months, with more than 50 students of

various ages attending classes and attending formal tournaments, as well as informal chess games every Tuesday night. Regular chess games are held on Tuesdays between 4:30 and 6:15 p.m.

Anyone interested in joining the club can register by visiting DCC's new location at 4165 Lilac Ave.

Young children ranging from three years old to teenagers who are eager to learn have been able to attend three months of beginner chess lessons, wherein they learned the

process of writing chess notations, symbols, and strategies for basic playing.

Each class includes homework for the week.

In addition to classes, weekly tournaments are coordinated for kids interested in playing competitively. The tournaments are segmented between beginners and intermediate level competitors to ensure relative skills are aligned and all participants remain encouraged. Medals are awarded to all players, and trophies are given to the top finishers.

Women also have a lot of fun in their own division. Ladies only classes are held during weekday mornings at times when children are at school.

The new DCC location has enabled another bonus, as the club recently hosted an all-Dhahran invitational tournament for adults, another just for children, and another for all members of the family just last month.

The DCC is one of Saudi Aramco's self-directed groups open to all Dhahran grade code 11+ employees and dependents. The club has a growing membership of individuals and families who share a passion for learning, problem solving, strategizing, and fun chess games.

For more details about membership, please email faramak.almassi@aramco.com. For chess classes, contact Rowena Rahman at rowena_rahman@yahoo.com.

making CEOs at Ithra Summer Camp

young students flex their entrepreneurial muscles



Work and play are not exclusive as young boys and girls get an opportunity to walk in their parent's footsteps and learn how to be their own entrepreneur. Open to boys and girls between the ages of 7 and 15, the Junior CEO Camp participants develop a business plan and meet with real-life entrepreneurs to gain insight on how to better plan their own business endeavors.

The Junior CEO Camp portion of the Ithra Summer Camp program gives youngsters an opportunity to learn what it is like to be an entrepreneur and the CEO of their own company. During the first five days at camp, the young students learn and prepare their own business plan in groups.

Dhahran — This summer, the King Abdulaziz Center for World Culture (Ithra) gives children the opportunity to become their own CEO as part of the Ithra Summer Camp.

The Junior CEO Camp introduces the concept of entrepreneurship to youngsters and is catered to participants of various age groups, including 7-9 years, 10-12 years, and 13-15 years. Each section is designed to be relevant to the age group by using appropriate games, challenges, and activities.

'I want to be like my dad!'

After a week in Junior CEO Camp, Fahda

Al-Mahawas, one of the participants, said: "I wanted to join this camp because I want to become a CEO when I grow older, just like my dad! I want to have my own company. I want to have goals."

She added: "I do not want to be lost when I grow up. I want to have my plan ready to work at my own company and not work for someone else."

During the first five days at camp, the young students learn and prepare their own business plan in groups.

For Fahda, that means going into business with people she likes. "My friends Maryam and Lama Al-Majrashi, Hadanya Al-Subai,

Rahaf Al-Ghamdi, and I will open our own coffee shop, and I will be the manager," she said. "We already planned it together."

Another participant, Sultan Al-Kaabi said he wanted to open an animal company with his brother Abdulaziz and friends "because we all love animals, and we want to help them."

"At first, my parents told me to join this camp," he added. "But now I am happy I am here, because I am learning a lot."

meeting real-life entrepreneurs

After the young students finish their business plan, they will meet with an en-

trepreneur, who will give them advice on how to improve their plan. And once they make the adjustments needed, the young students will pitch their ideas in front of an audience.

"I am excited to pitch my idea in front of my parents and everyone else," Sultan said. "I want to show everyone what I learned."

By providing training programs, Ithra prepares the youngsters for a bright future. Junior CEO Camp will be offered to different age groups on July 1 and 17. To enroll, go to www.ithra.com/summer. Ithra membership holders receive a 20% discount.

“ I wanted to join this camp because I want to become a CEO when I grow older, just like my dad! I want to have my own company. I want to have goals.

— Fahda Al-Mahawas



Hitting the beach? Make sure to be safe

For you and your family's safety during the summer, please follow the below Water Rules and Safety Information when using the new Saudi Aramco Beach facilities.



Only use beach equipment in the **presence of a lifeguard**



Apply sun screen (waterproof with a minimum Sun Protection Factor of 30) throughout playtime



Do not use beach equipment in the darkness or if there is insufficient daylight



Do not use the water park for at least one hour after eating



Use the water park responsibly to ensure you don't injure yourself or others

For the latest Community news and updates, please check the My Community App and share your experience with us at *CCSD/RSD/Quality Assurance Group.

King Abdulaziz Center for World Culture
by saudi aramco



Ithra movies

in cinema

Ithra Heroes Adventure

A collection of engaging children's animations that integrate science, technology, engineering, art, and math.

June 26, 27, 29 10:30 a.m.
July 1, 2, 3

Singing with Angry Bird

Five years ago, a Korean opera singer started a children's choir in a slum in India. Frustrated by the lack of support from the parents of his choir children, he decides to train the parents to sing for a joint concert.

June 26, 27, 28, 29 3:30 p.m.

Robinson Crusoe

A daring parrot recounts how Robinson Crusoe came to be stranded on a tropical island.

June 26, 27, 28, 29 5:45 p.m.

The Short Game

A group of seven-year-old golfing protégés battle to be the next champion of tomorrow.

June 26, 29 7 p.m.
June 27, 28 8 p.m.
June 29 1:15 p.m.

The Sphinx Unmasked

A leading Egyptologist cracks the 4,500-year-old mystery of who built the greatest monument in the ancient world and reveals the inspiration behind the enigmatic face of the Sphinx.

June 27, 28 2 p.m.

Is Sumiyati Going to Hell?

As told through the eyes of young Layan, the story centers on Sumiyati, the family's housekeeper, and her continuous negative work experiences.

June 27, 28 7 p.m.

so Thousand Photographs

Adam, who lost his father when he was young, does not know what he looks like. During his research trip with Nasser, Adam discovers different points of view about life, his father and the picture he is looking for.

July 1, 2, 3 7 p.m.

Side by Side

This documentary investigates the history, process and workflow of both digital and photochemical film creation.

July 1, 2, 3 4 p.m.

Energy Exhibit Theater

Conquest of the Skies

Evolutionary story of flight from the very first insects to the incredible array of creatures, which rule the skies today.

June 26 5 p.m., 8 p.m.
June 27, 28, 29 6 p.m., 7 p.m., 8 p.m.



Mysteries of the Unseen World

Visitors at the Energy Exhibit are invited to watch "Mysteries of the Unseen World," which will take them to a journey to the whole world that they can't see with the naked eye!

July 1, 2, 3 6 p.m.



The Arabian Sun is a weekly publication issued free of charge by the Corporate Communication Support Department for Saudi Aramco employees.

North Admin Building, Room AN-1080, C-05A, Dhahran, Saudi Arabia
Telephone (013) 876-0374
Email: publishing@aramco.com
ISSN: 1319-156X
Articles may be reproduced provided The Arabian Sun is credited.

Publishing director: Meteb F. Al Qahtani (A)
Editors: Jamsheed Din, Todd Williams
Editorial staff: Musherf Alamri, Eamonn Houston, Scott Baldauf, Jeff McCoshen, and Shaitha Khan.
Designer: Husam Nasr.

Articles and coverage can be requested through the company's CRM system. Correspondence may be addressed to the editor, North Admin Building, Room AN-1080, C-05A.



Saudi Arabian Oil Company (Saudi Aramco) is a joint stock company, with certificate of registration number 2052101105, having its principal office at P.O. Box 5000, Dhahran, Postal Code 31311, Kingdom of Saudi Arabia, and with fully paid capital of SAR 60,000,000,000.

the arabian sun

chess club makes a move

As it continues to attract more interest of competitors of all ages, the Dhahran Chess Club secures a new permanent home.

see page 12



Girl Scouts 'Shark Tank' event touts tech

by Mumtaz Waheed and Ching Yeh

Dhahran — Budding entrepreneurs from the Girl Scouts in Dhahran recently pitched ideas to investors for their business plans in a mock "Shark Tank" event organized by the Saudi Aramco Innovations Lab.

A total of 21 young girls from Girl Scouts Troop 4 and Troop 26 were divided into four groups in a workshop in which each team was given a task or a challenge for which they had to develop a solution.

Shark Tank and STEM

The process is similar to Shark Tank, a reality TV show in the U.S. in which potential entrepreneurs pitch their business ideas to wealthy businesspeople and try to convince investors on the panel to invest in their ideas.

A five-hour workshop, given by lab leader Sam Kozak, facilitated the challenge to give the girls an opportunity to earn their STEM (science, technology, engineering, and math) badges.

The workshop offered hands-on experience on the basics of coding, circuitry, and robotics to provide the girls with the skills to design prototypes of business plans for their presentations to the panel.

"It so much fun, we are getting to do it all independently," said Marina Silvia, who is with Troop 4.

The prototypes were built with materials, including a paper clip, foil, wire, cotton

balls, a battery, and clay. All of the materials were purchased from a bank run by parent volunteers. In the beginning, each team was given "seed money" of \$100,000 to purchase materials and find office space for their business plans.

"Though it was challenging, we knew we would make it through," said participant Radia Musa.

Mars, robots, apps, and VR

Of the four teams, one created a vehicle to Mars to explore and collect samples from the planet, a second team built a robot to clean trash, a third team designed an app/game to counter cyberbullying, and a fourth team developed a virtual reality technology to simulate a Girl Scouts camp out.

Once their business plan, or prototype, was ready each team was given five minutes to pitch their ideas to the panel of "sharks."

Instead of investment from the sharks, the teams earned scores on a few select parameters — entrepreneurial skills, technology advancement, teamwork, a futuristic aspect, and the social accountability of their business idea.

"While at work, the girls demonstrated grit, character and camaraderie, upholding the true values learned as Girl Scouts," said Troop 4 leader Mahjabeen Kamal.

"I hope we have more of these hands-on



activities to do it ourselves," said Simra Waheed, another participant.

The Innovations Lab, operated under Saudi Aramco's Human Resources Department, provides creative and technical exercises for employees who seek to obtain patents and learn to build a startup company.

The lab is run by Kozak, an inventor who owns dozens of patents and leads Google for Entrepreneurs — a Dhahran chapter of the startup program.

Technology was a key component of the recent "Shark Tank" event organized by the Saudi Aramco Innovations Lab for local Girl Scouts. A total of 21 young girls from Girl Scouts Troop 4 and Troop 26 tackled four different projects, including one that created a vehicle to explore Mars and collect samples from the planet, a second that built a robot to clean trash, a third that designed an app/game to counter cyberbullying, and a fourth that developed a virtual reality technology to simulate a Girl Scouts camp out.



off the shores of Santorini

Saugata Nandy captured this classic image of a boat on calm waters just off the shores of Santorini Island in Greece. Nandy used a Canon EOS 700 with a Canon EF-S 18-135mm lens to take the photograph. Nandy lives in Ras Tanura and works with the Capital Efficiency Division of Domestic Refining and NGL Fractionation. He has been with the company four years.