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a weekly Aramco publication for employees

in this issue

Environmental excellence in action

see pages 6 and 7

Circulating seawater for the safe return to lagoon before outfall to the Red Sea's temperate waters, Jazan's energy efficient integrated gasification combined cycle includes a utility area, seawater cooling pumps, desalination tanks, and acid gas removal absorption and regeneration columns.

New ID replacement process as simple as taking a selfie

On Nov. 16, Aramco president and CEO Amin Nasser inaugurated the company's 2020 Do-It-Yourself ID Replacement Program, allowing 70,000 employees around the Kingdom to update and create new IDs. The new two-step process includes downloading the mySecurity app, taking a selfie, and then obtaining their new ID at a new Self-Service ID Kiosk near them.

No more appointments. No more queuing up at the Industrial Security Operations (ISO) ID Office to replace your ID. Unlimited opportunities to take your own ID photo with a smartphone, until you are satisfied that you look your best.

The new touch-free process is just the latest example of a larger company-wide effort to use digital technologies and processes to provide more efficient and effective services to company employees. And in the era of COVID-19, these services have been designed to maintain business continuity for critical operations while protecting our employees' health and safety as well as enhancing customer satisfaction and quality of life.

"Given HR&CS's strategy of being a customer focused organization, this revolutionized ID process fulfills this mission by providing a convenient and reliable service to customers around the clock," said Adel F. Al-Wuhaib, manager of the Industrial Security Support Department.

"This is the first secured end-to-end ID replacement process, the first of its kind," said Alanood A. Rabiah, head of the Security System Support and Identification Division. "What makes it unique is that it's all do-it-yourself. You can take your own photo, as many times you like through the mySecurity app, and then take it to one of the many Self-Service ID Kiosks at various Aramco facilities and print out your new ID at a time that is convenient to you."

Aramco president and CEO Amin Nasser tests a new ID replacement kiosk during the inauguration ceremony for the new 2020 Do-It-Yourself ID Replacement program.

The new streamlined ID replacement process — developed as a partnership between Information Technology and ISO — benefits employees and the company. It ensures a speedy replacement program for 70,000 employees before they lapse at the end of the year, utilizing the latest in digital technologies that Aramco is famous for. It also ensures that Aramco's employees can update their IDs in a seamless and timely manner, without the need to stand in lines, and without putting themselves at risk of catching COVID-19.

"When COVID started to hit us hard in May, we were already in the process of creating a self-service ID replacement program that was similar to using an ATM," said Rayyan M. Alorini, project lead for the ID Replacement Program. "Through brainstorming, we came up with an innovation to use bar code readers to help users navigate through the pages on the screen, which would then be verified through one-time PIN codes sent to the user's smartphone. That made the process touch-free."

The new IDs utilize the latest digital technologies, including an embedded chip with ultra-high frequency technologies, which will allow employees to enter certain security gates without having to touch turnstiles. Obtaining a new ID will take an average of two minutes, compared with 15 minutes under the old system. The 30 Self-Service ID Kiosks located at Aramco facilities around the Kingdom are available 24 hours a day, seven days a week.

The first step in updating your ID is as simple as taking a selfie. The mySecurity app allows the employee to take his photo in three ways:

- Take a selfie photo using your mobile front camera.
- Take a photo using your mobile rear camera (for better resolution).
- Give your mobile to a colleague to take a photo of you, using the mobile rear camera.

For those who may be unhappy with the photo on your current ID, there is especially good news. You can take as many photos as you like, and the mySecurity app will then perform compliance checks on your photo to make sure the photo complies with all the important criteria, such as proper lighting, light background, eyes open, and so on. If you still don't like the expression on your face, you can just take another photo, or ask a friend to take one of you.

Of course, you can still obtain your new ID in the old way, by physically visiting an ISO ID office near you. You can even use your mySecurity app to take a photo of yourself, and schedule an ID pickup appointment, where your ID will be pre-printed and waiting for you in an ID Center.

But whatever method you choose, the new system is designed to be an easier and time efficient way to update your Aramco ID. Please do so before Dec. 31, 2020.

1. Download the App.

2. Take a selfie.

3. Go to the nearest kiosk.

4. Insert old card and follow instructions to generate new card.

Fourth Industrial Revolution event gives U.S. companies view into Aramco's digitalization journey

The U.S. Saudi Arabian Business Council in partnership with Aramco Americas hosted a Fourth Industrial Revolution (IR 4.0) virtual webinar on October 29 that attracted more than 80 U.S. companies. The webinar, "Doing Business with Aramco: Industrial Revolution 4.0 and How to Utilize Saudi Aramco Digital Hub," highlighted the company's digital transformation initiative along with the digital hub at the industrial city, King Salman Energy Park.

Attendees were also introduced to new innovations and technologies as well as opportunities for collaboration with Aramco Americas in the IR 4.0 technologies sector.

"The event was very well-received and served as an opportunity to share Aramco's already robust IR 4.0 work as well as the next steps in that journey," said Adel S. AlShahrani, manager, Procurement & Supply Chain Management, Aramco Americas.

Saudi Aramco's Abdallah B. AlThaaly, manager of Industrial Development & Strategic Supply, highlighted that "Aramco is transforming its operations with a full embrace of the Fourth Industrial Revolution. This means companies and manufacturers like you are a top priority for us." We are looking for reliable companies and manufacturers that share our same vision of business growth and sustainability. We want to build "win-win" partnerships that are strategically aligned."

The Aramco Americas (ASC) team that participated in the webinar from the Houston office: Adel S. AlShahrani, manager of the Procurement & Supply Chain Management Department; Tarik A. Al-Basrawi, manager of the Technical Services Department (TSD); Sameer F. Yousef, supervisor of Strategic Sourcing; Bader A. Al-Harbi, Procurement agent; Myra A. Bozeman, SRM analyst, Frederik De Bruyker, TSD, and Rebecca Tadesse, TSD. In the screen, remote participants from Saudi Aramco: Abdallah B. AlThaaly, manager of Industrial Development & Strategic; Hiba A. Alajeeb, supply chain analyst; Maha A. Alkaabi, supply chain analyst, and Delano Roosevelt, the head of the U.S.-Saudi Business Council.

He was introduced by Delano Roosevelt, the head of the U.S.-Saudi Business Council, who is the grandson of former U.S. president Franklin Delano Roosevelt.

Hiba A. Alajeeb, supply chain analyst, Saudi Aramco, explained the logic behind the company's technology push, saying "our goal is to be the world's most digitalized energy company." She presented over $7.5 billion in business opportunities across nine technology sectors, including artificial intelligence, machine learning, robotics, 3-D printing, cloud computing, and 5G communications.

Participants learned about 170 business opportunities associated with IKTVA, which has already generated 468 investment agreements and $6.5 billion in committed capital expenditures. "The goal of IKTVA is to create jobs and raise local content in our supply chain to 70%," said Maha A. Alkaabi, supply chain analyst, IKTVA Support Division, Saudi Aramco.

Participants also learned about how to become a registered supplier in the company's supplier network by using an online portal. "Strategic sourcing and supplier relations is your gateway to doing business with Aramco Americas and Saudi Aramco," said Myra A. Bozeman, Supplier Relations Management, Aramco Americas.

AlShahrani concluded the meeting, saying he was very pleased by the turnout and encouraged participants to stay engaged with Aramco. "There are tremendous opportunities waiting for you in Saudi Arabia," he told the audience.

Aramco Americas drives excellence with valve manufacturers

Houston — If you were to ask any industrial engineer, "What is the most crucial component for safety and reliability in any industrial process?" The response, undoubtedly, would be "valves."

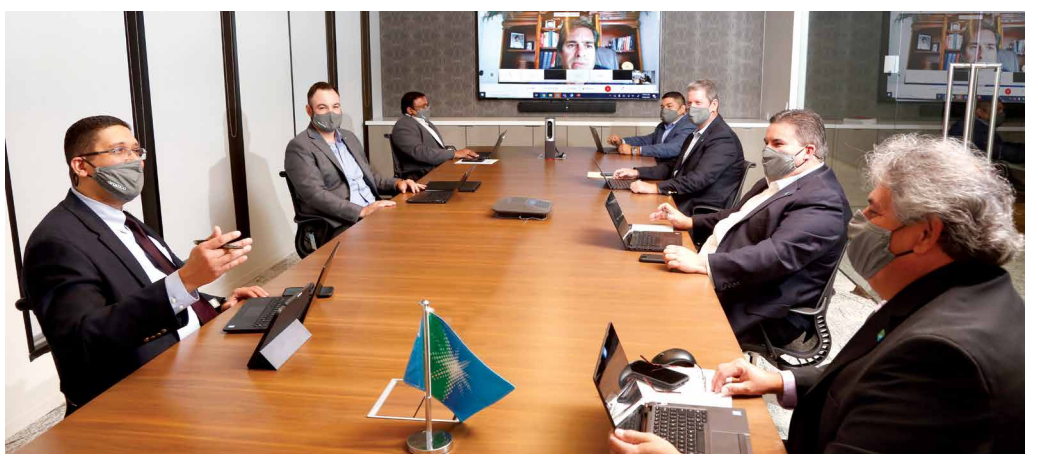
They are responsible for controlling flows across the circulatory system of the oil and gas industry. Their performance is critical in ensuring on-schedule operations and that we meet upstream and downstream commitments.

Valve manufacturers are key partners for supporting Aramco's operations and providing products that meet the company's stringent expectations in terms of safety and reliability.

Equipped with the RealWear HMT-1Z1, valve inspector Daniel Davenport, left, is seen evaluating pressure readings at Forum Energy Technologies in west Houston. A group of his colleagues, right, are seen viewing one of the inspection stages from the company's U.S. corporate headquarters located downtown.

"Advanced technologies are a doorway to operational success, and when coupled with the human component as it relates to manufacturer partnerships, there is an opportunity to find ways to make further progress," said Tariq Basrawi, manager of Aramco Americas Technical Services.

To support excellence and continuous improvement, Aramco Americas, together with Saudi Aramco's Vendor Inspection Program, hosted a virtual event for U.S. manufacturers called the "Manufacturers Forum on Valve Quality" that attracted participants from more than 10 companies who together represent a significant part of the U.S. market's valve production.



Tarik Basrawi, left, manager of the Aramco Americas Technical Services Department, leads a discussion during the company's virtual forum in October for valve manufacturers in the U.S. and across the Americas. He is pictured with the group of engineers and inspectors who each gave presentations on Saudi Aramco's valve quality standards.

Quality professionals from Aramco Americas joined the webinar and provided their perspective based on 150 years of combined experience in quality assurance and control. Aramco's Engineering Division was on hand to share expertise based on valve performance in processes in Aramco.

A key aspect of the webinar was committed to offering manufacturers greater insight into Aramco's procedures and to open up dialogue about areas of mutual interest. Quality Assurance, Quality Control and Engineering team members gave overviews on the company's standards in valve design and production, Aramco's Material Specifications & Standards, Aramco's Vendor Quality Index, lessons learned, and best practices.

The forum also addressed nonconformance issues and areas of opportunity to close any potential quality gaps. "We appreciate the importance of collaboration with great partners like those who joined us and sharing knowledge to mutual benefit," said Basrawi.

Given its success, future quality forums for other product areas are planned.

Keeping an eye on excellence

As with the forum, safety is central to every Aramco Americas activity. The company is equipping its quality inspectors with Fourth Industrial Revolution smart technologies to increase their capabilities in the field and promote safety during the pandemic through a digital/smart helmet.

first ladies international golf tournament comes to Kingdom

HE Yasir O. Al-Rumayyan, Aramco and Saudi Golf Federation chairman (at left) and Amin Nasser, Aramco president and CEO (at right) presented Danish golfer Emily Kristine Pedersen, winner of the first Aramco Ladies International Golf Tournament, with the winning trophy.

- the first-ever ladies golf tournament held in Saudi Arabia
- $1 million tournament prize fund
- gathering more than 100 LET professional players
- development of more than 15 sustainable golf courses across the Kingdom
- broadcasted domestically and internationally to over 340 million homes across more than 55 countries
- four-day event, held Nov. 12-15
- 72-hole tournament

Jiddah — On Nov. 15, Danish golfer Emily Kristine Pedersen was crowned as the winner of the first Aramco Ladies International Golf Tournament. The tournament, held at the Royal Greens Golf and Country Club in Jiddah, was the first ladies' golf tournament held within the borders of Saudi Arabia. The event was the Kingdom's latest effort to promote sports events in general, and women's sporting events in particular.

In the presence of HE Yasir O. Al-Rumayyan, Aramco and Saudi Golf Federation chairman, the tour trophy and tournament prize was presented to Pedersen by Amin Nasser, Aramco president and CEO, as Majed Al-Sorour, CEO of Golf Saudi and the Saudi Golf Federation, looked on.

The four-day event, held on Nov. 12-15, was presented by the Public Investment Fund, and hosted by the Saudi Golf Federation, with Aramco as a title partner for the event. By supporting the tournament, Aramco aligns itself with the Kingdom's Saudi Vision 2030, and its ambitious goals of promoting culture and entertainment for the Saudi public, diversifying the economy, and encouraging participation in healthy lifestyles. The Aramco Ladies International also highlights the major strides the Kingdom has made in providing new opportunities to women, including the participation of women in sports.

The tournament is a Ladies European Tour (LET) sanctioned event, gathering more than 100 LET professional players, with many leading female international players competing for the first time in Saudi Arabia. Participants in the four-day, 72-hole tournament were competing, not only for a record $1 million prize fund, but also the prestige of being the first winner of this inaugural tournament.

In alignment with the Kingdom's efforts to enable equal opportunities for women, title partner Aramco worked to create an experience to showcase the full potential of women within the Kingdom. The sponsorship also reflects Aramco's commitment to women's empowerment and inclusion in sports and the workplace. Aramco intends to continue supporting the growth of Saudi Golf within the region, and inspiring the next generation of women participants in the sport.

A Memorandum of Understanding (MoU) was signed between Aramco and the Saudi Golf Federation on Nov. 11.

Aramco will partner with the Saudi Golf Federation in building the world's first environmentally-governed golf ecosystem by providing research and strategic sustainability support.

Aramco will also share knowledge and experience in restoring of native vegetation, biodiversity protection, ecosystem regeneration, water dependence and clean energy.

The competition was broadcasted domestically and internationally to over 340 million homes across more than 55 countries.

The tournament follows a series of initiatives in Saudi Arabia to promote women's participation in various sports. As such, the Aramco Ladies International Golf Tournament is both a historical milestone and further proof of the Kingdom's commitment to accelerate the advancement of women in sports, in the workforce, and in society.

Environmental excellence in action

by Janet Pinheiro
(Photos: Hasan Al-Mubarak/MPD)

Saudi Arabia's southwest tip is one of the Kingdom's most densely populous regions, and Aramco is playing a leading role in Jazan's economic development, while also balancing the area's environmental protection.

Jazan City for Primary and Downstream Industries (Jazan City) is located on the striking Red Sea, 70 kilometers (km) north of the main city of Jizan, and is part of the Saudi government's initiative for balanced development of the Jazan region.

Aramco was entrusted to construct the city's strategic infrastructure.

The 106-km^2 emerging Jazan City, with a focus on the energy and manufacturing industries as well as agriculture and fishing, is set to be a solid contributor to the Kingdom's economy.

Stretching 200 km along the tip of Saudi's Red Sea coast, Jazan province's diverse landscape is a rare jewel, rich with nature and ancient culture. Azure seawaters splash onto white sand shores, and towering mountains dramatically descend into green slopes and lowlands.

Aramco invested about $1.2 billion to mitigate Jazan City's development impacts, and protect the surrounding environment.

Jazan Area Project Management general manager Yahya A. Abu-Shal said the Project Management Team executed the Jazan giga program with special attention to environmental impact and protection.

"The project team worked diligently from the early phase of the project with licensors and engineering companies through the construction phase to provide optimum design eliminating any environmental impact to surrounding areas," he said.

Environmental protection

Environmental Protection general manager Omar S. Abdulhamid says the company understands the importance of nurturing precious natural resources. "With a heritage rooted in a culture of living in harmony with Saudi's harsh and arid climate, Aramco has long been pioneers in water conservation, energy efficiency, and protecting flora and fauna," said Abdulhamid.

The ongoing protection outcomes for Jazan City are as inspirational as the region itself.

Jazan element of downstream strategy

To enhance the value of each and every barrel of oil it produces, Aramco is on a vibrant downstream growth strategy. Aramco's integrated petrochemical refinery complex at Jazan City, and its associated infrastructure, is part of the company's journey to integrate its refining and petrochemicals through a dedicated system of domestic and international wholly owned and affiliated refineries.

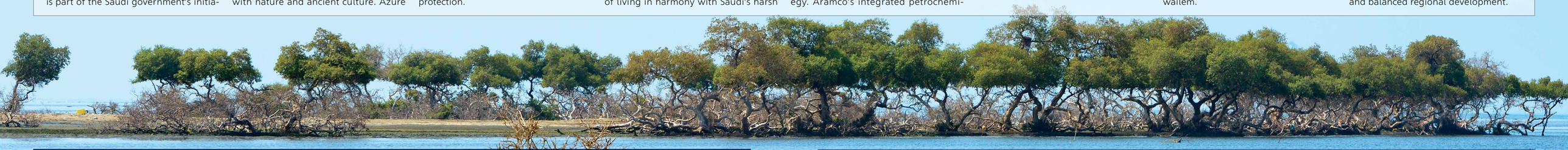
Currently in pre-commissioning, the 400,000 barrels per day refinery sits at the development's industrial heart, and strong industrial best practices to minimize environmental impacts have gone into its operational preparation.

The company is also part of a joint venture for the development of an integrated gasification combined cycle power plant.

Jazan Refinery Complex general manager Abdullah S. Suwailem said the complex was designed with a focus on mitigating environmental impacts. "Our state-of-the-art full-conversion refinery complex, coupled with one of the world's largest integrated gasification combined cycle power plant, is one of many innovations delivering world-class environmental protection," said Suwailem.

As well as the refinery, Aramco developed a terminal for Jazan City, a 3.8 gigawatt power plant that will make the refinery entirely self-sufficient and provide power to support the region, a commercial seaport, a water desalination plant, roads and water and sanitary drainage systems, and connected electricity.

Jazan City is one of four integrated economic cities being built as part of the Saudi Government's vision to create economic bases across the Kingdom, with a view to achieving a diversified economy and balanced regional development.



Excellent environmental investment returns

Jazan City is seen as pivotal to the economic development of the Jazan region.

Since commencing in 1933, Aramco has constantly worked to minimize its environmental impact.

Aramco's $1.2 billion mitigation and protection investment in Jazan City is an outlay to balance industry with conservation.

Decades of entrenched environmental protection within Aramco's operations show protection and profitability can coexist.

Circulating quality air

Field operator and local resident Mohammed Yahya Ghazwani works with the refinery's soot ash removal unit, where, in line with Aramco's commitment to a circular economy, the dry ash will be sold to a customer for recovery of valuable rare earth commodities.

The circular economy turns many times at the Jazan refinery complex.

Lowering dust emissions to the atmosphere is the job of the soot ash removal unit. Significantly, the unit's dry ash produces 7,200 tons per year of the valuable rare earth commodities — vanadium and nickel.

Instead of sending dry ash to the landfill disposal, these valuable commodities will be sold to a customer for recovery.

Jazan Refinery Engineering Department engineer Faisal S. Alhawiti explains that using — rather than wasting — dry ash is a win-win for the environment and the company. "Reducing environmental impacts is a priority, and recovering these rare earth metals means they can be used for steel manufacturing and batteries, and the investment will generate more macro-economic value," said Alhawiti.

First-class sulfur recovery

Meanwhile, more than 99.9% of the sulfur — the sour element in hydrocarbons — is being successfully recovered at Jazan City.

It is the first Aramco facility to be designed and equipped with this high sulfur recovery efficiency. Processing 1,938 metric tons per day of sulfur, the recovery units recover elemental sulfur from acid gas, and consist of three sections: claus, liquid sulfur degassing, and the tail gas treatment and incinerator.

Technology was selected to ensure the units are capable of recovering more than 99.9% of the sulfur, thereby minimizing sulfur dioxide emissions. The units meet Saudi Arabia's new in-Kingdom limits on air emissions.

Equipped for minimal flaring

As far back as the 1970s, Aramco introduced a program to significantly reducing the amount of gas the company flares.

Emphasizing the fact that flaring is a critical part of ensuring safety within the oil and gas industry, today Aramco's daily routine flaring is less than 1%, despite the mega scale gas production capacity.

The Jazan refinery has three segregated flare systems based on the flaring load and the nature of the fluids handled.

Like all Aramco facilities, Jazan's flare system will be connected to the company's Corporate Flaring Monitoring System.

Jazan's soot ash removal unit sits within the integrated gasification combined cycle power plant.

At Aramco's headquarters, we monitor and measure all flaring events on a real-time basis, followed by establishing flaring mitigation and minimization measures.

Capturing everything

Jazan has specialized compression packages aimed at recovering and repurposing gasses and emissions that would normally be burned during a flaring process. Consisting of two trains, Jazan's flare gas recovery system is capable of recovering 3.5 million standard cubic feet per day.

Regenerating nature to fight climate change

Healing nature with nature delivers spectacular solutions.

Mangrove trees are particularly amazing healers — they quickly sequester more carbon than land-based trees, stabilize coastlines, nurture marine habitats, and significantly for arid Saudi Arabia, live off salty water.

Jazan has two species of mangrove trees, which grow much larger than they do in the Eastern Province.

Regionally vulnerable crab-plover. (Photo: Jem Babbington)

Unfortunately, due to uncontrolled grazing by camels, the Jazan City mangrove forest was severely decimated.

In 2017, Aramco erected a project fence which protected the mangrove forest from grazing, and Aramco environmental consultant Ronald Loughland says the natural restoration has been extraordinary. "Nature's ability to rapidly restore is truly remarkable," said Loughland.

The forest is back to providing an abundance of foraging and refuge habitat for a host of marine species, including migratory and resident birds, with large populations of regionally important crab-plover returning to the site.

10 mega artificial reefs

Our planet's coral reefs, invaluable sources of ecological and economic richness, are increasingly being degraded and lost.

Aramco is promoting the growth of marine reef life through the deployment of permanent artificial reef structures offshore from Jazan City.

Aramco, using its own patented design, is developing 10 mega artificial reefs in the offshore area of the Jazan City development.

Since 2015, the company has installed more than 3,200 artificial reefs to help rebuild marine ecosystems, and support the local fisheries industry.

In Jazan City, using its own patented design, the company is developing 10 mega artificial reefs.

Designed with a vertically high central nucleus, the reefs attract pelagic fish, and has a surrounding network of connected satellite reefs allowing access for smaller organisms to move freely throughout the structure and avoid predation.

"They are one of Aramco's most innovative designs for environmental restoration," said Loughland.

Jazan plant's seawater lagoon.

Meticulous water management

In Saudi Arabia's thirsty lands, saving precious water is a deep-rooted tradition.

Water management at the Jazan Refinery Complex is setting new benchmarks. Reusing precious drops of H_2O has flowed up a notch.

Instead of just sanitary reuse, it includes industrial water reuse. To protect the Red Sea, there is zero industrial effluent wastewater discharge to the marine environment.

All wastewater will be treated and fully reused within the complex. The wastewater treatment plant manages both the Jazan refinery pre-treated industrial effluent and industrial wastewater, along with sanitary wastewater from the refinery, marine terminal, and power plant.

Efficient energy seawater protection

Combined cycle power plants are super smart with energy efficiency.

Compared to a simple single-cycle plant, they produce up to 50% more electricity with the same amount of fuel, recovering all wasted heat. Aramco has put an integrated gasification combined cycle power plant in Jazan.

The complex plant's meticulously designed cooling system ensured that the seawater cycled in and out is safe to return to the temperate Red Sea waters.

Huge pipes, which run 2.4 km across the sea, take the warm water to a man-made basin in cooler deeper waters, thereby achieving ultimate temperature mixing with the surrounding waters.

Sound waste management

In a circular economy, ideally there is zero landfill waste.

However, landfill is sometimes unavoidable, and to mitigate its environmental impacts, Aramco developed an approved landfill area north of Jazan City.

Proper disposal of landfill requires sound management, and the landfill area north of Jazan City is engineered, designed, and operated to handle inert and nonhazardous waste.

Generation Y & Z targeted in ambitious 'Y-Connect' program

Youth are the future, as PD&T seeks new era of engagement with Y-Connect team

Engaging and inspiring Aramco's young workforce is the goal of a newly launched initiative by the Pipelines, Distribution and Terminals (PD&T) Admin Area.

The Y-Connect initiative is designed to target some 3,700 employees aged 35 years and under, who account for 63% of PD&T's workforce.

The initiative is driven by 12 team members, including the program champion Abdulrahman Al Juraifani.

Y-Connect trigger

The survey results for the 2018 Aramco Employee Engagement Survey revealed that PD&T had the greatest increase in employee engagement compared to its peers in Downstream.

While these results were excellent by all standards, PD&T was committed to do even better. In response, PD&T formed an Employee Engagement Steering Committee under the patronage of PD&T vice president, Abdullah M. Al Mansour. After extensive analysis, brainstorming, and benchmarking; the committee came up with a series of programs and initiatives, including Y-Connect, targeting the different areas of employee engagement.

Each of the members of the team are drawn from different departments within the PD&T Admin Area and have diverse educational backgrounds and career paths.

Al Juraifani and the team report directly to the PD&T vice president, Abdullah M. Al Mansour, and the 11 team members are tasked on a year-long part-time basis to develop and deploy youth employee engagement strategies.

They are currently building plans to conduct engaging activities, benchmarking exercises, and deep-dive projects to boost the levels of engagement with young employees in PD&T. This is to make PD&T an even better workplace by boosting youth engagement through the implementation of an innovative engagement strategy and creative tools while capitalizing on local knowledge and experiences.

Al Mansour believes that, "Youth employee engagement is crucial for PD&T to achieve its goals. There is always room for improvement and what better way than inviting young talent to help increase PD&T employee engagement."

Ideas and opinions

Young employees drive most of PD&T's operations and Y-Connect strives to harvest their ideas and opinions.

The team is working on developing high levels of engagement through activities that will involve more interaction with young employees and management and that are aligned with the company's corporate values and strategic goals.

Al Juraifani explains, "Y-Connect will empower the young generation who represents 63% of the PD&T workforce. Furthermore, it shows how much PD&T management believes in change and how eager they are to adapt for the betterment of the admin area and the company."

Youth engagement

As a harbor pilot in the Eastern Region Terminal Operations Department, Azzam Al Haznawi offers unique skills and knowledge to the Y-Connect team. He received his bachelor's degree with honors in nautical science in 2018 from the U.K.'s Liverpool John Moores University.

Al Haznawi plays a role in ensuring the company's reliable supply of hydrocarbons to its customers. He helps ensure the safety of visiting tanker vessels and the terminal facilities by navigating vessels into Aramco ports and terminals.

"To ensure the continuity of the Admin Area's excellence, we must engage with the upcoming generations," he says.

A human resource graduate, Sarah Al Saadoon has been handling a variety of responsibilities within the field of Human Resources (HR).

Her efforts are geared toward improving the HR function of the Admin Area through employee development and empowerment.

Al Saadoon believes that the Y-Connect initiative mirrors that goal of empowering young employees.

"We are a scattered Admin Area with many employees working in remote locations. Being able to streamline communication between our remote workers and PD&T management is important to create a highly productive and positive workplace that will only improve the function of the Admin Area as a whole," she notes.

Leaders of tomorrow

After graduating from King Fahd University of Petroleum and Minerals in 2015 with part of his degree completed at the Massachusetts Institute of Technology, Nafea Alwafi joined the Western Region Terminals Department to help achieve his department's mission of being a world-class terminal, supplying energy reliably, domestically and internationally.

"The future of the Kingdom and the company depends heavily on today's generation. Today's youth are the leaders of tomorrow, and how we connect today is how we excel tomorrow," he says.

Aramco recognized with two notable appointments in the Pipelines Research Council International

In September, during the annual meeting of the Pipelines Research Council International (PRCI), the Executive Assembly appointed Mohammad A. Al Hatlani, general manager of Pipelines to its Executive Board of the U.S.-based world leading research organization, which was established in 1952. The appointment was by a unanimous vote from the Executive Assembly, which is comprised of 40 executive representatives from PRCI, including pipeline operating companies, solutions providers and technical organizations. The Board is the highest governance body for PRCI and is responsible for setting the organization's direction and ensuring necessary resources are available.

The appointment to the Board reflects the distinguished participation of Aramco management and subject matter experts in supporting PRCI activities, which include establishing roadmaps for essential research needs for the pipeline industry, identifying key technical challenges, submitting potential research ideas, developing and managing research projects, and sharing knowledge to ensure research results contribute to safer, more reliable and cost-effective pipeline operations.

In addition, Executive Board membership will increase the value of Aramco's PRCI contribution to the strategic vision and direction of pipeline research on a global level. Al Hatlani stated, "Saudi Aramco membership on PRCI is essential to enable access to international pipelines' research and development, and to leverage our research funding through participating and accessing highly valuable pipeline research projects and technological ideas in the most cost-effective way."

Husain Al-Muslim, pipeline engineering consultant

During the same event, Aramco received another notable appointment, Husain M. Al-Muslim, engineering consultant of the Pipelines Technical Support Division. He was appointed a member of the PRCI Research Steering Committee, which is the organization's key technical oversight body for the entire research portfolio of PRCI, which approves research ideas before final votes by member companies. This appointment came to recognize Aramco's involvement in PRCI's technical committees' activities through its distinguished technical expertise in the fields of design, construction, materials, inspection, integrity, corrosion, surveillance, operation, monitoring, measurement, compression, and pumping stations.

"This is a reflection of the qualifications of Aramco personnel for the approved positions and the support of the company to cultivate and nurture technical talents to perform at a world-class level," said Al-Muslim.

Aramco plans to capitalize on these appointments to maximize on the benefit of joining industry collaborative work with industry partners. This will positively impact research cost-effectiveness, updating and improving pipelines' standards and practices, and encouraging technical expertise to seek improvement opportunities on a continuous basis.

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Quality process engineering return, revamp and restoration

Abqaiq Plants wins global engineering award for the restoration project

by Janet Pinheiro

Last year's production return of the world's largest crude oil stabilization facility has received respected international process engineering recognition.

After the mid-Sept. 2019 attack, teams of process engineers worked immediately to safely return and restore Abqaiq Plants' oil stabilization process.

The engineering excellence and professionalism of Abqaiq Plants restoration team won one of this year's Institute of Chemical Engineers (IChemE) Global Awards 2020.

Abqaiq Plants, one of eight finalists selected from dozens of entries, was announced as the winner of the oil and gas category at a virtual ceremony last week.

Last year's quick return to full production of Abqaiq Plants meant not a single shipment to Aramco's international customers was missed or canceled, 10 days after the heinous attack, the company was back at its maximum sustained output capacity of 12 million barrels per day.

Excellence as a Core Value

Southern Area Oil Operations vice president Khalid A. Al-Buraik described the award as "well deserved."

"This award is recognition of Aramco's deeply embedded drive for excellence, which galvanized us to fast-track the safe restoration of production within 48 hours through Abqaiq Plants, and bring back 5% of global oil production," he said.

"When we invest in Aramco facilities, we robustly design for safety, flexibility, reliability, and sustainability for longer term returns.

"This remarkable accomplishment is a result of the extraordinary commitment and collaboration across Aramco, and I congratulate all of the teams involved for this well-deserved global recognition," said Al-Buraik.

Solving tough challenges with innovation

Creative and competent engineering is the key toward finding solutions for tough challenges.

Abqaiq Plants caught the judges' eyes for how process safety, longevity, and enhanced performance were embedded in the restoration activities.

When the intricate and complex facility was shutdown fully for the first time in its history, it took multiple customized procedures to safely isolate, and then restart the system.

Furthermore, wherever possible, rather than replace items, repair, repurpose, and reuse strategies were utilized.

2019: Engineers working to safely return and restore Abqaiq Plants oil stabilization process.

Among standout process improvements was enhancing stabilizer performance through an improved inlet device, which provided for better distribution across the internal separation trays leading to enhanced energy intensity.

Additionally, a new processing scheme was developed to process different crude grades with increased flexibility to boost facility resilience.

"To bring back Abqaiq Plants' capacity within 10 days, while adding further resilience and improvement to the process, Aramco implemented a robust execution strategy to perform this critical work and has exceeded expectations and affirmed its position at the forefront of the hydrocarbon world and its reputation as the most reliable energy supplier," said Upstream Projects general manager Fahad A. Al Ammari.

"This was driven by the strong and robust focus on creativity and innovation of the well-developed engineering talent, skills and competencies, which is a hallmark of Aramco," said Saudi Aramco chief engineer Jamil J. Al-Bagawi.

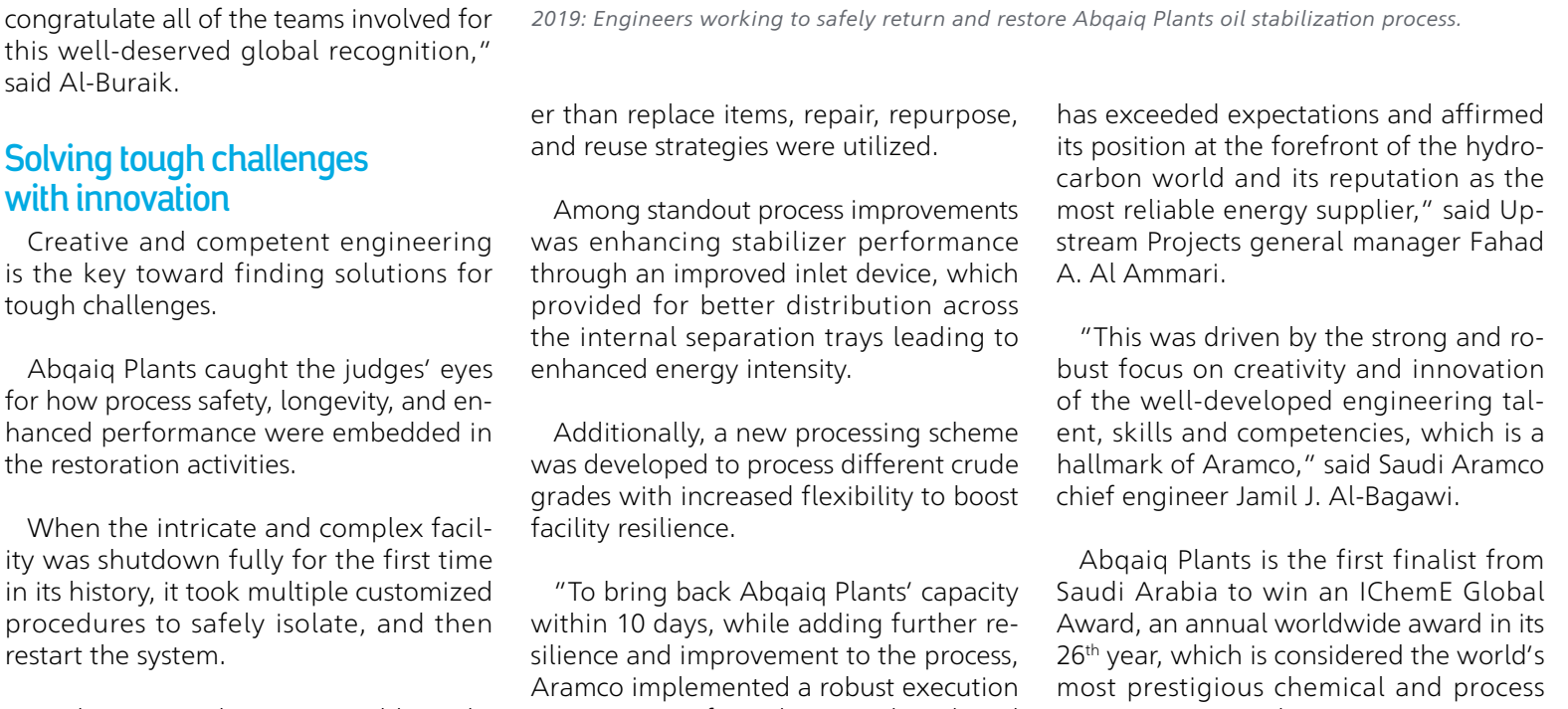
Abqaiq Plants is the first finalist from Saudi Arabia to win an IChemE Global Award, an annual worldwide award in its 26th year, which is considered the world's most prestigious chemical and process engineering award.

new pipeline safety technolgy helps accelerate projects

by Syed Tanveer Hashmi

Dhahran — The Project Management Team (PMT) has introduced a new technology for safely isolating pipelines in its project to reroute pipelines in the Ras Tanura area. The new technology, called a Branch Isolation Self-Energized Plug (BISEP) using pipeline isolation and stopple technology, is the industry standard for top-tier companies in the oil and gas industry and it meets the company's high standards for ensuring the safety of personnel and assets.

PMT introduced the BISEP technology in January 2020 in collaboration with the Pipeline Projects Department, after a pilot project was successfully tested by the Southern Area Pipelines Department in March 2019. Working with the contractor and qualified service provider (lump sum turnkey), PMT deployed the new isolation technology in the Qatif area, replacing a 3 kilometer pipeline section of the QA-10 NGL pipeline. The equipment was installed upstream and downstream of the pipeline section, and after the initial testing and monitoring of the installed equipment, the cutting and welding activities proceeded. The isolation was closely monitored by certified operators while the work was conducted.



PMT project engineer Syed T. Hashmi said this new technology provides a safe and reliable means of isolation for the hydrocarbon pipeline. Safety is the highest priority in Saudi Aramco Projects and Operations, Hashmi said, and this technology will ensure that guaranteed isolation is achieved before any critical hot work is performed on the hydrocarbon pipelines. The new isolation technology will help Aramco to accelerate projects at a time of growing demand, providing substantial cost savings and avoiding costly shutdown of pipelines.

Shaybah Producing inspires young student talent to pursue careers in reliability and maintenance

by Eamonn Houston

Shaybah — The Shaybah Producing Department (SyPD) has concluded a major engagement and outreach program with young Saudi university talent, showcasing reliability and maintenance as an attractive career path to hundreds of students.

Over three sessions, the SyPD Path for Reliability Engineering University Student's Event successfully reached out to 350 male and female students from a spread of the Kingdom's universities, including King Fahd University of Petroleum and Minerals (KFUPM), King Saud University (KSU), King Khalid University (KKU), Tabuk University, King Abdulaziz University, Princess Nourah Bint Abdulrahman University (PNU), as well as Saudi Aramco CDPNEs.

The events were held in September and October with a theme of spreading a culture of reliability across the Kingdom, and to attract more engineering graduates to career paths in reliability.

Future talents

Addressing student attendees at the final session, SyPD manager, **Maher A. Al-Arfaj**, said, "It is certainly my pleasure on behalf of the Shaybah Producing Department and Aramco to open this technical exchange session, which has the goal of reaching out to our future male and female talents in local universities.

"This program is part of the company's commitment to social responsibility to prepare young Saudi students for the job market of the future, through sharing the opportunities and challenges in the industry, allowing you to make informed and the best career choices.

"This event will provide you with the fundamental basis of the main areas of the field of reliability engineering and to utilize the knowledge gained and incorporate it into your ongoing academic studies," Al-Arfaj said.

Comprehensive overviews

The students were given comprehensive overviews of Aramco's approach to reliability and its importance to both the company and the Kingdom.

SyPD Reliability engineer, **Abdulaziz Al-Johar**, opened the sessions with a detailed presentation on the importance of reliability maintenance to Aramco. Next, **Mohammad Afif bin Amir**, an engineer with the Reliability and Technology Group of Corporate Maintenance Services, explained the concepts behind reliability, and last, SyPD Reliability supervisor, **Yazeed Al-Owaid** discussed in his presentation "Reliability for Every Engineering Path."

Accessibility and Maintainability was a topic explored by **Hamzaali Khandwala**, from Corporate Maintenance Services' Reliability and Technology Group, while **Jeetesh Desai** and **Abdulaziz Al-Qahtani** who are engineers with SyPD told the students about the impact of 3-D modeling on plant reliability.

In his closing remarks, Al-Owaid said, "You made our day! We are very pleased with the high level of participation and discussion during this event. It has helped to foster an informed understanding of reliability concepts, methodology, and practices.

"I would like to thank all of the presenters for sharing their interesting topics with our Kingdom's undergraduate students. These young talents are the people who will make positive contributions to Saudi Arabia's future.

"I hope you will all leave here today with a solid knowledge-base of the core of the reliability ethos, and with the ambition to become a reliability engineer in the near future," Al-Owaid said.

Positive student feedback

Student feedback for the sessions was positive, many saying that the sessions had inspired them to consider reliability and maintainability as their future career path.

"The event was a great opportunity for me to learn about reliability engineering. It gave me a chance to learn about reliability, and how it is important for general safety, as well as boosting efficiency and reducing cost. Also, it encouraged me to learn more about the subject."

Hamd Garzai, KFUPM

"This was a very interesting event, which explored the importance and goals of reliability engineering alongside insightful presentations."

Abdullah Mohammed Ibrahim Otayf
petroleum engineer student, KSU

"When I first heard about the event, I was curious because it was a field I was unfamiliar with. I gained a lot of information, which made me think and ask questions. And, my questions were answered informatively with the presenters interacting with us in a unique way. I really enjoyed attending the event, it encouraged me to seriously consider reliability engineering as a future career."

Ruba Alsharekh,
PNU College of Engineering

"The event was well organized and very informative. The roles and the different responsibilities of reliability engineers were introduced in an understandable way. Moreover, the presenters presented great insights on career development. This event encouraged and inspired me to choose reliability as my career path after graduation."

Abdulaziz S. Albattat,
senior mechanical engineering student

"I was very pleased to attend the reliability engineering students' event, which was very informative in terms of the quality of the presentations. The students also talked about their experiences, and the presenters were very clear and engaging.

"It was very organized and professional and I hope to embark on a reliability engineering path."

Rahaf Al-Ayed,
recent graduate from KKU,
student of Computer Science

"It was a wonderful experience. The level and diversity of the discussions were outstanding. The event had just the right mix of topics, discussion and valuable engagement."

Nada Saeed Alqahtani
KKU

Aramco promotes new guidelines to enhance safety, engineering and construction of nonmetallic pipes

by Joao A.C. Tavares and Khalid S. Ghamdi

Aramco's nonmetallic strategy is a global driver for nonmetallic technologies, incentivizing the industry to develop new cost-effective nonmetallic products and alleviate the operational and project challenges. Since 1980, more than 5,000 km of nonmetallic pipe have been deployed in our facilities, of which 1,900 km were the reinforced thermoset resin (RTR) pipes.

RTR pipes are a plastic-based product that has gained traction worldwide as a viable and more long lasting alternative to the more traditional steel pipes. Generally, RTR pipes can be utilized in a wide variety of applications, ranging from utility piping and sewage systems that can be found in our houses, all the way to the more demanding fire water and in-plant systems, including transportation systems for crude oil.

In addition to adhering to strict safety and operational guidelines under conventional applications, Aramco also strives to further develop the RTR technology, and thereby unlock new application scenarios for the product.

Aramco is today spearheading the utilization and innovation of RTR systems at a global scale. In support of this vision, Aramco's Engineering Services (ES) has always endeavored to further develop existing standards for RTR pipes and to continuously examine and update the standards to the highest levels of safety and reliability. The Inspection Department, in cooperation with the Consulting Services Department, have analyzed lessons learned from previous RTR pipe deployments and benchmarked it against success stories from other major oil and gas companies and international standard practices.

This allowed Aramco to identify any existing improvement areas across multiple company disciplines. Such efforts have resulted in identifying a total of 42 possible enhancements to design, procurement, construction, and company processes for RTR standards.

Most of the identified RTR enhancements have already been included in the latest and most up-to-date Aramco engineering standards, mainly those associated with design. For other areas, such as construction, ES developed a new qualification requirement plan with the purpose of enhancing training of installers, and to reinforce the inspection level across multiple areas of workmanship.

The new qualification requirements for RTR pipe installers, inspectors, and supervisors will reduce the probability of accidental damage during installation of the RTR systems. Furthermore, workmanship inspection covers critical construction steps to objectively mitigate the most typical causes of damage during installation of the RTR systems.

The new enhancements proposed by ES will minimize the project repairs, increase the RTR pipe system reliability, and ensure a higher standard of safety for facilities. With immediate impact, ES is encouraging new projects to adopt the enhanced requirements, and already a total of 19 projects are planning to follow suit for the installation of their respective RTR systems.

The company has positioned itself to be an industry model in utilizing nonmetallic technologies in oil and gas facilities by prioritizing safety, integrity, and reliability.


Al Ghat Museum


Majma'ah


Shaqraa


Shaqraa

Finding history on the roads north of Riyadh

by Chiara Ciampricotti Iacoangeli


Al-Ghat

Al-Ghat — Somewhere north of Riyadh along less-traveled roads, time has stopped. Here, in the traditional villages that have existed for generations, time has not erased traces of the past, but instead restored it through their architecture and ways of life.

Here in the smaller towns and villages extending along valleys and water sources, where palm plantations rise, this architecture is influenced greatly by the hot and dry climate. Closely clustered two-floor dwellings, separated only by narrow, winding roads and their resulting shade, are made of mud bricks, stone, lime plaster, and timber. And in following the old ways, the village's restoration project used the same materials.


Shaqraa


Ushaiger

Baked in mud: Al-Ghat

For thousands of years, mud homes have represented the practical wisdom and spirituality of people, particularly those in desert regions, who learned how to use local materials to build homes that fitted the environmental and cultural conditions in which they lived.

Bricks are created using the same process of ancient times, mud is mixed with straw that acts as a glue and sand that prevents the bricks from breaking. Acacia beams create the roof, with palm branches or bamboo shoots tightly tied together to form a mat that is laid on the beams; eventually, a thick layer of mud is placed over to fill the gaps. As a result, good insulation is provided to protect against the blazing desert sun.


Ushaiger
Al Salem Museum


Ushaiger
Heritage Museum

First up was the deserted village of Al-Ghat. Located on the northern bank of the Wadi Al-Ghat, the heritage village stretches over 1.5 kilometers (km) and holds all the charms of its unique past, its beauty resting in the gentle slope of the valley on which it was built. Visitors can gaze at its elegant architecture and a main street that unfolds along the wadi bed.

The Emara Palace, now a museum in the town's center, was once owned by the late Prince Nasser bin Saad Al-Sudairy. Today, it highlights social life and history throughout time, exhibiting Paleolithic tools and petroglyphs found in the area, traditional agriculture tools, clothing and crafts, the "jussah" room set aside for the preservation of dates, as well as exhibits on traditional hunting methods.

About half an hour away, there is a mansion in the desert of Majma'ah that features a renovated courtyard with vivid colored carpets and a fireplace to prepare coffee and other hot beverages. The welcome is warm, with free-flowing coffee and dates, and an invitation to visit a nearby camel farm.

Ushaiger's lasting legacy

Ushaiger, perhaps the best-known heritage village, is 200 km northwest of Riyadh in the heart of the Najd. On the Al-Washim plain — just west of a narrow range of red sand dunes — Ushaiger takes its name from the color of a small hill situated at the north of the village.

The first inhabitants settled here around 1,500 years ago, and the village served as a common stopping point for pilgrims going for Hajj. Ushaiger heritage village features narrow streets and seemingly endless alleyways that meander between the 400 mud houses and 25 mosques the village hosts. Some of the houses that still carry the name of the family that lived in them were renovated and are open to visitors.

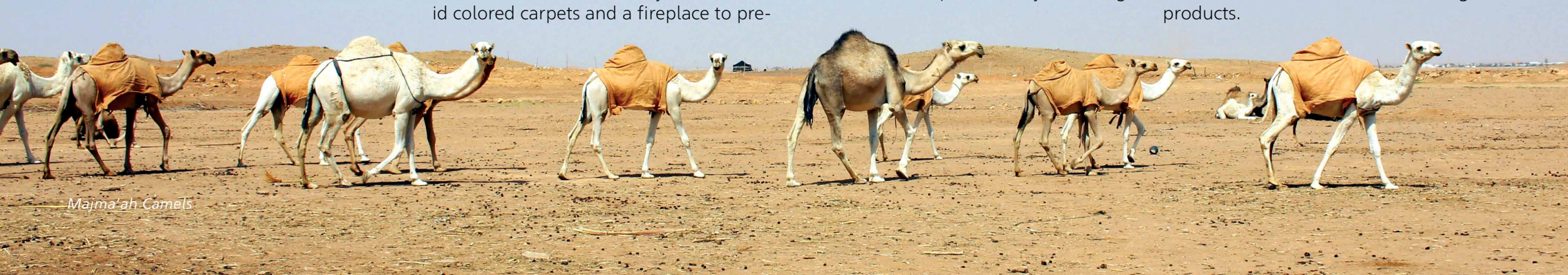
It is also renowned for historical figures such as Muhammad ibn Abdul-Wahab, Islamic scholar Sheikh Al-Othaimeen, and a number of poets. Today, the village belongs to the Tammim tribe, with the governor's house open for visits.

Many of the regions' traditions and history are kept alive at Al Salem Museum, which hosts a range of traditional collectibles such as coins, jewelry, silverware, agricultural tools, wooden doors, scales, utensils, and school materials.

Shaqraa, the last stop

Shaqraa, the last heritage village on this route, is one of the oldest in the Najd area. One of the few towns on the route from Riyadh to Makkah, it once hosted a huge marketplace. The current souq still has about 45 shops, two masjles, and about 80 houses.

The entire town is surrounded by high towers, and its restorations has made Shaqraa come alive. You can still visit the interiors, or enjoy the patio, or the roof terraces that provide a bird's-eye view of the whole city, replete with mud dwellings and white battlements. Or you can walk the streets until you reach the souq, its shops maintaining their original appearance and even an emporium museum with the ancient original products.


Majma'ah Camels

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