

ISSUE 45 | NOVEMBER 2020

Marafiq World

**Building
an Excellent
Future Together**

Mohammed Berki Al-Zuabi
Marafiq's New President and CEO





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WORLD MAGAZINE ARCHIVE

Marafiq World

Saeed K. Al-Abdullah

Corporate Communication Manager
Overall In-charge and Supervision

Editor-in-Chief

Basheer Al-Tarouty

Editorial Board

Steven Carl Smith
Gerardo Dumo Flores

Branding Specialist

Ansary Domado

PO Box 11133, Jubail Industrial City 31961
Tel: 013 340 9707 Fax: 013 341 2052
taroutybh@marafiq.com.sa

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Message from the President and CEO

The year 2020 is coming to an end, and we can say that it was a historic year for the entire world and particularly for Marafiq in many ways.

Despite the negative impact of the Coronavirus pandemic on the global economy, our wise government has been able, firstly, with the grace of God, and under the guidance of the Custodian of the Two Holy Mosques, the direct supervision of his faithful Crown Prince, and the joint efforts of the ministries and institutions, to overcome this crisis.

At Marafiq, we have also been able, with God's grace, our departments' joint efforts, and our employees' compliance with the precautionary measures to reduce the pandemic's impact on the company operations. We adopted the online work model and provided the employees with all requirements to facilitate their jobs and ensured that work is not interrupted.

In June 2020, we inaugurated Marafiq's head office in Jubail Industrial City over an area of 18,000 square meters, at the cost of more than SAR 200 million, which will ensure a distinguished work environment for our employees.

Meanwhile, driven by our national and humanitarian duty, Marafiq continued to support charities and paid an amount of SAR 3 million to the Ministry of Health's endowment fund to support health services.

At the beginning of 2020, Marafiq launched its Virtual Academy Application as part of its efforts to develop its workforce, prepare the future leaders, and improve its capabilities, skills, and competencies. The Marafiq Virtual Academy provides a package of programs aligned with their career path and professional development requirements, and this will eventually increase the organization's competitive advantage


in line with the objectives of the Kingdom's Vision 2030.

In Yanbu, Marafiq also received the highest five-star occupational health and safety audit rating for the third consecutive year, demonstrating the degree of Marafiq's commitment to the global health and safety management system.

In addition, as the lead developer of the Independent Sewage Treatment Plant No. 2 at King Abdulaziz International Airport in Jeddah, Marafiq achieved financial closure in collaboration with the alliance it formed with Veolia and the Gulf Funds, to support the development, financing, engineering, procurement, construction, implementation, ownership, operation, maintenance and transfer (BOOT) to the Saudi Water Partnership Company. This project is in line with its strategy, which has been approved by the Board of Directors to expand its business outside the industrial cities to achieve the desired material return and increase Marafiq's profitability.

Marafiq has also signed a contract worth SAR 757 million to implement the expansion works of IWTP-8 (Stage 4) in Jubail Industrial City with the Saudi Electrical and Mechanical Services Company.

On another front, we have been making good progress with Marafiq's reliability improvement program. Since the start of Marafiq's reliability program in 2011, reliability tools have been applied to Root Cause Analysis (RCA), Reliability Centered Maintenance (RCM), Risk-Based Inspection for Metal Tanks and Pipes (RBI) with the support and follow-up of the Reliability Executive Committee. All our efforts have resulted in a significant increase in the Availability Index of production units (electricity and water) from the lowest level globally (within the red band) in 2014 to the highest level globally (within



the green band) at the end of 2019, according to the report of the international standards consultant (FITCHNER). To sustain our success in developing the reliability program, Marafiq will implement the Instrumented Protective Function system (IPF) for its protection devices. Furthermore, a certified specialized consultant has been assigned to develop the Asset Management system and other strategic initiatives.

All these indicators and the projects, which have been completed in 2020, indicate that we are steadily proceeding at a balanced pace in accordance with the directives of the Marafiq Board of Directors.

I want to take this opportunity to extend my gratitude and appreciation to all Marafiq employees for their dedicated efforts to ensure the reliability and continuity of our services to our customers, especially during these difficult circumstances that we have faced.

Finally, we would like to assure you and everyone that our employees' safety and health has always been our top priority, and we never compromise on the application of safety rules.

BUILDING AN EXCELLENT FUTURE TOGETHER

Mohammed Berki Al-Zuabi
President and CEO

Marafiq welcomes its new President and CEO



The Chairman of Marafiq's Board of Directors, Abdallah Ibrahim Al-Saadon, has announced the appointment of Mohammed Berki Al-Zuabi as the new President and CEO of Marafiq starting from October 1, 2020. Mr. Al-Zuabi was previously one of Marafiq's Board of Directors and has a wealth of experience in the Electrical Power Systems and Oil & Gas Industries business. He was previously associated with Saudi Aramco as well as Foster Wheeler and has specialized experience in high

voltage electrical systems, operation, maintenance, and engineering. Mr. Al-Zuabi has completed a Master's degree in Sustainable Electrical Energy from Georgia Institute of Technology (GIT), a Master's degree in Construction Engineering and Management from King Fahad University and Minerals, and a Bachelor degree in Electrical Engineering from King Fahad University and Minerals.



Mohammed Al-Balaihned appointed as new member of the Marafiq Board of Directors

Mohammed Al-Balaihned has joined Marafiq board of directors to replace Vincent De Rivaz, as a representative of the Public Investment Fund (PIF). Mr. Al-Balaihned is PIF's Director of Investment.

He holds a Bachelor's degree from Prince Sultan University and a Master's degree from the London Business School.

Marafiq inks contract worth 757 million Saudi Riyal to expand IWTP8



Marafiq officially signed the fourth phase contract to expand the Industrial Wastewater Treatment Plant No. 8 (IWTP8) in Jubail. The project is expected to take 36 months and be implemented by the Saudi Electrical and Mechanical Services Company. Marafiq is seeking to provide high-level services that meet the requirements of growth in industrial projects in the Kingdom within its 2030

Vision framework. This expansion will enable the plant to treat industrial wastewater with a 125,000 cubic meters/day of liquid waste in addition to its current capacity. The development of IWTP-8 will use the latest technologies to enhance the capabilities to preserve the environment and fully commit to the Royal Commission's environmental regulations.

Marafiq, the lead developer in Saudi Arabia's Jeddah Sewage Treatment Plant, reaches financial closing



SWPC and the consortium composed by Marafiq, Veolia, and Amwal AlKhaleejiah have successfully achieved the financial closing of the US\$ 280M ISTP (Independent Sewage Treatment Plant) project for Jeddah. Stage one will treat 300,000 m³ per day, scheduled to be commissioned on January 31, 2023. Stage two might add another 200,000 m³ per day when the new STP capacity exceeds specific utilization rates. During these unprecedented times,

SWPC and the Marafiq's consortium team have driven the entire project flawlessly and have now brought it to its financial close. Marafiq's consortium has also succeeded in establishing a Saudi-based company to serve the project, the Jeddah Althaniya Water company, which will operate the plant for 25 years as part of an exemplary partnership between the public and private sectors.

Mayor of Yanbu



On October 19, 2020, the Mayor of Yanbu Province Saad bin Marzooq Al-Suhaimi, welcomed Marafiq's President and CEO, Mohammed Berki Al-Zuabi during his visit to the region. The meeting was symbolic of the good relations which demonstrated the commitment towards cooperation in future interests.



Royal Commission Yanbu

On October 19, 2020, the Marafiq President and CEO, Mohammed Berki Al-Zuabi, visited his counterpart at the Royal Commission in Yanbu, Dr. Fahad Al-Qurashi. The CEO's discussed a variety of issues as well as collaborative efforts for the future.



Royal Commission Jubail

On October 15, 2020, the Marafiq President and CEO, Mohammed Berki Al-Zuabi was received by the CEO of the Royal Commission in Jubail, Mustafa Mohammed Al Mahdi. The delegation was briefed on major projects and future plans for the Jubail Industrial City.



90th Saudi National Day



Marafiq joined the Kingdom in celebrating its 90th Saudi National Day and wished prosperity to the whole nation. Marafiq celebrated the 90th National Day by decorating its main building in Jubail Industrial City in green and pictures of the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz and his Crown Prince Amir Mohammed bin Salman, may God protect them. Marafiq illuminated the JWAP station in Jubail Industrial City and the power transmission towers in Yanbu Industrial City. They were decorated in green for more than a kilometer to form an aesthetic painting celebrating the National Day. The Operation and Maintenance Building and the Customer Relations Center in Yanbu, and the Entertainment Center in the middle of Marafiq employees' community area were also lit up in green. The Corporate Communication Department released two films on the national occasion, and decorated the main building walls with the Kingdom's flag and pictures of the historical kings to the present king.



Expansion of IWTP8 (Stage 4) project in Jubail Industrial City

On October 14, 2020, Acting General Manager for Projects, Fayez Falah Al-Anazi, engaged with the Project Management Team during a kick-off meeting to establish communication methods between the Marafiq Project Team and Saudi Electrical Mechanical Services Company (SSEM) for the Expansion of IWTP8 (Stage 4) project in Jubail Industrial City.



Marafiq and Kemya Stakeholder Engagement Meeting



Mohammed Berki Al-Zuabi, Marafiq President and CEO, and Metab Al-Shammari, President, KEMYA (Sabic and ExxonMobil Joint Venture), attended the Marafiq and Kemya Stakeholder Engagement Meeting on October 5, 2020, at Marafiq Head Office in Jubail.

Marafiq's new gas customer



Marafiq Gas Distribution has successfully connected new gas customer WangKang Saudi Ceramic on September 2, 2020, to Marafiq Sales Gas Distribution Network. The new customer has approved the allocation of 12 MMSCFD from MEIM.

New Pump Station PS-56A



Groundbreaking Ceremony for New Pump Station PS-56A and Sewer Force Main to SWTP Project was held in Jubail and attended by Fayez Al-Anazi, General Manager for Projects, Mohammed Al Shammari, PID Manager, and Mutasim Abbas Contractor, General Manager-MACO.

Blood donation campaign

Marafiq concluded the five-day blood donation campaign in cooperation with King Fahd Specialist Hospital blood bank in Dammam. The number of donors from the campaign reached 150 employees from Marafiq, MaSa, Tawreed, and

contractors. The campaign was organized as part of its commitment to its social responsibility to support patients with cancer, leukemia, and organ transplantation.





New Growth Strategy: A triumph for Marafiq

Ahmed Mohammed Khalifah Al-Shangiti
General Manager, Business Development

In 2017, Marafiq's Board of Directors approved its New Growth Strategy driven by the insights of Vision 2030, where Saudi Arabia is heading to privatize the power and water sector and shifting to open up for the competition by boosting private investments in infrastructure and its sustainability. As a result, the power and water utilities business environment are changing significantly on account of Vision 2030 strategic objectives such as; the privatization of government assets (up to 146 state-owned entities have been proposed) including SWCC and increasing the private sector's contribution (from 40% to 65% to GDP).

For the following targets have been set:

1. Increasing the percentage of desalinated water production through strategic partners (from 16 to 52%),
2. Increasing the percentage of treated water through strategic partners (from 0 to 20%),
3. Increasing the percentage of cities covered with water and sewage services through the National Water Company (from 42 to 70%), and
4. Lifting the percentage of power plant electricity generation through strategic partners (from 27% to 100%).

Marafiq considers these targets as strategic opportunities. To capture these ambitious openings, Marafiq is opted to consider water opportunities across the value chain (together with co-generation) beyond the traditional Royal Commission areas while continuously serving our historical customers in the industrial cities of Jubail, Yanbu, and Ras Al-Khair by providing reliable and sustainable utility services, which comply with environmental regulations and maximize shareholders' value.

Marafiq foresees enormous growth potential to contribute to its portfolio of power and water utility services across the Kingdom and outside the Royal Commission areas, including developing greenfield plants and acquiring multiple brownfield projects. Accordingly, the company has successfully embarked upon its New Growth Strategy to position Marafiq as Kingdom-wide champion for utilities by evaluating various water and co-generation opportunities in the industrial cities and across the Kingdom and allowed for the first time to participate in the projects beyond its operational and regulatory dominion. For this, Marafiq is well placed in the domestic market and can bring a unique value proposition to utility-related projects in the Kingdom through its core competencies such as; extensive experience in utility business, solid technical and financial credibility, right local presence in Kingdom.

Within the directions of the new growth strategy, Marafiq has for the first time confidently participated in new regions across the Kingdom in projects such as; Rabigh 3 IWP (Independent Water Project), Shuqaiq 3 IWP, Yanbu 4 IWP, Jubail 3A IWP, Dammam ISTP (Independent Sewage Treatment Project), Jeddah Airport 2 ISTP, Tanajib Co-Gen and Desalination Facilities. For most of the projects, Marafiq remained in the band range of 1 to 3 in the competition.

To drive its new long-term strategic growth objectives, a consortium led by Marafiq and partners: Veolia Middle East and Amwal AlKhaleejiah were awarded Jeddah Airport 2 ISTP project which was floated by Saudi Water Partnership Company (SWPC) with an investment worth of USD 280 million. The consortium has effectively achieved the financial close by meeting all conditions, document execution, and draw-downs became permissible. It has offered the lowest tariff (\$0.24) in the MENA region as compared to, for example, Sulaibiya (Kuwait, \$0.47); Muharraq (Bahrain, \$1.45); Dammam (Saudi Arabia, \$0.34), and New Cairo (Egypt, \$0.31).



The project's scope includes; the development, financing, procurement, implementation, operation, and maintenance of the Sewage Treatment Plant of 300,000 m³/day capacity accompanied by allied infrastructures and facilities. Upon completing the expansion phase, it will have the capability to produce around 500,000 m³/day of treated effluent for agricultural, commercial, and industrial areas and Jeddah localities irrigation.

The project agreement's financing contract is 25 years under a Build, Own, Operate, and Transfer (BOOT) basis. Within the Sewage Treatment Agreement (STA), a project company has been established to develop the project to treat the entire sewage brought by National Water Company (NWC). The payment commitments of SWPC under the STA include: tariff payments and termination payments, guaranteed by the Ministry of Finance of the Kingdom (MoF) vide Credit Support Agreement, executed by MoF and the project company.

As the project will be under the dominion of the General Authority for Meteorology and Environment Protection (GAMEP), it will be designed to meet other national environmental guidelines and standards, such as those developed by the Ministry of Municipalities and Rural Affairs associated with guiding the development of the municipal sector through the implementation of infrastructure such as STP systems.

In addition to the applicable national statutory obligations and standards for environmental conservation and management, the project will also meet international principles, standards, guidelines, and laws that imply with the ecological protection specific to the requirements

and performance criteria of the International Finance Corporation (IFC) and Equator Principles Financial Institutions (EPFI).

This triumph is a vibrant example of the success of Marafiq's New Growth Strategy, which is a stepping stone for Marafiq to participate in more upcoming competitive projects in the Kingdom of Saudi Arabia. This victory has extended tremendous experiences and learnings to the company to play effectively in the changing competitive utilities business environments by; value-building growth through group and corporate strategies, increased market share through globalization by assessing how to penetrate and succeed in utilities' markets in the Kingdom, shared risks and new business opportunities through partnerships and alliances such as identifying strategic partners, synergy and competence optimization with new business models via adopting shorter-term procurement and contracting to supply inputs through competitive bidding process, optimization of CAPEX and OPEX estimates by redesigning and modify the Scope of Work (SOW) to attune the costs for the required specifications, improve its negotiation skills to secure better financing offers taking cue from EBL financing in the bidding projects and get the best possible rates without revealing its internal target price or counter offers from competing financiers.

Moreover, it has also demonstrated Marafiq's position as a thought leader and its dependable ability to win in a highly competitive market. Likewise, it has set an ambitious drive for the company to participate in; one-time opportunity to invest in assets under the privatization program, build upon and improve its already strong presence in the major industrial cities of the Kingdom.



Marafiq local content: A promising opportunity to seize

Fahad Abdullah Al-Shammari
General Manager, Supply Chain

Recently, Local Content has become very newsworthy, and Saudi Arabia is enacting laws to make it mandatory for all stakeholders in specified industries. But what is Local Content, and why has it become such a popular topic in the government sector in general and the power-related industry in particular?

To understand Local Content in Saudi Arabia, we need to get back to the release of the promising Saudi Vision 2030, which aims to diversify and strengthen the national economy. Consequently, established by a royal decree in December 2018, the Local Content and Government Procurement Authority (LCGPA) was founded to develop all Local Content aspects to benefit the national economy and improve government procurement operations and monitor them based on the applicable regulations and laws. In October 2019, LCGPA launched the Local Content Partnerships initiative wherein government entities and major national companies announced their commitment toward developing Local Content throughout various sectors in Saudi Arabia.

As per Saudi Arabia Local Content and Government Procurement Authority (LCGPA), Local Content is the total spend in the Kingdom of Saudi Arabia on Saudi components within labor, goods, services, assets, technology. These aforementioned Local Content components, labor, goods, services, assets, and technology, are measured through four primary measurement tools form the final Local Content score, representing the given organization contribution to the national content portion.

Among various business entities with great interest in Local Content was Marafiq as the company has developed Local Content programs early this year with four significant dimensions; cultural, technical, procedural, and supplier development factors. Marafiq shall benefit from this national drive at various levels as a direction towards optimizations.

Benefit of Local Content Program

- Improved public relations and Social Responsibility.
- Reduce supply risk due to changing global conditions (e.g., Covid-19 impact on Supply Chain).
- Improved budgeting and become more competitive to win new projects.
- Develop a partnership with local manufacturers for value engineering and cost reduction.
- Reduce the supply cost of materials and services.
- Reduce lead time of supply and improve business efficiency.
- Reduced inventory level as materials immediately available with a local manufacturer.
- Early completion of projects instead of waiting for a long lead time during logistics and customs clearance.
- Availability of after-sales support for repair and replacement.
- Greater control over supplies.

The Local Content program is a win-win opportunity for all stakeholders and concerned stakeholders. The program embraces specification development, product selection, value engineering, procurement, and managing contractors/suppliers to use only local resources and products to achieve Local Content programs.

Leading HR optimization through SAP SuccessFactors

Ahmed K. Al-Khleawi
General Manager, HR&S



The Toward Excellence journey has made significant strides in optimizing Marafiq's workforce, contributing to building an engaged high-performance culture. Marafiq has a diverse and dynamic workforce who are inspired to be part of a growing organization. As thought-leaders, we have initiated a new project to introduce a world-leading digital platform solution known as SAP SuccessFactors.

SAP SuccessFactors provides an all in one platform that can be used to build a resilient business; the platform uses secure and integrated technology to enable HR to attract, develop, motivate, and manage Marafiq's entire workforce.

The SAP SuccessFactors Project will be delivered in three phases over a period of 15 months. The first phase will launch "Employee Central," which is the core HR management system along with ESS/MSS. Employee Central supports core HR functions, such as organizational management, global results, employee recordkeeping, time, and attendance, all managed through one easy interface.

Phase two will introduce "performance management, goals, and compensation" which accurately assess employee's performance and improves employee alignment to organizational goals.

Lastly, phase three will introduce the "career and succession learning" to the SAP SuccessFactors; this will streamline our efforts

in creating meaningful career opportunities for our employees, close talent gaps, and develop exceptional leaders for the future.

SAP SuccessFactors is an exciting project that will give Marafiq a competitive edge in the market; it will provide important benefits to support the development of an engaged high-performance culture. We will keep our readers updated with these exciting developments as the project nears closer to other components and phases.





Marafiq sustains a high quality of drinking water

Ali A. Al-Aseeri

Technical Services Manager, Yanbu

The Marafiq laboratory continuously monitors drinking water quality on shift, daily, monthly, and yearly schedules to ensure that product dispatched to our customers shall meet the Royal Commission Drinking Water Guidelines.

Quality assurance and quality control are optimized by conducting regular analysis to monitor water health and safety, as well as maintain optimum water quality for treatment plants and final product water.

Marafiq has well-established laboratories equipped with the latest equipment for Drinking Water Chemical and Microbiological Analysis. Qualified and well-trained staff with a high standard of quality recognized by international association through Proficiency Testing.

Parameters influencing water quality

- **pH:** By definition, pH is the negative logarithm of the hydrogen ion concentration of a solution, and it is thus a measure of whether the liquid is acid or alkaline. The pH scale (derived from the ionization constant of water) ranges from 0 (Acidic) to 14 (Alkaline), the pH range of drinking water is from 6.5 to 8.5.
- **Alkalinity:** is a measure of the water's capacity to neutralize acids (its inherent resistance to pH change). The minimum alkalinity required for the drinking water is 40 ppm as CaCO₃.
- **TDS (Total Dissolved Solids):** Are the total solids dissolved in water; it is the indicator of minerals contained. For drinking water TDS range is 100-500 ppm.

- **Total Hardness:** Hardness is taken to comprise the calcium and magnesium concentrations expressed as ppm of CaCO₃. For drinking water total Hardness range is 70-500 ppm.
- **Calcium:** Calcium is the most important and abundant in the human body, and adequate intake is essential for average growth and health. The minimum concentration required in drinking water is 20 ppm.
- **Magnesium:** Magnesium is the ninth most abundant element in the universe and a major dietary requirement for humans (0.3-0.5 g/day). The minimum requirement of Magnesium in drinking water is 5 ppm.
- **Chlorine dioxide:** Disinfectants used to destroy natural water impurities and inactivate microorganisms that can produce diseases. The maximum Control Value is 0.2 ppm.
- **Turbidity:** Turbidity in water arises from the presence of large numbers of individual particles (which are not filterable by routine methods).



Turbidity should be less than 1 NTU in drinking water.

- **Coliform Bacteria (Fecal and Total):** Fecal coliform originate in human and animal waste. Total coliforms include bacteria found in the soil, in water that has been influenced by surface water, and in human or animal waste. Monitoring of coliforms very important for the health and safety of consumers. Marafiq bacteriology laboratory continuously monitoring the water quality and ensures that no coliforms present in the drinking water.

Marafiq drinking water is 100% safe to drink

- Marafiq is committed to delivering safe and reliable drinking water to their customers 24 hours a day, 365 days a year. Marafiq drinking water contains sufficient required minerals essential for human health, such as Magnesium, Calcium, and Potassium.

- Marafiq water is reaching consumers within 48 hours of production.
- Marafiq follows strict quality control and safety standards for both production and distribution processes.
- Marafiq drinking water is safe to consume.
- The disadvantage of drinking bottled water is that it has a high cost and negative impact on the environment.

There is no need to install any purification system at your home

The pipeline network up to your home is constructed with GRP or UPVC, so there is no corrosion. Suppose the pipe connection from the Marafiq line to your home is non-stainless steel, and you observe some particles. In that case, you can connect an ordinary water filters to remove any corrosion particles. Please do not use Reverse Osmosis filters; it will remove all essential minerals from your water.



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Stakeholder collaboration is key to building confidence

Saeed Al-Abdullah
Corporate Communication Manager

Considering that the Covid-19 pandemic has not yet reached that stage of being a past memory, the Corporate Communication team is still proactively working across the spectrum to ensure that its stakeholders maintain a conscious awareness of the precautions to prevent the spread of the virus.

The Corporate Communication team has placed stakeholder collaboration at the core of its strategic direction; the department has developed multiple channels and relationships to maintain a top of mind focus on practicing the Covid-19 safety precautions.

At Marafiq, its employees are its top priority. They are indeed the heart of its business. With the support and collaboration of various departments, we continue to disseminate knowledge around Covid-19, which has contributed to employees feeling confident that Marafiq is taking the best possible actions to reassure their safety.

Transparent and consistent communication activities continue to play a vital role in building trust within Marafiq's stakeholders' eco-system. These

communicative efforts demonstrate that Marafiq values its employees' well-being, which is paramount to its overall operations and success.

The Corporate Communication team has its finger on the pulse and monitors developments in the Kingdom. We gain valuable insight from our collaborative efforts with our counterparts in neighboring organizations in Jubail and Yanbu. Although Marafiq is gently starting to witness a slow increase in internal events, we are still focusing on taking stringent precautions to conduct our activities.

In light of the progress, the Corporate Communication team continue to promote collaboration in order to build company-wide health and safety culture.

Be safe and protect your health, prevent the spread of the contagious virus by being conscious of your personal space, practice physical distancing, wear the right type of mask, wash, or use hand sanitizers often throughout the day.





HOW TO STAY SAFE AND PROTECT YOURSELF FROM CORONAVIRUS



Avoid close contact with anyone and call 937 when you have been in contact with infected people or have any of the following symptoms:

- Cough
- Fever
- Difficulty breathing



Wear a cloth mask



Make sure your hands are clean by:

- Washing your hands with soap and water for 40 seconds
- or use alcohol-based hand sanitizer for 20 seconds



Avoid handshakes and hugs



Avoid touching your eyes, nose, and mouth before washing your hands



Adhere to hygiene and cough etiquette by covering your mouth and nose:

- with tissues and throwing them away immediately
- or coughing into your elbow and washing your hands afterwards



Keep a safe distance of at least 2 meters



Avoid gatherings and crowds



Do not share personal items with others

MOH initiative





Motor vehicle safety for children

Ghulam Qadir Ghulam Rasul

Protection Technician, Customer Relations and Network, Yanbu

For children between the ages of 3 and 14, accidental injury-related deaths happen most often when riding in a car. Children are more likely to be injured, suffer more severe injuries, or die in motor vehicle crashes when they are not properly restrained.

High-risk situations may include the following:

- Lack of the use of child safety restraints or improper use of safety restraints in motor vehicles.
- Improperly used or installed child safety seats.
- Placing children in front of passenger seat airbags.
- Trunk entrapments.
- Leaving children unattended in cars.



Use of safety restraints in motor vehicles

However, children between the ages of 4 to 8 years who have outgrown their child safety seat often are placed too soon in adult shoulder and lap belts without a booster seat. A booster seat is necessary if the shoulder strap of the seat belt crosses your child's neck rather than her chest and the lap belt crosses her stomach rather than her hips or upper thighs.



Use of child safety seats

Many people think they have installed their child safety seat correctly and believe they are using it properly. As many of child safety seats are found to be improperly installed and/or used. A child can suffer injuries or death in a motor vehicle crash if the child safety seat is not properly installed or used.

Some of the most common mistakes in installing or using child safety seats include the following:

- Safety belt not holding the seat in tightly or not in locked mode.
- Harness straps not snug or positioned correctly.
- Car seat recalled and not repaired (includes booster seats).



Do Not Place Rear Facing Child Safety Seat In Front If There Is an Airbag.

The danger of airbags

When infants in rear-facing child safety seats and children who are unrestrained are placed in the front seat with an airbag, they may be too close to an inflating airbag in the event of a crash. An airbag will inflate at speeds up to 200 mph, which can hurt passengers who are too close to the airbag. In addition, because of the child's size, the airbag can strike him or her on the head or neck, resulting in serious or fatal injuries.



Always lock your vehicle, including the trunk, when not in use.

Trunk entrapment

A child's nature is to explore his or her surroundings. Accidental trunk entrapment, when children lock themselves in a trunk, can be fatal due to hyperthermia (heat stroke) or suffocation. Carefully watch your young children when they are around vehicles. Keep rear fold-down seats closed inside the vehicle.



Leaving children unattended in cars

As tempting as it may be to run a quick errand, leaving children unattended inside a vehicle, "even for a minute," can be dangerous. When left unattended, children may be able to start the vehicle or put the vehicle in neutral. In addition, heat buildup or dangerously cold temperatures inside a vehicle can quickly become fatal to children.



Project methodologies and contracting strategies

Shankar Chandran

Commercial Contract Advisor, Corporate Governance

Project planning and execution is highly challenging, with multiple activities to be well integrated, to ensure delivery on time, within the cost, and of high quality, requiring special skills, management techniques, and meticulous planning in all stages. Strategic formulation of best-suited project methodology and contracting strategy upfront on a case by case basis is vital for the project's success and objectives.

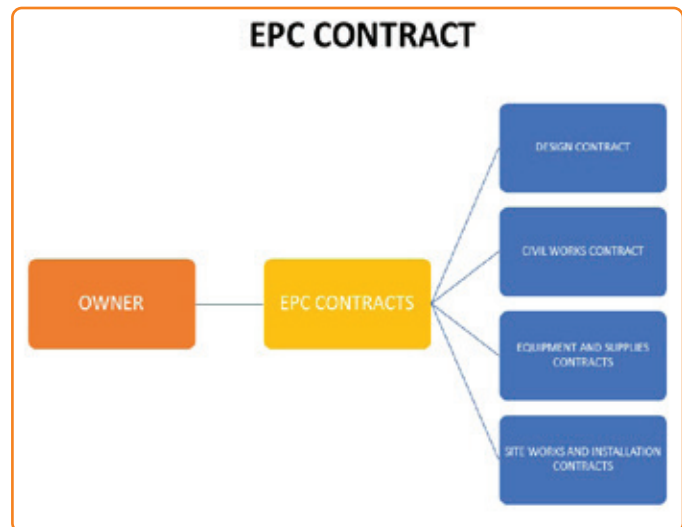


Package contracts (several individual contracts forming part of a project)

Historically, owners, when conceptualizing the development stage of the project, went for, even within a single project, the methodology of breaking and awarding several individual contracts for systems and equipment as well as works and services on multiple vendors, suppliers and contractors. This model helped overall project design by the owner, ensured the vendors' and contractors' direct

responsibility to the owner, removed the add on margins at multiple hands leading to price savings.

However, this model posed certain disadvantages. Coordination and integration of the works and systems came under the responsibility of the owner. When there was a delay even in a single or just a few key contract(s), the whole project was held up and delayed, with no overall recourse cover to the owner. Also, when interdependent systems and contracts were involved, each delaying contractor was finding it easy to blame the other entity.

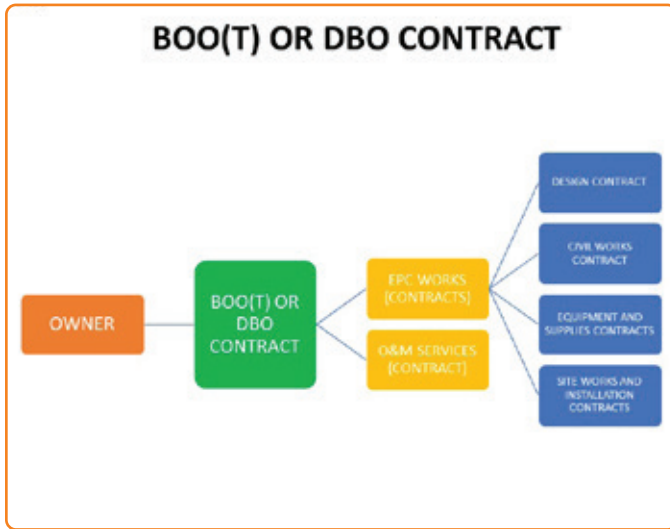


EPC contracts

The methodology of EPC contracts evolved, where a single contractor is held responsible for all aspects of the project for engineering, procurement, construction, commissioning, and handover on LSTK basis, i.e., fixed lump sum price turnkey basis, where the contractor undertook the full liability and risk for the given technical scope and specifications formulated by the owner. Other than post-award

changes in scope or specifications, if any, by the owner, for which additional relief to be provided, all risks including cost overrun and barring force majeure interventions, time overrun were allocated to the contractor. Under the EPC methodology, the financing was done by the owner for the project.

and pay for it, on a guaranteed 'take or pay' basis, for a specified term, say 20 or 25 years. This model transferred maximum risks on the contractor, even much more than the EPC contract methodology (in some cases, strategically, the contractor's responsibility was restricted to design, build and operate, but asset ownership and the financing of the project rested with the owner).



Marafiq projects

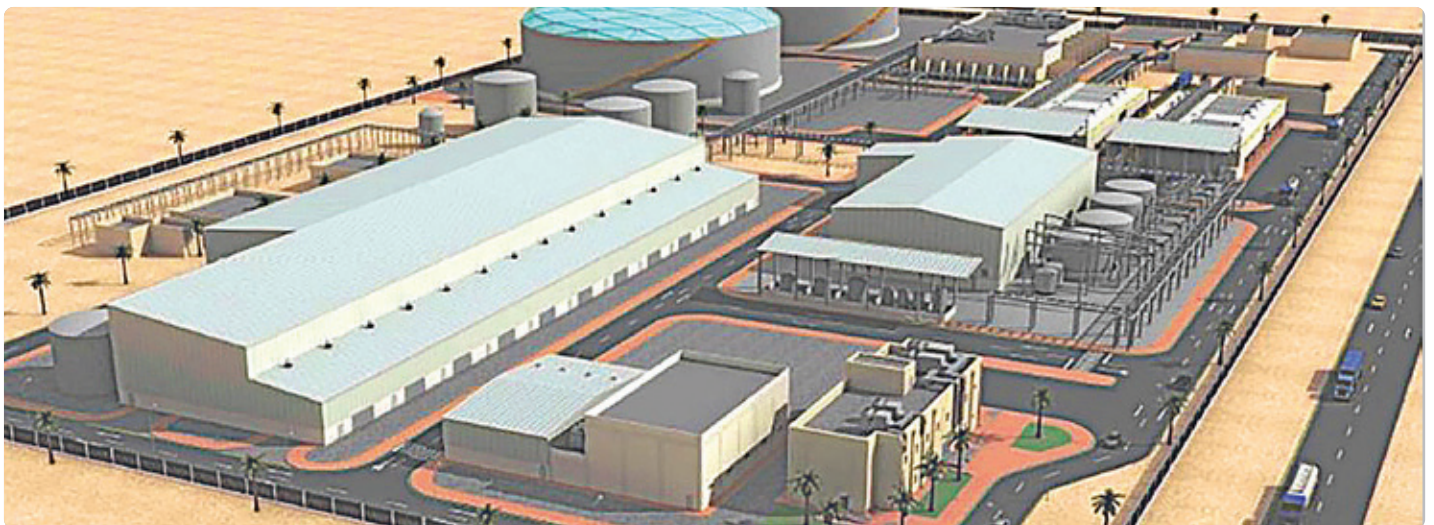
As an example, the Marafiq Yanbu 2 Power and Water Project followed the EPC model. Marafiq IWPP Jubail Project (JWAP) followed the BOOT model, with financing under the seller's scope, with no recourse liability to Buyer. Sadara SWRO Project and IWTP8 DBO Project followed the DBO model where the plant ownership and financing kept in Marafiq scope, but the design, build and operate long-term were formulated under the scope of the contractor.

BOO(T) or DBO contracts

The innovations in projects methodology, especially in utility or infrastructure projects, led to BOO(T) or DBO method of project development. Under this method, the contractor became responsible not only for engineering, procurement, construction, and commissioning of the plant but its operation and maintenance as well for long-terms. Generally, under this methodology, even financing and funding the project became the seller's responsibility. The owner's obligations were limited to just buy the utility output

Project methodology and contracting strategy

To conclude, there is no single method that can be considered the best or most ideally suited. Every method has its unique characteristics and associated costs and risks, and it depends on the objectives and requirements of the individual project. The suitable methodology needs strategic evaluation and selection on a case-by-case basis during the project feasibility and planning stage to optimize and balance objectives, requirements, risks and returns.





Power distribution reliability improvement and regulatory compliance

Fahad Saleem Saadi

Power Distribution Superintendent, Yanbu

The Power Distribution department meets customer needs by providing reliable, sustainable, effective, and efficient power distribution services and creating the most exciting workplace for our employees, and managing growth with profitability.

Power distribution is the final stage in delivering power that carries electricity from the transmission system to consumers. The total number of customers in the Madinat Yanbu Al-Sinayah (MYAS) area exceeds nineteen thousand with a full length of underground cable system 376.5 KM for 34.5 KV cables, 2,237 KM for 13.8 KV cables and 1,700 KM for low voltages cables. The total electrical equipment count is more than 3,700 and electrical manholes have been estimated at around 4,100. This kind of rapid growth provides us with a unique opportunity to plan, integrate reliability processes in our services, and work on opportunities to increase revenue.

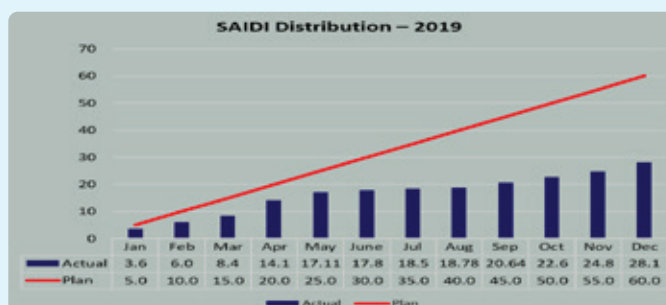
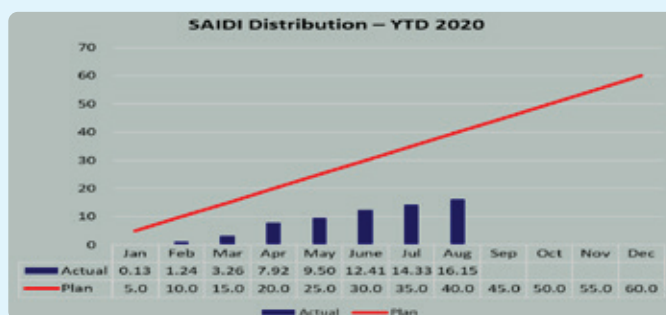
The reliability of a distribution system is analyzed and assessed based on many different parameters. One of them is the System Average Interruption Duration Index (SAIDI), which measures the number and length of electricity interruptions. SAIDI is being used worldwide as a significant Reliability indicator involving both planned and unplanned outages.

Reliability Center Maintenance (RCM) manages planned outages to have a world-class maintenance practice for equipment in the MYAS distribution system. RCM studies optimized the frequency and duration of the scheduled outages for each equipment, found failure modes, and introduced new tasks and technology to enhance the early detection of possible flashover due to electrical stress or insulation weaknesses. Managing unplanned Interruptions is another focus area for Power Distribution Reliability improvement. Power Distribution gives a high priority for eliminating root causes identified through structured Root Cause Analysis (RCA) studies.

A multidisciplinary Plant Reliability Management (PRM) team can manage and drive the Power Distribution plant

area's reliability improvement activity. They prioritize reliability issues in their correct sequence of importance and rank, assign resources to those Reliability issues (generate Top 10s) that have the most significant impact on customers. The PRM team takes measures to improve system protection and system response during the faults by quickly locating and isolating the system's equipment and restore the power to the affected customer from the healthy source.

Power demand and customer expectations are getting higher throughout the year, with regulatory authorities are setting strict targets and closely monitoring the quality of supply being provided to customers. Moreover, new technologies are being introduced by installing Cable Fault Indicators (CFI) at the feeders. Keeping these developments in view, we need to put all our efforts together and further improve the reliability of Power Distribution services at Marafiq. The Power Distribution department has observed improvement in SAIDI during the year of 2019. We expect further improvement in 2020-21.





Risks or Issues?

Atiq Ahmed Bajwa
Enterprise Risk Management Manager

During risk assessments, we frequently observe that most participants mix up the risks and issues and use both terms interchangeably. In reality, they are different.

As per ISO-31000, a risk is defined as the “effect of uncertainty on objectives”. According to PMBOK, risk is defined as an uncertain event or condition that results in a positive or negative effect on objectives. In other words, a risk is a potential FUTURE problem or an opportunity.

An issue can be defined as an event or condition that has already happened and has impacted or CURRENTLY impacting the organization’s or project objectives.

Risks and issues both need to be managed, but the tools and techniques to analyze and decide the treatment options may differ.

Risk analysis and evaluation may use Monte Carlo Analysis, FMEA (Failure Modes and Effects Analysis) and Bow Tie Analysis, etc. to assess the risk impact and likelihood and decide the best treatment options.

Issues require a Root Cause Analysis (RCA) before deciding the corrective actions. RCA typically involves problem-solving techniques such as Ishikawa or Fishbone Analysis, Kepner-Tregoe, FMEA or Pareto Analysis, etc. Once the root cause/s are known, appropriate actions can be taken to resolve or eliminate the issues.





The Digital Marafiq

Mosab Saleh Al-Moaily

General Manager (A), Information Technology

In line with Kingdom 2030 Vision (National Digital Transformation Program) which focuses on digital health, digital education, e-commerce, and smart cities. Marafiq's vision is to be the preferred supplier of utility services in the major industrial cities in the kingdom of Saudi Arabia with a mission to meet customer's needs by providing reliable and sustainable utility service which comply with environmental regulations and maximize stakeholders value, Marafiq has pursued the journey of digital transformation by developing strategies driven by the Towards Excellence program. Digital transformation is an investment in ideas and behavior to radically transform the way work is done, by taking advantage of the great technological development that is taking place to serve users/customers in a faster and better way. Digital transformation offers massive capabilities to build effective, competitive and sustainable societies by dramatically changing the services of different stakeholders, consumers, employees and beneficiaries, while improving their experiences and productivity through a series of proportional processes, along with redefining the necessary actions for activation and implementation.

Digital transformation requires enabling the culture of innovation in the work environment, and includes changing the basic components of work, from its infrastructure, operating models, to services. Hence, Marafiq has defined digital ambition by providing smart and sustainable energy and water solutions to our partners and clients. Through the digital transformation program, Marafiq aims to provide products, services and capabilities to deliver environmental, societal and economic value to Kingdom of Saudi Arabia. The digital ambitions that are trending in utility sectors are mostly focuses on these pillars:



Improve Energy Usage and Outcomes

Leverage Smart meters to help customers optimize energy usage and deliver new services.



Automated and Smart Operations

Manage variability and automate the controls to manage network and delivery of services to customers.



Seamless Customer Experience

Provide effortless, personalized customer experiences.



Improve Asset Performance and Reliability

Provide data and intelligence to improve the reliability of assets and make strategic investments in the network.



Enhance Digital Capabilities and Culture

Build future ready workforce and people jointly contribute to redesigning experiences, improving processes and making technologies a business driver.

The key enablers for Marafiq digital transformation strategy are:

- 1. Infrastructure:** Establishing modernized infrastructure that ensure flexibility to adapt the trending and emerging technology such as cloud, big data, IoT, AI, and machine learning is the key enabler

to successful digital transformation program. Marafiq has already started the journey and has successfully completed this part with positive performance improvement outcomes on its infrastructure using SAP HANA platform over a private, secure, in-kingdom cloud (SAP HEC). Other services are currently being assessed to move to the cloud such as office 365.

2. **Core Applications:** ERP (SAP ECC) to leverage modern technologies and future digitalizing the core SAP S4Hana to have unified and seamless user/customer experience and mobility, moving from t-codes/transactions to simplified processes, leveraging machine learning, artificial intelligence, supporting new/innovative business models, and adopting leading public cloud solutions (SaaS- Software As A Service, ex. SAP Success Factors, Ariba, and Advance Analytics) to extend capabilities beyond the core.
3. **SMART Metering:** Target all the existing billing energy meters of commercial, government and residential customers to be replaced with smart meters with a view to reduce the peak consumption, optimize cost, better data management and accuracy, improve revenue management, and meet customer needs.
4. **IT/OT Integration:** Integrating IT and OT to leverage the capabilities of the SAP ERP and introducing SMART and predictive capabilities, and bringing real-time, live insights for better management visibility and decision making to help in better assets utilization, reducing operation cost, and connected operational insights. We have successfully started this journey by going live with CPO project in 2018 and continue to move forward to enable other technologies in the future such as Digital Twin.

Another key factor to ensure success of the Digital Transformation Program is to be aware of the challenges and have proactive plan to mitigate them. The top three challenges in a typical digital transformation program are:

1. **Cyber Security:** All new innovative solutions need to be secure to perform their objective successfully. Cybersecurity processes will not only support the transformation but it will create the foundation for greater realization of the new solutions such smart metering and digital twin. Secure integration will be one of main initiatives to optimize the assets utilization and digitalizing manual processes. The most important aspect of Cyber Security is people awareness and their ability to detect the threat and report it immediately
2. **Change Management:** Change Management must start from the top and the messages must be cascaded down all the way to the people in the field. Hence, the program has to be steered by Executive Management Team and communicated effectively to all levels in the organization in order to enforce these changes effectively in the organization. In addition, training and development are essentials for such a program to succeed.
3. **Technology Partners:** Leveraging the right technology and selecting trusted partners is the main factor to shape the digital transformation program. Such decisions need to be made carefully and take into consideration quality, economy, and time value in order to develop programs that meet our ambitions.

Finally, the program will not shed light if our people don't believe that technology is essential to change the way we do business and utilize this opportunity to build SMART workplaces and be part of modern society in line with national vision, organization objectives, and global digital trends.





Message from the Executive General Manager

Hamad Saad Al-Suhaim
Executive General Manager, MaSa

It has been several months since the world faced the Covid-19 pandemic, a health crisis unlike any that has ever been experienced in recent history. Since the start of the pandemic, our top priority has been to ensure our employees remain safe while maintaining business continuity. MaSa spared no effort to ensure that we have a safe working environment for all our employees while implementing the Ministry of Health (MOH) and QHSE health protocols across the company.

I am very proud and inspired by the way our company has risen to this challenge with flexibility and resilience. I have been particularly inspired by the enormous efforts of MaSa colleagues to ensure the continuity of our services and that our supply chain has operated effectively throughout this period, and we continued to identify potential gaps and found solutions to overcome them. I would also like to recognize our frontline employees for their commitment to continue providing our customers with the essential services at this time while adapting to highly complex and fast-moving developments.

Essential to the continued and reliable operation of our assets is a good asset management plan. Responsible operation and maintenance of assets are crucial, which requires a continuous Reliability Methodology efforts. For assets that reach the end of their economic life, a replacement will be the optimum option to ensure reliable performance and reduce operational costs.

Known as capital investment renewal plans, MaSa, with the support of Marafiq, prepared a risk matrix to assess and prioritize assets that would meet these criteria. The result is a five-year asset Renewal Plan. Over this period, 117 MSAR will be invested in the first program of this kind in Marafiq. This approach offers many opportunities like standardizing assets resulting in maintenance efficiency, and improves MaSa's performance as spares and tools will be less diverse and ease our warehouse's management.

Building on the asset renewal plan, there is a need to improve our performance for specific problems and prepare our assets for future challenges by investing in them. In a world of Artificial Intelligence and digitalization, it is essential and often more reliable and cost-effective to invest in new technologies. Over the next three years, Marafiq is investing SAR 60 million in projects delivered by MaSa to automate the Wastewater Treatment Plants, Potable Water fully, and Reclaimed Water Pumping Stations in Jubail and Yanbu.

Together with the Renewal Plan, these projects are crucial to improving the reliability of our plants and will lead to an increase in customer satisfaction and support the inspired objectives to be the best water service provider in the Kingdom of Saudi Arabia.

In these challenging times, MaSa promotes and implements 'Safety First' and 'Green Environment' approaches for all its Operation and Maintenance activities. The safety of all parties, property, and



MaSa passes 6 million safe man-hours without Lost Time Injury (LTI).

the environment is an essential part of all organizations' activities. With continued efforts and support of all stakeholders, MaSa reached 6 Million safe man-hours without Lost Time Injury on October 10, 2020.

Additionally, MaSa is working to achieve ISO certifications in Quality, Environmental and Safety and, Health Management Systems (ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018). These certifications will help improve our services and business performance, increase efficiency and productivity, and facilitate continual improvement that MaSa is heading Toward Excellence with the current extended O&M contract.





MaSa business continuity strategies and protocols during Covid-19 pandemic

Adel Turkistani, HR Manager, MaSa

MaSa HR successfully organized and facilitated a workshop in coordination with the Ministry of Human Resources and Social Development. On May 20, 2020, the workshop was attended by 13 top companies from Jubail and Yanbu via the Zoom application. MaSa-HR initiated the workshop and presented highlights of MaSa business continuity strategies and protocols during the Covid-19 pandemic.

The objective of this event was to improve the communication between participated organizations and exchange standard practices and experiences regarding the Covid-19 pandemic and to align their regulations and procedures with the government policies.

HR organizations from all companies shared their best practices and procedures to manage the pandemic. A representative from the Ministry of Human Resources and Social Development explained the latest government regulations and the news article related to the workforce and Covid-19 pandemic.

The participated companies and government entities appreciated the initiatives of MaSa and agreed on the need to continue running similar workshops in the future.

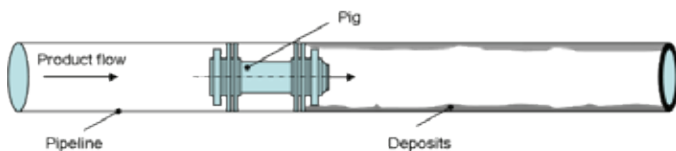


Gas Pipeline Scraping and In-line Inspection

Abdullah Mousa Abdulwahed
O&M Manager, TAWREED

TAWREED has safely and completed the Berri JWAP fuel gas pipeline scraping and in-line inspection in 2014 and 2019 to ensure the gas pipeline's integrity as per five years interval.

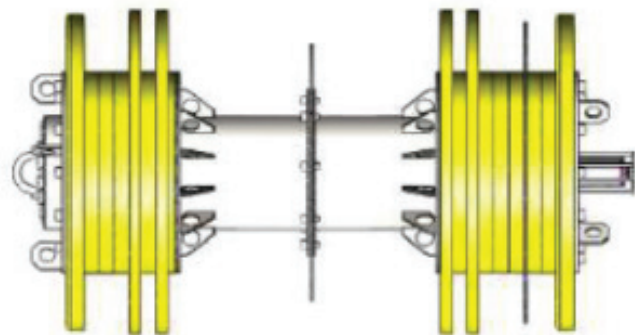
Pipeline scraping is the act of propelling a properly sized spherical or cylindrical device through the interior of a pipeline by using pressure and flow through the pipeline for the specific purpose of gauging, cleaning and inline inspection of the pipeline. Pipeline scraping is carried out to remove the black powder/debris from the pipeline by utility pigs to prevent it from internal corrosion. In-line inspection is used to measure and inspect the pipeline anomalies such as circumferential defects on the wall of a pipe, metal loss, corrosion, and cracks to ensure the pipeline's integrity.



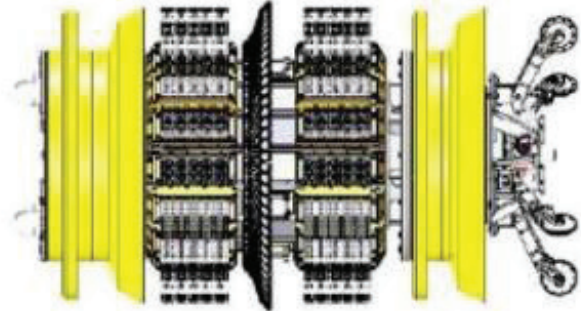
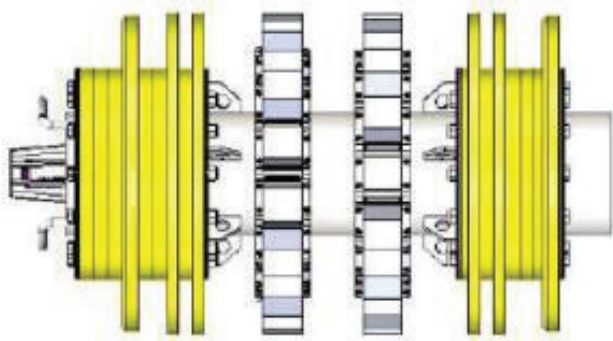
Detailed activities of pipeline scraping and inline inspection:

1. Gauging run: Pipeline scraping first run is the gauging run, in which the pipeline is gauged to ensure the unobstructed passage

of the cleaning and inspection tools. Gauging tool is equipped with deformable aluminium gauge plates sized to 95% of the pipeline nominal ID. The gauge detection inspection can optionally be equipped with a pipeline data logger, which is designed to determine and store operational pipeline data during gauging run. Cleaning run will be commenced on the successful completion of gauging run.



2. Cleaning run: For optimum performance of the inspection tools, a clean inner surface of the pipeline is of paramount importance. The cleaning run will be carried out by utility pig equipped with cups/sealing and brushes to clean the internal pipe wall and remove dirt, rust, mill scale and black powder from the pipeline. The number of cleaning runs will depend on the quantity of debris/black powder recovered from the pipeline. Magnetic Flux Leakage (MFL) tool run will be commenced on the acceptable results of cleaning runs.



3. MFL run: Inspection tool should be calibrated and adjusted as per the pipeline's operating conditions. High-resolution MFL inspection tool utilizing longitudinal pipe magnetization to detect and accurately measure pipeline anomalies such as corrosion, girth weld cracks, mill defects and others. The acceptable tool velocity range is between 0.3 to 4.0 m/sec for the good data acquisition. After MFL tool retrieval, tool data needs to be collected and processed on site to confirm that the data recorded covered the whole length of pipeline and is suitable for further analysis to determine the integrity of pipeline.

4. Data analysis and reporting: The preliminary analysis report will be prepared to verify the inspection tool accuracy. Final in-line inspection report will be issued after acknowledgement of preliminary report. Final inline inspection reporting to be in accordance with the "Specifications and Requirements for Intelligent Inspection of Pipeline". All reported features will also be valued by the pressure sentenced ratio according to ASME B31 G. Estimated Repair Factor (ERF) for each feature or group of features that interact will be calculated. Final inline inspection report recommendations will be implemented to ensure the integrity of pipeline.



Strategic efforts: Building competitive advantage

Khalid Saleh Al-Kradees

Business Planning and Performance Specialist

Competitive advantage can be defined as a way for organizations to use resources to sell quality goods and services at a lower price than its competitors. To have a competitive advantage means that organizations will have better access to resources, cheap labor, raw materials, and better technology.

To attain a competitive advantage, strategic management should be given high importance by the organizations. Strategic management is considered to be the main field of study under the topic of competitive advantage. It is defined as a way by which "management plans and co-ordinates the use of business resources, with the general objective of securing or maintaining a competitive advantage."

Attaining competitive advantage by framing a strategy for efficient allocation of resources is considered to be most important by the management today and has become the need of the hour.

The strategy consists of both incremental improvements and rapid advances for the organization. It provides operational effectiveness and the ability to take risks. There are three critical parts of value creation: revenue enhancement, cost reduction, and asset intensity reduction. Sustainable competitive advantage should be the ultimate goal of all organizations. It can be defined as a competitive marinating advantage over some time. The sustainable advantage is attained from how the "activities of a company fit together."

The competitors can duplicate core competencies; therefore, if management rests the organizations success on a few core competencies, it can lead to its failure. Organizations can only benefit from core competencies over the long-term by conducting activities that are hard to copy by competitors.

Management should focus on the building strategy for both inside and outside the organization to be efficient. Core competence and capabilities approaches can lead to competitive advantage from both perspectives, as shown in the diagram below. There are four generic building blocks with which competitive advantage can be achieved, and each of them can help focus on low cost or competitive differentiation advantage. It can be said that creating a core competence in quality, efficiency, innovation, and customer responsiveness can provide competitive advantages such as cost and differentiation advantages.





One Company
One Vision

To be the preferred supplier
of utility services in major
industrial cities in the
Kingdom of Saudi Arabia.