



MIDDLE EAST CAPABILITIES

46% of the worldwide proven oil reserves are estimated to be commercially recoverable from the Middle East.

*
Dammam, Saudi Arabia
Abu Dhabi, UAE
Ras al Khaimah, UAE



55+ new pipeline segments currently planned or under construction, with a total length over **21,000 km**

66+ Billion in Pipeline CAPEX in the Middle East forecasted over the next 5 years

1 integrated energy services company can handle your pipeline project

Installed since 2008

- 4,723 km of anti-corrosion coating
- 1,114 km of flow coating
- 1,308 km of concrete weight coating
- 600,420 coated joints

On a recent project in Oman

- 1,350 field joints on a 10.75" pipe
- 35 field joints per day average

COMPOSITE LINEPIPE PLANT

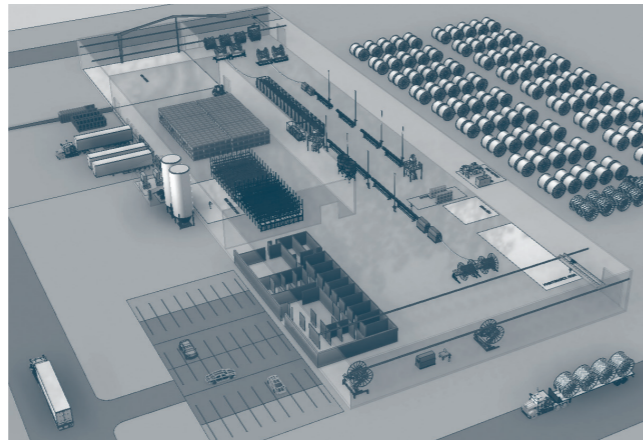
COMING 2019

NEW, SPOOLABLE COMPOSITE LINEPIPE PLANT SERVING THE MIDDLE EAST

With over 35,000 km installed worldwide, and 1,000 km sold in the Middle East, Shawcor is the world's leading manufacturer of composite pipe.

Our FlexPipe composite linepipe products are engineered to the highest standards and designed for quick and efficient installation, and corrosion resistance. Composite pipeline technology is safer, easier to install, and overall more cost-effective than steel.

With demand for our composite products growing rapidly in the Middle East, Shawcor is breaking ground in 2019 on a new state-of-the-art composite linepipe manufacturing plant to serve the region. The plant will be owned jointly with our Saudi partner, Petrogistix. The new factory will be located near Dammam in the Kingdom of Saudi Arabia and will provide efficient and quick deliveries across the Middle East.



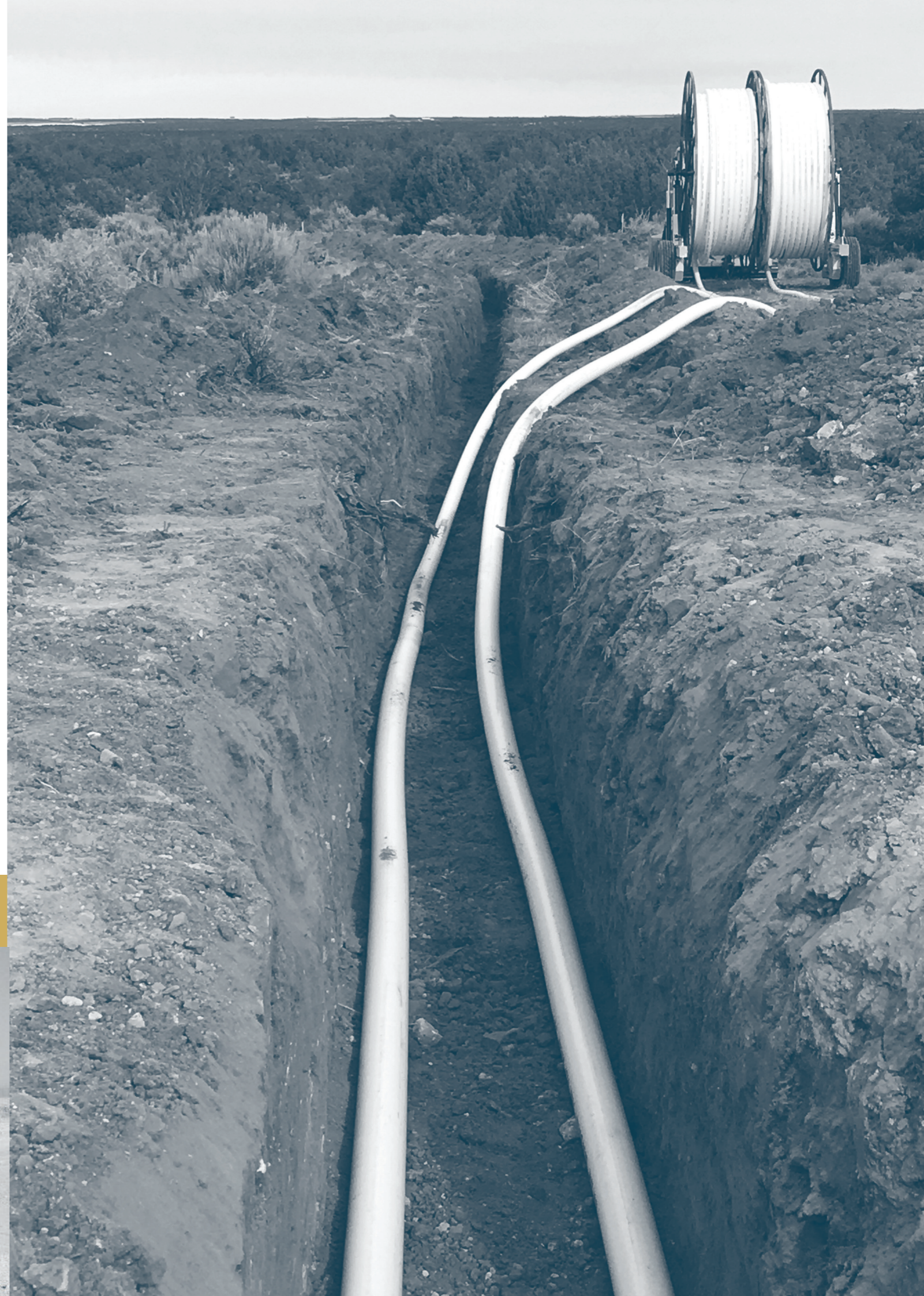
Composite Pipe Factory—2019

Up to **30%** reduced
installation cost

**Corrosion
Resistant**

50% faster
time to first oil

We are committed to the Middle East and look forward to leading the continued growth of composite pipelines in the region.



PIPE COATING PLANT

RAS AL KHAIMAH, UAE



ABOUT THE RAS AL KHAIMAH PLANT

Ras Al Khaimah, UAE coating facility is strategically located at the entry point of the Arabian Gulf on the Strait of Hormuz at Mina Saqr Port area in order to efficiently serve the Middle East and international markets. With significant investment and upgrades made to the entire coating facility in 2007, the Ras Al Khaimah coating plant is a world-class coating facility capable of applying internal coating, flow assurance coating (pipe-in-pipe), anti-corrosion, concrete weight coating and custom coating on bends and fittings.

The facility has more than 70 acres (300,000 square meters) of plant and pipe storage area available close to the port with a world-class in-house QC lab with additional access to 125 acres (500,000 square meters) when required. The Ras Al-Khaimah coating plant is a full service, high capacity coating facility allowing for multiple projects to be completed simultaneously and accommodate changing project schedules.

PIPE COATING PRODUCTS

ANTI-CORROSION COATINGS

	Diameter mm (")		Length m (')	
	min.	max.	min.	max.
3 Layer Polyethylene	60.3 (2)	1473.2 (58)	10 (32.8)	13.5 (44.3)
3 Layer Polypropylene	60.3 (2)	1473.2 (58)	10 (32.8)	13.5 (44.3)
Fusion Bonded Epoxy	60.3 (2)	1473.2 (58)	10 (32.8)	13.5 (44.3)
Dual Layer Fusion Bonded Epoxy	60.3 (2)	1473.2 (58)	10 (32.8)	13.5 (44.3)

PROTECTIVE AND WEIGHT

HeviCote®	114.3 (4)	1625.6 (64)	10.5 (34.5)	13.5 (44.3)
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FLOW ASSURANCE

Pipe-in-Pipe	114.3 (4)	762 (30)	10.5 (34.5)	13.5 (44.3)
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INTERNAL

SureFlo™ FEC	609.6 (24)	1625.6 (64)	10.5 (34.5)	13.5 (44.3)
SureFlo™ SF	609.6 (24)	1625.6 (64)	10.5 (34.5)	13.5 (44.3)
WaterGuard™ LE	609.6 (24)	1625.6 (64)	10.5 (34.5)	13.5 (44.3)

CUSTOM COATING

Custom Coatings (Bends and Fittings)	114.3 (4)	1422.4 (56)	10.5 (34.5)	13.5 (44.3)
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APPROVALS AND QUALITY ASSURANCE

- Shell Global Solutions, BP, Shell Iraq, TOTAL, Exxon Mobil, Saudi Aramco, GASCO, ADCO, ADMA-OPCO, ZADCO, ENOC, ADNOC Gas, Transco/Adwea, TAKREER, Dubai Petroleum, Petroleum Development Oman (PDO), Qatar Petroleum (QP), Qatar Gas (QG), RAK Petroleum, RasGas, KOC, etc.
- ISO 9001:2015
- ISO 14001:2015 & OHSAS 18001:2007



ACCESS

Truck

- Mina Saqr Port - 500 meters
- Port Khaild, Sharjah - 150 km
- Port Rashid, Dubai - 170 km
- Port Jebel Ali - 220 km
- Port Sheikh Zayed, Abu Dhabi - 300 km

Air

- Ras Al Khaimah International Airport - 23 km
- Dubai International Airport - 115 km
- Sharjah International Airport - 105 km

Marine

- Mina Saqr Port, Ras Al Khaimah has Maximum draft up to 12.2 m during high tide and has 12 berths (8 deepwater berths), each 200 meters in length

FIELD-APPLIED COATING PLANT

ABU DHABI, UAE

ABOUT THE ABU DHABI PLANT

Since 1998, the Canusa-CPS Middle East operational hub has been located at this strategic location.

This plant adds value to the business process by cutting sleeve rolls into the precise size required for a customer's pipe size so that field operations of applying sleeves on the joints can be quickly and accurately performed without errors.

The field service division from this plant trains client personnel for sleeve application as per product specifications and installation procedures. Service can also be extended to apply the pre-cut sleeves on pipe joints.

The plant has delivered heat shrink sleeves for more than 1.5 million joints in various countries, such as

- UAE,
- Saudi Arabia
- Oman
- Kuwait
- Eastern Mediterranean

MAJOR PROJECTS

IRP, UAE (2006)

Client – TAKREER (now ADNOC)

Supply of sleeve and CSC for isolated polypropylene

OGD III, UAE (2007-2008)

Client - ADCO

Supply of 38,000 polypropylene sleeves delivered in a record time of 180 days.

Habshan 5, UAE (2010-2011)

Client – ADCO

Supply and installation of 38,000 polypropylene sleeves and 1,000 high build epoxy delivered in a record time of 180 days.

ABU TABUL, Oman (2012- 2017)

Client – Oman Oil Company

Supply and installation of polypropylene and polyethylene sleeves with IntelliCOAT.

HASBAH, KSA (2015)

Client – Saudi Aramco

Supply of viscoelastic material (WrapidBond and WrapidCoat)

KSA

Client – RTCC

Supply of polypropylene sleeves

SPECIAL SERVICES

- Sleeves – Polypropylene (PP); Polyethylene (PE). Bulk or cut to pipe size
- High Build Epoxy (HBE) for high temperature
- Visco-elastic system - WrapidBond; WrapidCoat
- Scar-Guard for horizontal directional drilling



ACCESS

Truck

Saudi Arabia - 500 km

Oman - 200 km

Kuwait - 1,000 km

Air

Abu Dhabi International Airport - 20 km

Dubai International Airport - 120 km

Marine

Musaffah Port - 0 km

Shaikh Zayed Port - 30 km

SUCCESS STORIES

EPC WORKS FOR MODIFICATION OF SOHAR & NEW IBRI GSS

PROJECT CLIENT	OMAN GAS COMPANY (OGC)
PROJECT CONTRACTOR	ARABIAN INDUSTRIES
PROJECT SCOPE	CANUSA SUPERVISION AND APPLICATION WAS REQUIRED FOR THE DURATION OF THE PROJECT IN COORDINATION WITH THE SUPERVISORS AND OPERATORS OF THE CONTRACTORS

This is the first project using the Scar-Guard E system for an HDD application with a 3LPE factory coating. While Scar-Guard E is typically used in HDD applications on pipelines coated with FBE, this project with 3LPE was a great success.

This was successfully applied to 128M of 28" and 12" pipes which provided OGC, the client, the required confidence to proceed with qualifying the product on all of their future HDD sections.

TECHNICAL DETAILS AND FULL SCOPE OF THE PROJECT

Subject	Description
Products	Canusa-CPS Scar-Guard E
	31 Style 24oz 10" x 300' composite fiberglass cloth
	Thermo-Poxy
	Comp Film Blue 12" x 700'
	Resinator 2-12" combo welded aluminum design
	Resinator mixing tray <12" for use with welded aluminum resinator
Pipe Size	28" Diameter and 12" Diameter
Pipe Length	28" = 48, 24 and 24 meters and 12" = 32 meters
Type of Coating	3 Layer Polyethylene
Type of Field Joint Coating	Heat Shrink Sleeves



AL-JALILA FIELD PROJECT

OUR RELATIONSHIPS IN THE MIDDLE EAST ADDED UP TO LONG-TERM PROTECTION OF A NEWLY DISCOVERED OILFIELD'S PIPE INFRASTRUCTURE—WHILE ALSO INCREASING PROJECT EFFICIENCY.

With water depths extending as far as 60 m in some areas of the Al-Jalila Field, a national oil producer needed its underwater pipe system to be not only sturdy and corrosion resistant for the long term, but also succeed in moderate to high operating temperatures. With Shawcor's years of experience providing protective coating solutions and logistical support for pipelay campaigns in the Middle East, the producer selected Shawcor to deliver an effective solution for the Al-Jalila Field's pipe infrastructure.

Most of the pipelay campaign was for the Al-Jalilah Field, with the exception of an 18" water injection line in the nearby Fateh Field. Thanks to our close relationships with the Ras al Khaimeh (RAK) port and local customs authorities, we attained priority berthing for pipe transport and lay vessels.

In conjunction with our concrete weight coating, our 3LPE and 3LPP anti-corrosion coatings were selected with high Tg Fusion Bonded Epoxy (FBE) to protect 101 km of water injection, gas lift and production pipelines with outside diameters of 6" to 30". Our 3LPE and 3LPP coatings accommodate high operating temperatures ranging between 60° to 132°C, and our concrete weight coating provides negative buoyancy and excellent mechanical protection.

With Shawcor's superior coating solutions and regional relationships, we met all client expectations—ensuring the long-term operation of the Al-Jalila Field's moderate-to-high operating temperature pipelines and significantly reduced non-productive time with priority berthing in RAK.



SUCCESS STORY

ZERO DISCHARGE DURING TEMPORARY FLOWBACK OPERATIONS

When flowback operations and testing are performed on new wells, they produce a certain amount of fluids. For unconnected new wells, temporary separators, flare stacks and storage tanks are required to store and dispose of these fluids. There are several concerns when dealing with these fluids, including environmental impact, safety, lost revenue and additional costs. Operators are seeking an alternative to make the temporary operations more economical and Shawcor has the solution.

DESIGN AND APPLICATION

FlexPipe /FlexCord Linepipe are used to implement zero discharge flowback by providing a rapidly installed temporary surface linepipe connection to existing facilities or centralized collection equipment for the produced well fluids.

WHY ZERO DISCHARGE?

- Improved environmental performance
- Additional revenue
- Elimination of flaring, related emissions, and the need to maintain and operate a temporary flare
- Rapid deployment

CASE STUDY

Total Flow	16,000 bbls Oil
Hydro-test Pressure	1,200 psi
Stable Flowing Pressure	450 psi; 518 psi max operating pressure
Max Temperature	160° Fahrenheit
Estimated Revenue	\$1,600,000
Recognition to Client	(16,000 bbl @ \$100/bbl (2014))

Zero discharge was achieved with **no flaring requirements** and all produced fluids were collected and processed.

550 meters of FlexPipe Linepipe was installed in **four hours** and then re-spooled in **four hours** at the end of the project.

Conclusion

At the same time the well test rig is set up, a temporary line is deployed which allows produced fluid recovery reducing environmental impact and providing additional revenue.



SUCCESS STORY

WATER FLOW LINE IN KHOR AL ZUBAIR, IRAQ

WHEN OTHER PIPE COULDN'T HANDLE THE CORROSION, OUR PIPE DELIVERED PERFORMANCE.

Shawcor successfully installed the Flexpipe Systems 4" FlexPipe Linepipe High Temperature product (FP601HT) at Khor Al Zubair, Iraq.

The Flexible Composite Pipeline (FCP) was required for the construction of an evaporation pond, involving the installation of the FCP from the knock-out drum to the pond.

The intended purpose was a water flow line from the knock-out drum to the North Rumailah evaporation pond. The project needed a product that could overcome the challenges of corrosion, schedule and cost.

FP601HT was selected because of its versatile properties like corrosion resistant, UV resistant, high temperature and high pressure, spoolable composite linepipe, cost effective alternative to steel, versatile size range etc.

LOCATION

Khor Al Zubair, Iraq

SITUATION

Water flow line from processing facilities to water evaporation pond

PRODUCTS:

FlexPipe High Temperature (4" FP601HT)

OPERATING CONDITIONS:

3.5 barg (50 psi)
-15°C (5°F) to 82°C (180°F)

SERVICES:

Linepipe installation, supervision and testing

RESULTS:

Easy installation and industry leading corrosion-resistance



LOCATIONS



*Coming in 2019

PIPE COATING PLANT

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FIELD-APPLIED COATINGS PLANT

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COMPOSITE LINEPIPE PLANT

Coming in 2019

Dammam,
Saudi Arabia

AMERICAS

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ABOUT SHAWCOR

Shawcor is the global leader in pipe coating solutions. With more than 80 years of experience, the largest team of dedicated pipe coating professionals, the most extensive network of strategically located plants worldwide and with proven innovative coating technologies, the company has protected more pipelines in virtually every environment and operating condition than anyone in the industry.

Shawcor offers technologically advanced solutions for anti-corrosion coatings, protective and weight coatings, thermal flow assurance coatings, internal coatings, custom coatings and field joints for both onshore and offshore applications. This broad range of products and services provides Shawcor with the unique capability to service the full spectrum of pipeline protection and flow assurance requirements. Consult with your Shawcor representative for your unique project requirements.

Health and Safety

Shawcor is committed to providing a safe and healthy workplace and ensuring that our business activities are conducted in a manner that protects the environment. The company's commitment to employee safety is promoted through our Incident and Injury Free (IIF) philosophy.

The information contained herein is indicative of the types of coatings provided by Shawcor, and is not intended to be a guarantee that a particular coating will be suitable for a given application. Since many unique environmental, operating, and design conditions must be considered, the user shall determine the suitability of the coating for the intended use and assume all the risks and liabilities in connection therewith. Shawcor's liability is stated in our standard conditions of sale.