

Well Services of Iran

Solutions
that exceed
expectations

ONSHORE
OPERATIONS

AHVAZ BASE
AHVAZ BASE
AHVAZ BASE

KISH ISLAND
KISH ISLAND
KISH ISLAND

PERSIAN GULF
PERSIAN GULF

CASPIAN SEA
CASPIAN SEA



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Overview

Well Services of Iran (Schlumberger Methods) also known as "WSI" has been providing a wide range of services in the upstream oil and gas industry in Iran utilizing high quality equipment and trained personnel. Since 1977 (1356) WSI has continuously delivered and performed services even during the most difficult and challenging times such as the war and sanctions period and has managed to preserve its existence in Iran by delivering top notch services.

WSI is well established for servicing both onshore and offshore operations. WSI's headquarter is in

Tehran with two main operating facilities providing a full range of upstream oil and gas services in the field of Reservoir Evaluation, Reservoir Development and Reservoir Management. Our services range from conventional data acquisition to advanced well engineering design, placement and construction. With track proven experiences and complete wide range of services from exploration through production, we are proud to announce our motto of "SOLUTIONS THAT EXCEED EXPECTATIONS".

WSI has set goals and objectives that are both challenging and rewarding by maintaining its position

as the leading supplier of technology, integrated drilling services and information solutions to WSI's clients in the oil and gas industry in Iran. We value our people and we are dedicated in every way to improving and enhancing the quality of our services and the skills of our people to deliver to the satisfaction of WSI's clients.

Services

Well Services of Iran (Schlumberger Methods) business lines are:

WireLine Logging Services

Drilling and Measurement

Cementing, Stimulation and Coiled Tubing

Well Completion and Productivity

Data & Consulting Services

**Solutions
that exceed
expectations**

Office and Operations

Tehran Headquarters

Tehran Headquarters is a fully functioning office. The Senior Management and Operational Managers are based in Tehran along with all the Sales Team and Support Functions.

Kish Island Operations Base

Kish Island Operations Base is WSI's largest Oilfield Services Facility and one of the top class facilities in Iran. Our base in Kish include a fully integrated Oilfield Services Facility with representation of all business lines. This facility sits on 45,000 m² of land and comprises:

tool shops of 5,800 m², maintenance facility of 1,600 m², chemical warehouse of 1,100 m², and office facility of 1,500 m².

Ahwaz Operations Base

WSI's Ahwaz Operational Premises is an integrated premises focusing on land operations. It is a 10,100 m² facility consisting of 2,400 m² of workshops and maintenance facility adjoined to 1,200 m² of offices where our field managers reside along with the necessary support staff. The yard storage area is around 6,500 m² which allows adequate space for servicing all land operations.



Health, Safety, Environment HSE

Quality, Health, Safety & Environment in Well Services of Iran

Mission

Our QHSE mission is to ensure that quality, health, safety, and environmental considerations remain top priorities management and all employees. Prevention of accidental risk and loss from process failure is a recognized, integral part of our continuous improvement culture.

HSE is a line management responsibility that requires visible commitment, leadership, and involvement. Our proactive HSE culture shall be understood, shared and practiced by all employees as an integral part of everyday business. Fundamental to this culture is our belief that all losses of personnel property, and process result from management failure and are preventable.

Vision

We envision a quality and service culture that enables us to exceed customer expectations, actively involve and empower all employees in the continuous improvement process, and enhance profitable growth.

To enact this vision, we will:

- Define and respond to customer expectations
- Adapt to changing and expanding business conditions and market opportunities
- Differentiate our service quality from the competition
- Be a recognized industry leader in HSE.

Strategy

We will strive for a zero defect culture:

- No accidents
- No loss to process
- No harmful emissions
- No health-related incidents
- No lapses in security

The QHSE Management System is driven by strong management commitment. Sound policies and procedures are in place to guide employees and ensure that HSE is properly managed. Personnel at all levels are organized to participate actively in the system and to focus on accident prevention.

Individual HSE information & guidelines are further described in the HSE Passport. The HSE Passport is a personal record of each employee's HSE training activities and contributions. The data recorded reflect each individual involvement in HSE and commitment to continuous improvement. Training is an essential element of the HSE program and the HSE Passport is an easy way of tracking training participation during passport reviews.

All new employees, employees transferring to a new location or job assignment, and contract employees must receive a review of all HSE topics specific to their particular assignment by designated mentor. All employees must understand the HSE principles and follow prescribed procedures.

For all employees who are working within operational fields, the orientation will normally cover the following issues:

- Introduction to the QHSE Management System
- Introduction to documentation system, i.e., standards, procedures, etc.
- Local (Iranian) "Rules and Regulations"
- Local Emergency Management Plan (EMP)
- Local risk and HSE requirements
- Job-specific HSE requirements
- Information about Defensive Driving
- Local security
- Personal Protective Equipment
- Issues relating to the camp, e.g, access system, meeting room rules, fire alarm, etc.
- Also information about the WSI Quality Management program through segments

WSI QHSE Management System

The WSI QHSE Management System defines the principles by which we conduct our operations worldwide with regard to the quality of our services and products; the health and safety of our customers, employees, contractors and communities where we work; and protection of the environment.

This QHSE philosophy is communicated to all employees, customers, contractors and third parties associated with our business, and each product group must provide evidence of conformance to this Management System.

The QHSE Management System model comprises eight interrelated components:

- Commitment and Leadership
- Policies and Objectives
- Organization and Resources
- Contractor and Supplier Management
- Risk Management
- Business Processes
- Performance Monitoring & Improvement
- Audits & Reviews

These are continuously improved by conformance checks through WSI team:

- On day to day standards and procedures (controls)
- On the management system (correction)

And through modifications to the Management System (improvement).

This zero defect culture shall be attained through:

- Visible commitment, leadership and involvement of line management tied to incentive objectives
- Standards of mandatory HSE training for all personnel
- QHSE training provided through state-of-the-art learning techniques
- Maximized efficiency and synergy through sharing resources
- HSE integration in all product development
- Proactive participation in global industry initiatives and recognition by our customers that we are leader in HSE
- Creation of a HSE career ladder

What makes our HSE different?

1. Real-time HSE & Service Quality Monitoring System

This is the most important difference between WSI and all other companies in Iran upstream sector.

WSI's QHSE reporting system is a highly advanced, fully interactive, online QHSE management tool that comprises Risk Incident & Loss Reports (RILR's) for both HSE and Service Quality incidents as well as audits, meetings, exemptions and suggestions.

This Enterprise Resource Planning (ERP) software, generates comprehensive reports from its dynamic database. The data base is prepared by contribution of every single employee based upon their daily tasks.

This system is a tool that allows WSI to investigate and analyze incidents through root causes and helps WSI to achieve our aim of zero defects by addressing patterns of repeated failures and capturing lessons learnt.

2. Real-time Drive Monitoring System

WSI is the only service company in Iran who applies the highest level of defensive driving on its all land transportation fleet. To minimize driving risk and ensure that worldwide standards for driving qualification and practices are followed, this online monitoring system is precisely installed on our fleet and being monitored by a delegated person 24/7.



Driver Training and Qualification

Only approved personnel and contractors are allowed to drive vehicles on behalf of WSI Oilfield Services, including company owned or leased vehicles, vehicles rented for business purposes, and car allowance program vehicles. Approval is granted to drivers who have taken Defensive Driving training every three years and Commentary Driver training annually. These training programs must be documented in the driver's "HSE Passport."

Seat Belts

As a condition of employment, all employees and contractors must wear seat belts at all times when driving a vehicle, and they must ensure that all other vehicle occupants are also wearing seat belts.

Journey Management

All locations shall have in place an active Journey Management program that complies with oilfield services "OFS" standard. Each location's Journey Management program shall address all local driving conditions and identified risks.

Driver Improvement Monitors

An approved vehicle monitor is installed in all WSI vehicles designed for road. All WSI locations adopt a program for regularly reviewing the data gathered by the monitors and using that data to continually improve driver skills. Management is actively involved in the implementation of this program.

3.Environmental Protection

WSI conducts its operations in a manner that assures optimum protection of the Environment. Uniquely in Iran upstream sector, we have utilized our operational bases to advance environmental protection facilities and systems. Compliance monitoring and audits are a constant part of ensuring our system is fully compliant with approved codes. It is our mission to identify and promote projects that serve as an inspiration for others to examine their own environmental footprint and to appreciate the positive effect we can all have in Iran.

Waste Water Treatment Plants

HSE team designed and built discharge water treatment plants for each of WSI locations.

Similar to sewage treatment plants, these plants treat both sanitary and industrial wastes. The wastes are screened and then treated chemically and biologically. Discharge water levels are well below allowable compliance levels set by local authorities, so much so that the treated water can be used to irrigate the "green" areas near the treatment plant. In a drought-prone region, increasing water resources or reducing consumption is an important environmental concern.

	Very Low	Low	Medium	High	Very High	Totals						
						Likelihood	Very Low	Low	Medium	High	Very High	Total
L	2020	1678	241	15	1	Likelihood	2353	2712	816	179	1	6061
S	307	885	402	139	0		Severity	L	S	M	C	XC
M	20	118	139	15	0	3955		1733	292	75	6	6061
C	4	29	33	9	0	Risk	Insignificant	Low	Medium	High	Extreme	Hipo=High +Extreme
XC	2	2	1	1	0		2020	3150	830	60	1	61

Spill Prevention & Waste Segregation System

WSI has its own Spill Prevention and Waste Management system.

Particular washbays have been constructed to collect waste waters; secondary containment are applied for all equipment or processes which might come up with environmental spill/discharge and segregation systems are in place to separate 7 major waste groups.

Energy Management

To preserve energy consumption, appropriate projects have been executed in headquarters and field locations.

"Go green" is an objective we all put efforts to achieve;

Green office project executed in WSI

headquarters focusing on waste minimization and optimized energy management.

Furthermore, a part of energy demands in our Kish base is supplied by solar energy.

4. Systematic Trainings

WSI has the most powerful QHSE System in Iran upstream. Through a systematic approach all employees and contractors are getting trained in QHSE related field via online/course based and on the job trainings. During the past years, WSI put a lot of effort in maintaining its pioneer HSE culture through various trainings and tough supervision. The intention is to make everyone into an HSE person.

Furthermore, by setting personnel objectives & implementation of appraisal plans, all WSI employees are obliged in event reporting. Each year, more than 12000 reports including "unsafe actions, unsafe conditions, risk assessments, inspections & audits, investigation setc" have been reported in WSI electronic portal which give an invaluable opportunity to identify operational risks and to terminate or minimize them properly. This proactive approach resulted in one of the fewest accident rates in the industry.

5. Best Personal Protective Equipment

WSI is pride of providing PPE with the highest international standards coveralls of fire retardant fabric which is only used by WSI in Iran to help our workforce to save their life at the time of fire.

All other best personal protective equipment is supplied by international recognized bodies just to ensure the company is preserving its employees and contractors.



Wireline Logging

WSI is committed to deliver superior services provided by fully trained field personnel , employing the latest logging and perforating technology manufactured by Schlumberger, which is well known worldwide. We are known for working in the most challenging environments, no matter Offshore or Onshore anywhere in Iran.





A person wearing a blue long-sleeved shirt is using a multimeter to test an electronic circuit board. The person's hands are visible, holding the red and black probes of the multimeter against the components on the board. The background is a green workbench with various tools and equipment. A diagonal blue line runs across the page, separating the text from the image.

Open Hole Services:

- Density
- Porosity
- Resistivity
- Formation Pressure & Sampling
- Sonic Porosity
- Seismic
- WBM & OBM Images
- Magnetic Resonance
- Tough Logging Conditions (TLC)
- Logging While Fishing (LWF)
- Coil Tubing (CT)

Cased Hole Services:

- Production Services Platform
- Perforation
- Plug Setting (Bridge Plug & Thru Tubing Plug)
- Pipe Recovery & Colliding
- Cement Evaluation
- Casing Evaluation
- Noise & HPT
- Pressure Equipment

Mechanic Shop:

- Provides facility for periodic checks and maintenance on all Offshore Logging Units & Logging Trucks
- Generators / Engines / Electrical & Hydraulic Systems / Air Systems

Spooling Area:

- Provides facility for periodic checks and maintenance on all Logging Cables & Drums
 - Splicing / Torture / Quality Check / Re-Spooling

Electronic Lab:

- Provides facility for periodic checks and maintenance on all logging tools
 - Electrical sections
 - Electronic Boards/Sensors/
Wiring
 - Field Operation Support







Pressure Shop:

- Provides facility for periodic checks and maintenance on all WHE equipment
- Service & Pressure Test / Certifications / Theoretical and Practical Trainings


Sonde Lab:

- Provides facility for periodic checks and maintenance on all logging tools Mechanical sections
- Mechanical Sensors / hydraulic & Oil Systems
- Field Operation Support





Drilling and Measurements



Drilling General

Trajectory control in directional drilling is the science of deviating a wellbore along a planned path to a target located a given lateral distance and direction from vertical.

This includes drilling as vertically as possible from a given TVD.

WSI offers expert directional drillers and proven technologies to provide the trajectory control needed to drill the well correctly, the high-quality hole required to successfully run and cement casing, and the precise well placement to optimize production and maximize recovery.

WSI LWD and MWD services deliver high quality data to enable time critical decisions for accurate drilling of extended-reach, horizontal, vertical, and complex directional wells and sidetracks.

Well Planning

Expertise and leading drilling technologies support every phase of well design, planning, and operations. The scope encompasses offset well analysis and design of the well, BHA, fluids systems, and data acquisition program through drilling performance monitoring and optimization in real time.

Drilling Engineering Services Optimal

Drilling system to execute your well plan. Advanced software (Drilling Office) and technology are used to engineer drilling fluids and the drillstring for enhancing hole cleaning and wellbore stability, maximizing ROP and daily footage, and minimizing damaging vibrations. Hole quality improves and equipment life increases. Analysis of surge and swab pressures enables suitable tripping schedules to be defined, while survey optimization services help minimize well placement uncertainty.

Engineered Drillstring Design

Advanced simulations engineer the optimal drilling assembly for any given application, including drillbit designs that account for each element of the BHA.

Virtual Hydraulics Software

Powerful suite of programs to evaluate and design wellbore hydraulics under simulated downhole conditions, ensuring effective management of Equivalent Circulating Density (ECD) and Equivalent Static Density (ESD).

Maintenance

- Electronic
- Mechanic
- ADS (Motor)
- Surface
- Mobilization

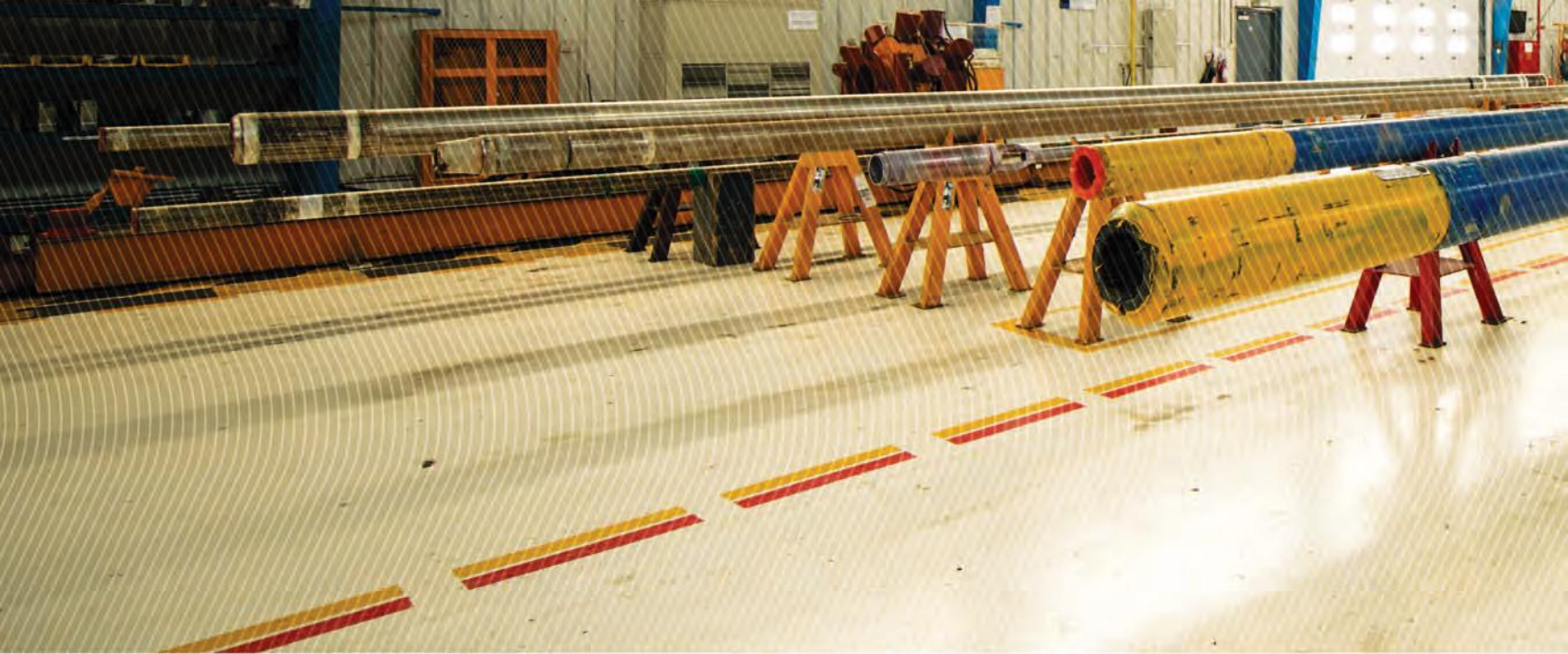
Field

Directional Drilling

WSI offers a wide variety of PowerPak positive displacement mud motors to meet the challenges of any hole size or drilling operation. We are able to choose a motor for under-balanced drilling, directional capabilities, abrasive formations, and other applications.







Higher Torque for a Smoother Toolface

The PowerPak GT (Hard Rubber) high-performance motor delivers more than twice the torque output of conventional motors using even rubber power section technology, allowing more of the hydraulic horsepower generated by mud flow to be converted to available bit torque. Higher differential pressures allow using aggressive bits to their full potential, and the higher torque results in a smoother toolface when sliding for more time on bottom drilling, not off-bottom reorienting.

Lower Pressure Drop Per Stage of Power Section

The PowerPak GT motor is designed to drill faster than conventional power sections. It has a lower pressure drop per stage of power section, making it the most reliable choice for additional demands placed on the power section during performance drilling operations.

Measurements While Drilling (MWD)

Continuous D&I, Toolface, and Gamma Ray

Measurements While Drilling SlimPulse third-generation slim MWD tool gives you direction, inclination, toolface, and gamma ray real-time measurements for mud pulse telemetry. Continuous Direction and Inclination (D&I) measurements are made while rotating to facilitate trajectory control and reduce stationary measurements. Telemetry data automatically switches between a «sliding frame» and a «rotating frame» to optimize update rates for improved trajectory control.

Retrievable and Replaceable for Reduced Lost-in-hole Exposure

The entire tool is fully retrievable and replaceable, which saves rig time by eliminating pipe trips for directional equipment. The SlimPulse service is coupled with a new surface system of reduced hardware and manpower requirements to create the



DD Direct acquisition system for the high-volume drilling market. This is an efficient and reliable D&I service requiring minimal installation time and footprint size. This expedites the time required to install directional services by removing unnecessary and cumbersome hardware at the wellsite. The combination of SlimPulse and AIM at-bit inclination measurement tool gives you precise trajectory control in hole sizes as small as 5 7/8 in. Plus, you can maintain the retrievability of the SlimPulse MWD system. The service offers inclination data within 1 ft of the bit. This information is transmitted through electromagnetic telemetry to an integrated receiver sub positioned above the downhole motor.

Logging While Drilling (LWD)

Provide high-quality data for geosteering and formation evaluation in real-time. Increase ROP, improve wellbore stability and hole quality, and optimize well placement for maximum production.

Well Placement

Geosteer and geostop with real-time LWD data to improve well positioning, increase ROP, maximize reservoir exposure and enhance production.

Petrophysics While Drilling

Evaluate lithology, porosity, saturation, and permeability properties while drilling to facilitate timely, informed decisions.

Geology While Drilling

Inform drilling decisions with high-resolution, real-time imaging to identify formation structure, faults, and fractures.

Reservoir Engineering While Drilling

Measure formation pressure while drilling to accurately model the dynamic reservoir pressure and target productive zones.



Cementing, Coiled Tubing & Stimulation



Cementing

Known for high quality engineering service provider:

- CemCADE Engineering Software
 - Mud removal
 - Fluid Design
 - Placements
- API/ISO Certified Cementing and Stimulation Laboratory
- CPS 361 Cementing units suitable for HTHP wells
- Engineering solutions for Gas or HTHP well

Stimulation

Known for unique service provision:

- Stimulation vessel with
 - 8,000 HHP/ 80 bpm
 - Capacity of 165,000 gal of Acid
 - 15,000 gal LAS
 - Stimulation lab
 - 2x90 bbls blenders
- Engineering solutions for Matrix Acidizing and Hydraulic Fracturing
- Long experience with stimulation of rig based appraisal wells

Coiled Tubing

Services that extend the life of producing wells by improving performance or providing access to stranded or additional hydrocarbon reserves:

- Matrix and fracture stimulation
- Wellbore clean out
- Logging
- Perforation
- Nitrogen Kickoff
- Sand control
- Drilling
- Cementing
- Well Circulation
- Mechanical isolation
- Our product portfolio includes all the tools and services you need for efficient and effective CT interventions

Client Support Laboratories

Our District Laboratories in Kish and land (Portable Lab) support Cementing, Stimulation and Fracturing Operations offshore and onshore.

The laboratory provides the following tests, all according to API Specifications and WSI's standards and procedures:

- API cement tests: thickening time, fluid loss, free water, compressive strength and rheology.
- Slurry / mud / spacers compatibility testing.

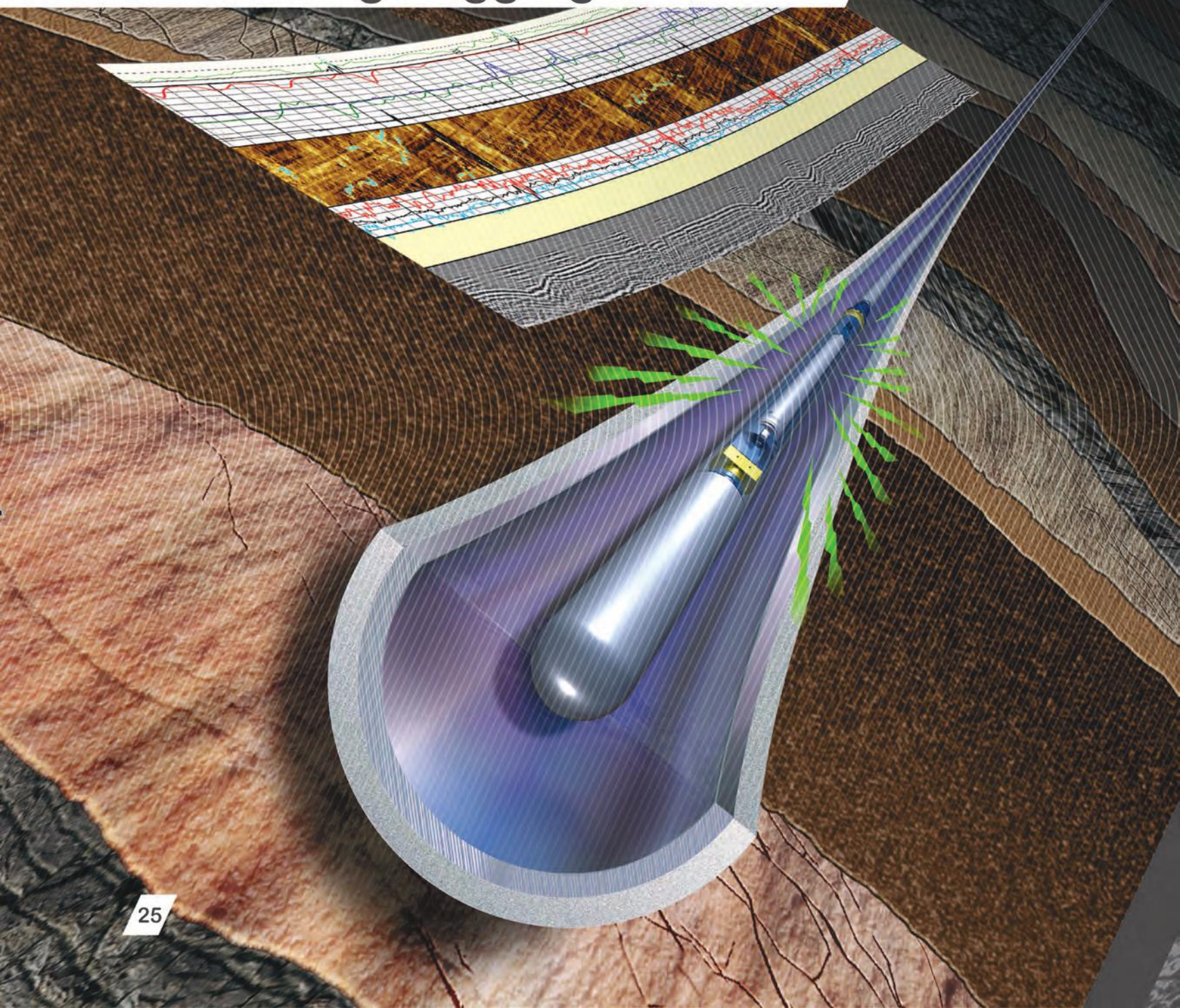
API Acid Tests:


- Acid strength (Titration)
- Acid Solubility Tests
- Solution Compatibility with reservoir fluids
- Rheology behavior of gels in ambient and HTHP conditions
- Corrosion Tests

Iron Test :

- Slurry and additive quality control tests.
- Acid strength determination & Acid solubility
- Emulsion/sludge testing
- Sieve analysis

Coiled Tubing Logging Services





Coiled Tubing Logging

Coiled Tubing Logging (E-Line) Services were developed as a response to difficulties encountered in conveying logging tools in highly deviated and horizontal wellbores. Conventional wireline conveyed logging strings have been routinely used in wellbores with an up to 70 degree deviation using roller centralizers and similar mechanical friction-reducing techniques. Such operations were relatively common on offshore platforms or at pad drilling locations where many wellbores are drilled in close proximity and directional drilling techniques are used to access the reservoir. As the advantages of using high-deviation and horizontal wellbores to access large intervals of the reservoir became apparent, a popular trend developed toward increasing the reach and efficiency of the well through extended directional drilling. By maximizing the interception area of the reservoir, significant productivity advantages could be gained. However, the new wellbore profiles posed difficulties from the point of view of wellbore access for data acquisition and subsequent well service, since gravity alone could no longer propel the tool string throughout the wellbore. Drill pipe-conveyed logging techniques could be used during the drilling phase of a well. However, once the well was completed and put on production, no easy means of conveying logging tool strings was available. The need for a solution prompted the development of E-Line services, which utilize a wireline logging cable installed inside a CT string. The strength and rigidity of the CT string is used to convey logging tool strings along highly deviated and horizontal wellbores, enabling the high degree of control necessary for some logging tool functions. In addition, the CT string also provides a fluid conduit that can be used to enhance the functionality of some logging operations. For example, the simultaneous pumping of nitrogen while logging non-eruptive wells can enable a production profile to be obtained over the producing interval. As a result, data became accessible that could not have been obtained using conventional logging techniques.

The following operating features enable E-Line services to offer an advantage over conventional logging tool conveyance. Tool strings can be pushed/pulled over long distances in highly deviated or horizontal wellbores. In addition, the mechanical rigidity of the CT string provides stability and control of the tool string, enabling tools to be safely run in high flow rate wellbores which may carry conventional wireline tools uphole. Continuous logging operations can be performed in both upward and downward directions with a high degree of speed and depth control. Long, stiff tool strings can be pushed through wellbore dog-legs that may obstruct the passage of wireline conveyed tools. Fluids can be circulated through the CT string before, during, or after the logging operation, providing unique logging capability or the combination of treatments to enhance the overall efficiency of the well intervention operation.

The CT pressure control equipment provides constant well security, enabling operations to be safely performed on live wells.

WSI has been the first and the only Integrated E-Line technology provider in Iran's Offshore Oil and Gas Industry with a seamless and outstanding operation records since 2011 which provided the client with invaluable well and production data leading to the best actions taken to optimize the wells' productivity.

WSI Gulf Pearl

Overview:

WSI Gulf Pearl Stimulation Vessel is the product of years of WSI experience in marine, mechanical, and electronic engineering. The vessel has a proven record of efficient treatment execution, regardless of the size or complexity of the operation. The vessel has been performing Stimulation Operations in Middle East, since 1977 in offshore environment of Iran, Qatar, UAE and deep water wells of India.



Stimulation Capability:

The vessel is one of the only two vessels equipped to pump MaxCO₃* treatments in Middle East. The state-of-the-art Japanese control system adds to the efficiency of the operation by allowing the operator to switch between various stimulation fluids during the job remotely with the click of a mouse on the Main Screen in the Control Cabin, thanks to nine interconnected tanks installed under the deck.

The blending and pumping system can prepare various Stimulation acidic and non-acidic solutions to be used for various clients required well treatments. New diversion technology of MaxCO₃* could be mixed by using POD blender on-board. All systems are remotely controlled from the central control cabin which leads to continuous monitoring of various machineries and guarantees the highest degree of quality control of treatment solutions.

Treatments are performed with flexible treating lines with a Quick Disconnect System for expedient withdrawal of the vessel in an emergency.

Operating Capability:

Gulf Pearl vessel can stay on station even in adverse weather conditions. Vessel can operate in weather conditions with average wind speed of 20 knots and wave heights up to 2 m.

The vessel has operated in the Danish Sector of the North Sea and is reported to have successfully operated with winds ranging from 25 to 32 knots and average wave height over 3 m due to its hull design and thrusters type.

Dynamic Positioning System:

The vessel is equipped with Dynamic Positioning (DP) system. Key DP components are the reference systems, the computer, and the propulsion system.

There is a choice of reference systems for positioning information; Fanbeam (ideal for flaters and TLPs) and Differential global positioning system.

Accomplishments:

The vessel has been performing SDA, VDA and MaxCO₃* stimulation treatments covering the entire spectrum of Matrix Stimulation Operations in Middle East. The vessel also performed a very successful Acid Fracturing Treatment in 2012, (Persian Gulf) is a unique feature of Gulf Pearl performed only by GP.



Vessel Competencies:

- High Horsepower Pumping Capacity (8,000 HHP)
- Extensive Coated Storage Capacity (165,000 Gallons)
- Fiber and Solid Mixing Capability (POD Blender)
- Acid Fracturing Operation Experience.
- Fluid Quality Lab

Gulf Pearl-Marine and Stimulation Detailed Specifications

1	Vessel Dimensions	
	Length, m	63.2
	Beam, m	13.8
	Depth, m	6.41
2	Classed	BV
3	Main Engines, bhp	4,200
4	Thrusters	1Bow (539 hp) 1+ Stern (610 hp)
5	Dynamic Positioning	DP 1- vessel (Kongsberg System)
6	Safety Systems	Gas Detection (3xH2S1+xLEL1+S02), Safety Showers ,Eye Wash Stations, Fire Fighting System SCBA Sets
7	Storage Loading:	
	Raw Acid	165,000 gal
	Fresh water	110,000 gal
	LAS Tanks	15,000 gal
8	Blenders	2 Jet-type Blenders x 90 bbl
9	LAS System	8 LAS pumps (4 x Cat, 3 x Gear Wake sha1+Hose (Delasco) Pump)
10	Boost/Feeding Mechanism:	
	Bulk Acid High Pressure Pumps	Bulk air (3 Compressors on Board) 2 x (10x8) C-Pumps
11	Mixing on – fly capability	Yes (Up to 60 bpm)
12	Control Systems:	
	Mix On-Fly Acquisition	Yokogawa (5 monitor controls) CemCAT (4 monitor control)
	Real –Time Data Transfer	Yes (InterACT via VSAT/NERA System)
13	High Pressure Pumps	4 x SPS343- with 6.5" fluid end and 2,000 HHP ea = 8,000HHP
14	High Pressure Lines:	
	Hard Pipe Size, in	2 x 4" Lines(10,000 psi MAX)
	Coflexip Hoses Diameter, in	2 x 4" ID Hoses
	Coflexip Hoses Length, in	2 x 300ft (Hydraulic Winches)
15	Safety Systemes:	
	Low Pressure	High-Level Alarms (Blenders), Void Space Alarm, Burst Disk, and High-level Alarm(Acid Tanks), Un-Loaders(Compressor), Air Tanks
	High Pressure	Pop-Off Valves
16	Maximum Rates Pressures:	
	Max Rate(Current Extended)	80 bbl / min (Exemption Needed Above 80 BPM)7,000psi (10,000 psi)
	Max Pressure (Current / Extended)	

Hydraulic Fracturing Fleet



Description:

The brand new, heavy duty Fracturing and Stimulation fleet, with required accessories of liquid and proppant materials storage and mixing, all truck mounted are suitable for any sophisticated onshore high rate stimulation, acid and sand fracturing operations in Iran.

Fully automated Hydration, blending and Liquid Additive systems feed 5 High Pressure Pumps with 2500 HHP each, and capable of delivering 80 BPM well treatment solutions via a double main line manifold in 3 and 2 inches high pressure rigid lines.

Air conditioned Data van accompanying the fleet would be the control center of whole operation with touch screen DAS and equipped design and real-time monitoring software enables the client full access on different operation parameters and well responses.





Well Services of Iran
(Schlumberger Methods)

Brand New Fracturing & Stimulation Fleet

Frac Pump	Five brand new Caterpillar 2500 BHP @ 1900 RPM, 12 Cylinder, 9speed petroleum transmission Engine, with SPM QWS2500- SD Super Duty Quintuplex 4" plunger, locally and remotely controlled pumps, Triple Axel Skeletal Chassis Trailer with Horizontal Cooling Package Mounted on Installed on the trailer gooseneck.
Hydration Unit	200 bbl, four compartment open top truck mounted tank with 12"x12" Circulation and booster Centrifugal pump and multiple suction and discharge lines and ports with automated control and data acquisition system.
Blending Unit	Fracturing fluid preparation and proppant proportioning blending unit with control over both suction and discharge functions. Blender LAS system accompanied by a 16 bbl agitator tub and 12x12 & 12x14 suction and Discharge C-Pumps are connected to 10 tote tanks storage and transportation open chemical trailer which facilitate solution delivery of 120 BPM. Four liquid additive pumps and sand augers are hydraulically driven and remotely controllable from control cabin or Data Van with online record of rates and volumes.
Data Van	A 26" air conditioned and fully equipped cabin mounted on a conventional chassis, consisting of 5 touchscreens for the operation of DAS and three big size 20" and 40" LCD monitors and Satellite dish for real time data transferring to office will ease the client supervision of ongoing operation in any adverse weather conditions. Cable reel compartment with cable and reels 10 wellhead psi, 2 blender cables+ one spare, 2blender + one spare, 1chem add one spare, 2 low psi manifold trailer+ one spare, 1 hydration +one spare, 2 densometer cables.
Manifold Trailer	High Pressure Manifold trailer consisting of 2 x 8" main lines Suction Manifold with total of 32 ports in 8 & "4", in addition to 2 x 4" fig 1502 main discharge lines with 14 ports in 3 & "2" High Pressure Lines.
Liquid Additive System	10x330 gallons plastic tote tanks, 20 gpm per tote fluid rate and 200 psi Chemical Discharge Pressure, 10 x Micro Motion flow meters, 1x 330 gallon cleanout tote, 1 x 330 gallon recovery tote, and 10 x hose reels

Features and Benefits:

- 5 Truck Mounted, with 12500 HHP capacity Quintuplex Fracturing & Stimulation pumps, capable of delivering max. 80 BPM treatment solutions controlled with touch screen remote panels.
- 120 BPM and 18 PPG fully automatic Blending Unit capable of on-fly mixing of liquid additives and proppant with solution delivery at 100 psi.
- 100 BPM Trailer Mounted Hydration unit with four compartment open top tank and 12" X 12" C-Pump capable of mixing and feeding linear and cross linked PADs and Gels.
- High Pressure Manifold trailer consisting of 2 X 8 & "8" main lines Suction Manifold with total of 32 ports in 8 & "4", in addition to 2 X4" Fig 1502 main discharge lines with 14 ports in 3 & "2" High Pressure Lines.
- Fluid Quality Control Lab for on - site Ambient and HTHP Solution QA/QC.



Data and Consulting Services



Geoscience and Petroleum Engineering (GPE)

• Seismic Data Processing

- Land PSTM and PSDM Seismic Data Processing and Earth Imaging
- Marine PSTM and PSDM Seismic Data Processing and Earth Imaging
- Advanced Processing such as Azimuthal Anisotropy Seismic Processing, COV Migration, 5D Interpolation, etc.

• Seismic Interpretation

- Seismic Horizon and Fault Interpretation in Complex Area
- Map Based and 3D Grid Based Advanced Velocity Modeling
- Structural Reconstruction and Interpretation Verification

• Seismic Reservoir Characterization

- Post Stack Seismic Inversion (Deterministic and Stochastic Methods)
- Pre-Stack Seismic Data Conditioning
- Deterministic and Stochastic Pre-Stack Seismic Inversion (EEI and Simultaneous)
- AVO Analysis and AVO Modeling
- Rock Physics Modeling and Study
- Reservoir Properties Estimation

• Geological Interpretation and Integration

- Seismic Sequence Stratigraphy
- Stratigraphy Interpretation
- Surface Data Integration
- Tectono-Sediment Model Generation
- Conceptual Modeling
- RC Results Validation
- Seismic Based Pore Pressure Prediction
- Seismic Facies Analysis
- Seismic Fracture Assessment

• Geomechanical Study

- 1D Mechanical Earth Modeling
- Wellbore Stability Analysis
- 3D/4D Geomechanical Modeling
- Well Trajectory Optimization
- Completion Design
- Sand Management and Control

• Petroleum System Modeling, Basin Analysis and Geochemical Services

- 1D, 2D, 3D Petroleum Modeling (PetroMod Technology)
- Structural Reconstruction and Basin Evaluation
- Conventional and Advanced Rock, Oil and Gas Geochemical Analysis

• Dynamic Reservoir Modeling

• Services for Full Oil and Gas Field Studies

- Basic RE
- Dynamic Simulation and Production Performance Forecast
- Enhanced Oil Recovery
- Master Development Plan

• Production Engineering Studies

- Artificial Lift
- Work Over and Completion
- Production Optimization

• Surface Facilities Engineering Analysis and Studies

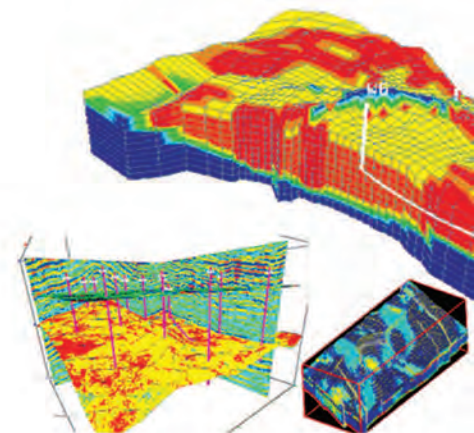
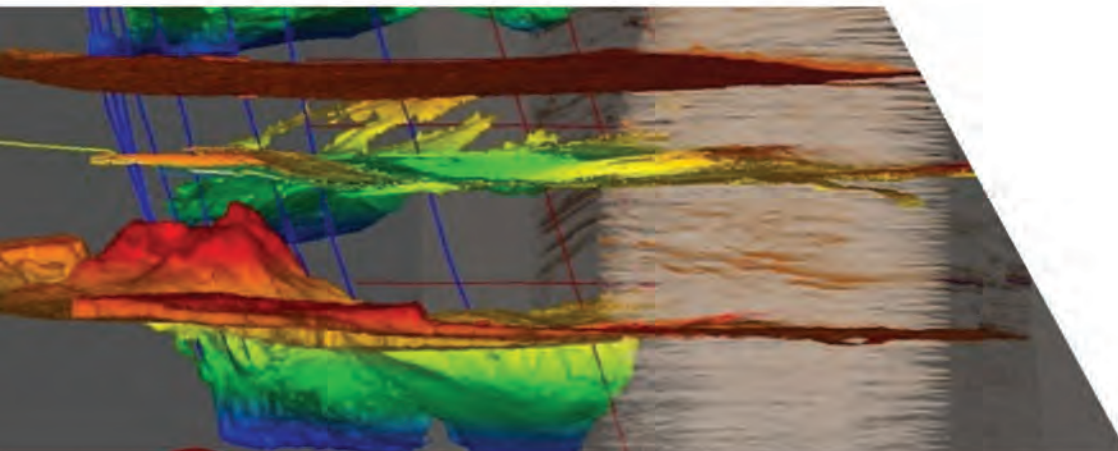
- Conceptual Design of pipelines, well head separators and production units

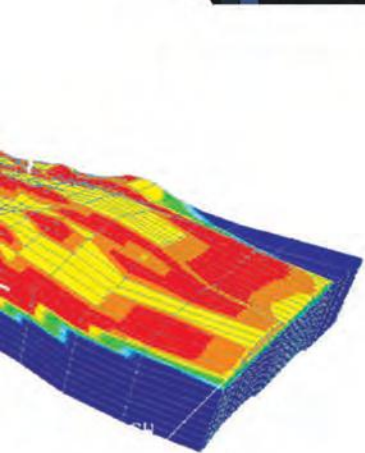
• Consultancy and on-Site Support Services

- PVT and Core Sampling and Analysis
- On-Site Support and Consultancy for Full Field Studies
- On-Site Support for Well Tests

• Data Services


- Image Logs (FMI, UBI, OBMI) Processing & Interpretation
- All Petrophysical Studies and Evaluations
- CMR Processing & Interpretation
- Dipole Sonice Processing & Interpretation
- VSP Processing and Interpretation
- Production Logging Services (Design, Interpretation & Well - Site Support)
- Formation Pressure Testing (MDT, XPT) Processing & Interpretation
- Wellbore Stability







Well Completion and Productivity



Well Completion and Productivity (“WCP”)

WCP offers the broad portfolio of testing, completion and artificial lift technologies and services. From downhole to the surface, we get answers to key questions about productivity, fluid properties, composition, pressure, and temperature. Throughout exploration, appraisal, development, and production, it is the answers that our experts deliver, enabling risks to be quantified, options to be clarified, and actions to be taken with greater confidence.

By providing a better basis for decisions, we help customers prove reservoir potential, confirm well performance and improve field productivity.

The culture we learned is to be highly attentive to our clients' needs and work with them as partners.

1 Testing

Surface Testing

WCP offers a wide range of surface well testing equipment suitable for exploration, appraisal and production wells. Our expertise and high competent expert help to acquire accurate, reliable data. We are highly concerned with the test objectives while meeting the most stringent HSE regulations in complex conditions and challenging environments.

Drill Stem Testing

Whether your goal is to determine reservoir pressure, permeability, skin, or productivity our downhole technology delivers the right answers. Accurate downhole pressure measurements suitable for hostile conditions.

Flexibility in downhole tool design helps to obtain required results in efficient way and saving rig time.



Perforation

The variety of perforating system we offer (With TCP and Coiled Tubing) assist our clients to achieve the highest production by optimizing the relationship between the gun system, wellbore, and reservoir. The results of our shaped charges performing gain are documented in API RP 19B Section 1.

We obtain the best productivity by:

- Perforating with the optimal gun system and charges
- Clean perforation by controlling wellbore dynamics while perforating





Slickline Services

Top quality and high performance services are offered by assisting our clients to maintain production on target and keeping OPEX within budget.

We offer variety designs, tool options and largest fleet of units in the industry, together with highly trained experts.

Surface & Downhole Sampling

WCP offers reliable downhole tools that obtain accurate samples at downhole conditions.

Surface sampling from the wellhead, separator, and stock tank are performed frequently during most well testing operation and considered to be routine job. However, in WCP, special procedures are followed and implemented precisely to obtain the right samples for future studies and analyses.

2 Artificial Lift & Completions Services

WSI offers an integrated, field-proven lift platform that includes electric submersible pumping systems and gas lift subsurface safety system.

Our exclusive optimization services integrate real-time monitoring with expert input. Together, our products and services with comprehensive artificial lift solutions optimize production in any environment.

Our proven portfolio completion in any products and our industry-learning processes provide solutions for every scenario.

Research & Development



WSI Innovation Fund "We Support Ideas"

We welcome any idea that help us improve our performance or develop new products. We deeply believe in our young talents and work with student teams, research institutes and universities. From engineering to law & economics, no matter what discipline you are specialized in, **Talk To Us!**




WSI Innovation Challenge "We Solve The Impossible"

We encourage everybody to think out of the box and partner with a leading business to solve the key challenges of our industry. At regular intervals, we post a new challenge related to our industry and look for new concepts and ideas to invest on. The participants have the opportunity to win cash prizes and may get a free co-working space in WSI office to develop and commercialize their idea. Our experts in WSI will support them with Technical challenges, Production validation, Strategic investment and Customer connections.



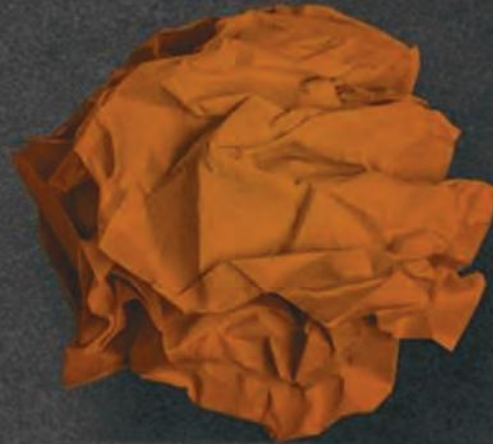
Find us at research@wsi-oilfield.com

Follow us at www.wsioilfield.com/research



At Research and Development (R&D), we are committed to the following objectives:

- Support WSI operation and find the solution for technical challenges;
- Push back the boundaries and come up with new products/methods to deliver unique services at premium quality;
- Promote our community and the next generation of young engineers.
- Promote our community and the next generation of young engineers.



WSI Innovation Fellows **“We Serve Iran”**

The WSI Innovation Fellows program recognizes aspiring scholars in the fields of drilling equipment, HPHT instruments, artificial intelligence and data visualization. The award was established to encourage scholarship and research in the areas that can help our industry to improve performance, lower costs, increase accuracy and provide new research and business insights.



WSI Academy **“We Shape Intelligence”**

WSI Academy is “the place for useful learning” in Upstream Oil & Gas.

Our training program is tailored for those who have worked in our industry for several years and seek continuous personal development (CPD) to boost their career path. Moreover, university graduates will be trained in the hand of professional instructors who have a long portfolio of operational experiences, mentoring and lectureship.

Careers With Us

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Oilfield Services is built on science and technology. Our clients use some of the most advanced services to address challenging engineering problems, this enables us to offer unique positions to talented individuals who are willing to accept these challenges. Whether you're working in the field, office or lab every day is different with its own interesting experience. Our commitment to excellence and each other is at the core in everything we do thus we need motivated, talented and qualified people to support our organization goals. Subsequently we're looking for the best and the brightest, those with passion and dedication of delivery of service quality in challenging oil and gas industry.

Why should you choose us?

- We offer opportunities that will stretch your skills and help you reach your maximum potential.
- We promote from within based solely on performance and competencies.
- We take our investments in our staff seriously as our future success depends on it.
- We're an ethical business with high behavioral standard because we care for our people, sociality and the environment around us.
- We have strong organizational culture that promotes healthy living and putting people first.

What do we look for in applicants?

- We want bright, qualified and talented individuals who love the challenges of working in oil and gas environment.
- We need individuals who can embrace work that can be physically demanding while requires academic knowledge and intellect.

We seek extraordinary people of diverse background who want to make difference and are drawn to our company culture.

How to apply

If you're looking for a challenging, multicultural and equal opportunity working environment, WSI can offer you this experience. Our success is depended on your skills and ability, your creativity and your performance.

If you have the qualification and the enthusiasm to have an experience in such environment please visit our website www.wsi-oilfield.com to register for an online account and submit your application from careers section which includes CV/Resume upload facility.



**Solutions
that exceed
expectations**