Cased Hole/Electric Line Services
Quality Energy Services provides Cased Hole Electric Line, Combination Slick line/EL and Memory Tool Logging services for the Offshore Gulf of Mexico, Deep water Gulf of Mexico, Onshore Texas, Louisiana, Oklahoma, Mississippi, Colorado, Wyoming and Inland Water areas. We have the capabilities to work in the remedial, production, completion, P&A and pipe recovery phases. All districts have fit for purposed equipment and tools depending on requirements for their region. The Cased Hole fleet includes skid equipment for Offshore Shelf/Deep water/Inland water and truck units for Onshore.

The following data is a cross section of the services we provide: Real Time and Memory - Logging, Plug backs, Through Tubing and Casing Perforating, Pipe Recovery, Packer Setting, BHP Surveys and Reservoir Analysis, explosive systems include pressure, electronic and mechanical activated. All services can be run on slick line, electric line or coil tubing and conveyed on either our wire (SL/EL) or competitors wire or coil tubing.
E-Line & Cased Hole Services
**Services**

- Production Logs - Conveyed on Slickline, E-Line or Coil Tubing
- Calipers - Conveyed on Slickline, E-Line or Coil Tubing
- Tubing & Casing Bridge Plugs - Set with Slickline, E-Line, or Coil Tubing
- Perforating Services - Conveyed on Slickline, E-Line or Coil Tubing
- Tubing & Casing Cutter - Conveyed on Slickline, E-Line or Coil Tubing
- Gaslift Diagnostics - Log on Slick line or E-Line
- Correlation Logs – Log on Slick line, E-Line or Coil Tubing
- Memory Electronic Firing Systems - Slick line
- Leak Detection Surveys – Conveyed on Slick line, E-Line or Coil Tubing
- Dump Cement - with Slick line or E-line
- Complete E-Line units with Warrior System for Real Time Logging Jobs
Electric-line/Slickline Combination Unit

Complete Slick line / Electric Line Operations
- 0.108” Slick line
- 7/32” Electric line
- Alloy Wire Capabilities (on request)

Pressure Control Equipment Up to 15k PSI
- Slickline Pressure Control Packages
- Electric line Pressure Control Packages
- Equipment packages can be combined to reduce cost

Thru-Tubing Completions
- Pressure Firing Heads (slick line/coil tubing/snubbing)
- Memory Logging (slick line/coil tubing/snubbing)

Plug and Abandonment Operations

Real-Time Data Acquisitions Capabilities
Electric line/Slick line Combination Truck Unit

COMPLETE SLICKLINE / ELECTRIC LINE OPERATIONS
0.108” SLICKLINE
7/32” ELECTRICLINE
ALLOY WIRE CAPABILITIES (ON REQUEST)

PRESSURE CONTROL EQUIPMENT UP TO 15 K PSI
SLICKLINE PRESSURE CONTROL PACKAGES
ELECTRICLINE PRESSURE CONTROL PACKAGES
EQUIPMENT PACKAGES CAN BE COMBINED TO REDUCE COST

THRU-TUBING COMPLETIONS
PRESSURE FIRING HEADS (SLICKLINE/COIL TUBING/SNUBBING)
MEMORY LOGGING (SLICKLINE/COIL TUBING/SNUBBING)

PLUG AND ABANDONMENT OPERATIONS
REAL-TIME DATA ACQUISITION CAPABILITIES

Electric Line Truck Unit

ELECTRIC LINE TRUCK – 9/32” AND 7/32” CABLE

PRESSURE CONTROL EQUIPMENT UP TO 15 K PSI
ELECTRICLINE PRESSURE CONTROL PACKAGES

THRU-TUBING COMPLETIONS
PRESSURE FIRING HEADS (SLICKLINE/COIL TUBING/SNUBBING)
MEMORY LOGGING (SLICKLINE/COIL TUBING/SNUBBING)

PLUG AND ABANDONMENT OPERATIONS
REAL-TIME DATA ACQUISITION CAPABILITIES
Mast Truck Unit
E-Line & Cased Hole Services

Pressure Test Unit

Wrenches With High Pressure Hoses
Logging Services

- CCL
- CBL - SECTOR BOND
- GAMMA RAY/CCL
- GAMMA RAY/CCL/NEUTRON
- GAMMA RAY/CCL/PRESSURE/TEMPERATURE
- PRODUCTION LOGGING
- TUBING/CASING CALIPER
- PULSED NEUTRON
- COMPENSATED NEUTRON
Production Logging Services

Memory Instruments

Water Entry
Full Suite of Sensors

Hardware Integrity
Flow Meter, CCL, Pressure, Temp

Correlation Log
CCL, Gamma Ray, DTR

Flow Profiles
Full Suite of Sensors

Deployment methods by Slick line, Braided Line, Electric Wireline or Coil Tubing
Electric line/Slick line Combination Unit

Real-time Logging Services utilizing Warrior Logging System
Production Logging Tools

Production Logging services provide solutions to production problems with accurate flow profiles and down hole diagnostics. Logging data is stored in down hole memory and played back on location after the tools are retrieved from the well. MPL can be used in producing and injecting wells with single-or multi-phase flow regimes.

**Economical in hostile environments** Using slick line minimizes risk in CO₂, H₂S or high pressure environments. Slick line wellhead pressure control equipment simplifies rig-up and operates safely and efficiently in demanding conditions.

**Proven in horizontal applications** MPL is deployable on coiled tubing for highly deviated or horizontal wells.

**Reduced rig space requirements** Small footprint and low weight make MPL ideal for small production platforms and mono-pod completions. MPL also requires less surface equipment and crane height than electric line services.

**Helicopter portable MPL** can be run with existing slick line equipment, avoiding the cost of mobilizing a logging unit.
- Gamma Ray ‘Hot’ zones due to radioactive scale deposition in association with water production.

- Direct evidence of water production at the second perfs – the spinner shows flow across the whole interval but the capacitance tool (scales reversed) shows that only the top section is producing oil.

- The capacitance curve above the lowest perfs shows water disappearing to the high side of the well. This causes water fall-back and eddying causing the spinner to have a negative offset.

- As more oil comes in from the 3rd perfs oil bubbles coalesce to form slug flow.

- Water entry above reverts flow to bubble flow.

- There is frictional heating as flow passes through the lowest perfs, which are restricted by scale.
12 Sector High Definition Bond Logging Tool

12 Sector HD-RIB provides a solution of increased sector resolution and definition to more accurately identify cement channeling, voids and other abnormalities in casing sizes.
 Electronic Tubing Caliper

The 24 finger Electronic SRO/Memory Sondex Tubing /Casing Caliper is used to provide the most accurate tubing measurements in the industry. The tool can be deployed in the well via slick line, coil tubing, braided cable or mono-conductor electric wireline. Once the tool reached bottom, it is time programmed for the fingers to motor to the open position. The spring loaded, hardened tip fingers push against the ID of the casing or tubing with a low force. As the tool is logged up the well, the movement of each finger is transferred to a position sensor. The output of the position sensor is then digitized for recording into the memory section or transmitted up the electric wireline. Data from each finger is monitored independently. At the end of the logging run the fingers are motored to the closed/retracted position.

The tool contains an inclinometer to denote the high side and well deviation.

**Specifications**

- Diameter - 1-11/16” OD w. fingers retracted
- Measurement Range - 1.75” – 7” ID
- Max. Pressure – 15,000 psi
- Max. Temp. - 350 degrees F

**Applications**

- Quantifications of scale build up or corrosion
- Accurate location of holes or anomalies
- Identifications of tubing items and damage

**Wiva Software**

One of the most effective ways of understanding the condition of a well is to produce a 3D image. To achieve this, QES offers a package called Wiva.

Wiva allows the operator to look at features from different directions. Full control of the displayed images allows it to be angled, rotated, lengthened.
Freepoint tools give torque and stretch readings in tubing, drill pipe and casing.

Freepoint tools can be run with centralizer springs, magnets or motorized centralizer springs.

String shots can either be run in tandem with the freepoint tool or on a separate run.
**Mechanical Cam Cutter for Slick line or Cable**

Mechanical Cam Cutter is used to cut slick line or cable down hole in wellbores to separate the stuck down hole tools from the deployment line. The operations require for the Wireline Valve to be closed, pressure released from the lubricator and the lubricator lifted to gain access to the line. The Cutter is placed on the line and the lubricator is replaced on the well, pressurized and the Wireline Valve open to the well bore, allowing the cutter to free fall the top of the stuck tool string rope socket. Once the tool hits the top of the rope socket, the cam cutter is turned to cut the slick line or cable.
Down hole Electronic Shut-in Tool

- **Reduce the COST** of buildup testing.
- **Dramatically Improve Data Quality** in difficult well conditions.
- **Feel Confident** with industry leading reliability.

The SST-500 Downhole Electronic Shut-In Tool from Micro-SMART Systems automatically shuts-in your well near the sand face, removing wellbore storage effects that can reduce data quality while minimizing costly production downtimes.

**SMART Features:**
- All Stainless-Steel construction for maximum corrosion resistance and durability
- Fast closing time - less than 60 seconds
- Internal test firmware delivers audible signal and valve movement to confirm proper operation prior to use downhole
- Switch selectable shut and open sequences without using a computer
- Custom computer programming with up to 20 shut/open sequences

Our “SMART” switch programmable electronics means “no computer required” to prepare the tool for a standard shut and open sequence. Simply select the duration of the flow period and duration of the buildup period. It’s that easy. Multiple shut/open sequences, up to 20, may be programmed into the SST-500 allowing more elaborate production tests to be performed. Programming is accomplished by using any Windows PC and Micro-SMART’s user friendly software.

The SST-500 incorporates a proprietary seal design to allow the tool to operate and seal properly in a wide variety of downhole conditions. Our innovative flow passages are designed to optimize flow, virtually eliminating the "choke" effect.
Explosives  
New Technology  

Electric Line Capabilities on Slick line, Braided Cable, Coil Tubing

Explosive Activation Systems

- Electronic Memory Firing Systems
- Pressure Activated Firing Head
- Mechanical Activated Firing Head

- Bridge Plugs
- Umbrella Plugs
- Tubing / Casing Cutters
- Hollow Carrier Guns
- Strip Guns
- Dump Bailers
- Chemical Cutters
Slick line Electronic Perforating Tool

**Advantages:**
Some advantages of slickline versus electric-line operations are:
- cost savings
  - less equipment and personnel required
  - less time required for transport and rigging
- safer operation
  - no possible detonation due to electric-line or truck power source
  - more reliable pressure control with less environmental hazard

**SMART Features:**
Technological features of the SB-1500 are:
- **SAFETY in firmware**
  - Time, Pressure, Temperature, Motion Detection
- **SAFETY in hardware**
  - Time and Motion Lockouts
  - electronic and electromechanical pulse control
- Controls most standard resistorized Detonators and igniters
- Internal status codes to aid in problem solving
- Switch selectable programming for standard parameter test runs
- Computer Programmable for Perforating Runs
  - Fast Mode (1.875 or 3.75 seconds)
  - Slow Mode (15 or 30 seconds)
- Audible operating signal
  - every 1.8 seconds if in ‘RDYFIRE’ position

‘THE SAFE AND SMART BLASTER’
Absolute/Pressure Firing System

- 1 11/16” OD
- Up to 20,000 psi Working Pressure
- To Detonate Tubing Cutters, Perforating Guns, CIBP
**Electronic Dump Bailer**

*Electronic Dump Bailer* utilizes a battery operated motor to open and close an O-Ring seal piston. When run on the bottom of a Dump Bailer, the system uses a timer and temperature device to open the piston at a pre-determined time and temperature to allow the media in the bailer to dump.

**Specifications**

- Work Ratings – 15,000 psi / 300°F
- Adaptable to any size Dump Bailer Barrel
- Dual O-ring sealing system plunger
- Suitable to dump acid
- Timer and temperature settings
- No Explosive necessary to be used
**Perforating Accessories**

**Plugging Accessories**

- Bridge Plugs
- Umbrella Plugs

**Explosive Accessories**

- Dump Bailer
- Cement, Plastic, Acid
- Hollow Steel Carriers
- Strip Guns
- Tubing / Casing Cutters
Mechanical Services

Full suite of mechanical services available:
JET CUTTERS

- Explosive cutters available to sever various sizes of tubing/drill pipe/casing.

- Usually more inexpensive than chemical cutters but with some limits in their application.
SPLIT SHOTS

Linear explosive collar splitters available to split various sizes of tubular collars. Smaller than most explosive cutters which enables running through small restrictions. Works by linearly severing the tubular collar.

DRILL COLLAR SEVERING TOOLS

A colliding explosive tool making use of exploding bridge wire detonators and explosive pellets to sever drill pipe collars.
Chemical Cutter

The CHEMICAL CUTTER is a mechanical/chemical pressure-actuated device that is based on the oxidation/reduction process. This chemical process produces a cut that is uniform and non-deformed. This aides in fishing operations reducing the need to “dress” a typical cut with fishing tools thereby saving rig time.