



Coretrax Product Line Overview

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Contents

ABOUT	4
Locations	4
ORIGIN	5
CX – Riser Brush	5
Activated Drilling Scraper	5
BOP Jetting Sub	5
Hi Pro Casing Scraper	6
Hi Pro Casing Brush	6
CX- Junk Filter Sub	6
CX- SP Magnet	6
CX-Downhole Filtration Tool	7
LTTT (Liner Top Test Tool).....	7
CX- MaxVax™	7
ORIGIN - Case Study 1	8
ADVANCE	9
HI Tool™ – Harmonic Isolation Tool.....	9
Cutting Bed Impeller (CBI™)	9
AERO™ Reamers - Concentric and Dual Eccentric	9
AERO™ Sleeve	10
Drill String Torque Reducer (DSTR™).....	10
DAV MX™ Drilling CircSub	10
Drift Catcher™	11
Drift Catcher™ – Volumetric Drift.....	11
HyPR HoleSaver™	11
Mud-Shear Sub.....	12
Pressure Test Sub MX.....	12
DICV Max™	12
DURA Drill Float	12
Self-Filling Float	13
Self-Filling Float Trigger.....	13

Top Jet.....	13
ADVANCE - Case Study 1	14
ADVANCE - Case Study 2	15
ADVANCE - Case Study 3	16
AEON	17
CX-2 Bridge Plug	17
CX-WS Bridge Plug.....	17
CX-SV	18
CX-Enviroplug.....	18
CX-SVE.....	18
CX-Tubing Hanger	18
CX-DB (Drillable Brush).....	19
CX-Superflow	19
CX-RTP (Retrievable Test Packer).....	19
Drop Drift Cleaner.....	19
CX-Ball.....	20
Foam Wiper Balls.....	20
AEON - Case Study 1.....	21
AEON - Case Study 2.....	22
CORE - Metal Expandables	23
Drilling Applications	23
ReLine DL.....	23
Well Intervention Applications	24
ReLine MNS Casing Patch.....	24
ReLine HYD Casing Patch	24
ReLine WL Patch.....	24
OnePatch	25
ReStore	25
Plug and Abandonment.....	25
ReForm.....	25
CORE - Case Study 1	26
CORE - Case Study 2.....	27
CORE - Case Study 3.....	28

ABOUT

Coretrax, An Expro Company, is the international leader in innovative technologies that unlock greater value throughout your well lifecycle. We drive efficiencies across all stages of your operations from drilling and wellbore clean-up, intervention and well decommissioning.

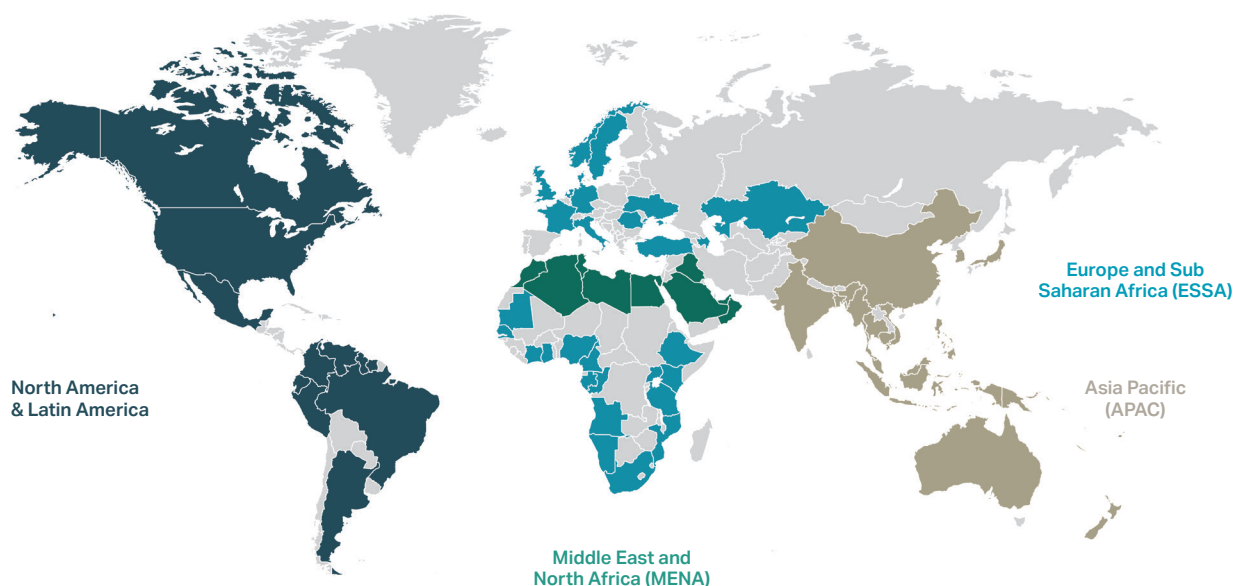
- 4 product lines
- 50+ technologies
- 2+ million hours worked globally to date

Increasing Value Throughout Your Well Life

- **ORIGIN** Wellbore Clean Up: Industry-leading solutions, supporting operations from drilling through production.
- **ADVANCE** Drilling Tools: Downhole tools that harness the power of circulation across drilling, completions, and P&A operations.
- **CORE** Metal Expandables: Tubular technology that solves critical downhole challenges and maintains well integrity.
- **AEON** Plug and Well Decommissioning: Our products seamlessly align with your wellbore decommissioning needs through rigorous project planning and engineering.

Locations

Coretrax, An Expro Company, is located near our customers, with our operations set up on a geographical basis, comprising of Europe and Sub Saharan Africa, Asia Pacific, Middle East and North Africa and North and Latin America. Our regional headquarters are in Aberdeen, Lafayette, Dubai, Houston and Kuala Lumpur.



ORIGIN

Coretrax's ORIGIN Wellbore Clean-up product portfolio focuses on driving operational efficiencies. Our boundary pushing wellbore clean-up solutions ensure a seamless transition from drilling to completion. Our market leading wellbore tools are designed to maximise debris recovery and can be combined to deliver valuable rig time savings.

Coretrax designs and manufactures a comprehensive range of wellbore clean-up tools, including scrapers, brushes, magnets, and junk baskets.

CX – Riser Brush

The Coretrax Riser Brush is an integral part of the drill string and is designed to clean the riser as the pipe is run into and pulled out of the well. It is stabilized slightly below the drift diameter of the riser to centralise the drill string.

The strong, flexible bristles provide the necessary force and contact to effectively remove residual drilling fluid, scale and other foreign materials from the ID of the riser to ensure a clean surface.

The one-piece tool can be rotated or reciprocated without fear of damage to the riser or the tool. It can be run with the clean-up string and remain in the riser during the clean-up circulation and may be short tripped in the well at the beginning or at the end of the clean-up operation. It has no internal seal elements.



Activated Drilling Scraper

The Activated Drilling Scraper remains dormant in the string until activated, allowing drilling operations and casing scraping to be completed in a single trip. The robust design features high torque premium connections making it suitable to be in heavy duty drilling BHAs even when drilling horizontal sections.

Once hydraulically activated; by dropping a ball from surface, the Activated Drilling Scraper's blades provide 360° coverage for effective removal of debris. Multiple activated drilling scrapers can be run in tandem to scrape multiple casing strings in a single trip, further optimizing drilling operations.



BOP Jetting Sub

The BOP Jetting Sub has been designed to dislodge debris and clean out the BOP, riser and wellhead area, casing and tubing anchors.

The device has six ports which can be fitted with a variety of nozzles, allowing the tool to adapt to various pump capacities. It can also be racked back in the derrick and used during downtime in order to eliminate heavy debris build up in the BOP area.

It can be run as part of the BOP clean up and swarf recovery string after section milling to help dislodge swarf and other debris from the cavities of the BOP. This has been proven to reduce the amount of time required to clean the BOP at surface after milling operations, saving valuable rig time.



Hi Pro Casing Scraper

The Coretrax® Hi Pro® Casing Scraper is non-rotating scraper designed to remove debris from the casing wall during WBCU, removal of residual drilling fluid, scale, cement, perforation burrs and other foreign material from the ID of the casing.

Each tool has six blades specially aligned on the body to provide the maximum contact with the casing ID while running in and reciprocating the string.

With the scraping element being non-rotating, it avoids wear or damage to the casing while rotating the string. The blades are designed to give optimum scraping action whilst maintaining high fluid bypass.



Hi Pro Casing Brush

The Coretrax Hi Pro Casing Brush is non-rotating and aids in the removal of residual drilling fluid, scale, cement and other foreign material from the ID of the casing.

It can be run in conjunction with the Hi Pro Casing Scraper to maximise debris removal from the casing wall during wellbore clean-up, drilling and fishing to ensure efficient future operations. Each tool has two specially designed brush sleeves aligned on the body to provide the maximum contact with the casing ID while running-in and reciprocating the string. The body provides absolute safety and security by locking each brush segment onto an integral part of the brush tool.



CX- Junk Filter Sub

The Coretrax CX-Junk Filter Sub allows the removal of debris which is too dense to be circulated out of the well.

As the circulation slows, the denser materials drop over the lip and into the filter cup. The device can also be run in conjunction with a variety of Coretrax wellbore clean-up tools to provide a bespoke tool string to suit your operations.

The CX-Junk Filter Sub is an ideal solution to be utilised below the Coretrax BOP Jetting Sub to capture debris removed while jetting the BOP cavities or in milling applications.



CX- SP Magnet

Downhole operations often result in the generation of ferrous debris which remains in the wellbore. Failure to remove this can cause costly damage to completions and surface equipment, resulting in considerable non-productive time.

The CX-SP Magnet is a string magnet which can be run during wellbore clean-up, BOP Jetting, fishing, milling, and completion operations when the removal of ferrous debris is required.

Each tool has a minimum of 10 magnet strips specially aligned on the body to provide the maximum surface catchment area. The CX-SP Magnet continually captures ferrous materials from well fluids from the moment it passes the rotary table until it is recovered back to surface providing an efficient solution to this costly problem.



CX-Downhole Filtration Tool

The CX-Downhole filtration tool removes debris and validate the cleanliness of the wellbore to ensure no residue is left following drilling or production activities. While running in-hole, the brushing element removes the debris from the ID of the casing.

Once wellbore clean-up is complete, as the string is pulled out of hole, validation of the wellbore begins. Wellbore fluid is diverted into the tool and debris is collected and retained by the wire mesh while the filtered wellbore fluid passes through.



LTTT (Liner Top Test Tool)

The Coretrax® LTTT is designed to perform isolated negative or positive inflow tests on liner tops and casing shoes. The Coretrax LTTT is functioned by setting down weight to compress and extrude the elements. The tool can be used both during drilling operations and during the displacement process. The tool has extensive run history in HPHT, horizontal/vertical, pre completion WBCU and shoe track drill out applications. The large bypass area under the packer element enables quick running speeds and enhances reliability by diverting the majority of the flow away from the elements enabling the tool to be part of drilling and inflow test BHA. Can be run as an integral component within the WBCU BHA to save an additional trip.



CX- MaxVax™

Completion and intervention operations are generally performed in brine fluids which have very low solids-carrying capabilities. It is often impossible to generate adequate fluid velocities required to lift debris and conventionally circulate it to surface.

The CX-MaxVax™ eliminates these issues with a multi-nozzle fluid-diverting module that creates a powerful reverse circulation flow. This maximises lifting velocities without high surface pump rates, effectively capturing debris in-situ and recovering it to surface.

Standard service configuration is to run a core type junk catcher with 'finger' baskets below the main tool. This ensures even larger pieces of junk are also recovered. Each debris chamber has been designed to be removed from the rig floor and emptied in the most appropriate area, eliminating the chance of recovered debris re-entering the wellbore.



ORIGIN - Case Study 1

Expro Excellence

Streamlining wellbore clean-up with travel joint technology

Coretrax | ORIGIN



Objectives and background

- Although the single-trip concept is highly attractive, combining all critical operations poses significant limitations. Key tasks - including drilling out cement and float equipment inside a 4½" liner, polishing a 15,000 psi-rated PBR, conducting an inflow test, and verifying lower completion integrity - require precise tool positioning and distinct landing points.
- These operations are inherently incompatible in one continuous deployment, making it essential to strike a balance between minimizing trips and ensuring technical integrity and functionality

Expro Excellence

- Travel joint technology was introduced as a first-of-its-kind solution to eliminate the conventional three-trip WBCU process. The system integrates the drilling bit, completion polish mill, and inflow test packer (liner top test tool) into a single run while navigating the need to land at two distinct points within the well
- The travel joint is pinned with shear pins in the extended position, giving a positive indication when the tool is functioned
- At the first landing point, weight is applied until the shear pins break at the predetermined value
- After shearing, the upper string can be lowered to tag the second target and set the liner top test tool
- This design allows two distinct operations - clean-up and inflow testing - to be performed in one trip without conflict, reducing both time and complexity

Value to the client

- The integrated assembly successfully combined completion polish mill accessories, WBCU tools, and an inflow test packer with a 3 5/8" bit into one optimized run. This enabled the operator to:
 - Successfully drilled to 126ft of hard cement and float equipment inside the 4½" liner under controlled parameters
 - Land accurately at two different points
 - Conduct negative and positive inflow tests
 - Polish the 15,000 psi-rated PBR in a single trip

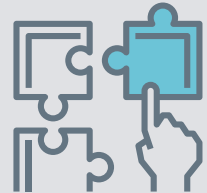
Time Efficiency:

- Achieved consolidation of the conventional two-trip system into a single optimized run, saving time and reducing logistical complexity
- Conventional method: 3 separate trips × 36 - 45 hours each = ~108 hours
- Travel joint method: Single optimized trip = ~40 hours
- The travel joint reduced completion time by more than 60%, eliminated logistical complexities, and lowered exposure to operational risks. This successful deployment demonstrates the travel joint's effectiveness in streamlining complex completion operations while preserving technical integrity
- Due to the mechanical nature and positive indications of landing on the liner tops, the client has confirmation of the actual liner tops depths

Cost saving



Integrated approach



ADVANCE

ADVANCE is your “one-stop solution centre” for improving performance, reducing costs, and speeding up hydrocarbon recovery.

The ADVANCE Drilling Tools have been designed to harness the power of circulation across drilling, completions, and P&A operations. ADVANCE products offer operators reliability across a wide range of applications from sustaining safe well control pressure to recovering stuck pipe.

From stuck pipe recovery to providing assurance with our Drift Catcher system, we are always looking to how we can deliver more value to everyday operations.

Our ADVANCE product range is split into five subcategories, these are Circulation Tools, Speciality Tools, Float & Fill, Darts, and Drilling Technologies.

HI Tool™ – Harmonic Isolation Tool

The HI Tool® Harmonic Isolation Tool is an on-bottom drilling tool, designed to reduce vibrational loads generated by drill bit dynamics. Drill string vibrations are typically the most common cause of NPT for the operators and suppliers of complex MWD/LWD equipment. Extensive job history with the HI Tool® has shown results for operators, with a direct impact on reduction of drilling costs in both domestic and international markets.



Cutting Bed Impeller (CBI™)

Expro's CBI™ Cutting Bed Impeller is a downhole drill string tool intended for use in deviated wells, where excessive buildup of cuttings causes drilling problems.

The CBI™ Cutting Bed Impeller is an integral drill string component consisting of a short mandrel with no moving parts. It is shaped in such a way as to stimulate any cuttings, which have a tendency to settle out of the mud in the high angled sections of the well bore. These sections could be inside the casing or in open hole; the tool adapts to suit several environments.



AERO™ Reamers - Concentric and Dual Eccentric

Expro's AERO™ Reamers are borehole conditioning solutions that improve wellbore drift by removing unwanted spiralling and ledges to help casing and liner strings efficiently reach total depth.

Expro's AERO™ Reamers create a smooth torque response that optimizes drilling steerability and wellbore stability to improve casing running operations, cementing clearance, drilling efficiency, and overall hole integrity.

The concentric and dual eccentric reamer options are suitable for reaming-while-drilling operations, which reduce or eliminate short trips, backreaming, dedicated cleanout runs, and associated non-productive time and spend.



AERO™ Sleeve

Expro's AERO Sleeve is the next generation technology for ream-while-drilling applications globally. Based on our proven and patented line of AERO Reamer technology, our AERO Sleeve can be applied to existing bottomhole assembly (BHA) components to extend service life and improve performance.

This functionality ultimately reduces vibration and torque and improves the overall efficiency of the drilling system.

The patented AERO Sleeve technology is an integral stabilizing component of the BHA and is made up within the various rotary steerable systems (RSS), motors, and MWD components. With an ultra-low friction design, the AERO Sleeve maintains full engagement with the wellbore to alleviate wear on the BHA and improve the life of each component.

The AERO Sleeve works in combination with RSS tools to help reduce the risk of hole problems and stuck BHA. Expro's AERO.

Sleeves are available in steel or non-magnetic materials, allowing for runs in a wide range of BHA locations. Customizable and purpose-built for any application, the AERO Sleeve is an industry leader in innovative ream-while-drilling operations.



Drill String Torque Reducer (DSTR™)

Expro's Drill String Torque Reducer (DSTR™) is a drill string tool intended for use in deviated wells where excessive rotary torque causes drilling and casing wear problems. Achieving an international award for innovation at the Houston oil show, the tool has been acknowledged previously as the industry standard.

Another benefit seen with the tool is the reduction of casing wear. For a given deviation profile, the applications program assists in maximizing the tools performance by determining the deployment in the critical sections of the borehole. However, for most extended reach drilling applications, the tools are used in the build sections of the borehole, helping to extend the envelope of rotary drilling.



DAV MX™ Drilling CircSub

The DAV MX™ CircSub is a class leading downhole circulation bypass tool, activated by unique smart darts, that delivers significantly improved performance across drilling, completions and P&A operations. Simple to use, the multi-function, multi-cycle DAV MX™ circulating sub can be run across a wide range of applications including hole cleaning, displacements, LCM Spotting, BOP jetting and many others.

Simple to use, the multi-function, multi-cycle DAV MX™ circulating sub can be run across a wide range of applications including hole cleaning, displacements, LCM Spotting, BOP jetting and many others.

Its versatility and resilience plus the rapid smart dart activation, provides operators with fast circulating options in virtually any environment.

Operators have activated the tool at depths of more than 31,000 feet, heavy mud weights of 20 PPG, temperatures of almost 250°C and at 98° section inclinations.



Drift Catcher™

As a downhole pipe drift verification tool, the Drift Catcher provides operators with rapid pipe drift verification. This eliminates the need for risky and time-consuming derrick drifting or the uncertainty and poor accuracy of wire tail / custom drifts.

The tool is run in the drilling section, for example the 8.5" drilling BHA and allows the operator to simply drop and pump the drift (which gives a positive pressure indication on land out) on the way out of hole to verify the pipe is clear.

The same drill pipe can then be used to run the liner safe in the knowledge there is a confirmed clear path for the liner hanger ball.

The Drift Catcher has drifted pipe in more than 1,300 strings since 2002 and is the safest and most efficient way to drift pipe.



Drift Catcher™ – Volumetric Drift

Allows the drifting process to simultaneously gauge the pipe volume. In certain string/liner volume ratios there may be a high risk of over displacement especially if non-bumping plugs are run.

The volumetric drift simulates cement plug delivery thereby giving an additional data reference point. Over-displacement risk is detected by the volumetric drift landing out earlier than expected.



HyPR HoleSaver™

The HyPR HoleSaver™ is the world's first hydraulic pipe recovery system. It is the quickest and safest low cost means of recovering from stuck pipe situations whilst maximizing hole recovery.

Unlike conventional methods, which are typically wireline run and includes the use of explosives or other high energy sources (hazardous) to sever the string, the HyPR HoleSaver™ is a pre-placed sub or subs within the BHA. The device can be turned into severance points by simply deploying the HyPR Smart Dart.

With no moving parts, the full strength HyPR Sub lies dormant in the string. When activated with the HyPR Smart Dart, the flow of ordinary mud is redirected, creating a high velocity radial jet of fluid to erode and cut the sub in just a few hours.

When compared to traditional methods the HyPR can reduce the time of recovery from weeks to several hours. String well control is possible after severing, and no milling is required should the customer decide to fish the BHA / work string afterwards.



Mud-Shear Sub

The Mud-Shear Sub is a straightforward mud conditioning solution that requires no topside equipment and is especially effective during milling operations.

With the milling assembly run-in up to the penultimate stand, the system is installed just below the rotary table and the mud is simply pumped through the sub.

The easily configurable device delivers significant cost and time savings during the mud conditioning process, irrespective of flow rate and viscosity. It offers a better alternative to aligning topside conditioning equipment or the time lost waiting for the milling string to shear the mud unassisted.

Multiple choke and nozzle size options are available. For best results, it can be run in conjunction with the DAV MX™ Circsub for multiple mud shearing points and the additional benefit of being able to self-fill, bypass the section mill (protect knives), displace fluid quickly and boost annular velocity post milling.



Pressure Test Sub MX

For in-hole string testing, the Pressure Test Sub (PTS) MX™ is a simple and accurate way to perform multiple, variable pressure tests on the string with the capability to regain full circulation after each test.

The system comprises of the test and catcher subs installed below the drill pipe that is to be pressured up.

Simply pump the pre-configured smart dart into the sub and hold pressure post land out. Once complete, shear the dart out into the catcher and resume operations.

The subs can be run below any length of pipe, at any angle or temperature, and can be used with any type of circulation fluid.



DICV Max™

Providing a high quality, pumpable contingency string barrier, the DICV Max™ range features the largest through bore options in the industry and is available in any drill string connection. When running the DICV Max operators are assured their string is protected. Placed above the BHA, it is also compatible with a wide range of products including the DAV MX CircSub™ and the HyPR HoleSaver™.



DURA Drill Float

The Double Upper Reserve Activated (DURATM) Float is a contingency float option that provides operators with a dormant secondary dual float that can be activated on demand.

Applications include protection post stuck pipe severance (HyPR™), protection should a leak path develop in the BHA, or if the primary float should fail.

Based on the proven Self-Filling Float™, the dart activated large bore float is fitted with a dual flapper arrangement. This acts as a back-up to the primary float in the string and provides unparalleled sealing technology and redundancy when activated.

The float is placed at the top of the BHA and can be rapidly activated by pumping a dart from surface.



Self-Filling Float

The Self-Filling poppet or flapper style-floats enable operators to accelerate trip times, saving up to 18 minutes per 1000ft run in hole by allowing self-filling and eliminating time-consuming top filling.

The robust hold open mechanism allows for MWD and other shallow hole testing without premature float activation issues. It houses two floats giving dual redundancy and replaces the traditional floats that are in the string.

The tool is dart activated with no additional equipment or personnel required and provides through bore access prior to activation. Simply activate on approach to the shoe to provide protection while drilling the section.



Self-Filling Float Trigger

The Self-Filling Float (SFF) Trigger™ is the simplest and fastest float system available for tripping into hole. It provides operators accelerated trip times, by allowing self-filling and eliminating time-consuming top filling.

The robust hold open mechanism allows for MWD and other shallow hole testing without premature float activation issues. As the tool reaches the pre-set arming pressure and depth, the unique Baromatic™ technology arms automatically. This means from a pre-determined depth and pressure the floats can be activated at any point past this depth.

As a fully automated system, it can be placed almost anywhere in the string for ultimate placement compatibility and provides a permanent through bore, ideal for running above under reamers.



Top Jet

When self-filling is not an option, the TopJet provides operators with a quick and safe method of top-filling the pipe when running in-hole.

Placed between the drill pipe and the top drive during each top-fill interval, the tool eliminates make-up time during fill-up and simultaneously enables faster pump-in flow rates by allowing mud injection whilst providing shrouded venting of air.

It has already been used on more than 100 rigs worldwide, including jack-ups, semi-submersibles, drill ships, land rigs and platforms.



ADVANCE - Case Study 1

Expro Excellence DAV MX™ circulation sub delivers robust hole cleaning and reduced rig-time.

Coretrax | ADVANCE



Objectives and background

- During a recent project in New Mexico, an operator encountered issues tripping out of hole which was a result of suspected hole cleaning issues
- The current on bottom and off bottom clean-up routine was taking around 11 hours each time and extreme vibrations during off bottom hole cleaning was also increasing the risk of damage to costly BHA equipment
- The operator deployed the 7" 3-port DAV MX™ downhole circulation bypass tool to remediate the issue. The simple to use, multi-function, multi-cycle circulating sub can be used across a wide range of applications including hole cleaning, displacements, LCM Spotting and BOP jetting. Activation speed, versatility and robustness enables timely and reliable fast circulating options and requires no service hand

Expro Excellence

- The operator deployed the 7" 3-port DAV MX™ downhole circulation bypass tool to remediate the issue. The simple to use, multi-function, multi-cycle circulating sub can be used across a wide range of applications including hole cleaning, displacements, LCM Spotting and BOP jetting. Activation speed, versatility and robustness enables timely and reliable fast circulating options and requires no service hand
- A split flow dart was selected for the hole cleaning application, after reference pressures were first recorded. The dart was deployed where a clear pressure drop of ~ 530psi indicated the dart landing and valve opening. The tool was then locked open, and off bottom hole cleaning commenced at 800gpm for two cycles. Finally, a universal closing dart was pumped to close the valve
- While pumping at 800gpm, and bypassing through the DAV MX™, the BHA was limited to 40-50 RPM to reduce vibration and mitigate any risk of damage to downhole equipment

Value to the client

- Following the DAV MX™ deployment, a 20% increase in cuttings was observed. With reduced clean-up cycles and higher pump rates delivered, almost eight hours rig-time was saved
- Eight-hour rig-time savings
- 20% increase in cuttings
- No service hand or configurations required before use
- No issues tripping out of hole
- Mitigate shock and vibration

Cost saving



Operational efficiency



Reduction of rig time



ADVANCE - Case Study 2

Expro Excellence
Continental Europe based operator achieves optimal hole cleaning on two separate runs, by activating two DAV MX™ CircSubs spaced out in a single drillstring on a challenging geothermal well.

Coretrax | ADVANCE



Objectives and background

- Operator’s plan was to drill a 6” section beneath a 9-5/8” x 7” tapered liner and enlarge it to 8-1/2” on a subsequent reamer run
- The challenge on both runs was to produce enough Annular Velocity inside and above the 9-5/8” x 7” tapered liner to lift and transport the cuttings to surface efficiently

Expro Excellence

- Four DAV MX™ CircSubs were activated sequentially a total amount of four times across two separate runs. During the first, 6” section drillout run, the 5” (NC38) DAV MX™ sub, positioned in the BHA, was used to flush the cuttings post drilling to above the 7” OD (NC50) sub - spaced out across the top of the 9-5/8” x 7” liner. The 7” sub was then activated to lift the cuttings to surface before cycling it back to closed position and POOH. The exact same sequence of operations was carried out during the subsequent 6” x 8-1/2” hole enlargement run. All four tools performed as expected providing the operator with most optimal hole cleaning application on a challenging geothermal well

Value to the client

- Two, upper (7.00”) and lower (5.00”) DAV MX™ CircSubs were run and activated sequentially during hole cleaning operations allowing the Operator to boost annular velocity and flush the cuttings efficiently both, inside and above the 9-5/8” x 7” tapered liner
- The operator was pleased with the tools’ performance. They observed significant increase in cuttings returns after each activation

Cost saving



Operational efficiency



Time saving



ADVANCE - Case Study 3

Expro Excellence

Coretrax saves operator 40 hours in drilling project with fastest stuck pipe recovery to date using HyPR HoleSaver technology

Coretrax | ADVANCE



Objectives and background

- Coretrax was mobilized by an operator in the United Arab Emirates, Middle East, during a drilling project after the operator became stuck in hole following the bottom-hole assembly becoming packed off
- Through deployment of both the HyPR HoleSaver™ hydraulic pipe recovery system and DAV MX™ circulation sub, the team offered support for the stuck pipe recovery operation

Expro Excellence

- Prior to engaging in the operation, the HyPR HoleSaver™ hydraulic pipe recovery system and DAV MX™ circulation sub were both pre-placed within the BHA as a contingency, enabling fast activation
- The DAV MX™ was first functioned using the opening ball and full circulation was re-established. The tool's multi-function design delivered fast circulating options, used across a range of applications including hole cleaning, displacements, and BOP jetting
- Once circulation was regained, the HyPR HoleSaver™ was subsequently activated with a fishing dart to sever the string. Unlike traditional methods, technology does not require the use of a wireline or explosives, eliminating the need to deploy specialist wireline crews and reducing third party mobilization
- A fishing dart was deployed allowing the operator to fish for the remaining BHA
- After deploying the dart, the flow rate was increased, and the cut was commenced. After just 4.5 hours the cut of the 6-5/8" drill pipe was complete – the fastest HyPR HoleSaver™ stuck pipe cut for this pipe size in Coretrax's history

Value to the client

- Successful completion of complex work scope with zero issues reported throughout, resulting in excellent feedback and working relationship with client
- Upwards of 40 hours saved with record stuck pipe recovery operation, completed in just 4.5 hours. This was due to Coretrax's innovative technology, vastly surpassing the efficiency of traditional methods

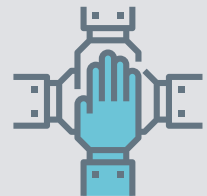
Cost saving



Time saving



Partnership



AEON

Innovation is in our DNA and our AEON portfolio has been developed to streamline downhole well decommissioning operations, using our extensive experience to address decommissioning challenges and deliver valuable time savings to the client.

With the AEON P&A solutions, Expro has been able to save operators across the world millions of dollars worth of rig time savings whilst supporting in the safe and efficient decommissioning of over 1,000 wells in more than 30 different countries.

Approach

Focused on creating solutions to streamline decommissioning operations and deliver rig time savings which in turn, deliver reductions in CO2 emissions. The company's AEON product suite was specifically developed to address industry challenges by offering time-efficient solutions to decommission wells by reducing the number of trips in hole while meeting decommissioning objectives.

As environmental and industry legislation evolves, it is vital to ensure that old well stock is properly decommissioned in line with the latest guidelines. For operators tackling large decommissioning projects, there are still a lot of unknowns.

As these projects do not always follow the initial plan, we offer potential contingency equipment to our customers during the job planning phase. Having bespoke, tailored packages to meet client requirements and contingency equipment on location during the projects gives our customers peace of mind that if operations do deviate from the plan, then they readily have access to all the equipment required to continue with minimal disruption.

Taking a modular approach, the AEON technologies can be combined to create hybrid tool strings to minimize the number of trips in hole to meet well abandonment objectives.

CX-2 Bridge Plug

The CX-2 Bridge Plug provides a solid and tested base for a cement plug which delivers improved efficiency and reliability for plugging and abandonment operations. Unlike other mechanical barriers, it features a release system, which provides a slick stinger with a through-bore. This eliminates the need for a dedicated trip for cementing operations. Constructed of fully drillable materials, the CX-2 Bridge plug boasts a field proven design with extensive run history. Designed to set with a combination of hydraulic pressure and mechanical pull, it comes with a built-in setting mechanism for greater efficiency, meaning no running tool to send back to us!



CX-WS Bridge Plug

Confidently setting a barrier for plugging and abandonment operations is essential to ensure long-term well integrity. The CX-WS Bridge Plug is a cast iron bridge plug which is set using electric wireline. Constructed of drillable materials, this enables the plug to provide an economic method of delivering temporary or permanent zonal isolations.



CX-SV

The CX-SV is a cast iron squeeze packer which is hydraulically set and features an integrated running tool, eliminating the requirement for a large OD bow spring mechanical setting tool.

Once set the integral sliding valve can be manipulated multiple times using the stinger, allowing for squeeze cementing or pressure testing below the plug. Once released from the plug the slick stinger remains which is ideally suited to cementing operations.



CX-Enviroplug

Confidently setting an environmental barrier for P&A operations has traditionally been limited to complex and costly mechanical bridge plugs and inflatable devices.

The CX-Enviroplug is a cementing plug used to provide a reliable base for cement in larger ID casing, which removes the complexity and constraints associated with other environmental barriers. The CX-Enviroplug is run with a disconnect sub, allowing cementing operations to take place once the plug has been released.

The tool contains a one-way valve and bypass ports which prevents surging when running in hole and is designed to pass through common wellhead restrictions. The three-finned design also features an optional weight set element that allows for pressure testing of the plug.



CX-SVE

Pressure testing barriers in P&A applications is a vital element to ensure integrity in the final stage of the well lifecycle. The CX-SVE is a robust and fully drillable cement retainer run on drill pipe and set using a mechanical setting tool. The device incorporates a sliding valve mechanism which allows circulation through the cement retainer when the mechanical setting tool is stung in.

This tool is ideally suited to several applications including cement squeeze operations and provides a pressure tested barrier for P&A application. The mechanical setting tool has a snap latch stinger which creates a seal with the sliding valve of the cement retainer. This is used to function the sliding valve within the CX-SVE whilst maintaining a pressure seal between the stinger and plug. It can be functioned multiple times whilst maintaining a pressure seal between stinger and plug.



CX-Tubing Hanger

The CX-Tubing Hanger is designed to provide an effective P&A solution where completion tubing can be left downhole, minimizing tubing disposal costs and delivering significant rig time savings.

The CX-Tubing Hanger is pipe deployed and compression set lending itself to several applications. Most commonly, the CX-Tubing Hanger is used to hang sacrificial tubing during P&A operations. The robust slips allow for the tubing hanger to be set in open hole and cased hole where scale may be present. The CX-Tubing Hanger is easily set and can be adapted to act as a base for cement, further streamlining operations.



CX-DB (Drillable Brush)

Setting a bridge plug successfully requires a clean setting area. The CX-DB (Drillable Brush) is made up directly to the plug or packer to clean and effectively prepare tool setting areas. Fluid is directed through the body of the Drillable Brush to support cleaning. Brushing can be done in the same run as the plug setting, eliminating the need for a dedicated scraper run and saving the additional run in-hole. This also creates a better cement bond, reducing the risk of micro annuli and increasing reliability.



CX-Superflow

The CX-Superflow can be run in conjunction with Coretrax plugs and packers to establish a debris-free area for optimal cementing, without the need for a dedicated scraper run. As a fully sacrificial combination scraper and brush tool, the device is a robust and effective solution for the removal of residual cement, scale, small perforation burrs and other foreign debris from the ID of the casing.

Made from drillable materials, the tool's hollow alloy body, combined with high bypass ports, reduces the surge effect whilst running in-hole. It can be run in conjunction with perforating guns and plugs allowing for plug setting, casing cleaning, multiple perforations and squeeze cementing in a single trip.



CX-RTP (Retrievable Test Packer)

As a heavy-duty multi-set service packer, the CX-RTP is ideally suited for a wide range of applications. This includes, and is not limited to, squeeze cementing, leak hunting, inflow testing, formation fracturing and high-pressure acidizing. The compression set packer has hydraulic hold down buttons and can withstand high pressure from above or below. It uses a j-slot and a drag block mechanism, for easy setting and features a three-element packing system. The tool is run on drill pipe and set by 1/4 turn to the right and setting down weight. Overpull will release and unseat the packer.



Drop Drift Cleaner

Following cementing operations foam wiper balls are typically used to remove residual cement, drilling fluid or debris from the inside of the drill pipe or tubing. However, the drill pipe should be picked up above top of cement before deploying foam wiper balls to minimise risk of cement disturbance. This often results in the uppermost stands of drill pipe not being cleaned.

The Drop Drift Cleaner package consists of a drop drift brush, which comprises a weighted bullnose and handle with a bristled cleaning element, and a land out sub. The land out sub is pre-installed in the drill string before running in hole.

After cementing operations, the brush is dropped from surface and free-falls through the drill string before landing out in the bespoke internal profile of the catcher sub. The drill pipe is then pulled out of hole and the catcher sub is broken out before deploying a foam wiper ball to clean the remaining stands of drill pipe without disturbing cement.



CX-Ball

Wiper balls are commonly used to clean the drill pipe after a cement job to avoid potential residue which can set and block the internal diameter of the pipe. However, competently loading the large foam balls into the restrictive tool joint is challenging. The CX-Ball optimises this operation, reducing time and improving safety.

Unlike other products on the market, the CX-Ball is encased in a soluble material which temporarily restricts the size and shape of the ball. This allows it to be easily and accurately deployed directly into the drill pipe using the launch tube.

When the ball comes into contact with water, it expands and returns to its original size and shape. The high parting stretch ratio of the foam ball allows it to pass through small restrictions undamaged as it is pumped downhole.



Foam Wiper Balls

The Coretrax foam wiper ball is designed to wipe the drill pipe or tubing string clean of cement, fluids or debris and can also be used to separate fluids. Manufactured from natural rubber with a high parting stretch of 380 to 440% means that the ball can pass through small restrictions without being damaged. This allows for easy passage through internal upsets or restrictions such as mechanical setting tools, running tools and diverters. The foam wiper ball range are suitable for use across a range of temperatures from 40°F to 302°F and have been used with all types of drilling and displacement fluids.



AEON - Case Study 1

Expro Excellence

Coretrax deploys AEON product suite to support CNOOC in multi-well abandonment campaign

Coretrax | AEON



Objectives and background

- Coretrax was mobilized by CNOOC to support a multi-well abandonment campaign in the Ettrick 20/02a field of the North Sea. A combination of AEON CX-Tubing Hanger, CX-2 Bridge and CX-SV Cement Retainer products were deployed to support the safe completion of the project, which involved leaving tubing in-hole and conducting squeeze jobs for environmental cement plug placements

Expro Excellence

- Across the campaign, the CX-Tubing Hanger, which the client had utilized in previous projects, was deployed alongside the CX-2 Bridge Plug and CX-SV Cement Retainer due to their proprietary benefits
- Following using the completion tubing as a stinger for a deep cement plug, the CX-Tubing Hanger was then used to hang this same sacrificial tubing in the wellbore, removing the requirement for tubing recovery and disposal. Hanging the tubing saved costly disposal and treatment costs, particularly if the tubing is found to be contaminated and/or naturally occurring radioactive materials (NORM) is observed
- As the CX-2 & CX-SV are hydromechanical and do not require a bow spring type mechanical setting tool, cementing can occur immediately through the slick, open ended stinger upon disconnecting from the tool. This eliminated the need for a dedicated run to place

cement and minimized the risk of cement disturbance. All tools were set in 9 5/8" 53.5ppf casing

- The CX-2 Bridge plug was selected by the client as a solid and tested base for a cement plug delivering reliability in abandonment operations
- Following the deployment of these tools, the CX-SV Cement Retainer/Squeeze Packer was then set hydromechanically with the integrated setting tool and the cement squeeze job was carried out through the CX-SV Squeeze Packer in the same trip

Value to the client

- Over a four-month period, the equipment was run in hole, set and functioned across five wells. Each well was successfully abandoned by an experienced Coretrax offshore service engineer, working closely with the client and other offshore service providers
- Improved safety through reduced handling of pipe, both on reduced tubular handling and without running plugs with an MST
- Significant time and cost saved through hanging the remaining tubing below any gas lift mandrels, beneath the CX-Tubing Hanger and not having to pull, handle, backload and dispose of the tubing
 - Overall saving of nearly £1 million
 - Overall time saving 92 hours, time savings based on feedback from drilling engineer

- Deep set CX-2 saved 1 day over AFE
- CX-SV Cement retainers and CX-2 BridgePlug each saved 4 hrs / well
- Cost saved through not having to treat the NORM contaminated tubing; +/-£160/joint
- Improved cement job though utilizing slick stinger over bow spring MST

Time saving



By utilizing the Coretrax's CX-Tubing Hanger technology during a multi-well abandonment campaign on our subsea asset, the volume of recovered tubing was reduced by successfully hanging off several thousand feet per well whilst also reducing NORM exposure to personnel both offshore/onshore and NORM decontamination costs on any NORM contaminated wells which were encountered during the abandonment campaign.

Coretrax's CX-2 Bridge Plug and CX-SV Cement Retainer technologies successfully supported environmental barrier placement without the requirement to recover any casing from the 12 subsea wells, removing untold exposure issues arising from potential casing recovery problems, to achieve successful environment barrier placement as per OEUK well abandonment guidelines.

Operational efficiency



Cost saving



AEON - Case Study 2

Expro Excellence

Coretrax saves more than 57 hours across P&A campaign with CX-2 Bridge Plug and CX-Enviroplug

Coretrax | AEON



Objectives and background

- As part of a wider plug and abandonment campaign, an operator required well bore clean up and plug and abandonment services from Coretrax, while minimizing environmental impacts
- Coretrax was mobilized by an operator working off the coast of Mauritania, North West Africa, in a multi-well abandonment campaign. Through deployment of both the Origin and Aeon product suites, the team offered support across wellbore clean up and abandonment operations

Expro Excellence

- A combination of Coretrax Origin technologies, including the Hi Pro Casing Scraper, Hi Pro Casing Brush, SP Magnet and CX-Junk Filter Sub, were deployed across the campaign as part of the wellbore clean up trip to ensure debris recovery was maximized before well abandonment
 - On all three wells, a tandem WBCU string was run to clean the 9-5/8" and 10-3/4" casings simultaneously prior to pumping a hi-vis pill and displacing the wells to NaCl brine
 - Across the three wells 19kg of wet metal fines were recovered, along with a solid piece of metal approx. 50mm in size which was recovered from well 2
- Following completion of wellbore clean-up activities, plugging and abandonment operations could then begin

- In each well, the team first deployed the CX-2 Bridge Plug, providing a solid and tested base for a cement plug which delivers improved efficiency and reliability. Unlike other mechanical barriers, the CX-2 features a release system which provides a slick stinger with a through-bore to enable subsequent cementing operations. This eliminated the need for a dedicated trip for cementing operations during the project
- From there, each well also saw deployment of a one-trip plug & perf system, utilizing a CX-2 bridge plug as a base along with a mechanical perforator, allowing multiple perforations to be created, without the use of explosives, in the same trip as setting a base plug for future operations. A total of 416 perforations were created across the campaign
- An environmental plug was also set in each well; a CX-2 bridge plug with CX-Superflow was used in two of the wells in the 13-3/8" casing and a CX-Enviroplug was run on the remaining well to provide a base for cement in the 20" casing
 - The CX-Superflow was run below the CX-2 bridge plug to eliminate the need for a dedicated scraper run following cut & pull operations.

- The CX-Enviroplug is a cementing plug used to provide a reliable base for cement in larger ID casing, which removes the complexity and restraints associated with other environmental barriers in big bore casings. With an open-ended cement stinger on release, the plug also allowed the operations team to cement during the same run

- The Drop Drift Cleaner was also used across the campaign to clean drill pipe ID following cementing operations

Value to the client

- Successful completion of complex work scope, resulting in excellent feedback and working relationship with client
- Across all three wells, 57.25 hours were saved by optimising operations to reduce the number of trips in hole through the removal of dedicated scraper and cementing runs across the campaign and optimizing plug and perforate string into a one-trip system

Cost effective



CORE - Metal Expandables

Drilling Applications

Expandable drilling liners are designed to isolate low pressure, thief, or troublesome ones encountered while drilling, allowing operators to maintain wellbore stability and continue drilling with minimal diameter loss. It provides significant internal diameter advantages over conventional liners and uses a bottoms up expansion method that allows cementing prior to expansion.

ReLine DL

The ReLine DL system is a bottom-up expansion design which uses hydraulic pressure to drive the expansion cone from the bottom of the liner to the top. The system allows for cementing operations prior to expansion and facilitates a fully testable, anchored liner tie back into the previous shoe, ensuring life of well integrity with the added value of optimised wellbore diameter. Primary elastomeric seal elements can be incorporated to the DL system in conjunction with swellable elastomers to provide instantaneous high-pressure liner to rock isolation at the launcher, and zonal isolation of the open hole where required.



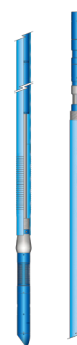
Well Intervention Applications

Expandable technologies play a critical role in well intervention by restoring well integrity, isolating problem zones, and preserving the largest possible internal diameter. These systems provide rapid, reliable solutions for casing leaks, corrosion, compromised completion components, unwanted water or gas ingress, and perforation shutoff. System selection is driven by factors such as well geometry (including uphole restrictions and deviation), conveyance method (rig, coiled tubing, or wireline), rig capabilities (capacity and pump performance), interval length, metallurgical compatibility, and the ability to mill the shoe. Depending on the application, these solutions can be deployed in a single trip or with a drill-out shoe, and they can be conveyed on pipe, wireline, or coiled tubing - making them highly effective for rigless interventions where minimizing downtime is essential.

Reline MNS Casing Patch

Our flagship ReLine MNS system provides a single trip isolation solution with significant added value of no shoe milling, enabling the relining and isolation of various casing integrity concerns. Once installed the ReLine MNS provides minimal loss of inner diameter (ID), whilst providing high burst and collapse ratings.

The MNS cased hole system is designed for deployment primarily on jointed pipe but can be adapted in certain applications to be deployed on coil tubing, providing the ability to cover both long and short intervals.



Reline HYD Casing Patch

Casing, tubing or completion equipment in the wellbore, such as sliding sleeves, can fail or deteriorate over the life of the well. ReLine HYD allows the failed area to be reliably clad and sealed with minimal loss of inner diameter, whilst providing high burst and collapse ratings.

The expansion system uses hydraulic pressure to pump the expansion cone from the bottom of the liner to the top. The device is designed to be pipe deployed and cover long or short intervals. Long lengths are reliably achieved with our proprietary E2M connection.



Reline WL Patch

The ReLine WL wireline deployed patch, enables, life of well isolation of wellbore issues, whilst providing a post installation ID that enables continued wellbore access and optimised production rates.

Premium elastomeric seals ensure a gas tight seal for life of well integrity and high expansion ratios enable deployment through existing wellbore components. Providing a robust solution for applications including water, gas and sand shut off.

This rigless system is designed to withstand temperatures of up to 400°F and H₂S/CO₂ exposure delivering a solution in the most challenging of environments. Through selection & installation of the ReLine WL solution, wellbore integrity & production issues can be resumed with minimal impact.



OnePatch

Expro's OnePatch is a rig ready solution to isolate various casing integrity issues. It's compact design and simple operation enable repairs to be made efficiently, significantly reducing operational expenditure.

The tool can seal perforations or repair leaking casing while providing a large production conduit to bring the well back online. The device can be snubbed on a live well so there is no requirement to cease production before deployment. With its robust construction, it is designed to last the life of the well.



ReStore

The ReStore expandable straddle system combines expandable tubular technology with a simple setting methodology, to deliver a cost-effective solution for wellbore remediation and production conformance while providing optimized post installation diameters, that enable future intervention.



Plug and Abandonment

Coretrax's expandable technologies play a valuable role in the plug and abandonment (P&A) market by helping operators restore wellbore integrity, regain access, and establish reliable barriers without the heavy rig time traditionally associated with abandonment operations. Expro's metal-expandable solutions are engineered to solve critical downhole challenges and support well decommissioning by reshaping or isolating damaged tubulars and enabling safer and more efficient barrier placement. Many of the tools in the well integrity application also integrate seamlessly into P&A workflows along with the ReForm tool, aligning with industry needs for reduced operational cost, lower carbon footprint, and improved project efficiency as operators decommission aging wells across regions.

ReForm

The Reform tool uses hydraulic pressure applied at surface to reform collapsed, oval, or restricted tubulars. As a targeted solution, it can remediate damage in vertical or horizontal wellbores where there is limited set down weight available for conventional swaging operations, and can avoid difficult milling operations.

By allowing for full access to be regained to the well, remedial interventions work can then be carried out allowing for the production to be resumed with minimal restrictions for future operations or alternatively facilitates a safe and effective well abandonment. The device is an ideal solution for both land and offshore applications and can be deployed using coiled tubing or drill pipe.

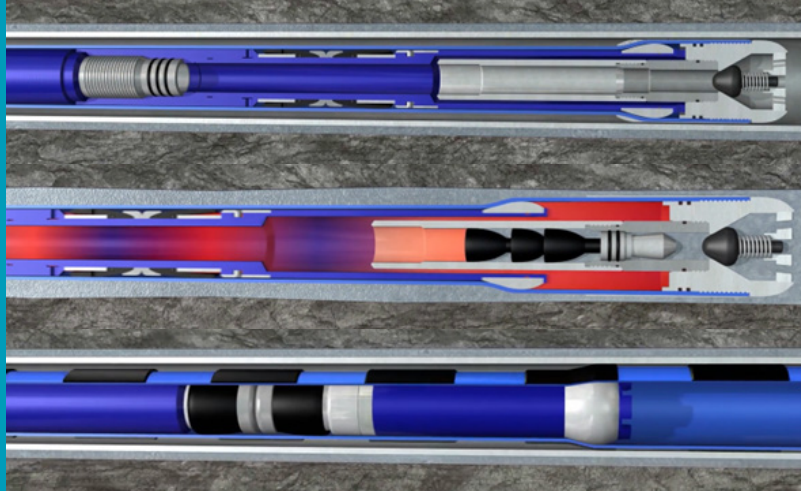


CORE - Case Study 1

Expro Excellence

Persistent casing leak solved: Expro's ReLine HYD patch succeeds where squeeze jobs failed

Coretrax | CORE



Objectives and background

- A non-flowing well in the Middle East was undergoing a workover to install an ESP when a casing leak was discovered across a **60 ft interval of 7" 23# casing**. After **12 unsuccessful attempts to squeeze** the damaged section, **Expro** was engaged to develop a more robust and permanent solution

Expro Excellence

- A **136 ft, 5.5" ReLine HYD patch** was engineered to isolate the leak while maintaining a **5.620" internal diameter**, ensuring sufficient drift for ESP installation as per the workover plan
- The **ReLine HYD solution** provided a **dependable, permanent fix** for the casing leak, outperforming traditional squeeze methods. In addition to saving rig time, the approach contributed to **reduced fuel consumption and lower emissions**, aligning with operational efficiency and sustainability goals

Value to the client

- Using **hydraulic pressure from the supplied pumps**, the patch was successfully expanded in place, restoring full wellbore integrity and allowing the workover to resume. The entire operation was completed within **48 hours**, eliminating ongoing non-productive time (NPT) and enabling the customer to proceed with ESP installation and bring the well back online

Reduction of rig time



Fast track

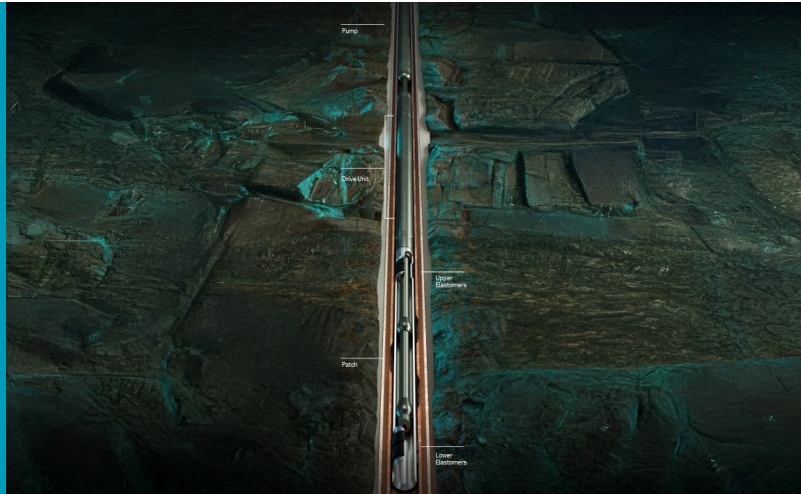


CORE - Case Study 2

Expro Excellence

Corrosion Contained: ReLine WL Wireline Patch Replaces Rig-Based Solution with Fast, Cost-Effective Deployment

Coretrax | CORE



Objectives and background

- A Middle East operator faced severe corrosion in a 4½" VMS production casing, with up to 57% wall loss near the surface in two locations. A conventional rig-based solution to run another liner would have resulted in 10+ days of production downtime, capex and logistics complexity, and additional HSE risk

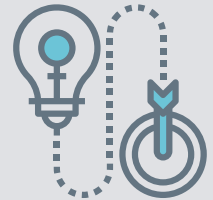
Expro Excellence

- Expro designed a rigless, wireline deployed straddle patch to allow for a large 3.24" ID, exceeding minimum flow requirements. Two areas of concern would be addressed with two separate straddles; each deployed with a single trip and exceeding the pressure requirements with a 7,400 psi post expanded burst pressure rating
- The system also featured a new proprietary **expansion mechanism**, enabling the patch to **drift through smaller restrictions while running in hole (RIH)**. Once in position, the running tool expanded the patch to a **larger internal diameter than previously achievable**, while still allowing **pull-out-of-hole (POOH)** through the up hole restriction with the running tool

Value to the client

- With a minimum surface footprint and rapid deployment of readily available wireline units, Expro was able to successfully isolate the corrosion areas. The project qualified new technology and strengthened customer confidence in Expro's ReLine technology
- In less than 24 hours, the remedy was complete, saving 10+ days of lost production and ~\$750,000 of cost savings vs a rig-based solution

Innovative solution



New technology



Reduction of rig time



CORE - Case Study 3

Expro Excellence

Expandable clad solution enables full-bore access while reducing oil-based mud losses

Coretrax | CORE



Objectives and background

- The client had an open hole interval from 11,150' to approximately 12,850', which was known to encounter significant losses while drilling the horizontal section
- The losses resulted in substantial non-productive time (NPT) during hole conditioning and led to large financial losses due to consumption of oil-based mud
- The conventional solution of installing an additional liner (9-5/8" x 7-5/8") would have reduced the production hole size to 6.750", increasing costs due to the need for premium 5.5" production casing and potentially compromising cement quality due to the tight annular clearance

Expro Excellence

- Expro deployed a 2,000' ReLine DL OH expandable system. The liner was expanded in the 8 3/4" open hole and tied back into the 9 5/8" 40lb intermediate casing, using cement to provide isolation at the bottom of the liner in the open hole, and rubber seals to provide isolation at the top in the parent casing. The system has a post-expanded ID of 7.997" allowing the client to run 7 7/8" drilling tools through the interval to total depth (TD)
- This solution prevented further fluid losses and enabled installation of the next 7 5/8" liner per the well construction plan

Value to the client

- The liner was successfully installed, covering the interval from 11,038' to 12,935' maximizing internal diameter and mitigating major oil-based mud losses
- The operator had planned these wells months in advance to ensure all necessary equipment was available on location
- Additional value was delivered to the client through Expro's ability to provide a combined service offering. By utilizing Expro's TRS and Blackhawk Top Drive Cement Head alongside the CORE ReLine DL system, Expro delivered a one-stop solution for the client
- A key driver to success of this project was the ability to store and mobilize equipment from our Midland facility reducing call out time and logistical costs

Integrated approach



Safety



