Dennis Denney, *JPT* Senior Technology Editor

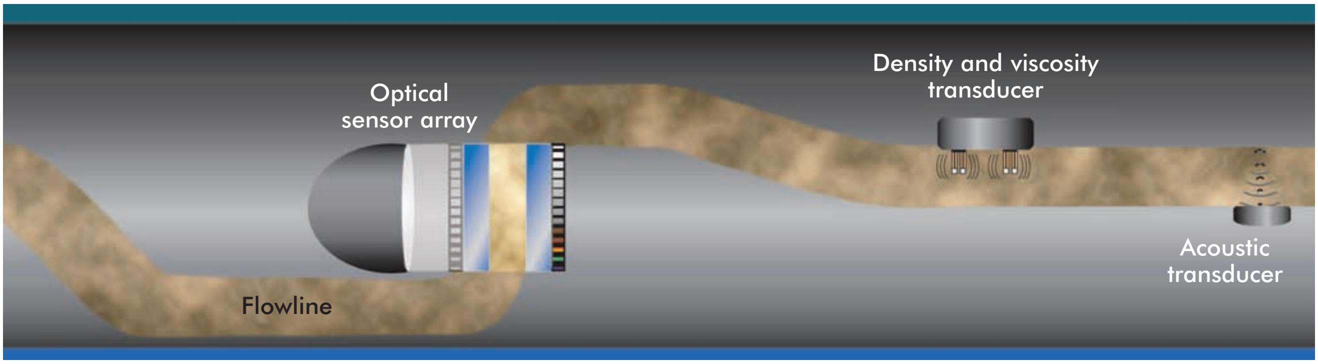


Fig. 1—The Baker Atlas IFX tool has transducers for measuring fluid density, viscosity, and sound speed. The optical-sensor array provides light-absorbance spectra, ultraviolet-fluorescence spectra, and a continuous refractometer.

In-Situ Fluid Properties—The Baker Atlas In-Situ Fluids eXplorer (IFX) tool **(Fig. 1)** provides real-time measurements of reservoir-fluid properties in situ for fluid typing and contamination monitoring. Measurements of fluid density, viscosity, gas/oil ratio, compressibility, and sound speed are made downhole at reservoir-temperature and -pressure conditions and are free from potential damage that could be caused to a sample during transportation and the transfer process before analysis by a pressure/volume/temperature (PVT) laboratory. The tool provides real-time near-infrared spectra of the formation fluid being pumped along with fluorescence spectra and continuous refractive index, the latter of which is highly sensitive to changes in water salinity. By monitoring responses from the tool, reservoir-fluid samples can be collected with minimal contamination while providing information about the downhole fluids. Measurements made with the tool allow real-time decisions regarding sample-collection depths made on the basis of identifying compositional differences in real time and, thus, identifying compartmentalization. The in-situ-fluid properties measured by the tool aid estimating reserves in an oil reservoir and help predict reservoir performance and economics. PVT properties measured by the tool are important inputs to material-balance calculations, reservoir simulation, and production-engineering calculations.

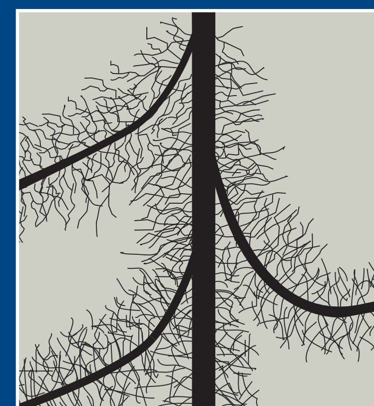
For additional information, visit www.bakerhughes.com/IFX.

Fig. 2—The Well Flow Model CT2 brush.

Wellbore Cleanup—The Well Flow Model CT2 coiled-tubing (CT) brush **(Fig. 2)** is designed to scrub the interior walls of tubing and remove scale, wax, tar, paraffin, and other debris before completion operations. The brush has bow-spring stabilizers that retract when restrictions in the tubing are encountered. Even with tubing restrictions, the stabilizers centralize the brush pads and allow the pads to have equal pressure against the tubing wall. As the brush-pad wires wear while in use, the pressure applied by the springs behind the pads provides continuous even cleaning of the tubular walls. The tool works in high-angle and horizontal wells. The nonrotating stabilizers reduce operating torque. The two-tiered six-pad design allows 360° coverage, even without rotation. The tool applies an equal pressure and even contact within the tubing. There is no temperature limitation and no tubing wear. The pads are made from LM6 aluminum with bristles made of spring steel, phosphor bronze, or nylon, as required. The tool has a flow insert to divert a portion of the flow out to the stabilizers, thus preventing debris from building up under the stabilizers.

For additional information, email phil@well-flow.com.

On-the-Fly Blending—Halliburton's acid-on-the-fly (AOF) blending system **(Fig. 3)** improves the acidizing process. It enables real-time precisely controlled on-the-fly adjustments to the acid blend. Blended samples can be taken safely for testing and verification anytime during the treatment. There are no disposal issues because acid is blended only as it is used. Unused acid components can be recycled for another treatment. The blending system can blend three base solutions and up to seven liquid addi-



BJ Services' StimTunnel™ targeted acid placement service delivers reactive fluids deep into selected zones.

The StimTunnel™ targeted acid placement service provides an enhanced, more efficient way to acidize openhole carbonate formations. This treatment technique creates large tunnels with multiple wormhole networks, which can improve conductivity and provide resistance against future production impairment.

The StimTunnel coiled tubing-conveyed, patent-pending, double-knuckle tool kicks off from the main wellbore at the desired target zone where BJ Services' engineered acid system can jet multiple tunnels typically between 20 and 100 ft. The service avoids acidizing intervals that don't need stimulation and puts the acid to better use when compared to conventional matrix acid treatments.

Ask your local BJ Services representative how a StimTunnel targeted acid treatment can increase and prolong your well's productivity.

Real world. World class. Worldwide.

www.bjservices.com

Fig. 3—Halliburton's trailer-mounted AOF blending system.

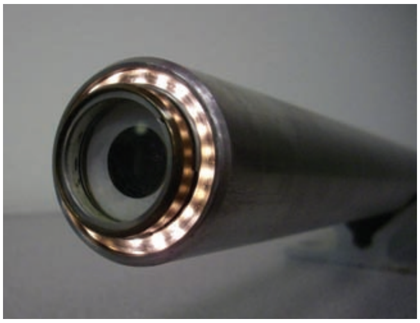


Fig. 4—Expro's SL2K Memory Camera.

tives simultaneously into a pressurized line while maintaining the desired mix ratio. During the entire treatment, an automated alarm system enables immediate job shutdown for improved personnel safety. Also, the acid-blend sampling system limits exposure to the operator and to the environment. The system reduces the treatment-site footprint by eliminating the need for 10 or more 6,000-gal polyethylene tanks on location to contain preblended acid. One tank for each corrosive agent will replace the preblended-acid tanks. In the conventional approach, preblended acid may sit on location for several days. With this system, all liquid additives remain in concentrated form until delivered to the downhole pump.

For additional information, email stimulation@Halliburton.com.

Downhole Memory Camera—Expro unveiled its SL2K Memory Camera **(Fig. 4),** a mobile-downhole-memory-camera system that enables viewing well conditions without the use of an electric-line logging unit. The $1^{11}/16$-in.-diameter battery-powered camera can be deployed on slickline or CT and is used to survey wells containing H_2S and CO_2. The tool has a 225°F and 10,000-psi rating, although the temperature limit increases to as high as 250°F in low-pressure conditions. It can capture up to 2,200 video images that are viewed when the tool is retrieved. It is programmed for up to three time intervals at capture rates of 1, 2, or 5 frames/sec, which is equivalent to a 36-minute electric-line survey, or a 5-minute motion video. The camera's depth is recorded at the surface during the survey and integrated onto the video images post-survey. The added depth information is essential when multiple problem areas are identified in the survey. Depth, temperature, and annotations made during the survey are all integrated onto the video images post-survey. The survey is then recorded onto a compact disk that includes the company's ProView playback and review software.

For additional information, email Jeff.whittaker@exprogroup.com.

Alloy Sand Screen—Alloy Screen Works introduced its ASW/CT close-tolerance sand-control screens **(Fig. 5).** The screen was developed specifically for through-tubing completions. New manufacturing technology resulted in a close-tolerance method of construction that produces a slimhole screen. This design uses diffusion-bonded sintered-laminate woven-wire mesh combined with an outer perforated protective shroud and over a perforated base tube. Diffusion-bonded laminate mesh controls production of 50- to 400-µm sands with a fixed pore geometry. The company developed a process to weld the media "flush-on" directly to the inner perforated tube of the screen assembly. This integrated process enhances the screen's strength and reduces the overall outside diameter when coupled to the protective outer shroud. These attributes are crucial when considering downhole restrictions encountered by through-tubing well screens.

For additional information, email info@alloyscreenworks.com.

Fig. 5—Alloy Screen Works' ASW/CT close-tolerance sand-control screen.

Data-Analysis Tool—IDS has launched its Advanced Data Analysis Tool (ADAT). The tool allows users to build layered queries on any part of the company's DataNet2 database, a Web-delivered reporting package. The tool enables dragging and dropping of tables and fields into any work area of the database and then allows the application of operators and filters to obtain specific results. The tool enables analysis of multiple operations to find data trends and maximize performance. It increases visibility of the causes of downtime and allows analysis of data across multiple database modules. Query filters can be refined to drill down to required data, creating and grouping calculated fields to find data covering a specific time period. Data can be visualized by use of graphs, and creating generic templates to run against current and future operations. The exploration-and-production reporting services in the database include drilling reporting and detailed lithology, gas shows, and logging data. The completion and well-intervention module is linked dynamically to a completions-string-design

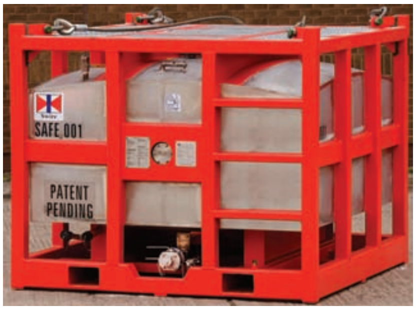


Fig. 6—Swire Oilfield Services' SAFE Tank.

drawing package. Costs and lessons learned also are part of the database.

For additional information, email reuben.wee@idsdatanet.com.

Chemical Tank—Swire Oilfield Services announced production of its most-advanced offshore chemical tank. The square Swire Advanced Fluid Engineering (SAFE) tank **(Fig. 6)** is designed to carry a full range of oilfield chemicals and has a working pressure of 2.67 bar and a test pressure of 4 bar. The tank design has a reduced height and footprint through use of empty space in the frame. The smaller height minimizes the need for someone to climb on top of the tank for operational or maintenance reasons. The 4.546-m^3-capacity tank has dished ends and dimensions of 2.3×2.3 m, with dip and vent valves 1.6 m from the floor. The slotted fork-lifting pockets minimize dropping incidents. Because of the partially dished ends, it uses fewer external-frame stiffeners than other square tanks, and is lighter. It also has a provision for use of a dial-type level gauge. It is constructed with stainless steel for use in a marine environment.

For additional information, visit www.swireos.com.

Pipe Cladding—KLADARC has unveiled its cladding system that produces clad pipe up to 40 ft in length that meets all the safety-critical requirements necessary to mitigate corrosion and handles sour crude. An arc-welding process known as Hot Wire Gas Tungsten Arc Welding, or Tungsten Inert Gas Welding, is used. The most common corrosion-resistant alloy (CRA) used is Alloy 625, a nickel-chromium alloy. The thickness of a two-layer Alloy 625 is 3.5 mm. CRA wire is fed into a torch that welds the CRA circumferentially along the inner wall of the pipe. The circumferential weld is created by moving the torch into the pipe, while motorized pipe rollers steadily turn the pipe. Circumferential welds ensure that the overlay of CRA is seamless, and also allow the pipe to undergo long-radius bending after the overlay process. To increase the speed of fabrication, the Tripulse system was developed. The patent-pending technology is a specially designed waveform in the electrocurrent pulse that maximizes the deposition rate and provides a consistent-quality weld. **JPT**

For additional information, email sales@kladarc.com.