



PEOPLE
PROCESS
EQUIPMENT
TECHNOLOGY

VALUE



Cased-Hole Services
Optimize Your Well Production

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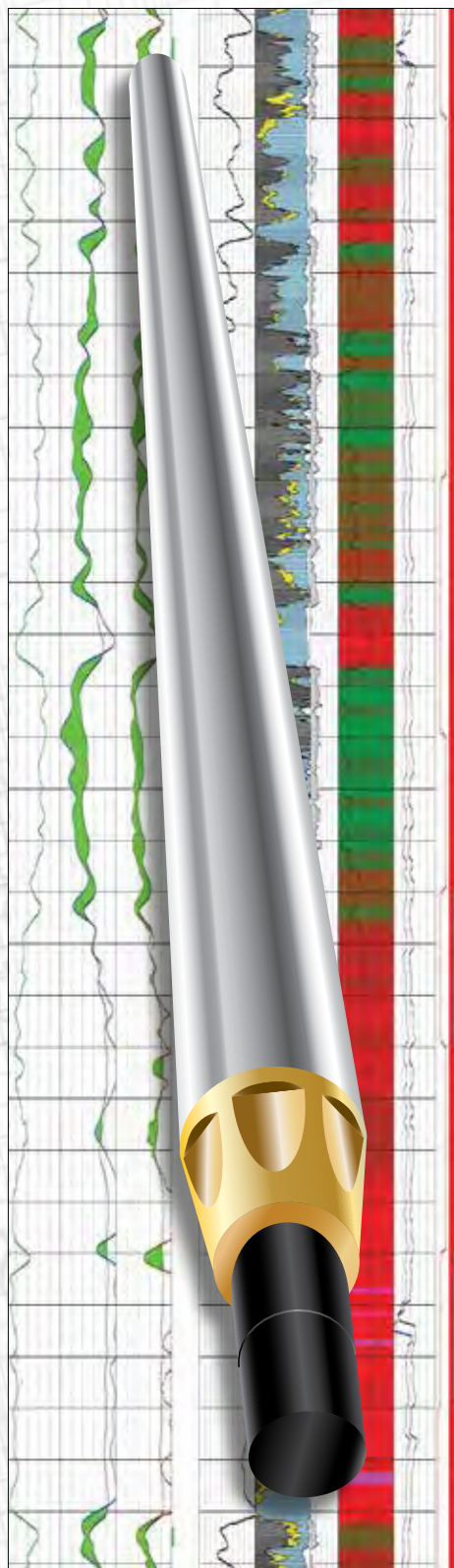
Allied-Horizontal's complete portfolio of reservoir evaluation and completion services improves the economic returns of our clients by helping to locate any bypassed pay, evaluate cement or casing that may be siphoning off valuable production or provide the information needed to make the decision to abandon or recomplete the well.

Whether it is setting packers or running multi-arm calipers, Allied-Horizontal's goal is to safely deliver industry leading service quality on every job. Utilizing the right people, process, equipment and technology, we ensure better economic outcomes through superior evaluation and efficient completion services.



- **Cement Evaluation**
- **Packer/Plug Setting**
- **Casing Inspection**
- **Compensated Neutron**
- **Spectral Gamma Ray**
- **Multi Array Sonic**
- **Pulsed-Neutron Logging**
- **Production Logging**
- **Tractor Services**

Advanced Reservoir Evaluation and Monitoring



Utilizing Allied-Horizontal's advanced multi-detector pulsed-neutron Reservoir Analysis System (RAS), our clients now have the information to accurately identify smaller volumes of formation hydrocarbons than ever before, reducing the risk of overlooking potential pay zones while improving the ability to evaluate, monitor and manage reserve production.

Unlike conventional pulsed neutron systems on the market, our RAS uses state-of-the-art detectors that yield high resolution measurements. This provides better information for evaluating reservoir dynamics and changes in the well over time, increasing the predictability of when major changes in production are likely to occur.

Additionally, more detectors increase the certainty in detecting water movement either inside pipe or in a cement channel. The flow direction may be either up or down and can be detected in the same trip down hole.

The RAS technology addresses a broad range of applications and delivers valuable information for optimizing perforating and completion programs to maximize hydrocarbon recovery in vertical, deviated or horizontal wells.

- **Evaluate producing reservoirs without removing tubing**
- **Evaluate new well hydrocarbon content when open-hole logs are constrained**
- **Monitor and evaluate well health for timely remedial workover decisions**
- **Analyze cased-hole fluid saturation in three-phase reservoirs**
- **Locate bypassed hydrocarbons with greater confidence**
- **Evaluate shale gas/oil plays**
- **Detect water movement either inside pipe or in a cement channel**
- **Gain important information to help reduce production of unwanted fluids**

Cement Evaluation

The RadII™ Cement Bond Tool utilizes a single transmitter, an eight-segment receiver at 3 foot spacing and a single receiver at 5 foot spacing, to accurately measure the quality of the cement bond. The segmented receiver provides a radial distribution map of the cement bond quality as well as an indication of channeling behind the casing.

- **Oil filled pressure compensated transmitter and receiver sections with ceramic transmitter and receivers**
- **Withstands higher temperatures and pressure**
- **Digital signal section transmitting data to the surface from tools run below such as a gamma ray/CCI, in-line neutron, compensated neutron or two pulse channels running below the CBL tool**

Casing Evaluation

Allied-Horizontal's multi tool approach to casing inspection provides comprehensive data regarding the integrity of well casing. Our Magnetic Thickness Tool is based on an electromagnetic phenomenon observed by placing coils in a conductive pipe. The measurement is made with a coil arrangement that produces a magnetic field that opposes the primary field casing attenuation and phase-shift.

The Multi-arm Caliper MAC 40 is a state of the art logging tool that performs an accurate inspection of the casing interior, allowing for planning cost effective work-over and remedial operations.

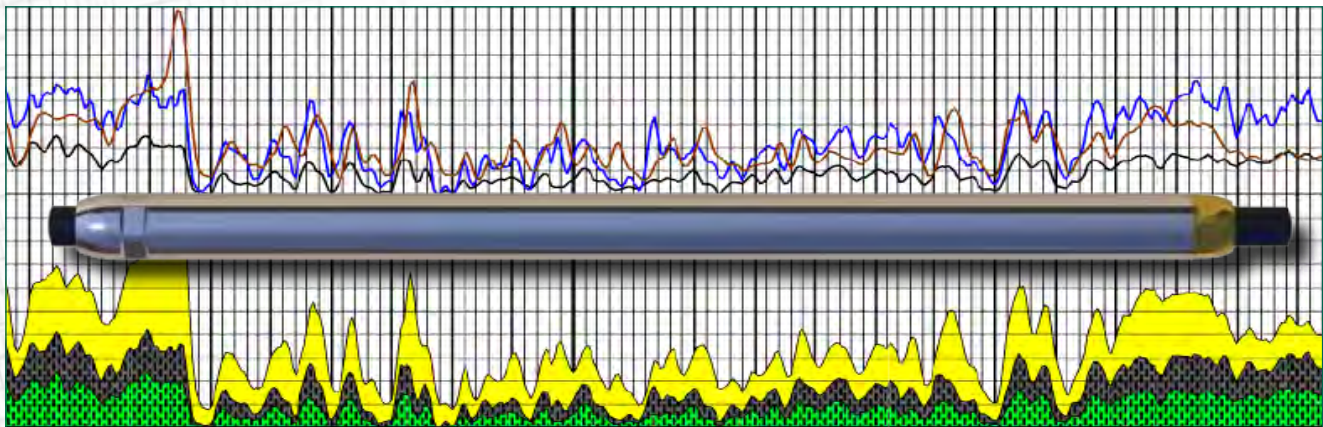
- **Measures casing wall thickness using a Remote Eddy Current Field measurement**
- **Differential thickness measurement is made by a second receiver coil closely spaced to the far field detector**
- **Provides an enhanced resolution of small defects in the casing wall**
- **Additional coil pair array provides an electromagnetic caliper which measures casing inner diameter**
- **Data is transmitted at a rate of 13 times per second**



Spectral Gamma Ray

The Spectral Gamma Ray Tool improves reservoir visibility by providing mineral composition of the targeted formation and is the only tool that can be run in open- or cased-hole for better correlation. Our tool utilizes a large, ruggedized scintillation detector coupled to a high resolution, matched photomultiplier tube assembled into a shock mounted detector package designed to maximize the energy spectra sensitivity over the entire range of energy levels and logging speeds encountered in the logging environment.

- **Yields critical data for clay typing and clay volume calculations**
- **Configured to transmit data to the surface computer in raw spectral form**
- **Programmed to resolve the three most common components of naturally occurring radiation in sands and shale**
- **Programmed to resolve any specific radioisotope energy level or levels and transmit that resolved data to the surface using any number of channels up to a maximum of 256 over a energy level range of 0 to 3Mev. (1.17Kev. per channel).**



Compensated Neutron

The Compensated Neutron tool uses dual, high-temperature, ruggedized He3 thermal neutron detectors to measure formation porosity through casing and cement. When combining with a gamma ray and dual receiver or RadII™ cement bond tool, the data is multiplexed with the gamma ray, CCL, and CBL data in a single pass in the well. The tool may also be run with the gamma ray/CCL tool alone.

- **Identify lithology and detect gas**
- **Identify shale volume**
- **Provide input for water saturation calculations**

Multi Array Sonic

The Multi Array Sonic (MAS) tool provides quality broadband compressional measurements of both hard and soft rock formations. The MAS tool helps to assess/confirm formation porosity. Shear information may be obtained allowing assessment of formation mechanical strength and integrity.

- **Provides a set of eight acoustic waveforms, at 6 in. intervals, which are located between 10 and 13.5 ft away from a variable frequency acoustic source**
- **User-selectable frequency transmitters fire alternately to provide compressional wave travel time; frequency can be selected from 6, 8, 10, 12, and 18 kHz**
- **Any combination of the five modes can be run simultaneously to obtain required information in one pass**
- **Records four simultaneous real-time measurements, as well as recorded full waveforms**
- **Optional runs with or without the array section**
- **Optional to run in both open- and cased-hole environments**
- **Compact design puts sensors closer to bottom requiring less rat hole**

Production Logging

Allied-Horizontal has assembled production logging professionals with years of experience to accurately and efficiently evaluate your well's performance. With this experience and state of the art technology, we can diagnose and verify remediation of production problems, ultimately increasing reservoir production.

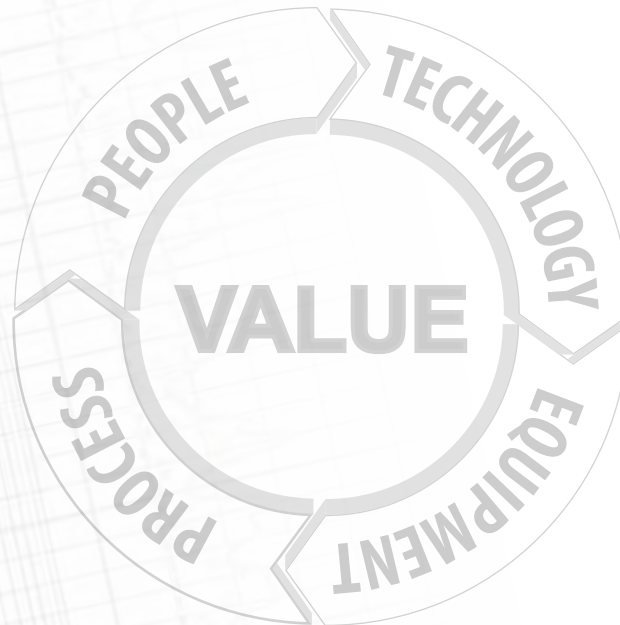
- **Analyze flow profile**
- **Increase reservoir production**



Our objective is to provide the safest and most efficient wireline services in the industry. This is more than a simple statement, it is the foundation of our business. We aspire to achieve this objective everyday through a rigid focus on providing only the best:
Safety, People, Process, Equipment and Technology.

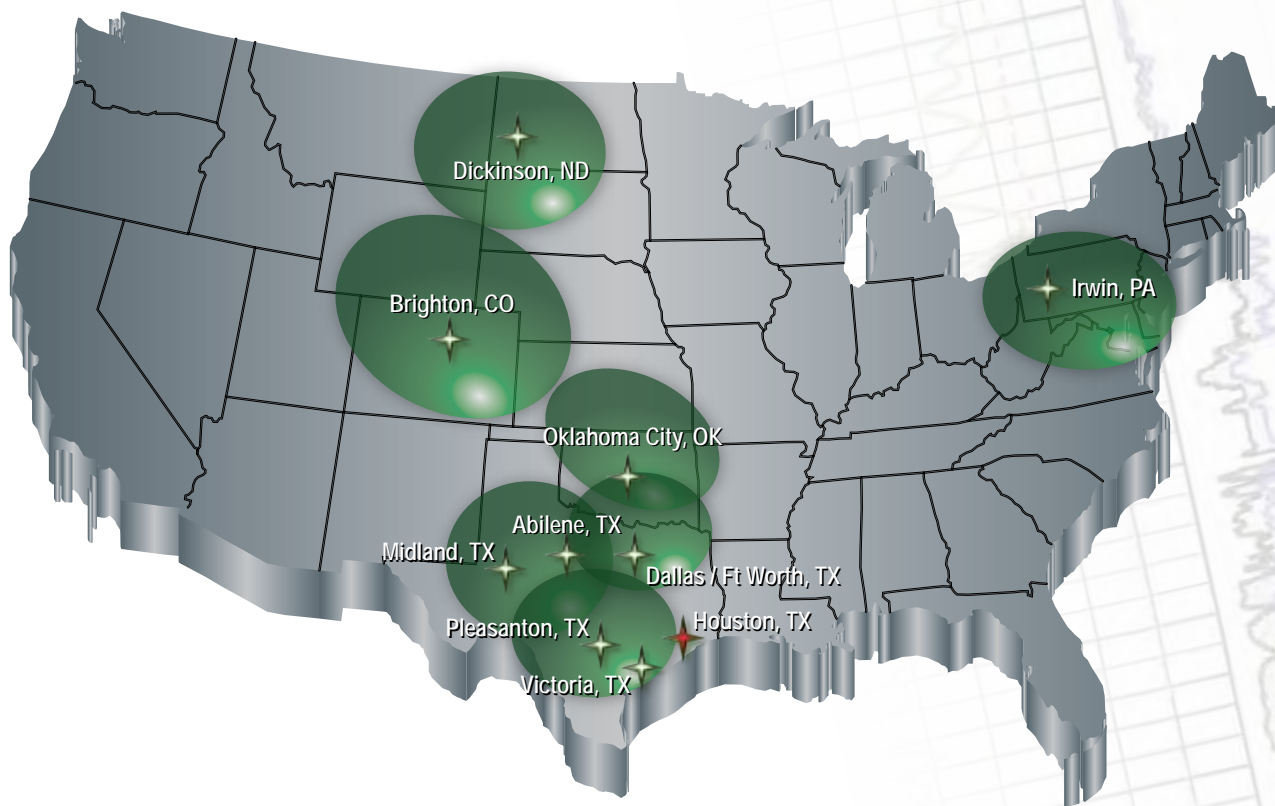
This fundamental methodology has allowed us to rise above the competition in each of these key categories. Driven by our dedication to service quality and efficiency, Allied-Horizontal Wireline Services has become the leading independent wireline service provider in the country.

***Industry leading completions execution and service quality
combined with the best independent reservoir analytics***



Business Card Placeholder

Locations Near You



Operation Centers

Okla. City, OK (405) 445-7135
Abilene, TX (325) 928-1200
Midland, TX (432) 897-3444
Pleasanton, TX (830) 224-6009
Victoria, TX (361) 574-7913
Brighton, CO (303) 659-4609
Dickinson, ND (701) 483-9156
Irwin, PA (724) 382-5012

Sales Offices

Okla. City, OK (405) 445-7135
Midland, TX (432) 689-3444
Fort Worth, TX (817) 235-4149
Houston, TX (713) 343-7280
San Antonio, TX (361) 935-5887
Victoria, TX (361) 574-7913
Denver, CO (303) 801-8137
Irwin, PA (724) 493-6110



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