SABERTOOTH Noise Log

VERSA-LINE SERVICES

Ability to scan and detect fluid or gas movement behind multiple barriers of pipe!

Sabertooth noise log is a new generation of spectral noise log equipped with ultra sensitive hydrophones that can accurately scan fluid flow around well-bore up to 5 m radius of investigation. Multiple high resolution and sensitive hydrophones has been stacked in the tool string to minimize the logging time while stationary survey is being conducted inside the wellbore. Sabertooth detects any small fluid noise even behind multiple barriers of pipes and cement in the wellbore and this has made it as an excellent solution for source identification in gas migration and surface casing vent flow. Sabertooth enables locating the source of small leaks by identifying the cross-flows, lateral flows and cement channels behind multiple casing barriers.

Advantages

- Rig-less operation, Short logging time
- Slim design tool string
- Memory logging incurs less cost
- Detects very small fluid flow
- Identifies channel flow, later flows and cross-flows
- Coupled with high definition temperature sensors
- Wide frequency range (Dual Band)
- Advanced Processing Software

Applications

- SCVF (Surface Casing Vent Flow)
- Behind casing flow diagnosis (channeling/annular flow)
- Leak detection (source identification)
- Flow profiling (producers, injectors/disposal wells)
- Hydraulic isolation diagnosis (packers, cement)
- Active zones identification (lateral flows)
- Loss circulation zone identification (drilling)

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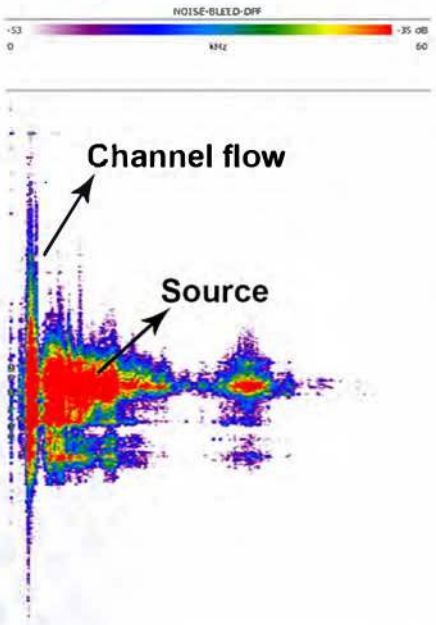


Specifications

• Number of sensors	3 sensors
• Maximum pressure	1000 bar (14500 psi)
• Maximum temperature	150 °C (302 °F)
• High frequency band	8 - 60,000 Hz
• Low frequency band	8 - 4,000 Hz
• Dynamic range	80 dB
• Frequency resolution	56 Hz
• Number of channels	1,024
• Recording speed	1 sample/sec
• Memory capacity	384 MB
• Memory capacity	36 hours
• Housing material	Titanium
• Outside diameter	32 mm (1.26")
• Length	528 mm (20.8")
• H_2S Resistance	20%

High Definition Temperature (HDT)

Sabertooth is coupled with a high definition temperature sensor that adds extra value to the precision of survey and analysis.

Specifications

• Working environment	oil, gas, water
• Maximum pressure	1000 bar (14500 psi)
• Maximum temperature	150 °C (302 °F)
• Pressure Accuracy	0.02 %FS
• Accuracy	0.15 %FS
• ResponseTime	0.4 sec
• Recording speed	8 sample/sec
• Memory capacity	32 MB
• Memory capacity	40 days
• Housing material	Titanium
• Outside diameter	32 mm (1.26")
• Length	373 mm (14.7")
• H_2S Resistance	20%

Case Study – Leak Detection

The log example below shows identification of packer leak into the annulus in a dual completion well by Sabertooth noise log.

Job Objective

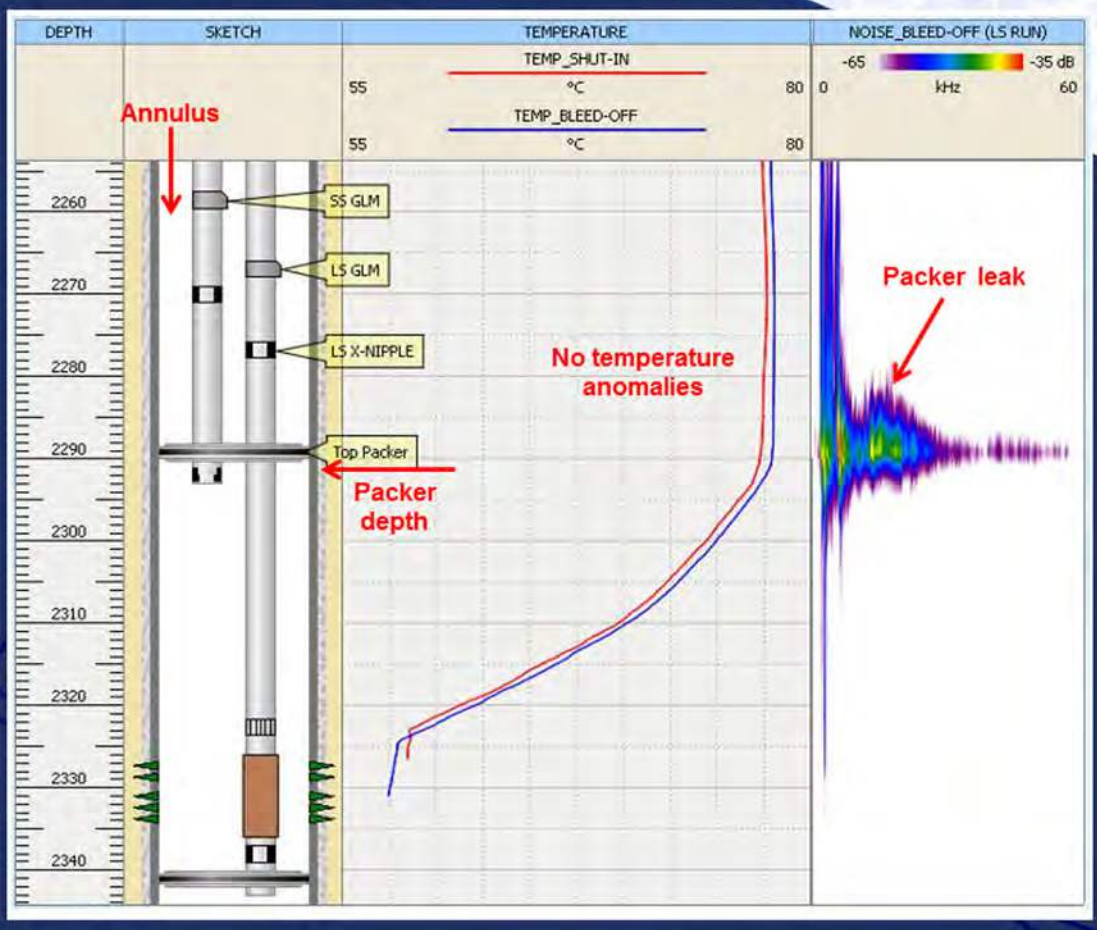
Testing the production packer if it isolates lower perforations from upper part.

Logging Procedure

The job was done by implementing the SNL in flowing (bleed-off) condition and high resolution temperature measurement in both shut-in and flowing conditions.

Results

While temperature log doesn't indicate conclusively the complete integrity of production packer, Sabertooth measurement clearly shows that there is an intense broadband noise at packer depth that attributed to the packer leak and proves that packer is not isolating the lower perforated zone during production.



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