Company Profile

Gyro Survey Services



Safety Moment

Distractions



Distracted driving are not limited using a handheld mobile phone, eating/drinking, grooming, reading, using other mobile devices, watching videos, adjusting radios or navigational equipment, .smoking, etc

Safety Driving Principles

- Maintain a safe following distance between your vehicle and the vehicle ahead
- Check mirrors often (don't forget about blind spots)
- Never drive a vehicle into water that is flowing (wadi) across roadways
- Use low beam lights when driving in foggy conditions
- Don’t speed… instead, plan ahead and leave early

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vision, mission , history

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icefield tools

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proud to serve a diverse range of clients across the oil & gas, mining.

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Company Overview

Who We Are

An Omani company with a significant market presence in the Middle East.

Our Vision

To be the leading provider of gyro survey services globally, known for innovation and excellence.

Our Mission

To deliver advanced and reliable surveying and steering technology for the oil and gas industry.



Vertical Oilfield Services

About Our Company Profile

VOS International

founded in 2019 and headquartered in Muscat, Oman, specializes in providing top-tier Gyro Survey Services. With over 18 years of industry experience, our team ensures the highest quality and reliability in all our operations.

Regional Operations



Oman

VOS proudly completed 5 years of excellence in gyro surface services, with over 1,200 completed jobs , including more than 70 perforation orientation jobs.



Kuwait

Qualified gyro services provider for Kuwait Oil Company.



Sub-Saharan Africa

Active agreement with PERENCO for gyro survey services.



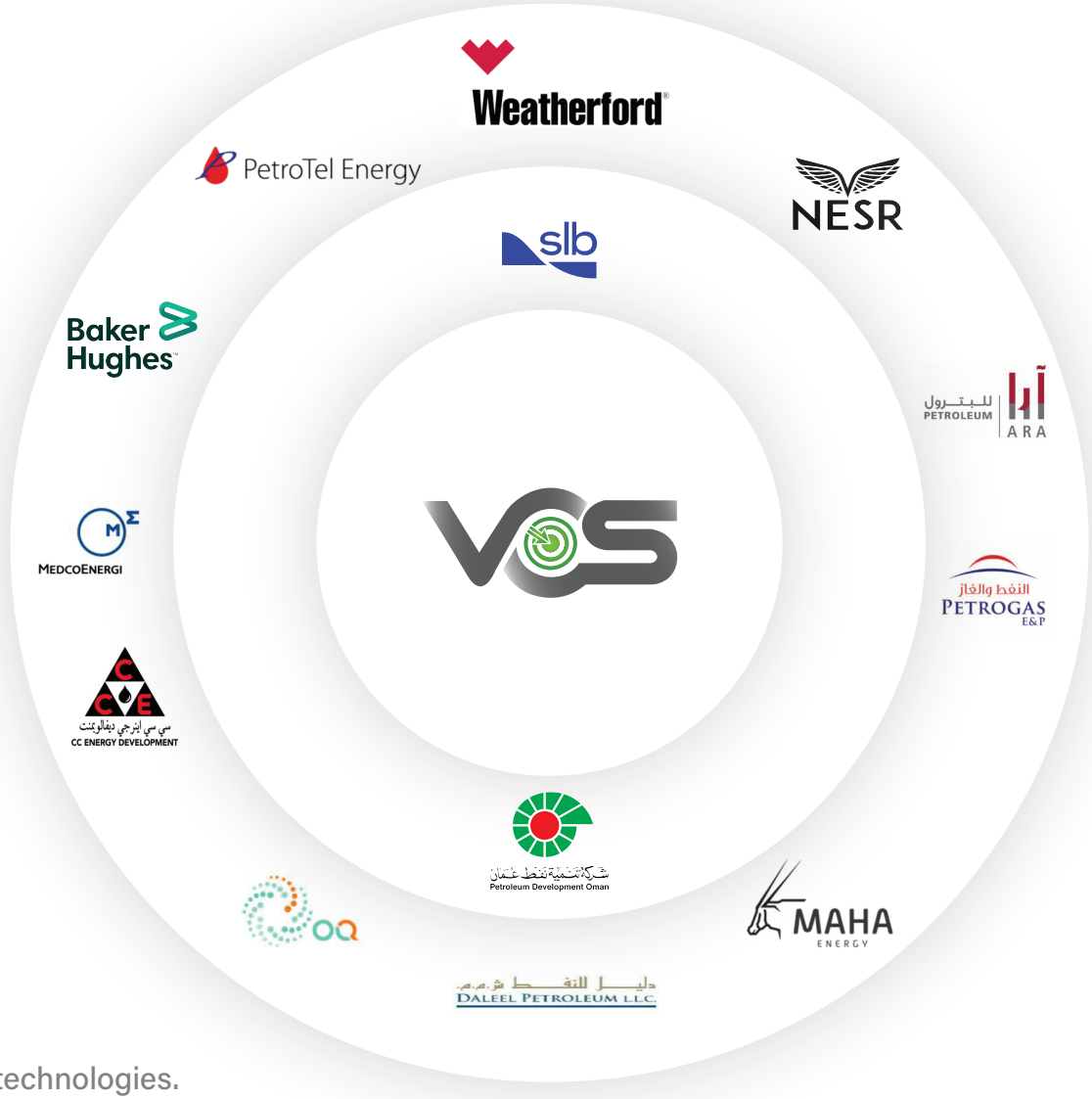
Algeria

Multiple projects completed with Halliburton and Baker Hughes.

Our Clients

VOS International is proud to serve a diverse range of clients across the oil & gas sector. Our clients trust us for our expertise, cutting-edge technology, and commitment to excellence. Here are some of the esteemed clients we have partnered with:

Oil & Gas Companies:



Our clients benefit from

Enhanced Accuracy: Utilizing our advanced gyro and steering technologies.
Operational Efficiency : Streamlined processes and cost-effective solutions.
Comprehensive Support : Customized services and dedicated customer support.
Global Expertise : Leveraging our experience across diverse geographies and industries.

Partnership and Market Presence



Icefield Tools Corporation (ITC)

VOS is the operations arm for ITC in Oman, Algeria, Iraq, Syria, and Sub-Saharan Africa.

Market Share

VOS has established a strong presence in the gyro market in Oman, completing over 1,200 successful jobs in five years.

Global MSA

Approved as an international gyro services supplier with an active global Master Service Agreement (MSA).

Registration Details:

- Commercial Registration No: 864976295 (Issued by Canada Revenue Agency)
- Registered as: Industrial Manufacturer City: Whitehorse

Icefield Tools specification (ITC)

PERFORMANCE (APPLICATION, TIME DEPENDANT)

Azimuth	+/- 0.1°
Gyro Tool-Face	+/- 0.1°
Inclination	+/- 0.1°
Gravity Tool-Face	+/- 0.1°
Battery Life	Greater than 30 Hours
Recommended Cells	Saft LSH 14 (C size)
Gyro Compass Time	≤ 1 minute = +/- 1°
Measurement Time	As low as 15 Seconds

IN THERMAL HOUSING

Diameter:	46 mm (1.8”)
Length:	2.36 m (93.1”)
Pressure max	18000 psi
Temp rating:	175° C
	Customizable for clients’ requirements

BARE INSTRUMENT SIZE

Diameter:	30 mm (1.18”)
Length (Tool only)	1.14 m (44.9”)
Length (Memory)	1.54 m (60.7”)
Length (Wireline)	1.29 m (50.8”)
Weight:	4.05 kg (8.9 Lbs)





Services Offered

Gyro Survey Services

Drop Gyro, Memory Gyro (SlickLine),
RealTime MultiShot/SingleShot Gyro
Services.

Unconventional Services

Whip Stock Orientation
verticality Test
Oriented Perforation



we deliver high quality product & services, provided by our experienced workforce, with an outstanding process of performance

Technical Capabilities



Drop Gyro

Comprehensive wellbore surveys with minimal rig time.

Memory Gyro – SlickLine

Cost-effective, fast recording for old wells.

RealTime Gyro Services

Immediate survey data with real-time QA/QC.

Whip Stock Orientation

real-time tool face whip stock orientation

verticality Test

Continuous gyro toolface, compound with other tools to discover fiber optic cable location

Oriented Perforation

Ensure the fire gun is oriented away from the fiber optic cable to prevent any potential damage

1228
SUCCESSFULLY
COMPLETED JOBS

SERVICES	NUMBER OF JOBS	SUCCESSFULL RATE
Drop Gyro	438	99.5%
Memory Gyro – SlickLine	6	100%
RealTime Gyro Services	668	99.5%
Whip Stock Orientation	42	100%
verticality Test	28	100%
Oriented Perforation	46	100%

99.6%
SUCCESSFULL RATE

5000
OPERATING HOURS

1524,000
METER SURVEYED

Whip Stock Orientation

42

SUCCESSFULLY

COMPLETED JOBS

100%	252
SUCCESSFULL RATE	OPERATING HOURS

We are proud to have successfully completed **42 orientation jobs** with a **%100 success rate**, establishing our expertise and qualifying us to undertake more complex and critical operations, including orientation, perforation, and verticality tests.

What Sets Us Apart from Competitors

1. Pre-Job Simulation for Enhanced Efficiency

We implement a rigorous pre-job simulation process in our workshop, replicating field conditions before any orientation work. This ensures optimal tool efficiency and minimizes potential issues during actual operations.

2. Versatile and strong Tool Design

Our tool, specifically engineered for oriented perforation, is versatile enough to handle standard orientation jobs as well. It is built to withstand high vibrations, ensuring strength and reliability under demanding conditions.

3. High-Speed Capability for Precision Latching

Operating at speeds of up to 40, our tool guarantees precise latching without compromising its performance or integrity.

4. Fixed High-Side Accuracy

Our tool maintains a fixed high-side alignment. This ensures consistent orientation accuracy throughout the operation.

Our comprehensive approach and advanced tool capabilities distinguish us in the industry, delivering unmatched reliability and performance.

Verticality Test

Overview

- Conducted verticality tests using a gyro tool aligned with various wireline tools.
- Objective: Determine the exact location of the fiber optic cable to ensure the fire gun is oriented in the opposite direction.

Scope of Work

- Integrated gyro and wireline tools to perform accurate tool face surveys at each station in a single run.
- Acquired over 20 precise surveys per run, ensuring reliable data for cable placement verification.
- Completed 28 wireline Verticality Tests successfully.

Challenges and Solutions

Challenges:

- Fiber optic cable location not being in a single direction, necessitating wireline orientation perforation.
- More than 1 offset required precise calculations to ensure accurate data and correct tool direction.
- Complexity of performing perforation while the tool is inside the well.

Solutions:

- Developed advanced alignment and calculation methods to maintain accuracy.
- Successfully executed all three wireline orientation perforation jobs, achieving precise orientation. Where the perforation is done for more than five stages in each run.

Results

- Delivered highly accurate cable location data, ensuring safety and efficiency.
- Achieved %100 success in the Verticality Test, overcoming operational complexity.
- Reinforced our capability to handle advanced and technically demanding operations.

Verticality Test

28

SUCCESSFULLY

COMPLETED JOBS

100%	372
SUCCESSFULL RATE	OPERATING HOURS

Orientation Perforation

46

SUCCESSFULLY

COMPLETED JOBS

100%	370
SUCCESSFULL RATE	OPERATING HOURS

VOS is the first in Oman to implement this innovative technology.

Objective

Use the gyro tool to orient the fire gun 180° opposite to the fiber optic cable to avoid damage during operations.

- Field: Marmul Field
- Client: Weatherford

Scope of Work

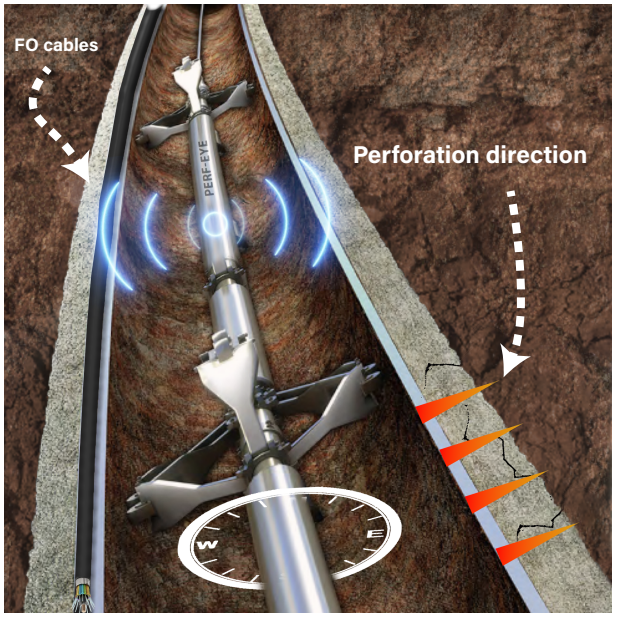
- UBHO was used above the fire guns to align the tool.
- Ran the gyro tool twice for each job
- First run: Initial reading.
- Second run: Confirmation of alignment.
- Conducted surveys to ensure precise orientation in the opposite direction of the fiber

Challenges and Solutions

- Challenge: Tool face accuracy was critical due to a narrow range where the fire gun has a window form 90 to 180.
- Solution: Achieved precision in tool face direction to ensure operational success and cable protection.

Results

- Delivered 46 successful jobs with zero incidents, displaying alignment and fiber optic safety expertise.
- Reinforced our position as a leader in technological innovation in Oman.



Orientation Perforation

Case Study

ICEFIELD ENERGY

Successful real-time orientations of perforating guns in an HPHT environment.

Summary

An Operator faced the challenge of perforating a well across multiple zones in an HPHT environment without causing any damage to a fiber optic cable located on the outside of the casing. To address this, they needed a gyroscopic system. Given that the well was vertical, a gyro system was their only option to obtain accurate toolface measurements.



Location

- Onshore - Middle East
- Oman
- Vertical Oilfield Services

Well Details

- Depth: 5,000m to 5,200m
- Temperature:150 Degrees C.
- Pressure: 15,000 PSI

Objective

Detect the fiber optic cable behind the casing using a third party electro-magnetic imaging tool and its' orientation with an Icefield Energy gyro system, change the toolface of the guns and then fire them at 180 degrees opposite to the cable position. Repeat this across multiple zones.

Technology Used

Third party electro magnetic imaging tool, and a solid-state CVG gyro system provided by Icefield Energy.

Results & Value Created

The gyro system ensured that the perforation guns were oriented 180 degrees opposite to the position of the fiber optic cable ensuring the eight zones were successfully perforated with no fiber optic cable damage. Icefield Energy's solid-state CVG gyro tool performed flawlessly throughout this high temperature and high pressure operation, avoiding any failures. This achievement not only prevented costly gyro repair and damage expenses but also safeguarded the fiber optic cable. Without this success, a costly recompletion of the well would have been necessary.

Case Study CS01 Rev 080524 1301

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www.icefieldenergy.com

Why Choose Us?

Pioneers in Technology

- First to implement Orientation Perforation in Oman.
- First to execute a Verticality Test in Oman.

Proven Performance

- Successfully operated tools at extreme temperatures of up to 165°C in real-job conditions.
- Achieved a %99.6 total success rate across 1,228 jobs.
- Maintained a %100 success rate in orientation operations.
- Delivered %100 success in orientation perforation and verticality tests.
- Successfully performed three wireline perforation jobs with the tool inside the well.

Innovation and Expertise

- Developed and implemented a custom online system, exclusively established by our in-house team.

Reliability and Precision

- Industry-leading standards ensure accuracy and efficiency in every operation.

