COMPANY PROFILE
COMPANY PROFILE

GEOTECH S.A., is a Company that specializes in Geological and Underground Resources Applications and Borehole Logging. The Company offers specialized services and support in Hydrocarbon exploitation, Location, Evaluation and Management of Underground water resources, Geothermal Energy, Mining Resources, Geotechnical and Environmental applications.

More specifically, the major activities of the Company are:

- Exploration and Exploitation of Hydrocarbons
- Underground water resources location and exploitation
- Water Resources Management and Monitoring
- Management - Maintenance of networks of transportation of Oil and Natural Gas
- Geothermal Exploration, Exploitation and Management of Geothermal Fields
- Geotechnical Applications
- Waste Disposal Planning-Landfills management
- Mining Study and Research
- Environmental Applications - Implementation of environmental management
- Environmental control and cleaning soils polluted with petroleum products
The Company has more than twenty-five years of dynamic presence and experience.

All data is quality controlled by highly experienced logging supervisors before being presented to the customer.

Our services are promoted using reference to ISO 9001:2008 to provide the customer with confidence that Geotech S.A. can consistently provide services that:

- Meet customer’s needs and expectations
- Comply with applicable regulations.

GEOTECH S.A. has implemented and maintains Health, Safety and Environmental Management System in accordance with OHSAS 18001:2007 and ISO 14001:2004 in order to protect Personnel, equipment, environment and operator’s goods against injuries, damages and losses during the operations.
## Major Activity Sectors

<table>
<thead>
<tr>
<th>Groundwater Resources</th>
<th>Geotechnical</th>
<th>Environmental</th>
<th>Energy</th>
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<tr>
<td>Geological – Geophysical</td>
<td>Geological technical applications</td>
<td>Water quality monitoring</td>
<td>Development of geothermal fields</td>
</tr>
<tr>
<td>Investigation of Aquifers</td>
<td>Geological &amp; Soil suitability studies</td>
<td>Environmental impact assessments studies</td>
<td>Oil &amp; gas</td>
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<tr>
<td>Exploitation &amp; Water Resources Management</td>
<td>Well logging for well construction verification</td>
<td>Environmental control of sanitary landfill</td>
<td></td>
</tr>
<tr>
<td>Underground Water Monitoring</td>
<td>Pile integrity tester</td>
<td>Estimation of contamination of soil from petroleum products</td>
<td></td>
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</tbody>
</table>
## IN SITU BOREHOLE

### WIRELINE BOREHOLE LOGGING

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th>DUAL FOCUSED INDUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPERATURE - CONDUCTIVITY</td>
<td>IMPELLER</td>
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<tr>
<td>MEASUREMENT OF DIAMETER</td>
<td>VIDEO INSPECTION</td>
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<tr>
<td>WATER QUALITY</td>
<td>VERTICALITY &amp; ORIENTATION</td>
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<tr>
<td>DENSITY</td>
<td>NATURAL GAMMA RADIATION</td>
</tr>
<tr>
<td>ACOUSTICAL TELEVIEWER</td>
<td>OPTICAL TELEVIEWER</td>
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<tr>
<td>COMPENSATED SONIC</td>
<td>MAGNETIC SUSCEPTIBILITY</td>
</tr>
<tr>
<td>NEUTRON</td>
<td>INDUCED POLARITY</td>
</tr>
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</table>

### UNDERGROUND WATER MONITORING

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPERATURE</td>
<td>NITRATE IONS</td>
</tr>
<tr>
<td>TURBIDITY</td>
<td>DISSOLVED OXYGEN</td>
</tr>
<tr>
<td>CONDUCTIVITY</td>
<td>TRACE METALS</td>
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</table>
**BOREHOLE LOGGING**

<table>
<thead>
<tr>
<th>ACTIVITY SECTORS</th>
<th>ELECTRICAL</th>
<th>TEMPERATURE - CONDUCTIVITY</th>
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</thead>
<tbody>
<tr>
<td><strong>APPLICATIONS:</strong></td>
<td><strong>GROUNDWATER</strong></td>
<td><strong>GROUNDWATER / ENERGY</strong></td>
</tr>
<tr>
<td>• Determination of water quality</td>
<td>• Fluid salinity</td>
<td></td>
</tr>
<tr>
<td>• Indication of permeable zones and porosity</td>
<td>• Location of zones of different water quality</td>
<td></td>
</tr>
<tr>
<td>• Bed-boundary positions</td>
<td>• Water-well monitoring</td>
<td></td>
</tr>
<tr>
<td>• Strata correlation between boreholes</td>
<td>• Identification of zones of in-flow/out-flow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Temperature gradient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Water-level determination</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Location of grout behind casing</td>
<td></td>
</tr>
</tbody>
</table>

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**LOGGINGS:**

- Electrical
- Temperature - Conductivity

**GROUNDWATER**

- Fluid salinity
- Location of zones of different water quality
- Water-well monitoring
- Identification of zones of in-flow/out-flow
- Temperature gradient
- Water-level determination
- Location of grout behind casing

---

**GROUNDWATER / ENERGY**

- Fluid salinity
- Location of zones of different water quality
- Water-well monitoring
- Identification of zones of in-flow/out-flow
- Temperature gradient
- Water-level determination
- Location of grout behind casing

---

**WE COMMIT, WE DELIVER, NO EXCUSES**
# BOREHOLE LOGGING

<table>
<thead>
<tr>
<th>LOGGINGS:</th>
<th>DIAMETER – CALIPER</th>
<th>WATER QUALITY</th>
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<tbody>
<tr>
<td><strong>ACTIVITY SECTORS:</strong></td>
<td><strong>GROUNDWATER / GEOTECHNICAL</strong></td>
<td><strong>GROUNDWATER / ENVIRONMENTAL</strong></td>
</tr>
<tr>
<td><strong>APPLICATIONS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Location of borehole collapse or obstructions</td>
<td>• Location of aquifers</td>
<td></td>
</tr>
<tr>
<td>• Cement volume calculations</td>
<td>• Groundwater flows</td>
<td></td>
</tr>
<tr>
<td>• Identification of hard and soft lithology</td>
<td>• Contamination studies</td>
<td></td>
</tr>
<tr>
<td>• Location of cracks, fissures, caving, faulting, casing breaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Correction of other logs affected by borehole diameter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Images of borehole drilling and logging equipment are included.*
**BOREHOLE LOGGING**

<table>
<thead>
<tr>
<th>LOGGINGS:</th>
<th>VERTICALITY &amp; ORIENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITY SECTORS:</td>
<td>GROUNDWATER / GEOTECHNICAL/MINING</td>
</tr>
<tr>
<td>APPLICATIONS:</td>
<td></td>
</tr>
</tbody>
</table>

- Bed-thickness evaluation
- Surveying and deviation checks
- True seam depth

---

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![Borehole Logging Diagrams and Images]
## BOREHOLE LOGGING

<table>
<thead>
<tr>
<th>LOGGINGS:</th>
<th>DUAL FOCUSED INDUCTION</th>
<th>NATURAL GAMMA SPECTROSCOPY</th>
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<tbody>
<tr>
<td><strong>ACTIVITY SECTORS:</strong></td>
<td>GROUNDWATER / GEOTECHNICAL/MINING</td>
<td>MINING / ENVIROMENTAL</td>
</tr>
<tr>
<td><strong>APPLICATIONS:</strong></td>
<td>• Indicator of permeable zones and porosity</td>
<td>• Lithology determination</td>
</tr>
<tr>
<td></td>
<td>• Formation water salinity</td>
<td>• Mineral detection</td>
</tr>
<tr>
<td></td>
<td>• Long-term well monitoring</td>
<td>• Improved shale-content computation</td>
</tr>
<tr>
<td></td>
<td>• Ore identification and quality</td>
<td>• Correlation &amp; Contamination studies</td>
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<tr>
<td></td>
<td>• Indication of hydrocarbons</td>
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</tbody>
</table>

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**BOREHOLE LOGGING**

**DUAL FOCUSED INDUCTION**

**GROUNDWATER / GEOTECHNICAL/MINING**

- Indicator of permeable zones and porosity
- Formation water salinity
- Long-term well monitoring
- Ore identification and quality
- Indication of hydrocarbons

**NATURAL GAMMA SPECTROSCOPY**

- Lithology determination
- Mineral detection
- Improved shale-content computation
- Correlation & Contamination studies
# BOREHOLE LOGGING

<table>
<thead>
<tr>
<th>LOGGINGS:</th>
<th>VIDEO INSPECTION – COLOR CAMERA</th>
<th>IMPELLER FLOW METER</th>
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<tbody>
<tr>
<td>ACTIVITY SECTORS:</td>
<td>GROUNDWATER / GEOTECHNICAL</td>
<td>GROUNDWATER / ENVIRONMENTAL</td>
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</tbody>
</table>
| APPLICATIONS: | • Constructional control of boreholes  
• Detection of mechanical damages  
• Precise position of filters | • Flow measurement within the boreholes  
• Location of permeable zones  
• Casing leak detection |

![Diagram with data table and borehole images]
<table>
<thead>
<tr>
<th>APPLICATIONS:</th>
<th>LOGGINGS:</th>
<th>COMPENSATED SONIC</th>
<th>NEUTRON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACTIVITY SECTORS:</td>
<td>GROUNDWATER / GEOTEchnICAL</td>
<td>GROUNDWATER / MINING</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithology identification</td>
<td>• Lithology identification</td>
<td>• Porosity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rock strength and elasticity</td>
<td>• Lithology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Correction of seismic velocity</td>
<td>• Mining quality &amp; recognition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fracture and permeability indication in hard rock</td>
<td>• Strata correlation of boreholes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Location of poor or missing cement behind casing</td>
<td>• Detection of hydrocarbons</td>
<td></td>
</tr>
</tbody>
</table>

![Graphs and images related to borehole logging](image-url)

**BOREHOLE LOGGING**

**GEORESOURCES TECHNOLOGY S.A.**

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**BOREHOLE LOGGING**
**BOREHOLE LOGGING**

<table>
<thead>
<tr>
<th>LOGGINGS:</th>
<th>MAGNETIC SUSCEPTIBILITY</th>
<th>INDUCED POLARITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVITY SECTORS:</strong></td>
<td>MINING / GEOTECHNICAL</td>
<td>GROUNDWATER / GEOTECHNICAL</td>
</tr>
<tr>
<td><strong>APPLICATIONS:</strong></td>
<td>• Indicator of permeable zones and porosity</td>
<td>• Qualitative permeability studies</td>
</tr>
<tr>
<td></td>
<td>• Formation-water salinity</td>
<td>• Indication of mineralisation, particularly of disseminated sulphides</td>
</tr>
<tr>
<td></td>
<td>• Long-term well monitoring</td>
<td></td>
</tr>
</tbody>
</table>

![Borehole Logging Images](image1) ![Magnetic Susceptibility Graph](image2) ![Induced Polarity Graph](image3)

**WE COMMIT, WE DELIVER, NO EXCUSES**

Borehole Logging

- Indication of permeable zones and porosity
- Formation-water salinity
- Long-term well monitoring

Groundwater / Geotechnical

- Qualitative permeability studies
- Indication of mineralisation, particularly of disseminated sulphides

Magnetic Susceptibility

- Indicator of permeable zones and porosity
- Formation-water salinity
- Long-term well monitoring
## BOREHOLE LOGGING

**LOGGINGS:**

**ACTIVITY SECTORS:**

MINING / GEOTECHNICAL

**APPLICATIONS:**

- High resolution picture of the borehole
- Analysis of tectonic characteristics (discontinuities, faults, etc)

---

**Optical Televiewer**

- High resolution picture of the borehole
- Analysis of tectonic characteristics (discontinuities, faults, etc)
## BOREHOLE LOGGING

### LOGGINGS:

### ACTIVITY SECTORS:

### APPLICATIONS:

- Fracture identification and fault orientation
- Stratigraphic studies
- Local stress studies (break-out)
- Core orientation

### ACOUSTIC TELEVIEWER

### MINING / GEOTECHNICAL

---

**CORE ORIENTATION LOG**

**DIPS LOG**

---

**WE COMMIT, WE DELIVER, NO EXCUSES**

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**BOREHOLE LOGGING**
# BOREHOLE LOGGING

**LOGGINGS:**

<table>
<thead>
<tr>
<th>ACTIVITY SECTORS:</th>
<th>ACOUSTIC TELEVIEWER</th>
<th>DENSITY</th>
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</thead>
<tbody>
<tr>
<td><strong>APPLICATIONS:</strong></td>
<td>MINING / GEOTECHNICAL</td>
<td>MINING / GEOTECHNICAL</td>
</tr>
<tr>
<td>• Classification and analysis of tectonic characteristic (discontinuities, faults, etc)</td>
<td>• Lithology</td>
<td>• Lithology</td>
</tr>
<tr>
<td>• Constructional inspection of boreholes</td>
<td>• Density and porosity</td>
<td>• Density and porosity</td>
</tr>
<tr>
<td></td>
<td>• Ash content in coal</td>
<td>• Ash content in coal</td>
</tr>
<tr>
<td></td>
<td>• Rock strength and elasticity parameters</td>
<td>• Rock strength and elasticity parameters</td>
</tr>
<tr>
<td></td>
<td>• Detection of weathered or fractured zones</td>
<td>• Detection of weathered or fractured zones</td>
</tr>
<tr>
<td></td>
<td>• Location of aquifer and aquitard</td>
<td>• Location of aquifer and aquitard</td>
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</tbody>
</table>

---

**Acoustic Televiewer**

- Classification and analysis of tectonic characteristic (discontinuities, faults, etc)
- Constructional inspection of boreholes

**Density**

- Lithology
- Density and porosity
- Ash content in coal
- Rock strength and elasticity parameters
- Detection of weathered or fractured zones
- Location of aquifer and aquitard
**WATER MONITORING**

<table>
<thead>
<tr>
<th>MEASUREMENTS:</th>
<th>LEVEL</th>
<th>TEMPERATURE</th>
<th>CONDUCTIVITY</th>
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<tbody>
<tr>
<td>ACTIVITY SECTORS:</td>
<td>GROUNDWATER / ENVIRONMENTAL</td>
<td></td>
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<tr>
<td>CHARACTERISTICS - SPECIFICATION:</td>
<td>• PROGRAMMING CAPABILITY FOR FUTURE START AND END OF MEASUREMENTS</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• INTERNAL MEMORY FOR UP TO 48,000 MEASUREMENTS</td>
<td></td>
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<tr>
<td></td>
<td>• INTERNAL BATTERY WITH DURATION 8 – 10 YEARS</td>
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<td></td>
<td>• CAPABILITY OF DATA TELEMETRY</td>
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<tr>
<td></td>
<td>• EASY USE AND INSTALLATION IN PRODUCTION BOREHOLES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MEASUREMENTS DURING TEST PUMPS</td>
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</tr>
</tbody>
</table>
# WATER MONITORING

## MULTIPARAMETER PROBES

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<tr>
<th>MEASUREMENTS:</th>
<th>DISSOLVED OXYGEN</th>
<th>TRACE METALS</th>
<th>NITRATE IONS</th>
<th>pH</th>
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<tbody>
<tr>
<td>TURBIDITY</td>
<td>TEMPERATURE</td>
<td>LEVEL</td>
<td>CONDUCTIVITY</td>
<td></td>
</tr>
</tbody>
</table>

### ACTIVITY SECTORS:

GROUNDWATER / ENVIRONMENTAL

### CHARACTERISTICS - SPECIFICATIONS:

- INTERNAL MEMORY FOR MEASUREMENTS STORAGE
- PROGRAMMING CAPABILITY FOR FUTURE START AND END OF MEASUREMENTS
- INSTALLATION DEPTH UP TO 6000m
- USAGE IN PRODUCTION BOREHOLES & MONITORING RIVERS, LAKES, SEA, CHEMICAL INDUSTRIES, WATER REFINERIES, BIOLOGICAL STATIONS ETC..
- READING UNIT FOR PROGRAMMING AND DATA COLLECTION
# Geophysical Surface Applications

<table>
<thead>
<tr>
<th>Method</th>
<th>Investigation Depth</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical</strong></td>
<td>SWALLOW</td>
<td>GEOMETRICS - OHMMAPPER</td>
</tr>
<tr>
<td></td>
<td>DEEP</td>
<td>ABEM – TERRAMETER SAS 300C</td>
</tr>
<tr>
<td><strong>Electromagnetic</strong></td>
<td>SWALLOW</td>
<td>ABEM WADI – VLF</td>
</tr>
<tr>
<td></td>
<td>DEEP</td>
<td>GEOMETRICS – STRATAGEM EH4</td>
</tr>
</tbody>
</table>

**Low Strain Impact Integrity Test (Non-Destructive)**

PILE INTEGRITY TESTER
## Geophysical Surface Applications

<table>
<thead>
<tr>
<th>METHOD:</th>
<th>ELECTRICAL (OHMMAPPER)</th>
<th>ELECTRICAL (TERRAMETER)</th>
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<tbody>
<tr>
<td>ACTIVITY SECTORS:</td>
<td>GEOTECHNICAL / ENVIRONMENTAL</td>
<td>GROUNDWATER</td>
</tr>
<tr>
<td>APPLICATIONS:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Swallow depths (until 15m):**
- Detection of tectonic characteristics (discontinuities, faults etc).
- Localization of clays and aquifer structures
- Delimitation of brackish layers
- Detection seepage from dams and voids under roads and buildings
- Detection of leakage plumes from landfills
- Measurement of levees integrity & ground resistivity

**Deep depths (until 200m.):**
- Localization of clays and aquifer structures
- Delimitation of brackish layers

### Diagrams

- Inverse Model Resistivity Section
- Resistivity in ohm.m
- Unit electrode spacing 1.3 m.

- Apparent Resistivity (Ohm.m)
  - Current electrode distance (AB/2 m)

- Resistivity (Ohm.m)
  - depth (m)
### Deep depths (with good conditions until 500m.)
- Localization of clays and aquifer structures
- Delimitation of brackish layers
- Detection of tectonic characteristics (discontinuities, faults etc).
- Mineral Exploration

### Swallow depths (with good conditions until 50m.)
- Detection of tectonic characteristics (discontinuities, faults etc).
- Localization of clays and aquifer structures
- Delimitation of brackish layers

---

**METHOD:**

- **ELECTROMAGNETIC (STRATAGEM EH4)**
- **ELECTROMAGNETIC (WADI – VLF)**

**ACTIVITY SECTORS:**

- GROUNDWATER / GEOTECHNICAL/MINING
- GEOTECHNICAL / ENVIRONMENTAL

**APPLICATIONS:**

- Deep depths:
  - Localization of clays and aquifer structures
  - Delimitation of brackish layers
  - Detection of tectonic characteristics (discontinuities, faults etc).
  - Mineral Exploration

- Swallow depths:
  - Detection of tectonic characteristics (discontinuities, faults etc).
  - Localization of clays and aquifer structures
  - Delimitation of brackish layers

---

![Image of Electromagnetic Applications](image-url)
**APPLICATIONS**

**ACTIVITY SECTORS:**

- **METHOD:** ELECTROMAGNETIC (STRATAGEM EH4)
- **APPLICATIONS:**
  - Localization of clays and aquifer structures
  - Delimitation of brackish layers

**GROUNDWATER**

![Graph showing true resistivity (Ohm.m) with depth and distance (m).]

- **SANDSTONE AQUA LAYER**
- **LIMESTONE AQUA LAYER**

We commit, we deliver, no excuses.
### Method:

**ELECTROMAGNETIC**

**(STRATAGEM EH4)**

### Activity Sectors:

**GEOTECHNICAL**

### Applications:

- Depths (with good conditions until 500m):
  - Detection of tectonic characteristics (discontinuities, faults etc).

![Graphs showing geophysical surface applications](image-url)
### GEOPHYSICAL SURFACE APPLICATIONS

<table>
<thead>
<tr>
<th>METHOD:</th>
<th>ELECTROMAGNETIC (STRATAGEM EH4)</th>
</tr>
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<tbody>
<tr>
<td>ACTIVITY SECTORS:</td>
<td>MINERAL EXPLORATION</td>
</tr>
</tbody>
</table>
| APPLICATIONS:    | Depths (with good conditions until 500m):  
|                  | • Geological structures Mining investigations |

![Graph of Resistivity Cross-section showing gold-bearing silicified deposits (imaged as relatively high resistivity blue zones).]
LOW STRAIN IMPACT INTEGRITY TEST (Non-Destructive)

<table>
<thead>
<tr>
<th>METHOD:</th>
<th>PILE INTEGRITY TESTER</th>
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<tr>
<td>ACTIVITY SECTORS:</td>
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<tr>
<td>CHARACTERISTICS:</td>
<td>DETERMINATION OF PILE QUALITY</td>
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<table>
<thead>
<tr>
<th>GOOD</th>
<th>BAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE TOP</td>
<td>DEFECT</td>
</tr>
</tbody>
</table>

![Graphs and images showing pile integrity tests and results.](image)
GEOTECH S.A. actively participates in Oil & Gas Exploration and Development projects, providing a range of Oilfield Services.

GEOTECH S.A. Oilfield Services include: Slick line, Mud Logging, Cased Hole Well Logging, Pipe Recovery, Perforations, Coil Tubing, Bottom Hole Fluid Sampling, Well Testing, Formation Evaluation, Project Management and Drilling Supervision.
Slickline Services

♦ Depth Determination
♦ BHP/BHT Record
♦ Bailing
♦ Pulling & Setting subsurface Safety Devices
♦ Gas Lift Operations
♦ Tubing leak test
♦ Open & Close Sliding Sleeves
♦ Tubing Gauge Calibration
♦ Fishing Operation
♦ Wires 0.108˝ & 0.125˝ H₂S Services
♦ ASEP Slim line Dual Drum Slickline unit Zone 2
♦ 3˝ 10K ,PCE , H₂S services
Mud Logging

Mud Logging Units, equipment and services provided by GEOTECH S.A. are “Best in Class” and in full compliance with international standards capable to operate Onshore and Offshore.

They are fully equipped, air-conditioned, positive pressurized ML cabins which are certified according to DNV 2.7-1 standard for operations at Zone II and fireproof ability A60.

The unit is divided into:
- Geological section
- Engineering section
- Electronic section

- Total Depth TVD
- ROP
- Weight on hook
- Hook speed
- RPM
- WOB
- Standpipe pressure
- Rotary Torque
- SPM & total
- Casing pressure
- Mud Flow In/Out
- Mud pH In / Out
- Temp In / Out
- Mud Conductivity In / Out
- Mud Weight In / Out
- Mud volume variation
- Gas chromatography
- Total gas
- H2S/CO2
- Bit Position
- Mud Temperature In/Out
- D expc
- Lag depth
- DCS
- Overpull
- Bit Hours on Bottom
Cased Hole Well Logging

GEOTECH S.A. provides focuses on the mission to provide critical data to ensure optimum well performance and longevity.

- **Sector Bond Tools**
  Available in both 1 11/16” and 2 1/4” sizes with 170° capability, our sector bond tools measure cement bond quality around the casing circumference as well as vertical extent measurement.

- **Production Logging**
  Geotech, measures a number of critical downhole conditions using various tools. These enable us to identify issues such as lost circulation, thief zones, channeling, water entry and flow rates as well as calculate velocities, verify movement at plugs, identify zoned intervals production, verify if a plug is holding and identify other mechanical problems.

- **Multi-finger Caliper**
  Multi-finger calipers can more accurately measure the diameter of the internal wall of a casing or tubing. This allows us to identify even small deformations in the wall of pipe, such as the buildup of scale and metal loss due to corrosion.

- **Gamma Gun Tools**
  Our Gamma gun logging tools range in size from 1 11/16” to 3 1/8”, Geotech, achieves the best possible correlation of the perforating guns, plugs, packers and other downhole devices that require exact depth correlations between open hole measurements and cased-hole measurements.

- **Gamma Ray Neutron Tools**
  Available in 1 11/16” and 2 3/4” sizes, our gamma ray neutron tools allows us to record and perfectly correlate the depth of cased-hole measurements.
Pipe Recovery

- GEOTECH S.A. has highly specialized and experienced personnel to provide all service required in pipe recovery regardless borehole conditions.

- Company’s pipe recovery Professionals have acquired technical competence through years of experience and training and can offer all services related such as:
  - Free point Services
  - Back-off Services
  - Drill Collar Severing Tool
  - Tubing Jet Cutters Services
  - Circulation Puncher
  - Split shoot Services
  - Chemical Cutters Services
  - Coil Tubing Cutters Services
  - RF Safety Detonator System


Perforation Services

GEOTECH SA provides a full range of perforation methods to optimize production.

- **Through Tubing and Casing perforating**, can accommodate diameters ranging from 1-3/8” to 4-1/2”. Gun systems used including expendable strip carrier, retrievable tubing gun, and expendable hallow carrier guns allow to accomplish any perforating needs.

- **Tubing Conveyed Perforating**, used with coiled tubing is able to perforate long intervals using high-pressure differentials while also allowing for vertical and horizontal intervention.

- **Rig Environmental Detonators**, used by Geotech are advanced electro-explosives devices that are designed specifically for use with perforating guns and other explosive devices where a pressure resistant detonator is required. Enhanced safety characteristics allow other well activities to continue uninterrupted while perforating.
Bottom Hole Fluid Sampling

GEOTECH S.A provides in situ bottom hole sampling service using slick line.

⇒ GEOTECH’s bottom hole fluid sampler provides representative fluid samples which can be transferred to sample bottles without using mercury. Manufactured from corrosion resistant materials, this sampler is particularly suited for operations where sour gas may be present.

⇒ The “positive displacement” design of the tool is achieved by pressurizing a buffer fluid prior to running the tool. When the tool is fired, the well fluid pressure progressively displaces the buffer fluid at a precise, predetermined rate, which takes into account the well temperature and pressure characteristics. When the sampling process is completed, the chamber is automatically sealed and locked.

Furthermore, in order to restore the sample to its original sub surface conditions, GEOTECH uses the One Phase Sampler (OPS) unit. In order to keep a fluid in a monophasic state, the pressure variations of this fluid are compensated during temperature variations by equally varying the volume of the fluid sample to match the temperature variations.
Coil Tubing Services

Geotech SA provides Coiled Tubing Services with tubing sizes ranging from 1′′ to 1-1/2′′. The tubing is injected into vertical and horizontal wells to perform various servicing operations. Coiled Tubing operations are supported by the latest computerized technology to study the feasibility and safe execution of interventions, as well as record keeping and pipe data management to assure and provide the highest quality service delivery. Service applications include:

- Fluid Circulation and/or Displacement
- Cementing remedial operations
- Well Stimulation and damage removal
- Scale Removal and inhibition
- Nitrogen Lifting and well unloading
- Sand Cleanout and Wellbore Cleaning

Well Testing

- Surface Well Testing
- Surface and Bottom Hole Sampling
- Reservoirs Studies
- EPF
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