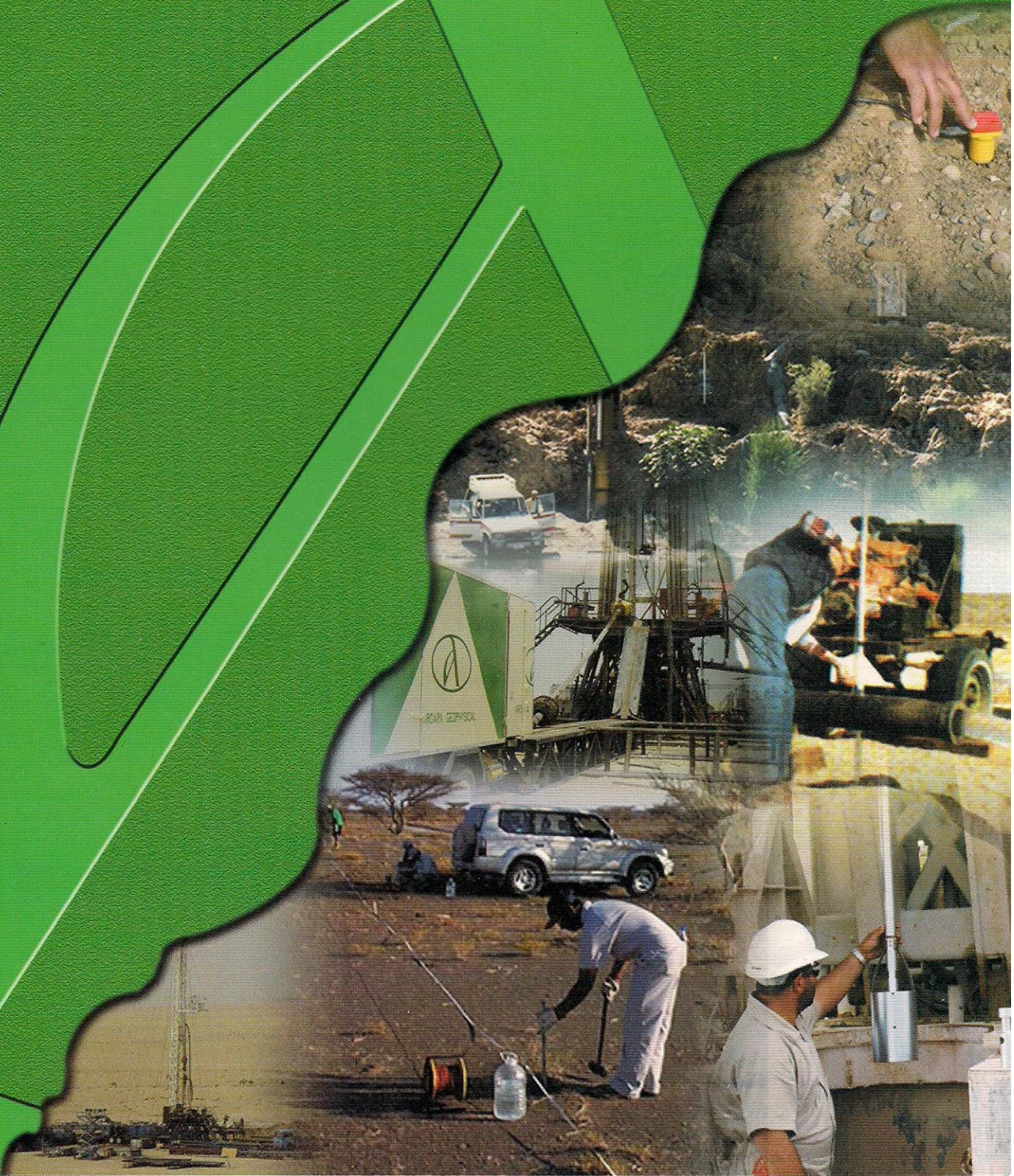




A.I.L

Geological, Geophysical & Hydrogeological Services





A.I.L.

Geological, Geophysical & Hydrogeological Services

THE COMPANY

A.I.L. offers a combination of skills and experience to provide high quality geological, hydrogeological and geophysical services to the water, civil engineering, petroleum, environmental and mining industries.

The core services of A.I.L. are in applied geophysics and hydrogeology. The company employs specialists in geology, hydrogeology, geophysics and electronics. These highly capable experts have the ability and experience required to execute a broad range of hydrogeological and geophysical surveys and to perform professional and meaningful evaluation of the recovered data. A full range of geological and geophysical services are offered including:

- **SURFACE GEOPHYSICAL METHODS**
- **BOREHOLE GEOPHYSICS**
- **PILE TESTING**
- **HYDROGEOLOGICAL AND ENVIRONMENTAL SERVICES**
- **SHALLOW MARINE GEOPHYSICS AND BATHYMETRY**
- **DRILLING CONSULTANCY**

The aim of the company is to provide high quality services and value for money. In order to achieve this goal, we recognise that it is essential to continually invest in the training of our staff and to keep abreast of improvements in techniques and technology.

The company has continually updated HSE policies and procedures to which all employees and sub-contractors are required to adhere. In addition, management takes a leadership role in the communication and implementation of all policies and standards.



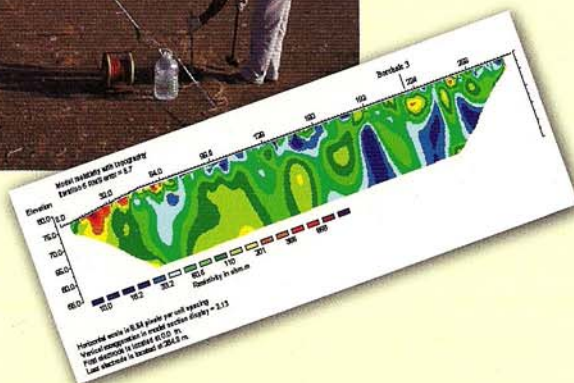
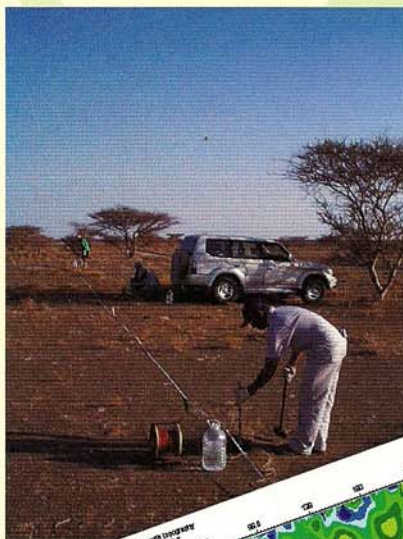
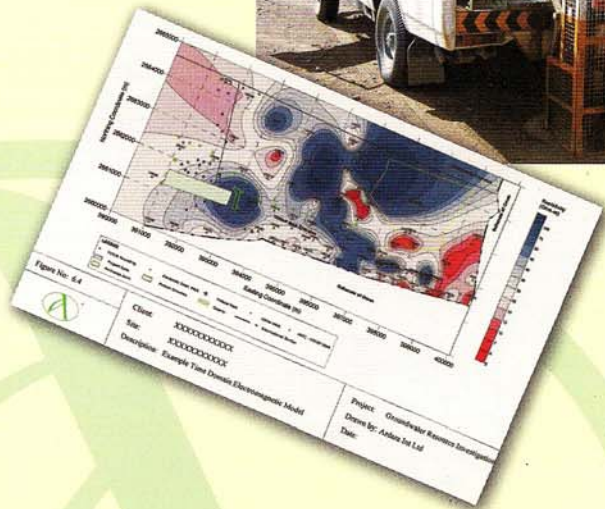
A.I.L.

Geological, Geophysical & Hydrogeological Services

SURFACE GEOPHYSICAL SURVEYS

A.I.L. offers a comprehensive range of surface geophysical surveys and has carried out surveys varying in size from small construction sites to large scale exploration studies. The methods available are:

- Seismic Refraction
- Seismic Reflection
- Micro-gravity
- Resistivity Soundings
- Multi-electrode Resistivity Imaging
- Frequency Domain Electro-magnetics
- Time Domain Electro-magnetics
- Ground Penetrating Radar
- Magnetics
- Electro-kinetics



Surveys undertaken by A.I.L. have been used for the following applications:

- Groundwater resource investigations
- Delineation of saline-fresh water interfaces
- Environmental and groundwater contamination
- Bedrock mapping
- Rippability surveys
- Void detection surveys
- Mapping of buried channels and other structures
- Detecting buried metal objects – drums, utilities etc
- Mineral reconnaissance mapping
- SASW / MASW

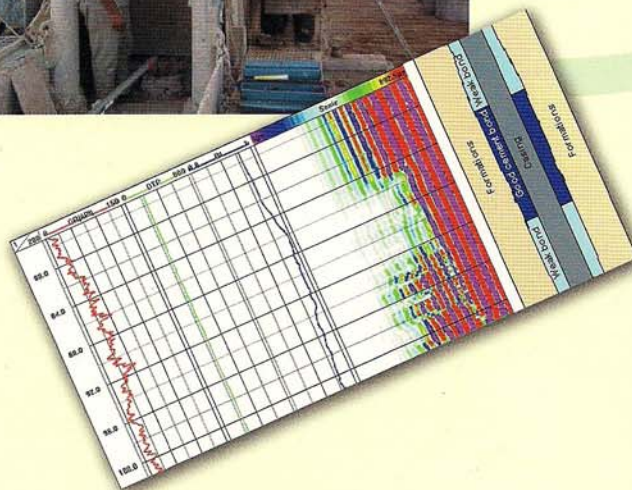
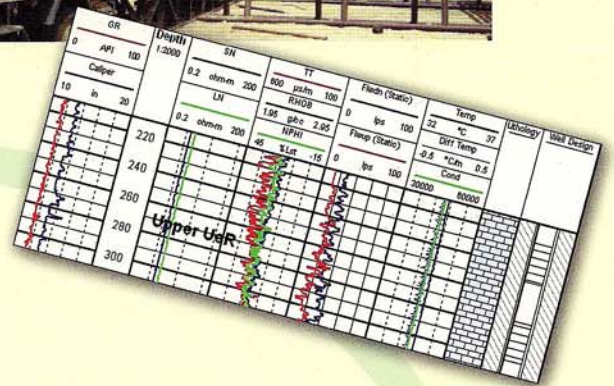


A.I.L.

Geological, Geophysical & Hydrogeological Services

BOREHOLE GEOPHYSICAL SERVICES

Borehole geophysics is part of the multi-disciplinary approach adopted by A.I.L. It is often used in conjunction with surface geophysics and hydrogeological services. Our logging personnel are highly skilled geophysicists with experience of logging both deep (1500m) and shallow (10m) boreholes in many different environments. Drilling a borehole is an expensive investment, therefore, it is a good idea to acquire as much data as possible from the borehole. Geophysics is a relatively quick and cheap method of achieving this aim. A.I.L. owns and operates logging equipment with various specialised tools that provide information for many applications. The following types of downhole survey are available:



- Fluid Properties
- Formation Properties
- Flow Logging
- Aquifer Evaluation
- Mineral Logging
- Borehole CCTV
- Cased Hole Evaluation
- Cement Bond Logging
- Borehole Deviation
- Borehole Imaging
- Downhole / Crosshole Seismic
- Seismic Tomography
- Single & Multi Shot Gyroscope Surveys

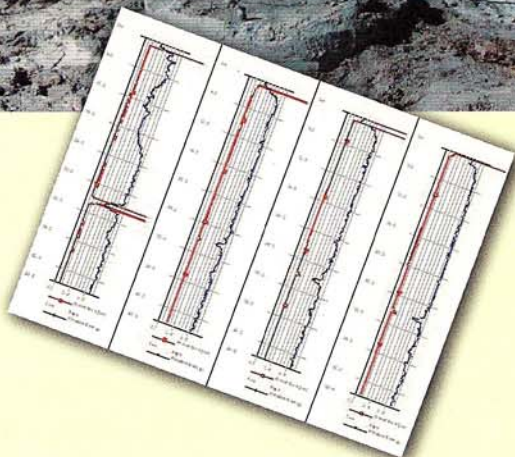
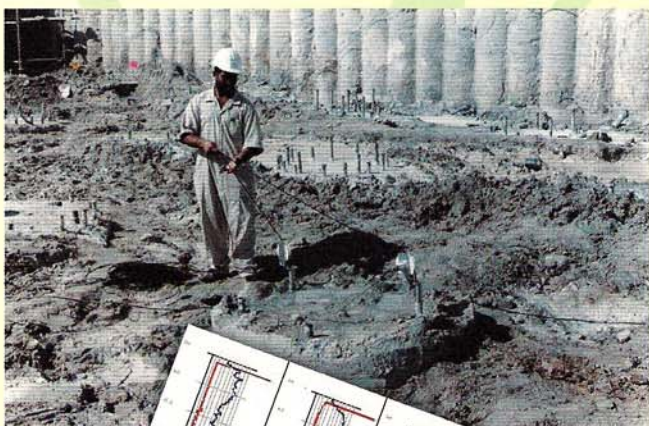


A.I.L.

Geological, Geophysical & Hydrogeological Services

PILE TESTING SERVICES

Certain geophysical techniques can be employed by the civil engineering industry to test bored pile design and integrity. It is important to verify that the pile design is capable of taking the envisaged load. In addition, bored pile foundations are expensive, therefore, it is useful to check that the piles are not "over designed" and so costing the client more than is necessary. Tests can also be carried out to confirm that the completed piles are free from defects. A.I.L. frequently carries out geophysical surveys for geotechnical sites and the two services are complementary. The following types of pile testing are available:



➤ Caliper Testing

Determines the diameter and rugosity of the pile bore before cement emplacement.

➤ Strain Gauge Testing

Gauges attached to the pile cage are monitored during loading to establish the load distribution during loading.

➤ Sonic Coring

Accurately checks the pile cement integrity using sonic transmitters and receivers lowered into tubes attached to the cage.

➤ Low Strain Pile Integrity Testing

Tests the pile integrity from the surface by recording the stress wave created by a hammer and that is reflected back from the pile toe or defect.

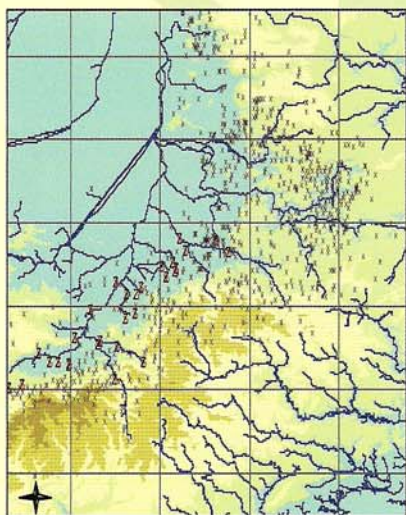
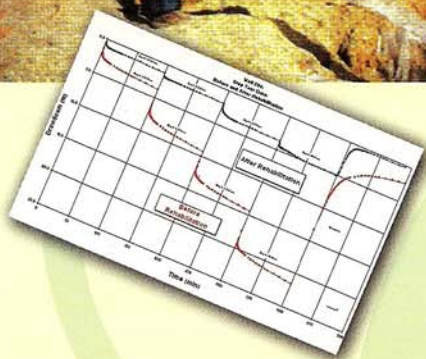
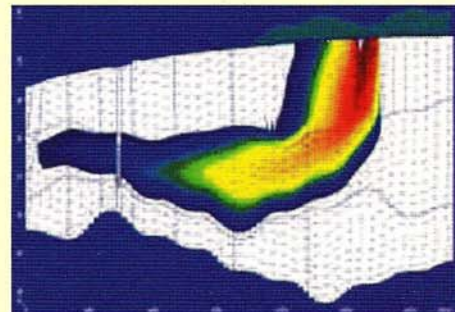


A.I.L.

Geological, Geophysical & Hydrogeological Services

HYDROGEOLOGICAL SERVICES

The hydrogeological capabilities of A.I.L. are complimentary to our geophysical capacities and they are frequently both provided as a combined service. Our senior staff are highly qualified hydrogeologists with global experience covering a wide variety of hydrogeological environments. We are able to provide the following hydrogeological services:



Project Management:

- Borehole drilling contracts: design, specification & supervision.

Groundwater Resource Evaluation

- Regional water resources assessments, planning & management.
- Collection and collation of data using database & GIS technologies.
- Hydrogeological mapping.

Well Field Testing, Analysis and Design

- Pump testing and analysis.

Aquifer Modeling

- Groundwater modelling and aquifer protection studies.

Geophysics

- Specialisation in surface and borehole geophysics in relation to groundwater resource and contaminant studies.

Environmental Surveys

- Water quality monitoring.
- Environmental impact and risk assessments.
- Contaminant transport modelling, plume delineation and contaminated land advice.
- Source protection zone analysis.



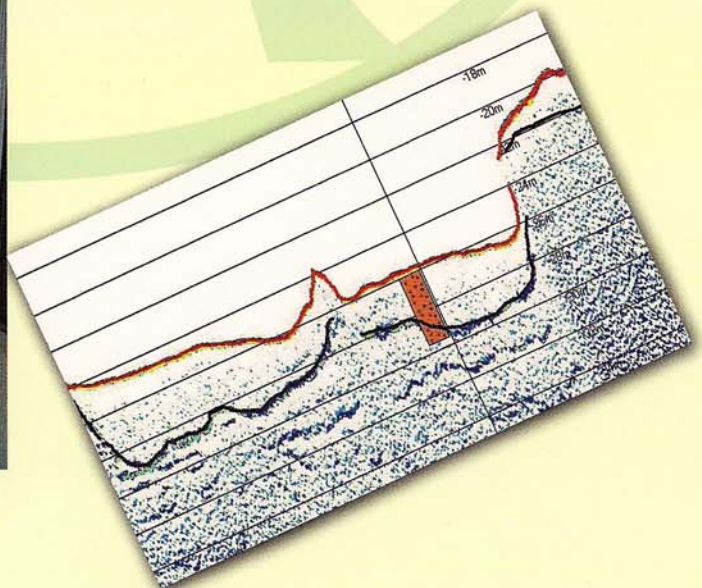
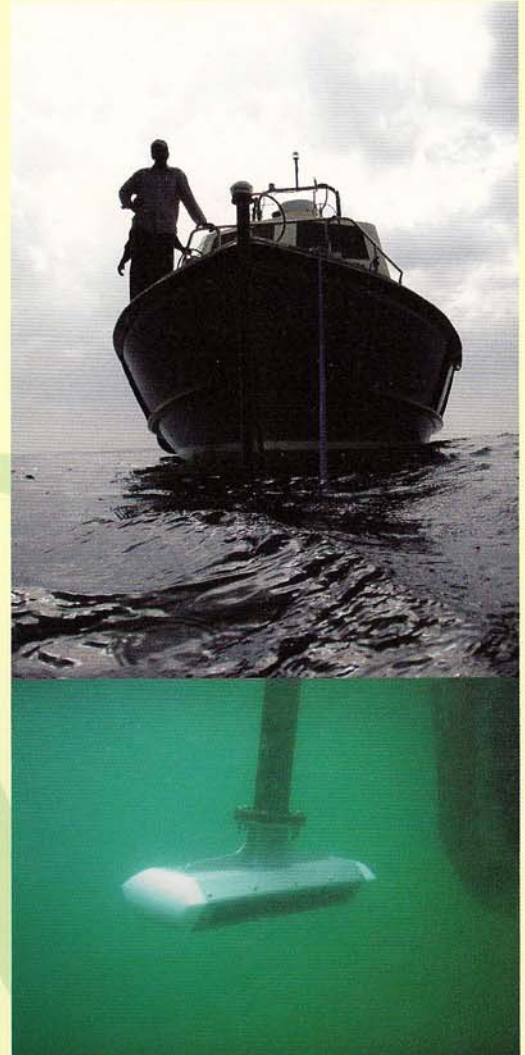
A.I.L.

Geological, Geophysical & Hydrogeological Services

SHALLOW MARINE GEOPHYSICS AND BATHYMETRY

Shallow marine geophysics represent a natural progression from surface geophysics and also allows surveys to be done in transitional areas between land and sea. In addition to land geophysics, A.I.L. also offers shallow marine geophysics and bathymetry. The following type of marine survey are available:

- Resistivity imaging
- Seismic refraction
- Magnetometers
- Single and multi beam bathymetry
- Side scan sonar
- Sub-bottom profiling and shallow seismic reflection
- Seabed sediment sampling
- Current monitoring
- Wave and tide monitoring





A.I.L.

Geological, Geophysical & Hydrogeological Services

OUR CLIENTS

A.I.L. provides specialist services to a broad spectrum of clients who range from small private and specialist contractors to multi-disciplinary government institutions. Irrespective of client type and size, the established policy of the company is to maintain a close interaction with the client representatives so as to ensure the provision of proficient services that are fully responsive to the specific needs of the task. Some of our clients are listed below:

- Petroleum Development Oman
- Ministry of Housing, Electricity, Water, Oman
- Ministry of Regional Municipalities, Environment & Water Resources, Oman
- Ministry of Agriculture and Fisheries, UAE
- Dubai Municipality
- Dubai Investments
- HH The Crown Prince, Abu Dhabi
- Middle East Foundations Group, UAE
- Bauer, UAE
- Bechtel
- Ministry of Municipalities & Agriculture, Qatar
- Swissboring LLC
- Fugro Middle East
- Gulf Laboratories WLL, Qatar
- Islamic Development Bank
- URS Dames & Moore
- Larson and Tubro, Oman
- Parsons Engineering Consultancy
- PDI, Bahrain
- NDC-USGS, UAE
- Coca Cola, UAE
- Al Marai, UAE

PROJECTS

A list of some recently completed projects:

- Groundwater Modelling and Well Field Construction, Wadi Safwan, Oman
- Wadi Ham and Bih Research Projects, UAE
- Geophysical and Hydrogeological Services For Water Supply Wells, PDO, Oman
- Onshore / Offshore Geophysics and Marine Services, New Doha International Airport, Qatar
- Microgravity, Crosshole and Downhole Seismic, Seismic Tomography and Resistivity Imaging, Dubai Tower, Qatar
- Water Well Abandonment Programme, PDO, Oman
- Hydrogeological and Geophysical Services For Deep Water Well Drilling Project, Qatar
- Drilling and Aquifer Testing Programme, Sharqiyah and Dakhliyah Regions, Oman
- Geophysical Logging For NDC-USGS, UAE
- Dubai Hydrogeological Study, UAE
- Pile Testing At Burj Al Arab, Festival City, Emirates Towers, Shangri-La Complex, UAE

CONTACT DETAILS

Sultanate Of Oman

c/o Andam Int. LLC, PO Box 740, Code 100, Muscat, Sultanate Of Oman, Tel: + 968 24505660, Fax: + 968 24505661,
Email: ardara@omantel.net.om / sales@ardara-me.com

State Of Qatar

c/o Gulf Laboratories Co. WLL, PO Box 4024, Doha, Qatar, Tel: + 974 4607034, Fax: + 974 4607628,
Email: gulflabs@qatar.net.qa

United Arab Emirates

c/o Andam Int. LLC, PO Box 740, Code 100, Muscat, Sultanate Of Oman, Tel: + 968 24505660, Fax: + 968 24505661,
Email: ardara@omantel.net.om / sales@ardara-me.com

www.ardara-me.com