



RISON

**GROUNDWATER
CONSULTING**

**“Professional Solutions
to Groundwater Problems”**

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1. COMPANY PROFILE

Rison Groundwater Consulting (RGC) specialises in finding cost-effective solutions to all groundwater problems. Each project that we undertake is backed up by our extensive experience on previous projects, although we do understand that each project requires a tailor made solution. Each of our clients receives individual attention and are assured of receiving individual attention at all times. This is one of our strong points that keep clients coming back to us time after time.

RGC provides a complete range of professional services tailored to specific requirements which can include the following:

- Geophysical groundwater exploration
- Sustainable groundwater supply
- Mine dewatering
- Aquifer testing
- Groundwater quality monitoring
- Baseline and risk assessment
- Due diligence
- Numerical flow and mass transport modelling (sub-contracted)

The company was founded in 2001 with a client base ranging from individuals, engineers, environmental consultancies, municipalities and mines to independent states and governments. RGC is an independent practice wholly owned by Adrian van Bart.

We have undertaken projects throughout South Africa, across the borders and further afield which include:

- Lesotho
- Botswana
- Swaziland
- Ghana
- Mozambique
- Australia
- Brazil
- Mongolia
- Democratic Republic of Congo

RGC is proud to be associated with some large and very successful companies in Southern Africa and also take pride in addressing any magnitude of project which is challenging and can result in the optimisation to the benefit of our client.

YOUR SUCCESS IS OUR GOAL

2. MISSION

To provide our clients with a professional service and a cost effective solution to all groundwater related issues. RGC is a private consultancy with extensive experience in the field of hydrogeology.

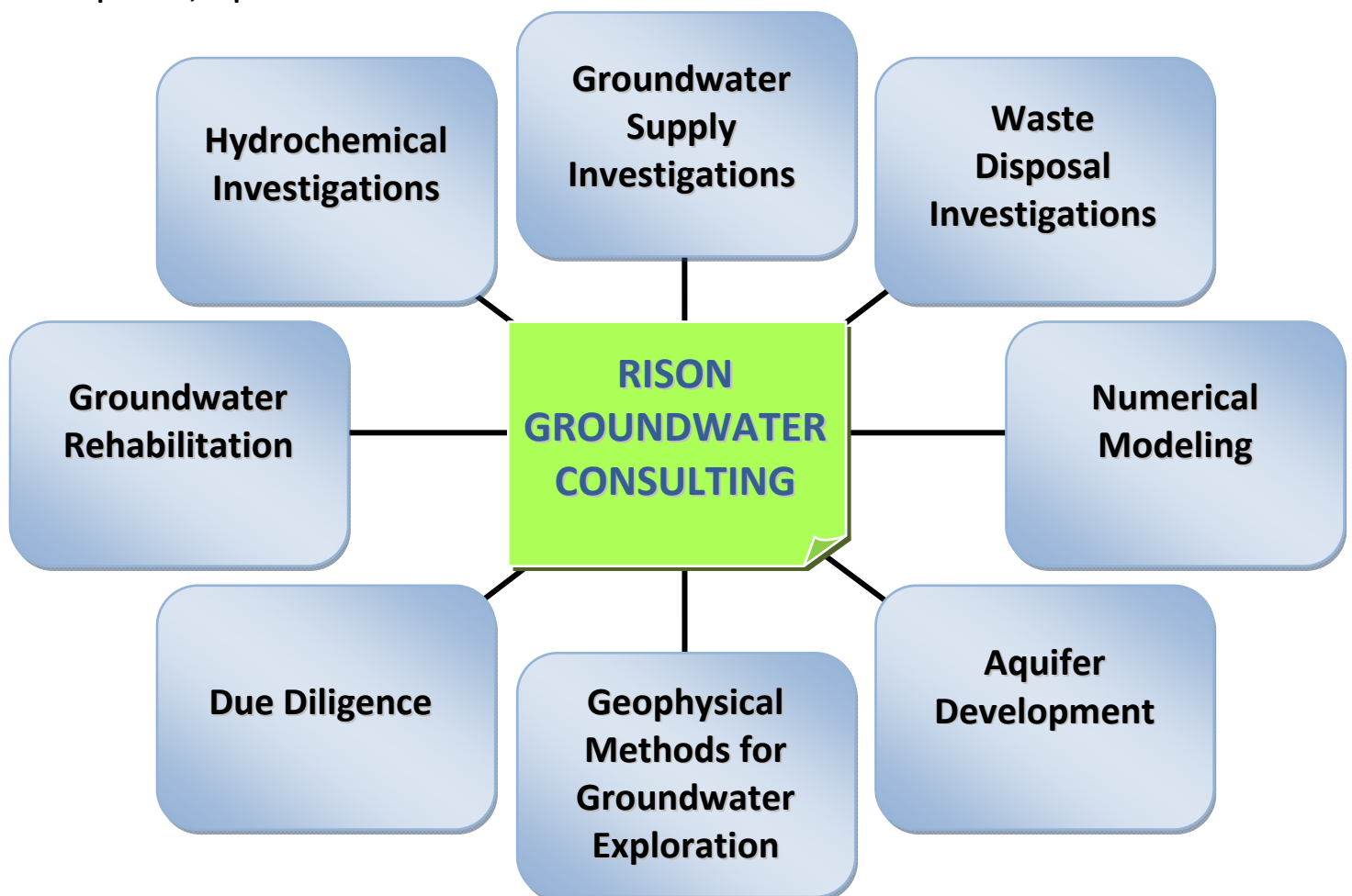
- ◆ Clients govern our actions
- ◆ Our innovations shape the future
- ◆ Learning is the key to continuous improvement
- ◆ Our cooperation has no borders

3. VISION

We recognise the need to achieve a balance between the development in industry and the environmental responsibility. Our vision is to serve the mining and industrial sector, providing cost effective, feasible, environmentally sound solutions, and expanding our services to include the implementation of remedial techniques as required.

4. SERVICES OFFERED

We provide, expert technical direction related to:



4.1 GROUNDWATER SUPPLY INVESTIGATIONS

Rison Groundwater Consulting offers a complete service in all aspects of the geohydrological regime. Based on the specific problem, only certain components may be required or a complete groundwater management system may be advised. The more important components of a complete groundwater management system are highlighted below:

- Groundwater exploration and development
- Aquifer evaluation
- Groundwater resource management
- Rural groundwater supplies
- Use of scientific methods for siting of boreholes
- Supervision of drilling and borehole construction
- Aquifer testing and analysis of aquifer test data
- Regional hydrogeological assessments (hydrogeological mapping)

4.2 HYDROCHEMICAL INVESTIGATIONS

Rison Groundwater Consulting has been involved in the design and implementation of several groundwater monitoring networks. Our most important clients include several local councils (landfill monitoring), coal and gold mines and heavy industrial sites. Experience in the design and implementation of monitoring systems for a wide range of geohydrological environments has therefore been obtained. The design of any network is preceded by a detailed geohydrological investigation in order to achieve a suitable and site specific monitoring network. This assists with an appropriate rehabilitation program, if required.

Dewatering and groundwater abstraction (mining) networks are approached in a similar way, although automated monitoring of groundwater levels are implemented in these instances. Sample collection and interpretation for several projects are ongoing. Samples are collected and preserved as per the required standards.

Services offered in this field include:

- Groundwater contamination studies (mines/industry/waste)
- Aquifer hydrochemistry
- Monitoring and sampling
- Confidential contamination evaluations
- Due Diligence investigations

4.3 WASTE DISPOSAL INVESTIGATIONS

Due to ever increasing populations and the continued strain the generation of waste puts on the environment it is becoming more important to scientifically site waste sites in order to minimise the impact on the environment and hydrogeological regime. The Waste Aquifer Separation Principle forms the basis of the majority of investigations undertaken by Rison.

This method evaluates the type of waste (domestic, mining, industrial and hazardous), the aquifer and the unsaturated zone (barrier) between the waste and the aquifer. It also takes the importance of the aquifer, its current and potential use into consideration.

Services offered in this field include:

- Hydrogeological site suitability investigations for waste disposal facilities
- Aquifer remediation
- Site selection, feasibility studies and detailed design
- Rehabilitation and closure planning

4.4 GROUNDWATER REHABILITATION

We aim to solve groundwater contamination problems rather than to quantify and monitor the problem. To this extent we have investigated several rehabilitation measures, which include containment, pump and treat as well as in situ rehabilitation.

4.5 MINING

Rison Groundwater Consulting has experience in the dewatering of open-cast, and shallow or deep mining environments. Projects such as these require a thorough understanding of groundwater flow and are normally preceded by a general geohydrological investigation and groundwater flow model. In recent times the flooding of defunct mines has become an important environmental concern. We have been involved in the prediction of flooding rates and the subsequent impact on the adjacent aquifers.

The following services are offered:

- Dewatering – open cast and deep level mines
- Contamination investigations
- Aquifer rehabilitation
- Acid / base accounting investigations
- Environmental and Due Diligence investigations

4.6 NUMERICAL MODELLING

Our approach to groundwater modelling is the optimisation of available data to obtain an accurate representation of the hydrogeological conditions underlying the site. This in turn reduces the number of monitoring wells required for the subsequent remediation of the site and eliminates the "Swiss Cheese Effect" resulting in a saving of contractual cost or the installation of monitoring wells. All groundwater models are calibrated with field data, where possible, to validate the conceptual model.

Services offered in this field include (using subcontractors):

- Hydrogeological flow modelling
- Mass transport
- Seepage modelling
- Predictions and scenarios
- Seepage analysis
- Groundwater flow

- Unsaturated seepage
- Risk Assessments

4.7 GEOPHYSICS

- Ground magnetic surveys
- Borehole siting

4.8 DEVELOPMENT IN PRIMARY AQUIFERS

- Groundwater supply projects
- The design and development of abstraction schemes in alluvial aquifers
- Wellfield design, equipment specifications and construction/installation supervision

4.9 GEOGRAPHICAL INFORMATION SYSTEMS AND SOFTWARE DEVELOPMENT

Rison Groundwater Consulting recognises that environmental and rehabilitation issues are best addressed by means of a holistic solution. However, it is unusual to find a software package that addresses all facets of environmental management equally well. It is therefore often necessary to integrate specialist software packages into an integrated management tool, which considers the operational, financial and environmental consequences of doing business.

5. SELECT CLIENT LIST

A detailed list of clients is Available upon request.

6. PRICE SCHEDULE

Our Price Schedule is available upon request.

7. CONTACT US

Rison Groundwater Consulting is situated in Krugersdorp (Gauteng Province), South Africa.

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Page 6 of 6