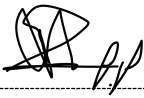




	SCOPE OF WORK Analysis of Ground Water	MAJUBA UCG SITE
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Title: Analysis of Water from Monitoring Boreholes from Majuba UCG on an as and when required basis.

Compiled by	Functional Responsibility	Authorized by
		
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1 Description of the service

1.1 Executive overview

The analysis of water samples from monitoring boreholes from Majuba UCG. The duration of the services is 5 years on an as and when required basis.

Ground water analysis on the UCG project forms an essential role in environmental monitoring, it is also a key requirement in the post gasification monitoring. Ground water samples are submitted to the SANAS Accredited laboratory for analysis to ensure that the ground water quality is within baseline and guideline requirements. These results are reported to the Department of Water and Sanitation quarterly as one of the requirement to the Water Use Licence.

1.2 Employer's requirements for the service

The contract will make provision for monitoring of compliance wells (25 samples) on a quarterly basis and a full set of sample (80 samples) will be taken once a year. The number of samples may however vary, however the estimated number of samples is 800 for the duration of the contract. All samples will be submitted to a laboratory for inorganic and organic analysis as given in Table 1 and Table 2 below. Units of measure for each analysis as required by the Employer are also given in the Table 1 and Table 2. The UCG project may require additional samples depending on results and site activities, this will be requested as and when needed. The frequency of sampling will decrease to once per year during the contract.

Table 1: Inorganic analysis

Elements	Detection Limit	Elements	Detection Limit
Cations and metals - mg/L		Anions - mg/L	
Ag	<0.05	F	<0.4
Al	<0.05	Cl	<0.4
As	<1	Br	<0.25
B	<0.05	NO2	<2
Ba	<0.05	NO3	<2
Be	<0.05	PO4	<4
Bi	<0.05	SO4	<4
Ca	<0.05		
Cd	<0.05	General Parameters - mg/L	
Co	<0.05	pH	mg/L
Cr	<0.05	TDS	
Cu	<0.05	EC	<0.6
Fe	<0.05	p-Alk	
K	<0.05	m-Alk	
Li	<0.05	Sum of Cation	
Mg	<0.05	Sum of Anion	
Mn	<0.05		
Mo	<0.05		
Na	<0.05		
Ni	<0.05		
P	<0.05		
Pb	<1		
Sb	<1		
Se	<1		
Si	<0.05		
Sn	<0.05		
Sr	<0.05		
Ti	<1		
Tl	<1		
V	<0.05		
Zn	<0.05		

Table 2 provides a summarised list of compound within each organic range that will be required, if any other results are generated concurrently with the specified compounds, this must be indicated.

Table 2 Organic analysis

Elements	Units	Elements	Units	Elements	Units
Phenols	ug/L	GRO / BTEX	ug/L	PAH	ug/L
Phenol	<20	Benzene	<1	Napthalene	<0.1
Methylphenol	<1	Toluene	<10	Acenaphthene	<0.1
Dimethylphenol	<1	Ethyl Benzene	<2	Flourene	<0.1
		Xylene	<2	Phenanthrene	<0.1
		Trimethyl Benzene	<2	Anthracene	<0.1
				Pyrene	<0.1

Additional Requirements

- All samples will be taken by the UCG sampling team
- The contractor is it make provision for the sample to be collected from site and delivered to the laboratory. The Employer will reserve the right to use this option or deliver the samples themselves.

- The Employer will specify the required analyses for each sample run in a task order that will precede the sample delivery.
- An analytical report / results must be emailed to the Employer within two weeks of receipt of the samples by the Contractor.
- Should the samples submitted by the Employer be insufficient for analysis; the Contractor must notify the Employer within 48 hours of receipt of the samples.
- The Contractor is to be available for interpretation of results on request by the Employer.
- The Contractor is to handle samples with caution as they may contain hazardous elements.
- The Contractor will be responsible for safe disposal of samples after analysis.
- The Contractor is requested to supply sampling bottles. The sampling bottles will be collected by the Employer when dropping off samples at the contractor's premises.
- Number of monthly samples submitted could vary in accordance with the progress of the project.
- The particular analyses required may vary in accordance with sampling objectives
- The contractor will be required to sign a non-disclosure agreement.

Document to be submitted with proposal:

- All Contractors are to provide an itemised price list.
- All Contractors are required to submit all SANAS Accreditation certificates, clearly indicating methods that are accredited.
- Units of measure for each analysis as required by the Employer are given in the Table 1 – 2. Where not specified the contractor is required to provide an indication of their capability.

1.3 Interpretation and terminology

The following abbreviations are used in this Scope Document:

Abbreviation	Meaning given to the abbreviation
SHE	Safety Health & Environment
UCG	Underground Coal Gasification

2 Management strategy and start up.

2.1 The Service Provider's plan for the service

- Ground water monitoring is conducted quarterly on the Majuba UCG site. The number of samples may vary but on average about 25 samples are taken per sample run. In addition, a full set of samples, approximately 80 sample, will be taken once a year. Additional samples may be submitted to the Laboratory for analysis whenever needed
- Sampling frequency will be reduces to once a year during the contract.
- The UCG sampling team will take the sample
- The contractor is it make provision for the sample to be collected from site and delivered to the laboratory. The Employer will reserve the right to use this option or deliver the samples themselves.
- The Contractor is requested to supply sampling bottles. The sampling bottles will be collected by the Employer when dropping off samples at the contractor's premises.
- All samples will require inorganic and organic analyses; this will be specified in each task order.
- The contractor is to provide the method statement for all analysis including laboratory standards, detection limits and accreditation status for all analyses.
- The Contractor will be responsible for safe disposal of samples after analysis.

- An analytical report / results must be emailed to the Employer within two weeks of receipt of the samples by the Contractor.

2.2 Management meetings

Meetings of a general nature may be convened and chaired by either the Contractor or the Employer as and when needed:

2.3 Contract change management

If there is a change in analytical methodology or accreditation status, it will be the Contractors responsibility to inform the Employer of such change. If there is any change to detection limits caused by a different analytical method or dilution this needs to be stated on the relevant samples' results certificate.

2.4 Management of work done by Task Order

In the event that services are required, the Contract Manager will inform the Service Provider in advance and will issue a task order

3 Health and safety, the environment and quality assurance

3.1 Health and safety risk management

The Service Provider shall comply with the health and safety requirements contained in the Mine Health and Safety Act No 29 of 1996.

3.2 Environmental constraints and management

Service Provider must comply with The National Environmental Management Act 107 of 1998 (NEMA), The National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA), The National Environmental Management: Waste Act 59 of 2008 (NEM:WA), UCG Waste Management Plan Unique Identifier: UCG PN 2073-1501 and Non Conformance corrective Action and Preventative Action Procedure Unique Identifier: UCG PN 2073-1509

3.3 Quality assurance requirements

- The service provider must be SANAS accredited for the majority of analysis
- The contractor is to provide the method statement for all analysis including laboratory standards, detection limits, units and accreditation status for all analyses.
- After each sample run the service provider is to provide a laboratory certificate with all results
- The service provider must comply to Eskom Supplier Quality Requirement as per QM58 Specification, category 1.

4 Price List

Table 5: Proposed Bill of Quantities

		Quantity
	Water Sampling	
1	Inorganic Analysis on Water Sampling	
	Cations,	800

	Anions	800
	Other (TDS, pH, p-Alk, m-Alk)	800
2	Organic Analysis on Water Sampling	
	Phenols	800
	BTEX	800
	PAH	800
3	Collection and Transport of Samples	21
4	Sample Bottles	800
5	CPA	
6	Contingency (10%)	10%

5 Technical Evaluation Criteria

5.1 Technical Evaluation Threshold

A minimum weighted final score required for a tender to be considered from a technical perspective is 70%. The Eskom technical evaluation team will evaluate all tenders, any service provider receiving a score less than **70%** will be considered technically unacceptable.

5.2 Technical Evaluation Team

The following member will make up the technical evaluation team

- Sibu Maphumulo – Engineering Manager
- Chantelle Moll – UCG Engineer

5.3 Mandatory Evaluation Criteria

N/A

5.4 Qualitative Technical Evaluation Criteria

The technical evaluation team will assess each tender according to the criteria in Table 7. The criteria will be assessed on a scale of 0 – 5, as per Table 6 below

Table 6: Qualitative Evaluation Criteria

Score	%	Definition
5	100	Compliant Meet technical requirement No foreseen technical risks in meeting technical requirement
4	80	Compliant with associated qualifications Meet technical requirement with Acceptable technical risk Acceptable exceptions Acceptable conditions
2	40	Non-Compliant Does not meet technical requirements Unacceptable technical risk Unacceptable exceptions Unacceptable conditions
0	0	Totally Deficient or non-responsive

Note 1: The scoring table does not allow for scoring of 1 and 3.

The qualitative technical evaluation criteria will be assessed independently by each member of the technical evaluation team. The Contractor is to provide the following documentation for the technical evaluation.

- List of SANAS Accreditations'
- List of analytical methods used
- Lower detection limit and units of measure for each method.
- Turnaround time

Table 7: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description	Reference to technical specification	Weighting
1	SANAS Accreditation, for inorganic analysis	Are the required inorganic analysis SANAS Accredited 5 = All analytical methods accredited 4 = Some (>50%) analytical methods accredited 2 = Accreditation for only some components (<50%) 0 = No accreditation	20
2	SANAS Accreditation, for organic analysis	Are the required organic analysis SANAS Accredited 5 = All analytical methods accredited 4 = Some (>50%) analytical methods accredited 2 = Accreditation for only some components (<50%) 0 = No accreditation	20
3	Detection Limit and Units of measure are provided and are acceptable in term of Eskom reporting obligation. Analytical methodology or standards for analysis provided. (Inorganic)	Analytical methodology or standards for analysis provided with detail on detection limit and units of measure. 5 = All detection limits and units are equal to or less than required 4 = Majority (>70%) of the detection limits and units are equal to or less than required 2 = Some of the detection limits and units are less than required (<70%) 0 = No detection limits and units are equal to or less than required	20
4	Detection Limit and Units of measure are provided and are acceptable in term of Eskom reporting obligation. Analytical methodology or standards for analysis provided. (Organic)	Analytical methodology or standards for analysis provided with detail on detection limit and units of measure. 5 = All detection limits and units are equal to or less than required	20

		<p>4 = Majority (>70%) of the detection limits and units are equal to or less than required</p> <p>2 = Some of the detection limits and units are less than required (<70%)</p> <p>0 = No detection limits and units are equal to or less than required</p>	
5	Ability of the laboratory to meet all analytical requirements	<p>How many of the requested analysis can be done by the laboratory.(list as per scope)</p> <p>5 = complete list of analysis at a single lab</p> <p>4 = complete list of analysis at multiple labs</p> <p>2 = only Inorganic or organic</p> <p>0 = only offer some of the required analysis</p>	10
6	Turnaround time	<p>Turnaround time for 30 samples</p> <p>5 = 2 week</p> <p>4 = 3 weeks</p> <p>2 = 4 weeks</p> <p>0 = > 5 weeks</p>	10