

CERTIFICATE OF ACCREDITATION

This is to certify that:

ANGLO RESEARCH ENVIRONMENTAL SECTION

Facility Accreditation Number: **T0155**

is a South African National Accreditation System accredited Testing laboratory
provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope on the accompanying schedule of accreditation
bearing the above accreditation number for

CHEMICAL ANALYSIS

The facility complies with the general requirements of

ISO/IEC 17025:2005

*This accreditation demonstrates technical competency for a defined scope and the operation
of a laboratory quality management system and shall remain in force subject to continuing
compliance with SANAS accreditation criteria, ISO/IEC 17025:2005 and any further
requirements specified by SANAS*

While this certificate remains valid, the Accredited Facility named above is authorised to use
the relevant SANAS logo to issue facility reports and/or certificates

Mr MA Peet
Chief Executive Officer

Initial Accreditation: December 2001

Certificate Commences: March 2008

Certificate Expires: December 2011

*"Recognised as the official national accreditation body by the Department of Trade and Industry of the
Republic of South Africa"*

This certificate is only valid when accompanied by its schedule of accreditation

SCHEDULE OF ACCREDITATION

Testing Laboratory Number: T0155

| <p><u>Permanent Address of Laboratory:</u> Anglo Research Environmental Section 8 Schonland Street Theta</p> <p><u>Postal Address:</u> P O Box 106 Crown Mines 2025</p> <p>Tel : (011) 377-4659 Fax : (011) 377-4872 E-mail : nschutte@angloresearch.com</p> | <p><u>Technical Signatory</u> : Mrs A Barzeva : Mr P Mkwanzazi</p> <p><u>Nominated Representative</u> : Ms N Schutte</p> <p>Issue No. : 06 Date of issue : March 2008 Expiry date : December 2011</p> | |
|---|--|---|
| Materials/Products Tested | Types of Tests/Properties Measured, Range of Measurement | Standard Specifications, Equipment/ Techniques Used |
| Water and Waste Water | The determination of Electrical Conductivity The determination of pH The determination of Total Dissolved Solids The determination of Total Suspended Solids The determination of Fluoride by Ion Selective Electrode The determination of P and T alkalinity by Potentiometric Titration The determination of Acidity by Potentiometric Titration The determination of Chemical Oxygen Demand by digestion and REDOX titration The determination of Chemical Oxygen Demand by block digestion and photometer reading The determination of Oxygen Absorbance by digestion and REDOX titration | <u>IN-HOUSE METHODS</u> LM-001 LCONDUC LM-007 LPHMET LM-005 LDISSOL LM-006 LSUSPSOL LM-015 LFISE LM-010 LALKPT LM-011 LACPT LM-013 LCODWC LM-025 LCODPR LM-014 LOWAWC |

Original date of accreditation: December 2001

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Field Manager

| Materials/Products Tested | Types of Tests/Properties Measured, Range of Measurement | Standard Specifications, Equipment/ Techniques Used |
|---------------------------|--|--|
| Water and Waste Water | The determination of Hexavalent Chromium by colorimetric method | <u>IN-HOUSE METHODS</u> LM-018 Cr ⁶⁺ /UV |
| | The determination of Inorganic Anions by HPLC using conductivity and UV detectors | LM-020 HPLC / Breeze |
| | The determination of Ca, Mg, Na and K by AAS | LM-002 LMEAAS |
| | The determination of elements by ICP-OES : Ag, Al, B, Ba, Be, Ca, Cr, Cu, Fe, Mg, Mn, P, S, Sb, Se, Si, Te, and Zn As, Cd, Pb | LM-004 LMEICP <i>Detection Limits:</i> 0,5 mg/l 0,1 mg/l |
| | The determination of elements in low concentrations by ICP-OES: Be, B, Mn, Co, Cu, Ag, Ba Cr, Ni V, Zn, Se, Cd, Sn, Sb, Pb, Bi, P, Al, Fe As, Mo, Te Ca, Mg, Na, K S Si | LM-004-1 LMEICFLOW <i>Detection Limits:</i> 0,03 mg/l 0,04 mg/l 0,05 mg/l 0,09 mg/l 0,2 mg/l 0,8 mg/l 0,3 mg/l |
| | The determination of Free and Total Cyanide | LM-009 LCNTOT |
| | The determination of Free Cyanide by flow injection analyser | LM-021 LFCNFIA |
| | The determination of Weak Acid Dissociable Cyanide by flow injection analyser | LM-022 LWADCNFIA |
| | The determination of Total Cyanide by flow injection analyser | LM-023 LTCNFIA |
| | The determination of Ammonia by flow injection analyser | LM-024 LNH4FIA |

Field Manager