

Secretariat

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC SCHEME FOR CERTIFICATION TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES (IECEX SCHEME)

Ex Management Committee, ExMC

Introduction

The IECEX Assessment Team has conducted a full and complete assessment on **Safety in Mines Research Station (SIMTARS)**, in accordance with the IECEX Scheme Rules.

In line with the recommendations of the IECEX Assessment Team, the Secretariat hereby submits the SIMTARS voting report for completion and return by ExMC Members.

Voting Form

IECEX Assessment Report for acceptance of the following candidate as an Ex Accepted Certification Body

Safety in Mines Research Station (SIMTARS)

☐ Yes. I agree with the acceptance of SIMTARS as an Ex Accepted Certification Body

☐ No. I do not agree with the acceptance of SIMTARS as an Ex Accepted Certification Body in for the following reasons

Signature:_____

Name:_____

Member Body:_____

Date:_____

Please complete and return by 00 09 08 to

Mr Chris Agius
Secretary IECEX
Fax: +61 2 9746 8460
Email: chris.agius@qas.com.au

or submit to the Secreatry during the ExMC Meeting in Braunschweig

IECE_x ASSESSMENT REPORT

(ACCEPTED CERTIFICATION BODY-ACB)

1. OBJECT AND FIELD OF APPLICATION

1.1 Country: *Australia*

1.2 Name of Candidate ACB

Safety in Mines Research Station (SIMTARS)

1.3 Members Of The Assessment Team

John A. Bossert, (Hazloc, Canada) Assessor

Janos Hanko, (BKI, Hungary), Assessor

Trond Sollie, (Nemko, Norway), Lead Assessor

Site visit performed only by Mr.Bossert as expert assessor due to the accreditation status of the applicant ACB.The initial documentation review, follow up, and general coordination/reporting has essentially been made by Mr.Sollie as lead assessor.

1.4 Place And Date Of Assessment

2 Smith Street, Redbank, Queensland, Australia

6.-7.July 1998.

It should be noted that the report is finalized in June 2000 after having received evidence of i.e. national accreditation to EN45011. In general, the report reflects the situation at the time of the assessment visit, whilst the attached organization chart and accreditation related information are updated per June 2000. When persons' names/positions in the report are shown with an astrix (), reference is made to the attached organization chart for updated information.*

1.5 Assessment References

Documents:

i) IECE_x 04 First Edition 1995-03

ii) ExCC/27/INF November 1997

iii)ISO/IEC Guide 65 1996 (Superseding ISO/IEC Guide 40)

1.6 Scope Of Application

Product Category	Standard
General Requirements	IEC 79-0
Flameproof Enclosures	IEC 79-1
Pressurised Enclosures	IEC 79-2
Sand-Filled Apparatus	IEC 79-5
Oil-Emersed Apparatus	IEC 79-6
Increased Safety	IEC 79-7
Intrinsic Safety	IEC 79-11
Type "n" Protection	IEC 79-15
Type "m" Protection (encapsulation)	IEC 79-18
Apparatus for combustible dust atmospheres	IEC 1241-1-1

1.7 Candidate ACB Persons Interviewed

Position	Name
Acting Manager *	David Turner
Quality Coordinator *	Paul Spresser

1.8 Legal Entity of The Candidate ACB

SIMTARS is a semi-autonomous Division of the Queensland Government's Department of Mines and Energy.

1.9 Associated Testing Laboratories

SIMTARS operates its own Testing Laboratory which has already been assessed and accepted for IECEx (in association with QAS as ACB)

1.10 Associated Certification Functions

None

1.11 National Marks And Certificates

At the time of the assessment visit, SIMTARS had an agreement with QAS to issue Certificates and authority to use the National Certification mark, but has since been accredited by JAS-ANZ as certification body for products.

1.12 Financial Support

The establishment is wholly owned by the Queensland Government but the certification function is supported by fees.

1.13 History

SIMTARS was originally established for research and testing for underground coal mines. They are now involved in testing and certification of electrical equipment for use in all explosive atmospheres.

1.14 Standards Accepted

See 1.6 above.

1.15 National Differences To IEC Standards

There are corresponding Australian Standards for most of the IEC Standards listed in 1.6. While there are some differences between these two sets of Standards, SIMTARS has agreed to work with their National Committees to eliminate these differences within the transitional period agreed by the National Member Body.

2. ORGANISATION

2.1 *Names, Titles And Experience Of The Senior Executives*

Name	Title	Experience
Stewart Bell	Acting Director *	Previously Manager of the Occupational Hygiene Environment & Chemistry Centre at SIMTARS
David Turner	Acting Manager *	BE Electrical Engineering, ten years experience in the electrical supply industry, five years experience with responsibility for a range of NATA accredited test laboratories and ten years experience in the Quality Assurance field.

2.2 *Name, Title And Experience Of The Quality Management Representative*

Name	Title	Experience
Paul Spresser	Quality Coordinator *	BE Electrical Engineering, ten years experience in electronics Industry, eight years a SIMTARS in calibration, flameproof and intrinsic safety testing, Quality Coordinator since 1995.

2.3 *Name And Title Of Nominated Principal Contact*

Name	Title	Comments
David Turner	Acting Manager *	

2.4 *Name and Title of Signatory for Certification*

Name	Title	Comments
James Birch	Senior Engineer-Certification	The Senior Engineer-Certification is not involved in the testing activities.

2.5 *Employees*

Name	Title	Responsibility
James Birch	Senior Engineer-Certification	Certification
David Turner	Acting Manager*	Testing and Certification

No member of the staff is certified by IRCA or by the National Body as a lead auditor for ISO9000. If the manufacturer does not have a certified Quality System to ISO 9000, then the audit of the manufacturers Quality System is sub-contracted to QAS, (as agreed per QAS letter to SIMTARS of 17.Jan.2000).

2.6 **Organisational Structure**

See attached organization chart, (as valid when finalizing this report, i.e. June 2000)

2.7 **Administration**

2.7.1 Administrative Structure

See attached organization chart (as valid when finalizing this report, i.e. June 2000)

2.7.2 Terms Of Reference Of The Governing Board

Financial and administrative matters are handled via the Director-General of the Department of Mines and Energy. Strategic matters are overviewed by an Advisory Committee consisting of mine owners, unions, government and research institutions.

3. **RESOURCES**

SIMTARS does not have own personnel to audit manufacturers Quality Systems . If the applicant manufacturer does not already have a certified Quality System then this function is sub-contracted to QAS (ref. item 2.5. above).

4. **COMMITTEES**

The SIMTARS Advisory Committee provides advice on the future directions for health and safety research and testing in the mining industry. Staff members serve on National and International Standards Committees.

5. **CERTIFICATION OPERATIONS**

5.1 **National Approval/Certification Methods**

Certification Activity	Competence Level	Applicable Standard/Docs
Factory certification audit	Sub-contracted	ISO 9000
Product Testing	NATA Accredited	IEC 79 Series + 1241 Series
Surveillance audit	Sub-contracted	ISO 9000
Product surveillance	Experienced inspectors	

5.2 **Certification Policy**

Previously, SIMTARS issued national certificates on behalf of QAS based on an agency agreement, but has since 3.Sep.1999 been accredited by JAS-ANZ to perform product certification in their own name.

5.3 **Staff Work Instructions**

The staff work instructions are carefully documented.

5.4 **Application for Certification**

Adequate documentation is available for the guidance of applicants.

6. STATISTICS

At the time of the assessment visit, the following numbers of certificates had been issued for each type of protection:

Flameproof	63
Pressurized Enclosures	4
Powder Filling	0
Oil Immersed	0
Increased Safety	60
Type “n”	3
Encapsulated	1
Dust Ignition Protected	17

7. DOCUMENTATION

7.1 *Document and Change Control*

The document controller reports to the Quality Manager and is responsible for physically maintaining the Document Control System.

8. RECORDS

The control of certification records is satisfactory.

9. CONFIDENTIALITY

All certification records are strictly confidential.

10. PUBLICATIONS

Guides for applicants and lists of certified products are available.

11. APPEALS

There are two levels of appeals. SIMTARS operates a formal complaints system which is additional to avenues through the Standards Australia Certification Scheme. Both these arrangements would be available for the IEC Scheme.

12. NATIONAL ACCREDITATION

SIMTARS was on 3.Sep.1999 granted accreditation by the Joint Accreditation System of Australia and New Zealand (JAZ-ANZ) as a product certification body according to EN 45011:1989, which on 6.March this year was confirmed valid for relevant IEC standards. (See attached certificate).

13. RECOGNITION AND AGREEMENTS

The testing and inspection services of SIMTARS are recognized by QAS.

14. QUALITY MANUAL

The Quality Manual is applicable to the certification program.

15. INTERNAL AUDIT AND PERIODIC REVIEW

Audited within the last year by JAZ-ANZ and internal audits are conducted on a regular schedule.

16. COMPLAINTS

A procedure for handling of complaints is in place.

17. WITHDRAWALS AND CANCELLATION OF CERTIFICATES

There is a procedure for withdrawal of certification and cancellation of certificates.

18. COMMENTS

By SIMTARS' letter of 14.April 2000 (signed David Turner), the lead assessor has received proof of their national(JAS-ANZ)accreditation as product certification body to EN 45011 for relevant standards and arrangement with QAS for necessary quality system audits at manufacturers, as required for becoming an ACB.

On this basis, the assessment of SIMTARS also as ACB is considered to be successfully completed.

19. RECOMMENDATION

Based on the initial documentation review, the assessment visit in July 1998 and later documentation provided, the assessment team recommends full acceptance of the candidate certification body as IECEx ABC for the product standards applied for as shown under item 1.6 of this report, except for IEC 79-5 and IEC 79-6, which do not seem to be covered by the JAS-ANZ accreditation.

J.A.Bossert

John A. Bossert

J.Hanko

Janos Hanko

T.Sollie

Trond Sollie
(Lead Assessor)

(This report is essentially prepared by J.A.Bossert upon his site visit in Australia as expert assessor in July 1998, and is complemented/finalized on 13.June 2000 by T.Sollie as lead assessor, after having finally received evidence from the candidate of relevant accreditation and of arrangement for auditing of manufacturers' quality systems, plus updated organization chart)

NATIONAL ASSOCIATION OF TESTING AUTHORITIES, AUSTRALIA

ACCREDITATION NUMBER : 2679

SIMTARS (Safety in Mines Testing and Research Station)
Engineering, Testing and Certification Centre

2 Smith Street
REDBANK QLD 4301

CONTACT : Mr D R Turner

Phone : (07) 3810 6370 Fax : (07) 3810 6366

FACILITIES : Public testing service

3.02 Resistors, resistance boxes and potential dividers

- .01 Precision resistors, resistance boxes and conductance boxes,
with least uncertainties of measurement of -
0.05% + 2 $\mu\Omega$ from 100 $\mu\Omega$ to 1 Ω
0.005% from 1 Ω to 1 M Ω
0.05% from 1 to 100 M Ω
1% from 100 M Ω to 1 T Ω
10% from 1 to 100 T Ω
- .02 Volt ratio boxes and potential dividers
Volt ratio boxes with fixed ratios up to 1100 V with a least
uncertainty of 10 ppm
Variable ratio potential dividers from 10^{-6} to 1.1:1
with a least uncertainty of 5 ppm + 5×10^{-7}
- .03 DC shunts
with least uncertainties of measurement of -
Based on 3.02.01

3.03 Insulating materials and insulators

- .02 Insulation resistance tests
with least uncertainties of measurement of -
10%
by the methods of -
AS 1255.2, AS 2380.1 and similar test procedures
- .03 Surface and volume resistivity tests
Surface resistivity tests to AS 1147.1 Appendix D
with least uncertainties of measurement of -
10%
- .08 Tracking
Comparative tracking index tests to AS 1147.1

3.04 Capacitors

- .01 Precision capacitors
Two terminal capacitors at 1 000 Hz
with least uncertainties of measurement of -
0.01% + 0.5 pF from 1 pF to 1.1 μF ;
0.2% from 1.1 to 11 μF
Three terminal capacitors at 1000 Hz
with least uncertainties of measurement of -
0.01% + 0.03 nF up to 1.1 μF

3.06 Inductors and transformers

- .01 Inductors, self and mutual
Self inductors over the frequency range 20 Hz to 20 kHz, at
voltages up to 1 000 V ac and dc, and currents up to 50 A ac
and dc

NATIONAL ASSOCIATION OF TESTING AUTHORITIES, AUSTRALIA

with least uncertainties of measurement of -
2% from 10 μ H to 1 000 H;

Self inductors at 1 000 Hz

with least uncertainties of measurement of -
0.2% from 100 μ H to 1 H

.12 Current transformers and protective current transformers

Tests at 50 Hz for current ratio only, on current transformers
with rated primary currents up to 100 A, rated secondary
currents up to 5 A

with least uncertainties of measurement of -
0.2% for current error

.14 Voltage transformers and protective voltage transformers

Tests at 50 Hz, for voltage ratio only, on voltage transformers
with rated primary voltages up to 1 000 V, rated secondary
voltages up to 220 V

with least uncertainties of measurement of -
0.05% for voltage error

3.07 Voltage standards

.01 Standard cells

with least uncertainties of measurement of -
10 μ V

.11 Electronic e.m.f. reference devices

with least uncertainties of measurement of -
10 ppm at 1 to 10 V

3.08 Precision transfer instruments

.01 A.C./D.C. transfer instruments

with least uncertainties of measurement of -
0.01% from 0.5 to 1 000 V at 50 Hz;
0.02% from 0.5 to 1 000 V at 1, 10, and 20 kHz;
0.02% from 0.5 to 300 V at 50 kHz;
0.05% from 0.5 to 100 V at 100 kHz;
0.1% from 0.5 to 10 V at 1 MHz;
0.01% from 5 mA to 20 A at 50 Hz

3.09 Instrument calibrators

with least uncertainties of measurement of -
Based on 3.02 and 3.10 where appropriate

.01 D.C. voltage

.02 A.C. voltage

.11 D.C. current

.12 A.C. current

.51 Resistance

3.10 Indicating and recording instruments

.01 D.C. voltmeters

with least uncertainties of measurement of -
20 ppm + 1 μ V up to 1 100 V

.02 A.C. voltmeters

with least uncertainties of measurement of -
0.02% from 0.5 to 1 000 V at 50 Hz;
0.03% from 0.5 to 1 000 V at 1, 10 and 20 kHz;
0.03% from 0.5 to 300 V at 50 kHz;
0.1% from 0.5 to 100 V at 100 kHz;
0.15% from 0.5 to 10 V at 1 MHz

.03 D.C. ammeters

with least uncertainties of measurement of -

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- 0.01% up to 1 A;
- 0.06% from 1 to 50 A;
- 0.25% from 50 to 1 000 A for clamp-on meters using inserted turns technique

- .04 A.C. ammeters
 - with least uncertainties of measurement of -
 - 0.1% from 5 mA to 20 A at 50 Hz;
 - 0.2% from 1 to 20 A from 30 Hz to 5 kHz;
 - 0.5% from 50 to 1000 A for clamp-on meters using inserted turns technique
- .05 Wattmeters
 - with least uncertainties of measurement of -
 - 0.1% up to 1 000 V and 50 A on d c
 - 0.5% up to 1 000 V and 100 A at 50 Hz at unity power factor
- .09 Ohmmeters
- .81 Graphic recording instruments

3.11 Bridges, potentiometers, test sets

- .01 D.C. bridges
 - with least uncertainties of measurement of -
 - Derived from 3.02
- .11 A.C. bridges
 - including electronic L/C/R meters calibrated against reference inductors, capacitors and resistors
 - with least uncertainties of measurement of -
 - Derived from 3.06, 3.04 and 3.02

3.12 Frequency and time measuring instruments and standards

- .01 Frequency meters
 - with least uncertainties of measurement of -
 - 1 in 10^7 up to 1 GHz
- .02 Wavemeters
 - with least uncertainties of measurement of -
 - 1 in 10^7 up to 1 GHz
- .11 Counters
 - with least uncertainties of measurement of -
 - 1 in 10^7 up to 1 GHz
- .12 Time interval meters
- .13 Clocks and watches

3.13 Waveform measuring instruments

- .01 Frequency characteristics
- .02 Input characteristics
- .03 Timing characteristics
- .04 Distortion
- .05 Other characteristics
- Functional checks

3.21 Power supplies and stabilisers

- .01 Power supplies
- .02 Stabilisers

3.22 Signal sources

- .01 Frequency characteristics
 - with least uncertainties of measurement of -
 - 1 in 10^7 up to 1 GHz
- .02 Output characteristics
 - Voltage measurement at frequencies up to 1 MHz

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with least uncertainties of measurement of -
Derived from 3.10.02

3.24 Electronic components

- .01 Fixed resistors
with least uncertainties of measurement of -
Derived from 3.02
- .02 Capacitors
with least uncertainties of measurement of -
Derived from 3.04

3.35 Cables and feeders

- .01 Conductor resistance tests
with least uncertainties of measurement of -
As in 3.02.01
by the methods of -
AS 1660.3 and similar test procedures
- .02 Insulation resistance tests
with least uncertainties of measurement of -
As in 3.02.01
by the methods of -
AS 1660.3 and similar test procedures

3.40 High voltage testing

- .11 Direct voltage tests
By the methods of AS 1931
with least uncertainties of measurement of -
5% up to 40 kV
- .12 Alternating voltage tests
By the methods of AS 1931
with least uncertainties of measurement of -
3% up to 30 kV

3.60 Environmental tests

To AS 1099.2

- .11 Cold tests
- .12 Dry heat tests
- .13 Damp heat tests

3.70 Antistatic materials for industrial applications

- .01 Flooring
by the methods of -
AS 2834 Appendix D
- .02 Other products
by the methods of -
AS 1180.13, hoses and AS 1334.9, conveyor belting

3.80 Approval tests on electrical appliances and accessories

- .01 General requirements to AS 3100
Tests for compliance with sections 4, 5 and clauses 6.2, 6.3, 7, 8.3.1,
8.3.2, 8.4, 8.5, 8.7, 8.8, 8.11, 8.12
- .03 IP ratings to AS 1939
- .04 Fire tests
- .06 Insulation tests
- .07 Temperature measurements
up to 400°C

NATIONAL ASSOCIATION OF TESTING AUTHORITIES, AUSTRALIA

3.90 Electrical equipment for explosive atmospheres

Electrical equipment for explosive atmospheres to the following and equivalent international standards:-

General requirements to AS 2380.1

Flameproof enclosures - type of protection d to AS 2380.2

Protection by purging to AS 2380.4

Pressurised enclosures - type of protection p to AS 2380.4

Increased safety - type of protection e to AS 2380.6 excluding clauses 4.3 and 4.5.2

Intrinsic safety - type of protection i to AS 2380.7

Shunt diode safety barriers to AS 2380.7

Non-sparking - type of protection n to AS 2380.9

Encapsulated apparatus - type of protection m to AS 2431

Special protection - type of protection s to AS 1826

Protection by ventilation - type of protection v to AS 1482

Dust-ignition proof (DIP) equipment enclosures to AS 2236

Cable glands to AS 1828

Battery-operated vehicles to AS 1915

Electrical systems for dispensing equipment to AS 2229 parts 1 and 2

Electrical equipment for use in coal mines to the following and equivalent international standards:-

Distribution and control boxes to AS 1039 excluding high current and current injection tests

Flameproof restrained plugs and receptacles to AS 1299 excluding clause 3.3.9

Bolted flameproof cable coupling devices to AS 1300 excluding clause 3.3.7

Electrical equipment for coal and shale mines to AS 2081 parts 1 to 5

Underground mining equipment and accessories to AS 2595 part 1

Transformer substations to AS 1740 except clause 6.3

Other equipment to the following standards:-

Testing of exploders to AS 2187 part 2, appendix B

Gas detection equipment to AS 2275 part 1

Data change date 27/08/98

NATIONAL ASSOCIATION OF TESTING AUTHORITIES, AUSTRALIA

ACCREDITATION NUMBER : 3400

SIMTARS (Safety in Mines Testing and Research Station)
Engineering, Testing and Certification Centre

REDBANK QLD 4301

CONTACT : Mr D Turner

Phone : (07) 3810 6370 Fax: (07) 3810 6366

FACILITIES : Public testing service

2.01 Metals and metal products

- .15 Tension tests on products
Cable gland assemblies to AS 1299, 1300, 1828 in the range
10 N to 50 kN
- .31 Impact tests
Tests to AS 1828, 2236, 2380.1, 2380.4, 3100
- .41 Drop-weight tests
Tests to AS 2380.1

2.65 Pipes, hoses, valves and fittings

- .11 Hydrostatic pressure tests
Tests to AS 1180.5, 1210, 1271 (Clauses 2.7.1, 2.7.2),
1299, 1300, 1828, 2380.2, 2554, AS 4037 up to 30 MPa
- .12 Pneumatic pressure tests
Tests to AS 1210, 2236, 2380.2, 2380.4, AS 4037 up to 30 MPa

2.78 Engines

Type tests on diesel engines for underground coal mines to AS 3584 Appendices
A and D

Data change date 26/05/98



ACCREDITATION NUMBER : 2683

SIMTARS (Safety in Mines Testing and Research Station)
Engineering, Testing and Certification Centre

2 Smith Street
REDBANK QLD 4301

CONTACT : Mr J J Darling

Phone : (07) 3810 6374 Fax : (07) 3810 6366

FACILITIES : Public testing service

1.41 Pressure and vacuum measuring devices

.01 Pressure gauges

Calibration in the range 1.5 kPa to 70 MPa including test gauges as defined in AS 1349

with a least uncertainty of -
0.05% of full scale reading

.02 Vacuum gauges (bourdon tube)

Calibration in the range -100 to -1.5 kPa including test gauges as defined in AS 1349

with a least uncertainty of -
0.05% of full scale reading

.11 Pressure transducers

Calibration in the range -100 kPa to 70 MPa
with a least uncertainty of -
0.015% of full scale reading

.12 Pressure recorders

Calibration in the range -100 kPa to 70 MPa
with a least uncertainty of -
0.015% of full scale reading

1.42 Pressure gauge testers

.01 Air operated piston gauges

Calibration in the range 1.5 to 700 kPa
with a least uncertainty of -
0.015% or 0.005 kPa (whichever is greater)

.02 Oil operated piston gauges

Calibration in the range 10 kPa to 70 MPa
with a least uncertainty of -
0.015% or 0.08 kPa (whichever is greater)

Uncertainties quoted at the 95% confidence level

Data change date 09/02/99

SIMTARS

LIST OF APPROVED SIGNATORIES

ENGINEERING, TESTING AND CERTIFICATION CENTRE SIMTARS CALIBRATION LABORATORY

1.0 FOR TEST REPORTS

1.1 SIMTARS Calibration Laboratory

NATA Registered Classes of Testing

- i) Electrical Testing - Registration No. 2679
 - . G Barnier - 3.02, 3.04 to 3.24, 3.40, 3.90
 - . J Darling - 3.02, 3.04 to 3.24
 - . D Turner - 3.02, 3.04 to 3.24
- ii) Metrology - Registration No. 2683
 - . D Turner - 1.41, 1.42
 - . G Barnier - 1.41, 1.42
 - . J Darling - 1.41, 1.42

NON-NATA Testing

- . D Turner - All Test Reports.

1.2 Engineering, Testing and Certification Centre.

NATA Registered Classes of Testing

- i) Electrical Testing - Registration No. 2679.
 - . G Barnier - 3.02, 3.04 to 3.24, 3.40, 3.90
 - . P Binnie - 3.90 (AS 1039, AS 1740, AS 2595.1)
 - . J Birch - 3.90 (AS 1039, AS 1740, AS 2187.2, AS 2380.1, AS 2380.7, AS 2595.1)
 - . A Chowdhury - 3.80.03, 3.90 (AS 2380.1, AS 2380.2, AS 2380.4)
 - . J Marsden - 3.90 (AS 1299, AS 1300, AS 1826, AS 1828, AS 1915, AS/NZS 61241.1.1, AS 2380.1, AS 2380.2, AS 2380.4, AS 2380.6, AS 2380.9, AS 2431)
 - . D Sussmilch - Inspection 3.90 (AS 2290.2 only excluding 2290.2.2.7.3)
- ii) Mechanical Testing - Registration No. 3400
 - . A Chowdhury - 2.01, 2.65, 2.78
 - . D Sussmilch - 2.01, 2.65, 2.78

NON-NATA Testing

- . D Turner - All Test Reports.
- . Section Heads - Test Reports arising within section

2.0 FOR CERTIFICATES OF CONFORMITY

- . J Birch - All certificates
- . D Turner - All certificates