Secretariat

ExMC/356/DV
January 2007

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) SCHEME FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SCHEME)

Ex Management Committee, ExMC

TITLE: IECEx Assessment Report for acceptance of *QPS Evaluation Services, Inc.* as an IECEx Test Laboratory (ExTL)

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *QPS Evaluation Services, Inc.* - as an IECEx Test Laboratory (ExTL) within the IECEx Scheme.

This report is hereby submitted for voting.

Please consider this assessment report and return the completed voting form (separate - in Word Format) to the Secretariat by 2nd April 2007. Your speedy response to the voting process will be very much appreciated.

Chris Agius
IECEx Secretariat

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Secretariat

IECEx ASSESSMENT REPORT FOR QPS EVALUATION SERVICES INC

(IECEx TEST LABORATORY ExTL)

Type of Assessment:

Initial assessment for Candidate ExTL X

1. OBJECT AND FIELD OF APPLICATION

1.1. *Country:*

Canada

1.2. *Name of Candidate TL*

QPS Evaluation Services, Inc

1.3. *Members of the Assessment Team*

Jim Munro	Lead Assessor, Chairman Panel of Assessors
Heinz Berger	Assessor, IECEx Officer
Alexander Zalogin	Assessor, NANIO CCVE

1.4. *Place and Date of Assessment*

81 Kelfield Street, Unit 8
Toronto, Ontario, M9W 5A3
Canada

29 November to 1 December 2006 – 9 man days on site

1.5. *Assessment References*

i) IECEx 02 Second Edition 06 2003 IECEx Scheme rules of procedure
ii) IECEx Operational Document OD/003 IECEx Assessment procedures
iii) IECEx Operational Document OD/009 Issuing of CoCs, ExTRs and QARs
iv) ISO/IEC 17025:1999
v) IECEx Technical Guidance Documents (TGDs)
vi) ExTAG decision sheets (DSs)
vii) ExTL application documents dated 15th June 2006

1.6. Scope of Application (to be selected)

Number	Title
60079-0	Electrical apparatus for explosive gas atmospheres Part 0: General requirements
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus
60079-2	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"
60079-6	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'
60079-7	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'
60079-15	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)
60079-18	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'
61241-0	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements
61241-1	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures

1.7. *Candidate TL Persons Interviewed*

Brian Schneider
Bill Shao
Rob Pellizze
Plus various other engineers, testing staff and the person in charge of the store/calibration schedule. All staff are shown in the organisation chart (ANNEX 2) and 2.4 below.

1.8. Legal Entity of The Candidate TL

QPS is a private, wholly owned Canadian Corporation incorporated under the laws of Canada and operates as a federally incorporated Canadian company. QPS advised that it does not engage in the promotion or sale of any products, suppliers or vendors or any products tested and certified by QPS. It further advised that trade associations

and clients of QPS have neither control nor influence over QPS policies or the employment security of its employees.

1.9. *Associated ExCB*

The QPS ExCB is integral with the ExTL.

81 Kelfield Street, Unit 8
Toronto, Ontario, M9W 5A3
Canada

1.10. *Financial Support*

The ExTL is an integral part of QPS and a 100% privately owned company. It is self funded relying on revenues based on testing activities.

1.11. History

QPS was established in 1995, operating as an independent Agency performing factory follow-Up inspections and Special Inspection/Field Evaluation services for Canadian Standards Association (CSA).

QPS Field Evaluation Services
CSA and US STANDARDS/CODES

In 1998, QPS entered into a contractual agreement with Entela, Inc., a Certification Body accredited in the US and Canada as their exclusive Special Inspection and Field Evaluation Agency world-wide.

In 1999, QPS established a test laboratory to provide testing services for Entela, as well as for customers seeking CSA, UL and other NRTL certification.

In 2003, QPS expanded its test laboratory and obtained National accreditation from the Standards Council of Canada (SCC) as a Testing Organization for over 300 CSA, UL and IEC standards, including standards for products intended for use in hazardous locations. In the same year, QPS also obtained accreditation in the IECEE/CB Scheme as a CBTL for Entela for the following product categories: MED, TRON, ITE, OFF, MEAS, HOUS

In December 2004, QPS obtained national (SCC) accreditation as a Certification Body and in 2005, achieved full recognition of its Certification Mark and program by all Provincial and Territorial authorities across Canada.

Currently, QPS employs 65 people, and offers a full complement of certification, testing, inspection and CE Marking services (including ATEX Directive) covering a wide variety of electrical and electronic equipment for customers selling their products in Canada and the USA.

2. ORGANISATION

2.1. Names, Titles and Experience of the Senior Executives

Name	Title	Exp. In Ex	Overall
John Gulino	President	1 year	28 years
Nick Maalouf	Vice President	4 years	31 years
Jim Morrison	Vice President	8 years	28 years
Tom Mah	Testing & Certification Manager	6 years	32 years

2.2. Name, Title and Experience of the Quality Management Representative

Name	Title	Exp. In Ex	Overall
Dori O'Kane	QA Manager	1 year	25 years

2.3. Name and Title of Nominated Principal Contact

Name	Title	Contact
Nick Maalouf	Vice President	nmaalouf@qps.ca

2.4. Employees

Name	Title	Exp. In Ex	Overall
Brian Schneider	Technical Certification Reviewer	10 years	11 years
Tom Mah	Testing & Certification Manager	6 years	32 years
Bill Shao	Technical Certification Reviewer	29 years	29 years
Rob Pellizze	Technical Certification Reviewer	12 years	15 years
Rafael Colon	Project Engineer	3 years	5 years
Ronel DeLos Reyes	Test Engineer	2 years	7 years
Alex Milivojevich	Project Engineer	2 years	5 years
Kerry Nice	Test Engineer	8 years	8 years
Adrian Kasjak	Test Engineer (on training)	1 year	1 year
Bill Stephenson	Project Engineer	8 years	15 years

The CVs of the persons above were checked and found to have the appropriate qualifications and experience.

2.5. Organizational Structure

See organization charts of QPS Evaluation Services Inc. (Annex 1) and the HazLoc / IECEx Organization (Annex 2).

3. RESOURCES

QPS has all the necessary resources for IECEx testing operation. Many of its staff have extensive experience in the Ex field. It has extensive facilities covering all but

one of the test requirements identified for the required scope. Each test is supported by comprehensive procedures detailing the process and the equipment to be used.

Nine persons are active in the Testing Laboratory concerning IECEx. Tom Mah as manager of testing for other areas is also available if needed. Three people provide administrative support

4. DOCUMENTATION

4.1. Quality Manual

QPS has a corporate Quality Assurance System documented in the Quality Policy Manual (QPM), containing requirements covering the company's objectives and commitments to quality, as well as the quality system elements and policies. The QPM is used by all departments of the company as applicable.

The Operating Procedures Manual (OPM) contains operational policies, procedures, and practices pertaining to the various conformity assessment activities carried out by the company, including work performed within the IECEx Scheme.

The Quality Support Documents (QSDs) consist of work documents and formal documents used in support of testing and certification activities.

4.2. Test Methods/Procedures

QPS has developed procedures covering all the tests required in the standards sought in the scope. Many of these procedures were reviewed during the assessment process, in some cases checking against actual testing practice.

4.3. Test Records

QPS records all its data in forms called 'Raw Data'. In addition test data are stored together with photographs of testing completed. Copies of the data are kept in the files and in most cases are also available on the QPS computer LAN system.

4.4. Document Change Control

The document change control procedure is described in the OPM, clause 10.3.

5. TEST REPORTS

5.1. Test Reports Issued

Number of test reports issued under the IECEx, national or regional schemes in the preceding four years for each type of protection:

Standards	Title	Number of issued Test Reports				
		2003	2004	2005	2006	Total
60079-0						Part 0 included in numbers below
60079-1	Flameproof Enclosures “d”	1		2	10	13
60079-2	Pressurization “p”				4	4
60079-5	Powder Filling “q”				1	1
60079-6	Oil-Immersion “o”	1			1	2
60079-7	Increased Safety “e”	1			4	5
60079-11	Intrinsic Safety “i”	4		3	5	12
60079-15	Non-sparking “n”	4		3	5	12
60079-18	Encapsulation “m”				2	2
61241-0						Part 0 included in numbers below
61241-1	Electrical Apparatus for use in the presence of combustible dust. Electrical Apparatus protected by enclosures	4			2	6

6. CALIBRATION

All test equipment used at QPS is externally calibrated. The procedures are covered in Quality Procedures Manual Section 12.8. Most are calibrated by Transcat which is a nationally accredited calibration laboratory. Most of the calibration is done by a team from Transcat on site at QPS. Equipment that they cannot calibrate is done by the manufacturer, for example pressure transducers and charge amplifiers are calibrated by Kistler. A range of test equipment was examined and all were found to be in current calibration. Calibration certificates were examined and found to be satisfactory.

The calibration intervals are described in clause 12.8.3 of the OPM. It shows calibration intervals of one 1 year and more depending on the type of measuring instrument.

7. CONFIDENTIALITY

The confidentiality procedure is described in OPM, clause 11.6. Each employee signs confidentiality / impartiality agreement.

8. NATIONAL ACCREDITATION

QPS is accredited by the Standards Council of Canada (SCC) as a Testing Laboratory (ISO/IEC 17025). The scope of accreditation covers all standards in the IECEx scope as seen in the attachment to the accreditation certificate of SCC.

Annex 3 shows the Accreditation Certificate issued by the Standard Council of Canada (SCC) valid until the end of February 2007. The latest annual audit was successfully performed from March 1st – 3rd, 2006.

The SCC accreditation program for test laboratories requires a re-accreditation audit every two years. Therefore, the next audit will take place in March 2008 and the accreditation certificate will updated accordingly.

9. RECOGNITION AND AGREEMENTS

The QPS Testing Laboratory is an accepted CBTL in the IECEE CB Scheme. In addition QPS has a testing agreement with the following organizations:

TRL Compliance Services Ltd., an ATEX Notified Body located in UK;
Intertek N.A. Ltd in Canada and the US (HazLoc products);
Maryland Electrical Testing (MET), HazLoc products.

10. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audit and management review are described in clauses 10.4 and 10.5 in the OPM. Internal audits took place in 2006. The records have been reviewed and found to be acceptable.

The latest management review took place on February 3rd, 2006. The next meeting is planned for February 2007.

11. COMPLAINTS AND APPEALS (Including appeals to IECEx)

Complaints and appeal procedures are described in clauses 11.9 and 11.10 of the OPM respectively. For IECEx activities the appeal process is described in clause 21.24 (inclusion of IECEx Board of Appeal).

12. SPECIAL FACTS TO BE NOTED

12.1. *Supporting Documentation*

Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat. These include:

- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC 17025
- Completed technical guidance notes (TGDs) for Ex d, i, e, p, m and dusts
- Photos of the facilities
- Notes on the tests that were viewed during the assessment

12.2. Viewing of Tests

The following tests were viewed as part of the assessment process:

- Flameproof pressure determination
- Flameproof flame transmission
- Temperature rise of a luminaire
- Ingress protection tests for IP54
- Charging test in 26.14 of IEC 60079-0
- Short circuit test of batteries
- Use of spark test apparatus

13. COMMENTS (Including issues found during assessment)

During the assessment a number of issues were raised. Most of these were resolved during the assessment. A few issues about small component testing, inductors and capacitors for intrinsic safety testing and temperature rise testing were resolved after the assessment.

It was noted that although QPS is very well resourced with skilled and experienced staff, excellent test facilities, and comprehensive procedures, the organization has not had the opportunity to do much testing against the IEC standards or to prepare ExTRs.

14. RECOMMENDATION

Based on the initial assessment from 29 November to 1 December 2006, the assessment team recommends acceptance of QPS as an ExTL.

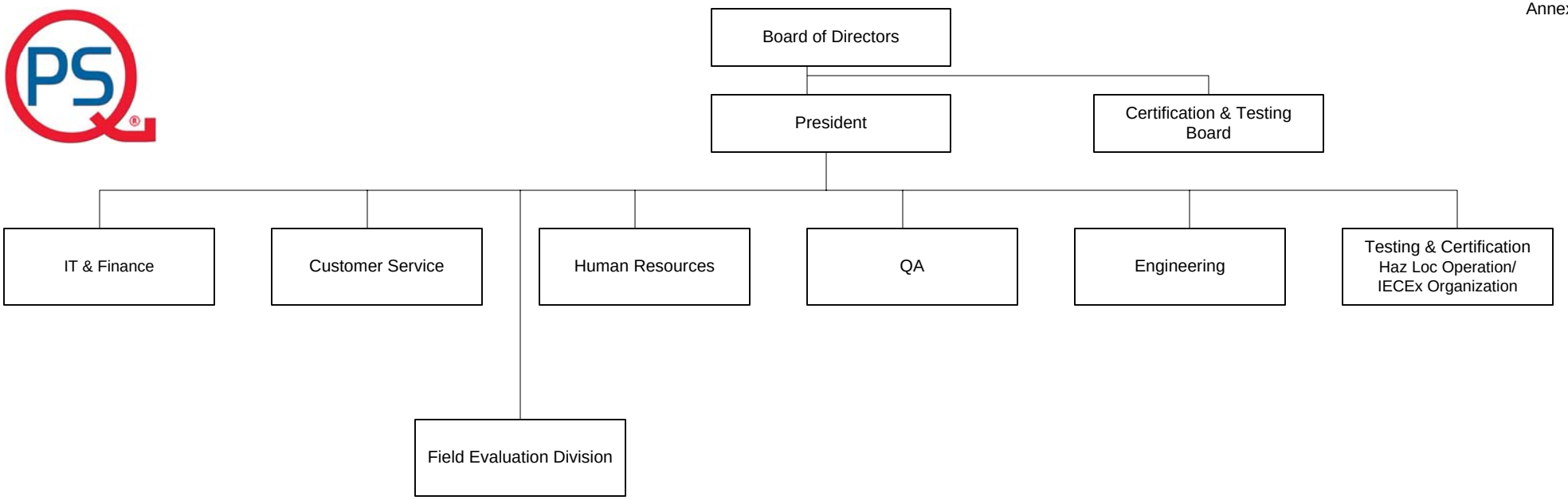
However, due to the lack of experience QPS has in issuing test reports for equipment for explosive atmospheres, it is recommended after acceptance of QPS as an ExTL that the first ExTRs issued for Ex d and Ex i will need to be reviewed.

Jim Munro Team Leader Chairman Panel of Assessors	Heinz Berger Assessor, IECEx Officer	Alexander Zalogin Assessor NANIO CCVE

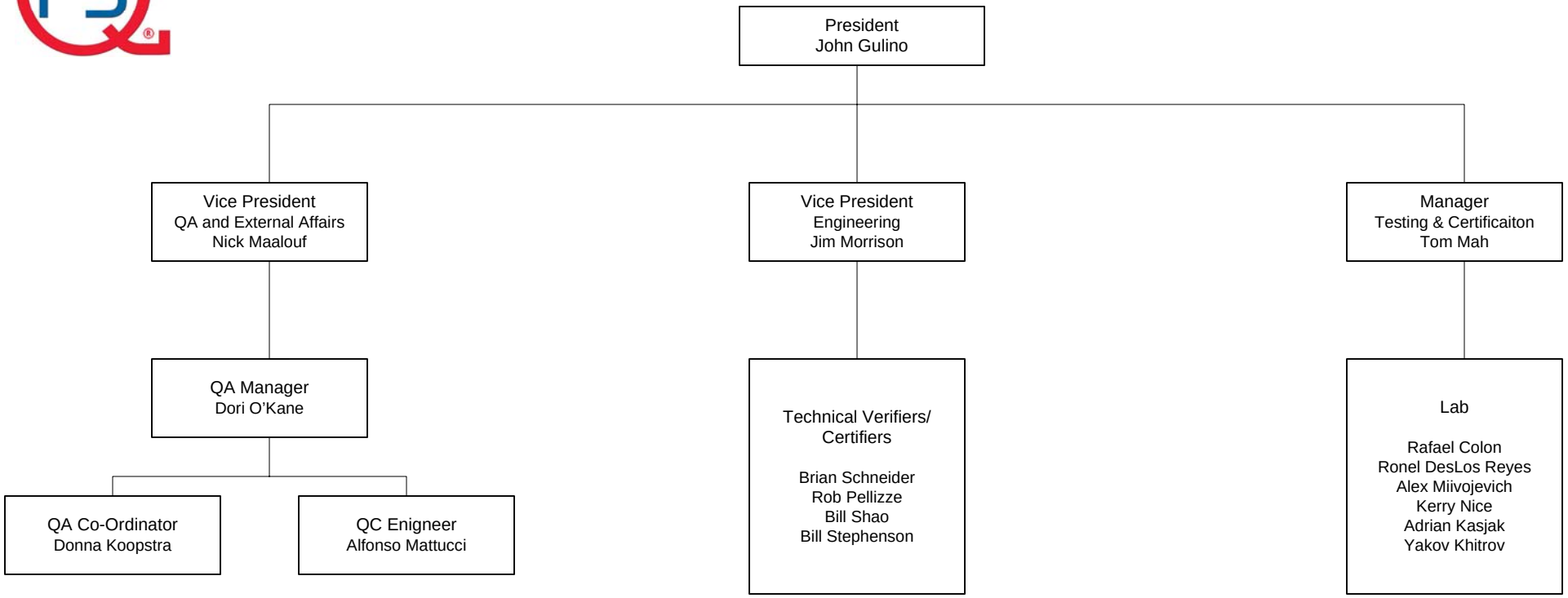
Date: 9 January 2007

List of Annexes:

1. Overall Organization Chart of QPS
2. Organization Chart of QPS IECEx activities
3. Accreditation Certificate for ISO/IEC 17025 (Extract of Scope of Accreditation attached)


Board of Directors
President
Certification & Testing Board
IT & Finance
Customer Service
Human Resources
QA
Engineering
Testing & Certification
Haz Loc Operation/
IECEx Organization
Field Evaluation Division

Haz Loc Operation
IECEx Organization Chart



CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

QPS EVALUATION SERVICES, INC.

81 Kelfield Street, Unit 8, Toronto, Ontario

having been assessed under the authority of the *Standards Council of Canada Act* and found to conform with the requirements of ISO/IEC 17025 and the conditions established by the SCC is hereby recognized as an

ACCREDITED TESTING LABORATORY

for specific tests or types of tests listed in the scope of accreditation approved by the Standards Council of Canada.

ayant été soumis à une évaluation selon la *Loi sur le Conseil canadien des normes* et ayant été trouvé conforme aux prescriptions d'ISO/CEI 17025 et aux conditions établies par le CCN est de fait reconnu comme étant un

LABORATOIRE D'ESSAIS ACCRÉDITÉ

pour les essais ou types d'essais déterminés inscrits dans la portée d'accréditation approuvée par le Conseil canadien des normes.

Accredited Laboratory No.: / Numéro de laboratoire accrédité : 480

Accreditation date: / Date d'accréditation : 2003-02-26

Issued on: / Délivré le : 2003-02-26

Expiry date: / Date d'expiration : 2007-02-26

Chairman (SCC) / Président (CCN)

Assessment performed according to CAN-P-4 (ISO/IEC 17025) and the conditions of the *PALCAN Handbook* D02.6. Laboratories that conform with the requirements of ISO/IEC 17025 operate a Quality Management System for testing and calibration activities that meets the requirements of ISO 9001: 1994 when designing/developing new methods, and/or developing test programs that combine standard and non-standard test and calibration methods; or meets ISO 9002 when only standard methods are used. The scope of accreditation is available from the accredited laboratory or SCC. To verify the validity of the certificate, please see the listing of Accredited Laboratories on www.scc.ca.

Évaluation effectuée conformément au CAN-P-4 (ISO/CEI 17025) et aux conditions du *Guide PALCAN* D02.6. Pour concevoir et développer des méthodes nouvelles et établir des programmes d'essais fondés sur des méthodes d'essai et d'étalonnage normalisées et non normalisées, les laboratoires respectant la norme ISO/CEI 17025 ont, dans leurs essais et leur étalonnage, recours à un système de management de la qualité conforme aux exigences d'ISO 9001: 1994, et à celles d'ISO 9002 dans le seul cas des méthodes normalisées. Pour connaître la portée d'accréditation, s'adresser soit au laboratoire accrédité, soit au CCN. Pour vérifier la validité du présent certificat, consultez la liste des Laboratoires accrédités à l'adresse www.ccn.ca.

Canada

ANNEX 3

	Electric Cloths Washing Machines and Extractors (Bi−National Standard)
CAN/CSA C22.2 No. 53	Electric Washing Machines

Equipment, Miscellaneous

(Equipment Components and Assemblies)

CAN/CSA C22.2 No. 100	Motors and Generators
CAN/CSA C22.2 No. 103	Electric Fence Controllers
CAN/CSA C22.2 No. 108	Liquid Pumps
CAN/CSA C22.2 No. 126	Cable Tray Systems
CAN/CSA C22.2 No. 128	Vending machines
CAN/CSA C22.2 No. 139	Electrically Operated Valves
CAN/CSA C22.2 No. 141	Unit Equipment for Emergency Lighting
CAN/CSA C22.2 No. 160	Voltage and Polarity Testers
CAN/CSA C22.2 No. 180	Series Isolating Transformers for Airport Lighting
CAN/CSA C22.2 No. 187	Electrostatic Air Cleaners
CAN/CSA C22.2 No. 189	High Voltage Insect Killers
CAN/CSA C22.2 No. 191	Engine Heaters and Battery Warmers
CAN/CSA C22.2 No. 203	Modular Wiring Systems for Office Furniture
CAN/CSA C22.2 No. 206	Lighting Poles
CAN/CSA C22.2 No. 221	Electrically Heated Hobby and Educational Type Kilns
CAN/CSA C22.2 No. 247	Operators and Systems of Doors, Gates, Draperies and Louvers
CAN/CSA C22.2 No. 88	Construction and Test of Industrial Heating Equipment
CAN/CSA C22.2 No. 94	General purpose Enclosures Except for: clause 94, rust Protection, (salt spray)

Hazardous Location Equipment

Note: Components evaluated for the following Hazardous Location Equipment Standards have been separately Certficied or tested to the appropriate component standard.

ASTM E789	Standard Test Method for Dust Explosions in a 1.2 Litre Closed Cylindrical Vessel
CAN/CSA C22.2 No. 145	Motors and Generators for Use in Hazardous Locations limited to 208 Vac, 30 amps for explosion testing Except for: Cl. 10.2.2.1 (Dust Blanket/Dynamometer).
CAN/CSA C22.2 No. 152	Gas Detector for Lower Explosive Limits
CAN/CSA C22.2 No. 157	Intrinsically Safe and Non−Incendive Equipment for use in Hazardous Locations
CAN/CSA C22.2 No. 159	Attachment Plugs, Receptacles and Similar Wiring Devices for Use in Hazardous Locations, Class 1, Groups A,B,C and D; Class 11, Group G, in Coal or Coke Dust, and Gaseous Mines
CAN/CSA C22.2 No. 213	Non−Incendive Electrical Equipment for Use in Class 1, Division 2, Hazardous Locations.

CAN/CSA C22.2 No. 25	Enclosures for Use in Class II, Groups E, F and G Hazardous Locations Except for: Cl. 5.2.1, Dust Tightness note (b), Magnesium Dust.
CAN/CSA C22.2 No. 30	Explosion−Proof Enclosures for Use in Class I Hazardous Locations Except for: Cl. 6.2.2.5/6 test procedure is limited to testing of devices at temperatures higher than −26 degree C; Cl. 6.4 (Arc−Rupturing) is limited to testing of devices less than 208Vac, 30A; Cl. 6.10.1(Gastight Joint Pressure Routine test is limited to testing devices with test pressure requirements of less than 10,000 psi and excluding Cl. 6.10.2 (a) Helium Mass Spectrometer Leakage Test and 6.12.2 (a) Adhesive Nameplates.
CAN/CSA C22.2 No174	Cables and Cable Glands for Use in Hazardous Locations
CAN/CSA E 60079 0	Electrical Apparatus for Explosive Gas Atmospheres Part 0: General Requirements except Cl. 23.4.7.5.(Resistance to Light)
CAN/CSA E 60079 1	Electrical Apparatus for Explosive Gas Atmospheres Part 1: Flameproof Enclosures "d" except Cl. 15.3 (Test for sealing of stopping boxes with setting compound) is limited to testing 10,000 psi.
CAN/CSA E 60079 11	Electrical Apparatus for Explosive Gas Atmospheres Part 11: Intrinsic Safety "i"
CAN/CSA E 60079 14	Electrical Apparatus for Explosive Gas Atmospheres Part 14: Electrical Installations in Hazardous Areas (Other than Mines)
CAN/CSA E 60079 15	Electrical Apparatus for Explosive Gas Atmospheres Part 15: Type of Protection "n" except Cl. 26.12.3 (High Voltage Impulse test) and 26.15 (Shock Test for Batteries)
CAN/CSA E 60079 18	Electrical Apparatus for Explosive Gas Atmospheres Part 18: Encapsulation "m"
CAN/CSA E 60079 5	Electrical Apparatus for Explosive Gas Atmospheres Part 5: Powder Filling "q"
CAN/CSA E 60079 6	Electrical Apparatus for Explosive Gas Atmospheres Part 6: Oil Immersion "o"
CAN/CSA E 60079 7	Electrical Apparatus for Explosive Gas Atmospheres Part 7: Increased Safety "e" except Cl. 6.3.4 (Vibration Test for luminaries with bi−pin lamps) and 6.6.3 (Shock Test).
CAN/CSA E 61241 1 1	Electrical Apparatus for Use in the Presence of Combustible Dust Part 1 1: Electrical Apparatus Protected by Enclosures and Surface Temperature Limitation Specification for Apparatus
FM3610	Intrinsically Safe and Non−Incendive Equipment for use in Hazardous Locations
UL 913	Intrinsically Safe and Non−Incendive Equipment for use in Hazardous Locations

(Industrial Control Equipment)