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

Title: IECEx Re-assessment Report for CSA International, Accepted Certification Body (ExCB), and a request for an extension of scope

Circulated to: IECEx Management Committee, ExMC

INTRODUCTION

This document contains the IECEx Re-assessment Report for CSA International, in accordance with the 5-year scheduled re-assessment plan for surveillance and monitoring under the IECEx System. During follow-up activities the assessment team took the opportunity to conduct a second site visit, 24 April, 2009, which included an assessment for an extension of scope to include the IEC series of standards covering gas detectors. See Item 1.6 of this report.

ExMC members are now asked to consider the scope extension request to include the gas detector standards in CSA's accepted scope.

Please consider this request and complete and return the voting form to the Secretariat by

2009 12 31

Your speedy response to the voting process will be very much appreciated.

Chris Agius

IECEx Secretariat

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IECEx ASSESSMENT REPORT FOR CSA INTERNATIONAL IECEx Certification Body ExCB

Type of Assessment: (please mark)

Re-Assessment of ExCB X

Scope extension of ExCB X

1. OBJECT AND FIELD OF APPLICATION

1.1. Country:
Canada

1.2. Name of Candidate ExCB
CSA International

1.3. Members of the Assessment Team
Jim Munro – Chairman Panel of Assessors – Lead IECEx Assessor
Xu Jianping – Director of NEPSI - IECEx Assessor

1.4. Places and Dates of Assessment

178 Rexdale Boulevard
Toronto, Ontario M9W IR3
CANADA
Tel: + 1 416 747 4000
Fax: +1 416 747 4149

and

1707 – 94th Street NW
Edmonton, Alberta
Canada T6N 1E6
17 September 2007 - Jim Munro

Dates: 18th -19th September 2007 - Jim Munro (Mr Munro also visited 24 April 2009 for a scope extension)
and
1st -2nd October 2007 – Xu Jianping (Professor Xu visited separately due to Visa restrictions)

1.5. Assessment References

i) IECEx 02 Third Edition 2006-11 IECEx Scheme rules of procedure
ii) IECEx OD/003 IECEx Assessment procedures
iii) IECEx OD 005V2 Quality System requirements for manufacturers
iv) IECEx OD/009 Issuing of CoCs, ExTRs and QARs
v) IECEx Document OD025 and ExMC/161/CD Management of assessment and surveillance programs for manufacturers (includes QAR forms)

vi) ISO/IEC Guide 65:1996
vii) IECEx Document OD 17 V3 Drawing and documentation guidance

1.6. *Scope of Application*

Existing scope:
IEC 60079-0 Part 0: General requirements
IEC 60079-1 Part 1: Flameproof enclosures 'd'
IEC 60079-2 Part 2: Pressurized enclosures 'p'
IEC 60079-5 Part 5: Powder filling 'q'
IEC 60079-6 Part 6: Oil-immersion 'o'
IEC 60079-7 Part 7: Increased safety 'e'
IEC 60079-11 Part 11: Intrinsic safety 'i'
IEC 60079-15 Part 15: Construction, test and marking of type of protection 'n' electrical apparatus
IEC 60079-18 Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus
IEC 60079-25 Part 25: Intrinsically safe systems
IEC 60079-27 Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)
IEC 61241-1-1 Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation - Section 1 - Specification for apparatus
Note: The recognized scope for CSA International does not cover Group I.

Scope extension:
IEC 61779-1 Part1: Electrical apparatus for the detection and measurement of flammable gases – General requirements and test methods
IEC 61779-4 Part 4: Electrical apparatus for the detection and measurement of flammable gases –Performance requirements for group II apparatus indicating a volume fraction up to 100% lower explosive limit
IEC 61779-5 Part 5: Electrical apparatus for the detection and measurement of flammable gases –Performance requirements for group II apparatus indicating a volume fraction up to 100% gas
IEC 60079-29-1 Part 1: Explosive atmospheres – Gas detectors – Performance requirements of detectors for flammable
Gases (for Group II only)

1.7. *Candidate ExCB Persons Interviewed*

Name	Position
Patricia Pasemko	Operations Manager
Dave Adams	Technical Advisor, Hazardous Locations Equipment Service
Dan Livermore	Lead Auditor
**Joe Gryn	Director Conformity Assessment
John Kalinowski	Manager, Management Systems, Service Quality Certification

**Note: As of April 2008, Joe Gryn has been replaced by Bill Burr as Director, Conformity Assessment.

1.8. *Legal Entity of the Candidate ExCB*
Independent, not-for-profit organization, incorporated under Canadian Laws.

1.9. *Associated Testing Laboratories*
There is a laboratory located at the head office in Toronto and another in Edmonton. Only Edmonton has the facilities to do testing to IEC 60079-1 for Ex d.

1.10. *Associated Certification Functions*
CSA International carries out a wide range of certification activities. These include electrical, mechanical, plumbing, gas products, house-hold, sports etc. They are a member of the IECEE System. They have agreements with KEMA and Sira to carry out work associated with ATEX.

1.11. *National Marks and Certificates*
The national mark is the CSA mark. There are also marks for ordinary locations and gas products.

1.12. *Financial Support*
CSA International is fully supported by fees from certification, testing and inspection activities.

1.13. *History*
The Canadian Standards Association, of which CSA International (CSA I) is a division, was established in 1919 and works in the area of standards development and the application of standards through product certification. CSA I operates laboratories to support the product certification program. CSA I's programs in product certification, and laboratory testing are accredited by the Standards Council of Canada (SCC).The certification program was first accredited by SCC in June 1983.

1.14. *Standards Accepted*
See clause 1.6 of this report

1.15. *National Differences to IEC Standards*
National differences to IEC standards are listed in the latest version of the IECEx System Bulletin.

2. ORGANISATION

2.1. *Names, Titles and Experience of the Senior Executives*

Location	Name	Title	Experience
Toronto	Irma Vescan	Director of Service Quality	29 years at CSA
**Toronto	Bill Burr	Director Conformity Assessment	8-1/2 years at CSA 20 years as AHJ
Edmonton	Dave Adams	Technical Advisor, Hazardous Locations Equipment Service	16 years at CSA all in Ex
Toronto	Davey Li	Technical Manager, Industrial Products	25 years at CSA, not in EX

**Note: As of April 2008, Joe Gryn has been replaced by Bill Burr as Director, Conformity Assessment. Prior to becoming Director, Conformity Assessment,

Bill was CSA International's regulatory liaison (Service Quality). Prior to that, Bill was the Chief Electrical Inspector for the province of British Columbia.

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

Location	Name	Title	Experience
Overall	John Kalinowski	Manager, Management Systems, Service Quality Certification	23 years at CSA and 13 years in Quality
Edmonton	Audrey Gagnon	Quality Assurance Representative	14 years at CSA, and all in Quality
Toronto	Andrew Seh	Quality Assurance Coordinator Certification	10 in CSA, 25 in QA field
Toronto	Daniel Lee	Quality Assurance Coordinator Certification	5 in CSA, Engineering Quality Assurance Specialist, 10 in QA

2.3. *Name and Title of Nominated Principal Contact*

Name	Title	Comments
Dave Adams	Technical Advisor, Hazardous	Previously Joe Gryn

2.4. *Name and Title of Signatories for Certification*

Name	Title	Comments
Dave Adams	Technical Advisor, Hazardous Locations Equipment Service Quality	Usual signatory
Davey Li	Technical Manager, Industrial	
Bill Bur	Director Conformity Assessment	Joe Gryn at the time of the assessment visit

2.5. *Other Employees in ExCB activity*

Name	Title	Responsibility
None		

Note: The manufacturing assessment activity is carried out by the ExTL

2.6. *Organizational Structure*

Even though there are two sites at Toronto and Edmonton, the ExCB and associated ExTL operate as a single business unit.

The ExCB operation comes under Service Quality with the main person involved being Dave Adams who has the prime knowledge of Ex matters in the area. He also has the role of ensuring appropriate service quality occurs within the Service Delivery area.

The structure is depicted in Annex 1 with additional information about the associated ExTL in Annex 2.

2.7. *Administration*

2.7.1. Administrative Structure
See above

2.7.2. Indemnity Insurance
Evidence was provided that CSA has insurance cover for professional liability insurance.

3. RESOURCES

The main Ex resources are located in the ExTL where most of the work is done. The main work of the ExCB is carried out by Dave Adams. His immediate superior at the time of the assessment, was Joe Gryn who was subsequently replaced by Bill Burr. Bill Burr may sometimes be asked to take action in the absence of Dave Adams. At the time of the assessment the deputy roles were not clearly defined but this was subsequently clarified to the satisfaction of the assessment team in procedure DQD 312.01, which is a dedicated procedure to cover the operation in the IECEx System.

4. COMITTEES / Governing Board / Appeals / Advisory Board

There is a CSA International Certification Board. Information contained in the restricted area of the intranet for the Board covers how it is constituted and its terms or reference.

5. CERTIFICATION OPERATIONS

5.1. *National Approval/Certification Methods*

CSA are accredited by the Standards Council of Canada for which they can issue the CSA mark. This follows a similar procedure to that for IECEx for testing. The CSA National System requires unannounced factory inspections generally between two and four times a year which look at product, how it has been manufactured, and how it complies with the certification. It does not look at the whole quality system Where CSA does work associated with the ATEX Directives it does look at the whole quality system in similar fashion to the IECEx Scheme.

5.2. *Certification Policy*

CSA has a Quality Policy that relates specifically to its certification and testing operations.

5.3. *Application for Certification*

'Guidelines for processing applications in the IECEx System' (DQD 312.01) is the main document covering how the System rules are applied. This document shows how separation between ExCB and ExTL is achieved. This is normally through use of dedicated staff. Where staff are used in the ExCB who also have an ExTL role, it is clearly specified that they must not have been involved in any project for which they are performing that ExCB role.

There is a general request for quotation that is used for all applications. This has a supplement for applications for CoCs or associated documentation in the System.

5.4. *Withdrawal and Cancellation of Certificates*

At the time of the assessment visit there was a procedure for withdrawal and cancellation of CSA certificates but it did not make reference to the IECEx System. This was subsequently resolved to the satisfaction of the assessment team through revision of procedure DQD 312.01.

6. STATISTICS

6.1. Certificates Issued

Number of certificates and QARs issued under the IECEx, schemes in the preceding four years for each type of protection are shown below:

CoCs

Standard	2006	2007	2008	2009
60079-11	6/1	2	5/4	1
60079-1	3/2	2	5/2	4/2
61241 Series	1	1	1	1
60079-7	0	0	0	0
60079-15	1	1	3	2/1
60079-2	0	0	0	1
60079-18	0	0	0	0
60079-6	0	0	0	0
60079-5	0	0	0	0

QARs

Standard	2006	2007	2008	2009
60079-11	4/2	3/2	10/6	7/4
60079-1	2/1	2/1	15/7	15/7
61241 Series	0	0	1	2
60079-7	1	0	4/3	2
60079-15	0	1	2	0
60079-2	1	0	0	1
60079-18	0	0	3	2
60079-6	0	0	0	0
60079-5	0	0	0	0

Note: The Y/X above means of the Y CoCs or QARs issued, X of them were for multiple protection types.

In addition, under CSA International certification (including ATEX) operation there are more than one thousand of projects related to Ex (hazloc) equipment with different types of protection fulfilled each year.

As an indicator of experience in testing combustible gas detectors.. the work orders to the standards CSA 152 and ISA 12.13.01 for the last 4 fiscal years are:
1009-10: 12 (to the date of this report)
1008-09: 26
1007-08: 17
1006-07: 16

7. DOCUMENTATION

7.1. Quality Manual
There is a Quality System Management Manual for CSA International. This sits under the Corporate Policy Manual for the CSA Group. There is also a Certification Division Policies and Practices Manual.

7.2. Procedures
There are a variety of documents that cover procedures, such as Guidelines for Quality and Technical Activities. These are generally called Divisional Quality Documents (DQDs). There is also facility specific documentation.

7.3. Work Instructions
Work instructions are generally only used in the test area. There are also forms and templates used for testing.

7.4. Records
All records are retained in hard copy form, although most are records in electronic form. Record retention is shown in the procedures to be 10 years from cancellation of certification.

7.5. Document Change Control
The QM and DQD 332 address document control. All documentation is on the intranet site. A monthly notification is sent out to advise staff of changes. This also addresses documentation specific to the System which is generally handled through Dave Adams. All DQDs are reviewed yearly. There is a regional operating committee (ROC) that reviews all non-conformances and this includes the DQDs, including the need for training. Staff are provided with access to 'IHS' for international standards. Once printed these contain a statement that they are a reference copy only. Distribution and control of other materials are the responsibility of the Technical Advisors, eg Dave Adams for the Ex area.

8. CONFIDENTIALITY
All new employees have on-line training and commitment to confidentiality which is recorded in a database. Previously this was done in hard copy but existing employees were also required to do the training in the new system. These records are maintained by HR and available on the intranet. An example of viewed.

9. PUBLICATIONS
CSA have a wide range of publications covering both technical and general/marketing information.

10. NATIONAL ACCREDITATION
CSA is accredited by the Standards Council of Canada (SCC) and under the OSHA NRTL. Copies of the accreditation certificates are shown in the Annexes for each facility. At the

time the assessment the accreditation from SCC was unclear in relation to the application of ISO/IEC Guide 65, the applicability of the accreditation to the Edmonton site and whether the validity was still current. This was resolved in July 2009 with update to the SCC website, including a revised accreditation scope.

11. RECOGNITION AND AGREEMENTS

There are agreements with KEMA, SIRA and FM Approvals for testing.

12. INTERNAL AUDIT AND PERIODIC MANAGEMENT REVIEW

An example of an internal audit for Toronto was viewed. This was in 28 November 2006 for one of the Ex areas. This audit covered procedural aspects. There are also regular technical audits of completed projects.

During the first site visit, September 2007, the team sighted the management review meeting report which was held on 15 June 2007. These are held on an annual basis. There is a comprehensive agenda for these meetings.

13. SUBCONTRACTING, USE OF OTHER LABS AND USE OF OTHER LOCATIONS

There are requirements for subcontracting in the QM and associated procedure. However, at present there are no tests that CSA need to subcontract for testing to IEC standards, although it was noted that they do not have the capability to do the shock test for batteries in IEC 60079-7. There is a procedure covering witnessing testing at manufacturers' premises.

14. TRAINING

The system of assigning competencies to staff is undergoing some changes. Staff are allocated different levels from 1 to 4 depending on their competencies, with 1 assigned to new staff. The competencies have been assigned on the basis of the various national and international standards but these are now being grouped to simplify the system. There is provision in the system to assign competencies against the IECEx rules and to OD005 for auditing of manufacturers.

There is a procedure for training, DQD424. All training records are maintained by HR and made available on the intranet. There is a new mechanism being piloted called Communities of Practice (COP), which is an arrangement where a question is posted to an electronic notice board and when answered, generally by the TA, it is made available for everyone to see. There is also a technical decisions library (TDL) which links to the COP.

15. ASSESSMENT OF MANUFACTURERS AND ISSUE OF QARS

The procedures for assessment of manufacturers are contained in DQD312.01, Guidelines for processing of application in the IECEx Scheme. OD025 and ExMC161 are also used. There are currently 14 sites where QARs are being maintained by CSA. Most auditing is done by Dan Livermore who has extensive experience in the Ex field in addition to auditing. The following QARs were reviewed:

CA/CSA/QAR06.0010/01, Internal numbers CA/CSA/2005/QAR/201114-1676002 and 2006/QAR201114-1836612 – for ABB. The reports were comprehensive and, although also used in relation to ATEX, clearly addressed issues relevant to the IECEx System.

CA/CSA/QAR07.0001/00, internal number CA/CSA/2007/QAR/159843-1876056 (sows as 65 on on-line system) – Control Microsystems Inc – this was satisfactory except for the need to correct the free reference number of the on-line system.

CA/csa/qar06.0004/01 – internal number CA/CSA/2006/QAR/152235-1748177 – Magnetrol International Inc. (CoC KEMA06.0019X, Ex d,e,i) and an earlier. Again the reports were comprehensive and target aspects specific to the IECEx System.

16. COMPLAINTS AND APPEALS (Including appeals to IECEx)

The customer complaints log had recently been centralized and was viewed. At the time of the assessment visit there was an appeals process but it didn't cover appeals to the IECEx System or how this is conveyed to customers. The procedures were subsequently changed to the satisfaction of the assessment team to address both these issues.

17. SPECIAL FACTS TO BE NOTED

17.1. Supporting Documentation

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

- A site report
- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC Guide 65

17.2. Other

It was noted from the procedures and staff roles that the CSA operates as a single integrated operation even those it has a separate sites for carrying out ExTL activities in Toronto and Edmonton.

18. COMMENTS (Including issues found during assessment)

A number issues where found during the assessment, all of which were resolved to the satisfaction of the assessment team. Some are referred to earlier in this report with a comprehensive list appearing in the Site Assessment Report.

19. RECOMMENDATION

Based on the re-assessment performed on 18-19 September and 1-2 October 2007, and the scope extension visit on 24 April 2009, CSA International is recommended for continued acceptance in the IECEx System as a Certification Body (ExCB) according to the scope of the standards listed in this document and for the scope extension as shown.

Jim Munro	Xu Jianping
Team Leader	Expert Assessor

Date: 7 September 2009

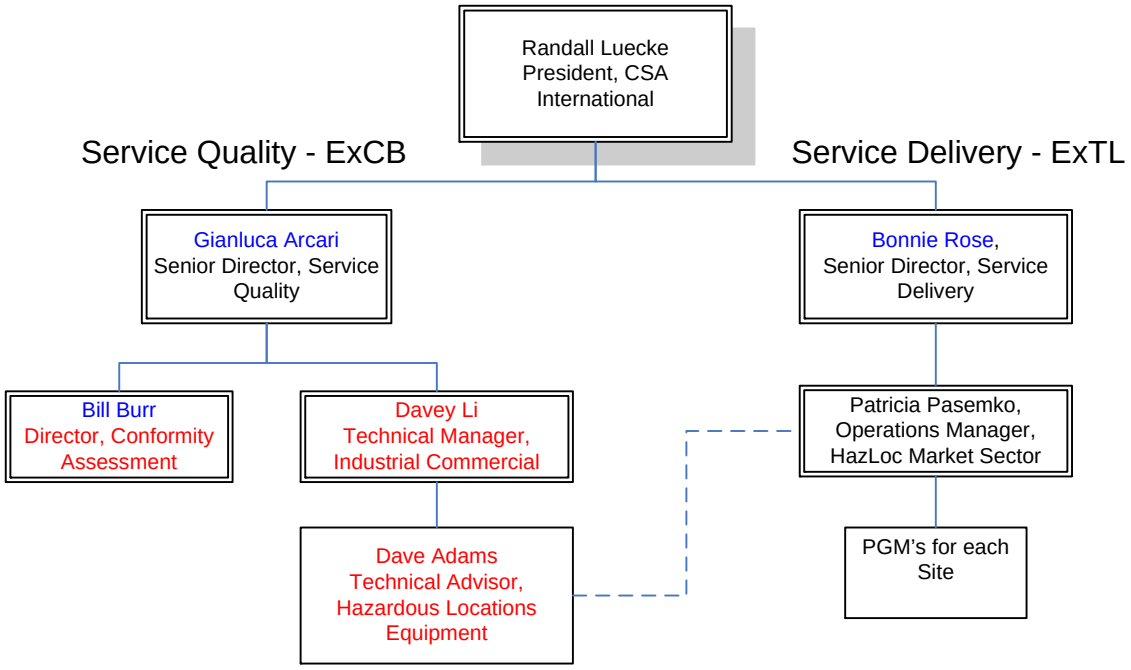
This report has been reviewed by the IECEx Secretariat.

List of Annexes:

1. Chart Showing Relationship of ExCB and ExTL for CSA International
2. Chart of the CSA International HazLoc Service Delivery (ExTL)
3. Extract from accreditation from SCC for Product Certification
4. Accreditation from OSHA – Toronto and Edmonton

Annex 1
Chart Showing Relationship of ExCB and ExTL for of CSA International

Summary of CSA International Organizational Charts showing Relationship between Service Quality (ExCB) and Service Delivery (ExTL).



Generally, within CSA International, Service Quality is responsible for the content of procedures; Service Delivery is responsible for the implementation of procedures.

Note: As of April 2008, the following personnel changes were made at CSA International:

Service Delivery:

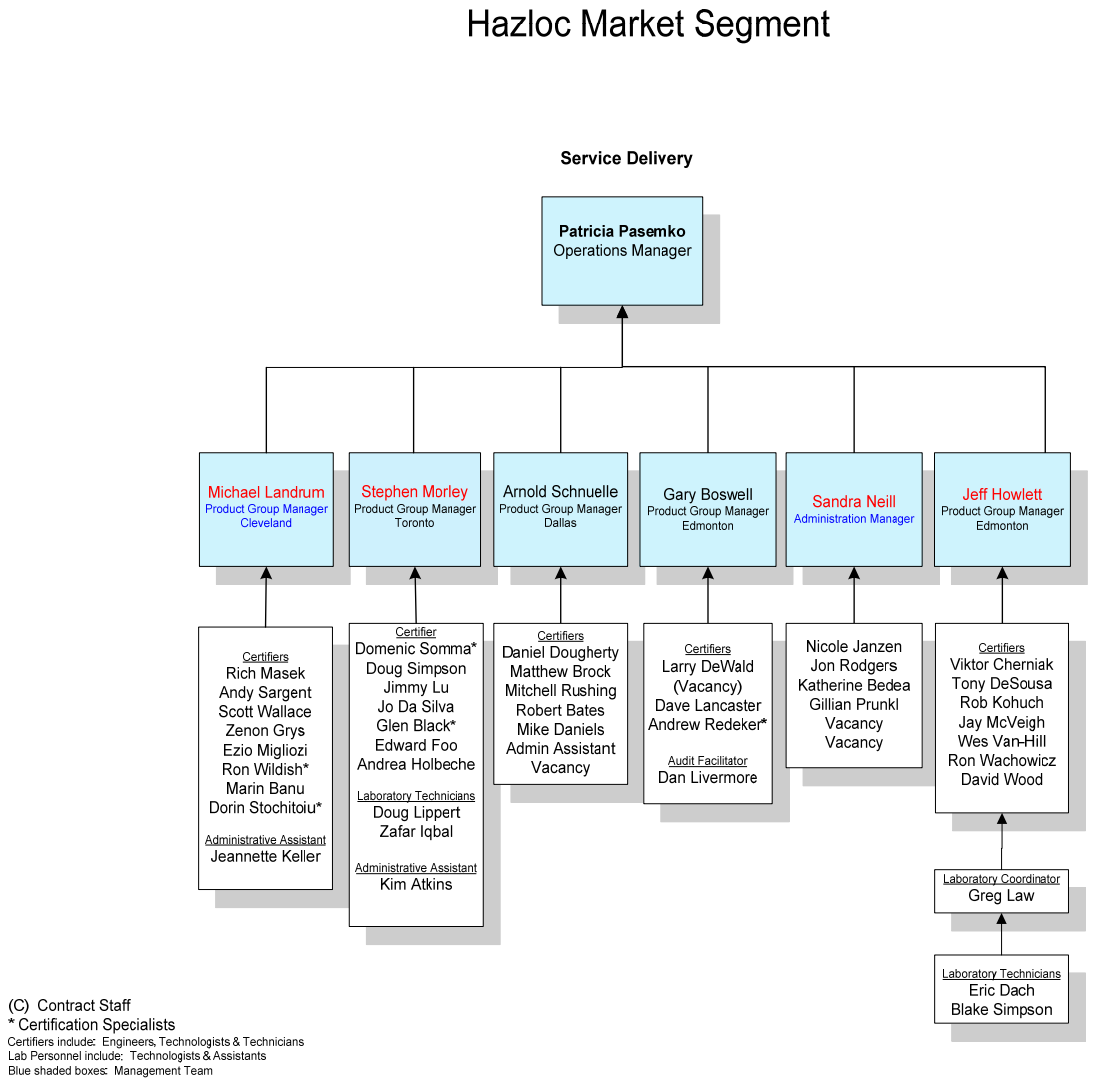
Mark Towbridge was replaced by **Bonnie Rose** as Senior Director, Service Delivery ("Acting" designation was removed).

Service Quality:

Irma Vescan was replaced by **Gianluca Arcari** as Senior Director, Service Quality.

Joe Gryn was replaced by **Bill Burr** as Director, Conformity Assessment.

Annex 2
Chart of the CSA International HazLoc Service Delivery (ExTL)



<u>Note:</u> As of April 2008, the personnel changes noted above were made at CSA International.

Annex 3
Extract from Accreditation from SCC for Product Certification

Standards Council of Canada
Conseil canadien des normes

CERTIFICATION BODY ACCREDITATION PROGRAM

Accredited Legal Entity:

CANADIAN STANDARDS ASSOCIATION
dba CSA International

178 Rexdale Boulevard, Toronto, ON M9W 1R3 Canada
Telephone: (416) 747-4000 Fax: (416) 747-4100
Email: walter.vance@csa-international.org

Any additional critical/key locations included in the scope of accreditation are appended to this listing.

Accreditation Standards:

CAN-P-3G (ISO/IEC Guide 65:1996)
CAN-P-1500M
IAF GD 5:2006

Certification Mark:

CERTIFIED ®

Product Certification System Type:

The product certification system operated by this organization most closely resembles that described by ISO/IEC Guide 67, *Conformity assessment — Fundamentals of product certification*, System 3. The program includes the evaluation of samples requested by the certification body, determination of characteristics by testing or assessment, initial assessment of the production process or the quality system, as applicable, evaluation of the test and assessment reports, license, on-going surveillance by testing or inspection of samples from the factory as well as on-going surveillance of the production process.

Subject Areas of Accreditation:

The scope of accreditation for the above-mentioned legal entity limits the use of the certification mark shown, to products that meet standards classified by the following international classification coding:

Canada

CANADIAN STANDARDS ASSOCIATION 1 of 10 Created on: 2009-04-21
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Annex 4
Accreditation from OSHA – Toronto and Edmonton

Occupational Safety and Health Administration

Nationally Recognized Testing Laboratory Program

NRTLP

Certificate of Recognition

Canadian Standards Association

178 Rexdale Boulevard (Toronto)
Etobicoke, Ontario M9W 1R3

is recognized by the Occupational Safety and Health Administration (OSHA) as meeting the requirements for a Nationally Recognized Testing Laboratory (NRTL) established under Section 1910.7 of *Title 29, Code of Federal Regulations.* This recognition is limited to testing and certification only within the current scope of recognition and is subject to all other terms set forth in the letter of recognition and in applicable *Federal Register* notices. This recognition continues in force beyond the "*Effective through*" date below provided the NRTL has filed a timely request for renewal with OSHA. For current recognition status and other recognition information, contact the OSHA NRTL Program or visit *www.osha.gov.*

R. Davis Layne
Acting Assistant Secretary of Labor
Occupational Safety and Health Administration

July 3, 2006
Effective through

5
Certificate No.