

**INTERNATIONAL ELECTROTECHNICAL COMMISSION**

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

**Title: IECEx Assessment Report for the acceptance of Underwriters  
Laboratories Inc, *USA* as an Accepted Ex Testing Laboratory (ExTL)  
within the IECEx Scheme.**

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**This document contains the IECEx Assessment Report for UL,  
incorporating minor changes to ExMC/139/R.**

**This document replaces ExMC/139/R.**

**A marginal bar such as the one shown here identifies the changes  
included in this latest version.**

**The major elements of the report detailed in ExMC/139/R remain  
unchanged including the Assessment Team's recommendation for  
acceptance of UL, as an IECEx ExTest Laboratory**

**This latest report has been issued for consideration during the  
next ExMC Meeting being held in Seoul October 2002 under  
Item 8 of Draft Agenda ExMC/127B/DA.**

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## **IECEx ASSESSMENT REPORT FORM (TEST LABORATORY - ExTL)**

### **Type of Assessment:**

Initial Assessment for Candidate ExTL X\_  
Surveillance Assessment for existing ExTL

### **1. OBJECT AND FIELD OF APPLICATION**

#### **1.1 Country:**

**USA**

#### **1.2 Name Of Candidate TL**

**Underwriters Laboratories Inc.  
333 Pfingsten Road  
Northbrook, IL 60062-2096**

#### **1.3 Members of the Assessment Team**

<b>M.Br��non (LCIE)</b>	<b>Lead Auditor</b>
<b>Dr Zalogine (NANIO CC VE IGD)</b>	<b>Auditor</b>
<b>M.Botiuk (ITACS)</b>	<b>Auditor</b>

#### **1.4 Place and date of Assessment**

**see 1.2, 4<sup>h</sup> and 5<sup>th</sup> of February 2002**

#### **1.5 Assessment references**

Document:

- i) **IECEx 02 First Edition 1999-10**
- ii) **IECEx Operational Document Ex/OD003**
- iii) **ISO/IEC 17025 :1999**
- iv) **ExTL application documents dated 17 July 2001 in covering letter**
- v) **IECEx Technical Guidance Documents**

## 1.6 *Scope Of Application*

Product Category	Standard
General Requirements	IEC 60079-0
Part 1: Construction and verification test of flameproof enclosures of electrical apparatus	IEC 60079-1
Part 5: Powder filling 'q'	IEC 60079-5
Part 6: Oil-immersion 'o'	IEC 60079-6
Part 7: Increased safety 'e'	IEC 60079-7
Part 11: Intrinsic safety 'i'	IEC 60079-11
Part 15: Electrical apparatus with type of protection 'n'	IEC 60079-15
Part 18: Encapsulation 'm'	IEC 60079-18
Electrical Apparatus for the detection and measurement of flammable gases Part 1: General requirements and test methods	IEC 61779-1
Electrical Apparatus for the detection and measurement of flammable gases Part 4: Performance requirements for group II apparatus indicating up to 100% lower explosive limit	IEC 61779-4
Electrical Apparatus for the detection and measurement of flammable gases Part 5: Performance requirements for group II apparatus indicating a volume fraction up to 100% gas	IEC 61779-5

## 1.7 *Candidate TL Persons Interviewed*

Name	Position
Jodi Smyth	Senior Coordinator, Global Accreditation Services
Paul Kelly	Laboratory Manager, HazLoc Conformity Assessment Services

## 1.8 *Legal Entity Of The Candidate TL*

See 1.2

## 1.9 *Associated ACB*

Names of Laboratories	Address
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See 1.2

## 1.12 *Financial Support*

UL declares it is self supporting through the fees coming from its customers.

### 1.13 *History*

UL was founded in 1894 by William Henry Merrill. UL both developed standards for product safety in the US, along with certification of products to those requirements. As early as 1897 UL published lists of approved fittings and electrical devices based upon the test methods and product standards Merrill had developed. Through the years UL has grown with test facilities in New York, California, North Carolina and Washington states in the US, and affiliate locations in Europe, Asia, Canada and South America in addition to hundreds of local inspection centers worldwide to support the UL product certification program. Throughout UL's history, UL has continued to develop expertise in a wide range of product areas from electrical, to fire, to gas and oil equipment. Today UL evaluates 18,500 different types of products to hundreds of different conformity assessment standards.

### 1.14 *Relevant Standards*

IEC Number	Title	Edition	Amdt
<i>Electrical apparatus for explosive gas atmospheres:</i>			
60079-0	Part 0: General Requirements	3 <sup>rd</sup> 1998	A1:2000
60079-1	Part 1: Construction and verification test of flameproof enclosures of electrical apparatus	3 <sup>rd</sup> 1990	A1:1993 A2:1998
60079-5	Part 5: Powder filling 'q'	2 <sup>nd</sup> 1997	-
60079-6	Part 6: Oil-immersion 'o'	2 <sup>nd</sup> 1995	-
60079-7	Part 7: Increased safety 'e'	2 <sup>nd</sup> 1990	A1:1991 A2:1993
60079-11	Part 11: Intrinsic safety 'i'	4 <sup>th</sup> 1999	-
60079-15	Part 15: Electrical apparatus with type of protection 'n'	1 <sup>st</sup> 1987	-
60079-18	Part 18: Encapsulation 'm'	1 <sup>st</sup> 1992	-

#### *Electrical apparatus for the detection and measurement of flammable gases:*

61779-1	Part 1: General requirements and test methods	1 <sup>st</sup> 1998	-
61779-4	Part 4: Performance requirements for group II apparatus indicating up to 100% lower explosive limit	1 <sup>st</sup> 1998	-
61779-5	Part 5: Performance requirements for group II apparatus indicating a volume fraction up to 100% gas	1 <sup>st</sup> 1998	-

## 2. ORGANISATION

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

Name	Title	Experience
JERRY KOPSTEIN	Manager	29 years at UL

### 2.2 *Name, Title And Experience of The Quality Management Representative*

Name	Title	Experience
RONALD CZISCHKE	Certified Quality Engineer	15 years, Engineering 10 years, Quality

### 2.3 *Name And Title of Nominated Principal Contact*

Name	Title	Comments
Kerry McManama	Associate Manager, Hazloc Conformity Assessments Services	

### 2.4 *Employees*

Name	Title	Responsibility
Chris Jones	Laboratory Supervisor	Testing
Paul Courtney	Engineering Technician	Testing
Mark Hojnacki	Laboratory Technician	Testing
Abhay Shashipadme	Laboratory Technician	Testing
Phil Verplancke	Laboratory Technician	Testing
Larry Hidaka	Sr. Laboratory Technician	Testing

### 2.6 *Organisational Structure*

See attached organization charts in Annexes 1 and 2.

## 3. RESOURCES

ExTL has all necessary resources for its operation in-house.

## 4. TEST METHODS

### 4.1 Procedures

Test procedures are described in Clause 15.0 of NBKLOM.

### 4.2 Staff Work Instructions

Staff work instructions are detailed in LPG's 416E-406, 3017ANBK-LPG IEC 61779-1, 3014ANBK-LPG-009 and 3014ANBK-LPG-010.

## 5. TEST REPORTS AND RECORDS

### 5.1 Test Reports Issued

Standard <i>Type of protection</i>	Test Reports in 2000	Test Reports in 2001
EN 50014 / IEC 60079-0 <i>General Requirements</i>	72	91
EN 50015 / IEC 60079-6 <i>Oil Immersion</i>	0	0
EN 50017 / IEC 60079-5 <i>Powder Filling</i>	0	0
EN 50018 / IEC 60079-1 <i>Flameproof Enclosure</i>	24	23
EN 50019 / IEC 60079-7 <i>Increased Safety</i>	22	24
EN 50020 / IEC 60079-11 <i>Intrinsic Safety</i>	23	42
EN 50021 / IEC 60079-15 <i>Non-Incendive (Zone 2)</i>	9	8
EN 50028 / IEC 60079-18 <i>Encapsulation</i>	3	2
IEC 61779-1, -4, -5* <i>Gas Detectors</i>	1	2
In Total	82	101

\*Evaluated to CSA C22.2 No. 152, Combustible Gas Detection Instruments; Environmental Products General Instruction No 1-3; Second Edition R(1997))

### 5.2 Test Records

See Clause 5.1.

## **6. CALIBRATION**

The procedures and policies satisfy ISO/IEC 17025 clause 5.5 and 5.6 requirement via GTLP 5.5 and 5.6 and the NBKLOM, Clause 17.0.

## **7. DOCUMENTATION**

### **7.1 *Quality Manual***

General to UL activities completed by few documents specific to IECEX operations  
eg : D001, D002, D003.

### **7.2 *Document and Change Control***

The procedures and policies satisfy ISO/IEC 17025 clause 4.3 requirement via GTLP 4.3, CAM 1.2, CAM 15, DOO1 (UL-NBK IECEX Scheme Manual).

## **8. CONFIDENTIALITY**

The procedures satisfy ISO/IEC 17025 clause 4.7 requirements.

## **9. NATIONAL ACCREDITATION**

UL Northbrook (USA) has provided three accreditations (see application) covering for most of its testing activities. These accreditations are not specific to the Hazloc Activities, although encompassing them.

- a) Third party Accreditation by Standards Council of Canada has been checked and found it covered, in a global way, the Testing Laboratory activities in the Hazloc area.
- b) Although not fully meeting the needs of the IECEX02, the third party accreditation by ANSI is based on ISO/IEC 17025 and in this respect has been found useful in view of the recognition as ExTL.
- c) The OSHA, second party, accreditation has been considered, although not founded on ISO/IEC 17025 but on a proprietary reference document.

All the relevant parts of these different accreditations have been taken into account during this assessment.

## **10. RECOGNITION AND AGREEMENTS**

- 1 Physikalisch - Technische Bundesanstalt (PTB)
- 2 Laboratoire Central des Industries Electriques (LCIE)
- 4 KEMA Registered Quality Nederland B.V.
- 5 Deutsche Montan Technologie GmbH (DMT) - Pending final signature
- 6 Sira Certification Service - Pending final signature
- 7 Technology Institution of Industrial Safety (TIIS) - Pending final signature

## **11. INTERNAL AUDIT AND PERIODIC REVIEW**

The procedures and policies satisfy ISO/IEC 17025 clause 4.13 and clause 4.14 via GTLP, 4.13 and 4.14 and the Management Review Procedures Manual For IECEX Scheme Evaluations issued March 5, 2002.

## **12. COMPLAINTS MECHANISM**

The procedures and policies satisfy ISO/IEC 17025 clause 4.8 via GTLP, 4.8 and the Clause 8.0 of the NBKLOM.

## **13. SPECIAL FACTS TO BE NOTED**

| See ACB Assessment Report ExMC/138A/R

## **14. COMMENTS**

None

## **15. RECOMMENDATION**

| The assessment team recommends to the Ex-MC :

1) **Full acceptance of UL Northbrook TL for the following standards: IEC 60079-0, IEC 60079-1 (d), IEC 60079-7 (e), IEC 60079-11 (i) IEC 60079-15 (n) and also, after specific consideration, full acceptance for IEC 60079-5 (q), IEC 60079-6 (o), IEC 60079-18 (m).**

2) **The assessment team recommends acceptance of UL Northbrook Testing Laboratory, taking into account document Q attached, on the condition that 6 other reports issued, within one year, for IEC 61779-1,-4,-5 are satisfactorily examined.**

M.Br  non (LCIE)

Dr Zalogine (NANIO CC VE IGD) Auditor

M.Botiuk (ITACS)

Lead Auditor

Auditor



## **LIST OF ANNEXES**

Annex 1 - Management Reporting Structure Northbrook Office  
Annex 2 - IECEX Scheme Organization Chart  
Annex 3 – Findings and responses

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07/10/02 23:54 Pg: 1

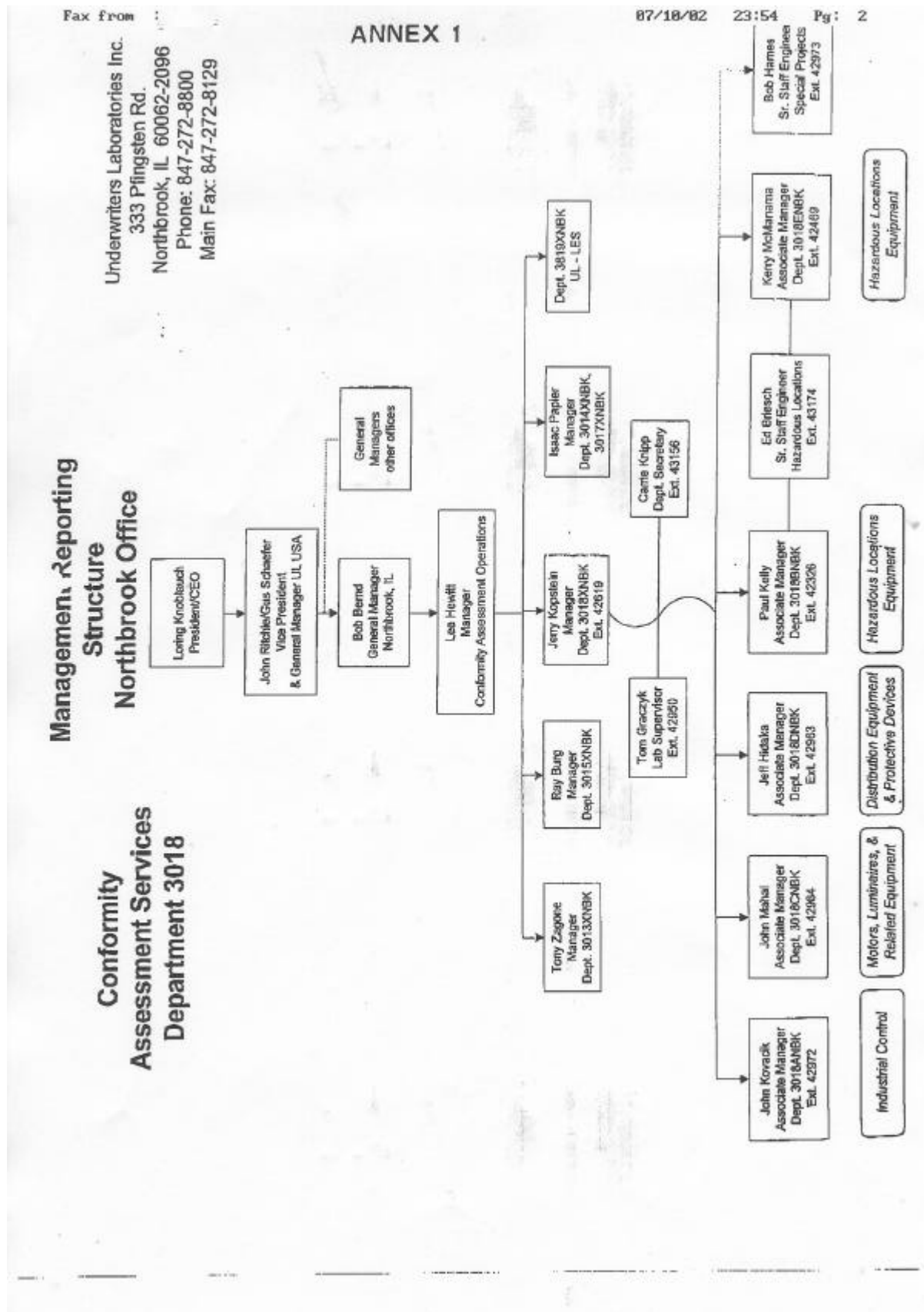
UL - ExTL - IECEx - ASSESSMENT - REPORT



## Annex 1

Management Reporting Structure North Brook Office

4/5 Feb 02



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UL - ExTL - IECEX - ASSESSMENT - REPORT

## **A n n e x 2**

### **IECEX – Scheme Organisation Chart**

4/5 Feb 02

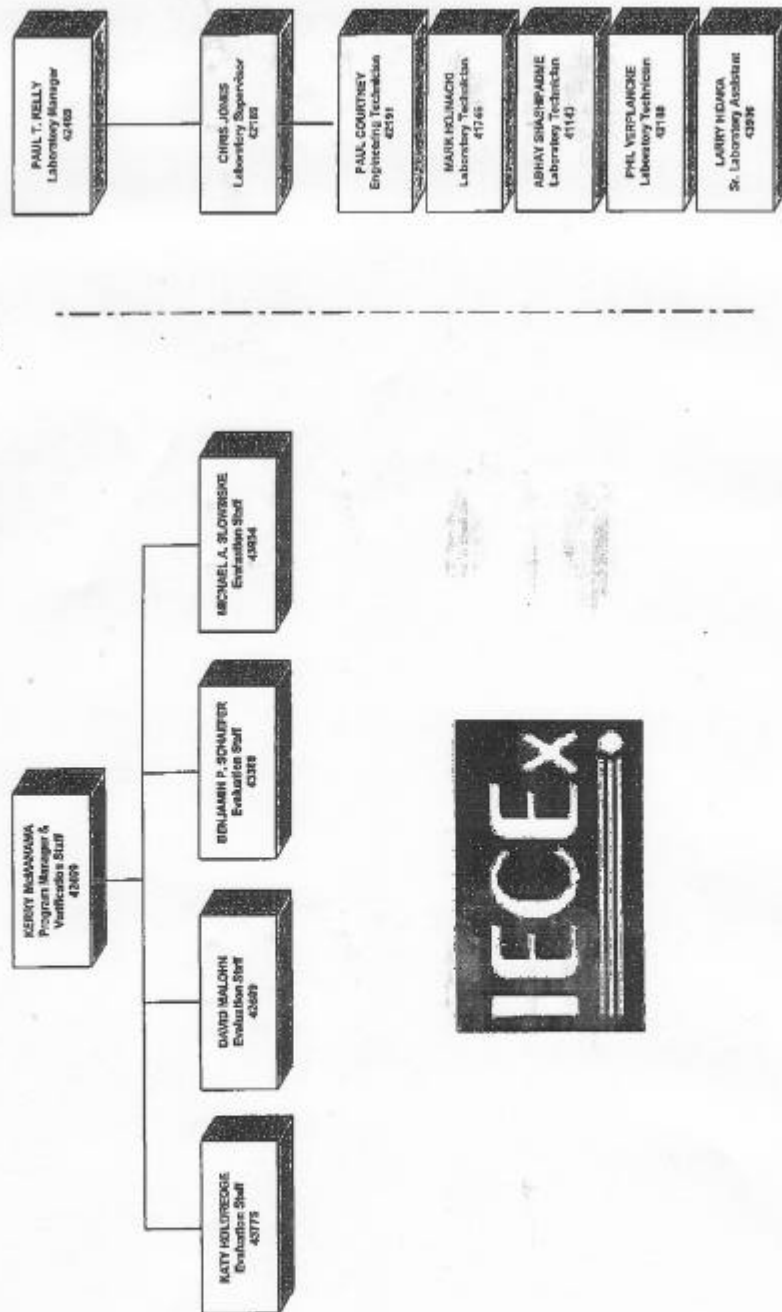
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**ANNEX 2**

**UL-NBK HazLoc Operations  
IECEX Scheme Organizational Chart**



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UL - ExTL - IECEx - ASSESSMENT - REPORT

## **Annex 3**

### **Findings and Responses**

4/5 Feb 02

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87/18/82 23:54 Pg: 28

MBRENON to Kerry MCMANAMA

12 September 2002

Comments on UL (USA) IECEx audit responses Part 3 (ExTL part)

Thank you very much for your kind cooperation.

Please find hereunder my last comments related to your responses.

**UL\_ExTL01**

Per attachment 6, it is noted that Document DOO3 has been improved.  
But it does not contain the table showing the testing staff, the IEC standards for which it is qualified, as it is done for the evaluation staff and verification staff see page 3 of 4 of DOO3 revised 07-30-02

**UL\_ExTL02**

Based on your 2 august 2002 document : noted and **ACCEPTED**

**UL\_ExTL03**

Based on your 2 august 2002 document : noted and **ACCEPTED**

**UL\_ExTL04**

Based on your 2 august 2002 document : noted and **ACCEPTED**

**UL\_ExTL05**

Based on your 2 august 2002 document : noted and **ACCEPTED**

**UL\_ExTL06**

Based on your 2 august 2002 document : noted and **ACCEPTED**

**Conclusion**

9 Findings have been issued.

8 findings have been cleared so far

1 finding (EXTL01) is about to be cleared

**Many thanks for your excellent cooperation and efforts.**