



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 *FM Approvals* as an
Accepted Certification Body (ExCB) within the IECEx Scheme

Introduction

This document contains the IECEx Assessment Report for *FM Approvals*

Following assessment, including a site assessment, the Assessment team
recommends acceptance of FM Approvals as an Ex Accepted Certification Body
(ExCB) within the IECEx Scheme.

This report has been issued for voting via correspondence with a request that the
voting form be completed and returned to the IECEx Secretariat by the closing date:

30 September 2004

You may return your completed voting form (available in Word format) via fax or e-mail.
Details below.

Address:
IECEx Secretariat
286 Sussex Street
Sydney NSW 2140
Australia

Tel: +61 2 8206 6940
Fax: +61 2 8206 6272
Email: chris.agius@iecex.com



Voting Form

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

FM Approvals

☐ Yes. I agree with the acceptance of **F M Approvals** as an
Ex Certification Body

☐ No. I do not agree with the acceptance of **F M Approvals** as an
Ex Certification Body within the IECEx Scheme, for the following reasons

Signature: _____

Name: _____

Member Body: _____

Date: _____

Please complete and return by **2004 09 30** to:

Mr Chris Agius
IECEx Secretariat

Contact Details:
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IECEX ASSESSMENT REPORT

For FM Approvals, USA

(Accepted Certification Body)

Type of Assessment:

Initial Assessment for Candidate ExCB

☒

Surveillance Assessment for existing ExCB

☐

1. OBJECT AND FIELD OF APPLICATION

1.1 Country:
USA

1.2 Name of Candidate ExCB
FM Approvals

1.3 Members Of The Assessment Team
Mr C. Agius (IECEX Secretary) Team Leader
Dr W. Dill (DE)
Mr W. Dunn (AU)

1.4 Place And Date Of Assessment
151 Boston-Providence Turnpike
Norwood, MA 02062
USA

Hazards Lab and Research Centre
743 Reynolds Road
West Gloucester, RI 02814
USA

Site Assessors:

Mr C. Agius Lead Assessor
Dr W. Dill
Mr W. Dunn

Following a review of all documentation submitted, a site assessment was conducted on 10, 11 + 12 February 2004. This site assessment visit was conducted by all 3 Assessment Team Members and included both the Norwood and West Gloucester sites. This site assessment revealed a very well



Managed and controlled facility with a great of competence in Ex Certification being demonstrated by all levels of management and staff.

A full review and assessment to the requirements of ISO/IEC Guide 65, IECEx 02 and Operational Document OD 009 was conducted. An ISO/IEC Guide 65 Assessment Report was prepared as part of the process and is retained on File by the IECEx Secretariat. This assessment highlighted the need for the updating of various quality system procedures to reflect latest IECEx Operational Documents and requirements.

FM Approvals Management conducted this revision and supplied the Assessment Team with a set of revised procedures early June 2004. The Assessment Team reviewed the revised documentation along with a follow up meeting between the Assessment Team Leader and the Electrical Group Director being held.

The Assessment Team are now fully satisfied that all requirements of IECEx 02, Guide 65 and Operational Document OD 009 and referenced procedures are now fully met.

1.5 Assessment References

Document:

- i) IECEx 02 Second Edition
- ii) IECEx Operational Document OD/003 (ExMC/100/CD)
- iii) ISO/IEC Guide 65 1996
- iv) IECEx Operational Document OD 009
- v) IECEx Operational Document OD 005
- vi) ExMC/161/CD
- vii) IEC Technical Standards as per scope of application
- iv) ExCB application documents

1.6 Scope Of Application

During the on-site visit the scope of application was confirmed to align with the scope of application as follows:

Product Category	Standard
General Requirements	IEC 60079-0
Flameproof Enclosures	IEC 60079-1
Intrinsic safety	IEC 60079-11
Increased Safety	IEC 60079-7
Encapsulation	IEC 60079-18
Non Sparking	IEC 60079-15
Gas Detectors	IEC 61779 Parts 1-5

1.7 Candidate ExCB Persons Interviewed

Name	Position
Mr Bob Martell	Ass. Vice President/Director, Electrical Group Manager
Mr John Hill	Group Manager, Technical Auditing Services
Mr Glen Jutras	Quality Assurance Manager

1.8 Legal Entity Of The Candidate ExCB

FM Approvals is an enterprise of FM Global Technologies LLC that provides industrial and commercial test and certification services. A copy of the Articles of Association Filed 12 October 2001 was sighted by the Assessment Team and is retained on file by the IECEx Secretariat.

FM Global Technologies LLC is an affiliate of FM Global of Johnston, Rhode Island, USA. FM Global Technologies is headquartered in Norwood, Massachusetts with a focus on research and testing activities for the industrial and commercial property loss control.

A full and detailed description of FM Global's beginnings are retained on file at the IECEx Secretariat Offices.

1.9 Associated Testing Laboratories

Names of Laboratories

FM Approvals has an integral Testing laboratory

Address

Same addresses

1.10 Associated Certification Functions

- IECEE CB Scheme – accepted as an NCB
- ISO 9001 Registra
- Agent for various National Certification Bodies covering product certification and approvals for many countries

1.11 National Marks And Certificates

FM Approvals Listing and Mark

1.12 Financial Support

Self-funding

1.13 History

FM Global Technologies had its beginnings in the 19th Century in the mill industry with the first significant fire testing being conducted in 1884. In 1886, the Laboratories Section of Factory Mutual Inspection Department was formed. The first organisation formed devoted to the special study of fire protection devices.

1916 FM Laboratories established a separate research facility. While in 1941, Factory Mutual Research Corporation was established as a corporate entity.

In 2001 work commenced on construction of a new fire test building in West Gloucester, Rhode Island. The Assessment Team visited this new facility (now completed) as part of their site assessment of the FM Approvals facilities and were most impressed with the range of services and systems available.



In March 2002, Factory Mutual Research Corporation was renamed FM Global Technologies LLC and its operating units, the Research and Approvals Division were renamed FM Global Technologies and FM Approvals respectively. FM Global Technologies is an affiliate of FM Global.

1.14 Standards Accepted

IEC 60079 and 61779 series.

1.15 National Differences To IEC Standards

As detailed in the IECEx Bulletin and approved by the US IECEx Member Body

2. ORGANISATION

2.1 Names, Titles And Experience Of The Senior Executives

Name	Title	Experience
Mr Paris Stavrianidis	Vice President	25+years
Mr Bob Martell	Ass. Vice President/Director, Electrical Group Manager	25+ years
Mr John Hill	Group Manager, Technical Auditing Services	25+ years

2.2 Name, Title And Experience of The Quality Management Representative

Name	Title	Experience
Mr Glenn Jutras	Quality Assurance Manager	25+ years with formal training in Quality Management Systems, including lead assessor training

2.3 Name And Title of Nominated Principal Contact

Name	Title	Comments
Mr Bob Martell	Ass. Vice President/Director, Electrical Group Manager	

2.4 Name and Title of Signatories for Certification

Name	Title	Comments
Mr Bob Martell	Ass. Vice President/Director, Electrical Group Manager	
Mr John Hill	Group Manager, Technical Auditing Services	

2.5 *Other Employees in ExCB activity*

Name	Title	Responsibility
Mr Glen Jutras	Quality Assurance Manager	Factory Inspections, Product Quality Audits
Mr W O'Connor	Quality System Registration	Quality systems

NOTE: Numerous other staff identified in various other Certification functions as noted during the site assessment. Details are retained on the IECEx Secretariat file.

2.6 *Organisational Structure*

See Appendix A

2.7 *Administration*

2.7.1 Administrative Structure:

Testing is conducted within the Ex testing department. The FM Approvals quality system ensures that final certification decisions are taken by qualified personnel that are independent from the testing and evaluation activities and that the requirements of the IECEx Scheme rules, including Operational Document OD 009 are met.

2.7.2 Terms of Reference of the Governing Board

FM Global Technologies LLV operates under a Board of Directors, with the terms of reference to oversee and approve policies.

3. **RESOURCES**

(Verification that ExCB has all necessary resources for its operation in-house, including personnel trained and experienced in factory inspection / quality audits).

The site assessment revealed adequate resources, personnel and facilities, in order to meet the requirements of the IECEx Scheme for the issuing of ExTRs, IECEx QARs and IECEx Certificates of Conformity. A very high level of competence in the certification of Ex equipment and systems was demonstrated by all levels of FM Approvals Management and Staff.

The FM Approvals Hazloc Group comprise a total of 29 Technical staff. The assessment team complimented FM Approvals management on the active involvement in the IEC Standards work of many of their Technical staff.



4. COMMITTEES

FM Approvals are actively involved in both National and International Committees, eg IEC TC 31 and related Subcommittees, IECEx Management Committee, ExMC and Technical Committee ExTAG and the US National Committee.

5. CERTIFICATION OPERATIONS

5.1 *National Approval/Certification Methods*

As specified in item 1.10 above. The FM Approvals certification operations were reviewed both prior to and during the site assessment. A recommendation for improvement to the FM Approvals documented management system was accepted by FM Approvals Management, in order to address requirements of Guide 65 and specific requirements of IECEx, eg the referencing of IECEx Operational Documents such as OD 009.

Revised procedures and documentation were submitted to the IECEx Assessment Team during June 2004, following which the assessment Team reviewed the amended documentation and via correspondence accepted the changes made as fulfilling all IECEx requirements.

5.2 *Certification Policy*

As included in the Quality Manual, sighted and reviewed during the on-site visit on 10, 11 + 12 February 2004. complies with IECEx requirements including the acceptance of IECEx Reports for the purpose of issuing FM Approvals.

5.3 *Staff Work Instructions*

Included in the /FM Approvals documented management system

5.4 *Application for Certification*

FM Approvals has clearly demonstrated that its policies and procedures does NOT discriminate when receiving or processing applications for testing or certification.

6. STATISTICS

Certificates issued during the past 2 years:

A review of the FM Approvals Guide 2003, Chapter 2 and 10, revealed a sufficient number of Certificates for each of the areas within the scope of this application to demonstrate a thorough understanding of the Ex Technology and certification processes. A full copy of the FM Approvals Guide 2003 is retained by the IECEx Secretariat for record keeping purposes.

7. DOCUMENTATION

7.1 *Document and Change Control*

The FM Approvals Documented Quality Management System ensures adequate control over the issue and change of FM Approvals certification documentation. The IECEx Assessment Team found that

the electronic documented management system to be both most effective and efficient, especially in managing the change control process.

8. RECORDS

The FM Approvals Management System requires retention of records, indefinitely. Records are a combination of paper copies and electronic media, however the FM Approvals retention system ensures identification of records and protection of records in appropriate and secure environment.

9. CONFIDENTIALITY

All FM Approvals staff and contract staff are subjected to the strict confidentiality requirements of the FM Approvals organisation. Copies of signed confidentiality agreements were noted by the assessment team.

10. PUBLICATIONS

Apart from the FM Approvals Quality Management System publications, FM Approvals have published a number of training documents as part of their recognised training services.

11. APPEALS

Appeals can be made directly to FM Approvals management whom are required to record the appeal initially as a complaint, in accordance with the Complaints procedure. The FM Approval quality management system also details the process for the appeal with reference to the IECEx Appeals procedures where this may be necessary.

12. NATIONAL ACCREDITATION

While FM Approvals maintains various accreditations for its activities, at the time of the site assessment, FM Approvals were in the final stages of achieving accreditation of Ex Certification activities by the Standards Council of Canada. As this was not completed at the time of the FM Approvals application for IECEx the site assessment visit was conducted by the full 3 member Team and included a full assessment to ISO/IEC Guide 65.

13. RECOGNITION AND AGREEMENTS

See Item 1.10 above

14. QUALITY MANUAL

As part of FM Approvals range of accreditations, FM Approvals maintain a comprehensive Quality Manual which is supported by detailed procedures. These were reviewed in detail, prior to, during and following the site assessment and found to fully meet IECEx requirements.

15. INTERNAL AUDIT AND PERIODIC REVIEW

As part of the Quality Management System, FM Approvals conduct regular internal audits in addition to a review of the management system. A review of the planning, conduct and results of internal audits and

reviews were considered by the Assessment Team during the site assessment and found to fully meet IECEx and Guide 65 requirements.

16. COMPLAINTS

Should complaints be received by FM Approvals, the procedures demonstrated that they are dealt with as part of the Quality Management System and include the recording of complaints, and reviewing the timely nature and effectiveness in their dealing by FM Approvals staff. Complaints of a verbal nature are also covered.

17. WITHDRAWAL AND CANCELLATION OF CERTIFICATES

Procedures for the withdrawal and cancellation of certificates are covered by the Quality Management system procedures, found to comply with the requirements of IECEx Rules and Operational Documents, eg IECEx 02 and OD 009.

18. SPECIAL FACTS TO BE NOTED

No major non-conformances were raised.

Issues raised during the site assessment related to the need for FM Approvals to expand their documented management system to address the additional requirements of IECEx, including IECEx Operational Documents and procedures.

FM Approvals completed these changes and submitted such changes to the IECEx Assessment Team which conducted a review and determined that ALL items have now been satisfactorily addressed.

19. RECOMMENDATION

The Assessment Team hereby recommends immediate acceptance of FM Approvals as an IECEx Accepted Certification Body (ExCB) for:-

- General requirements
- Ex i
- Ex m
- Ex n
- Ex e
- Ex d
- Gas Detectors

Mr C Agius
Team Leader

Dr W Dill

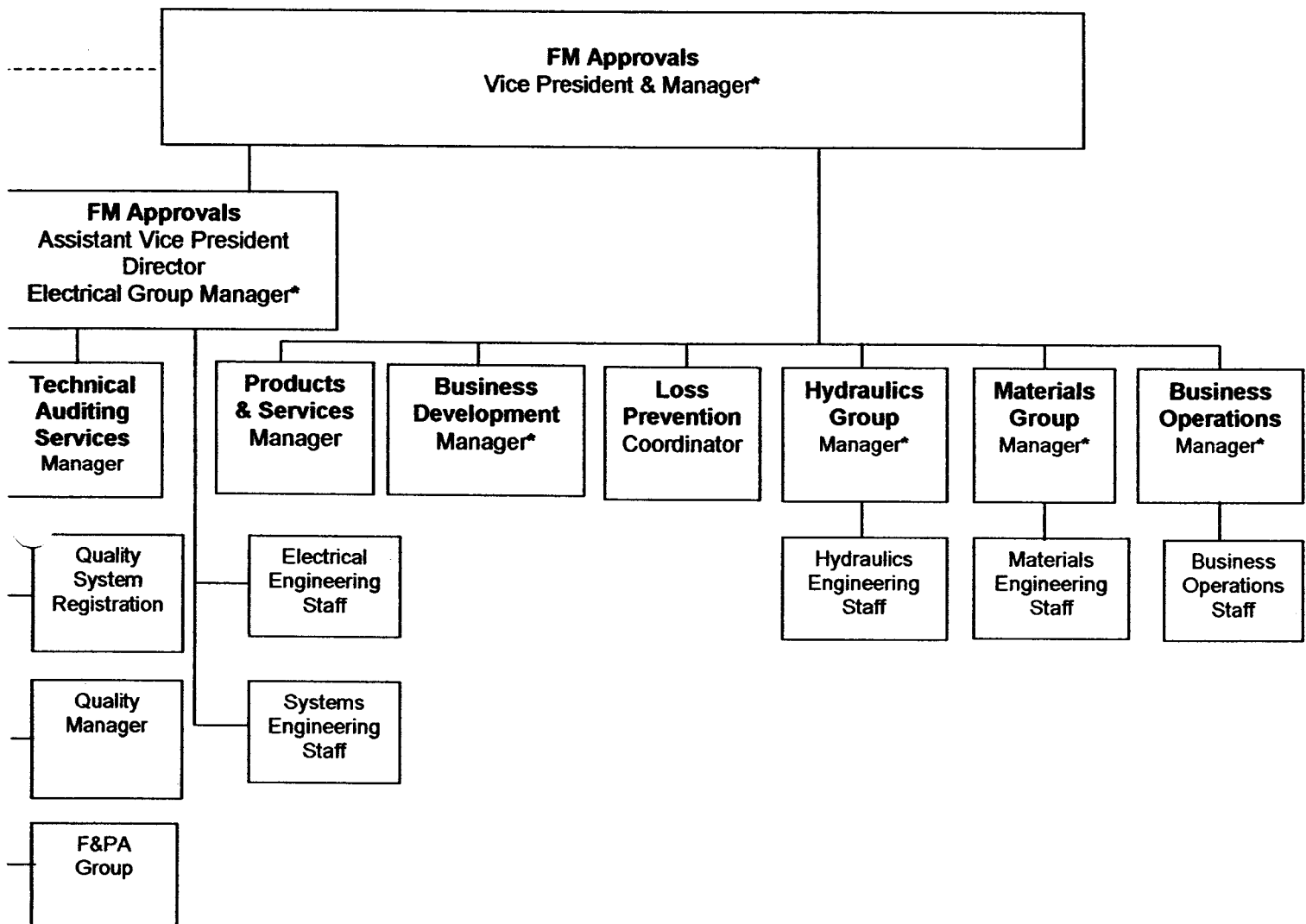
Mr W Dunn

LIST OF APPENCIES

A – Organisation Chart

Appendix A

Organizational Chart for FM Approvals



Management Team

* Senior

Work Category Chart for FM Approvals

