

**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 the acceptance of *FM Approvals Ltd.*, as
an IECEx Certification Body (ExCB)**

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *FM Approvals Ltd.*, as an IECEx Certification Body (ExCB) within the IECEx Scheme.

FM Approvals Ltd, Windsor UK, known as FM Approvals Europe, is a subsidiary of FM LLC USA which is an accepted ExCB and ExTL within the IECEx Scheme. The testing laboratory used by FM Approvals Ltd, UK is FM LLC USA.

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 **20th June 2007**. Your speedy response to the voting process will be very much appreciated.

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IECEx Secretariat

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IECEX ASSESSMENT REPORT FOR FM APPROVALS LTD (IECEX Certification Body) ExCB

Type of Assessment: (please mark)

Initial Assessment for Candidate ExCB X
(This is an additional location to FM Approvals U.S.)

Re-Assessment of ExCB

Scope Extension of ExCB

1. OBJECT AND FIELD OF APPLICATION

1.1. Country:

United Kingdom

1.2. Name of Candidate ExCB

FM Approvals Ltd

Name used with clients: FM Approvals Europe

FM Approvals Ltd is a subsidiary of FM LLC in the USA, an accepted ExCB and ExTL in the IECEX Scheme

1.3. Members of the Assessment Team

Jim Munro – Lead Assessor, Chairman of the Panel of Assessors

1.4. Place and Date of Assessment

1 Windsor Dials
SL4 1RS Windsor
United Kingdom

14 to 15 November 2006

1.5. Assessment References

- i) IECEX 02 Second Edition 2003-06 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 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 Drawing and documentation guidance
- viii) ExCB application documents dated 30 May 2006

1.6. Scope of Application (to be selected)

Number	Title
<u>60079-0</u>	Electrical apparatus for explosive gas atmospheres Part 0: General requirements
<u>60079-1</u>	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus
<u>60079-2</u>	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)
<u>60079-5</u>	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"
<u>60079-6</u>	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'
<u>60079-7</u>	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'
<u>60079-11</u>	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'
<u>60079-15</u>	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)
<u>60079-18</u>	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'
<u>60079-26</u>	Explosive atmospheres Part 26: Equipment with equipment protection level (EPL) Ga
<u>60079-27</u>	Electrical apparatus for explosive gas atmospheres Part 27: FISCO
<u>61241-0</u>	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements
<u>61241-1</u>	Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosure 'tD'
<u>61241-1-1</u>	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures Section 1: Specification for apparatus
<u>61241-4</u>	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection 'pD'
<u>61241-11</u>	Electrical apparatus for use in the presence of combustible dust Part 11: Protection by intrinsic safety 'iD'
<u>61241-18</u>	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation 'mD'
<u>61779-1</u>	Electrical apparatus for the detection and measurement of flammable gases Part 1: General requirements and test methods
<u>61779-4</u>	Electrical apparatus for the detection and measurement of flammable gases



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	Part 4: Performance requirements for group II apparatus indicating up to 100% lower explosive limit
<u>61779-5</u>	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

1.7. Candidate ExCB Persons Interviewed

Name	Position
Andrew Was	General Manager, FM Approvals Ltd
Nick Ludlam	Sector Scheme Technical Manager
Ron Webb	Sector Scheme Technical Manager

1.8. Legal Entity of the Candidate ExCB

FM Approvals Ltd is a company limited by guarantee (company number 5568547) and has its registered office at 1 Windsor Dials, Windsor, Berkshire. It is a subsidiary of FM Approvals LLC which, itself, is a company within FM Global, based in Rhode Island, USA (Section 2.1 of Quality Manual). FM Approvals Ltd was incorporated in September 2005. It uses the operating name of FM Approvals Europe.

1.9. Associated Testing Laboratories

The principal testing laboratory used by FM Approvals Ltd is the ExTL within FM Approvals LLC in the USA.

1.10. Associated Certification Functions

The company also offers FM Approvals or management of this process through the UK office.

1.11. National Marks and Certificates

FM Approvals Ltd is a notified body under the ATEX Directive (Number 1725) and hence can issue EC type examination certificates and Quality Assurance Notifications.

FM Approvals Ltd is also a notified body under the Construction Products Directive (CPD) (Number 1725) and hence can issue certificates of conformity and FPC certification.

1.12. Financial Support

FM Approvals Ltd is self-funding.

The service is financed by:

- Fees for the inspection and certification activities provided by FM Approvals Ltd
- Income from work carried out under contract for other organisations, such work not being associated with consultancy (Section 2.2 of the Quality Manual).

1.13. History

The parent certification body FM Approvals LLC in the USA obtained IECEx acceptance as an ExCB in 2004. FM Approvals Ltd, UK, was established in September 2005. It has been developing its procedures since then and has commenced issuing ATEX certificates.

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 Scheme Bulletin.

2. ORGANISATION

2.1. Names, Titles and Experience of the Senior Executives

Name	Title	Experience
Andrew Was	General Manager	20 years
(Experience in third party certification much of that time in the Ex certification)		

Name, Title and Experience of the Quality Management Representative

Name	Title	Experience
Roger Stillman	Quality Representative	13 years
(Experience in laboratory and certification body assessments for UKAS and at Sira. Works as a sub-contractor – not present for the assessment.)		

2.2. Name and Title of Nominated Principal Contact

Name	Title	Comments
Andrew Was	General Manager	

2.3. Name and Title of Signatories for Certification

Name	Title	Comments
Andrew Was	General Manager	Makes certification decision

2.4. Other Employees in ExCB activity

Name	Title	Responsibility
Nick Ludlam	Sector Scheme Technical Manager	Light current – 23 years in Ex
Ron Webb	Sector Scheme Technical Manager	Heavy current – 37 years in Ex
Bill Lawrence	Based in FM Approvals LLC in USA but can be seconded	
Other employees based in FM Approvals LLC in the USA may be similarly seconded.		

2.5. Organizational Structure

Annex 1 shows how FM Approvals Ltd fits into the overall FM Approvals structure and the internal structure of FM Approvals Ltd.

2.6. Administration

2.6.1. Administrative Structure

The organisation has following staffing roles: General Manager, Sector Scheme Technical Manager, Project Engineers, technical personnel on secondment, Quality Representative, Administrative Staff, Technical Specialists and Lead



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Assessors/Auditors. Subcontractors may also be used (Section 2.15 of the Quality Manual) (see below).

2.6.2. Indemnity Insurance

FM Approvals Ltd has liability insurance, which includes professional indemnity. The adequacy of the insurance level is determined by the Directors and reported to the Safeguarding Committee (Section 3.5 of the Quality Manual). The current policy is for \$2,000,000 for general aggregate plus a number of other provisions.

3. RESOURCES

There is a core staff of seven people at the UK office of which six are engineers with three engineers plus a manager focussed on Ex. In addition there are about 15 engineers seconded or contracted and who operate in accordance with FM procedures. The offices are located within the FM Global offices at Windsor which has a staffing in excess of 300 people and provides the infrastructure for the operation. There is no laboratory at the location but they establish agreements with laboratories for the purpose of issuing certificates.

The two sector scheme managers came from accepted IECEx ExCBs. Nick Ludlam was with FM Approvals LLC in the USA and Ron Webb was with Intertek in the UK. Both have extensive experience with Ex certification and testing.

4. COMMITTEES / Governing Board / Appeals / Advisory Board

FM Approvals Ltd is overseen by a committee (the Safeguarding Committee) that represents the interests served by FM Approvals Ltd, with no one interest being predominant. The Safeguarding Committee is responsible for ensuring that FM Approvals Ltd operates to the requirements of EN 45011 (IEC/ISO Guide 65) and to any other conditions required by FM Approvals Ltd's notification under European Directives or any accreditation that is held. This latter also covers IECEx acceptance. (Section 1.2 of Quality Manual with more detail in Section 2.5).

Although not part of the formal quality system, the broader FM Approvals group has three Advisory Councils for Asia, Europe and North America that are used to provide a forum for furthering FM Approvals' understanding of critical issues facing its customers.

5. CERTIFICATION OPERATIONS

5.1. National Approval/Certification Methods

FM Approvals Ltd is a notified body under the ATEX and CPD directives and is awaiting UKAS accreditation (see later).

5.2. Certification Policy

There is a Quality Policy listed in the Quality Manual which includes certification services. There is additional information included in Section 1.1 of the Quality Manual which includes the statement that FM Approvals does not provide consultancy.

5.3. Application for Certification

The FM Approvals Ltd IECEx Sector Scheme Manual covers the application for certification in Section 4.2. It notes that potential clients are supplied with an application pack. This pack is generic for all applications. There is a common application cover page for various types of certification, but then the details become specific to the scheme. This is used for the contract review process. From this a proposal is developed.

FM F IECEx 095 covers the procedures for review, issue of ExTRs and QARs and then issue of the certificate. It is derived from OD009.

5.4. Withdrawal and Cancellation of Certificates

Withdrawal or suspension of certificates is covered in Section 3.12 of the Quality Manual. It states that it is the responsibility of the appropriate Sector Scheme Technical Manager or Project Engineer to recommend to the General Manager whether a certificate shall be withdrawn or suspended.

The manual states that cancellation is normally imposed on a certificate holder as a result of a decision taken and normally initiated by the certification body.

The above procedures have not been used to date.

5.5. Certification Decision

According to Section 4.6 and 4.7 of IECEx Sector Scheme Manual the certification decision is taken by the General Manager. There is also provision to have this done by a deputy within FM Approvals Ltd in his absence.

6. STATISTICS

6.1. Certificates Issued

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

No IECEx certificates had been issued at the time of application but five ATEX certificates had been issued by the time of the assessment visit covering Ex i and Ex d

7. DOCUMENTATION

7.1. Quality Manual

FM Approvals Ltd Quality Manual is document FM QM 001, which comprehensively covers the general requirements for the operation. It is supported by sector manuals. The relevant one for this application is IECEx Sector Scheme Manual FM SM IECEx 001. The whole quality system documentation is well developed and locally set out.

7.2. Procedures

At the time of assessment there were 15 Quality (Common) Procedures that are listed along with all other quality documentation in FM Document List FM QM 002.

There is also an additional procedure, FM F IECEx095, which is specific to the IECEx Scheme.

7.3. Work Instructions

Work instructions are embodied in the system procedures and there is a certification checklist, FM F IECEx 070.

7.4. Records

At the time of assessment there were 28 Quality (Common) Forms that are listed along with all other quality documentation in FM Document List FM QM 002. There were also 9 forms for IECEx listed in IECEx Document List FM SM IECEx 002.

There are also assessment matrices.

The records are retained in locked filing cabinets within a security controlled office.

7.5. Document Change Control

The documents are on computer but the control is manual with the document issue status listed in FM F 002 and approved and authorized for issue. All documents, except externally issued documents and records, once printed are considered to be uncontrolled.

8. CONFIDENTIALITY

Section 3.2 of the Quality Manual addresses confidentiality on client activities, including information supplied. All employees are required to sign a confidentiality agreement as a condition of employment. Any other directors, members of FM Approvals Ltd committees, associates and subcontractors, are required to sign a confidentiality agreement form. Detailed requirements are contained in procedure FM QP 050.

9. PUBLICATIONS

FM Approvals Ltd are regular contributors to the FM Approved Product News which is issued three times per annum and is also available on the Web. There is also an approval guide issued three times a year by FM Approvals.

10. NATIONAL ACCREDITATION

Accreditation has been sought from the United Kingdom Accreditation Service and the assessment has occurred, Attached at Annex 2 is the schedule of recommendation from UKAS that was carried out for the purposes of becoming a notified body. A copy of the certification should be provided to the IECEx Secretariat when it is received.

11. RECOGNITION AND AGREEMENTS

FM Approvals Ltd participates in the exchange of experience with other certification and notified bodies and in standardisation processes as appropriate. In explosive atmospheres the only formal agreement at this stage is with FM Approvals LLC. There is an intention to also work with existing partners of FM Approvals LLC.

12. INTERNAL AUDIT AND PERIODIC MANAGEMENT REVIEW

FM Approvals Ltd undertakes internal audits and periodic management reviews of its compliance with its quality policy and the standards and conditions of accreditation and notification (Section 3.5 of the Quality Manual). Internal audits are carried out at least annually but are occurring more frequently at present as the systems are developing.

The last comprehensive audit done on 24-26 July 2006 was viewed and also an audit of the IECEx documentation on 3 November 2006.

Management reviews occur at least annually but are occurring more frequently at present with two meetings during 2006. The Management Review meetings are chaired by the General Manager or his deputy. The report from the last meeting on 26 July 2006 was reviewed. In attendance was the General Manager of FM Approvals LLC.

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

Any auditors who are not employees of FM Approvals Ltd are required to sign a Subcontractor Agreement. An example of such an agreement was sighted.

FM Approvals Ltd intends to use FM Approvals LLC as the prime ExTL. A signed agreement between the two parties was viewed. They also intend to make use of ExTRs issued by other IECEx ExTLs on an as needs basis.

Sub-contractors are obliged to follow the same FM Approvals procedures as employed auditors

14. TRAINING

The qualification and training requirements for all auditors including sub-contractors used by FM Approvals Ltd are listed in the relevant sector scheme procedures manual with the competencies categories built into the Competencies Categories Checklist.

FM Approvals Ltd holds competency and training records for all personnel engaged by FM Approvals Ltd in any aspect of its certification or inspection work. Competency and training records were viewed.

Procedure FM QP 010 also covers staff training, including induction training.

15. ASSESSMENT OF MANUFACTURERS AND ISSUE OF QARS

Details of the processes for assessment of manufacturers and the issue of QARs are included in the IECEx Certification Scheme Overview, FM F IECEx 095, which is based on OD009. It includes reference to other FM procedures where relevant. The report form follows the IECEx format but includes the ability to also be used as a QAN for ATEX and for ISO 9001.

16. COMPLAINTS AND APPEALS (Including appeals to IECEx)

The procedure for dealing with complaints is included in Section 3.10 of the Quality Manual and FM QP 030. A contact and enquiry form, FM F 003 is used for gathering a variety of data, including complaints or anomalies. These are retained in a register which is an Excel spreadsheet. There were no complaints in the register at the time of the assessment.

Appeals are covered in FM the Quality Manual section 3.13. FM Approvals Ltd state they will attempt to resolve any appeals initially through its internal appeal process. This includes the General Manager and if needed the Safeguarding Committee.



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Appeals that can not be resolved through this process will be referred for final resolution to the 'accreditor' that they define in a broad way that includes the IECEx Scheme or national accreditation body.

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 assessment report
- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC Guide 65
- The assessment plan with assessor's notes

17.2. Auditing of Associated ExTL

FM Approvals Ltd carries out an annual audit of its ExTL, FM Approvals LLC. The last was on the week commencing 16 October 2006. A report from the previous assessment in November 2005, which includes the corrective actions, was reviewed and found to be very comprehensive with all NCRs addressed.

18. COMMENTS (Including issues found during assessment)

The operation at FM Approvals Ltd was found to be excellent. Although this part of the FM Approvals network is new, it is staffed with experienced staff and has comprehensive procedures which cover all requirements of the IECEx Scheme.

Some issues within the documentation were found during the assessment and were corrected by the end of the assessment. At the time of the assessment, most quality documents used for the Scheme were in draft form or draft revisions of existing documents. Subsequently the revised procedures were issued.

19. RECOMMENDATION

Based on the initial assessment performed on 14 to 15 November 2006 FM Approvals Ltd is recommended for acceptance into the IECEx scheme as a Certification Body (ExCB) according to the scope of the standards listed in this document.

Jim Munro
Lead Assessor

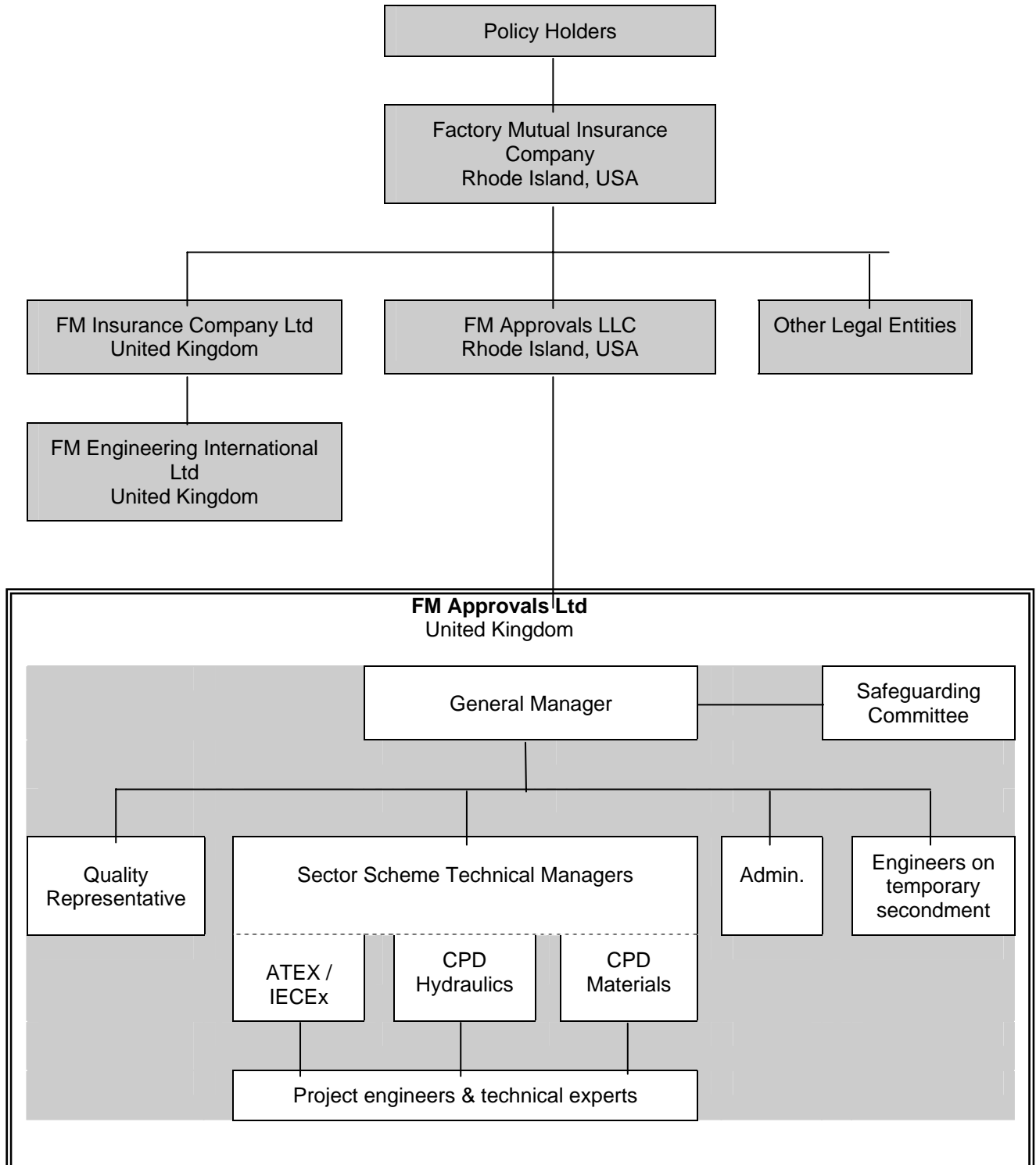
Date: 2 April 2007

List of Annexes:

1. Organization Chart of FM Approvals (USA and Europe)
2. Schedule of recommendation from UKAS

Annex 1

FM GLOBAL CORPORATE STRUCTURE



Schedule of Recommendation

issued by
United Kingdom Accreditation Service
 21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

F M Approvals Ltd

Issue No: 002 **Issue date:** 31 May 2006

1 Windsor Dials Windsor Berkshire SL4 1RS United Kingdom	Contact: Mr Andrew Was Tel: +44 (0) 1753 750 475 Fax: +44 (0) 1753 750 029 E-Mail: Andrew.Was@fmglobal.com Website: www.fmglobal.com
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Regulations & Conformity Assessment Modules/Schedules	Recommended To	Date of Recommendation	Technical Scope
The Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres Regulations, No 192 (as amended)	DTI	07.04.06	Electrical and non-electrical apparatus for potentially explosive atmospheres Groups 1 & 2 Categories M1, M2 1, 2, 3 protective systems devices and components Modules:- EC-Type examination Production QA Product verification Conformity to type Product QA Unit verification

END

LIST OF BODIES NOTIFIED UNDER DIRECTIVE 94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres

Name and address of the notified bodies	Identification number	Responsible for the following products	Responsible for the following procedures / modules	Annexes / articles of the directives
FM APPROVALS LTD. 1 Windsor Dials SL4 1RS WINDSOR United Kingdom	1725	Equipment group I, categories M1 and M2 Equipment group II, categories 1 and 2 Equipment group II, category 3 - Autonomous protective systems Safety devices Components covering protection concepts for: electrical equipment - 'd', 'e', 'f', 'm', 'n', 'o', 'p', 'q', 'rD', 'pD', 'mD', 'mD' non-electrical equipment - fr, d, c, b, k protective systems - venting, suppression, flame arresters, decoupling, explosion resistant enclosure safety-related devices - 94/9/EC Annex II clause 1.5	EC Type-examination Production quality assurance Product verification Conformity to type Product quality assurance Internal control of production + receipt of technical file Unit verification	Annex III Annex IV Annex V Annex VI Annex VII Art. 8.1 (b) (ii) Annex IX