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

IECEX OPERATIONAL DOCUMENT

IECEx 60079-19 FAR (Combined Revision of existing CRF + FAR)

TITLE: Facility Audit Report Form (FAR) – Ex Repair and Overhaul

Circulated to: IECEx MC Members

Introduction

Further to the Report from WG10 at the Split 2011 ExMC meeting, refer item 11.2 of the ExMC Split confirmed minutes ExMC/723A/RM, WG10 has progressed with its work to integrate additional Ex related Services beyond Ex Repair.

Refer to Document ExMC/746/Inf for the background and explanation of the new proposed IECEx 03 series Document Structure.

This draft document is the proposed new Facility Audit Report (FAR) for the IECEx 03-5 Scheme (Certified Service Facility Scheme Part 5 Ex Repair and Overhaul) for use by ExCBs to record assessments and audits of Service Facilities providing Ex Repair Services according to IEC 60079-19. This document also contains the proposed Non Conformance Report Form (NCR).

This draft new FAR combines the previous IEC 60079-19 Compliance Report Form (CRF) and the previous IEC 60079-19 FAR into one single Report Form.

This document has been prepared by WG10 and is presented for consideration at the ExMC Calgary 2012 meeting.

IECEx Secretariat

Address: IECEx Secretariat Standards Australia Building 286 Sussex Street Sydney NSW 2000 Australia

ExCB Internal File Reference No.:

Applicant:

Service facility (SF) location covered by this assessment:
Percentage of business related to Ex equipment (Optional Additional information): list the % of the total business that relates to repair, overhaul or reclamation of Ex equipment>
No. of employees: A total of employees on site, involved in repair and overhaul of Ex equipment.
Responsible person(s): <pre></pre> <pre></pre> <pre></pre> <pre> <pre>clist the Responsible Persons, according to IEC 60079-19, that have been assessed. This list must be reviewed each surveillance audit></pre></pre>
Operatives: < the Operatives, according to IEC 60079-19, that have been assessed. This list must be reviewed each surveillance audit>
Scope of repair and overhaul work of the SF, including any limitations: <specify <1="" and="" any="" e="" e.g.="" e.gonly="" equipment="" ex="" kv<="" limitations,="" motors="" motors,="" of="" protection,="" rated="" td="" type=""></specify>
Audit criteria: - IEC 60079-19, 3 rd edition - OD 014-5 - OD 015-5
Type of audit:
[] – initial assessment/reassessment of a SF with a verified QS [] – initial assessment/reassessment of a SF without a certified QS [] – surveillance of a SF with a certified QS [] – surveillance of a SF without a certified QS [] – special assessment visit, e.g. due to relocation or major changes at the Service Facility
Lead Assessor: (name)
Lead Assessor: (signature)

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1 SUMMARY REPORT

	rence Documents: le quality manual and other documents or procedures referenced during the audit)
	mary of observations: e the most important results of the compliance/surveillance audit)
	conformities: tailed in the attached Nonconformity (NCR) Report(s), when applicable
	Assessor's recommendations: FAR issued, indicating <u>full</u> compliance with IECEx Scheme Requirements, recommending that IECEx Facility Certification be issued/maintained
[]-	FAR issued, indicating <u>general</u> compliance with IECEx Scheme Requirements, even if minor non conformances are raised, recommending that IECEx Facility Certification be issued/maintained following receipt of satisfactory documentary evidence supporting effective corrective action. Corrective action to be verified at next surveillance visit
[]-	FAR issued, indicating <u>non-compliance</u> with IECEx Scheme Requirements, due to major non-conformances being raised, recommending that IECEx Facility Certification be issued only after a satisfactory follow-up visit. Services cannot be claimed as being covered by IECEx Certification until a follow up visit is conducted (must be within 2 calendar months of assessment).
Acce	pted by IECEx 03 ExCB:
ExCE Date:	
FX C	ertification Manager

2 AUDIT DATA

Z AUDII DATA		
QS Registration:	☐ ISO 9001	Registrar (Certification Body): Certificate No.: Expiration Date: hold a current ISO 9001 certficate
	onconformities rais	e(s) a year. The last audit was carried out on xx xxxx 20xx. The audit and during the audit and corresponding corrective actions, has been
Where applicable, the to A copy of the ISO 90 — A copy of the last ISO — A copy of the organization	01 certificate O 9001 audit report	s are retained on the Applicant's file by the ExCB:
Composition of audit Xxxx xxxxxxxx, Lead A		
Date(s) of the audit: mmmm dd, yyyy		
Number of man-days man-days	on-site:	
Interviewed represent	tatives of the Serv	vice Eacility (auditoes):

Interviewed representatives of the Service Facility (auditees):

Name	Position

Where necessary other staff assisted during the assessment.

3 ASSESSOR'S REPORT

3.1 Assessment to OD 014-5

(The requirements of each of the following Clauses are detailed in OD 014-5)

Clause	Subject	SF reference document	Audit findings	NCR No.
3.1	Documentation requirements	No requirements	N/A	
3.1.1	General			
3.1.2.	Records Ex process plan? Number of Ex repairs? Percentage of Ex repairs related to non- Ex repairs?			
3.2	Management			
	responsibility Management representative? Responsible Person?			
3.3	Resource management Staff competence?			
3.4	Product realization			
3.5	Measurement, analysis and improvement	No requirements	N/A	
3.5.1	Planning			
3.5.2	Customer satisfaction			
3.5.3	Internal audit			
3.5.4	Monitoring and measuerement of processes			
3.5.5	Monitoring and measurement of product			
3.5.6	Control of nonconforming product			
3.5.9	Corrective action			
3.5.10	Preventive action			
8	Process assessment by ExCBs	No requirements	N/A	
8.1	Compliance with OD 015-5			
8.2	Use of subcontractors Agreement?			
8.3	Assessment of competencies			
8.4	Records			
8.5	Marking			
8.6	Dimensional checks			
8.7	Conditions for equipment release Marking? Report to customer? Job records?			

Clause	Subject	SF reference document	Audit findings	NCR No.
A.1	Assessment of Responsible Persons and Operatives			

3.2 Assessment to IEC 60079-19 – General requirements (Edition 3)

(The requirements of each of the following Clauses are detailed in IEC 60079-19)

Clause	Subject	SF reference document	Audit findings	NCR No.
4	General			
4.1	General principles			
4.2	Statutory requirements for repair facility			
4.4	Instructions for the repair facility			
4.4.1	Repair and overhaul			
4.4.1.1	General			
4.4.1.2	Certificates and standards			
4.4.1.3	Competency			
4.4.1.4	Repair of components			
4.4.1.5	Documentation			
4.4.1.5.1	General			
4.4.1.5.2	Job report to the user			
4.4.1.5.3	Repair facility records			
4.4.1.6	Spare parts			
4.4.1.6.1	General			
4.4.1.6.2	Fasteners			
4.4.1.6.3	Sealed parts			
4.4.1.7	Identification of repaired equipment			
4.4.2	Reclamations			
4.4.2.1	General			
4.4.2.2	Exclusions			
4.4.2.2.1	Requirements			
4.4.2.2.2	General			
4.4.2.2.3	Responsibilities			
4.4.2.2.4	Reclamation procedures			
4.4.2.2.5	General			
4.4.2.2.6	Metal spraying			
4.4.2.2.7	Electroplating			
4.4.2.2.8	Sleeving			
4.4.2.2.9	Brazing and welding			
4.4.2.2.10	Metal stitching			
4.4.2.2.11	Threaded holes for fasteners			
4.4.2.2.12	Re-machining			
4.4.3	Alterations and modifications			
4.4.3.1	Alterations			
4.4.3.2	Modifications			

Clause	Subject	SF reference document	Audit findings	NCR No.
4.4.4	Temporary repairs			
4.4.5	Rotating machinery			
4.4.5.1	Removal of damaged windings			
4.4.5.2	Additional requirements			
4.4.5.3	Lubricants and corrosion inhibitors			
4.4.6	Inverters			

3.3 Assessment to IEC 60079-19 – Ex d (the following table maybe removed if Ex d is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
5	Additional requirements for Ex d equipment			
5.1	Application			
5.2	Repair and overhaul			
5.2.1	Enclosures			
5.2.1.1	General			
5.2.1.2	Over-pressure testing			
5.2.2	Cable and conduit entries			
5.2.3	Terminations			
5.2.4	Insulation			
5.2.5	Internal connections			
5.2.6	Windings			
5.2.6.1	General			
5.2.6.2	Repair of rotating machine rotors			
5.2.6.3	Testing after repair of windings			
5.2.6.3.1	General			
5.2.6.3.2	Rotating machines			
5.2.6.4	Temperature sensors			
5.2.6.4.1	Repaired windings			
5.2.6.4.2	Overhaul			
5.2.7	Auxiliary equipment			
5.2.7.1	Flameproof brake units			
5.2.7.2	Other auxiliary devices			
5.2.8	Light-transmitting parts			
5.2.9	Encapsulated parts			
5.2.10	Batteries			
5.2.11	Lamps			
5.2.12	Lampholders			
5.2.13	Ballasts			
5.2.14	Breathing devices			
5.3	Reclamation			
5.3.1	General			

Clause	Subject	SF reference document	Audit findings	NCR No.
5.3.2	Enclosures			
5.3.2.1	Components			
5.3.2.2	Flameproof joints			
5.3.2.3	Threaded holes for fasteners			
5.3.3	Sleeving			
5.3.4	Shafts and			
	housings			
5.3.5	Sleeve bearings			
5.3.6	Rotors and			
	stators			
5.4	Alterations and modification			
5.4.1	Enclosures			
5.4.2	Cable or conduit			
	entries			
5.4.3	Terminations			
5.4.4	Windings			
5.4.5	Auxiliary			
	equipment			

3.4 Assessment to IEC 60079-19 – Ex i (the following table maybe removed if Ex i is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
6	Additional			-
	requirements for			
	Ex i equipment			
6.1	Application			
6.2	Repair and			
	overhaul			
6.2.1	Enclosures			
6.2.2	Cable glands			
6.2.3	Terminations			
6.2.4	Soldered			
	connections			
6.2.5	Fuses			
6.2.6	Relays			
6.2.7	Shunt diode			
	safety barriers			
	and galvanic			
	isolators			
6.2.8	Printed circuit			
	boards			
6.2.9	Optocouplers and			
	piezoelectric			
	components			
6.2.10	Electrical			
	components			
6.2.11	Batteries			
6.2.12	Internal wiring			
6.2.13	Transformers			
6.2.14	Encapsulated			
	components			
6.2.15	Non-electrical			
	parts			
6.2.16	Testing			
6.3	Reclamation			
6.4	Modifications			

3.5 Assessment to IEC 60079-19 – Ex p (the following table maybe removed if Ex p is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
7	Additional requirements for Ex p equipment			
7.1	Application			
7.2	Repair and overhaul			
7.2.1	Enclosures			
7.2.2	Cable and conduit entries			
7.2.3	Terminations			
7.2.4	Insulation			
7.2.5	Internal connections			
7.2.6	Windings			
7.2.6.1	General			
7.2.6.2	Repair of rotating machine rotors			
7.2.6.3	Testing after repair of windings			
7.2.6.3.1	General			
7.2.6.3.2	Rotating machines			
7.2.6.4	Temperature sensors			
7.2.6.4.1	Repaired windings			
7.2.6.4.2	Overhaul			
7.2.7	Auxiliary devices			
7.2.8	Light-transmitting parts			
7.2.9	Encapsulated parts			
7.2.10	Batteries			
7.2.11	Lamps			
7.2.12	Lampholders			
7.2.13	Ballasts			
7.3	Reclamation			
7.3.1	General			
7.3.2	Enclosures			
7.3.2.1	General			
7.3.2.2	Joints			
7.3.3	Shafts and housings			
7.3.4	Sleeve bearings			
7.3.5	Rotors and stators			
7.4	Alterations and modifications			
7.4.1	Enclosures			
7.4.2	Cable and conduit entries			
	Terminations			
7.4.4	Windings			
7 4 5	Auxiliary			
7.4.3 7.4.4 7.4.5	Terminations			

3.6 Assessment to IEC 60079-19 – Ex e (the following table maybe removed if Ex e is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
8	Additional requirements for			
8.1	Ex e equipment Application			
8.2	Repair and			
0.2	overhaul		1	
8.2.1	Enclosures			
8.2.2	Cable and conduit			
	entries			
8.2.3	Terminations			
8.2.4	Insulation			
8.2.5	Internal connections			
8.2.6	Windings			
8.2.6.1	General			
8.2.6.1.1	For machines with			
	a rated voltage of 1000 V or less			
8.2.6.1.2	For machines with			
	a rated voltage of greater than 1000			
8.2.6.2	Repair of rotating machine rotors			
8.2.6.3	Testing after repair of windings			
8.2.6.3.1	General			
8.2.6.3.2	Rotating machines			
8.2.6.4	Temperature sensors			
	Repaired windings			
8.2.6.4.2	Overhaul			
8.2.7	Light-transmitting parts			
8.2.8	Encapsulated parts			
8.2.9	Batteries			
8.2.10	Lamps			
8.2.11	Lampholders			
8.2.12	Ballasts			
8.2.13	Breathing devices			
8.3	Reclamation			
8.3.1	Enclosures			
8.3.1.1 8.3.1.2	General			
8.3.1.3	Joints Shafts and			
8.3.2	housings Sleeve bearings			
8.3.3	Rotors and			
8.4	stators Modifications			
8.4.1	Enclosures			
8.4.2	Cable and conduit			
	entries			
8.4.3	Terminations			
8.4.4 8.4.5	Windings			
	Auxiliary		ĺ	I

3.7 Assessment to IEC 60079-19 – Ex n (the following table maybe removed if Ex n is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
9	Additional			
	requirements for			
	Ex n equipment			
9.1	Application			
9.2	Repair and overhaul			
9.2.1	Enclosures			
9.2.2	Cable and conduit entries			
9.2.3	Terminations			
9.2.4	Insulation			
9.2.5	Internal			
	connections			
9.2.6	Windings			
9.2.6.1	General			
9.2.6.2	Repair of rotating			
	machine rotors			
9.2.6.3	Testing after			
	repair of windings			
9.2.6.3.1	General			
9.2.6.3.2	Rotating			
	machines			
9.2.6.4	Temperature sensors			
9.2.6.4.1	Repaired			
	windings			
9.2.6.4.2	Overhaul			
9.2.7	Light-transmitting parts			
9.2.8	Encapsulated parts			
9.2.9	Batteries			
9.2.10	Lamps			
9.2.11	Lamp holders			
9.2.12	Ballasts			
9.2.13	Enclosed break devices			
9.2.14	Breathing devices			
9.3	Reclamation			
9.3.1	General			
9.3.2	Enclosures			
9.3.2	Joints			
9.3.4	Shafts and			
J.J.4	housings			
9.3.5	Sleeve bearings			
9.3.6	Rotors and			
	stators			
9.4	Alterations and modifications			
9.4.1	Enclosures			
9.4.2	Cable and conduit entries			
9.4.3	Terminations			
9.4.4	Windings			
9.4.5	Auxiliary equipment			

3.8 Assessment to IEC 60079-19 – equipment covered by IEC 60079-26 (the following table maybe removed if not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
10	Additional requirements for equipment covered by IEC 60079-26			

3.9 Assessment to IEC 60079-19 – Ex t (formerly known as tD, DIP) (the following table maybe removed if not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
11	Additional requirements for Ex t equipment			
11.1	Application			
11.2	Repair and overhaul			
11.2.1	Enclosures			
11.2.2	Cable and conduit entries			
11.2.3	Terminations			
11.2.4	Insulation			
11.2.5	Internal connections			
11.2.6	Windings			
11.2.6.1	General			
11.2.6.2	Repair of machine rotors			
11.2.6.3	Testing after repair of windings			
11.2.6.3.1	General			
11.2.6.3.2	Rotating machines			
11.2.6.4	Temperature sensors			
11.2.6.4.1	Repaired windings			
11.2.6.4.2	Overhaul			
11.2.7	Light-transmitting parts			
11.2.8	Batteries			
11.2.9	Lamps			
11.2.10	Lamp holders			
11.2.11	Ballasts			
11.2.12	Breathing devices			
11.3	Reclamation			
11.3.1	Enclosures			
11.3.2	Joints			
11.3.3	Shafts and housings			
11.3.4	Sleeve bearings			
11.3.5	Rotors and stators			
11.4	Alterations and modifications			
11.4.1	Enclosures			

Clause	Subject	SF reference document	Audit findings	NCR No.
11.4.2	Cable and conduit entries			
11.4.3	Windings			
11.4.4	Auxiliary equipment			

3.10 Assessment to IEC 60079-19 – Ex pD (the following table maybe removed if Ex pD is not within the scope of application)

Clause	Subject	SF reference document	Audit findings	NCR No.
12	Additional requirements for Ex pD equipment			
12.1	Application			
12.2	Repair and overhaul - see clause 7			
12.3	Reclamation – see clause 7			
12.4	Modifications – see clause 7			

3.11 Assessment to IEC 60079-19 - Annex A - Identification of repaired equipment by marking

Clause	Subject	SF reference document	Audit findings	NCR No.
A.1	Marking infromation			
A.2	Symbols			
A.2.1	In accordance with certificate documentation and/or manufacturer's specification			
A.2.2	In accordance with the type of protection standards but not the certificate documentation			
A.2.3	Other situations			

3.12 Assessment to IEC 60079-19 – Annex B – Knowledge, skills and competencies of "responsible persons" and "operatives"

Clause	Subject	SF reference document	Audit findings	NCR No.
B.1	Scope			
B.2	Knowledge and skills			
B.2.1	Responsible persons			
B.2.2	Operatives			
B.3	Competencies			
B.3.1	General			
B.3.2	Responsible persons			
B.3.3	Operatives			
B.4	Assessment			

3.13 Assessment to IEC 60079-19 – Annex C – Requirements for measurements in flameproof equipment during overhaul, repair and reclamation (including guidance on tolerances)

Clause	Subject	SF reference document	Audit findings	NCR No.
C.1	General			

3.2 Assessment to OD 015-5

Clause	Subject	SF reference document	Audit findings	NCR No.
4	Additional requirements associated with Efficiency to maintain T Ratings of rotating machines			
5.1	Machining limits for Flameproof Surfaces (for Ex d)			
5.2	Overpressure (for Ex d)			

IECEx 03 - 5 Typical Non Conformity Report (NCR)

IECEx FAR No: xxxx Date(s) of assessment: xxxx					
Non Conformity Number: mm/yyyy/xx (Month/Year/No. issued)					
Requirement reference: (e.g. IEC 60079-19 / OD 014-5 / OD 015-5, clause)					
Response time by Auditee:					
Non Conformance (objective finding and statement of non-conformance):					
ExCB Auditor:	Service Facility representative:				
Response of Service Facility					
1) Proposed Corrective Action + Timeframe Include a statement describing actual corrective action					
ExCB Auditor:	Service Facility representative:				
2) Corrections and Corrective actions: Include a statement describing actual corrective/preventative action implemented					
3) Verification of Corrective and Preventive Action by ExCB:					
ExCB Auditor:	Service Facility representative:				