

## COMAH Competent Authority Inspection of Electrical, Control and Instrumentation Systems at COMAH Establishments

(Operational Delivery Guide)

the Competent Authority



## Introduction

- 1 This Delivery Guide (DG) describes how the COMAH Competent Authority (CA) inspects Electrical, Control and Instrumentation (EC&I) aspects of the control of major hazards at COMAH sites. Its purpose is to ensure consistency in the application of the COMAH Regulations and to provide transparency to Operators about what is expected.
- 2 The guide includes the benchmark standards that are used to assess the way Operators manage risk. They represent a consensus between regulators, technical experts, duty holders and other stakeholders on what constitutes proportionate action to control a given hazard. Electrical, Control and Instrumentation Engineering is supported by comprehensive established standards that should not require significant further interpretation.
- 3 Not all of the benchmark standards contained in the guide are necessarily applicable at every establishment. The Operator should already be aware of the hazards and risks at their establishment and hence which benchmark standards are applicable.
- 4 In particular, for aspects of nuclear facilities and installations that may be subject to COMAH, the benchmark standards specified in Annex 2 may not be applicable where other nuclear sector standards have been used in their design, construction, installation, operation, use and maintenance. In such cases, information on relevant nuclear sector standards that may form a benchmark for EC&I inspections by the CA can be provided by the Office for Nuclear Regulation.
- 5 There is a comprehensive range of guidance documents available from professional institutions and trade associations which can be helpful to Operators in meeting the benchmark standards in this delivery guide. This delivery guide does not list these guidance documents specifically as there are many such documents from different organisations, often addressing the same subject-matter.
- 6 Whilst primarily aimed at HSE EC&I inspectors, this guide will be useful to Operators in managing risk in relation to major accident hazards and preparing for CA inspections.

## Justification

- 7 Failure to control process conditions and the risks from electrical installations and equipment have been the main or underlying cause in many major accidents both in the UK and abroad including Buncefield and BP Texas City. HSE research into the causation of major accidents and incidents indicates that failure to adequately control process conditions, especially during normal operations, is responsible for the loss of containment of hazardous substances.
- 8 In many processes and activities undertaken at COMAH establishments, EC&I equipment and systems provide important prevention and mitigation measures against major accidents. Examples include:
  - instrumented process safety measures such as trips, alarms and interlocks (including safety instrumented systems);
  - protection against electrical sources of ignition;
  - protection against large releases of electrical energy, and;
  - reliability and availability of utilities.

## Scope

9 The EC&I specialist discipline covers the following Engineering topics and associated safety management systems:

- functional safety;
- cyber security;
- explosive atmospheres, and;
- electrical power systems.

### Functional Safety

10 Functional Safety is concerned with the management, design, installation, operation and maintenance of instrumented process safety systems that reduce the risk of a major accident. Such systems include:

- basic process control systems;
- safety instrumented systems;
- alarm systems.

### Cyber Security

11 In the context of major accident hazards, Cyber Security is concerned with the security of industrial automation and control systems (IACS), specifically basic process control systems and instrumented safety systems that can initiate or protect against major accidents.

### Explosive Atmospheres

12 Explosive atmospheres is concerned with the management, design, installation, operation and maintenance of systems that reduce the risk of electrical sources of ignition arising from:

- electrical installations;
- lightning in relation to structures with a risk of explosion;
- electrostatic hazards;
- radio frequency radiation;
- isolating joints, for example in cathodic protection systems;

and the mitigation of releases using:

- flammable and toxic gas detection;
- fire detection.

### Electrical Power Systems

13 In the context of major accident hazards, electrical power systems are concerned with:

- the initiation of major accidents by electrical equipment through fire and explosion;
- the management, design, installation, operation and maintenance of electrical power systems so that they provide the necessary reliability and availability to prevent or mitigate major accidents and so that they prevent danger to personnel.

## **EC&I Inspection Process**

**14** An EC&I inspection should address the Safety Management System that underpins one or more of the following elements of one or more of the EC&I topics in order to assess Operator risk management performance against relevant good practice:

- hazard and risk assessment;
- specification, design and engineering;
- operation and maintenance;
- competence.

There may be circumstances where the inspector may decide to inspect areas other than in this guide because of specific known issues or issues identified at site during the inspection.

## **Targeting**

**15** The CA will prioritise which sites to inspect and the order of inspection based on risk, Operator performance and other intelligence.

**16** Regardless of their performance, COMAH Operators will be subject to a degree of periodic inspection to provide public reassurance that major accident hazards continue to be managed appropriately.

## **Sampling**

**17** An EC&I inspection should address its subject matter in sufficient detail to determine performance against relevant good practice. The inspection should examine and test the effectiveness of critical EC&I control measures relating to the major hazard scenarios relevant for the establishment. Inspectors will focus on and test in detail the most important layers of protection and accident prevention barriers and the systems which support them. They will use their professional judgement to decide how deeply to probe Operator performance and the underlying causes of failure before they make a regulatory decision.

**18** The standards and good practice relevant to the technical benchmarks that apply to Electrical and Instrumentation Engineering on major hazard sites are set out in Annex 2. An overview of the inspection process is shown in Figure 1.

**19** Annex 3 of this guide also provides templates that can be used to record the performance rating arising from inspections.

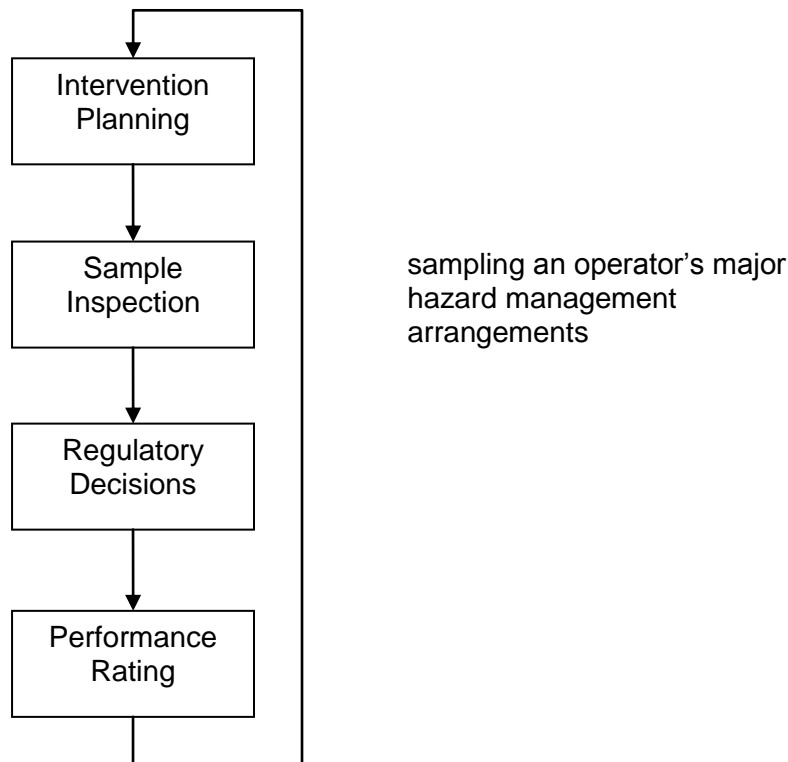


Figure 1: Overview of the EC&I inspection process

### **Making Regulatory Decisions**

**20** Evidence gathered during inspection should be used to derive enforcement decisions in accordance with the Enforcement Management Model. EC&I sources of evidence could include:

- risk assessment studies;
- specifications;
- design documents;
- calculations;
- equipment certificates and manuals;
- maintenance procedures;
- maintenance records;
- test and inspection records;
- competence records;
- compliance against safety management system procedures;
- field observations, including information provided verbally by the Company.

Evidence of compliance may be gathered on site or may be received after the site inspection. If further information was requested, the inspection will not be complete until that information is assessed.

Evidence gathered during inspection should also be used to ensure that the information contained in the COMAH Safety Report adequately reflects the conditions in the establishment.

### **Performance Rating**

**21** An Operator shall be given a performance rating using the criteria set out in the Table 1 for each EC&I topic and associated safety management system based on the outcome

of that inspection and relevant evidence from previous inspections where available. These include:

- functional safety;
- cyber security;
- explosive atmospheres, and;
- electrical power systems.

The performance score should be communicated to the Operator as soon as the topic inspection is complete, or as soon as possible thereafter, and recorded in the inspection report.

<b>Performance Assessment</b>					
Each topic and associated safety management system should be assessed against the following performance criteria. A score of 20 or 10 must satisfy all specified criteria.					
60	50	40	30	20	10
Unacceptable	Very Poor	Poor	Broadly Compliant	Fully Compliant / Good	Exemplary
Performance standards are based on prevailing CA methodologies at the time of publication.					

Table 1: performance standards

## **Annex 1: References and Supporting Information**

### **Supporting Information**

Enforcement Policy Statement <http://www.hse.gov.uk/pubns/hse41.pdf>;

Enforcement Management Model (EMM) <http://www.hse.gov.uk/enforce/emm.pdf>;

Expert guidance, ALARP suite of guidance <http://www.hse.gov.uk/risk/expert.htm>

The Safety Report Assessment Manual (SRAM)

<http://www.hse.gov.uk/comah/sram/index.htm>;

Competent Authority procedures and delivery guides <http://www.hse.gov.uk/comah/ca-guides.htm>.

## Annex 2: Benchmarks

### Functional Safety

The following benchmark standards, or equivalent, should be applied:

- in full to installations built since the establishment of the benchmarks;
- so as far as reasonably practicable to installations that pre-date their publication, recognising that compliance with previous revisions of the benchmark standards might be adequate;

The benchmarks quoted are applicable at the time of publication of this guide. Where the benchmark has been updated, the equivalent clause of the updated benchmark should be applied subject to the reasonable practicability clause above.

### Key Benchmark Standards

Subject	Benchmark Standard
Functional safety - Safety instrumented systems	BS EN 61511
EC&I aspects of Alarm Systems	BS EN 62682
Management of instrumented systems providing safety functions of low / undefined safety integrity	<a href="#">HSE Operational Guidance 46</a>

### Benchmark Standards for Inspection

#### Hazard & Risk Assessment

Subject	Benchmark Standard
Process hazard and risk assessment at COMAH sites is led by the Process Safety discipline and Environmental Officers for environmental risk. Environmental expertise will be required where risk to the environment dominates.	

#### Engineering and Design

Subject	Benchmark Standard
Allocation of safety functions to protection layers.	BS EN 61511-1, Clause 9
Safety requirements specification for the safety instrumented system	BS EN 61511-1, Clause 10
Design and engineering of safety instrumented system	BS EN 61511-1, Clause 11
Requirements for application software	BS EN 61511-1, Clause 12
Low integrity systems	<a href="#">HSE Operational Guidance 46</a>
Instrumentation in process control systems	BS 6739
EC&I aspects of alarm systems	BS EN 62682
Operator Response within Safety Instrumented Systems	<a href="#">HSE Operational Guidance 47</a>



### Operation and Maintenance

Subject	Benchmark Standard
Installation, commissioning and validation	BS EN 61511-1, Clauses 14 and 15
Operation and maintenance	BS EN 61511-1, Clause 16
Modification	BS EN 61511-1, Clause 17
Decommissioning	BS EN 61511-1, Clause 18
Proof Testing of Safety Instrumented Systems	<a href="#">HSE Operational Guidance 54</a>
Operator Response within Safety Instrumented Systems	<a href="#">HSE Operational Guidance 47</a>
Low integrity systems	<a href="#">HSE Operational Guidance 46</a>
Instrumentation in process control systems	BS 6739

### Competence

Subject	Benchmark Standard
Organization and resources	BS EN 61511-1, Clause 5
Competence management	<a href="#">Managing competence for safety-related systems Part 1</a> <a href="#">Managing competence for safety-related systems Part 2</a>

### Safety Management System

Subject	Benchmark Standard
Management of functional safety	BS EN 61511-1, Clause 5 <a href="#">HSG 65</a> <a href="#">The Control of Major Accident Hazards Regulations 2015, Guidance on Regulations, Schedule 2</a>

## Cyber Security

The following benchmark standards, or equivalent, should be applied:

- in full to installations built since the establishment of the benchmarks;
- so as far as reasonably practicable to installations that pre-date their publication, recognising that compliance with previous revisions of the benchmark standards might be adequate;

The benchmarks quoted are applicable at the time of publication of this guide. Where the benchmark has been updated, the equivalent clause of the updated benchmark should be applied subject to the reasonable practicability clause above.

### Key Benchmark Standards

Subject	Benchmark Standard
Cyber Security for Industrial Automation and Control Systems (IACS)	<a href="#">HSE Operational Guidance 86</a>

### Benchmark Standards for Inspection

#### Hazard & Risk Assessment

Subject	Benchmark Standard
Defining the IACS	<a href="#">HSE Operational Guidance 86</a>
Cyber security risk assessment and definition of countermeasures	

#### Engineering and Design

Subject	Benchmark Standard
Implement countermeasures	<a href="#">HSE Operational Guidance 86</a>
Implement additional SIS specific countermeasures	
Validation of countermeasures	

#### Operation and Maintenance

Subject	Benchmark Standard
Monitoring of countermeasures	<a href="#">HSE Operational Guidance 86</a>
Maintenance of countermeasures	
Testing of countermeasures	
Incident response	
Managing obsolescence	

#### Competence

Subject	Benchmark Standard
Roles and responsibilities	<a href="#">HSE Operational Guidance 86</a>
Defining and assessing competence	

## Safety Management

Subject	Benchmark Standard
Management of cyber security	<a href="#">HSE Operational Guidance 86</a> <a href="#">HSG 65</a> <a href="#">The Control of Major Accident Hazards Regulations 2015, Guidance on Regulations, Schedule 2</a>

## Explosive Atmospheres

The following benchmark standards, or equivalent, should be applied:

- in full to installations built since the establishment of the benchmarks;
- so as far as reasonably practicable to installations that pre-date their publication, recognising that compliance with previous revisions of the benchmark standards might be adequate.

The benchmarks quoted are applicable at the time of publication of this guide. Where the benchmark has been updated, the equivalent clause of the updated benchmark should be applied subject to the reasonable practicability clause above.

### Key Benchmark Standards

Subject	Benchmark Standard
Explosive atmospheres	BS EN 60079
Protection against lightning in relation to structures with a risk of explosion	BS EN 62305 <a href="#">Guidance For Electrical Installation And Equipment Within Explosives Manufacturing And Storage Facilities Including Fireworks</a> <a href="#">HSE Operational Guidance 44</a>
Hazards due to static electricity	PD IEC/TS 60079-32-1
Ignition of flammable atmospheres by radio-frequency radiation	PD CLC/TR 50427 <a href="#">HSE Operational Guidance 45</a>
Isolating joints	BS EN 13636 (cathodic protection) ISGOTT (oil tankers and terminals)
Detection of flammable gases and oxygen	BS EN 60079-29
Detection of toxic gases and vapours	BS EN 45544
Fire detection and fire alarm systems	BS 5839

### Benchmark Standards for Inspection

Hazard & Risk Assessment

Subject	Benchmark Standard
DSEAR risk assessment	Led by the Process Safety discipline
Area classification	Led by the Process Safety discipline
Fire & gas detection	Led by the Process Safety discipline
Lightning in relation to structures with a risk of explosion	BS EN 62305-2 <a href="#">HSE Operational Guidance 44</a>
Radio frequency radiation	PD CLC/TR 50427, Clause 10 ISGOTT (oil tankers and terminals) <a href="#">HSE Operational Guidance 45</a>

## Engineering and Design

Subject	Benchmark Standard
Electrical installations design, selection and erection	BS EN 60079-14 BS7671 BS7430 BS EN 50522 BS EN 1755 (Industrial Trucks)
Lightning protection systems in relation to structures with a risk of explosion	BS EN 62305-3 BS EN 62305-4 <a href="#">Guidance For Electrical Installation And Equipment Within Explosives Manufacturing And Storage Facilities Including Fireworks</a>
Radio frequency radiation	<a href="#">HSE Operational Guidance 45</a>
Static control measures	PD IEC/TS 60079-32-1
Isolating joints	BS EN 13636 (cathodic protection) ISGOTT (oil tankers and terminals)
Detectors for flammable gases and oxygen	BS EN 60079-29-2, Clause 8
Detectors for toxic gasses and vapours	BS EN 45544-4 Clause 6
Fire detection and fire alarm systems	BS 5839-1, Section 2 & 5

## Operation and Maintenance

Subject	Benchmark Standard
Electrical installations inspection and maintenance	BS EN 60079-17 BS7671 GN3 / BS7430
Moveable equipment	BS EN 60079-17, Clause 4
Equipment repair, overhaul and reclamation	BS EN 60079-19
Lightning protection systems in relation to structures with a risk of explosion	BS EN 62305-3, Clause 7 BS EN 62305-4, Clause 9 <a href="#">Guidance For Electrical Installation And Equipment Within Explosives Manufacturing And Storage Facilities Including Fireworks</a>
Static earthing	PD IEC/TS 60079-32-1, Clause 13
Radio frequency radiation	ISGOTT (oil tankers and terminals)
Detectors for flammable gases and oxygen	BS EN 60079-29-2, Clause 11
Detectors for toxic gasses and vapours	BS EN 45544-4, Clauses 7, 8 & 9
Fire detection and fire alarm systems	BS 5839-1, Sections 6 & 7

## Competence

Subject	Benchmark Standard
Electrical installations	BS EN 60079-14, Clause 4 & Annex A BS EN 60079-17, Clause 4 & Annex B
Competence Management	<a href="#">Human factors: Training &amp; Competence</a>

## Safety Management System

Subject	Benchmark Standard
Explosive atmospheres	<a href="#">HSG 65</a> <a href="#">The Control of Major Accident Hazards Regulations 2015, Guidance on Regulations, Schedule 2</a>

## Electrical Power Systems

The following benchmark standards, or equivalent, should be applied:

- in full to installations built since the establishment of the benchmarks;
- so as far as reasonably practicable to installations that pre-date their publication, recognising that compliance with previous revisions of the benchmark standards might be adequate.

The benchmarks quoted are applicable at the time of publication of this guide. Where the benchmark has been updated, the equivalent clause of the updated benchmark should be applied subject to the reasonable practicability clause above.

Low voltage electrical installations may have been designed and installed to conform to standards set by earlier editions of BS 7671 or the IEE Wiring regulations. This does not mean that they will fail to achieve conformity with the relevant parts of the Electricity at Work Regulations, including those parts that are relevant to the general duties of the COMAH Regulations.

### Key Benchmark Standards

Subject	Benchmark Standard
Electrical installations - HV	BS EN 61936-1 <a href="#">HSR 25</a>
Electrical installations - LV	BS7671
Electrical power system earthing	BS EN 50522 BS 7430
Safe operation / safe systems of work	BS 6867 BS 6626 BS 6423 <a href="#">HSG 230</a> <a href="#">HSG 85</a> <a href="#">HSR 25</a>
Inspection, maintenance & testing	BS 6867 BS 6626 BS 6423 BS 7671 BS 7430 <a href="#">HSR 25</a>

### Benchmark Standards for Inspection

Hazard & Risk Assessment

Subject	Benchmark Standard
Impact of catastrophic failure of electrical equipment	Management of Health and Safety at Work Regulations 1999 BS EN 61936-1 Clause 8
Impact of electrical power failure on other utilities & systems	Management of Health and Safety at Work Regulations 1999

## Engineering and Design

Subject	Benchmark Standard
Earthing arrangements	BS EN 61936-1, Clause 4 and 10 BS EN 50522 BS 7430 BS 7671 <a href="#">HSR 25</a> – Guidance 8
Equipment selection & erection	BS EN 61936-1, Clause 5, 6, 7 and 8 BS EN 62271 series BS EN 61439 series BS EN 60076 <a href="#">HSG 230</a> - Selection of new, replacement or refurbished switchgear <a href="#">HSR 25</a> – Guidance 4
Equipment strength & capability	BS EN 61936-1, Clause 4 BS EN 60909 series <a href="#">HSG 230</a> - Reducing the risk of switchgear failure <a href="#">HSR 25</a> – Guidance 5
Protection arrangements	BS EN 61936-1, Clause 9 <a href="#">HSG 230</a> - Operation of Switchgear ENA ER G59/3, G75/1 or G84/2 <a href="#">HSR 25</a> – Guidance 11
Equipment layout / segregation	BS EN 61936-1, Clause 8

## Operation and Maintenance

Subject	Benchmark Standard
Safe Operation / Safe Systems of Work	BS 6626, Clause 9 and Appendix B BS 6867, Clause 4 BS 6423, Clause 4 <a href="#">HSG 230</a> - Operational Safety Documents <a href="#">HSG 85</a> <a href="#">HSR 25</a> – Guidance 4, 12, 13 and 14
Inspection, Testing and Maintenance of HV systems	BS 6867 BS 6626 BS EN 60422 - Insulating Oil BS EN 60599 - Dissolved Gas Analysis <a href="#">HSG 230</a> - Care and maintenance <a href="#">HSG 230</a> - Protection <a href="#">HSG 230</a> - Batteries and chargers <a href="#">HSR 25</a> – Guidance 4
Inspection, Testing and Maintenance of LV systems	BS 6423 BS 7671, Part 6, Chapter 61, 62 & 63 IET BS 7671 GN 3 <a href="#">HSR 25</a> – Guidance 4



Subject	Benchmark Standard
Emergency back-up systems	BS 7698-12, Clause 11 BS EN 50272-2, Clause 14 <a href="#">HSR 25</a> – Guidance 4
Electrical power system earthing	BS 7430, Clause 10 <a href="#">HSR 25</a> – Guidance 4

### Competence

Subject	Benchmark Standard
Competence – Safe operation / Safe systems of work	BS 6867, Clause 4 and 9 BS EN 6623, Clause 4 and 9 BS 6423, Clause 4 <a href="#">HSG 230</a> - Training and Competence <a href="#">HSG 85</a> - Actions common to both dead and live working <a href="#">HSR 25</a> - Regulation 16, Persons to be competent to prevent danger and injury
Competence – Inspection, Maintenance & Testing	BS 6867, Clause 6 BS 6626, Clause 6 BS 6423, Clause 4 BS 7430, Clause 10 BS 7671, Part 6 IET BS 7671 GN 3 Section 1.2 <a href="#">HSG 230</a> - Training and Competence <a href="#">HSR 25</a> - Regulation 16, Persons to be competent to prevent danger and injury

### Safety Management System

Subject	Benchmark Standard
Electrical power systems	<a href="#">HSG 230 - Management of switchgear</a> <a href="#">HSG 65</a> <a href="#">The Control of Major Accident Hazards Regulations 2015, Guidance on Regulations, Schedule 2</a>

**Annex 3: Performance Assessment Records**

**Performance Assessment Record: Functional Safety**

Operator:

Site:

Current assessment score:

<b>Hazard and Risk Assessment</b>	
<b>Coverage to Date:</b>	Process hazard and risk assessment at COMAH sites is led by the Process Safety discipline and Environmental Officers for environmental risk. Environmental expertise will be required where risk to the environment dominates.
<b>Current Opinion:</b>	n/a
<b>Assessment Score</b>	n/a

<b>Specification, Design and Engineering - High Integrity Systems</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

<b>Specification, Design and Engineering - Low Integrity Systems</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

<b>Operation and Maintenance - High Integrity Systems</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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<b>Operation and Maintenance - Low Integrity Systems</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
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<b>Competence</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

<b>Functional Safety Management System</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

**Performance Assessment Record: Cyber Security**

Operator:

Site:

Current assessment score:

<b>Hazard and Risk Assessment</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
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<b>Specification, Design and Engineering</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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<b>Operation and Maintenance</b>	
<b>Coverage to Date:</b>	

<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
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<b>Competence</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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<b>Safety Management System</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

**Relevant Inspections, Reviews and Performance History**

Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

**Performance Assessment Record: Explosive Atmospheres**

Operator:

Site:

Current assessment score:

<b>Hazard and Risk Assessment</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
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<b>Specification, Design and Engineering</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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A			

<b>Operation and Maintenance</b>	
<b>Coverage to Date:</b>	



<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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<b>Competence</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
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A			

<b>Safety Management System</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

**Relevant Inspections, Reviews and Performance History**

Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

**Performance Assessment Record: Electrical Power Systems**

Operator:

Site:

Current assessment score:

<b>Hazard and Risk Assessment</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

<b>Specification, Design and Engineering</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
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<b>Operation and Maintenance</b>	
<b>Coverage to Date:</b>	

<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
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<b>Competence</b>			
<b>Coverage to Date:</b>			
<b>Current Opinion:</b>			
<b>Assessment Score</b>			
<b>Relevant Inspections, Reviews and Performance History</b>			
Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

<b>Safety Management System</b>	
<b>Coverage to Date:</b>	
<b>Current Opinion:</b>	
<b>Assessment Score</b>	

**Relevant Inspections, Reviews and Performance History**

Rev	Date	Inspection Ref. / Details of Review	Assessment Score
D			
C			
B			
A			

## **Notes for Completion of Performance Assessment Records**

### **Performance Assessment**

The purpose of performance assessment is to assess performance in the topics and associated safety management systems for the site concerned, so that future interventions can be appropriately prioritised. Where there is a history of intervention at a site over many years a nominal limit of 5 years should be placed on the consideration of historical information.

The performance assessment should be reviewed and updated so that it remains sufficiently current to prevent annual intervention planning from prioritising issues that have already been addressed.

Realistically, performance assessment can only ever be based on a sample inspection of site installations.

### **Coverage to Date**

The inspection report provides the evidence on which the performance score is based. In scoring a particular topic at a site, previous inspections will be used where relevant to make up the score together with what was inspected. Reference may be made to relevant sections of inspection reports that address the topic concerned.

The benchmark standards define the coverage for each of the topics and are listed in Annex 2.

### **Current Opinion**

A brief summary of the current view of the site's performance will be based on the performance assessment word models of Table 1.

In practice, it might not be possible to fully cover an entire topic and associated safety management system during one or more inspections. In this case, Inspectors should make a judgement as to whether an opinion can be formed on the achieved coverage or whether further inspection is required. For example, it would be reasonable to form an opinion when most of a topic has been covered AND adequate engineering and operational management systems have been demonstrated.

### **Current Assessment Score**

A performance score will be assigned based on the performance scoring model of Table 1. If sufficient information upon which to base a judgement is not available then a score will not be recorded.

### **Current Assessment Score**

The weakest score within a particular topic should be used to give the overall score.

### **Performance Assessment Record**

Performance assessment records will be living documents that will be updated after each relevant inspection. In order to retain the history of assessment scores, the superseded scores will be retained in the performance assessment records. They should be **greyed** out to avoid confusion.

### **Recording of Performance Assessments**

The completed, or partially completed, performance assessment records shall be filed in line with current administrative practices.