حكومة دبي
GOVERNMENT OF DUBAI

هيئة الطرق والمواصلات
ROADS & TRANSPORT AUTHORITY
RTA

هيئة الطرق والمواصلات

دليل جهة تنظيم السلامة – وفق القرار الإداري رقم 986 لعام 2018

متطلبات تنفيذ قرار المجلس التنفيذي رقم (1) لسنة 2017 بشأن تنظيم السكك الحديدية في إمارة دبي

يشرح هذا الدليل متطلبات جهة تنظيم السلامة لتنفيذ القرار التنفيذي رقم (1) لسنة 2017 بشأن تنظيم السكك الحديدية في إمارة دبي شاملة إجراءات شهادات السلامة لأنظمة السكك الحديدية ومشغليها وإجراءات التحقيق الفني في الحوادث.

ينطبق هذا الدليل على أي طرف يعتزم تصميم أو إنشاء أو اختبار أو تشغيل أو تقييم أو امتلاك أو صيانة نظام سكك حديدية في إمارة دبي.

يتضمن هذا الدليل على وجه الخصوص ما يلي:

- منهجية ومتطلبات ترخيص السلامة لأنظمة السكك الحديدية.
- منهجية ومتطلبات تنظيم السلامة لأنظمة السكك الحديدية.
- منهجية ومتطلبات الإبلاغ والتحقيق في حوادث السكك الحديدية.
- قواعد التفتيش وتطبيق المخالفات.

كما يشمل الدليل على عدة مرفقات كما يلي:

- نموذج نضج إدارة المخاطر المتبع من قبل جهة تنظيم السلامة.
- قواعد الممارسة لمُقيمي السلامة المستقلين ومتطلبات الحصول على تصريح مُقيم السلامة المستقل من قبل جهة تنظيم السلامة.

حكومة دبي
GOVERNMENT OF DUBAI

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ROADS & TRANSPORT AUTHORITY
RTA

Regulating Railways in the Emirate of Dubai

RTA Safety Regulation Authority

Dubai Railway Law Implementation Requirements

(Safety Regulatory Entity Manual in accordance with Administrative Resolution 986/2018)

Version: 3.0
Prepared by: Safety, Risk, Regulation and Planning Department
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Contents

Change History **4**

Glossary of Terms **7**

References **11**

1. Introduction **14**

1.1. Purpose of this Document 14
1.2. Legal Framework for Regulation 14
1.3. The Elements of Certification & Regulation 16
1.4. Certification 16
1.5. Regulation 18
1.6. Incident Reporting and Investigation 19
1.7. Definition of a Railway 20

2. SRA Strategy **22**

2.1. Vision and Objectives 22
2.2. Principles of C&R 24
2.3. SRA Annual Plan 25

3. SRA Approach and Requirements for Certification **27**

3.1. Communications 27
3.2. Planning and Timescales 27
3.3. Delivery Safety Certificate (DSC) 30
3.4. Operation Safety Certificate (OSC) – Initial Issue or Material Change 33
3.5. Restrictions and Qualifications 36
3.6. Letter of No Objection 36
3.7. Renewal of a Safety Certificate 40
3.8. Material Change 41
3.9. Re-certification Due to Expiry of OSC 42
3.10. Extension of the Validity of OSC 44

4. SRA Approach and Requirements for Regulation **46**

4.1. Regulation Objectives 46
4.2. Regulation Activity 47
4.3. Enforcement - Acting on Findings 48
4.4. Communication between SRA and the Duty Holder or Contractor 49
4.5. Management of Change 50
4.6. Duty Holder's Risk Management Maturity 51
4.7. Suspension of Services 52

5. SRA Approach and Requirements for Incident Reporting and Technical Investigation **53**

5.1. Requirements of Notification 53
5.2. Investigation Reporting Requirements on Owner, Operator, Maintainer and Contractor 55
5.3. SRA Investigation and Reporting 60

6. SRA Inspectors and Enforcement Guidance 62

6.1. Introduction 62
6.2. Enforcement Policy 62
6.3. Investigation 66
6.4. SRA Inspector Responsibilities 66
6.5. Assessment of the Breach 67
6.6. Regulatory Actions Available 68
6.7. Withdrawal of OSC or DSC 69
6.8. Summary of Assessment Process 70
6.9. Appeals 71

7. Risk Assessment 72

List of Figures

Figure 1-1 - Legal Framework Hierarchy 15
Figure 1-2 - Elements of C&R 16
Figure 2-1 -Overview of Certification and Regulation Activities 23
Figure 2-2 - Principles of SRA's Approach 25
Figure 3-1 – Typical Sequence of DSC 28
Figure 3-2 – Typical Sequence of OSC 28
Figure 4-1 – Regulation Objectives 47
Figure 6-1 – Summary of Assessment Process 70

Appendices

Appendix 1 Common Safety Method (CSM) and ALARP

Appendix 2 Organisations that may be Stakeholders

Appendix 3 Typical Certification Sequence Chart

Appendix 4 Flowchart for determining if a change is Material

Appendix 5 Additional requirements for Cableways

Annexes

Code of Practice for Railway Independent Safety Assessors

Risk Management Maturity Assessment Criteria

Change History

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1.0	10th Mar 2017	First draft, basis for March Duty Holder Workshop
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1.2	27th Jul 2017	Update following Workshop and Duty Holder feedback.
1.3	20th Aug 2017	Update following further Duty Holder feedback. Addition of 'Change History' and 'References' sections.
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2 Draft A	05th Mar 2019	Review of full document. Main Changes related to: Reference to Administrative Resolution 986/2018, Document title, Requirement for ISA for recertification and update of Appendix 1.
2 Draft B	12th Jun 2019	Implementation of Stakeholders comments. Clarification of Letter of Amendment and Letter of No Objection. Update after internal review.
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Version	Date	Status
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Glossary of Terms

Term	Description
Accident	See 'Incident'
ALARP	As Low As Reasonably Practicable
Asset	The railway infrastructure, systems and vehicles
Cableway	A system for transporting people where the traction is provided by cables positioned along the line of travel
C&R	Safety Certification & Regulation
CENELEC	European Committee for Electrotechnical Standardization
CEO	Chief Executive Officer
Condition	A pre-requisite attached to an LNO
Constraint	A restriction attached to an LNO
Contractor	Appointed by the Owner or Operator to design, build, test and handover or maintain an Asset
CoP	Code of Practice
CSM	Common Safety Method
DCD	Dubai Civil Defence
DRLIR	Dubai Railway Law Implementation Requirements (this document), referred to as Safety Regulatory Entity Manual in Administrative Resolution 986/2018
DSC	Delivery Safety Certificate, referred to as Safety Certificate in Dubai Railway Law
Dubai Railway Law	Executive Council Resolutions No 1 / 2014 and 1 / 2017 plus amendments and associated by laws
Duty Holder	The organisation to whom the OSC or DSC is issued, the Operator or Owner respectively of the system – also referred to as a 'Permit Holder' or 'Authorised Person' in Dubai Railway Law

Term	Description
EN	EuroNorm – European Standard
Engineer	The Owner's representative to manage the Contractor and ensure requirements are met
ERA	European Rail Agency
EU	European Union
IN	Improvement Notice – referred to as a 'Notice of Remedy' in Dubai Railway Law
Incident	An event that resulted in, or could have resulted in, injury to passengers, staff, contractors or third persons and / or damage to property, including Infrastructure and / or Rolling Stock, and includes 'near misses', referred to as 'Accident' in Dubai Railway Law.
Injury	Physical damage to a Person resulting from a fault or negligence related to railway systems.
IRB	Independent Review Body
ISA	Independent Safety Assessor appointed in accordance with RTA SRA's 'Code of Practice for Railway Independent Safety Assessors'
ISO	International Standards Organization
Judicial Control Officer (or Law Enforcement Officer)	Any Person granted the authority to record acts committed in breach of the local legislation in force in the Emirate.
LNO	Letter of No Objection
LOA	Letter of Amendment – used to communicate OSC/DSC changes to the Duty Holder
LOC	Letter of Concern
Maintainer	Organization provides maintenance for any railway assets within the Emirates of Dubai

Term	Description
Material Change	A significant change to a railway system that requires a certification response from the SRA (referred to as substantial change in Administrative Resolution 986/2018)
Material Damage	Is damage to the railway infrastructure or rolling stock that effects the service and requires time consuming or costly repairs
MOR	Minimum Operating Requirements – the minimum permissible degraded state for continued operation of an asset
Near Miss	An event that under different circumstances could have been a reportable Incident
O&M	Operation & Maintenance
Operator	Organization that provides a railway transportation service within the Emirates of Dubai
ORP	Operations Review Panel (also referred to Safety Review Panel, and Operations Safety Review Committee in Administrative Resolution 986/2018)
ORR	Office of Rail and Road, UK
OSC	Operation Safety Certificate (Operational Safety Certificate in Dubai law)
Owner	Asset possessor for any Railway Systems/Subsystems within the Emirates of Dubai
Passenger	A member of the public who is travelling, or is intending to travel, on any of the railway systems covered by Dubai Railway Law.
Person	A natural or legal person
PN	Prohibition Notice ('Notice of Prohibition' in Dubai Railway Law)
Qualification	A mandatory process requirement stated on a DSC or OSC
RAA	Rail Agency of the RTA

Term	Description
Restriction	A mandatory requirement or limit imposed on system operation or maintenance stated on a DSC or OSC
RM3	ORR's Risk Management Maturity Model
RROW	Railway Right of Way
RPDG	RTA Rail Agency's Rail Planning and Design Guidelines
RSEMS	RTA Safety and Environment Management System
RTA	Roads & Transport Authority of the Dubai Government
SCG	Strategy & Corporate Governance – a Corporate Sector within the RTA
SDT	System Demonstration Test
SMS	Safety Management System
SRA	(RTA) Safety Regulation Authority – the 'Safety Regulatory Entity' in Dubai Railway law
SRA Inspector	A person formally appointed by the Director General / Chairman of the RTA Board to enforce those regulatory requirements of Dubai Railway Law that are the responsibility of the SRA. The term SRA Inspector includes RTA Judicial Control Officers with the SRA.
SRM	Safety Risk Model – a tool used by the SRA to quantify the safety risks for each certified system
SRRPD	Safety, Risk, Regulation and Planning Department within the RTA SCG, which acts as the SRA
STRMTG	Service Technique de Remontées Mécaniques et des Transports Guidés, France
TRA	Traffic & Roads Agency of RTA
UK	United Kingdom

References

Reference	Description	Issued by
Dubai Regulation No 17/2005	Establishing the Roads and Transport Authority	Dubai Government
Dubai Regulation No 1/2017	Railways in the Emirate of Dubai	Dubai Government
Administrative Resolution No 986/2018	By-law of Regulation No. (1) of 2017 Concerning Railways in the Emirate of Dubai	Dubai Government
Executive Council Resolution No 1/2014	Tram Railway Systems in the Emirate of Dubai	Dubai Government
Administrative Decision No 277/2014	By-law of Executive Council Resolution No (1) of 2014 Concerning Tram Railway Systems in the Emirate of Dubai	Dubai Government
Executive Council Resolution No 1/2017	Railways in the Emirate of Dubai	Dubai Government
Administrative Decision No 462/2017	Railway sanctions that require notification or not prior to the fine	Dubai Government
1169/2010 of 10 December 2010	COMMISSION REGULATION (EU) No 1169/2010 of 10 December 2010 on a common safety method for assessing conformity with the requirements for obtaining a railway safety authorisation	European Commission
1077/2012 of 16 November 2012	COMMISSION REGULATION (EU) No 1077/2012 of 16 November 2012 on a common safety method for supervision by national safety authorities after issuing a safety certificate or safety authorisation	European Commission

Reference	Description	Issued by
402/2013 of 30 April 2013	COMMISSION IMPLEMENTING REGULATION (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment	European Commission
ERA/GUI/04/2012/SAF	Supervising the safety performance of railway undertakings and infrastructure managers	European Rail Agency
Guidance on the CSM RA - September 2018	Common Safety Method for Risk Evaluation and Assessment Guidance on the application of Commission Regulation (EU) 402/2013	UK Office of Rail & Road
January 2015	Assessment Criteria for mainline railway safety certification and safety authorisation applications	UK Office of Rail & Road
RPDG	Rail Planning & Design Guidelines	RTA Rail Agency
ISO 31000 series	Risk Management – Principles and Guidelines	International Standards Organisation
EN 50126	Railway Applications – The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)	CENELEC EuroNorm
EN 50128	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems	CENELEC EuroNorm
EN 50129	Railway applications – Communication, signalling and processing systems – Safety	CENELEC EuroNorm

Reference	Description	Issued by
	related electronic systems for signalling	
RSEMS	Railway Safety & Environmental Management System	RTA
RM3	Risk Management Maturity Model	UK Office of Rail & Road
(EU) 2016/424	EU Regulation relating to new installations and modifications to cableways	European Commission
SCG/SRRPD/PM/1/2020	Incident Management Policy at RTA	RTA

1. Introduction

1.1. Purpose of this Document

The Safety Regulation Authority (SRA) is the Safety Regulator of railways in the Emirate of Dubai and was established by law in 2009 through Dubai Regulation No 5 / 2009 with supporting Bylaws as detailed in Section 1.2. The SRA is part of the Roads & Transport Authority (RTA) of the Emirate of Dubai, which itself was established by Dubai Law No 17 / 2005.

Dubai Regulation No 5 / 2009 was replaced by Executive Council Resolution No 1 / 2017, which became effective in February 2017.

This document, the SRA Dubai Railway Law Implementation Requirements, explains the role, strategy and requirements of the SRA in undertaking Safety Certification and Regulation (C&R) of the railways in Dubai, including the technical investigation of incidents, in accordance with Dubai Railway Law.

The primary elements of C&R are summarized in Section 1.3 and are explained in detail in later sections. This document and annexes give information and guidance about the SRA's processes and requirements for implementing Dubai Railway Law. This document applies to:

- The SRA's own management and Inspectors; and
- Any party that intends to design, construct, test, commission, independently assess, own, operate or maintain a railway system in the Emirate of Dubai.

This document includes the SRA's requirements for organisations making applications for an Operation Safety Certificate[1] (OSC) or Delivery Safety Certificate[2] (DSC) and for Incident Technical Investigation and Safety Performance Reporting. The two annexes describe the Code of Practice for Railway Independent Safety Assessors and the Risk Management Maturity Assessment Criteria (RM3).

A Railway for the purposes of SRA C&R is defined in Section 1.7.

The SRA retains the right to amend the information and requirements stated in this document as required to fulfil its obligations to implement Dubai Railway Law.

1.2. Legal Framework for Regulation

The legal framework for C&R of Railways in the Emirate of Dubai was originally derived from Dubai Railway Regulation No 5 / 2009, now superseded by Executive Council Resolution No 1 / 2017, and its implementation by law

[1] Referred to as *Operational Safety Certificate* in Dubai Railway Law
[2] Referred to as *Safety Certificate* in Dubai Railway Law, renamed to Delivery Safety Certification for clarity by the SRA.

Administrative Decision 68 / 2010 now superseded by Administrative Resolution 986/2018.

This is supplemented by Executive Council Resolution No 1 / 2014 – Regulating the Tram Operation in the Emirate of Dubai and its implementation by law Administrative Decision 277/ 2014.

The hierarchy is summarized in Figure 1-1.

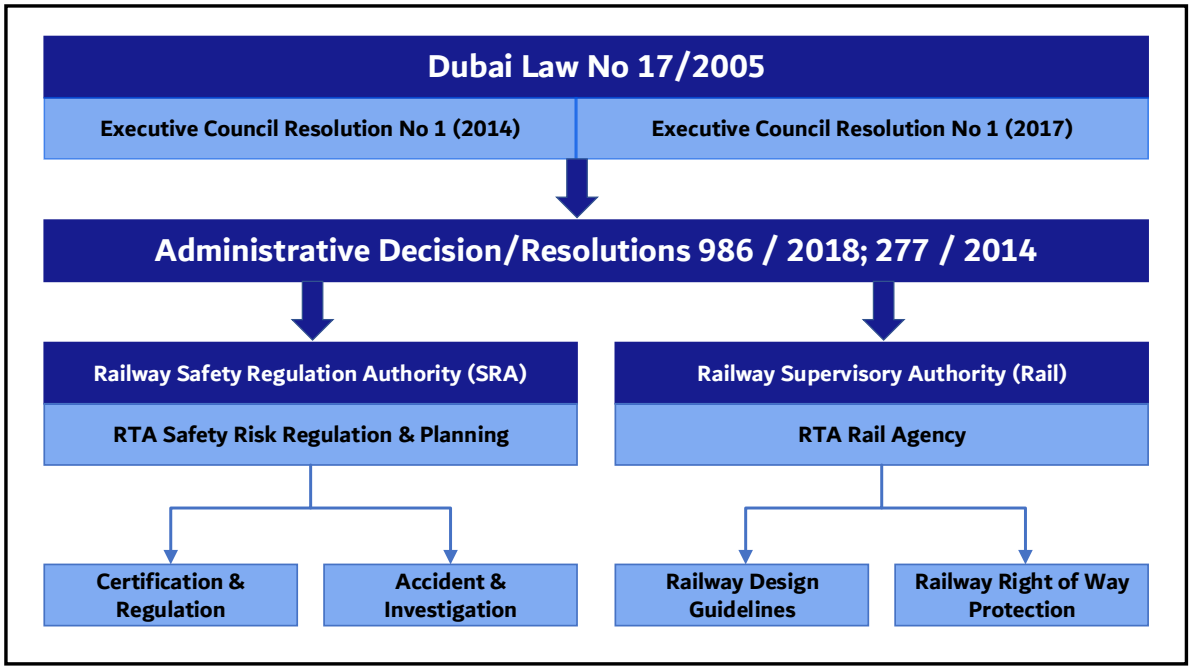


Figure 1-1 - Legal Framework Hierarchy

The suite of Regulations and Administrative Decisions/Resolutions is collectively referred to in this document as "Dubai Railway Law".

The Safety, Risk, Regulation and Planning Department (SRRPD) of the Strategy & Corporate Governance Sector (SCG) of the RTA undertakes the role of the RTA SRA, which is the Safety Regulatory Entity referred to in the Dubai Railway Law and is responsible for the implementation of the C&R requirements of Dubai Railway Law, including Incident Technical Investigation.

The Dubai Railway Law imposes requirements on Owners, Contractors, Operators and Maintainers in relation to railway systems in the Emirate of Dubai, including reporting to the SRA on a routine basis and following specific incidents or events.

The Dubai Railway Law empowers Inspectors to enforce provisions and identifies a number of remedies available to them in the case of breach or incident.

It is the responsibility of the reader of this document to ensure that he / she has the current and full version of the Dubai Railway Law and not to rely on any passages quoted in this document or its Annexes.

The RTA Rail Agency acts as the Railway Supervisory Authority, now referred to as the Agency in Dubai Railway Law and has its own requirements and inspectors that are not within the scope of this document.

1.3. The Elements of Certification & Regulation

The elements of C&R are shown in Figure 1-2.

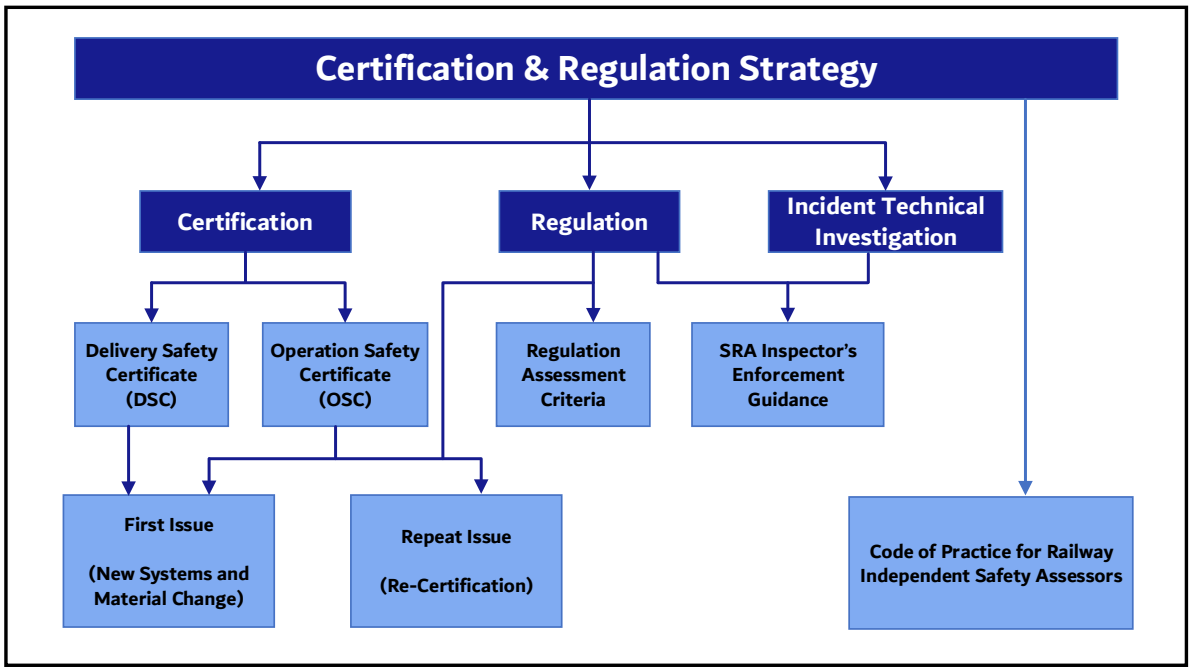


Figure 1-2 - Elements of C&R

Details of the C&R elements shown in Figure 1-2 are given in this document with the exception of:

- Regulation Assessment Criteria; and
- Code of Practice for Railway Independent Safety Assessors

These exceptions are contained in Annexes to this document.

The SRA's approach to C&R is based on the European Common Safety Method, although some terminology and detail have been adapted by the SRA for use in the Dubai environment, as described in Appendix 1.

1.4. Certification

The purpose of Certification[3] is to ensure that an operational railway is designed, constructed, operated and maintained to be safe and fit to operate and that the risks arising from the assets and their operation are As Low As Reasonably

[3] Certification can be considered to be equivalent to *safety certificate and safety authorisation* as described in the EU *'Common Safety Method'*, see Appendix 1.

Practicable (ALARP) when operations commence. Evidence must be provided that the processes and competences exist within the Duty Holder organisations to manage, modify and enhance the system to ensure that the risk is proactively managed to keep it ALARP through the life of the system.

Certification is the process leading to the issue by the SRA of:

- A Letter of No Objection (LNO) to the Contractor when evidence has been received that operation during the construction period are fit to commence (if required);
- A DSC to the Railway System Asset Owner, when evidence has been received that the Assets have been taken over and are fit and safe to operate;
- An OSC to the Railway System Operator and/or Maintainer, when evidence has been received that the Operation and Maintenance (O&M) organisation(s) is fit and ready to start passenger operation; and
- A DSC, OSC, or both following a Material Change to an existing railway system as defined in section 3.8. Note that at the SRA's discretion, some Material Changes may be covered by a Letter of Amendment (LOA) to the relevant certificate(s).
- A new OSC on expiry of the current certificate

If an Owner, Contractor, an existing or potential Operator and/or Maintainer has any doubt about the need for certification, the type of certification or the process and requirements for achieving it, the SRA should be contacted for clarification. Discussions shall be held with the SRA at the earliest possible opportunity when a new railway project or change to an existing system is being planned or contemplated.

The organisation to which a certificate is issued is referred to as the system **Duty Holder**[4].

The Owner must be in possession of a DSC and the Operator and/or Maintainer must be in possession of an OSC before passenger operations can legally commence.

The Certification process does not address health and safety risks during construction (other than for rail operations as described in section 3.6), which are normally contained within a protected, secure worksite. These are covered under Incident Technical Investigation.

[4] A Duty Holder is a 'Permit Holder' in Dubai Railway Law, although 'Permit Holder' has a wider definition.

In cases such as an on-road tramway or trolley system, some testing has to take place before a DSC or OSC has been issued in an environment where there will be interaction with the general public, pedestrians and road traffic. Similarly, testing of a new asset may need to be conducted on a construction site or an operational railway prior to that asset having been fully demonstrated to be safe or contractually accepted. To ensure that the risk is managed to be ALARP during such activities, evidence of the safety management arrangements must be provided to enable the SRA to issue an LNO before such activities commence, as described in section 3.6 of this document.

Fees are charged for the Certification service in accordance with Dubai Railway Law. Note that the fee charged to a Maintainer who is not an Operator will be determined by the SRA on a case by case basis.

Section 3 provides more guidance and the SRA's requirements for Certification and section 3.9 for Re-certification following the expiry of an OSC.

1.5. Regulation

Regulation[5] is the process by which the SRA monitors railway systems operation after issue of the DSC and OSC (or LNO in the case of construction) to ensure that risks to passengers, staff, contractors and third parties / general public continue to be identified and managed to be ALARP and that, through proactive risk management, safety performance is improved. Important elements are:

- The management of change to the assets, procedures and practices, personnel and management organisation;
- The response to, and reporting of, incidents and issues arising and the ongoing analysis of safety performance;
- The adherence to Restrictions, Qualifications, Conditions and Constraints contained within the DSC, OSC or any LNO;
- The adherence to the Duty Holder's Safety Management System (SMS);
- The updating of risk assessments and hazard logs to reflect actual performance; and
- Pro-active risk management to ensure continuous safety improvement.

If rolling stock or other equipment is to be installed, tested or commissioned on an operational railway before that rolling stock or equipment has been contractually accepted and included within the scope of an OSC or DSC issued by the SRA and

[5] Regulation can be considered to be equivalent to *supervision* in the EU *'Common Safety Method'*, see Appendix 1.

if such activity could result in a safety risk to the operational railway or disrupt reliable operation of the railway, the relevant parties (Owner and/or Contractor and/or Operator) must be in possession of an LNO or LOA from the SRA. The application for the LNO or LOA should contain the necessary risk assessments and supporting evidence to describe how the risks to the operating railway safety and reliability will be managed to ALARP, as described in Section 3.6.

Similarly, where railway systems are in the process of being constructed or modified, and where the construction activities require the movement of trains (other than trains whose sole purpose is to facilitate construction and there is no interface with other rolling stock), an LNO must be issued by the SRA prior to the movement of rolling stock commencing.

In these cases, the SRA will monitor activities related to a DSC/OSC/LNO in order to ensure that the conditions attached to the relevant document are being adhered to, and that the risks are being managed to ALARP.

Fees are charged by the SRA for Regulation in accordance with Dubai Railway Law.

Section 4 provides more guidance and the SRA's requirements for Regulation.

1.6. Incident Reporting and Investigation

An Accident is defined in Dubai Railway Law[6] as '*An unexpected and undesirable incident which is directly associated with Railway Systems and which results or may result in personal injury or material damage.*' Note that for the purposes of this document Accident and Incident have the same meaning.

'Injury (Personal)' is defined in Dubai Railway Law as the '*physical damage to a person or persons resulting from a fault or negligence related to Railway Systems'*.

'Material Damage' is damage to the railway infrastructure or rolling stock that effects the service and requires time consuming or costly repairs.

In accordance with Dubai Railway Law the Contractor or Duty Holder shall notify the SRA immediately, in the manner the SRA determines, of any incident falling into the above definition that occurs during performing construction works or Operations and provide it with a preliminary report on investigations and their findings within twenty-four (24) hours from the occurrence of the incident.

Notification of any incident falling into the above definition shall be reported to the SRA within fifteen (15) minutes of the incident occurring (see section 5 of this document).

[6] Executive Council Resolution No (1) of 2017.

In addition to meeting the mandatory requirements of Dubai Railway Law the SRA requires notification of other incidents that may increase the risks to passengers and staff as outlined in table 5.1a of this document.

If there is any doubt about the need to report an incident the Owner, Operator or Contractor should report the incident to the SRA.

The SRA will then undertake its own technical investigation if it deems it necessary.

The depth of investigation by the SRA will depend on the:

- Actual or potential seriousness of any injuries.
- Actual or potential damage to the infrastructure or rolling stock.
- Affect on the Reputation of Dubai.

SRA technical investigations are independent of any other investigation that may be undertaken by parties such as RTA Rail Agency or Dubai Police and will focus on the root cause/s of the incident.

1.7. Definition of a Railway

Executive Council Resolution No 1 / 2017 defines Railways as:

'A transport system designated for the transportation of Passengers and goods on specific tracks. This includes, but is not limited to, light and heavy Railways.'

Administrative Resolution No. (986) of 2018 defines Railways as:

'A guided rail transport system designated for the transportation of passengers and goods on fixed tracks. This includes, but is not limited to, light and heavy Railways.'

The SRA defines '*specific tracks*', '*guided rail*' or '*fixed tracks*' as any means of physically confining the transportation of passengers and goods to a predefined and centrally controlled route.

This includes cableways as defined in (EU) 2016/424, for which specific requirements are given in Appendix 5. The processes and principles contained within the main document still apply.

Executive Council Resolution No.1 / 2014 defines a Railway as:

'A rail transport system designed for the Tram which is bound by specific routes and positioned in partial or full alignment with the Road, on the Road or on any other area accessible to the public.'

SRA defines this as 'Any system that is not fully enclosed and protected with controlled access for passengers, the general public and road vehicles.'

The Executive Council Resolutions defines Infrastructure, Rolling Stock and Tram. This document refers to **Assets** to mean all Infrastructure, Rolling Stock, Systems and Equipment, including Software, comprising the Railway System.

The scope of the railway Assets includes, but is not limited to:

- The civil infrastructure of the guideway, stations, depot and other buildings;
- Building systems and facilities including fire protection, HVAC, lifts and escalators, signage, public address and emergency egress;
- O&M control centres, including functionality, human/system interface;
- The railway systems, including track/guidance system, power supply/energy, current collection, signalling, communications, platform screen doors;
- The vehicles, including locomotives, passenger, freight and maintenance vehicles;
- Depot facilities, including maintenance plant and equipment.
- Dubai Railway Law provides definitions of other relevant terms.

2. SRA Strategy

2.1. Vision and Objectives

Vision

In accordance with the RTA Vision '*The world leader in seamless & sustainable mobility*, the SRA Vision is:

> *To achieve proactive Regulation of Railways in Dubai, enabling Railway Owners, Contractors, Operators, Maintainers and key Stakeholders in general to deliver and realize Railway Systems that are as safe as the highest international benchmarks, and with risks actively managed to be As Low As Reasonably Practicable (ALARP) throughout their whole life cycle.*

Objectives

The SRA has the following objectives to fulfil the vision:

1. Apply the Dubai Railway Law for Regulation of Railways in the Emirate of Dubai proactively and consistently and ensure it is being implemented effectively by Duty Holders.
2. Monitor the design and construction of new railway systems (and major changes to existing systems) to ensure that suitable systems assurance processes[7] are applied to ensure (safety) risk is being managed to be ALARP and that project processes deliver railways that are safe to operate and maintain– and to issue a DSC as appropriate.
3. Examine the proposals of potential Railway System Operators (including Maintainers) to ensure that the developing organisation, plans, procedures, workforce and preparation for service will deliver a safe service – and to issue an OSC as appropriate.
4. Monitor the operation, maintenance, modification and improvement of Railway Systems once in operation to ensure that they are being proactively managed to reduce risk to ALARP throughout the system life, that a culture of continuous safety improvement is embedded in the Duty Holder organisations.
5. Gather safety performance data in a System Risk Model to better understand system safety risks.
6. Undertake Incident Technical Investigations of serious incidents to establish root cause and make recommendations and issue sanctions as necessary to prevent reoccurrence during both construction and operational phases.

[7] In accordance with EuroNorm EN50126, or equivalent to be agreed with the SRA.

7. To have requirements and processes for Safety Certification & Regulation, including Incident Technical Investigation, that are clear and transparent and independently benchmarked against best international practice.
8. To have a suitable number of competent Inspectors and expert advisors whose competence is monitored, enhanced and independently reviewed.

The SRA will work to deliver these objectives by implementing its C&R strategy (detailed in this document) for continuous improvement in health and safety, by:

- Working within the law, publicly available criteria and enforcement policies;
- Ensuring that Assets are designed to 'engineer out' hazards to minimise health and safety risks to a level which is ALARP;
- Testing and challenging operational health and safety risk controls to ensure they are capable of delivering safety, remain effective and that Duty Holders are seeking to continuously improve these;
- Ensure that Assets are subjected to appropriate asset management throughout their lifecycle, including suitable and sufficient on-going maintenance, overhaul and replacement;
- Issuing enforcement notices and fines where necessary; and
- Having a competent C&R team.

An overview of activities related to these objectives applied to a railway system life cycle is shown Figure 2-1.

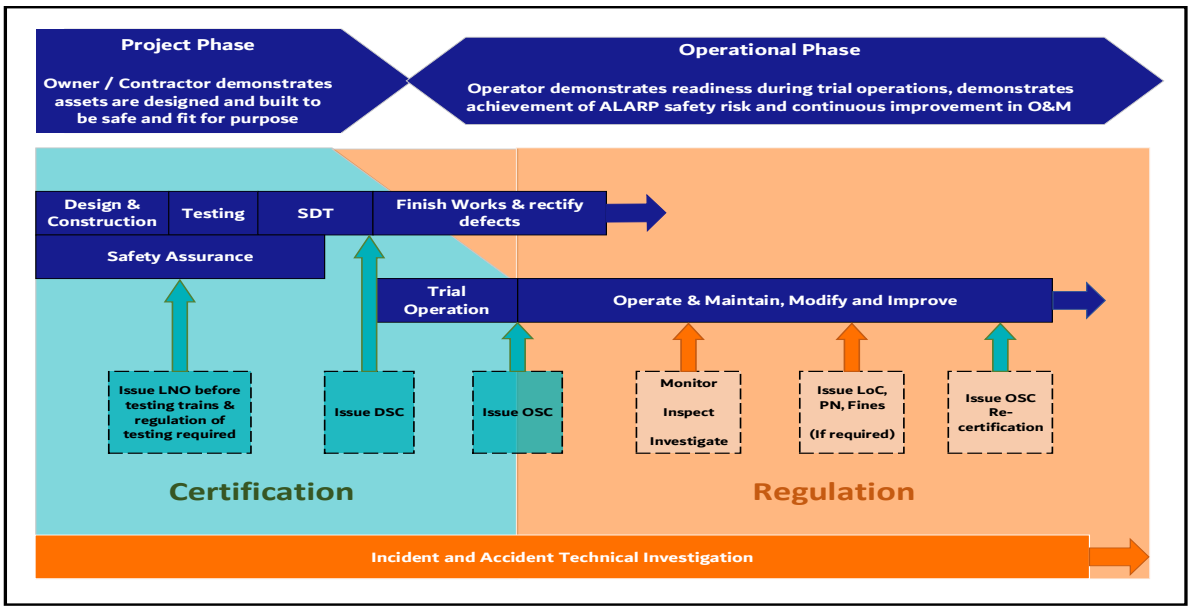


Figure 2-1 -Overview of Certification and Regulation Activities

2.2. Principles of C&R

The principles adopted by the SRA for meeting its objectives are based on the European Union Agency for Railways (ERA) '*Common Safety Methods*' and the UK ORR '*Assessment criteria for mainline railway safety certificate and safety authorisation applications*', amended for application in the Emirate of Dubai, described in Appendix 1.

The principle for incident reporting is to ensure that reporting is proportional to the actual or potential seriousness of the event and is in a manner and format that will enable comparison between systems in Dubai and with international best practice. Further detail on reporting of accidents and incidents is contained in Section 5.

In meeting its objectives, the SRA will adopt a 'due diligence' approach in which the breadth and depth of its activities will depend on the perceived risk, according to:

- The complexity of the system, including the presence of any new or novel systems, procedures or processes;
- The complexity of the operation in terms of number, frequency and speed of trains and the number of passenger or freight-tonne journeys or kilometres per day;
- The maturity and experience of the Owner, Contractor, Operator, Maintainer or other relevant party in undertaking similar activities in Dubai;
- The thoroughness of the Owner, Contractor, Operator or Maintainer in investigating incidents addressing issues and taking effective corrective action;
- The quality of the safety management system, systems assurance process and documentation;
- The seriousness of the actual or potential harm that may be caused to passengers, staff, contractors or the general public, or to the image of the Emirate of Dubai;
- The on-going safety performance of the system and the degree of continuous improvement demonstrated; and
- Specific incidents or issues that have occurred.

At all times the SRA encourages and requires open communication with the Owner, Contractor, Operator, Maintainer and other relevant parties to ensure that issues are raised, discussed and addressed in a timely manner.

The principles of SRA's approach can be summarised as in Figure 2-2.

Figure 2-2 - Principles of SRA's Approach

2.3. SRA Annual Plan

The SRA will produce each year an *Annual Plan* for safety C&R activities. This plan shall detail inspections of certified systems and certification activities for new systems to ensure that the appropriate resource may be allocated and prioritized to the appropriate areas.

This Plan is a living document and will be amended according to issues arising including the inclusion of unplanned events as they occur.

The Regulation activities would typically include for each current system:

- Specific inspections arising from certificate qualifications;
- Periodic inspections of operational practice and records;
- Periodic inspection of maintenance practice and records;
- Periodic inspection of the Duty Holder's management and monitoring of Asset condition against Asset management plan requirements;
- Review of safety approval processes for change, including determination if the change is Material;
- Specific reviews following unplanned events;
- Periodic observance of Duty Holder's safety management and related meetings;

- Periodic safety review meetings; and
- Re-certification (if required).

The number and frequency of inspections in any particular area or system and the focus of the inspections will be dependent on:

- The risk areas as perceived by the SRA based on previous experience of the Duty Holder / system;
- Areas where the Risk Management Maturity Model score is poor and/or there has been no evidence of improvement;
- Areas not previously examined or where no Risk Management Maturity Model assessment has been undertaken; and
- The newness of the system or Operator.

For a new system undergoing Certification but not yet operational, the plan should include:

- Key activities in the approval process;
- Dates for review of an application for DSC and its planned issue;
- Dates for review of an application for OSC and its planned issue; and
- Dates for any interim approval or planned issue of an LNO.

SRA's activity will be proportional to perceived risk and is likely to be more intrusive where the implementing organisation is new to Dubai or where the proposed activity, equipment or system is novel or new to Dubai and where there is the potential to increase risk.

3. SRA Approach and Requirements for Certification

3.1. Communications

The SRA must have open and clear communication channels with the railway system Owner, Contractor, Engineer, ISA and other stakeholders for the relevant issues associated with the design, construction, testing, take over and assurance of safety of the railway system assets.

Similarly, the SRA must have open and clear communication channels with the Owner, potential Operator and Maintainer, Independent Safety Authority (ISA) and other stakeholders for the relevant issues relating to readiness for operation and maintenance.

This will allow emerging system safety risks to be brought to the attention of the SRA and, in turn, the SRA can raise concerns for discussion and action.

The SRA must be invited to meetings, workshops, tests, trials, demonstrations and other activities that relate to system safety assurance, specific technical safety issues or planning and program issues that relate to certification or key service start dates.

The SRA may call meetings with stakeholders, including the Owner, Contractor, Engineer, Operator, Maintainer or ISA, to address specific issues or concerns.

3.2. Planning and Timescales

It is essential that requirements for Certification are agreed with the SRA at the earliest opportunity in the project and that project programmes take account of the provision of the relevant evidence of safety, submission of formal applications for a DSC and an OSC and time for the SRA's review and issue of certification.

There are a number of key activities and documents that the SRA would expect to review, which are essential precursors to an application for certification.

Figure 3-1 shows a simplified typical sequence to support the issue of a DSC.

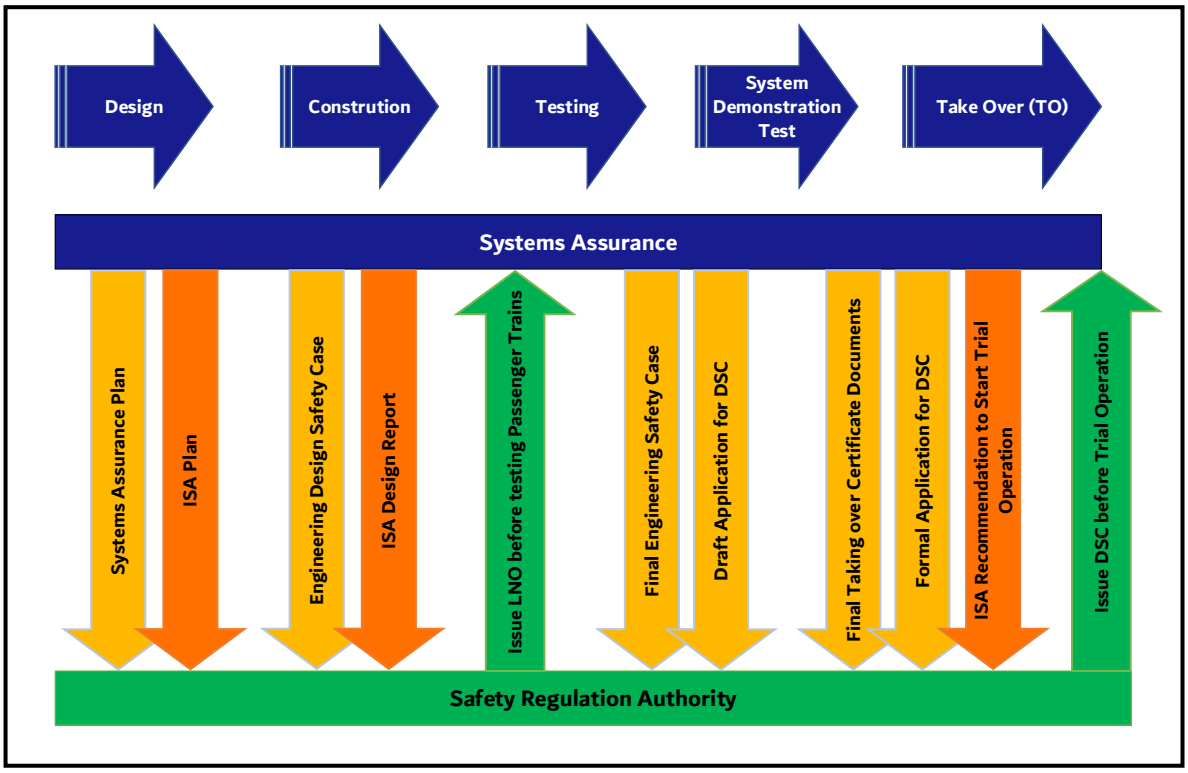


Figure 3-1 – Typical Sequence of DSC

A more detailed plan would be agreed with the Owner, Contractor, Engineer and ISA as appropriate.

Figure 3-2 shows a simplified typical sequence to support issue of a first OSC.

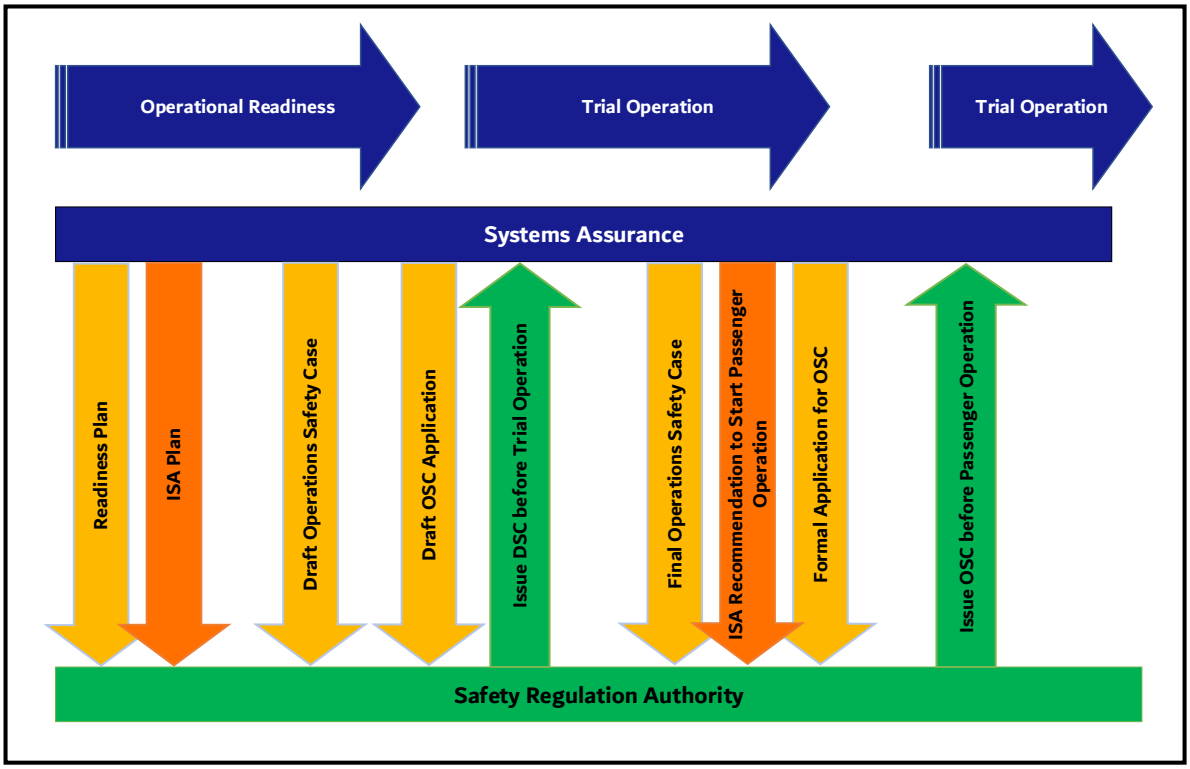


Figure 3-2 – Typical Sequence of OSC

A more detailed plan would be agreed with the Operator and/or Maintainer and ISA as appropriate.

The required activities must be identified, and their logical sequence determined at an early stage in the project. The SRA would normally form these into a diagram, an example of which covers both DSC and OSC is contained in Appendix 3.

Prior to issuing a DSC or OSC, the SRA will require demonstration that, as a minimum, the following events have taken place (note these are expanded on in sections 3.3 and 3.4):

- The Owner / Contractor / Engineer has identified the configuration of the system that is to be taken over and/or put into operation, particularly if this is a reduced configuration or limited operation compared with that originally envisaged and specified;
- The Contractor has submitted a suitable hazard log and engineering safety case that is up-to-date;
- The Owner / Engineer has defined the acceptance criteria for taking over the system Assets and supporting documentation from the Contractor in a published document;
- The system has been demonstrated by the Contractor in System Demonstration Tests (SDT) or equivalent, including operation at full capacity (if possible) and in degraded/reduced mode;
- Third party approvals have been received (see Appendix 2 for examples of Third Party organisations)
- The agreed system has been taken over by the Owner, and any operating limitations or unclosed safety hazards have been identified and transferred to another body (e.g. Owner, Operator, Maintainer,) who has accepted them and developed suitable mitigations;
- The Operator and/or Maintainer has submitted a suitable safety management system, hazard log and O&M safety case;
- The Operator and/or Maintainer has developed criteria for determining their readiness for operation;
- The Operator and/or Maintainer has undertaken a sufficient period of Trial Operation in which the system is operated at the intended levels, using the Operator's and/or Maintainer's procedures and personnel, which has demonstrated readiness for operation;

- Degraded mode and emergency scenarios have been tested, with the involvement of the emergency services and other parties as necessary;
- Maintenance arrangements, including the Maintenance Management System (MMS), depot facilities have been reviewed and key processes demonstrated; and
- The ISA has conducted a review of the project process, outputs and key documents and made positive recommendations for start of Trial Operation and, after Trial Operation, for the start of service operation.

It should be noted that, in most cases, Trial Operation must not commence until the system has been taken over by the Owner and a DSC issued by the SRA. Should this not be possible, it must be agreed with the SRA in advance.

Passenger Operation must not commence before the SRA has issued an OSC to the Operator and/or Maintainer. In this context, passenger operation includes any situation in which staff or invited guests are acting as if they were passengers before the system formally opens. This does not include situations where staff or guests have received a briefing or instructions relating to a structured exercise or where they are accompanied by the Operator's representative, such as a VIP visit.

The SRA recognizes that for documents such as hazard logs, safety cases and applications for certification, key evidence required for their completion may not be available until the end of testing and so would delay the submittal of the 'final' versions. The SRA is therefore prepared to accept preliminary versions that are substantially complete for review and discussion to avoid undue delay when the final evidence becomes available. The timescale for submission of such preliminary versions must be agreed with the SRA and shown on the project programme, taking cognisance of the requirement of Administrative Resolution 986/2018 which states that final applications should be submitted no later than one month before the required certification date.

Where the project is to be delivered in stages or elements, the plan should identify these, including the level of approval required by the SRA for each stage. If the scope or number of stages changes during the course of the project, the plan should be amended accordingly in discussion with the SRA.

3.3. Delivery Safety Certificate (DSC)

A DSC is issued to the railway Asset Owner by the SRA following receipt and evaluation of a formal application and is valid until the assets are subject to Material Change, as defined in section 3.8.

The SRA will begin assessment of a new rail project as early as the option selection or preliminary design stage. At this stage, some fundamental features of the design should be risk assessed by the Owner or his representative. This might include, for example, choice of elevated/at grade/tunnel alignment; type of tunnel (single bore double track/twin bore single track); junctions (flat/grade-separated); – the list is not exhaustive - and demonstrated to be ALARP. Such features are often presented to the design and build contractor, who is only then able to offer mitigations for inherent risks.

Evidence must be provided to the SRA during the project to enable it to satisfy itself that the project and railway Asset, including civil works, infrastructure, facilities, systems (including software) and rolling stock, have:

- Been designed so that health and safety risks have been eliminated or reduced to a level which is ALARP (as described in Appendix 1), including the safety justification for the selected option;
- Embedded risk controls which demonstrate use of the risk control hierarchy;
- A precisely defined scope at the time of handover to the Owner;
- Identified the risks which will have been transferred to the Operator and/or Maintainer and obtained their acceptance, including those that may have resulted from incomplete or outstanding work at the time of handover;
- Been designed and implemented with a robust human factor's analysis (human failure and human-machine interface);
- An SMS which has the capability of managing the risks associated with any change to the asset;
- Been adequately demonstrated to be safe and fit for operation; and
- Been demonstrated to comply with third party requirements and obtained formal acceptance or certification where necessary.

The DSC is issued to the Owner for a specific configuration of the rail system, infrastructure and rolling stock comprising the Asset. If this is not the configuration that is taken over by the Owner and available to the Operator and/or Maintainer, then the DSC will contain corresponding Restrictions and/or Qualifications.

A formal Application for DSC, signed by the Managing Director or Chief Executive Officer of the Owner's organisation, must be made for new systems and for existing systems subject to Material Change and must, as a minimum, contain:

- A description of the complete Asset, including key facilities and systems and its full configuration;
- Local Authority Approvals such as Dubai Civil Defence and Dubai Municipality
- Listing of any novel systems or novel applications of equipment compared with international best practice and experience in Dubai;
- A description of the scope of the application (if less than the full configuration is to be certificated);
- Where interfaces exist between the Duty Holder's assets to be certified and assets covered by other Duty Holders, an interface management plan must be produced. The interface management plan, which should be signed by all parties to whom it relates, should identify all safety interfaces and provide clarity on each party's responsibilities, as well as how the interfaces will be monitored and reviewed.
- A description of the verification process used by the Owner, Owner's Representative, Independent Review Body (IRB)/Engineer, Design and Build Contractor(s), Independent Safety Assessors[8] (ISA) and Third Parties to achieve, demonstrate and confirm that the Assets are capable of being operated safely;
- Confirmation that hazards have been properly identified, Asset risks have been reduced to ALARP by design or, in exceptional cases, transferred to another party (in which case confirmation is also required that the other party concerned has accepted them and is able to provide adequate mitigation);
- Confirmation that a Maintenance Management System (MMS) including databases for material management and defect management have been set up and populated;
- Confirmation that O&M Manuals, drawings and any other relevant information to enable the assets to be maintained in a safe condition have been provided to the Operator and/or Maintainer and any necessary training given;

[8] In accordance with RTA SRA '*Code of Practice for Railway Independent Safety Assessors'* which is an annex to this document

- Reference to the Engineering Safety Case, which should be complete;
- Evidence of Take Over of the Asset from the Contractor including a list of outstanding works that have an implication for safe operation and a list of restrictions on operation;
- Timescales and process for completing outstanding works to enable restrictions to be lifted;
- Evidence of necessary Third Party approvals;
- Statements from the Owner, IRB/Engineer and ISA that they each consider the risks to be ALARP and that the asset is fit for use and capable of being operated safely;
- Confirmation that an Operations/Safety Review Panel or equivalent (see section 4.5) has been set up; and
- Any other specific information identified by the SRA during the course of the project.

The checklist in Appendix 2 may be helpful in identifying potential stakeholders.

3.4. Operation Safety Certificate (OSC) – Initial Issue or Material Change

The OSC is issued to a named Operator or Maintainer who is the recognized Duty Holder for operation and/or maintenance of the railway system. If the Duty Holder is responsible for both operations and maintenance of the assets, then one OSC may cover both O&M, however in cases where maintenance is not carried out by the Operator, or is not contracted directly to the Operator, then separate OSCs are required for the Operator and the Maintainer.

An OSC will be valid for a period of five (5) years with an expiry date stated on the certificate. This may be reduced to three (3) years if the SRA determines that the railway system is novel or if the potential Operator or Maintainer is not sufficiently experienced. Under certain circumstances, the validity of an OSC may be extended by up to six (6) months, as outlined in section 3.10. Note that the validity of an OSC is independent of the length of any contract relating to the Duty Holder.

Application for renewal on expiry should be made in accordance with Section 3.9 of this document.

If there is a Material Change during the currency of an OSC (see section 3.8) for which a new OSC, is required, an application for the new certificate must be submitted and the SRA will issue a new certificate that will again be valid for a specific period.

The SRA will undertake an assessment to determine that the system Operator and/or Maintainer has the capability and is adequately prepared

to operate and/or maintain the system safely. This will include assessment of:

- The capability of the SMS to deliver safe operation of the system and safe maintenance of the assets, including risk management for normal, degraded and emergency operations, monitoring and reviewing safety performance and occupational health and safety;
- The risk transfer process from Owner to Operator and/or Maintainer to ensure that the Operator and/or Maintainer has put in place suitable and sufficient controls to reduce the risks to a level which is ALARP; and
- The readiness of the Operator and/or Maintainer, including demonstration during a period of Trial Operation.

An Application for OSC must be signed by the Managing Director or Chief Executive Officer of the Operator's and/or Maintainer's organisation and by the General Manager (or equivalent) of the railway system concerned. The application must, as a minimum, contain:

- Evidence of the organisation's registration to be a railway system Operator and/or Maintainer in Dubai;
- Evidence of the organisation's insurance policy suitable for the type and extent of the proposed operations;
- A description of the complete Asset, including its key facilities and systems and its full configuration that has been transferred to the Operator;
- A description of the scope of the Operator's and/or Maintainer's application (if less than the full configuration is to be certificated for operation);
- Status of O&M documentation provided by the Contractor / Owner;
- The Operator's and/or Maintainer's System Hazard Log updated for service start, including any hazards transferred from the Contractor and associated safety mitigation;
- The Operator's and/or Maintainer's Safety Case containing the Safety Management System, including organization, the person responsible for day-to-day safe operation and/or maintenance, other key and safety critical staff, competence management arrangements, permit to work/safe working arrangements, management of interfaces;

- Where interfaces exist between the Duty Holder and other Operators or Maintainers, an interface management plan must be produced, which should form part of the SMS. The interface management plan, which should be signed by all parties to whom it relates, should identify all safety interfaces and provide clarity on each party's responsibilities, as well as how the interfaces will be monitored and reviewed.
- Operational and maintenance policy, procedures and work instructions, including the Minimum Operating Requirements;
- Results of the outcome of operational readiness activities including the outcome of the Trial Operation period, including testing of degraded and emergency scenarios;
- Statements from the Operator (and the Maintainer if a different organization) and ISA[9] that they each consider the system is safe to operate and risk to be ALARP;
- Evidence of necessary Third Party approvals, including as a minimum the Dubai emergency services;
- In the case of a Material Change, a full description of the change, an analysis of its safety impact on the existing railway and any transition arrangements with its implementation; confirmation that the Operations/Safety Review Panel (see section 4.5) is in operation;
- Evidence that a public awareness campaign, if required, has been launched to the satisfaction of the Owner and RTA and
- Any other specific information identified by the SRA during the course of the project.

The checklist in Appendix 2 may be helpful in identifying potential stakeholders.

It should be remembered that the Duty Holder is responsible for all O&M activities and duty of care to staff, contractors and third parties. If some activities are undertaken by another Contractor, whether that Contractor is appointed by the Operator, Maintainer or the Owner, the Operator or Maintainer remains responsible for ensuring that all O&M and related activities are carried out safely and in accordance with the Operator's and/or Maintainer's Safety Case and the Duty Holder must undertake oversight, audit activities and corrective action accordingly.

[9] In accordance with RTA SRA '*Code of Practice for Railway Independent Safety Assessors'* which is an annex to this document

3.5. Restrictions and Qualifications

The SRA may issue safety certificates with Qualifications and/or Restrictions:

- A **Restriction** is applied to limit the asset operation if the functionality is less than the specified full system or if there are outstanding risk mitigations to be implemented or to enforce specific safety management requirements.
- A **Qualification** is applied when there is a process activity outstanding or on-going, which may specify a time limit for resolution.

As the system becomes functional, evidence is received, and other issues closed, Restrictions and Qualifications may be rescinded. This process is managed by the SRA and requires a formal request from the Duty Holder to rescind one or more Restrictions or Qualifications, with supporting evidence as required. This may involve approval by the Owner's Operation/Safety Review Panel (or equivalent – see section 4.5).

The SRA will issue a LOA as necessary to update the Certificate's Schedule containing the Restrictions and Qualifications.

Restrictions and Qualifications may also be added to reflect changes in risks resulting from SRA observations or changes proposed by Duty Holders and supported by a formal application. Any new Restrictions and Qualifications will also be communicated by a LOA.

In the case where a Certificate is superseded (for instance due to the expiry of an OSC or for a Material Change) the applicable Restrictions and Qualifications will be incorporated in the new Certificate.

3.6. Letter of No Objection

The SRA may issue an LNO at any time that it wishes to confirm its no-objection to a course of action where the level does not warrant issue of an OSC or DSC, or a formal letter amending an OSC or DSC.

LNOs may contain Constraints and Conditions and will often (but not always) be time limited – i.e. once the activity to which they refer has been completed the LNO will be rescinded. LNOs may also be revoked for any of the following reasons:

- A present or potential major direct hazard to the activity concerned;
- A breach of the Constraints or Conditions;
- A non-compliance with the terms of the LNO;
- An occurrence of a major Accident related to the scope of the LNO;

The SRA may issue an LNO under the following circumstances:

a) LNO for Testing and Commissioning on a non-segregated system.

There is a particular occasion on which an LNO may be issued by the SRA as defined in Dubai Railway Law in relation to testing of tram systems.

On a tramway, trolley or any system which is not fully segregated from the general public, pedestrians and road users in which passenger access is controlled, some testing has to take place before a DSC or OSC has been issued. If this testing is to take place in an environment where there will be interaction with the general public, pedestrians and road traffic, (for example testing of tram and traffic signals at junctions) the Owner or Contractor must take specific action to ensure that the risk to the general public is managed to be ALARP during such activities. Evidence of the safety management arrangements for such testing must be provided to the SRA to enable an LNO to be issued by the SRA before starting such activities.

The requirements to enable an LNO to be issued are the same in principle as for a safety certificate.

The Owner / Contractor must submit a formal application to the SRA that, as a minimum, includes:

- The scope of activity, including any staging or increase as testing progresses;
- A hazard log identifying risks to the general public, pedestrians and road users arising from the activities;
- Mitigating actions and demonstration that the resulting risks are ALARP;
- Confirmation of the involvement of the Dubai Police and the RTA in the planning and their approvals for the activities;
- Confirmation that the planned activities have discussed with the emergency services and that they have a response plan should any incident occur;
- A public awareness campaign has been launched to the satisfaction of the Owner and RTA;
- A description of how vehicles are to be moved to the test site and returned to the Depot at the close of tests and the plans and procedures for recovery of vehicles in the event of failure, derailment or incident;
- A program for the activities, including the approval requirements.
- Other specific information requested by the SRA according to the circumstances,

It is likely that there will be a series of testing activities, in which case the Contractor or Owner may wish to propose holding a series of meetings of stakeholders, with a specific interest in the safety of testing to review the scope and management of each stage before it goes ahead and review the outcome of each stage before agreeing progression to the next.

The meeting must be attended by the Owner, Contractor, Engineer and ISA, and any other stakeholder and include a formal signing-off process. This meeting should have the power to impose any additional controls considered necessary and may need to include the RTA Traffic & Roads Agency (TRA).

If the Owner or Contractor wish to adopt such an approval process, the SRA must give its approval in advance and must be invited to attend all such meetings.

When the above application has been evaluated and accepted by the SRA, it will issue an LNO. It may be that a series of LNOs is required for the progressive stages of testing or, if the accepted process includes holding of an approval meeting with a formal record of discussion and agreements as described above, SRA acceptance may be given in that forum.

b) LNO for Installation, Testing and Commissioning on an Operational Railway

If rolling stock or other equipment is to be installed, tested or commissioned on an operational railway before that rolling stock or equipment has been contractually accepted and included within the scope of an OSC or DSC issued by the SRA, it may be necessary to obtain an LNO from the SRA before commencing activities. The scope of the proposed activity should be discussed with the SRA to establish if an LNO will be required.

The following factors would require an LNO for the activity, there may be others:

- If such activity could result in a safety risk to the operational railway;
- If such activity could result in unplanned disruption or impact on reliability of the operational railway;
- If such activity requires the Operator Duty Holder to introduce novel / non-standard procedures or practices;
- If the activity includes use of new (not certificated) rolling stock on the operational railway during engineering or operational hours.

The application for the LNO should contain the precise scope of the activity, the necessary risk assessments to staff and the operational railway, supporting evidence to describe how the risks to the operating railway safety and reliability will be managed to ALARP, clear definition of responsibilities (bearing in mind that the Operator must have overall responsibility).

An application for LNO must be endorsed by the Contractor, Owner and Operator Duty Holder and, where appropriate, by the Engineer and ISA. Where appropriate, an LNO may have Constraints or Conditions attached.

Note that if the scope of the proposed change involves any changes to the OSC or any existing Restrictions or Qualifications, then a LOA would be required (see section 3.5).

c) LNO for Operations during Construction Activities

Where railway systems are in the process of being constructed or modified, and where the construction activities require the movement of trains (other than trains whose sole purpose is to facilitate construction and there is no interface with other rolling stock), an LNO must be issued by the SRA prior to the movement of rolling stock commencing.

At the project definition stage, the Owner must discuss the project with the SRA and ensure that the Contractor is aware of the requirements detailed in this section.

Once the Contractor has been appointed preliminary discussions should be held with the SRA in order to reach a clear understanding of the scope and timing of any operations that will be undertaken as part of the project (e.g. for testing and commissioning). The scope and submissions required by the SRA should be agreed at an early stage such that the Contractor can build these into the project plans.

At an appropriate stage of the project (not less than one month before the proposed start of operations) an application for an LNO must be submitted by the Contractor to the SRA. The application must, as a minimum, contain:

- A description of the proposed stages of operations during the construction period, leading to takeover by the Owner. For each of the proposed stages a description of the operational success indicators must be provided and a list of evidence that will be provided to enable progression to the next stage;
- The Contractor's System Hazard Log and associated safety mitigations for each stage of operations;
- The Contractor's Safety Management System, including organization, the manager responsible for day-to-day safe operation and maintenance, other key and safety critical personnel, competence management arrangements, permit to work/safe working arrangements, management of interfaces;
- Where operational interfaces exist between the Contractor's operations covered by the LNO and other Operators or Maintainers, an interface management plan must be produced, which should form part of the SMS. The interface management plan should identify all safety interfaces and

provide clarity on each party's responsibilities, as well as how the interfaces will be monitored and reviewed.

- Operational and maintenance policy, procedures and work instructions (to be provided for each stage as agreed);
- For each stage, statements from the Owner, Engineer and ISA that they each consider the system is safe to operate and the risk is ALARP;
- Evidence of a maintenance regime for the assets commensurate with the usage and risks for each stage;
- Evidence of necessary Third Party approvals, including as a minimum the Dubai emergency services;
- Any other specific information identified by the SRA during the course of the project.

The LNO is likely to include Conditions and Constraints which prevent the progression between stages without further evidence being provided to, and accepted by, the SRA, the Owner, the Engineer and the ISA. The progression to the next stage must be approved at an ORP.

As the holder of an LNO relating to operating trains, the Contractor should note that the regulatory requirements for Duty Holders and Contractors outlined in section 4 apply, including the requirement for safety reporting.

3.7. Renewal of a Safety Certificate

The SRA shall issue a new safety certificate:

1. On application by the Duty Holder proposing a Material Change (defined in section 3.8) to the Asset or operation. This will require a formal application in accordance with section 3 of this document. A Duty Holder should contact the SRA to establish if any proposed change is considered Material in this context and whether a new certificate or a LOA is most appropriate.
2. When, in the view of the SRA, the amendments to certificate Restrictions and/or Qualifications are significantly large in number or significance to merit a reissue. In this case, the SRA shall decide when it is appropriate. The Duty Holder is not required to make any application. The validity of the new certificate will have the same expiry date as the one it is replacing (in the case of the OSC) and will not be subject to a fee.

3. Where an application by an Operator Duty Holder is made on expiry of an OSC, without any Material Change being proposed. This will require a formal application in accordance with section 3.9 of this document.
4. On the replacement of the incumbent Operator by a new Operator appointed by the Owner. In such circumstances the Owner shall submit an application to the SRA for the SRA's approval, giving reasons for the change of Operator and details of the handover process between the outgoing and new Operators, which shall ensure the safe continuity of operations. The new Operator must submit an OSC application in accordance with section 3.4 within 6 months of gaining the SRA's approval.

3.8. Material Change

A proposed change that has any of the following attributes would be considered to be Material[10]:

1. Change of Owner / DSC Duty Holder.
2. Change of Operator or Maintainer / OSC Duty Holder, (see section 3.7).
3. Change of scope of the Assets or operation outside that described in the system safety cases and which has been certified, which would include but not limited to:
    a. Extensions to the route or addition of new stations or other facilities on the existing lines.
    b. Major changes in key systems.
    c. Operating at headways or speeds beyond the original design specification.
    d. Re-engineered or new rolling stock.
    e. Significant change to maintenance philosophy or practice.
    f. Introduction of technology or processes that are novel or new to Dubai.
    g. Major changes to the Duty Holder's Safety Management System
4. The change cannot be managed within the scope of the Duty Holder's Safety Case, processes or competence.

The fundamental consideration is to understand and manage the risks associated with the new features and the risk imported onto the existing systems arising from the proposed change.

[10] Material Change can be considered to be equivalent to *Significant* change as described in the EU/ORR document *'Common Safety Method for risk evaluation and assessment'*, see Appendix 1. It is also referred to as a '*substantial change'* in Administrative Resolution 986/2018

Generally, a new certificate or LOA (if changes to a certificate Schedule is required) will need to be issued by the SRA. An application from the Owner/Operator and/or Maintainer will be required, supported by relevant evidence that all processes have been followed, that all parties are in support and risks are managed to ALARP.

Where the Material Change has a number of such stages, the stages should be determined at the outset of the project and the Owner/Operator and/or Maintainer should undertake an assessment of the risk and need for SRA approval for each stage and gain SRA's agreement for the plan. The plan should be reviewed as the project progresses to ensure that any changes to the risks, and therefore the SRA's involvement, are identified and agreed with the SRA. The criteria for determining whether SRA no objection is required should be discussed with the SRA.

The risk to the existing system whilst the changes are being implemented must also be identified and managed. The risks to current operations during implementation of the change will probably be greater than the incremental risk of the finished project. This will require a risk assessment to be undertaken by personnel competent in the systems being impacted and mitigating measures to be implemented that may be temporary. These may require the SRA to give an LNO or LOA to these changes before commencement.

The flow chart in Appendix 4 outlines this process in general terms. It may be adapted by the SRA to suit particular projects.

With changes of significant complexity, it would be good practice to employ an Independent Safety Assessor (ISA)[11] to assess the processes being adopted and the outcomes and to make recommendations at each approval stage.

If there is any doubt as to whether a proposed change is Material, the SRA should be consulted at the earliest opportunity so that approval requirements can be considered, including identification of the approval elements and a time plan. The SRA must be given sufficient time to assess the change.

3.9. Re-certification Due to Expiry of OSC

An Operational Safety Certificate will be valid for a period of five (5) years with an expiry date stated on the certificate (this may be reduced to three (3) years under certain circumstance, as stated in section 3.4).

[11] In accordance with RTA SRA '*Code of Practice for Railway Independent Safety Assessors'* which is an annex to this document

If, as the expiry date of the OSC approaches, there is no Material Change proposed, the Operator and/or Maintainer should make an application to the SRA for re-certification in accordance with the following:

1. Not later than six (6) months before the OSC expiry date, the Duty Holder should discuss the requirements for re-certification, including the time-frame for submission of relevant evidence to support the application, with the SRA.
2. Relevant evidence must include:
    a. Confirmation that the Operations Safety Case and SMS fully reflects current operations (including maintenance), or justification and presentation of changes;
    b. Confirmation that the Hazard Log and Risk Assessments are fully up to date and quantified, reflecting experience through the use of data from a failure/defect recording and analysis system or process;
    c. Review of risk controls to demonstrate they are effective and proportionate to risk;
    d. Evidence of safety improvement initiatives and the effectiveness of their outcomes;
    e. Evidence of effective briefing arrangements to staff and contractors for normal, degraded and emergency service operations;
    f. Evidence of competence management, including non-technical skills where appropriate, and how the overall competence of the organisation is assured;
    g. Evidence of the management of change and controlling new risk;
    h. Evidence of the safe O&M of the railway, including safe working arrangements in depots, and demonstration of continuous improvement;
    i. Summary of significant safety incidents that have occurred during the validity of the expiring certificate, the mitigating actions taken by the Duty Holder and lessons learnt;
    j. Summary of performance against key safety targets over the period of validity of the expiring certificate;
    k. Summary of enforcement action taken against the Duty Holder (Improvement Notices, Prohibition Notices, Fines) and the resultant actions taken, and lessons learnt;
    l. Evidence of effective emergency planning and response, including arrangements with the Dubai emergency services, and validation through planned emergency exercises;

m. Monitoring and management of contractors' safe working arrangements;

n. Demonstration of continuous improvement in safety performance, including a self-assessment in accordance with the RM^3 criteria and demonstration of systematic improvement;

o. Where appropriate, a report from an ISA stating that any safety risks are ALARP. The need for an ISA is to be agreed with the SRA and is dependent on a number of factors such as the complexity of the system and the degree of any changes since the previous OSC was issued; and

p. Any other specific information requested by the SRA.

This evidence may be formally submitted to SRA or provided during an SRA inspection as agreed with the SRA.

The Duty Holder will be expected to make a presentation to the SRA addressing the above evidence requirements prior to the formal application for a new OSC.

The Duty Holder should agree with SRA the specific evidence that should be included in the formal application for a new OSC.

The SRA will consider the Duty Holder's application along with its own evidence collected and risk management maturity assessments made during the period of validity of the expiring OSC. As a result, further information may be requested to assure the SRA that there is a sound safety culture and history of continuous improvement. The SRA may impose restrictions and/or qualifications on the new certificate.

3.10. Extension of the Validity of OSC

The SRA may agree to extend an OSC by up to six (6) months under the following circumstances:

- Where a change of Operator and/or Maintainer is likely to occur within six (6) months of the expiry of the existing OSC;
- Where a Material Change is likely to occur within six (6) months of the expiry of the existing OSC;

In the above circumstances the OSC Duty Holder, supported by the DSC Duty Holder as required, must no later than six (6) months before the OSC expiry date discuss the details and time-frame for the forthcoming changes with the SRA. Following discussions with the SRA, the OSC Duty Holder must formally write to the SRA requesting a LOA, stating the reason for the requested extension, the duration (up to a maximum

of six (6) months) and any risks and mitigations identified as a result of the extension.

The SRA will consider the possible extension based on the confidence that the timeframe for the changes are realistic and that the application for the replacement OSC (either by the new Operator and/or Maintainer or for the Material Change) will be submitted in time to ensure the continuity of safe operations. The SRA may request evidence that any risks will be mitigated.

If the extension is agreed, the SRA will issue a LOA which may or may not include changes or additions to the Restrictions and Qualifications of the existing OSC.

The certificate that is issued following the extension will be valid from the expiry date of the previous certificate and will not therefore take into account any extension.

There is no fee for an extension as described in this section.

4. SRA Approach and Requirements for Regulation

4.1. Regulation Objectives

The SRA has five key objectives for the regulation of systems that have had Delivery and Operation Safety Certificates (DSC, OSC) issued by the SRA or for those that are not handed over and are operating trains for testing and commissioning purposes. These are:

1. Is the system (including during construction) being operated maintained, changed and generally managed in a manner that ensures that the safety risk to passengers, staff, contractors and the general public is to be ALARP? Is the risk being CONTROLLED?
2. Is there a CULTURE of proactive safety management and CONTINUOUS (safety) improvement?
3. Is the Duty Holder COMPLYING with Dubai Railway Law, the requirements of the system safety cases, any Restrictions and Qualifications of the OSC and DSC and any Constraints and Conditions attached to an LNO?
4. To COLLECT safety performance data for each system to enable the SRA to make a Risk Management Maturity assessment, benchmarking against international best practice. for input into SRA's Annual Safety Report.
5. To gather sufficient evidence from each system over the period of validity of an OSC to enable an assessment to be made of all elements of the OSC Duty Holder's Risk Management Maturity (see section 4.6) and to aid assessment of an application for RE-CERTIFICATION (see section 3.9).

These objectives are summarized in Figure 4-1

Figure 4-1 – Regulation Objectives

It is a fundamental requirement that the OSC Duty Holder of the system should maintain an effective SMS that delivers continuous improvement in the safe O&M of the system including the management of change to the assets, organisation and personnel. The DSC Duty Holder must have an SMS appropriate for the degree of authority and responsibility that they have for the direct safety management of the system assets.

4.2. Regulation Activity

Proactive

1. SRA will prepare an SRA Annual Plan for its proactive activities to test and challenge the operational risk controls of each Dubai rail business / Contractor undertaking rail operations / Duty Holder holding a DSC or OSC.
2. The SRA Annual Plans will focus on the strategic risk priorities; targeting the risk areas and testing the SMS controls for each risk area, as described in section 2.3 of this document.
3. Over the period of validity of the OSC, the SRA aims to test all of the SMS controls in each of the risk areas for all OSC Duty Holders to inform assessment of their application for re-certification (if applicable).
4. Inspections may be 'anonymous', in which case the Inspector will act as a passenger or member of the public.

5. Inspections may be 'unannounced', in which case SRA Inspectors will visit with minimal notice and observe particular activities that are being undertaken at the time. If access is required to a controlled site, then it will of course be pre-arranged.
6. SRA Inspectors may make visits to observe specific activities in detail or may request specific activities to be undertaken for the purpose of the inspection, in which case the visit will be pre-arranged in detail.
7. The SRA maintains the SRA Annual Plan that identifies the areas to be inspected for each system dependent on the technical or operational complexity of the system, the perceived risks, historic safety performance and the SRA's confidence in the Duty Holder's or Contractor's ability to proactively manage safety, to ensure the SRA Inspector resource is deployed most effectively to fulfil the SRA's obligations. Inspections should be undertaken over the period of validity of an LNO or OSC to enable all the RM3 elements to be assessed, see section 4.6 below.

Reactive

1. The SRA will respond to incidents and issues arising as they occur depending on their nature, the perceived safety risk and the appropriateness and effectiveness of the Duty Holder's or Contractor's response to the incident.
2. In the case of reportable incidents, the SRA may undertake a Technical Investigation as described in section 5.
3. SRA Inspectors will seek to determine underlying causes for events and identify whether any enforcement action needs to be taken.
4. Through their contacts with other regulatory bodies, the SRA will monitor accidents and incidents elsewhere in the world and determine if they have any relevance or require any action in Dubai.

4.3. Enforcement - Acting on Findings

The SRA will continuously review the findings from its regulatory interventions.

If the SRA Inspector believes that there has been a breach of Executive Council Resolution No. 1 of year 2017 or of an LNO or a DSC or OSC Restriction or Qualification, or there has been a failure to effectively manage safety risk, then a sanction against the Contractor, Owner or Operator and/or Maintainer may be imposed. This process is described in section 6.

The SRA has a process for the escalation of issues should there not be an adequate and timely response by the Duty Holder or Contractor to concerns raised.

4.4. Communication between SRA and the Duty Holder or Contractor

The SRA must have open and clear communication channels with the Duty Holders and Contractors who are operating trains, so that relevant issues relating to current and emerging system safety risks are brought to the attention of the SRA and, in turn, the SRA can raise concerns for discussion and action by the Duty Holder or Contractor.

The OSC Duty Holder (or Contractor who is operating trains) will be required to provide a periodic safety report to the SRA and hold a periodic safety review meeting to discuss safety performance and issues. The exact content of the report and agenda for the meeting and their periodicities will be determined by the SRA and may be stated as a qualification or condition on the OSC or LNO. A typical periodicity would be monthly for the report and one, two or three monthly for the meetings, depending on the complexity of the system, the level of perceived risk and the confidence the SRA has in the safety management of the system.

Formal minutes of these safety liaison meetings must be issued.

The periodic safety report must contain the information as per SRA template.

It is the SRA's intention to move towards attendance at Duty Holder's own safety management meetings and reduce the number of periodic Duty Holder / SRA safety liaison meetings. This approach will be developed system by system with the relevant Duty Holder.

Duty Holder's Annual Safety Performance Report

The OSC Duty Holder must provide the SRA with an Annual Safety Performance Report to cover the year (preceding 12 months) to the end of September and to be submitted to the SRA by the 15th October each year.

A typical Annual Safety Performance Report would contain:

- A review of the Safety Case and SMS to ensure it reflects any changes and is still appropriate;
- Significant changes to operation or maintenance in the year;
- Significant changes to organisation or key contractors in the year;
- An overview of passenger usage and service levels over the year;
- Incidents, including near misses and a summary of mitigating actions taken, including the information identified in section 5;
- A summary of the status of any regulatory actions;
- Safety trends showing any changes in safety performance when compared with previous years;

- Confirmation that the Hazard Logs and Risk Assessments are up to date, including quantifications and restrictions;
- A self-assessment in accordance with the SRA's Risk Management Maturity criteria, with supporting evidence (see section 4.6);
- Safety Risk Model outcomes (Time Frame will be discussed with the SRA).

Whilst routine communications can take place at meetings, by e-mail, telephone, text/messaging and other electronic means, formal communications from the Duty Holder, including applications for certificates, LOAs, LNOs or to remove/amend restrictions and qualifications or response to letters from the SRA, should be made formally by signed letter, which may be scanned and distributed electronically.

Equally, formal communications from the SRA will be by signed letter, including Letters of Concern, Improvement Notices, letters issuing Fines, amendments to certificate Restrictions and Qualifications and issue of new certificates.

4.5. Management of Change

Assets: At the Certification stage, the Owner of the system must have put in place a system for the management of change that could have an impact on safety, or which varies the configuration or status of the system that was certified.

The Operator and/or Maintainer will have put in place an Asset Management process to ensure that the handed over assets or any new assets that are introduced are fit and safe for operation, that the risks are ALARP and are maintained to be ALARP throughout the life of the asset.

O&M: The Operator and/or Maintainer will also have in place, as part of the SMS, a process to manage change to its O&M arrangements and processes, organisation and personnel.

These change processes may be the subject of SRA inspection and the Duty Holders must therefore ensure the appropriate records are available to the SRA on request.

Operations/Safety Review Panel[12]: At the certification stage the Owner will have put in place an Operations/Safety Review Panel, (or equivalent body) that is responsible for the management of safe operation of the railway system, in particular the approval of change.

This would include changes such as:

- Removal of operating restrictions as a result of the completion of outstanding or remedial work;

[12] Referred to as *Operations Safety Review Committee* in Administrative Resolution 986/2018

- Amendment to system Minimum Operating Requirements;
- Change to the operating pattern – such as operating more vehicles, operating at closer headways, operating for longer hours, opening new stations, increasing speed, etc., within the terms of the current DSC and/or OSC; an

Safety-related change that would change the scope of the existing DSC and/or OSC, for example system extension, is considered to be Material. This may be discussed at ORP, but the SRA approval process for Material changes applies, see section 3.8.

The Operations/Safety Review Panel (or equivalent body) must have a formal term of reference, submitted to the SRA at the time of certification, which identifies the attendees required for the panel to be quorate[13]. The attendees must include senior representatives of the Owner and Operator who are in a position to speak with authority for their respective organisations and include other parties such as the Contractor, Engineer, RTA TRA, the ISA, Maintainer, as required dependent on the subject matter on the agenda. The SRA must be invited as an observer to all Operations Review Panels (or equivalent) meetings and be provided with the minutes of all meetings, regardless of whether a member of the SRA actually attended the meeting.

4.6. Duty Holder's Risk Management Maturity

For Dubai railway systems, the SRA has adopted Risk Management Maturity Assessment Criteria, based on the UK ORR's Risk Management Maturity Model (RM3). This model identifies five (5) levels of management maturity in twenty-six (26) critical areas of a SMS and is detailed in the SRA *'Risk Management Maturity Assessment Criteria'*, which is an annex to this document.

The SRA team will assess all interactions with Duty Holders and Contractors who are operating trains against the criteria in this model and will use these assessments to determine weaknesses and strengths and help set future areas for action. A fundamental element will be the assessment of the organisation's safety culture.

The SRA requires Duty Holders (but not Contractors who are operating trains) to undertake their own Risk Management Maturity assessment using the SRA criteria and present the results in their system Annual Safety Performance Safety Report to the SRA, see section 4.4. This must be supported with evidence and should demonstrate improvement year on year.

[13] A meeting will not be **quorate**, and therefore **cannot go ahead** if the key attendees or their alternates nominated in the Terms of Reference are not present.

The SRA will discuss this assessment with the Duty Holder, particularly if the SRA's own assessment is at variance.

Operators and/or Maintainer are required to demonstrate continuous improvement in their management of risk to maintain their Operation Safety Certificate.

4.7. Suspension of Services

If for any reason a Railway system's services have to be suspended for a period in excess of seven (7) days, then the SRA should be formally notified, and discussions held with both the Owner and the Operator to ensure that any resulting risks are identified and mitigated. In these circumstances, the SRA would generally require the following assurances with evidence as required:

- Formal notification of the suspension of services by the Operator, giving the reason and the likely duration;
- A specific risk assessment to identify any risks as a result of the service being suspended;
- A service suspension plan which is likely to cover maintenance requirements during the suspension, periodic exercising of the assets, how staff competence will be maintained, security arrangements, monitoring of the assets and alarms etc.;
- A service resumption plan which is likely to cover any pre-service checks of the assets and any staff refresher training (depending on the duration of the service suspension);
- Formal notification to the SRA of the intention to resume services, including confirmation of an ORP/SRP to which the SRA should be invited;
- Any other specific information identified by the SRA based on the circumstances of the service suspension

5. SRA Approach and Requirements for Incident Reporting and Technical Investigation

Further to section 1.6 of this document and with reference to the Incident Management Policy at RTA, Dubai Railway Law requires the Owner, Operator and/or Maintainer and Contractor to notify the SRA of incidents[14] that occur on a railway, including near misses.

The Owner, Operator and/or Maintainer and Contractor will be provided with SRA contact numbers for notifying such incidents on a 24/7 basis. Safety related incidents must be notified by telephone call and SMS message.

Once notified by either the Owner, Operator and/or Maintainer or Contractor that a notifiable incident has occurred, the SRA Inspectors will assess and may then deploy Inspectors and other SRA members to site to undertake an independent technical investigation.

Note that any Incidents falling within the categories described in this section must be reported in the Duty Holder or Contractor's periodic safe report as outlined in section 4.4.

5.1. Requirements of Notification

Table 5.1a identifies incidents that must be notified to the SRA. Notification must take place within fifteen (15) minutes of the Owner, Operator or Contractor becoming aware that the Table 5.1a requirement has been triggered. Table 5.1b contains the basic information that the SRA requires when being notified.

S. No	Incidents that are immediately notifiable to the SRA
1	Any fatality caused by or related to railway system operation, maintenance or construction.
2	Any non-minor injury caused by or related to railway system operation, maintenance or construction.
3	Member of staff lost time injury of more than three (3) days. Note: Immediate notification, in this case, refers to notifying SRA once 3 days passed in addition to Notifying Requirement Number 2.
4	Case of communicable disease (as defined under Dubai Law).

[14] Referred to as 'Accidents' in Dubai Railway Law

S. No	Incidents that are immediately notifiable to the SRA
5	Incidents that results in staff, contractors, passengers or members of the public being evacuated from railway vehicles15 or from the railway infrastructure, including during construction.
6	Railway vehicle striking an animal or object where that collision causes damage to the railway vehicle or affects the service.
7	Unauthorised passing of a restrictive signal by a railway vehicle.
8	Runaway involving any rail or track mounted vehicle or equipment.
9	Derailing, decoupling, collision or fire associated with railway vehicles. Note: Fire, smoke and fire alarm activation will be separated as covering all railway systems.
10	Any failure of vehicles that affects the service and increases the risks to staff, contractors, passengers or members of the public.
11	Collision between a railway vehicle and a road vehicle.
12	Any damage occurring to a railway vehicle due to a dangerous incident.
13	Any defect of the infrastructure or system that affects the service or increases the risks to staff, contractors, passengers or members of the public.
14	Incident involving railway vehicles carrying dangerous goods or materials.
15	Incidents involving the fall or collapse of structures onto the railway infrastructure.
16	Incident involving the fall or collapse of the railway infrastructure, including during construction.
17	Any material falling onto the railway tracks that affects the passenger service or the passage of railway vehicles.
18	Any other incident that causes a delay to passenger services of 20 minutes or over on any part of the system, including closure of a station.

[15] Referred to as 'Rolling stock' in Dubai Railway Law

S. No	Incidents that are immediately notifiable to the SRA
19	Incident where there is an impact on the physical or biological environment.
20	Incident or dangerous occurrence not mentioned above that receives or is likely to receive media attention.
21	Any dangerous occurrence that under slightly different circumstances could have led to a notifiable incident (Near Miss).
22	Failure of Safety Critical and Safety Related Software

Table 5.1a

S. No	Incident Notification Minimum Requirements
1	Date:
2	Time:
3	Transport system:
4	Location of incident:
5	Category of incident – see Table 5.1a
6	Description of incident:
7	Effect on system operation:
8	Names of persons injured (if any):
9	Extent and type of injury – see Tables 5.2b, 5.2c, 5.2d:
10	Contact person/s on site:

Table 5.1b

5.2. Investigation Reporting Requirements on Owner, Operator, Maintainer and Contractor

1. Initial Investigation Report:

Following notification in accordance with section 5.1, the Owner, Operator or Contractor must provide the SRA with an Initial[16] Incident Report within 24 hours of the incident occurring.

[16] Referred to as 'Interim' in Dubai Railway Law

2. Final Investigation Report:

If the Incident warrants it and the Initial Investigation Report was not conclusive, a more detailed Final Incident Report must be provided by the Owner, Operator or Contractor to the SRA when the investigation is completed.

Note: If the Final Incident Report takes more than 21 calendar days from the date of the incident, the Owner, Operator or Contractor must provide an Intermediate Investigation Report to the SRA. The SRA may or may not accept the justification for delay of the Final Report.

Table 5.2a contains the information that the SRA requires from the Initial, Final and any Intermediate Investigation Incident Reports. Tables 5.2b, 5.2c and 5.2d contain definitions of the classification of injury that must be reported.

S. No	Information Required from the Owner, Operator and Contractor in Incident Reports
1	Reporting organisation:
2	Reportee: [name and designation]
3	Report date:
4	Date of incident
5	Time of incident
6	Location of the incident
7	Transport System
8	Category of the incident as defined in Table 5.1a
9	Description and consequences of the incident
10	Names and contact details of persons injured if applicable
11	Names and contact details of other persons affected if applicable
12	Names and contact details of any witnesses relevant to the incident
13	Classification of injuries if applicable – see Tables 5.2b, 5.2c and 5.2d
14	Indication as to cause of death/s if applicable and if known
15	Evidence and initial findings

16	Contributory causes
17	Initial recommendations
18	Actions Taken & Plan
19	Investigation status [Further investigation/ not required / closed out]

Table 5.2a

Incident Classification - Severe	
People	
1	Any bone fracture diagnosed by a registered medical practitioner, other than to a finger, thumb or toe
2	Amputation of an arm, hand, finger, thumb, leg, foot or to
3	Any injury diagnosed by a registered medical practitioner as being likely to cause permanent blinding or reduction in sight in one or both eyes
4	Any crush injury to the head or torso causing damage to the brain or internal organs in the chest or abdomen
5	Any burn injury (including scalding) which: • Covers more than 10% of the whole body's total surface area; or • Causes significant damage to the eyes, respiratory system or other vital organs
6	Any degree of scalping (separation of skin from the head) requiring hospital treatment
7	Loss of consciousness caused by head injury or asphyxia
8	Any other injury arising from working in an enclosed space which leads to hypothermia or heat-induced illness
9	Requires resuscitation or admittance to hospital for more than 24 hours
Environment	
10	Impact extends beyond organisational boundary
11	Significant impact on the physical or biological environment with extensive or long-term impairment of eco-system function
12	Impact to unique or protected species or habitats

Incident Classification - Severe	
13	Cause inconvenience / disturbance / disruption / annoyance of long duration or with long -term effect on the community
14	Release of material or energy which causes chronic illness, permanent disabling injury, fatality or extensive property damage
Assets	
15	Significant damage – equipment or loss of assets
Reputation	
16	Public or national / international media outcry
17	Any accident requiring significant external resources
18	Incidents where Government agencies must be notified

Table 5.2b

Incident Classification - Moderate	
People	
1	Any injury requiring medical treatment or hospitalisation for more than three (3) days, and/or granted sick leave for more than three (3) days in addition to the day of the incident
Environment	
2	No immediate impact outside organisational boundary, but potential exists for the emergency to extend beyond organisations property
3	Moderate impact on the physical or biological environment with limited impairment of ecosystems function
4	Minor Impact to fauna and flora in a statutory designated area
5	Cause inconvenience / disturbance / disruption annoyance of moderate duration or with medium-term effect on the community
6	Release material or energy, which causes severe but reversible illness, non-disabling injury or moderate property damage
7	Damage to rare structures of cultural significance or significant infringement of cultural values / sacred location
Assets	
8	Moderate damage to equipment – repairable
Reputation	
9	Attention from local / regional media
10	Widespread public complaints
11	Immediate multi-agency, multi-level government involvement
12	Requiring outside assistance

Table 5.2c

Incident Classification - Minor	
People	
1	Any injury requiring first aid
2	Any injury less than the three days (3) lost time injury
Environment	
3	No impact outside of the organisational boundary
4	Minimal environmental impact
5	Minor impact on the physical or biological environment – no significant impairment of ecosystem functions
6	Cause inconvenience / disturbance / disruption / annoyance with short duration
7	Release of material or energy with the potential to cause minor illness, injury or property damage
8	Minor repairable damage to commonplace structures of cultural significance
Assets	
9	Minor dents or scratches – repairable
Reputation	
10	Little or no media interest
11	Isolated public complaints
12	Immediate control of hazard or source is possible
13	The situation can be handled entirely by company personnel

Table 5.2d

5.3. SRA Investigation and Reporting

Where required SRA Inspectors will investigate the root causes of the incident and report in accordance with the requirements of Dubai Railway Law.

If the SRA Inspector judges from the initial notification, as described in section 5.1, that the incident is sufficiently serious, the SRA Inspector / other SRA member will immediately go to site to undertake a technical investigation, independently of any investigation being undertaken by the Owner, Operator or Contractor or any other party, such as Dubai Police. This may include incidents in which there are no

injuries, if it is judged that there could have been significant or severe injuries under different circumstances.

The SRA Inspector may terminate the investigation as soon as he has sufficient evidence to establish that:

- The Owner, Operator or Contractor's own investigation is satisfactory;
- The incident is not as serious as originally thought;
- The cause of the incident is well understood from previous occurrences and mitigations are already in hand; or
- The root cause has been adequately identified.

The SRA Inspector will review the report(s) submitted by the Owner, Contractor or Operator together with his/her own findings and will report accordingly to the Chief Executive Officer of the RTA Strategy & Governance Sector and to the Director General, Chairman of the RTA Board as required.

6. SRA Inspectors and Enforcement Guidance

6.1. Introduction

SRA Inspectors are appointed by the RTA Director General, Chairman of the Board, to act as Law Enforcement Officers and have powers in accordance with Dubai Railway Law[17].

The term SRA Inspectors includes RTA Judicial Control Officers with the SRA.

Inspectors are confronted by many unique variables when carrying out inspections, assessments and investigations, such as different work activities, organisational structures, contractual relationships and assessing risk and compliance with the law, ranging from relatively straightforward to extremely complex. Therefore, this section does not provide a prescriptive approach but attempts to provide guidance that may help to structure the SRA Inspector's assessment of the risk arising from the breach and determination of enforcement action.

This may also assist others (for example, those directly affected and the RTA Railway Appeal Committee) in understanding the principles SRA Inspectors follow when deciding on a particular course of action.

SRA may determine at any time that a DSC or OSC Duty Holder or Contractor needs to:

- take immediate action to deal with serious risks;
- improve so that they meet the legal requirements; and
- be held to account through fines for any health and safety failings that warrant financial penalties.

The SRA also has a policy to escalate regulatory action if there has been no progress in addressing issues and concerns raised by the SRA, see section 6.8.

6.2. Enforcement Policy

General Principles of Enforcement

The SRA will use its powers to enforce compliance with the requirements of Dubai Railway Law. This policy does not deal with the enforcement responsibilities and powers of the RTA Rail Agency.

[17] Executive Council Resolution No 1 / 2017, Article (17)

The term '*enforcement*' has a wide meaning and applies to all dealings between the SRA and those on whom the law places legal obligations as defined in Dubai Railway Law.

The purpose of enforcement is to:

a) Ensure that Owners, Contractors and Operators and/or Maintainers manage and control risks effectively, thus preventing injury and damage and take action to deal immediately with serious issues;

b) Promote and achieve sustained compliance with the law;

c) Ensure that Owners, Contractors and Operators and/or Maintainers who breach legislation and directors or managers who fail in their health and safety responsibilities may be held to account, which may include financial penalty (fines) as set out later in this policy.

Investigating the circumstances encountered during inspections or following incidents or complaints is essential before taking enforcement action. In deciding what resources to devote to these investigations, the SRA will have regard to the principles of enforcement set out in this document, striking a balance between investigations and mainly preventative activities such as inspections. It will generally focus investigation resources and priorities on individual events of material significance, failures to comply with health and safety law and instances where risks to health and personal injury arise, rather than one-off minor instances.

SRA Inspectors use their discretion in deciding when to investigate or what enforcement action may be appropriate. SRA has developed a process for dealing with health and safety incidents as described in this document to provide a framework for Inspectors to make consistent decisions.

SRA believes in firm but fair enforcement legislation. This is informed by best practice regulatory principles:

Proportionality in applying the law and securing compliance:

This means relating enforcement action to the level of risk[18] arising from a breach and/or the seriousness of a failure to comply with a legal obligation, taking account of the proactivity and effectiveness of the Duty Holder in mitigating the risk and preventing a re-occurrence. The action taken by SRA to achieve compliance or bring Duty Holders to account for non-compliance should be proportionate to any risks to health and safety.

In considering seriousness, SRA will look at (amongst other things):

a) The actual or potential harm caused to passengers, staff, contractors or third parties and to the public interest;

[18] In this policy, 'risk' is defined broadly to include a source of possible harm (injury or damage), the likelihood of that harm occurring and severity of that harm.

b) How far standards have fallen below those required by the law and/or those standards stated in the Duty Holder's Safety Case;

c) The culpability of the offender, including whether the Duty Holder has acted negligently, recklessly, knowingly or intentionally, including the adequacy of any action that may have been taken.

Some legal duties are specific and absolute. Others require action to reduce the risks to a level that is ALARP, the risk management technique preferred by SRA[19].

Deciding on the level of risk control which is ALARP involves the exercise of judgment. The Duty Holder must take measures and incur the cost unless it can be shown that there is gross disproportion between these factors and that the risk is insignificant in relation to the cost.

SRA will expect good practice to be followed. SRA requires Duty Holders to fully and clearly establish the significance of the risks to determine what action needs to be taken.

Targeting of enforcement action:

This means making sure that actions are targeted primarily on those whose activities give rise to the most serious risks, where the hazards are least well controlled or where ongoing compliance with the law needs to be verified; and that action is focused on the responsible Duty Holder best placed to control it.

The Duty Holder's management competence is important because a relatively low hazard activity or poorly managed site can entail greater risk to workers or the public than a higher hazard or site where proper and adequate risk control measures are in place.

Any enforcement action will be targeted against the Owner, Contractor, Operator, Maintainer, supplier or tram driver[20], as appropriate, responsible for the breach.

Where several Duty Holders or others have responsibilities in respect of one incident / breach, the SRA will take action against more than one when it is appropriate to do so in accordance with this policy.

When an SRA Inspector issues a Letter of Concern, Improvement Notice[21], Prohibition Notice[22], vary Restrictions or Qualifications of a DSC or OSC or issue a fine, the SRA will notify a senior officer of the Duty Holder or other organisation concerned.

[19] '*The system must meet the risk management requirements, standards, techniques and procedures approved by the Safety Regulation Authority*' as outlined in Appendix 1 of this document).

[20] Enforcement action against tram drivers by SRA is limited to a fine for a breach of the absolute requirements for a tram driver to *'(1) Not drive the Tram unless he holds a valid Permit' and '(2) Carry the Permit while driving the Tram and during the training and present it to the inspectors of the Authority'* (Article (14) Executive Council Resolution No. (1) of 2014 Regulating the Tram Operation in the Emirate of Dubai)

[21] 'Notice of Remedy' in Executive Council Resolution No 1 /2017.

[22] 'Notice of Prohibition' in Executive Council Resolution No 1 /2017.

Consistency of approach:

This does not mean uniformity. It means taking a similar approach in similar circumstances to achieve similar ends. Duty Holders that manage similar risks, or who are responsible for ensuring compliance, expect a consistent approach from the SRA in the advice tendered, the use of enforcement notices, decisions on whether to issue fines and in the response to incidents.

In practice, SRA Inspectors are faced with many variables including the degree of risk, the attitude and competence of management, any history of incidents or breaches involving the Duty Holder, previous enforcement action and the seriousness of any breach, which includes any potential or actual harm arising from a breach of the law. Decisions on enforcement action are discretionary, involving judgment by the Inspector in accordance with the principles outlined in this document. SRA has arrangements in place to promote consistency in the exercise of discretion by its Inspector, including where necessary, effective arrangements for liaison with other health and safety enforcing authorities, for example the ORR in the UK and the STRMTG in France.

Transparency about how the SRA operates:

This means helping Duty Holders and others to understand what is expected of them and what they should expect from the SRA. It also means making clear to Duty Holders what they have to do and distinguishing between statutory requirements and guidance about what is good practice.

This statement sets out the general policy framework within which SRA will operate. Duty Holders and others need to know what to expect when an Inspector calls and what rights of complaint are open to them. Existing Duty Holders will be familiar with the way in which SRA Inspectors operate and what will be required from them during an inspection or investigation. Any new Duty Holder will be informed during the early stages of their contact with SRA of what they and their employees and representatives can expect when an SRA Inspector calls at a workplace. In particular:

a) When SRA Inspectors offer Duty Holders guidance, face to face or in writing (including any warning) they will tell the Duty Holder what it has to do to comply with the law and explain why. SRA Inspectors will, if asked, write to confirm any guidance and to distinguish legal requirements from known best practice;

b) In the case of Improvement Notices the SRA Inspector will discuss the notice and, if possible, resolve points of difference before serving it. The notice will say that, in the Inspector's belief, a breach of the law has been committed, what needs to be done to correct it, why, and by when; and

c) In the extreme cases of a Prohibition Notice or withdrawal of an OSC the SRA will explain why the prohibition or withdrawal is necessary.

Accountability for SRA's actions.

The SRA makes an Annual Safety Report, which is reviewed by the ORR before it presents findings to the RTA Board.

Enforcement actions taken by the SRA can be challenged in accordance with Dubai Railway Law as described in Section 7 'Appeals'.

6.3. Investigation

SRA Inspectors undertaking technical incident investigations will follow the process described in section 5.

6.4. SRA Inspector Responsibilities

SRA Inspectors shall:

Act objectively:

It is important that the SRA Inspector focuses on the breach/incident under investigation and does not get distracted on to matters not related. That is not to say that, however, that the investigation should not drill down to the underlying (root) cause(s) of the breach/incident.

Statements of fact should be verified independently or supported by evidence.

Act impartially:

The SRA Inspector must take care not to be influenced by previous relationships with the Duty Holder or other parties involved, nor 'take sides' in a dispute between parties.

Adopt a systematic and logical approach:

The SRA Inspector must identify the prima facie cause of the breach and then identify contributing factors and underlying reasons for the breach/incident, which should lead to the root cause.

For example, the *prima facie* cause of a breach/incident may be an error by a member of staff. Contributing factors could be:

- Poor equipment design or layout;
- Poor maintenance;
- Poorly written procedures or work instructions that cannot be followed;
- Poor training / lack of competence;
- Lack of monitoring of the activity.

The underlying reasons for these could be:

- A poor safety culture in the team or organisation (for example, an endemic failure to follow procedures and take 'short cuts');
- Failure of 'management' to respond to previous reports of difficulty in complying with requirements;
- Failure of the Duty Holder to routinely monitor activities and address issues.

Keep records:

It is important that adequate records are kept by the SRA Inspector of all meetings, interviews and inspections held including copies of relevant procedures and evidence submitted and any relevant photographs taken by the SRA Inspector. It is important that such material is dated (and marked with time where relevant) and the names of participants noted.

Key statements made by relevant individuals should be signed by the individual concerned.

These records will be required to support the case for the enforcement action proposed and support any presentations made to senior RTA Management. This includes evidence to support any decision to take no enforcement action.

Confidentiality

It is essential that information gathered during an inspection or investigation is treated as confidential and not divulged to any other party except in a formal report.

6.5. Assessment of the Breach

The SRA Inspector is required to determine:

- The nature of the breach;
- The seriousness of the breach in respect of any heightened risk to passengers, staff, contractors and third parties;
- The Duty Holder's understanding of the risk and any actions undertaken by the Duty Holder to mitigate the risk and the level of the resulting risk;
- The remaining (residual) risk following the Duty Holder's action;
- The history of previous actions by the Duty Holder in relation to the breach or any similar previous incidents;
- The co-operation and transparency displayed by the Duty Holder in relation to the breach and SRA investigation;
- The appropriate regulatory enforcement action.

The process is summarised in section 6.7 below.

6.6. Regulatory Actions Available

Letter of Concern

SRA Inspectors may offer Duty Holders information and advice. This may include warning a Duty Holder that, in the opinion of the SRA Inspector, they are failing to comply with the law. Such advice or warning may be given to the Duty Holder at a regular safety liaison meeting between the Duty Holder and the SRA (and recorded in the minutes of the meeting) or by means of a formal Letter of Concern (LOC).

The following formal regulatory actions are available as prescribed in Dubai Railway Law:

Improvement Notice (IN)[23]

Executive Council Resolution No (1) of 2017: Article (1):

'Notice of Remedy:

A written notice served by an Inspector on any Permit Holder[24] who violates the provisions of this Resolution, the resolutions issued in pursuance hereof, Safety Proofs[25], or Safety Conditions[26] requiring him to take necessary actions and measures to manage risks to which the Railway Systems may be exposed.'

An **Improvement Notice** must define a specific action to be undertaken by the Duty Holder and define a timescale in which the action must be completed. It may require discussion with the Duty Holder to establish the precise action and the time plan for completion.

Fine

Executive Council Resolution No (1) of 2017: Article (15)a and associated Schedule (5) identify the fines that may be imposed by the SRA. Schedule (5) lists the category and level of fines.

Article (15)b requires a written warning to be sent by the SRA to the violator in advance of imposing fines for violations prescribed by a resolution of the Director General (of the RTA). Those violations are identified in Administrative Decision No (462) of 2017.

This Article permits the fine to be doubled should a repetition of the same violation occur within one (1) year. This Article also permits suspension of works or revocation of a certificate in addition to the fine.

Prohibition Notice (PN)[27]

[23] 'Notice of Remedy' in Executive Council Resolution No 1 /2017.
[24] 'Permit Holder' includes Duty Holder.
[25] The Duty Holder's Safety Case and supporting evidence.
[26] Design requirements.
[27] 'Notice of Prohibition' in Executive Council Resolution No 1 /2017.

Executive Council Resolution No (1) of 2017: Article 1:

'Notice of Prohibition:

A written notice served by an Inspector on any Person requiring him to cease performing any works or to take any measure required to avoid jeopardising Railway Systems.'

A **Prohibition Notice** must define a specific equipment or system that must be taken out of operation because it presents a real and immediate risk to passengers, staff, contractors or third parties. It must make clear the actions that need to be taken by the Duty Holder and the criteria for permitting the equipment or system back into operation. It may require discussion with the Duty Holder to establish the precise action and the time plan for completion.

6.7. Withdrawal of OSC or DSC

Administrative Resolution No. 986/2018 Article 19 states:

The Safety Regulatory Entity [SRA] may revoke a Safety Certificate or an Operational Safety Certificate in any of the following cases:

1. *a present or potential major direct hazard to the Railway Systems;*
2. *a breach of Safety Conditions;*
3. *non-compliance with the terms of the certificate;*
4. *occurrence of a major Accident within the Protection Zone; or*
5. *failure by the applicant to meet any of the requirements prescribed for issuing the certificate.*

Depending on the nature of the breach or violation, the SRA Inspector would normally advise the system Owner or Operator and/or Maintainer of concerns through formal meetings or letters and only issue formal sanctions, as above, if corrective action has not implemented within a reasonable timescale. Clearly, if the breach or violation has resulted in a real and imminent risk to the safety of passengers, staff, contractors or third parties, urgent formal action may be required.

The actual enforcement action may be dependent on other factors and will be determined in discussion between the SRA Inspector, C&R Manager, Director, SRRPD and specialist advisers as necessary.

6.8. Summary of Assessment Process

Investigation of a Possible Breach

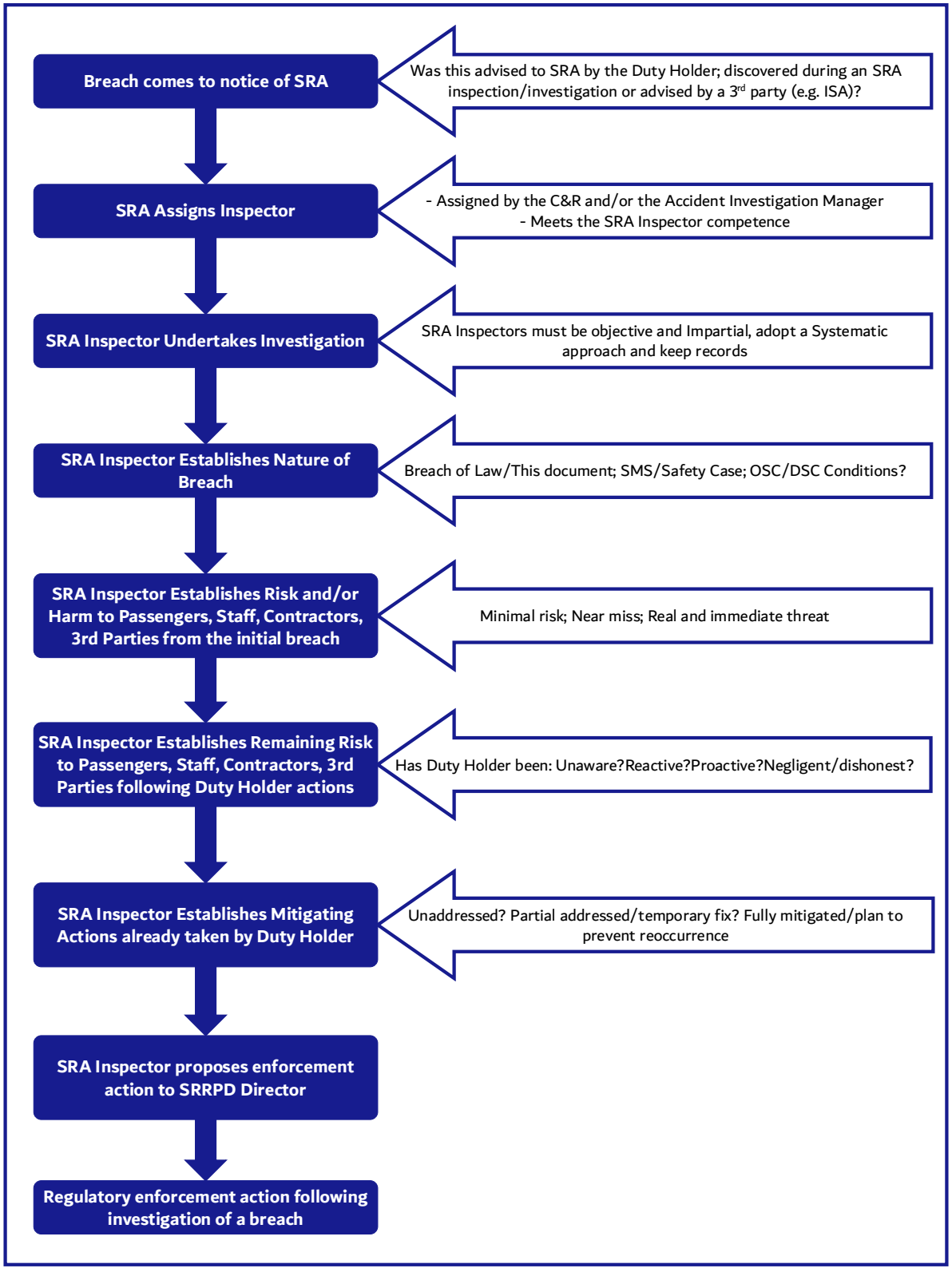


Figure 6-1 – Summary of Assessment Process

Escalation

Should a Duty Holder not respond adequately to a sanction imposed by the SRA within a reasonable timescale as stated in the sanction, the SRA will consider increasing the sanction.

Executive Council Resolution No (1) of 2017: Article (15) permits the fine to be doubled should a repetition of the same violation occur within one (1) year. This Article also permits suspension of works or revocation of a certificate in addition to the fine.

In the case of the RTA agencies, escalation will be to the CEO of the Agency concerned and then to the Director General / Chairman of the RTA.

6.9. Appeals

Executive Council Resolution No (1) of 2017: Article (18):

'*Any affected party may submit a written grievance to the Director General against any decision, procedure or measure taken against him under this Resolution within fifteen (15) days of being notified of the contested decision, procedure or measure. The grievance will be determined within thirty (30) days from the date of its submission by a committee formed by the Director General for this purpose and the decision on the grievance will be final.*'

In accordance with this Regulatory provision, the recipient of any enforcement measure issued by the SRA may submit an appeal to the RTA Railway Appeal Committee which acts as the Grievance Committee.

In this case, the SRA Inspector will be required to justify the Regulatory action taken including the provision of evidence of:

- The nature of the breach;
- The relevant part of the Dubai Railway Law;
- The risk to passengers, staff, contractors and third parties;
- Previous relevant incidents and the regulatory action taken;
- The reason for selecting the particular enforcement action.

7. Risk Assessment

The approach is based on the UK ORR document '*Common Safety Method for risk evaluation and assessment',* March 2015. Refer to Appendix 1.

Risk Management

Risk management must be in accordance with the International Standards Organisation's ISO31000 '*Risk Management – Principles and Guidelines*' family of standards and CENELEC EN50126 'Railway Applications – The Specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)' standards.

Hazard Logs

The SRA requires the Owner, Contractor, Engineer or other relevant stakeholders to identify all hazards during the initial feasibility / option selection, preliminary design, detail design, construction and testing phases of a new system, or system subject to material change, and to eliminate or reduce them to a tolerable level. Only in exceptional cases should an unclosed hazard be transferred to the O&M phase for mitigation. Maintenance of this hazard log should be the responsibility of the Owner after handover of the project Assets. This hazard log must be included with the Application for DSC.

The SRA requires the Operator / Maintainer to identify and manage risks arising during development of operational and maintenance readiness. This Operator's O&M hazard log must also address any hazards transferred from the design and build phase.

The Operator must then maintain the hazard log as a live document throughout the system life, updated for system changes and with quantification of risk informed by operational experience.

On-going management of the hazard's logs will be the subject of periodic SRA inspection.

ALARP

It is a fundamental requirement of the SRA that risk must be managed to be ALARP through the life of the rail system.

Guidance on ALARP and approach to risk reduction may be found in Appendix 1.

Transfer of Hazards

Where a hazard cannot be addressed at source and has to be transferred to another party, it is essential that the recipient formally accepts responsibility and the originator accepts the proposed mitigation as being sufficient. If there is a financial implication to mitigating the transferred

hazard it is essential to include the party responsible for finance in the agreement.

Appendix 1

Common Safety Method (CSM) and ALARP

Common Safety Method

European Commission Regulation (EU) No 1169/2010 defines a Common Safety Method for national safety authorities for assessing conformity with the requirements for obtaining railway safety authorisation ('*Certification*') for European railway systems.

The UK Office of Rail & Road (ORR) has produced more detailed '*Assessment Criteria for mainline railway safety certificate and safety authorisation applications*' which have been adopted by the SRA as guidelines for undertaking Certification of railway systems in the Emirate of Dubai.

Commission Regulation (EU) No 1077/2012 defines a Common Safety Method for supervision of European railway systems by national safety authorities after issuing a safety certificate (referred to as *'Regulation'* in this document). The ERA Safety Unit has published a guidance note '*Supervising the safety performance of railway undertakings and infrastructure managers.*

The European Commission has issued '*A Common Safety method for risk evaluation and assessment*' and the ORR has published guidance '*Common Safety method for risk evaluation and assessment'* which has been adopted by the SRA as guidelines for assessing risk evaluation for both its C&R processes.

The SRA identifies three methods of demonstrating that a system or sub-system is sufficiently safe and the risk ALARP:

- By undertaking risk analysis from first principles at the design stage;
- By adopting a suite of relevant internationally-recognised standards, together with those issued and / or specified by authorities[28] in Dubai, with implementation of a hierarchy of controls and demonstration of how standards have eliminated risk in this application;
- By comparison with a **Reference System**; in which case the specific elements in the Reference System must be identified, together with their operating role and environment, safety approval status, safety performance and period of operation.

The approach to be adopted must be agreed with the SRA at the outset of the project. In all cases, the SRA will require that the risk is demonstrated to be ALARP.

[28] Including the requirements of, for example, the RTA Rail Agency, Dubai Municipality, Dubai Civil Defense (DCD).

The process adopted for developing and verifying new, or modification of existing, software used in safety-related applications will be of particular interest to the SRA.

Guidance on ALARP and Risk Reduction

1. Purpose:

In maintaining regulatory credibility, the SRA must be consistent in its decisions on health and safety duties qualified by reducing risks to levels "As Low as is Reasonably Practicable" (ALARP). This section describes what the SRA expects of the Duty Holders when assessing whether risks have been reduced to ALARP and the proposed risk reduction methods.

2. Scope:

The requirement for risks to be managed to ALARP applies to the initial design and introduction into service of the assets by the Contractor and Owner and to their subsequent modification, operation and maintenance, throughout their whole life, under the responsibility of the Operator, Maintainer and Owner.

Safety risk to passengers, staff, contractors and third parties who may be affected by railway operations must be considered.

3. Risk Assessment:

Contractors, Owners, Operators and Maintainers must make a suitable and sufficient assessment of risks and, where considering duties constrained by ALARP, must compare the cost of implementing risk control measures (in terms of money, time and effort) against the reduction in risk those measures might achieve, and whether there is a gross disproportion between them, such that the costs grossly outweigh the risk reduction.

4. Good practice:

Contractors, Owners, Operators and Maintainers should, as a minimum, follow relevant good practice (which is not necessarily the same as general industry practice). Most railway Duty Holders' day-to-day decisions are based on current good practice as captured by industry's standards. Duty Holders should keep good practice under review, as it changes over time. They should challenge industry standards if they have evidence that they do not deliver risk control to the level required by ALARP or ensure additional controls are put in place to reduce risks ALARP.

5. Risk Reduction:

In approaching risk reduction, Duty Holders are generally required to:

1) Carry out suitable and sufficient assessments, appropriately recorded, of risks to the health and safety of both employees and non-employees affected by their undertakings.

2) Identify and implement the measures needed to deliver appropriate risk control including, where appropriate, an estimation of the potential costs and benefits of additional control measures.

3) When deciding what new control measures will be required, it is helpful to work through the 'hierarchy' of controls. The hierarchy is as follows:

   i. Elimination – get rid of the risk altogether,

   ii. Substitution – exchange one risk for something less likely or severe,

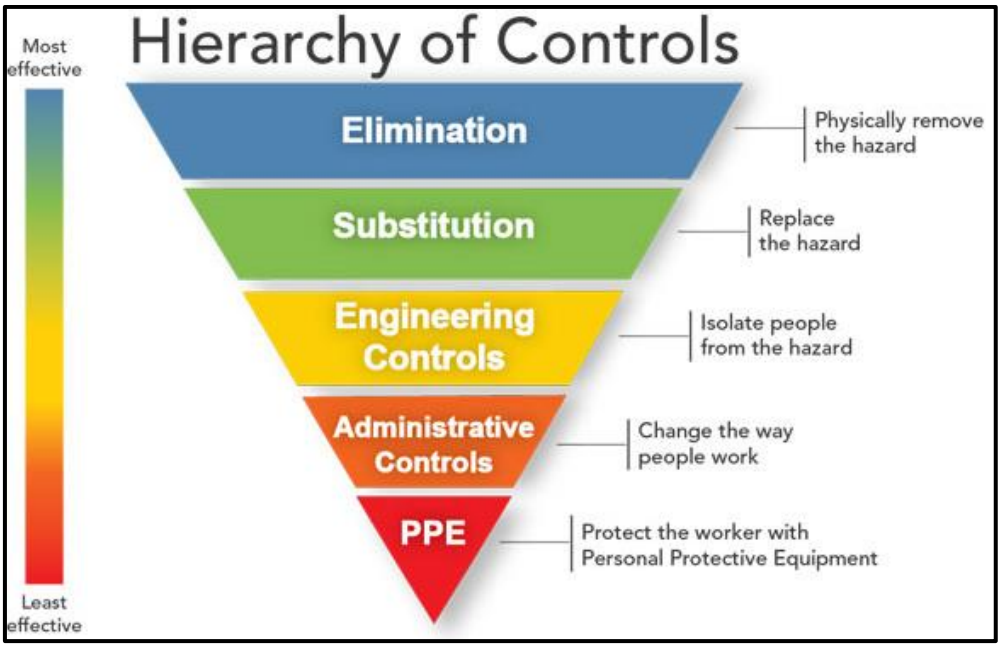
   iii. Physical Controls - separation/Isolation, eliminate contact with the hazard,

   iv. Administrative controls - safe systems of work, rules in place to ensure safe use/contact with hazard,

   v. Information, instruction, training & supervision – warn people of hazard and tell/show/help them how to deal with it,

   vi. Personal Protective Equipment (PPE) – dress workers appropriately to reduce the severity of the accident.

That is, attempt to eliminate/reduce the risk as close to the source as possible, usually in the system design and only resort to the use of complex procedures or the use of PPE as a last resort. This is shown diagrammatically below:



4) Make a decision on whether there is gross disproportion and (if not) then develop an appropriate plan and timetable to implement any additional risk control measure identified and carry out regular reviews of both the assessments and control measures.

Control measures should be practical and easy to understand (what to do and why they are doing it), applicable to the hazard, able to reduce the risk to acceptable levels, acceptable to the workforce and easy to operate.

6. Assessing the risks:

1) Employers must assess the health and safety risks to their employees at work and others (such as passengers, other workers and the public) who may be affected by their work activities. This includes risks shared with other Duty Holders, other interface risks and risks associated with low probability but high consequence incidents, especially if the risk arises from a new hazard.

2) The assessment of risk and ALARP must be made at the level of the activity that could give rise to potential harm. So, for example, if a work activity on a specific piece of equipment could give rise to fatal injury, and the precautions (for that piece of individual equipment) cost a proportionate amount relative to that outcome, then those precautions should be implemented, even if there are many similar items of such equipment across the duty-holder's business. In other words, the calculation of gross disproportion should not be based on the total cost to implement the precautions across all equipment items.

3) Risk assessments must be carried out by individuals that understand the engineering, O&M of the systems involved and the local cultural and climatic environment in which the system is working.

4) There are a number of matrices used for assessing risks. It is the responsibility of the Duty Holder to propose one that is suitable for the application concerned and confirm that it is acceptable to the SRA. Any proposed matrix should be comparable with the matrix as defined in Annex C of EN 50126-1, as shown below:

Frequency of an Accident (caused by a hazard)	Risk Acceptance Criteria			
Frequent	Undesirable	Intolerable	Intolerable	Intolerable
Probable	Tolerable	Undesirable	Intolerable	Intolerable
Occasional	Tolerable	Undesirable	Undesirable	Intolerable
Rare	Negligible	Tolerable	Undesirable	Undesirable
Improbable	Negligible	Negligible	Tolerable	Undesirable
Highly Improbable	Negligible	Negligible	Negligible	Tolerable
	Insignificant	Marginal	Critical	Catastrophic
	1	2	2	4
	Severity of an accident caused by a Hazard			

Where:

Severity Category	Consequences to persons or environments	Consequences on service/property
Catastrophic	• Affecting a large number of people and resulting in multiple fatalities, and/or • Extreme damage to the environment	Any of the below consequences in presence of consequences to persons or environment
Critical	• Affecting a very small number of people and resulting in at least one fatality, and/or • Large damage to the environment	Loss of a major system
Marginal	• No possibility of fatality, severe or minor injuries only, and/or • Minor damage to the environment	Severe system(s) damage
Insignificant	• Possible minor injury	Minor system damage

And:

Frequency level	Description	Example of the frequency range based on a single item operating 24 h/day	Example of equivalent occurrence in a 30-year lifetime of a single item operating 5000 h/year
		Expected to happen	
Frequent	Likely to occur frequently. The event will be frequently experienced.	More than once within a period of approximately 6 weeks.	More than about 150 times.
Probable	Will occur several times. The event can be expected to occur often.	Approximately once per 6 weeks to once per year.	About 15 to 150 times.
Occasional	Likely to occur several times. The event can be expected to occur several times.	Approximately once per 1 year to once per 10 years.	About 2 to 15 times.
Rare	Likely to occur sometime in the System life cycle. The event can be reasonably be expected to occur.	Approximately once per 10 years to once per 1000 years.	Perhaps once at most.
Improbable	Unlikely to occur but possible. It can be assumed that the event may exceptionally occur.	Approximately once per 1000 years to once per 100 000 years.	Not expected to happen within the lifetime.
Highly Improbable	Extremely unlikely to occur. It can be assumed that the event will not occur.	Once in a period of approximately 100 000 years or more.	Extremely unlikely to happen within the lifetime.

7. Removal of existing control measures:

Removing existing control measures is usually only acceptable where circumstances have changed, (for example, where risks have been removed or controlled by other measures), there are changes in the understanding of the hazard, or the costs of continuing the measure are clearly grossly disproportionate to the risk reduction it achieves.

Any organization undertaking a risk assessment related to a railway system in Dubai should contact the SRA if there is any uncertainty regarding the suitability of the risk assessment process or any risk reduction measures they are planning to implement.

Appendix 2

Organisations that may be Stakeholders

This is a non-exhaustive list of organisations that may be stakeholders.

It is the responsibility of the Operator, Owner or Contractor to ensure that all stakeholders have been identified and their requirements determined.

Project Organisations

Owner

Design & Build Contractor

The Engineer / Independent Review Body

Specialist Advisors

ISA

System Operation & Maintenance

Operator and/or Maintainer

Specialist Contractors

ISA

Existing Rail Systems

Owner

Operator

Emirate of Dubai Organisations

RTA Rail Agency including: Rail Planning and Design Guidelines (RPDG) and Railway Right of Way Office (RROWO) requirements

RTA TRA including Traffic Control Devices Manual and Traffic Safety Audit

Dubai Municipality

Dubai Electricity & Water Authority (DEWA)

Dubai Police

Dubai Civil Defense (DCD)

Dubai Ambulance

Etisalat / DU and other communications organisations

Chilled water providers

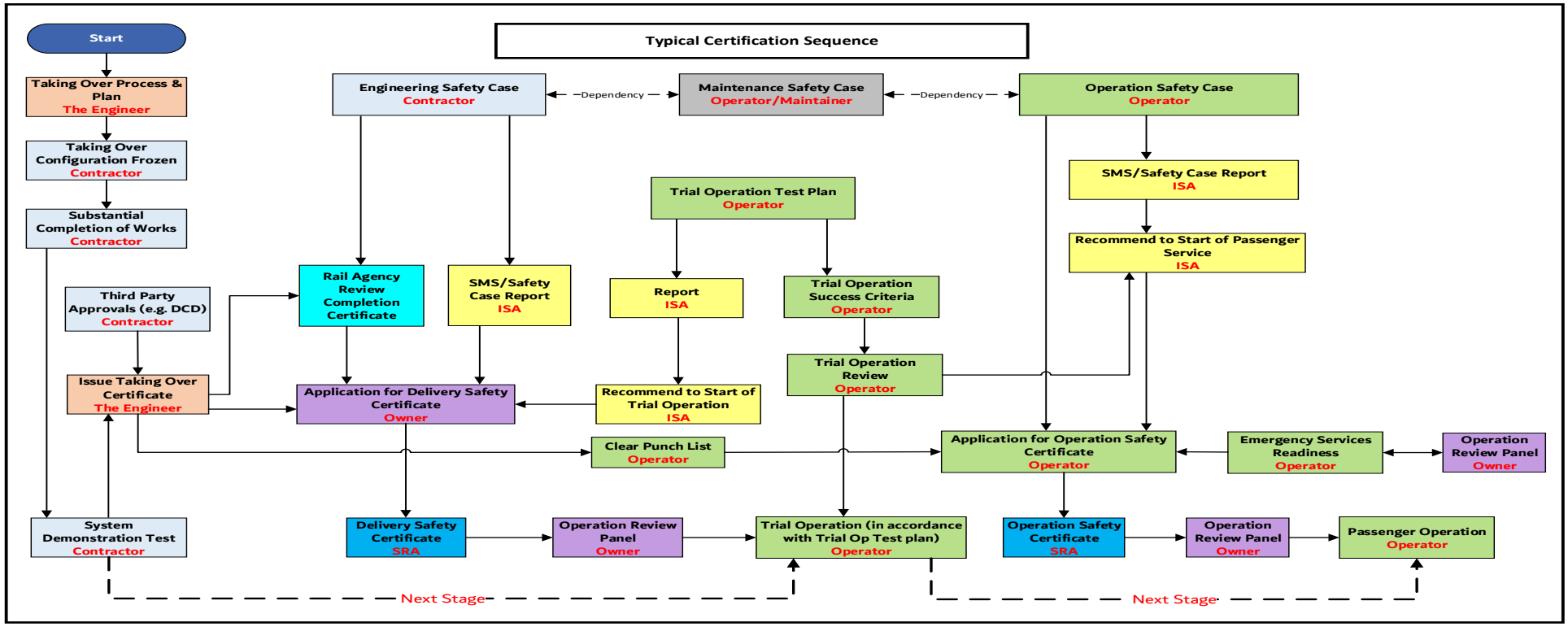
Dubai Airports (including Airport Rescue and Fire Fighting Service (ARRFS))

Dubai Free Zone Organisations.

Appendix 3

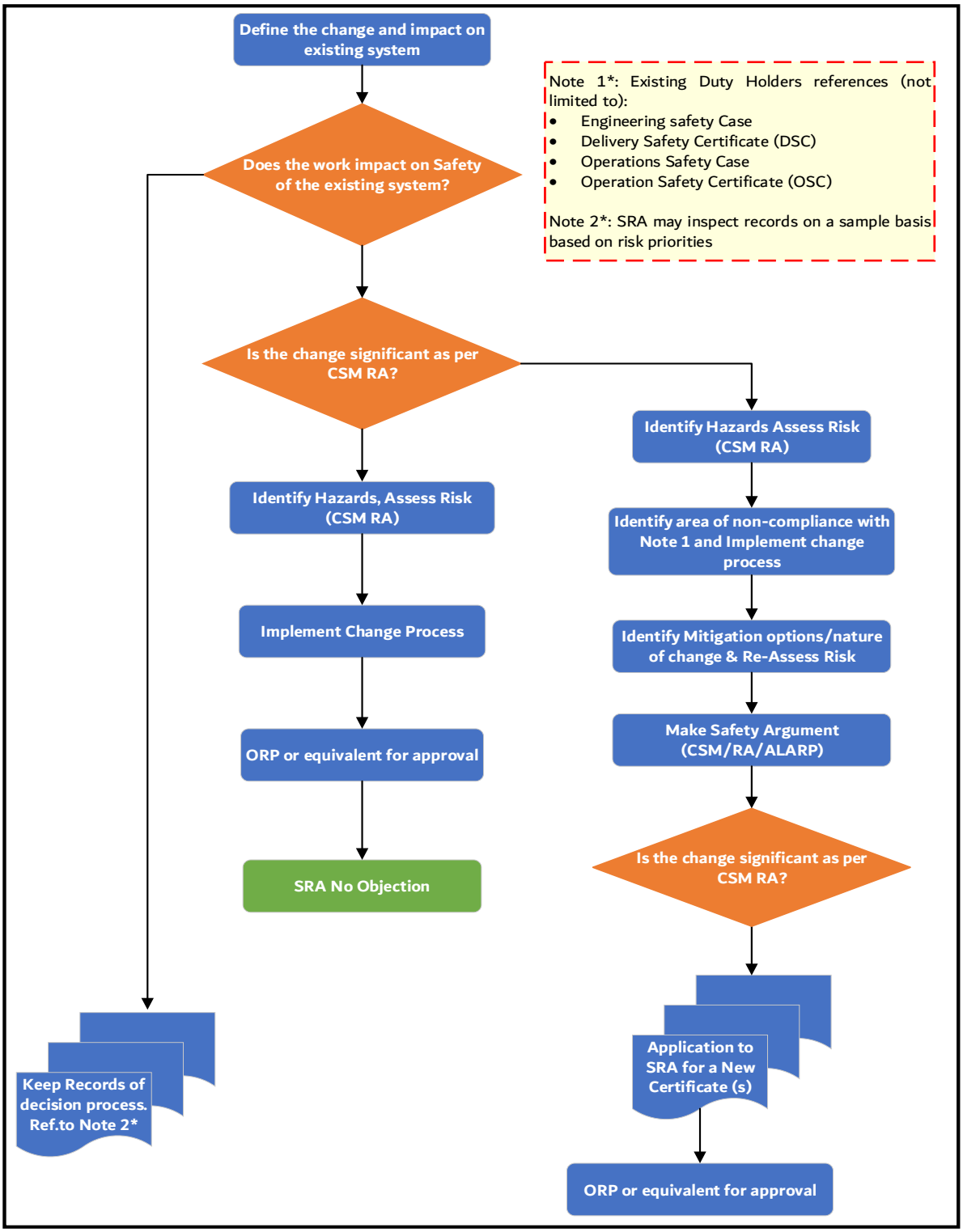
Typical Certification Sequence Chart

A project-specific chart may differ from this and will need to have dates inserted for completion of the various activities so that it can be ensured that the relevant documentation is available to support applications for certification and to enable the SRA to undertake review prior to issue of a DSC or OSC.



Appendix 4

Flowchart for determining if a change is Material



Appendix 5

Additional Requirements for Cableways

In line with the SRA's definition of Railways (see section 1.7), the SRA is responsible for certifying and regulating Cableways in the Emirate of Dubai. Cableways are defined in (EU) 2016/424 as:

'cableway installation' means a whole on-site system, consisting of infrastructure and subsystems, which is designed, constructed, assembled and put into service with the objective of transporting persons, where the traction is provided by cables positioned along the line of travel;'

The general principles of C&R contained within this DRLIR apply to Cableways; however, the following additional requirements should also be noted:

- The C&R of Cableways in the Emirate of Dubai will follow the principles laid out in EU standard 2016/424;
- A fundamental difference between the certification requirements of (EU) 2016/424 and other systems covered by this DRLIR is the need for the SRA to provide authorisation before construction of a cableway commences, in addition to the entry into service (operation with passengers);

Note that this Appendix to the DRLIR will be updated as and when firm plans for any Cableways in the Emirate of Dubai are finalised.