



ONR GUIDE			
GUIDANCE ON THE ASSESSMENT OF THE COMMISSIONING OF SECURITY SYSTEMS AND INFRASTRUCTURE			
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1. INTRODUCTION

- 1.1 The Office for Nuclear Regulation (ONR) has established security objectives which dutyholders must meet and these are detailed in the National Objectives, Requirements and Model Standards (NORMS) document. The security regime for meeting these objectives is described in the Nuclear Site Security Plans (NSSPs), prepared by the dutyholders, which are approved by ONR under the Nuclear Industries Security Regulations 2003. NORMS is supported by a suite of guides to assist ONR inspectors in their assessment and inspection work, and in delivering regulatory judgements and decisions. This Technical Assessment Guide (TAG) is such a guide.

2. PURPOSE AND SCOPE

- 2.1 This TAG is intended to provide guidance to aid inspectors on the methodology to be employed when assessing the adequacy of the arrangements for, and execution of, Commissioning. It contains general advice and guidance to advise and inform ONR Security Inspectors in the exercise of their regulatory judgment.
- 2.2 Commissioning is the activity of setting to work systems and associated infrastructure and assures all systems and components are designed, installed, tested, operated, and maintained according to the operational requirements of the owner. The principles of commissioning may be applied to existing systems that have been subject to modifications or significant maintenance at their return to service.
- 2.3 This TAG is aimed at providing guidance to the inspector when assessing the adequacy of the Commissioning arrangements which relate to the performance of the equipment, associated personnel who operate it and the adequacy of the associated procedures to support its operation. This TAG does not address health and safety aspects of such Commissioning activities. The Inspector should refer to Ref. 12 for guidance.
- 2.4 In spite of the statement in 2.3, ONR inspectors must take action if they see activities being undertaken or planned which pose a health or safety risk and are not being adequately managed.
- 2.5 This TAG should also be used to consider circumstances when security equipment is being removed at a dutyholder's site (where the site is being progressively decommissioned for example).

3. RELATIONSHIP TO LICENCE AND OTHER RELEVANT LEGISLATION

- 3.1 The introduction of new or revised security equipment and systems impact on the approved NSSP (Nuclear Site Security Plan) in that it represents a change to the approved arrangements. It would be expected that these changes are captured in the SIS (Security Improvement Schedule), itself a part of the approved NSSP.
- 3.2 The Inspector should ensure dutyholders prepare the appropriate submission to modify the NSSP (and the SIS) to reflect the changes to the arrangements delivered by the new plant and systems.

- 3.3 The Inspector should ensure that the dutyholder takes due account of Licence Condition 21 where the implementation of new security equipment and its supporting infrastructure may impact on existing safety systems.
- 3.4 The Inspector should note the complementary ONR documentation relating to Commissioning activities (Ref 11 and Ref 12)

4. RELATIONSHIP TO OTHER SECURITY GUIDANCE AND POLICY DOCUMENTS

- 4.1 This TAG is consistent with other TAGs and associated guidance and policy documentation.

5. ADVICE TO INSPECTORS

- 5.1 ONR Security Inspectors are required to make judgements in developing their responses to the Commissioning of plant and systems. Engagement with the dutyholders is essential to fully understand their proposals, influence the quality and completeness of the activities and measure the compliance of the plant and systems with the security objectives defined in NORMS. This engagement will have been ongoing throughout the development of the project. The Commissioning activity is the first opportunity to confirm the performance of the installation and its contribution to the security objectives.
- 5.2 It is suggested that the Commissioning activity should be viewed much wider than simply the setting to work of security plant and equipment. The effectiveness of security equipment to meet security objectives described in NORMS requires the integration of a wider range of assets to support the operation of security equipment e.g. power supplies, UPS and possibly alternative power supplies e.g. diesel generation to secure reliable performance. Commissioning should enable all aspects of the wider infrastructure to be proven in both normal and fault conditions to deliver the necessary operational resilience.
- 5.3 The inspector should expect to see a comprehensive Commissioning plan in place, with a clear definition of roles and responsibilities, availability of resources and clearly defined decision points with SMART targets to be met prior to moving to the next phase. Where the plant and systems form a part of an existing infrastructure, the Inspector should expect to see a risk assessment to have been undertaken to look at the potential impact on security caused by the commissioning of the new or refurbished equipment. Planned remediation of these risks should they occur is also to be evidenced.
- 5.4 Plant aspects, whilst a material part of the security infrastructure, are simply one element of the infrastructure to enable security to be assured. People and processes are possibly a greater contributor to this aim. The identification of resources and setting to work to manage and operate this new equipment is necessary to deliver the capability. It is essential therefore to seek out evidence that all these aspects are being addressed in the Commissioning programme and are being proven.

- 5.5 The training of staff who are integrated into the successful delivery of security associated with the plant, equipment and systems being commissioned should be seen to be demonstrated.
- 5.6 The aim for all security infrastructure is to provide an effective and reliable system to deliver the security objective(s). The long term reliability systems must be underpinned by an appropriate maintenance regime and spares holdings. This is supported by the provision of Operating and Maintenance manuals to describe the required maintenance activities to support system performance, scheduled component replacement and often the manufacturer will provide a recommended spares holding to support system reliability. The dutyholder should be able to demonstrate a maintenance strategy has been developed and is in place. This may include provision of in-house resources or contracted services. The Inspector should seek confirmation that the dutyholder has the appropriate funding identified to support the long term operation and maintenance of such equipment.
- 5.7 The introduction of new plant and systems should be subject to the local plant modification procedures such that the impact of the introduction of this equipment on both existing safety and security systems is understood and approved. The Inspector should seek evidence for such activities being undertaken prior to hot Commissioning being undertaken.
- 5.8 Commissioning is typically broken into two parts typically called 'cold' and 'hot' Commissioning. The former usually is aimed to demonstrate the completeness of the plant and systems – to check all components are installed, connections made and plant labelled as necessary. Evidence should be available to show this process has been done and appropriate 'snagging' to put things right has been expedited.
- 5.9 The 'cold' Commissioning phase offers a good opportunity to review the adequacy of the training of operational personnel, the availability of operating procedures and the proposed integration of the plant and systems into the existing security infrastructure. This can be considered as a 'readiness review'. The inspector should expect a positive decision point within the dutyholders plan to allow a move to the next phase of Commissioning and written justification of such a decision.
- 5.10 'Hot' Commissioning refers to when the plant and systems are energised. It is at this time when the performance of the individual plant components e.g. cameras, PIDS, etc. is demonstrated against their specified performance. This is followed by component integration into systems e.g. PIDS, alarms and cameras together with the human response elements. The final combination of the different systems into the overall infrastructure should prove the overall effectiveness of the installation and to meet the intent described in the Operational Requirements.
- 5.11 Integral to this 'hot' Commissioning phase is the record of Commissioning activities. The inspector should expect comprehensive records to be kept of this phase of the programme. These records should record non-compliances against expected performance and subsequent resolution or acceptance by a duly authorised person.
- 5.12 This captures the settings for plant components to deliver the system performance. These base settings are important to enable fault finding and system recommissioning later in its life. This package of information should be delivered which includes the

above as well a set of 'as built' drawings, operating and maintenance procedures and requirements, a recommended spares holding and other pertinent information.

- 5.13 Commissioning of plant represents the penultimate step towards operation. The inspector should seek evidence from the dutyholder that through the different phases of Commissioning the original operational requirements are still being met. Evidence of any changes should be available from the dutyholder as well as justifications to support these changes.

6. REPORTING ASSESSMENT FINDINGS

- 6.1 The inspector should report the findings of any inspections through inspection reports following the defined How 2 format. During the Commissioning phase it will be important that these are generated, in the event of significant findings, quickly to enable the dutyholder to incorporate these findings into the Commissioning process to ensure an adequate system Commissioning programme is delivered

7. REFERENCES

1. **Nuclear Industries Security Regulations 2003.** Statutory Instrument 2003 No. 403
3. **Nuclear Industries Security (Amendment) Regulations 2006.** Statutory Instrument 2006 No. 2815
4. **Nuclear Industries Security (Amendment) Regulations 2013.** Statutory Instrument 2013 No. 190
5. IAEA Nuclear Security Series No. 13. Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (**INFCIRC/225/Revision 5**). January 2011. www-pub.iaea.org/MTCD/Publications/PDF/Pub1481_web.pdf.
6. IAEA Nuclear Security Series No. 4. Engineering Safety Aspects of the Protection of Nuclear Power Plants against Sabotage. January 2007. www.iaea.org/books
7. **Nuclear Industries Malicious Capabilities Planning Assumptions.**
8. **National Objectives, Requirements and Model Standards.** October 2012. Trim Folder 4.4.2.11304.
9. **HMG Security Policy Framework.**
10. **NISR 2003 Classification Policy** – Trim Ref. 2012/243357.
11. ONR Document **NS-TAST-GD-028 Revision 3** Nuclear Safety Technical Assessment Guide 'CONTROL AND INSTRUMENTATION ASPECTS OF NUCLEAR PLANT COMMISSIONING
12. ONR Document **NS-INSP-GD-021 Revision 3** Nuclear Safety Technical Inspection Guide

Note: ONR staff should access the above internal ONR references via the How2 Business Management System.

8. GLOSSARY AND ABBREVIATIONS

CBSIS	Computer Based Systems Important to Safety
CNS	Civil Nuclear Security
CSA	Conceptual Security Arrangements
CSISy	Computer Systems Important to Security
GDA	Generic Design Assessment
IAEA	International Atomic Energy Agency
NIMCA	Nuclear Industries Malicious Capabilities Planning Assumptions
NISR	Nuclear Industries Security Regulations
NM	Nuclear Material
NORMS	National Objectives, Requirements and Model Standards
NSSP	Nuclear Site Security Plan
ONR	Office for Nuclear Regulation
ORM	Other Radioactive Material
RP	Requesting Party
SNI	Sensitive Nuclear Information
SPF	Security Policy Framework
TAG	Technical Assessment Guide
UPS	Uninterruptable Power Supply
VAI	Vital Area Identification