

COGNMAS6

Confirm the commissioning process achieves nuclear material accountancy and safeguards requirements



Overview

This NOS forms part of a suite of standards which cover the activities carried out by individuals working within and on behalf of nuclear site licensed companies to meet nuclear material accountancy, control and safeguard (**NMAS**) requirements.

What is the NOS about?

A nuclear licensed site must ensure that nuclear materials are accounted for, controlled and safeguarded in order to demonstrate; good governance arrangements; meeting international safeguards commitments; and compliance with legal requirements and any voluntary undertakings. This NOS describes the standard expected of individuals who are responsible for commissioning new plant, equipment or software to the specified design requirements of the NMAS system.

Who is the NOS for?

This NOS is primarily for Commissioning Project Managers and NMAS Managers who are responsible for assessing that NMAS requirements have been met during commissioning of new or refurbished plant, system or equipment at a plant or site level.

The main outcome of this activity is a report confirming whether the design intent for NMAS requirements has been achieved in a new or refurbished system, plant or equipment.

Where text is highlighted in bold, it is more fully defined in the Glossary section of this NOS.

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Performance criteria

You must be able to:

- P1 obtain sufficient information from all available sources and **stakeholders** to enable assessment of NMAS elements in the commissioning schedules of a new or refurbished plant, equipment, IT systems or radiometric instrument
- P2 identify the **design intent** and technical and administrative **NMAS requirements** relevant to the **commissioning** schedule
- P3 establish the need for specialist support with volume, type or complexity of information presented
- P4 obtain suitable specialist support to ensure effective assessment of the commissioning schedule and results for compliance with the design intent and NMAS requirements
- P5 assess the commissioning schedule against the design intent and relevant NMAS requirements
- P6 ensure that the commissioning schedule contains hold points for suspension of activities sufficient to allow for independent verification of Safeguard requirements and preceded by advance notification points to communicate the window of opportunity to stakeholders
- P7 determine shortfalls in the commissioning schedule against the design intent and NMAS requirements and implications of any non-compliance
- P8 produce and communicate options available to ensure that the commissioning schedule complies with the design intent and NMAS requirements
- P9 communicate the commissioning schedule to key stakeholders
- P10 document commissioning results and assess against the relevant NMAS requirements
- P11 determine shortfalls in the commissioning results against the design intent and NMAS requirements and implications of any non-compliance and if necessary formulate plant modification proposals
- P12 produce and communicate a report detailing technical or administrative options available to ensure that the new or refurbished plant, systems or equipment complies with the design intent and NMAS requirements
- P13 continually assess the adequacy of NMAS measures where further information becomes available

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Knowledge and understanding

You need to know and understand:

- K1 **design intent documentation**
- K2 the stakeholder interaction arrangements including plenary/ working group meetings with the safeguards inspectorates during build and commissioning
- K3 the NMAS regulatory and technical requirements, including the need for Hold Points to enable independent verification of Safeguard requirements
- K4 organisational NMAS procedures
- K5 sources of specialist support, advice and information and how to access these
- K6 how to interpret technical drawings, plans and test results
- K7 application and assessment of commissioning schedules, test results and proposed administrative measures to ensure compliance with design intents and NMAS requirements
- K8 the logistics to be managed to coordinate related activities with all stakeholders
- K9 independent safeguards equipment or **branching** from operator's equipment installed in the plant
- K10 problem solving processes and technical testing
- K11 procedures for recommending, proposing, and submitting plant modifications and improvements to better achieve NMAS requirements
- K12 accountancy area structures to ensure that the material balance statistic (inventory difference) can be adequately calculated and localised.

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Additional Information

Glossary

Branching: an independent off-take from operating equipment used for regulatory verification.

Commissioning: includes commissioning of new or refurbished plant, system or equipment which could impact on NMAS arrangements:

- 1 within that plant, system or equipment under consideration or which could impact on adjacent plant, system or equipment.
- 2 through design of new or refurbished NMAS related information technology (IT) or associated software or subsidiary systems.
- 3 through new or refurbished radiometric instruments used for NMA purpose. Such instruments should provide output with measurement uncertainties which are consistent with accepted International Target Values (ITVs) for such equipment

Design Intent: the final assessment of design with respect to NMAS and the resulting NMCA specification of approved design capabilities and commissioning requirements.

Design Intent Documentation: includes

- 1 the project approved NMAS specification of design features and capabilities
- 2 the catalogue of design documents exchanged with the safeguards inspectorates
- 3 the approach agreed with the safeguards inspectorates detailing the independent equipment, installation requirements, data provision/access requirements, inventory requirements, and design verification requirements
- 4 the project commissioning and engineering plans with NMAS requirements integrated
- 5 the NMAS Commissioning specification
- 6 the initial measurement control programme and material balance capability expectations.

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NMAS: taken to include nuclear materials accountancy, nuclear materials control and nuclear material safeguards.

NMAS requirements: comprise mandatory requirements set down in binding legal contracts, set, set down in UK policy and commitments, and set down in national and international Treaties and Regulations (particularly the safeguards reporting regulations and associated implementation guidelines). They also include optional requirements to which the site voluntarily subscribes.

Measurement Control Programme: a system to ensure the effectiveness of measurement and analytical systems and the quality and validity of resulting data that is generated for nuclear material accountancy and safeguards purposes. Quality controls include performance monitoring, testing and analysis, calibration and certification, control of certified reference materials and sources.

Stakeholders: include:

- 1 contacts within the site, the organisation, the parent company, the site owner.
- 2 customers and contractors
- 3 public groups,
- 4 national bodies with responsibilities for NMAS including the Department for Energy and Climate Change (DECC), the Office for Nuclear Regulation (ONR) Safeguards function and the Ministry of Defence.
- 5 regulators including:
 - 5.1 the ONR Safety function, the ONR Security function, and the ONR Transport function (Radioactive Materials).
 - 5.2 environmental (EA, SEPA)
 - 5.3 the International Safeguard Inspectorates (the European Commission's Euratom Safeguards Inspectorate and the International Atomic Energy Agency Safeguards Inspectorate)

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