

<b>NAM Manual</b>	<b>Verification Scheme in accordance with the Mining Act</b>	<b>Restricted</b>
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# Verification Scheme

This document may set requirements supplemental to applicable law. However, nothing herein is intended to replace, amend, supersede or otherwise depart from any applicable law relating to the subject matter of this document. In the event of any conflict or contradiction between the provisions of this document and applicable law as to the implementation and governance of this document, the provisions of applicable law shall prevail.

## Contents

See overview page 4 and 5

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**NAM**

**Nederlandse Aardolie Maatschappij B.V.**

# **VERIFICATION SCHEME**

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## ABBREVIATIONS

**AI** Asset Integrity  
**AIPSM** Asset Integrity Process Safety Management  
**ALARP** As Low As Reasonably Practicable  
**ATA** Accountable Technical Authority  
**BAL** Business Assurance Letter  
**CMMS** Computerised Maintenance Management System  
**CP** Change Proposal  
**CSR** Current status report  
**DCAF** Discipline Control and Assurance Framework  
**eMoC** Electronic Management of Change  
**FSR** Facility Status Report  
**HBA** Hardware Barrier Assessment  
**HSE** Health, Safety & Environment  
**IPF** Instrumented Protective Function  
**MAH** Major Accident Hazard  
**MOPO** Manual Of Permitted Operations  
**NoC** Note of Concern  
**NoR** Note of Reservation  
**NUI** Normally Unattended Installation  
**OIM** Offshore Installation Manager  
**OSD** Offshore Safety Directive  
**PCAP** Project Control and Assurance Plan  
**PED** Pressure Equipment Directive  
**PS** Performance Standard  
**RiGG** Rapport inzake Grote Gevaren  
**RoMH** Report on Major Hazards  
**RTA** Responsible Technical Authority  
**SCE** Safety Critical Element  
**SECE** Safety and Environmental Critical Element  
**SIA** Shell Internal Audit  
**SoF** Statement of Fitness  
**TA** Technical Authority  
**TCVT** Toezicht Certificatie Verticaal Transport  
**TI** Technical Integrity  
**TIV** Technical Integrity Verification  
**VAN** Verification Amendment Notice  
**VQS** Verification Quality System

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## VERIFICATION SCHEME

### 1 INTRODUCTION

This document describes the Verification Scheme of Nederlandse Aardolie Maatschappij B.V. as required by the (revised) Dutch Mining Act<sup>1</sup>, dated 01.01.2017. This act formalises Offshore Safety Directive 2013/30/EU (OSD) in the Netherlands both on- and offshore. Accordingly, Nogepe has produced Standards 48 and 49 to implement the legislation amongst its member Oil & Gas Operators.

### 2 DEFINITIONS

For the purpose of this Verification Scheme, the following definitions are taken from OSD Article 2 unless otherwise specified:

- (1) ‘major accident’ means, in relation to an installation or connected infrastructure:
- (a) an incident involving an explosion, fire, loss of well control, or release of oil, gas or dangerous substances involving, or with a significant potential to cause, fatalities or serious personal injury;
  - (b) an incident leading to serious damage to the installation or connected infrastructure involving, or with a significant potential to cause, fatalities or serious personal injury;
  - (c) any other incident leading to fatalities or serious injury to five or more persons who are on the offshore installation where the source of danger occurs or who are engaged in an offshore oil and gas operation in connection with the installation or connected infrastructure; or
  - (d) any major environmental incident resulting from incidents referred to in points (a), (b) and (c).
- For the purposes of determining whether an incident constitutes a major accident under points (a), (b) or (d), an installation that is normally unattended shall be treated as if it were attended;
- (2) ‘safety and environmental critical elements’ (SECEs) means parts of an installation, including computer programmes, the purpose of which is to prevent or limit the consequences of a major accident, or the failure of which could cause or contribute substantially to a major accident;

*Remarks:*

‘safety critical element’ (SCE), a terminology used throughout Shell, also addresses health and environmental aspects and would satisfy the definition of ‘safety and environmental critical element’ (SECE) above. In addition, the term SCE has the same meaning as the term HSE Critical Element, as used in the EP 2005-0310-ST HSE case standard and in the EP 2005-0100-SP-01 HSE glossary of definitions.

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<sup>1</sup> More specifically: Mining Act articles 45l and 45n.3, Mining Decree articles 84e to 84g and Mining Regulation articles 11a.5.1 to 11a.5.3

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In this Verification Scheme only the term SCE is used, unless quoting an external text, e.g. the OSD.

- (3) 'operator' means the entity appointed by the licensee or licensing authority to conduct offshore oil and gas operations, including planning and executing a well operation or managing and controlling the functions of a production installation;
- (4) 'production' means extraction of oil and gas from the underground strata of the licensed area including processing of oil and gas and its conveyance through connected infrastructure;
- (5) 'non production' means an installation other than an installation used for production of oil and gas;
- (6) 'well operation' means any operation concerning a well that could result in the accidental release of materials that has the potential to lead to a major accident, including the drilling of a well, the repair or modification of a well, the suspension of well operations and the permanent abandonment of a well;
- (7) Adopted from the Assurance and Verification Summary Guidance by Step Change in Safety, 'assurance' represents activities performed by the Technical Authorities to ensure SCEs meet Performance Standards. This includes activities in all phases of the lifecycle and may involve activity by design contractors in the design, procurement and construction phases which the Operator needs to monitor to ensure the SCEs are "initially" suitable. During the operational phase, the Operator uses preventive maintenance strategies including inspection, planned maintenance and testing, to ensure that SCEs are consistently and continuously meeting Performance Standard requirements. Assurance also includes design and construction of modifications and the management of change / impact on SCEs through the use of a Management of Change (MoC) process.
- (8) 'independent verification' means an assessment and confirmation of the validity of particular written statements by an entity or an organisational part of the operator or the owner that is not under the control of or influenced by, the entity or the organisational part using those statements;
- (9) 'material change' means:
  - (a) in the case of a report on major hazards, a change to the basis on which the original report was accepted including, but not limited to, physical modifications, availability of new knowledge or technology and operational management changes;
  - (b) in the case of a notification of well operations or combined operations, a change to the basis on which the original notification was submitted including, inter alia, physical modifications, replacement of one installation with another, availability of new knowledge or technology and operational management changes;
- (10) 'competent authority' means the public authority, appointed pursuant to the OSD and responsible for the duties assigned to it in the OSD. The competent authority may be comprised of one or more public bodies;

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### 3 SCOPE

This document covers the arrangements for Verification of offshore and onshore installations operated by the Nederlandse Aardolie Maatschappij B.V., hereinafter ‘NAM’ or ‘the Operator’. In principle, only the installations covered by a Notification Report (Voorontwerp Rapport) and a Report on Major Hazards (Rapport inzake Grote Gevaren) are included; a full list of installations where this document is applicable can be found in 7.1 ‘Appendix A – Facilities covered by this document’.

Verification and examination of well design, construction and intervention are excluded from this document; they are described in a separate ‘Wells Verification and Examination Scheme’. It should be noted that integrity of wells and daily operations and maintenance of wells are within scope of this document.

### 4 PURPOSE

The purpose of this document is to detail the NAM’s Verification Scheme as required by EU and NL legislation. Offshore Safety Directive 2013/30/EU states:

OSD Article 11 (1d)

*[Member States shall ensure that the operator or the owner submit to the competent authority] a description of the scheme of independent verification in accordance with Article 17;*

Article 45l of the revised Mining Act implements this EU Directive in the Netherlands. Accordingly this document describes the arrangements in place for confirming that Safety Critical Elements (SCEs) on each new and existing NAM installation are suitable. That is, that they are appropriate for the intended use, dependable and effective when required and able to perform as intended. This Verification Scheme provides for an independent check to confirm continued suitability throughout the installations’ life-cycles. This Verification Scheme is complementary to, but not a substitute for, the Operator’s assurance process. It is intended to identify issues in the specification of appropriate Performance Standards, and the design, construction and maintenance of SCEs.

#### 4.1 Relationship between RoMH, Performance Standards, MOPO, Verification Scheme and Verification Activities

The current Generic Report on Major Hazards (RoMH or, in Dutch, RiGG), Section 5, describes the connection between Major Accident Hazards (MAHs), SCEs and Performance Standards. The basis for selection of SCEs is the MAH list as detailed in the specific MAH registers contained in the Installation Report on Major Hazards. SCEs are grouped into hardware barriers in preventing or limiting the consequence of a Major Accident. The generic barriers between safe operations and Major Accidents are Structural Integrity, Process Containment, Ignition Control, Protection Systems, Detection Systems, Shutdown Systems, Emergency Response and Lifesaving. Each barrier will consist of one or more SCE groups, as illustrated by Figure 2. Illustration of Hardware Barriers and SCE Groups using a Swiss Cheese

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Model' in paragraph 5.1.1.5. Thereafter the SCE groups are broken down into components and finally into individual equipment tag numbers.

During the design of SCEs, relevant design standards are applied, such as those governed by Shell Design and Engineering Practices (DEPs), legislation and international standards. In the commissioning phase, SCEs will be assured to meet both the design standards and the Performance Standards.

Performance Standards ensure the ongoing suitability of SCEs in the operational phase, and for each SCE the Performance Standards detail the following:

- The goal of the SCE
- The functional performance requirement for the following criteria: Functionality, Availability, Reliability and Survivability
- Any dependencies on other SCEs
- The detailed pass/fail acceptance criteria by which performance of the SCE will be measured and recorded
- The reference material from which the acceptance criteria are derived.
- A reference to the assurance task(s) carried out by the Operator to confirm that performance criteria are being achieved

The Performance Standards are aligned to ensure that they directly relate to the avoidance or mitigation of the MAHs. In case of SCE impairment or malfunction, the Manual Of Permitted Operations (MOPO) specifies whether or not operations may be continued. The requirements and guidance for the selection of SCEs and performance standards is managed through the following documents:

- Safety Critical Element Management Manual (SR.14.11269)
- Asset Groningen SCE Interpretation Document EP200905252522 Rev. D
- Asset Land SCE Interpretation Document EP200804221471 Rev. 3.2
- Asset OneGas (NL) SCE Interpretation Documents (separate documents for each installation)

In principle, this Verification Scheme is built on existing Shell assurance frameworks and tools; these frameworks and tools are adjusted as required for purpose of the Verification Scheme. The nature and frequency of Verification Activities are inversely proportional to the quality of control and assurance.

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## 5 LEGAL REQUIREMENTS

### 5.1 Mining Act and Offshore Safety Directive

The primary aim of the Mining Act and the Offshore Safety Directive (OSD) is to reduce the risks from Major Accident Hazards to the environment and to the health and safety of the workforce employed on the installation or in connected activities. The Mining Act refers to the OSD in specifying the following:

#### 5.1.1 The Verification Scheme

OSD Annex I Part 5 (b)

[Descriptions to be submitted .... shall include] a description of the verification scheme including the selection of independent verifiers, the means of verification that safety and environmental critical elements and any specified plant in the scheme remain in good repair and condition;

The selection of Independent Verifier is explained in Paragraph 5.1.2 ‘Selection of an Independent Verifier’. The means of verification are explained in remaining paragraphs of Section 5.1 ‘Mining Act and Offshore Safety Directive’.

OSD Annex I Part 5

Descriptions to be submitted .... shall include:

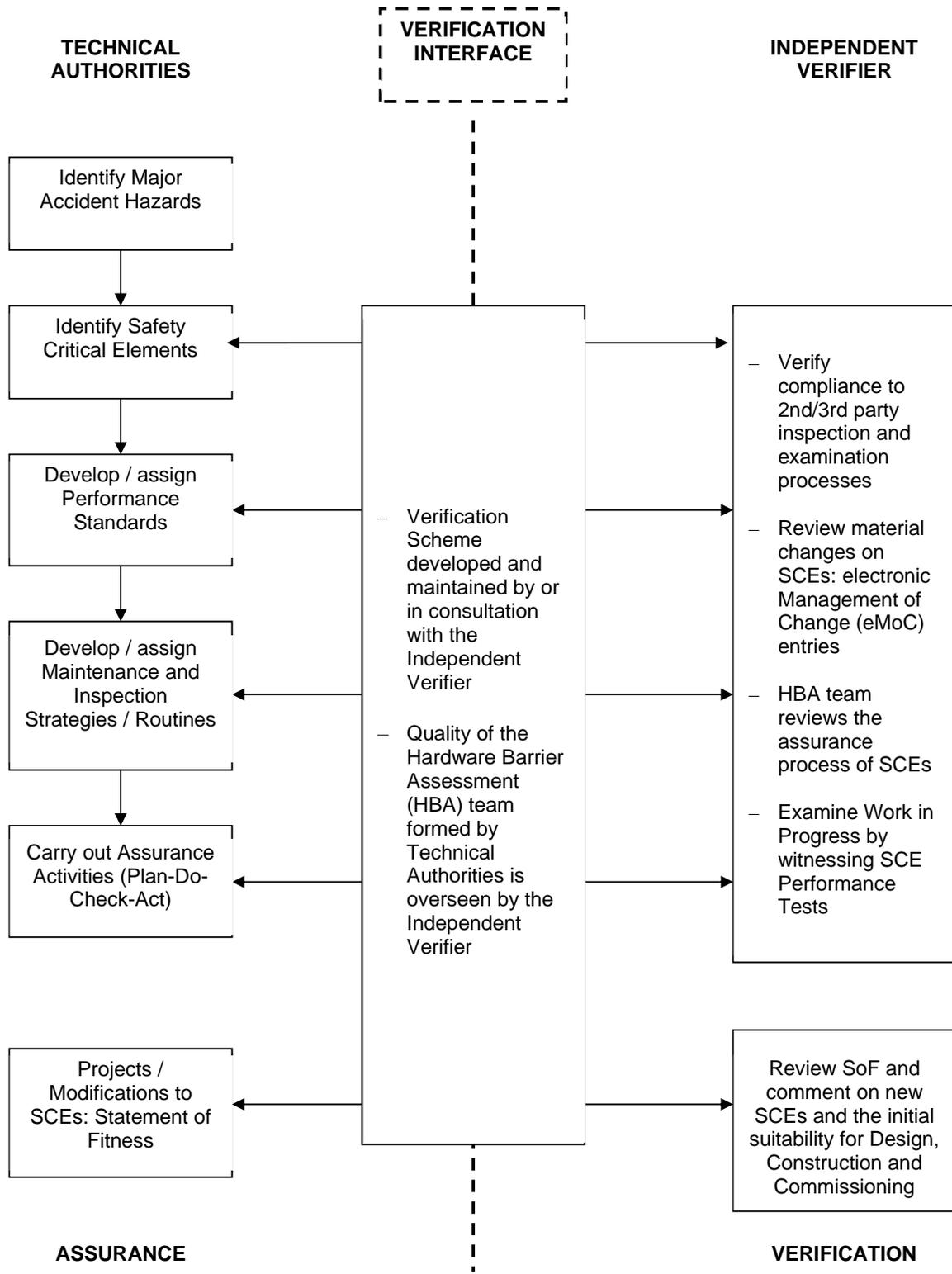
(c) ...details of the principles that will be applied to carry out the functions under the scheme and to keep the scheme under review throughout the lifecycle of the installation including:

(i) the examination and testing of the safety and environmental critical elements by independent and competent verifiers;

Verification Activities detailing nature and frequency are included in the following paragraphs of this Verification Scheme:

- 5.1.1.3 ‘Verification of 2<sup>nd</sup>/3<sup>rd</sup> Party Inspection and Examination’
- 5.1.1.4 ‘Verification of Projects / Modifications’
- 5.1.1.5 ‘Verification of Safety Critical Elements in Operate Phase’
- 5.1.1.6 ‘Examination of Work in Progress’
- 5.1.1.7 ‘Verification of Material Changes on SCE’

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**Figure 1. Assurance / Verification Interface**

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#### 5.1.1.1 Record of Safety Critical Elements

The guidelines for the identification and selection of Safety Critical Elements (SCE) are described in detail in the Safety Critical Elements Management Manual SR.14.11269 and in the Asset SCE Interpretation Documents. SAP is used to record the outcome and to indicate at Functional Location / Equipment Level whether or not equipment is safety critical. This SCE database forms part of the Asset Register, which is a list of all the facilities and equipment within an asset.

#### 5.1.1.2 Discipline Control and Assurance Framework (DCAF)

Shell DCAF is a standardised approach on Quality Control (QC) and Quality Assurance (QA) across all disciplines in all Projects and Operations. It specifies which decisions and deliverables must be formally quality controlled /assured and the roles and responsibilities of the Technical Authorities (TA's) on quality control /assurance.

For each decision or deliverable, DCAF assigns the overall accountability to a single discipline, whilst recognising that the contribution from other disciplines may be a control in its own right as well. Hence there are Accountable Technical Authority (ATA) and Responsible Technical Authority (RTA) respectively.

A Technical Authority (TA) is responsible for providing discipline specific technical advice and support to the Project or Asset Managers.

Four levels of Technical Authorities are defined – TA0 (highest), TA1, TA2 and TA3 (lowest). Each TA must successfully complete four courses: Standards, ALARP, DCAF and Enterprise frame agreements; TA1's and TA2's are formally assessed by means of a structured interview. Each TA is formally appointed and included in the TA-register. Each appointed TA formally accepts the appointment by expressing to understand the role and responsibility of a TA and to have the competencies to execute it.

#### 5.1.1.3 Verification of 2<sup>nd</sup>/3<sup>rd</sup> Party Inspection and Examination

Selected SCEs are subject to inspection and/or examination, both of which are more stringent activities than verification and governed by separate management systems.

- **Pressure equipment** – Inspection of pressure equipment, in accordance with the Pressure Equipment Directive (PED), is performed throughout the entire lifecycle by accredited Inspection Engineers within NAM / Shell (2nd party). Examples are:
  - Pressure vessels
  - Heat exchangers
  - Storage tanks
  - Piping systems
  - Relief systems
- **New pipelines** – During design and construction, new pipelines are subjected to Design and Construction Examination (Bewijs van Toezicht, BvT) performed by Lloyd's Register (3rd party).

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- **Offshore structures** – Examinations of offshore structures throughout the entire lifecycle are performed by Lloyd’s Register (3rd party).
- **Electrical equipment** – In Operate Phase, examinations of electrical equipment in accordance with ATEX-137 requirements are performed by Bureau Veritas or other 3rd party entities.
- **Offshore cranes** – In Operate Phase, annual certifications of offshore cranes in accordance with TCVT (Toezicht Certificatie Verticaal Transport) requirements are performed by Lloyd’s Register or other 3rd party entities.

### **Nature and Frequency of Verification**

For the purpose of the Mining Act and OSD, the Independent Verifier shall perform an annual review with each discipline team lead overseeing the aforementioned 2nd / 3rd party inspection and examination. The IV shall verify, based on the IV’s own judgement, whether or not the inspection / examination process has been adhered to. Particular documents to be presented include:

- For pressure equipment, renewal of Certificates of Inspection Compliance as well as the accreditation of the inspection department as Internal Inspection Body by the Raad voor Accreditatie.
- For new pipelines, the Bewijs van Toezicht
- For offshore structures, the 5-yearly life extension certificate
- For electrical equipment, the ATEX inspection reports and verification that findings are auditably actioned
- For offshore cranes, the annual TCVT certificates

#### **5.1.1.4 Verification of Projects / Modifications**

OSD Annex I Part 5

Descriptions to be submitted .... shall include:

(c) ...details of the principles that will be applied to carry out the functions under the scheme and to keep the scheme under review throughout the lifecycle of the installation including:

(ii) verification of the design, standard, certification or other system of conformity of the safety and environmental critical elements;

Project / Modification verification is performed on the Statement of Fitness (SoF) which is an assurance task itself.

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**Statement of Fitness (SoF)**

The mandatory requirements to develop and maintain a SoF is part of Shell’s Asset Integrity Process Safety Management (AIPSM) - Application Manual Requirement 7. It ensures adequate supervision and authorization is in place for a safe (re)start of production. It confirms that:

- Process Safety Risks have been identified and documented and are managed to ALARP;
- Employees or Contractors executing HSSE Critical Activities are competent and fit to work;
- HSSE Critical Equipment meets its Technical Integrity requirements, and modifications are complete and have been authorised as specified in Management of Change;
- The design and construction of new Assets and modifications to existing Assets meet design and engineering requirements;
- Process Safety Basic Requirements are met; and
- Procedures are in place to operate HSSE Critical Equipment within its Operating Limits.

SoF is applicable to the following situations:

- A new asset or a modification to an existing asset
- Before restarting an asset after an incident involving uncontrolled shutdown
- After an overhaul or a turn-around
- After the asset has been subjected to operating conditions outside the equipment constraints
- After the asset has experienced environmental conditions beyond the original design parameters.

**SoF for Projects (prior to Operate phase)**

The SoF document comprises of a checklist with elements that must be confirmed by the relevant Accountable Technical Authorities. These elements mainly consist of a selected set of deliverables from the specific Project Controls and Assurance Plans (PCAP). In addition to the mandatory PCAP requirements other SoF elements can also be added. After ATA confirmation on the SoF document items the SoF must be signed by the Project Manager and Asset Manager before the introduction of hydrocarbons into the facility.

**SoF in Operate phase**

The process of issuing an SoF is defined in the NAM Work Instruction NAM-71.WI.99.01. A ‘Production Facility Integrity Checklist’ has to be completed and the SoF to be signed off by the (Senior) Operations Supervisor or the Operations Team Leader, as well as the Asset Manager. Standard SoF templates can be found in Operational Excellence in Production Volume 4, Blade 24, Q19 Statement of Fitness (SR.15.10564), Section 8.

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### **Nature and Frequency of Verification**

For the purpose of the Mining Act and OSD, the Independent Verifier shall perform all of the following:

- 1) A clerical check within one month of every SoF issuance to confirm all required signatures are present and no signature is signed under condition or assumption.
- 2) Verification of 10% of all SoF's issued during the year. The review is performed only after the SoF is endorsed and signed off by the relevant individuals, and within six months of its issuance. It is done based on engineering judgement of the Independent Verifier. Areas of verification can include but are not limited to:
  - Whether or not the assurance process has been adhered to
  - Sufficient involvement of relevant TA's
  - Sufficient content has been covered by the SoF
  - Validity and robustness of the content
  - Quality of action close out
  - Discrepancies in documents
- 3) An annual review to confirm the SoF process has been properly applied within the Assets.

#### **5.1.1.5 Verification of Safety Critical Elements in Operate Phase**

##### **OSD Article 17 (4a)**

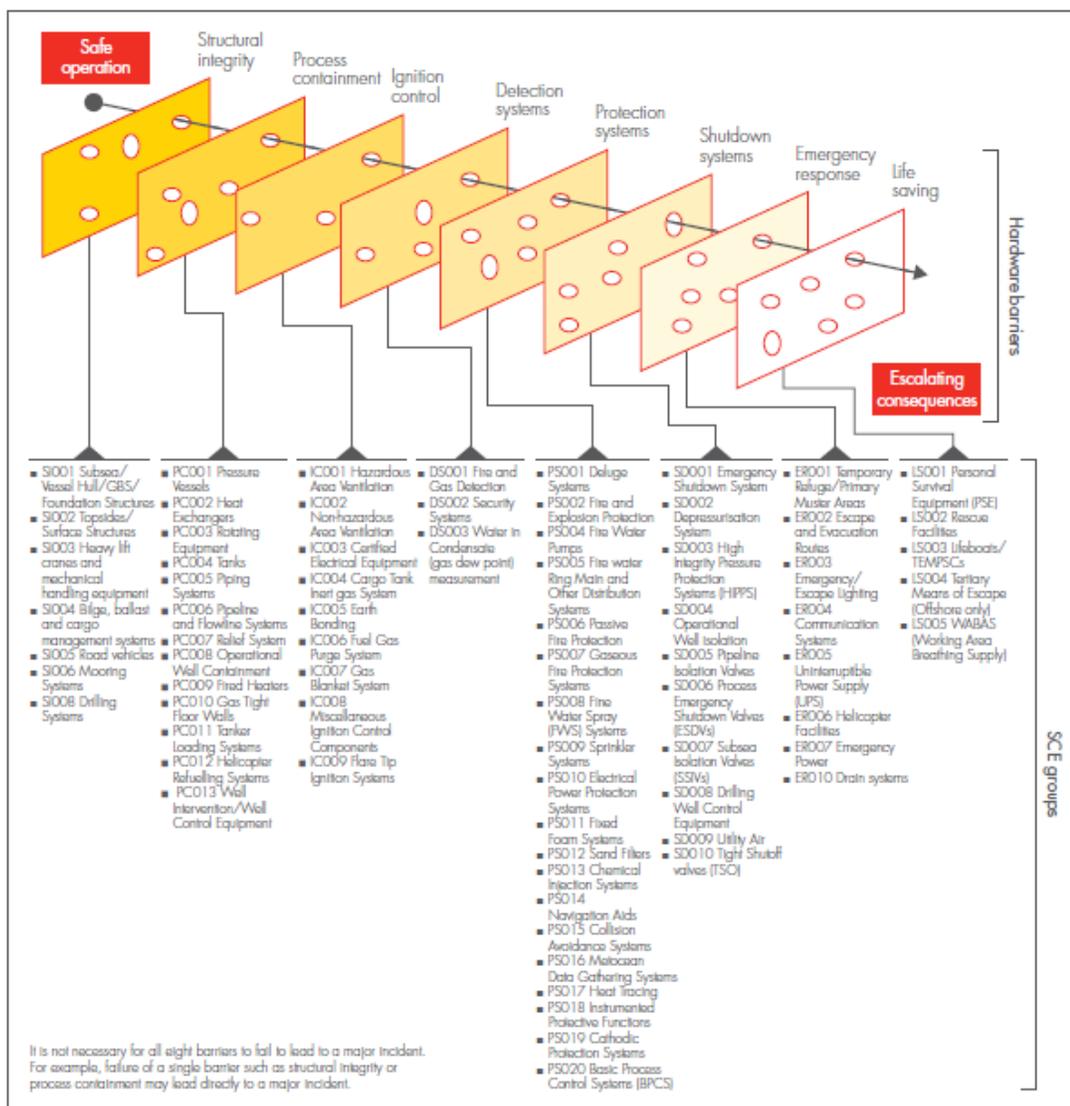
[The schemes for independent verification shall be established] in respect of installations, to give independent assurance that the safety and environmental critical elements identified in the risk assessment for the installation, as described in the report on major hazards, are suitable and that the schedule of examination and testing of the safety and environmental critical elements is suitable, up-to-date and operating as intended;

Verification of SCEs in Operate Phase is performed by Hardware Barrier Assessments (HBA).

#### **Hardware Barriers and Safety Critical Element Groups**

Technical Integrity is ensured by the existence and performance of a series of integrity barriers, which prevent or minimise the consequences of a major accident hazard. There are eight hardware barriers, shown in Figure 2; three on the threat side (structural integrity, process containment and ignition control) and the other five on the consequence side of a 'bow-tie' model. The role of the hardware barrier is to prevent or limit the escalation and/or consequences of a major incident. Small holes or weaknesses in hardware barriers, as shown in the figure, indicate a design flaw or potential degradation of the barrier's performance. If those holes, between adjacent hardware barriers, line up, there may not be effective barriers in place between safe operations and escalating consequences, leading to a major incident.

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**Figure 2. Illustration of Hardware Barriers and SCE Groups using a Swiss Cheese Model**

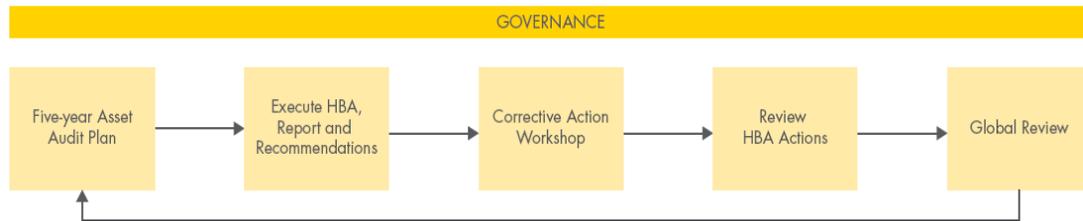
### Hardware Barrier Assessments (HBA)

HBA is a process that is intended for the Operate phase to ensure that safety critical equipment continues to do what it is intended to do. It provides a deep understanding of the integrity status of SCEs, facilities, pipelines and/or wells through physical inspection of equipment in the field and detailed review of evidence provided by other key Asset Integrity processes. The HBA process is part of Blade 19 ‘Overall Equipment Condition’ from Shell’s Operational Excellence Standards Program and is described in the Hardware Barrier Assessment Process Guide doc.nr. EP 2010-9002.

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### HBA process and methodology

The basic process for managing the HBA is shown in Figure 3 and is supported by a governance and assurance process.



**Figure 3. The HBA workflow**

The HBA methodology involves carrying out detailed reviews of selected equipment within SCE groups for each safety barrier. The number sampled and the extent of the scope is risk-based. Information for the selected sampled equipment is found from:

- Non-intrusive review of equipment physical condition
- Review of evidence recorded as part of ongoing integrity activities such as preventive maintenance (PM) and corrective maintenance (CM)
- Witnessing of integrity related tasks in the field
- Interviews
- Review of equipment records

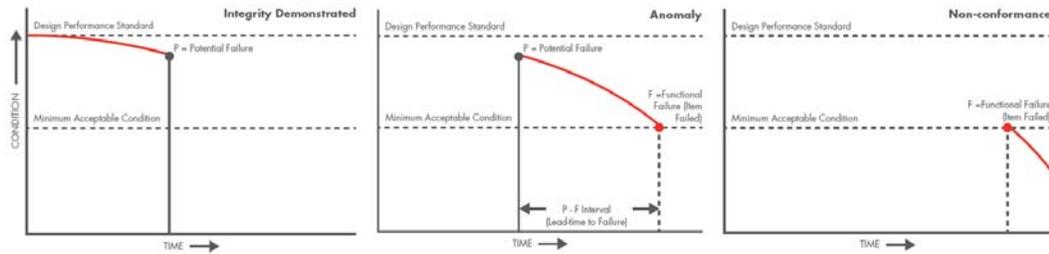
To determine the technical integrity status of SCEs, the two main areas of investigation during an HBA are:

1. Is the observed physical condition of equipment in line with SCE requirements (Performance standards, Current Status Report) and can Technical Integrity be demonstrated?
2. Is the observed physical condition as expected based on (management) systems (FSR, failure log, inspection results)?

The risks posed by SCE condition are evaluated by:

- Assessment against SCE Asset-specific or generic performance standards, aligned with Shell Upstream Global Performance Standards
- Identification of degradation mechanisms and rate of deterioration

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**Figure 4. Categorisation of technical integrity status of SCEs**

Results of HBA are brought forward to a Corrective Action Workshop that aims to:

- Give a thorough understanding of the identified integrity status.
- Identify corrective actions that both recover the technical integrity and prevent the “TI not demonstrated” from happening again.

Corrective actions are proposed, risk assessed, agreed and recorded. The HBA process is only complete when there is auditable identification, physical completion and close-out of corrective actions.

#### **Nature and Frequency of Verification**

For the purpose of the Mining Act and OSD, the Independent Verifier shall:

- Ensure HBA’s are executed in line with the 5-year plan. At least 1 HBA and a minimum of 12 SCE Groups for selected production installation(s) per year, for each of the assets Land, OneGas and Groningen.
- Verify that the ToR of the HBA meets the requirements of the HBA standard (e.g. number and distribution of SCE barrier groups to be assessed) and takes proper account of learning from global and NAM HBA reviews.
- Verify the HBA report against the HBA standard and confirm within two months of the HBA end date that the HBA report is completed with relevant Current Status Reports attached.
- Each finding raised in the HBA report will be issued as a Verification Finding.

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#### 5.1.1.6 Examination of Work in Progress

OSD Annex I Part 5

Descriptions to be submitted .... shall include:

(c) ...details of the principles that will be applied to carry out the functions under the scheme and to keep the scheme under review throughout the lifecycle of the installation including:

(iii) examination of work in progress;

Dedicated Work in Progress (WiP) examinations will be conducted. These will constitute General Visual Examination, witnessing SCE Performance Tests and SCE Coverage by Maintenance Strategy.

#### Nature and Frequency of Verification

For the purpose of the Mining Act and OSD, scoping of WiP examinations will be risk based with a focus on SCE Groups for which no certification exists, e.g. deluge, IPF and critical valves. Nominally 10-15 site visits will be executed per asset per year.

#### 5.1.1.7 Verification of Material Changes on SCE

OSD Annex V (3)

Material changes shall be referred to the independent verifier for further verification in accordance with the scheme for independent verification, and the outcomes of such further verification shall be communicated to the competent authority, if requested.

#### Electronic Management of Change Tool (eMoC)

As part of the FSR interface, the eMoC system is used to record and review material changes on SCEs during the Operate Phase. While the routine preventive maintenance and corrective maintenance are managed in FSR, eMoC includes other material changes on SCEs such as:

- Addition of (temporary) SCE equipment
- Removal of (temporary) SCE equipment
- Design shortcoming of SCEs, e.g. due to PSBR-8 requirement or SCEs added or affected by Concurrent Operations

Some specific examples where eMoC will be used: additional walkways, additional living quarters, temporary power generator, temporary compressors, temporary pig traps, overrides, etc. The eMoC entries are subjected to verification as described below.

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### **Z6 notifications**

Where an SCE is introduced or deleted, the Asset Register shall be updated and such a change must be registered in SAP as a master data change request, also known as ‘Z6 notification’.

If the addition or deletion of SCEs is part of a Project or Modification, verification will be done on its Statement of Fitness (SoF), as detailed in 5.1.1.4 ‘Verification of Projects / Modifications’. In particular, for new SCEs in projects or modifications, two key deliverables pre-requisite to SoF approval are SCE Selection Report and Technical Integrity Verification (which is an assurance task itself).

Other Z6 notifications related to Asset Register amendment that are not initiated from a Project or Modification can also involve material changes. These are subjected to verification as part of the eMoC verification described above.

Note that Z6 notifications are not exclusively used for Asset Register amendment; they can also be raised for other data within SAP. Only Z6 notifications related to Asset Register amendment are within the scope of this document.

### **Nature and Frequency of Verification**

For the purpose of the Mining Act and OSD, the Independent Verifier shall review 10% of all eMoC entries on hardware SCEs during the year. Note that SCEs are hardware by definition. The review is performed only after the eMoC entries approved by relevant individuals, and within six months of its approval. It is done based on engineering judgement of the Independent Verifier. Areas of verification can include but not limited to:

- Whether or not the assurance process has been adhered to
- Sufficient involvement and proper approval received from relevant TA’s / approver
- Sufficient content has been covered by the eMoC entry
- Validity and robustness of the material change
- Impact on other SCEs
- Quality of action close out

#### **5.1.1.8 Planning of Verification Activities**

The Independent Verifier (IV) is responsible for overseeing the total scope of Verification in order to minimise, where practical, unnecessary overlap of verification.

**2nd / 3rd Party Inspection and Verification** – In general, 2nd / 3rd party inspection and verification are performed at irregular intervals. The IV will plan annual review sessions with relevant discipline team leads.

**SoF** – Although the Project / Modification SoF’s can be anticipated, in general SoF’s are issued at irregular intervals. The IV will verify selected SoF’s on regular intervals, e.g. every two months, or other intervals deemed suitable by the IV. In addition, the IV will perform clerical checks on signatures within one month of SoF issuance and plan an annual review on SoF process adherence.

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**HBA** – The IV is responsible for developing and maintaining an HBA plan. The plan should be developed in consultation with Asset Management and, as a minimum, must specify the year and installation where the HBA’s are performed.

**Work in Progress** – 10 to 15 visits are to be executed per asset per year. These will be risk based with a focus on SCE Groups for which no certification exists, e.g. deluge, IPF and critical valves. Scope and timing of visits will be agreed regularly with field staff using actual planning records in SAP.

**Material Changes** – In general material change request are raised at irregular intervals. The IV will review new material change requests on regular intervals, e.g. every two months, or other intervals deemed suitable by the IV.

Progress against plan will be reported quarterly with the Operations, Maintenance and Engineering Managers (OM/MM/EM), and in the yearly Asset Integrity (AI) meeting with DIR and the Asset Managers.

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## 5.1.2 Selection of an Independent Verifier

<p>OSD Annex V (2a-b)</p> <p>...in respect of the scheme for independent verification relating to an installation or a well...:</p> <p>(a) the independent verifier has suitable technical competence, including where necessary, suitably qualified and experienced personnel in adequate numbers who fulfil the requirements of point 1 of this Annex;</p> <p>(b) tasks under the scheme for independent verification are appropriately allocated by the independent verifier to personnel qualified to undertake them;</p>
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This section describes how the Operator satisfies the requirements of the Mining Act, in particular OSD Annex V (1), (2a) and (2b).

### 5.1.2.1 Identification of Work

The process of selection of Independent Verifier begins by identifying the functional roles that the Operator requires of the IV. The main verification roles are:

- To verify SoF's for new-build project/design/start-up and review SoF process adherence;
- To coordinate verification by means of HBA program;
- To confirm 2nd / 3rd party inspection and verification process has been adhered to;
- To verify material changes on hardware SCEs;
- To escalate and report findings in accordance with the Verification Scheme;
- To report SCE failures in accordance with OSD to the authority;
- To maintain register of verification findings and to track follow-up;
- To prepare input on verification for the yearly Asset Integrity Meeting with the NAM Director, TA1's and asset management;
- To maintain this Verification Scheme, including planning and sampling.

### 5.1.2.2 Competency of Independent Verifier

In order to be competent in performing verification activities, an IV must be/have:

- Technically and operationally aware with the ability to communicate effectively within the Operator organisation and externally with the authority;

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- A competent engineer with minimum of 15 year experience in one or more elements of the design, manufacture, maintenance and operation of production facilities and recognised as an expert within the Operator organisation;
- An engineering or applied science graduate;
- Proven competency and experience in asset integrity management and SCE assurance process.
- Proven competency and experience of the Hardware Barrier Assessment process.

Technical Authorities carrying out Hardware Barrier Assessments have their competency assured upon TA-appointment.

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### 5.1.3 Independence of Independent Verifier

OSD Annex V (1)

Member States shall require the operator or owner to ensure the following conditions are fulfilled with regard to the verifier's independence from the operator and the owner:

(a) the function does not require the independent verifier to consider any aspect of a safety and environmental critical element or any part of an installation or a well or a well design in which the verifier was previously involved prior to the verification activity or where his or her objectivity might be compromised;

(b) the independent verifier is sufficiently independent of a management system which has, or has had, any responsibility for any aspect of a component covered by the scheme for independent verification or well examination so as to ensure objectivity in carrying out his or her functions under the scheme.

The Independent Verifier and his team will satisfy the following characteristics

	<b>IV</b>	<b>IV Practitioner</b>	<b>IV (HBA) Lead</b>	<b>IV (HBA) Practitioner</b>
<b>Organization / Functional</b>	i) Formal appointment including role and responsibility defined in VQS ii) IV reports outside any asset line iii) IV has escalating route to NAM Director iv) IV is appraised outside asset line	i) Role and responsibility defined in VQS ii) IV Practitioner reports to IV iii) IV Practitioner is appraised outside asset line	i) Sourced from NAM TA1 community or external equivalent ii) Appointed by IV, following independence check iii) Roles and responsibilities defined in VQS iv) IV (HBA) Lead reports to IV v) IV (HBA) Lead is appraised outside asset line	i) Sourced from NAM TA2 community or external equivalent ii) Appointed by IV, following independence check iii) Roles and responsibilities defined in VQS iv) IV (HBA) Practitioner reports to IV (HBA) Lead v) IV (HBA) Practitioner is appraised outside asset line
<b>SCE's</b>	IV has over the last 4 years not been involved in any decision making regarding asset integrity of SCE's being verified	IV Practitioner has over the last 4 years not been involved in any decision making regarding asset integrity of SCE's being verified	IV (HBA) Lead has over the last 4 years not been involved in any specific decision making regarding asset integrity of SCE's being verified	IV (HBA) Practitioner has over the last 4 years not been involved in any specific decision making regarding asset integrity of SCE's being verified
<b>Resources</b>	IV is mandated to mobilise expertise, manpower and budget to meet requirements of the Verification Scheme			
<b>Planning</b>	IV is mandated to define required verification visits and reviews to meet the Verification Scheme, and align/agree actual execution windows with Asset Management			

Such arrangements ensure that the IV is independent from any financial or operational pressures that could affect a sound judgement. Also the IV will not be verifying his or her own work and the IV's direct reporting line for verification is separate from those people whose work is being checked. As such the IV is sufficiently impartial and objective in order to fulfil the above OSD and Mining Act requirements.

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**Shell Internal Audit (SIA)**

Shell Internal Audit provides the Executive Committee, the Audit Committee and ultimately the Board of Directors of Royal Dutch Shell with independent assurance on the design and operation of the system of internal control. The Chief Internal Auditor is accountable, in consultation with the Businesses and Functions for the development and implementation of an annual audit plan for approval by the Audit Committee. Businesses and Functions are required to provide all necessary assistance to enable Shell Internal Audit to carry out its duties.

SIA also investigates fraudulent, ethics and compliance incidents and is custodian of a global helpline. These incidents are reported to the Business Integrity Committee and notable incidents are reported to the Executive Committee and to the Audit Committee.

This Verification Scheme, being an internal control system of NAM, is also within the scope of SIA. As such, there is extra assurance on the proper functioning of the Verification Scheme and the independence of the Independent Verifier.

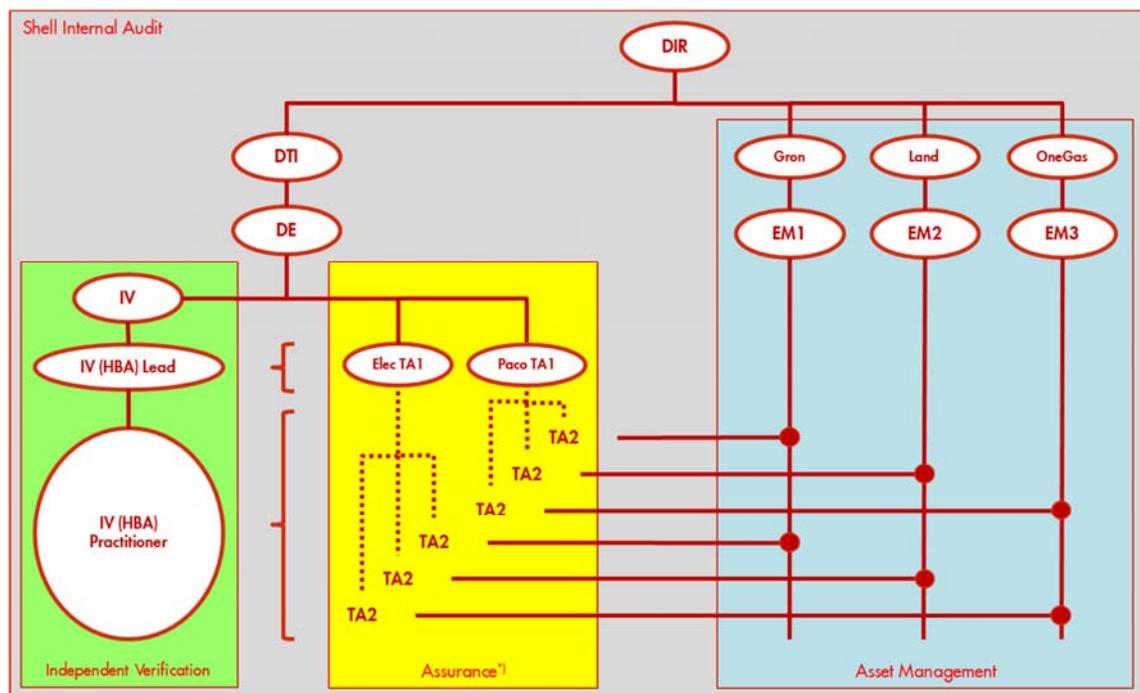
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#### 5.1.4 Authority of the Independent Verifier

OSD Annex V (2d)  
 ...in respect of the scheme for independent verification relating to an installation or a well...:  
 (d) the independent verifier is given suitable authority to be able to carry out the functions effectively.

The Independent Verifier will have a direct reporting line to the Director of NAM; this officially provides the possibility to escalate any issues straight up. Figure 5 shows an organogram, positioning the IV next to the NAM Director, Development and Technical Integration Manager, Asset Managers and the various Technical Authorities. As a minimum, the yearly Asset Integrity Meetings chaired by the Director will be utilised to formalise Independent Verification results.

The IV shall be officially appointed via an appointment letter co-signed by the Director and the IV. The appointment letter shall make clear the IV's reporting responsibilities and include a confirmation on competency and independence of the IV appointed, as stated in paragraph 5.1.2 'Selection of an Independent Verifier'. A template of the appointment letter can be found in paragraph 7.3 'Appendix C – Independent Verifier Appointment Letter Template'.



\*) Also for Offshore Structures, Civil, Mechanical Static, Mechanical Rotating, Materials & Corrosion, Inspection, Pipelines, Process Engineering, Production Chemistry, Safety Engineering, etc.

**Figure 5. Organogram indicating Independent Verifier, Technical Authorities and Shell Internal Audit**

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**5.1.5 Overall Objectivity**

OSD Article 17 (2)  
 The results of the independent verification shall be without prejudice to the responsibility of the operator or the owner for the correct and safe functioning of the equipment and systems under verification.

This is ensured by the selection and appointment of the IV, the TA framework, the assurance given by Shell Internal Audit, the verification on material changes and 2<sup>nd</sup>/3<sup>rd</sup> party inspection and examination, as well as the Work in Progress, SoF and HBA processes described in the paragraphs above.

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### 5.1.6 Communication and Close-out of Verification Issues

OSD Annex I Part 5

Descriptions to be submitted .... shall include:

(c) ...details of the principles that will be applied to carry out the functions under the scheme and to keep the scheme under review throughout the lifecycle of the installation including:

(iv) the reporting of any instances of non-compliance;

This section describes how the verification activities are reported, and how issues are communicated between the Independent Verifier and the Operator. It describes how issues are escalated and followed up until close-out.

#### 5.1.6.1 Communication of Verification Results

When verification is performed on 2nd/3rd party inspection & examination, SoF, work in progress or material changes, a Verification Report will be issued by the Independent Verifier. The report will detail all verification activities carried out and any Findings or Comments raised. A report template is shown in 7.4 'Appendix D – Verification Report Template'. Besides Verification Reports, other requirements for communicating verification results are listed below.

##### **Reporting on 2<sup>nd</sup> or 3<sup>rd</sup> Party Inspection and Examination**

A summary from the IV on verifications performed and their findings will be presented and discussed quarterly at the OM/MM/EM Meetings and at the Yearly Asset Integrity (AI) Meeting. The findings will be reported using Fountain Assurance.

##### **Reporting on Projects, Modifications and Start-up**

Verification findings and comments will be communicated to the relevant project or engineering action parties for resolution. Findings will be reported using Fountain Assurance.

Quarterly status and progress will be reported to the Operations, Maintenance and Engineering Managers (OM/MM/EM) Meetings.

Results from the annual review on SoF process adherence will be presented and discussed at a Yearly Asset Integrity (AI) Meeting. The findings will be reported using Fountain Assurance.

##### **Reporting on Hardware Barrier Assessments**

During an HBA site visit, a 'Field Draft' copy of the HBA report will be presented to the Offshore Installation Manager (OIM) or Operation Team Lead (OTL) during a close-out meeting. During this meeting the HBA findings will be identified to the OIM/OTL.

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If an HBA finding requires direct/ urgent attention then it is the responsibility of the IV(-HBA) Lead to ensure that the appropriate level within the Operator’s organisation is made aware and can take immediately remediate action as appropriate (see also section 5.1.7.3).

All HBA findings will be raised as Verification findings.

Aggregated HBA performance and outcomes will also be presented and discussed quarterly at the OM/MM/EM Meetings and at the Yearly Asset Integrity (AI) Meeting.

**Reporting on Examination of Work in Progress**

Examination of Work in Progress findings and comments will be communicated to the relevant action parties for resolution. A summary by the IV on examinations performed and their findings will be presented and discussed quarterly at the OM/MM/EM Meetings and at the yearly Asset Integrity (AI) Meetings. Findings will be reported using Fountain Assurance.

**Reporting on Material Changes**

A summary from the IV on verifications performed and their findings will be presented and discussed quarterly at the OM/MM/EM Meetings and at the Yearly Asset Integrity (AI) Meeting. The findings will be reported using Fountain Assurance.

**Yearly Asset Integrity (AI) Meeting**

These meetings are used for the IV to present and discuss Verification findings with the Director of NAM and Asset Management. Typically the Yearly AI Meetings is held in November of each year.

**Annual Statement**

An Annual Statement by the Independent Verifier of ongoing suitability will be completed in October of every year for each asset. The Independent Verifier will summarise previous years’ verification issues and concerns (includes statistics on number of findings / NoC’s / NoR’s raised and still open). This will be in terms of a (dashboard) presentation to the OM/MM/EM meeting. In addition an Executive Summary will be presented to Senior Management as part of the Yearly AI meeting of November and used as input in the Business Assurance Letter.

The issues that may be raised following completion of verification activities are categorised in Table 1 below. For Note of Concern (NoC), Letter of Concern (LoC) and Note of Reservation (NoR), the Independent Verifier can make use of the template in paragraph 7.5 ‘Appendix E – Template for Note of Concern, Letter of Concern and Note of Reservation’.

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**Table 1 Communication of Verification Issues**

<b>COMMENT</b>	<p>A <b>Comment</b> is a note or question requesting clarification or confirmation, following a verification activity, and is issued when:</p> <ul style="list-style-type: none"> <li>-) Information (including documents or drawings) available is insufficient to allow the verification activities to take place.</li> <li>-) Data that has been reviewed is unclear / ambiguous and requires further clarity.</li> <li>-) Conformance with a Performance Standard for a Safety Critical Element is unclear.</li> </ul> <p>All Comments issued and progress tracked using a dedicated Comment Register, maintained by the IV. A Comment will automatically be escalated to a Finding if four (4) weeks after the original Verification Report has been issued, to the project manager or Operation Manager, no reply/response is received. A Comment will also be escalated to a Finding if during the review / close out of the Comment, it is apparent that one of the definitions of a Finding (see below) is applicable.</p>
<b>FINDING</b>	<p>A <b>Finding</b> is issued when:</p> <ul style="list-style-type: none"> <li>-) There is a non-conformance with a Performance Standard for a Safety Critical Element (SCE) or insufficient evidence to determine conformance.</li> <li>-) An assurance process has failed, is inadequate or not being adhered to.</li> </ul> <p>A Finding will <b>not</b> be raised where a non-conformance with a Performance Standard is suitably managed according to the Assurance Process and MOPO.</p> <p>All Findings are ranked by the Independent Verifier depending on level of risk to personnel. See Table 2 below for details on ranking. It is the responsibility of the IV to inform the Operation Manager about any Finding.</p> <p>All Findings will be tracked using Fountain Assurance.</p>
<b>NOTE OF CONCERN (NoC)</b>	<p>At the discretion of the Independent Verifier a <b>Note of Concern</b> is issued when:</p> <ul style="list-style-type: none"> <li>-) The number of overdue Findings is causing concern.</li> <li>-) Agreed mitigating measures are not being implemented on open Findings.</li> <li>-) An individual Finding has not been actioned within an agreed timescale.</li> <li>-) An area of concern requires to be raised at an appropriate level in the management system of the Operator. For example, when a significant Verification issue is identified across more than one Asset.</li> </ul> <p>The Note of Concern is issued to the Asset Manager (or Head of Projects) and copied to the Country Team Leader for Asset Integrity &amp; Reliability, Discipline Engineering Team Leader and HSE Regulatory Affairs Manager.</p> <p>The appropriate level would be that with sufficient authority to ensure that the action required in the light of the Note of Concern is taken.</p> <p>The case may arise whereby the Operator does all they consider necessary to close-out a Finding however the Independent Verifier does not consider this satisfactory. In this situation whilst the Finding will be closed out, a "Letter of Concern" will issued to the Asset Manager (or Head of Projects). Additionally the letter will be attached to the Finding in Fountain Assurance upon close-out. This will also be highlighted as an area of concern in the Independent Verifier's Annual Report. Note this will not be escalated to a Note of Reservation.</p> <p>All Notes of Concern will be tracked using Fountain Assurance.</p>

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<b>NOTE OF RESERVATION (NoR)</b>	<p>A <b>Note of Reservation</b> is issued when a Note of Concern has not been satisfactorily resolved.</p> <p>The Note of Reservation is the most severe escalation option and it is issued to the Director of NAM and copied to the Country Team Leader for Asset Integrity &amp; Reliability, Discipline Engineering Team Leader and HSE Regulatory Affairs Manager.</p> <p>All Notes of Reservation will be tracked using Fountain Assurance.</p>
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### 5.1.6.2 Response to Verification Findings

Findings are ranked as either ‘A’, ‘B’, or ‘C’ where category ‘A’ findings pose the highest level of risk and category ‘C’ the lowest. The matrix below is used for guidance in this ranking.

**Table 2 Criticality Ranking Matrix**

		<b>Equipment Criticality</b>		
<b>Importance</b>	<b>Type of Finding</b>	<b>1</b>	<b>2</b>	<b>3</b>
High	Catastrophic Failure of System to Operate on demand.	<b>A</b>	<b>B</b>	<b>B</b>
Medium	Failure of equipment to meet Performance Standard acceptance criteria.	<b>B</b>	<b>B</b>	<b>C</b>
Low	Assurance process is not being applied correctly or met.	<b>B</b>	<b>C</b>	<b>C</b>

The three levels of Equipment Criticality are defined as follows:

**Equipment Criticality Level 1** High consequence of failure, and little or no level of redundancy. Its failure during normal operation could immediately result in a major incident.

**Equipment Criticality Level 2** Significant consequence of failure, and at least one level of redundancy but could not immediately result in a major incident.

**Equipment Criticality Level 3** Minimal immediate consequences of an individual failure, and having several levels of redundancy.

Guidance on the timescale for the Asset or the Project to respond to the Independent Verifier with intended action is as follows:

- Category ‘A’ Finding - 24 hours.
- Category ‘B’ Finding - 1 month.
- Category ‘C’ Finding - 2 months.

According to above definitions, for HBA: ‘Technical integrity not demonstrated’ corresponds to ‘High’ Verification Finding; ‘Anomaly’ corresponds to ‘Medium’ Verification Finding.

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### 5.1.6.3 Finding Close-out Process

OSD Annex I Part 5

Descriptions to be submitted .... shall include:

(c) ...details of the principles that will be applied to carry out the functions under the scheme and to keep the scheme under review throughout the lifecycle of the installation including:

(v) remedial actions taken by the operator or owner.

The close-out of Verification Findings is carried out primarily by the Asset or the Project. The Independent Verifier tracks all Findings to close-out using Fountain Assurance, close-out being when there is sufficient evidence to prove the remedial work has been satisfactorily completed. For SCE corrective maintenance, close-out due dates are identified using the Corrective Maintenance Prioritisation Tool (CMPT). For HBA close-out due dates, CMPT can also be applied (e.g. in the Corrective Action Workshop) or otherwise agreed between the HBA team and the Asset. The timescale for closure of other Findings shall be agreed between the Independent Verifier and the action owner on a case by case basis.

Verification Findings can also be closed using a Letter of Concern. Refer to Table 1 for full details.

### 5.1.6.4 Closure Date Extension Process

The extension of Verification Finding closure dates will follow relevant processes of Fountain Assurance and in consultation with the Independent Verifier.

Note: During the management of a Verification Finding, the Finding will usually have a SAP notification / work order, an FSR Deviation or an eMoC record associated with the Finding. Where applicable, these procedures shall be adhered to:

- UIE.MAINT.PR.03 'Deviation Control for Technical Non-Conformances'
- NAM-ASS.PR.01 'UIO/T Management Of Change Procedure', EP document number EP201408200484

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### 5.1.7 Flow and Preservation of Information

OSD Annex V (2c)  
 ...in respect of the scheme for independent verification relating to an installation or a well...:  
 (c) suitable arrangements are in place for the flow of information between the operator or owner and the independent verifier;

OSD Article 17 (6)  
 6. Member States shall require operators and owners to ensure that advice received from the independent verifier pursuant to point (a) of paragraph 4 and records of action taken on the basis of such advice are made available to the competent authority and retained by the operator or the owner for a period of six months after completion of the offshore oil and gas operations to which they relate.

#### 5.1.7.1 Flow and Preservation of Information between the Operator and the Independent Verifier

There shall be (a) dedicated document storage area(s) in SharePoint set up for the submission of verification input to the IV. Documents to be submitted include:

- Statements of Fitness
- HBA reports
- Certificates of 2nd/3rd Party Inspection and Examination, as listed out in paragraph 5.1.1.3.

A dedicated document storage area shall also be used to archive Verification results – including Verification Reports, minutes of Yearly AI Meetings, Annual Statements, as well as any Comments, Findings, Notes of Concern, Letters of Concern and Notes of Reservation. The IV is responsible for maintaining this area.

Findings, Notes of Concern, Letters of Concern and Notes of Reservation will be recorded on Fountain Assurance and tracked until satisfactory resolution. Close-out actions are also recorded on Fountain Assurance.

Records of Verification results and action close-out will be retained for at least six months after completion of the oil and gas operations to which they relate.

#### 5.1.7.2 Verification information made available to the Competent Authority

For the purpose of OSD Article 17 (6), verification information will be made available by the Operator to the competent authority upon their request.

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### 5.1.7.3 Reporting of SCE Failure to the Competent Authority

In accordance with Section C of the Guidance Document on European Commission Implementing Regulation No. 1112/2014 of 13 October 2014, a report to the competent authority shall be made if a situation meets all conditions below:

- i) the condition of an SCE at system level is identified and reported by the Independent Verifier; and
- ii) the SCE at system level fails to meet the required Performance Standard for that SCE; and
- iii) the Operator determined that immediate remedial action is necessary to protect people and environment and to reduce the safety and environmental risks to an acceptable level.

The figure below also illustrates the decision making process of SCE failure reporting. Refer to the Guidance Document for further information.

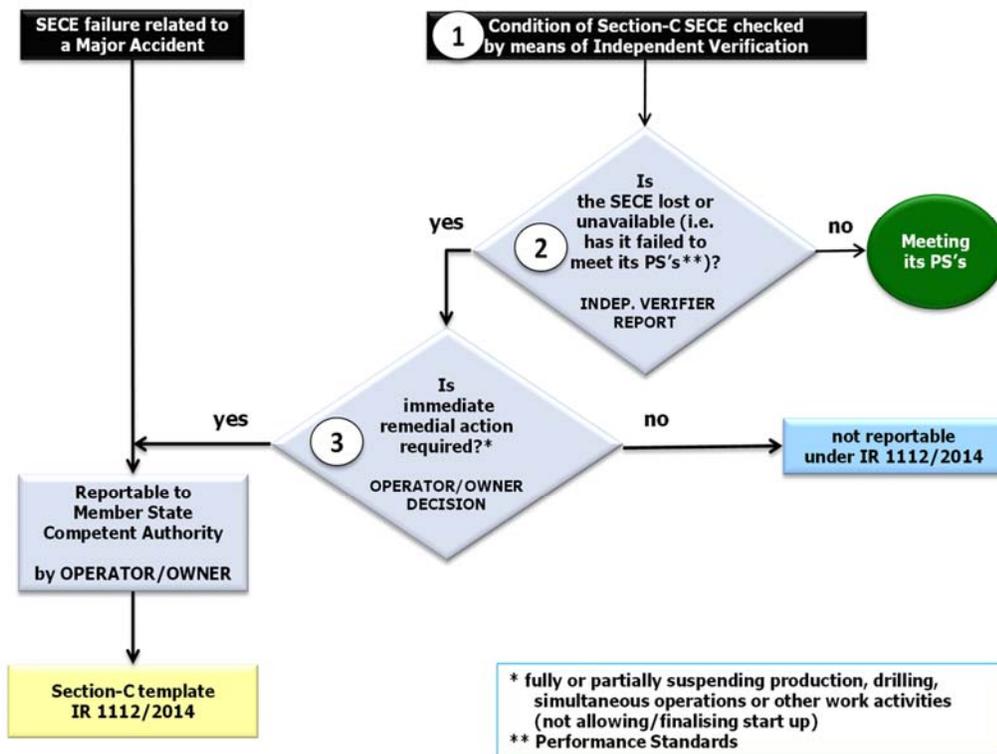


Figure 6. Decision Tree for SCE failure reporting, taken from Guidance Document on Implementing Regulation No. 1112/2014

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### 5.1.8 Statement of Suitability of the Record of SCEs and their Scheme of Maintenance

OSD Article 17 (5)

5. Member States shall ensure that operators and owners respond to and take appropriate action based on the advice of the independent verifier.

OSD Annex I Part 5 (a)

[Descriptions to be submitted .... shall include] a statement by the operator or owner, made after considering the report of the independent verifier, that the record of safety critical elements and their scheme of maintenance as specified in the report on major hazards are or will be suitable;

These are realised via the Business Assurance Letter (BAL) issued annually by the Director of NAM to Executive Committee of Royal Dutch Shell. The Yearly AI Meetings and the Annual Statement provide input to the BAL. Refer to paragraph 5.1.6.1 'Communication of Verification Results' for more details.

### 5.1.9 Putting into Effect the Verification Scheme

OSD Article 17 (8)

For a production installation, the verification scheme shall be in place prior to the completion of the design. For a non- production installation, the scheme shall be in place prior to the commencement of operations in the offshore waters of Member States.

This Verification Scheme will be in effect from 1 January 2016. The first year of implementation is designated as a pilot period. As stated in Article 42 of the OSD, official dates for full implementation of the OSD are as follows:

- 19 July 2016 for new production installations;
- for existing production installations when the installation safety case is renewed, but no later than 19 July 2018

### 5.1.10 Review and Revision of the Verification Scheme

This section describes the arrangements that are in place to ensure that this Verification Scheme is reviewed and revised when appropriate.

The IV reviews the Verification Scheme on an ongoing basis in order to identify improvements. Where a potential improvement is identified, either by the IV or other NAM personnel, it will be discussed with relevant parties and, if agreed, an amendment to the Scheme will be

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implemented. The decision process will be recorded using a Verification Amendment Notice (VAN) as shown in paragraph 7.2 ‘Appendix B – Verification Amendment Notice (VAN)’.

In principle, the nature and frequency of verification can be adjusted according to risks, assurance performance and previous verification results.

A formal review of the Verification Scheme by the Operator and the IV shall be carried out after the pilot period, i.e. in Q1 2017, and thereafter every three years.

As and when the Verification Scheme is amended, the changes are issued to all registered copyholders, which include the IV, via the Operator’s document distribution system. Additionally, an up-to-date electronic copy of the Verification Scheme shall be available on the Shell Wide Web.

## 5.2 Verification Quality System

A Verification Quality System (VQS) for independent verification in NAM has been developed, like the Inspection Quality System (IQS), to meet the criteria of Type B independent accreditation following ISO17020. This demands mostly that the Verification body is independent and controls its own processes, competencies and related information flows. For NAM this means that the VQS has to be managed separately, making it and the Verification Scheme independent of Asset Management and any Technical Assurance Processes. The VQS comprises a total of 10 documents:

- Policy Independent Verification and Well Examination in NAM
- Quality Assurance Process Manual for Independent Verification in NAM
- 5 procedures for execution of independent verification activities, i.e. projects and modifications, SCE’s in the operate phase, Work in Progress, 2<sup>nd</sup> / 3<sup>rd</sup> Party Inspection & Examination and Material Change
- 3 procedures for managing the independent verification process itself (functioning and competencies)

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**6 REFERENCES**

1. Directive 2013/30/EU of the European Parliament and of the Council of the European Union, 12 June 2013
2. Step Change in Safety, Assurance and Verification Summary Guidance
3. Shell Safety Critical Element Management Manual SR.14.11269
4. Standard SoF templates, Operational Excellence in Production Volume 4, Blade 24, Q19 Statement of Fitness (SR.15.10564), Section 8
5. Shell Hardware Barrier Assessment Guide EP 2010-9002
6. Procedure - Deviation Control for Technical Non-Conformances UIE.MAINT.PR.03
7. NAM-ASS.PR.01 'UIO/T Management Of Change Procedure', EP document number EP201408200484
8. European Commission Implementing Regulation No. 1112/2014 of 13 October 2014
9. Guidance Document on European Commission Implementing Regulation No. 1112/2014 of 13 October 2014, Section C
10. Dutch Mining Act article 45l and 45n.3, Mining Decree articles 84c-84g and Mining Regulation articles 11a.5.1-11a.5.3
11. Nogepa Standard 48, Independent Verification Management
12. Nogepa Standard 49, Independent SECE Verification Execution

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## 7 APPENDICES

### 7.1 Appendix A – Facilities covered by this document

Only facilities covered by an RoMH are subject to Independent Verification in NAM, i.e.

**Table 3 Facilities Covered by this Document**

<u>Asset Groningen</u>	
<b>Clusters Opslag en scheidingsfaciliteiten (OSF) Delfzijl en Waterinjectielocatie (WI) Borgsweer</b>	
(OSF) Delfzijl	WI Borgsweer
<b>Cluster Underground Gas Storage Grijpskerk</b>	
UGS Grijpskerk	
<b>Cluster Underground Gas Storage UGS Norg</b>	
UGS Norg	
<b>Cluster Groningen Long Term (GLT)</b>	
Amsweer (AMR)	SAT Sappemeer (SAP)
Bierum (BIR)	Schaapbulten (SCB)
De Eeker (EKR)	Scheemderzwaag (SZW)
SAT Froombosch (FRB)	Siddeburen (SDB)
De Paauwen (PAU)	CC Slochteren (SLO)
Eemskanaal (EKL)	Spitsbergen (SPI)
Kooipolder (KPD)	Ten Post (POS)
Leermens (LRM)	Tjuchem (TJM)
VC Midwolda	CC Tusschenklappen (TUS)
VC Nieuw Scheemda	VC Uiterburen
VC Noordbroek	't Zandt (ZND)
Oudeweg (OWG)	Zuiderpolder (ZPD)
Overschild (OVS)	Zuiderveen (ZVN)

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<b><u>Asset Land</u></b>	
<b>Cluster Drenthe/Twente</b>	
Coevorden 7	Emmen 11
Coevorden 19	Emmen/Nieuw Amsterdam 1
Collendoornerveen 1	Gasselternijveen
Dalen 1	Oosterhesselen 1
Dalen 2	Oosterhesselen 2
Dalen 3	Roswinkel 1
Dalen 6	Roswinkel 4
Dalen 9	Schoonebeek 313
Emmen 7	Schoonebeek 447
Emmen 8	Waterpompstation
<b>Cluster Gaszuiveringsinstallatie</b>	
GZI Emmen	
<b>Cluster Wijk/Wanneperveen</b>	
Ten Arlo	De Wijk 6
Wannerperveen 1	De Wijk 13
Wannerperveen 8	De Wijk 15
Wannerperveen 9	De Wijk 16
Wannerperveen 13	De Wijk 17
Wannerperveen 15	De Wijk 20
De Wijk 4	De Wijk 26
<b>Cluster Coevorden</b>	
Coevorden 2	Coevorden 31
Coevorden 5	Coevorden 33
Coevorden 10	Coevorden 47
Coevorden 17	Den Velde 1
Coevorden 20	Hardenberg 2
Coevorden 21	Hardenberg 4
Coevorden 24	Hoogenweg 1
<b>Cluster UMOG</b>	
Bedum	Ureterp 100
Grootegast 100	Ureterp 200
Kollumerland 1	Warffum
Marum 1	Surhuisterveen
Opende Oost 1	Tietjerksteradeel 700

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<b>Cluster Tietjerksteradeel/Anjum</b>	
Blija Ferwerderadeel 1	Tietjerksteradeel 400
Kootstertille	Tietjerksteradeel 600
Suawoude 200	Tietjerksteradeel 900
Tietjerksteradeel 100	Anjum 1
Tietjerksteradeel 200	Moddergat 1
Tietjerksteradeel 300	Lauwersoog
<b>Cluster Grijskerk</b>	
Boerakker 1	Saaksum 1
Grijskerk	Engwierum
Krabburen 1	Leens
Kollumerpomp 1	Lauwerzijl
Munnekezijl 1	Vierhuizen
Oosterzand	Faan
Pasop 1	De Tibben
Sebaldeburen 1	
<b>Cluster Vries-Wildervank</b>	
Appelscha 1	Blijham 2
Eleveld 1	Oude Pekela 1
Norg-Zuid 1	Wildervank
Roden 1	Westerdiep
Vries 1	Zuidlaren
Vries 2	Zuidlaarderveen
Vries 4	Kiel-Windeweer
Westerveld	Assen
Norg 3	Witten
Annerveen	Zevenhuizen
Annerveen overslag	
<b>Cluster West</b>	
gasbehandelingsinstallatie Botlek (BTL)	satelliet Reedijk (RDK)
gasbehandelingsinstallatie Pernis-West (PRW)	satelliet Berkel ROV (BRK ROV) (olie)
satelliet 's Gravenzande (SGZ)	satelliet Berkel-4 (BRK-4) (olie)
gasbehandelingsinstallatie Gaag (GAG)	oliebehandelingsinstallatie Rotterdam (RTD)
gasbehandelingsinstallatie Monster (MON)	satelliet Spijkenisse Oost (SPKO)
satelliet Barendrecht (BRT)	gasbehandelingsinstallatie Middellie-300
gasbehandelingsinstallatie Barendrecht (BRTP)	satelliet Westbeemster-1
satelliet Barendrecht-Ziedewij (BRTZ)	waterinjectielocatie Rotterdam-5/6 (RTD-

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	5/6)
satelliet Oud-Beijerland-Zuid (OBLZ)	satelliet Numansdorp-1 (NMD-1)
<b>Cluster Schoonebeek</b>	
WKC/OBI	SCH2000
SCH1000	SCH2300
SCH1100	SCH2400
SCH1200	SCH2500
SCH1300	SCH2600
SCH1400	SCH2800
SCH1500	SCH2900
SCH1600	SCH3000
SCH1700	SCH3100
SCH1800	
<b>Water injection locations Twente, part of cluster Schoonebeek</b>	
Rossum-Weerselo 2	Tubbergen 7
Rossum-Weerselo 3	Tubbergen-Mander 1
Rossum-Weerselo 5	Tubbergen-Mander 2
Rossum-Weerselo 6	

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<b><u>Asset Onegas East</u></b>	
<b>Cluster Hical/Local</b>	
K7FA1	K15FA1
K7FB1	K15-FA-1R
K7/FD1	K15FG1
K8FA1	K15FB1
K8FA2	K15FC1
K8FA3	K15FK1
K14FA1	L13FC1
K14FB1	L13FD1
K17FA1	L13FE1
<b>Cluster Nogat/NGT</b>	
AME1	L9FF1
AME2	L9FA1
AWG1	L9FB1
L2FA1	
<b>Cluster Den Helder</b>	
Den Helder	

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**7.2 Appendix B – Verification Amendment Notice (VAN)**

Information to be provided:

- (1) Reason for proposed amendment and date raised
- (2) Details of amendment
- (3) Originator – name, signature and date
- (4) Other parties consulted – name, role, signature and date
- (5) Approved / Rejected by IV – name, signature and date
- (6) Reason for rejection (if appropriate)
- (7) Scheme updated – name, signature and date

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**VERIFICATION AMENDMENT NOTICE**

VAN No.: .....	Date: .....
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**1. Details of Amendment**

.....  
.....  
.....

**2. Reason For Proposed Amendment**

.....  
.....  
.....

**3. Originator**

Name: ..... Signature: ..... Date: .....

**4. Other Parties Consulted**

Name & Role: ..... Signature: ..... Date: .....  
Name & Role: ..... Signature: ..... Date: .....  
Name & Role: ..... Signature: ..... Date: .....

**5. Independent Verifier Approved / Rejected (delete as appropriate)**

Name: ..... Signature: ..... Date: .....

**6. Reason for Rejection (if applicable)**

.....  
.....

**7. Scheme Updated**

Name: ..... Signature: ..... Date: .....

Notes

- All VANs should be numbered VAN-YY-NN, YY being the Year, NN being the Number i.e. 01, 02, 03 etc.
- When a VAN is approved, the Verification Activities will be modified.
- All approved VANs will be incorporated into the Scheme at the next formal review.

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### 7.3 Appendix C – Independent Verifier Appointment Letter Template

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**LETTER OF APPOINTMENT - INDEPENDENT VERIFIER**

[Name of Independent Verifier]

[Current reference indicator of Independent Verifier]

[Date]

Dear [Name of Independent Verifier],

Please be informed, that as per this letter, and in line with Policy document NAM-ASS.PO.40, you are formally appointed as Independent Verifier for the Nederlandse Aardolie Maatschappij B.V. ('NAM'). As such I authorise you to independently fulfil all the tasks as specified in, and in accordance with the Verification Scheme for NAM and the Independent Verification Quality Assurance Process Manual.

Your appointment takes effect on the [date] and applies for an unlimited period of time, unless it is withdrawn in writing on my behalf, when you move into another position, or when your working relationship with NAM ends.

In the role of Independent Verifier you are, in line with Policy document NAM-ASS.PO.40, responsible on my behalf for (arranging) all verifications activities as per Offshore Safety Directive 2013/30/EU ('OSD') and Dutch mining Act on all onshore and offshore oil and gas installations of NAM within the Netherlands and on the Dutch sector of the continental shelf.

You shall carry out your duties in an impartial and independent manner. In addition, you must keep me informed of any shortcomings with respect to the legal regulations and requirements with regard to Verification in the sense of the OSD. With respect to this task and responsibility, you are authorised to supervise the impartiality and independence of any staff executing verification activities.

It is your responsibility to monitor all changes in regulations concerning verification in the sense of the OSD, as well as notifying relevant parties in NAM by which date any such changes must be implemented.

With kind regards, ,

**Nederlandse Aardolie Maatschappij B.V.**

[Signature]

[Signature]

[Name Director NAM]

[Name of Independent Verifier]

**Director**

**Independent Verifier**

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**7.4 Appendix D – Verification Report Template**

Information to be provided:

- (1) Details of SoF / Material Change / 2<sup>nd</sup> or 3<sup>rd</sup> Party Inspection or Examination / Work in Progress
- (2) Confirmation on specific items
- (3) Comments
- (4) Verification Findings and Recommendations
- (5) Report sign off by Independent Verifier – name, signature and date

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**Verification Report**

Report No.: .....

Revision: .....

<b>1. Details of <input type="checkbox"/>SoF / <input type="checkbox"/>Material Change / <input type="checkbox"/>2nd or 3rd party Inspection or Examination / <input type="checkbox"/>Work in Progress</b>		
Title / Subject: .....	Notification / Doc. No.: .....	
<b>2. Verification Activities carried out (items checked, interviews performed, etc.)</b>		
<b>3. Confirmation on specific items</b>		
➤ Assurance process has been adhered to	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> To be determined	
➤ Sufficient content has been covered by the submitted items	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> To be determined	
➤ Content is valid and robust	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> To be determined <input type="checkbox"/> N/A	
➤ Actions have been closed out satisfactorily	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> To be determined <input type="checkbox"/> N/A	
<b>4. Comments (if any)</b>		
<b>5. Verification Findings and Recommendations (if any)</b>		
<b>6. Report sign off by Independent Verifier</b>		
Name: .....	Signature: .....	Date: .....

Note: Verification Reports should be numbered VR-YY-XXXX-NN, YY being the Year, XXXX being the type of verification (SoF / MC / CERT), NN being the Number i.e. 01, 02, 03 etc.

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**7.5 Appendix E – Template for Note of Concern, Letter of Concern and Note of Reservation**

Information to be provided:

- (1) Type of notice
- (2) Reason for issuing the notice
- (3) Details of original Finding or Note of Concern
- (4) Specific description of the issue
- (5) Recommendations
- (6) Notice sign off by Independent Verifier – name, signature and date

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**ESCALATION NOTICE**

**Notice No.:** .....

**Revision:** .....

<b>1. Type of notice:</b> <input type="checkbox"/> Note of Concern / <input type="checkbox"/> Letter of Concern / <input type="checkbox"/> Note of Reservation (check box as suitable)		
<b>2. Reason(s) for issuing this notice</b>		
<input type="checkbox"/> The number of overdue Findings is causing concern. <input type="checkbox"/> Agreed mitigating measures are not being implemented on open Findings. <input type="checkbox"/> An individual Finding has not been actioned within an agreed timescale. <input type="checkbox"/> An area of concern requires to be raised at an appropriate level in the management system of the Operator. For example, when a significant Verification issue is identified across more than one Asset. <input type="checkbox"/> A situation where the Asset or Project does all they consider necessary to close-out a Finding, however the Independent Verifier does not consider this satisfactory. <input type="checkbox"/> A Note of Concern has not been satisfactorily resolved.		
<b>3. Details of original Finding(s) / Note of Concern</b>		
Source: <input type="checkbox"/> HBA / <input type="checkbox"/> SoF / <input type="checkbox"/> Material Change / <input type="checkbox"/> 2nd or 3rd Party Inspection or Examination / <input type="checkbox"/> Work in Progress / <input type="checkbox"/> Note of Concern		
Title / Subject: .....	Notification / Finding / Notice No.: .....	
<b>4. Specific description of the issue</b>		
<b>5. Recommendations (if any)</b>		
<b>6. Notice sign off by Independent Verifier</b>		
Name: .....	Signature: .....	Date: .....

Note: Escalation Notices should be numbered ESC-YY-XXX-NN, YY being the Year, XXX being the type of notice (NOC / LOC / NOR), NN being the Number i.e. 01, 02, 03 etc.