



HELLENIC HYDROCARBON
RESOURCES MANAGEMENT

ROMH AND NOTIFICATION REQUIREMENTS

UNDER L4409/2016



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1 OPERATIONS REQUIRING A ROMH OR NOTIFICATION

1.1 Introduction

Law N.4409/2016 makes Hellenic Hydrocarbon Resources Management S.A. (HHRM) the Competent Authority for the major hazard regulation of offshore oil and gas operations within licensed areas in Greece. The goal of N.4409/2016 is to reduce major hazard risk to a level that is as low as reasonably practicable (ALARP) and this is demonstrated through the submission, by an Operator or Owner, of a Report on Major Hazards (RoMH) to HHRM. Acceptance of this report by HHRM is a prerequisite for the oil and gas operations to which it relates to commence. Notifications are required to be submitted for combined operations, well operations and relocation of a production installation. Article 11(1) states the requirement for:

The operator or the owner submit to the Competent Authority the following documents:

- (a) the corporate major accident prevention policy or an adequate description thereof, in accordance with Article 19(1) and (5);*
- (b) the safety and environmental management system applicable to the installation, or an adequate description thereof, in accordance with Article 19(3) and (5);*
- (c) in the case of a planned production installation, a design notification in accordance with the requirements of Annex 1, Part 1;*
- (d) a description of the scheme of independent verification in accordance with Article 17;*
- (e) a report on major hazards, in accordance with Articles 12 and 13;*
- (f) in the event of a material change or dismantling of an installation, an amended report on major hazards in accordance with Articles 12 and 13;*
- (g) the internal emergency response plan or an adequate description thereof, in accordance with Articles 14 and 28;*
- (h) in the case of a well operation, a notification of that well operation and information on that well operation in accordance with Article 15;*
- (i) in the case of a combined operation, a notification of combined operations in accordance with Article 16;*
- (j) in the case of an existing production installation which is to be moved to a new production location where it is to be operated, a relocation notification in accordance with Annex 1, Part 1;*
- (k) any other relevant document requested by the Competent Authority.*

1.2 Commencement and Continuation of Operations

A RoMH must be submitted and accepted by HHRM before the operation to which it applies can commence, or continue (Article 6(5)).

To commence, or continue, a well operation requires:

- An accepted RoMH for the installation that is carrying out the well operation (either a non-production installation, or a production installation if it has a derrick, workover, or wireline unit);
- A submitted well operation notification; and
- If a non-production installation is in combined operations with a production installation (e.g. a jack-up over a production installation), a submitted combined operations notification.

During a well operation, there is also a requirement for weekly reporting.

To continue production (including decommissioning and dismantling) requires:

- An accepted RoMH; and
- A submitted thorough review of the RoMH at 5 year intervals, or earlier as directed by HHRM

To commence production, or carry out a material change requires

- An accepted RoMH; and
- A design notification (unless agreed otherwise with HHRM for a material change); or
- A relocation notification if a production installation moves location within Greek waters.

A well operation notification or a combined operations notification must be submitted to HHRM in the timescale stated in Section 1.4 and no objections to it received from HHRM in the same timescale before the operation can commence, or continue (Article 6(6)). For a design notification or a relocation notification, HHRM will comment on the submission as necessary; these comments must be addressed in the Production RoMH that follows (Articles 11(1)c and 11(1)j). A material change cannot be made until either a revised RoMH has been accepted, or a revised notification submitted.

A notification is not maintained over the lifetime of the installation, or operation whereas a RoMH is.

Requirements for the approval by HHRM of an IVB to carry out verification before a RoMH can be accepted or notification considered are given in the **HHRM Policy and Strategy** and detailed in the **Verification Guidance**.

1.3 Guidance on Content

This document defines the required content and level of detail expected to be included in relation to each of the documents such that it complies with requirements of the Law. The documents must be appropriate to the offshore installation and to the activities conducted at that installation. Only by inclusion of a sufficient level of detail in these documents will HHRM be able to judge the appropriateness of major hazard management in accordance with the Law. This judgement will be made by reference to HHRM's guidance documents. The **RoMH and Notification Requirements, ALARP Guidance** and the **Verification Guidance** set out how HHRM will assess the information in a notification, or RoMH as to whether it meets the requirements of the Law and these documents should also be used by owners / operators to prepare their RoMH / notification(s). There is also an element of proportionality with respect to the level of detail: a higher level of risk or uncertainty should result in an equivalently higher level of detail in the document.

The RoMH must be a stand-alone document that is sufficient to meet the contents and level of detail requirements of the Law without need to refer to other external documents. Overall, a well-structured, coherent RoMH will facilitate an operator's ability to demonstrate to others that they have a clear understanding of the factors that influence risk and the controls that are critical to minimising risk to people on their installation.

A suggested structure is provided for each type of RoMH or Notification. The structure is not mandatory, but it is necessary to show how the structure of the submitted RoMH or Notification aligns with this guidance (e.g. through a mapping table). Annex 1 of N.4409/2016 outlines information to be included in documents submitted to the competent authority pursuant to Article 11.

Extracts from Annex 1 are included in a blue box in the appropriate section within the structure described above, with the number of the requirement included for cross-reference purposes.

Additional guidance which expands on the required content is provided below Annex 1 extracts. Requirements are numbered for ease of reference and demonstration of compliance. Items not numbered are comments and not formal requirements linked to Annex 1 of N.4409/2016.

1.4 Submissions Timings

The timing for submissions is summarised in Table 1, which also applies to material changes. The timescale could be affected by a slow response to HHRM requests for additional information – this is detailed in the **HHRM Organisation, Policy and Strategy**.

Table 1 Summary of Submissions schedules required for offshore oil and gas operations

Submission	Schedule	Comment
Well notification	At least 3 months before the planned start of the well operation.	Well operation can go ahead at the end of the timescale if there are no objections from HHRM. Final well programme needs to be submitted before operations can commence. Weekly well report required during operations.
RoMH for a non-production installation	At least 3 months before it is planned that the non-production installation comes on location.	The non-production facility can go on station / location once the RoMH is accepted by HHRM.
Combined operations notification	At least 6 weeks prior to the planned start for the combined operation activities	Combined operation can go ahead if there are no objections from HHRM by the end of the timescale.
Design notification	At least 6 months prior to the submission of a RoMH and early enough such that all SECEs, operations etc that are not detailed in the notification can be changed.	HHRM comments need to be addressed in the Production RoMH that follows.
Relocation notification	At least 6 months before commencing operations.	HHRM comments need to be addressed in the Production RoMH that follows.
RoMH for a production installation	At least 4 months before the commencement of operations.	
Request to submit a multi-installation RoMH	At least 4 weeks before submission of the RoMH.	
Request to cover a temporary material change in an addendum	At least 4 weeks before submission of the amended RoMH.	

As per Article 18(b), *in exceptional situations and where it considers that safety and environmental protection are not compromised*, HHRM can agree to a *shortened time interval required between the submission of the report on major hazards or other documents to be submitted pursuant to Article 11 and the commencement of operations*.

1.5 Administration

All submissions must be made electronically and with one hard copy; a submission is judged to have been made only if HHRM confirm receipt of the submission.

2 DESIGN OR RELOCATION NOTIFICATION

2.1 Timing

A design notification should include the information on the design that is available at the time of submission (Annex 1 Part 1 of the Law) including an ALARP demonstration for the full range of concepts available for exploitation of a field (e.g. fixed, floating, bridge-linked structures, normally unattended installations or a subsea development and pipeline options). It needs to be submitted at such a time that it can fully describe aspects of the design that cannot be changed later in the design that have a material impact on the management of major hazards.

When relocating a production installation within Greek waters, a relocation notification is required in addition to the subsequent RoMH. The submission of the CMAPP with the relocation notification may not be required (as it should have been previously submitted and reviewed "without further comments" by HHRM) and for the acceptance of the IVB should not be required (unless the IVB is changed). The RoMH and associated documents submission may be a revision of the previous documents (for the previous location) to reflect the new location's specifics.

2.2 General

Sections 2.3 to 2.7 give the requirements for a Design or Relocation Notification for a Production Installation. Reference is made to the Annex 1(1) requirements in N.4409/2016.

1. The notification will show how its structure aligns with this guidance.

2.3 Contact Details

Point (1) the name and address of the operator of the installation;

2. The notification will detail:

- a) The licence to which the notification refers; and
- b) The name and address of the intended operator of the installation.

2.4 Infrastructure Description

Point (5) a description of the installation and the conditions at its intended location;

Point (6) a description of any environmental, meteorological and seabed limitations on safe operations, and the arrangements for identifying risks from seabed and marine hazards such as pipelines and the moorings of adjacent installations;

Point (7) a description of the types of major hazard operations to be carried out;

2.4.1 Infrastructure Location

3. Provide drawings to show the:

- a) Location and orientation of the installation;
- b) Location and purpose of any wells, including identification of water depth for subsea wells¹; and
- c) Location of other installations and pipelines that may have a bearing on the hazards presented by the installation or their management.

¹ The definition of an installation in N.4409/2016 is "a stationary, fixed or mobile installation, or a combination of installations permanently interconnected by bridges or other structures, used for offshore hydrocarbons operations or in connection with such operations". Based on this definition, a subsea well could be considered an installation in its own right, requiring a RoMH. However, as the well itself has limited MAH potential if outside the safety zone, it is expected that subsea wells will be included in the RoMH for the receiving installation.

2.4.2 Location Specific Conditions

4. Describe the location specific conditions to which the installation will be exposed and designed for, including (as relevant):
 - a) Maximum wind conditions;
 - b) Extreme temperature conditions (sea and air);
 - c) Wind rose and prevailing wind information where this has an impact on the installation layout;
 - d) Extreme water current and wave conditions;
 - e) Sea bed conditions relevant to jacket and anchoring requirements; and
 - f) Relevant seismic information for the locality.

2.4.3 Installation Description

5. Include:
 - a) A description and drawings of the layout of the installation's plant;
 - b) A description or drawings of the layout of the installation's SECEs;
 - c) A description of the installation and any association with other installations or connected infrastructure, including wells, and marine hazards such as pipelines and the moorings of adjacent installations;
 - d) A summary description of utility systems that are needed to support operations of the installation;
 - e) A summary description of personnel welfare arrangements (accommodation, medical, etc.);
 - f) For a floating installation, the means of ensuring that it remains on station;
 - g) A description of any environmental, meteorological and seabed limitations on safe operation and how the design of the installation has taken account of the location specific conditions outlined in Section 2.4.2;
 - h) A summary description of any connected infrastructure; and
 - i) The maximum number of persons who will be on the installation during operations.

2.4.4 Hazardous Substances

6. Sufficient information is required to show the identification and approximate quantity of all the hazardous substances with the potential to cause a major accident that will be on or flowing through the installation.
7. Provide diagrams to show the:
 - a) Locations of the hazardous substances;
 - b) Segregation and barriers (fire and blast walls) that separate hazards from safe areas; and
 - c) Routes of all pipelines and risers.

2.4.5 Reservoir and Well

Well and reservoir characteristics need only be described where there is a well that is intended for production purposes whether that be hydrocarbon production, water injection, or otherwise.

8. Provide data for the reservoir(s) that the well(s) is located in and explain how this information has been obtained (e.g. via an appraisal, exploration, or offset well):
 - a) Basic reservoir data, including:
 - i. Pressure;
 - ii. Temperature; and
 - iii. Depth to reservoir tops and reservoir thickness.
 - b) Reservoir fluid composition (a specific note should be made of the presence of H₂S and CO₂).
9. For each well describe:
 - a) Well top hole location;
 - b) Purpose of well (production, injection, etc);
 - c) Well operating parameters:
 - i. Maximum expected operating pressure;
 - ii. Maximum wellhead shut-in pressure;
 - iii. Maximum flow rate; and
 - iv. Maximum and minimum expected operating temperature.

2.4.6 Operations

10. Describe all intended oil and gas operations with major accident hazard potential:
 - a) The processing, storage etc. of oil and gas that will occur.
 - b) Other activities that are needed to carry out the offshore oil or gas operations, such as marine operations and the ability to stay on station for an FPSO, should be described and any weather limitations given.
11. Provide a high-level description of operations that will be required to service and maintain the installation is required, which may include:
 - a) Personnel transportation (helicopter, marine access);
 - b) Any diving operations from the installation.
12. Describe how the proposed manning arrangements have been derived such as to provide an adequate level of manning for the range of operations that the production installation will undertake.

2.5 ALARP Demonstration

Point (2)	a description of the design process for the production operations and systems, from an initial concept to the submitted design or selection of an existing installation, the relevant standards used, and the design concepts included in the process;
Point (3)	a description of the selected design concept in relation to the major hazard scenarios for the particular installation and its location, and the primary risk control features;
Point (4)	a demonstration that the concept contributes to reducing major hazard risks to an acceptable level;

Point (10) where an existing production installation is to be moved to a new location to serve a different production operation, a demonstration that the installation is suitable for the proposed production operation;

Point (11) where a non-production installation is to be converted for use as a production installation, a justification demonstrating that the installation is suitable for such conversion.

13. Demonstrate how the operator will reduce risks associated with their oil or gas operations to a level that is ALARP. The ALARP demonstration for the proposed design must follow the process described in the **ALARP Guidance**, in summary:

- a) Identification of major hazards;
- b) Identification of risk reduction measures, including the full range of concepts that have been considered for exploitation of a field. The demonstration that the risk reduction measures will reduce risks to ALARP should reference how the performance requirements for SECEs have been determined, as described in section 2.6;
- c) Demonstrate compliance with Good Practice, including how inherent safety has been implemented; and
- d) Include a comparison of risks against risk tolerability limits which demonstrates that the risks are not intolerable, while acknowledging the fact that the level of detail about the installation will be limited at the design notification stage.

14. Where an existing production installation is to be moved to a new location to serve a different production operation, or where a non-production installation is to be converted for use as a Production Installation, a justification must be provided demonstrating that the installation is suitable for the proposed change in operation/purpose. This should include update, as required, of any assessments supporting the ALARP demonstration, and evidence that the SEMS remains suitable for the new operating conditions. The explanation should show how the existing risk control measures are affected by the new circumstances, and whether changes are needed to SECEs (either by changing existing ones or adding new ones).

2.6 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification

Point (9) a description of the independent verification schemes and an initial list of safety and environmental critical elements and their required performance;

15. Provide details of the risk reduction measures that have been implemented to prevent, control and mitigate major accidents based on the assessment outlined in section 2.5. Identification of SECEs is mandatory per the requirements of N.4409/2016 outlined above. The preferred approach to presenting information about the required performance of SECEs, which is also consistent with the typical requirements of a verification scheme (see the **Verification Guidance**), is through the development of performance standards. Therefore, the notification must include a description of the following process (or a process that meets equivalent aims):

- a) Identify SECEs, including describing how they have been identified, listing them and describing their hazard management role.

- b) Determine and document the required performance of SECEs in accordance with the guidance in the **Verification Guidance**. For those SECEs that can be readily altered as the design progresses and do not have a fundamental impact on the layout, or design, only the fact that they have been identified as safety critical is required to be demonstrated. For all other SECEs, the high-level performance must be given in quantitative terms wherever possible and should demonstrate how those choices that have been made in relation to SECEs are ALARP. If the performance is not critical to the design at this stage and does not have a material effect on the risk, then the broad process for deciding the required performance should be described.
- c) Include a summary of the Verification Scheme that will be used during the on-going design, construction and commissioning process. This should be prepared in accordance with the requirements in section 6.

2.7 Safety and Environmental Management System

Point (8) a general description of the safety and environmental management system by which the intended major accident risk control measures are to be maintained in good effect;

- 16. Although there is no requirement for detailed operational aspects to be included, provide a general description of the Safety and Environmental Management System (following a similar structure to section 10, but at a suitable level).

2.8 Emergency Response

- 17. Describe how the emergency response arrangements for MEIs has considered the location of the installation.

3 PRODUCTION INSTALLATION ROMH

3.1 Timing

Figure 1 in Appendix A shows the ROMH, notification and IVB submissions required for a production operation. The RoMH must be approved before the production operation can commence, or continue.

3.1.1 Decommissioning and Dismantling

Before a production installation is decommissioned and dismantled, Article 11(1)(f) requires an amended RoMH *"in the event of ... dismantling of an installation"*.

The operator of a production installation needs to update and submit the amended RoMH (including its associated documents; SEMS, verification scheme, etc.) to the HHRM with sufficient time for them review and accept before they can start to decommission and dismantle the production installation.

3.1.2 Multi installation Production RoMH

Following Article 12(3), if there is more than one installation connected by pipelines and operated under the same management system by the same operator and personnel, it may be possible, under HHRM's agreement, for the operator to submit a single RoMH to cover them all if this provides clarity and efficiency. An operator must formally request permission to submit a multi-installation RoMH.

3.2 General

Sections 3.3 to 3.11 provide the structure and requirements for a Production Installation RoMH. Reference is made to the Annex 1(2) requirements in N.4409/2016.

1. The RoMH will show how its structure aligns with this guidance.

3.3 Contact Details

Point (2)	the name and address of the operator of the installation
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2. The RoMH will detail:
 - a) The licence to which the RoMH refers; and
 - b) The name and address of the operator of the installation.

3.4 Design Notification

Point (1)	a description of the account taken of the competent authority's response to the design notification
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3. The first submission of a Production Installation RoMH following a Design Notification must include a description of the account taken of HHRM's response to the Design Notification. It should summarise any additional work that has been undertaken in response to matters raised, and should explain the adequacy of the current installation arrangement and layout with regards to each matter.

3.5 Installation Description

Point (4)	a description of the installation and any association with other installations or connected infrastructure, including wells;
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Part (6)	a description of the types of operations with major hazard potential to be carried out, and the maximum number of persons that can be on the installation at any time.
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| Point (7) | a description of equipment and arrangements to ensure well control, process safety, containment of hazardous substances, prevention of fire and explosion, protection of the workers from hazardous substances, and protection of the environment from an incipient major accident; |
| Point (8) | a description of the arrangements to protect persons on the installation from major hazards, and to ensure their safe escape, evacuation and rescue, and arrangements for the maintenance of control systems to prevent damage to the installation and the environment in the event that all personnel are evacuated; |

3.5.1 Installation Location

4. Provide detailed drawings to show the:
 - a) Location and orientation of the offshore installation;
 - b) Location and purpose of any wells, including identification of water depth for subsea wells²; and
 - c) Location, description and management of other installations and pipelines that may have a bearing on the hazards present on the installation.

3.5.2 Location Specific Conditions

5. Describe the location specific conditions to which the installation is exposed and designed for, including (as relevant):
 - a) Maximum wind conditions;
 - b) Extreme temperature conditions (sea and air);
 - c) Wind rose and prevailing wind information where this has an impact on installation layout;
 - d) Extreme water current and wave conditions and their return period;
 - e) Sea bed conditions relevant to jacket and anchoring requirements;
 - f) Relevant seismic information for the locality;
 - g) Marine data in regard to shipping and navigational hazards; and
 - h) Transport data in regard to the basis for assessing transportation risks (e.g. flight, or boat transfer times).
6. Describe how location specific conditions that have an impact on operations are monitored, including those that may have a long-term effect such as fatigue of structures.

3.5.3 Installation Description

7. Include:
 - a) A description of the installation type e.g. fixed platform with steel jacket and integrated deck, floating production platform, etc.
 - b) A description and drawings of the layout of the installation's plant;
 - c) A description or drawings of the layout of the installation's SECEs;

² The definition of an installation in N.4409/2016 is "a stationary, fixed or mobile installation, or a combination of installations permanently interconnected by bridges or other structures, used for offshore hydrocarbons operations or in connection with such operations". Based on this definition, a subsea well could be considered an installation in its own right, requiring a RoMH. However, as the well itself has limited MAH potential if outside the safety zone, it is expected that subsea wells will be included in the RoMH for the receiving installation.

- d) Utility systems that are needed to support operation of the installation;
- e) Personnel welfare (accommodation, medical etc.) facilities;
- f) For a floating installation, the means of ensuring that it safely remains in position;
- g) A description of any environmental, meteorological and seabed limitations on safe operation;
- h) A summary description of any connected infrastructure; and
- i) the maximum number of persons that can be on the installation at any time; personnel distributions according to the layout of the installation, and the shift-working arrangements for day and night working.

3.5.4 Hazardous Substances

8. For hazardous substances with the potential to cause a major accident, detail:
 - a) The behaviour of the hazardous substances during major accidents, including those that could be formed from chemical changes during a major accident (e.g. combustion); and
 - b) Physical, chemical, toxicological characteristics and indication of the hazards to people, both immediate and delayed.
9. Provide drawings to show the:
 - a) Locations of the hazardous substances;
 - b) Segregation and barriers employed to separate hazards from safe areas; and
 - c) Routes of all pipelines and risers.

3.5.5 Reservoir and Well

10. The following information must be provided for the reservoir(s) that the wells are located in:
 - a) Basic reservoir data, including:
 - i. Pressure and temperature; and
 - ii. Depth to reservoir tops and reservoir thicknesses;
 - b) Reservoir fluid composition, and physical and chemical attributes of the reservoir fluids (including produced water). A specific note should be made of the presence of H₂S and CO₂.
11. The following must be described for each well, with suitable diagrams where appropriate (duplicate information is not required for wells with the same design and operation):
 - a) Well identification and top hole location;
 - b) Purpose of well (production, injection, etc.);
 - c) Maximum, operating and shut-in pressures and temperatures at the wellhead and bottom-hole;
 - d) Maximum flow rate;
 - e) Wellbore fluids;
 - f) Pumping designs and other aids to production, such as gas-lift;

- g) Well construction data (including for all of the below specific reference to the suitability for pressure and temperature conditions and fluids):
 - i. Casing and completion designs, including schematics specifying components, barriers, locations and depths;
 - ii. Wellhead type and configuration;
 - iii. Xmas tree type and configuration;
 - iv. Material specification, including elastomers;
- h) Monitoring:
 - i. Pressure and temperature measurement location and frequency; and
 - ii. Erosion assessment and mitigation.

3.5.6 Operations

12. Describe the activities that could cause a major accident including at least:

- a) Activities relating directly to the processing of hydrocarbons. To describe the hydrocarbon processing, provide a process flow diagram showing at least hydrocarbon isolation and blowdown valves;
- b) Personnel transportation (helicopter, marine access);
- c) Logistics (supply boats, offloading, laydown, loading) with the potential for impact or dropped objects;
- d) Any diving operations from the installation; and
- e) Marine operations that may safely be performed including the means of ensuring that marine and other operations do not conflict in an unsafe manner.

13. Provide information on activities that the installation is capable of performing, even though there may be no current plans to do so. If an activity with major accident potential is not described, it cannot be conducted until there is a RoMH in force that addresses that activity.

14. Describe organisational arrangements for safely managing the interfaces between the installation and connected infrastructure (for example, pipelines) with cross reference to the SEMS if needed.

3.5.7 Well Operations

15. Describe the well operations, if any, that the production installation can carry out.

16. Provide details of the associated utilities.

Well operations should be described in such a way that it covers all well operations that are capable of being carried out from that installation (otherwise a material change of the RoMH will be needed before such operations could be undertaken e.g. before a temporary workover rig is put into use). The well operations that the installation can carry out should be described in a manner such that they are independent of a particular well, though any pre-conditions for safe operations should be stated.

If well operation is planned, a Notification of Well Operations would have to be submitted.

17. In terms of well control / pressure control, the following must be described:

- a) Where an installation has an integrated drilling package, provide:
 - i. Details of well control equipment including the diverter and BOP systems (including locations of activation stations), circulation equipment, well kill facilities, and equipment for monitoring of drilling fluid volumes and properties.
 - ii. Summary of well control techniques used to balance pressures and keep the wellbore stable.
- b) Where an installation is configured to allow free standing well interventions (e.g. wireline, E-line or coiled tubing) details should be provided on how pressure control equipment is managed. If 3rd party equipment is to be utilised, details should be provided of arrangements to ensure that the equipment is fit for purpose, personnel are competent to use it, and that SECEs are covered by a verification scheme. Details should also be provided on how free standing equipment is integrated into existing installation safety systems (e.g. emergency shut down).
- c) Organisational arrangements for safely managing the interfaces during simultaneous operations (e.g. drilling and producing) with cross reference to the SEMS if needed.

3.5.8 Minimum Manning

18. State the minimum number of persons required to operate the installation safely for the range of operations which can be undertaken, per sections 3.5.6 and 3.5.7.

3.6 ALARP Demonstration

Point (5) demonstration that all the major hazards have been identified, their likelihood and consequences assessed, including any environmental, meteorological and seabed limitations on safe operations, and that their control measures including associated safety and environmental critical elements are suitable so as to reduce the risk of a major accident to an acceptable level; this demonstration shall include an assessment of oil spill response effectiveness;

19. Include an ALARP demonstration that follows the process described in the **ALARP Guidance**, in summary:

- a) Identification of major hazards;
- b) Identification of risk reduction measures, taking due cognisance of the requirements in Directive 92/91/EEC that are relevant to the control and mitigation of major accident hazards. The demonstration that the risk reduction measures will reduce risks to ALARP should reference how the performance requirements for SECEs have been determined, as described in section 3.7;
- c) Demonstrate compliance with Good Practice, including how inherent safety has been implemented; and
- d) Include a QRA to determine the total risk, compare it against tolerability criteria and identify what drives that risk so that the hazards can be managed. The QRA should demonstrate that the likelihood and the consequences of each major accident hazard have been assessed in a systematic manner. The methodology and the results of the QRA will be documented in the RoMH and should include:

- i. Methods and assumptions used;
 - ii. Failure rate data used; and
 - iii. Justification for data in terms of:
 - (1) Site-specific circumstances;
 - (2) Processes and methods used to assess the consequences of each event; and
 - (3) Sensitivity of the conclusions to the assumptions made and the inherent uncertainty in the data inputs and the modelling used.

20. The assessment of oil spill response effectiveness should be addressed as part of the internal emergency response plan (see 3.9 and 11).

3.7 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification

Point (9)	relevant codes, standards and guidance used in the construction and commissioning of the installation;
Point (14)	the information relevant to other requirements under this present law obtained pursuant to the major accident prevention requirements of the Presidential Decree 177/1997 (Directive 92/91/EEC);
Point (12)	a description of the independent verification scheme

21. Provide details of the risk reduction measures that have been implemented to prevent, control and mitigate major accidents based on the assessment outlined in section 3.6. Identification of SECEs is mandatory per the requirements of N.4409/2016 outlined in section 3.6. The preferred approach to presenting information about the required performance of SECEs, which is also consistent with the typical requirements of a verification scheme (see the **Verification Guidance**), is through the development of performance standards. Therefore, the RoMH must include a description of the following process (or a process that meets equivalent aims):

- a) How SECEs have been identified, listing them and describing their hazard management role. This must include SECEs that are deemed necessary based on the assessments performed in accordance with Directive 92/91/EEC and Directive 2011/92/EU. Offshore environmental response equipment such as capping devices, booms and dispersants, that are not normally part of the installation are not SECEs.
- b) Determine and document the required performance of SECEs in accordance with the guidance in the **Verification Guidance** and the assessment outlined in section 3.6.
- c) The inspection and maintenance processes that assure the operator or owner that SECEs are meeting their performance standards.
- d) A summary of the Verification Scheme in accordance with the requirements in section 6.

3.8 Safety and Environmental Management System

Point (10) information, regarding the operator's safety and environmental management system, that is relevant to the production installation

22. The CMAPP must be included in the RoMH. Section 9 defines the minimum requirements for the content of the CMAPP (Article 11(1)a of the Law).
23. Describe the operator's Safety and Environmental Management System (SEMS). Section 10 defines requirements for the description of the SEMS required in a RoMH.

3.9 Emergency Response

Point (11) an internal emergency response plan or an adequate description thereof

Point (15) in respect of operations to be conducted from the installation, any information relating to the prevention of major accidents resulting in significant or serious damage to the environment relevant to other requirements under this Directive, obtained pursuant to Directive 2011/92/EU;

Point (16) an assessment of the identified potential environmental effects resulting from the loss of containment of pollutants arising from a major accident, and a description of the technical and non-technical measures envisaged to prevent, reduce or offset them, including monitoring.

24. The requirements for describing the emergency response arrangements for both safety and environmental consequences are given in section 11.

3.10 Combined Operations

Point (13) any other relevant details, for example where two or more installations operate in combination in a way which affects the major hazard potential of either or all installations;

The RoMH for an installation must include a description of the arrangements in place should any combined operations between the Production Installation and a non-production installation be planned. This information is complementary to a Combined Operations Notification that must be submitted for each combined operation.

3.10.1 Arrangements for Combined Operations

25. The RoMH must address:

- a) Arrangements for interfaces with an adjacent installation, including walkways; electrical and / or hydraulic power; communications facilities; alarm signals; firewater connections and other safety-critical element interfaces as appropriate;
- b) The maximum number of persons who may be on the Production Installation during combined operations;
- c) Provisions for any additional persons on the production installation especially as required in an emergency;
- d) Additional or altered arrangements to protect persons from the effects of major accidents during combined operations and changes in the means for evacuation.

3.10.2 ALARP Demonstration

26. Demonstrate that the infrastructure provided for combined operations is sufficient to reduce the risks to ALARP insofar that the operator can reasonably anticipate the nature of combined operations. Requirements for demonstrating ALARP are included in the **ALARP Guidance** and section 3.6 and should include:

- a) The major accident hazards that may arise from the operation of two installations in close proximity (for example moving a non-production installation alongside the Production Installation);
- b) The potential that a major accident hazard on one installation may affect the safety of people on the other;
- c) The major accident hazards arising as a direct result of the combined operations activities and which are not present during stand-alone operations (for example simultaneous drilling and production); and
- d) The effect of the personnel distribution during combined operations on the risks from major accident hazards.

3.10.3 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification

27. State how the SECEs and their performance standards may change for combined operations and how this process would be managed.

3.10.4 Safety and Environmental Management System Interfacing

28. Describe the process that would be used to determine how the management systems would interface during combined operations, which should be through a bridging document per the requirements in section 8.

29. Document the process to identify and implement any additional controls required to conduct normal operations safely during combined operations, including restriction or suspension of those operations during combined operations.

3.11 Workforce Consultation

Point (3) a summary of any worker involvement in the preparation of the report on major hazards

30. Describe how workforce consultation and involvement has been achieved such that members of the workforce have the opportunity to contribute to the RoMH and are able to arrive at informed opinions about the management of hazards to which they may be exposed to on the installation.

4 NON-PRODUCTION INSTALLATION ROMH

4.1 Timing

The non-production RoMH is generic in that it covers any intended well operation. Any operation excluded from the non-production RoMH cannot go ahead without a material change and concomitant resubmission of the RoMH. An approved RoMH is required before the non-production installation carries out a well operation, or enters the 500m zone of a production installation to carry out a combined operation.

4.2 General

Sections 4.3 to 4.10 provide the structure and requirements for a Non-Production Installation RoMH. Reference is made to the Annex 1(3) requirements in N.4409/2016.

1. The RoMH will show how its structure aligns with this guidance.

4.3 Contact Details

Point (1)	the name and address of the owner;
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2. The name and address of the owner of the non-production installation.

4.4 Installation Description

Point (3)	a description of the installation and, in the case of a mobile installation, a description of its means of transfer between locations, and its stationing system;
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Point (10)	a description of any environmental, meteorological and seabed limitations on safe operations, and the arrangements for identifying risks from seabed and marine hazards such as pipelines and the moorings of adjacent installations;
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Point (4)	a description of the types of operations with major hazard potential that the installation is capable of performing, and the maximum number of persons that can be on the installation at any time;
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Point (6)	a description of the plant and arrangements to ensure well control, process safety, containment of hazardous substances, prevention of fire and explosion, protection of the workers from hazardous substances, and protection of the environment from a major accident;
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Point (7)	a description of the arrangements to protect persons on the installation from major hazards, and to ensure their safe escape, evacuation and rescue, and arrangements for the maintenance of control systems to prevent damage to the installation and the environment in the event that all personnel are evacuated;
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4.4.1 Non-Production Installation Description

3. The RoMH will describe the:
 - a) Non-production installation type and where and when it was built;
 - b) A description, or drawings of the layout of the installation's plant and SECEs;
 - c) Utility systems that are needed to support operation of the non-production installation;
 - d) Personnel welfare (accommodation, medical, etc.);

- e) In the case of a mobile installation, a description of its means of being positioned on location, and its stationing system;
- f) For a jack-up, the operational limits for the support structure (load limits of jacket or legs), and the seabed requirements;
- g) Environmental, meteorological and seabed limitations on safe operations; and
- h) The maximum number of persons that can be on the non-production installation at any time and their typical location on the installation.

4.4.2 Hazardous Substances

4. For hazardous substances with the potential to cause a major accident describe:
 - a) The behaviour of the hazardous substances during major accidents, including those that could be formed from chemical changes during a major accident (e.g. combustion); and
 - b) Physical, chemical, toxicological characteristics and indication of the hazards to people, both immediate and delayed.

If the hazardous substances vary according to the well worked on, maximum values should be given.

5. Drawings to show the:
 - a) Locations of the hazardous substances; and
 - b) Segregation and barriers employed to separate hazards from safe areas.
6. The hazardous substances within the well should not be described as this will vary from well to well. However, some operations may mean that well fluids are seen at the surface, for example, during a well test. Demonstrate that the equipment on the installation (including the provision for temporary equipment) is appropriate for the maximum inventory described with respect to pressure, composition etc.

4.4.3 Well Operations

7. The requirements are the same as section 3.5.7. Well operations that the non-production installation can carry out should be described in a manner such that they are independent of a particular well, though any pre-conditions for safe operations should be stated. The means of well control / pressure control must be described for the types of well operations that can be performed.

4.4.4 Support Operations

8. Describe all support operations during normal operational activities, and all activities that may have an impact on the safety of persons, especially those that have the potential to cause a major accident including at least:
 - a) Personnel transportation (helicopter, marine access, onshore vehicle control);
 - b) Logistics (supply boats, offloading, laydown, loading) with the potential for impact or dropped objects;
 - c) Any diving operations associated with the installation;
 - d) Marine operations that may safely be performed including the means of ensuring that marine and other operations, do not conflict in an unsafe manner;

4.4.5 Minimum Manning

9. State the minimum number of persons required to operate the installation safely for the range of operations which can be undertaken, per Sections 4.4.3 and 4.4.4.

4.5 ALARP Demonstration

Point (5)	demonstration that all the major hazards have been identified, their likelihood and consequences assessed, including any environmental, meteorological and seabed limitations on safe operations and that their control measures including associated safety and environmental critical elements are suitable so as to reduce the risk of a major accident to an acceptable level; this demonstration shall include an assessment of any oil spill response effectiveness;
Point (9)	demonstration that all the major hazards have been identified for all operations the installation is capable of performing, and that the risk of a major accident is reduced to an acceptable level;
Point (16)	an assessment of the identified potential environmental effects resulting from the loss of containment of pollutants arising from a major accident, and a description of the technical and non-technical measures envisaged to prevent, reduce or offset them, including monitoring.

10. Include an ALARP demonstration that follows the process described in the **ALARP Guidance**, in summary:

- a) Identification of major hazards;
- b) Identification of risk reduction measures. The demonstration that the risk reduction measures will reduce risks to ALARP should reference how the performance requirements for SECEs have been determined, as described in Section 4.6;
- c) Demonstrate compliance with Good Practice, including how inherent safety has been implemented; and
- d) Include a QRA to determine the total risk, compare it against tolerability criteria and identify what drives that risk so that the hazards can be managed. The QRA should demonstrate that the likelihood and the consequences of each major accident hazard have been assessed in a systematic manner. The methodology and the results of the QRA will be documented in the RoMH and should include:
 - i. Methods and assumptions used;
 - ii. Failure rate data used; and
 - iii. Justification for data in terms of:
 - (1) Site-specific circumstances;
 - (2) Processes and methods used to assess the consequences of each event; and
 - (3) Sensitivity of the conclusions to the assumptions made and the inherent uncertainty in the data inputs and the modelling used.

11. The ALARP demonstration for a Non-Production installation should take account of the following points:
- a) A non-production installation may be used at many different locations. The Non-production RoMH should therefore identify the range of potential hazards it may encounter in its intended use and define the conditions that will apply to ensure its safe use;
 - b) The specific hazards for a specific well do not need to be described in a Non-production RoMH. However, the hazards presented by the range of well operations for which the installation is suitable will be identified and a demonstration made that the risks are ALARP; and
 - c) The ALARP assessment should include the arrangements for identifying risks from seabed and marine hazards such as pipelines and the moorings of adjacent installations.
12. The assessment of oil spill response effectiveness should be addressed as part of the internal emergency response plan (see 4.8 and 11).

4.6 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification

- Point (8) relevant codes, standards and guidance used in the construction and commissioning of the installation;
- Point (13) a description of the independent verification scheme;

In addition, reference is made to the requirement placed on owners in Annex 4 of N.4409/2016.

- Point (a) pay particular attention to evaluation of the reliability and integrity requirements of all safety and environmental critical systems and base their inspection and maintenance systems on achieving the required level of safety and environmental integrity;

13. Provide details of the risk reduction measures that have been implemented to prevent, control and mitigate major accidents based on the assessment outlined in section 4.5. Identification of SECEs is mandatory per the requirements of N.4409/2016 outlined in section 4.5. The preferred approach to presenting information about the required performance of SECEs, which is also consistent with the typical requirements of a verification scheme (see the **Verification Guidance**), is through the development of performance standards. Therefore, the RoMH must include a description of the following process (or a process that meets equivalent aims):
- a) Identify safety and environmental critical elements, including describing how SECEs have been identified, listing them and describing their hazard management role. This must include SECEs that are deemed necessary based on the assessments performed in accordance with Directive 2011/92/EU.
 - b) Determine and document the required performance of SECEs in accordance with the guidance in the **Verification Guidance** and the assessment outlined in section 4.5.
 - c) The inspection and maintenance processes that assure owner that SECEs are meeting their performance standards.
 - d) A summary of the Verification Scheme in accordance with the requirements in section 6. The RoMH must state that a process that meets the same aims as design and construction verification has been completed (as detailed in Section 5.3 of the **Verification Guidance**) and summarise the work done.

4.7 Safety and Environmental Management System

Point (11) information, regarding the safety and environmental management system, that is relevant to the non-production installation;

14. The CMAPP must be included in the RoMH. Section 9 defines the requirements for the content of a CMAPP (Article 11(1)a of the Law).

15. Describe the owner's Safety and Environmental Management System (SEMS). Section 10 defines requirements for the description of the SEMS required in a RoMH.

4.8 Emergency Response

Point (12) an internal emergency response plan or an adequate description thereof;

Point (15) in respect of operations to be conducted from the installation, any information obtained pursuant to Directive 2011/92/EU relating to the prevention of major accidents resulting in significant or serious damage to the environment relevant to other requirements under this present law;

16. The requirements for this section of the RoMH are described in section 11 insofar as they are generic for different well locations. Note that any associated Notification of Well Operations must include emergency response measures that are specific to the well being worked on. Consideration of the possibility of a MEI need not include the hazard of the well itself as this varies from well to well and is covered in the Notification of Well Operations.

4.9 Combined Operations

Point (14) any other relevant details, for example where two or more installations operate in combination in a way which affects the major hazard potential of either or all installations;

The RoMH for a non-production installation must include a description of the arrangements in place should any combined operations between the non-production installation and a production installation be planned. This information is complementary to a Notification of Combined Operations that must be submitted for each combined operation as per the requirements in section 8. The issues to be considered in the non-production installation RoMH are described in this section. Any information included in other parts of the RoMH need not be repeated.

4.9.1 Infrastructure for Combined Operations

17. The RoMH should include:

- a) The seabed and environmental limitations for stationing the non-production installation alongside a Production Installation. It should also state any weather limitations for combined operations that may require the non-production installation to move-off;
- b) Arrangements for interfaces with an adjacent installation, including walkways; electrical and / or hydraulic power; communications facilities; alarm signals; firewater connections and other safety-critical element interfaces as appropriate; and
- c) Provisions for any additional persons, especially as required in an emergency;
- d) Additional or altered arrangements to protect persons from the effects of major accidents during combined operations and changes in the provision of means for evacuation.

4.9.2 ALARP Demonstration for Combined Operations

18. Demonstrate that the infrastructure for generic combined operations is sufficient to reduce the risks to ALARP insofar that the owner can reasonably anticipate the nature of combined operations. Requirements for demonstrating ALARP are included in the **ALARP Guidance** and section 4.5 and should include:

- a) the generic major accident hazards that may arise from the operation of two installations in close proximity (for example moving the non-production installation alongside a production installation);
- b) the potential that a (stand-alone) major accident hazard on one installation may affect the safety of people on the other;
- c) the major accident hazards arising as a direct result of the combined operations activities and which are not present during stand-alone operations (for example simultaneous drilling and production); and
- d) the effect of the personnel distribution during combined operations on the risks from major accident hazards.

4.9.3 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification for Combined Operations

19. State how the SECEs and their performance standards may change for combined operations and how this process would be managed.

4.9.4 Safety and Environmental Management System Interfacing

20. Describe how the owner will ensure the management system interfaces during combined operations, which should be through a bridging document as per the requirements in section 8.7.
21. Document the process to identify and implement any additional controls required to conduct normal operations safely during combined operations, including restriction or suspension of those operations during combined operations.

4.10 Workforce Consultation

Point (2) a summary of any worker involvement in the preparation of the report on major hazards;

22. Describe how workforce consultation and involvement has been achieved such that members of the workforce have the opportunity to contribute to the RoMH and are able to arrive at informed opinions about the management of hazards to which they may be exposed on the installation.

5 NOTIFICATION OF WELL OPERATIONS

5.1 Timing

HHRM will require time to review the revised well notification as defined in Table 1 and the well operation cannot continue until this timescale is over and no objection is received from HHRM, or an earlier indication of “no comment” is given by HHRM.

5.1.1 Envelope of Operations

Where there is potential for variation in the well operation and/or well design that cannot be known with certainty prior to commencing the well operation (e.g. for drilling of a new well), a Notification of Well Operations must cover an envelope of well operations and well design that can be completed safely covering the relevant parameters below. Careful and thorough planning and design through both scenario and contingency planning should be used to establish acceptable operating envelopes for critical design features and these should be described in the Notification of Well Operations. Examples of the parameters that define the envelope are given below:

- Surface (well spud) location: to allow avoidance of boulders, local topography, shallow gas, etc);
- Target location: to allow for movement of the well target location during drilling;
- Pore or fracture pressure gradients and how these were estimated: to allow for planning of mud weight etc;
- Reservoir fluid composition: the operator should consider the possibility of encountering all fluid phases in the well design;
- Well trajectory: tolerable limits to the proposed well path (in the context of the geology and pore/overburden pressure regime anticipated); and
- Casing scheme: changes to the casing scheme in a well (i.e. casing sizes, shoe depths, cementing, etc), the need for additional casing strings (contingent strings), variation in the setting depth of casing shoes, data on burst/collapse pressureetc.

A change that is beyond the envelope, and hence is a change to the basis of a notification, is a material change (see also Section 7.1.3).

During a well operation, information and experience are gained about the geology, drilling conditions, etc. It is therefore possible that the operator decides to change their well design and / or well operation. When operators make such decisions, they need to assess if the change is material and hence it is advantageous to include an envelope of well operations so long as it can be shown that any operation within the envelope can be completed within the *limitation of safe operations*.

5.1.2 Well Operation Definition

A well operation is *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* including:

- Well interventions and workovers;
- Coiled tubing operations; and
- Plugging, blocking, capping, or abandonment of any well.

Examples of operations that are not well operations include, but are not limited to:

- Production or re-injection through an existing completion; and
- Formation stimulation operations where the pressure containment boundary is not altered (e.g. acidizing or chemical injection by bullheading).

In implementing the Law, HHRM treats non-production installations undertaking test and appraisal works as follows:

- Testing and appraisal of a well(s) for less than 30 days on a non-production installation may be undertaken in accordance with the requirements for non-production installations.
- Testing and appraisal of a well(s) for more than 30 days on a non-production installation may be undertaken only in accordance with the requirements for production installations.

In exceptional cases testing and appraisal of a well(s) for more than 30 days up to a maximum of 90 days, on a non-production installation may be undertaken in accordance with the requirements for non-production installations with the pre-approval of HHRM.

The testing and appraisal duration should be determined prior to the operation taking place and the appropriate information in the RoMH and notifications submitted.

5.1.3 Multiple Well Operations

For well operations on multiple wells in the same field and/or repeat operations on a well, HHRM may accept a single well operations notification describing all the well operations, on prior representation and then agreement with the operator. To allow this, the operation on each of the wells and the wells themselves would have to be substantially similar and low risk. Low risk operations may include wireline operations of:

- bailing;
- change-out of wireline set surface controlled subsurface safety valve (SCSSSV);
- change-out of wireline electrical submersible pump (ESP) or hydraulic submersible pump (HSP);
- change-out of gas-lift valve;
- logging;
- functioning sliding sleeve;
- perforating reservoir into a zone that has already been perforated;
- setting or recovering plug for water shut-off or zone isolation;
- setting or recovering tubing plug (including for zonal isolation);
- setting or recovering pressure gauges;
- run tubing plug, punch/perforate tubing, circulate kill fluid;
- calliper operations;
- fishing (for lost / stuck tool strings – not for fishing wire);
- set & recover plugs to enable like-for-like tree / tree component change out; and
- tractor-conveyed milling.

Coiled tubing operations other than coil tubing pumping operations (such as clean-out or acid stimulation etc) are not classed as low risk.

The operator should make such a case to the HHRM in advance of their first well operation notification by at least 3 months.

5.1.4 Requirements immediately before and During the Well Operation

The final well report should be submitted to HHRM for information before the well operation commences. Weekly well reports are then required with the contents as stated in HHRM's **Organisation, Policy and Strategy**.

5.2 General

Sections 5.3 to 5.8 detail the requirements for a Notification of Well Operations. Reference is made to the Annex 1(4) requirements in N.4409/2016.

1. The Notification of Well Operations will show how its structure aligns with these Requirements.

5.3 Contact Details

Point (1)	the name and address of the operator of the well;
Point (2)	the name of the installation to be used and the name and address of the owner or, in the case of a production installation, the contractor undertaking drilling activities;

2. The Notification of Well Operations will detail:
 - a) The licence to which the notification refers;
 - b) The name and address of the operator that is submitting the Notification of Well Operations; and
 - c) the name of the installation to be used and the name and address of the owner or, in the case of a production installation, the contractor undertaking drilling activities.

5.4 Description of Well Operation

The description of the well operation required below should cover an envelope of operations as outlined in Section 5.1.1.

5.4.1 Well Operations

Point (4)	information on the well work programme, including the period of its operation, details and verification of barriers against loss of well control (equipment, drilling fluids and cement etc.), directional control of the well path, and limitations on safe operations in keeping with the risk management;
Point (8)	a description of the well configuration at the end of operations – i.e. permanently or temporarily abandoned; and whether production equipment has been placed into the well for future use;

3. The well operation that is being carried on must be described including a clear description of the well before and after the activity has been completed. A summary of the well work programme is required including:
 - a) The timetable of the well operations;
 - b) Directional control of the well path including the directional survey programme for each hole section and the risk of intersection, identifying all wells at risk of intersection and the steps to be taken to reduce the risk;
 - c) The sequence of operations, including details of the safety-related steps, such as:
 - i. casing/tubing pressure tests;
 - ii. formation integrity tests;

- iii. details of cementing/cement tops;
 - iv. blowout preventer function and pressure tests including list of BOP components, configuration, manufacturer, RWP; and
 - v. barrier inflow and pressure tests.
- d) Details of well control specific to this operation including:
- i. Demonstration that the BOP is suitably dressed for the planned well operations;
 - ii. The adequacy of the BOP to shear all planned tubulars that will be run into the well;
 - iii. The drilling fluids (including type and density) that are used for drilling each hole section for production testing, completion and workover operations; and
 - iv. Details of packer fluids where appropriate.
- e) The description of the well condition at the end of the operations i.e.
- i. 'completed – operating';
 - ii. 'completed – shut in';
 - iii. 'completed – operations suspended';
 - iv. 'operations suspended'; or
 - v. 'well abandoned'.
- f) Subsurface conditions which may limit continued safe operations and contingency plans for such occurrences covering, but not limited to, the following:
- i. Presence of shallow gas;
 - ii. Adverse down-hole temperature;
 - iii. Abnormal pore pressure;
 - iv. Drilling fluid loss zones;
 - v. Low kick tolerance windows; and
 - vi. Concentrations of hazardous substances, such as hydrogen sulphide, in well fluids.
- g) Unusually hazardous activities during a well operation and the associated hazards (which can be described by referring to the information and the demonstrations in any relevant installation RoMH), for example:
- i. Production testing high-pressure wells with an un-weighted packer fluid;
 - ii. Use of long perforating assemblies;
 - iii. Well testing with high flow rates; and
 - iv. Extending the scope of simultaneous operations.

5.4.2 Reservoir and Well Description

Point (3) details that identify the well and any association with installations and connected infrastructure;

Point (5) in the case of an existing well, information regarding its history and condition;

4. For the drilling of a well, the following information should be provided:
- a) Well identification and top hole location (either specific point or defined area);
 - b) Well trajectory data including a diagram of the directional path including a plot with vertical section and horizontal plan (not required for wells planned as vertical);

- c) Terminal depth and location (critical depths as measured along the hole and vertically);
 - d) Depth reference data such as rotary table elevation;
 - e) Position, and that of nearby wells, relative to each other (in the form of a map showing the surface location and the entire lateral position of the well and of all other wells in the vicinity with their identification);
 - f) Particulars of the geological strata and formations through which the well will pass, including fluids within them and any hazards with the potential to cause a major accident which they may contain (for a geological column from surface to total depth):
 - i. Measured and vertical depths of critical strata;
 - ii. Estimated formation pressures of all permeable and porous formations;
 - iii. Estimated fracture pressures at intended casing points;
 - iv. Particulars of fluids including: prognoses of fluid types; fluid gradient; presence of reservoir gas caps; presence and concentration of toxic fluid components; and potential producing formation(s) and a prognosis of the temperature in these zones and at the well total depth.
 - v. The description and management of geological hazards including seismic anomalies related to shallow gas; squeezing salts; major loss zones; overpressures and unusual geological uncertainty.
 - g) Description of the design of the well, including the limits on its safe operation and use:
 - i. For each hole section, the design hole size(s), the size and specification of the casing string to be run with design setting depth, hanger depth (if applicable) and design kick tolerance;
 - ii. The formations in which the casing should be set if this is critical to the design;
 - iii. Critical specification details if the pipe or coupling codes are not American Petroleum Institute (API) specified;
 - iv. Well-head design specifications, details of the casing cementing design, and principles of the design of temporary plugging or decommissioning barriers, if carried out in conjunction with the drilling activities;
 - v. For the design of the well test completion: the hanging-off arrangements; the string configuration; all safety devices incorporated; the perforating system and the packer fluid;
 - vi. For a development well, a description of the completion design; and
 - vii. limits on safe operation and use that are dictated by: the pressure, flow rate, temperature and metallurgical limitations (arising from the chemical composition of well bore fluids) of the well design, the flow testing or production completion equipment design, the proposed well control equipment.
5. For a well operation on an existing well, the following information should be provided:
- a) Casing diagram and completion/suspension diagram;
 - b) Summary of earlier operations, with the dates and brief details of previous notifiable operations;
 - c) Current and all previous uses of the well;
 - d) Current operational state:
 - i. 'Completed – operating' (i.e. on production, or injection)
 - ii. 'Completed – shut in', or
 - iii. 'Plugged';

- e) State of repair, including details of any known or suspected safety-related failure or defect in the well and potential environmental consequences (e.g. valve failures, leaks, wear, corrosion and unintended plugging or pressure communication);
- f) Physical conditions within the well:
 - i. Physical details of barriers and fluids in the well and the actual or estimated shut-in pressures and temperatures;
 - ii. Conditions to be highlighted are those which will prevent installing or employing well control equipment according to accepted standards, such as those described in industry guidelines or any relevant RoMH;
 - iii. Details of hazardous substances, for example hydrogen sulphide; and
- g) Estimate of the maximum flow potential from the well.

5.4.3 Suspension and Abandonment

- 6. If any arrangements for suspension or abandonment are affected by the well operations, they need to be described including a summary of the proposed method for well plugging by cement, and not solely mechanical means. The Notification of Well Operations should demonstrate that the well can be plugged in a safe manner and in such a way to ensure that there can be no unplanned escape of fluids from the well.

5.4.4 Additional Equipment

The installation description is contained in the RoMH for the production or non-production installation which is performing the well operations. It is not necessary to repeat the information in the Notification of Well Operations. However, the information below is required, where relevant.

Point (6) any details concerning safety equipment to be deployed that are not described in the current report on major hazards for the installation;

- 7. Describe any equipment not included in the relevant production or non-production RoMH that is required for the well operation, including:
 - a) A summary of the arrangements made by the operator which ensure that the use of the equipment provided secures the safety of the well operation. As relevant, this should cover the integration of the different equipment, the operating procedures, the competence of the crew to execute the procedures safely and independent verification.
 - b) Location of other installation and pipelines that may have a bearing on hazards or their management (and diagrams where relevant);

Note that the addition of equipment could constitute a material change (see section 7) unless it has little impact on the major accident hazard risks and/or is included in a combined operations notification.

5.4.5 Suitability of the Installation carrying out the Well Operation

Point (10) where a well is to be constructed, modified or maintained by means of a non-production installation, additional information as follows:

- (a) a description of any environmental, meteorological and seabed limitations on safe operations, and arrangements for identifying risks from seabed and marine hazards such as pipelines and the moorings of adjacent installations;

8. Where the well operations will be conducted by a non-production installation, describe the location specific conditions to which the infrastructure involved in the well operations is exposed and demonstrate that these are within its capability (as relevant):
 - a) Maximum wind conditions;
 - b) Extreme temperature conditions (sea and air);
 - c) Extreme water current and wave conditions;
 - d) Water depth;
 - e) Sea bed conditions relevant to jacket and anchoring requirements;
 - f) Relevant seismic information for the locality; and
 - g) Environmental factors relevant to identified MEIs.

5.5 ALARP Demonstration

Point (7)	a risk assessment incorporating a description of:
(a)	the particular hazards associated with the well operation including any environmental, meteorological and seabed limitations on safe operations;
(b)	the subsurface hazards;
(c)	any surface or subsea operations which introduce simultaneous major hazard potential;
(d)	suitable control measures;

9. The ALARP demonstration in respect of the well operations should be carried out in line with the **ALARP Guidance** and must incorporate a description of:
 - a) the risks associated with seabed and marine hazards such as pipelines;
 - b) the subsurface hazards; and
 - c) any surface or subsea operations that introduce new, combined, or simultaneous major hazards.

5.6 SECEs, Performance Standards, Assurance and Verification

Point (12)	the information relevant to this present law obtained pursuant to the major accident prevention requirements of Presidential Decree 177/1997 (Greek Government Gazette A' 150);
Point (11)	a report with findings of the independent well examination, including a statement by the operator of the well that, after considering the report and findings of independent well examination by the independent verifier, the risk management relating to well design and its barriers to loss of control are suitable for all anticipated conditions and circumstances;

10. For any new equipment (see Section 5.4.4) that has a function to reduce the risk of a of a MAH, include a description of the following process (or a process that meets equivalent aims):
 - a) Identify SECEs, including describing how they have been identified, listing them and describing their hazard management role. This must include SECEs that are deemed necessary based on the assessments performed in accordance with Directive 92/91/EEC.
 - b) Determine and document the required performance of SECEs and how well integrity is managed in accordance with the **Verification Guidance** and the assessment outlined in section 5.5.
 - c) The inspection and maintenance processes that assure operators that SECEs are meeting their performance standards and well integrity is maintained.

- d) A summary of the Verification Scheme in accordance with the requirements in section 6.
- 11. A report with findings of the independent well examination.
- 12. A statement by the operator of the well that, after considering the report and findings of independent verification of the well operation by the IVB, the risk management relating to well design and its barriers to loss of control are suitable for all anticipated conditions and circumstances.

5.7 Safety and Environmental Management System

Point (10) where a well is to be constructed, modified or maintained by means of a non-production installation, additional information as follows:

- (d) a description of how the management systems of the operator of the well and the owner are to be coordinated to ensure effective control of major hazards at all times;

- 13. The SEMS for the well operation must be described in accordance with section 10 as it pertains to how the management systems of the operator of the well and the owner of the non-production installation, or operator of the production installation are to be coordinated to ensure effective control of major hazards at all times.
- 14. It must describe the role of each party during all stages of the well operations programme and identify the boundaries between the processes and procedures of the operator and owner.
- 15. The corporate major accident prevention policy of an operator of a well, where not previously submitted [Article 11(2) of the Law].

5.8 Emergency Response

Point (10) where a well is to be constructed, modified or maintained by means of a non-production installation, additional information as follows:

- (b) a description of environmental conditions that have been taken into account within the internal emergency response plan for the installation;
- (c) a description of emergency response arrangements including arrangements for responding in cases of environmental incidents that are not described in the report on major hazards;

Point (13) in respect of the well operations to be conducted, any information relevant to other requirements under this present law obtained pursuant to Directive 2011/92/EU relating to the prevention of major accidents resulting in significant or serious damage to the environment.

5.8.1 Safety

- 16. If the well operation is being carried out from a Non-production Installation, a description is needed of how the onshore arrangements dovetail with the emergency response described in the Non-production RoMH and should include:
 - a) Helicopter locations and evacuation timings;
 - b) Stand-by vessel arrangements; and
 - c) Onshore emergency response co-ordination.

Note that if the well operation is being carried out from a Production Installation, no further information on emergency response in relation to safety is required.

5.8.2 Environmental

17. Requirements for describing the environmental emergency response arrangements are given in section 11. The Notification of Well Operations must provide a demonstration of the suitability of the Non-Production Installation's internal emergency response plan for MEIs from the well operation (as the non-production installation itself may not in itself have any MEIs i.e. just having a diesel inventory). As per Article 14(2), the internal emergency response plan for the installation shall take into account the risk assessment undertaken during the preparation of the well operations notification. Where the internal emergency response plan has to be amended due to the particular nature or location of the well, the notification must include the amended internal emergency response plan, or an adequate description thereof.
18. Reference can be made to the Production, or Non-production RoMH as required, though the information must be relevant to the well operation that is being carried out. Repetition of information provided in relation to generic drilling emergency response information in the production, or Non-production RoMH is not required, though evidence needs to be provided that all MEIs are covered and that any bridging issues are managed.

5.9 Modification to Notification of Well Operations

Point (9) in the case of a modification to a previously submitted notification of well operations, sufficient details to fully update the notification;

19. In the case of a modification to a previously submitted Notification of Well Operations, sufficient details must be provided to fully update the notification, per the requirements of the preceding sections. See 7.1.3 in relation to Material Changes.

6 VERIFICATION SCHEME

The following describes the information required to be submitted to the Competent Authority in relation to the scheme of independent verification, per the requirements of N.4409/2016 Article 11(1). This information must be included in the RoMH for a production or non-production installation, per the requirements of N.4409/2016 Article 11(2). Reference is made to the Annex 1(5) requirements in N.4409/2016.

Point (a)	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;
Point (b)	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;

1. A statement by the operator or owner, made after considering the report of the independent verifier, that the record of SECEs and their scheme of maintenance as specified in the report on major hazards are or will be suitable. The verification should be carried out according to the **Verification Guidance**.
2. The choice of IVB must be approved by HHRM, per the requirements outlined in the **Verification Guidance**. Therefore, it is sufficient to provide a brief description of the information submitted in accordance and a statement that the IVB has been approved by HHRM.
3. The approach by which the required performance of the SECEs is documented such that it can be verified by the IVB must be described. It is expected that this will be through the development of performance standards. Guidance on the development and content of performance standards is given in the **Verification Guidance**.
4. The description of the verification scheme must explain how the IVB verifies that the SECEs are:
 - a) Designed and constructed in accordance with appropriate codes and standards; and
 - b) Subject to suitable and sufficient maintenance activities to ensure that they continue to meet their performance standards.

Point (c)	a description of the means of verification referred to in point (b) that shall include 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;
(ii)	verification of the design, standard, certification or other system of conformity of the safety and environmental critical elements;
(iii)	examination of work in progress;
(iv)	the reporting of any instances of non-compliance;
(v)	remedial actions taken by the operator or owner.

5. The description of the verification scheme must include the types of activities that are conducted by the IVB, which will vary depending on the project phase:
 - a) Design: Review of design documents used to justify criteria in performance standards;

- b) Construction:
 - i. Document review (e.g. testing records, technical deviations, close-out packs, etc.)
 - ii. Witnessing (e.g. commissioning tests to demonstrate that performance standards are met)
 - c) Operation:
 - i. Witnessing of tests;
 - ii. Visual examination;
 - iii. Review of maintenance and inspection records; and
 - iv. Review of procedures used in the management of SECEs, such as deviations and dispensations.
6. A description of the process used to determine the sample size and frequency of verification activities must be provided.
 7. The process for recording and responding to anomalies must be described (an anomaly is a failure identified by the IVB of either the operator's or owner's system for maintaining well integrity, or the performance of an SECE, or the associated assurance processes, or the Verification Scheme itself, at any point of the lifecycle).
 8. The process for review of the verification scheme must be described such that it remains suitable throughout the life of the installation.

7 MATERIAL CHANGE TO AN INSTALLATION (INCLUDING DECOMMISSIONING)

7.1 Timing and Definition

Where a material change is made to an installation, including where an installation is to be relocated or dismantled, an updated RoMH for the installation must be resubmitted to HHRM for approval before the change can be made.

This section provides the requirements for updating the RoMH for a material change. Reference is made to the Annex 1(6) requirements in N.4409/2016.

7.1.1 Design and Relocation Notifications

If a design deviates materially from the submitted Design Notification, the operator must resubmit the Design Notification (see Article 11(6) of the Law). This also applies to a relocation notification.

7.1.2 Production RoMH

Article 11(1)(f) requires an amended RoMH *“in the event of a material change ... of an installation”*, where a material change for a production installation is defined as *“a change to the basis on which the original report was accepted including, inter alia, physical modifications, availability of new knowledge or new technology and operational management changes”* in Article 2(30)(a). Dismantling (including decommissioning) is treated as a material change with an updated RoMH.

A material change must not be implemented until the updated RoMH has been accepted, or notification submitted within the defined timescale.

It is the responsibility of the operator to form a judgment as to whether a proposed alteration to an activity that is the subject of an accepted RoMH is material or not. Changes that are material for a Production RoMH include, but are not limited to:

- The maximum number of stated persons on board increases;
- The minimum number of persons required for the activity decreases;
- A new jacket is added to an installation;
- A new hydrocarbon riser enters or exits an installation;
- The operating pressure of a pipeline exceeds the pressure originally notified;
- A different hazardous fluid is transported by a pipeline;
- A new major hazard is introduced or has been identified;
- A new SECE is required or one is removed;
- A new or altered well on an existing installation that enters a previously unexploited reservoir;
- There is a change in well use, e.g. the change of status between producing and water injection;
- Changes to well or formation connection by fracture stimulation;
- Changes in material specification for well components; and
- There is a change to the method of hydrocarbon lift.

The operator of a production installation needs to update and submit the amended RoMH (including its associated SEMS, verification scheme, etc.) to HHRM with sufficient time for them review and accept it before the change occurs.

7.1.3 Combined and Well Operation Notifications

The requirement for a material change for a combined operation, or well operation notification is the same as for a production RoMH except that a change in non-production installation is also defined as a material change. Other examples of material change include:

- A jack-up rig being placed on a different side of the production installation; and
- The inclusion of well testing in the well programme.

As outlined in Section 5.1.1, a well notification should cover an envelope of operations. A material change to a notification should be submitted to HHRM before the material change occurs.

7.1.4 Non-Production Installation

The updating of a RoMH in the event of a material change for a non-production installation is also required under Article 13(4) of the Law.

7.1.5 Multiple Non-Material Changes becoming Material

The total impact of non-material changes must be monitored by the operator or owner so that if a number of non-material changes are proposed and the sum of these is material, the report on major hazards must be resubmitted to HHRM before this occurs. This requirement is to specifically avoid a material change being made in a piecemeal fashion.

7.1.6 Addendum

In certain circumstances, and only with the prior agreement of HHRM, certain material changes may be handled by them being identified and submitted as an addendum to the RoMH. This addendum will be valid for a defined period of time only, and explains the impact of the material change and how the risks are maintained ALARP in this period. The format and guidance for the addendum is the same as for the full RoMH, but with the scope only covering the changes and its impact on the risk of the affected activities and a clear statement of the period for which the addendum is valid.

Such an addendum would be appropriate if the change described in the addendum was temporary in nature such that once the defined period of time for the addendum lapsed, the RoMH remains appropriate to the operations and associated installation.

7.1.7 HHRM Assessment

For a material change, only the changes will be assessed by HHRM. Acceptance of any material change to a RoMH is also dependent on the prior submission of a design notification unless agreed otherwise by HHRM. HHRM will only agree to this if the material change concerns a change for which the associated ALARP demonstration is straightforward, for example, because there are limited options to consider.

7.2 Details of Material Change and Impact

Point (1)	the name and address of the operator or the owner;
Point (2)	a summary of any worker involvement in the preparation of the revised report on major hazards;
Point (3)	sufficient details to fully update the earlier report on major hazards and associated internal emergency response plan for the installation and to demonstrate major hazard risks are reduced to an acceptable level;

1. The relevant sections of the RoMH must be updated to reflect the material change that is proposed and the impact on hazards and the management of those hazards. Where relevant, and with reference to the detailed requirements that are presented in section 3 and 4, this must address the following aspects:
 - a) The installation description
 - b) The ALARP demonstration
 - c) The SECEs, performance standards and verification scheme
 - d) The safety and environmental management system
 - e) The emergency response arrangements
 - f) Arrangements for combined operations
 - g) Workforce consultation

7.3 Decommissioning / Dismantling

Point (4)	in the case of taking a fixed production installation out of use:
(a)	means of isolating all hazardous substances and in the case of wells connected to the installation, the permanent sealing of the wells from the installation and the environment;
(b)	a description of major hazard risks associated with the decommissioning of the installation to workers and the environment, the total exposed population, and the risk control measures;
(c)	emergency response arrangements to secure safe evacuation and rescue of personnel and to maintain control systems for preventing a major accident to the environment.

2. Give the maximum number of persons expected to be on the installation at any time during its dismantling. Where this is greater than the figure in the existing RoMH, the update should demonstrate that the emergency response arrangements remain adequate, or describe the alternative arrangements that are required.
3. Demonstrate that the risks associated with decommissioning activities have been assessed and are ALARP. In particular, the RoMH should demonstrate that safe methods of isolating and containing hydrocarbons, at various stages of the project, have been determined.
4. Consideration must also be given to the impact on emergency response arrangements as the decommissioning progresses. Adequate arrangements should be put in place to update them accordingly. Among other things consideration may have to be given to the following:
 - a) dispersal of the persons on board throughout the installation;

- b) changes in access to evacuation routes or lifeboats;
 - c) reliance on portable or localised toxic gas detection systems;
 - d) removal of communication systems.
5. Provide information on the arrangements to plug and abandon wells attached to the installation. Since the plugging and abandonment of any well is subject to a well notification, it will be sufficient for the RoMH to include an outline of how the work is to be conducted and the standards that will be followed.
6. Identify all relevant organisations contracted to the operator, or with whom the operator must co-operate in order to secure the safe management of dismantlement. These may include among others, accommodation installations, heavy lift vessel operators and diving support vessels.

8 NOTIFICATION OF COMBINED OPERATIONS

8.1 Timing

A combined operations notification has to be submitted before the non-production installation moves into the 500m safety zone of the production installation according to the timescale in Section 1.4.

8.2 General

Sections 8.3 to 8.7 provide the structure and requirements for a Notification of Combined Operations. Reference is made to the Annex 1(7) requirements in N.4409/2016.

1. The Notification of Combined Operations will show how its structure aligns with these Requirements.
2. The applicable RoMHs for stand-alone operations of the installations involved in the combined operations must be referenced with a description of their purpose and scope.

8.3 Contact Details

Point (1)	the name and address of the operator submitting the notification;
Point (2)	in the event that other operators or owners are involved in the combined operations their names and addresses, including a confirmation that they agree with the contents of the notification;

3. The Notification of Combined Operations will detail:
 - a) The licence to which the notification refers;
 - b) The name and address of the operator that is submitting the notification; and
 - c) The names and addresses of all other operators or owners involved in the combined operations (if any), and confirmation that they agree with the contents of the notification.

8.4 Combined Operations Description

Point (6)	a description of the combined operation and a program of work.
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4. Include a description of the combined operation, including a summary of the activities, schedule and the related installations pursuant to the combined operations. Activities that have the potential for major accidents must be described.
5. Detailed drawings will be provided to show the:
 - a) Location and orientation of engaged installations during combined operations; and
 - b) Location of other installations and pipelines that may have a bearing on the hazards during combined operations or their management.
6. By reference to their respective RoMHs, demonstrate that the non-production installation(s) can be operated safely in the environmental conditions that may be experienced at the production installation.
7. Include:
 - a) A description of any equipment to be used in connection with the combined operation, but which is not described in the current RoMHs for any of the installations involved in the combined operations;

- b) A description and drawings of the layout of the installation's plant that is additional or altered by the combined operations;
- c) A description or drawings of the layout of the installation's SECEs that are additional or altered by the combined operations; and
- d) Any changes to the number of personnel on board and their location on any of the installations.

8.5 ALARP Demonstration

Point (5)	a summary of the risk assessment carried out by all operators and owners involved in the combined operations, which shall include:
(a)	a description of any operation during the combined operation which may involve hazards with the potential to cause a major accident on or in connection with an installation;
(b)	a description of any risk control measures introduced as a result of the risk assessment;

8. Include an ALARP demonstration that follows the process described in the **ALARP Guidance**, in summary:
 - a) Identify new or altered major hazards due to the combined operations that may affect any installation involved in the combined operations;
 - b) Identify additional risk reduction measures for control and mitigation of major accident hazards that are required because of the combined operations;
 - c) Demonstrate compliance with Good Practice; and
 - d) Perform a review of the risks associated with combined operations.

Representatives from all operators/owners should participate in the ALARP demonstration.

8.6 Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification

Point (4)	a description of any equipment to be used in connection with the combined operation but which is not described in the current report on major hazards for any of the installations involved in the combined operations;
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9. Provide details of the additional risk reduction measures, where not described in the current RoMHs for any of the installations involved in the combined operations, that have been implemented to prevent, control and mitigate major accidents based on the assessment outlined in section 8.5. The preferred approach to presenting this information, which is also consistent with the typical requirements of a verification scheme (see **Verification Guidance**), is through the identification of safety critical elements and development of associated performance standards. Therefore, the Notification must list any additional or modified SECEs and describe:
 - a) How these SECEs have been identified and their hazard management role.
 - b) Their required performance in accordance with the guidance in the **Verification Guidance** and the assessment outlined in section 8.5.
 - c) Their inspection and maintenance that provide assurance to the operator or owner that they are meeting their performance standards.
 - d) A summary of the Verification Scheme for them in accordance with the requirements in section 6.

8.7 Safety and Environmental Management System and Emergency Response Interfacing

Point (3) a description, in the form of a bridging document authorised by all parties to the document, of how the management systems for the installations involved in the combined operation will be coordinated so as to reduce the risk of a major accident to an acceptable level;

10. Describe coordination of SEMSs in accordance with section 10 between the operator and owner(s) to ensure effective control of major hazards at all times.
11. Describe the role of each party during all stages of the combined operations and identify the boundaries between the processes and procedures of the operator and each owner.
12. Coordination of emergency response according to section 11 must be covered in the bridging document.

9 CORPORATE MAJOR ACCIDENT PREVENTION POLICY

The following describes the information required to be submitted to the Competent Authority in relation to the Corporate Major Accident Prevention policy (CMAPP). Reference is made to the Annex 1(8) requirements in N.4409/2016.

1. A copy of the CMAPP, signed at appropriate board level, must be included in the RoMH, or in the notification of well operations where not previously submitted to HHRM.

Point (1) the responsibility at corporate board level for ensuring, on a continuous basis, that the corporate major accident prevention policy is suitable, implemented, and operating as intended

2. The CMAPP should summarise the arrangements to ensure its effectiveness is monitored by the management board on an ongoing basis.

Point (2) measures for building and maintaining a strong safety culture with a high likelihood of continuous safe operation;

3. Outline the measures that senior management have in place to build a strong safety culture. This should demonstrate, among other things, effective consultation with the workforce, support for corporate safety initiatives and commitment to the measures outlined in RoMHs and Notifications. It should also outline how strong safety leadership, particularly at a senior level, will support and enhance the organisation's safety culture and focus on continuous safe operation in a major hazard environment. The CMAPP should summarise how these objectives will be achieved.
4. Include a demonstration of commitment to securing cooperation of the workers through the following means;
 - a) visible commitment to tripartite consultations and actions arising therefrom;
 - b) encouraging and rewarding reporting of accidents and near-misses;
 - c) working effectively with elected safety representatives; and
 - d) protecting whistle-blowers.

Point (3) the extent and intensity of process auditing;

5. Outline the various levels of auditing undertaken throughout the organisation. This outline should: include a commitment to audit on a periodic basis; ensure audits are undertaken by competent personnel; establish arrangements to capture audit findings; implement measures to feed back to relevant parties and adopt means to ensure outstanding actions are closed out.

Point (4) measures for rewarding and recognising desired behaviours;

6. Provide a summary of how the management board recognises and rewards desired behaviours throughout the organisation. The summary should make reference to the practical arrangements necessary to ensure these goals are achieved (e.g. through the use of safety initiatives embedded within their SEMS).

Point (5) the evaluation of the company's capabilities and goals;

7. Provide an outline of the arrangements in place to ensure a management board review and re-evaluation of the organisation's capabilities and goals for the management and control of major accident hazards is undertaken to ensure they remain fit for purpose on a periodic basis or where circumstances indicate such a review may be necessary.

Point (6) measures for maintenance of safety and environmental protection standards as a corporate core value;

8. Demonstrate that the role of safety and environmental protection standards in maintaining management and control of major accident hazards is recognised and fully understood by the management board.

Point (7) formal command and control systems that include board members and senior management of the company;

9. Acknowledge the requirement for formal command and control systems to be embedded in the company's management arrangements. In this context 'command and control systems' refers to senior management oversight and control of operations, which may impact on management and control of major accident hazards. Such activities should extend through both routine activities and management of major incidents should they occur.

Point (8) the approach to competency at all levels of the company;

10. Summarise the approach taken by the management board to ensure the competency of personnel throughout the organisation and that of any key contractors whose role may have an impact on the management board's management and control of major accident hazards. Provide a brief outline of how these objectives will be achieved, including links with corporate competency schemes in place or alternative approaches, as appropriate.

Point (9) the extent to which particulars (1)-(8) are applied in the company's offshore oil and gas operations conducted outside the Union.

11. The purpose of the CMAPP is to demonstrate corporate commitment to management and control of major accident hazards. It is recognised that operational practices may vary across different operational sectors and/or location of the business. However, it is expected that the information provided in the CMAPP will be at a sufficiently high level to apply across activities outside the EU.

10 SAFETY AND ENVIRONMENTAL MANAGEMENT SYSTEM

A RoMH must include a description of the operators or owner's safety and environmental management system (SEMS) that incorporates the requirements below. The description of the SEMS should provide evidence that it satisfies these requirements; however, it is not intended that it includes a detailed description of the entire management system.

Sections 10.1 to 10.8 provide the structure and requirements for a description of the SEMS within the RoMH. Reference is made to the Annex 1(9) requirements in N.4409/2016.

10.1 Organisation

Point (1) organization structure and personnel roles and responsibilities

12. Identify roles with specific responsibility for the management of health, safety and the environment and in particular the management and control of major accident hazards. It should include organisational structures incorporating these key roles and illustrating clear reporting lines to the senior management level of the organisation.
13. Describe how the operator will ensure that members of the workforce with safety critical roles have defined competency requirements and the necessary skills, training and ability to undertake routine and non-routine tasks.

10.2 Hazard Identification and Risk Assessment

Point (2) identification and evaluation of major hazards as well as their likelihood and potential consequences

Point (3) integration of environmental impact into major accident risk assessments in the report on major hazards

14. Summarise how procedures for on-going hazard identification, risk assessment and the determination of necessary barriers maintain the risk from all major accident hazards to ALARP are established, implemented and maintained.
15. Describe how, as part of the SEMS, the results of the identification of hazards, risk assessments and risk reduction measures are documented and kept up-to-date, including the RoMH itself.
16. Summarise that the potential for environmental impact from a major accident has been fully considered as part of the major accident risk assessment process. It must further demonstrate that arrangements are in place to ensure that any actions necessary to limit the potential of any major environmental incident will be taken.

10.3 Control of Major Hazards

Point (4) controls of the major hazards during normal operations

Requirements in relation to hardware controls are covered by SECEs, and are described in the sections of this document describing the required content of the RoMH or notification.

17. Summarise processes and procedures for safe control of operations, including:
 - a) Planning routine and non-routine activities (including minor works, maintenance and testing etc.) to enable them to be conducted safely by competent people;
 - b) Controls related to purchased goods, equipment and services;

- c) Controls related to third parties and contractors;
- d) Documented procedures to cover situations where the absence of the control (for example a SECE) or the deviation from a stipulated operating criteria could lead to deviations from a performance standard; and
- e) Communication protocols for managing vessels offloading supplies to an offshore installation, and liaison with connected installations.

18. Demonstrate that the management procedures include a robust permit to work system that ensures that interactions between nearby activities, and activities which pass between shifts, are controlled such that the risks are maintained at a level that is ALARP.

10.4 Management of Change

Point (5) management of change

19. Demonstrate that there is a process for the identification of the hazards and risks associated with changes in the hardware, organisation, the SEMS, or its activities, prior to the introduction of such changes.

10.5 Emergency Planning and Response

Point (6) emergency planning and response

Point (7) limitation of damage to the environment

Adequate arrangements should be put in place to ensure that emergency response arrangements are and will remain effective. Detailed requirements in relation to emergency response are provided in section 11.

10.6 Monitoring

Monitoring covers regular activities that taken to check that the management system is operating as intended.

Point (8) monitoring of performance

20. Demonstrate that there is a process to monitor safety performance that provides for:

- a) Monitoring compliance with the CMAPP;
- b) Monitoring the effectiveness of risk reduction measures;
- c) Leading safety performance indicators that actively monitor risk reduction measures to ensure their continued effectiveness;
- d) Lagging safety performance indicators that reactively monitor specific occurrences to uncover weaknesses in the risk reduction measures; and
- e) Recording sufficient monitoring data to enable analysis to inform future decisions.

10.7 Audit and Review

Auditing is a review of the quality and application of the system carried out by persons with some independence from operations. Review differs from audit. A review is a fundamental assessment of whether the management system is delivering its aims; it is performed by independent persons.

Point (9) audit and review arrangements

21. Include details of audit arrangements that reflect the audit objectives in the CMAPP:
 - a) Information on the organisation's audit programme, the range of audits undertaken and how topics for audit are selected;
 - b) Means for assuring the competence of those carrying out audits and how audit programmes are monitored to ensure they remain effective; and
 - c) How audit findings are reported, reviewed and actions taken to ensure timely close out.
22. Detail procedural arrangements for reviewing the SEMS itself to ensure its ongoing suitability. Reviews should include assessing opportunities for improvement and the need for changes to the SEMS, including the safety policy and objectives.

10.8 Industry Collaboration

Point (10) the measures in place for participating in tripartite consultations and how actions resulting from those consultations are put into effect.

23. Detail how the organisation will participate in, or contribute to, tripartite consultation. This will include direct participation in industry working groups or meetings.
24. Detail how the output from these consultations will be put into effect by the organisation, implemented where appropriate, and how these arrangements will be monitored to ensure their effectiveness.

11 INTERNAL EMERGENCY RESPONSE PLAN

A RoMH must include a description of the operators or owner's internal emergency response plan that incorporates the requirements below. The description of the internal emergency response plan should provide evidence that it satisfies these requirements; however, it is not intended that it need include a detailed description of the entire plan. If the part of the plan comprising the oil spill emergency response plan has been submitted to another authority in Greece, this can be included to cover these requirements so long as it covers all of them.

Sections 11.1 to 11.4 provide the structure and requirements for a description of the internal emergency response plan within the RoMH. Reference is made to the Annex 1(10) requirements in N.4409/2016.

11.1 Organisation

Point (1)	names and positions of persons authorized to initiate emergency response procedures and the person directing the internal emergency response;
Point (2)	name or position of the person with responsibility for liaising with the authority or authorities responsible for the external emergency response plan;

1. Describe the emergency response organisation showing the roles and responsibilities of its team members, with:
 - a) names and positions of persons authorised to initiate emergency response procedures and the person directing the internal emergency response;
 - b) key roles and responsibilities of the onshore response team and subcontractors including the position of the person responsible for:
 - i. Initiating the person, body or organisation responsible for pollution response; and
 - ii. Activating the capping device, or emergency relief well as appropriate.
 - c) name or position of the person with responsibility for liaising with the authority or authorities responsible for the external emergency response plan.
2. Describe how:
 - a) Command by competent persons is maintained throughout an emergency; and
 - b) A sufficient number of suitably competent persons are on the installation to carry out emergency duties and to operate relevant equipment.

11.2 Plans and Procedures

Point (3)	a description of all foreseeable conditions or events which could cause a major accident, as described in the report on major hazards to which the plan is attached;
Point (4)	a description of the actions that will be taken to control conditions or events which could cause a major accident and to limit their consequences;
Point (5)	a description of the equipment and the resources available, including for capping any potential spill;
Point (6)	arrangements for limiting the risks to persons on the installation and the environment, including how warnings are to be given and the actions persons are expected to take on receipt of a warning;

Point (7)	in the case of combined operation, arrangements for coordinating escape, evacuation and rescue between the installations concerned, to secure a good prospect of survival for persons on the installations during a major accident;
Point (9)	arrangements for providing early warning of a major accident to the authority or authorities responsible for initiating the external emergency response plan, the type of information which shall be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available;
Point (11)	arrangements for coordinating internal emergency response with external emergency response;

3. The internal emergency response plan must describe the inventory of pollution response equipment available and cover the inventory of emergency response equipment pertinent to the operations which includes details of ownership, storage locations, and transport arrangements to deployment site, mode of deployment and the measures in place to ensure that the response equipment and procedures are maintained in an operable condition. This should reference the organisation that is managing this aspect.

Provide an overview of the internal emergency response plan demonstrating that:

- a) It reflects the identified threats arising from the installation and its operation. The plan to respond to major hazards should be scenario based, and reflect the identified major accidents.
 - b) It includes the actions which should be taken to control each accident scenario and to limit its consequences.
 - c) It describes the equipment and the resources available for emergency response, which should be consistent with the inventory of emergency response equipment that is produced pursuant to Article 19(6) of the Law, and how long before these can be made available.
 - d) It describes the coordination of recovery arrangements for persons on the installation affected by a major accident hazard.
 - e) It identifies any dependency on human intervention at any stage and how these persons are trained and known to be competent.
 - f) It is an integral part of the overall SEMS as a control measure subject to the same checks as all other control measures including processes for testing, review (especially after emergency response drills), training and informing persons of its operation.
 - g) It ensures effective communication and coordination between different parts of the internal organisation, both offshore and onshore, and between the owner and operator organisations in the case of combined operations.
 - h) If the plan relies on support from third parties, it should describe how those inputs are coordinated. Named third parties may include marine and aviation emergency services, and other operators and owners present in the vicinity.
4. Within the above overview, justify assumptions regarding actions required, timing, effectiveness of detection methods and decision-making processes and the range of emergencies that could occur. The emergency plan must be robust and take into account the conditions that may prevail in a real emergency which often make it difficult to achieve ideal responses.

5. Demonstrate that external emergency response plans are in place clearly explaining the role of relevant authorities, emergency responders, coordinators and others required for the emergency response, so that cooperation is ensured in all emergencies. External emergency response plans should ensure appropriate arrangements are in place for alerting, coordinating necessary external resources and providing suitable information and advice to external persons and organisations that may be affected by the emergency.
6. Describe how response tier levels are identified and escalated. Where response arrangements transfer from one person to another, the mechanism and management for this must be described (e.g. where an installation operator Tier 1 response transfers or escalates to the well operator's Tier 2/3 response).
7. Demonstrate appropriate arrangements for the maintenance of control systems to prevent damage to the installation and the environment if all personnel are evacuated.
8. From a list of possible strategies, summarise the strategies used to facilitate a prompt and effective response to a pollution event, including details of how and when they would be employed. As a minimum the list of strategies below must be considered and justification provided if any of them are not utilised:
 - a) Monitoring and Surveillance (from installation, vessel, aircraft, satellite);
 - b) Dispersion (natural or chemically/mechanically assisted);
 - c) Containment and Recovery (booming and mechanical recovery); and
 - d) Source Control (well capping and relief well operations).

If controlled burning is identified as a potential response option justification to support this must be provided.

9. Where the drilling of a relief well is part of the emergency response strategy, the following must be provided:
 - a) Any specific MODU configuration required to drill the relief well (e.g. HP/HT, deep water etc.);
 - b) Details of the MODUs available if the limited availability of a suitably configured MODU may cause delays to the relief well operations; and
 - c) An estimate of the time required to complete the relief well operation from the day the relief well operation is decided upon to the day the well is killed.
10. Where a well capping device is part of the emergency response strategy, the following must be provided:
 - a) Details of the capping device(s) deemed suitable for use;
 - b) Confirmation that the suitability of the capping device(s) has been fully assessed and is compatible with the well infrastructure and is certified for the anticipated well pressures;
 - c) Identification and contact details of the specialist contractor(s) providing the device(s); and
 - d) An estimate of the time required to complete the well capping operation from the day the capping operation is decided upon to the day the well is successfully capped.

11.3 Training and Exercises

Point (10) arrangements for training personnel in the duties they will be expected to carry out, and where necessary coordinating this with external emergency responders;

11. Detail emergency response training requirements and how key personnel are known to be competent including:
 - a) Adequate instruction and training to all persons on the installation in the appropriate action to take in an emergency and how they can consult written information on the use of emergency plant.
 - b) The induction given to every person provides appropriate information on the procedure for evacuation, the significance of emergency signals, the location of relevant life-saving equipment and the action they are required to take in response to emergency signals and alarms.
 - c) There are adequate emergency drill exercises.
 - d) Competence of the off-site emergency response team, including the availability of adequate staffing at all times, the training and competence of personnel, and by exercises.
12. Demonstrate that the following have been addressed:
 - a) That the programme of drills covers the range of hazards that may be encountered;
 - b) Processes for evaluating the success of drills and exercises and the management of subsequent corrective and preventative actions; and
 - c) Involvement of external parties not at the installation (e.g. external emergency services, logistics providers, onshore management).
13. Describe how emergency response exercises involve the operators of standby vessels, marine and aviation emergency services as well as other emergency services which may have a role in shore-based aspects of an emergency.
14. The internal emergency response plan must detail oil pollution response exercise requirements such as planned drills based on major accident scenarios.

11.4 Oil Spill Modelling and Effectiveness

Point (8) an estimate of oil spill response effectiveness. Environmental conditions to be considered in this response analysis shall include:

- (i) weather, including wind, visibility, precipitation and temperature;
- (ii) states, tides, and currents;
- (iii) presence of ice and debris;
- (iv) hours of daylight; and
- (v) other known environmental conditions that might influence the efficiency of the response equipment or the overall effectiveness of a response effort;

Point (12) evidence of prior assessments of any chemicals used as dispersants that have been carried out to minimize public health implications and any further environmental damage.

15. The oil spill modelling and effectiveness assessments must include any potential trans-boundary impacts.

16. Include an assessment of the effects of MEIs and an assessment of the oil spill response effectiveness.
17. An estimate of the oil spill response effectiveness is required, including consideration of the following environmental conditions:
 - a) weather, including wind, visibility, precipitation and temperature;
 - b) sea states, tides and currents;
 - c) presence of ice and debris;
 - d) hours of daylight; and
 - e) other known environmental conditions that might influence the efficiency of the response equipment or the overall effectiveness of a response effort.
18. Detail which major accident scenario will result in the estimated worst case release of oil scenario and its derivation.
19. State how real time spill modelling will be sourced or contracted.
20. Establish the quantity of any oil released to sea. Detail how such quantifications will be undertaken acknowledging that there are a number of methods to achieve this:
 - a) Measured, e.g. quantities are determined based on level indication, tank drop, tank volume, metering etc.
 - b) Calculated, e.g. quantities are determined based upon a known flow rate to sea for a known duration, an estimated flow rate and duration, or calculated from known quantities and known concentrations.
 - c) Bonn Agreement Oil Appearance Code (BAOAC) estimations of oil on the sea, e.g. quantities are determined based upon observations of sheen size and appearance on the sea surface. A maximum and minimum figure shall be provided where BAOAC are utilised in order to allow a suitable assessment of potential pollution.
21. The movement of any visible pollution must also be tracked and methods used to undertake this must be detailed.
22. If dispersant use is identified as part of an oil spill response strategy, the following must be detailed:
 - a) Details of any dispersant held on the Standby Vessel (SBV) or other response vessels which could be utilised:
 - b) Type of dispersant (as per MMO approved list);
 - c) Quantity (m³ / tonnes);
 - d) Confirmation that the reservoir oils are amenable to dispersant treatment; and
 - e) Suitable assurance that the dispersants used are on the MMO list of approved dispersants.
23. If the SBV is replaced, provision must be made to maintain the dispersant response capability as detailed. If there is no provision for a SBV or dispersant this should be justified.

APPENDIX A INSTALLATION LIFECYCLE AND SUBMISSIONS FOR A PRODUCTION OPERATION

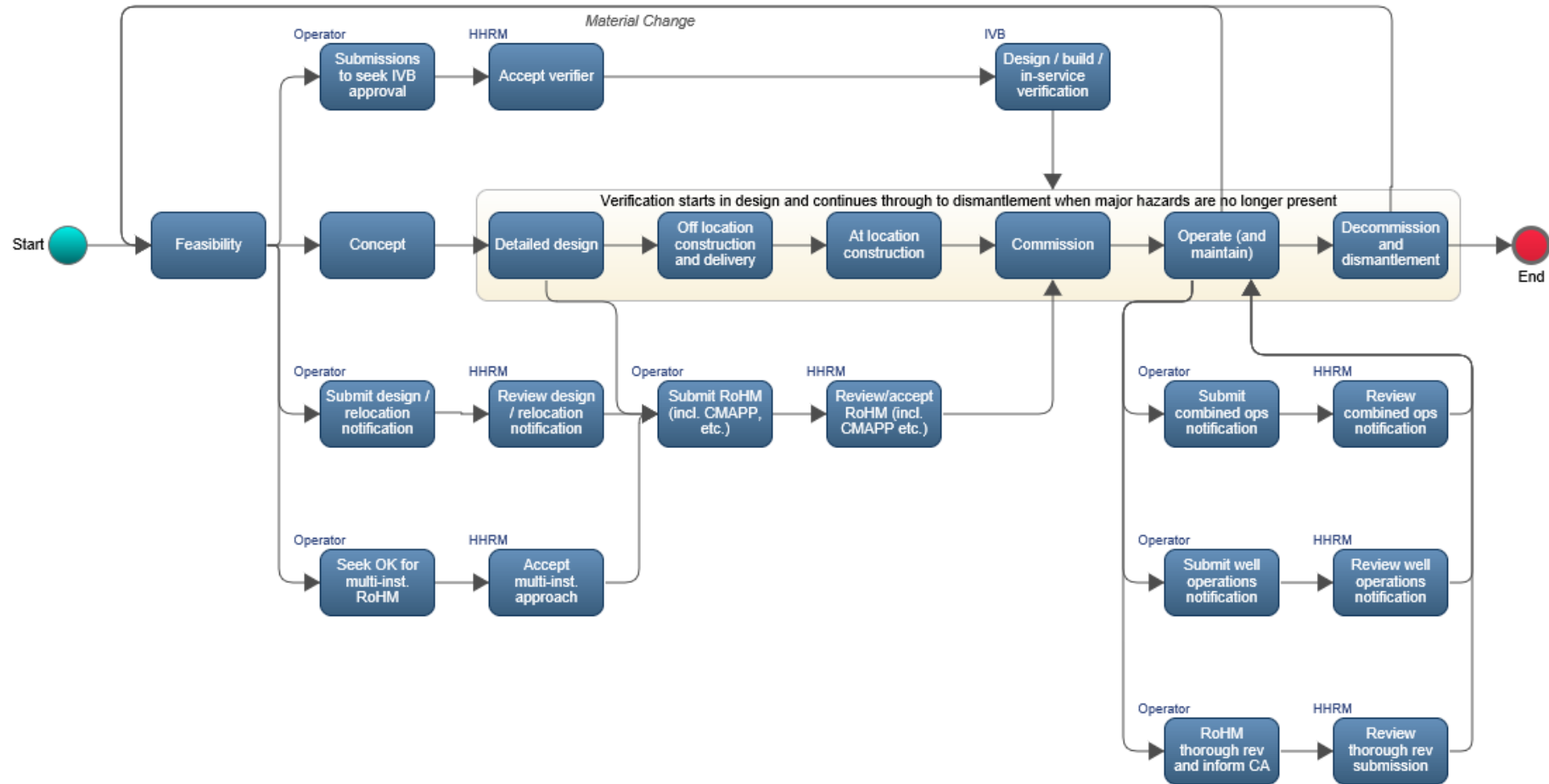


Figure 1 Submissions and assessments required for a production operation across its lifecycle