



HELLENIC HYDROCARBON
RESOURCES MANAGEMENT

THOROUGH REVIEW OF A REPORT ON MAJOR HAZARDS

UNDER L4409/2016



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Table of Contents

1	INTRODUCTION.....	2
1.1	Purpose	2
1.2	Background and Overall Process	2
2	THOROUGH REVIEW REQUIREMENTS	3
2.1	Method and Process	3
2.2	Review Requirements	3
2.3	Update of the RoMH	5
2.4	Content of a Thorough Review Report	5

1 INTRODUCTION

1.1 Purpose

This document provides guidance on how a periodic, or 5-yearly, Thorough Review of a Reports on Major Hazards (RoMH) should be carried out by an Operator, or Owner. Its objectives are:

- 1) to confirm that the RoMH, with any necessary updates, is still adequate, and is likely to remain so until the next thorough review;
- 2) to ensure that changes made in the previous five years have been accurately included within the RoMH and that it contains an accurate and up to date description of the installation, its construction or layout, the processes undertaken and of the management systems in place;
- 3) to review whether the RoMH reflects current standards, HHRM guidance and industry practices, to evaluate any deficiencies, to identify and implement any reasonably practicable improvements to enhance safety;
- 4) to ensure all foreseeable hazards with the potential to cause a major accident have been identified, their risks evaluated and measures identified, including emergency responses, to control the risks;
- 5) to ensure that any lessons learnt from incident investigations have been incorporated into the RoMH or working practices on the installation. These investigations may be the company's own investigations, or those undertaken elsewhere on similar installations, or during similar operations to those being undertaken;
- 6) to identify design parameters, ageing processes and changes in operating conditions that may limit the life of the installation, or of its safety and environmental critical elements; and,
- 7) to check that the management of safety is adequate and that risks are still reduced to a level which is as low a reasonably practicable given present expectations and technologies.

A thorough review should not be confused with the requirement in Article 11 to revise the case as a result of it being updated following a material change.

1.2 Background and Overall Process

Offshore installations operating in Greek Waters can only operate under an accepted RoMH under N. 4409/2016 (hereafter termed The Law). A RoMH must be subject to a thorough review at least every 5 years. Additionally, under Articles 12 and 13 of The Law, HHRM can direct an Operator/Owner to undertake a thorough review at its discretion (e.g. following an incident, or series of minor incidents).

Once the RoMH has been reviewed, it should be updated where necessary, and a separate document submitted to HHRM describing the review process undertaken and full details of the findings of this review. HHRM will then assess the adequacy of the review and may request further information on the review itself, changes made to the RoMH, or the overall findings (e.g. should there be any factual inaccuracies).

This guidance document on the conduct of thorough reviews draws on the Annex III requirements, above, as well as those in Annex IV and Article 19, requiring cooperation between HHRM and owners/operators in developing (and hence using) best practices for major accident management.

2 THOROUGH REVIEW REQUIREMENTS

2.1 Method and Process

The thorough review method and process should ensure that:

- 1) those carrying out the review are suitably qualified and experienced in major hazard controls, the oil and gas industry, and the type of operations undertaken at the installation being reviewed;
- 2) as the process is a review, it needs to be carried out by persons with a degree of independence from the operations of the installation as a review requires an impartial view. Independence could be achieved by reviewers being from an outside organisation, or from a separate part of the owner's or operator's company which is not involved in regular operations or interaction with the party being reviewed;
- 3) the installation's safety representatives are consulted;
- 4) latest technology and recent incidents are considered as to whether they change the controls needed for the risk to remain ALARP;
- 5) full account is taken of any conclusions and recommendations from the review; and
- 6) any necessary changes to the RoMH identified during the review are implemented. If these changes amount to a material change, the RoMH should be resubmitted to HHRM for approval.

The review itself can be conducted using a variety of methods, which may include holding or reviewing:

- onshore workshops (for example covering the performance and adequacy of SECEs, the identification of MAHs and control measures, whether actions from incident investigations have been implemented etc.) to discuss different aspects of the RoMH;
- onshore one-to-one interviews with managers or key personnel with specific technical or operational responsibilities;
- an offshore assessment to discuss the thorough review with a larger pool of workers, as well as to allow the review team/members to directly assess the accuracy of the RoMH and the adequacy of major hazard controls;
- physical checks of the asset (e.g. inhibitors in place, emergency egress routes, line walk-downs etc. see below); and
- documents and system information: incident investigation reports, HSE annual plans, audit findings and inspection of system records (e.g. maintenance backlog, risk assessments, permits).

2.2 Review Requirements

2.2.1 Safety Systems

The safety system topics to be reviewed must include at least:

- the nature, condition and operational boundaries of the installation itself, process equipment and other infrastructure should be reviewed to ensure that:
 - the physical condition of the installation is understood, that it is still within its fatigue or design life, or if outside it, that suitable studies have been undertaken to redefine its life;
 - the structure of the installation itself, as well as supports for vessels and pipework have acceptable integrity and that process vessels pipework and pipelines have suitable wall thicknesses to perform satisfactorily;
 - the seabed conditions are likely to be adequate for the next 5 years so as to not adversely affect the structural integrity of the jacket, pipeline, or other equipment on the seabed;

- process and blowdown conditions remain within plant design conditions;
- any changes to level alarms, trips and cause and effects have been well-managed;
- that the emergency shutdown, isolation and depressurisation systems are fully functional;
- verification as carried out by the IVB under the verification Scheme is operating effectively and hence the SECEs are adequate and performing satisfactorily;
- changes to requirements in international standards, guidance, or recommendations made by manufacturers or suppliers of plant or equipment are considered as to whether changes to operations, test intervals or other parameters are required;
- any new equipment is not obstructing escape routes;
- emergency equipment and escape provisions are sufficient for the maximum number of people present and that sufficient equipment is located at normal muster or emergency stations as well as remote locations at which people may have to remain in emergencies if their routes to primary muster stations are blocked; and
- actions from HAZOPs, investigations, IVB anomalies, audits or other sources are considered as to whether these should be incorporated to ensure that the risk on the installation remains ALARP.

2.2.2 Workforce Involvement

The workforce, including safety representatives, must be consulted and involved in the thorough review to allow them to identify: any safety concerns, further risk reduction measures of procedures, systems and hardware for consideration and provide input if the descriptions contained in the RoMH are not accurate and up to date.

Those leading the thorough review must decide how to involve workforce. Ways of achieving this include workshops, and/or interviews or discussion with the workforce.

2.2.3 Safety Environmental Management Systems (SEMS) Review

In the thorough review, the SEMS must be reviewed to confirm it remains suitable, including a review of actual practices onshore and offshore to:

- Check alignment with the RoMH and referenced supporting documents; and
- Determine whether improvement can be made to the processes.

The SEMS review may consider the suitability and application of the:

- Corporate Major Accident Prevention Policy;
- Safety organisation:
 - Communication and workforce involvement in safety, e.g. meetings, toolbox talks, safety awareness initiatives, safety surveys, safety notices etc; and,
 - Competence management, e.g. reviewing company information to confirm that persons carrying out safety critical work are and have been assessed as competent.
- Planning and implementation:
 - Safe control of operations including that tasks are scheduled and completed by competent persons;
 - Operational/task risk assessments, i.e. review of records and practices for compliance with applicable procedures and guidance;
 - Management of change to ensure the process is robust and correctly implemented; and,

- Control and update of documentation, e.g. the validity of the RoMH itself, process and instrumentation diagrams following modifications, etc.
- Safety performance monitoring:
 - Review of arrangements to detect weaknesses in the SEMS that need to be resolved, e.g. unsafe conditions, safety inspections, equipment failures, asset integrity statistics, deferred maintenance etc. The focus should be on safety performance indicators relating to major accident hazards;
 - Consideration of any relevant incidents occurring elsewhere in industry in similar operations or processes to determine whether they could occur on the installation being reviewed;
 - Analysis of incidents reported since the last review to establish if lessons have been learnt as evidenced through:
 - Comprehensive actions that following implementation will prevent other similar incidents happening again;
 - Actions that are completed according to agreed dates; and
 - Confirmation that lessons learnt are effectively communicated to the workforce.

2.3 Update of the RoMH

Once the thorough review has been completed, the findings within it should be considered by the Owner/Operator and the RoMH updated as necessary. If this constitutes a material change, the material change resubmission process for the RoMH must be followed. Otherwise, if the RoMH is updated following the thorough review, it should just be sent to HHRM.

2.4 Content of a Thorough Review Report

After the thorough review has been completed, a report of it must be completed and submitted to HHRM who will then assess whether it meets this guidance. The thorough review report provides evidence that a review has been completed and information to help HHRM decide whether to inspect how the review was performed, or to update its inspection plans. It should include:

- 1) confirmation that the review has been carried out, when it started and when it finished;
- 2) who led the review and who carried it out and how the independence and competency requirements were met;
- 3) how the review was carried out;
- 4) the findings of the review;
- 5) a demonstration that the review process has been thorough including coverage of the review areas included in Sections 2.2 and a description of how the findings were made;
- 6) details of workforce involvement including consultation with safety representatives;
- 7) summaries of all revisions made, or intended to be made, to the RoMH as a consequence of the review; and,
- 8) action plans, with estimated completion dates, for resolution of any findings from the review that are not yet closed out.