

MQP Procedure

Identification of Occupational Health & Safety Requirements related to Design

Occupational health and safety (OHS) regulations have to be fulfilled throughout the ITER project as per the requirements of article 14 of the ITER agreement. In order to facilitate this compliance effort, this document gives guidance on the most outstanding OHS aspects that shall be considered as design drivers / inputs.

Approval Process			
	Name	Action	Affiliation
Author	Gilardi M.	21 Sep 2018:signed	IO/DG/RCO/SD/SHS/OHS
Co-Authors	Regad M.	26 Sep 2018:signed	IO/DG/RCO/SD/SHS/OHS
Reviewers	Blackler K.	26 Sep 2018:recommended	IO/DG/COO/SCOD
	Chiocchio S. *	10 Oct 2018:recommended	IO/DG/COO/CIO/CMD
	Cruz-Mermy M.- L.	04 Oct 2018:recommended	IO/DG/QMD
	Guigon A.	10 Oct 2018:recommended	IO/DG/COO/CIO/CMD/DCC
	Merola M.	08 Oct 2018:recommended	IO/DG/COO/TED/INC
	Ramu C.	28 Sep 2018:recommended	IO/DG/RCO/SD/SHS
	Tada E.	09 Oct 2018:recommended	IO/DG/RCO
	Tyler A. *	27 Sep 2018:recommended	IO/DG/CAB/LGA
	Zhao Z.	30 Sep 2018:recommended	IO/DG/QMD
Approver	Bigot B.	18 Oct 2018:approved	IO/DG
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RO: Fabre Nadine			
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v1.0	In Work	09 Jan 2017	First issue. Document created as per MQP doc Request TF7LLC
v1.1	Signed	27 Feb 2017	Typographic corrections.
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v2.2	Signed	10 Jul 2018	Removing reference to maintenance procedure
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Table of Contents

1	PURPOSE	2
2	SCOPE.....	2
3	DEFINITIONS AND ACRONYMS	2
3.1	DEFINITIONS	2
3.2	ACRONYMS	2
4	APPLICABLE AND REFERENCES DOCUMENTS.....	2
4.1	APPLICABLE DOCUMENTS.....	2
4.2	REFERENCE DOCUMENTS.....	2
5	BASIC PRINCIPLES.....	3
6	WORKFLOW.....	4
6.1	FLOW CHART	4
6.2	DESCRIPTION.....	4
6.2.1	<i>Preparation of OHS Design Requirements.....</i>	<i>4</i>
6.2.1.1	ITER Hazard List	4
6.2.1.2	Sources of OHS Design Requirements	5
6.2.1.3	OHS Design Requirements identification.....	5
6.2.1.4	OHS Design Requirements recording.....	5
6.2.2	<i>Propagation of OHS Design Requirements</i>	<i>6</i>
6.2.3	<i>Implementation of OHS Design Requirement.....</i>	<i>6</i>
6.2.3.1	Integration in the design.....	6
6.2.3.2	Hazard Identification and Risk Assessment (HIRA)	6
6.2.3.3	Design Review	6
6.2.4	<i>Feedback loop.....</i>	<i>6</i>
7	RESPONSIBILITIES.....	7
8	LINK WITH OTHER PROCESSES.....	7
8.1	INTERACTIONS WITH CONFIGURATION MANAGEMENT PROCESS	7
8.2	INTERACTIONS WITH LEGAL AFFAIRS PROCESS	7
8.3	INTERACTIONS WITH QUALITY ASSURANCE PROCESS	7
8.4	INTERACTIONS WITH OPERATION & MAINTENANCE	8
8.5	INTERACTIONS WITH DESIGN CONTROL	8
9	OUTPUTS (RECORDS, DELIVERABLES, IMPLEMENTATION PLANS....)	8

1 Purpose

The purpose of this procedure is to establish the process of identification, propagation and update of the Occupational Health and Safety requirements applicable to the ITER Project.

2 Scope

This level 2 procedure in the scope of Occupational Health Safety (OHS) process propagate requirements from ISMS Manual [2].

This document applies to all activities, systems, components, buildings and organizations which would be used, operated, activated under the ITER organization responsibilities or on the ITER site.

This process is linked to the [Project Requirements](#) PR1444-R: *Preventive measures shall be considered in the design phase to reduce the frequency or the probability of an event and that should establish the rules to follow for the construction, installation and utilization of equipment in order to protect people and equipment from OHS risks.*

Safety of office buildings is out of the scope of this document.

3 Definitions and acronyms

3.1 Definitions

Occupational Health and Safety requirement: every element related to one or several ITER Hazard(s) and from which the lack of consideration may threat the worker health and safety.

3.2 Acronyms

HIRA: Hazard identification and risk assessment

OHS: Occupational Health and Safety

PBS: Plant Breakdown Structure

SD: Safety Department

SHS: Security, Health and Safety Division

TRO: Technical responsible officer

CIO: central integration office

4 Applicable and References Documents

4.1 Applicable documents

- [1] [Agreement on the Establishment of the ITER Organization \(ENGLISH WORD VERSION\) \(2W46RD\)](#), article14
- [2] [ITER_D_4HCWJU - ITER Integrated Safety, Environment and Security Management System \(ISMS\) Manual](#)
- [3] [ITER_D_AJLQRF - Procedure for Occupational Health and Safety Hazard Identification and Assessment](#)

4.2 Reference documents

- [4] [ITER_D_U34CSG - Design Input Control Procedure](#)
- [5] [ITER_D_2X6K67 - Plant Description \(PD\)](#)
- [6] [ITER_D_6LCG7B - Occupational Health and Safety Management Plan](#)

- [7] [ITER_D_2832CF - Design Review Procedure](#)
- [8] [ITER_D_SET7TL - Design Plan - Part 1 for TF 11 Health, Safety](#)
- [9] [ITER_D_22F4E5 - Project Change Procedure](#)
- [10] [ITER_D_S28TDV - Management of NCR related to OHS Regulatory , Standard and Technical Requirements](#)
- [11] [ITER_D_S7T73E - Concept of Operations](#)
- [12] [ITER_D_SEBK7V - OHS Hazard List.](#)
- [13] [22F4E5](#)) – project change request
- [14] [TZV743](#) .
- [15] [ITER_D_22F53X – Procedure for the management of Nonconformities”](#),

5 Basic principles

According to [1], the IO shall observe the French regulations regarding Occupational Health and Safety.

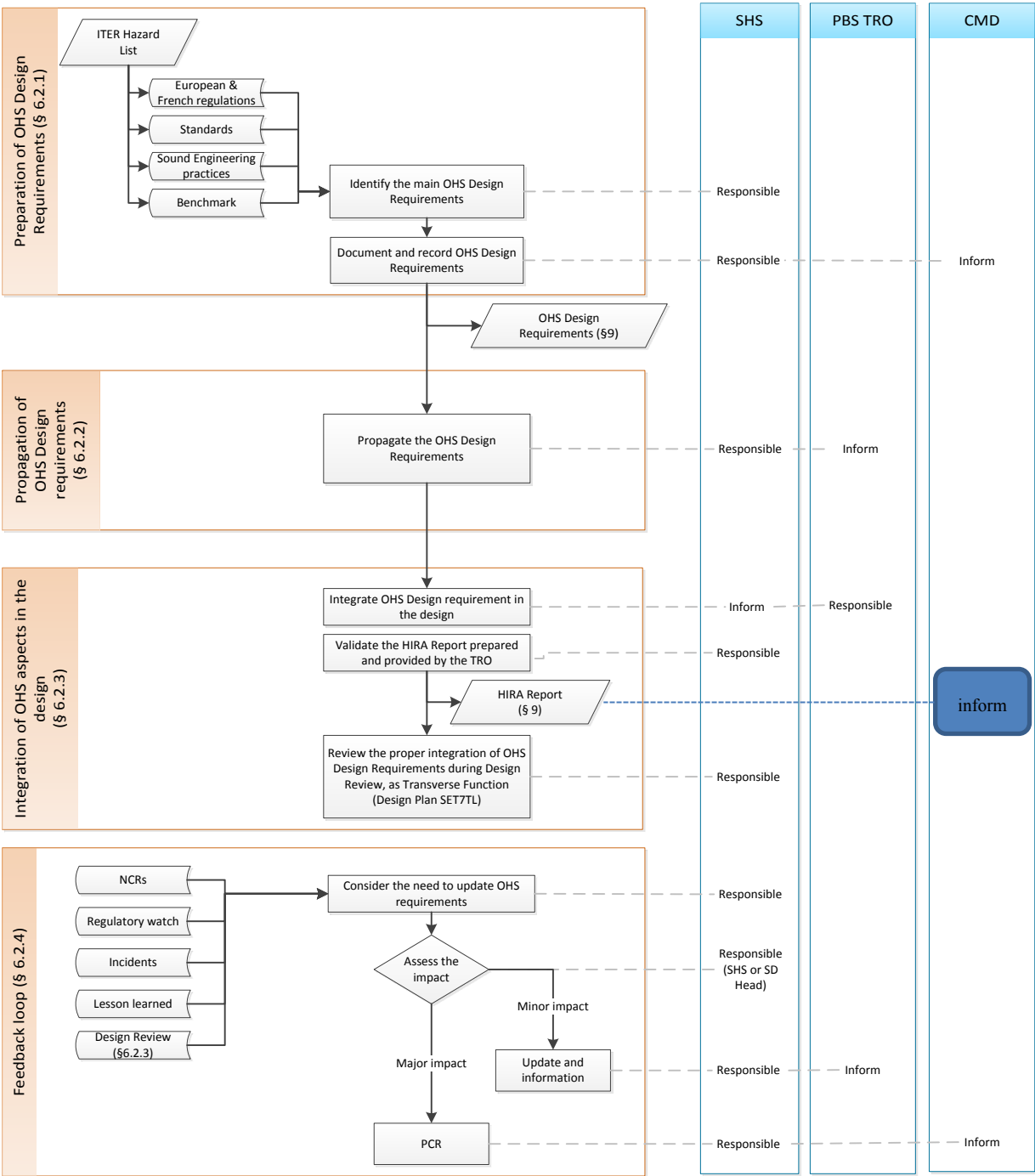
The article L4121-1 from the French Labour code requires that all the **necessary measures** shall be implemented in order to ensure the safety and protect the physical and mental health of workers.

The necessary measures are identified and integrated within the design by the PBS TRO.

SHS facilitate this activity by documenting the ITER Hazards with OHS Design Requirements.

6 Workflow

6.1 Flow chart



6.2 Description

6.2.1 Preparation of OHS Design Requirements

6.2.1.1 ITER Hazard List

The sources of potential harm are identified from the project documentation, notably from the [Plant Description \(PD\) \(2X6K67\)](#). The list of the Occupational Health and Safety hazards relevant for the ITER project are recorded in the document [ITER_D_SEBK7V - OHS Hazard List](#).

6.2.1.2 Sources of OHS Design Requirements

The OHS requirements related to each ITER hazard (from the ITER Hazard List) are detected through the analysis of the regulations and documentation associated to this hazard. .

The sources of documentation are presented below (non-exhaustive list):

- European and French regulations
 - French Labour Code – Part 4 (www.legifrance.gouv.fr);
 - European commission (ec.europa.eu)
 - European agency for safety and Health at work (osha.europa.eu)
 - ICPE nomenclature (www.ineris.fr)
- Standards
 - Harmonised standard (ec.europa.eu/growth/single-market/european-standards)
 - Mandatory standards
 - Standards (ISO, IEC, NF,...);
- Sound engineering practices:
 - INRS <http://www.inrs.fr/>
 - Official websites such as <http://travail-emploi.gouv.fr/mot/travailler-mieux-1051>
 - Industrial best practices;
- Benchmark:
 - CERN;
 - JET;
 - Other country regulations.
 - ...

6.2.1.3 OHS Design Requirements identification

SHS identifies the applicable requirements from the sources detailed before, based on OHS analysis, past practice and experiences in construction projects. **Every element related to one or several ITER Hazard(s) and from which the lack of consideration may threaten the worker health and safety shall be considered as an occupational health and safety requirement.**

The threat on the worker H&S has to be understood as an (unwanted) event of which the likelihood and the level of consequences are not acceptable regarding the risk acceptance matrix from the [Procedure for Occupational Health and Safety Hazard Identification and Assessment \(AJLQRF\)](#).

6.2.1.4 OHS Design Requirements recording

In order to facilitate the design activities, the understanding of applicable regulations and to standardize prevention measures, SHS compiles the identified safety requirements in “**OHS Design Requirement**” documents, managed as defined in §9.

The OHS Design requirements applies to all activities, systems, components, buildings and organizations Presenting a risk of OHS nature which would be designed, manufactured and used, operated, activated under the ITER organization responsibilities or on the ITER site.

The creation of this kind of document might be triggered by recurrent questions, on demand or when the SHS Division consider that it is required.

Examples of topics are listed hereafter:

- Fire;
- Electromagnetic field;
- Storage of load and manual handling;
- Electricity;
- Machinery;

■ ...

The topics of these OHS Design Requirements may cover several hazards. For example an instruction on the fire safety may specify requirements related to the escape routes (path irregularity), the evacuation of smoke (Dust / Airborne pollution / Smell), the ignition sources (electricity) and the combustible storage (Flammable material).

6.2.2 Propagation of OHS Design Requirements

Once the OHS Design Requirement document is approved on IDM, an ICP email is send to PBS TRO for information.

In addition, all the OHS Design Requirements are available in the folder defined in § 9.

6.2.3 Implementation of OHS Design Requirement

6.2.3.1 Integration in the design

It is the responsibility of each PBS-TRO to identify in their technical specifications or requirement documents all necessary measures and solutions to ensure the health and safety of the final user on the final system. It is the responsibility of each PBS-RO to ensure in their design compliance with applicable legislation in order to prevent any injuries or illnesses.

This is demonstrated by the provision of Design Compliance Matrices (during the design) and Design Verification Plans and Reports (refer to R3KD8C)

6.2.3.2 Hazard Identification and Risk Assessment (HIRA)

All PBS-TROs shall carry out a risk assessment according to the HIRA procedure [3].

The HIRA process outputs notably:

- Hazards linked with the system;
- Mitigation measures legally required;
- Mitigation measures required in order to obtain a tolerable level of risk (Acceptance threshold detailed in [3]).

The OHS Design Requirements facilitate the two last points from this list.

6.2.3.3 Design Review

The Design Review procedure [7] imposes the participation of an IO/Health and Safety representative in the Review Panel. The Design Plan [8] applies.

The IO/H&S representative has notably to review:

- The proper consideration of H&S aspects in the design;
- The completion of the HIRA process;
- The proper identification and consideration of OHS Design Requirements...

In case of deviation, chits are raised and the SDR panel report reflects the findings.

6.2.4 Feedback loop

Based on the project progresses and regulatory watch, OHS design requirements may need to be modified. Before modifying an OHS Design Requirement document, the impact of the change shall be assessed.

Based on the assessment, the SHS or SD Head with CIO decides if it requires a PCR ([22F4E5](#)), in case of major impact, or if a simple update on IDM (with proper propagation) is sufficient if the impact is minor.

7 Responsibilities

Step	Activity	IO SHS		IO TRO	CMD
		Team	Head		
Preparation of OHS Design Requirements	Identify from sources and record	R	A		I
Propagation of OHS Design Requirements	Propagate	R	A	I	
Implementation of OHS aspects in the design	Integrate OHS Requirements in the design	I		R	I
	Perform HIRA	I		R	
	Validate HIRA	I	R	I	I
	Review the design	R			
Feedback loop	Identify the need to update OHS Design Requirements	R	I		
	Decide to update		R		
	Assess the Impact		R		
	Update and propagate	R		I	I

R: responsible / I: Inform / C: Consult]

8 Link with other processes

8.1 Interactions with Configuration Management process

The technical requirements identified by SHS shall be integrated in the technical baseline as defined in[14].

Project Change Request are managed in accordance with[9]

8.2 Interactions with Legal Affairs process

In case of difficulties concerning the interpretation of applicable safety regulations, joint expertise from SHS and Legal Affairs can be obtained.

8.3 Interactions with Quality Assurance process

In case of deviation from the legal requirements, a NCR shall be created in accordance with the procedure[15], and shall be managed in accordance with [S28TDV](#) [10]

8.4 Interactions with Operation & Maintenance

Some aspects, such as accessibility, can be associated with principles from the regulations and quantitative data from operational perspective. OHS requirements derived from [11] and are covered by this MQP procedure.

8.5 Interactions with Design Control

The Implementation of OHS Design Requirements in the design and its review is defined in §6.2.3.

9 Outputs (Records, Deliverables, Implementation plans....)

The execution of this document requires the following outputs:

Type of output	Format (Template, form, checklist)	Location of output	Document type	Instructions for identification of the output	Responsible for managing the output	Retention period
OHS Design Requirements	No specific format	in PBS design folders.	RW9JH3 OHS Design Requirements	inclusion in SRD of PBS	PBS involved (SHS support)	unlimited
HIRA Report	As defined in [3]					
SDR Panel Report; chits;...	As defined in [7]					
PCR	As defined in [9]					