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MQP Procedure

Design Review Procedure

This document describes how to conduct IO Design Reviews on ITER Systems. It is applicable to all the Conceptual, Preliminary and Final Design Reviews performed by IO on the ITER Project.

Approval Process			
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	GG: DA Heads, Co-ordinators and Management, AD: ITER, AD: Only-staff, AD: External Collaborators, AD: Division - Diagnostics - EXT, AD: Directorate - Central Integration and Engineering, AD: Directorate - Central Integration and Engineering - EXT, AD: Section - System Management - EXT, AD: Section - Fuelling and Wall Conditioning - EXT, AD: Section - Systems Engineering and Configuration Management - EXT, AD: Section - Vacuum - EXT, AD: Division - Control System Division, AD: Section - CODAC, AD: Section - Fuelling and Wall Conditioning, AD: Section - Systems Engineering and Configuration Management, AD: Section - Tritium Plant, AD: Section - Vacuum, AD: Division - Magnet, AD: DA, AD: Section - Remote Handling, AD: Section - Plant Control and Instrumentation, AD: Section - Remote Handling - EXT, AD: Division - Diagnostics, project administrator, RO, AD: Division - Quality Assurance - EXT, AD: Division - Quality Assurance

Change Log				
Title (Uid)	***Version***	***Latest Status***	***Issue Date***	***Description of Change***
Design Review Procedure (2832CF_v3_1)	v3.1	Approved	30 Nov 2012	Incorporated comments from v3.0, TF3 ITER_D_A6SMQN - Task Force 3 - Final report and ITER_D_C2HS2K - 2012 Management System Audit 47 - Design Review Process. Aligned with the Design Review Management Plan [1]
Design Review Procedure (2832CF_v3_0)	v3.0	Disapproved	27 Feb 2012	Same version as v2.2 (add new reviewers and change approver). Plus Design Developer can be invited for clarification during the chit merging and categorization
Design Review Procedure (2832CF_v2_2)	v2.2	Signed	17 Jan 2012	Comments made on v 2.1 taken into account (mainly QA comments)
Design Review Procedure (2832CF_v2_1)	v2.1	Signed	29 Jun 2011	Simplified version worked out by TF-CIE incorporating a Design Review simplified worflow
Design Review Procedure (2832CF_v2_0)	v2.0	Signed	14 Dec 2010	For clarity purpose, Design Review procedure Version 1.13 has been split in 3 separate documents: 1) Top level considerations (Objectives, various DRs, authorities (approval, etc), roles…), 2) how to perform activities [this procedure] and 3) guidelines for the maturity of documents at each stage (CDR, PDR and FDR).
Design Review Procedure (2832CF_v1_13)	v1.13	In Work	24 Nov 2010	Draft version for pre-review.
Design Review Procedure (2832CF_v1_12)	v1.12	Approved	11 Dec 2009	Incorporated QA comments (that is, description of CDR and PDR, and application of checklists), RH Compatibility Procedure, System Structural Integrity Report and System Load Specification.
Design Review Procedure (2832CF_v1_11)	v1.11	Signed	06 Aug 2009	Incorporated organization changes, action tracking system, design review checklists, review panel report, and a statement of review panel members.
Design Review Procedure (2832CF_v1_10)	v1.10	Signed	15 May 2009	
Design Review Procedure (2832CF_v1_9)	v1.9	Approved	24 Oct 2008	
Design Review Procedure (2832CF_v1_8)	v1.8	In Work	15 Oct 2008	

Design Review Procedure (2832CF_v1_7)	v1.7	Approved	10 Jul 2008	
Design Review Procedure (2832CF_v1_6)	v1.6	Signed	01 Jul 2008	
Design Review Procedure (2832CF_v1_5)	v1.5	In Work	01 Jul 2008	
Design Review Procedure (2832CF_v1_4)	v1.4	In Work	01 Jul 2008	
Design Review Procedure (2832CF_v1_3)	v1.3	In Work	29 Apr 2008	
Design Review Procedure (2832CF_v1_2)	v1.2	Signed	28 Apr 2008	
Design Review Procedure (2832CF_v1_1)	v1.1	Signed	21 Apr 2008	
Design Review Procedure (2832CF_v1_0)	v1.0	Signed	08 Apr 2008	

Table of Contents

1 Purpose

This document defines the procedure to be used for **System Design Reviews (SDR)** [1] performed **by the ITER Organization (IO)** on the ITER Nuclear Facility design.

The Design Review Portal provides additional Guidelines and Templates to support this procedure.

External design agencies (Domestic Agencies (DAs), IO Direct contractors or subcontractors) may define other Design Reviews for their own purpose and use a design review procedure accepted by IO.

Notice: In this document:

1. "Design Developer", "Design Coordinator" and "Design Approver" designate **IO staff**, unless otherwise defined.
2. Domestic Agency (DA) and Procurement Arrangement can be respectively substituted by IO-Direct Contractor and IO Direct Contract in case of IO in-cash procurement.

1.1 Applicability

This procedure applies to all the SDRs identified in the Design Review Plan **[2]** and includes, *inter alia*, the following three main SDRs:

- Conceptual Design Review (CDR) at the completion of the conceptual design phase
- Preliminary Design Review (PDR) during the design phase, if required
- Final Design Review (FDR) at the completion of the detailed design phase

SDRs shall be completed at PBS level 1 or level 2 but in some cases (anticipated procurement, specific scope etc…) it may be necessary to perform SDRs at lower PBS level (PBS level 3 and below). The Design Review Management Plan (DRMP) [1] indicates criteria for incorporation of these low level SDRs in the Design Review Plan.

1.2 Extent of the review

The extent of the review depends on the stage of the design activities. It is responsibility of the Head of Directorate (IO-Design Approver) in charge of the structure/system/component (SSC) to be reviewed, to define the scope and objectives of the review in agreement with the Head of Directorate for Central Integration & Engineering (CIEH). These objectives are stated in the review meeting notification.

2 Definitions and Acronyms

2.1 Definitions

Action Item:

Action/task to be completed to respond to any issue (Chit) raised during the review. An Action Item can be linked to several Chits and vice-versa.

Chit:

Specific form [by extension its contents] used to collect issues (requests for additional work, comments, proposals for improvement, etc.).

Close-Out Report:

Document acknowledging that Chits 1 have been resolved and proposing the closure of the Design Review.

Debriefing:

Timeslot at the end of the Design Review meeting where the Panel presents conclusions of the review meeting to the attendees.

Design Review Data Package:

Set of documents presented to the Review to demonstrate the design progress over the relevant design phase. This constitutes the input for the Design Review but it is by no means specific to the Design Review.

Design Review Notification:

Formal announcement of a System Design Review to the ITER Project.

Design Review Portal :

A website giving additional guidelines and templates (Notification, Agenda, etc…).

Documents:

Any design/engineering data (Files, Documents, Schematics, CAD Model, Drawings, etc…).

2.2 Acronyms

Cat.	Category
CD/CDR	Conceptual Design/Conceptual Design Review
DA	Domestic Agency
DR	Design Review or Deviation Request
CIEH	Directorate (Head) for Central Integration & Engineering
DCM	Design Compliance Matrix
DIPH	Head of Department for the ITER Project
DH	Division Head
DirH	Directorate Head
DR	Design Review
DWS	Detailed Working Schedule
FD/FDR	Final Design/ Final Design Review
I&C	Instrumentation and Control
ICD	Interface Control Document
IDM	ITER Document Management system
IO	ITER Organization
NCR	Non Conformance Report

PA	Procurement Arrangement (between IO and DAs)
PCR	Project Change Request
PD/PDR	Preliminary Design/Preliminary Design Review
PR	Project Requirements document
rep.	Representative (person delegated by an authority for a given purpose)
RO	Responsible Officer
RPrS	Rapport Préliminaire de Sureté
SDP	System Design **Process**
SDR	System Design **Review**
SMP	Strategic Management Plan
SRO	Safety Responsible Officer
SQS	Department for Safety, Quality and Safety (IO)
SSC	Structure, System and Component

3 References

[1] 3WETA5 Design Review Management Plan

[2] D5YKGX Design Review Plan

4 SDR Objectives

System Design Reviews general objectives are defined in [1].

For the three main SDR's, these objectives are:

Conceptual Design Review

A formal design review meeting conducted at an early stage of the design phase to assess that the requirements of the system have been properly identified, the concept selected minimises the overall construction and operation risks and that the boundaries of the systems have been established.

Preliminary Design Review

A formal design review meeting conducted during the development phase of the design to monitor the progress of the design and to assure that the requirements are properly defined and documented; the layout and interfaces have been fixed; a design concept that meets those requirements has been developed and supporting analyses and R&D are being carried out; and a firm basis exists to proceed with final (detailed) design.

Final Design Review

A formal design review meeting conducted to assure that the detailed design is complete and properly documented.

SDRs are held at the end of the design phases (Conceptual, Preliminary and Final Design phases) to support the Acceptance/Approval of the design by the IO-Design Approver.

The IO-Design Developer call for a SDR at the end of a given Design Phase, to assess, on the basis of a set of relevant documents, if the design is consistent, complete and mature enough to authorize proceeding to the next phase, specifically:

- to assess whether the proposed design output meets the design input requirements, that the design inputs requirements have been fully addressed, and that the design process was adequate for the complexity, quality and safety importance of the system/sub-system;
- to assess the evidence to support the verification of the design performance;
- to appraise the status of the design in terms of completeness and quality of the design output (drawings, models, documents and specifications);
- to discuss critical points and provide recommendations as required for achieving the design input requirements;
- to assess whether the proposed solution is the most cost and time effective solution to achieve the product requirements;
- to assess cost, risk and schedule impacts when required.

A SDR is not the place to review individual document but to globally address design solutions, remaining technical risks and to prioritize mitigation or corrective actions.

A SDR finishes when the Design Approver validates the SDR Close-Out Report.

5 Roles and Responsibilities

5.1 Design Developer

The Design Developer designates the technical person within the design agency (IO or DA) who is responsible for the developing the design according to the System Design Process.

The Design Developer is the IO System RO or the IO Sub-system RO (normally a Section Leader) before the Procurement Arrangement, and the DA-RO after [1].

The Design Developer supports the Design Coordinator for the inputs to the review (preparation of administrative documents, availability of approved documents, presentations).

5.2 Design Coordinator

The Design Coordinator (normally a Division Head) is the person responsible for the execution of the System design and the execution of the SDRs.

He/she develops his design internally with the support of the IO-Design Developer or makes the design developed externally by DA-Design Developer through procurement arrangement. He/she remains responsible to the Design Authority [DIPH] for the final performance of the system (PBS level 1) or a set of Systems.

He/she shall manage his project i.e. the monitoring of the design development activities according to the agreed workplan (document production plan and detailed working schedule-DWS) and procedures so that the design is delivered on time for the SDR.

He/she is responsible for the organization of the review i.e. making sure that things happen, and is supported by the Design Developer for the inputs to the review (notification, design documents, presentations).

He/she shall make sure that the Chair and the Secretary are trained.

He is responsible for the organization of the review of interfaces or a DIR before the Design Review, for the definition and acceptance of corrective actions after review and for the acceptance of the design after the review according to approved procedures.

5.3 Design Approver

The Design Approver is the duly authorized person to approve the system design on behalf of his organization. Within the IO, the system design Approver is the Directorate Head or delegate.

The Design Approver shall ensure that the system design is developed within the cost and schedule constraints, by competent people, with appropriate resources and according to approved processes (specifically System Design and Design Review Processes). He/she approves the organisation and the results of the review.

5.4 Design Authority

The ITER Design Authority is delegated by the Director General of the ITER Organization to the Head of Department of the ITER Project (DIPH).

DIPH delegates the **Chief Engineer** to coordinate the appealing process (see Section 7.3).

5.5 CIEH

CIEH is the person responsible for the overall **SDR control** i.e. that the SDRs are executed timely and according to the Design Review Management Plan and Procedure.

5.6 Design Review Manager

The Design Review Manager is the person in CIE responsible for the preparation of the Design Review Plan, the definition of DR process and procedures, the support to users (training, coaching) and the production of progress reports to the Senior Management. The Design Review Manager administrates the DR Portal and the DR database and performs procedural checks.

5.7 Design Review Secretary

The Design Review Secretary is proposed by the Design Developer and is appointed by the Design Approver to record the results of the meeting and enable the Chair maintain focus on the meeting. He/she should also provide logistics and review organization support to the IO-Design Developer.

The secretary must be a technical qualified person with good knowledge of the system to be reviewed. A representative from the design team can be Secretary.

He/she shall make sure that relevant documents are distributed and accessible to the SDR stakeholders, the stakeholders are informed and ensures that anybody can issue e-chits.

5.8 Review Chairperson

The Review Chair is a technically and managerially qualified person not working on the system to be reviewed.

Chairpersons should be **preferably IO staff**, unless continuity reasons suggest differently (see below).

SDR Chair shall preferably be the same for all the reviews (CDR, PDR and FDR) to ensure continuity and effectiveness in the review process.

A list of Chairs is available from the Design Review Manager.

The Chair shall be **hierarchically independent** from the Design Approver for SDR on SSCs (or services) that are classified QC1 or SIC (i.e. from another Directorate or external to the IO).

The Chair is proposed by the Design Developer and is appointed by the Design Approver.

In the SDR the Chair has to:

- ensure that the SDR agenda is followed
- chair the SDR meeting
- categorize Chits
- ensure that relevant issues from the meeting are recorded
- ensure that actions and recommendations from earlier meetings have been satisfactorily addressed and closed, as appropriate
- review and approve the record of meeting (Minutes of meeting)
- ensure that the meeting's minutes are issued to designated persons
- issue the draft of the Panel Report

5.9 Review Panel

The Review Panel members shall be selected considering the type of SSC to be reviewed, its Quality Class and Safety Class, and the scope of the SDR.

The Panel should be composed of technical experts, who shall:

- have comparable experience and technical competence as the Design Developer
- collectively have the breadth of expertise needed to competently review all aspects of the design
- be independent from the IO and DA design team in charge
- be informed about this procedure
- be knowledgeable about ITER Design Integration requirements
- support the Chair in identifying the issues and categorizing the Chits

It is advisable that the composition of the Review Panel should remain the same throughout the progress of the project, in order to ensure a more efficient monitoring.

For the DR process, the Chair shall assign review tasks to Panel members in their area of responsibility/expertise.

The table below reminds the composition of Review Panel according to the design review type as defined in [1], and adds a CEA expert:

Panel experts/representatives (*)	Full Workflow	Simplified Workflow
Review Chair (Chairperson)	M	M
Nuclear Operator [SQS (SRO)]	M	M
IO/QA Division	M	O (M if QC1)
IO/Health and Safety	M	M
IO/Integration [CIE]	M	O
IO/Assembly & Operations	M	M
IO/Main Interfacing System Representatives	O	O
IO/I&C	O	O
Other Technical Experts (1)	M	M
Concerned DA (2)	O	O
CEA expert (3)	O	O

M = Mandatory participation

O = Optional participation (people are informed and can decide to participate to the review or being part of the Panel). Whatever their decision they should be distributed documents and given possibility to issue Chits.

(1) Design Approver may decide additional participation to the Review Panel. However it is advisable to limit additional participation to a minimum in order to reduce the cost.

(2) Prior to the PA, for systems to be procured in–kind, a representative of each DA in charge of the procurement appointed by the affected DA Head.

(3) As the result of an agreement between IO and the Host Country, a CEA expert is nominated by the Head of the French Programme for "ITER tritiated waste and dismantling" to participate in the design reviews. The role of the CEA expert is to guarantee the limitation of the waste generation and the feasibility of the dismantling.

Panel members should be made available for the full duration of the meeting, including close session and debriefing.

The Panel composition is proposed by the Design Developer in the Design Review Notification. Technical Experts' area of expertise shall be detailed.

Note: Representatives shall be dully authorized by their organization/unit for the DR purposes.

6 SDR Process

6.1 SDR preliminary considerations

The Design Coordinator shall **identify the key SDRs** to be held in the Design Review Plan approved by DIPH [2]. SDRs scopes should be defined so that they cover the entire design of a given system (PBS level 1).

The Design Review Plan gives the **official list of all System Design Reviews (SDR) to be organized and controlled by IO** using this procedure, their scopes (PBS elements involved in the review), kind (CDR, PDR, FDR) and types (full/simplified workflow).

SDRs shall be performed using a **"full workflow" or a "simplified workflow"**[1] depending on if it concerns a PBS element at level 3 or below, or a simple sub-system. If the case arises, the simplified workflow is proposed by the Design Coordinator, reviewed by the DirH-CIE, approved by the Design Approver and shown in the Design Review Plan [2]

In some cases, a SDR can be exempted [1]. For simple systems with limited interfaces, PDR can be merged with FDR, when all the conditions shown below are met simultaneously:

- Preliminary Design and Final Design phases are carried out by the same Design Organization
- A short time span exists between PDR and FDR (<9 months)
- No innovative components require qualification tests before FDR

Each exemption shall be justified by the Design Coordinator, reviewed by the DirH-CIE and the Design Approver, approved by DIPH, and shown in the Design Review Plan [2].

SDRs **shall be preferably held at IO** in Saint-Paul lez Durance (France) unless other arrangements are agreed by CIEH and the Design Approver through the DR Notification.

SDR **shall be performed** using the management documents shown in **Appendix A**.

SDRs **shall use the** Design Review Portal for their management.

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DRs **shall use the** E-Chits application, which allows an automated tracking and processing of Chits.

The Design Review Manager shall define and maintain a list of qualified **SDR Chairpersons** and provide appropriate training to Chairpersons and secretaries. Training shall include SDR Chairmanship, Chit categorization and instruction to put aside all matters not directly connected with the boundaries defined for the SDRs.

6.2 Readiness and notification

Design Reviews are called at the end of a given design phase when the design has reached the maturity defined in the ITER System Design Process (SDP) Working Instruction.

The Design Review package shall normally be composed of documents as specified in Appendix B:

- IO-documents should be at least reviewed by all reviewers (IO-"reviewed" status)
- DA-documents submitted for IO-Acceptance shall be DA-approved and at least uploaded in IDM with IO "signed" status
- DA-documents submitted for IO-Approval shall be DA-approved and at least uploaded in IDM and IO "reviewed" status

All interfacing System ROs must be informed in due time, invited and allowed to participate at least via remote participation to the meeting.

7 Full SDR Work Flow

7.1 Preparation phase

1. The review is initiated by the Design Developer (**recommended 11 weeks before the SDR meeting**), in accordance with the approved Design Review Plan [2] (mirrored in the ITER Strategic Management Plan (SMP)) and after a positive assessment by the Design Coordinator who may use the Design Review Checklists as a guideline.

2. The SDR secretary distributes **the draft SDR Notification** to the participants **8 weeks before the SDR meeting**. The SDR Notification includes: objectives, scope and organisation of the SDR, proposed list of participants (Panel members and people to be informed including Interfacing System ROs);

3. The Design Coordinator shall contact CIE (Technical Integration Division/Design Integration Section) to organize **a review of interfaces** (or a Design Integration Review for systems with complex interfaces). This includes a CMM resolution of clashes and should be done **6 weeks minimum before SDR meeting**

4. The Design Developer prepares the documentation for the **assessment of the SDR readiness** and submits it to the Design Coordinator and the Design Approver.

   The SDR readiness documentation shall include:

   - review all **action items and chits** coming from former Design Reviews, and status report;
   - **Project Change Requests** (PCR) resolution status report;

- **Interfaces ICD/IS** status report including status of actions coming from the recent Review of Interfaces;
- Update Design Compliance Matrix;
- **draft SDR Agenda**, which shall include the following mandatory items:
  - the date, time and venue of the meeting
  - the scope and objectives for the design review meeting
  - link to the **SDR data package** submitted to the review (see Appendix B);
  - presentation of e-Chit application (secretary)
  - list of Chit 1 and corresponding approved actions, and implementation from former design reviews
  - Chit 2 resolution status from former design reviews
  - List of Deviation Requests on the reviewed PBS element
  - List of Non-Conformities on the reviewed PBS element
  - PCR status (including any change to the input requirements)
  - IS development against ICD scheduled steps, for each Interfacing System
  - From the DCM, a report on the critical points and proposed solutions
  - Sufficient time for the various SDR activities (presentations, closed sessions including adequate time in the SDR meeting for the drafting of the SDR Panel Report, debriefing…)

5. The Design Approver verifies SDR readiness documentation and **approves the SDR Notification**, appoints the Design Review Panel Chair and in consultation with the Chair confirms the members of the Review Panel.

   If the Design Approver judges that the progress and mandatory documentation is not adequate for the concerned SDR to take place, then the SDR meeting should be postponed whatever the SMP date is.

   In particular, unless otherwise agreed with the Design Authority in concurrence with SQS:

   - NCRs on SIC SSCs shall be closed before any SDR on them;
   - PCR/DR (deviation request) impacting the system or its interfaces shall be closed before the FDR or at the latest before the Build-to-Print design is authorized to proceed for construction (i.e. when the FDR close-out report is approved).

6. The SDR Secretary sends the final notification and agenda to the participants, and release access to input data package in IDM (in particular for external members and restricted access).This has to be done **not later than 2 weeks before the design review meeting.**

7. The Design Developer prepares presentation materials and can involve other persons involved in the design execution activities.

The Design Developer shall present critical aspects of his design, supported by other presenters (e.g. DA-Design Developer) with specific emphasis on issues and uncertainties.

7.2 Design Review phase

Design review phase starts when the data package is distributed for review.

8. (**Date of the SDR Meeting**): The Chair shall manage the meeting, moderate the discussions ensuring that the focus stays on the design assessment and that all participants can provide their inputs and try to reach consensus in the review team in case of different opinions. If consensus cannot be reached the Chair reports minority as well as majority view(s) in the Panel Report, however final decision is left to the Chair but for Safety Chits.

9. All Chits issued during the SDR shall be submitted in using the E-Chit application. Chit submission shall be closed after the last closed session.

10. The Chair in consultation with the Review Panel **shall drop** a Chit if one of the following situations arises:
    - The Chit is not relevant to the reviewed system;
    - The Chit is in contrast with the Project Requirement and/or with the System Requirement Document;
    - The Chit requires information already provided in the DR package;
    - The Chit requires a higher level of maturity of a document, which is not consistent with the recommended maturities specified in Appendix B.

11. The Chair in consultation with the Review Panel **shall merge and categorize chits** according to Table 1 below. The Chair shall **prepare and issue a draft of the SDR Panel Report before the end of the meeting**. To that aim, adequate time and a dedicated closed session shall be included in the SDR agenda. The SDR Panel Report shall contain a summary of the outcome of the SDR, the list of Chits 1 and 2 and any deviation from the agenda and notification (on the scope in particular). The Chair is encouraged to invite the Design Developer and the Design Coordinator, in a closed session, for clarification purpose and finalize the categorization of the Chits.

12. The Nuclear Operator's rep. (SRO) decision prevails on the Chair in case of disagreement on categorization or dropping of Safety Chits.

Chit Category	Description
Category 1	They shall address only major design issues and shall be resolved for getting the Authorization to Proceed for next development phase (1) (Close-out report).
Category 2	They shall address design issues of enough significance to require action plan and formal resolution tracking. Their resolution is not required for getting the Authorization to Proceed for next development phase (1) (Close-out report).
Category 3	Recorded but not requiring formal tracking and action.

Table 1 Chit categorization

(1) Next development phase is PD phase for CDR, FD phase for PDR, manufacturing or construction for FDR.

13. The Chair shall present the results of the meeting during the SDR debriefing.

7.3 Close Out phase

14. The Design Developer, in consultation with the Design Coordinator, proposes to the Design Approver, after proper review, **the closure of Chits** for which a justification can be provided.

15. **Appealing process:** In exceptional cases, the Design Developer, in consultation with the Design Coordinator and the Design Approver, may propose together with a justification and action plan, to change the categorization of a Chit and/or to close the design review (Close-out report issuance) without having resolved all Chits 1. In the latter case, an action plan to resolve the Chits 1 must also be presented. This proposal is made to the **ITER Chief Engineer** who prepares the final decision for DIPH approval, in concurrence with SQS for Safety Chits. The decision together with the justification and action plan (for Cat. 1 Chits, which are resolved after the SDR closure) must be recorded in the Close-Out Report.

16. **Within 5 weeks after the SDR meeting**, the Design Developer shall deliver an action plan including **actions items description** in the ITER Actions Database for at least the resolution of Chits 1 and Safety Chits.
    The content of the actions involving Safety Chits must be uploaded in IDM and recommended by the SRO before proceeding to their resolution.

17. The Design Developer shall prepare a **SDR Close-Out Report**; this SDR close-out report shall:

- show that all Cat. 1 chits have been resolved or approved for later resolution (see **Appealing Process**);
- propose the closure of the Design Review;
- describe the status of remaining Chits 1 and 2 and a plan for their resolution;
- include the list of design documents submitted to the SDR, with their approved or accepted versions.

The Design Developer requests SRO recommendation for SIC SSCs.

18. The Design Approver approves the SDR close-out report after CIEH (and SRO for SIC SSCs) recommendation. This Approval acknowledges the completion of the System Design Review and the Authorization to Proceed to the next development phase.

8 Simplified SDR Workflow

Compared to the Full Workflow, the Simplified Workflow relaxes requirements on the mandatory participants (see **Section 6.9**), **makes the review meeting optional**, but continues to use the same processes for Close-out phase, Action Items control and recording of results.

The attendance to in-person meetings should be limited as much as possible. Remote participation and short meetings are necessary, as well as exchanges of emails.

9 Records

Design Developer is responsible for recording all SDR management documents and updating the System design documents presented to the review. When the SDR is finished, the Design Developer ensures these documents are incorporated into the configuration baseline according to the configuration management procedures.

Appendix A SDR Management Documents

Document (IO documents)	Author	Reviewers (1)	Approver (2)	Templates
DR Notification	Design Developer	DirH–CIE Design Coordinator (3)	Design Approver	[Design Review Notification]
Meeting Agenda (includes links to data package)	Design Developer	Chair Design Review Manager	Design Approver	[CDR] [PDR] [FDR]
Presentations	Presenter	Design Developer	Design Coordinator	
Chit (classification)	Anyone	Panel members	Chair	
Minutes of Meeting	Secretary	Design Developer	Chair	[SDR Meeting Minutes]
Panel Report (incl. list of chits)	Chair	Panel members	Design Approver	[Panel report]
Action item Action RO assignment and description of action	Design Developer	SRO for SIC(4)		
Action Item Completion (5)	Action RO	Design Developer SRO for SIC	Design Approver	
Close-out report (6)	Design Developer	DirH-CIE SRO for SIC	Design Approver	[Close-out report]

(1) Other reviewers are possible

(2) Or delegated person

(3) If not Design Developer

(4) SRO: Safety Responsible Officer. If the review is not available in the action item application, the description of the action is reviewed in IDM before being submitted.

(5) Chit is closed upon completion of related actions

(6) The Approval of the Close-Out Report gives the Authorization to Proceed to the Design Developer for the next development phase.

Appendix B List of data package documents

The System Design Review shall concentrate on the definition of input requirements (SRD, SLS), on the design choices (DD) and on issues detected from the Design Compliance Matrix **(DCM)**.

The Design Developer should provide the list of documents (links) composing the data package in 3 categories corresponding to the attention to be placed on by the SDR Panel.

Indication of the targeted Authorization (IO-Approval or IO-Acceptance) and PBS level shall be shown for each document.

CAT. 1: [key documents to be assessed]

Maturity of System Design Documents at the end of the Design Phases	**Design Phases**		
	Conceptual	**Preliminary**	**Final**
System Requirements Document (SRD)	Complete	Minimal update	
System Design Description (DD)	Preliminary	Consolidated	Complete
System Load Specifications (SLS)	Preliminary	Consolidated	Complete
Engineering Analysis Reports and Calculation Notes	At any stage of the design to support justification		
Design Compliance Matrix (DCM)	Preliminary	Consolidated	Complete

CAT. 2: [secondary documents to be assessed] (normally assessed in the review of Interfaces which outcome summary is presented at the SDR)

Maturity of System Design Documents at the end of the Design Phases	**Design Phases**		
	Conceptual	**Preliminary**	**Final**
Requirements (RQF)			
Interface Control Documents (ICD)	Complete	Minimal update	All approved
Interface Sheet (IS)	Preliminary	Consolidated	Complete as far as possible depending from the maturity of the interfacing system

Maturity of System Design Documents at the end of the Design Phases	Design Phases		
	Conceptual	**Preliminary**	**Final**
Configuration Management Model (CMM)	Preliminary	Consolidated	Complete
Description (DEF)			
Mechanical Engineering Model	Preliminary	Consolidated (3D CATIA models in the "In-Check" status	Complete (3D CATIA models in the "In-Check" status)
Justification (DJF)			
Design Reviews and Recommendations	At each stage		

CAT. 3: [cursory review for the SDR] Documents whose production depends on the System disciplines (mechanical, piping, electricity, I&C etc…). They have to be selected (needed/not needed) for the Documents Production Plan to be established by the Design Developer for his/her design. The Design Approver for the design review shall concur with the list and maturity proposed by the Design Developer for his/her system design process deliverables.

Maturity of System Design Documents at the end of the Design Phases	Design Phases		
	Conceptual	**Preliminary**	**Final**
Description (DEF)			
System Functional Analysis	Preliminary	Complete	Minimal update
System Detailed Performance Definition	If useful	Preliminary	Complete
Process Flow Diagram (PFD)	Complete	Minimal update	
Detailed Diagrams (P&ID, SLD, routing/cabling)		Preliminary	Complete
Control and Instrumentation Documents (C&ID)		Preliminary	Complete
Bill of Material (BOM) and Component Classification	Preliminary	Consolidated	Complete

Maturity of System Design Documents at the end of the Design Phases	Design Phases		
	Conceptual	**Preliminary**	**Final**
	Operation (DEF/MOF)		
System Integrated Logistics Support Plan (ILS)		Preliminary	Complete
Operation Plan		Preliminary	Complete
Maintenance Plan		Preliminary	Complete
Periodic Test and Inspections Plans		Preliminary	Complete
Justification (DJF)			
Design Justification Plan	Preliminary	Complete	Minimal update
ROX and R&D	Complete		
Factory Qualification Test Plan		Preliminary	Complete
Qualification Summary Report for SIC Components		Preliminary	Complete
			Tests & Commissioning (DJF/TCF)
On Site Assembly Plan	Preliminary	Complete	Minimal update
On Site Testing and Commissioning Plan	Preliminary	Complete	Minimal update
Decommissioning Plan		Preliminary	Complete
Design Management (PRO)			
Schedule– Risks Assessment	At each stage		
Work Plan	At each stage		