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## IRR PROCEDURE AND CHECKLIST

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	Name	Role/Title
<b>Owner</b>	Kristofer Falkland	Installation coordinator Installation & Field Support
<b>Reviewer</b>	Cecilia Lowe Helen Boyer	Quality Control Officer OHS Group Leader
<b>Approver</b>	Mikael Jakobsson	ESS Installation Manager

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[https://chess.esss.lu.se/enovia/link/ESS-0398509\\_3/21308.51166.2816.40793](https://chess.esss.lu.se/enovia/link/ESS-0398509_3/21308.51166.2816.40793)



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## 1. INSTALLATION READINESS REVIEW

The purpose with the Installation Readiness Review (IRR) is to examine the final technical design, emphasizing on interfaces between components, subsystems, controls integration, plans, staff, and tooling required for the installation work itself. For additional information, see [1] and [2].

Appendix 1 to this document includes a checklist that should be used as a basis for the IRR. The installation package lead submits an invitation for IRR. The Installation Coordinator for the area shall be Chairperson at the IRR, but this responsibility can be delegated. The Chairperson is also responsible for making sure the filled checklist is archived in CHESS and included in the overall IRR summary report or minutes of meeting.

Typical **candidates** to participate, but not limited to, can be:

- Work package manager / Work Package Lead (AD)
- In-kind lead
- Lead engineer
- Installation package leader (system lead)
- Contractor Supervisor
- Installation coordinator
- SEC coordinator
- Area coordinator
- ES&H
- Quality

The Installation Coordinator has the authority to approve/disapprove the IRR.

## 2. GLOSSARY

Term	Definition
CDR	Critical Design Review
ESS	European Spallation Source
IK	In-Kind
IRR	Installation Readiness Review
KKI	Design Review, “konstruktionskontrollintyg” in Swedish
NCR	Non Conformity Report
NDE	Non Destructive Examination
NDT	Non Destructive Testing
WPS	Welding Procedure Specification
WPQR	Welding Procedure Qualification Record

## 3. REFERENCES

- [1] ESS-0092276  
ESS Handbook for Engineering Management
- [2] ESS-0102864  
ESS Procedure for Preparation for Installation and Installation

## 4. DOCUMENT REVISION HISTORY

Revision	Reason for and description of change	Author	Date
1	First issue	Kristofer Falkland	2018-09
2	Updated Section 1 about Chairman. Section 2 #6 – Added question about requirements.	Kristofer Falkland	2019-12
3	Changed bullet 3 under Section 2 and CDR regarding V&V plan	Kristofer Falkland	2020-09

## APPENDIX 1 – INSTALLATION READINESS REVIEW CHECKLIST

<b>Project :</b>	<b>Area:</b>	<b>IRR Id:</b>
<b>IRR Chairman:</b>	<b>IRR Participants:</b>	<b>Date:</b>

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## 1. Practical arrangement

Under this section a check is made that necessary administrative activities are considered.

ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
1	Courses	<ul style="list-style-type: none"> <li>All courses to get access performed?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Registration	<ul style="list-style-type: none"> <li>All involved been registered? ID06?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Office	<ul style="list-style-type: none"> <li>Offices and other support services (phone, wifi) arranged?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Reporting	<ul style="list-style-type: none"> <li>Communication plan and reporting routines established?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Work orders	<ul style="list-style-type: none"> <li>Work orders submitted into the system?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>General comments:</b>					

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## 2. Design

Under this section a check is made that the installation binder has been completed and the required activities during the design phase have been performed.

ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
6	CDR	<ul style="list-style-type: none"> <li>Has a CDR been performed on the design?</li> <li>Are there still some remaining items needed to be resolved?</li> <li>Have all requirements that should have been evaluated before IRR according to the System verification plan been verified and reported in the System verification report including non-conformities?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	CHESS	<ul style="list-style-type: none"> <li>All applicable documents appropriately approved and achieved in CHESS?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	SSM/AIB	<ul style="list-style-type: none"> <li>Application submitted to SSM?</li> <li>KKI been created/issued?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>General comments:</b>					

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## 3. Installation

Under this section a check is made that the installation binder has been completed and the content is appropriate.

ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
9	Installation binder	<ul style="list-style-type: none"> <li>Is it understood how this installation binder is linked to others? Overall picture.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
		<ul style="list-style-type: none"> <li>Installation binder completed (to extent possible), reviewed, approved and communicated?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Scope of work	<ul style="list-style-type: none"> <li>Is Scope of Work well described?</li> <li>Responsibility matrix understandable and communicated?</li> <li>Clear interfaces?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11	Organisation	<ul style="list-style-type: none"> <li>ESS/IK/Contractor resources and organisation well defined and communicated?</li> <li>Company's and personal certificates (e.g NDT, welding, coupling).</li> <li>Telephone/mail-list communicated?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12	Time Schedule	<ul style="list-style-type: none"> <li>Time schedule well understood and communicated?</li> <li>Critical path understood?</li> <li>Is there a plan B if installation lasts longer than expected? Develop a backup plan.</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
13	Risk Assessment	<ul style="list-style-type: none"> <li>Has an adequate risk assessment been carried out?</li> <li>Is there a detailed method statement?</li> <li>Have appropriate actions been taken to address all risks identified?</li> <li>Has risk assessment been reviewed and accepted?</li> <li>Have specific risk assessments been performed for high risk activities? Such as lifting, high pressure, chemicals.</li> <li>Transportation and installation interference check has been done? Transportation route?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

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ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
		<ul style="list-style-type: none"> <li>All necessary equipment available?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Temporary services	<ul style="list-style-type: none"> <li>Need for scaffolding communicated?</li> <li>Storage arranged? Considered storage time at site?</li> <li>Temporary services, such as power and fluids established or ordered?</li> <li>Other rentals (tools, lifting) arranged?</li> <li>Need for lifting communicated? Applications for personal lifting permission submitted?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Drawings/models /PID /WD	<ul style="list-style-type: none"> <li>Project team (ESS/IK/Contractor) have all the latest drawings, PID / WD?</li> <li>Are all models released with a level of maturity R?</li> <li>Have models of deliverable component/installation been confirmed towards baselined plant layout to identify any deviations or collisions?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Installation procedures	<ul style="list-style-type: none"> <li>All WPQR and WPS are issued and approved by ESS Q?</li> <li>Procedures for coupling, anchor bolt etc. are approved?</li> <li>Procedures electrical etc. approved?</li> <li>NDT/Inspections procedures?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Work permits	<ul style="list-style-type: none"> <li>All specific certificates identified and approved by ESS? Hot work, fork lift, crane.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A
18	Daily Diary	<ul style="list-style-type: none"> <li>Routines for Daily diary establish? Where and to whom to communicate.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	NCRs	<ul style="list-style-type: none"> <li>Approved NCRs considered and communicated?</li> <li>Any open NCRs?</li> <li>Process for initiating NCRs are understood and communicated?</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>
20	QC – Installation & test documentation	<ul style="list-style-type: none"> <li>Inspection and Test Plan prepared and approved</li> <li>QC resources assigned to support documentation from beginning?</li> <li>Third Parties assigned (if needed)?</li> <li>Risk assessments performed for pressure test programs?</li> <li>NDTs (e.g. X-rays) scheduled?</li> <li>Electrical Safety Plan for electrical testing?</li> <li>Equipment/tools to perform the work?</li> <li>Calibration protocol if required?</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
21	List of components and materials	<ul style="list-style-type: none"> <li>Have receiving inspections been performed for all materials?</li> <li>Parts/components that are manufactured are approved incl applicable documentation.</li> <li>Will all material will be at site prior installation?</li> <li>Do you have critical spare parts available? If not, what is the backup plan?</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
<b>General comments:</b>					

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ID	Activity	Description	Performed [Yes]	Not Performed [No]	N/A



## 5. Other

Under this section other subjects or comments can be noted.

ID	Activity	Description	Performed	Not Performed	N/A
<p><b>General comments:</b></p>					

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## 6. Conclusion

Based upon the discussion and outcome during this IRR the judgement is that the project is:

ready to pursue installation	<input type="checkbox"/>
ready to pursue with the installation with the following reservation: <hr/> <hr/> <hr/>	<input type="checkbox"/>
not ready to pursue with the installation.	<input type="checkbox"/>

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IRR Chairperson