# ESS Design Report Home Page

Conceptual Design Report, ESS-2012-001 Feb 6, 2012

Technical Design Report Release 1.0
Nov 28 2012, 301 MB, 719 pages, 546 references

TDR Chapter Abstracts (121105)
Style Guide (121127)

To compile a single chapter, download the superstructure (121210) and a **ZIP** file.
Cross references are inevitably broken in stand alone chapter **PDF** files.
Table of Contents, List of Figures and List of Tables are hyperlinks.

| Ch. | PDF chapters | Editor | Mb | ZIP |
|---|---|---|---|---|
| | Executive Summary | Carlile | 18.4 | 121211 |
| 1 | Introduction | Carlile | .9 | 121127 |
| 2 | Neutron Science | Kirstein | 157 | 121210 |
| 3 | Target Station | Lee | 27 | 121128 |
| 4 | Accelerator | Weisend | 40 | 121127 |
| 5 | Integrated Control System | Trahern | 35 | 121128 |
| 6 | Specialised Tech. Services | Weisend | 3 | 121127 |
| 7 | Conventional Facilities | Hedén | 28 | 121127 |
| 8 | Integration | Lanfranco | 7 | 121127 |
| 9 | Commissioning | Carlsson | 1 | 121128 |
| 10 | Upgradeability | Ainalem | 3 | 121127 |
| 11 | Emission Control | Ene | 1 | 121127 |
| 12 | Safety and Security | Jacobsson | .4 | 121127 |
| 13 | Conclusions | Carlile | .2 | 121127 |

# Some comments, by chapter

| | |
|---|---|
| Executive Summary | New 14 page version. Stand-alone? |
| 2: Neutron Science | 158 Mbyte ! Stylistic precedents. |
| 3: Target Station | Table formatting |
| 4: Accelerator | (See next slide) |
| 5: Controls | Missing citations |
| ... | |
| 11: Emission Control | CFWG feedback (see below) |

# Ch 4: Accelerator

John, Rachel, Ryoichi & I do repeated "filtering" passes:

1. Ryoichi: is doing plot (not graph) standardisation.
   - Konstantin & Andrew J. act similsrly on Chs 2 & 3
   - Can proceed "in parallel"
2. Steve: is 3/4 through a wordsmithing pass
   - Fixing errors John has pointed out
   - Defining a finite set of issues w Refs, Tables & Figs
3. Rachel: will soon do a "perfect english" pass
   - Applying style guide standards developed (eg) with Ch 2
4. John: will incorporate a "design contingency" section
   - Other than that it is essential that Ch 4 files stabilise NOW!
   - There will be no new baseline release before TDR print

Many thanks to Ryoichi, John, Christine, & all the section authors

Are there any more "contributors"?

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LLATION
IRCE

# Institutions

EUROPEAN SPALLATION SOURCE

Date: November 20, 2012
To: Cross Functional Working Group chairs
From: J. Lehander, S. Peggs.
Cc: TDR chapter editors, C. Carlile, R. Kreier.

Subject: **Horizontal threads in TDR "Release 1"**

We ask for help from your CFWGs, in addressing "General Editing Recommendation 14" from the recent TDR Internal Review:

> *14. Use small, dedicated groups to read the entire TDR from the point of view of a restricted area of specialised expertise, scrubbing for content consistency and repetition, and inserting cross-references between chapters, by Release 1.*

Clearly, this activity will not be complete before Release 1, which occurs November 26. On the other hand, the availability of a stable Release 1 will make the task of "pulling horizontal threads" easier, insofar as it will be possible to refer to section, page, figure and table numbers with unambiguous confidence.

Please take the "*restricted area of specialised expertise*" represented by your CFWG to identify and resolve three kinds of TDR-wide issues:

# CFWG response on Chapter 11

2012-11-29
Thomas Hansson
Peter Jacobsson

## Necessary TDR clarification (release 1, version 2012-11-28)

The 28th of November, Steve Peggs officially declared that the first official release of the TDR had been made. Looking into chapter 11, we realized that the whole chapter had been rewritten and a lot of new material had been added.

Here are the preliminary comments from the SHE Division, which needs to be clarified and presumably corrected as soon as possible.

Thomas & Peter list as concerns:

- #1: Section 11.4.2, Source term for atmospheric releases.
- #2: Section 11.4.3 Tritium Control.
- #3: Section 11.5.1 Routine operations.
- #3: Section 11.5.4 Accidents.

Daniele & Feri have replied .....

This example illustrates the eventual generic need for Configuration Control in the post-TDR "Live Design Report" .....

# “Harmonisation” - TDR parameters

EUROPEAN SPALLATION SOURCE

- Drift Tube Linac
- Spoke resonators
- Elliptical cavites, medium beta
- Elliptical cavities, high beta
- High Energy Beam Transport
- Target
- Infrastructure Services
- RF Systems
- LLRF
- RF Sources, High beta
- Cryomodules, High beta
- Cryomodules, Medium beta
- Cryomodules, Spoke
- Cryomodules, Utility module
- **Beam instrumentation**
- Vacuum
- TDR

Add Parameter List | Rename Parameter List | Generate PDF | Generate TEX

| Name | Value | Units | Version | Status | Description | Creation Date | Modified By | Order | Comments | |
|---|---|---|---|---|---|---|---|---|---|---|
| Beam Current Resolution | 0.5 | mA | 4 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Beam density on target sensitivity | 7 | mA/cm2 | 3 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Beam loss sensitivity | 0.01 | W/m | 3 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Beam Position Accuracy | 100 | um | 3 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Beam Position Resolution | 20 | um | 4 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Beam size accuracy | 10 | % | 3 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| BLM response time | 2 | us | 4 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| BPM response time | 1 | us | 4 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Bunch Arrival Time Accuracy (wrt RF reference) | 1 | * | 4 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| **Bunch arrival time resolution** | **0.2** | ***** | **3** | **ACTIVE** | | **04.10.2012 02:02** | **TB** | **0** | **Comments** | **Edit** |
| Bunch Length Accuracy | 10 | % | 3 | ACTIVE | | 04.10.2012 02:02 | TB | 0 | Comments | Edit |
| Cold Linac (300K section) Design Vacuum Pressure | 1e-09 | mbar | 3 | ACTIVE | | 04.10.2012 02:03 | TB | 0 | Comments | Edit |
| DTL BPM Aperture (radius) | 10 | mm | 3 | ACTIVE | | 04.10.2012 02:03 | TB | 0 | Comments | Edit |
| Elliptical BPM Aperture (radius) | 50 | mm | 3 | ACTIVE | | 04.10.2012 02:03 | TB | 0 | Comments | Edit |
| Faraday Cup sensitivity | 10 | uA | 3 | ACTIVE | | 04.10.2012 02:03 | TB | 0 | Comments | Edit |

1-15 of 31

Add... | Remove

**History**

| | |
|---|---|
| Name: | Bunch arrival time resolution |
| Id: | 397 |
| Version: | 2 |
| Status: | DRAFT |
| Units: | * |
| Value: | 0.2 |
| Responsible: | A. Jansson |
| Creation Date: | 09.07.2012 11:55 |
| Modified By: | A. Jansson |

| | |
|---|---|
| Name: | Bunch arrival time resolution |
| Id: | 347 |
| Version: | 1 |
| Status: | ACTIVE |
| Units: | ps |
| Value: | 4 |
| Responsible: | A. Jansson |
| Creation Date: | 15.12.2011 04:04 |
| Modified By: | / |

1-2 of 2

# TDR Milestones

| Date | Milestone |
|---|---|
| Nov 26 | Release 1: approved by EPG, available to STC |
| Nov 29-30 | SAC |
| Dec 17-18 | STC |
| Dec 19+ | Harmonise TDR with Cost & Schedule |
| Feb ~1 | Release 2: available to STC (Feb 18-19) |
| TBD | Print |