SCHEDULE 6.7 - MOCK-UP AND TEST STAND TO THE IN-KIND CONTRIBUTION AGREEMENT SIGNED BETWEEN EUROPEAN SPALLATION SOURCE ERIC and PARTNER ON DATE

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1. SCOPE

This document describes the Scope of Work (SoW) required to complete the Partner contribution to the ESS programme. It is an integral part of the In-Kind Contribution Agreement and is agreed upon by all undersigning Parties. The SoW contains an appropriate level of detail so all parties clearly understand what work is required, the duration of the work involved, the deliverables and the conditions of acceptance.

1.1. General Work Unit description

The Mock-Up and Test Stand (MUTS) work unit deliverables are including design, procurement, delivery, installation and commissioning of equipment and systems necessary to train operators related to handling of monolith components as well as to be able to perform functional tests on these monolith components (like SAT as one example). The required functionality of the MUTS as well as the delivery and installation is highly integrated with construction of the target (D02) building as well as with interfaces to other work packages and work units within the target project.

Applicable documents and general requirements for the Partner delivery are listed in Section 2.1. For the MUTS, detailed requirements and PD status of the design development are specified in the applicable documentation as listed in Section 2.2. The listed documents in Section 2.2 are valid and overrule the short summary within this schedule in case of discrepancies.

1.2. Work under the Partner responsibility – MUTS:

The definition of the MUTS could be summarized as a structure dedicated for Site Acceptance Tests (SAT) and remote handling training for all major internal monolith systems. In this role, the MUTS will therefore also be a part of the logistics associated with exchange of monolith components during the ESS facility lifetime. The major components that the MUTS will have to accommodate are:

a. Target wheel and drive unit
b. Moderator and reflector plug
c. Proton beam window plug
d. Neutron beam guide inserts and shutter drives
e. Target monitoring plug
f. Proton beam instrumentation plug
g. Casks and associated handling devices

On top of the interfaces with the above-mentioned components, the major interfaces are with the building structures (space allocation, crane coverage, structural forces etc.) as well as with the electrical distribution and other auxiliary supply systems.

The MUTS is described as a steel beam framework structure as outlined in Figure 1 which shall be designed and built in accordance with the harmonized standard EN 1090-1 and EXC2. It shall be installed in the transport hall of the D02 building as soon as the project is granted access to the building for installation (as defined in Table 1). The definition of

access to the building is “parallel access” which means that the building installations will not be fully completed. The definition of access conditions and associated responsibilities for worker safety etc. is described in the referenced documentation in Section 2.1.

Based on the PD design as listed in Section 2.2, the work under the Partner responsibility are the detailed design, procurement, delivery, installation and commissioning of the MUTS facility including passing required tollgates and associated updates of the project documentation. The SoW do not include any design or deliveries off any control systems supporting the functional tests of the major components as listed above.

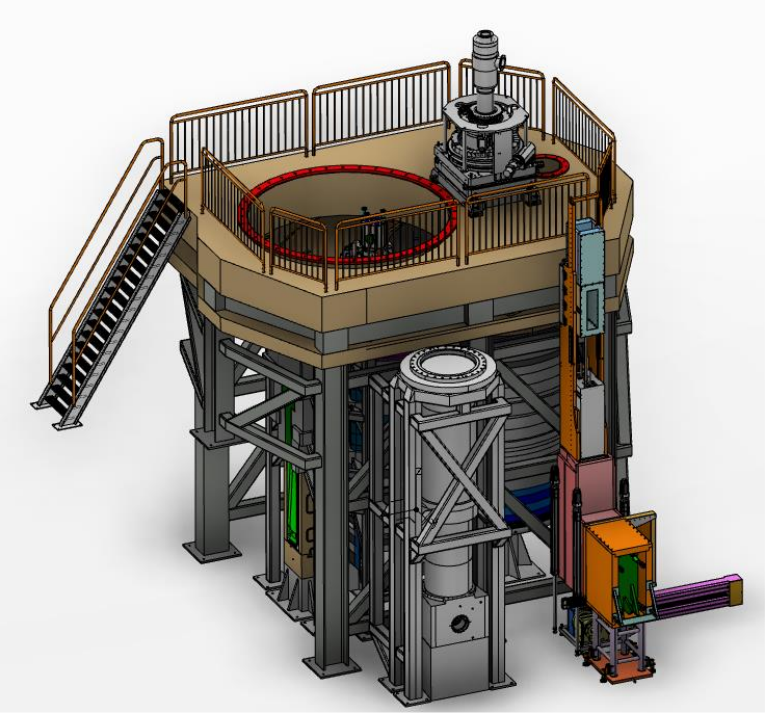

Figure 1. PDR status of the design of the MUTS facility.

1.3. General Work Unit deliverables

The following subsections of this document present a description of the tasks to be performed by the Partner related to the SoW for TIK 6.7.

As a general rule, the deliverable shall be CE marked by the Partner.

1.3.1. Engineering design of the systems

Based on the criteria and boundary conditions set by ESS ERIC, the Partner team will have lead responsibility for developing the final (detailed) design, including supporting engineering analyses of the MUTS systems and components as detailed in Section 1.2 and referenced supporting documentation.

The baseline design concept, as described in the Preliminary Design Review (PDR) and therein referred documentation, further listed in Section 2.2, will form the starting point for the engineering work. The technical staff of the Partner and the ESS ERIC in cooperation must review the design progress and development continuously. All design

changes and modifications of requirements and constraints during the construction project shall follow a quality assured change control process. The Work Package Manager (WPM) for the Remote Handling Systems will, in collaboration with the Partner, decide if changes have to be handled through the ESS Change Control Process or not. Changes to the design will be handled on a regular basis with the Partner in accordance with an agreed meeting schedule.

As part of the engineering efforts for the MUTS system, all relevant interfaces with stakeholders and adjacent systems shall be identified and addressed. Sufficient specifications for radiological waste management, controls, instrumentation, maintenance, handling, operations, safety, assembly, testing, installation and commissioning shall be provided as part of the engineering work for the design review milestones as defined in Section 2.1. Such specifications shall be part of the delivery for the included scope of system, components and equipment.

A description of the technical solution and the physical system, together with their specifications, shall be presented in one or several documents that follows the defined ESS ERIC document breakdown structure. The documentation shall also include validation and verification plans to ensure that all requirements are satisfied.

1.3.2. Engineering Development and Demonstration

Engineering Development and Demonstration (EDD) activities are aimed at addressing uncertainties that introduce risk in the ability of the design to satisfy the stated functional requirements. EDD results should be obtained as soon as possible to allow changes to the design, if required, with minimum impact on the project schedule.

Depending on design concepts, it could be necessary to prove feasibility of suggested design solutions. These EDD activities are part of the scope for the Partner. Proposed EDD efforts shall only be considered after a detailed definition of purpose and goals as well as to be agreed by all Parties.

1.3.3. Manufacturing process review

The requirements for detailed engineering of each component shall include assessment of its manufacturability. The aim is to identify manufacturing and inspection processes that will allow fulfilment of the ESS and equipment specific quality requirements.

1.3.4. Procurement and manufacturing

Once the design and manufacturing processes for the components have been defined and approved, the Partner shall be responsible for the manufacturer selection, the manufacturing process tracking, and, finally, reception and acceptance.

The inspection criteria shall be agreed with the ESS ERIC staff to guarantee the integration of the Partner into the ESS ERIC’s quality system.

1.3.5. Assembly and cold testing

The components manufactured by the Partner shall be assembled for the performance of cold tests. The testing program, to be determined by mutual agreement of the Parties,

may consist of geometric measurements, static pressure tests, lift and hoist performance tests, leak tests, and similar tests to confirm the system meets design specifications.

1.3.6. Delivery to ESS and participation in integration into the Target Station and cold commissioning

The Partner shall deliver, install, and test the MUTS facility equipment at the European Spallation Source site. The tasks required for the installation and cold commissioning of the systems will be decided and mutually agreed by both Parties. Installation planning, site responsibilities and site authorities have to be adapted to the general installation plan of the Target Station building and the site installation organization. Equipment needed for installation (scaffolding, temporary hoists, containers, etc.) as well as training for onsite work shall be with scope for the Partner. There will be framework agreements with suppliers on site in accordance with details in documentation in Section 2.1.

1.4. Requirements related to nuclear safety

For the MUTS facility, there are no requirements on nuclear safety but the facility should be built under the machine directive in order to assure safety for workers.

2. RELATED DOCUMENTS

2.1. Applicable Project Documents

This is a collection of processes, procedures, guidelines, handbooks, rules and templates that shall, to the extent applicable, be used to execute the project. This collection of documents in turn refers to other documents that will have to be used at a need basis (these are typically templates). The documents in this list can be updated during the course of the project as well as that there might be additional documents added. Impact of these updates and additions will be evaluated and if necessary handled in a change process as defined in the CCP.

ESS-0001879 [CCP] Procedure of Change Control of ESS Facility, Rev 5

ESS-0003688 [CMP] Configuration Management Plan, Rev 2

ESS-0008910 [DRP] Design Review Standard Operating Procedure, Rev 1

ESS-0013139 [ESM] EV-Schedule-Milestone Template and Instructions, Rev 2

ESS-0002917 [IMP] Interface Management Plan, Rev 2

ESS-0017560 [ISS] TS, AD, NSS and ICS Plan and Implementation Strategy for Hazardous Materials and Sustainability, Rev 1

ESS-0042559 [LOG] ESS Logistics Guidelines, Rev 1

ESS-0048868 [OLH] ESS Procedure for Offsite Lending of Hardware, Rev 1

ESS-0037830 [PQP] ESS Template for Project Quality Plan, Rev 1

ESS-0000263 [RMP] ESS Process for Risk Management Process, Rev 4

ESS-0002908 [SEM] System Engineering Management Plan, Rev 2

[TBY] Technical Regulations for Surface Treatment (http://www.okg.se/en/Work-at-OKG/Stipulations-for-Mechanical-Equipment/TBY---Technical-regulations-for-surface-treatment/), Rev. 3

ESS-0027134 Target Project Quality Plan, Rev 1

ESS-0002381 BR01DT-TBSIGDPS--Fire Strategy Report, Target Station, Rev 13

ESS-0037005 Target Project Process for Project Phase Transition, Rev Draft

ESS-0097484 Target Document Guideline, Rev 1

ESS-0039311 ESS rules for technical requirements for mechanical equipment, Rev 2

ESS-0047989 ESS rules for quality requirements for mechanical equipment, Rev 2

ESS-0091757 Required submittals for mechanical safety systems, Rev 1

ESS-0135373 ESS rules for design of electrical power systems, Rev 1

ESS-0118082 ESS rules for qualification of electrical and I&C equipment, Rev 1

ESS-0001786 Definition of Supervised and Controlled Radiation Areas, Rev 3

ESS-0015433 ESS Rules for electrical design, Rev 3

ESS-0001515 Standards and Norms Applicable for ESS, Rev 4

ESS-0000757 ESS Naming Convention, Rev 6

ESS-0092276 ESS Handbook for Engineering Management, Rev 1

ESS-0028698 Using ePLAN at ESS, Rev 2

ESS-0094090 ESS Generic Requirements for naming and tagging, Rev 3

ESS-0094091 ESS Generic Requirements for Marking and Labelling, Rev 3

ESS-0094092 ESS Generic Req. for Documentation of Technical Systems, Rev 2

ESS-0147089 ESS Guidelines for Accessing and Performing Work on Site, Rev 1

ESS-0147100 Safety Training matrix for installation activities on site, Rev 1

ESS-0147101 ESS site logistics, Rev 1

ESS-0147103 Installation on site – General information, Rev 2

2.2. PDR reference documents

The following documents are describing the current design of the MUTS, its requirements and interfaces. The status of the documents is originating from the PDR and shall work as the baseline for the detailed design work.

ESS-0053351 SDD-Requirement: Mock-Up and Test Stands (System 1093), Rev 2

ESS-0054338 SDD-Solution: Mock-Up and Test Stands (System 1093), Rev 2

ESS-0023107 Design and Construction Rules for Mechanical Components, Rev 2

ESS-0064936 Equipment Specification – MUTS frame structure for TS sub-systems components, Rev 2

ESS-0054403 Application of Regulations, Codes and Standards for the Mock-Up and Test Stands, Rev 1

ESS-0055471 Hazard Analysis – Mock-Up and Test Stands, Rev 1

ESS-0059302 Verification Plan: Mock-Up and Test Stands, Rev 1

ESS-0065321 Product Breakdown Structure (PBS), Rev 1

ESS-0059871 Functional Analysis of MUTS, Rev 1

ESS-0055384 Standards and manufacturing parts designation on drawings, Rev 3

ESS-0066148.2 MUTS Interface Drawing, Rev

ESS-0058625 Interface ID and System Requirements List, Rev 2

ESS-0020837 ICD: Remote Handling Systems – Target Systems, Rev 2

ESS-0020864 ICD: Remote Handling Systems – Moderator and Reflector Systems, Rev 2

ESS-0020858 ICD: Remote Handling Systems – Monolith Systems, Rev 4

ESS-0031742 ICD-R: MUTS – Target Wheel Drive & Shaft, Rev 3

ESS-0031854 ICD-R: MUTS – Moderator and Reflector Systems, Rev 2

ESS-0088185 ICD-R: MUTS – Neutron Beam Extraction Systems, Rev 1

ESS-0059287 ICD-R: MUTS – Proton Beam Instrumentation Plug, Rev 2

ESS-0059288 ICD-R: MUTS – Proton Beam Window, Rev 2

ESS-0059289 ICD-R: MUTS – Target Monitoring Plug, Rev 2

ESS-0056035 ICD-R: MUTS – Site Infrastructure, Rev 1

ESS-0064952 ICD-R: MUTS – Active Cells, Rev 1

ESS-0065127 ICD-R: MUTS – Casks and Associated Handling Devices, Rev 3

ESS-0190219 ICD-R: MUTS – 400 V Power distribution system, Rev Draft

ESS-0100363 PDR Committee Report for Mock-Up and Test Stands, Rev 1

3. TERMS AND DEFINITIONS

CCP	Change Control Process
CDR	Critical Design Review
CHESS	ESS Data Management Software
COMM	Component Operation and Maintenance Manual
Facility element	This item corresponds to the product contribution of the partner. It is an element of the ESS Product Breakdown Structure.
DAP Incoterms	Delivered at Place. ESS is responsible for any import costs and applicable taxes.
EDD	Engineering Development and Demonstration
EV	Earned Value, the value of the work completed.
FAT	Factory Acceptance Test
IKC	In-Kind Contribution
IRR	Installation Rediness Review
MUTS	Mock-Up and Test Stand
ORR	Operational Readiness Review
PD	Preliminary Design
PDR	Preliminary Design Review
RAMS	Reliability Availability Maintainability and Safety
P&ID	Piping and Instrumentation Drawings
SAR	System Acceptance Review
SAT	Site Acceptance Test
SDD	System Design Definition
SoW	Scope of Work
SRD	System Requirement Document

SRR	Safety Readiness Review
TRR	Test Readiness Review
WBS	Work Breakdown Structure
WPM	Work Package Manager
WU	Work Unit

4. PROJECT DEFINITION

4.1. Deliverable Item definition

The Partner shall provide its contributions in accordance with the following time schedule:

Start date: [March - 2018]

End date: [November - 2020]

Table 1. Project main schedule milestones.

Task no.	Deliverables	Delivery Deadline / Delivery MS
WBS number	Partner Signature / Kick-off meeting	2018-04-30
WBS number	System Requirment Document (SRD) Approved	2018-12-28
WBS number	CDR MUTS	2019-04-26
WBS number	IRR MUTS	2019-12-06
WBS number	Access on Site for Installation	2020-09-24
WBS number	SAR MUTS	2020-11-06
WBS number	Project Handover	2020-11-18

This overall contribution is set to the ESS Cost Book value of 0.4 M€.

The listed delivery milestones have to be broken down by the Partner. The breakdown of the plan will at an agreed level of milestones be used in the Earned Value tracking (Section 5.1) process.

4.2. Project stages Definition

4.2.1. Stage 1: detailed design phase

Stage 1 of the contribution is the detailed design and engineering phase that prepares for and precedes potential procurement of the facility element. Within Stage 1 the design is detailed and verified by way of analysis and/or test down to the lowest level selected by the Partner. This includes but is not necessarily limited to:

1. Carrying out detailed optimization of the facility element mechanical, fluid, thermal, optical, electro- optical, electronic and electrical subsystems in relation to the requirements.
2. Expanding and consolidating the Interface Control Document(s) for the facility element including description of both internal and external interfaces as well as requirements for installation (e.g. clearance for stations, access, power, storage, pre-assembly areas, etc.).
3. Scheduling for the manufacture, assembly and testing and establishing integrated logistics requirements and solutions for the future operation of the facility elements.
4. Documenting:
    a. The logistics needs in a Component Operation and Maintenance Manual - COMM - for the facility element (e.g. test equipment, storage, transportation, handling and packaging, expected preventive and corrective maintenance activities),
    b. The design descriptions of the facility element in a System Design Description document– SDD – with its associated references (e.g. drawings, P&ID).
    c. The updates of the verification activities in the related Verification Plan,
    d. The updates of the related Requirement Document,
    e. The updates of the applicable Equipment Specifications in accordance with template for KS-MEK,
    f. Writing the Concepts of Operation (ConOps) for the facility elements,
5. Contributing to the RAMS (Reliability Availability Maintainability and Safety) analyses, including analyses to validate the initial maintenance planning defined in the COMM.

The analyses performed before Stage 1 shall be expanded and consolidated. The detailed conformity between the proposed design and the requirements shall be developed and demonstrated. The detailed design shall be elaborated such that:

a) A thorough and complete evaluation of the ability of the design to fulfil the requirements is possible and is supported by an appropriate traceability between the requirements and the proposed design features.
b) The development process for the hardware is well established including manufacturing methods, processing and tooling requirements.
c) The procurement documentation for each sub-system of the facility element is ready for competitive procurement. This includes technical specifications and statements of work for vendors or manufacturers.

d) The Partner is able to provide the documentation for the supply of the facility element.

Stage 1 starts upon successful completion of Preliminary Design Review of the facility system owning the facility element and the sign off of the parties of this SoW. Stage 1 ends with the successful completion of the Stage 1 design review (CDR- Critical Design Review).

4.2.2. Stage 2: Realization and verification

Stage 2 is the phase for realizing the design descriptions produced during Stage 1 and carrying out the verification of the facility element. The product will be verified by way of analysis and/or test and/or inspection and/or demonstration. This includes but is not necessarily limited to:

a) Contracting with a screened supplier, screening being based on a fair and well-balanced list of criteria,
b) Following up when applicable the fabrication actions and transportation process,
c) Carrying out intermediate verifications during the fabrication at the factory and/or at the site (ESS or Partner premises) e.g. inspection of material certificates, part dimensions before welding,
d) Taking over the documentation provided by the supplier,
e) Storing and handling the product in conditions that ensure its integrity,
f) Carrying out the verification activities as defined in the consolidated verification plan of the facility element,
g) Reporting and documenting in a System Verification Report the outcomes of the verification activities,
h) Presenting the verification outcomes during the System Acceptance Review of the facility element.
i) Transporting the product to the site <<to be defined>> and mailing or uploading its corresponding documentation to the ESS WU coordinator.

Stage 2 starts upon successful completion of Critical Design Review of the facility element. Stage 2 ends with the successful completion of the Stage 2 design review (SAR-System Acceptance Review).

4.3. Project Schedule and Key Milestones

The purpose of dates set out in the following table is for the Parties to monitor SoW progress and for tracking Earned Value.

Table 2. Project main meeting schedule and tracking milestones – full list to be completed during the kick-off meeting.

Milestone ID	Short description	Planned/Baseline date	Location	Weighting/Value (if known)	Comment
	Kick-off	T0	Partner		

	meeting		Premises		
	Progress reporting	Last workday every month	E-mail		
	Status updates	Weekly basis	Skype of face to face		
	CDR		Partner premises / ESS Premises		
	….				
	SAR		ESS premises		

4.3.1. Kick-off meeting

The main objective of the kick-off meeting is to confirm the mutual understanding of the Scope of Work specified herein, including the applicable specifications.

In particular the partners shall:

a) Present a project plan, schedule and work breakdown structure (as a baseline proposals),
b) Introduce the key resources and team members,
c) Review the risk register and establish an agreed prioritization of risks,
d) Complete the milestone definition list with weightings (if not present in the TA),
e) Make a technical presentation of the proposed solution,
f) Present management plans as applicable.

The participants shall take the minutes of the meeting and record the action items.

4.3.2. Status meetings

Status meetings are described as both “status updates” and “progress reporting”. Status updates shall be held every week and progress reporting shall be made the last workday every month during, for the whole duration of the project. The meetings and reporting may be held at the ESS or partner’s premises or over the telephone/video conferencing facilities available or sent in an agreed format by e-mail.

The purpose with the meetings re to review progress, risks, review/decide on change requests and discuss upcoming activities and potential challenges as well as to report progress.

The Partner is responsible for carrying out the SoW in a timely manner, fully in accordance with the time schedule referred to in Table 2.

The Parties shall take the minutes of the meetings and record the action items.

4.3.3. Stage 1: critical design review

The Critical Design Review concludes Stage 1. The CDR assesses if the design meets all facility element requirements with acceptable risk and within the cost and schedule constraints.

The CDR demonstrates that the maturity of the design is appropriate to support proceeding with full-scale fabrication, assembly, integration, test, and future operation and decommissioning.

The contents of the CDR data package shall be established as a minimum 3 weeks before the review. As a minimum, it shall contain all deliverables as specified in Section 4.4.2.

The review shall be organized as defined in the ESS Design Review Standard Operating Procedure [DRP].

The agenda of the review meeting shall be communicated to the Parties no less than 1 week before the review meeting. The review meeting may include in depth presentations by the Partner of the work undertaken and responses to the review findings.

No detailed schedule of a review meeting is requested but for planning purposes it can be expected that a review may last 3 working days.

4.3.4. Stage 2: system acceptance review

The System Acceptance Review examines the facility element and its documentation, and inspection, demonstration, test data and analyses that support its verification as defined in the Verification Plan and Report. The SAR ensures that the all system requirements have been satisfied and that the integration activities of the facility element can start as defined in the facility element Integration Plan.

The review shall be organized by ESS ERIC and will involve program members of the Partner as well as any other stakeholders at the discretion of the review chairman. The chair of the review board is appointed by ESS ERIC. The membership of the board is communicated to the review participants at the earliest possible time.

The contents of the SAR data package shall be established as a minimum 3 weeks before the review. As a minimum, it shall contain all deliverables as specified in Section 4.4.3.

The review shall be organized as defined in the ESS ERIC Design Review Standard Operating Procedure [DRP]. No detailed schedule of a review meeting is requested but for planning purposes it can be expected that a review may last 3 working days.

The agenda of the review meeting shall be communicated to the review participants no less than 1 week before the review meeting. The review meeting may include in depth

presentations by the Partner of the work undertaken and responses to the review findings.

The successful completion of the System Acceptance Review is a prerequisite for crediting values to the Partner.

4.4. Deliverables

4.4.1. Status reports

During the execution of the SoW, the Partner shall submit to the ESS ERIC monthly status reports containing:

1. The status of the SoW since the preceding report,
2. The progress expected to be made in the next following period and any other pertinent issues related to the Project Results,
3. Updated Milestone Tracking Table,
4. Desired changes to existing baseline,
5. Risk Management,
6. Updated electronic versions of the partner plans,
7. Input for Earned Value tracking

During the execution of the SoW, the System Status Report related to the facility element will be maintained by the ESS ERIC WU Coordinator. The ESS ERIC WU Coordinator and the Partner will ensure that the System Status Report reflects the current development maturity of the facility element and especially that testing or operating restrictions and limitations due to an uncompleted development are reported.

4.4.2. Stage 1 data package

The Stage 1 data package shall cover all activities undertaken during Stage 1. The data package shall document the technical baseline items and the trade-offs that lead to this definition, the detailed design of the facility element, including the design and operation documentation for all the equipment (software and hardware) that are necessary for handling, transport, storage, installation, maintenance and operation thereof when applicable. The data package shall demonstrate compliance with the applicable requirements and establish verification plans. The data package shall rely on templates provided by ESS ERIC.

This package shall include but not be limited to:

a) System Requirement Document,
b) System Design Description and related documents and data (drawings, general arrangement drawings, P&ID, FE models, etc.),
c) Updated Interface Control Documents,
d) System Integration Plan,
e) Certificate of Conformity for Hazardous Materials and Sustainability [ISS]
f) Component Operation and Maintenance Manual,
g) System and Manufacturing Verification Plan,

h) Updated Risk Assessment,
i) Manufacturing Process Specification,
j) System Analysis Reports,
k) Plan for sustainable selection of materials.

The Stage 1 data package shall also contain documentation to initiate a competitive tender for the procurement of the facility element and to support the project activities. The Stage 1 data package should additionally include but not necessarily be limited to:

1) a complete documentation package for the procurement of the facility element including as a minimum a statement of work, manufacturing follow-up description, applicable and reference documentation,
2) The Project Schedule for construction,
3) Risk register.

4.4.3. Stage 2 data package

The Stage 2 data package shall cover all activities undertaken during Stage 2. The data package shall contain the "as-built" documentation and verification records showing the compliance with the facility element requirements.

This package shall include but not be limited to:

I. "as-built" design descriptions (drawings, P&ID, etc.),
II. Verification Report,
III. Updated Interface Control Document(s) when applicable,
IV. System Integration Plan.

4.4.4. Final report

The Partner shall issue a final written report to the ESS ERIC within four (4) weeks of the earliest occurrence of the following: (a) completion of the stages, or (b) the expiration of this Agreement, or (c) prior termination of this Agreement. Such report shall include a comprehensive summary of the contributions made, works and services undertaken and Project Results achieved.

4.4.5. Documentation package for supply

The Partner shall deliver at the completion of the project:

A. Stage 1 data package,
B. Stage 2 data package,
C. Data sheets,
D. Certificates,
E. CAD models

5. TASKS APPLICABLE TO ALL PROJECT STAGES

5.1. Project management and control

ESS ERIC is mandated to use Earned Value Management as a tool for managing progress and performance. This translates into a requirement for tracking deliverables from partners. Below, in Section 5.1.1 - 5.1.6, the requirements concerning scheduling and progress reporting is detailed in order for the Partner to comply with this requirement. Templates and instructions for managing the milestone schedule, including the associated earn value basis are found within the applicable documents in Section 2.1.

5.1.1. Use of a Planning Tool

The partner should use a planning tool (MS Project, Oracle Primavera, Deltek Open Plan or similar). The purpose with this requirement is to enforce a systematic approach to planning, both creating and maintaining the plan.

As part of the monthly status report, the current schedule should be made available for ESS ERIC (electronic format).

5.1.2. Delivery Milestones

Each distinct delivery should have a milestone with a date. This also includes part or incremental deliveries.

5.1.3. Milestone Definition List

Each Milestone should have a number, name and a definition (captured in a Milestone Definition List). The definition should both explain the content and fulfilment of the milestone and delivery.

5.1.4. Interim Milestones

If the duration of the project work producing the deliverable is more than 6 months, the plan should also contain interim milestones. The purpose with interim milestones is to measure progress and to be used for signalling issues in the fulfilment of the delivery (in the interest of both parties).

5.1.5. EV – Weighted MS value

Each milestone, both interim and delivery milestones, should be associated with a weight (percentage between 0-100). The aggregated fulfilment of all milestones should result in 100%.

5.1.6. Monthly Forecasting

In conjunction with the status reporting, the partner should also provide an updated forecast for the upcoming milestones, as well as the final delivery milestone.

5.2. Risk Management

ESS ERIC uses Risk Management as one of the Project Management tools to assist the execution of the Programme. The Partner's contribution in this field is vital and shall therefor form a part of ESS Risk Management Process.

The contribution shall be characterized by risk awareness and open communication regarding risks. The common view of risks and uncertainties are utilized as a stepping-stone to the identification and exploitation of opportunities.

5.2.1. Risk Management Process

Risk Management shall be incorporated as a part of the day-to-day work with the contribution. The partner shall work according to ESS Risk Management Process, including:

a) Plan Risk Management,
b) Identify risk,
c) Analyse risk,
d) Risk treatment and
e) Monitor and control risk.

5.2.2. Risk criteria

When analysing risk, ESS ERIC' risk criteria shall be used. Using ESS ERIC' criteria for likelihood and consequence enables partner and ESS ERIC to analyse risks in a uniformed way.

The ESS ERIC acceptance criteria clarify what risk level that ESS ERIC accepts, and when risk treatments are required. All combinations of likelihoods and consequences correspond to a risk level, either being high, medium or low. This is graphically presented in the ESS ERIC risk matrix.

Risk treatments are the measures being taken in order to treat the risk to an acceptable level. High-level risks can never be accepted and require treatment. Medium-level risks can be accepted without treatment if the treatment is not proportional to the gained improvements. Low-level risks can be accepted without treatments.

5.2.3. Risk register

The risk register shall contain the gathered knowledge of identified risks, including the assessed risk exposure. The register shall show identified risks in order of priority, including risk treatment plans.

The Partner should preferably use ESS ERIC Risk Management software system, used for systematic documentation of risk registers. If not, the partner risk register format shall be according to ESS ERIC' requirements.

5.2.4. Risk status report

Risk status reports shall include summary describing news and relevant changes to the risk exposure, including on-going Risk Management activities. It shall furthermore contain an updated risk register including risk treatment status.

5.3. Configuration management

The ESS programme participants shall develop the baseline of the facility elements and is free to redefine the architecture of the facility elements. Full and part delivery milestones should be under change control. This means that both parties need to agree on changes to the milestones. Each baseline change shall be documented as defined in the Change Control Process [ESS-0001879].

The ESS programme participants shall follow the principles of configuration management as laid down in the ESS configuration management plan [CMP], or equivalent best practices. In particular:

1. The ESS programme participants shall identify each document, drawing, subsystem or part, establishing the item configuration and relation to the hardware and software at any time in the study.
2. The ESS programme participants shall apply the change control process [CCP], in agreement with best practices.
3. The ESS programme participants shall ensure that all personnel that use or generate information can easily access in the tools implemented to ensure configuration control. ESS ERIC shall provide a central repository for all information and that this repository is properly backed up.

5.4. Organization

The persons nominated as the Work-Unit Coordinator according to 6.3 in the agreement are:

For the Partner (local coordinator): [name]

For European Spallation Source ERIC: [name]

The following personnel of the Partner will take part in the provision of the works and services:

[name]

5.5. Product & Quality assurance and safety

5.5.1. Applicable law, legislation and standards

All partner national safety laws and legislation applicable to the design, development, manufacturing, installation, testing and operation of the supply shall be followed and fulfilled.

All operator national safety laws and legislation applicable to the design, development, manufacturing, installation, testing and operation of the supply shall be followed and fulfilled as defined in the requirement document for the facility element by ESS ERIC.

The Parties shall implement and maintain throughout the Project a quality assurance and safety approach that covers all relevant aspects of ISO9001 with respect to the scope of the Partner delivery and all specified reliability, quality assurance and safety requirements.

5.5.2. Quality Plan

[name] shall prepare a consistent and comprehensive Quality plan (based on the [PQP] template] for its contribution and submit it to approval by the ESS WU Coordinator on [date] the latest. The Quality plan shall generally comply with the recommendations of the ISO 10005:2005 Standard.

The documentation required might be principally generated from the Partner's Quality Management System when applying a system manual with defined procedures. However, a Quality plan does not replace such a quality management system, but may complement to the issues of the cooperation.

6. DOCUMENTATION FORMAT

a) All documentation and correspondence shall be in English,
b) All office documents shall be in a MS Word and PDF format,
c) The civil design models and drawings shall be based on Revit,
d) The electrical drawings shall be in editable EPlan format,
e) All mechanical models and drawings shall be editable Catia V6 format,
f) Drawings shall be also provided in PDF,
g) All technical information stipulated to be delivered to ESS shall be submitted through ESS PLM system, CHESS.

7. TRANSPORTATION AND DELIVERY

All tangible deliverables shall be delivered DAP 2010 Incoterms, unloaded at the final destination, defined by ESS.

All deliveries shall be pre-advised 48h prior to the arrival at destination via email to logistics@esss.se, a confirmation with slot time for unloading will follow to the sender

of the pre-advice - any costs caused by delays by shipper is on shipper account. All deliverables shall be executed in accordance with the Logistics Guidelines [LOG] (i.e. technical guideline for transportation further specifying: delivery notice time, minimum packaging specs, delivery notes, open hrs. of receiving at ESS ERIC or warehouse, time of storage at the Partner premises without charge after FAT etc. For goods/material/equipment purchased by ESS ERIC and delivered to the Partner for use in development detailed in this Schedule (Technical Annex), that are expected to be returned to ESS ERIC please consult the ESS ERIC procedure for the Off-site Lending of Hardware [OLH]. The procedure describes the responsibilities, routines and processes in regards to lending.

8. WARRANTY

In terms of warranty requirements, article 7.2 of the in-kind agreement is governing.

9. EXCLUDED BACKGROUND

The Partner excludes the following Background in accordance with paragraphs 13.3.1.2 and 13.3.2.2 of the Agreement:
[*INSERT DETAIL*]

IN WITNESS WHEREOF, the Agreement has been executed in two (2) originals, of which the Parties have received one (1) each.

European Spallation Source ERIC	**Name of Partner**
_____	_____
Date	*Date*
_____	_____
Signature	*Signature*
_____	_____
Name (in block letters)	*Name (in block letters)*
_____	_____
Position	*Position*