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# ESS Quality Plan

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## ISIS Delivery of instruments for ESS:

**The quality of the deliverables is critical to the success of the project. This document defines the measures that we will put in place to achieve the required quality.**

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## ESS Quality Plan

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### Introduction

The quality of the deliverables is critical to the success of the project. This document defines the measures that we will put in place to achieve the required quality.

The objective of the quality plan is to ensure that the instruments are built in accordance with the specification and requirements of the stakeholders.

The project will fully comply with the procedures of the Corporate Project Management Handbook.

### 1. Project Phases

#### 1.1. Design

In order to maximise the benefit, the in kind contribution ISIS will utilise the knowledge and experience of its engineers during the design process. Wherever possible the detailed design of the components will be done in house or will be very closely monitored by members of the design division. However, to ensure the beamline are designed in an efficient manner the majority of the drafting will be completed by design and detailing companies from our existing contracts.

Major design contracts will only be placed with companies who have a quality assurance system in place.

#### 1.2. Procurement

Procurement will use existing STFC procedures. For any building contracts STFC will engage with the existing departments in place at ESS to ensure compliance with Swedish legislation.

#### 1.3. Manufacture

Manufacture of equipment will be performed in industry; part of the selection process for the companies chosen will be a requirement for them to have a quality assurance system in place. This will often be accreditation to the ISO 9000 or a similar standard. Inspection plays a vital role. The RAL Inspection Section, which has ISO 9000 accreditation, will be used and where necessary independent inspection will be contracted.

Many items will be procured by the RAL Outside Manufacturing Group who has ISO 9000 accreditation.

ISIS will not supply the instrument as a CE marked product however it will be delivered

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with a technical file based on the documentation required for CE marking.

### **1.4. Installation**

To ensure the components delivered to ESS and of the required quality, the Instruments will be pre-built as completely as possible in a custom facility at ISIS. The pre-builds will be split into two discreet sections “target to sample” and “post sample”. The pre-builds will include all major assemblies and the commissioning of all moving components these will be pre-aligned as far as possible to reduce the alignment time at ESS. This activity will be completed by the ISIS operations team and witnessed by the ESS operations team.

After pre-build the equipment will be disassembled, packed and shipped to ESS using an accredited freight company. The instrument will then be rebuilt in its final position by the ESS operations team. ISIS engineers and operations teams will be available to answer questions and resolve any non-conformance.

Before completion of the installation, a handover documentation set will be agreed with the relevant operational personnel within ISIS /STFC/ESS

Any Non-conformances must be submitted to the ISIS project manager by ESS for review using the Non-conformance form.

### **1.5. Operation**

The Operation of the instrument will be the responsibility of ESS. On completion of installation and cold commissioning ISIS will sign over the instrument to ESS operations group at this point ESS will become operationally responsible for the instrument.

### **1.6. De-commissioning**

As part of the ESS build ESS will create a decommissioning plan, the UK instruments will be part of this plan. ISIS will supply full working drawings of the entire beamline these will document the size and materials used in the Loki Instrument.

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## 2. Key Elements

**The key elements of the Quality Plan are summarised as follows:**

1. The Project Specification
2. Schedule of Project Reviews
3. Schedule of Design/Task/Milestone Reviews
4. Work Breakdown Structure (WBS)
5. Matching People to tasks
6. Schedule of Supplier/Sub-contractor Reviews
7. Schedule of Project Team Meetings
8. Document Control
9. Change Control

### **2.1. The Project Specification**

The overall Project Specifications will be proposed by the Project Manager, Project Sponsor for agreement by the Project Board with reference to the Instrument SAC. The ISIS Project Office will ensure that the Specifications are current and stored in a readily accessible place by the Project Team.

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### 2.2. Schedule of Project Reviews

Periodic reviews of the Project's progress will be made. The overall project will be reviewed by the project board. The separate instruments will be reviewed by the Instrument project manager and the project manager.

Ref ESS Project Reporting Plan (Doc. No. ISIS-ESS- PM-PD-0003)

### 2.3. Schedule of Design/Task/Milestone Reviews

At key stages in the project and sub-projects there will be design reviews to ensure that the designs are fulfilling the requirements of the Project Specification and are proceeding in a timely and cost effective way.

The level of review should be appropriate to the scale of the sub task taking place. Four types of design reviews are anticipated, all based on the same format but instigated at different points in the design process. The PDR, FDR and CR are seen as mandatory whilst the IDR is seen as being optional and instigated on an as required basis:

- Preliminary Design Review (PDR)
- Intermediate Design Review(s) (IDR)
- Final Design Review (FDR)
- Concluding Review (CR)

For the full instrument designs the reviews will be split into a series of sub reviews to ensure the major stakeholder have a chance in input in their area of interest.

These reviews are identified within the Project Schedule.

- Engineering Review (Technical)
- Safety and Operational Review (Operations)
- Peer Review (General)

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### **2.4. ESS governance and review**

The projects will feed into the ESS Tollgate review process, documents will be submitted for this process in an agreed format to ensure that enough information is provided to satisfy ESS that the projects are being well managed and that they are on schedule.

In order to ensure that the instruments are built in the most efficient way and to avoid duplication, the project will not in all cases supply this information in the standard ESS format.

### **2.5. Work Breakdown Structure (WBS)**

- WBS (specific deliverables)
- Testing/commissioning

### **2.6. Matching People to tasks**

At the start of the Project the Project Manager and Instrument Project Managers will identify people and their skills and match them to the tasks in the WBS. This will evolve throughout the life of the project and should be reviewed on a regular basis.

### **2.7. Schedule of Supplier/Sub-contractor Reviews**

Periodically a review of the Project's key suppliers and Sub-contractors will be made. These reviews will be identified within the instrument specific plan.

### **2.8. Schedule of Project Team Meetings**

There will be regular project team meetings to communicate information.

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### 2.9. Document Control:

- Document convention:
  - Document Naming Conventions will be agreed between the Head of the Project Office, Project Manager and Project Sponsor.
  
- Project Files Control:
  - Will be held by the Project Office.
  
- Drawing and 3D model Control:

ISIS will use Chess the ESS PDM system to store and control:

- Drawing Database Control – Under the control of the ESS CAE Manager.
  - Contractor drawing Control - Under the control of the ESS CAE Manager.
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- Design Standards:
    - Will be in accordance with ISIS procedures and the RAL Code of Practice.

### 2.10. Change Control:

- Will be co-ordinated by the Project Office.
- Ref UK/ESS Change Request template

Document ISIS-ESS-PM-PD-0004 details the relevant levels of authority when approving change in the project.

## 3. Advisory Committee

### 3.1. Instrument Advisory Committee

TBC

### 3.2. Technical Advisory Board

The Project will appoint a technical advisory committee to advice on all of the beamlines being built. This will be a team of experienced engineers who can be called upon to give advice on

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difficult technical questions and important safety issues. They will also take a role in the review process on the engineering review.