****

|  |  |
| --- | --- |
| **SUBJECT:** | **SPIRE ICC Manning Plan** |
| **PREPARED BY:** | **K.J. King** |
| **DOCUMENT No:** | **SPIRE-RAL-DOC-003138** |
| **ISSUE:** | **Issue 1.0**  | **Date:** | **7th August 2008**  |
| **APPROVED BY:** |  | **Date:** |  |

**Distribution**

|  |  |
| --- | --- |
| **ICCMT members** |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Change Record**

|  |  |  |
| --- | --- | --- |
| **ISSUE** | **DATE** | **Changes** |
|  |  |  |
| 1.0 | 8th August 2008 | First Issue |
|  |  |  |
|  |  |  |
|  |  |  |

**Table of Contents**

**Figures**

**Tables**

**Glossary**

|  |  |
| --- | --- |
| ICC | Instrument Control Centre |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# Introduction

## Scope

This document defines the required staffing levels of the SPIRE Instrument Control Centre (ICC) for all of the post launch operational phases of the mission (i.e. Commissioning Phase to the end of the Routine Operations Phase.

## Structure of Document

Section 2 gives a summary of the required staffing levels in terms of different expertise based on teh analysis contained in Appendix A.

Section 3 identifies the SPIRE ICC members available and their expertise

## Documents

### Applicable Documents

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |

### Reference Documents

|  |  |
| --- | --- |
| RD01 | SPIRE Operations Description (SPIRE-RAL-DOC-002888), Issue 1.1 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# Staffing Levels

## Commissioning Phase

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Commissioning Phase** | **OPS1** | **OPS2** | **OPS3** | **OPS 4** | **CAL1** | **CAL2** | **CAL3** | **CAL4** | **SW1** | **SW2** | **OBS1** | **OBS2** | **MAN1** | **MAN2** |
|  **ICC@MOC** | 60 | 60 |  |  |  |  |  |  |  |  |  |  |  |  |
| **Instrument Health Monitoring** |  |  | 15 | 15 |  |  |  |  |  |  |  |  |  |  |
| **Observation Planning** |  |  | 15 |  | 45 | 15 | 15 | 15 |  |  |  |  |  |  |
| **Calibration Analysis** |  |  | 15 |  | 15 | 65 | 15 | 15 |  |  |  |  |  |  |
| **Trend Analysis** |  |  | 30 | 30 |  |  |  |  |  |  |  |  |  |  |
| **PA/QA** | 10 |  | 10 |  | 10 |  |  |  | 10 |  | 10 |  | 10 |  |
| **Pipeline** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Computing Support** |  |  |  |  |  |  |  |  | 25 | 25 |  |  |  |  |
| **Test Facilities (AVM/FS)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Management (50%)** |  |  |  |  |  |  |  |  |  |  |  |  | 30 | 30 |
| **Consortium Support (10%)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Meetings/Overheads (10%)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Problem handling (30%)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** | 70 | 60 | 85 | 45 | 70 | 80 | 30 | 30 | 35 | 25 | 10 |  | 40 | 30 |

## PV Phase

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PV Phase** | **OPS1** | **OPS2** | **OPS3** | **CAL1** | **CAL2** | **CAL3** | **CAL4** | **SW1** | **SW2** | **OBS1** | **OBS2** | **MAN1** | **MAN2** |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Instrument Health Monitoring** | 15 | 15 | 15 |   |   |   |   |   |   |   |   |   |   |
| **Observation Planning** | 26 | 26 | 26 |   | 22 | 22 | 22 |   |   |   |   |   |   |
| **Calibration Analysis** |   |   |   | 45 | 45 | 40 | 40 |   |   |   |   |   |   |
| **Trend Analysis** |   | 13 | 13 |   |   |   |   |   |   |   |   |   |   |
| **PA/QA** | 30 |   |   | 30 |   |   |   | 30 |   | 30 |   | 30 |   |
| **Pipeline** | 15 |   |   |   | 10 | 10 | 10 | 15 |   | 50 | 50 |   |   |
| **Computing Support** |   |   |   |   |   |   |   | 25 | 75 |   |   |   |   |
| **Test Facilities (AVM/FS)** |   | 10 | 10 |   |   |   |   |   |   |   |   |   |   |
| **Management (50%)** |   |   |   |   |   |   |   |   |   |   |   | 30 | 30 |
| **Consortium Support (10%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Meetings/Overheads (10%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Problem handling (30%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Total** | 86 | 64 | 64 | 75 | 77 | 72 | 72 | 70 | 75 | 80 | 50 | 60 | 30 |

## Science Demonstration and Routine Operations Phases

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Routine Operations** | **OPS1** | **OPS2** | **OPS3** | **CAL1** | **CAL2** | **CAL3** | **CAL4** | **SW1** | **SW2** | **OBS1** | **OBS2** | **MAN1** | **MAN2** |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Instrument Health Monitoring** | 15 | 15 | 15 |   |   |   |   |   |   |   |   |   |   |
| **Observation Planning** | 12 | 12 |   |   | 10 | 10 |   |   |   |   |   |   |   |
| **Calibration Analysis** |   |   |   | 30 | 25 | 15 |   |   |   |   |   |   |   |
| **Trend Analysis** |   | 13 | 13 | 6 | 6 |   |   |   |   |   |   |   |   |
| **PA/QA** | 20 |   |   | 20 |   |   |   | 20 |   | 20 |   | 20 |   |
| **Pipeline** |   |   |   |   |   |   |   | 15 |   | 30 |   |   |   |
| **Computing Support** |   |   |   |   |   |   |   | 25 | 50 |   |   |   |   |
| **Test Facilities (AVM/FS)** | 10 | 18 | 18 | 10 | 15 | 15 |   | 15 | 15 |   |   |   |   |
| **Management (50%)** |   |   |   |   |   |   |   |   |   |   |   | 30 | 30 |
| **Consortium Support (10%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Meetings/Overheads (10%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Science/Problem handling (30%)** |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Total** | 57 | 58 | 46 | 66 | 56 | 40 | 0 | 75 | 65 | 50 | 0 | 50 | 30 |

# SPIRE Staff Availability

The following table identifies the ICC staff available for the different roles defined in section 2. Some people are able to work in more than one team

## Operations Team

* **Sunil Sidher (RAL) - Leader**
* Markos Trichas (IC)
* Ken King (RAL)
* Michael Pohlen (Cardiff)

## Calibrations Scientists

* **Sarah Leeks (RAL) – Leader**
* Ed Polehampton (Cananda)
* Chris Pearson (Canada) (50%)
* Michael Pohlen (Cardiff)

## Software Engineers

* **Steve Guest (RAL) – Leader**
* Huw Morris (RAL)

## Observation Specialists

* **Leader -TBD**
* Chris Pearson (50%)
* George Bendo (50%)

## Management

* Tanya Lim
* Bruce Swinyard

**Appendix A ICC Operational Tasks**

These tables describe the activities to be performed by the ICC They appear under the headings identified in RD01.

For each phase this section describes each workpackage and the effort level required. This effort is distributed between a set of operational staff, in order to give a rough profile of the individuals needed in the ICC. These consist of (note: not all are required during all phases of the mission):

4 Operations Enginners:

* OPS1
* OPS2
* OPS3
* OPS4

4 Calibration Scientists:

* CAL1
* CAL2
* CAL3
* CAL4

2 Software Engineers

* SW1
* SW2

2 Observation Specialists

* OBS1
* OBS2

2 Managers

* MAN1 – Operations Manager
* MAN2 – Deputy Operations Manager

|  |
| --- |
| **Instrument Health Monitoring** |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Check for event packets
* (Generate and) Check trend analysis products
* Produce Daily Log for ICC
* Produce Weekly Reports to HSC
 | Carried out by staff at RAL2 hr daily during phase3 staff to cover 7 day/wkOPS(3,4) – 15% |
| PV-Phase | * Check for event packets
* (Generate and) Check trend analysis products
* Produce Daily Log for ICC
* Produce Weekly Reports to HSC
 | Carried out by staff at RAL30% fte during phase3 staff to cover 7 day/wkOPS(1,2,3) – 15% |
| Science Demonstration | Check for event packets(Generate and) Check trend analysis productsProduce Daily Log for ICCProduce Weekly Reports to HSC | Carried out by staff at RAL30% fte during phase3 staff to cover 7 day/wkOPS(1,2,3) – 15% |
| Routine Operations | * Check for event packets
* (Generate and) Check trend analysis products
* Produce Daily Log for ICC
* Produce Weekly Reports to HSC
 | Carried out by staff at RAL30% fte during phase2 staff to cover 7 day/wkOPS(1,2,3) – 15% |

|  |
| --- |
| **Observation Planning** |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Preparation of performance observations using HSpot
* Scheduling of observations and delivery
* Processing data from observations
* Coordination of consortium support
 | * CAL1 – 15%, CAL2 – 15%
* OPS3 – 15%
* CAL3 – 15%, CAL4 – 15%
* CAL1 - 30%
 |
| PV-Phase7 days/wk ops | * Creation/update of observation types (20% fte)
* Planning performance/calibration observations (20%fte)
* Preparation of performance/calibration observations using Hspot (30% fte)
* Scheduling of observations and delivery to HSC (30% fte)
 | * OPS(1,2,3) – 11%,
* CAL(2,3,4) – 10%
* CAL(2,3,4) – 12%
* OPS(1,2,3) – 15%
 |
| Science Demonstration | * Creation of new observation types (10% fte)
* Planning and preparation of performance/calibration observations using HSpot (20% fte)
* Scheduling of observations and delivery to HSC (10% fte)
 | * OPS(1,2) 6%
* CAL(2,3)-10%
* OPS(1,2) - 6%
 |
| Routine Operations | * Creation of new observation types (10% fte)
* Planning and preparation of performance/calibration observations using HSpot (20% fte)
* Scheduling of observations and delivery to HSC (10% fte)
 | * OPS(1,2) 6%
* CAL(2,3)-10%
* OPS(1,2) - 6%
 |

|  |
| --- |
| **Calibration Analysis** |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Preparation of performance observations using HSpot
* Scheduling of observations and delivery
* Processing data from observations
* Coordination of consortium support
 | * CAL1 – 15%, CAL2 – 15%
* OPS3 – 15%
* CAL3 – 15%, CAL4 – 15%
* CAL2 - 50%
 |
| PV-Phase7 days/wk ops | * Processing data from observations (50%fte)
* Update and Test of new Calibration products(50%)
* Coordination of consortium support
 | * CAL(2,3,4) – 20%
* CAL(1,3,4) - 20%
* CAL(1,2) - 25%
 |
| Science Demonstration | * Processing data from observations (30%fte)
* Update and Test of new Calibration products (20%)
* Coordination of consortium support
 | * CAL2,3 - 15%
* CAL(1,2) – 10%
* CAL1 - 20%
 |
| Routine Operations | * Processing data from observations (30%fte)
* Update and Test of new Calibration products (20%)
* Coordination of consortium support
 | * CAL2,3 - 15%
* CAL(1,2) – 10%
* CAL1 - 20%
 |

|  |
| --- |
| **Trend Analysis** |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Generate and check TA products from Housekeeping (15%fte)
* Produce TA Report (5%fte)
 | * OPS3,4 – 15%
* OPS3,4 – 15%
 |
| PV-Phase | * Generate and check TA products from Housekeeping (15% fte)
* Produce TA Report 5%fte)
 | * OPS(2,3) – 10%
* OPS(2,3) – 3%
 |
| Science Demonstration | * Generate and check TA products from Housekeeping (15% fte)
* Generate and check TA products from Performance Checks (5%)
* Generate and check TA products from Calibration updates (%5 fte)
* Produce TA Report (5%fte)
 | * OPS(2,3) – 10%
* CAL(1,2) - 3%
* CAL(1,2) - 3%
* OPS(2,3) – 3%
 |
| Routine Operations | * Generate and check TA products from Housekeeping (15% fte)
* Generate and check TA products from Performance Checks (5%)
* Generate and check TA products from Calibration updates (%5 fte)
* Produce TA Report (%5 fte)
 | * OPS(2,3) – 10%
* CAL(1,2) - 3%
* CAL(1,2) - 3%
* OPS(2,3) – 3%
 |

|  |
| --- |
| **PA/QA** |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Preparation and running CCBs (10%)
 | * OPS1, CAL1, SW1, OBS1, MAN1 – 10%
 |
| PV-Phase | * Preparation and running CCBs (20%)
* Delivery Reviews (10%)
 | * OPS1, CAL1, SW1, OBS1, MAN1 – 20%
* OPS1, CAL1, SW1, OBS1, MAN1 – 10%
 |
| Science Demonstration | * Preparation and running CCBs (10%)
* Delivery Reviews (10%)
 | * OPS1, CAL1, SW1, OBS1, MAN1 – 10%
* OPS1, CAL1, SW1, OBS1, MAN1 – 10%
 |
| Routine Operations | * Preparation and running CCBs (10%)
* Delivery Reviews (10%)
 | * OPS1, CAL1, SW1, OBS1, MAN1 – 10%
* OPS1, CAL1, SW1, OBS1, MAN1 – 10%
 |

|  |
| --- |
| **Pipeline**  |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) |  |  |
| PV-Phase | Pipeline development is an independent activity. This WP deals only with testing and delivery of pipeline(s) * Check daily Quality Control output (30%)
* Acceptance test of new pipeline versions (30%)
* Pipeline Verification (scientific and implementation) (100%)
 | * OPS1, OBS1– 15%
* SW1, OBS1– 15%
* OBS1-20, OBS2 – 50%, CAL(2,3,4) – 10%
 |
| Science Demonstration | Pipeline development is an independent activity. This WP deals only with testing and delivery of pipeline(s) * Check daily Quality Control output (25%)
* Acceptance test of new pipeline versions (25%)
 | * OPS1, OBS1– 15%
* SW1, OBS1– 15%
 |
| Routine Operations | Pipeline development is an independent activity. This WP deals only with testing and delivery of pipeline(s) * Check daily Quality Control output (25%)
* Acceptance test of new pipeline versions (25%)
 | * OPS1, OBS1– 15%
* SW1, OBS1– 15%
 |

|  |
| --- |
| **Computing Support**H/W Support provided by RAL infrastructure |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) | * Maintain Delivered S/W Systems (25%)
* DB Maintenance (25%)
 | * SW(1,2) – 12%
* SW(1,2) – 12%
 |
| PV-Phase | * Maintain Delivered S/W Systems (25%)
* DB Maintenance (25%)
* Maintain SPIRE S/W (50%)
 | * SW(1,2) – 12%
* SW(1,2) – 12%
* SW2 – 50%
 |
| Science Demonstration | * Maintain Delivered S/W Systems (25%)
* DB Maintenance (25%)
* Maintain SPIRE S/W (25%)
 | * SW(1,2) – 12%
* SW(1,2) – 12%
* SW2 – 25%
 |
| Routine Operations | * Maintain Delivered S/W Systems (25%)
* DB Maintenance (25%)
* Maintain SPIRE S/W (25%)
 | * SW(1,2) – 12%
* SW(1,2) – 12%
* SW2 – 25%
 |

|  |
| --- |
| **Test Facilities**Cold Facility operated by RAL infrastructure |
| **Phase** | **Activities**  | **Resources** |
| Commissioning(L+2w to L+6w) |  |  |
| PV-Phase | * Test of command sequences on AVM (15%)
 | * OPS(2,3) – 10%
 |
| Science Demonstration |  |  |
| Routine Operations | * Test of command sequences on AVM (5%)
* Test preparation for FS
* Test execution on FS (15%)
 | * OPS(2,3) – 3%
* OPS1 – 10%, CAL1 -10%
* OPS(2,3), CAL(2,3), SW(1,2) – 15%
 |