



System Acceptance Review - Bifrost

Bifrost – NCRs and NITs
=ESS.NSS.H01.BIFRO

PRESENTED BY LIAM WHITELEGG

2025-08-29

Agenda



-
- 1 Open NCRs
 - 2 Open NITs
 - 3 Closed and Old NCRs (BACKUP)
-



Open NCRs

NCR – 10525 (& NIT-155)

Update:

- All documents required for CE marking available in preliminary form
- Following TBL Shutter Process
- ESS decision whether to CE mark or not

| | | | | |
|---------------|---|---|---|--|
| Heavy Shutter | | | | |
| ESS-5112462 | 1 | ✓ | Bifrost - Sub-System Design Description – Safety Shutter | |
| ESS-5818026 | 1 | | Hazard Analysis for BIFROST Safety Shutter Mechanics | |
| ESS-5818235 | 1 | | Signature card for EU Declaration of Incorporation for BIFROST Safety Shutter | |
| ESS-5818237 | 1 | | EU Declaration of Incorporation - BIFROST Safety Shutter | |

Nonconformity: 10525

Absence of CE marking, or related documentation

Nonconformity Details

Equipment: BIFRO.A01.R03.R01

1.5.1 Thermal shutter

Location:

Department: TD-NSS

Type: NCT_0005

Deviation from Technical Documentation

Note:

Absence of CE-marking on equipment or an agreed plan for CE-marking to be conducted in situ and relevant documentation.
Owner:Gabor Lazlo
Ref doc: ESS-5617654 Instrument shutter test report

Status: In Progress

NCR Owner: GABORLASZLO

Severity: Minor

Related to Radiation Protection/Radiation Safety: ☐

Priority:

Related to Security: ☐

Permanent NCR: ☐

Related to Information Security: ☐

Permanent NCR CHES No.:

Audit: ☐

Related to Conventional Safety:



Open NITs – Breakdown

Breakdown

| | |
|------------------|----|
| • Core team | 43 |
| • Choppers | 2 |
| • Shielding | 2 |
| • Detectors | 6 |
| • Beam Monitors | 21 |
| • Motion Control | 8 |
| Total | 82 |



Open NITs

Related to CAVE (9)

| Summary | Issue key | To be resolved by | Notes |
|--|-----------|-------------------|--|
| Bifrost Cave SAT - Roof Beam Gaps | NIT-226 | ORR | To be highlighted as hotspot to RP |
| Bifrost Cave SAT - Roof Handrails | NIT-227 | SRR | Arrived. Installation ongoing and awaiting final pieces |
| Bifrost Cave SAT - Lead Chimneys | NIT-228 | SRR | Two to be built. Solution required for remaining structure |
| Bifrost Cave SAT - E01 Handrails | NIT-229 | SRR | Installation ongoing |
| Bifrost Cave Hatch Cabinet - Energisation | NIT-248 | SAR | Awaiting completion of Eam process |
| Installation of Borated Poly Plug in Cave Wall | NIT-251 | ORR | Ordered |
| Bifrost False Floor North Completion | NIT-263 | SRR | Awaiting access to bandsaw |
| Installation of borated lining in service feedthroughs | NIT-264 | SRR | Material on site. Awaiting installation |
| Enlarge Radius on Beam Stop Borated Aluminium Sheet | NIT-303 | SRR | Ordered |



Open NITs

Related to Secondary Spectrometer (3)

| Summary | Issue key | To be resolved by | Notes |
|--------------------------------------|-----------|-------------------|---|
| Bifrost Analyser - Performance Check | NIT-224 | ORR | NIT used to highlight a potential future weakness |
| Bifrost Spectrometer Polyethyelene | NIT-230 | SRR | Material ordered |
| Modify hard stop on the Bifrost tank | NIT-252 | SRR | Changed due to practical realities discovered during commissioning. Design ongoing. |

Open NITs

Related to Beryllium Filter (7)



| Summary | Issue key | To be resolved by | Notes |
|--|-----------|-------------------|--|
| Stainless steel parts on BE filter | NIT-29 | ORR | Only problematic when/if polarisation upgrade comes in |
| Bifrost - Beryllium Filter Adjustment System Amendments | NIT-231 | ORR | At high end of adjustment range. Harder to align than necessary. |
| BIFROST - implement warning in NICOS for low LN2 level in beryllium filter | NIT-254 | SRR | ECDC – Unable to finalise tests due to concurrent work |
| BIFROST - implement NICOS warning beryllium filter temperature | NIT-255 | SRR | ECDC – Unable to finalise tests due to concurrent work |
| BIFROST - Integrate tank vacuum pressure gauge level in NICOS | NIT-256 | SRR | ECDC – Unable to finalise tests due to concurrent work |
| BIFROST - Integrate filter vacuum gauge level in NICOS | NIT-257 | SRR | ECDC – Unable to finalise tests due to concurrent work |
| Creation of NICOS warnings for filter vacuum | NIT-306 | SRR | ECDC – Need to discuss, implement and test alarm |



Open NITs

Related to Process Utilities (3)

| Summary | Issue key | To be resolved by | Notes |
|--------------------------------------|-----------|-------------------|---|
| BM gas lines in bunker | NIT-6 | SAR | Gas lines were restricting some RH operations and need reworking |
| CUP Installation of IA Manifold | NIT-232 | SRR | Wrong interface installed initially for one pump. New part arrives in October |
| BIFROST Cooling SAT document missing | NIT-242 | ORR | ? |



Open NITs

Related to Documentation (7)

| Summary | Issue key | To be resolved by | Notes |
|--|-----------|-------------------|--|
| Include Grounding Cable Disconnection in O&M Manuals | NIT-297 | SRR | Not yet installed. Pictures to be included |
| Revision of O&M Manual | NIT-250 | SRR | To include comments from reviewers and Motion Safety information |
| Change BIFROST BBGOA drawing title | NIT-35 | SSR | Legacy and overlooked item |
| As Built - Guide and Frame in Cave | NIT-42 | SAR | Quick fix |
| Goniometers C.O.G problem fix | NIT-30 | SAR | Quick fix |
| Bifrost Spectrometer - As Built | NIT-43 | SRR | Needs re-designd Beam Stop |
| Update O&M manual Bifrost Beryllium filter | NIT-18 | SAR | Include support information within EPL |



Open NITs

Related to Magnetism in Cave (2)


| Summary | Issue Key | To be resolved by | Notes |
|---|-----------|-------------------|--|
| Change thrust screw to non-magnetic - Bifrost | NIT-21 | ORR | Small screws were labelled non-magnetic but clearly are |
| Bifrost BM4 - Magnetism | NIT-82 | ORR | Multiple items on BM4 are magnetic. Some have changed, others need further investigation |



Open NITs

Related to Grounding (2)

| Summary | Issue key | To be resolved by | Notes |
|---------------------------------------|-----------|-------------------|----------------------|
| Grounding of Components in the Bunker | NIT-241 | SRR | Installation Ongoing |
| BIFROST Instrument Earthing System | NIT-31 | SAR | Below |

 NSS Issue Tracker / NIT-31

BIFROST Instrument Earthing System

EditAdd commentAssignMoreTo Do

Details

Type: Task
Priority: Medium
Labels: Grounding
Instrument: BIFROST
Issue source: Other
Type: Completeness
To be resolved before: TG5/ SAR

Description

The BIFROST instrument earthing system is designed to have all components in the instrument zone isolated from the building. These components are connected to the Earth bar in the BIFROST distribution board, which is then connected to the transformer's star point. But during the Detector front-end energization, it was discovered that some racks were not electrically isolated from the building, despite being installed on spacers.

A brief examination was conducted to identify the source of the issue. It was found that the racks were getting connected to the building through the BIFROST distribution board, where all the earth connections meet at the earth bar.

To find the fault location, CEP should disconnect all earth connections to the distribution board one by one, checking for impact on the isolation of the racks from the building.

While the low-resistance connection to the building provides a safe equipotential connection to the ground, its potential impact on sensitive equipment such as detectors or beam monitors should be assessed during commissioning.

People

Assignee: Unassigned
Reporter: Tahere Rostami
Watchers: 3 Stop watching this issue

Dates

Created: 2025-Mar-10 08:30 +0100
Updated: 2025-Mar-14 08:41 +0100

Development

Create branch

Agile

Find on a board

Slack

Open NITs

Related to Sample Environment (9)



| Summary | Issue key | To be resolved by | Notes |
|---|-----------|-------------------|---|
| BIFROST - Implement all orange cryostat PV's in NICOS | NIT-267 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - Implement Oxford cryomagnet PVs in NICOS | NIT-268 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - ramp rate, temperature curve and setpoint in NICOS (via Lakeshore) | NIT-269 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - Implement needle valve and cryogen display in NICOS | NIT-270 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - Implement alarm for low cryogen levels on sample environment in NICOS | NIT-271 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - Implement an alarm for sample environment temperature being off target in NICOS | NIT-272 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - implement alarm for cryomagnet coil temperature being off target in NICOS | NIT-273 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - test Kafka streaming for all sample environment variables in the sample environment tests | NIT-274 | SRR | Sample Environment Integration with ECDC. Not SAR Scope |
| BIFROST - implement sample environment and sensor IDs to be written in the nexus file | NIT-275 | TG6/ ORR | Sample Environment Integration with ECDC. Not SAR Scope |



Closed or Old NCR's

2025-06-25

I've also made a quick search in Chess. It's not EAM but perhaps these 3 references would be worth looking in to.

| Name | Type | Rev | Description | Title | Owner | Originator |
|-------------|-----------------------|-----|---|---|-----------------|-----------------|
| ESS-4246377 | Non-Conformity Report | 1 | To enable a succesful leak test the NBPIw needs to be remachined | NCR 10246 Remachining of NBPI windows for BIFROST | Bengt Jönsson | Bengt Jönsson |
| ESS-5489421 | Non-Conformity Report | 1 | Chopper was tested after install and does not conform to set parameters. | Non Conformity Report- Bifrost-PSC Chopper | Thomas Cornes | Thomas Cornes |
| ESS-5717299 | Non-Conformity Report | 1 | This report captures all the non-compliances identified during the verification activities of Bifrost PSS | Non-compliance report for Bifrost PSS | Anton Andersson | Anton Andersson |

The first NC (10246) is closed.

Best regards,
Stefan Pacoste

The second NC (10350) is closed as well. This captures CHESS document ESS-5489421 below. However, when digging more, this NC is captured in ESS-0008823 as mentioned in MFGREQ-796.

I checked ESS-5717299 and noticed that there is not document in CHESS uploaded. I tried to find the relevant NC but couldn't find it in EAM.

Regards,
Ghinwa Kellesly
Quality Assurance Officer