IKON19

INTRUMENT SERVICES

REPORT FOR IKON19

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Date/time of session:
[*Monday, 29 September 2020, 14.00-14.30*]

1. INTRODUCTION

ESS is planning to offer scope transfer for the design, procurement and installation for the Nitrogen, Deionized water, Compressed air, Cooling water, Networks, Ventilation, He recovery and Sprinkler systems.

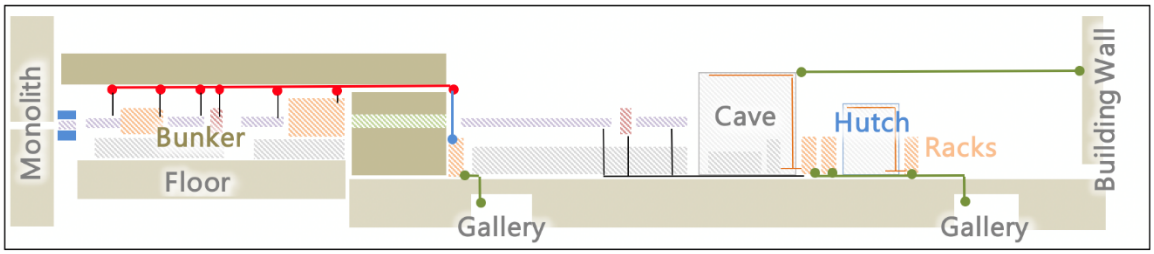

Figure 1. Interface summary

1. Instrument components: Hatched
2. Utilities connection from the direct connection points to the main ESS systems (sub-stations, control rooms etc.) are not indicated.
3. Utilities From racks, panels, skids, pumps to instrument components
   - Utilities inside the Cave and Hutch
   - Utilities outside Cave and Hutch (outside bunker)
4. Utilities between instrument racks, panels and distant ESS connections (Gallery, building wall, E01 pillars not included)
5. Utilities between bunker utilities feed-trough and out of bunker connections (racks, panels, skids)

2. STATUS OF THE ESS UTILITIES

2.1. Utilities Provided by CF

All instrument utilities, except Containment ventilation in the D buildings, provided by CF have already been installed.

These include the following:

- Deionized water

- Nitrogen
- Compressed air
- Cooling water
- Fume hoods (chemical ventilation)
- Installation power

In case of the E buildings, the connections are on the E01-E02 roof pillars, close to the instrument caves.

In case of the D buildings the connections are in the installation galleries close to the beamline, or by the external building wall in case of the containment ventilation.

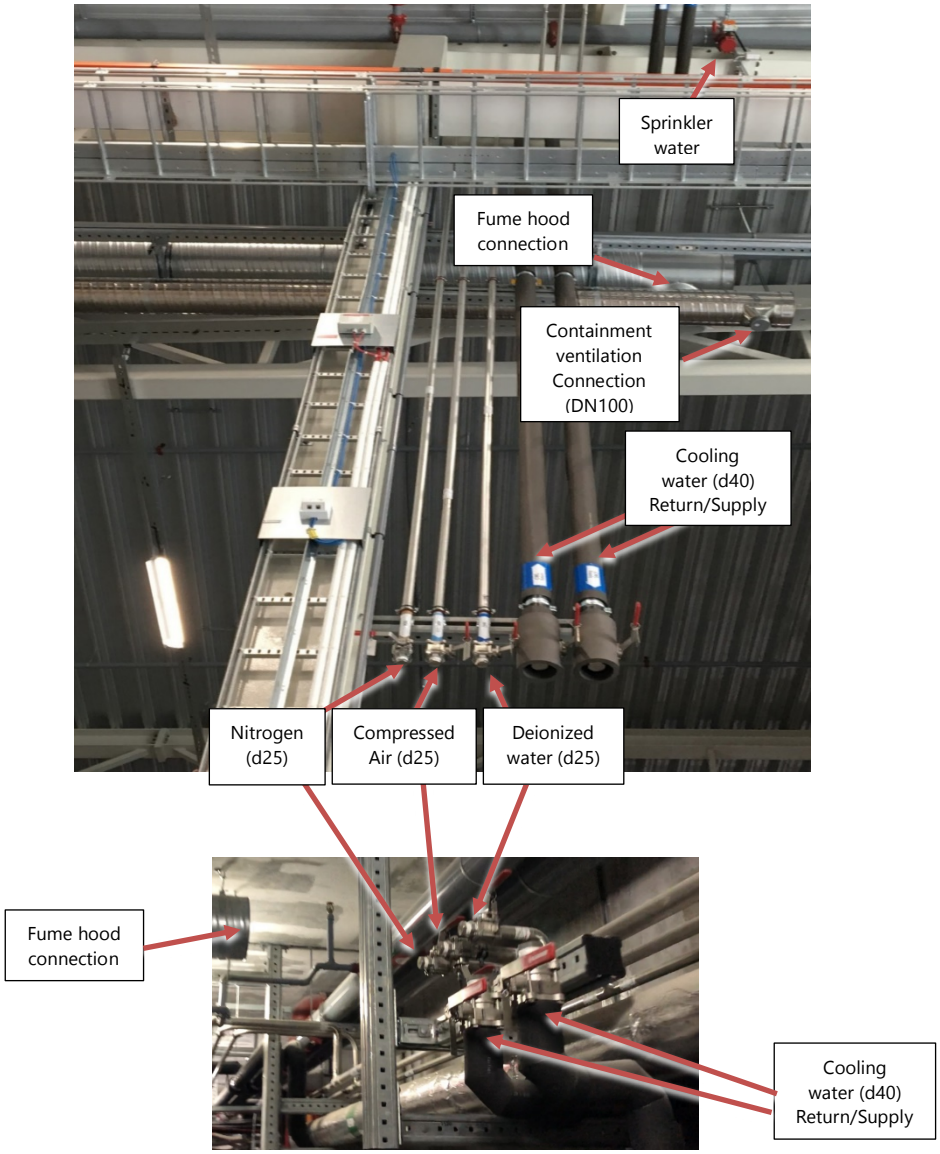

Figure 1.: CF utilities in the E buildings (top) and in the installation galleries under the D buildings (bottom)

2.2. Additional utilities offered by ESS

2.2.1. NSS Electrical Infrastructure Project

- **Stage 1.:** Routing of power cables and grounding from the sub-stations to the distribution board, including the distribution board. It also includes the design of the cable containment for the fibres of the data networks. (Paid by ESS)
- **Stage 2.:** Routing of power cables and grounding from the power distribution board to the Instrument racks (Paid by Instrument)
- **Stage 3.:** Routing of power cables and grounding from the racks to the final pace of use. (Paid by Instrument)

For status and detailed information please check the report from Stuart Birch (28-09-2020, 13.00-14.00)

2.2.2. NSS Utilities Project

Stage 1.: Routing of pipes in the D buildings from the Installation galleries to the main instrument connections above ground.

Originally it was in instrument scope, but it is ESS responsibility now. (It will be partially paid by ESS, but we don't know yet how much of the cost we can cover.)

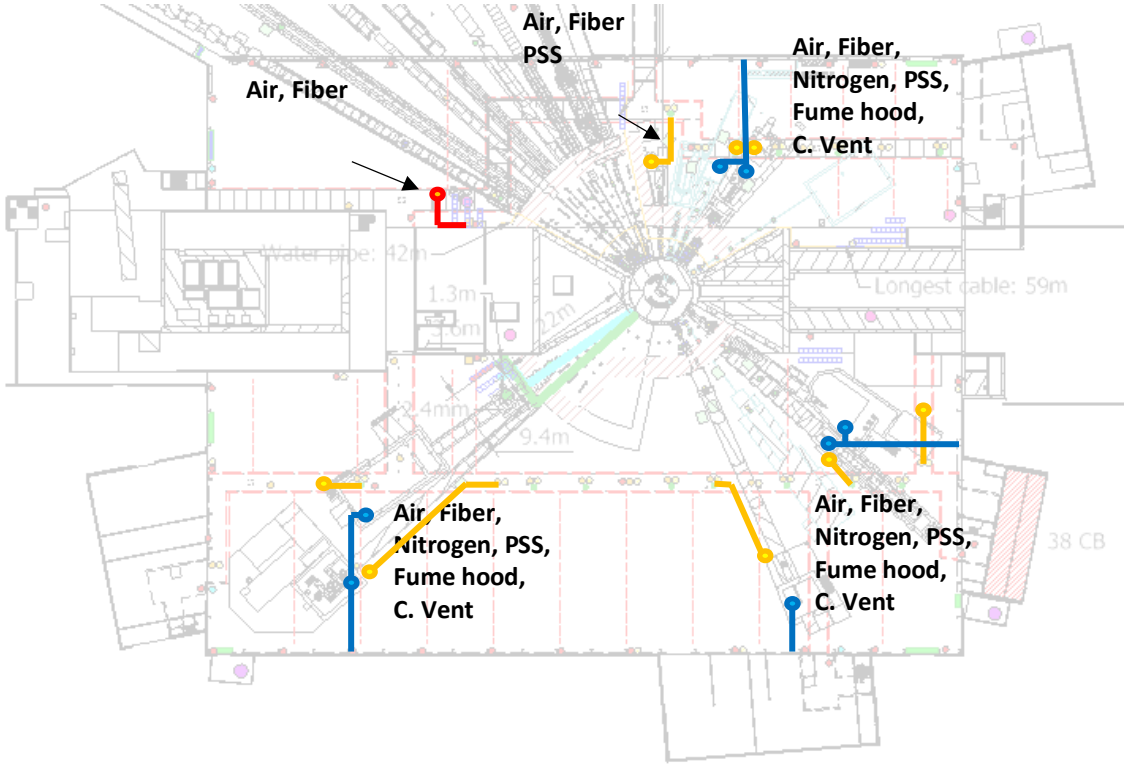

Figure 2.: Stage one pipe routing conceptual overview

Scope: D01, D03 from gallery

- Nitrogen and He recovery pipes to cave connector (7 pcs.)
- Compressed air to cave (8 pcs.) and bunker connector (1 pc.)
- Fiber network, including cable containment to cave and bunker (9 pcs.)
- PSS containment to cave (8pcs.)

- Fume hoods to cave (7 pcs.)
- Fiber network (9 pcs.)
- Containment ventilation from the wall to the instrument cave (7pcs.)

Status: The project has been started, the design is ongoing.

Stage 2.: Routing of pipes for any of the instruments from the main instrument connections to the final pace of use. (Including filters, sensors etc.) This stage shall be financed from the instrument budget.

The utilities are the same as in case of stage 1.

Status:

- We are preparing for ICB to officially start the project.
- We are gathering requirements from the instrument teams.

In bunker utilities

The design of the bunker utilities is ongoing. Preliminary design has been made for the pipe and cable routing.

2.2.3. Extension of the NSS Utilities Project

- We are in the process of identifying the ESS resources for the Sprinkler and ventilation systems. The space allocation will be done together with the rest of the utilities. We need dry pipe system (sprinkler system with smoke detection) inside the caves and wet pipes (simple sprinkler) inside the control hutches.
- We do not have clarity about the Scope for conventional ventilation. We are working on it.

2.2.4. Overview of responsibilities

SYSTEMS	Responsible	NSS Coordination
Power and Grounding Distribution	Stuart Birch	Anton Khaplanov
Compressed Air, Nitrogen, Deionized water	Piero Valente	
Cooling Water (and Control)	Piero Valente	
Vacuum (Incl. Control)	Laurence Page	
Fiber and copper networks: ICS including PSS, DMSC, General Purpose	Remy Mudingay	
Ventilation: Conventional, Containment (radioactive), Chemical	Responsible to be determined	
Sprinkler	Responsible to be deremined	
He recovery	Alex Holmes	