

Sample Environment STAP Report

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Sample Environment STAP Report

The Sample Environment (SE) team is responsible for:

- Setting up support laboratories
- Providing and maintaining a pool of SE equipment
- Assisting with integration of non-pool equipment

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Primary goal:

- Full support for first eight instruments

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Primary goal:

- Full support for first eight instruments

STAP considers that the SE team have developed detailed, sensible plans, and that the team is well motivated and talented. To help achieve the stated goals, we have three key recommendations.

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STAP Key Recommendations:

1. Establish a clear and transparent procedure for determining which equipment is to be provided by individual instrument teams and which is to be provided by the SE team. All decisions should be documented.
2. Funds for developing the current test laboratories should be released now, and some of the proposed technical support should be recruited immediately.
3. The budget, as it stands, cannot cover certain expensive pieces of equipment that have been cited as scientific highlights in the Technical Design Report and the Instrument Scientific Cases, without compromising the ability to provide basic support for eight instruments. The STAP suggests that a separate pot of money be established that interested parties (e.g. instrument teams, the Sample Environment team, other partners) may bid for, to fund these singular pieces of equipment.

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STAP Key Recommendations 1:

- Establish a clear and transparent procedure for determining which equipment is to be provided by individual instrument teams and which is to be provided by the SE team. All decisions should be documented.

The SE team have developed a coarsely prioritised list of sample environment for a well-found neutron scattering laboratory.

The STAP have provided additional prioritisation, given in the annex to the STAP report. This list should be used to ensure that no equipment is accidentally overlooked because of the instrument/pool/laboratory split.

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Due to the ESS's high flux, rapid experimental turnaround is expected, so on any given day, the SE team may need to support 16 different sample environment setups. The instrument and pool equipment sources need to be able to match this need.

The STAP encourages instrument teams to work closely with the SE team, and provide feedback in all areas of common interest.

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STAP Key Recommendation 2:

- Funds for developing the current test laboratories should be released now, and some of the proposed technical support should be recruited immediately.

The SE team have developed a sensible training and commissioning strategy, and have coordinated this with the current construction schedule. The STAP is concerned that manpower is limited, that this will make meeting all of the benchmarks very difficult. There are also issues with equipping the test laboratories in a timely fashion (funding, procurement).

The STAP notes that having workable test labs will make the ESS a credible partner for other SE labs, and may aid in leveraging seconded staff and participation in multi-site development projects.

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The STAP recommends that R&D in this area should concentrate on issues relating to small samples and high flux to capitalise on the ESS's strengths.

The diamond-anvil cell work proposed is very appropriate and was well received by the STAP.

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Sample Environment construction budget breakdown

11.6 M€	TOTAL	IK %	Coordination Interaction	Labs, Infrastr Workshops	Equipment
Mechatronic & Software integr.	2018	37	1173	553	292
Fluids incl Gases Liquids ...	2609	55	1148	231	1230
Pressure & Mech Process	3142	64	1127	1122	828
Temperature & Fields	3844	62	1010	895	1870

Each platform: 1 scientist (now),
1 technician (later)

Total non-labour €5.7M (~ €630k/year)

- Establishing labs and infrastructure from scratch
- Procuring Pool equipment
- Consumables, utilities, supplies

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Nonetheless, the STAP considers that the operation of the first 8 instruments should be the priority. In this case, the budget is very tight to cover all of the necessary bases, especially given the high turnaround time. The total proposed budget for pool **equipment** is ~4 M€ (excluding setting up laboratories). Expectations of what can be delivered with this need to be realistic.

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The STAP would like to thank the Sample Environment team, in particular, Malcolm Guthrie, Alex Holmes, Anders Pettersson and Harald Schneider, for their helpful discussions and presentations during the STAP meeting.

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