Summary of workshop output

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Feedback exercise

	Correct	Incorrect	% correct
Data (1)	12	11	52
Data (2) A	8	15	35
Data (2) B	4	19	17
Data (2) C	5	18	22
Equations (1)	6	17	26
Equations (2)	14	9	61
PA models (1)	11	12	48
PA models (2)	11	12	48
System level (1)	17	6	74
System level (2)	18	5	78

Group exercise - I

Major points for all three organisations (teams):

- ✓ **Focus on safety case as basis for defining requirements**
- ✓ **Emphasis on staff competence, education and training**
- ✓ **Dialogue between organisations (regulator, implementer, data producers)**
- ✓ **Importance of building and keeping confidence of other stakeholders in the organisations' activities**

Group exercise - II

Major points from the regulator team

- ✓ **Good representation of interactions between regulator & implementer**
- ✓ **Need to ensure transparency for stakeholders of the process of interaction between regulator and implementer**
- ✓ **Emphasis on competence of the regulator staff (training and)**
- ✓ **Well defined review process for implementer output: ability to run cross-checks and judge validity**
- ✓ **Integrated QA systems will ease the applications of all players**
- ✓ **Role of regulator to establish boundary conditions for the safety case - this is based on iteration as boundary conditions can't be defined without some initial input**

Group exercise - III

Major points from the implementer team

Focus on Safety Case:

- ✓ **Boundary conditions of Japanese programme; NSA / RMS**
- ✓ **Classification levels for QA – for items important in the safety case, quality level will be high. Quality level depends on both importance in SC and also the stage of implementation. There is a need to preserve information which is involved in decision making (RMS)**
- ✓ **SC is basis for discussions with regulator. Need for staff to understand point of view of regulator. Proposal to use argumentation network to explain safety case arguments to regulators**
- ✓ **The implementer needs to clarify whether the QA system of external data producers is suitable.**
- ✓ **Final decision of sufficient quality for knowledge must be balanced by cost, stage of process etc.**
- ✓ **R&D outsourcing – relationship with contractors: key QA focus: quality as criterion for contractor selection (but not ISO) – but boundary conditions for contracting needs to be improved to allow NUMO to build relationships with high quality contractors**

Confidence building: ethics & education

- ✓ **Promotion of quality culture (e.g. special considerations for attached staff) and avoiding special QA staff who are seen as 'the enemy' - adding burden to other workers**
- ✓ **Implementer should maybe attain ISO certification to help gain confidence of stakeholders**
- ✓ **Education by staff exchange, developing generalists to facilitate an integrated approach to safety case**
- ✓ **Funding universities (which provide the next generation of engineers and scientists)**
- ✓ **Quality-related bonus system,**
- ✓ **Head-hunting experts to add expertise to the organisation**

Group exercise - IV

Major points from the data producer team

- ✓ **Uncertainty**
  - **Representativeness, precision and accuracy: consider how to use data when planning and implementing new work**
  - **Guidelines on methods and procedures; improved standardisation**
  - **Personal dependency (responsibility), traceability and transparency**
  - **Avoid unnecessary QA which burdens scientists and demotivates them**
- ✓ **Interactions with other organisations critical:**
  - **Clear specification of quality needs based on safety case to allow focusing of effort in critical areas.**
  - **Data users need to understand the fundamental limitations of the methods and data. E.g. quality level of the sample will influence the quality of the eventual data**
- ✓ **Everyone needs to have confidence in the data – personnel in all areas have to know about uncertainties and how these impact on how the data are used.**

QA guidelines for JAEA KMS - I

- ✓ **Differences in quality level between different data producers - QA system applied in KMS must be open and applied through-out, irrespective of source of data**
- ✓ **Need to make clear what quality level is required - different for different purposes (e.g. TDB compared to solubilities in safety case)**
- ✓ **If university data is being used, need to make sure that they can assess the quality of their data**
- ✓ **Basic level of quality based on defined methods and procedures, so that all data will meet some minimum standard and higher levels are required only where necessary**
- ✓ **Quality of the JAEA KM system is the responsibility of JAEA - this is different from the individual data collected**

QA guidelines for JAEA KMS - II

- ✓ In development of RMS - similar problems with ensuring quality at each level; this is feeding into decision-making which may also require high quality level to ensure well founded decisions
- ✓ Use software tools - once these are assured, it allows greater control over modelling and analysis
- ✓ Conflict of requirements between quality professionals and spreading the QA efforts through the whole organisation
- ✓ Maintenance of the KM system may require specific identified responsibilities
- ✓ How do you consider the use of tacit knowledge (expert knowledge) - difficult to assign a quality level ? Difficult to be rigorous but most important issue may be how this knowledge is used.

QA guidelines for JAEA KMS - III

- ✓ **Proposed to have a hybrid system of expert systems + tacit knowledge. Over time, decisions will be recorded in the expert system control shell so the information becomes part of the expert system**
- ✓ **Tacit knowledge may be more important for communicating with general public (and other stakeholders) rather than detailed scientific knowledge**
- ✓ **Long-term maintenance of the KM system. KMS could support the development of specialists in the future**
- ✓ **How to extract data from KMS? - e-learning system as a component of the KMS (esp. for treatment of errors)**