UKAEA

UKNAM September 2018- Damian Brennan

H3AT Hydrogen-3 Advanced Technology Centre

P.S.

20

3.5

30

30

100

65

65

5

UK Atomic Energy Authority

Hydrogen-3 Advanced Technology Centre (H3AT)

- Opportunity which aligns with the UK nuclear industry strategy.
- Expand upon the tritium and waste management expertise at Culham. Building a world class centre for tritium technology.
- In partnership with industry, academia, national laboratories, government organisations and international collaborators.
- The centre can test and de-risk ITER tritium systems and help develop novel tritium processes for DEMO and markets outside fusion.
- It will have the capability to store, deliver and purify tritium with the infrastructure and safety systems required.



UK Atomic Energy Authority

Exciting Time for Fusion!

UK Atomic Energy Authority

The fusion community is pursuing an aggressive programme of research to allow the near-term realisation of a demonstration magnetic confinement fusion power plant (DEMO).





H3AT

- Help to maintain a tritium capability within UK industry and government organisations.
- Work with (UK) industry to win tritium related contracts=jobs
- Build partnerships to support the successful delivery of ITER in the field of tritium and waste handling.
- Use the expertise developed through fusion tritium work to benefit other market sectors:-fission, radiopharmaceuticals, academia, government, other.
- Develop and test novel technologies for DEMO and beyond.
- Provide universities with access to tritium systems and associated test facilities.
- Train the next generation of tritium engineers and scientists.
- Retain the tritium capability at Culham post JET in support of the UKAEA objective to progress fusion to commercial realisation.



H3AT

- A £40M state of the art facility
- Up to 100g T2 inventory
- ITER like Tritium fuel cycle able to operate in closed loop. Uranium bed storage and delivery, Impurity Separation, Cryogenic Distillation, Water Detritiation Systems.
- Fuel cycle feeds flexible test cells/gloveboxes for experiments/component qualification.
- Also contains tritium wet chemistry, solid waste detritiation and other beta gases labs.
- Flexibility to futureproof 25+ years of experiments. Inactive test space, office and training facilities.
- Inactive test space, office and training facilities.
- Interim H3AT in the Culham MRF. H3AT facility open 2021



Building



Control and Safety systems



H3AT

World leading tritium science and technology development for UK industry and academia





Tritium Systems





