

UNITED KINGDOM ATOMIC ENERGY AUTHORITY
Minutes of the 4th Board Meeting in 2017

Date: 13 September 2017

Location: Bickerton Room, E6
Culham Science Centre

Members present:

Roger Cashmore, Chairman
Keith Burnett
Ian Chapman
Norman Harrison
Jim Hutchins
Peter Jones
Chris Theobald

In attendance:

Rob Buckingham
Martin Cox
David Martin
Catherine Pridham
Maya Riddle (sec)

Apologies:

Stephen Axford (BEIS)
Adam Baker (BEIS)
Becca Holyhead (Women
Onboard)

Item 4-5 – Kay Nicholson, Head of Assurance
Item 7 - Nick Sykes (ESS Project Sponsor)
Item 7 - Simon Pattison (ESS Project Manager)
Item 9 – Mark Shannon, PMO Manager

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1 Chairman's Opening Remarks

- 1.1 Roger Cashmore welcomed Howard Wilson in his new role as Programme Director.
- 1.2 He informed members that timescales for interviewing candidates for the two new non-executive directors (NEDs) had been extended to the end of September and that Ministerial approval was unlikely until end of October. Consequentially, Peter Jones and Keith Burnett's terms had been extended for three months.
- 1.3 The previous day, he and the NEDs had received presentations on our nuclear materials research programmes and plans for the Materials Research Facility (MRF) and were very impressed.
- 1.4 Over the summer, there had been a sequence of officials visits to Culham. It was clear that all of the work, but in particular by Ian Chapman, was making headway.

2 Minutes of the 6 July 2017 meeting

- 2.1 The Board reviewed matters arising and approved the minutes of the Board meeting on 6 July 2017.
- 2.2 Catherine Pridham said that the updated budget for 2017/18 had been approved by members via written procedure.

3 Report from sub-committees – 12 September Audit Committee

- 3.1 Peter Jones informed members of key points from the meeting, which included:
 - an audit on cyber security was planned, the outcomes of which would be included in the planned cyber resilience presentation to the Board;
 - the Committee had agreed UKAEA's counter-fraud action plan;
 - the BEIS counter fraud network was not feeding out information on frauds, which he would take up at the Audit Committee chairs' meeting next month;
 - the Committee reviewed the payroll audit findings and management's response;
 - external audits were expected on the JET Operating Contract and on the last EPSRC grant; and
 - James Osborne (NAO Director) had summarised points from the NAO's audit completion letter and its audit of Unit 4 implementation.
- 3.2 The Board noted the update.

4 CEO's Report

- 4.1 Ian Chapman said that he was having regular meetings with senior government officials regarding Euratom. We were also engaging with the NIA, which was representing the nuclear industry.
- 4.2 Greg Clark's letter to the Commission had been well received by officials.
- 4.3 A ministerial visit to Culham to mark the MAST-U bake and announce Industry Strategy funding was being discussed.
- 4.4 He had been invited to sit on a committee, being led by Brian Bowsher, which was being tasked with producing a roadmap for science infrastructure investments in UK over next decade or so.

- 4.5 UKAEA was due to undertake a tailored review.
- 4.6 Recently, he had attended a US National Academies Sciences meeting, to review the US's fusion research programme.
- 4.7 Good progress was being made on the JET shutdown. There was a small delay to the programme due to additional scope/maintenance. Recently, some corrosion had been discovered in the Exhaust Detritiation System. Work was underway to determine how to resolve this in time for operations with tritium. Monitoring would be put in place as this was a recommendation from the lessons learnt.
- 4.8 A reorganisation was planned. This included setting up a new Programme Division under Howard Wilson and creation of new Electrical Engineering, JET operations and MAST-U operations departments.
- 4.9 Martin Cox provided an update on the MAST-U project saying that oil contamination had been found on some of the tiles and that the strategy was to undertake a 2-phase bake. Tests indicated that modest baking at 150°C should get rid of the contamination.
- 4.10 The supplier had been asked to pre-bake the tiles, with the intention of cleaning them, but the process may have introduced the contamination. Better quality checks should have been undertaken.
- 4.11 Another big issue was that we continued to suffer from insufficient numbers of competent C&I engineers and electricians. Further external resource had been bought in. However, a bake at the end of November 2017 was now being forecast.
- 4.12 Jim Hutchins asked about leaks and Martin Cox responded that there was still an unfound leak. Last week pumping had restarted, however, delays with the cooling system would make leak testing difficult until this was in place.
- 4.13 Chris Theobald said that project needed to get re-planned.
- 4.14 Norman Harrison cautioned about stress in the project team. Based on his experience at Sizewell B, he advised on having a planning room.
- 4.15 Howard Wilson said that we should aim to minimise the delays to when the machine was available for research and therefore should plan through to the first plasma.
- 4.16 Ian Chapman said that he would get back to the Board with a plan.
- 4.17 Once the machine was under bake, he would instigate an external review. He had already raised this at the Fusion Advisory Board last week and it had been agreed that two of its members would sit on the review team.
- 4.18 Roger Cashmore said that he was pleased to see dashboard for the MAST-U enhancement project and requested one for the ESS project at the next meeting.
- 4.19 Norman Harrison complimented the improvements in the dashboard reports.
- 4.20 Catherine Pridham informed members that the Treasury had agreed to delay our move to the Alpha pension scheme from April 2018 to April 2019. This would avoid being simultaneous with a move of the provider for the current UKAEA pension scheme due in April 2018.
- 4.21 Ian Chapman said that the key risk facing UKAEA was the implications of leaving the EU and much of his time was being spent managing this.
- 4.22 The Board noted the report.

5 Biannual Risk Report

- 5.1 Kay Nicholson gave a presentation to highlight key points from the report. These included:
- a lot of effort had been put into improving risk reporting. The quality of discussion on risks and their management had also improved;
 - the risk landscape remained essentially unchanged since the last report. The most significant risks had already been discussed during the CEO's update;
 - there were also some significant opportunities;
 - there were several new risks. Those of note including risks to the MAST-U enhancements project, pressure in the property portfolio and preparation for new general data protection, where the penalties could be very significant; and
 - new diagrams had been developed to show the top risk trends.
- 5.2 Chris Theobald said that he found the diagrams and whole report helpful.
- 5.3 Keith Burnett asked about propagation through the organisation and Kay Nicholson explained that there was a quarterly review process where lower level risk registers fed up into the corporate risk register.
- 5.4 Roger Cashmore said that it was good to see some risks reducing and asked about the property risk. Catherine Pridham responded that the organisation was expanding and a lot of our buildings were now full. The most pressing internal need for space was in RACE. Our commercial property was also close to maximum occupancy.
- 5.5 Ian Chapman thanked Kay Nicholson for her work over the past two years to improve both the management and reporting of risk.
- 5.6 The Board noted the report.

Kay Nicholson left and Nick Sykes & Simon Pattison joined the meeting

6 Presentation on ESS project

- 6.1 Nick Sykes & Simon Pattison provided background on the European Spallation Source (ESS) project and key points included:
- ESS would be the world's most powerful neutron source and would produce high levels of activation, similar to those predictive in a DEMO fusion reactor;
 - the Science & Technology Facilities Council (STFC) was managing the UK's contribution to ESS, which consisted of eight different work packages. RACE was responsible for delivering the ESS hot cell package;
 - preliminary design work had been undertaken to provide a basis for the cost estimates. Detailed design would be undertaken by industry;
 - 60% of the hot cell project budget was anticipated to be spent with industry. An engagement day had been held last November and to date 60 companies had registered an interest;
 - earned value reporting was being used and six key milestones were being tracked; and

- civil construction on the ESS site in Sweden was delayed so we were looking at ways to mitigate the schedule risks.
- 6.2 Chris Theobald asked about the procurement strategy and integration risks. Nick Sykes responded that we were working to NEC standards, with industry providing design, supply & installation. Simon Pattison responded that we would undertake some testing and software simulations in advance to reduce risks.
- 6.3 Martin Cox said that demonstrating the windowless cell concept would be ground-breaking.
- 6.4 Jim Hutchins commented that it sounded very encouraging.
- 6.5 The Board noted the update.

Nick Sykes & Simon Pattison left the meeting

7 Update on RACE

- 7.1 Rob Buckingham provided an update on RACE, which included:
- the RACE team had grown to over 120;
 - we were bidding, as part of a consortium of Universities, National Labs and Industry, for EPSRC funding for a Robotics & Artificial Intelligence Nuclear (RAIN) hub. This was being led by the University of Manchester. If successful, the endeavour would start on 2 October;
 - the Nuclear Decommissioning Authority was looking to set up a RAI research & development programme. This might be another opportunity to collaborate with the National Nuclear Laboratory;
 - GS Lee from the ITER Organisation was visiting on 29 September;
 - we were bidding with automotive testing experts Millbrook for Innovate UK funding for Connected and Autonomous Vehicles (CAV) testing. If successful, additional infrastructure would be built at Culham and Millbrook would manage the testing at both sites; and
 - Oxbotica had won funding for the £13m Driven project, which RACE was participating in.
- 7.2 The Board noted the update.

Mark Shannon joined the meeting

8 MAST-U Lessons Learnt

- 8.1 Mark Shannon said that a lessons learnt exercise had been undertaken last year and that the key themes were:
- Scope and requirements – government funding had been agreed before the scope had been properly defined and the complexity of the design had been underestimated. We now had a professional estimator and were introducing earned value.
 - Processes and tools – not all of the JET tools were translatable to MAST-U and new tools and process had to be developed along the way.

- Ownership – Owners had not always been/acted empowered. Project management improvements were being driven by the Project Management Office across the organisation.
- Openness – there had been a lack of visibility of senior management and some documents had not been shared within the team. Use of Sharepoint was helping to improve communications.
- Skills – the project had suffered from shortages of people in key skills sets. Further work was required on organisation wide competency mapping.
- Workstream cohesion – the multiple workstream had not worked together as effectively as they could.

8.2 A more detailed external review would be undertaken in early 2018.

8.3 Jim Hutchins advised against starting construction until the design was complete, stating that it always took longer.

8.4 The Board noted the report.

Mark Shannon left the meeting

9 P4 Financial Report

9.1 Catherine Pridham highlighted key points on the Period 4, 2017/18 position including:

- there was sufficient cash for JET until end of November and a further payment was expected next month, which would see us through to the end of the financial year;
- MRF funding from NNUF and the Royce Institute was going to be lower than budgeted. The main recourse was CSR funding, although the CSR budget was already overcommitted in the business development area;
- capital underspends were forecast. Some of this would be used to develop the plans for the proposed MRF and RACE building extensions; and
- management accounts team now had people in permanent positions.

9.2 The Board noted the financial position at the end of period 4 of 2017/18.

10 Residential Development at Harwell

10.1 Catherine Pridham informed members that the Local Plan was now supportive of 1000 homes around the Harwell Campus. We saw accommodation as important, especially given the international flavour of the site.

10.2 Our private sector partner on the Harwell JV had produced an options paper for property development. While a lot of background work had been done, the analysis required further development.

10.3 Roger Cashmore supported taking a cautious approach and stated that any decision must come back to the Board for ratification.

11 Any Other Business

11.1 The next Board meeting would be held on Tuesday 5 December 2017.

Secretary Maya Riddle

Chairman Roger Cashmore