

A regular update on DSA projects and people

3D modelling takes SRP design to the next level

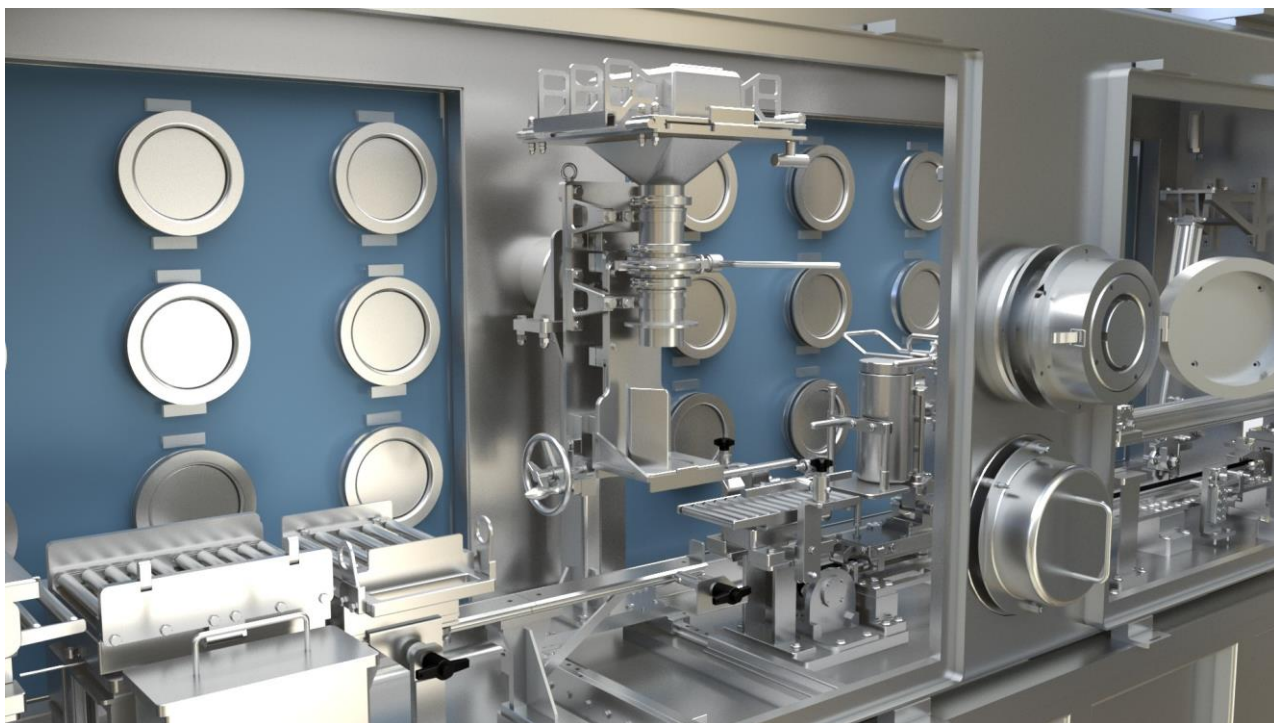
3D modelling software has played a vital role in the design of the Sellafield Product and Residues Store Retreatment Plant (SRP).

It has enabled the DSA integrated team to see a high-resolution animation of the new facility's detailed design and to spot any flaws before the equipment is manufactured.

The SRP plant will be used to repackage, and in some cases also to retreat, packages of plutonium which are contaminated with PVC and whose life expectancy has been reduced as a result.

Because of the nature of the material, this is painstaking and highly skilled work which requires operators to deftly manoeuvre the package inside a sealed glovebox. Wearing several layers of protective gloves, the operator has to take the can out of its overpack, clean off as much of the plastic coating as possible and then reseal it in a modern and more robust outer can. The work will be done on a highly complex production line using specially manufactured equipment.

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A photo quality image of the SRP gloveboxes produced from CAD drawings

Financial update

At end of period 4, 2020/21

DSA spend	£XXXXXXm
Cashable benefits*	£474,040
Non-cashable benefits*	£522,533
Schedule benefits*	1 month

Health and safety

Hours without a lost-time incident

AXIOM	6,401,405
Progressive	5,599,541
Total	12,000,946

*Approved and draft

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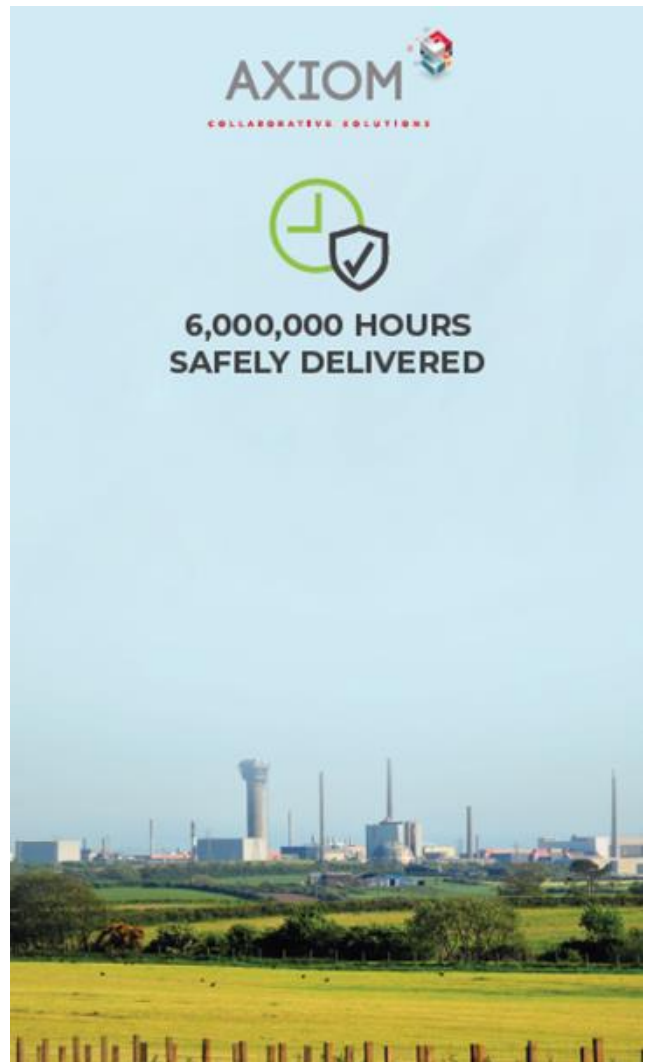
AXIOM celebrates responsibly after six million hours with no LTI

Raising a glass over Microsoft Teams was how AXIOM staff celebrated reaching a remarkable safety milestone – six million working hours without a lost-time incident.

The efforts taken to bring the team together socially went down well with participants. One commented: “I thought it was good that in spite of the lockdown and home working, the effort was made to recognise the achievement.” To aid the celebration, everyone received a £10 gift voucher to spend at wine merchants Richardsons of Whitehaven and Gerrard Seel, or at Jenni’s Brownies.

“It was just good to have a relaxed thank you meeting,” said one. And the added bonus was that nobody had to volunteer as designated driver.

Work to supply chain	Work to SMEs
26%	10%
Hours in education	Customer feedback score
906	98%



‘It’s like watching a film of the real thing’

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The DSA team turned to Furness Engineering and Technology Ltd (FETL), an SME based in Ulverston, Cumbria, to transform their CAD drawings into photo realistic movies by applying textures and animation.

Garry Pilkington, FETL’s Visual Communications Supervisor, said: “There was a bit of scepticism at first, but when I took the mechanical flow diagrams and created some test renders, the design managers saw the value of it straight away. “The 3D modelling and photographic quality of the animation is so good, it’s like watching a film

of the real thing. There is no better way to show the functionality of each part of the system in great detail.

“Most design reviews consist of playing the movies I have produced so they can talk around any issues that have cropped up. It saves so much time when you can see it all visually.

“You can open doors and hatches and operate the moving parts.

“We have found clashes, say where a door opens and hits something else, so problems like this can be ironed out before any components are manufactured.”

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Close shave! Short back and sides for the Pile Fuel Storage Pond

With hairdressers and barbers closed during the pandemic it looked like the concrete shaving trials in the Pile Fuel Storage Pond Bays Interim State Pilot (BISP) would also be postponed indefinitely. However with some additional precautions, the team were able to achieve a safe working environment under COVID restrictions as they brought the shavers to the concrete.

A collaborative team, made up of Sellafield Ltd, DSA Progressive (Cavendish Nuclear and AECOM), James Fisher Nuclear, have been working together on design activities, culminating in the trialling of pond wall shaving methodologies through DDP. Suppliers Corecut, together with a Hilti Shaver and Tyrolit, showcased their products at the trials to help inform tool selection and next steps in the design.

The trials (pictured) consisted of multiple parallel diamond-tipped discs advanced into the concrete's surface removing material in a controlled manner layer-by-layer, effectively shaving it. These top layers of concrete have the highest levels of impregnated contamination in both the BISP bays and storage pond.

Once these top layers of significant contamination



have been removed, the intention is to put the remaining structure into an interim state for future demolition using more conventional techniques.

This lowers disposal costs since waste is efficiently categorised and stored appropriately by segregating the concrete by contamination level. An additional innovation of this trial that reduced attendance on site was a live stream of activities via Teams. This allowed a wider audience working from home to be able to observe and ask questions in real time while the work was ongoing.

The trial was a success, with useful information gained to inform next steps and to progress the programme against the difficult background of COVID conditions – a significant step forward.

BISP Project Manager Steve Archibald said:

“Key parts of the trial were live fed to the wider project team via Microsoft Teams to allow interaction across multiple disciplines throughout the trial.

“The remote live feeding of this trial has provided a benchmark by which future trials can be completed to support projects and operations at Sellafield.

“The people who supported the planning of these trials and those present throughout were instrumental in its success.

“The support of the DSA will be required in deciding which shaving system we proceed with into detailed design and ultimately the detailed design, manufacture and integrated works testing stages of the system.”

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Matt says online courses keep CPD show on the road

Matthew Harrison, a Cavendish Nuclear Principal Mechanical Engineer, celebrated being elected to Fellow of the Institution of Mechanical Engineers early this year.

As Matt commented: “The institution supports its members in making the sorts of contributions to industry that I’ve been able to make, as well as those I hope to make in the future. It’s an honour to have this formally recognized.”

Matt hopes to help others following a path to professional chartership through volunteering as a mentor and interview facilitator.

During lockdown Matt completed an online course in requirements writing, certified through the University of New South Wales and delivered over the web service coursera.org.

Matt adds: “There is a wealth of high-value courses available online and in lots of cases they are free to enrol on. CPD is really important and it is great that there are effective ways to continue it during lockdown and remote working.”



New arrangement work a treat for EC&I design reviews

The COVID-19 pandemic initially smashed down on productivity with all the might of Thor’s hammer. Thankfully, this was not the case for long. Companies and individuals alike have stepped up to the challenge, adapting by fully utilising existing technology and experimenting with new.

One such success story is PFSP BISP where the disruption from COVID was threatening to delay critical review milestones.

In May, senior EC&I Engineer Jason Bailey (Cavendish Nuclear) held the first official design review on the project since lockdown for the BISP water level management system.

He organised and trialled the EC&I Single Discipline Design Review (SDDR) through Microsoft Teams, which represented a step-change because design reviews usually take place face to face and are planned several weeks in advance. However, the SDDR proved successful, with the correct attendees and ability to share screens and review appropriate documents. This led to the staging of a Multiple Discipline Design Review (MDDR) in June, The review meetings saw more than 12 specialists, from

several disciplines, coming together to interrogate the design, propose changes and set out a course of action to achieve the project’s detailed design pack and to place the order for a water level management system with James Fisher Nuclear as part of the DDP/DSA partnership.

New starters at AXIOM

AXIOM has welcomed a number of new starters. Rachel Cummings has joined the MOX Demonstration Facility project team as Human Factors Specialist to support the carbide passivation work. Rachel works predominantly in decommissioning, working with multi-discipline teams to deliver human factors integration. Phil Cholerton is a Principle Control Systems Engineer with more than 30 years’ experience working with Sellafield Ltd. Phil who has previously worked for AXIOM on and off from 2012 – 2019 on a number of projects and was actually part of the DSA Bid Team back in 2010/11 has recently returned to AXIOM as part of the High-Level Waste Plants design team.

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Adaptability is key for meeting chairs in remote working world

The transition from office to predominantly home-working has brought a series of challenges with it, particularly when it comes to collaborative workshops. The traditional congregation around a desk or in a meeting room has been side-lined in recent months due to the inherent pandemic risks, to be replaced by other channels of communication.

A remote-located team from Cavendish Nuclear has continued to make progress in a front-end engineering design (FEED) and waste management study, developing an intermediate level waste consignment scheme using remote-working approaches.

In the past few weeks the team has successfully completed numerous design review and safety assessment workshops over Skype, WebEx and the good old fashioned telephone. These have included HAZOP, HAZCON and optioneering workshops involving up to 20 participants. Using 3D models, shared either live or through model views in workshop packs, productive discussion and solution development has continued in an

effective manner. The key to success however, has been the ability of the workshop chairperson to adapt to the technology.

Study Manager Matthew Harrison commented: “We have really benefitted from effective remote workshop chairing in the past month or so. Driving discussion, coordinating debates and picking out key points of note is more challenging when you haven’t got the benefit of seeing people around the table.

“Body language makes a huge contribution to communication; you really understand this when you are constrained to remote working.

“We have really benefitted from having individuals in the company who have rapidly adapted to this way of working and enabled us to continue delivering effective, productive discussions”.

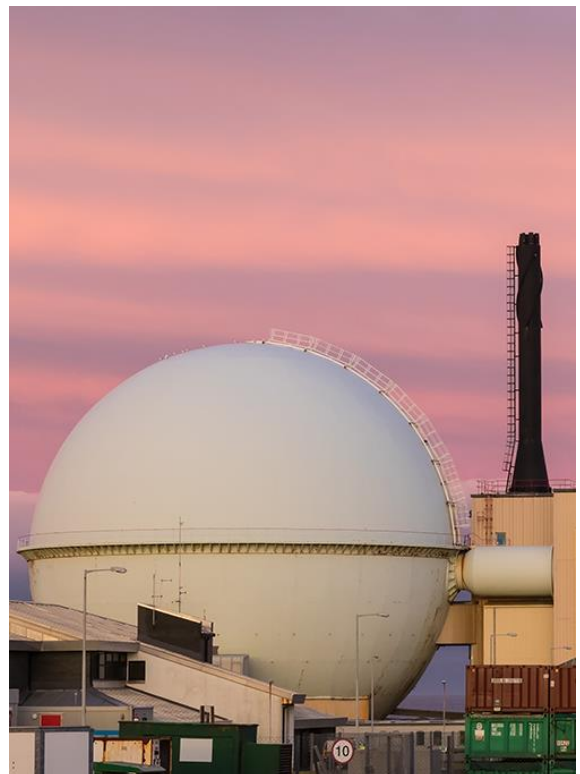
The team is set to complete hazard and optioneering assessments soon, after which it will then be ready to submit outputs to the Remediation Strategy & Benefits Committee for approval.

Latest learning helps take the heat off costs for SNM storage

Careful analysis of experimental data has enabled a reduction of more than £170,000 in the storage costs for the Dounreay Package Contingency Capability (DPaCC).

It was initially envisaged that packages of special nuclear materials (SNM) transferred from Dounreay (pictured) would need to be held in refrigerated buffer stores for two months in order to prevent PVC degradation inside the containers. However, the project drew on historic experimental information and thermal modelling to show that damage would not occur for at least 100 days. This meant the two buffer stores could be declared surplus to requirements, removing the need for £70,120 in capital costs and £102,492 in future running costs.

Phil Holden, SMPrO Design Manager, said: “The key learning here is that technical understanding of SNM storage issues is moving very quickly, so it is important that SNM Technical are consulted during project delivery to ensure that the latest understanding is utilised.”



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