



Shepley Engineers Ltd

Nuclear Decontamination Services

A proud member of the Shepley Group

Developing high performing people, building a legacy of excellence.



About us.

Shepley Engineers - Leading the Way in Nuclear Decontamination and Decommissioning

In February 2016, Shepley Engineers Ltd strengthened its decommissioning capabilities by acquiring Nuclear Decontamination Services Ltd — enhancing its expertise and providing complementary solutions to its existing services.

Our decontamination specialists bring **over 50 years of combined experience**, having successfully delivered **more than 200 decontamination and technical projects** across UK and international nuclear sites.

Based primarily at the Sellafield site, our Experts have been at the forefront of decontamination framework delivery since its first external tender in 2008. With **over three decades of excellence**, our experts have built a reputation for **precision, reliability, and professional consultancy**, instilling confidence in client teams through innovative solutions and proven methodologies.

Our specialists possess an **in-depth understanding of site operations and procedures**, enabling **efficient, pragmatic, and effective** working practices. As part of the Shepley Group, we offer a **comprehensive suite of support disciplines**, each with **extensive nuclear decommissioning experience**, including:

- Project Managers
- Engineers
- Electrical & Instrumentation Experts
- Mechanical Fitters, Pipefitters, and Welders



Meet the team.



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Techniques.



Advanced Water Jetting.
We deliver high-precision water jetting, for efficient, decontamination applications.

Ultra-High Pressure Water Jetting (1700-2500 bar)
Optimized for cutting and metal removal

High Pressure Water Jetting (up to 1700 bar)
Ideal for pipe unblocking and tank cleaning, ensuring reliable, efficient decontamination

Proven Experience

- THORP Shear Cave
- HAST11 Hydrogen Venting
- BAE Barrow Panel Removal
- Fuel Skips



Electrochemical Decontamination.
We utilise advanced electrochemical techniques to efficiently remove contamination from metallic surfaces.

How it works
Through an electrochemical reaction, the outer surface is dissolved, eliminating radioactive contaminants. This process is applied via:
Full immersion - Complete component decontamination
Localised electrochemical application - precision targeting of contamination hotspots

Proven Experience
Vessel cross-contamination repair



Chemical Decontamination.
We deliver expert chemical decontamination solutions, utilising advanced formulations to effectively dissolve, loosen, and remove radioactive contaminants from surfaces, equipment, and system components.

Specialised Applications
Our chemical decontamination techniques include:
Acid & alkaline washes – dissolving corrosion products and radioactive deposits.
Chelating agents – binding radioactive isotopes for safe removal.
Foams & gels – localized cleaning, ideal for vertical or overhead surfaces.

Proven Experience

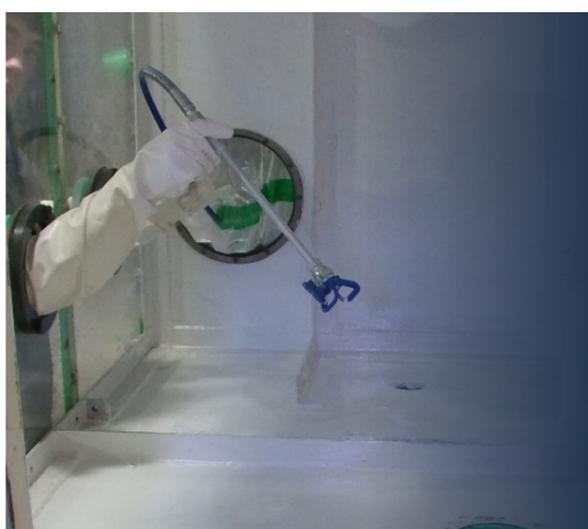
- THORP Shear Cave



Scabbling.
We specialise in scabbling, an effective method for removing contaminated layers of concrete

How it works
Scabbling involves chipping away thin layers of concrete using advanced mechanical tools, including:

Proven expertise
Our specialists have successfully executed scabbling for critical projects, including:
Building decommissioning – floor contamination removal



Strippable Coatings.
We utilise advanced strippable coatings as a highly effective method of surface decontamination, providing safe and efficient removal of radioactive contaminants.

How it works
A liquid polymer is applied to the surface, drying into a flexible film. Once cured, the film is peeled away, physically lifting radioactive particles and contaminants, ensuring thorough decontamination with minimal disruption.

Proven Experience

- Alpha glovebox benchmark trials
- Sellafield Walkway decommissioning



Abrasive Blasting.
Shepley Engineers Ltd provides expert abrasive blasting, widely used for coating removal, rust treatment, and metal surface preparation to ensure optimal adhesion and cleanliness.

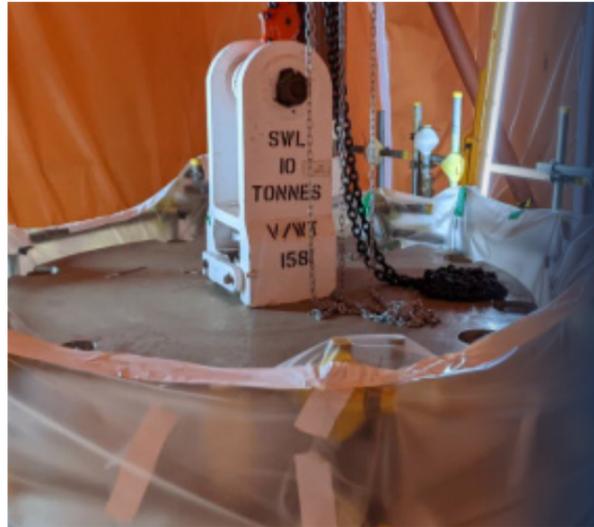
Sand Blasting - Effective for paint and coating removal.

Shot Blasting – ideal for corrosion removal and surface conditioning

Proven Experience
Successfully utilized in nuclear decontamination, including:

- MSSS Silo Chute

What we do.



Flasks and Containers.

Ensuring the safe restoration of essential transport and storage units.

Ultra-High Pressure Water Jetting Trials - testing and refining techniques for **fuel skip decontamination**.

SWEF Transfer Flask Decontamination - employing **chemical cleaning in air-fed suits** to achieve meticulous contaminant removal.

Chemical Decontamination of Waste Skips - ensuring compliance with strict regulatory and environmental standards.

Contamination Consultancy.

We provide expert guidance and tailored solutions, ensuring effective contamination assessment, strategic planning, and remediation.

Our Consultancy Services

- Site & System Assessment – evaluating contamination levels and risks.
- Contamination Identification – analysing type and extent for informed decisions.
- Strategic Decontamination Planning – optimizing solutions for site-specific conditions

Proven Experience

With decades of nuclear and industrial decontamination experience, we support clients in developing and implementing effective strategies for contamination challenges.



Vessel & Tank Decontamination.

Our specialists have successfully conducted in situ decontamination and unblocking, including.

Sellafield Effluent Bowser - thorough decontamination via high-pressure water jetting.

Hydrocyclone Unit Unblocking - precision micro-bore flexible jetting lance deployment.

Grit Buffer Tank - advanced methodology for 15-meter diameter vessel cleaning.

THORP Medium Active Evaporator Tubes - efficient in situ decontamination.

THORP Effluent Separator Vessels - high-pressure water jetting for operational integrity.



Research and Development.

We pioneer advancements in contamination removal, exploring new methods, technologies, and materials to enhance decontamination efficiency.

Cutting Edge Testing and Innovation

Our specialists conduct real-world simulations using test rigs to refine techniques, such as

- Chemical Cleaning – next-generation solutions for targeted contaminant removal.

Caves & Cells Decontamination.

We deliver specialist decontamination for highly controlled nuclear environments, ensuring safe, effective contaminant removal in processing and storage areas.

Our experts have successfully executed HP and UHP water jetting for critical remediation, including:

How it works

THORP Shear Cave – UHP & HP water jetting for thorough contamination removal.

NAR Cell



Test Rig Development.

We develop specialised test rigs to simulate real-world contamination scenarios, enabling precise, controlled decontamination evaluations before full-scale implementation.

Optimised Simulations

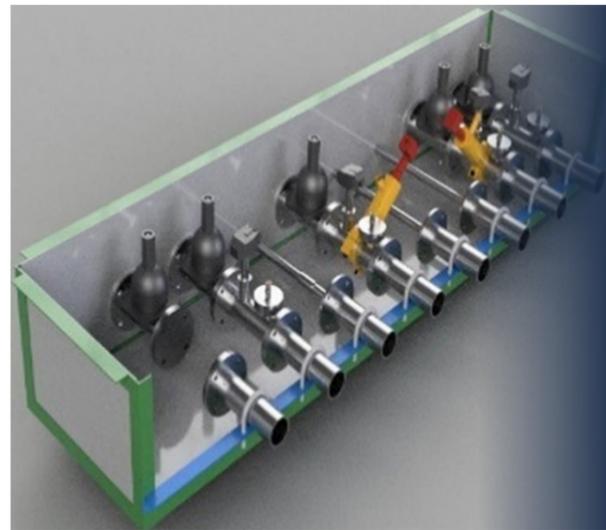
Our test rigs replicate:

- Piping systems – assessing flow dynamics and contaminant removal.
- Tanks & processing units – evaluating large-scale decontamination.
- Complex environments – testing methodologies under realistic conditions.

Through rigorous testing, we pioneer safer, more effective decontamination solutions for nuclear remediation



What we do.



3D Modelling.

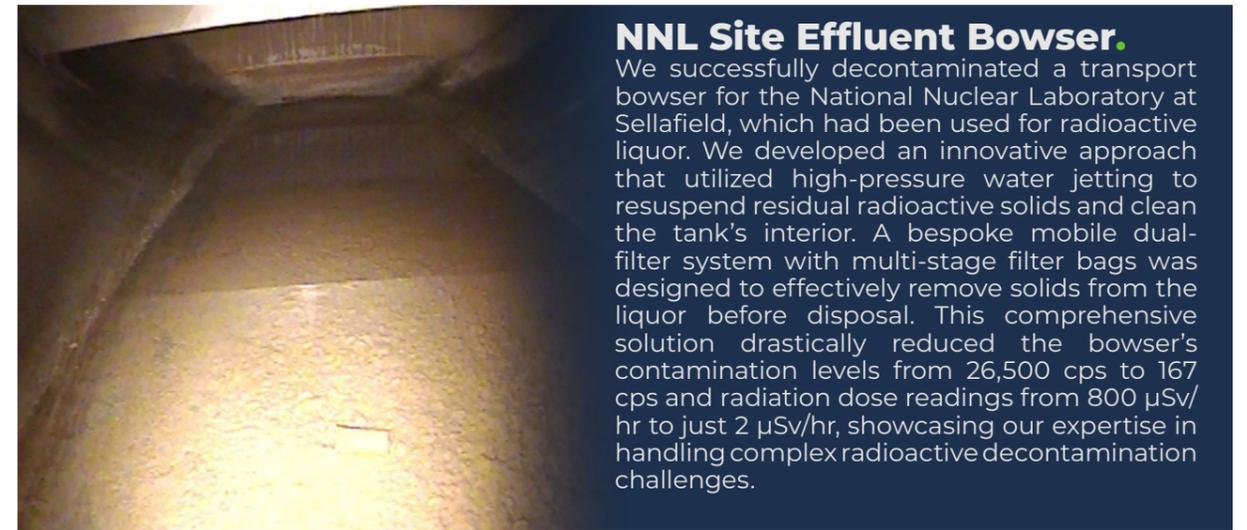
Our team utilizes advanced 3D modelling to create precise digital representations of plant equipment, piping systems, and contaminated areas.

These models aid in:

- Visualizing complex geometries for better understanding.
- Identifying contamination hotspots with accuracy.
- Optimizing cleaning strategies for effective decontamination.

Through cutting-edge technology, Shepley Engineers enhances efficiency, planning, and remediation in nuclear and industrial environments.

Case Studies.



NNL Site Effluent Bowser.

We successfully decontaminated a transport bowser for the National Nuclear Laboratory at Sellafield, which had been used for radioactive liquor. We developed an innovative approach that utilized high-pressure water jetting to resuspend residual radioactive solids and clean the tank's interior. A bespoke mobile dual-filter system with multi-stage filter bags was designed to effectively remove solids from the liquor before disposal. This comprehensive solution drastically reduced the bowser's contamination levels from 26,500 cps to 167 cps and radiation dose readings from 800 $\mu\text{Sv/hr}$ to just 2 $\mu\text{Sv/hr}$, showcasing our expertise in handling complex radioactive decontamination challenges.

Sampling for Characterisation.

We conduct precise contamination analysis, collecting and testing materials from equipment, surfaces, and environments to identify contaminants and their concentrations.

Sampling & Analysis Methods

Swabs – surface contamination assessment.
Soil & Water Samples
Air Sampling

Advanced Laboratory Techniques

Utilizing cutting-edge methods like:

- Spectroscopy
- Chromatography
- Radiological Analysis



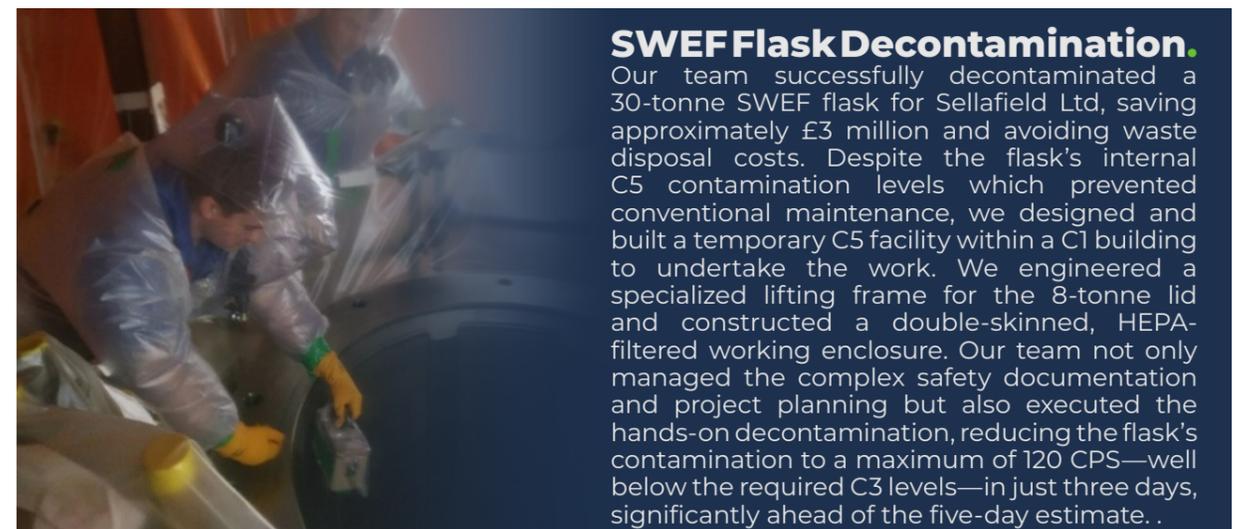
THORP Shear Cave POCO.

We spearheaded an extensive Post Operational Clean Out of the Thorp Shear Cave, initiating the project in 2018 with comprehensive viability and safety assessments. The innovative approach involved a two-phase water jetting system. Initially, a bespoke low-pressure 150 bar system, featuring a unique long-throw jetting nozzle and articulated lance, efficiently removed bulk particulate contamination. This successful precursor then led to the main decontamination phase, employing a high-pressure 700 bar water jetting system with a 360-degree rotating head, deployed via a gimble mast through roof access points. This strategic deployment method significantly reduced contamination with minimal effluent generation, ultimately paving the way for potential future manned access into what was previously a highly contaminated cell.



On-Plant Unblocking.

Our team provides specialised unblocking solutions, adapting techniques to plant-specific challenges during shutdown maintenance, post operational clean out or post-installation washdowns. Our expertise ensures efficient, safe, and reliable pipework restoration for critical operations.



SWEF Flask Decontamination.

Our team successfully decontaminated a 30-tonne SWEF flask for Sellafield Ltd, saving approximately £3 million and avoiding waste disposal costs. Despite the flask's internal C5 contamination levels which prevented conventional maintenance, we designed and built a temporary C5 facility within a C1 building to undertake the work. We engineered a specialized lifting frame for the 8-tonne lid and constructed a double-skinned, HEPA-filtered working enclosure. Our team not only managed the complex safety documentation and project planning but also executed the hands-on decontamination, reducing the flask's contamination to a maximum of 120 CPS—well below the required C3 levels—in just three days, significantly ahead of the five-day estimate.

Our values, vision and ethos are at the heart of what we do.



Our ethos.

Whether we're working alongside our Group members or operating independently, our culture remains consistent. We put our clients first, supporting their business needs and delivering engineering solutions with commitment, care and consideration. Long term relationships are key to our business model and our people are at the heart of everything we do. Our high performing employees dedicate themselves to delivering customer requirements and we promote an environment that stimulates diversity, innovation, teamwork and continuous improvement.

The strength of our business comes from the wide range of complementary services that we offer. We have core capabilities in Manufacturing and fabrication, mechanical and electrical installation works, E&I panel manufacture, HVAC installation, Decommissioning, decontamination services and specialist restoration & renovation - operating across the United Kingdom.

Our experience of delivering complex projects in some of the UK's most challenging environments is what sets us apart. Delivering safe and sustainable solutions to today's engineering challenges while operating to the highest levels of safety and quality, our dedicated teams can manage integrated solutions from engineering support to manufacturing and installation to commissioning.



The core values of our group »



We are customer focused

Our business model is based on a partnership with our customer to ensure that every interaction is intended to support the customer which in turn assists our business to learn and grow. Our organisation thrives from successful delivery for our customers, we make every decision and measure every outcome based on how well it serves them.



Our people are key to our success

Our employees and the relationships developed over time are the beating heart of Shepley Engineers, this significantly contributes to our ongoing success. We continually develop our employees to enable them to achieve their full potential and have a proven history of internal progression.



Committed to Right First Time

We have a passion for accuracy and getting it right first time, every time.

Our teams work diligently to implement our proven processes and procedures throughout the lifecycle of a project, and by doing so we believe we provide excellence by all of our people throughout our organisation.



We are proactive and adaptable.

Our success stems from the ethos across the business to drive projects and achieve positive outcomes for our customers and partners.

Our agile structure allows us to quickly adapt to situations and respond positively to our customers' needs whilst continuously looking for ways to improve what we do.

Get in touch.



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 Shepley Group

 Shepley Engineers Ltd



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