

# Waste Management

Nuclear Technology  
and Innovation



# The Challenge

Many of Nuvia's clients have responsibility for managing some of the world's most hazardous nuclear waste. This demands world class operational performance that meets the requirements of the regulators. Nuvia recognises these onerous responsibilities and is committed to supporting clients in all aspects of their waste management liabilities – from planning through operations and in managing legacy wastes.

Nuvia has long-established relationships with a wide range of producers of radioactive waste, from nuclear power generation, defence, and oil and gas industries to hospitals and university research laboratories. These clients trust Nuvia's expertise and rely on our advice, products and services to ensure the safe and cost-effective management of their radioactive wastes.

## Our Approach

Nuvia's approach is based on years of practical international achievements, extensive knowledge of regulatory requirements and our wide-ranging experience of the whole life-cycle of nuclear waste. This background enables us to deliver effective services and products for the treatment, packaging, transport, storage and safe and final disposal of conditioned waste.

Because Nuvia's activities include the construction and operation of nuclear facilities, our experts have a thorough understanding of radiological protection, monitoring, decommissioning and decontamination issues. Consequently we are well-equipped to devise innovative methods to reduce waste, to recycle it and to re-use equipment wherever possible thus making cost-effective use of decommissioned facilities and providing value for money.



*Nuvia brings together knowledge and understanding of the various waste processing technologies including in-house designs for often complex waste streams such as plutonium, tritium and sodium.*

# Our Solutions

## A complete range of services

The Nuvia Group can provide or manage all of the services needed to successfully and economically handle radioactive waste management projects and avoid costly interfaces. Our services include strategic and technical consultancy and the development of bespoke engineering solutions to match specific requirements. We also provide a land remediation service to assist clients to realise the full value of their assets for redevelopment. Safety and compliance are fundamental to our waste management planning, based on the 'green' principles of reduce, recycle, and re-use.



## Organisation

With a resource base of approximately 1900 to call upon, including internationally recognised experts in the field of waste management, Nuvia is able to provide effective simultaneous technical support across a wide range of clients. We bring together knowledge and understanding of the various waste processing technologies including in-house designs for often complex waste streams such as plutonium, tritium and sodium.

### Waste Characterisation Service

- A total or bespoke waste characterisation service:
- Planning and Assessment
  - Desk Studies
  - Characterisation Strategy/Sampling Plan
  - Implementation of Sampling Plan
  - Analysis of Samples
  - Data Quality Assessment
  - Recommendations
  - Implementation Strategy
  - Decommissioning
  - Remediation
  - Restoration

### Services

- Health Physics Services
- Melting of Contaminated Metals
- Incineration of Wastes
- Land Characterisation and Remediation
- Waste Compaction
- Decontamination and Decommissioning of Redundant Facilities
- Conditioning, Storage and Disposal of Waste
- Waste Transport

### Design, Build, Operate

- Sludge Recovery Plant
- Waste Encapsulation Plant
- Waste Handling Facilities
- Containment Systems
- Waste Processing
- Waste Treatment Facilities
- Mechanical Handling Facilities
- Mechanical Decontamination Systems

### Products

- Waste Transportation Flask TRANSHIELD
- Land Remediation System, GROUNDHOG™
- Modular Containment System ModuCON™
- Decontamination Foams FORAL, FORAC, FORNET
- ModuCube
- Self Cleaning Sludge Filter

### Consultancy

- Nuvia can provide consultancy services throughout the whole life cycle:
- Site Investigations
  - Planning and Costing
  - Feasibility Studies
  - Optioneering
  - Operational Safety Cases
  - Environmental Impact Assessment
  - ALARP and Shielding Requirements
  - Regulatory Approvals
  - Gaining Disposal Authorisation
  - Stakeholder Consultation
  - Strategic and Technical Consultancy
  - Development of Engineering Solutions
  - Waste Acceptance Criteria

# Key References

## Aqueous Waste Treatment Facility, AWE Aldermaston

Nuvia designed, built, installed, commissioned and demonstrated performance of the aqueous waste treatment plant to serve the AWE Aldermaston site. The plant uses evaporation and reverse osmosis filtration and is designed to treat between 500 and 2500 m<sup>3</sup> per year of aqueous effluent arisings.



## Winfrith EAST Treatment Plant (WETP)

The design and construction of a waste plant to condition and encapsulate intermediate level radioactive sludge from the External Active Sludge Tanks that accumulated over the operational lifetime of the SGHW Reactor. The plant safely encapsulated 1068 drums of ILW waste.



## D3900 Waste Segregation Plant

Nuvia and DSRL (Dounreay Site Restoration Limited) formed a design authority for the development of an intermediate level waste cementation plant, drum and box stores. The plant will solidify liquid wastes left over from the reprocessing of fast reactor fuel and other hazardous items.



## AREVA – La Hague

Transfer of highly irradiating drums from a large pit with a remote control arm, to allow:  
Weighing, radiological control;  
Gamma spectrometry, identification;  
Buried pit storage.



## Chinon A3 Nuclear Plant

Evacuation of 663 bulky and heavy containers (1900t) made from sections of the primary pipes.  
The scope of work for the waste treatment included:  
Design and modification of the existing installation; handling, radiological controls, cutting, waste containerisation, container welding.



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