Operational and Radiological Aspects of Non-Nuclear Waste Conditioning and Disposal

NEA Workshop on the Management of Non-Nuclear Radioactive Waste
Legnaro, Italy
May 2017
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Agenda

- Introduction to UK permitted facilities
- Augean Plc
  - Augean Permitted Facilities
  - Permitted Treatment and Disposal Activities
  - Waste received
- Operations
  - Waste Enquiry to Acceptance
  - Technical Assessment
  - Arrival on site to disposal
  - Facility Operation
- Examples of Non Nuclear Projects
UK Permitted Facilities

Key Radioactive Substances Permitted Incinerator

Radioactive Substances Permitted landfill or repository

NORM waste only

Nuclear waste disposal only
Augean Plc

- PLC listed on AIM since 2004
- £55m market cap
- Backed by ‘growth’ institutional investment funds
- 450 employees, competency-assessed for their job
- Key technical assets
  - > 50% of UK permitted hazardous landfill void
  - One of 4 high temperature incinerators in UK
  - Leading technologies in waste treatment
  - Only waste operator with UCAS accredited lab
  - Integrated Management System

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Augean Plc

How we INTERFACE:

SERVICES:
- Waste Treatment & Recycling
- Decommissioning
- Logistics
- Industrial Services
- Knowledge Transfer Training & Processes
- Compliance & Regulatory Advice

Understanding What We Do

Our Vision: Creating value for our customers through innovative services that protect future generations.

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NORTH SEA SERVICES | INTEGRATED SERVICES | INDUSTRY & INFRASTRUCTURE | ENERGY & CONSTRUCTION | RADIOACTIVE WASTE SERVICES

www.augeanplc.com
Augean Permitted and RSA Authorised Facilities

- **ENRMF** – Disposal to landfill of low level waste up to 200Bq/g on average
- **Port Clarence** – Treatment and Disposal of NORM waste solids and liquids
- **East Kent** – Incineration of radioactive waste
- **Dundee** – Acceptance, Decontamination, Treatment and Disposal of NORM Waste
- **Lerwick** - Acceptance, Decontamination, Treatment and Disposal of NORM Waste
- **Aberdeen** – Accumulation and Disposal of radioactive waste

7 radiologically permitted facilities across the UK (1 currently inactive)
Permitted Treatment and Disposal Activities
Wastes Types Received

- Radioactive waste already received, treated and disposed of come from:
  - Oil, Gas, Mining and Minerals processing (on shore and off shore)
  - Clinical facilities
  - Life Sciences facilities
  - Defence facilities
  - Contaminated land sites
  - Nuclear licensed sites

- Low level waste

- Mostly solid waste, however do take scale, sludges and liquids for treatment

- All waste is contained, e.g. Drums, Bags, ISO containers, wrapped
Waste Enquiry to Acceptance

**Enquiry**
- Is it a waste?
- Where did the waste originated from / what process?
- Who is looking to consign the waste?
- Do they have a radiological and chemical fingerprint?
- Is this based on representative samples?
- Do they have a permit for disposal?
- How will the waste be transported?
- How will it be packaged?

**Gathering Waste Information**

**Technical Assessment of Waste**
- Does it require treatment prior to disposal?
- Does it meet our Waste Acceptance Criteria?
- Does it meet the requirements of our permit?
- Does it meet the requirements of our Environmental Safety Case?
- Can it be handled safely and compliantly?
- What hazards and risks does it pose?

**Issue Quote and Waste Acceptance**

**Liaise with Customer to book waste in**
Arrival on site to disposal

- Waste arrives on site
- Waste Acceptance Checks
- Waste Moved to Treatment location or disposal cell

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Facility Operation in the UK

External Scrutiny
- Environment Agency (EA)/Scottish Environmental Protection Agency (SEPA)
  - Regular site visits
  - Audits
  - Monitoring
- Health and Safety Executive
  - Visits and audits
- Public Health England
  - Radiation Protection Advisor
  - Site Environmental monitoring
  - Operational audits
- British Standards Institute
  - Audit and certification of management systems
- Customer Duty of Care Audits
Facility Operation - Environmental Monitoring

• Monitoring is undertaken to confirm that the sites behave in accordance with the design and safety case
• Trained monitoring technicians work to agreed programmes and protocols approved by the Environment Agencies.
• The monitoring includes all media chemical, physical and radiological criteria are monitored
• Results are available on Augean web site
Facility Operation - Example Site Monitoring Locations

Key / Notes
- Proposed planning application boundary
- Approximate location of the current cell boundaries
- Approximate limit of working of the western extension
- Woodland
- Existing gas flare compound
- Approximate location of a combined groundwater and landfill gas monitoring point
- Approximate location of an aerobic monitoring point
- Approximate location of a dust and particulate matter monitoring point
- Approximate location of a VOC and hydrogen sulphide monitoring point
- Approximate location of a surface water monitoring point
- Approximate location of a combined leachate and gas monitoring point
- Approximate location of a gas monitoring point
- Approximate location of a gas flare monitoring point

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Facility Operation - Community Engagement

- Community Liaison Group
- Open door policy/engineering days
- Educational visits
- Annual open days
- Stakeholder register
- Web site – news, monitoring
- Consultation commitment
  - Exhibitions/surgeries
  - Presentations
  - Drop in sessions
  - Workshops
  - Public information leaflets/news letters
  - Media
• Local employees
• Local services policy
• Landfill tax credit
• Direct funding
• Highway contributions
• Example projects include:
  – Sports centre £500k
  – Resource and Underground £66k
  – Rutland Water osprey project £75k
  – 16 local village halls and churches
• LLW Community fund £5/t
Facility Operation – Examples of Supporting the Local Community
Example Non Nuclear Radioactive Waste Projects

- University of Manchester – Earnest Rutherford’s Laboratory
- Titanium dioxide manufacturing
- Contaminated land from Victorian mental asylum
- Oil and Gas decommissioning projects
- Medical isotope manufacturing
- NORM contaminated plant & equipment
- NORM contaminated land
- Cyclotron decommissioning
THANK YOU – ANY QUESTIONS