

## **Archaeology Department Protocol for Working with DEFRA Licenced Materials**

### **General Safety:**

- Lab coat, a plastic apron that can be wiped clean or disposed of with licenced material after use, safety glasses and nitrile gloves to be worn at all times when handling DEFRA licenced materials.
- Risk assessments must be read and approved and proposed work signed off by Prof. Karen Milek before work with licenced material begins.
- Only approved analytical methods listed on the Archaeology Department's DEFRA licence are to be undertaken within the Department, and only after the relevant training:
  - **Environmental Analysis Processes**
    - Soil sample preparation by drying, powdering, sieving and residue sorting
    - Soil descriptions
    - Soil subsampling
    - Soil flotation and wet sieving
    - Loss on ignition (LOI)
    - Magnetic susceptibility
    - pH
    - Electrical Conductivity (EC)
    - Phosphate analysis
    - Phytolith extraction
    - Pollen extraction and slide prep
    - Fossil parasite ova extraction
  - **Materials Analysis Processes**
    - Powdering with a ball mill
    - Preparation of fused beads for XRF
    - Preparation of pressed pellets for XRF
    - FTIR
    - pXRF
    - SEM
    - XRD
    - X-radiography
    - X-ray CT
    - Embedding soil blocks with resin
  - **Luminescence Dating Processes**
    - Heavy liquid separation
    - HF etching
  - **Isotope Analysis Processes**
    - Stable isotope subsampling, weighing, and analysis
- New analyses require approval well in advance to update the Department's licence.
- Any dust-generating work (e.g. powdering) must be carried out under the extraction cabinet in D131 wearing PPE, and chemical work should be carried out in an appropriate fume cupboard.
- Licenced material should only be held and used in:
  - D006 – Materials Analysis Laboratory
  - D011 – Storage Room
  - D012 – Storage Room
  - D013B – Deep Basement Storage Room, Bays 12-14
  - D015 – Storage Room
  - D111 – Roller Rack Storage Room
  - D112 – Archaeomaterials Sample Preparation Laboratory
  - D128 – Palaeoecology Laboratory (Fenwick Laboratory)

- D129 – Stable Isotope Biogeochemistry Laboratory
  - D131 – Environmental Archaeology Processing Laboratory
  - D132 – Archaeological Science Laboratory
  - D133 – Fenwick Human Bone Laboratory (X-ray machine)
  - D136E – Luminescence Laboratory
  - D136C – Geoarchaeology Laboratory
  - D204 – Teaching Laboratory
  - D242 – Materials Analysis Laboratory
  - D243 – Archaeology Isotopes Laboratory
- In advance of planned work, use the Teams lab booking system to reserve lab space and state that your work involves licenced materials. Licenced and unlicensed materials must never be worked on simultaneously or mixed.

### **Cleaning Equipment:**

- Equipment used during work with licenced materials (e.g. weighing tools, crucibles, etc) should be cleaned thoroughly with a damp tissue and then sprayed and wiped using 10% Anigene disinfectant solution and blue roll.
- All soiled tissues must be retained together with waste soil in the DEFRA authorised soil disposal bin for off-site disposal.

### **Spills:**

- Minor spillages of soil or sediment should be mopped up and thoroughly wiped clean with moist blue roll/tissue paper and disposed of as licenced material as appropriate.
- 1:10 (v/v) Anigene disinfectant solution should be used to disinfect cleaned surfaces where spills have occurred and left for 30 minutes.
- Larger spillages containing chemicals should be treated using a spill kit. Before using a spill kit, make sure that it is appropriate for the spillage to be treated, considering the chemical compatibility of the adsorbent and SDS for the spilled material(s). This should be considered as part of the risk assessment before starting any processes involving licenced materials and chemical use.
- All consumables used to treat spills (e.g. blue roll, wipes, absorbent towels) should be retained and treated as licenced material waste for specialist disposal.
- Materials in a fine, dusty form should not be cleared up by dry brushing but with a damp tissue.
- It is the responsibility of the user to make sure that the appropriate spill kit and disinfecting agents are available and present in the workspace before commencing analysis.

### **Disposal:**

- All waste licenced soil, packaging, soiled tissues and PPE for disposal must be placed in the designated DEFRA authorised imported soil disposal bin.
- Disposal of licenced material is organised by the Technical Team (D203A) and carried out offsite by TradeBe via the University's Waste and Environmental Compliance Sustainability Manager (Darren Hatfield).
- Licenced materials collected for disposal by TradeBe are sent for incineration.

- Note that there is no route for authorised materials to be removed from the licence, even after incineration by a process such as loss-on-ignition. Ashed soils must be disposed of together with all licenced soils.
- On arrival of new licenced material, all accompanying packaging material, any discarded materials, and any extraneous soil must be disposed of in the designated DEFRA authorised soil disposal bin for offsite disposal.
- Leftover residues not required for further analysis should be placed in an appropriate labelled container/bag within the designated DEFRA authorised soil disposal bin for offsite disposal. Please inform a technician in D203A if disposal is required.
- The Department's licenced soil catalogue on Teams must be updated when materials are moved and disposed of. Please discuss with Prof Karen Milek before disposing of large quantities of licenced material.
- Licenced materials and associated waste (e.g. packaging, PPE, soiled tissues, etc) will be stored in the designated locked cabinet in D132 while awaiting disposal.
- It is the responsibility of the user to inform the Technical Team (D203A) when the designated disposal bin is approaching capacity. Lab users must consider the amount of waste that will be generated in advance of beginning work.
- For staff: When filters are cleaned or replaced in the designated extraction cabinet (D131), all dirty filters and collected soil must be disposed of in the waste DEFRA authorised soil box for offsite disposal