

CIP4: Sampling Protocol






This guide provides the actions you need to take on:

- Viewing the online training videos
- Receipt of sample materials (**Method 1**)
- Methods you'll use to collect liquid samples (**Method 2**)
- Methods you'll use to collect final sludge 'cake' (**Method 3**)
- Protocols for sending materials back to the University of York (**Method 4**)

You can view videos of these methods here:

<https://webfiles.york.ac.uk/CoEMS/>

Equipment required:

1 per box Keep for future sampling	 Sample bucket		 Pen		
Per quarterly sampling box	 1x Plastic bag for disposal of used parts	 4x Plastic bags for low temperature storage	 1x Dehydrated ice packs	 1x Packaging for return shipment	
Included in individual sampling kit	 Gloves	 Vials	 Plastic syringe	 Syringe filter	 Spatula

Please wear appropriate personal protective equipment while undertaking the sampling, at minimum: High Visibility Vest, Boots, Gloves, Eye Protection, or as otherwise specified by your employer.

Method 1: Actions on receipt of sampling materials and preparing for a sampling occasion

1. You will receive one large box containing 4 smaller insulated boxes. Each small insulated box contains the materials for one sampling period (sample periods are August 2025, November 2025, February 2026 and May 2026). Store the large box and its contents indoors at room temperature for the duration of the project, selecting the appropriate small insulated box for each sampling period.
2. Prior to sampling at each location, check you have sufficient sample kit-bags plus the bucket if sampling water. Sample bags for water have **blue-bordered labels** affixed to them. Sample bags for sludge have a **red-bordered label**. A sample bag with some spare materials (in case of breakages, losses, or blockages) is included with a **grey-bordered label**. One large domestic refuse bag is provided for convenience to collect used sampling paraphernalia.

Method 2: Collection of liquid samples

Liquid Samples Include: Sewage Treatment Works (STW) influent & effluent, river water, and groundwater.

Each kit is numbered and provided contains a bucket on a string and a number of sample bags (**blue-bordered labels**) containing two glass sample vials (matching numbers), gloves, a syringe and syringe filter used to removed particulates in the liquid. Two vials are to be filled at each sample collection site. One of these will be analysed to detect chemicals and one that we will freeze and save for future use. The table on pages 5-6 of this document summarises the samples to be collected at each location for each Water Company.

Company name:	
Plant location name:	
Sample (circle):	INF EFF <u>uRW</u> <u>dRW</u>
	<u>uBH</u> dBH1 dBH2
Date and Time:	
Collected by (print name):	

Method 2:

1. Mark each **sample vial** on the partly pre-filled label with the plant location name and circle the sample type according to one of available options: INF = influent; EFF = effluent, uRW = upstream river water, dRW = downstream river water, uBH = upgradient borehole, dBH1 = down gradient borehole 1 and dBH2 = down gradient borehole 2. A **pen** is provided.

2. Please first put on a new pair of **gloves** at each sampling location. Lower the **bucket on a string** below the water surface.
3. Retrieve the bucket and discard the collected water in order to rinse the bucket. Repeat this bucket rinse once more (this will help prevent cross-contamination from the previous site).
4. Lower the rinsed bucket back below the water surface then retrieve the collected liquid.
5. Using the **plastic syringe**, draw up a full syringe volume of waters then discharge it back into the water source in order to rinse the syringe.
6. Draw up another full syringe volume of water and attach the **syringe filter** to the base of the syringe via the screw-on mechanism.
7. Push a few drops of water through the syringe filter to prime it.
8. Dispense 15 mL of water through the filter and into the labelled amber glass vial and then screw on the cap tightly. **IMPORTANT:** Do not fill the vial completely as this will cause the glass to burst upon freezing.
9. Repeat steps 5-10 to fill the second amber glass sample vial. Place the two vials inside the sealed bag they arrived in, being sure that the vial numbers match the bag number, and label the bag with the same information as was written on the vials in step 3, but also the company name, date (DD/MM/YY format) and time (24h format; HH:MM) of collection, and the name of the collecting person. For example: Yorkshire Water, Bishop Wilton STW, Eff, 01/09/25 13:44, Jane Bloggs. Be sure that the numbers on the vials and sample bag labels match.
10. Gloves, syringe and syringe filter can be disposed of in household waste using **waste bag** provided.
11. **IMPORTANT:** When sampling has been completed for the day, transfer the samples to a freezer or refrigerator as soon as possible that same day to avoid compromising sample integrity. Store frozen or refrigerated until shipping. A larger clear plastic bag labelled “**low temperature storage bag**” is provided to help keep everything together in the freezer/refrigerator until all samples have been collected and are ready to ship.

Method 3: Sludge ‘Cake’ Collection

Sludge ‘cake’, or ‘biosolids’, is the final sewage sludge product at a sewage treatment works. The kit is numbered and provided contains a sample bag (**red-bordered label**) with two glass vials (matching numbers) labelled ‘sludge’. You will use a spatula to fill the vial then refrigerate prior to shipment to York for analysis. The table on pages 5-6 of this document summarises the samples to be collected at each location for each Water Company

Company name:	
Plant location name:	
Sample:	FINAL SLUDGE CAKE
Date and Time:	
Collected by (print name):	

Method 3:

1. Please first put on a new pair of **gloves** at each sampling location.
2. Mark the **sample vial** on the partly pre-filled label with the plant location name.
3. Unscrew the vial. Using the **spatula**, fill the sample vial with sludge up to the vial shoulder (where the screw threads start).
4. Cap the vial. Place the vial inside the sealed bag it arrived in, being sure that the vial numbers match the bag number, and label the bag with the same information as was written on the vial in step 2, but also the company name, date (DD/MM/YY format) and time (24h format; HH:MM) of collection, and the name of the collecting person. For example: *Yorkshire Water, Bishop Wilton STW, 01/09/25 13:44, Jane Bloggs*. Be sure that the numbers on the vials and sample bag labels match.
5. Gloves, and spatula can be disposed of in municipal waste using **waste bag** provided
6. **IMPORTANT:** When sampling has been completed for the day, transfer the samples to a freezer or refrigerator as soon as possible that same day to avoid compromising sample integrity. Store frozen or refrigerated until shipping.

Method 4: Sample Shipment

The samples are to be returned to the University of York for chemical analysis using the insulated box provided. Please keep all the samples in the freezer or refrigerator until shipment. **Samples should be shipped the day after the last collection of each sampling period at the very latest.** You will have to pay for the shipping method which should be overnight express (Royal Mail, DHL, or UPS).

Return by next day registered delivery to:

Dr Jackie Mosely
Department of Chemistry
University of York
YO10 5DD

Method 4:

1. If possible, the day before shipping, soak the freezer gel pack under water for 10 min or until it has fully expanded and place in a freezer overnight.
2. Remove the cold samples from the freezer or refrigerator and seal them in the insulated sampling box, with the frozen gel pack (if using), provided packaging material as padding (L) to secure box contents.
3. Seal the box and immediately take the box to the post office (DHL or UPS are also fine) and ship them overnight express (you will have to pay the return shipment cost which should be approximately £15-20 via Royal Mail). The address is on the box, and also on page 4 of this document.
4. Email jackie.moseley@york.ac.uk with the tracking number to notify us that your samples will be arriving. **Please only ship samples on Monday-Wednesday** to ensure they are not stuck in transit over the weekend (we cannot accept samples on weekends).

Checklist for shipping:

Please check that you have collected the correct samples for your Water Company prior to shipping. The table below provides a summary.

INF = influent; EFF = effluent, uRW = upstream river water, dRW = downstream river water, uBH = upgradient borehole, dBH1 = down gradient borehole 1 and dBH2 = down gradient borehole 2

Water company	Location	INF	EFF	uRW	dRW	uBH	dBH1	dBH2	Sludge
Anglian	Bedford	x	x	x	x				
	Lincoln Canwick	x	x	x	x				
	Cambridge								x
	Basildon								x
	Methwold					x	x	x	
Dwr Cymru	St Asaph	x	x	x	x				
	Llanberis	x	x	x	x				
	Five Fords								x
Northumbrian	East Tanfield	x	x	x	x				
	Great Ayton	x	x	x	x				
	Howdon								x
	Alwinton					x	x	x	
Severn Trent	Derby	x	x	x	x				
	Minworth	x	x	x	x				x
	Doveholes					x	x	x	
Southern	West Hoathly	x	x	x	x				
	Uckfield	x	x	x	x				
	Aylesford								x
	Morestead					x	x	x	
South West	Launceston	x	x	x	x				x
	Fluxton	x	x	x	x				
	Shirwell					x	x	x	
United Utilities	Rochdale	x	x	x	x				
	Winsford	x	x	x	x				
	Stockport								x
	Stanah					x	x	x	
Wessex	Saltford	x	x	x	x				

	Holdenhurst	x	x	x	x				
	Berry Hill								x
	Hindon					x	x	x	
Thames	Maple Lodge	x	x	x	x				
	Reading	x	x	x	x				
	Crawley								x
	Sonning Common					x	x	x	
Yorkshire	Adwick Le St	x	x	x	x				
	Knostrop								x
	Middleton-on-wolds					x	x	x	

What to do with the kit when you are finished:



(A) Gloves: Dispose of in household waste.



(B) Sample bucket: **Keep for future sampling for that quarter.**



(C) Sample vials: Return these frozen to the University of York for analysis.



(D) Plastic syringes: Dispose of via household waste.



(E) Syringe filters: Dispose of in household waste.



(F) Spatula: Discard household waste or recycling.



(G) Pen: **Keep for reuse.**

Thank you for participating !