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## 1. Safety

Any person carrying out any of the following instructions shall do so in accordance with United Utilities Ltd. Blue Book and all Generic Risk Assessments (GRAs), details of which are contained in United Utilities Ltd. Health and Safety Policy – Organisations and Arrangements document and available via the UU intranet site.

If in carrying out this instruction, it is not possible to rectify any problem encountered within a reasonable timescale, the Production Manager or senior equivalent person must be contacted.

All other applicable regulatory and statutory requirements shall be observed at all times.

Detailed operating instructions, control philosophies and technical information may be found in the following;

- **Process Loss Contingency Plans**
- **Compliance Action Plans**
- **Environmental Permits**
- **Accident, Incident and Emergency Management Plans**
- **Drainage Plans**
- **Environmental Risk Assessments**
- **O & M Manuals**
- **Control philosophies**


## 2. Responsibility

All Standard Operating Procedures, Instructions and other documented operational procedures and activities are to be carried out by the Process Controller or other trained person designated by the Production Manager.

If in carrying the instruction it is not possible to rectify any problem encountered within a reasonable timescale the Production Manager or senior equivalent person must be contacted.

Any operational problem that cannot be dealt with by normal operational procedures shall be classed as an INCIDENT and the current issue of UU Incident Management Procedure shall be referred to and SOP (WP/S/001/30/01 Incident Response).

All actions and communications carried out while applying any Standard Operating Procedure, Instruction or other documented operational procedure or activity shall be recorded using form WwP/F/001/31/08 Site Diary Log.

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### 3. Plant Process and Process Description

- The site serves the area of Southport and receives a combination of domestic and trade wastes from Southport and the surrounding area.
- The latest estimated population equivalent for Southport WwTW is approx. 86696.34.
- Final effluent is discharged into Crossens Pool.
- General sampling is carried out in accordance with the Laboratory Services service level agreement.
- Samples should be taken, labelled, stored and the relevant paperwork completed correctly at the frequencies laid out in the service level agreement.
- Samples will be collected by courier at an agreed time each day. The courier will also deliver the bottles required for the future sampling as requested via email (Bottle Q).
- Information relating to the following items can be found in the Wastewater Bottle Book (QD 220/01)
  - Sample bottle type and selection
  - Filling the sample container
  - Labelling the container
  - Completing the analysis request form
  - Sample delivery, etc.

### 4. Process Parameters

#### Samples

- Samples are taken in accordance with the laboratory service level agreement (SLA). The SLA will be amended to incorporate the EA permit monitoring requirements.
- The samples are taken to Lingley Mere as per the agreed schedule.

#### Sampling Instruction

- Samples are bottled in the appropriate bottle as stated on the round sheet. These can be identified by the numbered bar code found on the bottle.
- All the sample results for Southport WwTW are available on OMS (the Operational Management System)
- The Final Effluent Sample point is located on the UV Channel
- OSM samples are taken by the UU Water Quality Officer.

## Sampling Instruction Southport WwTW

### Sample Point Archive Codes

Sample name	No of MPID's	MPID's
Crude Sewage	1	9045
Inlet Screenings	1	218138
MLSS	1	203063
RAS	1	203064
Grit	1	21839
Final Effluent – Pre UV	1	205943
Final Effluent – Post UV	1	205944
GBT Thickened Sludge	1	215444
GBT Filtrate	1	203058
Sludge Screenings	1	21840
Digester Feed Sludge	1	9044
Digested Sludge	2	203056 & 203057
Sludge Feed to Centrifuge	1	217513
Digested Sludge Cake	1	213585
Sludge Cake Centrate	1	215447
Digester Gas	1	9043
Storm Discharge	1	9027
Combined Liquor Discharge	1	
Surface Water	1	
Gas Condensate	1	

## 5. Operational Tasks

### Laboratory Service Level Agreement

Sample Name	Frequency per year	Comp / Manual	Location e.g.:
Crude Sewage	52	Comp	Inlet Channel (UWWTD Sampler)
Inlet Screenings	12	Manual	Screenings Skip
MLSS	52	Manual	Clarifier Distribution Chamber
RAS	52	Manual	RAS Return pipe
Grit	12	Manual	Grit Skip
Final Effluent – Pre UV	26	Manual	UV Inlet
Final Effluent – Post UV	78	Comp	UV Sample point (EA)
GBT Thickened Sludge	52	Manual	GBT Hopper
GBT Filtrate	52	Manual	Filtrate Channel

## Sampling Instruction Southport WwTW

Sample Name	Frequency per year	Comp / Manual	Location e.g.:
Sludge Screenings	12	Manual	Sludge Screenings Skip
Digester Feed Sludge	52	Manual	MBT Outlet – Digester feed pumps
Digested Sludge	52	Manual	Digester Bellmouth
Sludge Feed to Centrifuge	52	Manual	Centrifuge Feed Pipework
Digested Sludge Cake	52	Manual	Centrifuge Outlet Elevator
Sludge Cake Centrate	52	Manual	Centrate Discharge Pipework
Storm tanks	2	Manual	Weir for discharging storm tank
Combined Liquor Discharge	12	Manual	Liquor Return Pumping station
Surface Water	12	Manual	In Front of Secondary digesters
Gas Condensate	12	Manual	Drain in condensate trap

### #Note

- Storm tanks can only be sampled when discharging, therefore a sampling regime is not in place. However the storm tanks should be sampled at least twice per year and this action recorded in the site operations log.
- Where there is more than one of the same sample type this does not always mean that a second sample has to be taken (refer to daily round sheets).

### Disputed analysis


- In the event of disputes relating to analysis results received from Lingley Mere Laboratory, you must complete and follow the instructions on the Disputed Analysis Result Checklist WwP/F/001/22/14
- Any amendment to analysis results will be carried out in accordance with QP107 OMS Data Correction Procedure

### Self-Monitoring (UWWTD)

Procedures for control of the quality of data from flow monitoring installations are covered in the UU manual for the “Quality Assurance System for Self-Monitoring of Effluent Flows to Environment Agency MCERTS Standards”.

### Description

- This instruction outlines the key aspects of the self-monitoring process regarding sampling of influent and final effluent, maintenance of equipment, keeping of records and remedial actions. Refer to Site Introduction (WwP/I/3028/01/14) for consent details.

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- More detailed information covering sampling procedures and operation and maintenance of samplers can be found in the Site Introduction (WwP/I/3028/01/14).

### ID Sampling Site

- Representative samples will be taken of the inlet crude sewage and final effluent.
- Individual sampling points are detailed on the Site Plan.
- The Site Plan includes the identification of both the inlet crude sewage sampling point and the final effluent sampling point.
- Both the inlet crude sewage sampling point and the final effluent sampling point are appropriately labelled as UWWTD Inlet Sampling Point and UWWTD Final Effluent Sampling Point.
- All return liquors/sludges are returned downstream of the sampling point.
- The Inlet sampling point is located at NGR SD 3706 2071.
- Final effluent sampling point is located at NGR SD 3701 2078.
- Both points will be appropriately labelled on site, and will be maintained in a satisfactory operational state.
- No changes will be made to sampling points during a calendar year.
- Any change at the start of a year will only be made by prior consultation with the Environment Agency.


### Sampling Equipment

- |                                                              |                                    |
|--------------------------------------------------------------|------------------------------------|
| • Name of manufacturer:                                      | Hach Lange                         |
| • Specification/sampler type:                                | BU4011 (Crude)<br>& BT4011 (Final) |
| • Test Certificate/report on sampler type evaluation:        | Held on site                       |
| • Manufacturers BS accreditation:                            | Held on site                       |
| • Power supply:                                              | Mains                              |
| • Operating Instructions: (As shown in the Technical Manual) | Held on site                       |
| • Type of sample bottle:                                     | 1 x 3 litre plastic                |

### Record Keeping

The following records are kept to provide objective evidence of the requirements of the UWWTD Regulations. The records are kept in the Controller's Office:

- Sampler Technical Manual
- Sampler Test Certificate
- Training Certificate(s)
- Refrigerator Temperature Record Form

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- On site sampling event sheet, known as the Self-Monitoring Record Sheet (WwP/F/001/22/11)

### Cleaning and Maintenance

- Always clean the sampling components prior to use. Refer to manufacturer's instructions.
- Thoroughly clean inlet hose, sample reception chamber, discharge tube and distributor outlet pipe.
- Use appropriate cleaning chemicals (Decon 90 – a diluted potassium hydroxide based detergent which is biodegradable and contains no phosphate) to remove debris and bacteriological growths.
- Remove all traces of cleaning chemicals and debris by thoroughly rinsing with fresh water.
- Correctly re-assemble the sampler, test operation, check for leaks and calibrate sample volume. Check the sample storage fridge function and record the temperature on the "Fridge Record Sheet" (WwP/F/001/22/13)

### Sampling and Calibration

- Only personnel, trained and certificated in the use of sampling machines manufactured to E32 standard, are authorised to undertake this sampling procedure.
- Sample in accordance with schedule Ref. WwSF 52 (displayed at the Controller's office).
- The sample schedule is reviewed and agreed in advance with Wastewater Services, Wastewater Operations and the Environment Agency.
- Monitor and maintain adequate stocks of sample bottles.
- Calibrate sampler to take 105 mls each hour, giving a composite volume of 2.52 litres (24 x 105mls)
- Run a test sample and measure the volume delivered in a graduated measuring cylinder to confirm that the correct volume is taken and discard the test sample.
- Install the correctly labelled 3 litre sample bottle. Programme the sampler to take 24 hourly samples where the first sample is taken at 0800 hours and the last sample being taken at 0700 hours the following day.
- At 0800 hours on the sample collection day:
  - check that the required volume of sample has been taken (indicating that the sampler has operated correctly throughout the 24 hour period)
  - check sampler refrigeration temperature (0 to 5 degC)
  - Remove the sample bottle, seal and transfer to the sample fridge.
- Complete the Self-Monitoring (UWWTD) Record Sheet and the sample storage fridge temperature and record on the "Fridge Record Sheet". Complete the accompanying

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sample analysis round sheet NB: The sample date is the collection date and that the sample time is recorded as 0804 hours.

- Ensure that the Sample Courier has access to collect sample(s).

### Remedial Action

- In the event of failure to take the requisite samples (incorrect volume, storage temperature, sampler failure etc.), the sampling event must be aborted and the reasons for “failure to sample” recorded on the sample consignment note.
- The fault must be rectified ASAP (e.g. unblock sample tube, request service from FSE etc.).
- An “UWwTD Sample Investigation Form” is required to be completed by the Technical Officer and submitted to the Regulatory Services (Process) mailbox.
- Regulatory Services will reschedule the sample event for a later date.
- Details must be entered on Self-Monitoring (UWwTD) Record Sheet (WwP/F/001/22/11).

### Actions to be taken in the Event of a Missed Sample

Event	Action
Missed Sample	Ww Ops – Regulatory Services
Failed Sample	Ww Ops – Regulatory Services
Limit Value Exceedance	Ww Ops – Regulatory Services - EA
Abnormal Operating Conditions	Reference to form WwP/F/001/22/11- Ww Ops – Wastewater Services – EA

### Procedure for Rescheduling Sampling Events

Missed Sample	Reschedule 7 days later
Missed Sample (Rescheduled event)	Reschedule 7 days later, providing that the new date is not within 1 day of the next scheduled sampling event on the agreed sampling schedule and if within 1 day

The agreed actions for each missed sample event are as follows:

Missed Sample Event Criteria	Action
Sampler Malfunction	Call maintenance, reschedule sampling event
Weather condition impact on sampling process	Reschedule sampling event (RSE)
Sample volume incorrect	Call maintenance & RSE
Sampler temperature outside range	Call maintenance & RSE

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Missed Sample Event Criteria	Action
Only one sample taken (either inlet or outlet)	RSE
Sample storage fridge temperature outside range	Call maintenance & RSE
Bottle dropped at any stage of process	RSE
Failure to collect sample on time	Investigate & RSE
Transport van temperature outside range	Inform courier manager & RSE
Analysis failure	RSE

## 6. History

### Common problems and their solutions

Problem	Solution
No information supplied.	