Wessex Water Marketplace
Dataset descriptor – Water Recycling Centre Influent and Effluent sample results
For datasets prepared via the revised approach (2018 onwards)

Introduction

This document explains what some of the data types mean in the data extract 'WRCs Effluent/Influent sample data'. We have not explained all of the columns and data types as several are relatively self explanatory (time, date) but have briefly explained some of the less obvious or columns with internal codes.

Water recycling centres (WRCs) are sites where sewerage is treated and discharged. This can be a mixture of domestic and trade sewerage as well as surface water run-off in some instances.

This data is formed of the regulatory samples taken on site. They are taken by Wessex Water staff (specially trained independent samplers), returned to our laboratories where the tests are completed, then entered onto our scientific systems. This data set is then an extract from that system.

It will be updated annually.

Column descriptions

SampleSiteId – A unique 8 digit number assigned to a sampling location e.g. "Stogursey Final". *NB: When viewing the file in Excel, SampleSiteIDs beginning with a 0 may instead appear as 7 digits with the initial 0 not displayed. It can be assumed to be in the first position i.e. 0xxxxxx.*

Batch – this column has a code of two possible items – SOM and C3M.

C3M means it is a composite sample (C) consisting of 24 sub-samples, with one sub-sample taken every hour for a 24 hour period, that has been taken by Wessex Water. . Each individual sub-sample is of equal volume.

SOM means it is a spot sample (S) taken at a single point in time (0), again by Wessex Water.

SampleArcLabNo – A unique value assigned to the water sample submitted, i.e. a sample from x sample point at y date and time.

The following terms are then used in the column **Determinand Name**

Ammoniacal nitrogen – Ammoniacal nitrogen – mg N/l
A measure of the combined concentrations of unionised ammonia (NH_3) and ammonium (NH_4^+). It is given as the concentration of nitrogen in both forms.

BOD atu – Biological oxygen demand (allyl thiourea method) - mg O_2 /L
A measure of the amount of oxygen being used by biological process in the sample in mg O_2/L. The allyl thiourea method prevents further nitrification of the sample by bacteria which would consume more oxygen.

Chemical oxy demand – Chemical oxygen demand – mg O_2 /L
Chemical oxygen demand is a measure of the amount of oxygen required to completely oxidise the organic material present in a water sample. It is measured by the potassium dichromate method.

Flow (estimated) – (m3/day)
This is an estimation of flow given by the sampler on occasions where there is too little flow to take a good quality sample. These are typically from small sites with intermittently flowing outfalls.

Suspended Solids - Suspended solids – mg /L
This is a test to measure the dry weight of all particles that will not pass through a 1.2 µm glass fibre filter paper and is measured in mg/L

Nitrite – nitrite – mg N /L
A measure of all the NO_2^- ions in the sample as the Mass of N. Nitrite is the primary oxidized form of nitrogen produced from Ammonia by the nitrification process at a WRC

Nitrate – nitrate – mg N /L
A measure of all the NO_3^- ions in the sample as the Mass of N. Nitrate is the secondary oxidized form of nitrite produced by the nitrification process at a WRC

Nitrogen Kjeldahl - Kjeldahl nitrogen – mg N /L
A measure of the amount of nitrogen in the sample using the Kjeldahl method. It is representative of all unoxidized nitrogen in the sample i.e. excluding nitrate and nitrite but is inclusive of ammoniacal nitrogen and organic nitrogen. When combined with nitrate and nitrite concentration it is equivalent to total nitrogen.

Nitrogen total – total nitrogen – mg N /L
A measure of all of the species of nitrogen present in the sample.

Orthophosphate – Orthophosphate – mg P /L
A measure of the PO_4^{2-} ions in the sample that are either dissolved or bound to very small particles, as the mass of P.

Phosphorus, total – total phosphorus – mg P /L
A measure of all of the phosphorus in the sample, including that which is bound to large particles that would not be considered to be dissolved.

Total phosphorus load - Phosphorus load – kg/day
This is a calculated test indicating the total mass of phosphorus discharged per day. It is calculated by multiplying the phosphorus concentration (mg P/l) and total flow discharged (Ml/day) to give a mass of phosphorus discharged over a unit of time.

pH – pH – no units
A measure of how acidic or alkaline the sample is – this is measured on a scale of 0-14, where a pH of 7 is neutral, a pH below this is deemed acidic, and a pH above this is deemed alkaline.

Aluminium – Aluminium – mg /L
Iron – Iron – mg /L
Copper – Copper – mg /L
Lead – Lead – mg /L
Manganese – Manganese – mg/l

The concentration of all the above metals as representative of the concentration of all species, as determined by inductively coupled plasma optical emission spectroscopy.

Determinand sign – indicates if the value is below the lower limit of detection of the analytical method used (<) or above the upper range of the analytical method used (>).

Determinand value – the result of the test carried out

Units – the corresponding units to the value returned by the test

Notes - general

The SampleArcID field is not present in new data but this is fulfilled by SampleArcLabNo.

For effluent: The "Sample Site Short Name" column may contain multiple slightly different entries for the same WRC. This could be due to a number of reasons - including different sample points at the WRC or differences in naming convention according to sample type. Note that for Avonmouth the Sample Site ID of "Avonmouth UWWTD final" is a calculated field combining the other 2 Sample Site IDs for Avonmouth

As a result of revising our approach to extracting the data, there are some minor changes to the determinands included (additions), compared with the historic years dataset prepared via the previous approach.

For influent: For Bridgwater there are 2 sample points; in addition there is the Sample Site ID beginning "BWATER" which is a calculated field combining the 2. The "WSM UWW CALC CRUDE" line is a legacy line that contains no additional information beyond that already included in the WSM CRUDE line.

The table below summarises which determinands there are results present for in the data produced via the revised approach. The colour coding gives information about permitting.

S0M effluent	C3M effluent	C3M influent
Aluminium	Aluminium	Aluminium
Ammoniacal nitrogen	Ammoniacal nitrogen	Ammoniacal nitrogen
BOD	BOD	BOD
	COD	COD
Copper	Copper	Copper
Iron	Iron	Iron
Flow (no-flows)		
	Kjeldahl Nitrogen	
Lead	Lead	Lead
Manganese	Manganese	Manganese
	Nitrate	Nitrate
	Nitrite	Nitrite
	Orthophosphate	Orthophosphate
pH	pH	pH
Suspended solids	Suspended solids	Suspended solids
Total Phosphorus	Total Phosphorus	Total Phosphorus
	Phosphorus load	
	Total Nitrogen	

Key to colours
Permitted as standard

Commonly permitted
Rarely permitted - but commonly analysed
Not permitted - but commonly analysed
Rarely permitted - not commonly analysed
Not permitted – but regularly analysed at a small number of sites

Note that samples of waste from supply sites have not been included in the revised approach datasets.

Notes – specific samples

Effluent 2020 data: Sample site short names ‘Thingley STW Misc’ and ‘Thornford HTE’ appear for one sample each. These samples are legitimate regulatory samples from this site but were incorrectly assigned to a different sample point from the rest of the regulatory samples from these sites.