

Sampling routine

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 	QA program Lyby WWTP	Name of document Sampling routine	Number of document
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		Reference: Revaq, utgåva 2.2.2	Pages 5

1. SAMPLING ROUTINE

1.1 PURPOSE

The purpose of this routine is that the sampling of incoming and outgoing water and sludge is performed in an accurate and representative way.

1.2 EXTENT

The routine includes all sampling related to the control of incoming and outgoing water and sludge treatment ie control over the production and control of the finished product.

The sampling routine is compiled in accordance with applicable law and 2014 REVAQ rules (2.2.2)

1.3 RESPONSIBILITY

- Head of VA is responsible for compliance of the routine.
- Environmental Coordinator is responsible for making the routine and keep it up to date.
- Lab technician is responsible for accredited sampling.
- Process technician is responsible for salmonella testing of sludge

1.4 FREQUENCY AND ANALYSIS

Detailed sampling schedule for accredited sampling is on the server:

<K:\Hörby - SBF\Tekniska\Vatten & Avlopp\Reningsverk\Provtagningschema\Ackrediterat labb>

1.4.1 ACCREDITED SAMPLING WASTEWATER

Sampling point	Frequency	Analysis
Influent wastewater	2 pcs/month	BOD7, P-tot, N-tot, Susp, Cd
Effluent wastewater	2 pcs/month	BOD7, COD, P-tot, N-tot, NH4-N, Cd

1.4.2 ACCREDITED SAMPLING SLUDGE

Sampling point	Frequency	Analysis
After dewatering	1 pcs/8:e week*	pH, TS, TS-GF, N-tot, P-tot, NH ₄ -N, Pb, Cd, Cu, Cr, Ni, Hg, Zn
After dewatering	2 pcs/year* (6 month each)	pH, TS, TS-GF, N-tot, P-tot, NH ₄ -N, Pb, Cd, Cu, Cr, Ni, Hg, Zn + priority substances according to REVAQ rules 2.2.2
After dewatering	1 pcs/year* (6 month each)	Nonylfenol, toluen, PCB, PAH
After dewatering	1 pcs/år*	60 tracing elements as per NVV:s report 5148 according to REVAQ-rules 2.2.2
At storage	Prior to spread, maximum 2 months before	Salmonella

* Primary sample once a week

1.4.3 OPERATION CONTROL WASTEWATER

Sampling point	Frequency	Analysis
Influent wastewater	2 times/week	P-tot, NH ₄ , N-tot, pH, temp, COD, Susp
Aeration pool	2 times/month	Suspenderad substans
Intermediate pool	2 times/week	P-tot, P-filtr
Efter slutsedimentering	Once a week	P-tot
Dr Lange-measure	Once a week	P-tot, P-orto
Effluent wastewater	2 times/week	P-tot, NH ₄ , N-tot, pH, temp, COD, Susp

1.5 INSTRUCTION

1.5.1 SAMPLING INFLUENT WASTEWATER

Samples during two days per month shall be collected according to the sampling schedule and sent to an accredited laboratory. The sample shall be analyzed for BOD 7, P-tot, N tot, Cd and suspended substances.



Figur 1 Sampling point influent wastewater

The influent waste water includes reject water from the dewatering and also external sludge.

Incoming sample is taken after the aerated sand trap. Sampling is conducted flow proportional with an automatic sampler and collected in a plastic container placed in a refrigerator (+4 ° C).

The plastic container is emptied and cleaned daily, every morning. On the day of sampling, the container should be thoroughly shaken to get a well-mixed sample without stratification.

At accredited analysis fill a new 500 ml sample bottle completely. The lab will automatically send bottles with labels about 10-14 days before the actual date of sampling in the sampling schedule. At operation control fill a 1000 ml bottle from own lab completely.

1.5.2 SAMPLING EFFLUENT WASTEWATER

Samples during two days per month shall be collected according to the sampling schedule and sent to an accredited laboratory. The sample shall be analyzed for BOD7, COD, P-tot, N-tot, Cd och NH4-N.



Figur 2 Sampling point effluent wastewater

The effluent wastewater includes water that is led past the sand filters and also overflowing water.

The sample is taken out before the water reaches Hörbyån. Sampling is conducted flow proportional with an automatic sampler and collected in a plastic container placed in a refrigerator (+4 ° C).

The plastic container is emptied and cleaned daily, every morning. On the day of sampling, the container should be thoroughly shaken to get a well-mixed sample without stratification.

At accredited analysis fill a new 500 ml sample bottle completely. The lab will automatically send bottles with labels about 10-14 days before the actual date of sampling in the sampling schedule. At operation control fill a 1000 ml bottle from own lab completely.

1.5.3 SAMPLING SLUDGE (DEWATERING MACHINE)

Once a week a sludge sample (primary sample) is taken from the dewatering machine (Hubert). One tbsp sludge is taken from 5 different points and mixed thoroughly. 1-2 tablespoons of the mixture is the primary sample.

The primary sample is then dispensed into a 400 ml can for the 8-week sample, a 1000 ml screw jar for the biannual sample and in a 1000 ml screw jar for the annual sample according to REVAQ rules.

Sample jars are frozen immediately and stored frozen during the entire sampling period.

When the sampling period ends mark the label on the can with the period (weeks, months or year) the sludge party represents. The frozen 8-week and 6 months samples are sent to the accredited lab contracted, where they are thawed and mixed for analysis. The annual sample according to Revaq is sent to a laboratory that is accredited for 60 trace elements, all analyzes of the 60 trace elements have to be done at the same laboratory.

1.5.4 SALMONELLA CONTROL SLUDGE (STORAGE)

The sample should be collected as close as possible to spreading. A maximum of two months may elapse between sampling, where salmonella is not detected, and spreading.

A salmonella sample consists of subsamples of 25 samples collected to a general sample. A sample shall correspond to a maximum of 1000 tons of sludge. The 25 samples should be collected evenly over the sludge batch and at different depths. At least 8 of the 25 samples shall be collected on the maximum depth in the batch.

The 25 samples are gathered in a well-cleaned bucket or equivalent. Mix well to a homogeneous sample. Take an appropriate amount of sample for transport to the accredited laboratory under contract.

The salmonella sample should be kept cold and is not allowed to be frozen or heated. The sample is labeled with name of the sampler and which sludge party it represents. The salmonella sample must be at the laboratory within 24 hours.

1.6 HANDLING OF DEVIANT SAMPLE

If any result of the analysis exceeds what is allowed according to laws or revaq rules, the environmental engineer is to be informed.

1.7 DOCUMENTATION/REFERENCE

This routine is based on Swedish law and Revaq rules:

- SNFS 1990:14, Kungörelse med föreskrifter om kontroll av utsläpp till vatten- och markreceptient från anläggningar för behandling av avloppsvatten från tätbebyggelse
- SNFS 1994:02, Kungörelse med föreskrifter om skydd för miljön, särskilt marken, när avloppsslam används i jordbruket
- Revaq rules 2.2.2

Lab technician compiles the analysis results in an excel file for current year: The file is on the server:

<K:\Hörby - SBF\Tekniska\Vatten & Avlopp\Reningsverk\Lybyverket\Mätvärden\2011\>

Environmental engineer and lab technician review and sign every analysis results

Environmental engineer archive all analysis results in appropriate binder.

”Original analysis results – WWTP - (year)”.