

Table 1a: Monitoring of Main Plant Wastewater Parameters – Performance Testing

Criteria	Unit	Method of Measurement/ Analysis	Frequency & Type of Measurement
Flow rate to the two Balance Tanks	m ³ /hr m ³	Installed Flowmeter	Continuous instantaneous flow Daily cumulative volume Cumulative volume over test period
Temperature	°C	Existing temperature transmitter on Main Wastewater transfer line	Continuous
pH	pH	Existing pH transmitter on Main Wastewater transfer line	Continuous
Total COD concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total COD load	kg/day	Calculated from daily flow and daily COD concentration	Calculated daily and added to cumulative load over test period
Soluble COD concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Soluble COD:Total COD ratio		Calculated ratio	Daily
Biodegradable fraction of COD	fraction	Zahn-Wellens test	Note 1
Suspended solids concentration	mg/l	Analytical test	Daily on 24 hr composite sample
FOG concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Ammoniacal Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Kjeldahl Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Kjeldahl Nitrogen load	kg/day	Calculated from daily flow and daily TKN concentration	Calculated daily
Nitrate Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Nitrogen load	kg/day	Calculated from daily flow and daily TN concentration	Calculated daily

Criteria	Unit	Method of Measurement/ Analysis	Frequency & Type of Measurement
Total Phosphate (as P) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Ortho-Phosphate (as P) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Alkalinity (as HCO ₃) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Chloride (as Cl) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Sulphate (as SO ₄) concentration	mg/l	Analytical test	Daily on 24 hr composite sample

Note 1: The measurement of the biodegradable fraction of COD via a Zahn-Wellens test is not required to be carried out routinely during the Performance Test, however the Contractor may request this test to be done if the COD removal performance is not achieved to check the biodegradability of the effluent stream.

Table 1b: Monitoring of Fibre Line (X-Linker) Wastewater Parameters – Performance Testing

Criteria	Unit	Method of Measurement/ Analysis	Frequency & Type of Measurement
Flow rate to the one Balance Tank of the DAF plant	m ³ /hr m ³	Installed Flowmeter	Continuous instantaneous flow Daily cumulative volume Cumulative volume over test period
Temperature	°C	Installed temperature transmitter at DAF flocculator	Continuous
pH	pH	Analytical test	Daily on 24 hr composite sample
Total COD concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total COD load	kg/day	Calculated from daily flow and daily COD concentration	Calculated daily and added to cumulative load over test period
Soluble COD concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Soluble COD:Total COD ratio		Calculated ratio	Daily

Criteria	Unit	Method of Measurement/ Analysis	Frequency & Type of Measurement
Biodegradable fraction of COD	fraction	Zahn-Wellens test	Note 1
Suspended solids concentration	mg/l	Analytical test	Daily on 24 hr composite sample
FOG concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Ammoniacal Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Kjeldahl Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Kjeldahl Nitrogen load	kg/day	Calculated from daily flow and daily TKN concentration	Calculated daily
Nitrate Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Nitrogen (as N) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Total Nitrogen load	kg/day	Calculated from daily flow and daily TN concentration	Calculated daily
Total Phosphate (as P) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Ortho-Phosphate (as P) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Alkalinity (as HCO ₃) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Chloride (as Cl) concentration	mg/l	Analytical test	Daily on 24 hr composite sample
Sulphate (as SO ₄) concentration	mg/l	Analytical test	Daily on 24 hr composite sample

Note 1: The measurement of the biodegradable fraction of COD via a Zahn-Wellens test is not required to be carried out routinely during the Performance Test, however the Contractor may request this test to be done if the COD removal performance is not achieved to check the biodegradability of the effluent stream.

Table 1c: Monitoring of Combined Wastewater Parameters – Performance Testing

Criteria	Unit	Method of Measurement/ Analysis	Frequency & Type of Measurement
Combined Wastewater volume	m ³	Calculated from Main Wastewater Cumulative Volume and X-Linker Wastewater Cumulative Volume	Cumulative over test period
Temperature	°C	Installed temperature transmitter in Balance Tank 1	Continuous
pH	pH	Installed pH transmitter in Balance Tank 1	Continuous
Total COD load	kg/day	Calculated from Main Wastewater Daily COD Load and X-Linker Daily COD Load	Calculated daily and added to cumulative load over test period
Total Kjeldahl Nitrogen load	kg/day	Calculated from Main Wastewater Daily TKN Load and X-Linker Daily TKN Load	Calculated daily
Total Nitrogen load	kg/day	Calculated from Main Wastewater Daily TN Load and X-Linker Daily TN Load	Calculated daily
Chloride (as Cl) concentration	mg/l	Analytical test of Combined Wastewater at Balance Tank 1	Daily on 24 hr composite sample