



Water for Steam Turbines

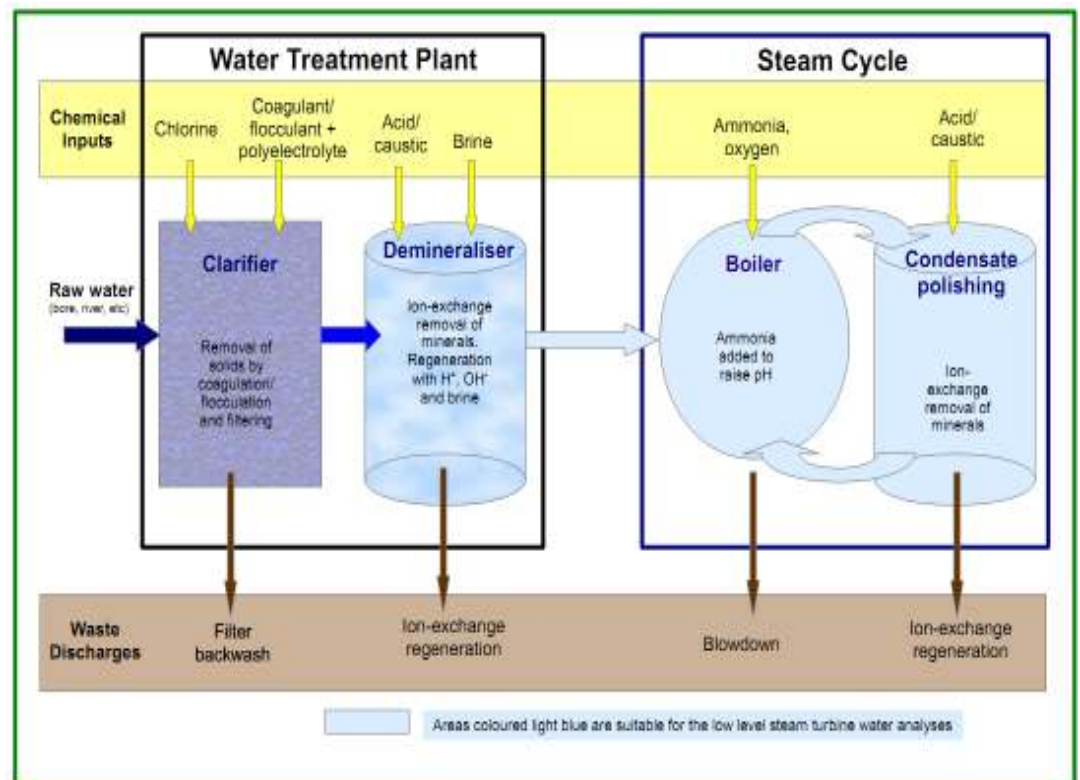
Introduction

Steam turbines are used for electricity generation in thermal power plants. The heat to produce the steam can be from a variety of sources; geothermal, natural gas, coal, etc.

Water to be used for steam turbines must be very pure, to prevent deposition onto the turbine blades which can result in extremely expensive repairs and downtime.

The water can be tested for a variety of reasons;

- To determine the purity of the steam which will be produced
- To monitor for corrosion by-products (eg iron, copper)
- To monitor the effectiveness of the water purification system.
- Note that the raw feed water for the water treatment plant can also be tested, but must NOT be done using the codes for Steam Turbine Water.



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Table showing analytes. Sample type = “SteamTurbineWater”
 [Env.L.Aq.A1.BW.SteamTurb]

Anions	MDL (g.m ⁻³)	Code	Cost (\$)	Method
Filtration for anions	-	Filtmg	10.20	0.45um, Cellulose acetate
Cl	0.002	Clicu	75.00	IC
SO4	0.002	SO4u	75.00	IC
DRP	0.002 [DRP] 0.006 [PO4]	DRPt PO4	18.00	FIA Calculated from DRP, n/c
NOxN	0.002	NOxN	11.20	FIA
Organic acids (acetate, formate) #		[Under development]	150.00	IC
Cations				
Digest for metals	-	TuDig	25.00	Hot nitric acid digestion.
Na	0.002	NaTup	75.00	ICPMS, nitric preserved, after digestion
Mg	0.002	MgTup	75.00	ICPMS, nitric preserved, after digestion
Ca	0.002	CaTxup	75.00	ICPMS, nitric preserved, after digestion
K	0.002	K_Txup	75.00	ICPMS, nitric preserved, after digestion
Fe	0.001	FeTxup	75.00	ICPMS, nitric preserved, after digestion
Cu	0.001	CuTxup	75.00	ICPMS, nitric preserved, after digestion
Other				
NPOC #	0.02	[Under development]	100.00	TOC Analyser (Waiting on new instrument)
Silicon, Silica #	0.002 [Si] 0.004 [SiO2]	SiZu, SiO2z [Under development]	50.00	ICPMS, as received SiO2 calculated from Silica, n/c

[Prices correct as of 1/7/2013]

Profiles

Boilers/turbines [All tests, excluding those with #]	\$325.00	BWTurb
Anions [Cl, SO4, NOxN, DRP/PO4, includes filtration]	\$152.00	BWTurbAn
Cations [Ca, Mg, Na, K, Fe, Cu, includes digest]	\$204.00	BWTurbCat
Water treatment plant outlet [All except Cu, Fe]	\$300.00	BWTPOut
Corrosion metals only [Fe, Cu]	\$125.00	STCorrMet

Turnaround

Normal Turnaround is aimed at carrying out the analysis in the second week of each month, so routine samples collected in week one will be tested promptly. At other times a setup charge will apply.

Faster turnaround may be available if pre-arranged with the laboratory and at extra cost (100% loading for ASAP Urgent)

References

[Hill Laboratories Internal References]
 kbi 25610a46
 Q53135 Quote template

Acknowledgements

David Addison, Thermal Chemistry Ltd, Hamilton, who stimulated us to develop these tests