



Health Department

CITY HALL

VANCOUVER, B. C.

Water Analysis - Boilers

Determine. Total Solids. Volatile & fixed, and to filter

add 15 cc HCl & 25 cc H<sub>2</sub>O. Boil & filter - residue - insol solids

Filterate add  $\text{NH}_4\text{OH}$  =  $\text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$

" "  $(\text{NH}_4)_2\text{C}_2\text{O}_4$  =  $\text{CaO}$

" make acid with HCl. (~~Boil previous to expell  $\text{NH}_3$~~ )

and then alkaline with  $\text{NH}_4\text{OH}$  & add slight excess of  $\text{Mg}_2\text{HPO}_4$   
Solids with constant stirring for two minutes. filter, wash &  
wash with only 1/8  $\text{NH}_4\text{OH}$  dry ignit. weigh as  $\text{Mg}_2\text{P}_2\text{O}_7$ , report  
as  $\text{MgO}$ .

3 Separate portion of original soln, is warmed &  $\text{BaCl}_2$  soln added  
dry ignit. weigh as  $\text{BaSO}_4$ , calculate to  $\text{SO}_3$

Chlorine = report as  $\text{Cl}$



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Incrusting

bad - non alkaline = would be classed as hard or incrusting,  
Salts are thrown out of sol<sup>n</sup> by heat.

Non-incrusting

Salts which do not ppt until great conc<sup>n</sup> occurs  
(a condition which hardly ever happens with locomotives)  
alkali water causes foaming & priming