Table S1: Quantitative methods and expressions used for estimation of various indices

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| **Index** | **Equation** | **Description according to index significance** |
| LSI | LSI = pH - pHs | LI<0:Water is not saturated and has a propensity to corrode. |
| pHs = (9.3 + A + B) - (C + D) | LI = 0: Water is stable and does not respond to scaling |
| A = (Log10 (TDS) - 1)/10B =-13.12xLog10(T +273) + 34.55C = Log10 (Ca2+) -0.4D = Log10  (Alk) | LI > 0: Water is fully saturated and has a scaling effect. |
| AI | AI = pH + Log10 (Alk x Ca2+) | AI < 10: Water is extremely corrosive (highly aggressive) |
| 10 <AI < 12: Water is mildly corrosive |
| AI >12:Water has a scaling potential and a nonaggressive behavior. |
| RI | RI = 2pHs - pH | RI< 5.5: Water has a powerful scaling ability |
| 5.5 < RI < 6.2: Water has scaling propensity |
| 6.2<RI <6.8: Water is safe and will not tend to scaling or corrosive |
| 6.8 < RI < 8.5: Water has a corrosive propensity |
| RI>8.5: Water has a high corrosive inclination |
| PI | PI = 2pHs - pHeqpHeq = 1.465 x Log10 (Alk) + 4.54 | PI < 6: Water has scaling tendency |
| 6< PI <7: Water has less scaling and corrosive behavior. |
| PI > 7: Water has a greater corrosive capability |
| LS | LS= (Cl-+SO42-)/(Balk+Calk) | LS < 0.8: Water has scaling ability |
| 0.8< LS < 1.2: Higher corrosion rates can be observed |
| LS >1.2: High levels of localized corrosion can be anticipated |

Parameter associated : Ca2+=calcium hardness of CaCO3 (mg/L), Alk=alkalinity of CaCO3 (mg/L), pHeq = pH at equilibrium, pH=actual pH of water, TDS=total dissolved solids (mg/L),T= temperature (0C), Cl- =chloride (mg/L), SO42-=sulphate (mg/L), Balk=bicarbonate alkalinity of CaCO3 (mg/L), Calk = carbonate alkalinity of CaCO3­ (mg/L), pHs =pH at saturation state of CaCO3.