



***“Cost effective-High performance antiscalant
‘ALBRIVAP® DSB (M) A’ in MSF Units”***

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Overview

- Case Study of evaluation of ALBRIVAP DSB(M)A in MSF unit
- Plant information
- Monitoring operating Parameters
- Monitoring Chemical Parameters
- Chemical Dosing Control & Optimization
- Unit Inspection & Results

Plant Information

- *MSF Unit Manufactured by Weir Westgarth*
- *Plant unit capacity 7.5 MIGD*
- *Operating Top Brine Temperature: 105 °C – 110 °C*
- *Evaluation Period: 3 Months*

Monitoring Operating & Performance Parameters

Temperature behaviour

Distillate Production

Heat Transfer Coefficient

Fouling Resistance

G.O.R- Gained Output Ratio

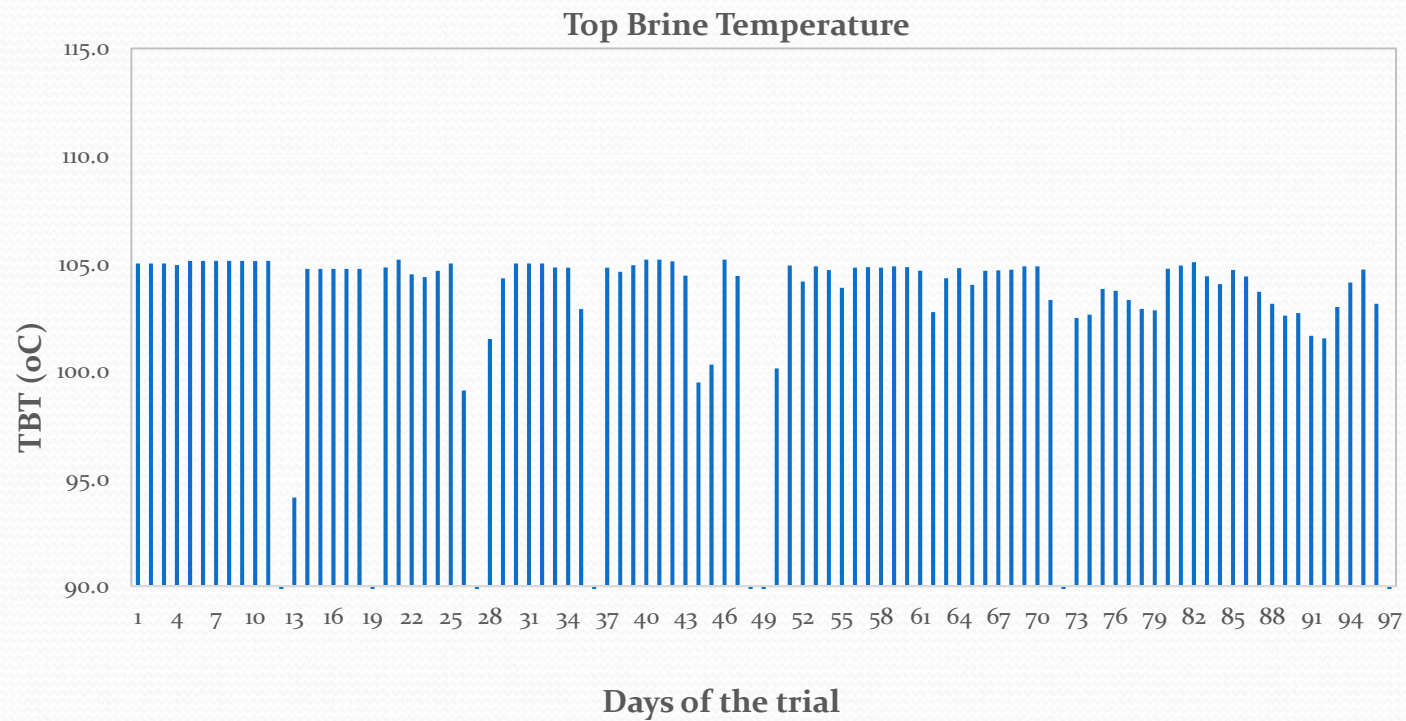


MONITORING
Operative Parameters



Temperature Bahviour- TBT

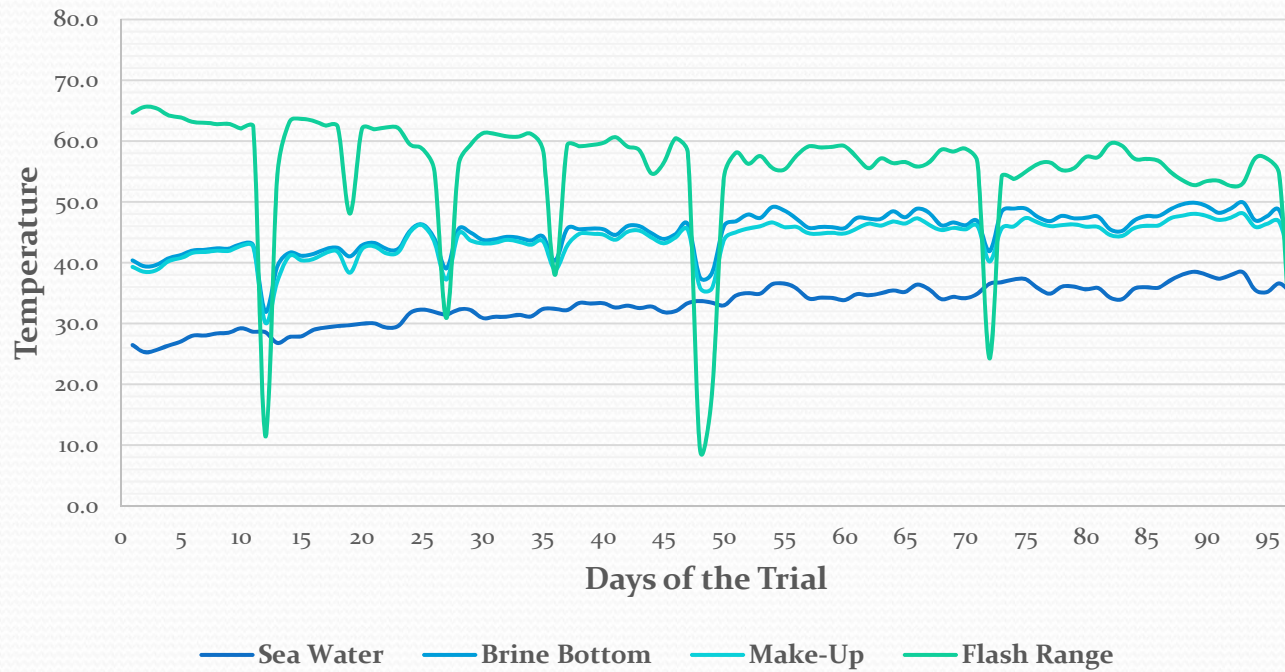
Top Brine temperature has been Kept at average value of 105



Temperature Behavior

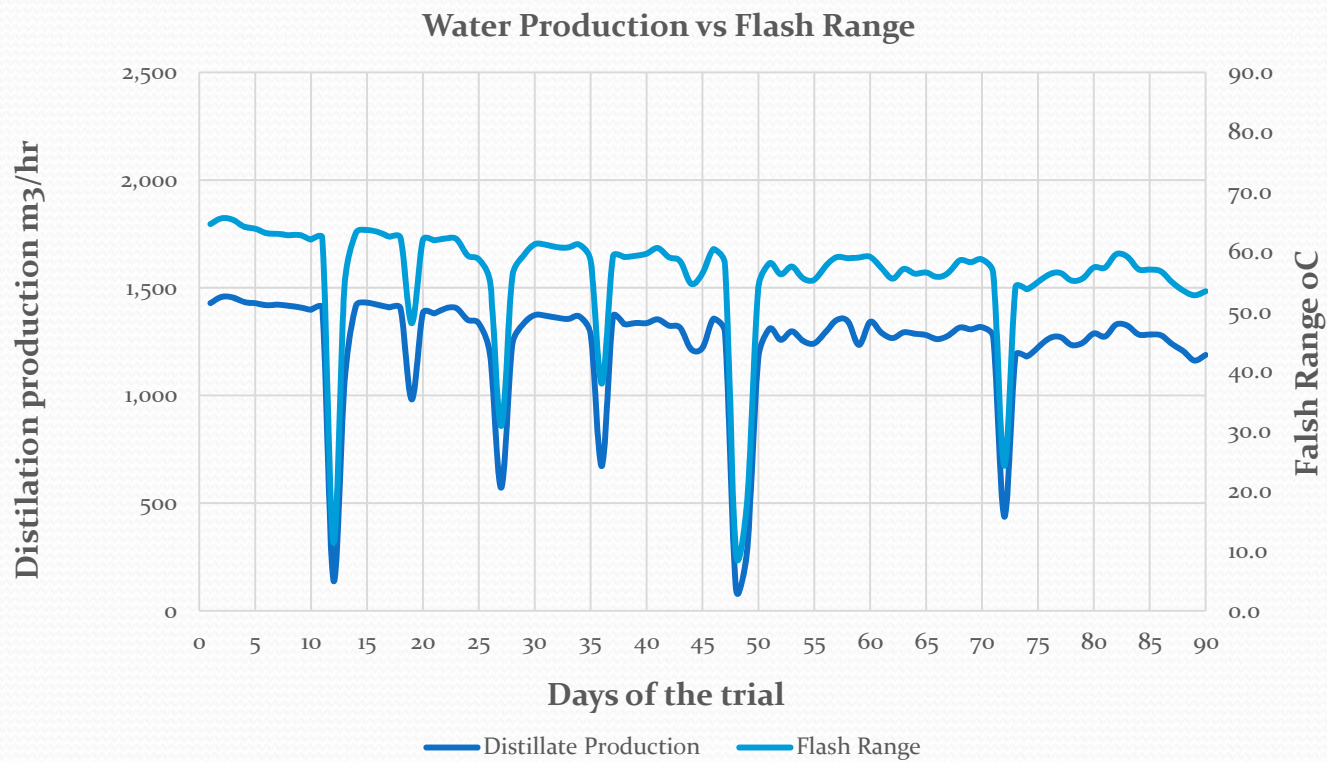
Slight Increase on sea water temperature towards the end led to decrease in flash range

Temperature comparison



Distillate Production

Water Production has similar trend as Flash range

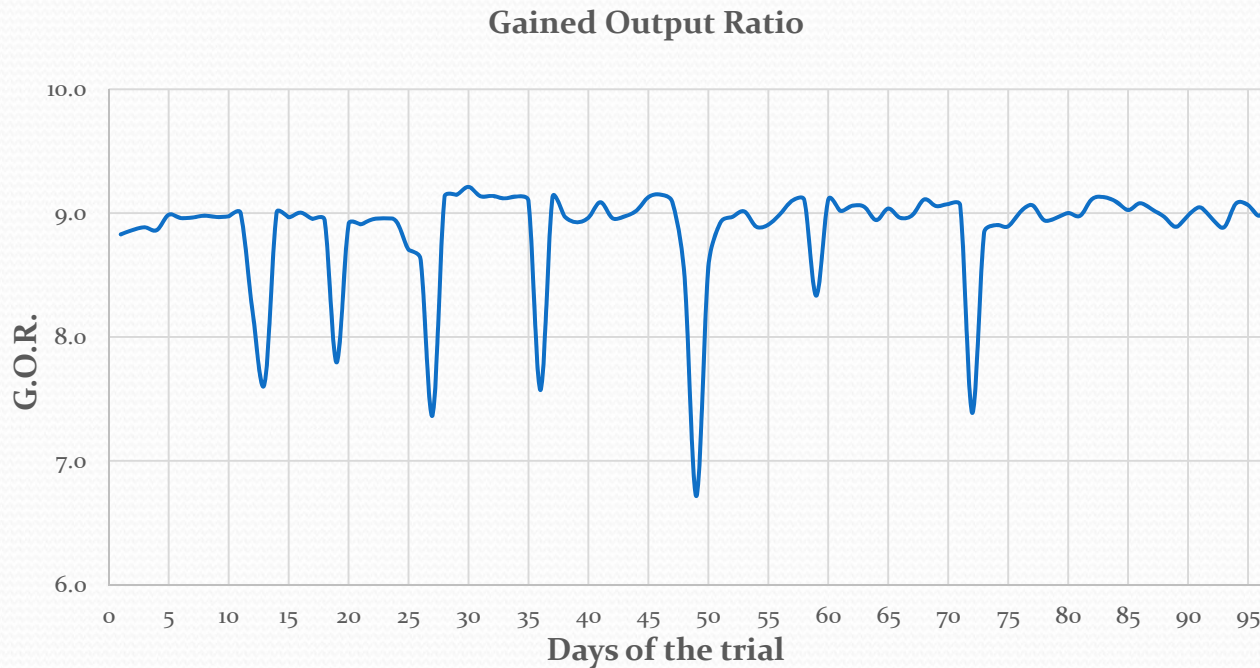


MONITORING
Operating Parameters



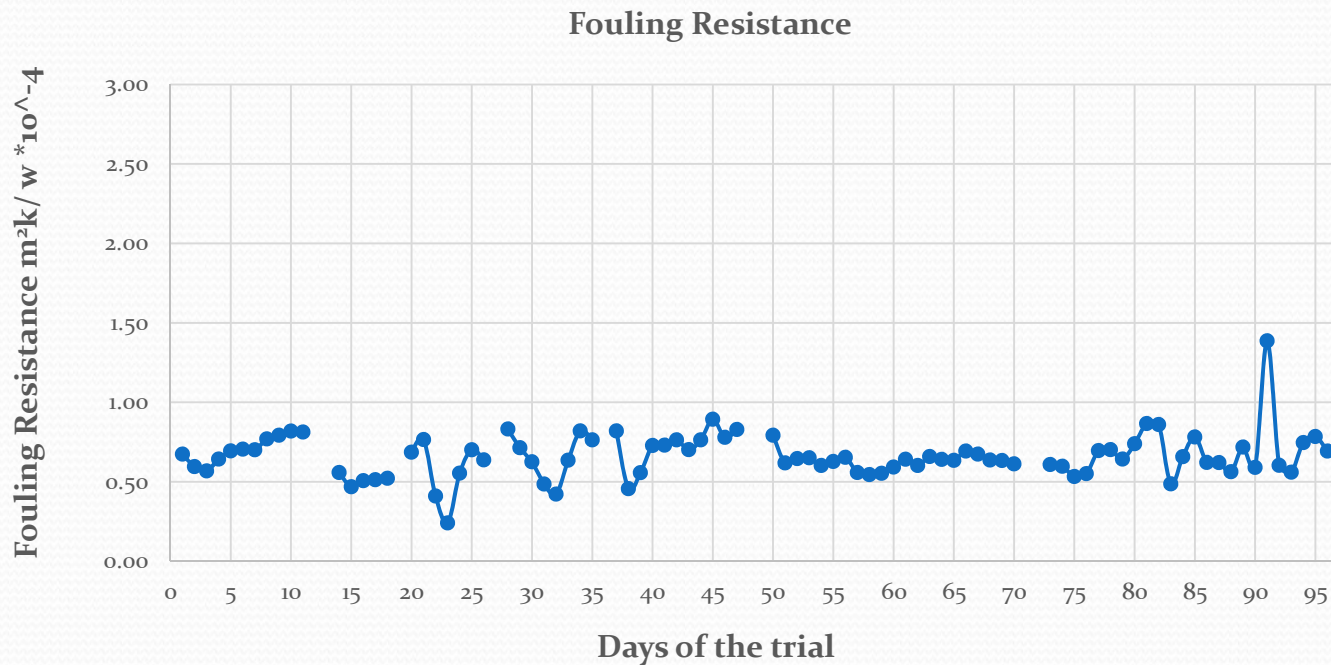
G.O.R - Gained Output Ratio

G.O.R has been maintained at the average value of 9



Fouling Resistance

ALBRIVAP DSB(M) managed to keep the unit as clean as original status and retard any alkaline scale formation



MONITORING
Operating Parameters



Brine Chemistry Monitoring

Chemical Dosing

**Recycle Brine Concentration
Ratio**

Loss of Alkalinity

Reserve Antiscalant Present



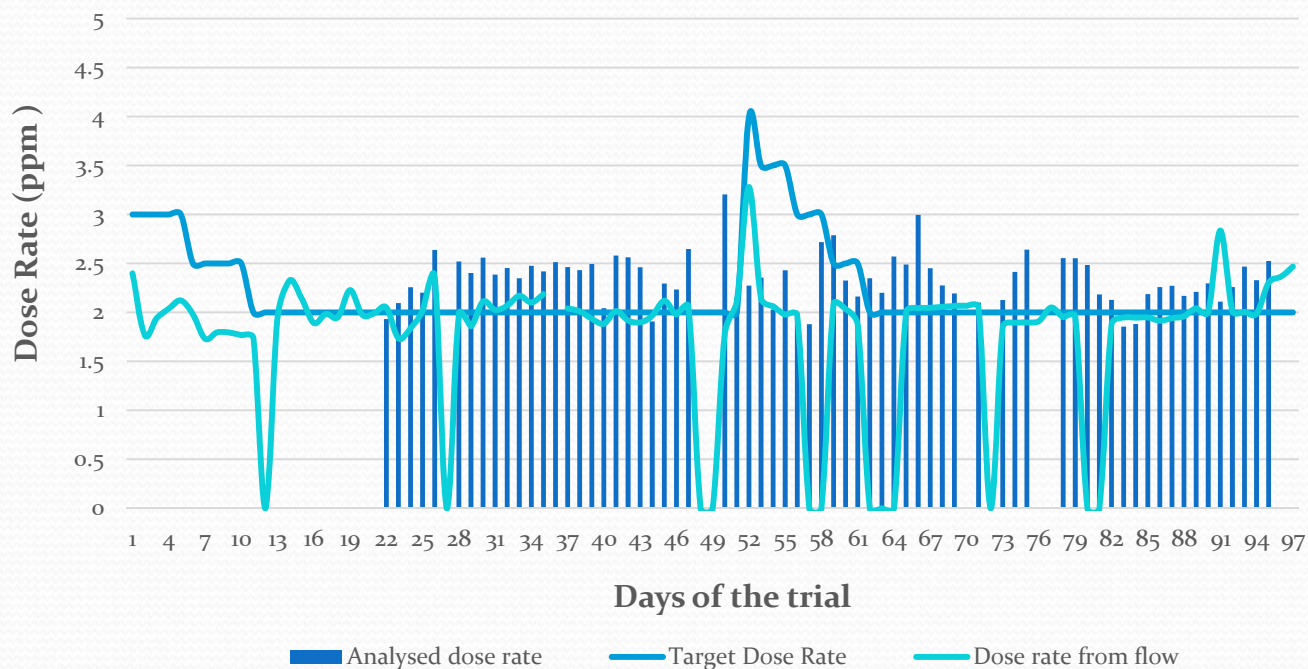
**Monitoring
Brine Chemistry**



Chemical Dose Monitoring

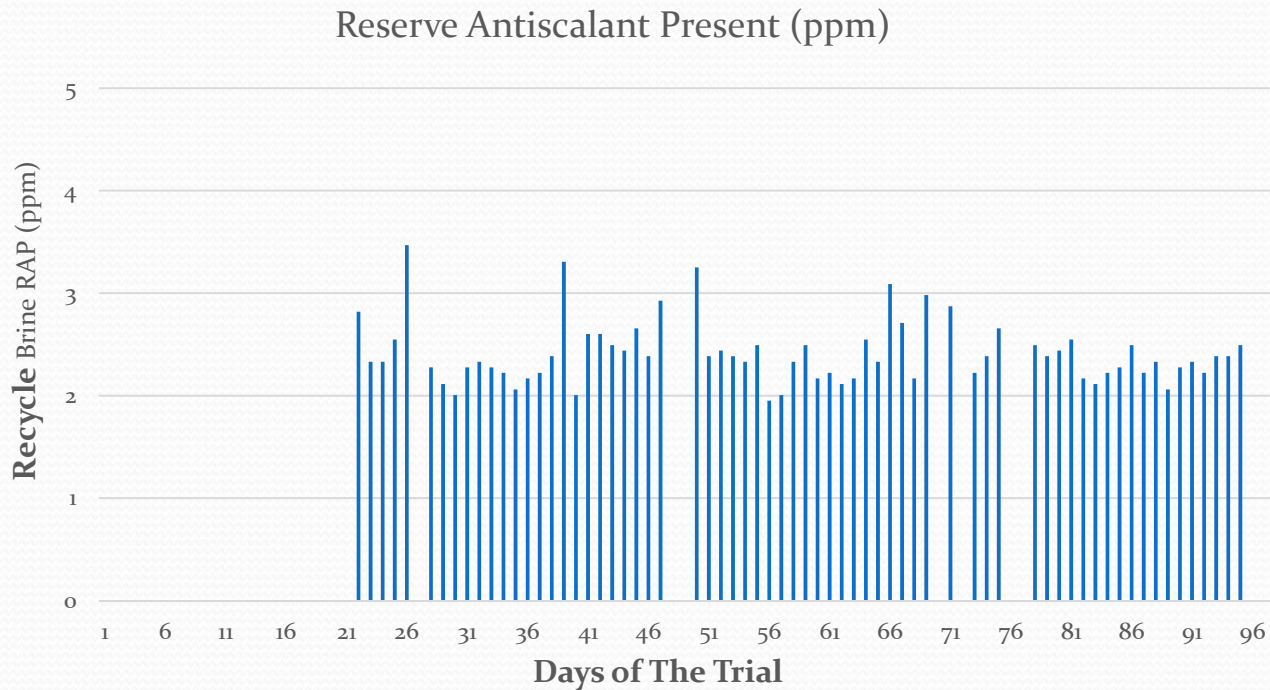
The Dose rate has been successfully kept within 5% range from the target dose rate during most of the trial

ALBRIVAP® DSB(M) A Dose Rate



Residual Antiscalant Concentration

ALBRIVAP DSB(M)A is monitored directly from the brine by simple field test and the residual has been kept above the value of 1.5 ppm all over the trial as a safety margin.

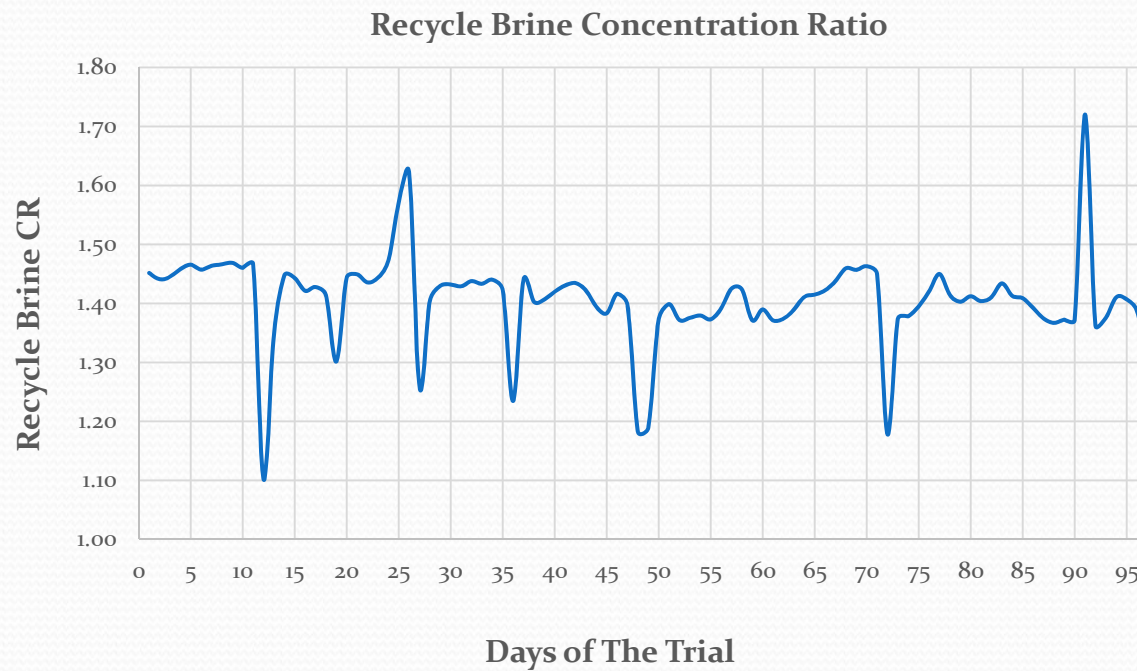


Monitoring
Brine Chemistry



Recycle Brine Concentration Ratio

The operation team were successfully managed to control the C.R less than the value 1.5 along the trial period

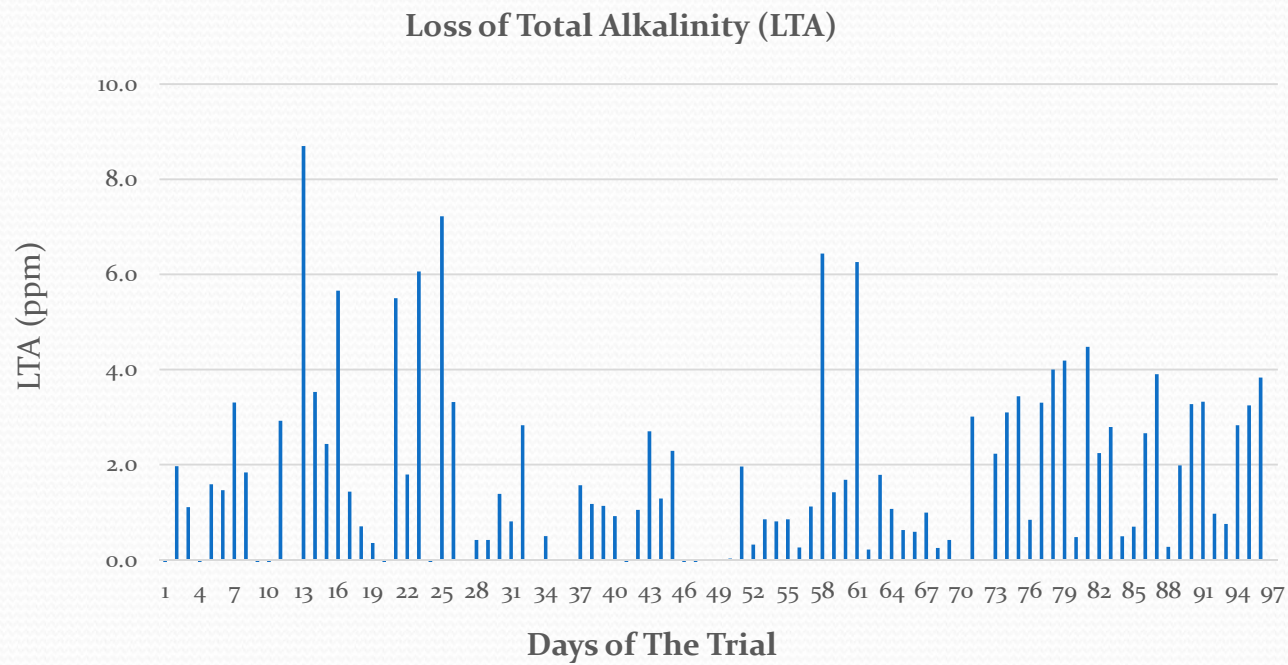


Monitoring
Brine Chemistry



Loss of Alkalinity

LTA values has been remained under 4 ppm most of the trial



Monitoring
Brine Chemistry



Plant Inspection & Results

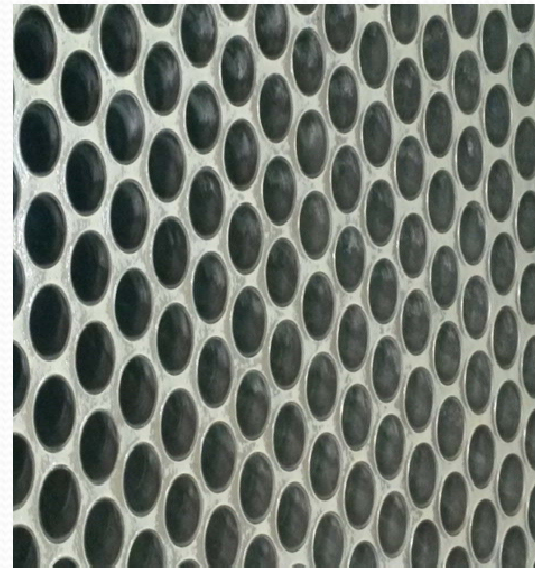


Plant Inspection
& Results

BRINE HEATER TUBES



BEFORE TRIAL



AFTER TRIAL

Plant Inspection & Results



Plant Inspection
& Results

DEMISTER PAD



BEFORE TRIAL



AFTER TRIAL

Conclusions

- a) *Thermal Efficiency were **Steady & Stable** over trial period*
- b) *G.O.R successfully maintained between 9 and 10*
- c) *T.B.T. maintained in the range of **105-110°C***
- d) *Albrivap DSB (M) A average dosage **2 ppm** were successfully maintained the unit clean*
- e) *Analysis of the brine chemistry concluded that there would be **no risk** of forming hard alkaline scale on the heat transfer surfaces This was confirmed by the final inspection.*



Thank you

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