“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 behavior
- Distillate Production
- Heat Transfer Coefficient
- Fouling Resistance
- G.O.R - Gained Output Ratio
Temperature Behaviour - TBT

Top Brine temperature has been kept at an average value of 105
Temperature Behavior

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

Temperature comparison

Days of the Trial

Temperature

0.0  10.0  20.0  30.0  40.0  50.0  60.0  70.0  80.0

Sea Water  Brine Bottom  Make-Up  Flash Range

MONITORING
Operating Parameters
Distillate Production

Water Production has similar trend as Flash range

Water Production vs Flash Range

Distillation production m3/hr

Days of the trial

- Distillate Production
- Flash Range
G.O.R - Gained Output Ratio

G.O.R has been maintained at the average value of 9
ALBRIVAP DSB(M)a managed to keep the unit as clean as original status and retard any alkaline scale formation.
Brine Chemistry Monitoring

- Chemical Dosing
- Recycle Brine Concentration Ratio
- Loss of Alkalinity
- Reserve Antiscalant Present
Chemical Dose Monitoring

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

Reserve Antiscalant Present (ppm)

Days of The Trial

Recycle Brine RAP (ppm)
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.
Loss of Alkalinity
LTA values has been remained under 4 ppm most of the trial
Plant Inspection & Results

BRINE HEATER TUBES

BEFORE TRIAL

AFTER TRIAL
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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