**Data Dictionary**

Shell Side (Crude Side) :

Crude Temp In - It is a real time value taken from the readings.

Crude Temp Out - It is a real time value taken from the readings.

CDU1 rate (KBPD) - It is a real time value taken from the readings.

Crude Flow rate (kg/hr) - Calculated field.

Formula: -

Crude Flow rate = 0.0066\*CDU1 rate\*1000\*693

Crude Temp Increase - Calculated field.

Formula: -

Crude Temp Increase = Crude Temp In – Crude Temp Out

Q (heat exchanged) MW- Calculated field.

Formula: -

Q (heat exchanged) MW = Crude Flow rate\*Average cp\*Crude Temp Increase/3600/1000

Tube Side (Kero Side) :

Kero Temp In - It is a real time value taken from the readings.

Kero Temp Out - It is a real time value taken from the readings.

Kero Flow m3/hr - It is a real time value taken from the readings.

Furnace inlet temp (deg C) - It is a real time value taken from the readings.

Kero Temp decrease - Calculated field.

Formula: -

Kero Temp decrease = Kero Temp In – Kero Temp Out

Fouling Calculations:

Hot-in - Cold-out - Calculated field

Formula: -

Hot-in – Cold-out = Kero Temp In - Crude Temp Out

Hot-out -Cold-in - Calculated field

Formula: -

Hot-out-Cold-in = Kero Temp Out – Crude Temp In

LMTD - Calculated field

Formula: -

LMTD = Hot-in-cold-out – Hot-out-Cold-in / LN(Hot-in-Cold-out/Hot-out-Cold-in)

U transfer rate - Calculated field

Formula: -

U transfer rate = (Q (Heat exchanged) \* 1000000) / (LMTD \* 139.3 \* 4)

Cumulative Flow Tones per day – Calculated field

Formula: -

Cumulative Flow =

Fouling Resistance - Calculated field

Formula: -

Fouling Resistance = 1 / U transfer rate