Heavy Hydrocarbon Dilution + Displacement Degassing + Cleaning Procedure by EC 9010 and EC 9008

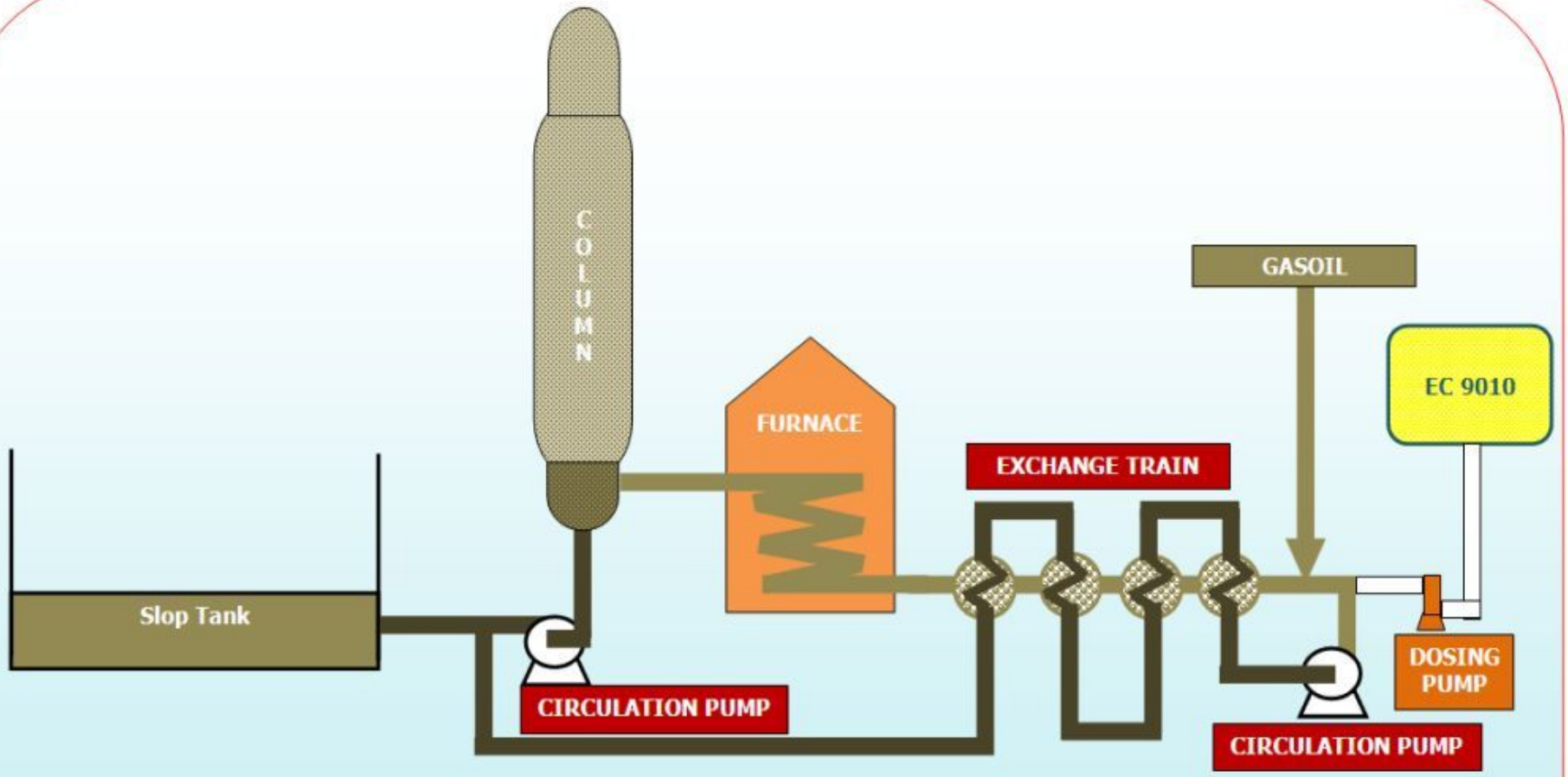
Procedure designed by Effegi s.r.l. in collaboration with Nalco Italiana S. r. l.

Dilution and Displacement Heavy Hydrocarbons using Gasoil with

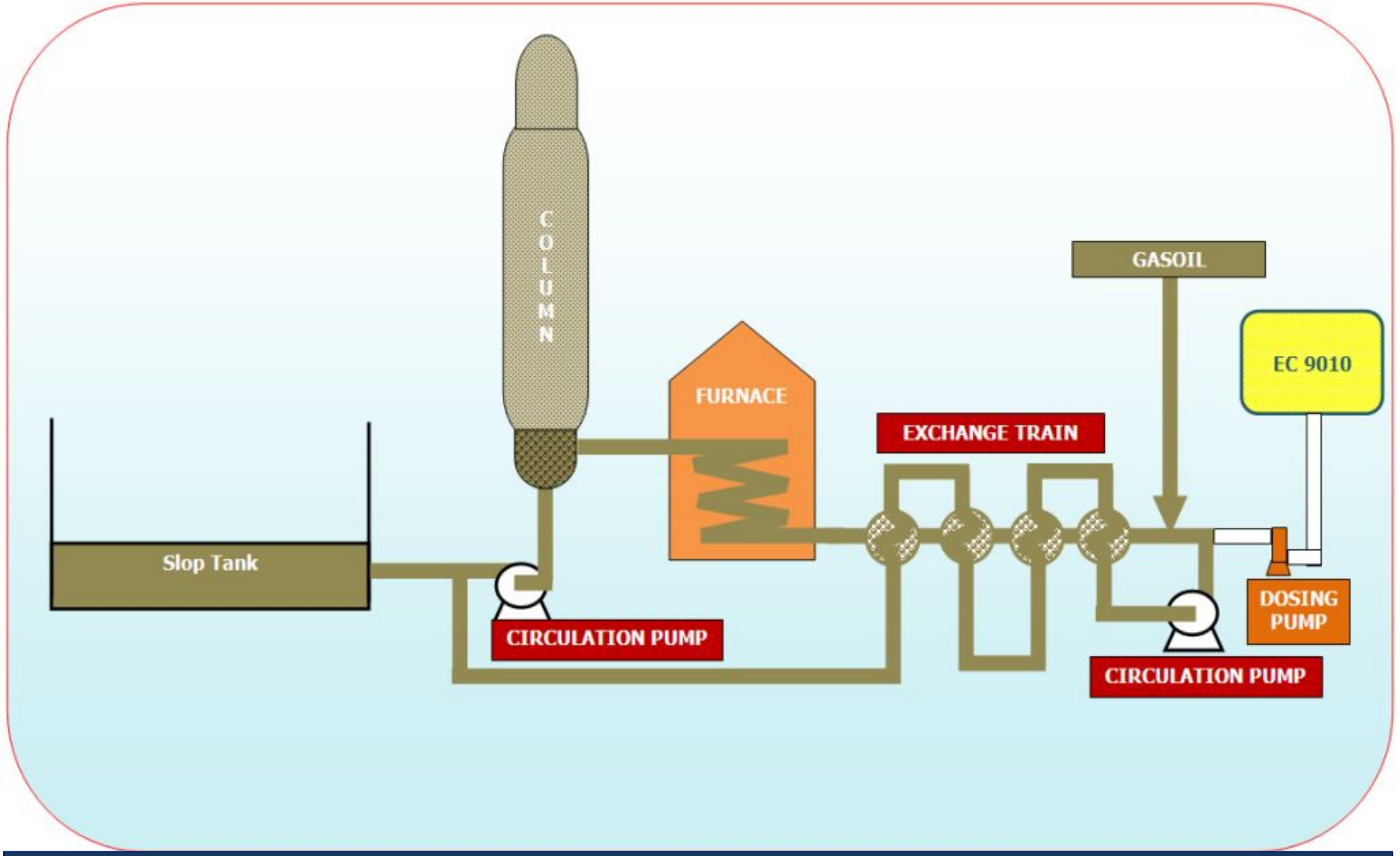
Nalco EC 9010 additive

Procedure designed by Migen SpA in collaboration with Nalco Italiana S. r. l.

FLOW DIAGRAM SHOWING – GASOIL CIRCULATION BEGINNING



FLOW DIAGRAM SHOWING – COMPLETE GASOIL CIRCULATION



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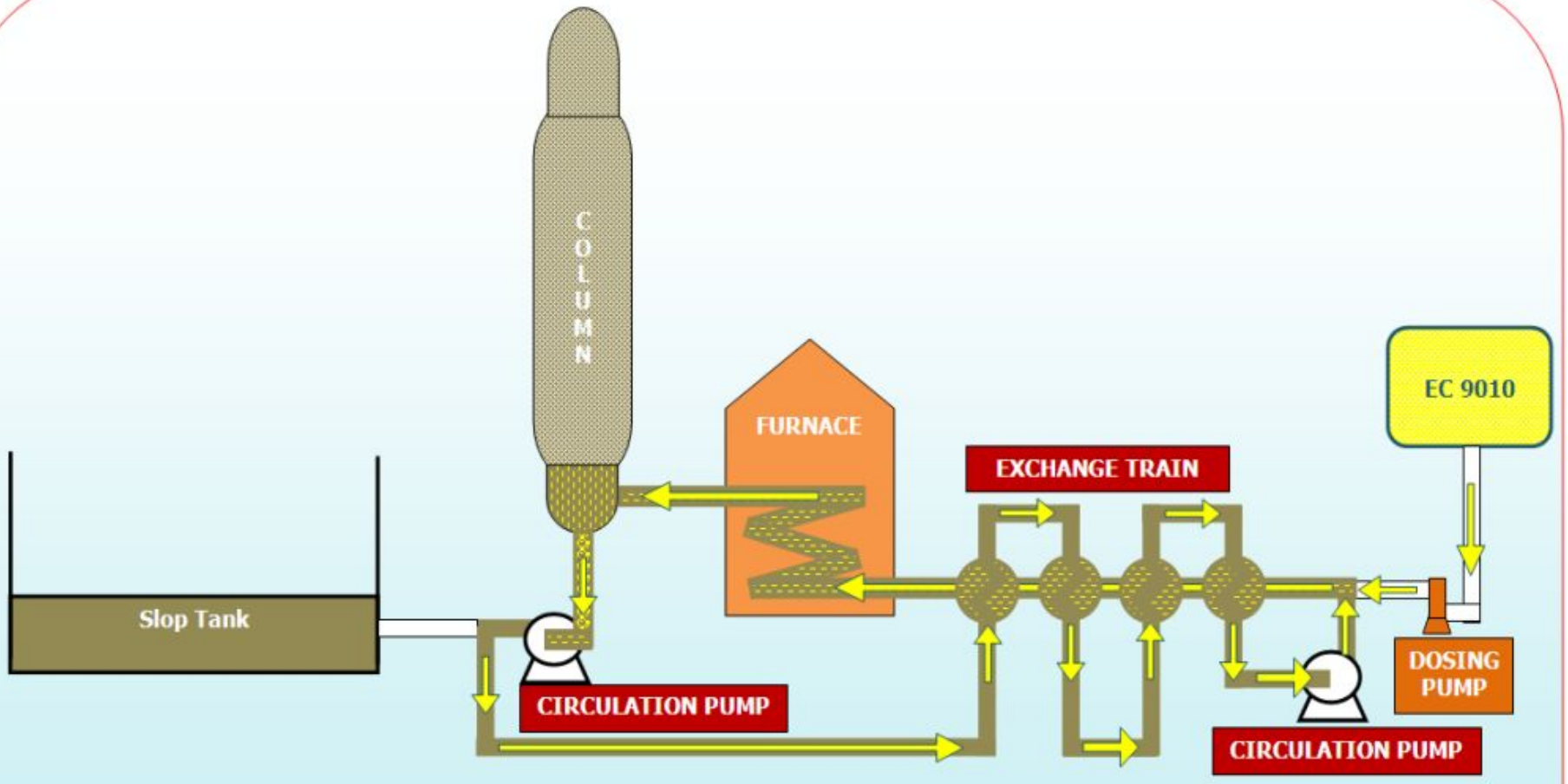
Circuits complete filling with gasoil to replace heavy hydrocarbons residues removed

FLOW DIAGRAM SHOWING –
GASOIL CIRCULATION WITH EC 9010 DOSAGE



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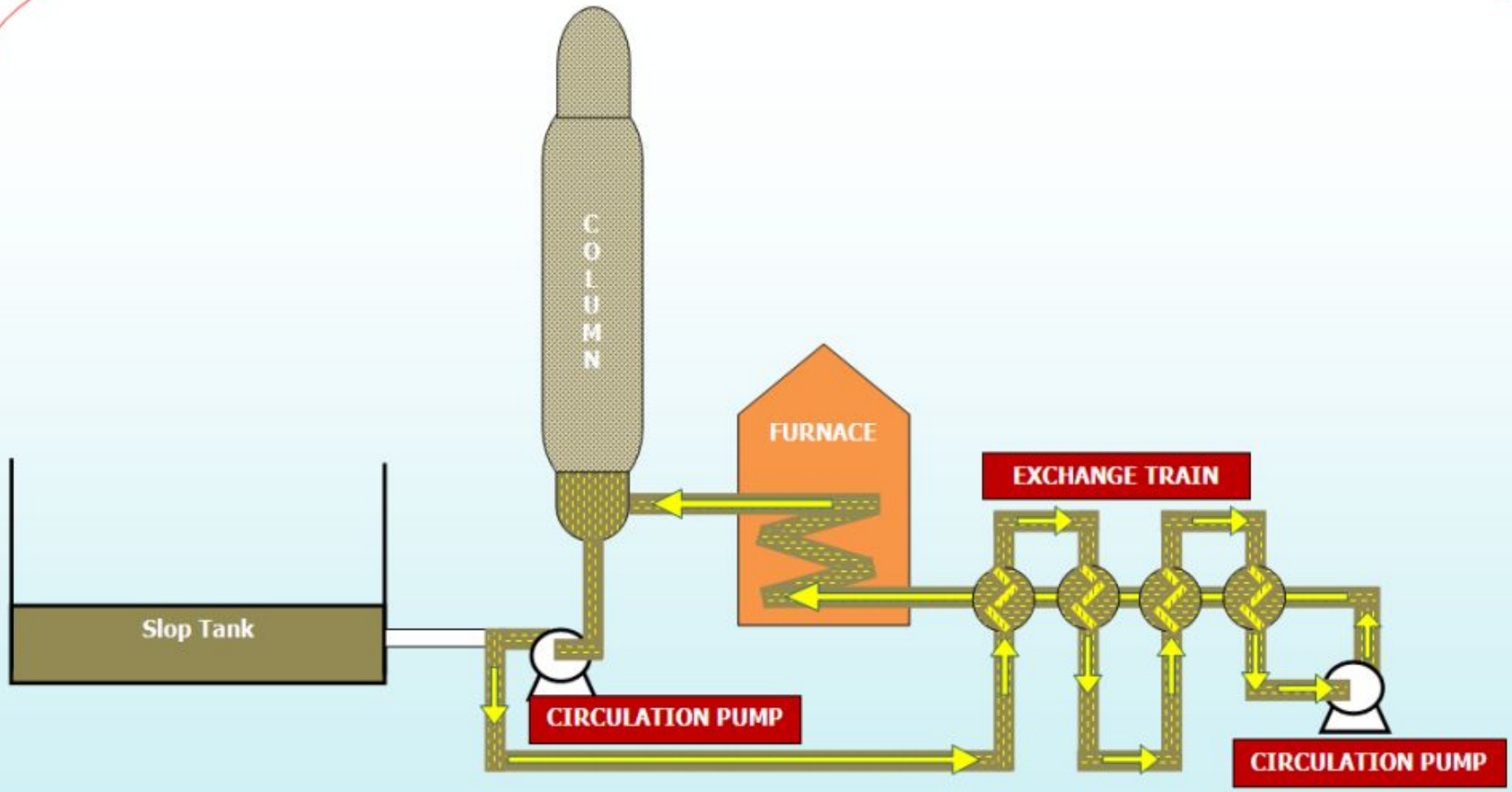
EC 9010 Dosage to promote the fouling disintegration and dilution into gasoil

FLOW DIAGRAM SHOWING - GASOIL CIRCULATION WITH EC 9010



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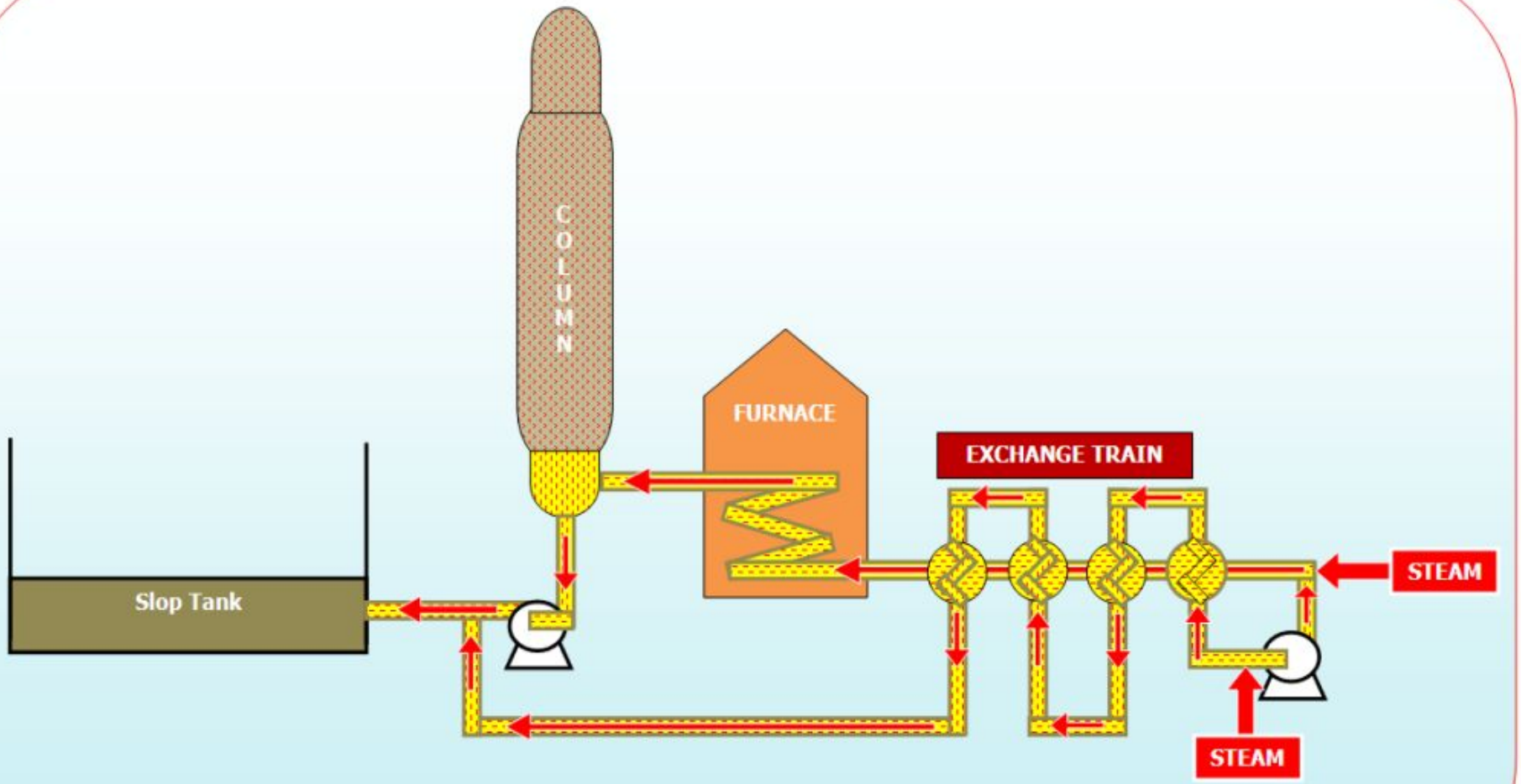
Gasoil + EC 9010 circulation for 8-10 hours to remove fouling and heavy hydrocarbons by dilution into gasoil

FLOW DIAGRAM SHOWING GASOIL DISPLACEMENT BY STEAM



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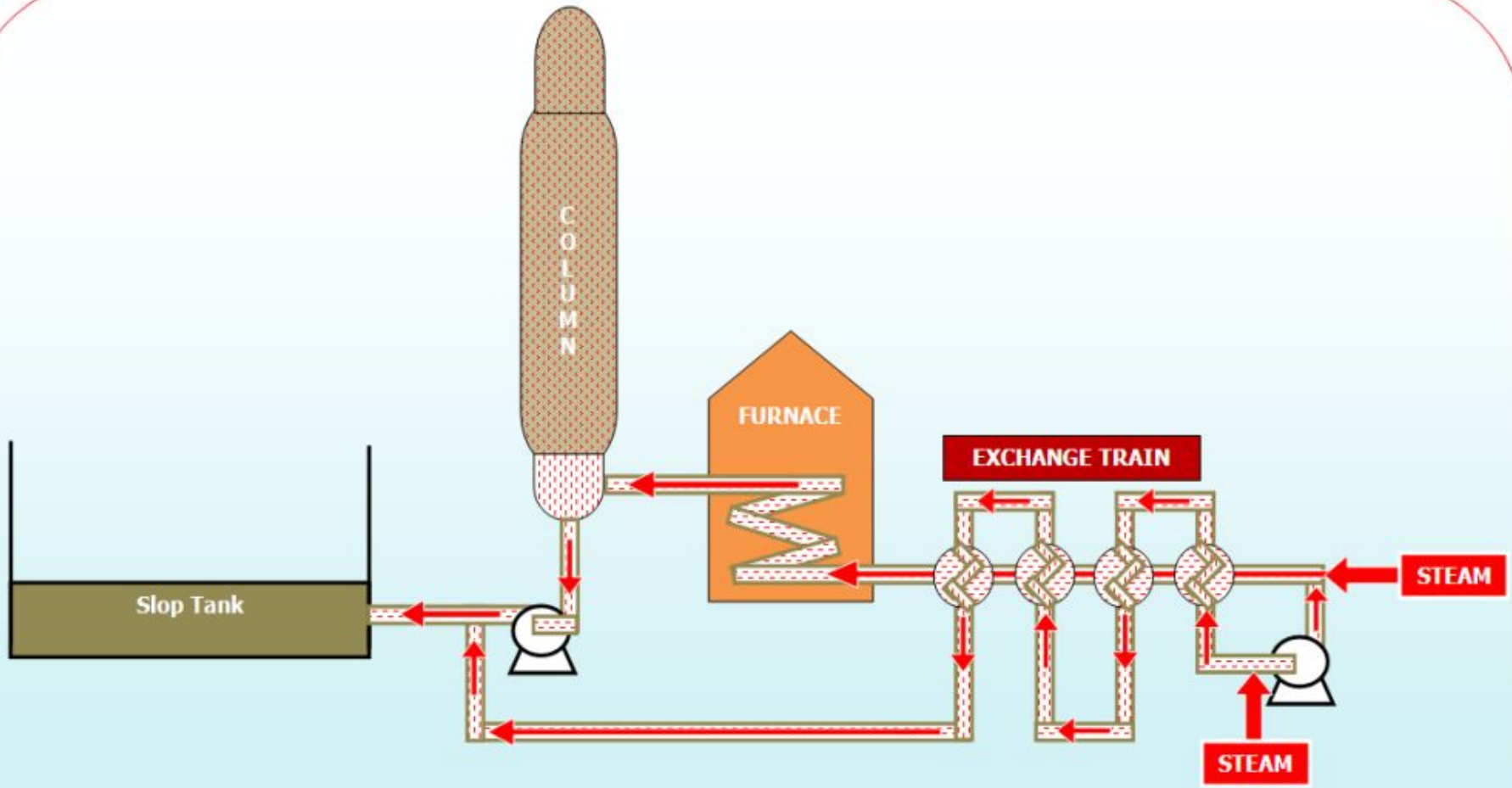
Steam flushing through all the circuits containing gasoil

FLOW DIAGRAM SHOWING - CIRCUIT GASOIL FREE



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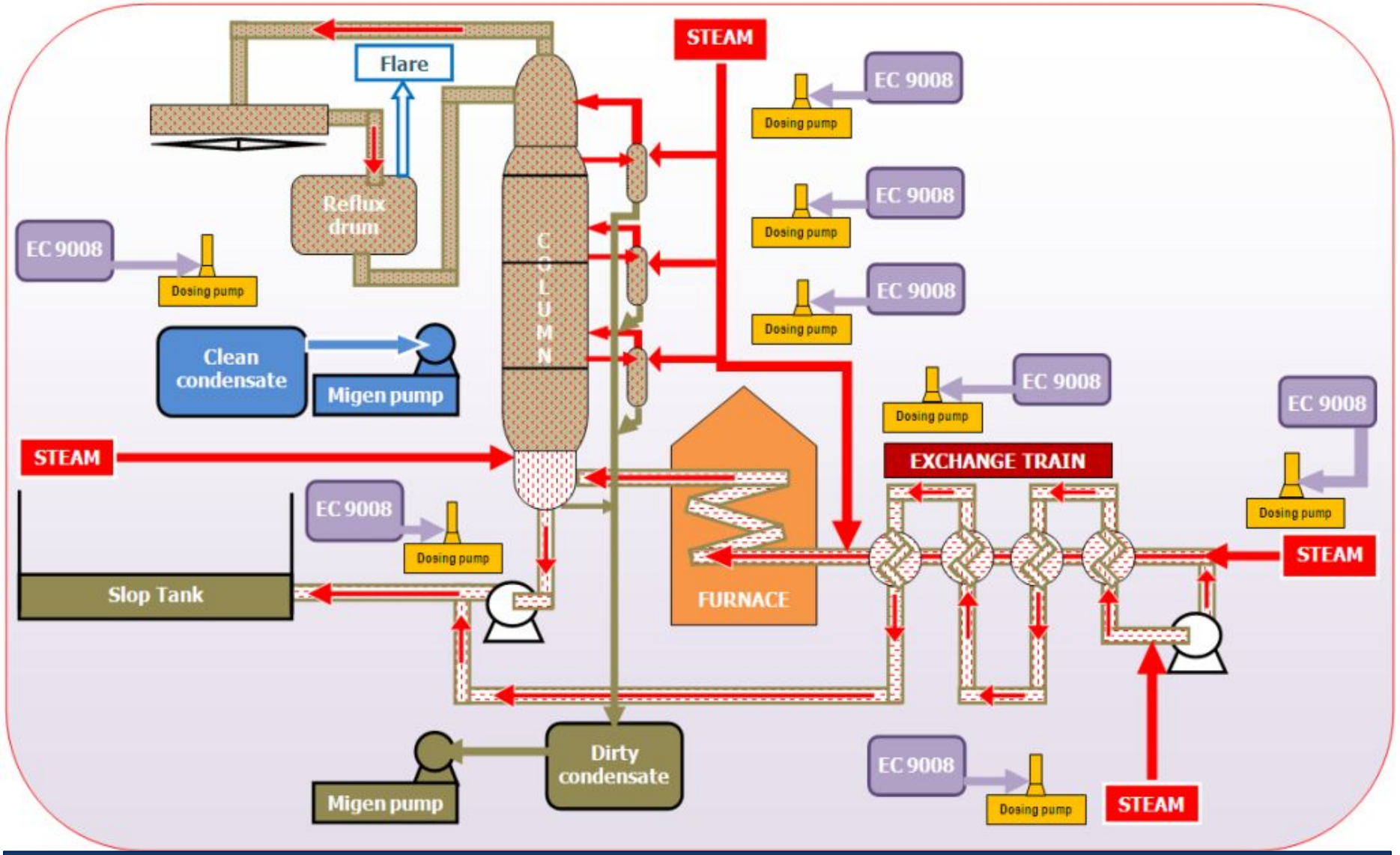
Draining and flushing by steam of all the circuits to displace the condensate containing gasoil

Degassing & Cleaning by steam with

Nalco EC 9008 additive

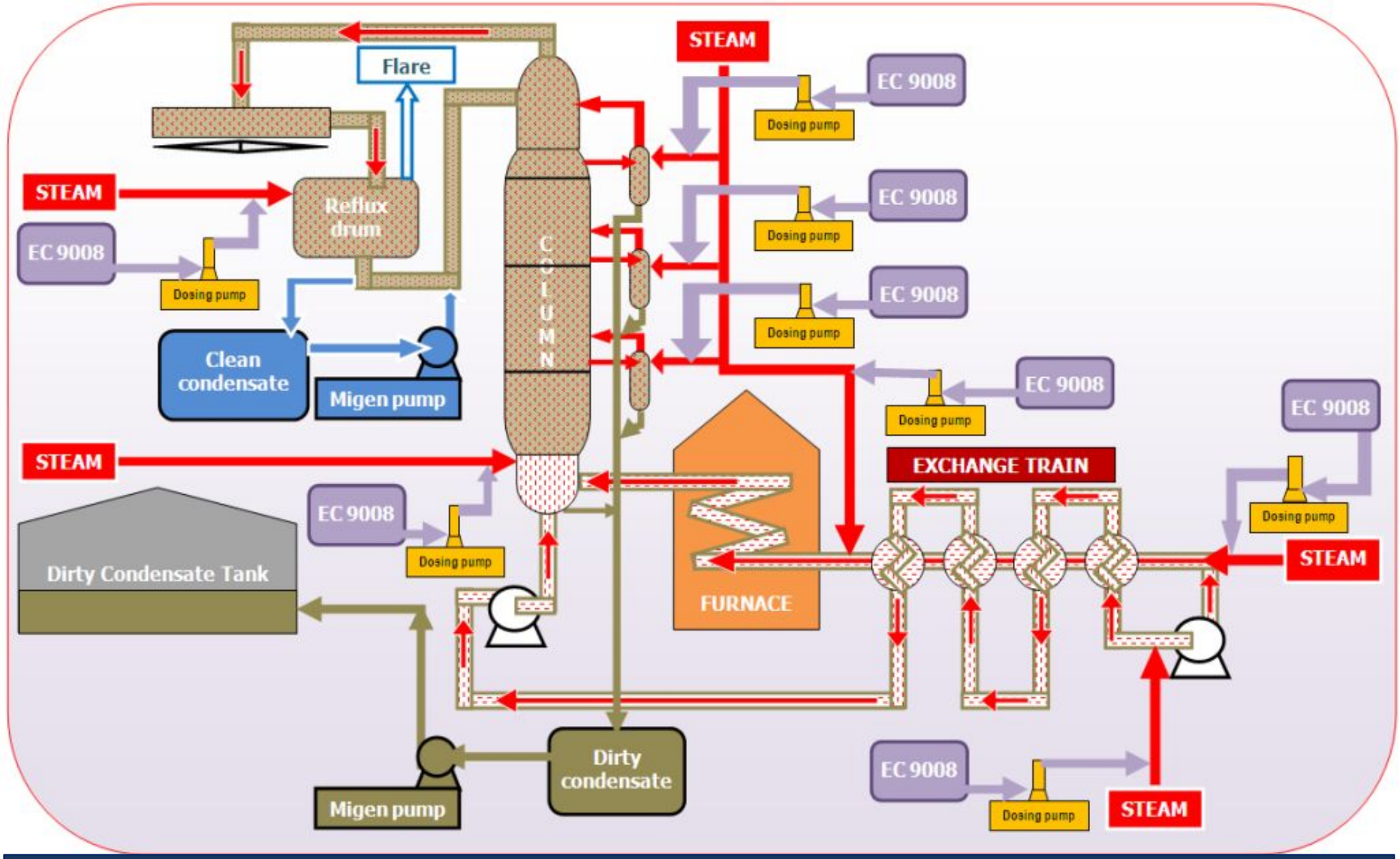
Procedure designed by Effegi s.r.l. in collaboration with Nalco Italiana S. r. l.

FLOW DIAGRAM SHOWING – STEAM OUT CIRCUIT (4 HOURS)



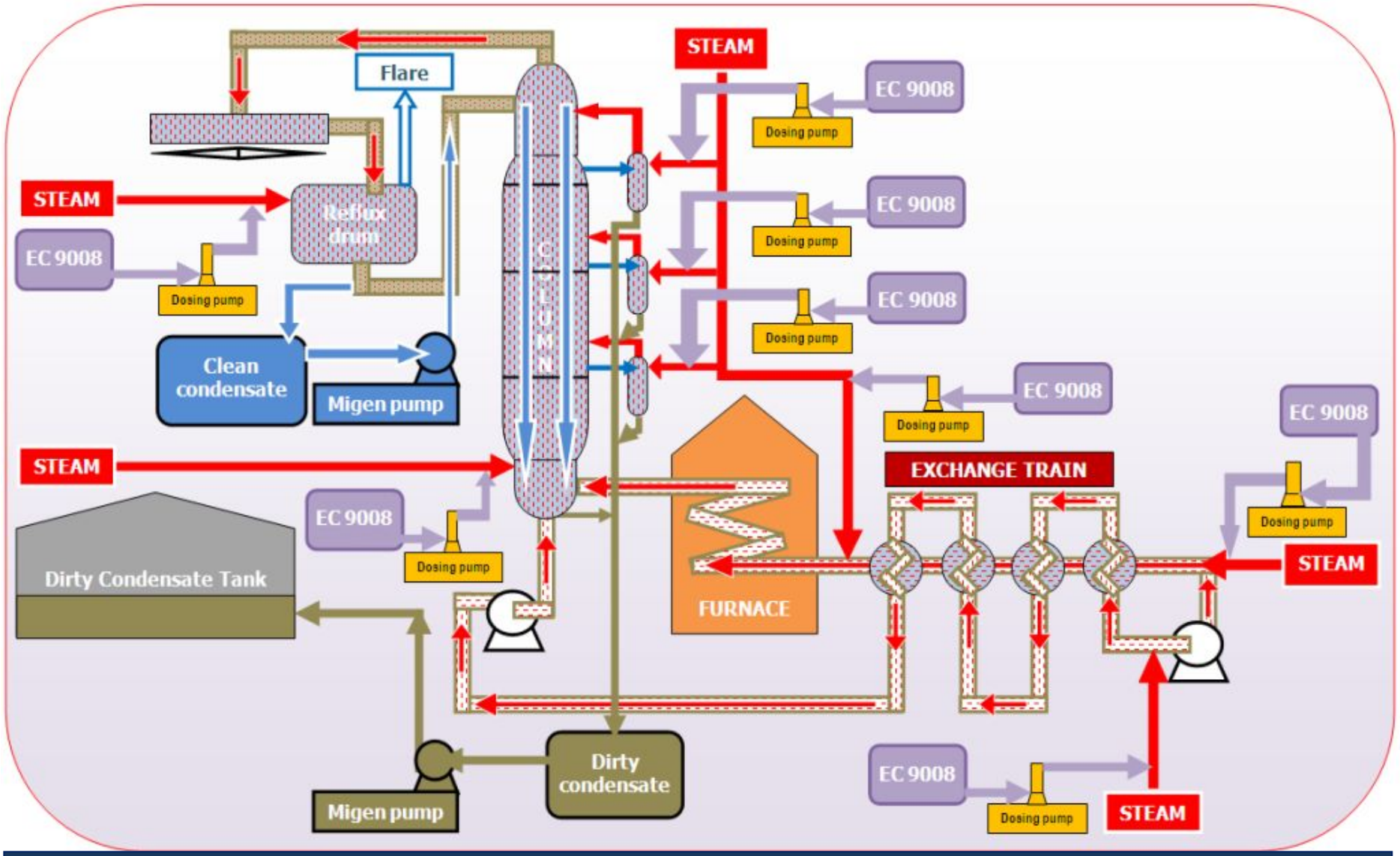
Temporary Circuit Installation - Flushing by steam to move all the hydrocarbons from the circuits, to slop tank
- Time to complete operation: 4-5 hours

FLOW DIAGRAM SHOWING
STEAM OUT WITH EC 9008 DOSAGE STARTING



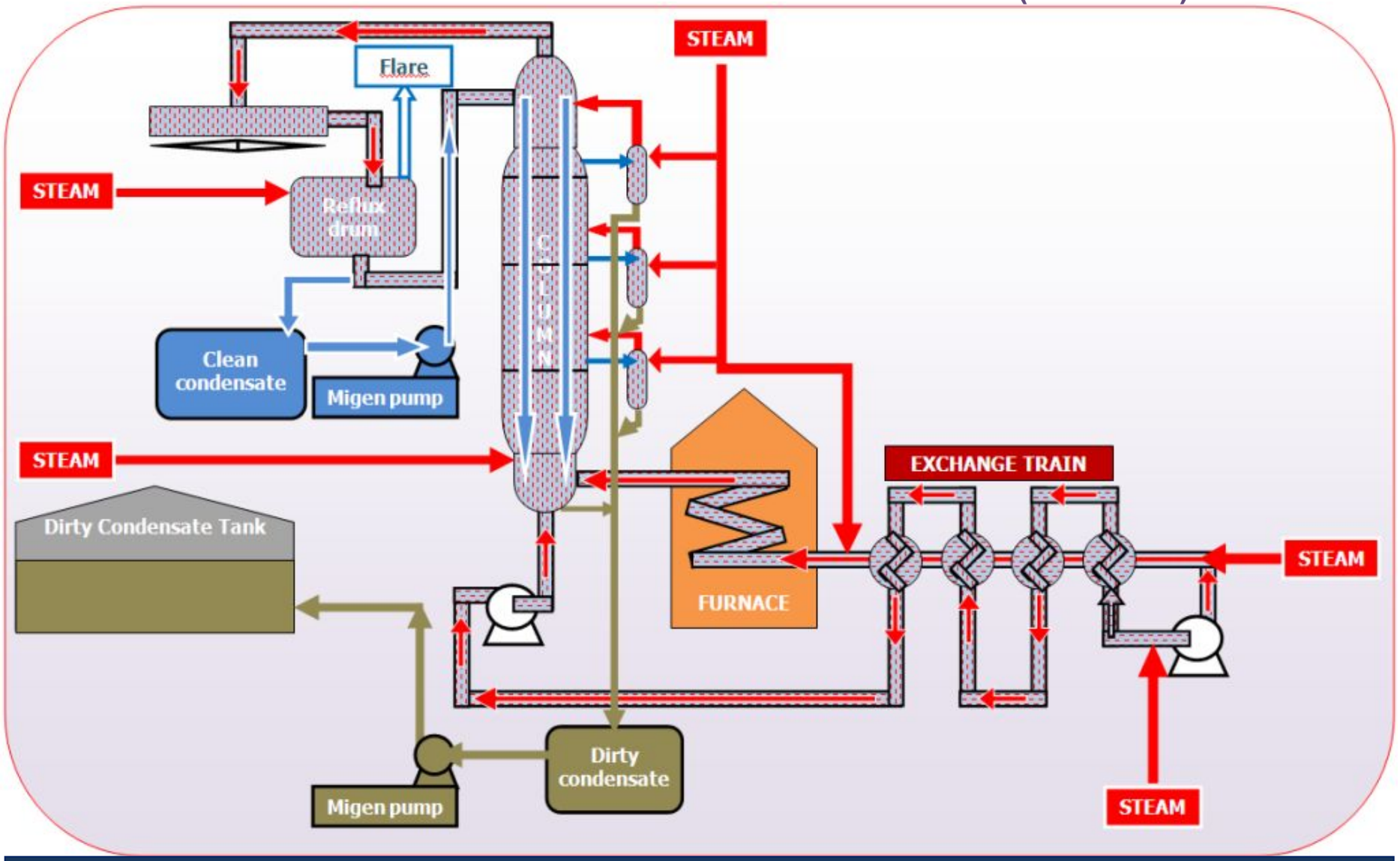
EC 9008 dosage to promote the hydrocarbon and dangerous substances emulsification into the condensate

FLOW DIAGRAM SHOWING
STEAM OUT WITH EC 9008 DOSAGE & CONDENSATE CIRCULATION



EC 9008 dosage to promote the hydrocarbon and dangerous substances emulsification into the condensate and Reflux of Condensate rich of EC 9008 Time to complete operation: 10-16 hours

FLOW DIAGRAM SHOWING
STEAM OUT WITH CONDENSATE CIRCULATION (6 HOURS)



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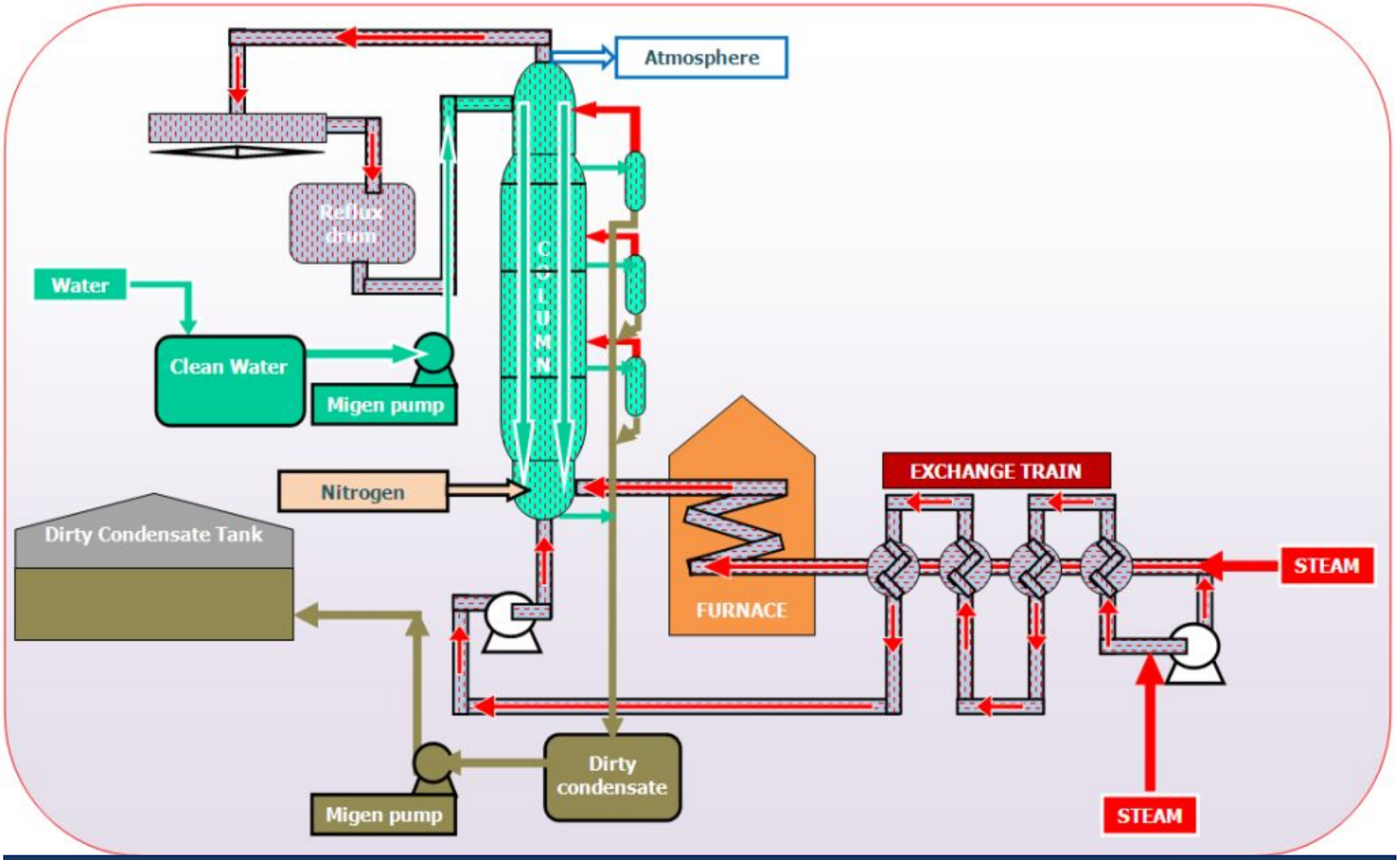
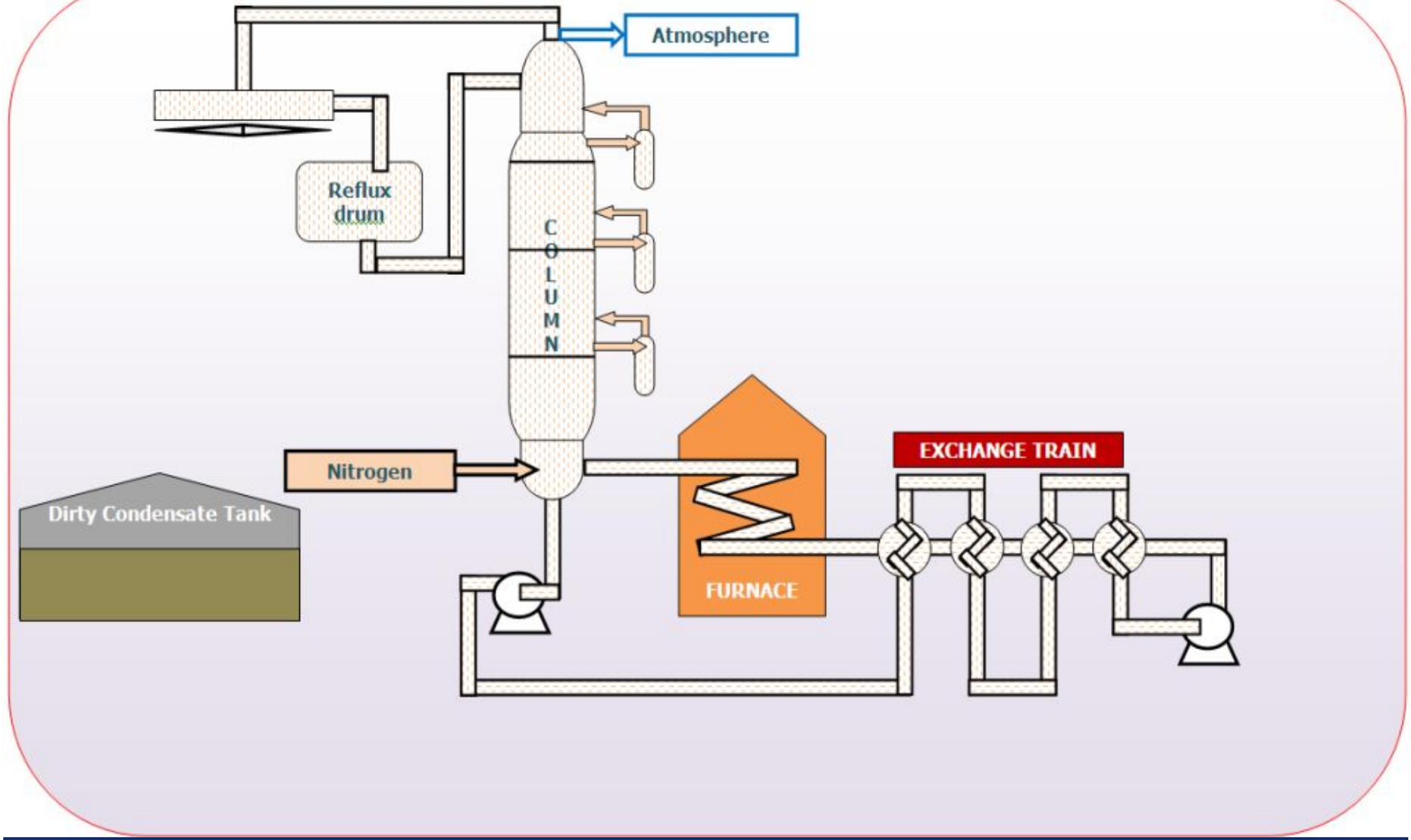
Circuits and items steam flushing to finish the emulsion displacement to the Dirty Condensate Tank
- Time to complete operation: 4-6 hours

FLOW DIAGRAM SHOWING – RINSE WITH CLEAN WATER (6 HOURS)



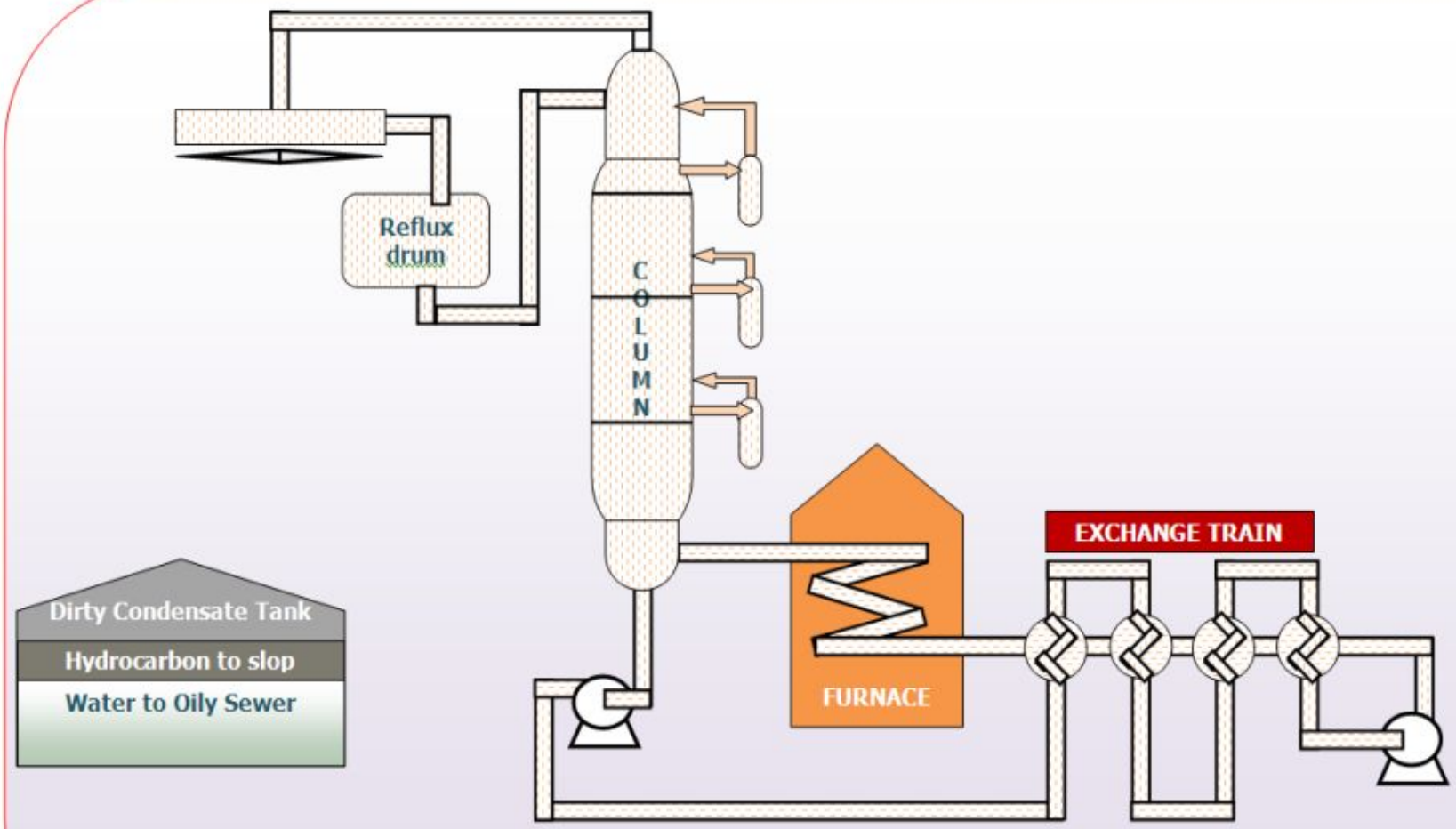
Main column rinse to cool the item and avoid emulsion stagnation above the trays
- Time to complete the operation: 6-8 hours

FLOW DIAGRAM SHOWING – FINAL SITUATION



Final condensate draining, under Nitrogen pressure,
with flare connection close.
Temporary circuit Removing

FLOW DIAGRAM SHOWING – FINAL SITUATION + BROKEN EMULSION



Final Situation - Waiting to obtain the BROKEN EMULSION
Discharge to Oily Sewer the Water and to Slop the Hydrocarbon