



ESHPETCO Journey To Digitalization

ESHPETCO DIGITAL TRANSFORMATION PRACTICE



Session Agenda



Introduction To Digital Transformation



ESHPETCO Insights Towards Digitalization



Plan For The Journey

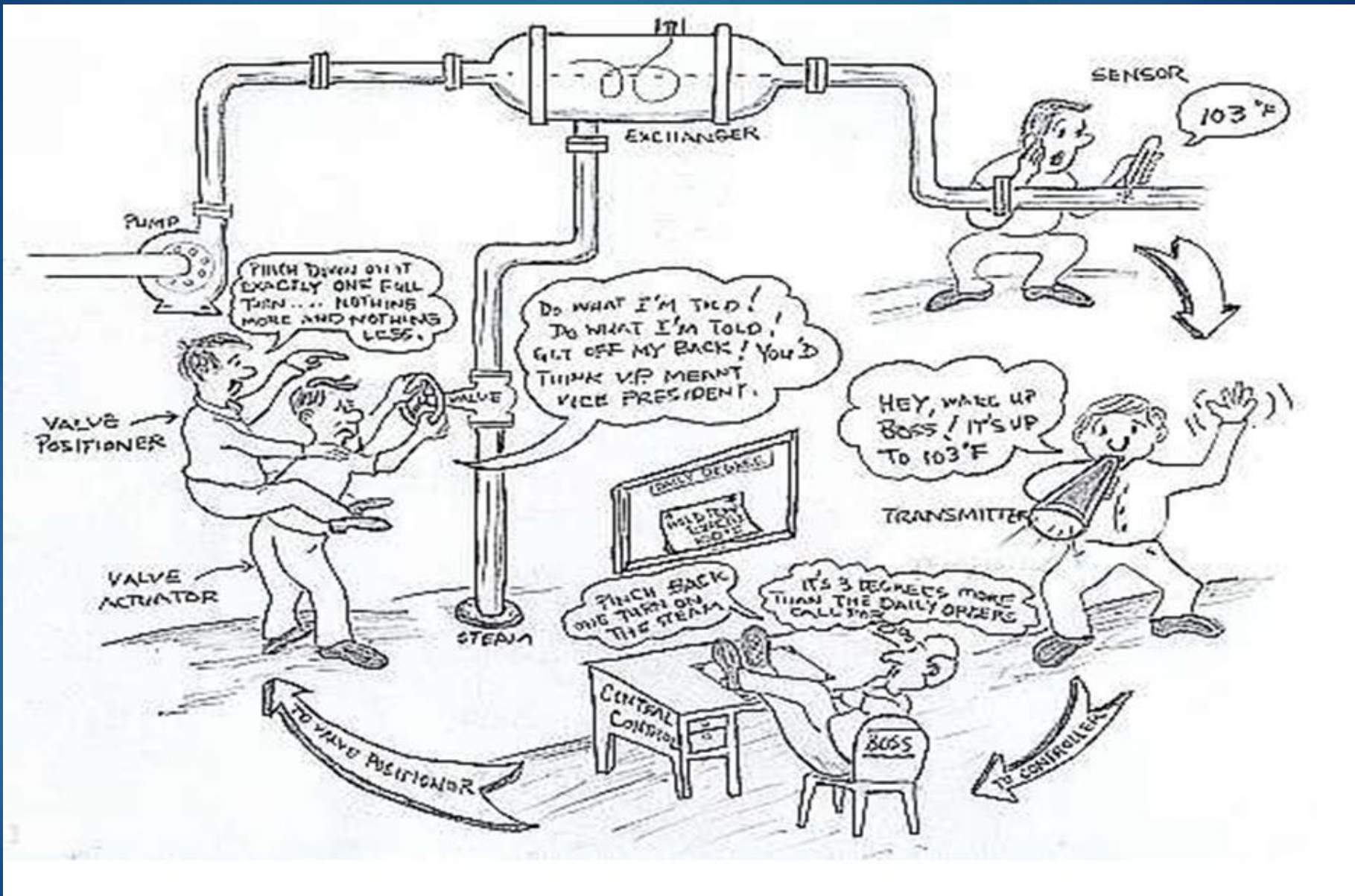




Introduction To Digital Transformation

- ▶ Digital transformation is the integration of digital technology into all areas of a business.
- ▶ Fundamentally, changing how you gather, analyze and deliver values and data to operators, mid-mangers and decision makers.
- ▶ The innovation of data transformation is to deliver every level of operation organizational chart with the figure of interest.

Oil and Gas Industry Without Digital System





The Oil and Gas industry is primed for digital transformation

Improve personnel safety and optimize processes with wireless real-time tracking, video analytics, and automated incident response.

Reduce downtime and rework with faster and better decisions using real-time analytics and video collaboration.

Improve process efficiency with truck identification, logistics optimization, and automated loading using pervasive wireless and real-time sensor and video data analytics.

Use analytics at the edge to improve security and environmental protection with predictive intrusion-, leakage-, and deformation-detection.

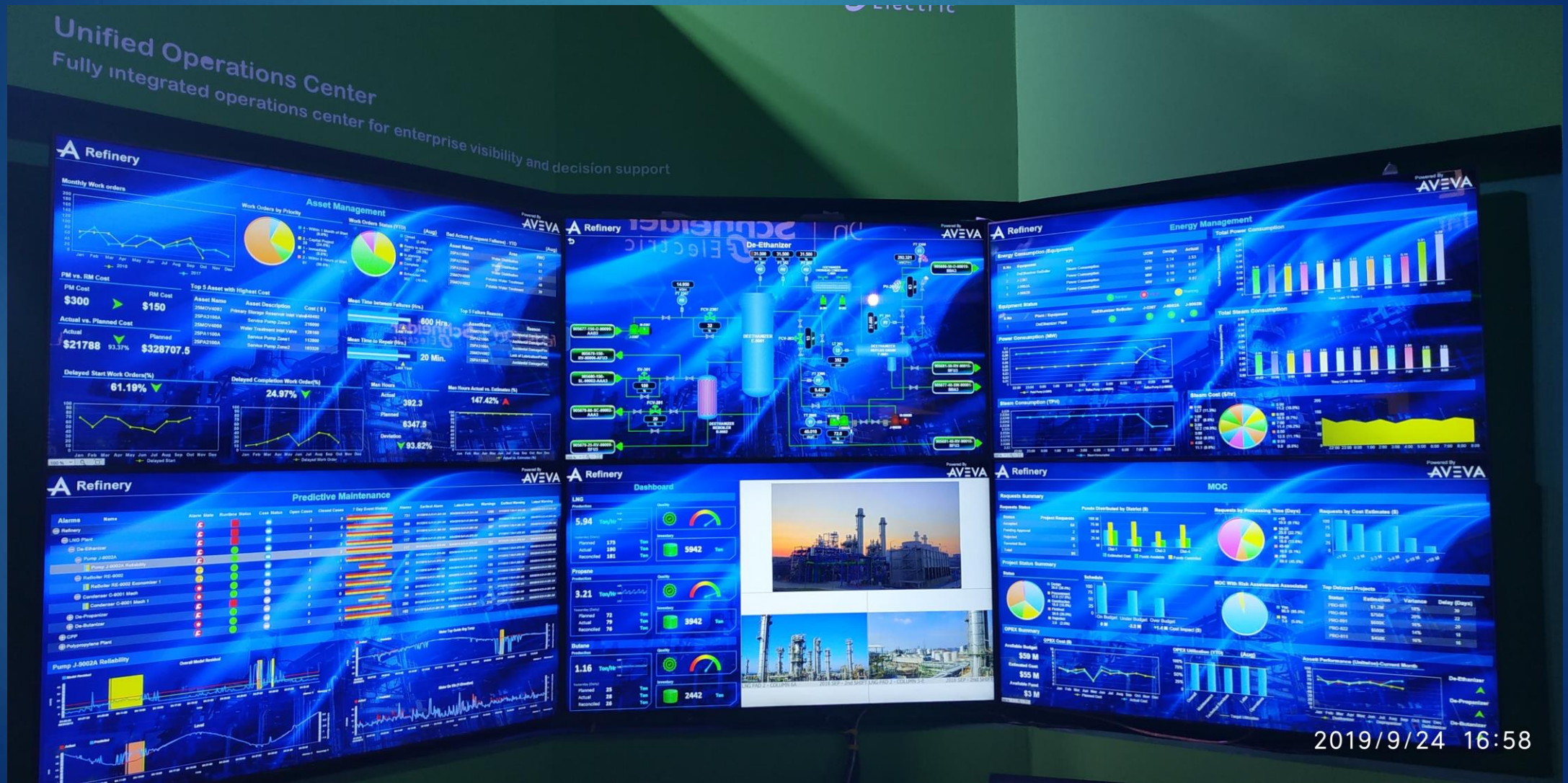
Increase personnel safety and improve asset integrity with predictive maintenance and faster, better decisions using real-time analytics at the edge and virtual expert support.

Provide pervasive wireless connectivity to support education, knowledge sharing, and personnel welfare.

Decrease drilling time and improve accuracy with intelligence at the edge, virtual experts, and automation.



Digital Transformation Practical Business Model





ESHPETCO Journey – Sustainable Strategy

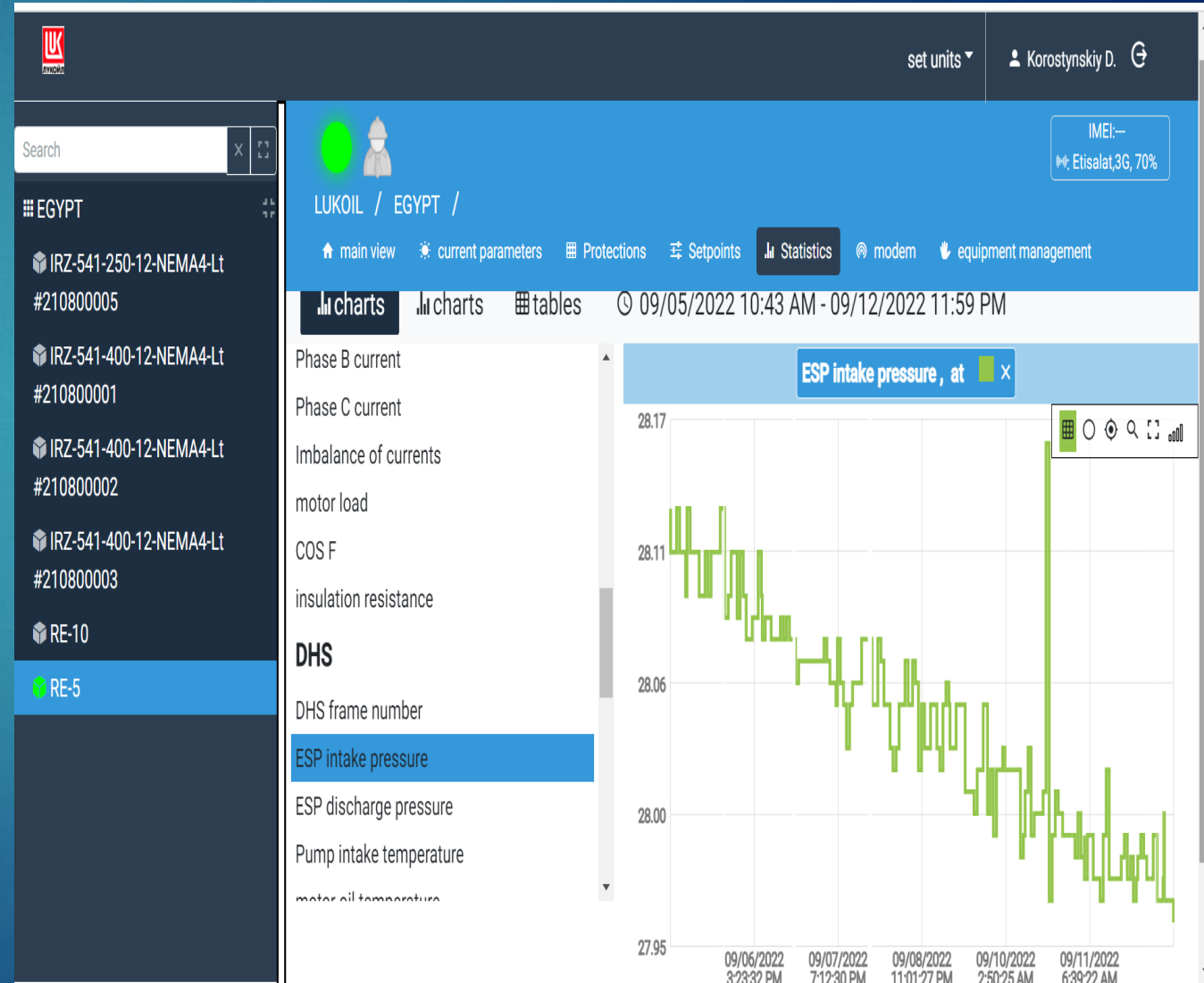
- ESHPETCO committed that the basis of design for the process operation is to digitalize the systems in order to facilitate the data handling, supervision and direct proper decision.
- The Objective is towards the pillars of reducing the operation cost, improving productivity and providing a better experience for the system yields..
- Providing Reliable and Effective Platform, where data could be exchanged and demonstrated into business model, so mid-managers and top management can take the suitable decision to the system profit.



Journey Achievements

1- Oil Wells ESP Remote Monitoring And Control

- ▶ **Remote intervention** on oil wells provide benefits to different studies on the oil well reservoir behavior and production life time.
- ▶ Where updating the operation boundaries limits and set points save the equipment life time, **reducing the tripping times** and eliminating the motor running to failure event without.
- ▶ The vendor manufacture help desk is also available to start\stop the oil well and **alarm ESHPETCO engineers with upset parameters.**

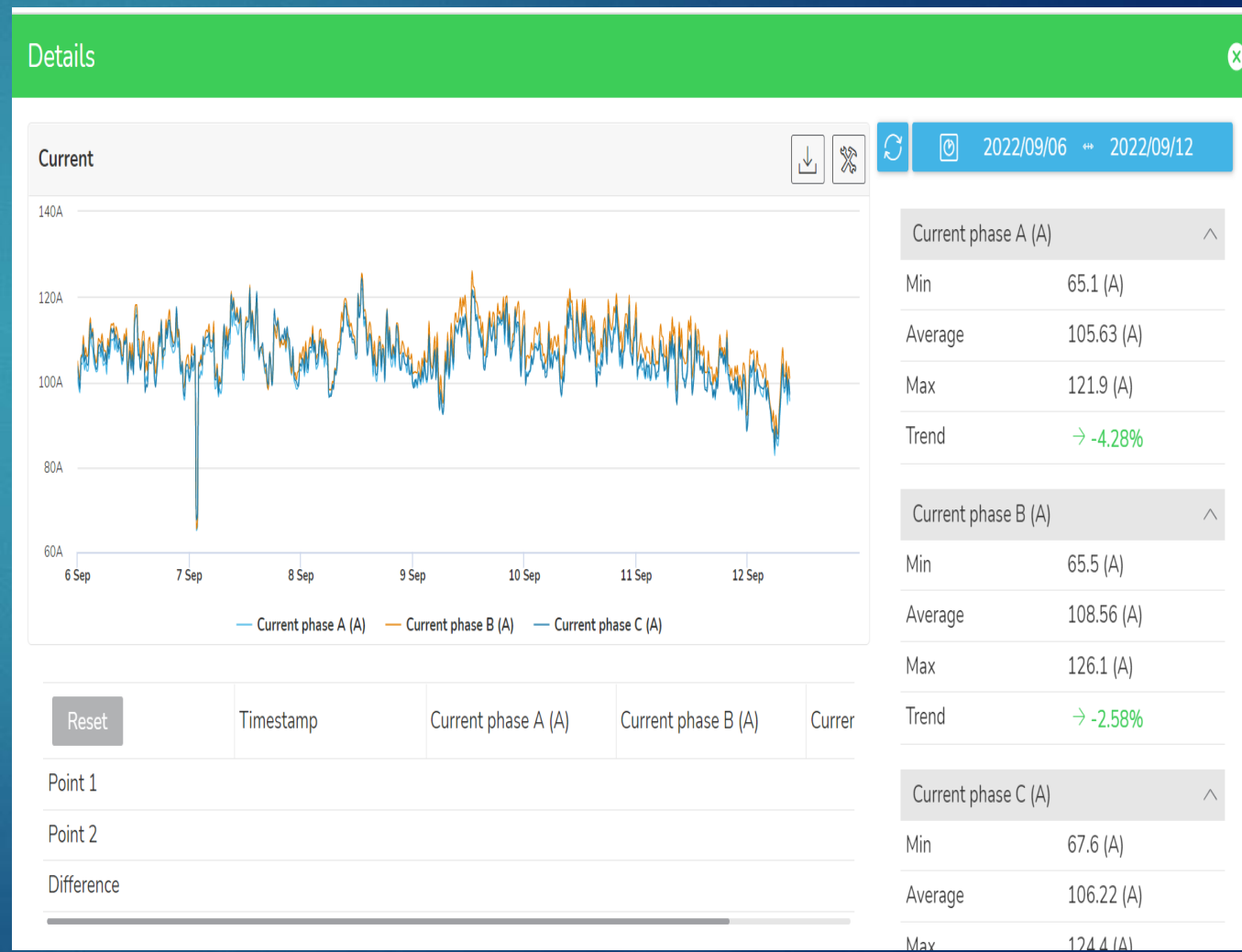




Journey Achievements

2- 6.6 KV Switchgear Circuit Breakers And Relay Panels

- ▶ From the approved engineering of implementing **a smart switchgear system**, measurement sensors (humidity and temperature) were installed in addition to the ordinary transmitters for current, voltage, frequency...etc.
- ▶ where the project innovation was appeared in **the supervision of vendor help desk** for the status of switchgear operations against any parameters out of set point limitations in addition to **provide ESHPETCO with reports every programmed interval.**





Journey Achievements

3- Central Processing Monitoring And Control

- ▶ Upgrading the central automation system provides the opportunity for **better storage spaces and data acquisition**
- ▶ **The cloud monitoring function** enables the mid-seniors and top managers navigating the process measurements and overall results either from field or main office.
- ▶ **Where the e-mail alarm message** put the alarm receptionist into the target zone from taking the proper time action to the process operation upsets.

Instrument Air Pressure Low

Fields Control System
Today: 8:24 AM
Control System Group

Inbox

Equip. Name : Utility.Transmitters.PT288
Equip. Description : Pressure Of Air Receiver
Alarm Description : Pressure Of Air Receiver Low Limit.

Message Sent On Mon Oct 03 2022 03:18:57 AM

ID	Description	Set	Unit	Current	High	Low	Unit	Unit
PT288	Water Level Transmitter In Contact Tank	1	mm	40.18	40	40.18	mm	40.18
PT289	Water Level Transmitter In Contact Tank	1	mm	40.18	40	40.18	mm	40.18
PT290	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT291	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT292	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT293	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT294	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT295	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT296	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT297	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT298	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT299	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18
PT300	Water Level Transmitter For the Tank B	1	mm	40.18	40	40.18	mm	40.18

ID	Description	Unit	Unit	Unit
PT301	Transfer Pump A Drain (H)	mm	mm	mm
PT302	Transfer Pump B Drain (H)	mm	mm	mm
PT303	Transfer Pump C Drain (H)	mm	mm	mm
PT304	Transfer Pump D Drain (H)	mm	mm	mm
PT305	Transfer Pump E Drain (H)	mm	mm	mm
PT306	Transfer Pump F Drain (H)	mm	mm	mm
PT307	Transfer Pump G Drain (H)	mm	mm	mm
PT308	Transfer Pump H Drain (H)	mm	mm	mm
PT309	Transfer Pump I Drain (H)	mm	mm	mm
PT310	Transfer Pump J Drain (H)	mm	mm	mm

Email Messaging Setting

Mail Addresses Setting

Mail Server Setting

User Authentication Data

Send Test Message Close

Closed Drain Pumps Running Hours

PT301: Transfer Pump A Drain (H)

PT302: Transfer Pump B Drain (H)

PT303: Transfer Pump C Drain (H)

PT304: Transfer Pump D Drain (H)

PT305: Transfer Pump E Drain (H)

PT306: Transfer Pump F Drain (H)

PT307: Transfer Pump G Drain (H)

PT308: Transfer Pump H Drain (H)

PT309: Transfer Pump I Drain (H)

PT310: Transfer Pump J Drain (H)

Network Diagram:

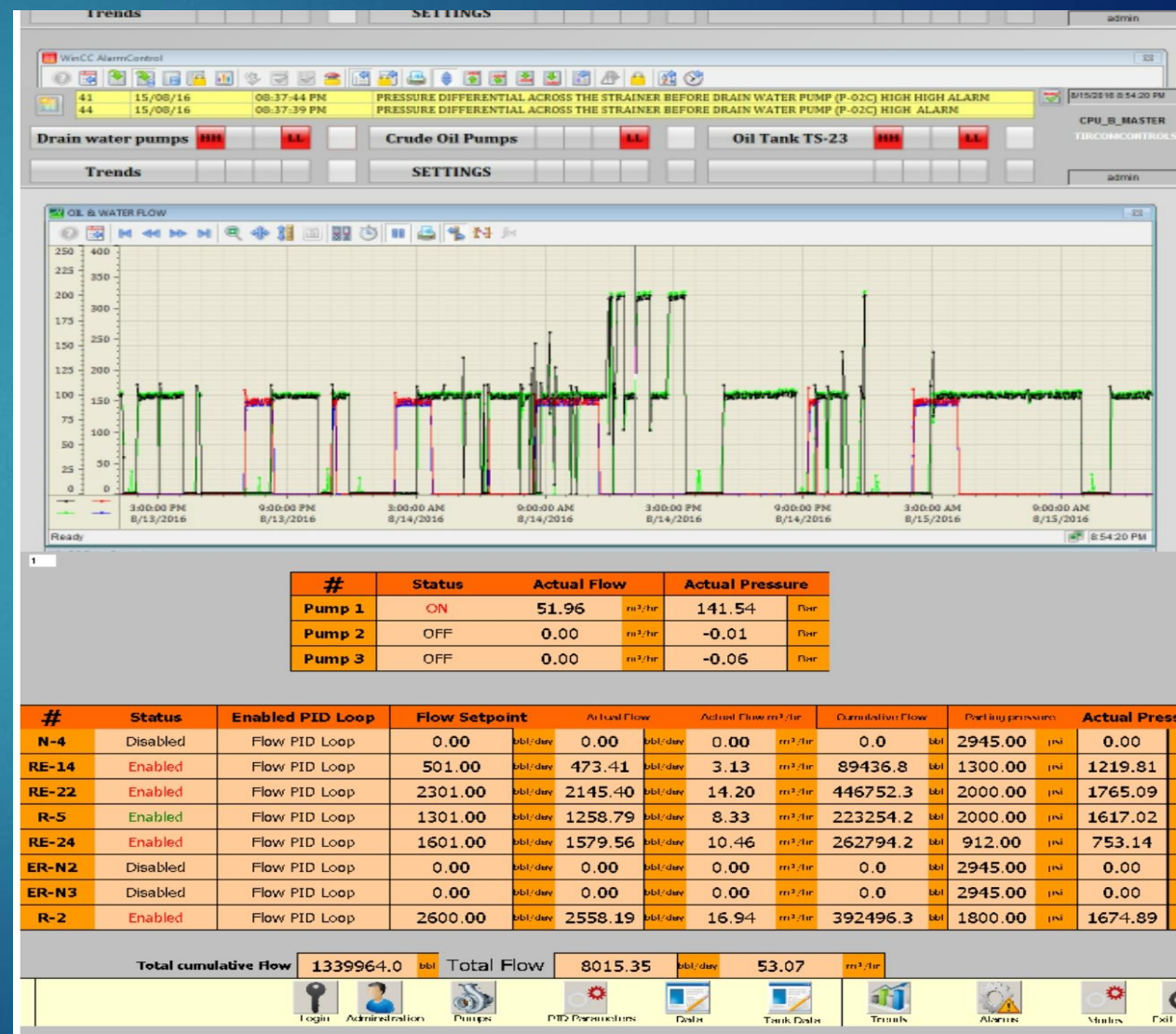
```
graph TD
    U3[ANYBUS U3] --- U1[ANYBUS U1]
    U3 --- U2[ANYBUS U2]
    U1 --- U2
    U1 --- U4[ANYBUS U4]
    U1 --- U5[ANYBUS U5]
    U1 --- U6[ANYBUS U6]
    U1 --- U7[ANYBUS U7]
    U1 --- U8[ANYBUS U8]
    U1 --- U9[ANYBUS U9]
    U1 --- U10[ANYBUS U10]
    U2 --- U11[ANYBUS U11]
    U2 --- U12[ANYBUS U12]
    U2 --- U13[ANYBUS U13]
    U2 --- U14[ANYBUS U14]
    U2 --- U15[ANYBUS U15]
    U2 --- U16[ANYBUS U16]
    U2 --- U17[ANYBUS U17]
    U2 --- U18[ANYBUS U18]
    U2 --- U19[ANYBUS U19]
    U2 --- U20[ANYBUS U20]
```




Journey Achievements

4- Oil Processing and Water Injection Systems

- ▶ The system calculate daily flow Separated of Oil and Water – Pumps Running Hours – Total Injected Water Per Well, the results were logged out in specific database report and charts system.
- ▶ used by the designated departments in the calculation of process behavior and preventive maintenance purposes.





Journey Finished!

The Plans, Visions Not Completed

- ▶ CMMS – Asset Management System.
- ▶ Oil Wells Remote Monitoring (Sucker Rod) – Phase Two.
- ▶ 6.6 KV Switchgear SCADA System.
- ▶ Integrating Fire Alarm Panels Across Substations In One System.



Thank You!

ENG. AHMED EMAD

ESHPETCO

PROJECTS SECTION HEAD – I&C