

OCTOBER 26, 2023

Truly remote and smart

Dubai Municipality and SYSCOM

Uzma Qureshi, SYSCOM | Mohammed Bingham, Bingham Group

AVEVA

ABOUT

THE SOLUTION PARTNER

SYSCOM – BINGHALIB GROUP OF COMPANIES, UAE

AVEVA

WELCOME

to



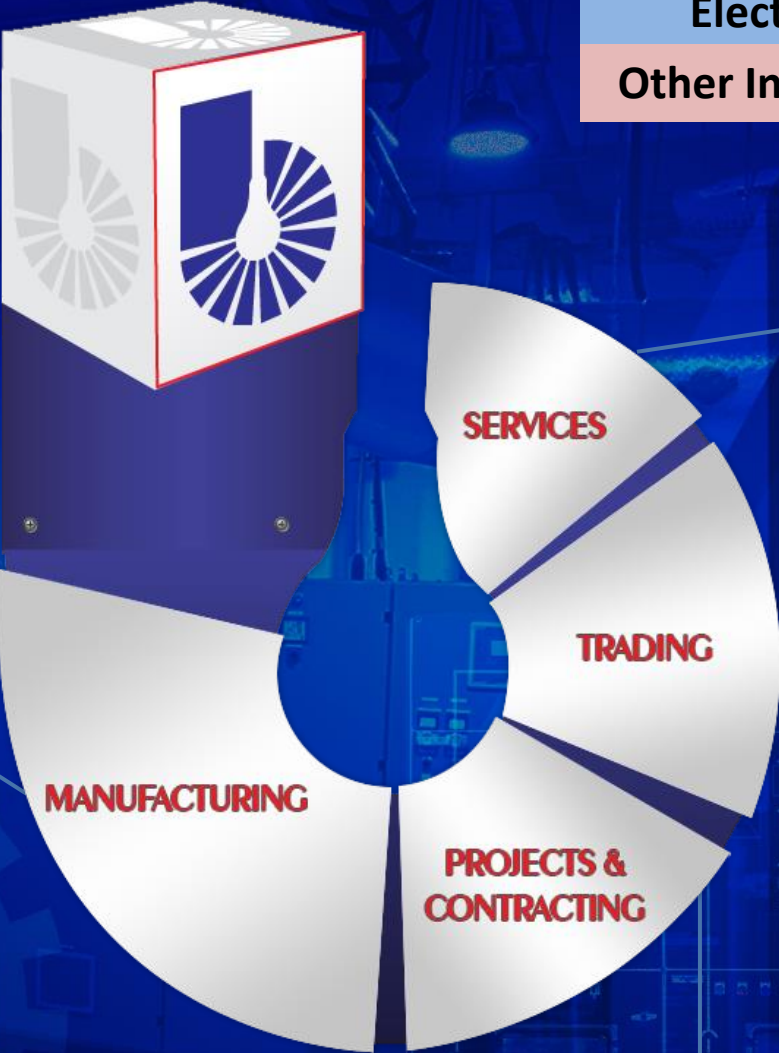
Bin Ghalib group of companies

Since
1982

Group Timeline



Electrical
Other Industries



bin ghalib ENGINEERING SHARJAH **بن غالب** للمهندسة

bin ghalib ENGINEERING QATAR **بن غالب** للمهندسة

TAMCO
Windows + Doors

ROLLI
INTERNATIONAL

VBG intech.

ألفاتك
Alpha Tech

TIME
CARGO LOGISTICS

bin ghalib ENGINEERING ENTERPRISES **بن غالب** للشركات الهندسية
TRADING Division القسم التجاري

majid mem ماجيد المكنونيه
ELECTRO MECHANICAL

ألفاتك
Alpha Tech

Marshall intech.

BMS
ب.ت.ك
ب.ت.ك

SYSCOM
Process Control • Instrumentation • PLC System Integration

bin ghalib **بن غالب**
TECHNOLOGY TECH للتكنولوجيا

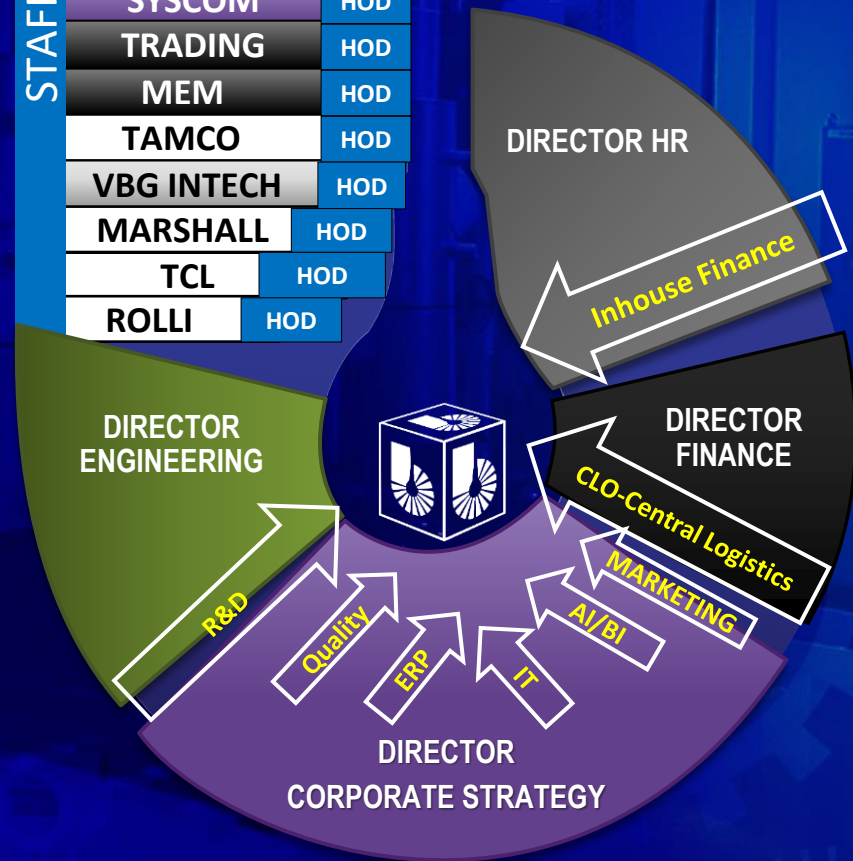
intech.



CORPORATE MANAGEMENT STRUCTURE

STAFF

BEE SHJ	HOD
BEE DOHA	HOD
BTECHSG	HOD
BTECH CONT.	HOD
ALPHATECH	HOD
SYSCOM	HOD
TRADING	HOD
MEM	HOD
TAMCO	HOD
VBG INTECH	HOD
MARSHALL	HOD
TCL	HOD
ROLLI	HOD



Flat Structure, Standardized across all companies

ENGINEERING

- ✓ Engineering design/solutions
- ✓ Sales order Finalizations
- ✓ R&D - Group

HR

- ✓ Human Resource Management
- ✓ Vehicle Management
- ✓ Inhouse finance/funding

FINANCE

- ✓ Overall Finance and accounts
- ✓ Feasibilities for new ventures
- ✓ Inhouse fund management

CORPORATE STRATEGY

- ✓ Strategy planning
- ✓ Change Management
- ✓ Process Optimization
- ✓ New Business Development

AI/BI

- ✓ SMART automated process/product/facility
- ✓ 4IR
- ✓ Automation
- ✓ Development(SW)
- ✓ Business Intelligence/analysis

100% Inhouse team

QUALITY

- ✓ Procedures & Forms
- ✓ Reporting
- ✓ Audit/Inspection & testing

Online, Automated

MEDIA

- ✓ Group Media and website requirements
- ✓ Online News Portal
- ✓ Online Org Chart etc.

MARKETING

- ✓ Centralized Marketing
- ✓ Customer Relation management
- ✓ Digital Marketing
- ✓ Online Tracking

IT

- ✓ IT services & management
- ✓ Cybersecurity

R&D

- ✓ Engineering innovation
- ✓ Design/build
- ✓ Development

20% Retained Earnings

ERP

- ✓ Implementation/deployment
- ✓ Software/application Development

100% Inhouse team

CLO

- ✓ Complete logistics and purchase planning for the group
- ✓ Overall inventory management

Central – for Entire Group-Automated

INHOUSE FINANCE

- ✓ Funds Management
- ✓ Internal Financing



The image features four interlocking gears arranged in a diamond pattern. Each gear is a glowing blue outline with a semi-transparent center. The background is a dark blue grid with faint technical drawings and circuit diagrams. The gears are labeled with the following text:

ELECTRICAL

MECHANICAL

AUTOMATION

SOFTWARE

DOMAIN

EXPERTISE/KNOWLEDGE

ELECTRICAL

AUTOMATION

MECHANICAL

SOFTWARE

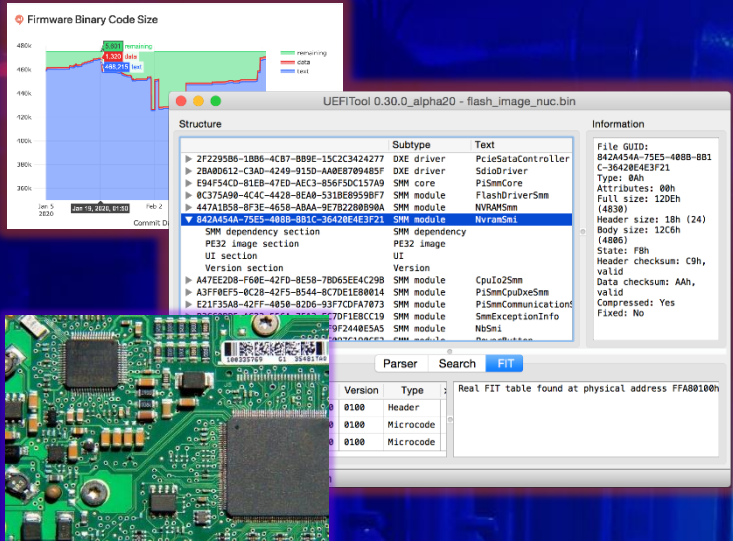
INDUSTRY 4.0
>80% AUTOMATED-
PROCESS
SYSTEMS
FACILITIES
PROCEDURES

DOMAIN

EXPERTISE/KNOWLEDGE



FIRMWARE DEVELOPMENT



SOFTWARE

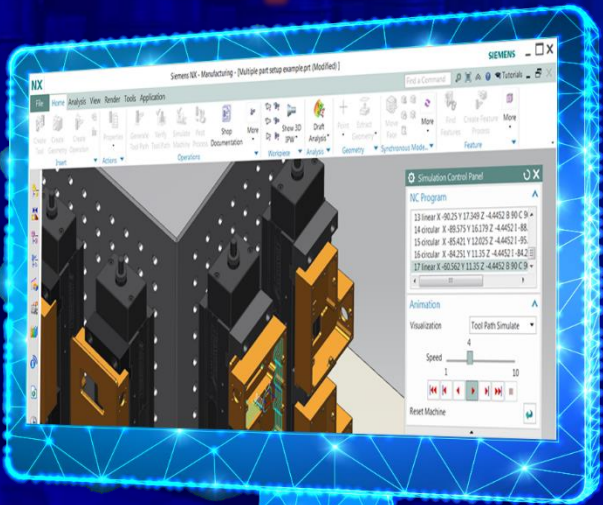
SOFTWARE DEVELOPMENT



AI / BI



CAD / CAM

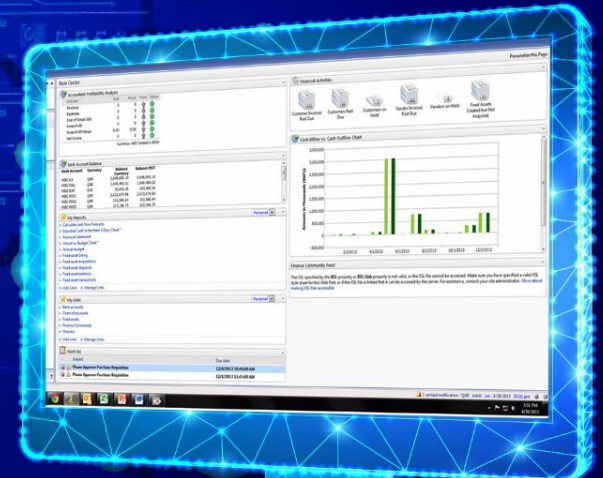


ALL THE WAY FROM APPS, TO SOFTWARE DEVELOPMENT, FIRMWARE CODING, 3D CAM, SIMULATION, TO:

- OUR OWN RADIO COMMUNICATION DEVICE
- OUR OWN SATELLITE 2021

ERP

IMPLEMENTATION





AUTOMATION

- **Turnkey Solution Provider** in the field of **Industrial Automation** and **Process Control**
- **First in UAE and Middle East** to implement **IoT** concepts **15 years ago**
- **One of first** to implement **AUGMENTED REALITY** for **switchgear/Panels/industry**
- **Open System integration** with over **35 years** of experience with **any Make/OEM**
- **Certified System Integrator and Authorized Distributors** for all major **Automation OEMs**
- **Complete scope** : Design, Engineering, Panel Manufacturing, Commissioning, Hand-Over

SEGMENTS / SECTORS



OIL AND GAS





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SEGMENTS / SECTORS



POWER & DESALINATION





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SEGMENTS / SECTORS



WATER / WASTE WATER





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SEGMENTS / SECTORS



PETROCHEMICALS/PROCESS





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SEGMENTS / SECTORS



INFRASTRUCTURE





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SEGMENTS / SECTORS



METALS





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SEGMENTS / SECTORS



FOOD & BEVERAGES





AUTOMATION

SYSCOM

Process Control • Instrumentation • PLC System Integration



PLC / RTU / SIL3 Safety Systems

SCADA

Communication

VPN / IT / Remote Access

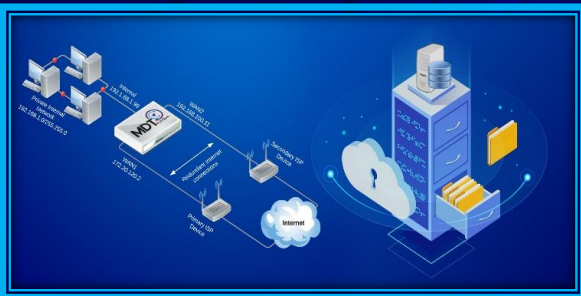


Augmented Reality

Cyber Security & Disaster Management

Interactive Online Reporting

AI Based Condition Monitoring



Industrial Equipment Data Backup

Water Network Management





INDUSTRIAL AUTOMATION

SYSCOM

Process Control • Instrumentation • PLC System Integration

SPECIALIZED APPLICATIONS



FORTINET®

AUTHORIZED PARTNER

Cybersecurity, SL2- SL4,
Firewall,
Network Intrusion
Detection, NMS, etc

M-DR

by 

AI based Condition
Monitoring for motors,
generators etc

MDT SOFTWARE

Automation Change Management

Backup Solution for All
Assets, complying to
Cybersecurity



Power BI

Interactive Online
Reporting integrated
with SCADA- first in
region



Water Network Mgmt.
/ hydraulic modelling,
pressure optimisation





Augmented Reality

ABOUT

THE CLIENT

DUBAI MUNICIPALITY

AVEVA



Dubai Municipality is one of the largest governmental institutions in the United Arab Emirates (UAE), it is considered as one of Dubai's leading growth and development institutions in terms of its smart projects and services

Over the years, Dubai Municipality has proven its excellence in managing the tasks and responsibilities entrusted to it, as it currently runs four specialized agencies and two sectors, and has contributed to making Dubai among the world's most advanced and sustainable cities. Dubai Municipality has also managed to expand and grow in carrying out its responsibilities through 40 departments and 172 sections within an [organizational structure](#) that includes quality and excellence offices and the efforts of more than 11,000 employees and workers

VISION

H. H. SHEIKH MOHAMMED'S VISION

In implementation of the decision of the UAE Vice President, Prime Minister and Ruler of Dubai His Highness Sheikh Mohammed bin Rashid Al Maktoum, and in line with the Dubai Strategic Plan 2020

Dubai Municipality invested in automation of all pumping stations and Sewerage treatment plants to manage the network across Dubai city

In line with Sheikh Mohammed's **vision of smart city**





39M \$

AED144m (\$39m)
investment



**260,000
m³ /DAY**

plant's capacity
260,000m³ a
day



4

4 sludge pumps
4 x 12 m³/h



20

Pre-
sedimentation
tanks



16

Aeration tanks



12

Large
diameter
clarifiers



**100,000
tons**

of water from one
treatment unit to
the other, 24/7, all
year long.



LARGEST PLANT

One of the largest Treatment Plants



700M L /DAY

Cut back the use of costly desalinated



77

Tank clusters and buildings structures



20

Pre-sedimentation tanks



16

Aeration tanks



12

Large diameter clarifiers



375,000 tons

of water from one treatment unit to the other, 24/7, all year long.



LARGEST PLANT

One of the largest Treatment Plants



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Aeration tanks



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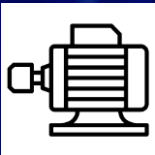
THE COMPLEX NETWORK



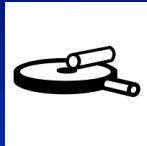
>15
MAIN PUMPING
STATIONS



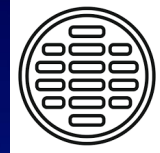
>45
STORMWATER
PUMPING
STATIONS



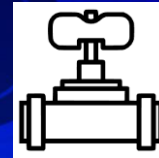
>100
SUBSIDIARY
PUMPING
STATIONS



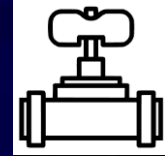
>3
LARGE STPS



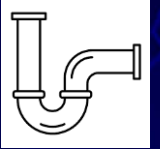
>50
MANHOLE
MONITORING



>85
IRRIGATION
PUMPING
STATIONS



>250
IRRIGATION
CHAMBERS



5M
METERS
PIPELINE

Objectives

Not just a SCADA

- A Central **Command** center
- Not just monitoring, but **Control**
- Decision making and Commands in **Critical or Emergency** situations
- **Instant** Data at fingertips
- **Right Decisions** at the **Right Time**
- Navigation with **LEAST** amount of clicks/screens

Sewage & Irrigation SCADA

Dubai has indeed become a global hub known for its multicultural luxury lifestyle and attractions. The city's visionary development and infrastructure have attracted people from around the world. Dubai Municipality plays a crucial role in ensuring the safety and cleanliness of the environment for both residents and visitors. Their commitment to enhancing and maintaining these standards contributes to the city's appeal and continued growth.



By Hafiz Aziz

AVEVA

SCADA KPI

Central Command
Control SCADA achieving
their target on Steps.

01

System Availability

High availability ,continuous monitoring and control of processes



02

Response Time

User commands & provide real-time data



03

Data Accuracy:

Accurate data collection, displaying to take Decisions and ensuring process reliability.



04

Data Security

Monitoring and measuring security measures



05

Network Performance

Supporting the SCADA system to ensure data reliability and low latency



NOT JUST A SCADA, BUT A COMMAND CENTER

TRULY REMOTE AND SMART

UZMA QURESHI

MOHAMMED BINGHALIB

AVEVA

WATER AND WASTEWATER | DUBAI, UAE

Dubai Municipality increases visibility, improves production by 21%, and saves USD 2million per day

Challenge

- Integration of different stations from more than 10 different OEMs and manufacturers into a single platform with intelligence and analytics to manage complete infrastructure
- Collating data from geographically dispersed assets across the water value chain
- Missed data/critical alarms in communication failures
- Large network spread across the city, with high demand in water

Solution

- Designed and implemented AVEVA™ System Platform along with various other AVEVA products, to provide a system that is scalable, flexible and has capability of future enhancements without major infrastructure changes, providing measurements/KPI for outputs as per strategic plans of the City and Country

Results

- **Developed, designed and configured system to manage hundreds of site remotely and provide predictive data, analysis and monitoring and control by increasing productivity and efficiency by 21%**
- **Enhanced operations by reducing the maintenance costs**
- **Managing total savings of USD \$2 million per day through reuse of the water**



CHALLENGES

AVEVA

Challenges

Managing Large Networks

- Lack of **central monitoring** of entire Network – STPs, Sewerage Stations, Irrigation
- **Largest number** of different OEMs in several pumping stations
- Integration of all these into a **single platform with intelligence and analytics**
- **Standardizing** 100s of sites by selecting the right protocol to manage and control **remote** sites
- **Maintenance** of sites with manual data gatherings
- Biosolids treatment, reuse and disposal
- Water discharge to environment and **reuse**



YOKOGAWA



SIEMENS



Schneider
Electric

BECKHOFF



AVEVA

SOLUTION



AVEVA

Solution

Remote and Smart – in True Sense!

Solution	why	how
Central Monitoring of all Stations	Important actions at the RIGHT TIME	AVEVA™ System Platform
LARGE VIDEOWALL (thinnest bezel in world -0.8mm)	Visualize Multiple Sites /Screens at one shot	OMI functionality
Access Control systems	Manage access to REMOTE sites, safety/security, manhole monitoring	Integration with Access Control System
Redundant Communication (up to triple redundancy in media)	Large # remote sites, Desert harsh environment, Communication interference	<ul style="list-style-type: none"> • ADSL(broadband), M2M and Satellite • DNP3 – AVEVA telemetry Server
Totally Secure	M2m private network control, remote sites	<ul style="list-style-type: none"> • Firewall with built-in communication • Camera/CCTV integration
Upgrade all Control Systems – max cost effectiveness	Standardize on DNP3 protocol Compatibility with AVEVA	<ul style="list-style-type: none"> • Least investment – Site modification with new RTUs instead of replacing entire system • PLC upgrades/modification in logic



Solution

Remote and Smart – in True Sense!

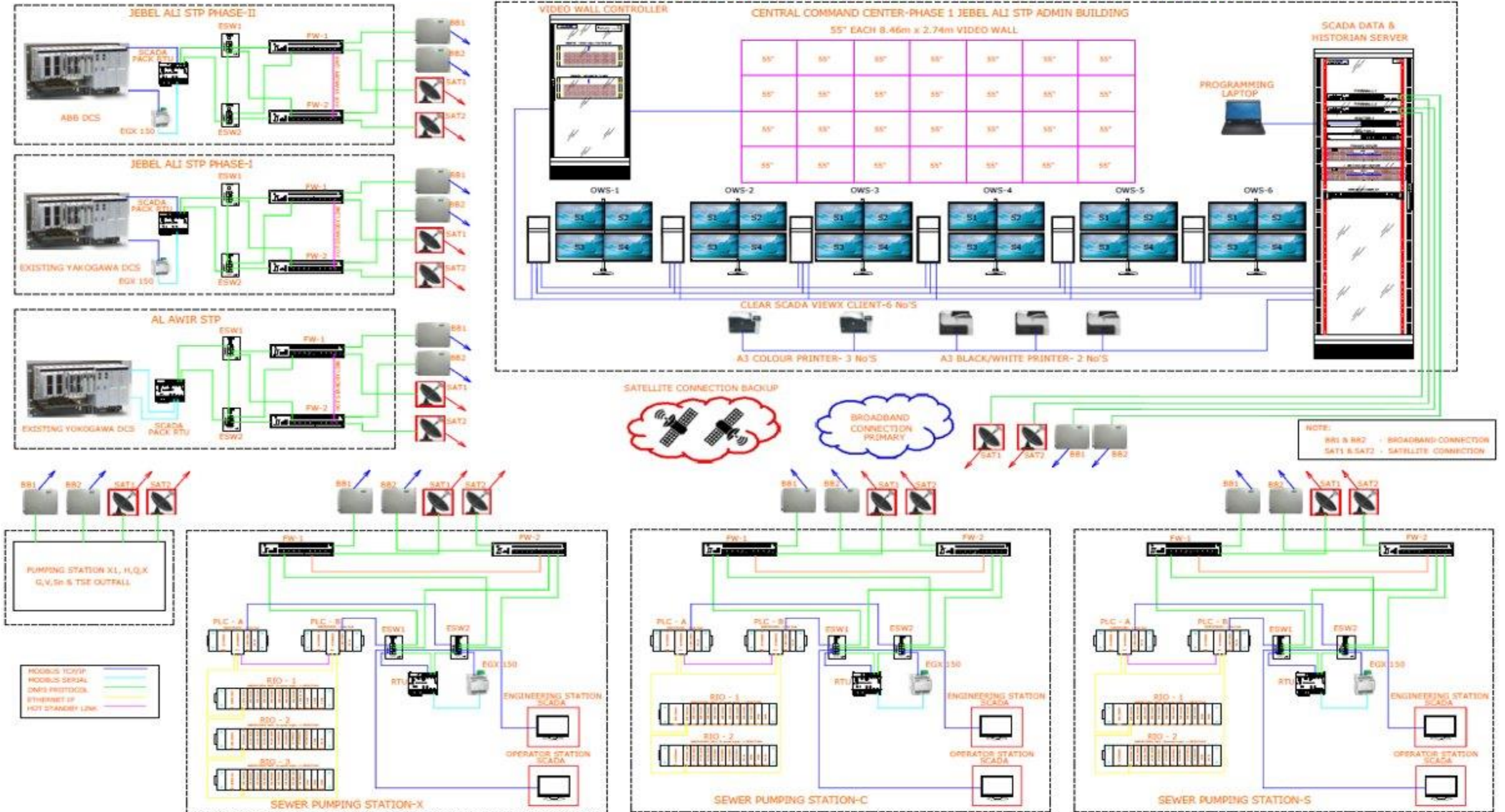
Solution	why	how
Geographical Information System with Document Management etc.	<ul style="list-style-type: none"> Digitize all the data with live coordinates for Optimized Maintenance Region wise control and monitoring Region wise decisions and analytics 	GI Size
Maximum data in a SINGLE CLICK	<ul style="list-style-type: none"> Control in Emergency Situation Monitoring with least navigation 	Customized Libraries, symbols, templates
Live and Interactive Reporting	<p>Reduce Maintenance reporting Costs (manually)</p> <p>Right decision at Right time</p> <p>Access to all levels with no dependencies</p>	<ul style="list-style-type: none"> AVEVA™ Historian Insight - dashboards PBI – extensive fault analysis with visualization

SYSTEM ARCHITECTURE

AVEVA

SYSTEM ARCHITECTURE

DS 150/2 JABEL ALI STP INTEGRATED SCDA CONTROL SYSTEM FOR STP & SEWER PUMPING STATION

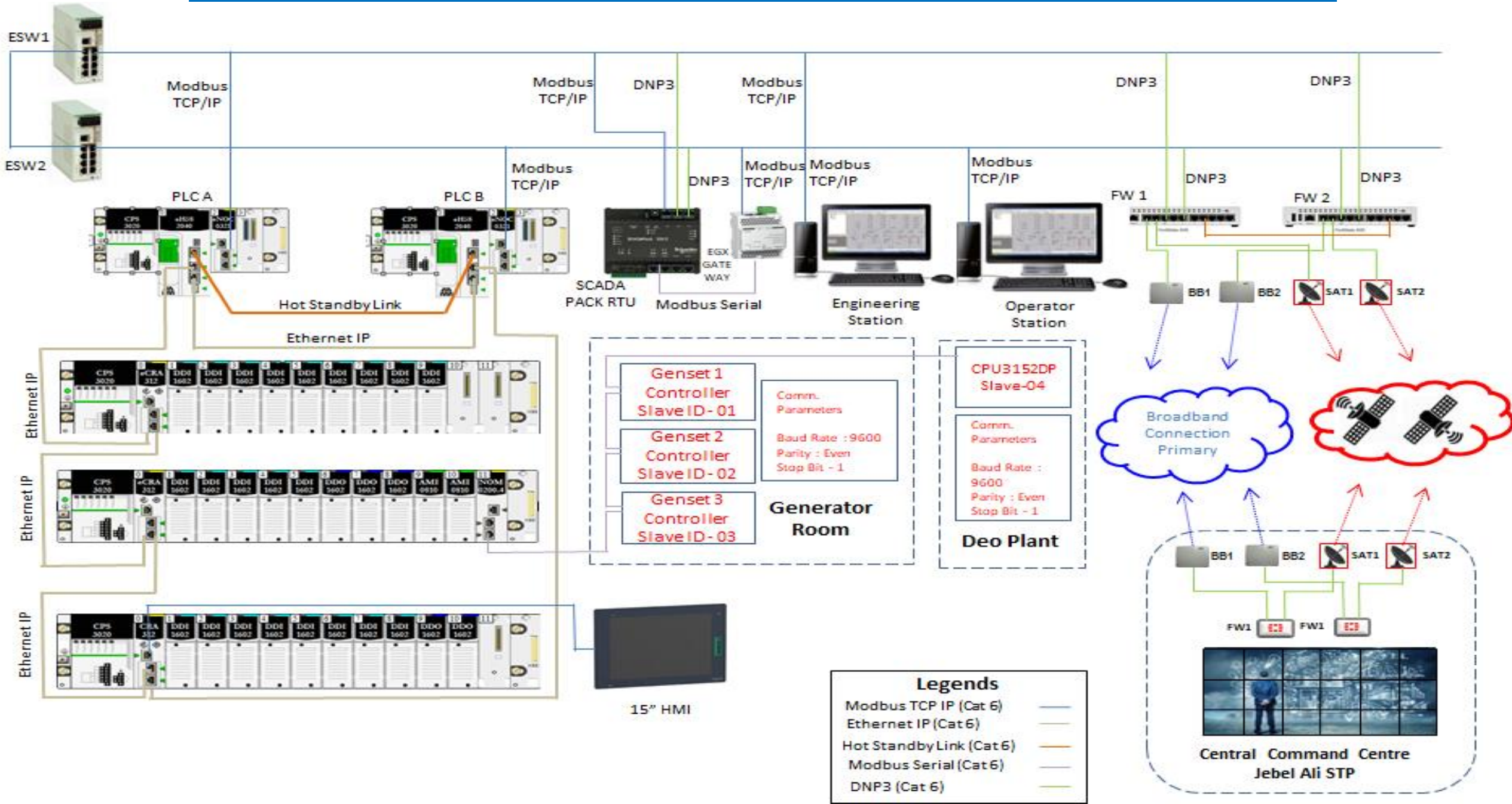


SECURED NETWORK

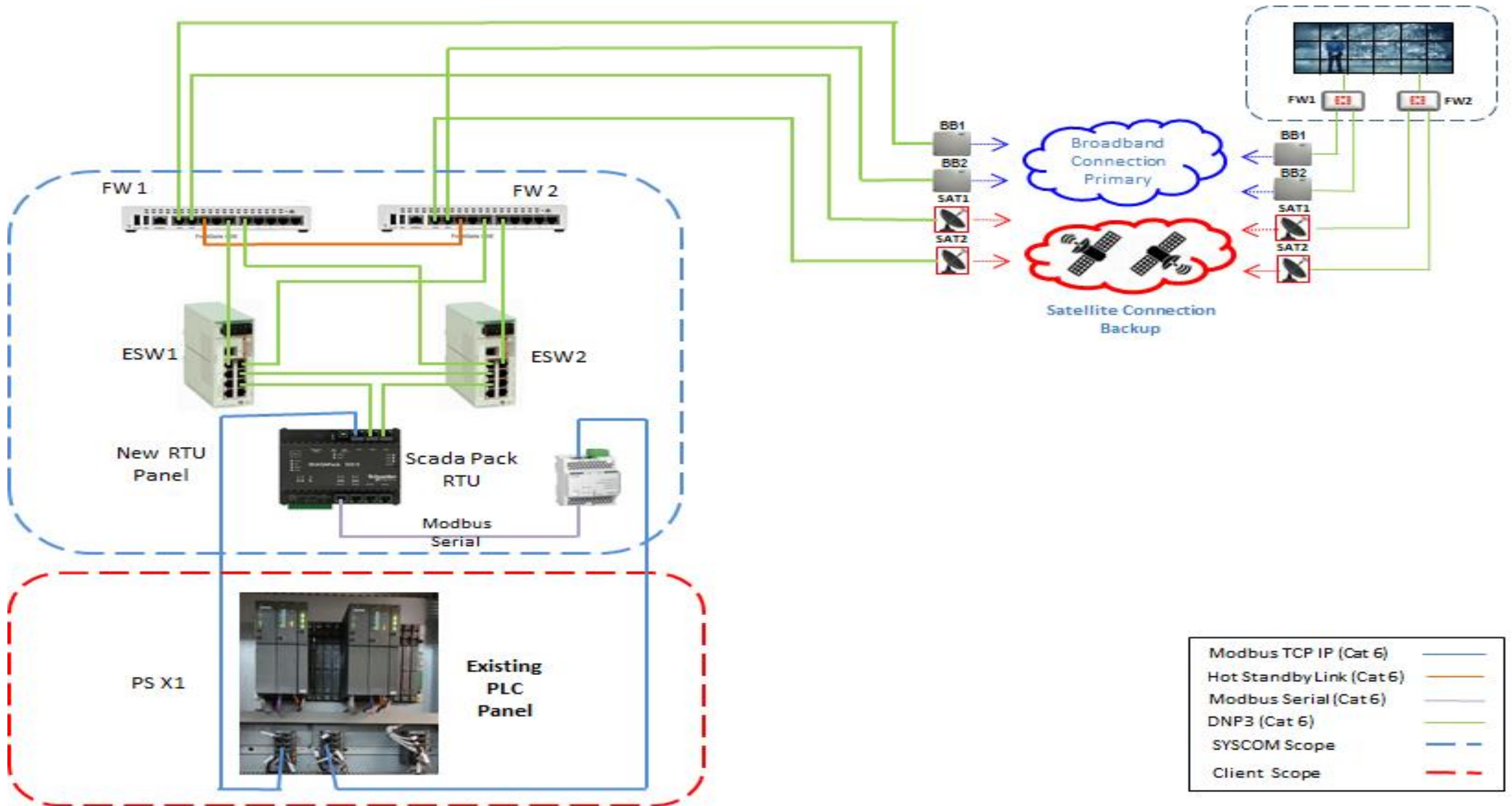
- EACH AND EVERY REMOTE SITE WAS CONNECTED TO THE CENTRAL MONITORING SYSTEM AND COMMAND CENTRE, VIA FIREWALLS INTEGRATED WITH M2M, SATELLITE AS WELL AS ADSL CONNECTIONS (SECURED PRIVATE NETWORK), ALL IN ONE FOR TRIPLE REDUNDANCY
- ONE OF THE MOST UNIQUE SOLUTIONS IMPLEMENTED THROUGHOUT THE REGION
- BETA TESTING OF FIREWALLS WITH FORTINET AND CONTRIBUTION TO THE PRODUCT ENHANCEMENT

AVEVA

DS150/2- INTEGRATED CONTROL SYSTEM – SCADA - PUMPING STATION Z



DS150/2- INTEGRATED CONTROL SYSTEM – SCADA - PUMPING STATION - Y



Implementation Strategy

No missing critical alarms

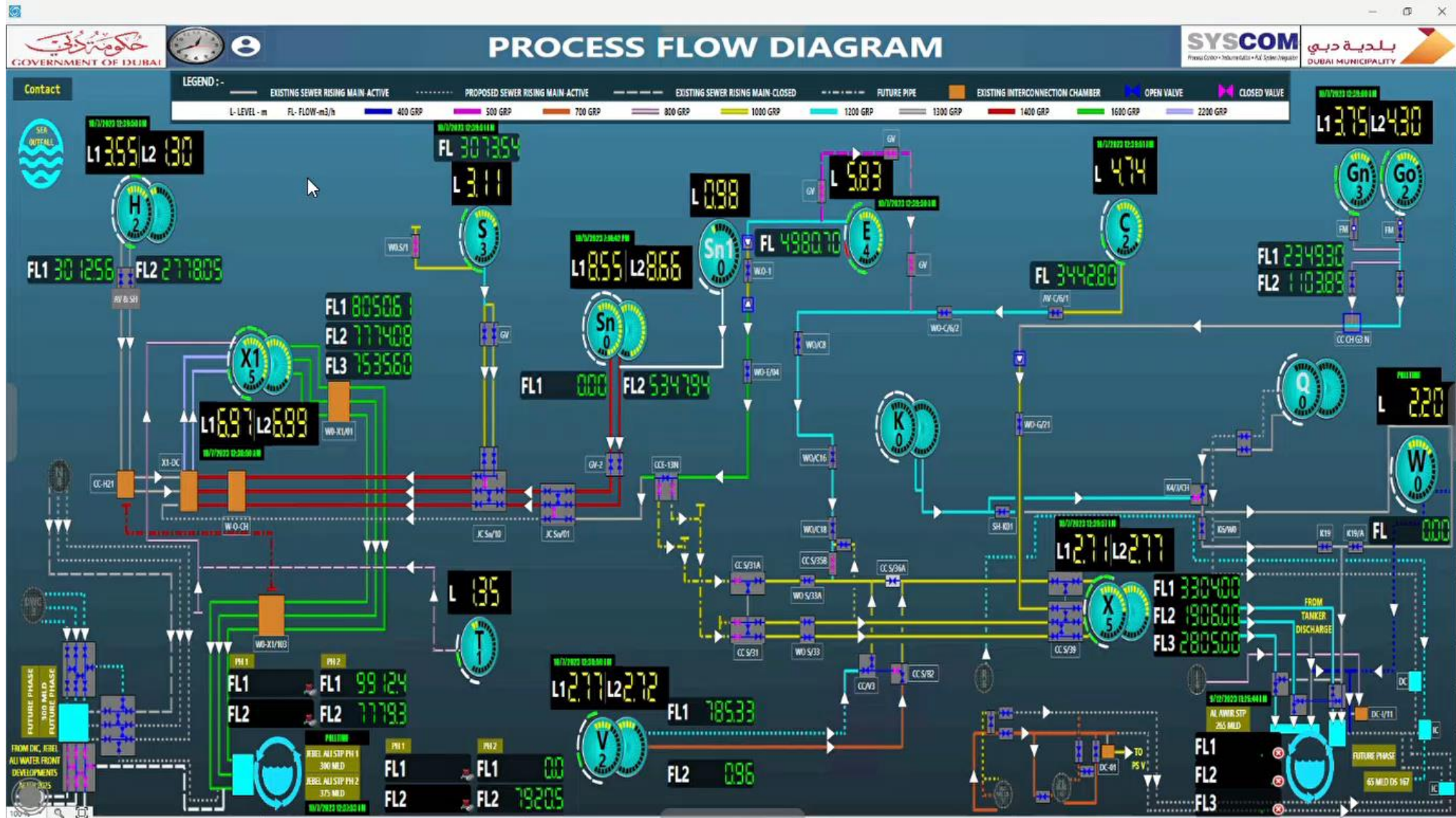
- Implementation of DNP3 protocol in all sites ensuring timestamp of 1ms and backfilling of trends in case of communication failure from remote sites

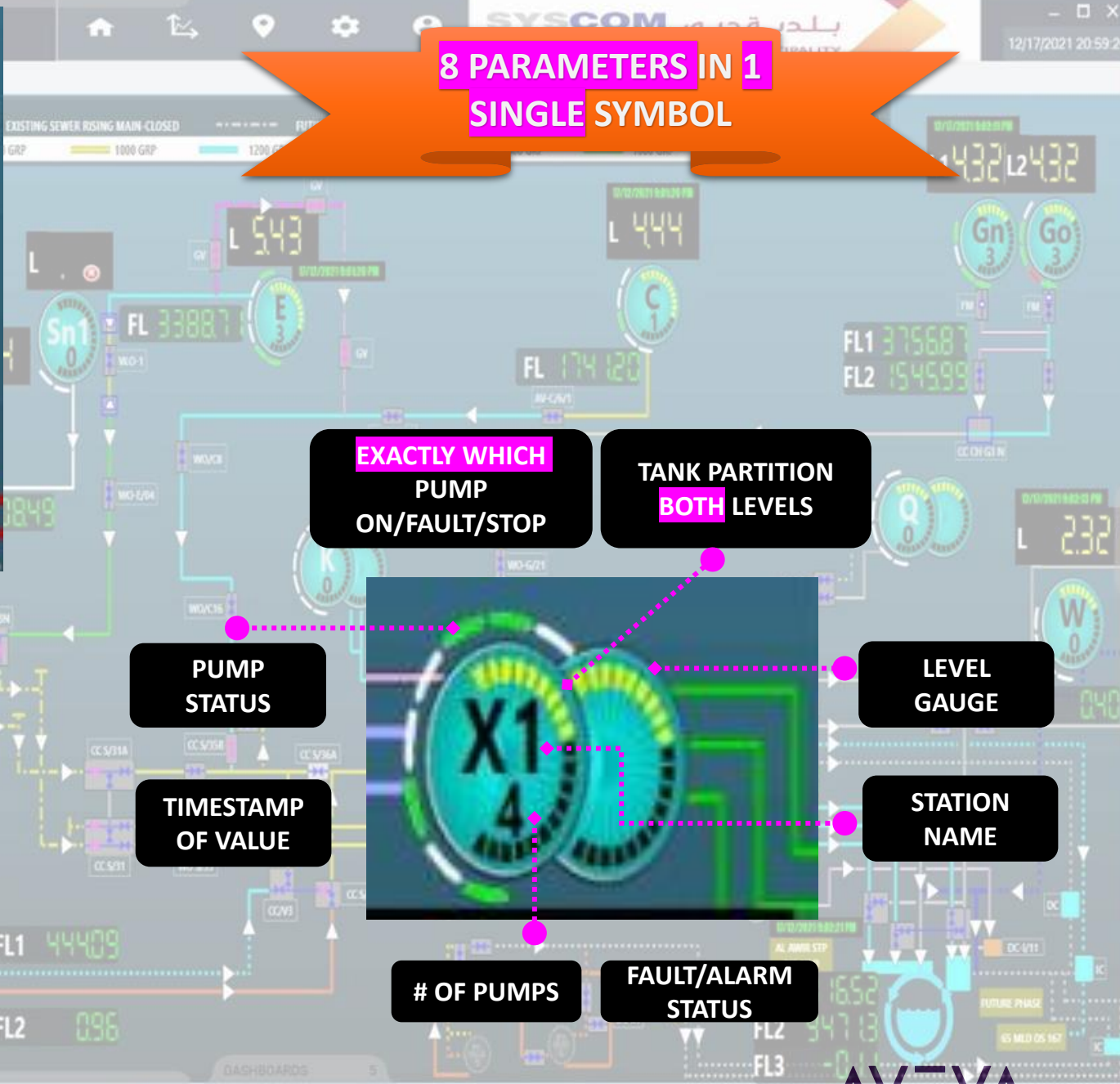
AVEVA™ SYSTEM PLATFORM

- REDUNDANT IO SERVER
- REDUNDANT APPLICATION SERVER
- GR SERVER RED NODE
- REDUNDANT TELEMETRY SERVER
- AVEVA™ HISTORIAN
- 6X2 OPERATOR WORKSTATIONS

AVEVA

One-Click: Entire Network critical parameters LIVE!





8 PARAMETERS IN 1 SINGLE SYMBOL

ALL LEVELS **INFLOW** **OUTFLOW**

EXACTLY WHICH PUMP ON/FAULT/STOP

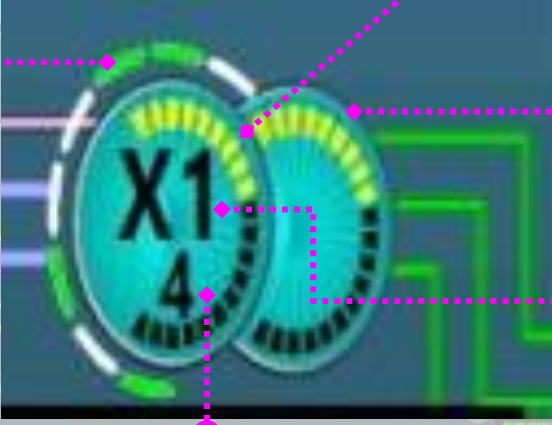
TANK PARTITION BOTH LEVELS

PUMP STATUS

TIMESTAMP OF VALUE

LEVEL GAUGE

STATION NAME



OF PUMPS

FAULT/ALARM STATUS

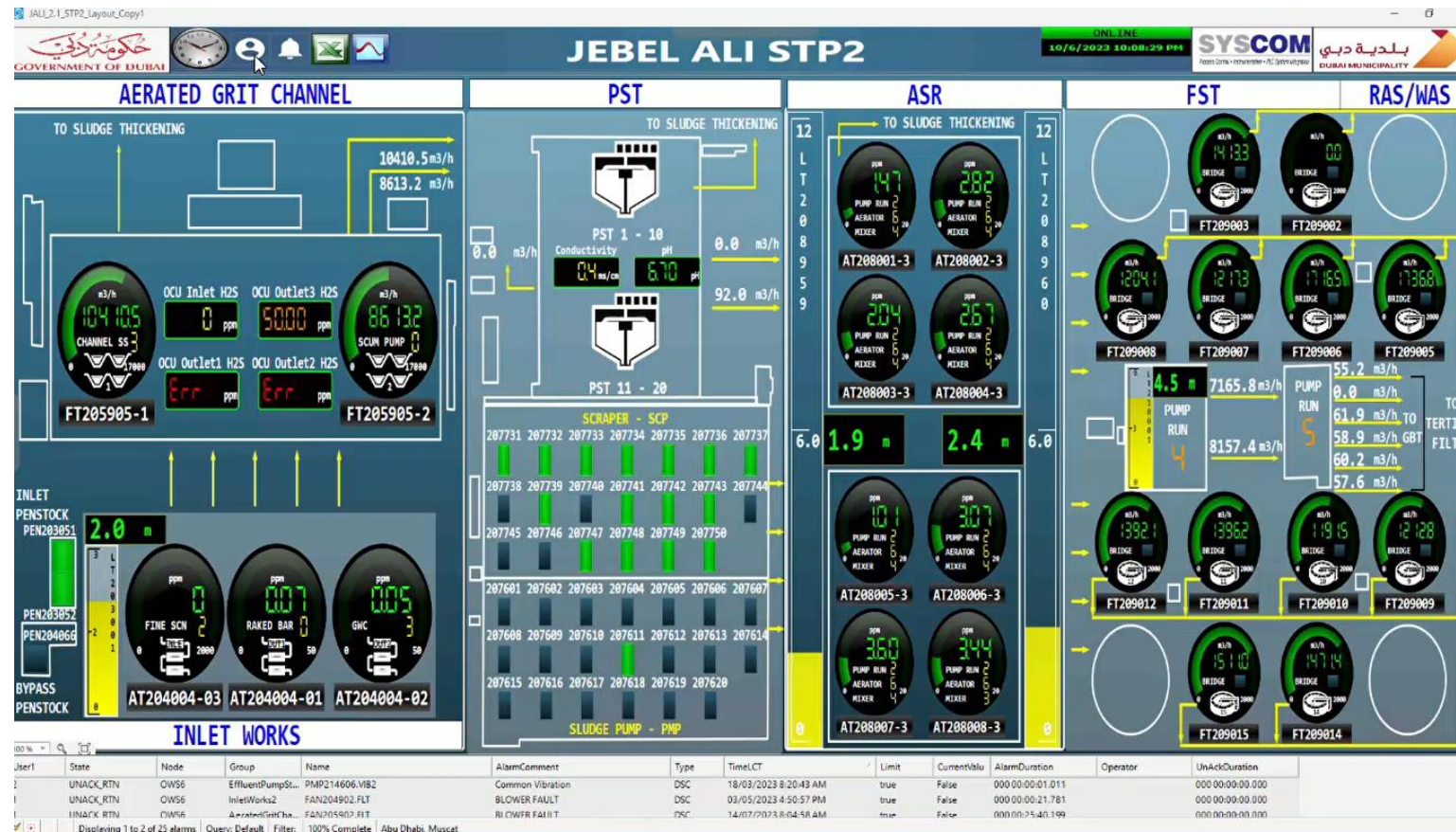
CUSTOMIZED GRAPHICS

- **SPECIAL SYMBOLS CUSTOMIZED AND CREATED WITHIN THE SYSTEM PLATFORM LIBRARY WHICH WEREN'T EXISTING**
- **CREATIVELY DESIGNED SPECIALLY TO GET MIN OF 10 PARAMETERS STATUS ON ONE ICON ALLOWING COMPRESSION OF THE VISUALISATIONS INTO REDUCED SCREENS**
- **DASHBOARD CONCEPT = AVEVA™ PI SYSTEM / LIBRARY FOR DASHBOARD WAS NOT EXTENSIVE**

AVEVA

More than 50 screens compressed into 2 screens

NO CHANCE OF MISSING ANY CRITICAL DATA/ALARM



AERATED GRIT CHANNEL

TO SLUDGE THICKENING

10225.6 m³/h
8029.9 m³/h

OCU Inlet H2S: 0 ppm
OCU Outlet3 H2S: 5000 ppm
OCU Outlet1 H2S: Err ppm
OCU Outlet2 H2S: Err ppm

CHANNEL SS: 102256
SCUM PUMP: 80298

FT205905-1
FT205905-2

INLET PENSTOCK PEN203051: 2.1 m

INLET PENSTOCK PEN203052
INLET PENSTOCK PEN204066

FINE SCN: 0 ppm
RAKED BAR: 0 ppm
GWC: 0 ppm

AT204004-03
AT204004-01
AT204004-02

INLET WORKS

PST

TO SLUDGE THICKENING

PST 1 - 10
Conductivity: 0.3 ms/cm
pH: 6.72

PST 11 - 20

0.0 m³/h
101.0 m³/h
0.0 m³/h

SCRAPER - SCP

207731 207732 207733 207734 207735 207736 207737
207738 207739 207740 207741 207742 207743 207744
207745 207746 207747 207748 207749 207750
207601 207602 207603 207604 207605 207606 207607
207608 207609 207610 207611 207612 207613 207614
207615 207616 207617 207618 207619 207620

SLUDGE PUMP - PMP

ASR

TO SLUDGE THICKENING

12 L T 2 0 8 9 5 9

AT208001-3: 177 ppm
AT208002-3: 303 ppm
AT208003-3: 206 ppm
AT208004-3: 259 ppm
AT208005-3: 105 ppm
AT208006-3: 318 ppm
AT208007-3: 348 ppm
AT208008-3: 328 ppm

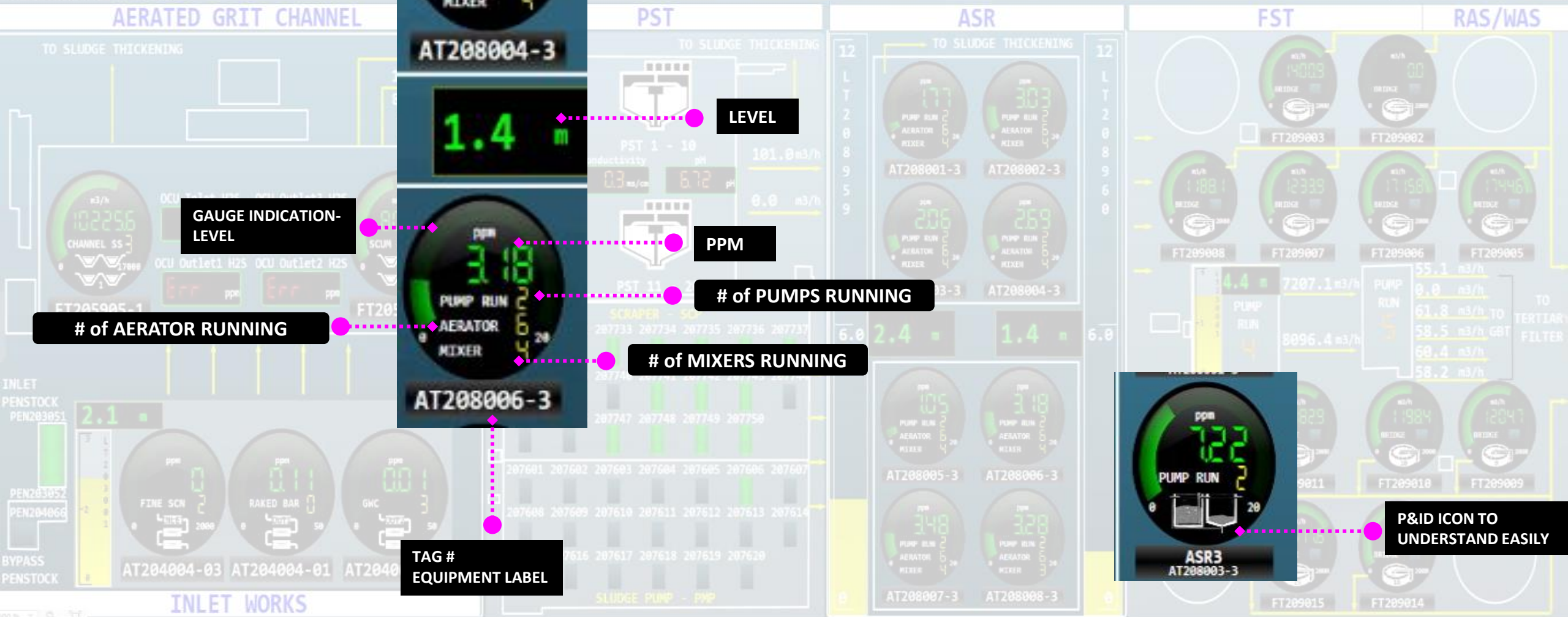
2.4 m
1.4 m

FST

FT209003: 14009 m³/h
FT209002: 00 m³/h
FT209008: 1188.1 m³/h
FT209007: 12339 m³/h
FT209006: 1715.8 m³/h
FT209005: 1744.6 m³/h
PUMP RUN: 4.4 m
7207.1 m³/h
8096.4 m³/h
55.1 m³/h
0.0 m³/h
61.8 m³/h TO TERTIARY FILTER
58.5 m³/h
60.4 m³/h
58.2 m³/h
FT209012: 14017 m³/h
FT209011: 13829 m³/h
FT209010: 11984 m³/h
FT209009: 12047 m³/h
FT209015: 15116 m³/h
FT209014: 14695 m³/h

RAS/WAS

User	State	Node	Group	Name	AlarmComment	Type	TimeLCT	Limit	CurrentVblu	AlarmDuration	Operator	UnAckDuration
2	UNACK_RTN	OWS6	EffluentPumpSt...	PMP214606.VIB2	Common Vibration	DSC	18/03/2023 8:20:43 AM	true	False	000 00:00:01.011		000 00:00:00.000
1	UNACK_RTN	OWS6	InletWorks2	FAN204902.FLT	BLOWER FAULT	DSC	03/05/2023 4:50:57 PM	true	False	000 00:00:21.781		000 00:00:00.000
7	UNACK_RTN	OWS6	AeratedGritCha...	FAN205902.FLT	RI OWR FAULT	DSC	14/07/2023 8:04:58 AM	true	False	000 00:25:40.199		000 00:00:00.000



ppm
269
PUMP RUN
AERATOR
MIXER
AT208004-3

1.4 m

ppm
318
PUMP RUN
AERATOR
MIXER
AT208006-3

2.1

FINE SCN
RAKED BAR
GWC

AT204004-03 AT204004-01 AT204004-02

TAG # EQUIPMENT LABEL

LEVEL

PPM

of PUMPS RUNNING

of MIXERS RUNNING

ppm
122
PUMP RUN
ASR3
AT208003-3

P&ID ICON TO UNDERSTAND EASILY

User	State	Node	Group	Name	AlarmComment	Type	TimeLCT	Limit	CurrentVblu	AlarmsDuration	Operator	UnAckDuration
UNA	© 2023 AVEVA Group plc and its subsidiaries. All rights reserved.				Common Vibration	DSC	18/03/2023 8:20:43 AM	true	False	000 00:00:01.011		000 00:00:00.000
UNA	ACK_RTN	DWS	WaterWorks	FAN204962 FLT	BLOWER FAULT	DSC	03/05/2023 4:56:57 PM	true	False	000 00:00:21.781		000 00:00:00.000
UNA	ACK_RTN	CMS	WaterWorks	FAN204963 FLT	IN DMFR FAULT	DSC	14/07/2023 8:54:58 AM	true	False	000 00:15:45.195		000 00:00:00.000

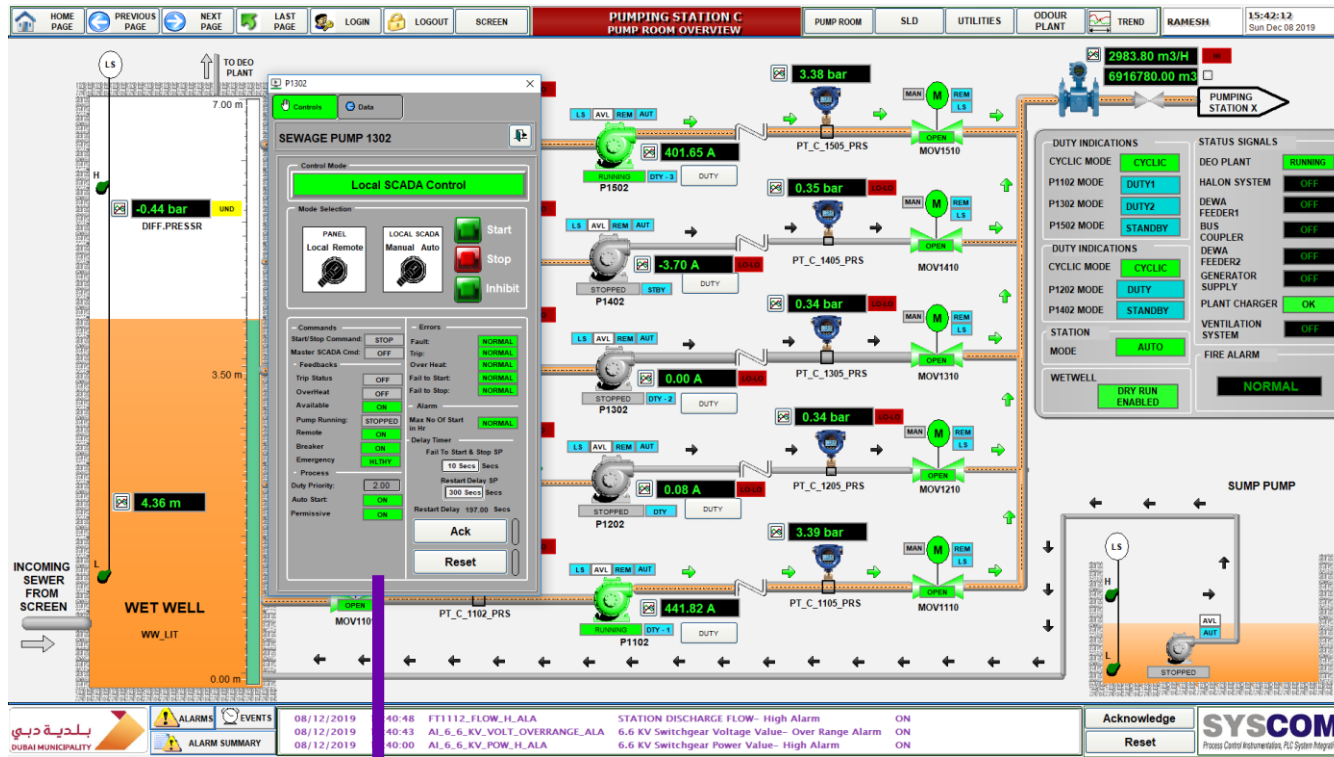
Displaying 1 to 2 of 25 alarms. Query: Default. Filter: 100% Complete. Abu Dhabi, Muscat

OMI FUNCTIONALITY

- **VISUALIZE SEVERAL SCREENS AND DATA AT ONE GO**
- **CONFIGURE BASED ON OPERATOR ROLE**

AVEVA

Normal SCADA - Conventional



All parameters, Alarms etc. on single screen

If any alarm or critical conditions happen, can **be missed** due to OVERLAPPING of info and lack of space in single screen

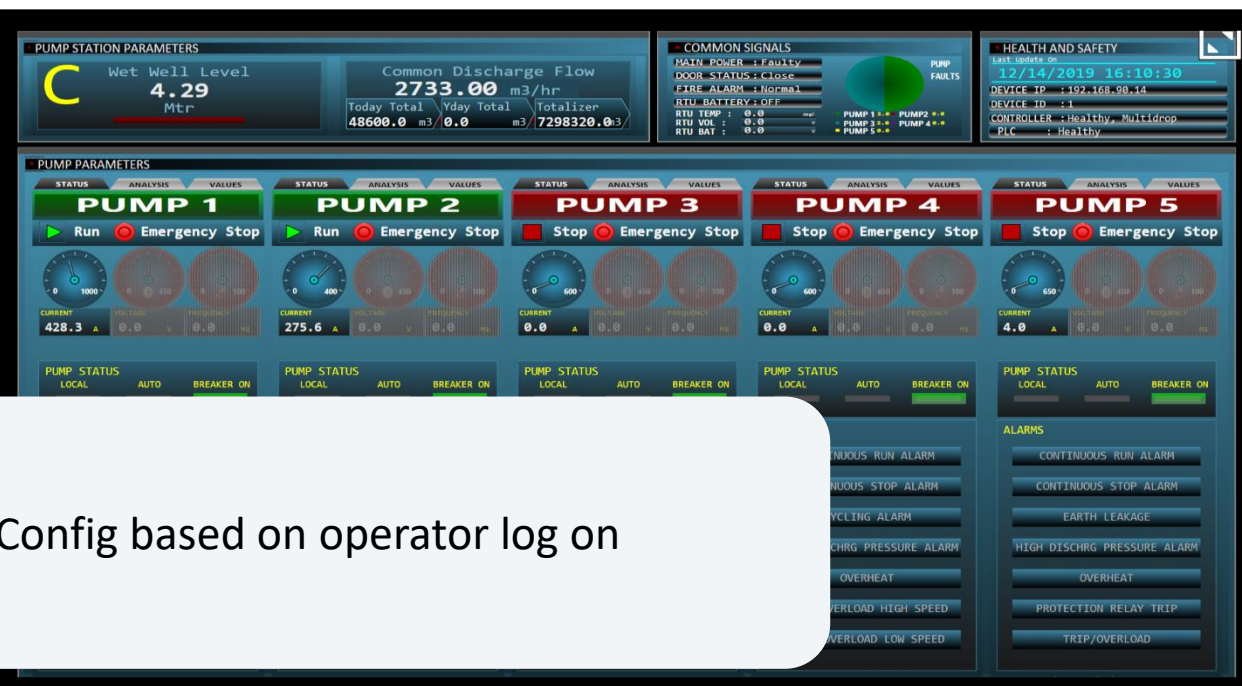
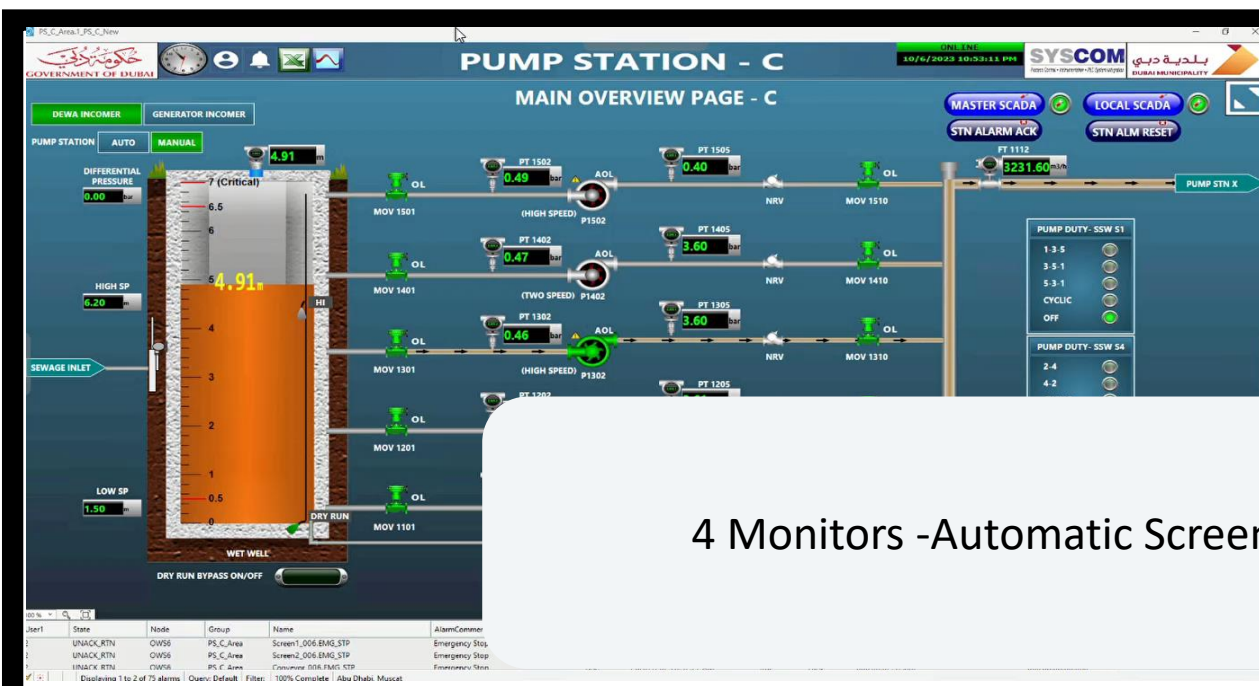
Conventional pop ups

Navigation to other data and screens

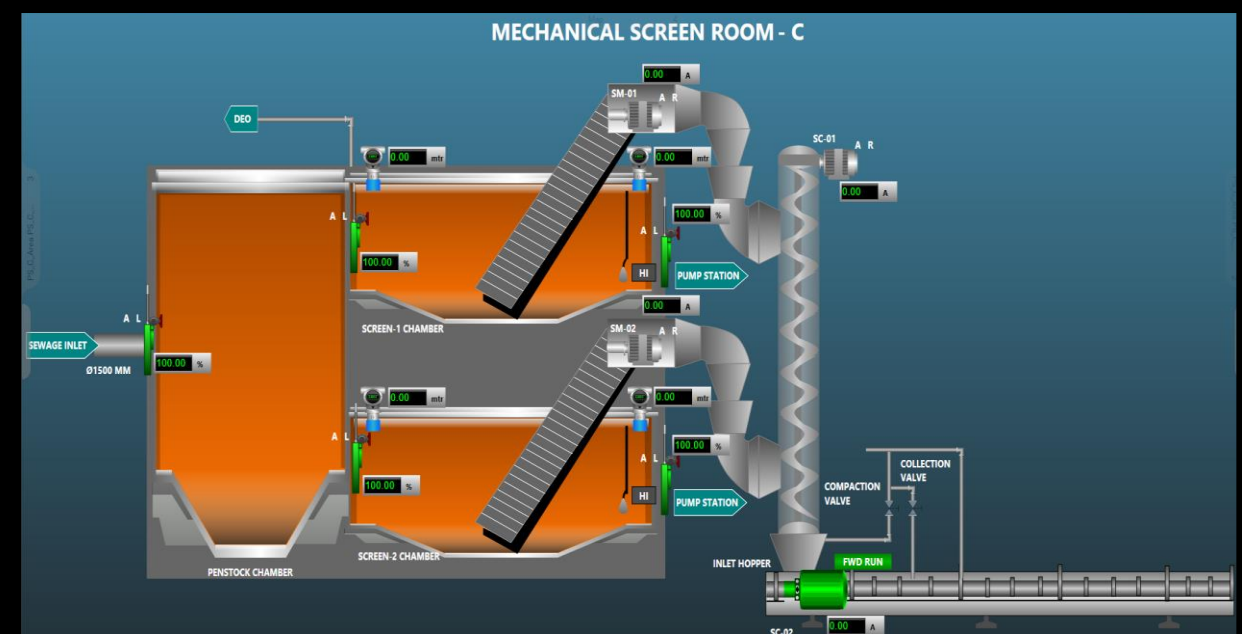
✓ LOCAL SCADA

✗ Central Command Center

Benefits of OMI



4 Monitors -Automatic Screen Config based on operator log on



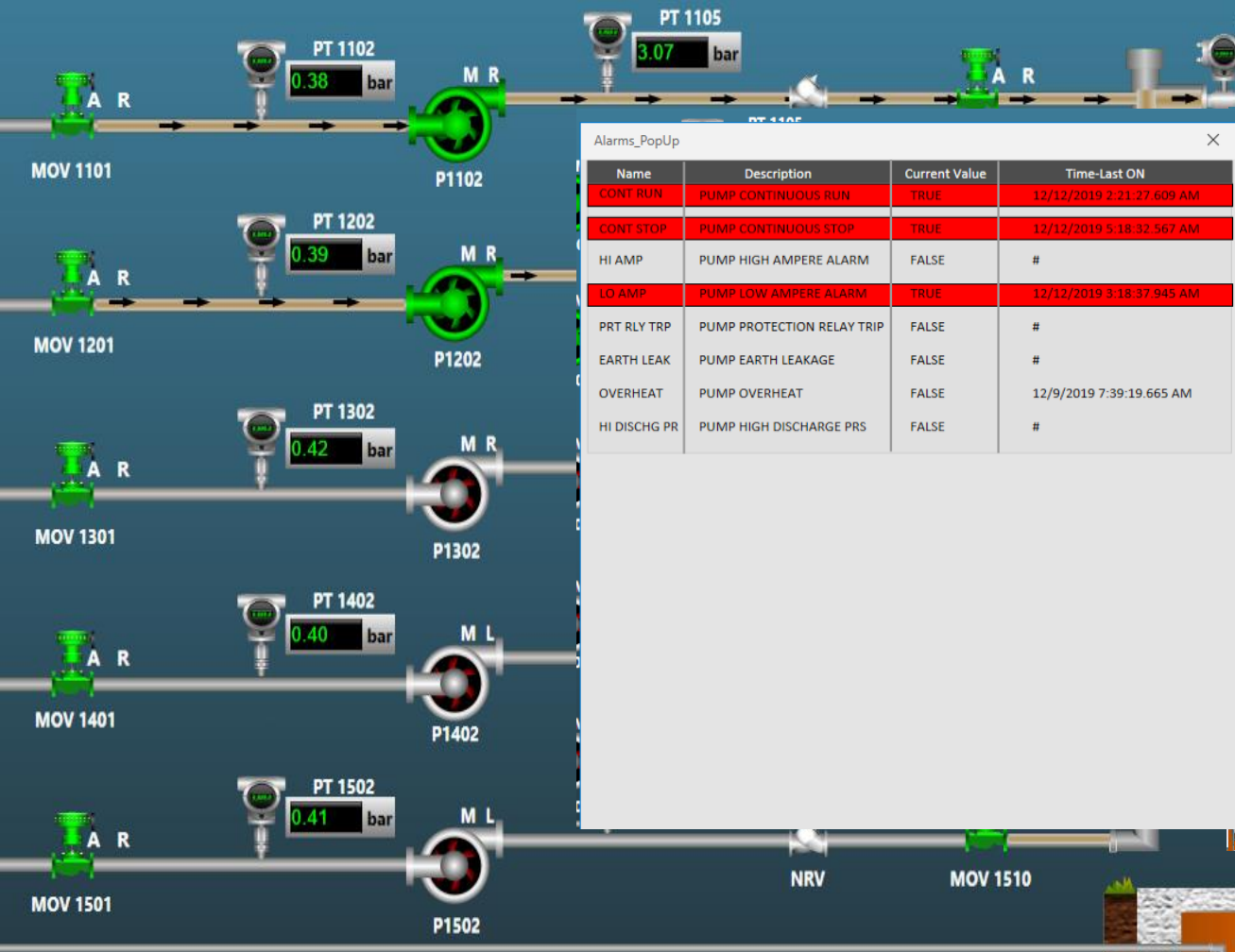
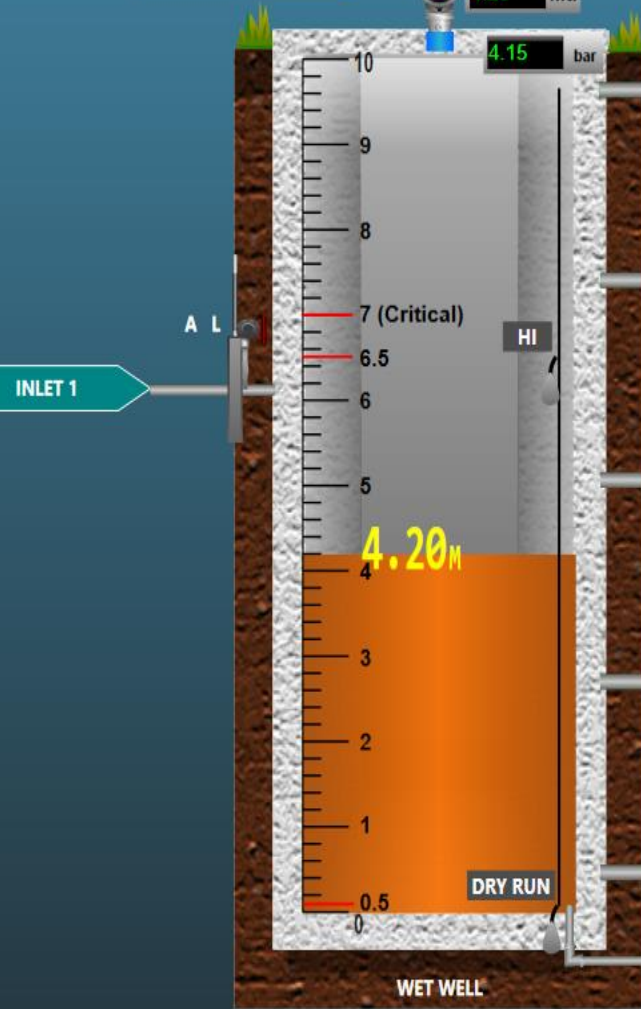
PUMPING STATION - C

DEWA INCOMER 1

MASTER SCADA

LOCAL SCADA

PUMP STATION AUTO MANUAL



Alarms_PopUp

Name	Description	Current Value	Time-Last ON
CONT RUN	PUMP CONTINUOUS RUN	TRUE	12/12/2019 2:21:27.609 AM
CONT STOP	PUMP CONTINUOUS STOP	TRUE	12/12/2019 5:18:32.567 AM
HI AMP	PUMP HIGH AMPERE ALARM	FALSE	#
LO AMP	PUMP LOW AMPERE ALARM	TRUE	12/12/2019 3:18:37.945 AM
PRT RLY TRP	PUMP PROTECTION RELAY TRIP	FALSE	#
EARTH LEAK	PUMP EARTH LEAKAGE	FALSE	#
OVERHEAT	PUMP OVERHEAT	FALSE	12/9/2019 7:39:19.665 AM
HI DISCHG PR	PUMP HIGH DISCHARGE PRS	FALSE	#

SewagePump1_C.Pump_FP

PUMP - SewagePump1_C

HOME OPERATION VFD DATA ALARMS SETPOINTS

CONTROL MODE: **REMOTE**

COMMAND MODE: **HAND**

AVAILABLE

EMG STOP [Red Emergency Stop Button]

CONT RUN CONT STOP HI CURRENT

LO CURRENT HI DISCHRG PRS PROT RLY TRIP

EARTH LKG OVERHEAT LO DISCHG PRS

LO SUCTION PRS DISCHG PRS FLT

ALARM LOGS



DRY RUN BYPASS ON/OFF [Toggle Switch]

Enough Space for POPUPS – Not overlapping

CRITICAL ALARM MANAGEMENT

- **COMPLETELY CUSTOMIZED USING SCRIPT**
- **DEVELOPED TRACING TO THE MOST DETAIL**

AVEVA

Tracing of Critical Fault to detailed level

Critical Alarms Management – Completely CUSTOMIZED



Highest critical Alarms pop on every single OPEN screen
Special customized scripts done to achieve this

- 700 MM
- 1000MM
- 1200MM
- 1300MM
- 1400MM
- 1600MM
- 1800MM
- 2200MM

Contact

Test_Fault_001.S3

PUMP 1 ALARMS

CONT RUN	<input type="radio"/>	EARTH LEAKAGE	<input type="radio"/>
CONT STOP	<input type="radio"/>	OVERHEAT	<input checked="" type="radio"/>
HI CURRENT	<input type="radio"/>	HI DISCHARGE PRS	<input type="radio"/>
LO CURRENT	<input type="radio"/>	PROT RLY TRIP	<input type="radio"/>

PUMP TRIP

TOTAL FLOW: M3

SUPERNATANT FLOW: M3

NET FLOW TO CITY: M3/HR

FLOW TO EFFLU. BASIN: M3/HR

SECONDARY EFFLU.: M3/HR

TDP PARAMETER: PPM

TO ATMOSPHERE: PPM

JEBEL ALI STP

PHASE 1

PHASE 2

TOTAL FLOW: M3

SUPERNATANT FLOW: M3

NET FLOW TO CITY: M3/HR

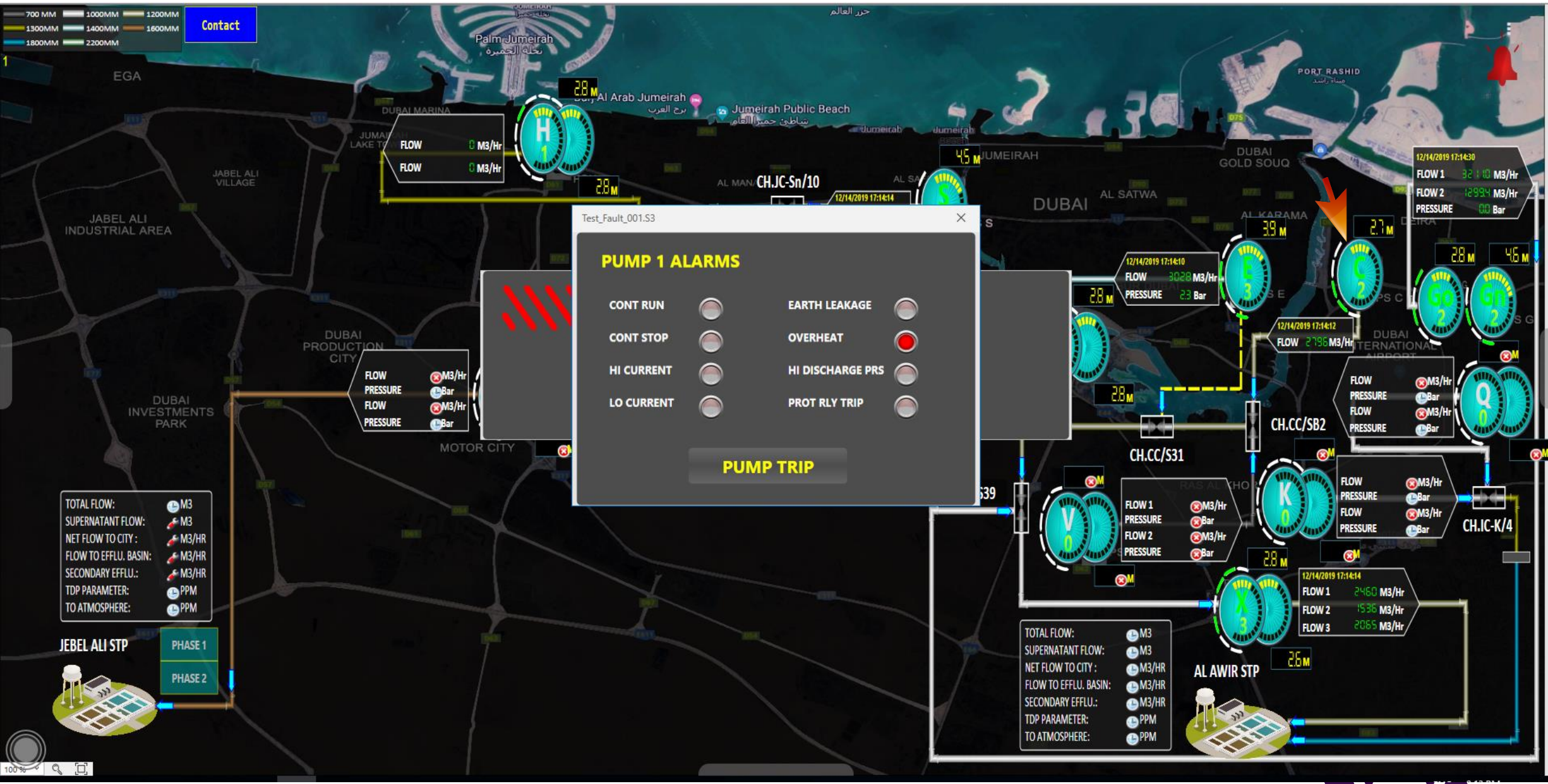
FLOW TO EFFLU. BASIN: M3/HR

SECONDARY EFFLU.: M3/HR

TDP PARAMETER: PPM

TO ATMOSPHERE: PPM

AL AWIR STP



PUMP STATION PARAMETERS

Wet Well Level: **2.65** Mtr

Common Discharge Flow: **2785.20** m³/hr

Today Total: 51780.0 m³ | Yday Total: 0.0 m³ | Totalizer: 7301500.0 m³

COMMON SIGNALS

MAIN POWER: Failure
 DOOR STATUS: Closed
 FIRE ALARM: Normal
 RTU BATTERY: OK
 RTU TEMP: 0.0
 RTU VOLT: 0.0
 RTU BAT: 0.0

HEALTH AND SAFETY

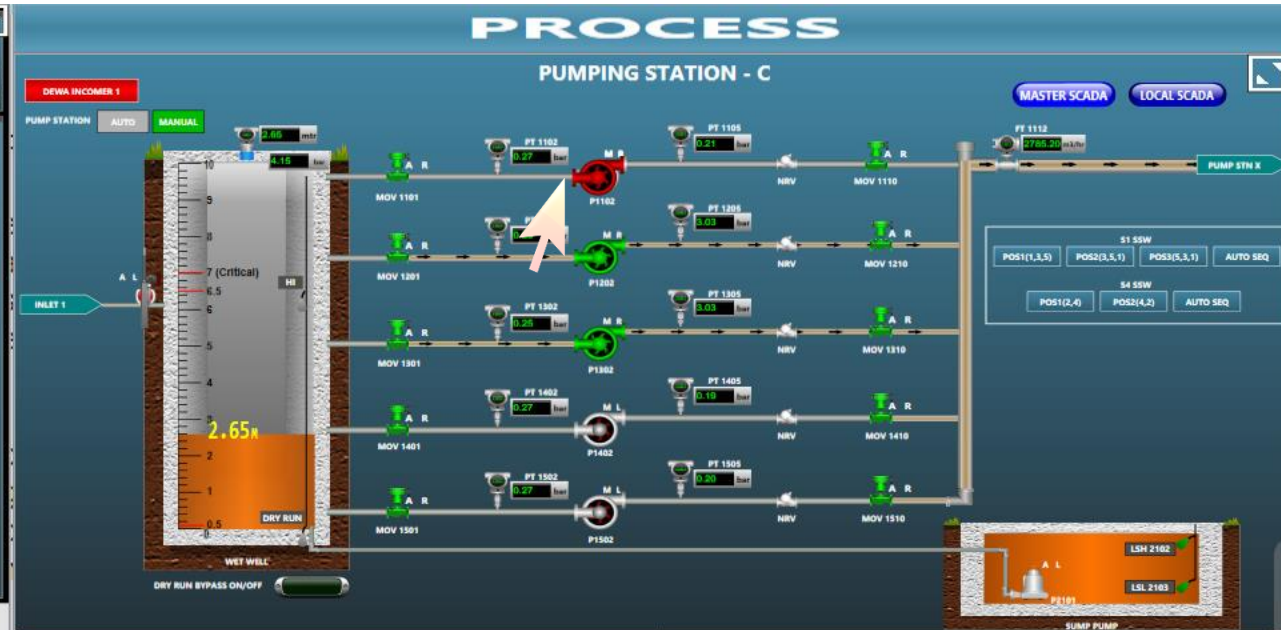
LAST LOGGED ON: 12/14/2019 17:16:44
 DEVICE ID: 102-165-90-14
 DEVICE ST: 4
 CONTROLLER: Healthy, Multidrop
 PLC: Healthy

PUMP PARAMETERS

PUMP 1	PUMP 2	PUMP 3	PUMP 4	PUMP 5
Stop	Run	Run	Stop	Stop
Emergency Stop	Emergency Stop	Emergency Stop	Emergency Stop	Emergency Stop
Current: 0.0	Current: 276.9	Current: 449.0	Current: -99578826	Current: 4.0
Local: Stop	Local: Run	Local: Run	Local: Stop	Local: Stop
Breaker: On	Breaker: On	Breaker: On	Breaker: On	Breaker: On

ALARMS

- CONTINUOUS RUN ALARM
- CONTINUOUS STOP ALARM
- CYCLING ALARM
- HIGH DISCHRG PRESSURE ALARM
- OVERHEAT
- STOP PERIOD EXCEED ALARM
- TRIP/OVERLOAD



AlarmApp.AlarmControl x PlaybackPanel x

Navigate Ack Visible Ack Selected Ack All Query

Area Hierarchy	Node	Group	Name	AlarmComment	Type	TimeLCT	Limit	CurrentValu	AlarmDuration	Operator	UnAckDuration	Value	Priority
Alaweer	GRSERVER	PS_C_Area	Screen1_006.POS_SENSOR	Position Sensor	DSC	12/14/2019 9:14:09 PM	true	True	000 00:00:00.000		000 00:00:00.000	true	520
	GRSERVER	PS_C_Area	Test_Fault_001.Trip_Bit	Pump Trip	DSC	12/14/2019 9:13:20 PM	true	True	000 00:00:00.000		000 00:00:00.000	true	10
JALI_1	GRSERVER	PS_C_Area	Test_Fault_001.Overheat_Trip	Pump Overheat	DS	12/14/2019 9:13:08 PM	true	True	000 00:00:00.000		000 00:00:00.000	true	10

Displaying 4 to 6 of 224 alarms | Query: Default | Filter: 100% Complete | Abu Dhabi, Muscat

PUMP STATION PARAMETERS



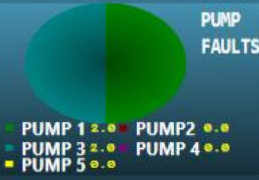
Wet Well Level
2.61
Mtr

Common Discharge Flow
2760.60 m3/hr

Today Total 51850.0 m3
Yday Total 0.0 m3
Totalizer 7301570.0 m3

COMMON SIGNALS

MAIN POWER : Faulty
DOOR STATUS : Close
FIRE ALARM : Normal
RTU BATTERY : OFF
RTU TEMP : 0.0 degC
RTU VOL : 0.0 v
RTU BAT : 0.0 v



HEALTH AND SAFETY

Last Update On
12/14/2019 17:18:11
DEVICE IP : 192.168.90.14
DEVICE ID : 1
CONTROLLER : Healthy, Multidrop
PLC : Healthy

PUMP PARAMETERS

STATUS	ANALYSIS	VALUES	STATUS	ANALYSIS	VALUES	STATUS	ANALYSIS	VALUES	STATUS	ANALYSIS	VALUES	STATUS	ANALYSIS	VALUES
PUMP 1			PUMP 2			PUMP 3			PUMP 4			PUMP 5		
Stop	Emergency Stop		Run	Emergency Stop		Run	Emergency Stop		Stop	Emergency Stop		Stop	Emergency Stop	
CURRENT 0.0 A	VOLTAGE 0.0 V	FREQUENCY 0.0 Hz	CURRENT 277.1 A	VOLTAGE 0.0 V	FREQUENCY 0.0 Hz	CURRENT 447.3 A	VOLTAGE 0.0 V	FREQUENCY 0.0 Hz	CURRENT -99578820 A	VOLTAGE 0.0 V	FREQUENCY 0.0 Hz	CURRENT 4.0 A	VOLTAGE 0.0 V	FREQUENCY 0.0 Hz
LOW AMP ALARM			LOW AMP ALARM			LOW AMP ALARM			LOW AMP ALARM			LOW AMP ALARM		
PUMP STATUS LOCAL AUTO BREAKER ON			PUMP STATUS LOCAL AUTO BREAKER ON			PUMP STATUS LOCAL AUTO BREAKER ON			PUMP STATUS LOCAL AUTO BREAKER ON			PUMP STATUS LOCAL AUTO BREAKER ON		
ALARMS			ALARMS			ALARMS			ALARMS			ALARMS		
CONTINUOUS RUN ALARM			CONTINUOUS RUN ALARM			CONTINUOUS RUN ALARM			CONTINUOUS RUN ALARM			CONTINUOUS RUN ALARM		
CONTINUOUS STOP ALARM			CONTINUOUS STOP ALARM			CONTINUOUS STOP ALARM			CONTINUOUS STOP ALARM			CONTINUOUS STOP ALARM		
CYCLING ALARM			CYCLING ALARM			CYCLING ALARM			CYCLING ALARM			CYCLING ALARM		
HIGH DISCHRG PRESSURE ALARM			HIGH DISCHRG PRESSURE ALARM			HIGH DISCHRG PRESSURE ALARM			HIGH DISCHRG PRESSURE ALARM			HIGH DISCHRG PRESSURE ALARM		
OVERHEAT			OVERHEAT			OVERHEAT			OVERHEAT			OVERHEAT		
STOP PERIOD EXCEED ALARM			TRIP/OVERLOAD HIGH SPEED			STOP PERIOD EXCEED ALARM			TRIP/OVERLOAD HIGH SPEED			PROTECTION RELAY TRIP		
TRIP/OVERLOAD			TRIP/OVERLOAD LOW SPEED			TRIP/OVERLOAD			TRIP/OVERLOAD LOW SPEED			TRIP/OVERLOAD		



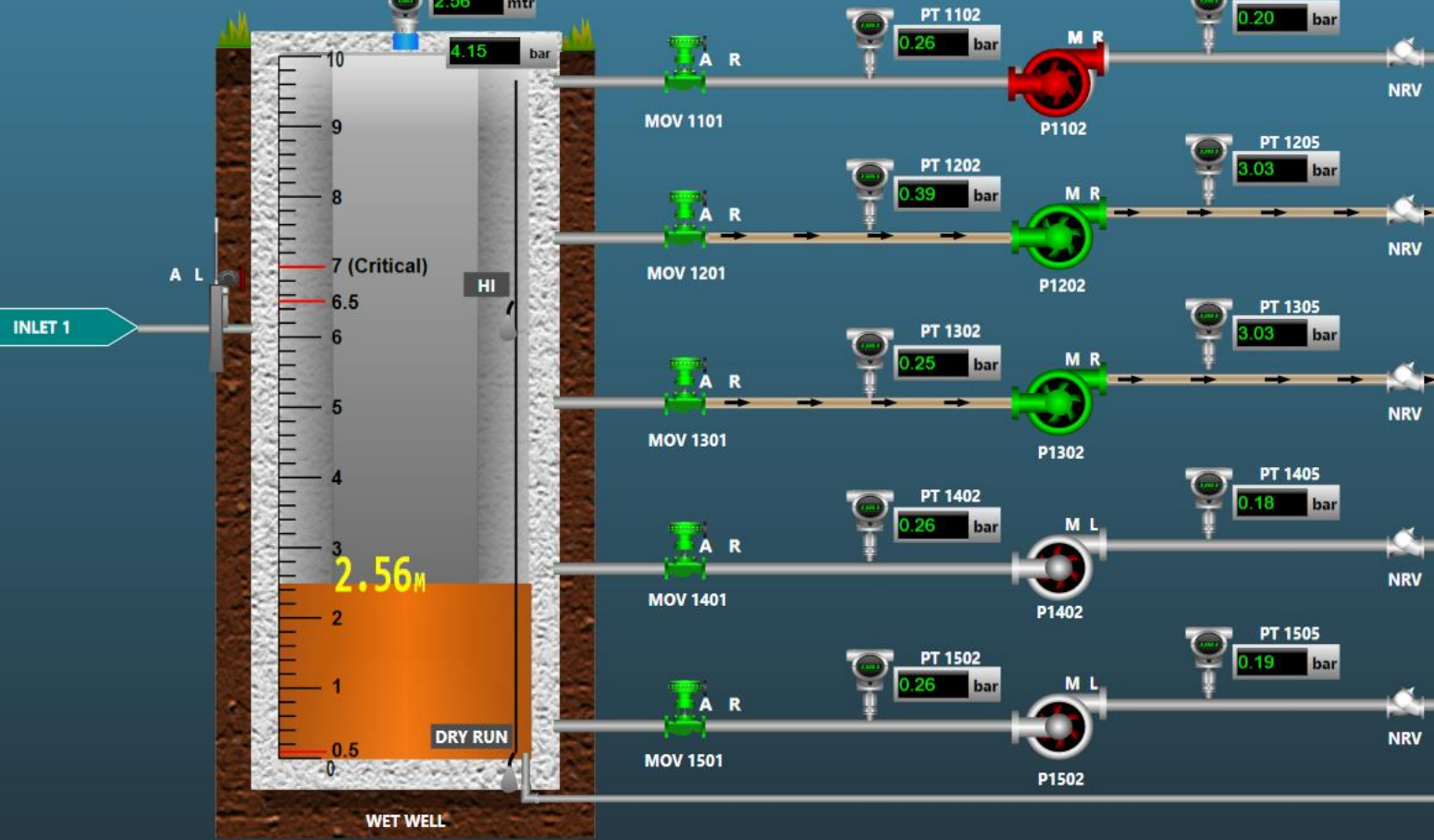
PUMPING STATION - C

DEWA INCOMER 1

MASTER SCADA

LOCAL SCADA

PUMP STATION AUTO MANUAL



SewagePump1_C.Pump_FP_Demo

PUMP - SewagePump1_C

HOME OPERATION VFD DATA ALARMS SETPOINTS

CONTROL MODE: REMOTE
COMMAND MODE: HAND

AVAILABLE

PROT RLY TRP
OVERHEAT
CONT RUN
CONT STOP
EARTH LEAK
HIGH AMP
LOW AMP

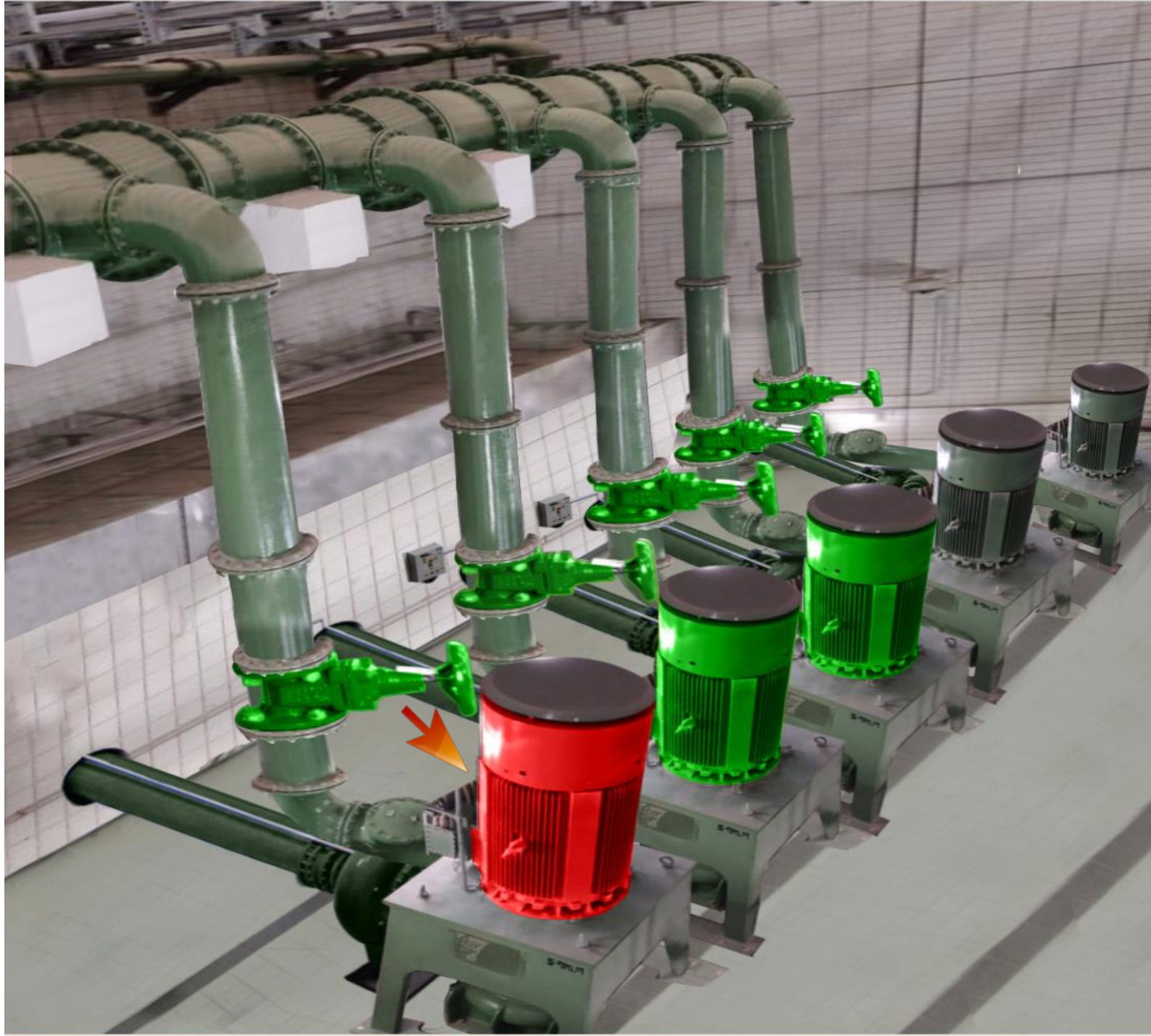
PUMP STN X

S1 SSW
(3,5,1) POS3(5,3,1) AUTO SEQ

S4 SSW
POS2(4,2) AUTO SEQ



DRY RUN BYPASS ON/OFF



PUMPING STATION C

Pumping Station

Pump1 Status

Local Auto Br ON Run Trip

Suction Pressure: 0.26 bar

Dischrg Pressure: 0.20 bar

Pump2 Status

Local Auto Br ON Run Trip

Suction Pressure: 0.39 bar

Dischrg Pressure: 3.03 bar

Pump3 Status

Local Auto Br ON Run Trip

Suction Pressure: 0.24 bar

Dischrg Pressure: 3.03 bar

Pump4 Status

Local Auto Br ON Run Trip

Suction Pressure: 0.26 bar

Dischrg Pressure: 0.18 bar

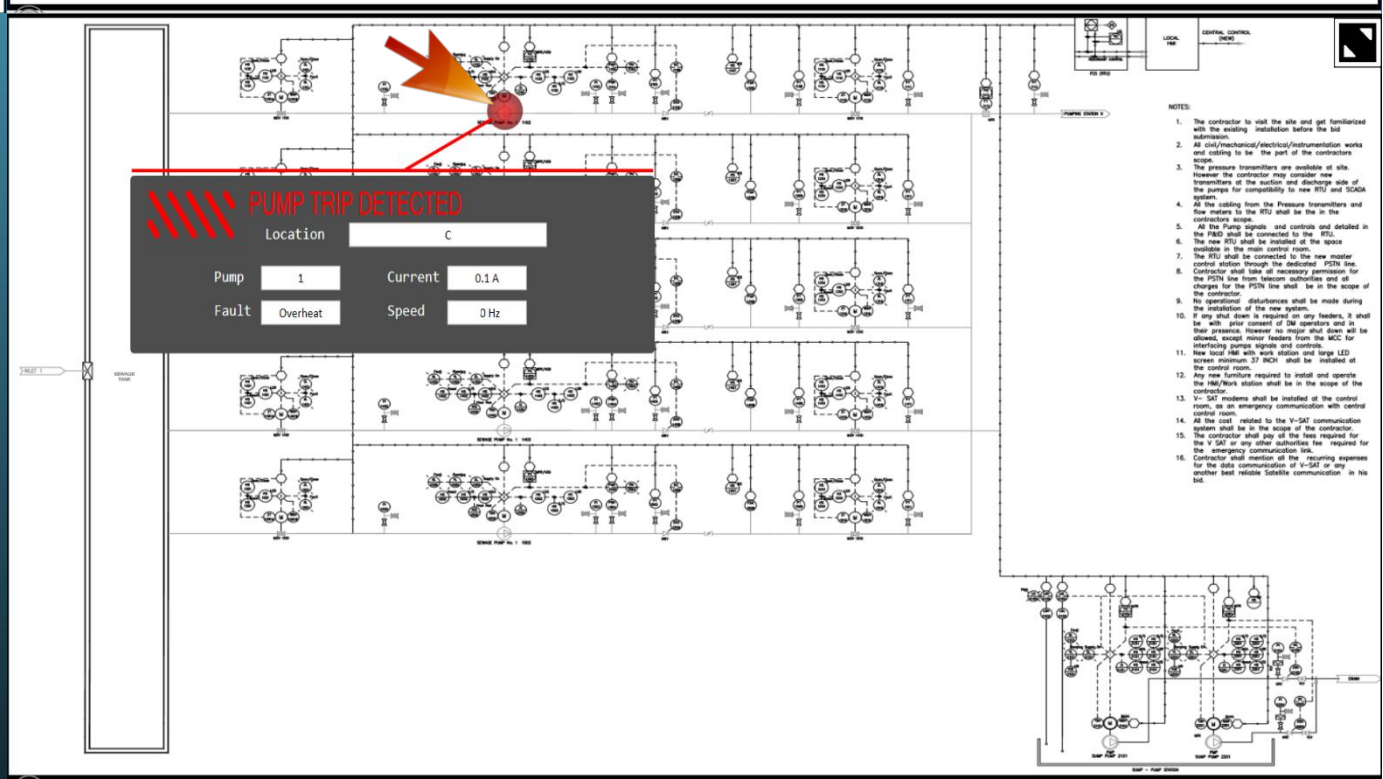
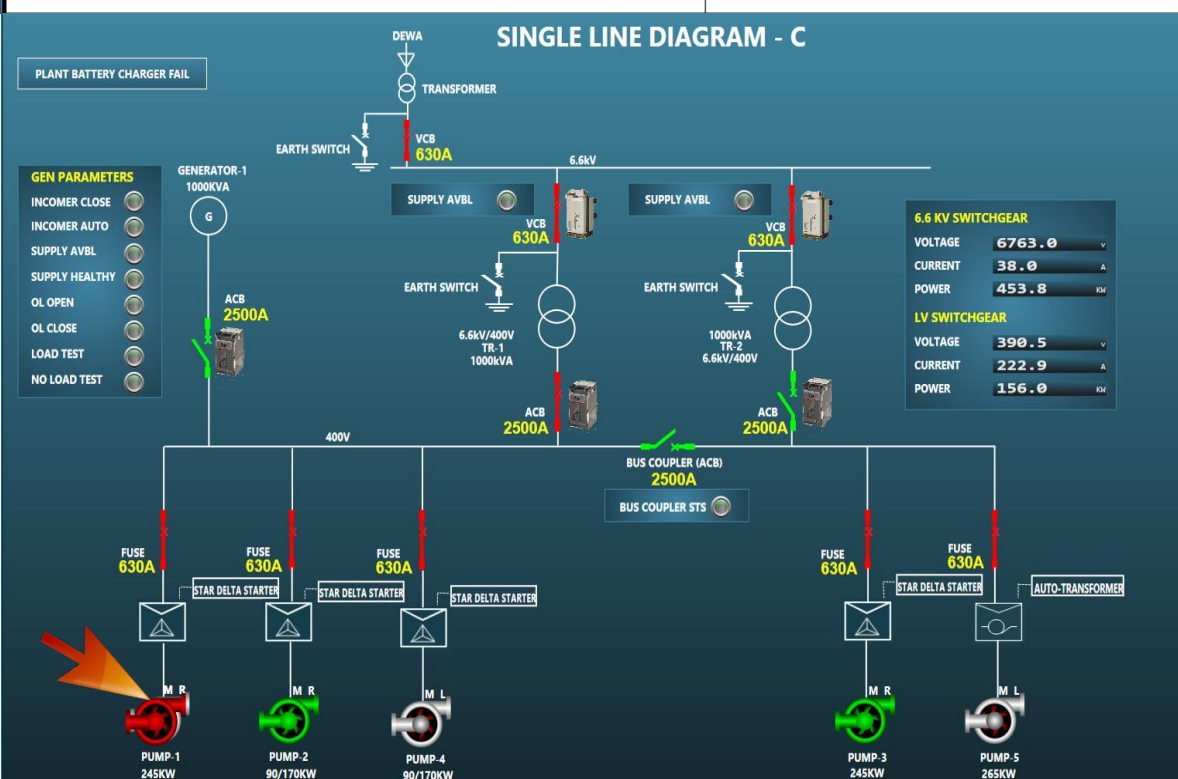
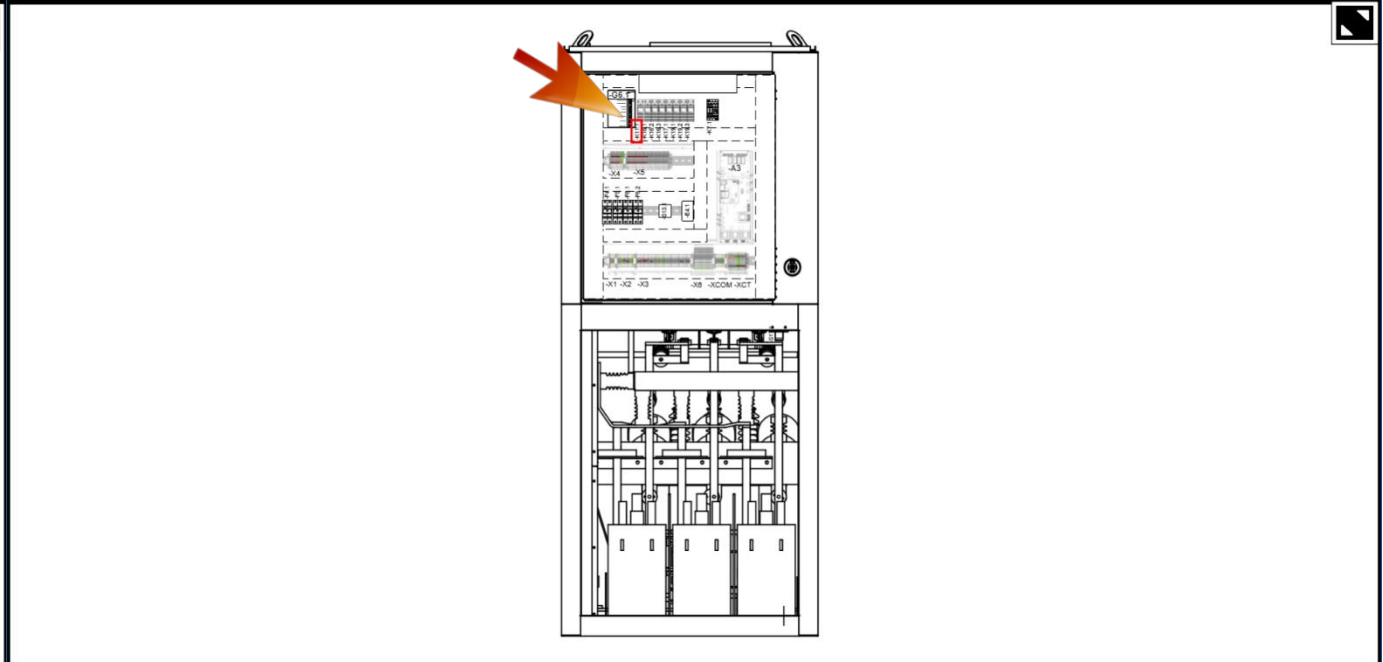
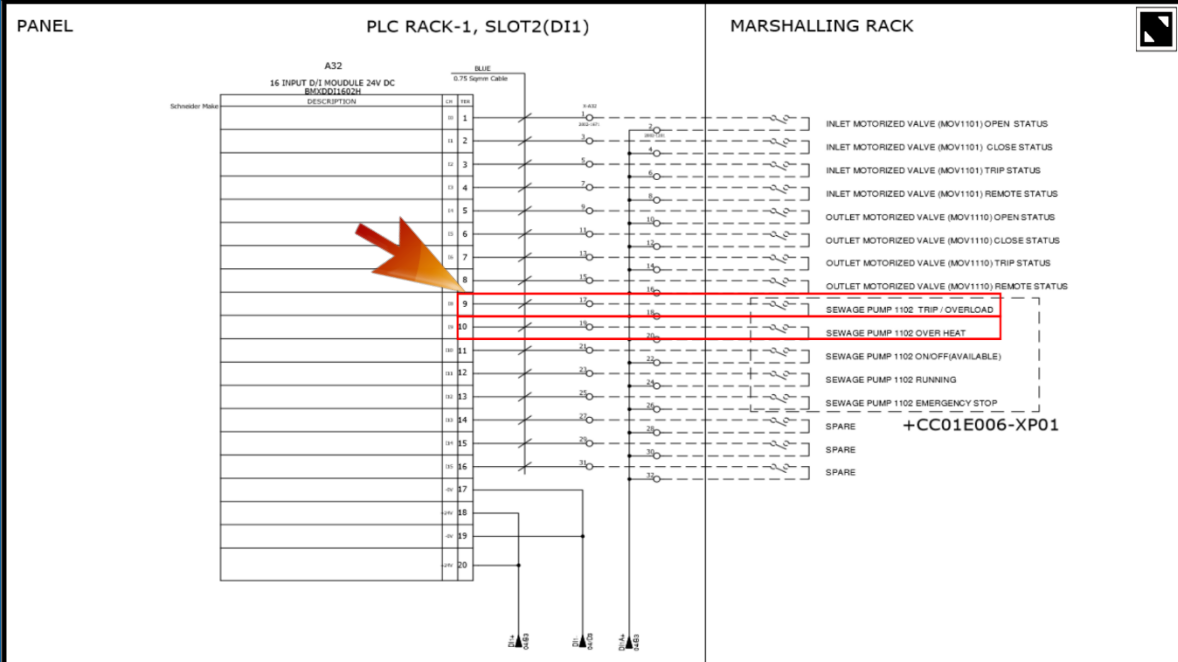
Pump5 Status

Local Auto Br ON Run Trip

Suction Pressure: 0.26 bar

Dischrg Pressure: 0.19 bar

Navigation: Pumping, Screening, Odor



Strategy

THERE WAS A NEED FOR MORE TO OPTIMIZE THE OVERALL MONITORING OF THE COMPLETE CITY

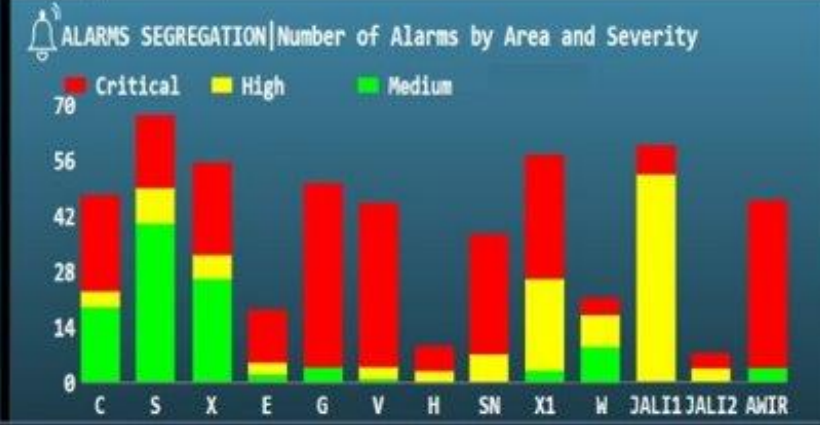
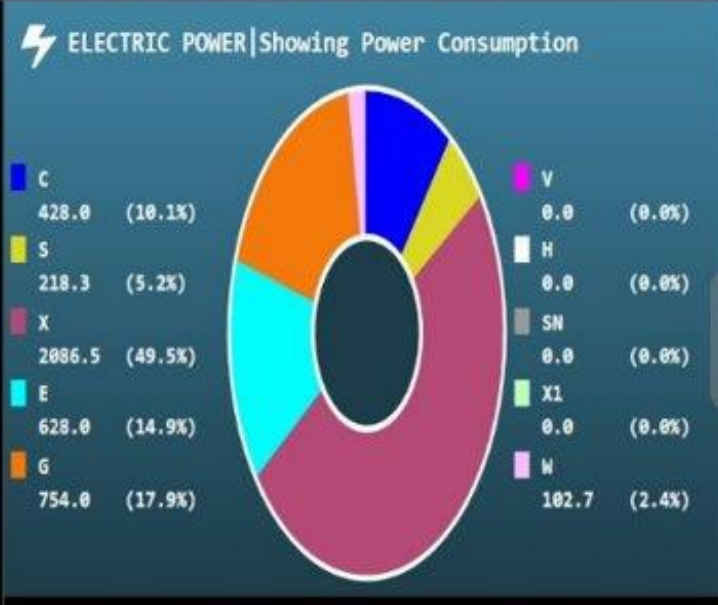
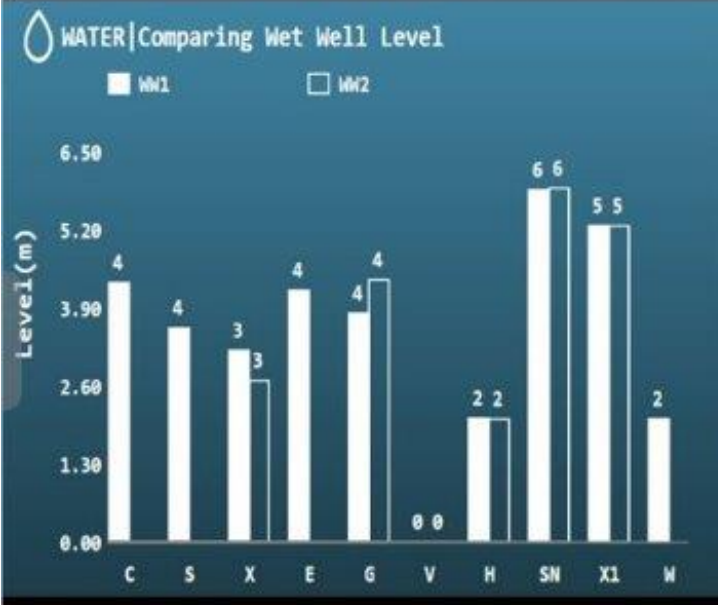
- **EXACT LOCATIONS**
- **NETWORK**
- **REGIONS**
- **SUBSIDIARIES CONNECTED**
- **PIPELINES**
- **DRAWINGS/DOCUMENTATIONS**

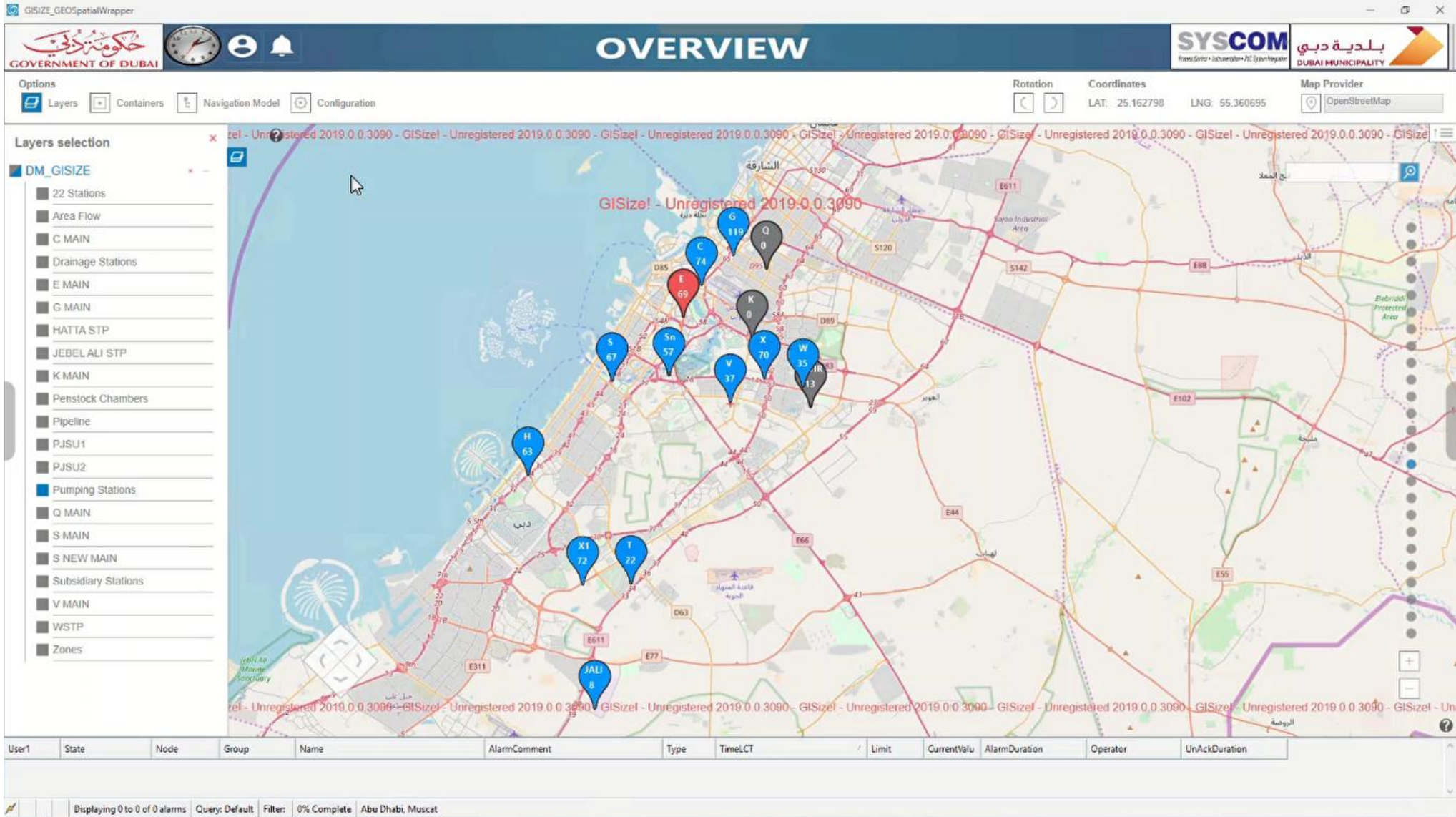
GI Size

AVEVA



E	S	H	SN	X1	IN	JEBEL ALI STP	OUT			
3678.1	2851.2	0.0	0.0	2318.7	1439.5	1765.5	PH1 10689.5 m3/h	0.0 m3/h	5274.4 m3/h	2486.9 m3/h
m3/h	m3/h	m3/h	m3/h	m3/h	m3/h	m3/h	PH2 6293.4 m3/h	7262.6 m3/h	0.0 m3/h	8817.0 m3/h





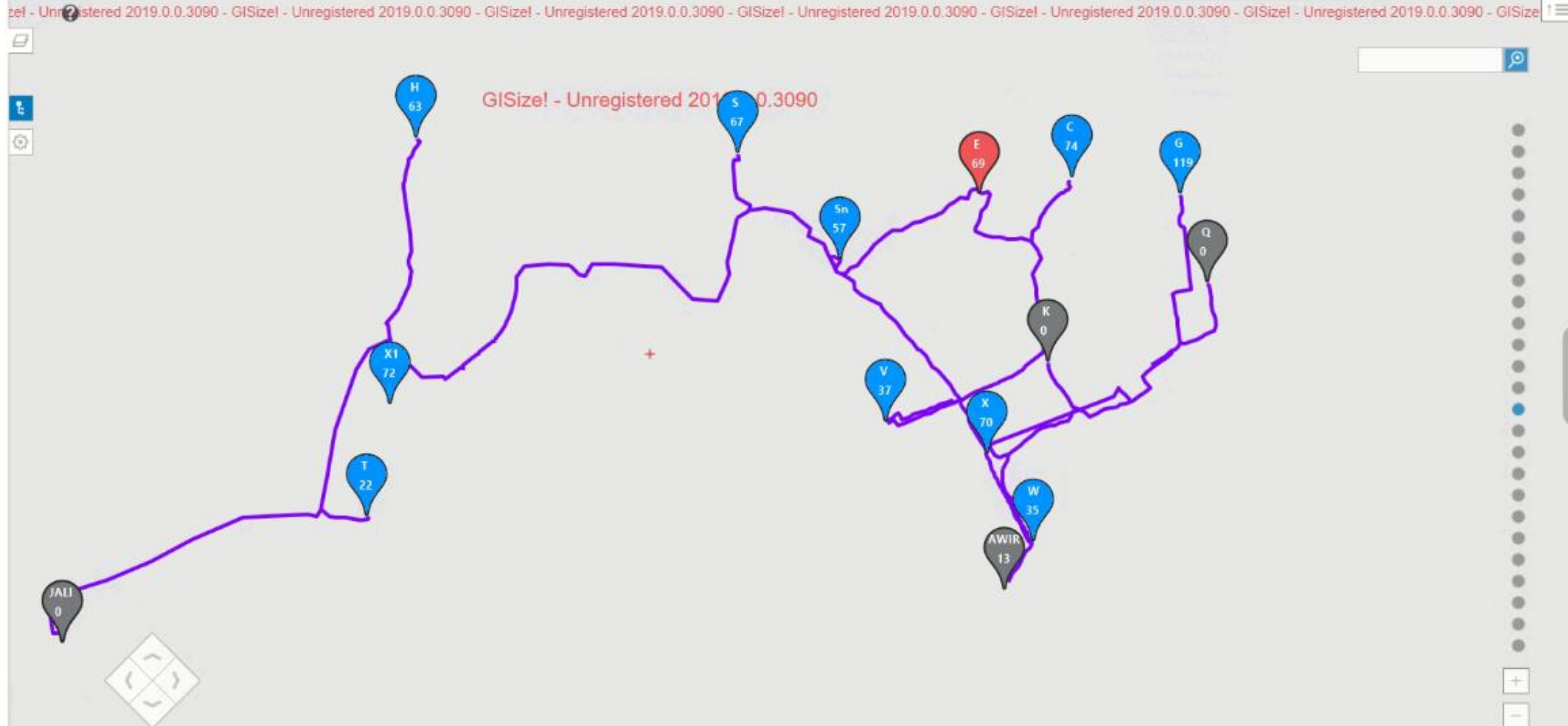


OVERVIEW

Options
Layers Containers Navigation Model Configuration

Rotation Coordinates Map Provider
LAT: 25.11762141 LNG: 55.28869628 BingHybridMap

- Layers selection**
- DM_GISIZE
 - Area Flow
 - C MAIN
 - E MAIN
 - G MAIN
 - HATTA STP
 - JEBEL ALI STP
 - K MAIN
 - Pipeline
 - PJSU1
 - PJSU2
 - Pumping Stations
 - Q MAIN
 - S MAIN
 - S NEW MAIN
 - V MAIN
 - WSTP
 - Zones



GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090 - GISize! - Unregistered 2019.0.0.3090

User1	State	Node	Group	Name	AlarmComment	Type	TimeLCT	Limit	CurrentValu	AlarmDuration	Operator	UnAckDuration
2	UNACK_RTN	OW56	A5_Area	A5_UPS_BAT	UPS BATTERY	DSC	07/07/2023 8:19:29 AM	true	False	011 01:37:23.477		000 00:00:00.000
1	UNACK_RTN	OW56	A5_Area	A5_Area from OW56Platform	Lost alarm communication to A5_Area.	Comm	18/09/2023 4:07:34 AM			000 00:01:40.930		000 00:00:00.000
1	UNACK_RTN	OW56	A5_Area	LocalSwitch_A5_DRV_R11M	Dev Run	DSC	01/10/2023 3:31:10 PM	false	True	000 00:02:49.806		000 00:00:00.000

STRATEGY

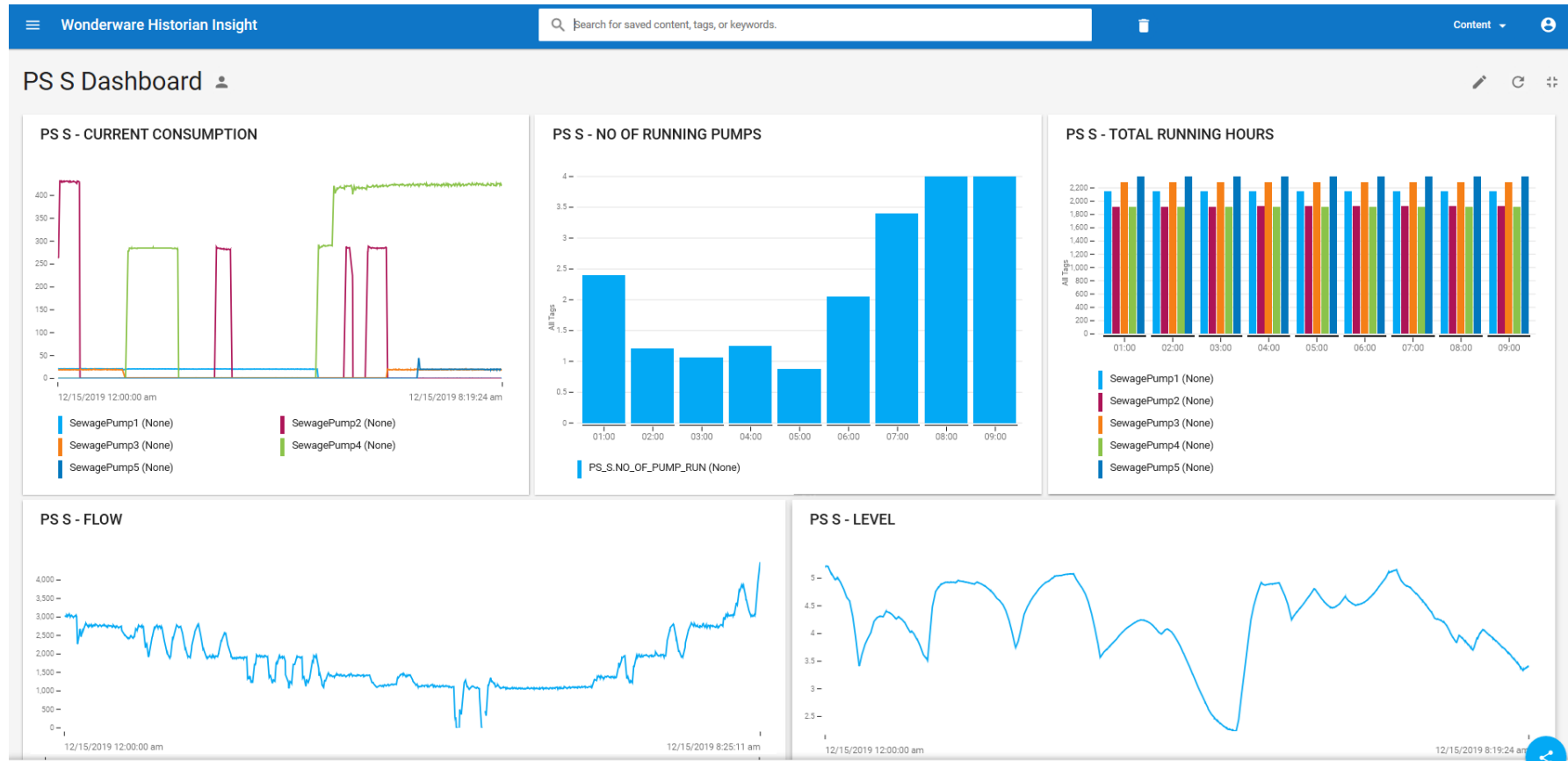
AVEVA™ HISTORIAN INSIGHT

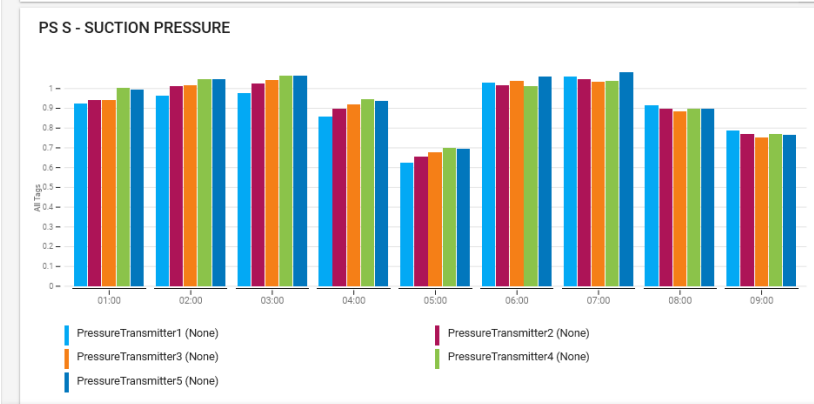
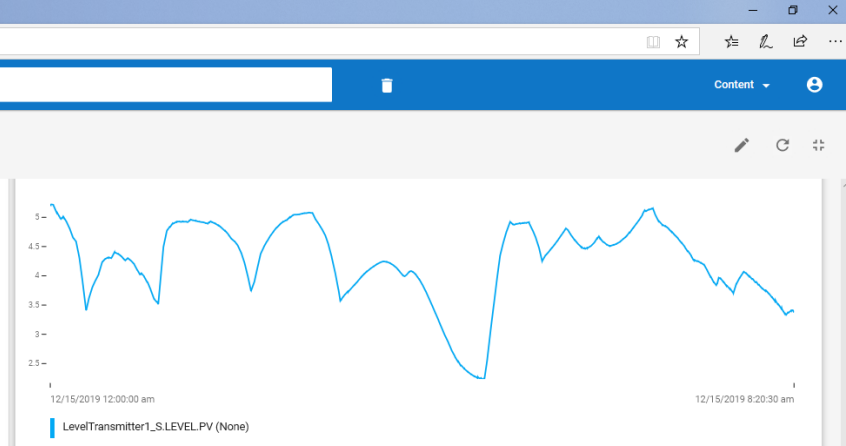
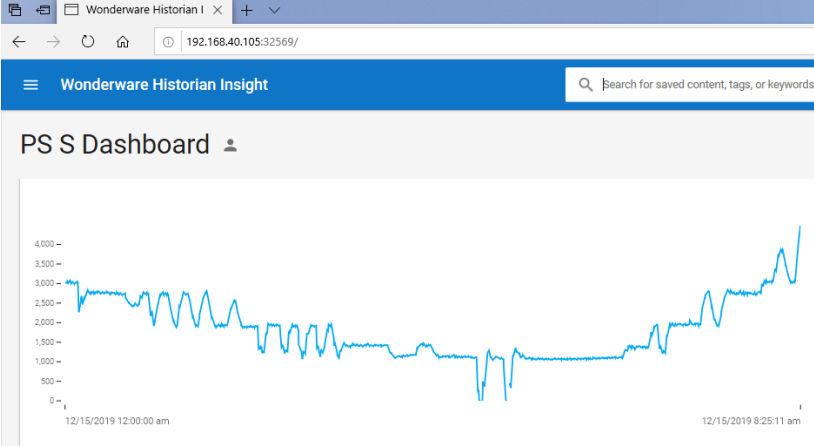
- **COMPLETE INTERACTIVE REPORTS VISIBILITY AND ALERTS ARE CONFIGURED USING THE INSIGHT INTEGRATING TO THE HISTORIAN**
- **ONLINE LIVE TRENDS**
- **DASHBOARDS**

AVEVA

Critical Data from Anywhere, Anytime

Browser based dashboards





Wonderware Historian Insight

Search for saved content, tags, or keywords.

JEBEL ALI PHASE 1 Dashboard

JEBEL ALI PHASE 1 AERATED GRIT...

FT1059041 (None)
FT1059042 (None)

JEBEL ALI PHASE 1 ASR

- AT1105001.TEM (None)
- FT1108031.FLW (None)
- AT1108002_3.O2 (None)
- AT1108003_3.O2 (None)
- AT1108004_3.O2 (None)
- AT1108005_3.O2 (None)
- AT1108006_3.O2 (None)
- AT1108007_3.O2 (None)
- AT1108008_3.O2 (None)
- FT1108036.FLW (None)

JEBEL ALI PHASE 1 CHLORINATION

- AT1159152.O2 (None)
- AT1159162.O2 (None)
- LT1150042.LVL (None)
- LT1150052.LVL (None)
- LT1150062.LVL (None)
- FT115602.FLW (None)
- FT115604.FLW (None)
- FT115611.FLW (None)

JEBEL ALI PHASE 1 DEWATERING

- LT118001.LVL (None)
- LT118002.LVL (None)
- FT1119731.FLW (None)
- FT1119732.FLW (None)
- FT1119733.FLW (None)
- FT1119734.FLW (None)

Keywords: PS_S

Type here to search

JEBEL ALI PHASE 1 DIGESTER HEA...

- TT1179041.TEM (None)
- PDIT117903.PRS (None)
- PDIT117904.PRS (None)
- AT117731.PH (None)
- AT117732.PH (None)
- AT117733.PH (None)
- AT117734.PH (None)
- AT117735.PH (None)

JEBEL ALI PHASE 1 DIGESTER LEV...

- LT1177311 (None)
- LT1177321 (None)
- LT1177331 (None)
- LT1177341 (None)
- LT1177351 (None)

JEBEL ALI PHASE 1 DIGESTER OUT...

- FT117731 (None)
- FT117732 (None)
- FT117733 (None)
- FT117734 (None)
- FT117735 (None)

JEBEL ALI PHASE 1 DIGESTER TEM...

- TT1177312 (None)
- TT1177322 (None)
- TT1177332 (None)
- TT1177342 (None)
- TT1177352 (None)

Keywords: PH_1



LIVE INTERACTIVE MANAGEMENT REPORTING

- **INTEGRATION OF POWER BI**
- **TO ADD SOME EXTRA INTERACTIVE EDGE TO THE ENTIRE SOLUTION FOR THE SENIOR MOST MANAGEMENT, AVEVA HISTORIAN WAS UTILIZED TO TRANSFER DATA LIVE TO POWER BI**
- **SCRIPTS/QUERIES, FOR EASY CUSTOMIZED LIVE INTERACTIVE FAULT ANALYSIS**
- **ADVANCED ANALYTICS**

*** PI SYSTEM WAS NOT PART OF AVEVA THEN!**

AVEVA

Live interactive reports

**INSTANT
REPORTS @
FINGERTIPS**

The dashboard displays the following information:

- Station List:** A33, B23, DB16, DB21, DB22.
- Project Summary:**
 - Total Stations: 19
 - Active_Pumps: 45
 - Fault: 9
- Map:** A map of Dubai showing the locations of various stations (A33, B23, DB16, DB21, DB22) marked with colored dots.
- Network Diagram:** A detailed network diagram showing connections between various components labeled A33, S22, DB, E09, DB21, DR7, J01, DR19, DR17, DR12, and E34.

WHY AVEVA?

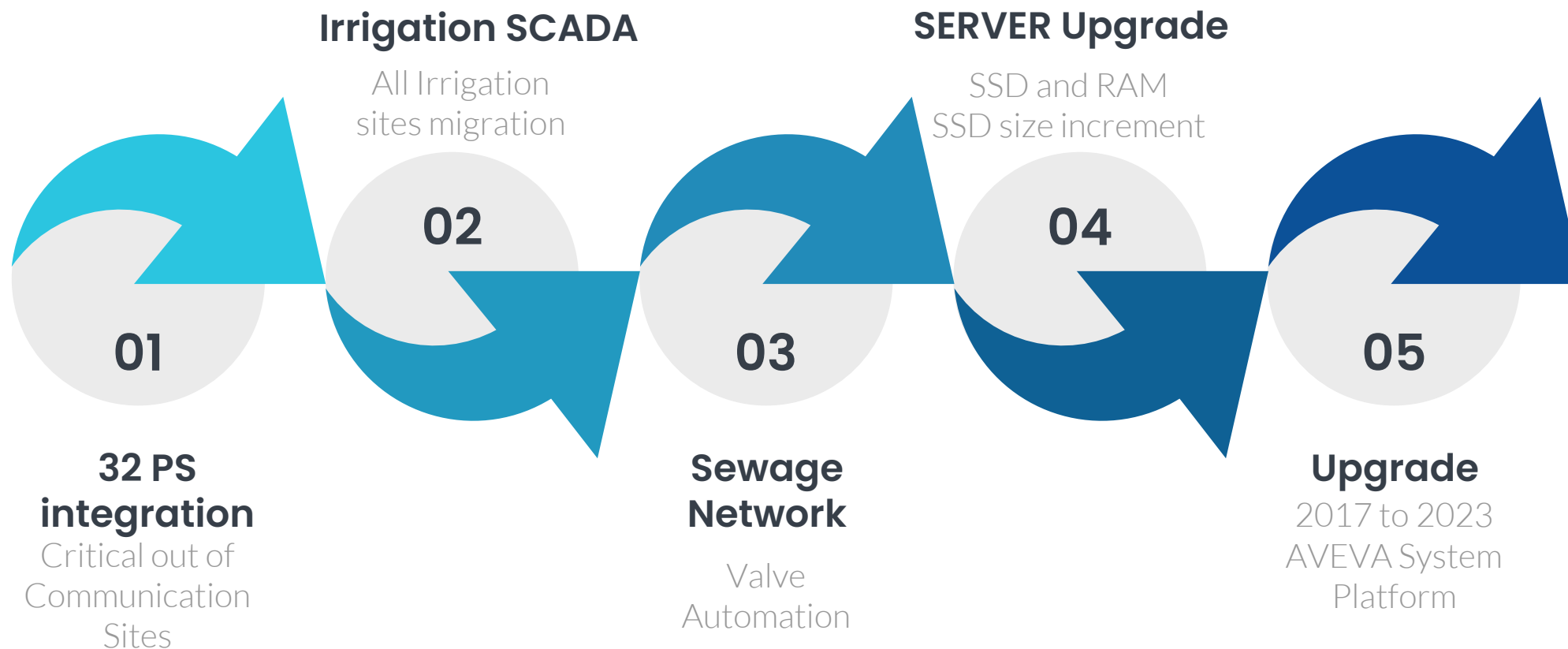
- OPEN software solution
- Vendor –independent
- Powerful Application – Customizable engineering easily
- seamless integration with all add-ons
- OMI functionality
- Powerful historian and Telemetry Server for DNP3

GOAL/FUTURE

- The Command Center is regularly upgraded each year by integrating min 50 new sites per year along with existing sites upgraded. Approx more than 400 Pumping stations and several DCS, several thousands of irrigation sites will be connected over the course of coming years
- While the Command Center Visualization is enhanced regularly, the optimization phase for future features will begin:
 - **Workforce integration:** AVEVA™ Work Tasks (previously Wonderware Skelta)
 - **Operator monitoring/scheduling:** AVEVA™ Mobile Operator (previously IntelTrac)
 - **Asset performance management:** AVEVA™ Asset Performance Management
 - **Water network optimisation:** EcoStruxure™ Water Cycle Advisor – Water Simulation (formerly AQUIS)

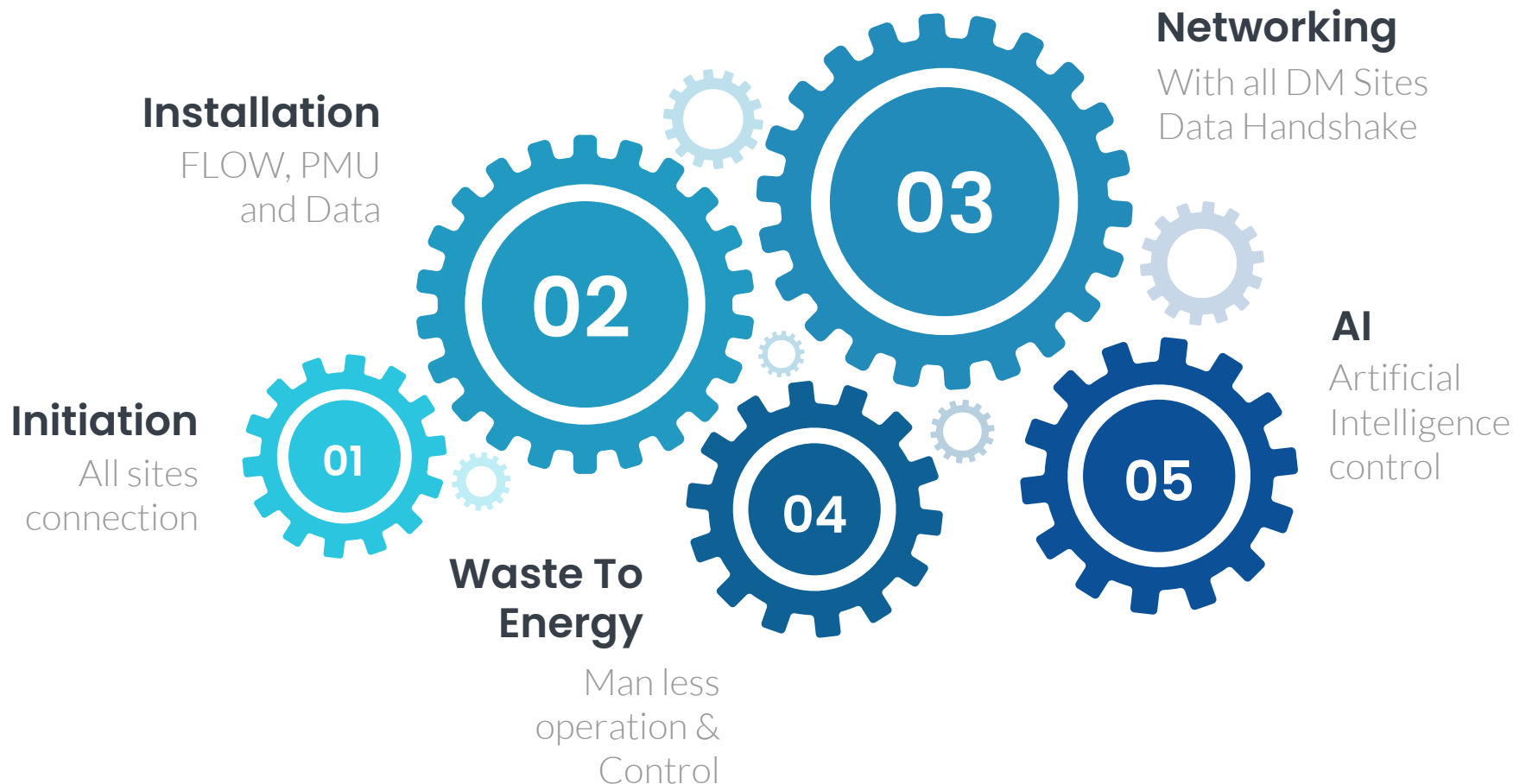
SCADA Planning 2023

Marketing is the study and management of exchange relationships. Marketing is the business process of creating relationships with and satisfying customers.



Future improvement

Hydraulic molding along with AI implementation



By Hafiz Aziz



Dubai Municipality, represented by the Sewerage Treatment Plants and Drainage Network Department, won the first place in the International Water Reuse and Recycling Award, organized by the International Desalination Association. The Jebel Ali Sewage Treatment Plant Expansion Project (Phase 2) won the award in the Exceptional Utility Leader category

<https://www.dm.gov.ae/2022/01/06/dubai-municipality-wins-international-award-for-water-reuse-and-recycling/>

Remote control room launched at Jebel Ali Sewage Treatment Plant



<https://www.dm.gov.ae/2020/10/05/remote-control-room-launched-at-jebel-ali-sewage-treatment-plant/>

LAUNCH PUBLISHED IN MEDIA

MAJOR SUCCESS WITHIN THE DEADLINES (OF DUBAI)





Uzma Qureshi

Director – Corporate Strategy

- SYSCOM
- uzma@binghalib.com



Mohammed Binghalib

CEO

- Binghalib Group

Questions?

Please wait for the microphone.
State your name and company.



Please remember to...

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Thank you!

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

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