

OCTOBER 25, 2023

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# AVEVA™ Mobile Operator for power & utilities

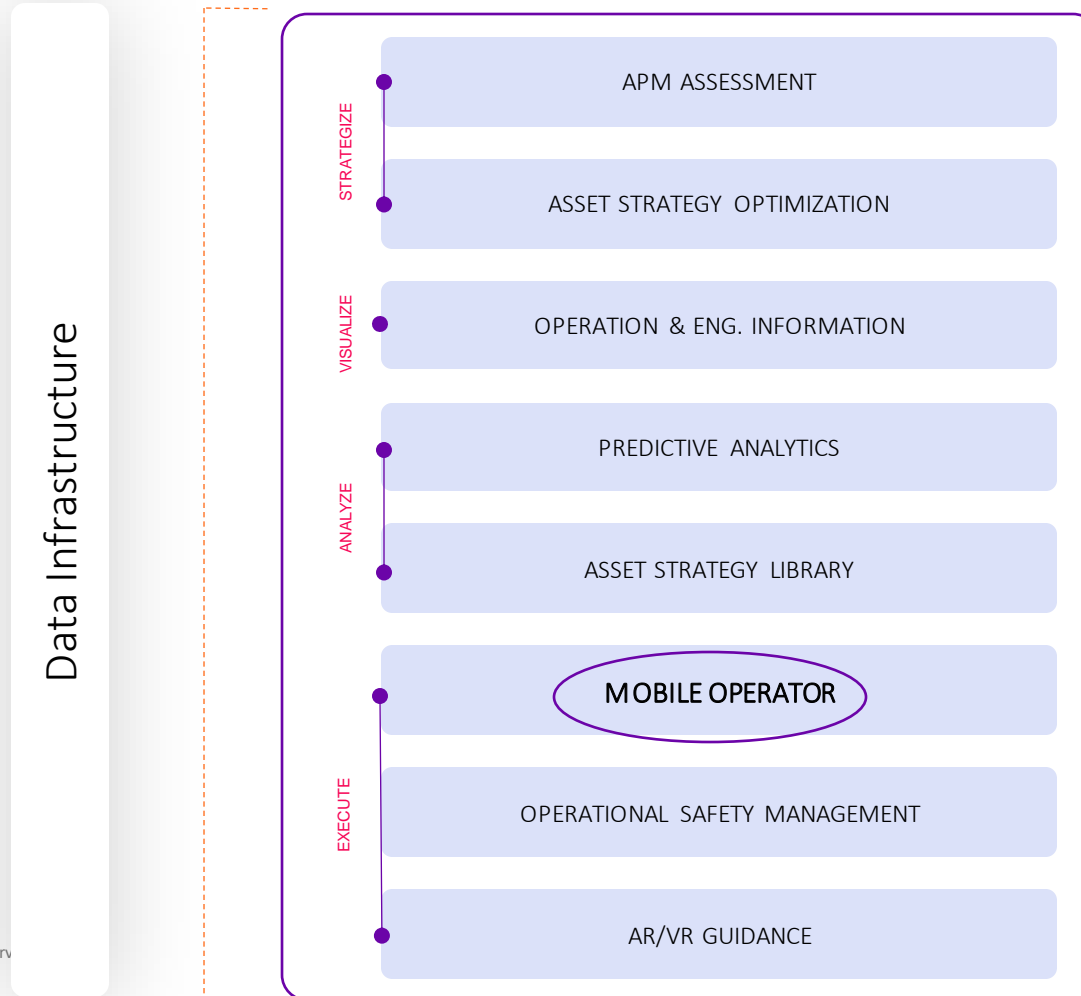
Mark Marantica

AVEVA

# AVEVA Asset Performance Management – the complete picture

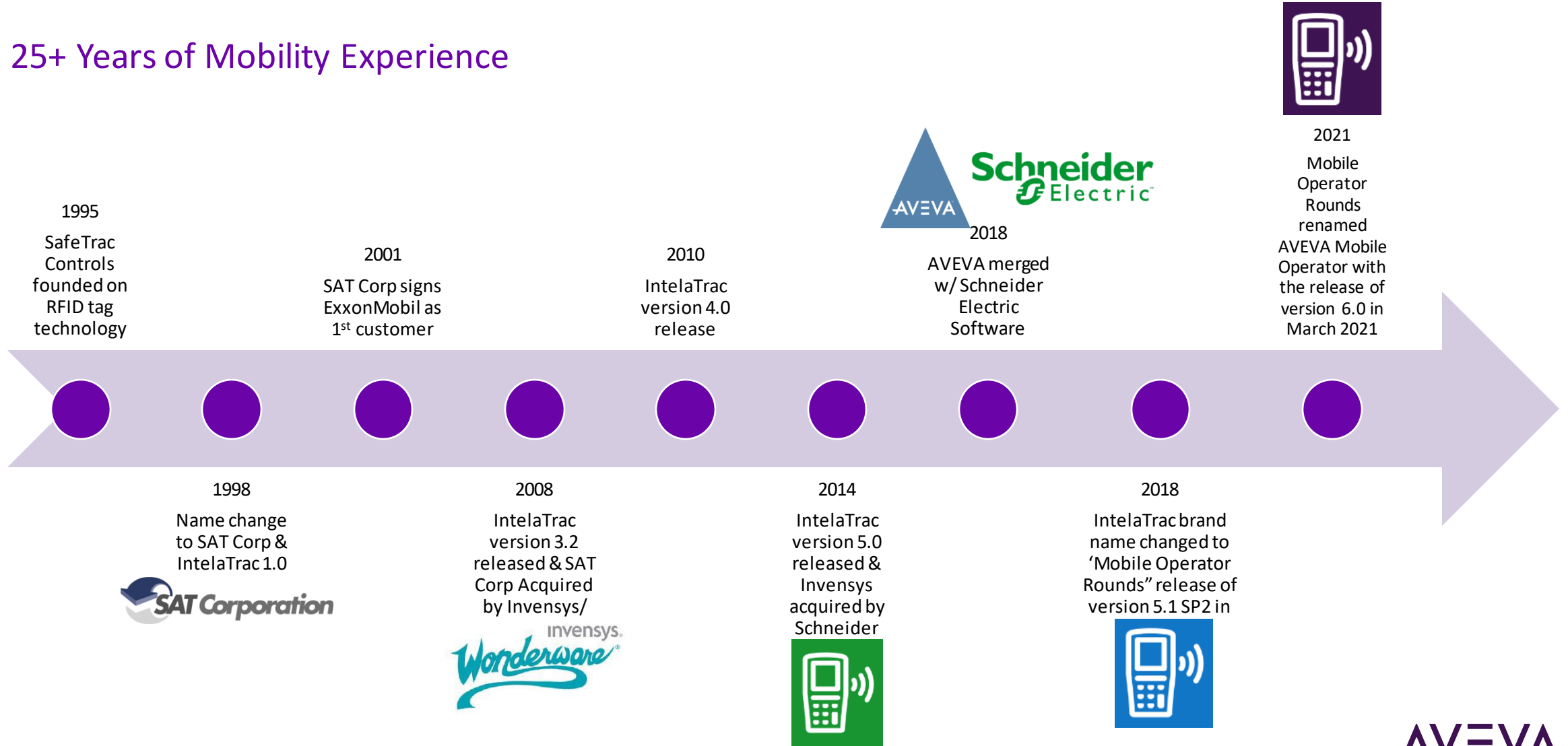


ASSET PERFORMANCE MANAGEMENT



# AVEVA Mobile Operator

## 25+ Years of Mobility Experience



# What about the stranded assets and non-instrumented equipment?

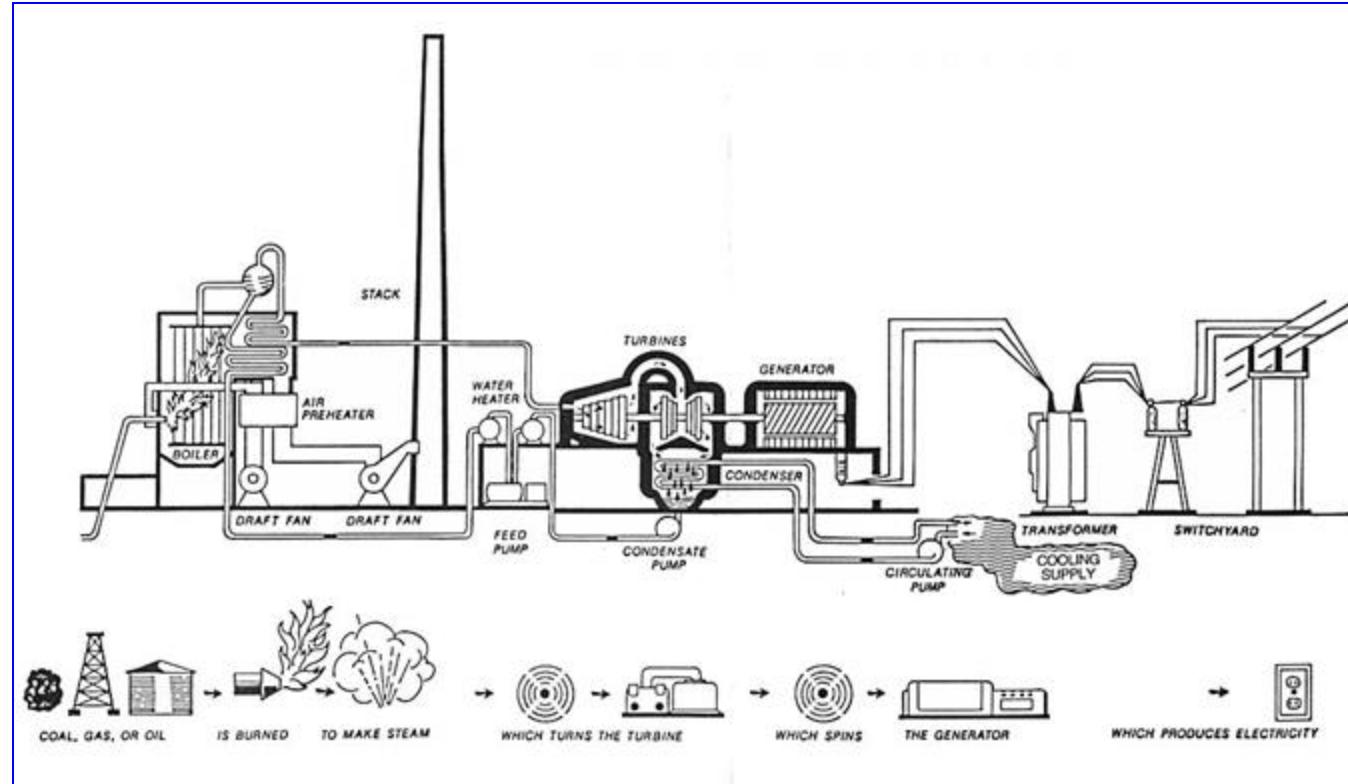
**Boiler-**  
Variable Source Of Data  
 Temps DCS  
 Pressure DCS  
 Safety valves **Mobile Operator**  
 Burner Tilts **Mobile Operator**

**Air Heaters**  
Variable Source Of Data  
 Air Diff DCS  
 Rotation DCS  
 Blow pressure **Mobile Operator**  
 Steam Traps **Mobile Operator**

**Draft Fans**  
Variable Source Of Data  
 Position DCS  
 Viv position DCS  
 Lube oil status **Mobile Operator**  
 pump/motor **Mobile Operator**

**Turbine**  
Variable Source Of Data  
 Status DCS  
 Pressures DCS  
 Oil Pumps **Mobile Operator**  
 Valves **Mobile Operator**

**Condenser**  
Variable Source Of Data  
 Back pressure DCS  
 Extraction DCS  
 GEA System **Mobile Operator**  
 Leaks **Mobile Operator**

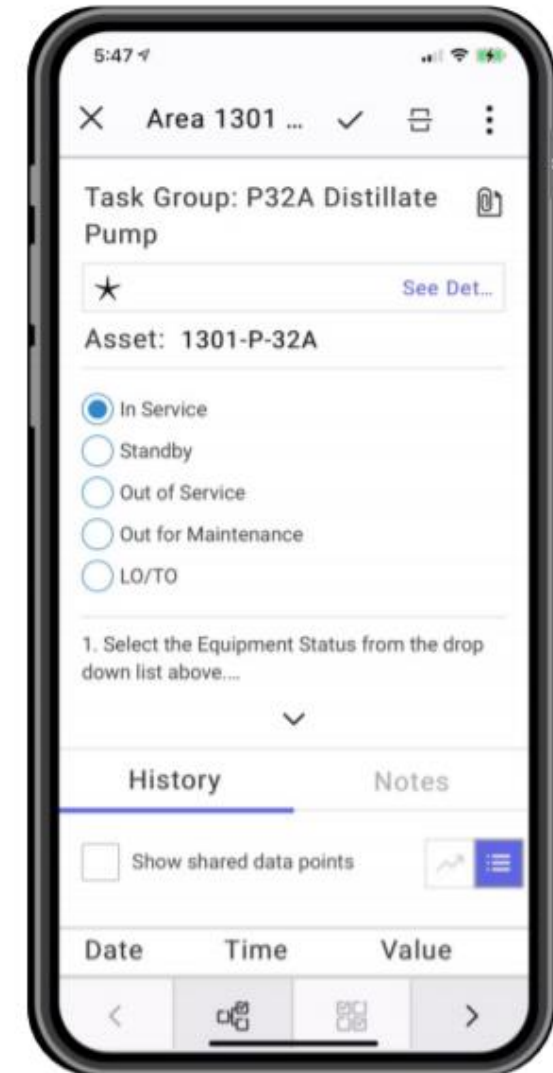
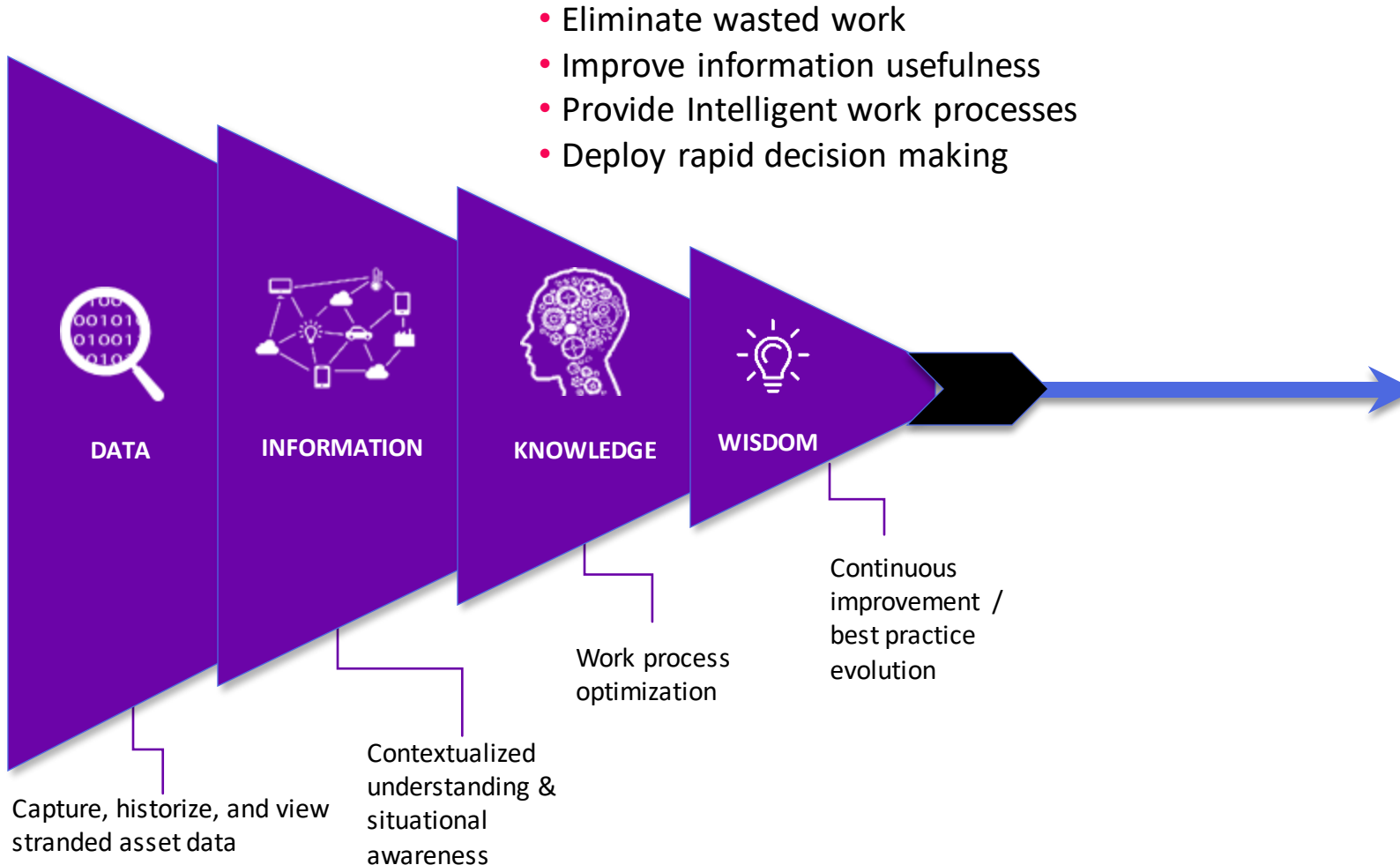


**Feed Pumps**  
Variable Source Of Data  
 Bearings DCS  
 Temp/Pressure DCS  
 Vibration **Mobile Operator**  
 Lube oil **Mobile Operator**

**Generator**  
Variable Source Of Data  
 Vibration DCS  
 Lube oil DCS  
 Buss Duct **Mobile Operator**  
 Booster Pumps **Mobile Operator**

**Transformer**  
Variable Source Of Data  
 Temperatures DCS  
 Excitation DCS  
 Trans Oil **Mobile Operator**  
 Fans/coolers **Mobile Operator**

# The power of digital workflow and mobility





# Proven business outcomes

## Stranded data

**Improve decision making** by using disconnected data and the tribal knowledge of your front line workers.

## Workforce performance

**Better operator efficiency** through the consistent execution of best practices, situational awareness and data visibility

## Downtime avoidance

**Decrease in unplanned downtime** through identifying, controlling and/or eliminating potential failures.

## Compliance

**Improved compliance records and reporting** through replicable, established processes and automated reporting

# Common challenge

Accessing stranded asset data: Lack of visibility and information on stranded assets effectively leads to a break in the digital thread that connects people, processes and assets. This can lead to an inefficient workforce, unscheduled downtime, and a lack of compliance.

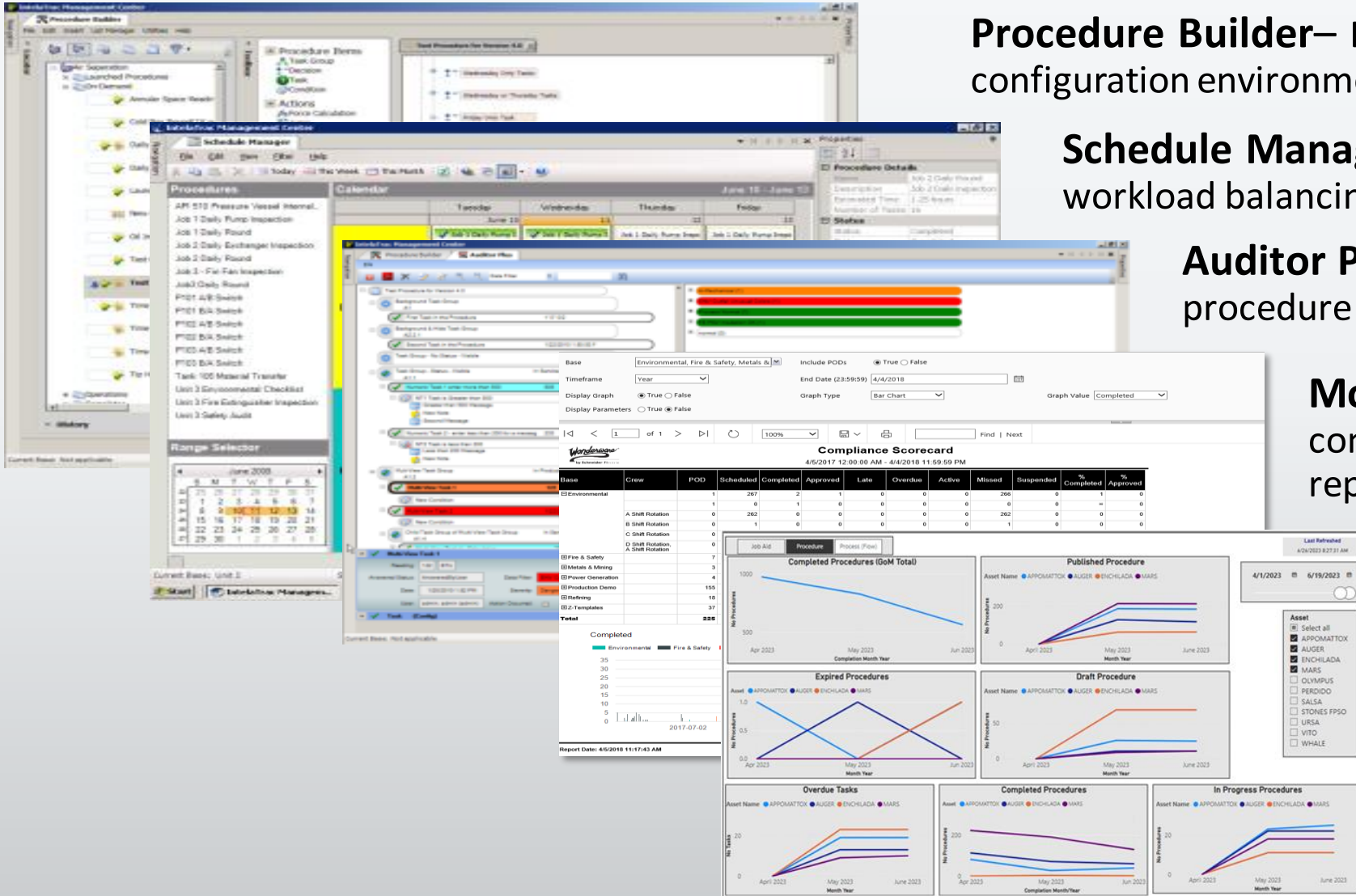
## Solution:

- Provide organizations an enterprise-wide ready mobile field workforce solution that is COTS
- Make it easy for “SuperUsers” to configure rounds/routes/tours
- Distribute this work in a schedule or ‘ad-hoc’ on-demand/and work in an offline mode
- Provide field workers an easy-to-use tool to collect data in a consistent way
- Provide actionable messaging for abnormal situations met in the field, at the point of incident
- Provide the ability to capture images and/or videos as a record to the abnormal situation
- Provide an easy way to view this information in reports and dashboards
- Validate work is performed
- **Connect to the AVEVA™ PI System™**

## Benefit:

- Secure, standardize, globalize with regional settings support (language, time zone, cultural settings)
- So that best practices of field work processes are deployed
- Support shift schedules or ad-hoc work
- To reduce the primary failure problem, remove secondary and potential process upsets, derates, or additional maintenance
- A picture is worth a thousand words, so more context with image capture
- Paint a complete picture, now including field information
- To support safety and compliance records
- **To send field data to the AVEVA PI System**

# Software suite



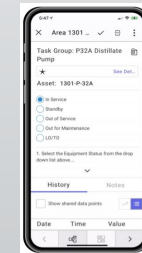
**Procedure Builder**– Easy to use, highly flexible, configuration environment

**Schedule Manager**– advanced scheduling & workload balancing

**Auditor Plus**– work process and procedure review and approval

**Mobile Operator Reports** – configurable, exportable, emailable reports

**Power BI** – Dashboards for field collected data



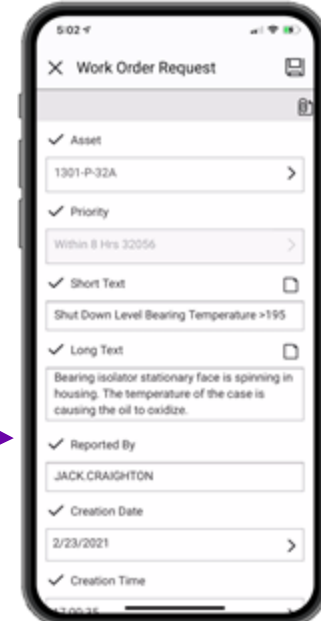
**Mobile Operator App** – field work execution



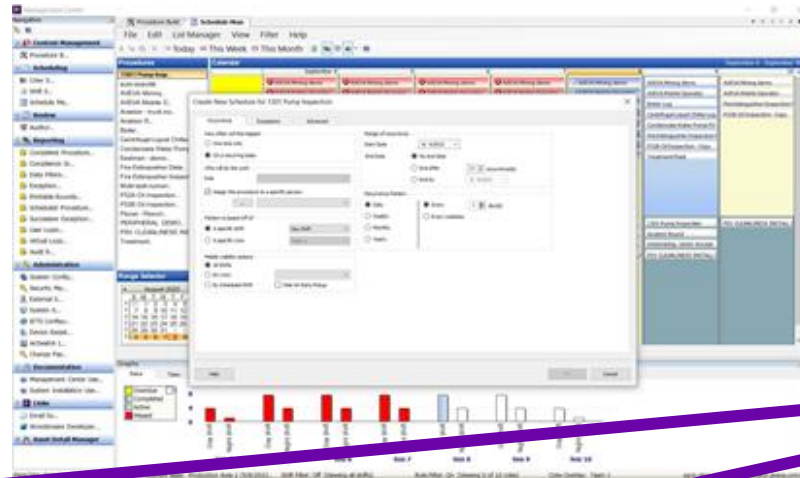


# Overview of the AVEVA Mobile Operator workflow

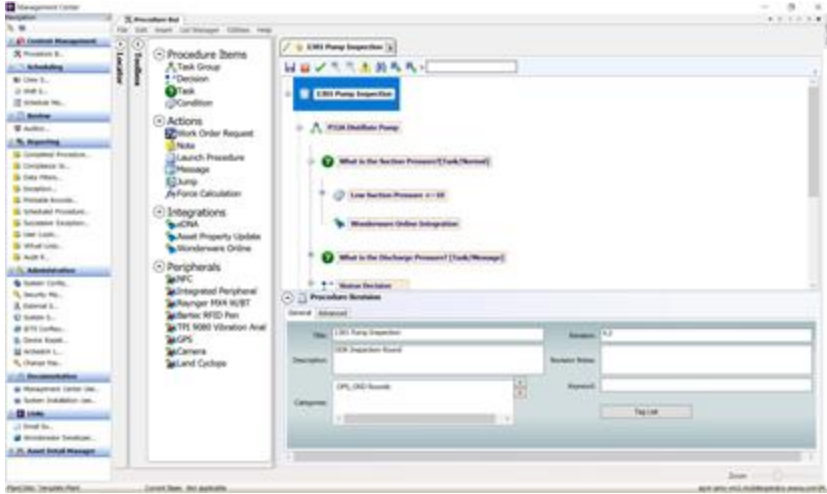
Perform work



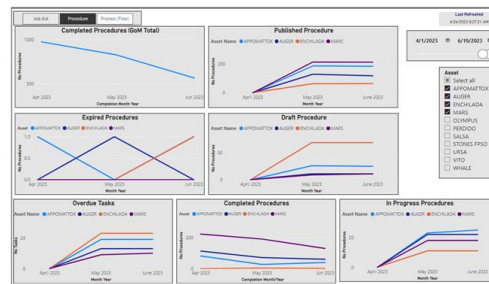
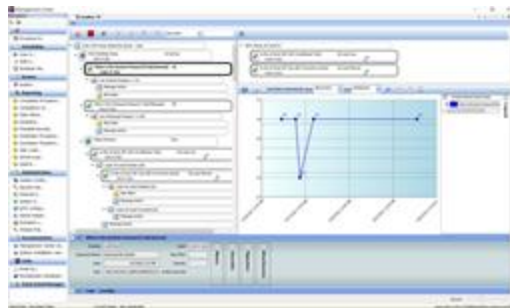
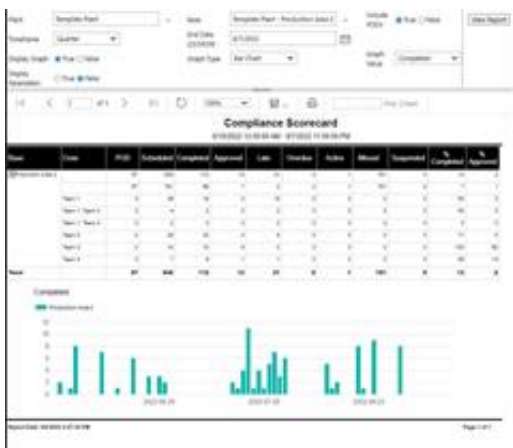
Schedule work



Build & configure work



Review work



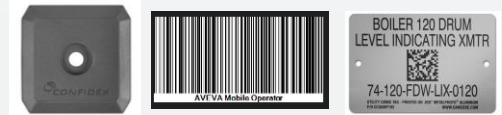
# Functional capabilities



## OS agnostic



## Barcode/ QR/ NFC tags



## Bluetooth peripherals



**AVEVA**

# AVEVA Mobile Operator - PI Update Service

- This service sends values to the AVEVA PI System after a round has been completed and synced
- This data can be collected by manually entering values, read with a temp gun, vibe probe, or other BT peripherals, and by scanning an NFC, QR, or barcode
- The data is then securely stored in the mobile database until transferred
- The Update Service will then check the AVEVA PI System for new PI Tag data and send those values and time stamps to their PI Tags

Oil Inspection [Sequence...]

Check Engine Oil Pressure

Asset: Haul Truck 101

Type Here PSI

The Engine Oil Pressure should be in a range of 420-480 psi

History Notes

Show shared data points

Date	Time	Value
10/2/2022	9:15:12 AM	455
10/1/2022	10:51:45 AM	465
10/1/2022	9:24:12 AM	460
9/30/2022	1:43:39	465

\\MOR\Mining - PI System Explorer (Administrator)

File Search View Go Tools Help

Database Query Date Back Check In Refresh

Elements

- Elements
- Data Management
- Mine 1
- Truck Fleet
  - Truck 101
  - Truck 102
  - Truck 103
  - Truck 104
  - Truck 105
  - Truck 106
  - Truck 107
  - Truck 108
  - Truck 109
  - Truck 110
- Element Searches

Truck 101

General Child Elements Attributes Ports Analyses Notification Rules

Filter

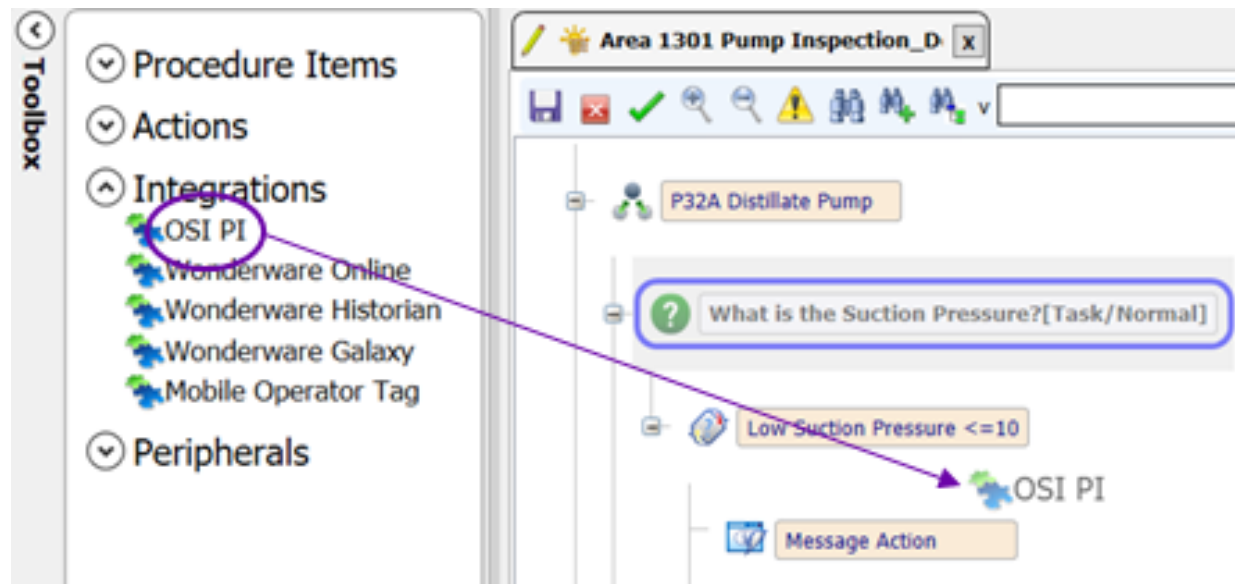
Name	Value
Engine Fuel Rate	336
Engine Load	99.254 %
Engine Oil Pressure	460.19 psi
Engine Oil Pressure Man	455 psi
Engine RPM	1921.1 rpm
OilColor	4
Category: Engine_Inlet_System	
Air Filter	6.9859
Boost Pressure	188.74
Category: Exhaust System	
Delta Exhaust Temp Engine Load	60.928
Hourly Average Delta Exhaust ...	29.862
Left Exhaust Temperature	503.06
Right Exhaust Temperature	442.13

Engine Oil Pressure Man

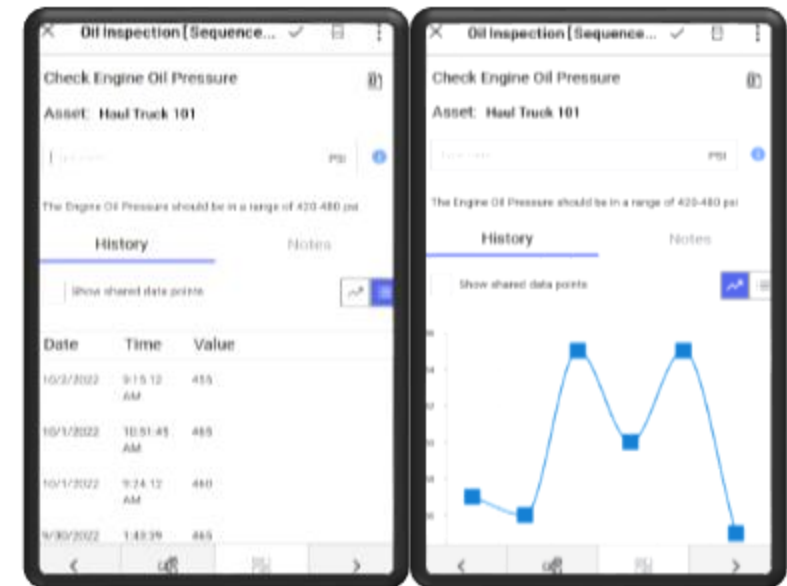
# AVEVA Mobile Operator PI Update Service

## How it's configured and used in a procedure

- Using Procedure Builder, a task can be built to collect the data type and value



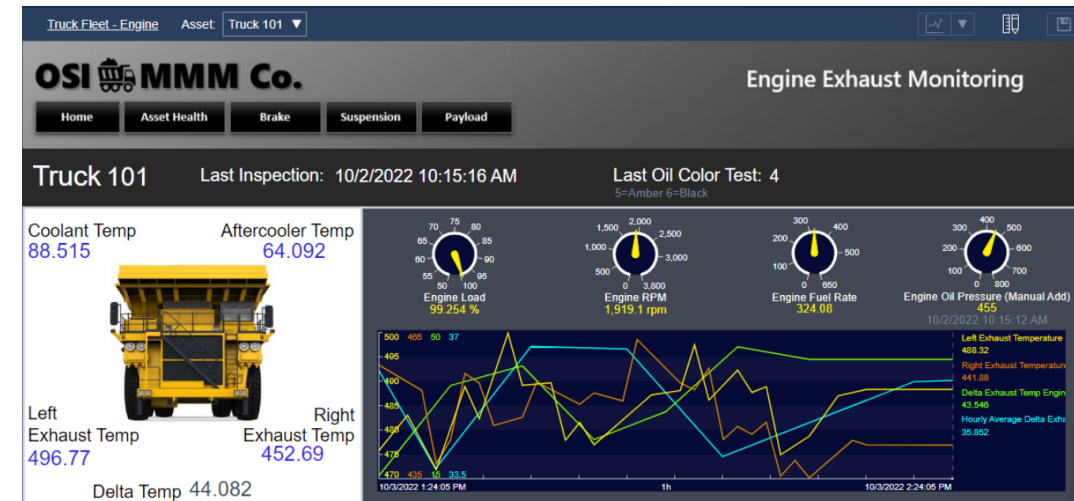
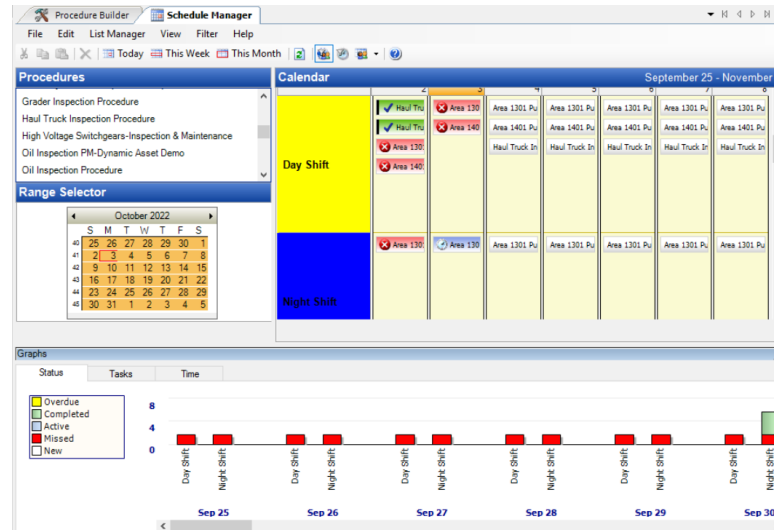
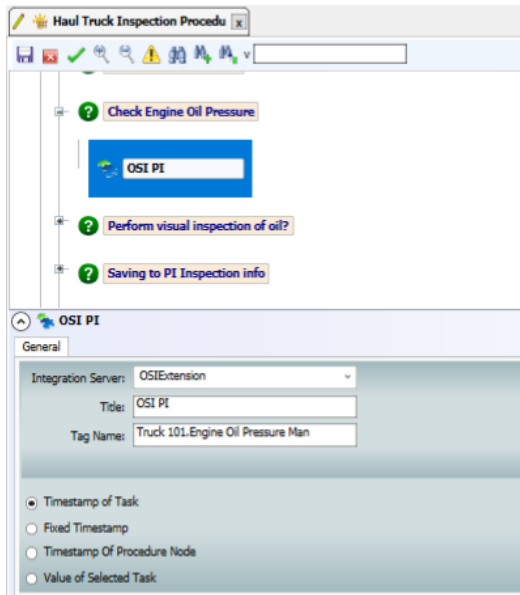
- Assets can be created (or connected to your asset hierarchy) in AMO and used in a round to store and display historical values for that task against that asset



# AVEVA Mobile Operator PI Update Service

## How it's configured and used in a procedure

- Once the task is configured, a PI Integration can be dragged over from the toolbox and nested under the task. This is where the PI Tag is entered and type of timestamp is selected
- Using Schedule Manager, the round can be scheduled so that the assigned user will see it on the day and shift it needs to be completed
- Once completed and transferred back to the database, the service will send the new values over to AVEVA PI System, viewable in AVEVA™ PI Vision™



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# AVEVA Mobile Operator supports

- **Work processes / initiatives:**

- Connected (field) worker
- Operator-driven reliability (ODR)
- Reliability-centered maintenance (RCM)
- Operator routine duties (ORD)
- Proactive monitoring
- Digital transformation
- Rounds, routes, procedures, tours, walk-downs, etc.

- **Integrations:**

- CMMS / EAM
- Historians
- Turnaround applications
- Document management
- Laboratory / LIMS
- Shift handover/reports
- GPS

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# AVEVA Mobile Operator supports

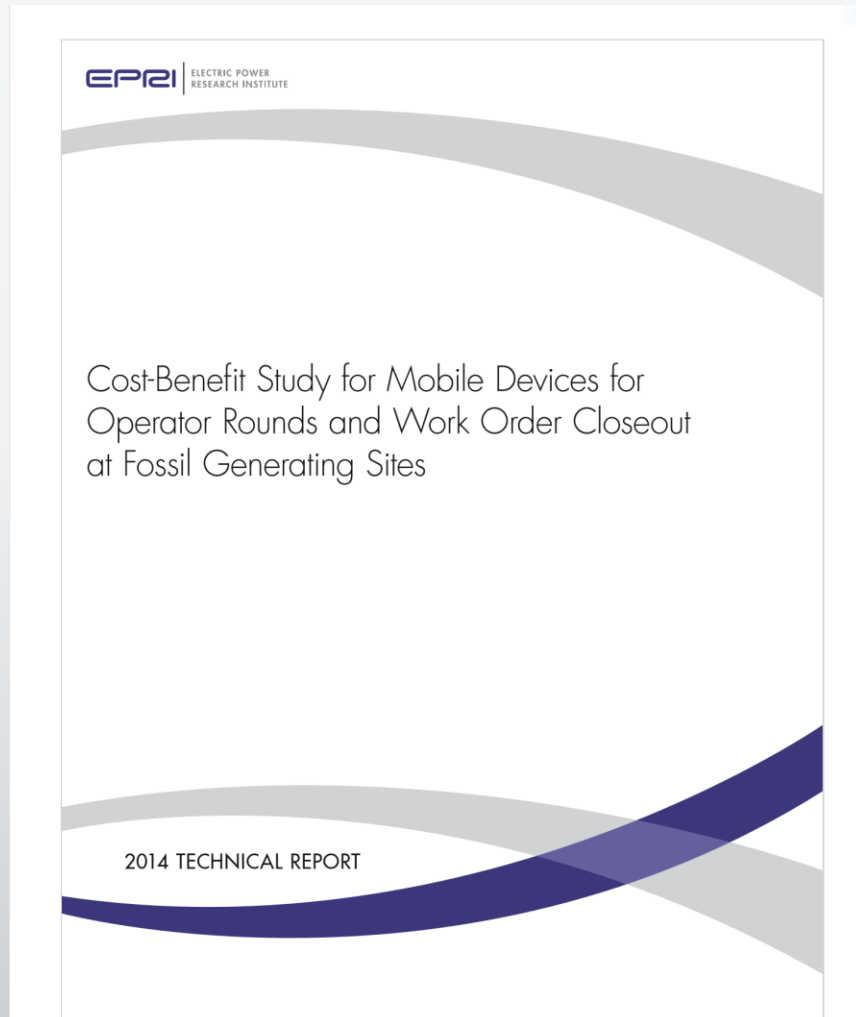
## ENVIRONMENTAL INSPECTIONS

- Carseal checklists
- Water outfall inspection
- Tank in service inspection
- NESHAP above ground piping inspection
- Recovered oil tank inspection
- Oily water sewer / QQQ drain inspections
- Stack opacity checks
- Weekly visual LDAR (VOC)
- Method #9 visual emission evaluation
- Chemical truck loading inspections

## FIRE & SAFETY INSPECTIONS

- Building audit
- Fire extinguishers & blankets
- Lock-out / tag-out
- Fresh air control systems
- Hydrants, monitors, PIVs, hose reels, foam totes
- Self-contained breathing apparatus (SCBA)
- Eyewash stations & safety showers
- Ring buoys, lifeboats, life preservers
- Fireman locker gear inventory
- Fire & gas detectors
- OSHA self-inspection checks

# EPRI study on customer deploying AVEVA Mobile Operator



## Current Applications

The member utility institutionalized the auxiliary operator rounds by writing the program steps for conducting these rounds in the Wonderware **IntelaTrac** software and storing those program steps on a server. The auxiliary operator selects the particular set of rounds they are scheduled to conduct and downloads the steps for conducting those rounds into their handheld computer. Typical rounds that this utility programmed into the software include cyclone inspections, hydrogen dryer inspections, sump pump inspections, and upper air handler inspections, among others. The steps for conducting any particular set of rounds are presented in an order that optimizes the movement of the operator through the rounds. Each step provides guidance on what the operator should observe and what information should be recorded. These observations may include equipment status (operating, standby, shutdown) valve positions (open, closed, throttled), switch positions (on, off, auto), temperatures, pressures, lubrication levels, and so on. Data that are outside normal ranges will trigger an alert and provide follow-up actions. For example, a low oil level reading might trigger instructions such as the following:

1. Obtain a specific type and grade of oil.
2. Add oil to the reservoir.
3. Document the condition in the note section for the following shift.
4. Document the condition in a work order for maintenance to investigate.





# AVEVA Helps Bermuda Utility Provide Consistent Power and Deploy Upgrades Self-sufficiently

## Goals

- Provide reliable electric power to the entire island chain
- Deploy new capabilities and integrate new equipment self-sufficiently
- Attain ISO 14001-2004 certification

## Challenges

- Bermuda's remote location in the Atlantic Ocean means that in-person support is not quick to arrive and sometimes not possible
- Island development will require increased power generation in the future
- BELCO was attempting to be the first organization in the territory to achieve ISO 14001:2004 certification

## AVEVA Solution

- System Platform
- InTouch® HMI
- Historian
- IntelTrac Mobile Operator Rounds®

## Results

- With the help of the AVEVA software, BELCO's generating plant and transmissions and distribution system provide consistent electricity to the 65,500 residents and 465,000 tourists who visit Bermuda each year
- BELCO achieved the prestigious ISO 14001:2004 certification for environmental management, in part because of the data collection and reporting capabilities of the AVEVA Historian and AVEVA IntelTrac Mobile Operator Rounds
- The utility is expanding its integrated resources plan for the future based on the foundation of the AVEVA software and other AVEVA products

“Give your field workers a better upgrade to a pencil than the pen”



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# Questions?

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



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# 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.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

Learn more at [www.aveva.com](https://www.aveva.com)