



Drones and GIS Data ... Can We Use the PI System for this?

California Resources Corporation



Agenda

- About CRC
- Challenge
- Applications and Use Case
- Implementation Details
- Challenge Solved
- Results Obtained and Business Impact

California Resources Corporation (CRC)

- California's largest oil and natural gas producer on a gross-operated basis.
- Largest privately-held mineral acreage holder in California with approximately 2.3 million net acres.
- In 2017, supplied nearly 4.9 billion gallons of treated, reclaimed water for California agriculture, an 85 percent increase from 2015.



Oil and Gas Industry Challenges



Energy Efficiency

Pumping and
Energy Costs

Asset Data
Management



Process Productivity

Loss of
Containment

Costs /
Optimization



Asset Health

Downtime

Condition Based
Maintenance

Aging
Infrastructure



Quality / Safety

Water Quality

Secure Supply

Contamination

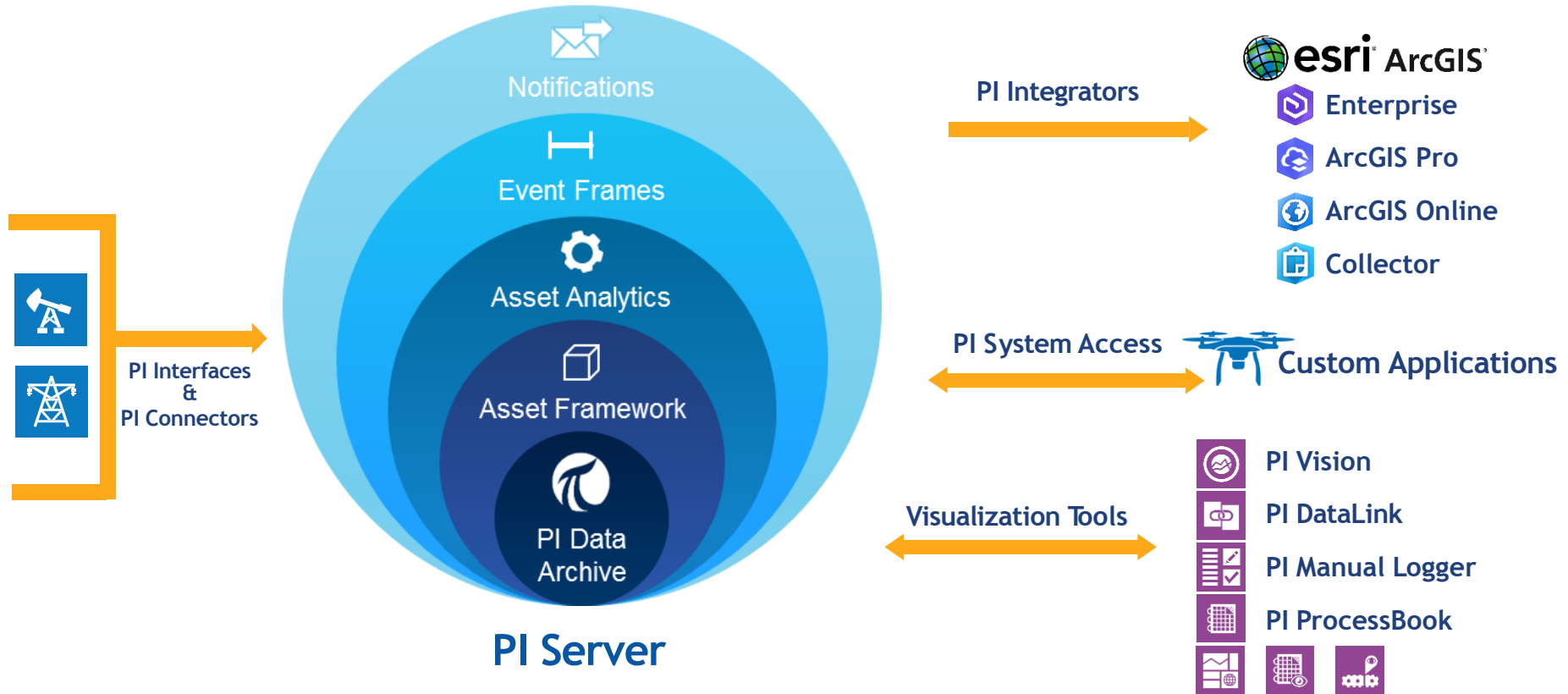


Regulatory Reporting

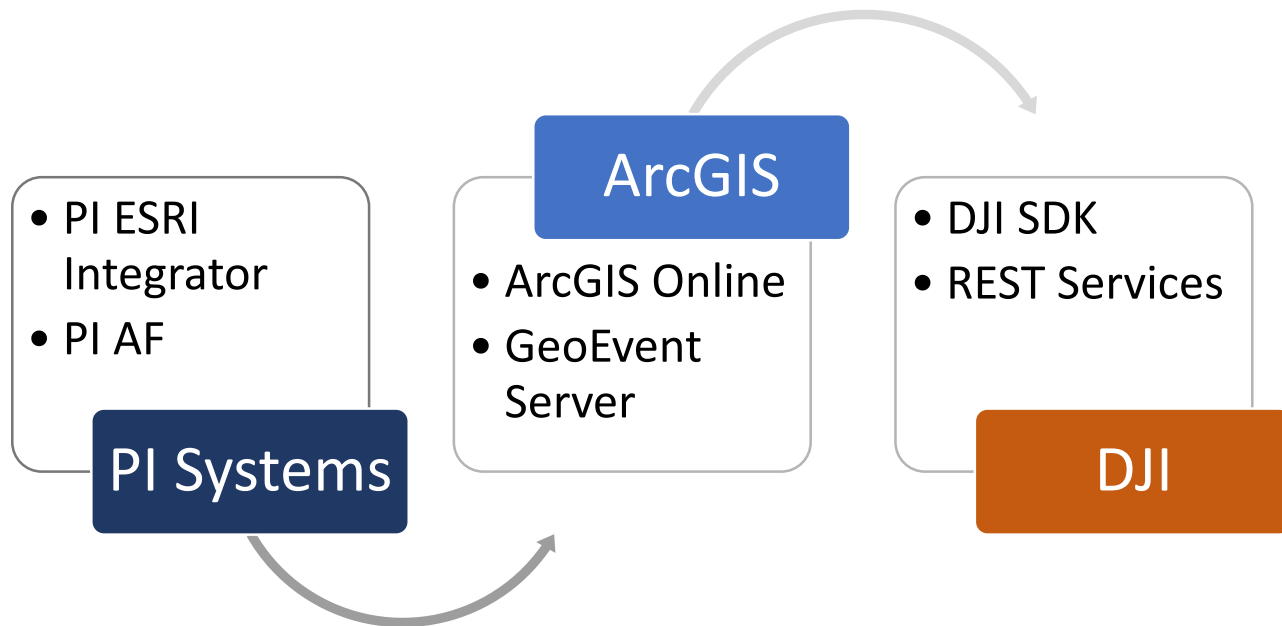
Environmental
Regulations

Reporting
changes

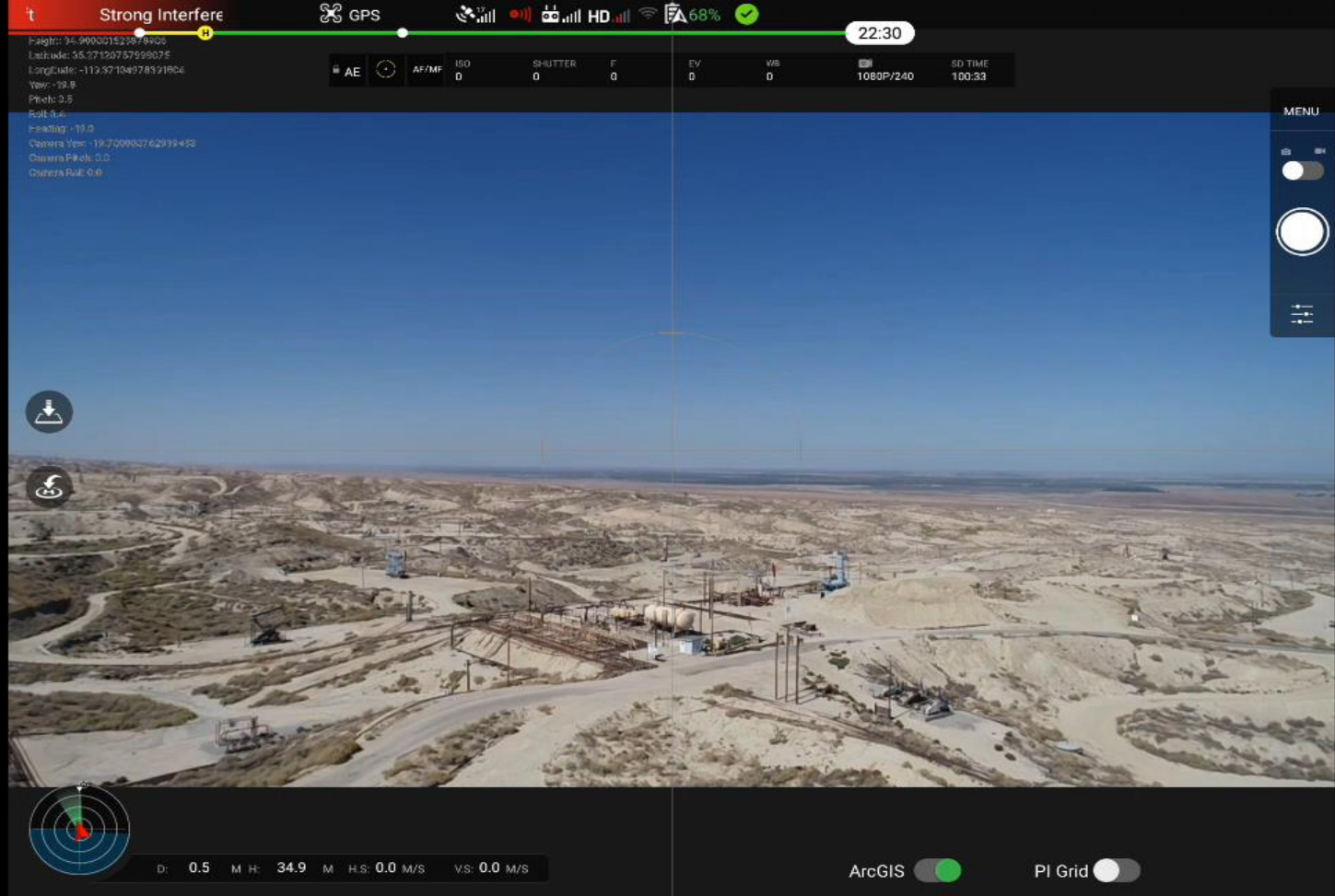
The PI System Infrastructure at CRC



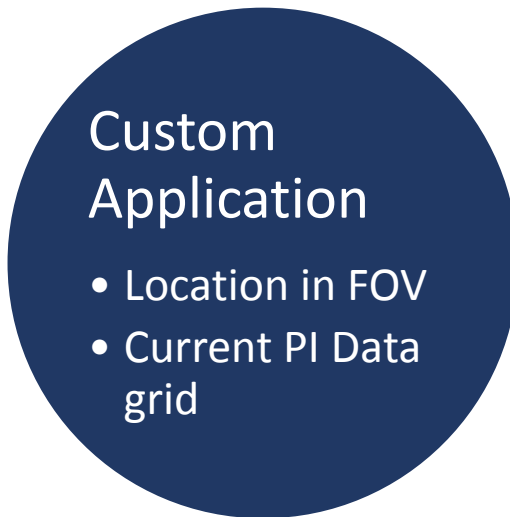
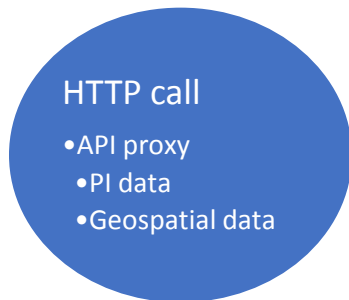
Components used



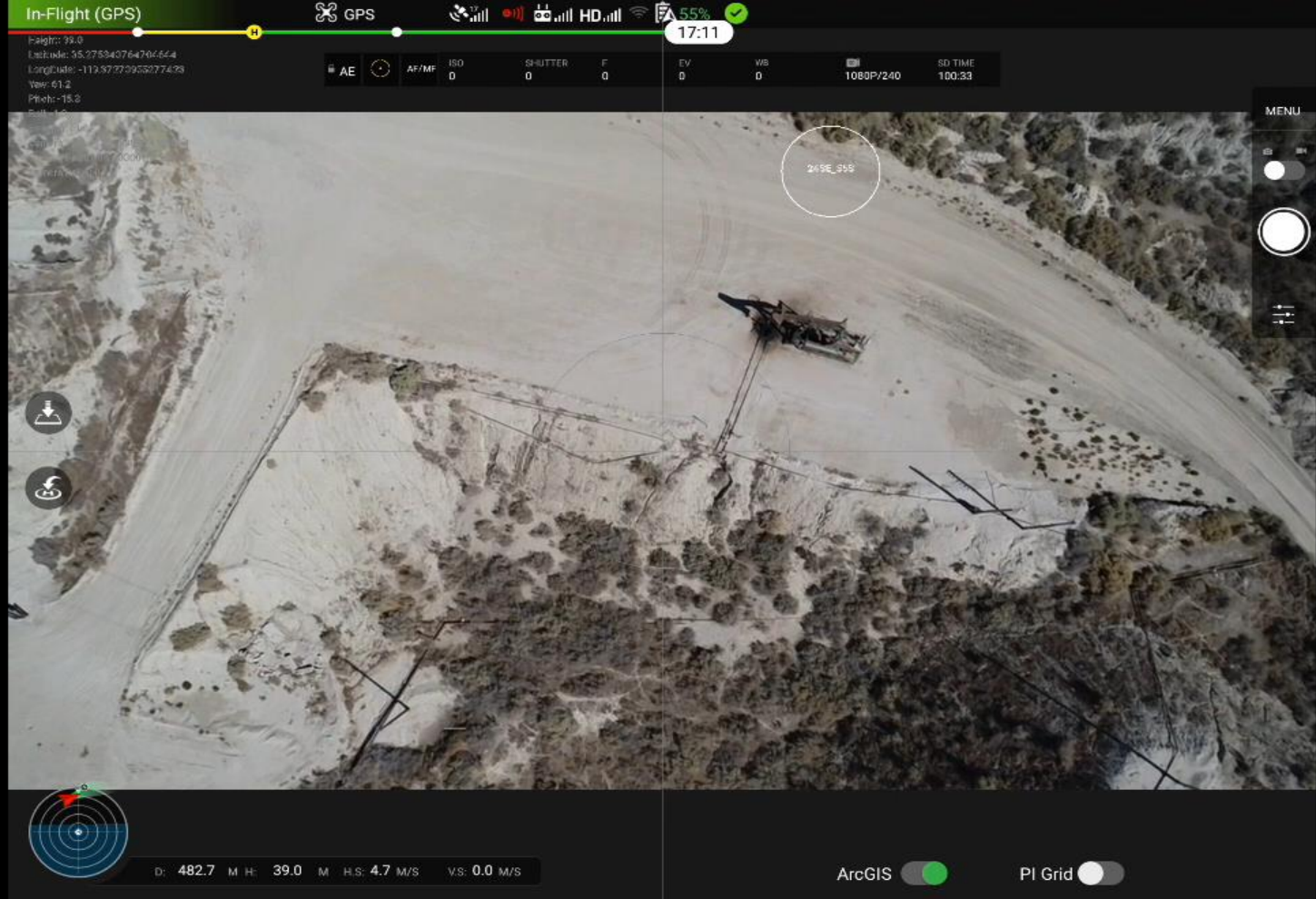
Spatial
data on
the UAS



How the...

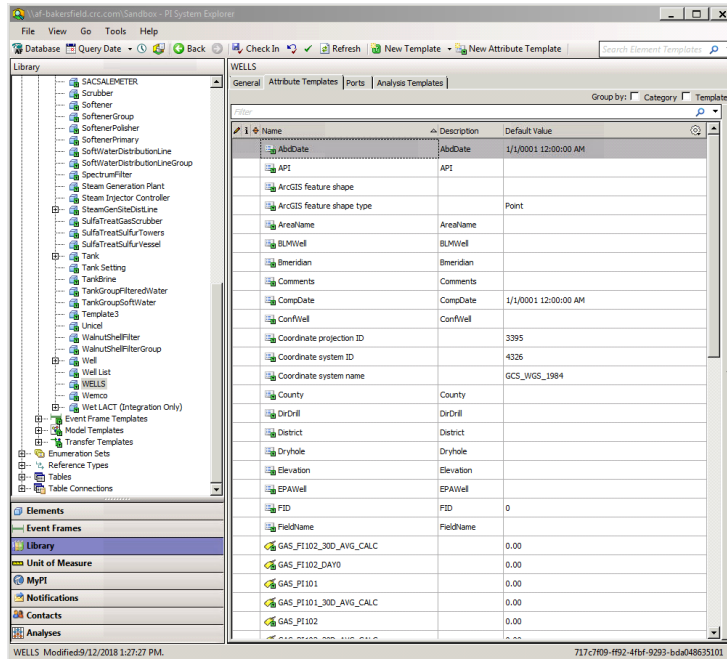


UAS with PI Data overlay

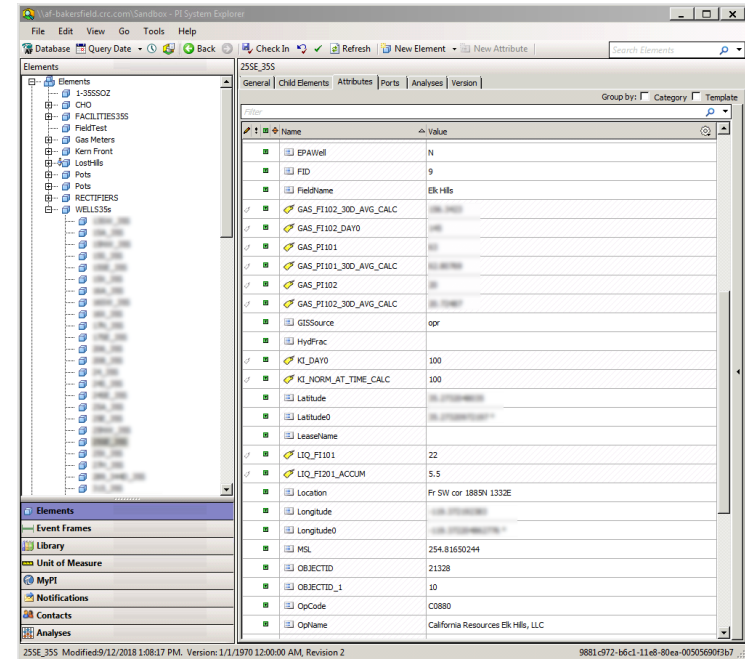


Implementation

Using PI AF (AF Element Templates) allowed us to create a consistent data model for consumption by ESRI and the DJI drone platform



AF Element Templates

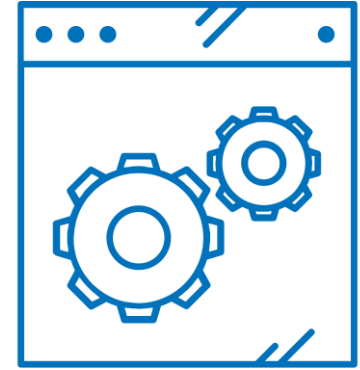
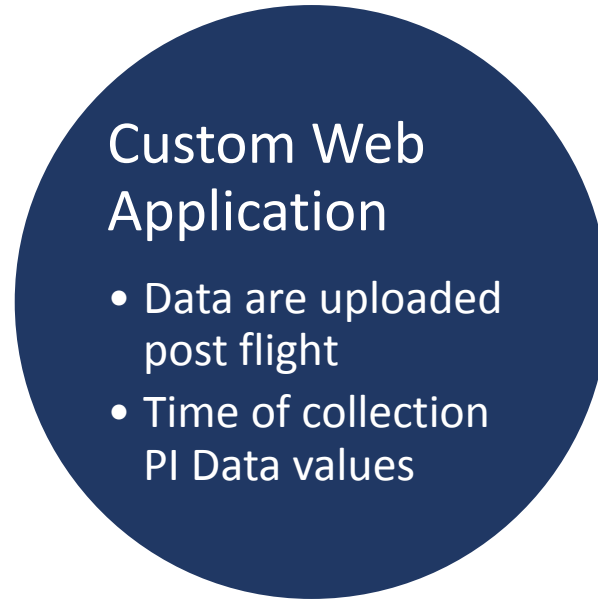
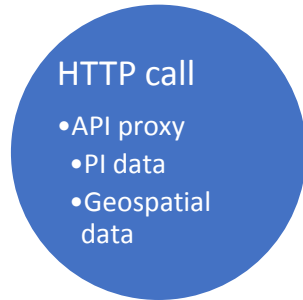


AF Element Instances

Next Steps

- Persona-based layers
 - Add “layers” to the drone application for different use-cases
 - Safety
 - Emissions
 - Vegetation Management
 - Continue to utilize PI AF as the data-integration layer
 - Add asset types (AF Element Templates)
 - Add data streams (PI Points & AF Analytics)
 - Dynamically add data to DJI platform via the PI System

Additionally...



Challenges

People

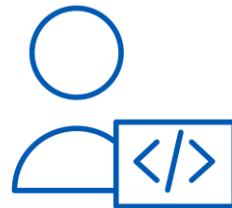
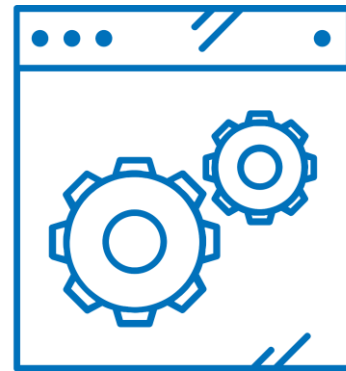
- Team Continuity

Process

- Data accuracy
- Elevation data

Tools

- Drawing Speed
- Time to Market



California Resources Corporation

Drones and GIS Data ... Can We Use the PI System for this?



CHALLENGE

Overlay our real-time monitoring tools with the UAS for collection and insights in real time.

- Difficult to access operational areas.
- Disconnected systems to toggle between.

SOLUTION

Generate context overlays for the field operators deploying UAS technologies at CRC

- Built as configurable user focused layers that **do not** require code rewrites.
- DJI SDK allows for leveraging of the larger systems.

RESULTS

We were able to generate context overlays for the field operators deploying drone technologies at CRC.

- Dynamically built to allow for **real time** AF updates on the drone screen.
- Reduces time in the field (before ~45 min), it now takes **8** minutes to conduct surveillance over 15 acres of operations.

Questions?

Please wait for
the **microphone**

State your
name & company



Please remember to...

Complete Survey!

Navigate to this session in
mobile agenda for survey

TO DOWNLOAD APP,
SEARCH OSISOFT
PI WORLD



Presenters



- Alvin Rentsch
- DevOps Architect
- California Resources Corporation
- alvin.rentsch@crc.com



- Patrick Mechenbier
- Lead Software Developer
- RoviSys
- patrick.mechenbier@rovisys.com

謝謝 KEA LEBONA
 TAPADH LEIBH 고맙습니다
 БАЯРЛАЛАА MISAOTRA ANAO
 DZIĘKUJĘ CI NGIYABONGA TEŞEKKÜR EDERIM GRACIES
 OBRIGADO شڪرا SALAMAT
 DANKON TANK TAPADH LEAT
 KÖSZÖNÖM DANKIE TERIMA KASIH GRACIES
 СПАСИБО MULTUMESC
 PAKMET CIZGE FAAFETA
 GO RAIBH MAITH AGAT ESKERRIK ASKO
 БЛАГОДАРЯ GRACIAS HVALA ХВАЛА ВАМ
 ТЕШЕККÜR EDERIM
 ТИ БЛАГОДАРАМ MAHADSANID
 THANK YOU
 DANK JE EΥΧΑΡΙΣΤΩ GRATIAS TIBI
 AČIŮ SALAMAT MAHALO IĀ 'OE TAKK SKALDU HA
 RAHMAT MERCI DZЯKYЙ
 HATUR NUHUN GRAZZI PAKKA PĒR
 PAXMAT CAĞA ありがとうございます
 SIPAS JI WERE TERIMA KASIH MATUR NUWUN
 CẢM ƠN BẠN UA TSAUG RAU KOJ
 WAZVIITA ТИ БЛАГОДАРАМ
 СИПОС
 FALEMINDERIT



OSIsoft.

PIWorld

THANK YOU



OSIsoft.

PIWorld

SAN FRANCISCO 2019

#PIWorld

©2019 OSIsoft, LLC