



AUTOMATION OF DATA MANAGEMENT FOR QUALITY, STAKEHOLDER ACCESS, AND IMPROVED REPORTING

June 5, 2024

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Buffy Quinn



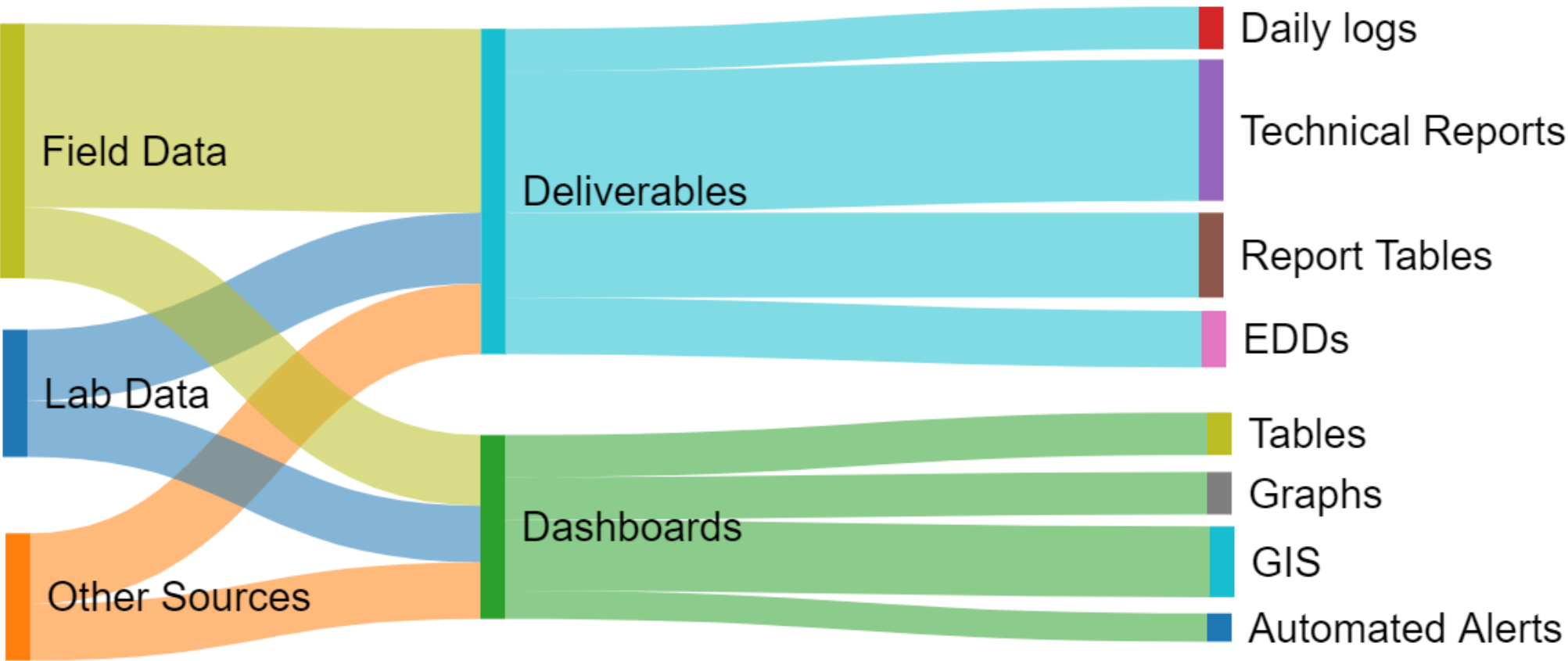
AGENDA

1. Automation of Data Management
2. Data Collection
3. Reporting
4. Stakeholder Access

DATA FLOW AND AUTOMATION

Inputs

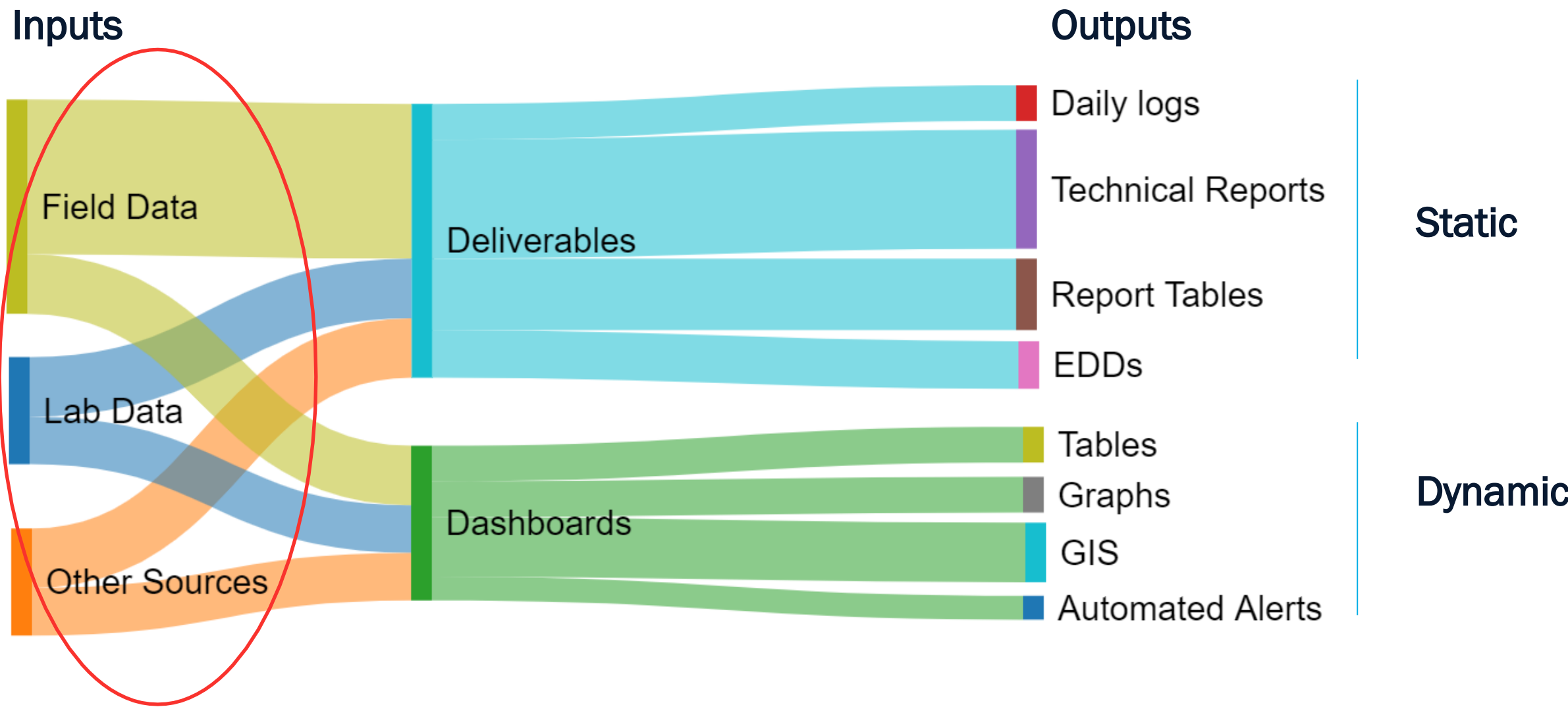
Outputs



Static

Dynamic

AUTOMATION DURING DATA COLLECTION



AUTOMATION DURING DATA COLLECTION



Field forms via mobile devices

- System generated QA/QC checks
- Alerts for data out of expected range
- Safety Warnings

Interconnections via SQL

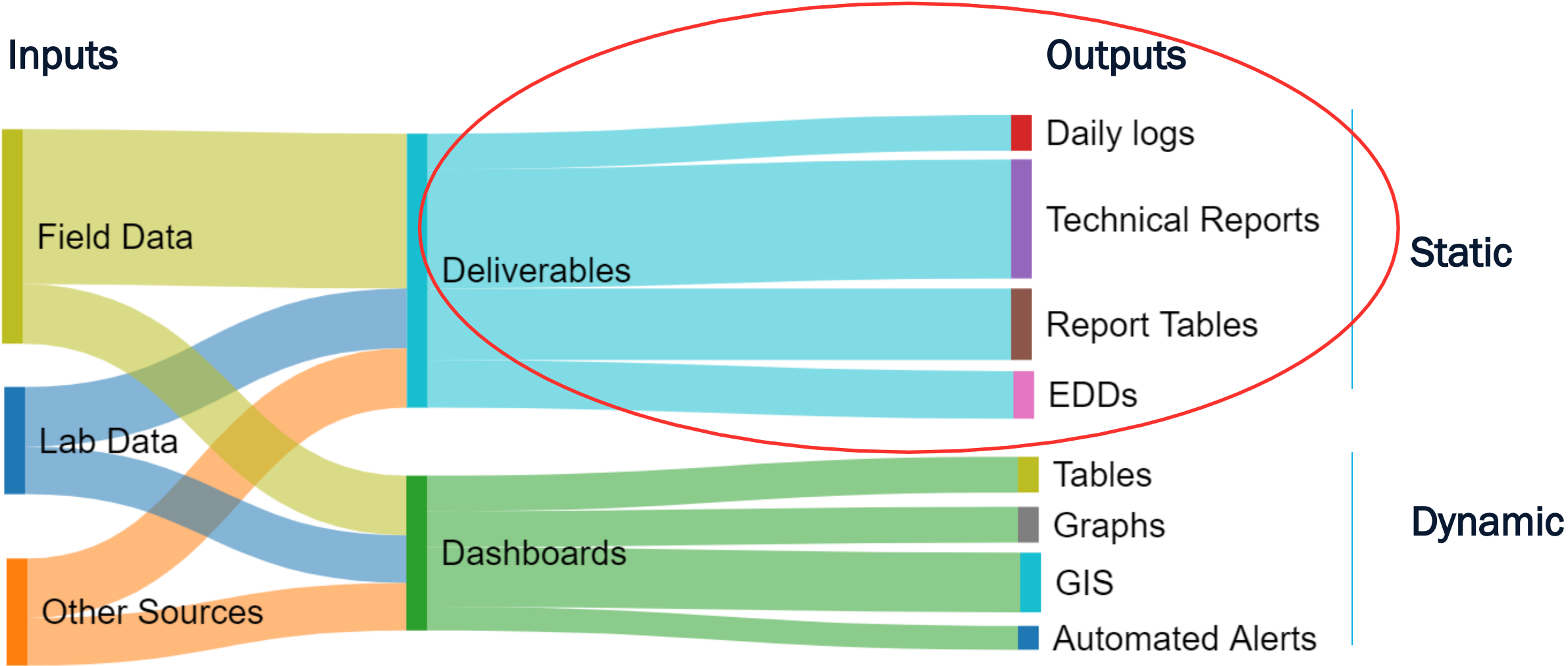
- Laboratory Information Management Systems
- Telemetry from Internet of Things
- External databases (GIS, EIM, EQuIS, CRM, other)



AUTOMATION FOR REPORTING

Inputs

Outputs



RESIDENTIAL REMEDIATION

Soil remediation at more than
750 residential properties

Work Plans and Closure Reports
required for each property

An automated report generating
system was developed.



DATA STORED IN SQL AND SHAREPOINT

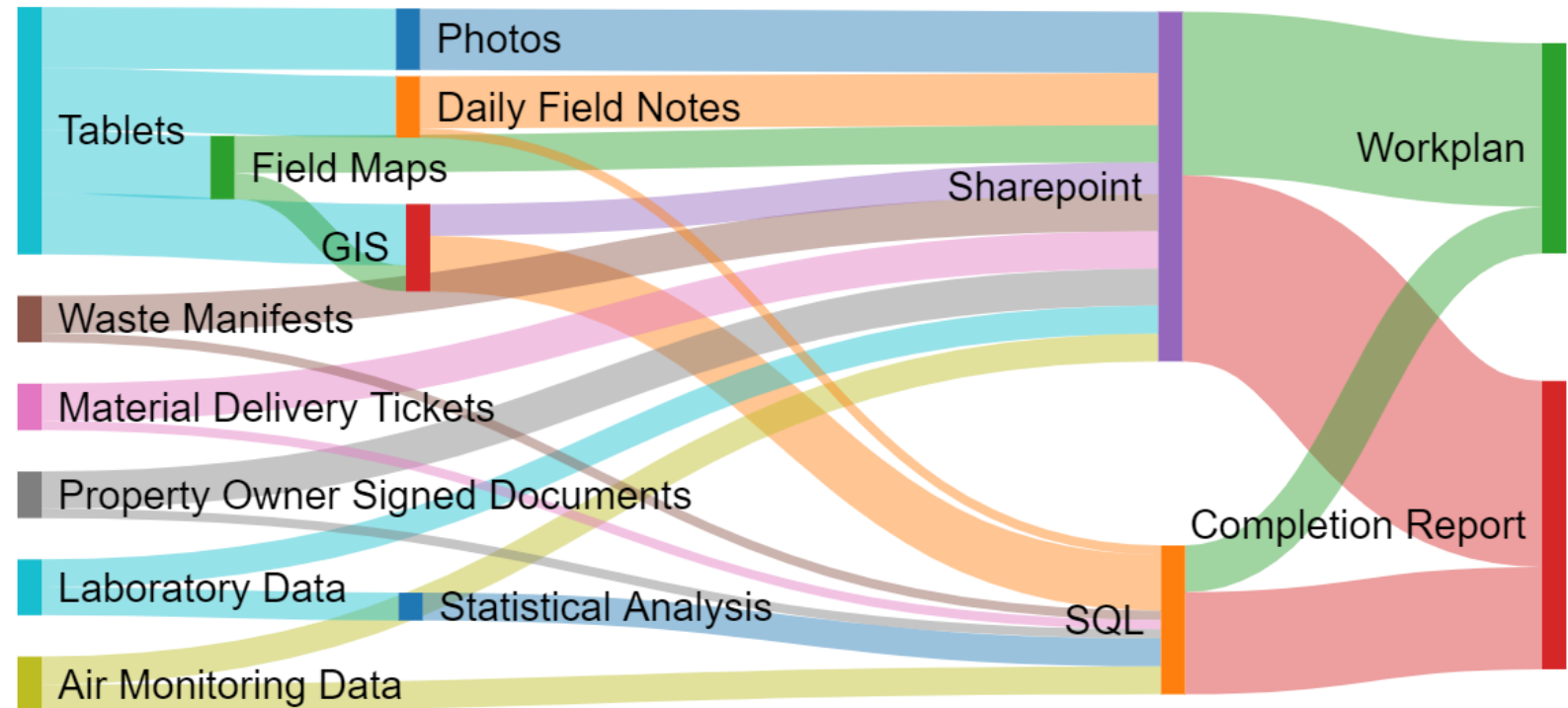
The goal is any data has a single entry point into the system and can be used in text, tables, and figures from that single location.

Templates for text and tables were autopopulated with a few clicks

Field data is automatically pushed to SQL

For individual documents, metadata assigned at time of upload is pushed into reports

Microsoft PowerAutomate was employed to collect all individual documents and insert them into the final PDF in the correct order.





CASE STUDY - PUBLIC PARTICIPATION AND OUTREACH

COMMUNICATING WITH THE PUBLIC

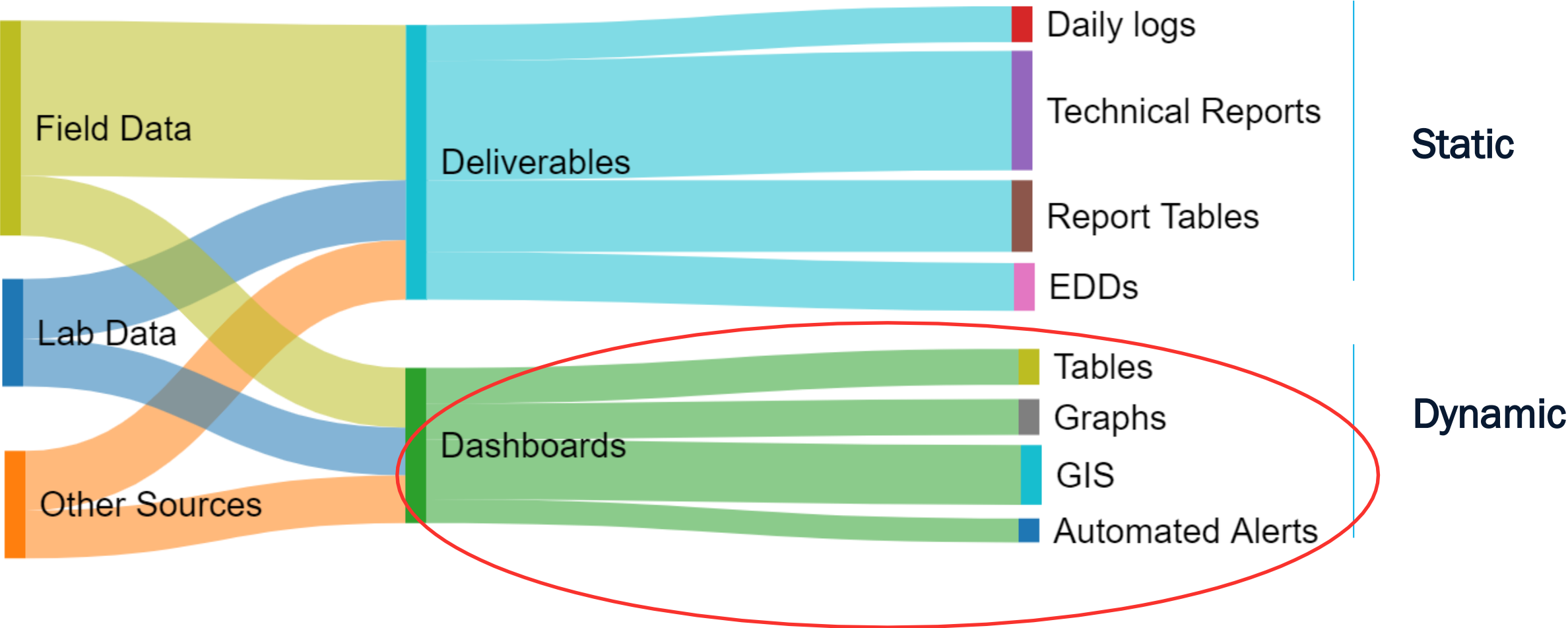
- Site Management Plan is 1000+ pages
- Important information for property owners is buried
- Client requested an app to use on a smart phone
- Developed a StoryMap
- App was highlighted in an internal client newsletter: Re-imagining Site Management for Residential Property Owners



AUTOMATION FOR DASHBOARDS

Inputs

Outputs





CASE STUDY - CLIENT ENGAGEMENT

IMPROVED REPORTING

Tracking site management for an area of 326 individual properties

Client requested access to data

- Weekly tracking of submittals and remediation work
- Analytical results
- Complaint tracking

Develop and maintain a GIS/Power BI database for storing and visualizing data and information accessible to project management and client team

Includes satellite aerial imagery, collected monthly to view and track land use changes, property improvements, and cover system conditions at properties within the Study Area.

- Forms on Fire data
- GIS feature classes
- EQulS Data results
- SQL databases
- SharePoint Lists



Corning Site Management

Corning_SM

Status Map

To DEC

COC Map

Go back

Department of Environmental Conservation

Map: Property Status



Clear all slicers

- RES ID
- 🔍 Search
- ☐ EA001

☐ EA002

☐ EA003

☐ EA004

☐ EA005

☐ EA006

☐ EA007

☐ EA008

☐ EA009

☐ EA010

☐ EA011

☐ EA012

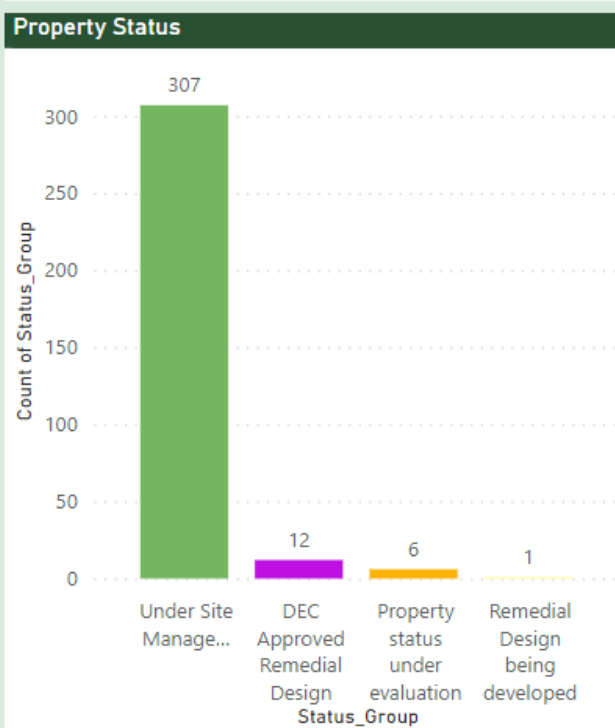
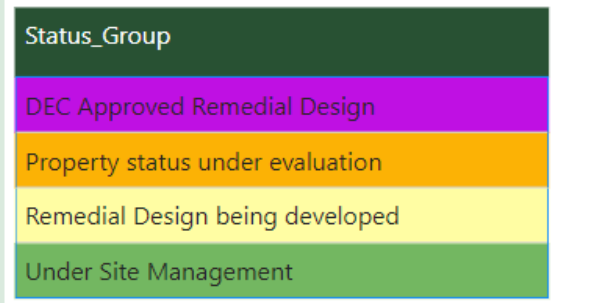
☐ EA013

☐ EA014

☐ EA015

☐ EA016

☐ EA017



Exceedance Map (COCs only)

Clear all slicers

Comment icon

Help icon



- RES Number**
- TP_Pts.Res_Code
- Search
- ☐ (Blank)
 - ☐ EA001
 - ☐ EA002
 - ☐ EA003
 - ☐ EA005
 - ☐ EA007
 - ☐ EA008
 - ☐ EA009
 - ☐ EA011
 - ☐ EA016
 - ☐ EA017
 - ☐ EA019
 - ☐ EA021
 - ☐ EA022
 - ☐ EA023
 - ☐ EA027
 - ☐ EA029
 - ☐ EA030
 - ☐ EA031
 - ☐ EA032
 - ☐ EA034
 - ☐ EA036

Sample Exceeds SCO?

☐ DNE SCO

☒ exceeds SCO

Any Exceedances?

☒ Exceedance on property

☐ No Exceedances on property

Chemical

4-METAL

- ☐ Arsenic
- ☐ Cadmium
- ☐ Lead

2-SVOC

- ☒ Benzo(A)Pyrene
- ☒ Benzo(B)Fluoranthene
- ☒ Benzo(K)Fluoranthene
- ☒ Chrysene
- ☒ Dibenz(A,H)Anthracene
- ☒ Indeno(1,2,3-C,D)Pyrene

General Audience

Testing

File

Share

Export

Chat in Teams

Explore this data

Get insights

Subscribe to report

Clear all slicers

OMM Site Management

RES Summary

Status Map

Exceedance Map

Exceedance Table

Complaints Detail

Complaints Summary

ction_Items

Welcome

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AWS

Study Area

Satellite

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Exceedance Map (COCs only)

loc_name	sys_loc_code	sys_sample_code	chemical_name	Result_value	result_unit	action_level
CMS	CMSSB006	CMSSB006-1-020	Benzo(A)Pyrene	7,600.00	ug/kg	1
CMS	CMSSB006	CMSSB006-0-020	Benzo(A)Pyrene	16,000.00	ug/kg	1
CMS	CMSSB006	CMSSB006-1-020	Benzo(B)Fluoranthene	12,000.00	ug/kg	1
CMS	CMSSB006	CMSSB006-0-020	Benzo(B)Fluoranthene	20,000.00	ug/kg	1
CMS	CMSSB006	CMSSB006-1-020	Benzo(K)Fluoranthene	4,600.00	ug/kg	1
CMS	CMSSB006	CMSSB006-0-020	Benzo(K)Fluoranthene	14,000.00	ug/kg	1
CMS	CMSSB006	CMSSB006-0-020	Chrysene	4,300.00		1
CMS	CMSSB006	CMSSB006-1-020	Chrysene	11,000.00	ug/kg	1
CMS	CMSSB006	CMSSB006-0-018	Dibenz(A,H)Anthracene	340.00		0.33
CMS	CMSSB006	CMSSB006-0-020	Dibenz(A,H)Anthracene	3,400.00		0.33
CMS	CMSSB006	CMSSB006-1-020	Dibenz(A,H)Anthracene	3,500.00		0.33
CMS	CMSSB006	CMSSB006-1-020	Indeno(1,2,3-C,D)Pyrene	6,100.00	ug/kg	0.5
CMS	CMSSB006	CMSSB006-0-020	Indeno(1,2,3-C,D)Pyrene	11,000.00	ug/kg	0.5
CMS	CMSSB009	CMSSB009-0-039	Dibenz(A,H)Anthracene	330.00		0.33
CMS	CMSSB013	CMSSB013-0-020	Benzo(A)Pyrene	1,200.00	ug/kg	1
CMS	CMSSB013	CMSSB013-0-020	Benzo(B)Fluoranthene	1,500.00	ug/kg	1
CMS	CMSSB013	CMSSB013-0-020	Chrysene	1,600.00	ug/kg	1
CMS	CMSSB013	CMSSB013-0-010	Dibenz(A,H)Anthracene	330.00		0.33
CMS	CMSSB013	CMSSB013-0-020	Dibenz(A,H)Anthracene	340.00		0.33
CMS	CMSSB013	CMSSB013-0-020	Indeno(1,2,3-C,D)Pyrene	850.00	ug/kg	0.5
CPP	CPPSB005	CPPSB005-0-020	Indeno(1,2,3-C,D)Pyrene	500.00	ug/kg	0.5
CPP	CPPSB010	CPPSB010-0-110	Benzo(A)Pyrene	2,600.00	ug/kg	1
CPP	CPPSB010	CPPSB010-0-025	Benzo(A)Pyrene	120,000.00	ug/kg	1
CPP	CPPSB010	CPPSB010-0-110	Benzo(B)Fluoranthene	4,500.00	ug/kg	1
CPP	CPPSB010	CPPSB010-0-025	Benzo(B)Fluoranthene	180,000.00	ug/kg	1

RES Number

TP_Pts.Res_Code

Search

(Blank)

EA001

EA002

EA003

EA005

EA007

EA008

EA009

EA011

EA016

EA017

EA019

EA021

EA022

EA023

EA027

EA029

EA030

EA031

EA032

EA034

EA036

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Dibenz(A,H)Anthracene

Indeno(1,2,3-C,D)Pyrene

OMM Site Management

RES Summary

Status Map

Exceedance Map

Exceedance Table

Complaints Detail

Complaints Summary

Action_Items

Welcome

Search

AWS

Study Area

Satellite

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Category	Action Item	Date Received	Responses/ revisions due	Parsons Due Date to	Parsons Submitted	Status & Notes
Draft CCRs	2021 CCRs - Thirteenth Batch	1/9/2024			1/15/2024	
Draft CCRs	2022 CCR's - Eighth Batch	4/24/2023		10/20/2023		
Draft CCRs	2022 CCR'S - Eleventh Batch		12/31/2023			
Draft CCRs	2022 CCRs - Fifth Batch		2/8/2024			
Draft CCRs	2022 CCRs - First Batch	1/9/2024			1/11/2024	
Draft CCRs	2022 CCR'S - Ninth Batch	6/27/2023		10/27/2023		
Draft CCRs	2022 CCR's - Seventh Batch		1/15/2024			
Draft CCRs	2022 CCR's - Sixth Batch		2/5/2024		1/4/2024	
Draft CCRs	2022 CCR'S - Tenth Batch					
UPCOMING TASKS	2023 EA070 Water Infiltration NOV	1/2/2024				
UPCOMING TASKS	2023 SOD enhancement inspections			1/12/2024		
UPCOMING TASKS	2023 SOD NOV				12/20/2023	
UPCOMING TASKS	Corning Refractories SCR		9/29/2023	2/15/2024		
Draft CCRs	EA045 CCR Addendum		6/30/2023	10/31/2023		
Draft CCRs	Guthrie (North) SCR Review	12/22/2023		2/15/2024		
Draft CCRs	Guthrie SCR Review	12/22/2023		2/15/2024		
UPCOMING TASKS	Legal Request Data Submittal Review				12/20/2023	
UPCOMING TASKS	NFA Clarification Letter				9/8/2023	
DOCUMENT REVIEWS	OU 3 2022 PRR	11/10/2023			1/5/2024	
DOCUMENT REVIEWS	OU1, 2, and 5 2022 PRR		2/11/2024			
DOCUMENT REVIEWS	OU1, 2, and 5 2022 PRR	1/9/2024				

Category

☐ DOCUMENT REVIEWS

☐ Draft CCRs

☐ UPCOMING TASKS

Action Item

☐ (Blank)

☐ 2021 CCRs - Thirteenth Batch

☐ 2022 CCR's - Eighth Batch

☐ 2022 CCR'S - Eleventh Batch

☐ 2022 CCRs - Fifth Batch

☐ 2022 CCRs - First Batch

☐ 2022 CCR'S - Ninth Batch

☐ 2022 CCR's - Seventh Batch

☐ 2022 CCR's - Sixth Batch

☐ 2022 CCR'S - Tenth Batch

☐ 2023 EA070 Water Infiltration NOV

☐ 2023 SOD enhancement inspections

☐ 2023 SOD NOV

☐ Corning Refractories SCR

☐ EA045 CCR Addendum



CASE STUDY – FIELD TEAM DISPATCH

VEHICLE FLEET MANAGEMENT TO MAXIMIZE EFFICIENCY

Get startedAdministrationSupportLogout

LiveAnalytics

Map

45 / 120 Completed

2 Failed

Running Late

19.7 h Time Worked

253.90 mi Total Distance

Deactivate plan

03/13/2021 Monday

45 / 120 Completed

2 Failed

Running Late

19.7 h Time Worked

253.90 mi Total Distance

Show only: FailedOn RouteRejectedScheduledServicingCompleted

Running Late

Filter orders...

Live status	Order ID	Proof of Delivery	Scheduled at	Service start	Service end	Actual duration	Priority	Location	Address
Completed	575805	-	9:13 AM	9:41 AM 28m delay	9:41 AM 23m delay	0 min (-5)	High	nim d TURNPIKE RD	nim d TURNPIKE RD
Completed	419614	-	10:03 AM	10:39 AM 36m delay	10:42 AM 34m delay	3 min (-2)	Medium	nim d PARKTON RD	nim d PARKTON RD
Completed	419623	-	10:09 AM	10:45 AM 36m delay	11:01 AM 47m delay	16 min (+11)	Medium	nim d PARKTON RD	OR IPARKTON RD
Scheduled	418753	-	10:15 AM	11:58 AM 1h 43m delay	12:03 PM 1h 43m delay	5 min	Medium	OR GENESIS ST	OR GENESIS ST
Scheduled	419420	-	10:21 AM	12:05 PM 1h 44m delay	12:10 PM 1h 44m delay	5 min	Medium	OR MUSCAT RD	OR MUSCAT RD

12:30

Map

Task — 9:36 AM
5530 STEWART RD
Stop: 3 | 5 mins | 571590

OrdersMapSettings

12:30

Orders

ON DUTY

To doCompleted

ON THE WAY

Task — 11:23 AM
1712 4/ ST CIR
Stop: 5 | 5 mins | 11279

SCHEDULE4/42 COMPLETED

Task — 11:44 AM
4005CHERONS ILL RD
Stop: 6 | 5 mins | 2377

Task — 12:18 PM
323 S 2ND ST
Stop: 7 | 5 mins | 427320

Task — 12:23 PM
323 S 2ND ST
Stop: 8 | 5 mins | 427320

Task — 12:47 PM
668th 1012 RD
Stop: 9 | 5 mins | 419513

OrdersMapSettings



CASE STUDY – RAPID DECISION MAKING

RAPID DECISION MAKING

Mine Reclamation in Northern Canada

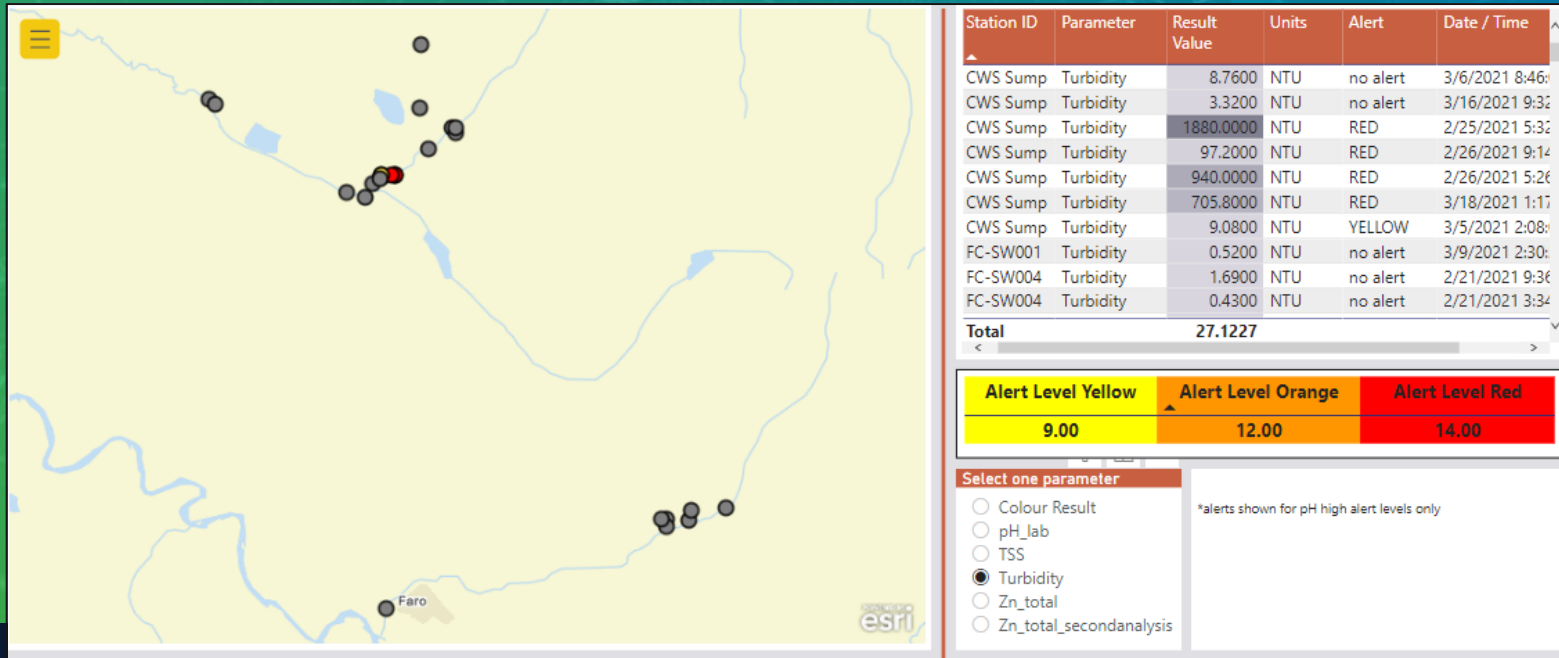
- Nine square miles with multiple groundwater capture and water treatment facilities
- Data collection includes water quality data, environmental data, water train operational data, and weather
- On-Site laboratory for rapid sample analysis
- Multiple stakeholders on and off-site need access to the data for real-time decision making

Challenges

- Remote with limited cellular network reception
- Extreme weather to -40 F and limited light in winter



RAPID DECISION MAKING



Power BI Dashboarding

Set up to address a variety of Stakeholder needs

Allows filtering of data in near real time, including field data, LIMS data, and telemetry from remote equipment

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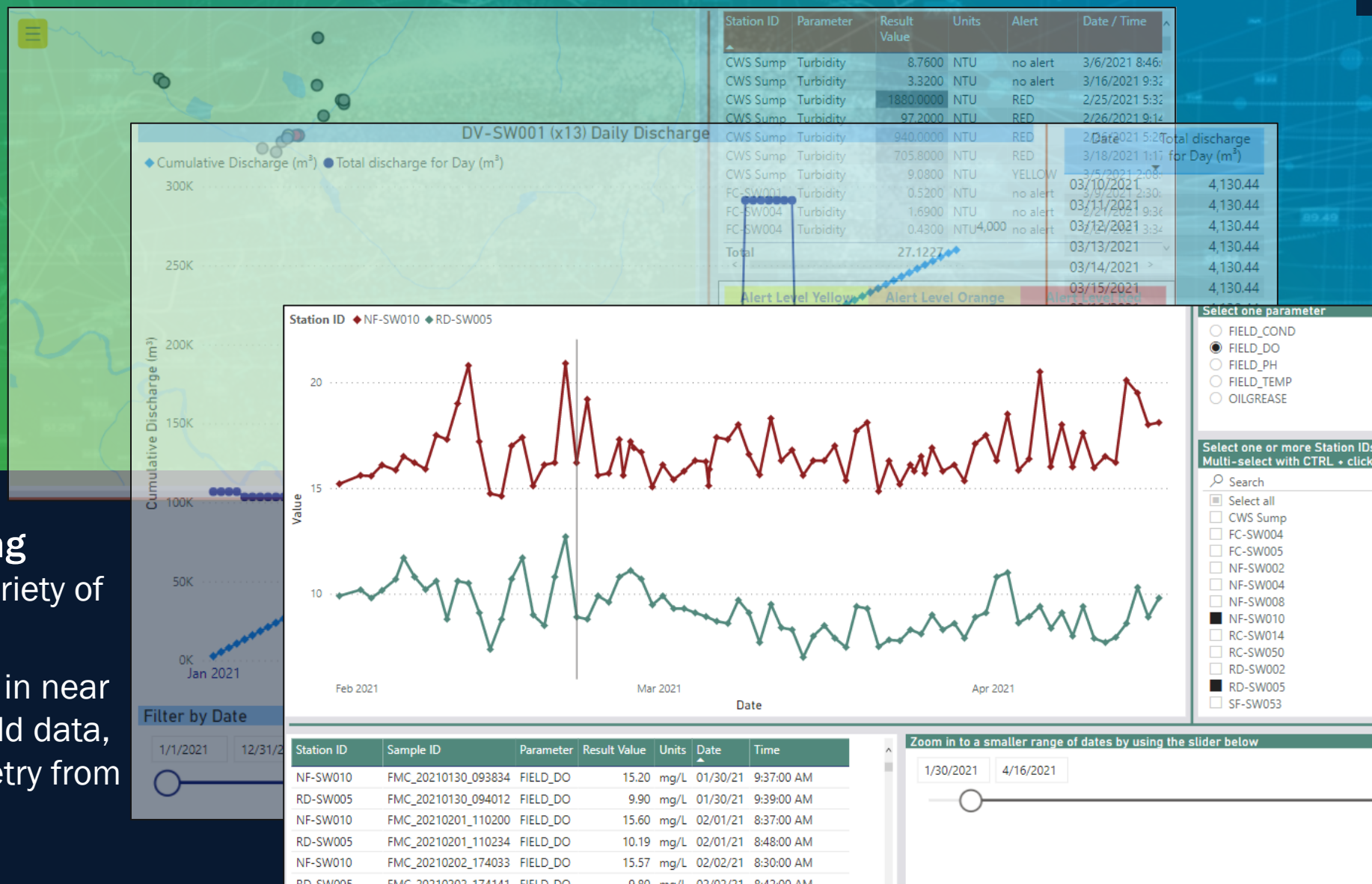


RAPID DECISION MAKING

Power BI Dashboarding

Set up to address a variety of Stakeholder needs

Allows filtering of data in near real time, including field data, LIMS data, and telemetry from remote equipment





KEY TAKEAWAYS

- Automation of data collection can yield increased data quality and reduce time between data collection and reporting.
- Automation should be developed with stakeholder needs in mind.
- Real-time access to data allows stakeholders to make decisions based on data much faster than traditional report generation methods.



AUTOMATION OF DATA MANAGEMENT FOR QUALITY, STAKEHOLDER ACCESS, AND IMPROVED REPORTING

QUESTIONS?

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