



**BUREAU
VERITAS**

SAVE TIME AND MONEY DIGITAL TOOLS AND SOLUTIONS

TODAY'S PRESENTERS

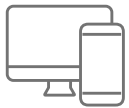


Josh Dias

*Director, Business Development
Western Canada & Emerging Markets*



+18 Years Experience



**Simplifying your work
with digital solutions.**



Kristopher Beaudet, P.Chem.

*Sector Lead – Site Assessment and Remediation
BC, Yukon*



**+20 Years Experience
(Lab Ops, Reg's + Methods, Forensics)**



**Helping you make better
environmental decisions.**

DELAYING DIGITAL



DIGITAL SOLUTIONS 1.0 = CHAIN OF CUSTODY



Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 865 8585
 Victoria: 460 Terryson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
 bvlab.com

CHAIN OF CUSTODY RECORD

Page _____ of _____

Invoice Information	Report Information (if differs from invoice)	Project Information	Turnaround Time (TAT) Required			
Company: _____ Contact Name: _____ Address: _____ Phone/Fax: _____ Email: _____ Copies: _____	Company: _____ Contact Name: _____ Address: _____ Phone/Fax: _____ Email: _____ Copies: _____	Quotation: _____ P.O. #/AFER: _____ Project #: _____ Site Location: _____ Site #: _____ Sampled By: _____	<input type="checkbox"/> 5 - 7 Days Regular (Most analyses) PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Rush TAT (Surcharges will be applied) <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3-4 Days Date Required: _____ Rush Confirmation #: _____			
Laboratory Use Only		Analysis Requested	Regulatory Criteria			
	YES NO Cooler ID Seal Present _____ Seal Intact _____ Cooling Media _____ YES NO Cooler ID Seal Present _____ Seal Intact _____ Cooling Media _____ YES NO Cooler ID Seal Present _____ Seal Intact _____ Cooling Media _____	Depot Reception # of Containers <input type="checkbox"/> BFES / VPH <input type="checkbox"/> VOC / BTEX / VPH <input type="checkbox"/> VME <input type="checkbox"/> BFEX / FL <input type="checkbox"/> VOC / BTEX / FL <input type="checkbox"/> PAH <input type="checkbox"/> EPA / HPH / PHH <input type="checkbox"/> EBH <input type="checkbox"/> F2 - E4 <input type="checkbox"/> Dissolved Metals <input type="checkbox"/> Flamed? <input type="checkbox"/> Preserved? <input type="checkbox"/> Disolved Mercury <input type="checkbox"/> Flamed? <input type="checkbox"/> Preserved? <input type="checkbox"/> Total Metals <input type="checkbox"/> Field Preserved? <input type="checkbox"/> Total Mercury <input type="checkbox"/> Field Preserved? <input type="checkbox"/> Chloride <input type="checkbox"/> Fluoride Sulphate <input type="checkbox"/> TDS <input type="checkbox"/> COD <input type="checkbox"/> pH <input type="checkbox"/> Conductivity Alkalinity <input type="checkbox"/> Nitrite <input type="checkbox"/> Nitrate Ammonia	<input type="checkbox"/> BC CSR <input type="checkbox"/> YK CSR <input type="checkbox"/> CCME <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality <input type="checkbox"/> Other			
Sample Identification			Special Instructions			
Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgement and acceptance of our terms available at http://www.bvlab.com/terms-and-conditions						
Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #

COC-1020 BV PCD-00077/9



BACKGROUND – SUBMISSION QUALITY

Laboratories document observations made during the processing of a sample submission.

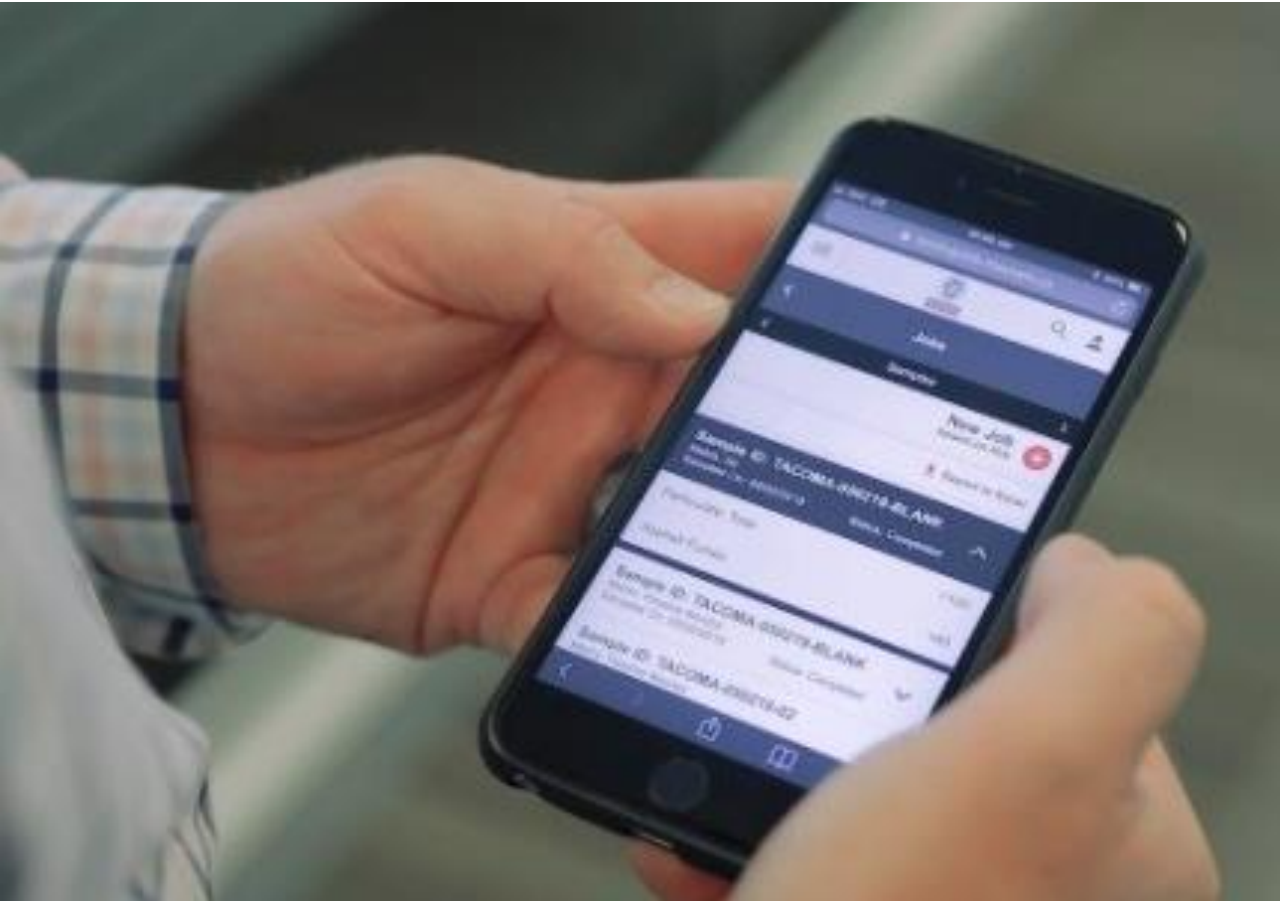
Transcription errors, “typos” and incorrect analyses requested are the most common observations.

Laboratories are required to report what may affect sample integrity or data defensibility.



CATEGORY	OBSERVATION
RED	Tampering with the custody seal (if a Custody Seal is used)
	Sample temperature above 10C (if not same day submission)
	Damage to any sample containers during transport
	Absence of a Chain of Custody
	Analysis requirements not made clear
	Labelling of sample bottles absent
	Hold times exceeded upon samples arriving at the laboratory
	Incorrect preservation or presence of headspace for VOC analysis
	Insufficient number of sample containers
	Insufficient sample volume for the designated test
	Sample requiring laboratory filtration already preserved
	Sample container received empty
	Microbiology sample received frozen
YELLOW	Sediment in water sample container exceeds 1cm depth
	Incomplete Chain of Custody information
	No date / signature on the Chain of Custody
GREEN	Sample containers provided do not correspond to the Chain of Custody
	Wrong sample containers used
	Incorrect / absent quote on the Chain of Custody
	The use of an outdated Chain of Custody form
	Containers listed on the Chain of Custody but not provided
	Incorrect or missing billing information

DIGITAL SOLUTIONS 2.0



**After 120,000 Submissions
across Western Canada**

39%↑

of a error occurring when
submitted on a paper CoC

STALLED IN THE PITSTOP



Stalled Submissions

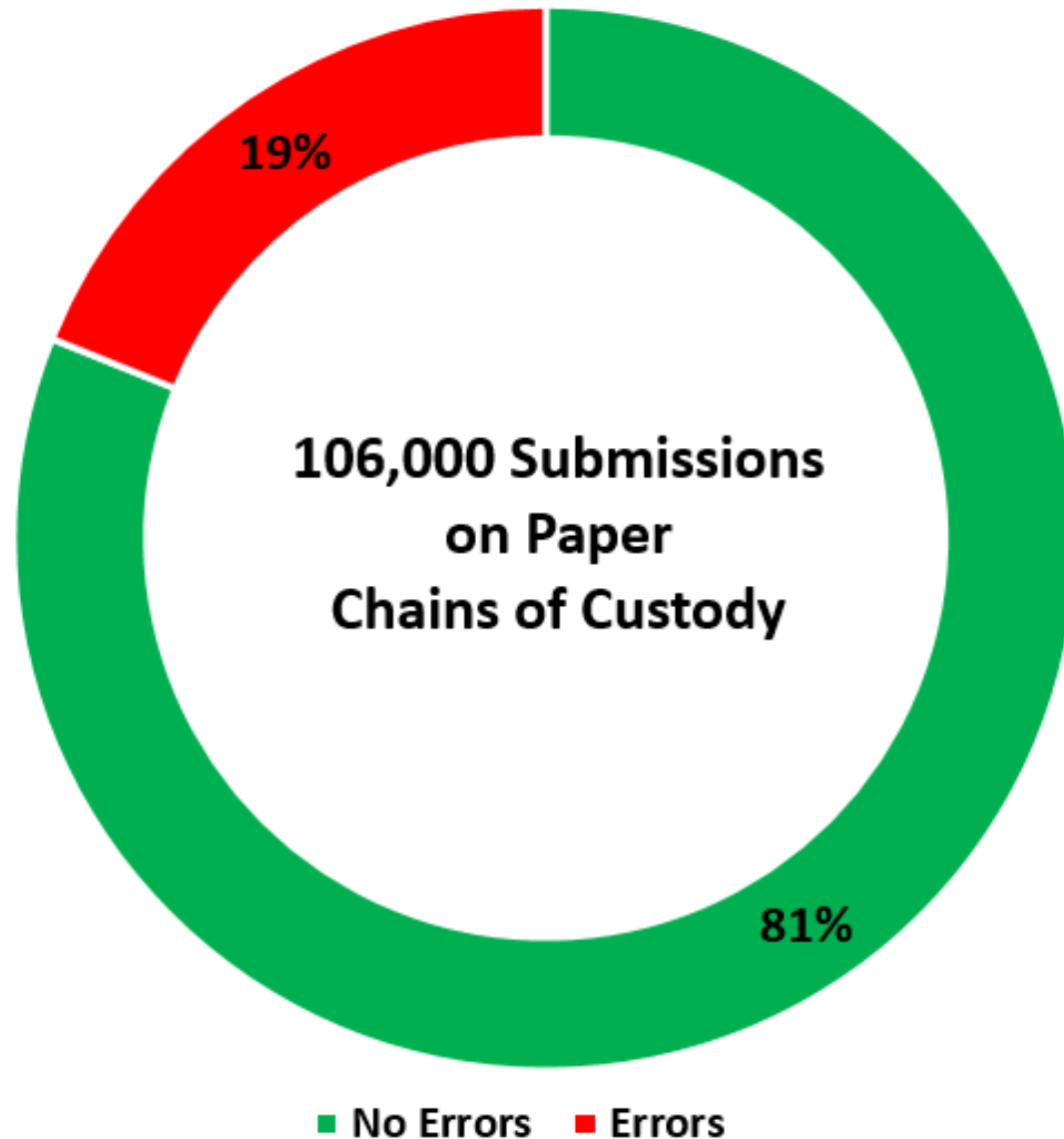
Hold Time/Temperature
Wrong Bottles

No Chain of Custody
CoC Information Incomplete
CoC Not Signed/Dated
Non-Current CoC
Analysis Requirements Absent
Bottles vs CoC Discrepancy
Labelling Issue



Delays

SUBMISSION QUALITY - PRESENT STATE



Opportunity for Improvement

~500 Jobs

Jobs Submitted by
Top Tier Consultants

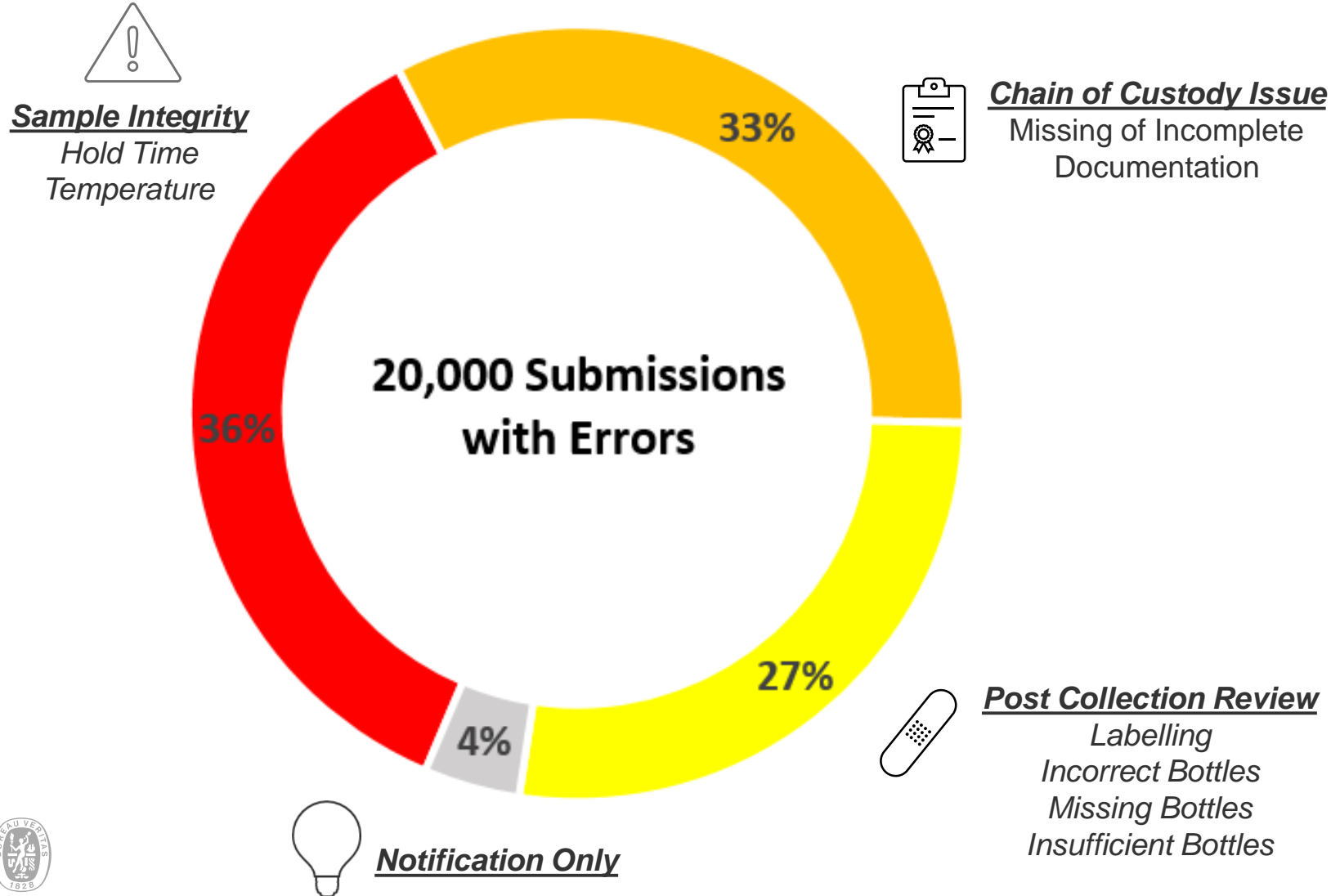
~100 Jobs

Include an Error

~1 hour of time

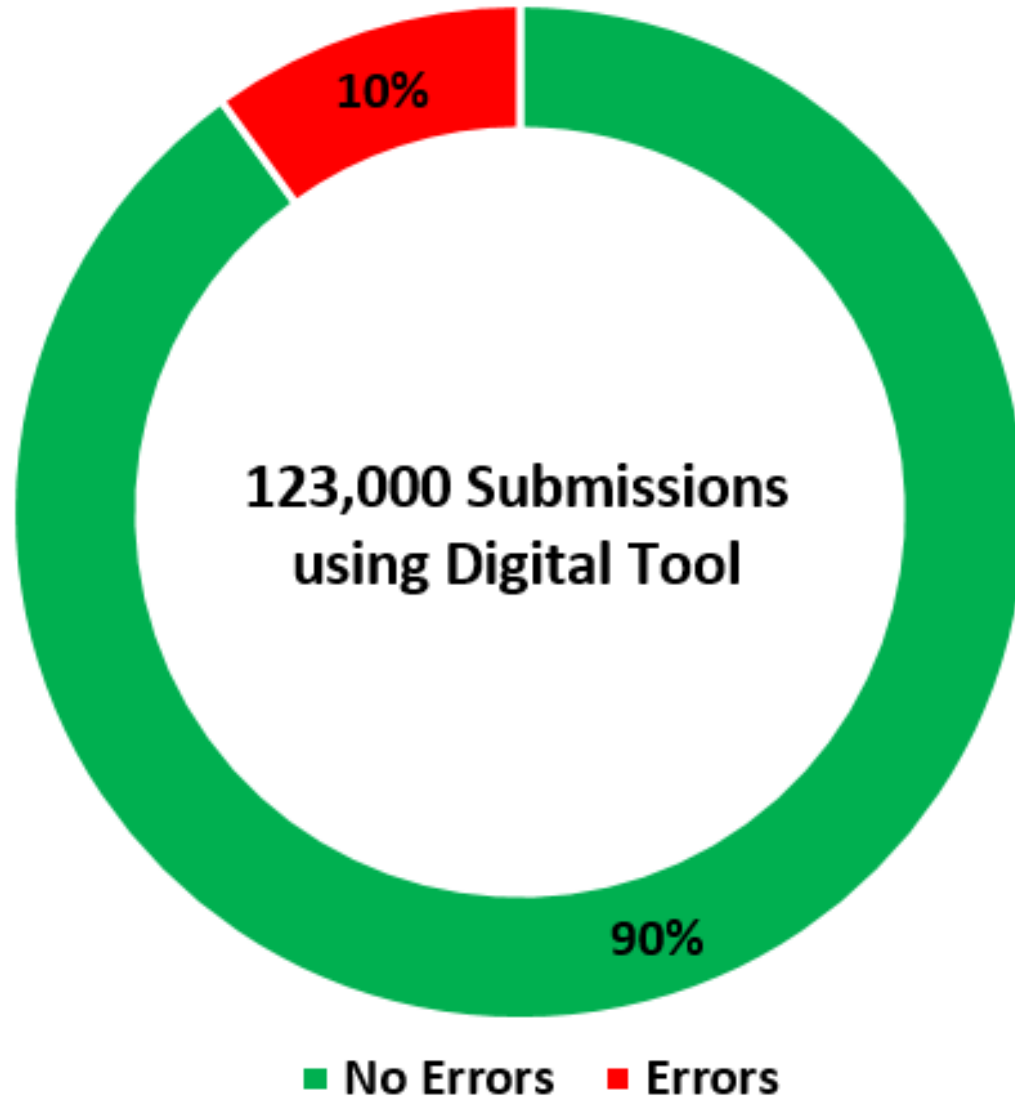
Consultant Admin Time per Error

SUBMISSION ERRORS



Use Digital Tools to Solve

SUBMISSION QUALITY - FUTURE STATE



Best in Class Consultancy

**90% error free
submissions**

1 in 10+ jobs

Require Admin Time or
Are Delayed in the Lab

~75% time recovery

With Digital Solutions Use

~75 hours

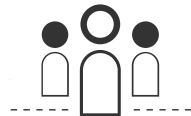
Recovered

DIGITAL TRENDS IN CONTAMINATED SITE MANAGEMENT



Save \$\$

Save time.
Data entry errors and quality issues are expensive.



Collaboration

Share with teams.
Review sample collection in real time, from anywhere.



Communication

Meaningful conversations.
Identify issues quickly and efficiently.



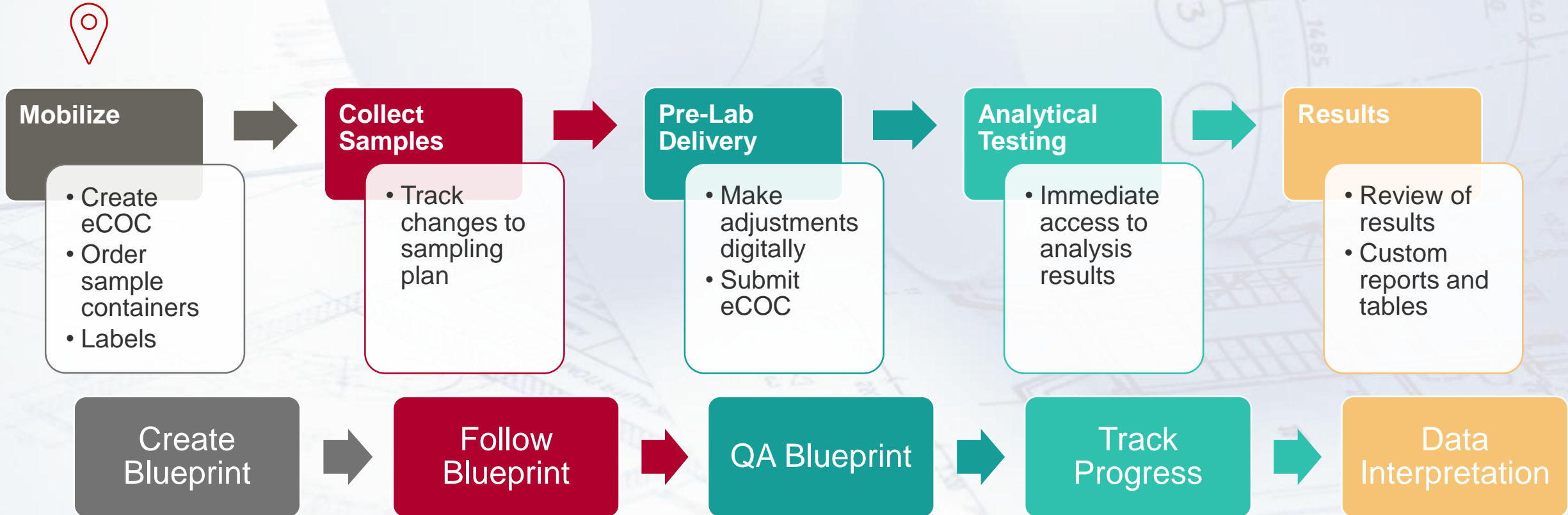
Scalability

One time setup.
Value for multi-year projects and seasonal data reviews.

Built-in Archiving

Secure 24/7 data access for all projects, now and in the future.

PROJECT FLOW WITH BLUEPRINT



CREATE ECOC

Create an eCoC using a digital tool.

Removes the potential for incorrect analysis requests.

Easy to create eCoC templates that eliminate user error or transcription errors

Place samples on hold as needed.



Create Composite

No.	Sample ID	Expand >	Matrix *	Values	Select All	CSR BTEX/VPH + PAH + EPH + LEPH/HEPH in Water	CSR Dissolved Metals in Water (Includes Mercury.)	CSR EPH + PAH + LEPH/HEPH in Water	HOLD
1	GW-01		Ground Water	+	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	GW-01 BACKUP		Ground Water	+	-	-	-	-	<input checked="" type="checkbox"/>

ORDER SAMPLE CONTAINERS PRE-LABELLED BOTTLES

Order sampling supplies right from a quote, eCoC or list.

Build customized labels.

Add additional supplies as needed.

Get instant confirmation of order receipt.



CSR BTEX/VPH
+ PAH + EPH +
LEPH/HEPH In
Water

Sample ID Matrix



GW-01

Ground Water

B.O. #: 677069

SAMPLE I.D.: GW 01 _____

COMPANY NAME: _____

PROJECT REFERENCE: GROUNDWATER PROGRAM

DATE: 2022-10-26



General Chemistry

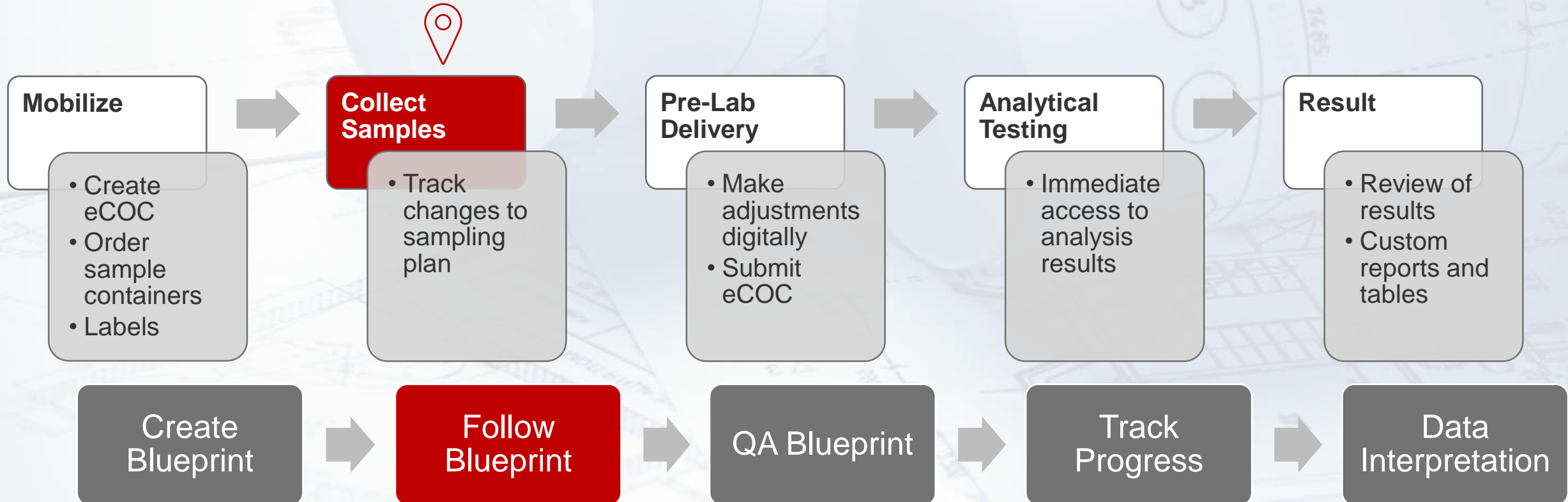
Size: 500 mL
Type: Plastic
Preservative:

Quantity

Add to Cart



PROJECT FLOW WITH BLUEPRINT



TRACK CHANGES TO SAMPLING PLAN

Take eCoC to the field and adjust samples and analyses as required.

If needed, work offline and upload when connectivity is restored.

Built in data entry and management tools prevent data entry errors.



No.	Sample ID	Expand >	Matrix *	Bottles *	Sampled On Date	Sampled On Time	More Values	Select All	CSR BTEX/VPH + PAH + EPH + LEPH/HEPH in Water	CSR Dissolved Metals in Water (Includes Mercury)	CSR EPH + PAH + LEPH/HEPH in Water	HOLD
1	GW-01		Ground Water	1	2022/09/25	08:00 PM	+	☑	☑	☑	☑	<input type="checkbox"/>
2	GW-01 BACKUP		Ground Water	1	2022/09/25	08:00 PM	+	-	-	-	-	<input checked="" type="checkbox"/>

eCoC Offline Template:

This is not intended to be a paper CoC. To complete your submission, please use the Customer Portal for Complete.

Test Selection
X = Selected

TESTS

CCME&CSR
BTX/F1/VPH
in Soil -
Field Pres

Sample ID	Matrix	Bottles	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	S

Bottles * Sampled

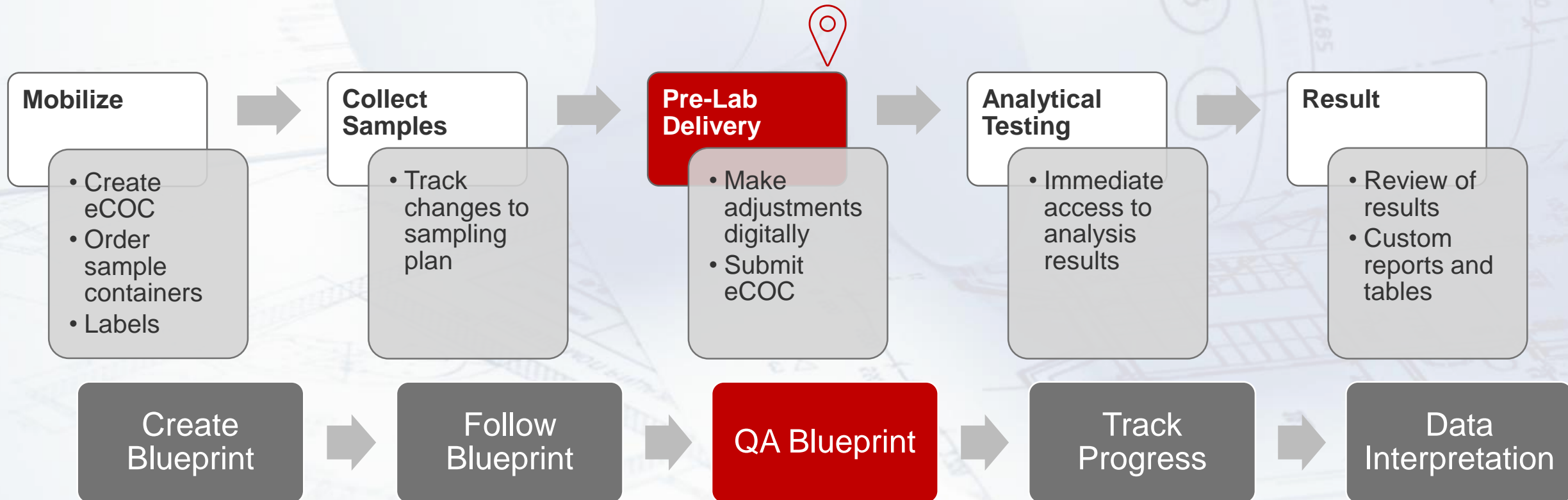
 yyyy/mm/dd

! Please fill out this field.

0 Bottles



PROJECT FLOW WITH BLUEPRINT



MAKE ADJUSTMENTS AND SUBMIT ECOC

Lay-out the sample submission. Cross-check the submission for errors against the eCoC.

Submit eCOC direct to the laboratory and receive an electronic confirmation.

Print cooler tracking bar codes to expedite handling at the laboratory.



Destination *

Burnaby ENV: 4606 Canada Way

Service Level

Standard TAT

ETA at the lab *

2020/12/31



10:28 AM



Shipping Method *

Purolator

Waybill #

13432432432

eCOC: W25138

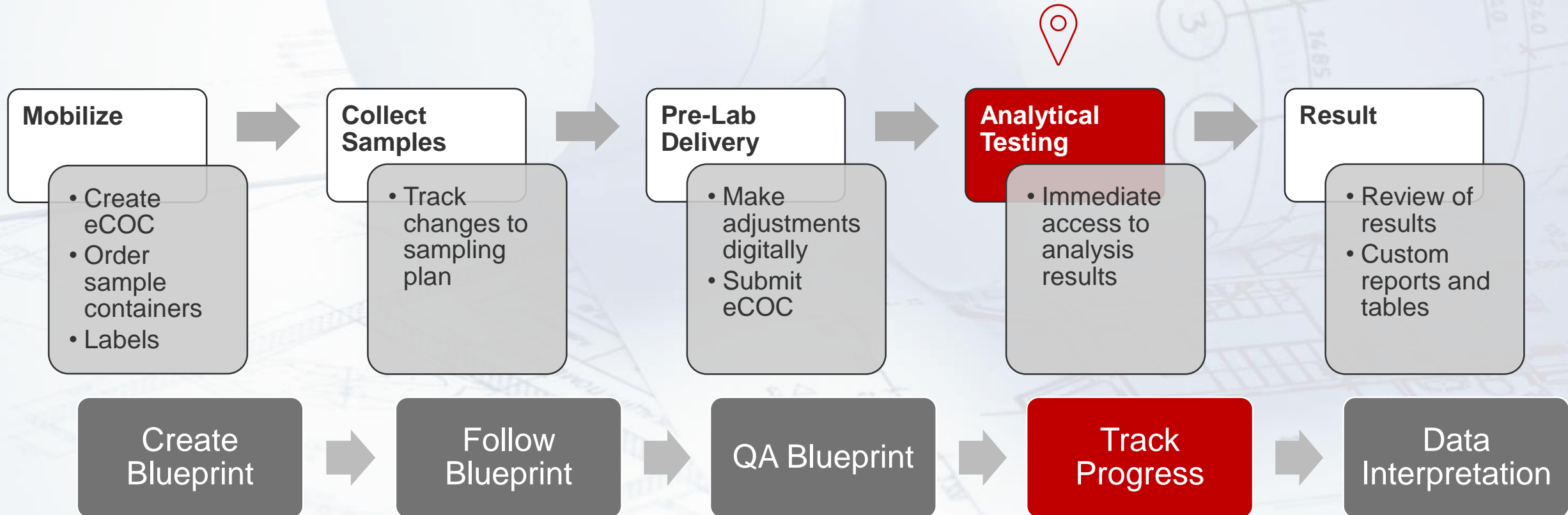


Samples should be kept cool (<10°C) from time of sampling until delivery to BVLabs. Observable attempts to cool are acceptable under certain conditions.

NAME OF THE PRESENTATION

Rush service levels will be met on a best efforts basis. Please contact your BVLABS representative for more information.

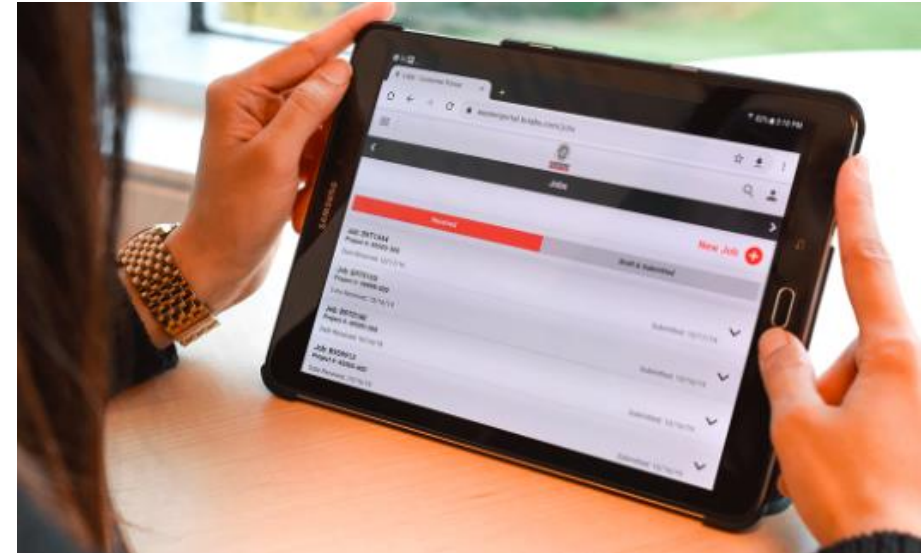
PROJECT FLOW WITH BLUEPRINT



IMMEDIATE DATA ACCESS

Monitor progress of the submission as it moves through the laboratory.

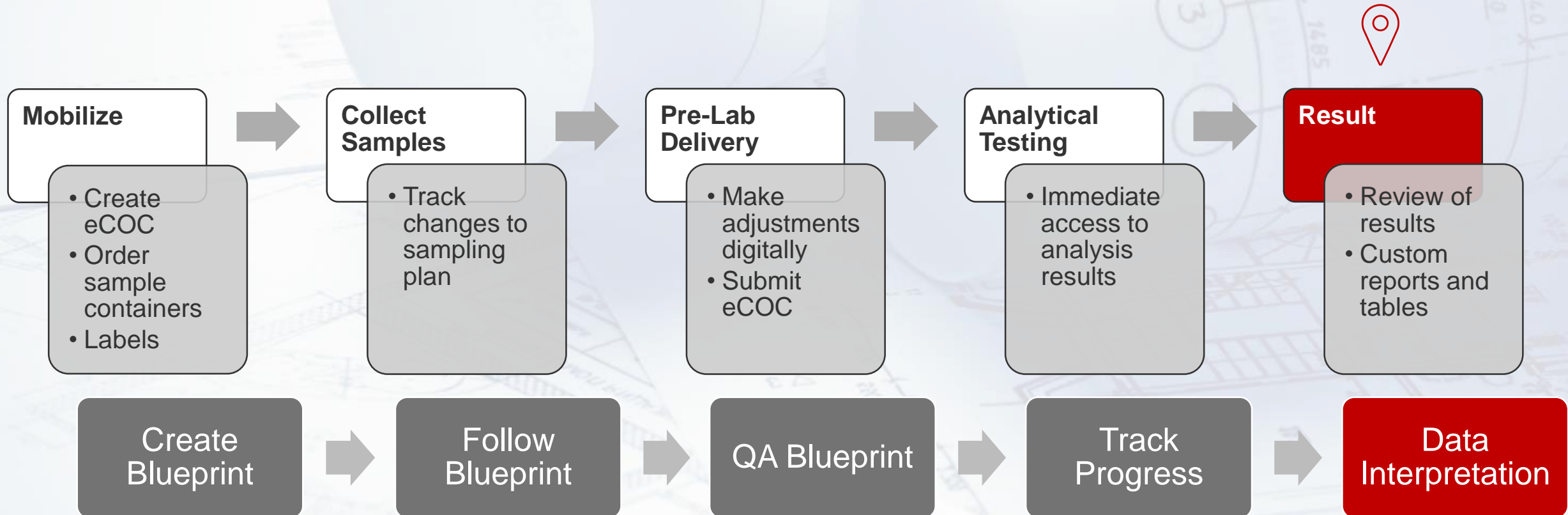
Partials of analytical data can be reviewed to help expedite field management decisions or identify parameters of concern before final reports are issued.



Job Details - C086339

Samples		Parameters	Job Files	Observations						
Sample ID	Sample #	Matrix	Sampled On	Due Date	On Time	Completed Tests	Completed Tests	Status	Exceedance ¹	
VICTORIA 1	YX3505	SOIL	-	12/01/20 06:00 PM	YES	25/28.	25	In Progress	N/A	
		Parameter ▾	Result ¹	Reporting Limit	Units	Sample #	Sample ID			
		1-Methylnaphthalene	<0.050	0.050	ug/L	BAQ984	21MW01			

PROJECT FLOW WITH BLUEPRINT



DATA REVIEW

Review job files - CoC, Job Confirmation Reports and Electronic Deliverables – anytime with 24/7 access.

Review status of invoices for projects. Invoices can be paid online. Save time asking for statements or copies.

Samples

Parameters

Job Files

COC [View](#)

Confirmation [View](#)

Balance Due

Paid

All Invoices

		Invoice #	Invoice Date	Invoice Attention	Total	Balance Due
+	<input type="checkbox"/>	10254989	12/01/20	Accounts Payable	\$128.00	\$128.00
+	<input type="checkbox"/>	10252092	11/27/20	Accounts Payable	\$83.00	\$83.00



CUSTOM REPORTS

Build custom Excel reports capable of comparing data against regulations or project specifications.

Greater data management - combine several jobs together into one report, or filter project data for a subset of samples

REPORT FILTERS	
Received Date From	12/01/19
Received Date To	12/01/20
Projects	
Jobs	C086339,C087235
Samples	YX3505,YX8347
Analytes	Multiple
Criteria 1	
Criteria 2	

Site Location	
Project #	
Site #	
PO #	
COCE#	
BV Labs Job #	
Sample ID	
BV Labs Sample ID	
Matrix	
Sampled By	
Sampling Date	
Sampling Time	

Report Group	Parameter Name	Criteria 1	Criteria 2	Units	Result	DL	Result	DL
	Extractable Organic Halogen			mg/kg	<2	2	TBA	TBA
Polychlorinated Biphenyls	Total PCB			mg/kg	<2.0	2	TBA	TBA
	Soluble Chloride (Cl)			mg/L	175	10	TBA	10
	Organic Nitrogen (N)			%	TBA	TBA		
	Soluble Chloride (Cl)			mg/kg	683	39	TBA	37

REPORT FORMAT

Standard

Parameters as Columns

Samples as Columns

Data Table

Trending

Sample Observations

Enhanced (Samples as Columns)

General Dynamic Report with Samples as Columns

Parameter 1 Information

Parameter 2 Information



Sample 1 Information

Sample 2 Information

Sample 3 Information



Analytical Results and Detection Limits



CASE STUDIES

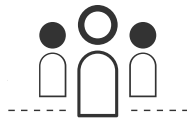


Save \$\$

BC Waste Handler

>99% of Soil Submissions through eCoC

>98% Rush TAT



Collaboration

BC SAR Consultant

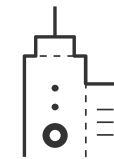
Review field work and track progress during pandemic WFH.



Communication

AB SAR Consultant

Fewer calls related to transcription errors of incomplete COC's.



Scalability

Northern AB O+G

>99% of Large-Scale water monitoring project through eCoC.

>97% Routine TAT

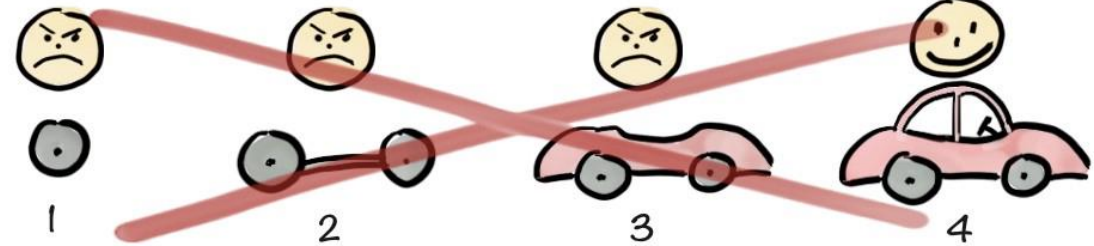
Built-in Archiving

Valuable for succession planning, projects with high turn over, training purposes.

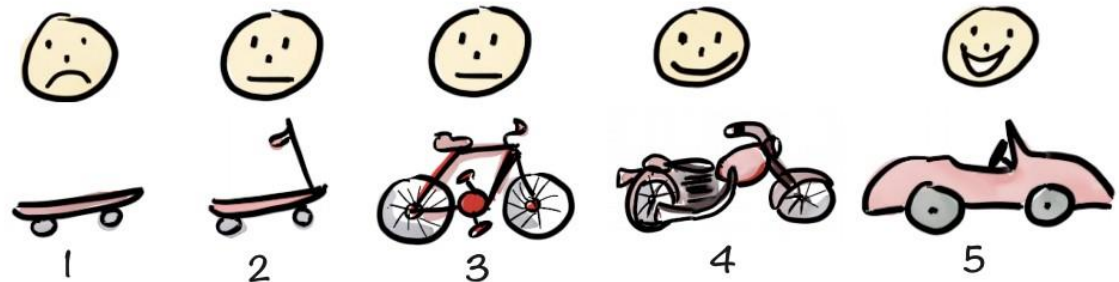
NEXT STEPS



Not like this....



Like this!



CONNECT WITH US...

JOSH



KRIS

