

Reporting Laboratory Results and Chemistry Data

wasteMINZ ALGA

Emerging Contaminated Land Management and Groundwater Professionals Workshop

Wellington, New Zealand

18 May 2026

The esdat logo is displayed at the top of a white sidebar menu. It features the word "esdat" in a dark grey, lowercase, sans-serif font, followed by the same three-circle icon as the main header.

Dashboard



Projects and Sites



Data View



Field



Lab



Data Loggers



Data Migration

Presenter: Kimberley Saflian

- EScIS Client **Engagement** Lead, Australia-Pacific
- Geo-Environmental and Spatial **Data Analyst** with **20 years** of Consulting experience focused on environmental modelling.
- **Passionate** about using data for enhanced **environmental** outcomes
- Here to **partner** with your organization for environmental data management **success**.

DATA COMPLEXITY

PROJECT IMPACT

External Data Links, Dashboards, AI

7

Automated Insights, Data Value, Efficiency

Preformatted Data Sharing - Public portal

6

Automated Reporting, Complete Electronic Workflow

Cross Disciplinary Data - Geology, Data Loggers

5

Data Collation, One Point of Truth, Data Governance.

Field Workflow, Schedule Planning, Lab Report Tracking

4

Project Planning and Tracking

Environmental Standards, Notifications, QAQC Processes

3

Robust Data Quality, Automated Processes

Site, Monitoring Zones, Locations, Co-ordinates, Labsync

2

Tables, Maps and Graphs

Projects and Lab Reports

1

1 Lab Report = 1 Table

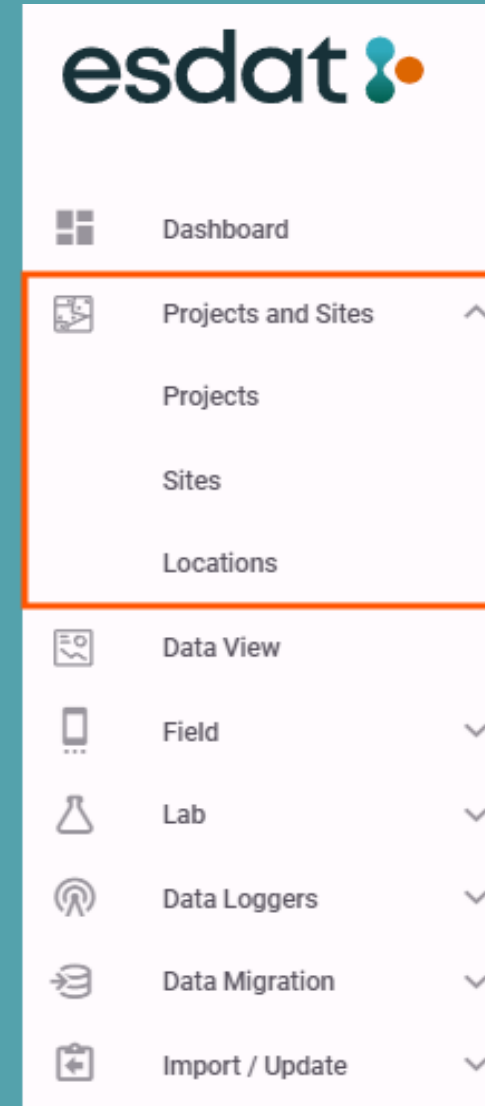
Elevated Laboratory Data Reporting

Today we will cover:

- Reporting Data Set-up and Workflow
- Laboratory Data Review Process
- Presenting Results for Interpretation and Reporting
- Tips and Tricks for Emerging Professionals

Reporting Data Set-up and Workflows

How can I organise my project data to help me write my report and make decisions on project outcomes?



Consider Project Outcomes from the beginning

What is the data output I am going to be creating?

- What is the outcome required from this project?
- What questions are going to be asked of the dataset?
- How do I want to group my data?
- Which information can I include to streamline my workflow?

A Data Model for Contaminated Lands



Essential Chemistry Sample Information

Project Data	
Field ID	Your sample identifier
Laboratory Sample ID	Laboratory Sample Identifier
Sample Location	Where the sample was collected
Sample Collection Method / Loc Type	How the sample was collected
Sample Date / Time	When it was collected
Sample Depth (Soil)	How deep / What material?
Well Details (Groundwater)	How deep / Which aquifer?
Sample Type	Lab / Field / QAQC

Additional Supporting Information

Project Data	Why?
Location Co-ordinates	View Data on a map
Location Types	Group and display results
Alternative Names	Systematic vs colloquial names
Purpose	Group and display results
Well Construction	Connect samples to wells
Aquifer	Group water samples by aquifer
Geology/Soil/Material	Group and display results
Extraction Usage	Group and display results

Laboratory Data Review Process

Is the laboratory data suitable for reporting?

What do the results mean?

Laboratory Report Review Checklist

- Sample Details are Complete and Correct
- Data table and statistics
- Sample and Laboratory QAQC Indicators
- Review data in a map
- Check for outliers, 95% percentile max / min
- Trend Analysis
- Review Exceedances



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- Lab Uploads
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DETAILS

EDITS

CHEM TABLES

QA

MAPS

OUTLIERS

EXCEEDANCES

OTHER FORMATS

Selected Lab Report

A16713

Comments

REJECT

APPROVE

Lab Name

Lab One

Report Number

A16713

Date Reported

N/A

Lab Signatory

N/A

Project ID

DemoProject

Lab Report Samples

CANCEL

SAVE CHANGES

Field ID	Matrix Type	Sampled Date Time	Site	Location Code	Well	Sample Depth From	Sample Depth To	Sample Type	Parent Sample	Sample Code	Monitoring R
BH21_2014-07-28	Water	12 Aug 2024	DemoSite	BH21	A			Normal		167134179	
BH10_2014-07-28	Water	12 Aug 2024	DemoSite	BH10	A			Normal		167134180	
BH23_2014-07-28	Water	12 Aug 2024	DemoSite	BH23	A			Normal		167134181	
BH24_2014-07-28	Water	12 Aug 2024	DemoSite	BH24	A			Normal		167134182	
BH08_2014-07-28	Water	12 Aug 2024	DemoSite	BH08	A			Normal		167134183	
BH05_2014-07-28	Water	12 Aug 2024	DemoSite	BH05	A			Normal		167134184	
BH25_2014-07-31	Water	15 Aug 2024	DemoSite	BH25	A			Normal		167134186	
BH02_2014-07-31	Water	15 Aug 2024	DemoSite	BH02	A			Normal		167134187	
BH03_2014-07-28	Water	12 Aug 2024	DemoSite	BH03	A			Normal		167134188	
BH14_2014-07-28	Water	12 Aug 2024	DemoSite	BH14	A			Normal		167134189	
BH01_2014-07-28	Water	12 Aug 2024	DemoSite	BH01	A			Normal		167134191A	
Dupe1	Water	12 Aug 2024	DemoSite					Normal		167134191C	
Dupe4	Water	15 Aug 2024	DemoSite					Normal		167134192	
Dupe4	Water	12 Aug 2024	DemoSite					Normal		167134193	
Blank	Water	09 Sep 2024	DemoSite					Normal		167134194	
Blank	Water	09 Sep 2024	DemoSite					Normal		167134195	

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Sample Type in "Field_D, Normal"

+ ADD FILTER

APPLY

CHEM PROFILE

CUSTOM LAYOUT

ENV STANDARDS

SAMPLE INFORMATION

STATISTICS

RESULTS

EXCEL EXPORT

RESULT DETAILS

				Inorganics																			Metals																		
				Alkalinity (Bicarbonate)	Alkalinity (Carbonate)			Chloride	Fluoride	pH (Lab)	Sodium	Sulphate	Hardness as CaCO3	Arsenic	Arsenic (filtered)	Calcium	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Lead	Lead (filtered)	Magnesium	Nickel	Nickel (filtered)															
				mg/l	mg/l	mg/l	mg/l	-	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l															
EQL									0.1				0.001	0.001	0.1	0.001	0.001	0.001	0.001	0.001	0.05	0.001	0.001	0.1	0.001	0.001															
Field ID	Location Code	Well	Date																																						
BH01_2014-0...	BH01	A	12 Aug 2024	1.5	14	6.9	1	5.5	25	3.6	35		0.001			7.2	0.064	0.017	0.005	0.003	12	0.032	0.022	1																	
BH02_2014-0...	BH02	A	15 Aug 2024	0.12	30	15	2.6	5.5	28	0.98	45					2	0.012	<0.001	<0.005	<0.001	8.4	<0.005	<0.001	2.6																	
BH03_2014-0...	BH03	A	12 Aug 2024	1	73	37	4.1	7	54	4.3	123					8.6	0.16	0.17	1	0.93	20	0.093	0.056	4.1																	
BH05_2014-0...	BH05	A	12 Aug 2024	0.43	12	6	4.9		64	3.4						6.9					76			4.9																	
BH08_2014-0...	BH08	A	12 Aug 2024	0.58	28	14	12	7	30	4.3	108					8.6	<0.005	<0.001	0.006	0.004	120	<0.005	<0.001	12																	
BH10_2014-0...	BH10	A	12 Aug 2024	0.43	12	6	1	7	66	3.4	69					6.9	0.082	0.025	0.005	0.004	5.3	0.006	0.006	1																	
BH14_2014-0...	BH14	A	12 Aug 2024	0.58	20	9.9	3.4	6.1	43	3.3	22					6.6	0.26	0.19	0.61	0.17	26	0.12	0.093	3.4																	
BH21_2014-0...	BH21	A	12 Aug 2024	0.58	28	14	5.8	5.5	16	4.3	35	<0.005				8.6	<0.005	<0.001	0.008	0.004	0.25	0.01	0.002	5.8	<0.005																
BH23_2014-0...	BH23	A	12 Aug 2024	0.52	25	12	8.4	6.1	160	3.9	182					7.7	0.1	0.06	0.051	0.002	170	0.089	0.019	8.4																	
BH24_2014-0...	BH24	A	12 Aug 2024	0.39	11	5.4	4.8	5.5	43	3.1	98					6.3	0.01	0.008	0.005	0.003	260	<0.005	0.002	4.8																	
BH25_2014-0...	BH25	A	15 Aug 2024	0.7	7.4	3.7	3.5	6.1	28	0.74	65					1.5	0.006	0.001	<0.005	0.002	0.25	0.007	0.002	3.5																	
Dupe1	BH05	A	12 Aug 2024	0.6	29	15		7	60	0	69					0	0.43	0.085	0.077	0.001	79	0.35	0.086	4.8																	
Dupe1	BH05	A	12 Aug 2024													110																									
Dupe4	BH21	A	15 Aug 2024	0.43	13	6.4		7.2	26	3.6	89					7.3	<0.005	0.001	<0.005	0.003	0.23	0.006	0.002	3.5																	
Dupe4	BH21	A	15 Aug 2024													15																									
Dupe4	BH25	A	12 Aug 2024											0.004				0.001		<0.001			<0.001			0.002															
Statistics																																									
Number of Results				13	13	13	11	12	13	13	12	1	1	15	12	13	12	13	13	13	13	12	13	13	1	1															
Number of Detects				13	13	13	11	12	13	13	12	0	1	15	9	10	9	11	13	9	10	13	9	10	13	0	1														
Minimum Concentration				0.12	7.4	3.7	1	5.5	16	0	22	<0.005	0.004	0	<0.005	0.001	0.005	0.001	0.005	0.001	0.23	<0.005	<0.001	1	<0.005	0.002															
Minimum Detect				0.12	7.4	3.7	1	5.5	16	0	22	ND	0.004	0	0.006	0.001	0.005	0.001	0.005	0.001	0.23	0.006	0.002	1	ND	0.002															

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QA

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Sample Type in "Field_D, Normal"

+ ADD FILTER

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RESULT DETAILS

				Filtered metals					Historical			Major cations			pH			Unfiltered metals							
				Arsenic (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Nickel (filtered)	Zinc (filtered)	Alkalinity (Bicarbonate)	Alkalinity (Carbonate)	Calcium	Chloride	Sulphate	Calcium	Magnesium	Potassium	Sodium	pH (Lab)	Hardness as CaCO3	Arsenic	Chromium (III+VI)	Copper	Iron	
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	-	mg/l	mg/l	mg/l	mg/l	mg/l	
EQL				0.001	0.001	0.001	0.001	0.001	0.005						0.1	0.1	0.1	0.1			0.001	0.001	0.001	0.05	
Field ID	Location Code	Well	Date																						
BH01_2014-0...	BH01	A	12 Aug 2024		0.017	0.003	0.022		8.8	1.5	14	7.2	6.9	3.6		1	2.5	25	5.5	35		0.064	0.005	12	
BH02_2014-0...	BH02	A	15 Aug 2024		<0.001	<0.001	<0.001		0.019	0.12	30	2	15	0.98		2.6	1.8	28	5.5	45		0.012	<0.005	8.4	
BH03_2014-0...	BH03	A	12 Aug 2024		0.17	0.93	0.056		69	1	73	8.6	37	4.3		4.1	15	54	7	123		0.16	1	20	
BH05_2014-0...	BH05	A	12 Aug 2024							0.43	12	6.9	6	3.4		4.9		64						76	
BH08_2014-0...	BH08	A	12 Aug 2024		<0.001	0.004	<0.001		130	0.58	28	8.6	14	4.3		12	9.2	30	7	108		<0.005	0.006	120	
BH10_2014-0...	BH10	A	12 Aug 2024		0.025	0.004	0.006		4.4	0.43	12	6.9	6	3.4		1	2.5	66	7	69		0.082	0.005	5.3	
BH14_2014-0...	BH14	A	12 Aug 2024		0.19	0.17	0.093		60	0.58	20	6.6	9.9	3.3		3.4	12	43	6.1	22		0.26	0.61	26	
BH21_2014-0...	BH21	A	12 Aug 2024		<0.001	0.004	0.002		0.19	0.58	28	8.6	14	4.3		5.8	1.9	16	5.5	35	<0.005	<0.005	0.008	0.25	
BH23_2014-0...	BH23	A	12 Aug 2024		0.06	0.002	0.019		160	0.52	25	7.7	12	3.9		8.4	11	160	6.1	182		0.1	0.051	170	
BH24_2014-0...	BH24	A	12 Aug 2024		0.008	0.003	0.002		240	0.39	11	6.3	5.4	3.1		4.8	8.4	43	5.5	98		0.01	0.005	260	
BH25_2014-0...	BH25	A	15 Aug 2024		0.001	0.002	0.002		0.035	0.7	7.4	1.5	3.7	0.74		3.5	9.3	28	6.1	65		0.006	<0.005	0.25	
Dupe1	BH05	A	12 Aug 2024		0.085	0.001	0.086		210	0.6	29	0	15	0	110	4.8	11	60	7	69		0.43	0.077	79	
Dupe4	BH21	A	15 Aug 2024		0.001	0.003	0.002		0.041	0.43	13	7.3	6.4	3.6	15	3.5	8.8	26	7.2	89		<0.005	<0.005	0.23	
Dupe4	BH25	A	12 Aug 2024	0.004	0.001	<0.001	<0.001	0.002	0.013																
Statistics																									
Number of Results				1	13	13	13	1	13	13	13	13	13	13	13	2	13	12	13	12	12	1	12	12	13
Number of Detects				1	10	11	10	1	13	13	13	13	13	13	13	2	13	12	13	12	12	0	9	9	13
Minimum Concentration				0.004	0.001	0.001	<0.001	0.002	0.013	0.12	7.4	0	3.7	0	15	1	1.8	16	5.5	22	<0.005	<0.005	0.005	0.23	
Minimum Detect				0.004	0.001	0.001	0.002	0.002	0.013	0.12	7.4	0	3.7	0	15	1	1.8	16	5.5	22	ND	0.006	0.005	0.23	
Maximum Concentration				0.004	0.19	0.93	0.093	0.002	240	1.5	73	8.6	37	4.3	110	12	15	160	7.2	182	<0.005	0.43	1	260	
Maximum Detect				0.004	0.19	0.93	0.093	0.002	240	1.5	73	8.6	37	4.3	110	12	15	160	7.2	182	ND	0.43	1	260	

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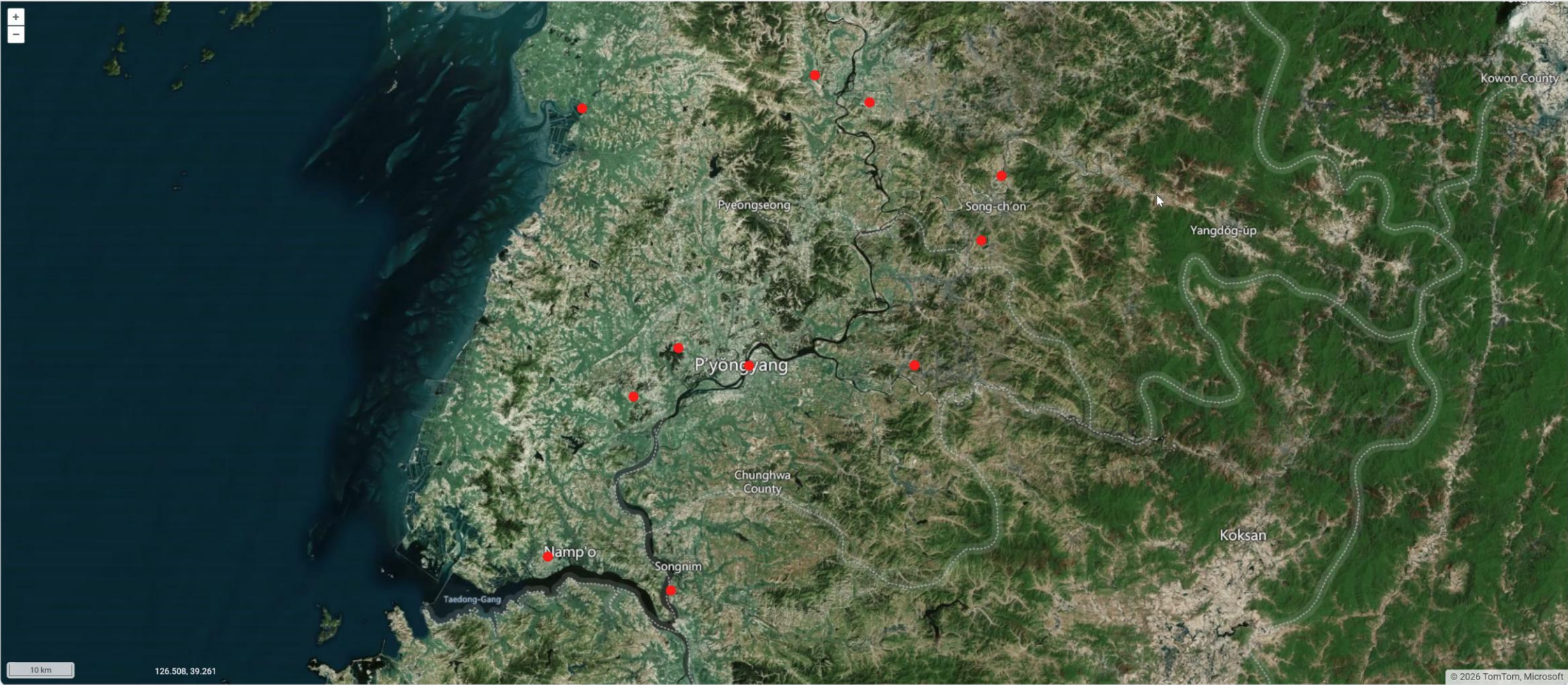
DETAILS EDITS CHEM TABLES QA **MAPS** OUTLIERS EXCEEDANCES OTHER FORMATS

+ ADD FILTER APPLY

CHEM PROFILE CUSTOM LAYOUT ENV STANDARDS SAMPLE INFORMATION RESULTS POINTS & LABELS EXPORT PRINT  



LAYOUT/LAYERS 



Presenting Results

Interpretation

Reporting Output



ESdat Environmental Data Management System

Applying Filters in Data Views

The screenshot displays the ESdat Chemistry Table interface. At the top, the title "Data View > Chemistry Table" is visible. Below it, there are filter controls for "PROJECTS & SITES" (set to "DemoProject") and "Matrix Type in 'Water'" (set to "BH"). A "+ ADD FILTER" button and an "APPLY" button are also present. The main table has columns for "Sample Code", "Field ID", "Location Code", "Date", and "Abundance (mg/l)". A dropdown menu is open, showing various filter options: Chem Group, Chem Names, Data Sources, Depth, Field or Lab Data, Final Qualifiers, Lab Name, Lab Qualifiers, Lab Reports, Leached, Locations, Matrix Description, Method Name, Method Type, Monitoring Rounds, and Monitoring Zone. The table data includes sample codes like 167134179, 167134180, 167134181, 167134182, 167134183, 167134184, 167134185, 167134186, and 167134187, with corresponding field IDs, location codes, dates, and abundance values.

Sample Code	Field ID	Location Code	Date	Abundance (mg/l)
167134179	BH21_2014-0...	BH21	06 Jul 2025	0.58
167134179_1	BH21_2014-1...	BH21	03 Nov 2025	0.58
167134180	BH10_2014-0...	BH10	06 Jul 2025	0.43
167134180_1	BH10_2014-1...	BH10	03 Nov 2025	0.43
167134181	BH23_2014-0...	BH23	06 Jul 2025	0.52
167134181_1	BH23_2014-1...	BH23	03 Nov 2025	0.52
167134182	BH24_2014-0...	BH24	06 Jul 2025	0.39
167134182_1	BH24_2014-1...	BH24	03 Nov 2025	0.39
167134183	BH08_2014-0...	BH08	06 Jul 2025	0.58
167134183_1	BH08_2014-1...	BH08	03 Nov 2025	0.58
167134184	BH05_2014-0...	BH05	06 Jul 2025	0.43
167134184_1	BH05_2014-1...	BH05	03 Nov 2025	0.43
167134186	BH25_2014-0...	BH25	09 Jul 2025	0.7
167134186_1	BH25_2014-1...	BH25	06 Nov 2025	0.7

Tips and Tricks

- Ask if your organisation has an Environmental Data Management System
- Record additional information against Locations and Samples
- All Project Data is interconnected
- Everybody loves maps, graphs and trend analysis
- Use your tech stack



WHAT'S NEXT?

Share Your Knowledge

- What topic caught your attention today?
- What are you excited to share with your team and stakeholders?
- What can you implement right now?