Electronic Data Validation Using the Locus Environmental Information Management System

Tricia Walters
Locus Technologies

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Agenda

<u>Introduction</u>

- Environmental Information Management System (EIM).
- Data validation module (DVM).

<u>DVM Setup</u>

- Configure validation plan and settings.
- Apply validation database controls.

<u>Validation</u>

- Perform automated validation.
- Review/update findings.
- Produce report outputs.

What is EIM?

- Cloud based environmental data management software.
- Data uploaded by labs, consultants, and data owners.
- Login via web browser and run data tools.
- Features include validation, sample planning, regulatory exports (e.g. ERPIMS), and visualization tools.

EIM's Data Validation Module

- Establish validation plan and set criteria.
- DVM runs automated checks on data.
- Validation findings applied to results based on outcome of automated checks.
- Findings are reviewed/finalized by qualified data user (i.e. chemist or validator) then data are made available.

Automated DVM Checks

- Holding Times
- Blank Detects
- Spike Control Limits
- Duplicate RPDs
- Total vs Dissolved Metals RPDs
- Required QC Components
- Sensitivity of Reporting Limits
- Missing QC criteria
- Sample Condition

Checks Cover Typical Level II Components.

Why Use Validation in EIM?

- Improve quality by standardizing validation approach.
- Reduce costs by automating time-intensive processes that are prone to error when performed manually.
- Focus skilled resources on critical data issues rather than routine work elements.
- Fast to generate initial validation findings.

Configure Validation

The Basics

- Locus works with chemist/validator on setup.
- Establish validation plan and set criteria to match QAPP requirements.
- Customize validation qualifiers and reason codes, along with their application.
- Configure validation controls.

Creating Validation Plan and Criteria

Establish Validation Plan "Option Set"

Enter/Edit Validation Options Set

Options Set Name*:	Level II DVM
Description*:	Level II Automated Validation
Default Status Code*:	LII
Make Validation Qualifiers Method Specific?	No
Make Validation Qualifiers Matrix Specific?	No
Make Miscellaneous Settings Method Specific?	No
Make Miscellaneous Settings Matrix Specific?	No
Make Validation Reason Codes Method Specific?	Yes
Is This A Default Set That Is To Be Used To Populate Other Validation Sets?	Yes
Is This Set To Be Shared With Other Sites?	Yes
Can Other Sites Edit This Set?	No

Save Cancel

Apply Validation Criteria to Plan

- Holding Times
- Blank Correction Factors
- Required QC Samples
- RPD Calculations
- QC Limits
- QC Limit Sources
- Uncertainty Limits (Radiological Only)
- MDCs (Radiological Only)
- Sample Condition Limits
- LCS Outlier Proportions
- Matrix Spike Ratio
- Total vs Dissolved Metals Analysis
- Miscellaneous
- Miscellaneous (Batch Mode)
- Validation Qualifiers
- Validation Qualifiers (Batch Mode)
- Copy Settings In Current Validation Options Set
- Copy Default Settings From Another Options Set

DVM settings are business rules based on the logic of the validation approach.

Applying Validation Criteria

Create Holding Times

Analytical Method Holding Times

Method Synonym	Parameter	Matrix Category	Preserved Flag	Extraction Hold Time (Max)	Extraction Hold Time (Reject)	Extraction Hold Time Units	Analysis Hold Time (Max)	Analysis Hold Time (Reject)	Analysis Hold Time Units
E300.0	Nitrate (as N)	Aqueous Sample	Y				2	4	Days
E300.0	Nitrite (as N)	Aqueous Sample	Y				2	4	Days
E300.0	Not Specified	Aqueous Sample	Y				28	56	Days

Set Required QC Samples

Required QC Samples

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Method Synonym	Matrix Category	Parameter	QC Sample Type/ Analysis	Edit
NS	Aqueous Sample	Not Specified	LCS/BS	Edit
NS	Aqueous Sample	Not Specified	METHOD BLANK	Edit
SW8260B	Aqueous Sample	Not Specified	SURROGATE	Edit
SW8260B	Aqueous Sample	Not Specified	TRIP BLANK	Edit

Define Spike QC Limits

Set source of spike control limits to EDD or maintain in EIM.

Add QC Limit Source

Format Name*: EIM53
Lab ID*: BRJ:BRJ Laboratories
Limit Type*: Laboratory Control Sample/Duplicate Recovery Limit
Source For Limits*: Database

Save Exit

Data File From Lab
Database
Database Only If Not Provided In Data File

Add QC Limits

Method Synonym*: EPA 6010B
Lab*: BRJ:BRJ Laboratories
Matrix Ctgy*: A:Aqueous Sample
QC Entity*: LABORATORY CONTROL SAMPLE
Parameter*: Not Specified
Lower Recvry Limit: 75
Upper Recvry Limit: 125
Reject Below:
Reject Above:
RPD Limit: 25

Save Exit

Build Qualifiers to Apply

EIM has reason codes for QC scenarios checked during validation.

EIM Validation Reason Code	EIM Validation Reason Desc
SC1	Analysis holding time exceeded.
SC2	Analysis holding time grossly exceeded.
SC3	Extraction holding time exceeded.
SC4	Extraction holding time grossly exceeded.
SC5	pH in sample too high.

Input validation qualifier (if any) DVM should apply for QC scenario.

Specify Validation Qualifiers For QA/QC Problems: Pag

Save Edits	Val Qual	Matrix Category	Detect Status	Problem
☑	J	A	Y	Analysis holding time exceeded.
☑	R	A	Y	Analysis holding time grossly exceeded.
☑	J	A	Y	Extraction holding time exceeded.
☑	R	A	Y	Extraction holding time grossly exceeded.

Save Return

Custom Setup Options

Apply optional special handling of certain QC situations by DVM.

Enter/Edit Miscellaneous Validation Options

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Matrix Category	Validation Option	Option Value
A	Blank Correction When Result Less Then Reporting Limit	Set result equal to detection limit when parameter found in any blank.
A	Diluted Surrogate Results	Do not flag any diluted surrogate analysis with a recovery of 0.

Use the fields below to enter new records or replace or delete existing ones.

Matrix Category*: Aqueous Sample

Select A Setting*:

- Blank Correction When Result Less Then Reporting Limit
- Diluted Matrix Spikes
- Diluted Surrogate Results
- Lab Duplicate Qualification Scope
- Matrix Spike Qualification Scope
- Processing Of Surrogate Exceedances
- Reporting Of Blank Spike Sample Results
- Reporting Of Laboratory Control Sample Results
- Results of Laboratory Control Samples and Duplicates Evaluated Together
- Results of Matrix and Analytical/Post-Digestion Spikes

Select A Value For This Setting

- No Selection
- Results of Matrix Spike Used To Qualify All Samples In Batch
- Results of Matrix Spike Used To Qualify Spiked Sample Only

Save | Batch Delete Mode | Return

Configure Validation Controls

Qualifier-specific settings dictate how and when EIM electronically applies qualifications.

Analytical Validation Options for Acme Site Plant (Martinez) Site

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Option	Selection
Assign Validation Qualifiers Electronically	Y
Assign Validation Reason Codes and Qualifiers	NO SELECTION
Check validity of entries in Validation Reason Code and Qualifier fields. Requires setup by Locus and a limit of one reason code per record.	NO SELECTION
Copy All Lab Qualifiers In Absence Of Any Other	NO SELECTION
Copy Any Qualifier With A J In It (In Absence Of Any Other)	NO SELECTION
Copy Any Qualifier With A U In It (In Absence Of Any Other)	
Copy J Qualifier In Absence Of Any Other	
Copy U Qualifier In Absence Of Any Other	

For example, option to roll over "U" lab qualifiers into the validation qualifier field when validation findings are not applied.

Restricted Role – Third Party Validator

Set up user for restricted access as a third party validator.

Assign Permissions To Selected Functional Group (Third Party Validators)

Module	EIM Activity or Entity	Use	Insert	Edit	View/ Query
Field	Field Forms (Field Module)	☐	☐	☐	
Field	Sample Processing (Field Module)	☐	☐	☐	
Input	Analytical Results (Field and Laboratory QC)	☑	☐	☐	
Input	Charge Codes in LOV_MEMBER Table	☐	☐	☐	
Input	Data Uploads: Updates Only (Includes all tables accessible from this menu option). The ability to update Analytical Results is not one of the options.	☐	☐	☐	
Input	Data Validation in the Holding Table	☑	☑	☑	
Input	DMR Setup and Processing	☐	☐	☐	
Input	Field Sample Information (Includes Field Sample, Field Measurement, COC, Requested Analysis, and Field Measurement Information)	☑	☐	☐	
Input	Load/Process Analytical EDDs (Does not include ability to move EDDs to final tables)	☐	☐	☐	

Third party validator can run DVM and apply findings but not insert data into EIM.

Change Validation Status Of Dataset

Validate This Dataset: Yes: ◉ No: ○

Validate EDD Offline: Yes: ○ No: ◉

Validation To Be Performed By Third Party: Yes: ◉ No: ○

Validation Options Set[2]: Boston Validation Settings

Submit Cancel

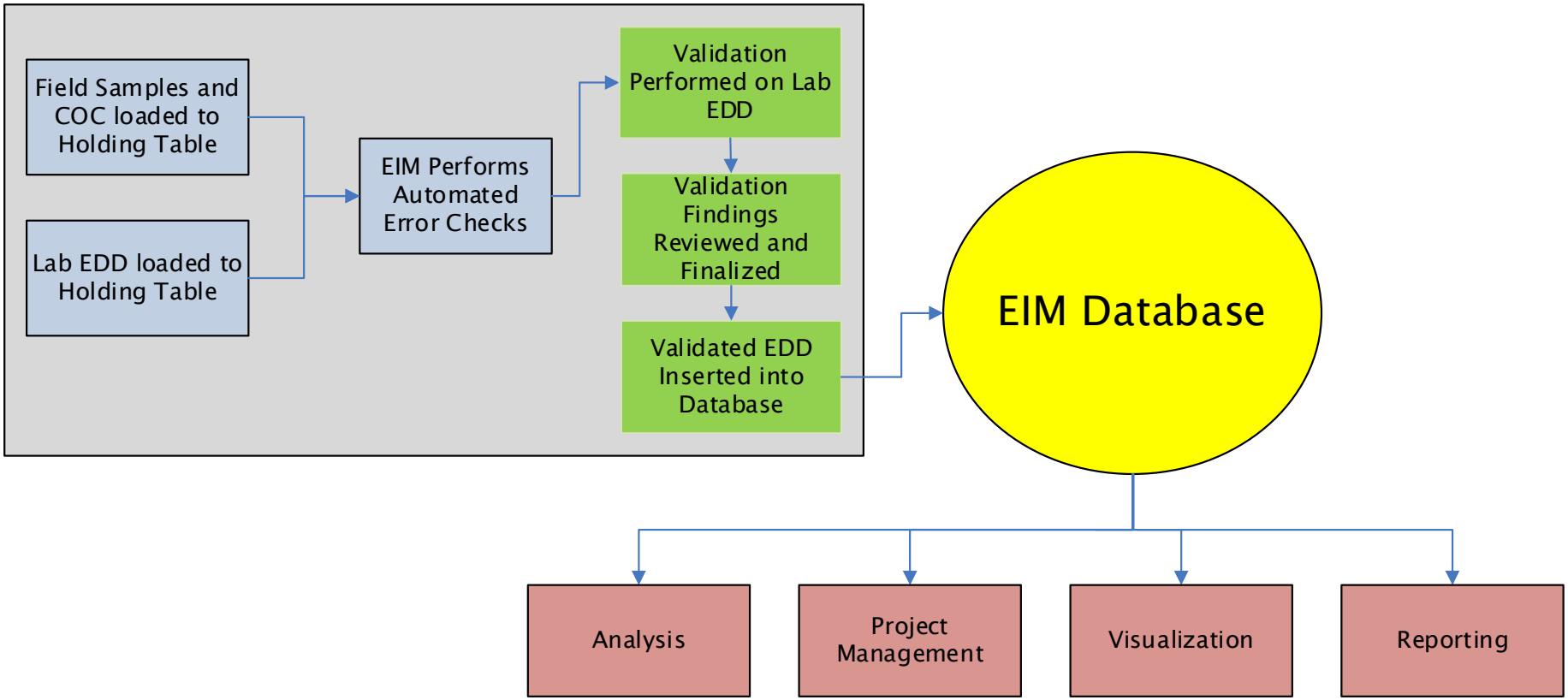
Running Validation

- Run validation checks.
- Review data outliers.
- Review auto-applied validation findings.
- Add validation findings from offline (manual) components.
- Download data reports on findings/QC issues.

The DVM steps up to support the validation process…

Where Does DVM Fit in EIM?

EIM's Holding Table ("Quarantine Zone")



Starting Validation

Support staff can prep EDD and start validation checks, then hand off to validator.

Edit/Review Dataset: 158951D.txt, ID=702

Process | Delete | Validate | Views/Notifications

1. Summary Of Findings (View)
2. Sample Counts (Lab and Field Samples) (Field Samples Only)
3. Blank Contaminants (Blanks Only) or (Potentially Affected Samples)
4. Holding Times (View All) or (QC Problems Only)
5. Missing QC Samples (View)
6. Matrix Spikes (View All) or (QC Problems Only) or (Samples With Too High Initial Concentrations)
7. Lab Control Samples (View All) or (QC Problems Only) or (Summary Counts)
8. Surrogates (View All) or (QC Problems Only) or (Summary Counts)
9. Field Duplicates (View All) or (QC Problems Only)
10. Lab Duplicates (View All) or (QC Problems Only)
11. MDCs Not Met (View All)
12. Uncertainty Limits Not Met (View All)
13. Percent Solids (View)
14. Sample Condition Upon Arrival At Lab (View)
15. Lab Used Inappropriate Field Sample For QC Analyses (View)
16. Individual Results With Links To Associated QC Problems (View)
17. Assigned Validation Qualifiers And Reason Codes (View/Edit)
18. Download Data For Offline Validation (Download)
19. Upload Offline Validated Data (Upload)
20. Best Result Findings (Review/Edit)
21. Validation Comments (Enter/Edit)
22. Validation Status Code (Change)
23. File With Validation Information (Download)
24. Miscellaneous Validation Reports (Display Report Options)
25. Run/Rerun Validation Checks
26. Validation Settings (Summary) or (Details)
27. Potential Inconsistencies Or Missing/Incomplete Data (View)
28. Do Not Validate This Dataset
29. Manual Validation Of This Dataset Is Complete
30. Change Validation Options Set
31. Send Notification That Validation Is Complete
32. Move All Validated Data Into Destination Tables

Start the validation process.

Dataset Status:
Initial Records: **495**
Errors: **0**
Warnings: 0

Validation Status: (Change)

Validation Options Set: *Boston Validation Settings*
Awaiting Validation: **No**
Awaiting Qualifiers: **No**
Offline validation required: **No**

Manual Review Status: (Reset)

Awaiting Review

Check here if review has been completed

Rerun Database Checks
Select Another Dataset
Load Another File Of The Same Format

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Plan Settings and Sample Info

Viewable plan settings, summary and detailed views.

Presence/Absence of Validation Settings For Methods in Current Dataset

	Method	EPA 376.2M	EPA 6010B	EPA 7421	EPA 7470A	EPA 7521	EPA 8015B M	EPA 8260B	EPA 8270C	EPA 8310	EPA 9066
Validation Category	Matrix Category	A	A	A	A	A	A	A	A	A	A
Holding Times	See note b	X	X	X	X		X	X	X	X	X
Blank Correction Factors	See note c		X	X	X	X	X	X	X	X	X
Lab Control Samples Outlier Percentages	See note d								X		
QC Limits	See note e										
Sample Condition	See note f							X			
Reporting Limits	See note g										
RPD Calculations	See note h							X			
Validation Qualifiers	See note i										
Validation Reason Codes	See note j		X								

Various helpful counts of sample/batch info in EDD.

SDG	Analytical Method	Analysis Lot ID	Sample Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Dup
SDG3	CALUFT-DRO/SW-846 8015B mod.	040730004A	040730004A	2					1	1				1	1			
SDG3	CALUFT-DRO/SW-846 8015B mod.	040730005A	040730005A	2					1	1				1	1			
SDG3	CALUFT/SW-846 8015B modified	04075A55A	04075A55A	2		1			1	1	1			1	1			
SDG3	EPA 376.2 modified	04076023001A	NA	2					1	1	1			1				
SDG3	SW-846 6010B	40751848005	40751848005	2					1	1	1			1				
SDG3	SW-846 7421	40775704002	40775704002	2					1	1	1			1				
SDG3	SW-846 7470A	40785713001	40785713001	2					1	1	1			1				
SDG3	SW-846 7521	40775704002	40775704002	2					1	1	1			1				
SDG3	SW-846 8260B	W040761AA	W040761AA	2		1			1	1				1	1			
SDG3	SW-846 8270C	04073WAG026	04073WAG026	2					1	1				1	1			
SDG3	SW-846 8270C	04075WAE026	04075WAE026	2					1					2	2			

Snapshot of Validation Outcome

Field Results With One Or More Reason Codes

- Field Results With One Or More Reason Codes
- Blank Contaminants (Affected Samples)
- Holding Times
- Missing QC Samples
- MS/MSD Recoveries
- MS/MSD Samples With Too High Initial Concentrations
- LCS/LCSD Recoveries
- Surrogate Recoveries
- Field Duplicates
- Lab Duplicates

Fixed reports show different groupings of validation findings and QC outcomes.

Select A Category: Field Results With One Or More Reason Codes

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Lab Sample ID	Field Sample ID	Analytical Method	Analy Type Code	Dil Factor	Parameter	Parameter Code	Lab Result	Lab Detection Limit	Units	Lab Qualifier	Val Qualifier	Val Reason Codes	Detect Flag	Use Flag
4272039	SJ-0018	SW-846 8260B	INIT	1	1,1,1-Trichloroethane	71-55-6	5	5	ug/l	U	UJ	MS1	N	Y
4272039	SJ-0018	SW-846 8260B	INIT	1	Trichloroethene	79-01-6	5	5	ug/l	U	UJ	MS1	N	Y
4272040	SJ-0019	CALUFT-DRO/SW-846 8015B mod.	INIT	100	TPH - DRO CA LUFT (Waters)	PHCD	66000	10000	ug/l			SU2	Y	Y
4272040	SJ-0019	SW-846 8260B	INIT	25	1,1,1-Trichloroethane	71-55-6	130	130	ug/l	U	UJ	MS1	N	Y
4272040	SJ-0019	SW-846 8260B	INIT	25	Trichloroethene	79-01-6	130	130	ug/l	U	UJ	MS1	N	Y
4272040	SJ-0019	SW-846 8270C	INIT	5	7,12-Dimethylbenz[a]anthracene	57-97-6	53	53	ug/l	U	U	LC2	N	Y
4272041	SJ-0019	SW-846 6010B	INIT	10	Zinc	7440-66-6	0.0642	0.2	mg/l	J	J	BL4	Y	Y
4272042	SJ-0020	CALUFT-DRO/SW-846 8015B mod.	INIT	10	TPH - DRO CA LUFT (Waters)	PHCD	6800	980	ug/l		J	SU2	Y	Y
4272042	SJ-0020	SW-846 8260B	INIT	1	1,1,1-Trichloroethane	71-55-6	5	5	ug/l	U	UJ	MS1	N	Y
4272042	SJ-0020	SW-846 8260B	INIT	1	Trichloroethene	79-01-6	5	5	ug/l	U	UJ	MS1	N	Y
4272042	SJ-0020	SW-846 8270C	INIT	1	1-Methylnaphthalene	90-12-0	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	2,4-Dimethylphenol	105-67-9	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	2-Methylnaphthalene	91-57-6	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	2-Methylphenol	95-48-7	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	4-Methylphenol	106-44-5	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	7,12-Dimethylbenz[a]anthracene	57-97-6	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	Acetophenone	98-86-2	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	bis(2-Ethylhexyl)phthalate	117-81-7	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	Butylbenzylphthalate	85-68-7	11	11	ug/l	U	R	SC4	N	N
4272042	SJ-0020	SW-846 8270C	INIT	1	Di-n-butylphthalate	84-74-2	11	11	ug/l	U	R	SC4	N	N

Reason Code	Description
BL4	Parameter in blank below CRQL.
LC2	LCS/LCSD recovery below lower acceptance limit.
MS1	MS/MSD recovery below lower limit.
SC4	Extraction holding time grossly exceeded.
SU2	Surrogate recovery below lower acceptance limit.

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Surrogate Recovery Reports

Select A Category: Surrogate Recoveries

Field Sample ID	Lab Sample ID	CALUFT-DRO/SW-846 8015B mod.	CALUFT/SW-846 8015B modified	SW-846 8260B	SW-846 8270C	SW-846 8310
	134WALCS				0/6	
	134WALCSD				0/6	
	134WCLCS					0/2
	134WCLCSD					0/2
	134WFLCS				0/6	
	134WFLCSD				0/6	
SJ-0015	4271232		0/1	0/4		
SJ-0016	4271233	0/2	0/1	0/4	0/12	0/2
SJ-0017	4271235	0/2	0/1	0/4	5/12	0/2
	4271878			0/4		
	BLK5550B		0/1			
	LCDW11			0/4		

Quick overviews of surrogate counts and outliers with hyperlinks to outlier records.

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Field Sample ID	Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Dilution Factor	Spike Recovery	Upper QC Limit	Lower QC Limit	Recvry Rejection Limit	Surrogate Recvry Flag
SJ-0017	4271235	SW-846 8270C	2,4,6-Tribromophenol	04134WAF026	05-14-2004	1	6	142	45		OUT
SJ-0017	4271235	SW-846 8270C	2,4,6-Tribromophenol	04134WAA026	05-20-2004	1	6	142	45		OUT
SJ-0017	4271235	SW-846 8270C	2-Fluorophenol	04134WAF026	05-14-2004	1	3	94	23		OUT
SJ-0017	4271235	SW-846 8270C	2-Fluorophenol	04134WAA026	05-20-2004	1	2	94	23		OUT
SJ-0017	4271235	SW-846 8270C	Phenol-d6	04134WAA026	05-20-2004	1	2	80	10		OUT

Field Duplicates and Required QC

Field duplicate pair RPDs.

Field Duplicates

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Field Sample ID	Field DuplicateID	Analytical Method	Parameter Name	Sample Matrix	Lab Result	FD Result	Lab Detection Limit	FD Lab Detection Limit	Lab Units	Detect Flag	FD Detect Flag	RPD	RPD Limit	RPD Flag	Detection Limit Multiple	Alt. Contro Limit
SJ-0006	SJ-0009	CALUFT-DRO/SW-846 8015B mod.	TPH - DRO CA LUFT (Waters)	WATER	51000	33	9300	94	ug/l	Y	Y	199.741			1	1
SJ-0006	SJ-0009	CALUFT-DRO/SW-846 8015B mod.	TPH-DRO CALUFT(Water) w/Si Gel	WATER	43000	94	9300	94	ug/l	Y	N	199.127			1	1
SJ-0006	SJ-0009	CALUFT/SW-846 8015B modified	TPH-GRO (CA LUFT)	WATER	2.6	0.05	0.05	0.05	mg/l	Y	N	192.453			1	1
SJ-0006	SJ-0009	EPA 376.2 modified	Sulfide	WATER	0.1	0.1	0.1	0.1	mg/l	N	N				1	1
SJ-0006	SJ-0009	SW-846 6010B	Arsenic	WATER	0.0201	0.0055	0.01	0.01	mg/l	Y	Y	114.062			1	1
SJ-0006	SJ-0009	SW-846 6010B	Barium	WATER	0.844	0.184	0.005	0.005	mg/l	Y	Y	128.405			1	1
SJ-0006	SJ-0009	SW-846 6010B	Cadmium	WATER	0.005	0.005	0.005	0.005	mg/l	N	N				1	1
SJ-0006	SJ-0009	SW-846 6010B	Chromium	WATER	0.009	0.005	0.005	0.005	mg/l	Y	N	57.1429			1	1
SJ-0006	SJ-0009	SW-846 6010B	Cobalt	WATER	0.0019	0.0213	0.005	0.005	mg/l	Y	Y	167.241			1	1
SJ-0006	SJ-0009	SW-846 6010B	Copper	WATER	0.01	0.01	0.01	0.01	mg/l	N	N				1	1
SJ-0006	SJ-0009	SW-846 6010B	Selenium	WATER	0.01	0.01	0.01	0.01	mg/l	N	N				1	1
SJ-0006	SJ-0009	SW-846 6010B	Silver	WATER	0.005	0.005	0.005	0.005	mg/l	N	N				1	1
SJ-0006	SJ-0009	SW-846 6010B	Vanadium	WATER	0.0362	0.005	0.005	0.005	mg/l	Y	N	151.456			1	1

VOC results missing a trip blank sample.

Data For Selected Option:

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Lab Sample ID	Field Sample ID	Missing QC Sample	Analytical Method	Parameter Name	Lab Result	Lab Qualifier	Units	Val Qlfr	Val Reason Codes
X96584	SJ-151	TRIP BLANK	SW-846 8260B	cis-1,2-dichloroethene	7.1		ug/l		MQ1
X96584	SJ-151	TRIP BLANK	SW-846 8260B	trichloroethene	29		ug/l		MQ1
X96585	SJ-152	TRIP BLANK	SW-846 8260B	trichloroethene	8.8		ug/l		MQ1
X96586	SJ-153	TRIP BLANK	SW-846 8260B	cis-1,2-dichloroethene	1.3		ug/l		MQ1
X96586	SJ-153	TRIP BLANK	SW-846 8260B	trichloroethene	1.6		ug/l		MQ1

Field and Lab Blank Hits

Summary of lab or field blanks with results above lab PQLs.

Data For Selected Option:

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Blank Field Sample ID	Blank Lab Sample ID	Type of Blank	Analytical Method	Sample Matrix	Parameter Name	Blank Result	Lab Qualifier	Units	Blank Detection Limit	Sample Dilution Factor
	513A-132880BLK	METHOD BLANK	SW-846 8260B	WATER	methylene chloride	7.8	B	ug/l	5.0	1.00
SJ-154	X96587	TRIP BLANK	SW-846 8260B	WATER	trichloroethene	0.57		ug/l	0.5	1.00

View "potentially affected samples" – results associated with blanks that reported detects.

Data For Selected Option:

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Lab Sample ID	Field Sample ID	Type of Blank	Analytical Method	Parameter Name	Units	Blank Result	Original Lab Result	Lab Result	Lab Qualifier	Lab Detection Limit	Detected	Sample Dilution Factor	Correction Factor (ND)	Correction Factor (J)	Use Correction Factors	Common Lab Contaminant Rej. Multiple	Potential Problem Exists	Val Qlfr	Val Reason Codes
X96584	SJ-151	METHOD BLANK	SW-846 8260B	methylene chloride	ug/l	7.8	6.0	6.0		5.0	Y	1.00					NO	J	DU1
X96589	SJ-150	METHOD BLANK	SW-846 8260B	methylene chloride	ug/l	7.8	19	19		5.0	Y	1.00					NO	J	DU1
X96589	SJ-150	TRIP BLANK	SW-846 8260B	trichloroethene	ug/l	0.57	11	11		0.5	Y	1.00	5		Y		NO	J	DU1
X96584	SJ-151	TRIP BLANK	SW-846 8260B	trichloroethene	ug/l	0.57	29	29		0.5	Y	1.00	5		Y		NO	J	DU1
X96585	SJ-152	TRIP BLANK	SW-846 8260B	trichloroethene	ug/l	0.57	8.8	8.8		0.5	Y	1.00	5		Y		NO		
X96586	SJ-153	TRIP BLANK	SW-846 8260B	trichloroethene	ug/l	0.57	1.6	1.6		0.5	Y	1.00	5		Y		YES	U	BL1

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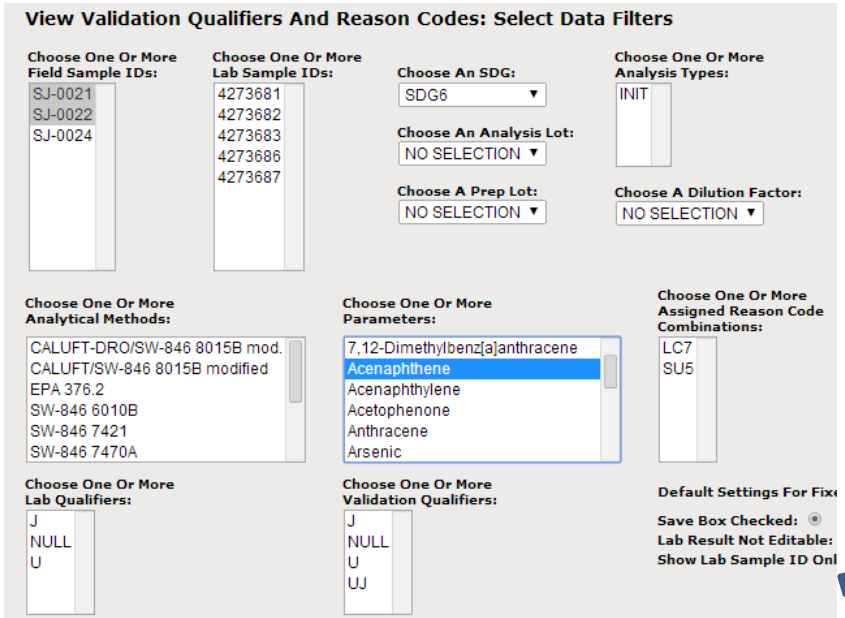
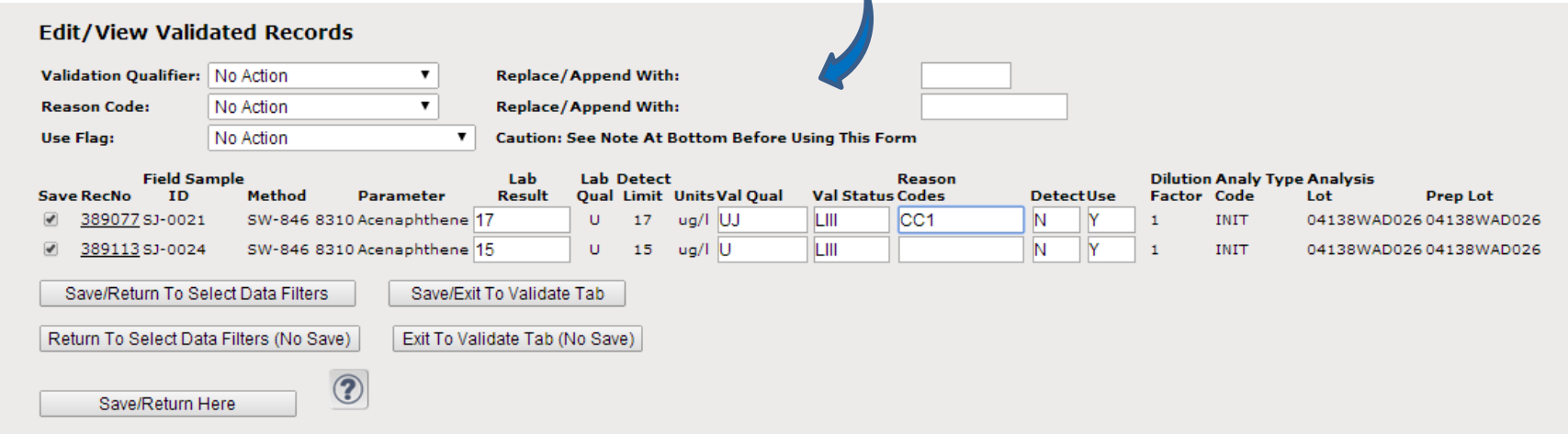
Review, Edit, or Add Findings



Review automated validation finding using filter criteria to narrow down dataset.

Change auto-applied findings or add in qualifiers from offline validation inputs like calibration or raw data review.



Document Entire Review Process

Handy to add supporting documentation, including verification (e.g., Form 1 review) and Level III/IV offline review or professional judgment applied to findings.

Internal Standard Area/Retention Time Comments:	
Tuning/Mass Calibration Comments:	BFB Tune check met frequency and mass abundance criteria for each 12 hour period of sample analysis.
Initial Calibration Comments:	ICAL review performed for GCMS1 (Run 80741 11/8/11 8:30), GCMS2 (Run 11894 11/7/11 17:14). RSD < 15% or linear calibration with r2 > 0.9990.
Continuing Calibration Comments:	GCMS2 11/8/11 CCV bromomethane 35% - J/UJ qualified associated bromomethane results. GCMS1 CCV met acceptance criteria.

Data Quality Report Tables

Quickly produce downloadable tables to communicate/report validation outcome.

Include	Report Name	Description
☑	Holding Table Data Dump With Validation Fields	Print all fields in EDD plus the following: Use Flag, Validation Reason Codes, Validation Qualifier, Validated By, and Validated Date.
☑	Print All Detects	Print data for detected analytes only.
☑	Print All Detects and Nondetects With QC Issues	Print data for all detects and any analysis with a validation issue.
☐	Print All Detects and Nondetects With QC Issues: Useable Results Only	Same as Print All Detects and Nondetects With QC Issues except limited to results with a Use Flag of Y.
☑	Print All Flagged Results	Print data for any analysis with a validation issue.
☑	Print All Rejected Results	Print data for all rejected analyses.
☑	Print Analyses With Both Filtered and Unfiltered Results	Print data side-by-side for those analyses which have both a filtered and an unfiltered result.
☑	Print Field Duplicate Results	Print data side-by-side for those analyses which have an analysis for both a regular and a field duplicate sample.
☑	Print Field Samples, Methods, and Their Associated Field QC Samples	Show the Sample IDs of the Trip Blanks, Field Blanks, Equipment Blanks, and Field Duplicates associated with each regular sample. Include the SDG, analytical method, Location ID, and sample date in each record.

Example percent completeness report.

Selected Validation Report:

Lab Matrix	Parameter Class	Analytical Method	Leached Method	Total Unique Results	Fully Rejected Results	Difference	Percent Complete
WATER		CALUFT-DRO/SW-846 8015B mod.		24	0	24	100.00
WATER		CALUFT/SW-846 8015B modified		14	0	14	100.00
WATER		EPA 376.2		7	0	7	100.00
WATER		SW-846 6010B		70	0	70	100.00
WATER		SW-846 7421		7	0	7	100.00
WATER		SW-846 7470A		7	0	7	100.00
WATER		SW-846 7521		7	0	7	100.00
WATER		SW-846 8260B		91	0	91	100.00

Example Final Output

DATA VALIDATION REPORT

Chain Of Custody No. 2014-2398

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
2398	EPA:150.1	1				
2398	EPA:200.7	1				
2398	EPA:200.8	1				
2398	EPA:300.0	1				
2398	EPA:310.1	1				

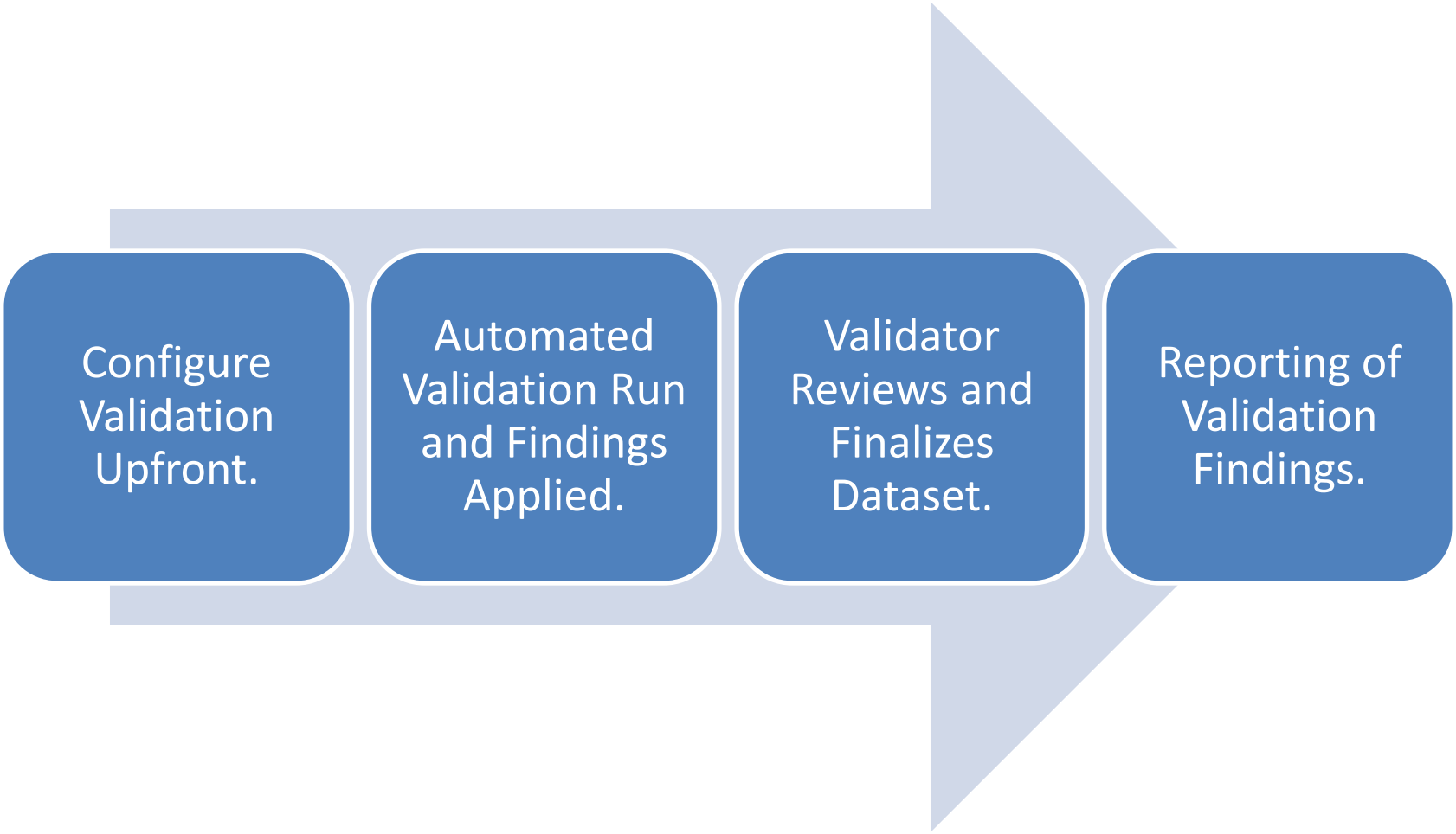
SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
2398	EPA:150.1	NA	NA	1																	
2398	EPA:200.7	NA	NA	1																	
2398	EPA:200.8	NA	NA	1																	
2398	EPA:300.0	NA	NA	1																	
2398	EPA:310.1	NA	NA	1																	

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:150.1	GENERAL CHEMISTRY	Cr28-13-45901	Cr28-13-45901	REG	1	0	0	0
EPA:200.7	INORGANIC	Cr28-13-45909	Cr28-13-45909	REG	14	0	0	0
EPA:200.8	INORGANIC	Cr28-13-45909	Cr28-13-45909	REG	18	0	0	0
EPA:300.0	GENERAL CHEMISTRY	Cr28-13-45909	Cr28-13-45909	REG	8	0	0	0
EPA:310.1	GENERAL CHEMISTRY	Cr28-13-45901	Cr28-13-45901	REG	2	0	0	0

3. Are any analytes missing?

EIM DVM


Configure Validation Upfront.
Automated Validation Run and Findings Applied.
Validator Reviews and Finalizes Dataset.
Reporting of Validation Findings.

Takeaways….

- EIM automates what can be automated in the validation process.
- Once configured, DVM is fast!
- Reduces costs of the overall process.
- Catch errors earlier in process before data are finalized.
- Validator focus on data outliers, anomalies, and quality issues critical to validation.

EIM customer estimated $1.7 million cost savings from EIM DVM: 3,948 EDDs from 2/1/2012 to 01/01/2014.

If you are interested in learning further about EIM please contact us at:

info@locustec.com

+1-650-960-1640