LOOHN'S CLEANERS AND LAUNDERERS SOURCE AREA – FINAL SAMPLING TRIP REPORT

Site Name: Loohn's Cleaners and Launderers Source Area (Olean Well Field) Superfund Site
CERCLIS ID Number: NYD980528657
Sampling Date(s): May 24th, 2021 – May 25th, 2021
CLP Case #: 49406

1. Site Location:

Olean, Cattaraugus County, New York

2. Sample Descriptions:

Refer to Appendix A, *Chain-of-Custody (COC) Records.* Appendix A contains the Regional and Laboratory Copy of the Chain-of-Custody (COC) Records for all sample information. The Regional Copy COC Record contains the following sample information: Sample ID, Sample Location, Sample Sub-Location, Analysis, Matrix, Sample Type, Sample Collection Method, Sample Depth, Sample Collection Date, Sample Time, Sample Container Type, Number of Containers, and Sample Preservation. Whereas, the Laboratory Copy COC Record contains all the information previously described but omits the QC information that is blind to the laboratory such as Sample Type (i.e., field duplicate).

3. Laboratories Receiving Samples:

CLP Case #	Sample Type	Laboratory Code	Name and Address of Laboratory
49406	TCL – Trace VOCs EPA CLP SOW: SFAM01.1 (Groundwater)	PACE	Pace Analytical Services 106 Vantage Point Dr. West Columbia, SC 29717

4. Sample Dispatch Data:

A total of six (6) aqueous (groundwater) samples were collected by USEPA Region 2 LSASD/HWSB/SST personnel from five (5) on-site source area monitoring wells from May 24th, 2021 through May 25th, 2021. The sample total includes one (1) field duplicate sample. In addition, one (1) trip blank, and one (1) equipment rinsate blank sample was collected for QA purposes. All groundwater samples were collected according to U.S. EPA Region 2 LSASD/HWSB/SST Standard Operating Procedure (SOP) #FA-SST-T-007*: Groundwater Sampling Procedure - Low-Stress (Low Flow) Purging and Sampling* dated November 2019. Detailed information on sampling methodology and monitoring well locations are provided in Appendix B, *Olean/Loohn, Groundwater Sampling, Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP).*

All groundwater and Quality Control (QC) samples were were shipped to CLP Lab Pace Analytical Services via United Parcel Service Tracking Number 1Z 061 547 21 1004 068 6 for the analysis of trace level Volatile Organics on May 25, 2021 under Chain of Custody (COC) Record Number 2-051321-164326-0005. All samples were analyzed for trace level Target Compound List (TCL) Volatile Organic Compound (VOC) fraction only by Contract Laboratory Program (CLP) Lab Pace Analytical Services in accordance with CLP Statement of Work (SOW) *EPA Contract Statement of Work for Superfund Analytical Methods (Multi-Media, Multi-Concentration) SFAM01.1 November 2020.* The fully validated CLP Analytical Data Package is presented in Appendix C, *Laboratory Analytical Results*.

All Target Compound List (TCL) Volatile Organic Compound (VOC) fraction analytical results were compared to Federal and State Applicable or Relevant and Appropriate Requirements (ARARs) and/or To Be Considereds (TBCs) including but not limited to the National Primary Drinking Water Regulation Maximum Contaminant Levels (MCLs) as currently codified; the Compilation of Codes, Rules and Regulations of the State of New York, Title 6. Department of Environmental Conservation, Part 703.5 Water Quality Standards for taste-, color- and odor-producing, toxic and other deleterious substances (6 CRR-NY 703.5) as currently codified; and the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS 1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations dated June 1998.

All monitoring well physio-chemical stabilization parameters including pH, Temperature, Specific Conductivity, Dissolved Oxygen (DO), Turbidity, Oxidation Reduction Potential (ORP), Depth to Water (DTW), and Flow Rate were collected via In-Situ Aqua-TROLL 600 multi-parameter sondes and recorded via low-flow test report outputs which are presented in Appendix D, *Low-Flow Test Reports*. Additional duties as assigned included the measurements of potentiometric surface elevations in all on-site and off-site monitoring wells, as well as the total depth sounding, and visual observations. The new locks and hardware (i.e., stainless steel bolts and nylon washers) installed in 2016 are still intact and performing as recommended. All wells had water with no obstructions and little to no sedimentation at the bottom.

5. Sampling Personnel:

Name	Organization	Site Duties
Robert Finke	USEPA Region 2 DESA/HWSB Superfund Support Team	Sampling Project Manager/ Sample Management
Mark Denno	USEPA Region 2 DESA/HWSB Superfund Support Team	Field Personnel

6. Additional Comments:

Outlined in Table 1 below is the Sample IDs, Monitoring Well Number, Non-site and Site-related TCL-VOC fraction compounds, and ARAR/TBC that had analytical results either above the laboratory's method detection limit and/or reporting limit. Furthermore, any result highlighted in yellow exceeds either the federal and/or state ARAR and/or TBC. The complete compound listing is presented in Appendix E, *Data Summary Reports*.

Table 1 –Loohn's Cleaners/Olean Wellfield Sample Result Summary-May 2021

		TCL – VOC Fraction Compound											
		PCE		cis-1,2-DCE		trans-1,2-DCE		Vinyl Chloride		1,1-DCE		TCE	
Sample ID	Well #	Result µg/L	ARAR µg/L	Result µg/L	ARAR µg/L	Result µg/L	ARAR µg/L	Result µg/L	ARAR µg/L	Result µg/L	ARAR µg/L	Result µg/L	ARAR µg/L
BFWM1	MW-01	0.25 J	5	2.2	5	-------	5	2.9	2	-------	5	0.7 J	5
BFWM2	MW-02	4,800	5	1,200	5	6.7	5	200	2	8.5	5	440	5
BFWM3	MW-03	27.0	5	44.0	5	-------	5	0.32 J	2	-------	5	20	5
BFWM4	MW-04	89.0	5	48.0	5	-------	5	2.6	2	-------	5	26	5
BFWM5	MW-05	-------	5	-------	5	-------	5	-------	2	-------	5	-------	5
BFWM6	RB-01	-------	5	-------	5	-------	5	-------	2	-------	5	-------	5
BFWM7	TB-01	-------	5	-------	5	-------	5	-------	2	-------	5	-------	5

All Quality Control (QC) samples are presented in Table 2 below. Field quality control samples included a trip blank and rinsate blank to determine if any extraneous contamination was introduced to the samples in the field and/or during shipment. Trip blank ID BFWM7 and Rinsate Blank ID BFWM6 yielded no analytical results above reporting limits for all TCL-VOC fraction compounds.

The laboratory quality control samples included the collection of a field duplicate and a matrix spike/matrix spike duplicate (MS/MSD) sample. The field duplicate was compared to the associated sample via Relative Percent Difference (RPD) calculations for compounds detected in both the sample and the associated duplicate detected above the reporting limits. These RPD calculations are presented in Table 3 below and are used to assess the overall precision of sampling in the field, as well as the analysis performed by the laboratory. Although the overall decision lies with the data user, it is the opinion of this office that the RPD in this situation is less than the regional criteria of 20% and indicates acceptable comparability.

Table 2 – Loohn's Cleaners/Olean Wellfield Quality Control Samples

Laboratory Quality Control (QC) Samples		Field Quality Control (QC) Samples	
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Field Duplicate	Trip Blank	Rinsate Blank
BFWM5/MW-05	BFWM4 / BFWM6 MW-04/MW-44	BFWM8/TB-01	BFWM7/RB-01

Table 3 - Loohn's Cleaners/Olean Wellfield % RPD Calculations

Target Compounds	Lab Reporting Limit (µg/L)	Sample Result (µg/L)	Sample Duplicate Result (µg/L)	A - B	Average of A and B	Relative Percent Difference
	Sample ID:	BFWM4	BFWM6			
cis-1,2-Dichloroethene	0.50	48	47	1.00	47.50	2.11
Tetrachloroethene (PCE)	0.50	89	90	1.00	89.50	1.12
Trichloroethene (TCE)	0.50	26	27	1.00	26.50	3.77
trans-1,2-Dichloroethene	0.50	0.41	0.37	0.04	0.39	10.26
1,1-Dichloroethene	0.50	0.091	0.085	0.006	0.088	6.818
1,1-Dichloroethane	0.50	0.25	0.25	0.00	0.25	0.00

In terms of data usability, it is the position of this office that, based on the agreeability of the relevant quality controls implemented during sampling and analysis, that the data be deemed usable for making environmental decisions. As presented in Table 1 and the Data Summary Report in Appendix E of this document, sample numbers BFWM1, BFWM2, BFWM3 and BFWM4 have results which exceed either the federal and/or state ARARs for Tetrachloroethene (PCE), cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, Vinyl Chloride, 1,1-Dichloroethene, or Trichloroethene (TCE). Therefore, based on these concentration levels, these monitoring wells should continue to be monitored for endemic groundwater conditions, as well as for protectiveness of human health and the environment.

7. **Report Prepared by:** Robert Finke **Date:** August 18th, 2021

APPENDIX A

CHAIN OF CUSTODY RECORDS – REGIONAL & LABORATORY COPY

USEPA
UPS

CHAIN OF CUSTODY RECORD
Site #: 49406
Contact: Robert Finke
732-586-9987

No: 2-051321-164326-0005
CLP Case # 49406
Pase Analytical
Lab Phone: 803-871-9700

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	BFWM8	TB-01	Trace Volatiles	Filtered Water	5/24/2021	06:15	3	40 ml VOA	HCl	
	BFWM1	MW-01	Trace Volatiles	Ground Water	5/24/2021	18:36	3	40 ml VOA	HCl	
	BFWM2	MW-02	Trace Volatiles	Ground Water	5/25/2021	09:33	3	40 ml VOA	HCl	
	BFWM3	MW-03	Trace Volatiles	Ground Water	5/25/2021	10:22	3	40 ml VOA	HCl	
	BFWM4	MW-04	Trace Volatiles	Ground Water	5/25/2021	10:52	3	40 ml VOA	HCl	
	BFWM5	MW-05	Trace Volatiles	Ground Water	5/25/2021	10:14	6	40 ml VOA	HCl	Y
	BFWM6	MW-44	Trace Volatiles	Ground Water	5/25/2021	10:52	3	40 ml VOA	HCl	
	BFWM7	RB-01	Trace Volatiles	Filtered Water	5/24/2021	16:45	3	40 ml VOA	HCl	

Special Instructions: Case complete.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Groundwater samples/ Analysis	ROJAS / EPA	5/25/21/1500			

USEPA
UPS:1Z 061 547 21 1004 068 6
Sampler: EPA R2SST
732-586-9987

CHAIN OF CUSTODY RECORD
Olean WF Loohns Cleaners/NJ

No: 2-051321-164326-0005
CLP Case # 49406
Pase Analytical/Brad Belding
Lab Phone: 803-871-9700

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	BFWM8	TB-01	Trace Volatiles	Filtered Water	5/24/2021	06:15	3	40 ml VOA	HCl	
	BFWM1	MW-01	Trace Volatiles	Ground Water	5/24/2021	18:36	3	40 ml VOA	HCl	
	BFWM2	MW-02	Trace Volatiles	Ground Water	5/25/2021	09:33	3	40 ml VOA	HCl	
	BFWM3	MW-03	Trace Volatiles	Ground Water	5/25/2021	10:22	3	40 ml VOA	HCl	
	BFWM4	MW-04	Trace Volatiles	Ground Water	5/25/2021	10:52	3	40 ml VOA	HCl	
	BFWM5	MW-05	Trace Volatiles	Ground Water	5/25/2021	10:14	6	40 ml VOA	HCl	Y
	BFWM6	MW-44	Trace Volatiles	Ground Water	5/25/2021	10:52	3	40 ml VOA	HCl	
	BFWM7	RB-01	Trace Volatiles	Filtered Water	5/24/2021	16:45	3	40 ml VOA	HCl	

Special Instructions: Case Complete

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Samples/Analysis	Robert C. Finke EPA Region 2	05/25/21/15:00			

APPENDIX B

LOOHN'S CLEANERS/OLEAN WELLFIELD UFP-QAPP

UNIFORM FEDERAL POLICY (UFP)
QUALITY ASSURANCE PROJECT PLAN (QAPP)

FOR THE

OLEAN/LOOHN
GROUNDWATER SAMPLING

May 24, 2021

Document Control Number:
OLEAN_UFPQAPP_MAY2021

Prepared by: Robert Finke

X Robert C. Finke 5/20/21

Physical Scientist
LSASD-HWSB-SST

Approved by: Amelia Jackson

X Amelia Jackson 5/20/2021

QA Officer
LSASD-HWSB-SST

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APPENDICES

Appendix A: **Site Map/ Sampling Locations/ Logs**

Appendix B: **Sampling Standard Operating Procedure (SOPs)**
SOP#FA-SST-T-07 Rev. 2.0

Appendix C: **Analytical Standard Operating Procedure (SOPs)**
SFAM01.1

Appendix D: **Data Validation Standard Operating Procedure (SOPs)**
SOP HW-34A Validation of Trace VOC Data by CLP

Appendix E: **Manuals and Guides**
USEPA ERT, Scribe v3.10 Manuals: Parts 1, 2, 3
USEPA ERT, Scribe v3.10 Manual for CLP Sampling

ACRONYMS AND ABBREVIATIONS

ADR	Automated Data Review
ANSETS	Analytical Services Tracking System
AOC	Acknowledgment of Completion
ASTM	American Society for Testing and Materials
BGS	Below ground Surface
BNA	Base Nuetral and Acid Extractables
CCV	Continuing Calibration Verification
CDC	Continuing Demonstration of Capability
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFM	Contract Financial Manager
CLP	Contract Laboratory Program
CO	Contract Officer
COC	Chain-of-Custody
COI	Conflict of Interest
COO	Chief Operations Officer
CQLOSS	Corporate Quality Leadership and Operations Support Services
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
CRTL	Core Response Team Leader
CWA	Clean Water Act
DCN	Document Control Number
DI	Deionized Water
DMC	Deuterated Monitoring Compound
DPO	Deputy Project Officer
DQI	Data Quality Indicator
DQO	Data Quality Objective
EB	Equipment Blank
EDD	Electronic Data deliverable
EM	Equipment Manager
ENVL	Environmental Unit Leader
EPA	Environmental Protection Agency
ERT	Environmental Response Team
ESD	Explanation of Significant Differences
FASTAC	Field and Analytical Services Teaming Advisory Committee
FD	Field Duplicate
FFS	Focus Feasibility Study
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GIS	Geographic Information System
HASP	Health and Safety Plan
HRS	Hazard Ranking System
HSO	Health and Safety Officer
HWSB	Hazardous Waste Support Branch
HWSS	Hazardous Waste Support Section
ICS	Initial Calibration Standard
ICV	Initial Calibration Verification
IDC	Initial Demonstration of Capability

ACRONYMS AND ABBREVIATIONS

IDL	Instrument Detection Limit
ITM	Information Technology Manager
LCS	Laboratory Control Sample
LD	Laboratory Duplicate
LEL	Lower Explosive Limit
LSASD	Laboratory Services & Applied Science Division
MB	Method Blank
MDL	Method Detection Limit
mg/Kg	miligrams per kilogram
MPC	Measurement Performance Criteria
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSA	Mine Safety Appliances
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NJDEP	New Jersey Department of Environmental Protection
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OLEM	Office of Land and Emergency Management
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, Sensitivity
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PIO	Public Information Officer
PM	Program Manager
PO	Project Officer
ppb	Parts Per Billion
ppm	Parts Per Million
PQO	Project Quality Objective
PRG	Proposed Remediation Goal
PRP	Potentially Responsible Party
PT	Proficiency Testing
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAL	Quality Assurance Leader
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
QL	Quanitation Limit
QMP	Quality Management Plan
RA	Remedial Action
RC	Readiness Coordinator
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision

ACRONYMS AND ABBREVIATIONS

RPD	Relative Percent Difference
RPM	Remedial Project Manager
RRF	Relative Response Factor
RSCC	Regional Sample Control Coordinator
RSD	Relative Standard Deviation
RST	Removal Support Team
SARA	Superfund Amendments and Reauthorization Act
SDG	Sample Delivery Group
SEDD	Staged Electronic Data Deliverable
SEMD	Superfund and Emergency Management Division
SOP	Standard Operating Procedure
SOW	Statement of Work
SPCC	System Performance Check
SPM	Site Project Manager
START	Superfund Technical Assessment and Response Team
STR	Sampling Trip Report
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TBD	To Be Determined
TCL	Target Compound List
TDD	Technical Direction Document
TDL	Technical Direction Letter
TO	Task Order
TPH	Total Petroleum Hydrocarbons
TQM	Total Quality Management
TSCA	Toxic Substances Control Act
UFP	Uniform Federal Policy
ug/L	micrograms per liter
µg/Kg	micrograms per kilogram
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Analysis
VOA	Volatile Organic Analysis

QAPP Worksheet# 1
Title and Approval Page

Site Name: **OLEAN WELLFIELD/ LOOHN's CLEANERS & LAUNDERERS**
Site Location: **Cattarargus County, New York**
Operable Unit: **OU2**

Lead Organization:
U.S. Environmental Protection Agency, Region II
Preparer's Name and
Robert Finke USEPA-LSASD- HWSB_SST

Preparer's Address, Telephone Number, and E-mail Address:
U.S. EPA Region II, 2890 Woodbridge Ave, Edison, NY 08837
Phone: (732) 906-6802 Email: Finke.Robert@epa.gov

Preparation Date: 5/20/2021
(Day/Month/Year)

Project Manager: **Robert Finke**

X Robert C. Finke
Physical Scientist
LSASD-HWSB-SST

QA Officer: **Amelia Jackson**

X Amelia Jackson
QA Officer
LSASD-HWSB-SST

Document Control OLEAN_UFPQAPP_MAY2021

QAPP Worksheet# 2
QAPP Identifying Information

Site Name/ Project Name: OLEAN WELLFIELD/ LOOHN's CLEANERS & LAUNDERERS
Site Location: Cattarargus County, New York
Operable Unit: OU2

1. Identify guidance used to prepare QAPP:
U.S. EPA Amendment To The Operable Unit Two Record of Decision For The OleanWell Field Superfund Site Related To The Alcas Source Area, September 2014.

2. Identify regulatory program:
USEPA Region 2 CERCLA, Superfund Amendments and Reauthorization Act of 1986 (SARA)

3. Identify approval entity:
EPA Region 2

4. Indicate whether the QAPP is a generic or a project-specific QAPP.
QAPP is project-specific

5. List dates of scoping sessions that were held:
Email communications between SST field lead Robert Finke and RPM Michael Walters 2/21/2021 - 2/21/2021.

6. List dates and titles of QAPP documents written for previous site work, if applicable:
OLEAN UFPQAPP-4-2010

7. List organizational partner (stakeholders) and connection with lead organization:
USEPA Region 2

8. List data users:
USEPA Region 2

9. If any required QAPP elements and required information are not applicable to the project, then provide an explanation for their exclusion below:

NA

10. Document Control Number: OLEAN_UFPQAPP_MAY2021

QAPP Worksheet# 3
Distribution List

QAPP Recipient	Title	Organization	Telephone Number	E-mail Address	Document Control Number
Pietro Mannino	Remedial Project Manager	EPA, Region 2	(212) 637-4287	Mannino.Pietro@epa.gov	OLEAN_UFPQAPP_MAY2021
Amelia Jackson	QA Officer	EPA, Region 2	(732) 906-6164	Jackson.Amelia@epa.gov	OLEAN_UFPQAPP_MAY2021
Mark Denno	Sampling Support	EPA, Region 2	(732) 321-6708	denno.mark@epa.gov	OLEAN_UFPQAPP_MAY2021
Robert Finke	Field Project Manager	EPA, Region 2	(732) 906-6802	Finke.Robert@epa.gov	OLEAN_UFPQAPP_MAY2021

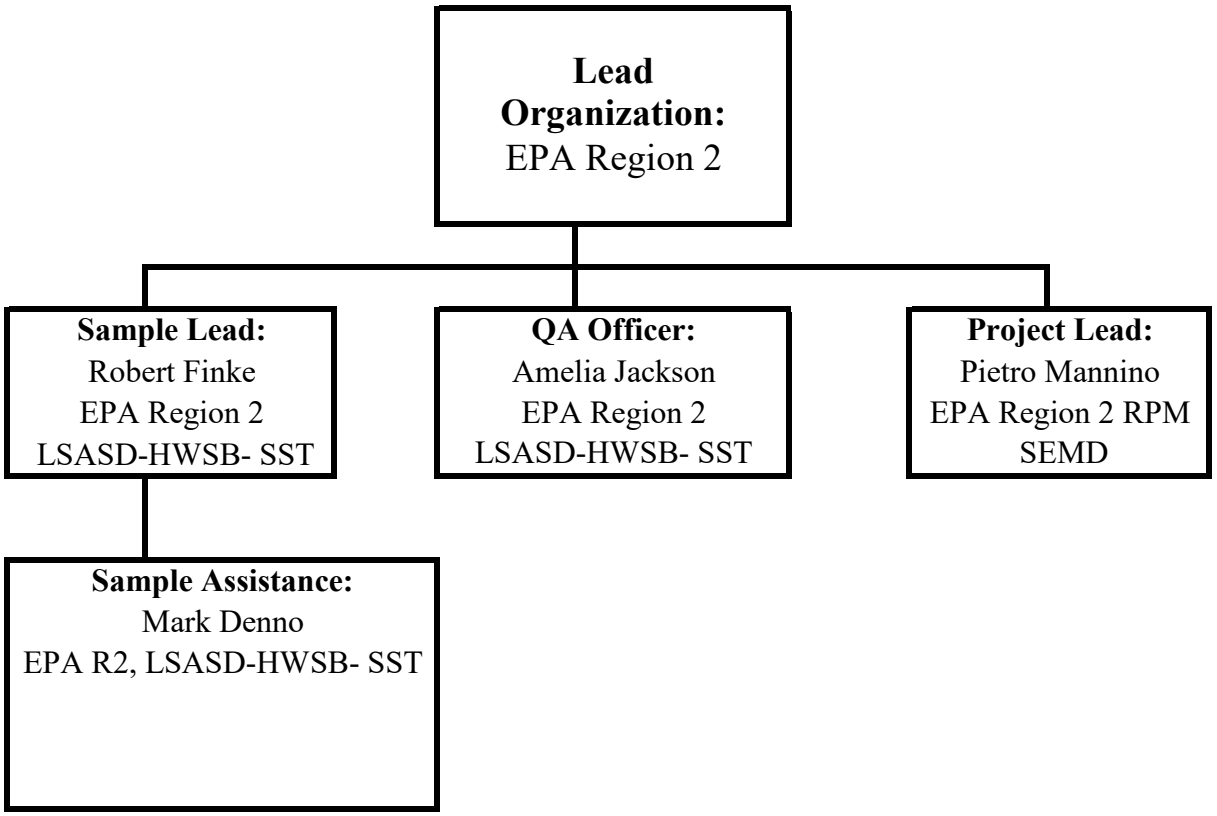
QAPP Worksheet #4
Project Personnel Sign-Off Sheet

Organization: EPA Region 2

[Have copies of this form signed by key project personnel from each organization to indicate that they have read the applicable sections of the QAPP and will perform the tasks as described; add additional sheets as required. Ask each organization to forward signed sheets to the central project file.]

Project Personnel	Title	Telephone #	Signature	Date QAPP Read
Pietro Mannino	Remedial Project Manager	(212) 637-4287	Pietro Mannino	06/04/2021
Amelia Jackson	QA Officer	(732) 906-6164	Amelia Jackson	5/20/2021
Robert Finke	Field Project Manager	(732) 906-6802	Robert C. Finke	5/20/2021
Mark Denno	Field Support	(732) 321-6708	Mark Denno	5/20/2021

QAPP Worksheet #5
Project Organizational Chart



QAPP Worksheet #6
Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathways, etc.)
Sampling Request	EPA RPM	Pietro Mannino	(212) 637-4287	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic)
Point of Contact with RPM	Sampling Project Lead	Robert Finke	(732) 906-6802	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic) while in the field – communication with the RPM who ultimately makes decisions regarding the project.
Laboratory Request	RAS RSCC	Christina Leung	(732) 906-6995	Completes lab Task Order and requests laboratory
Adjustments to QAPP	QA Officer	Amelia Jackson	(732) 906-6164	QAPP approval dialogue

QAPP Worksheet #7
Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Pietro Mannino	Remedial Project Manager	EPA/SEMD/NYRB	Overall project management	EPA job-related qualifications/EPA Files
Robert Finke	Physical Scientist	EPA/LSASD/HWSB/SST	Sampling and Field Operations. Data management and final sampling report.	M.S. Degree in Environmental Policy & Management. Over 30 years' experience in environmental consulting, investigation, analytical instrumentation, and project management
Mark Denno	Environmental Scientist	EPA/LSASD/HWSB/SST	Sampling	M.S. Degree in Environmental Science. Over 30 years' experience in environmental consulting, investigation, analytical instrumentation, and project management

QAPP Worksheet #8
Special Personnel Training Requirements Table

Project Function	Specialized Training – Title or Description of Course	Training Provider	Training Date	Personnel/Groups Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/ Certificates
[Specify location of training records and certificates for samplers]						
All Field Activities	40-hour OSHA Annual 8-hour refresher	40-hour- EPA; 8-hour refresher training- EPA and on-site safety briefings	Various	All field team members	HWSB/SST staff	On-site and EPA Edison office records
Sample Collection	Trained in EPA CERCLA QA, sampling methods, sample shipping procedures	Office and on-site training	Various	HWSB/SST Staff	HWSB/SST Staff	EPA Region 2 in Edison, NJ
Sample Analysis	NELAC certified	Per lab specific requirements	Various	Laboratory Analyst/Chemist, Pace Analytical Services	Laboratory Analyst/Chemist, Pace Analytical Services	Pace Analytical Services 106 Vantage Point Drive West Columbia, SC
Data Validation	EPA data validation experience	EPA R2 LSASD-LAB/USACE	Various	LSASD HWSS /ESAT	LSASD HWSS /ESAT	EPA Region 2 in Edison, NJ
Data Review and Assessment	EPA data validation experience	EPA R2 LSASD-LAB/USACE	Various	HWSS Chemist/ SST Field Lead	HWSS Chemist/ SST Field Lead	

QAPP Worksheet #9
Project Scoping Session Participants Sheet

Site Name/Project Name: Olean Wellfield/ Loohn'S Cleaners & Launderers
Site Location: Cattarargus County, New York
Operable Unit: OU2

Date of Session: Email communications between SST field lead Robert Finke and RPM Michael Walters 2/21/2021.

Scoping Session Purpose: The RPM provided the scope of work required at the Loohn's Cleaners/Olean Wellfield to the SST. This included the well locations and construction details as well as the analytical parameters/Reporting Limits required.

Name	Title	Affiliation	Phone #	E-mail Address
Michael Walters	Remedial Project Manager (RPM)	USEPA-R2-SEMD	212-637-4430	walters.michael@epa.gov
Robert Finke	Field Lead	USEPA-R2-LSASD	732-906-6802	finke.robert@epa.gov

Comments/Decisions: Five (5) monitoring wells are scheduled to be sampled (MW-01, MW-02, MW-03, MW-04 and MW-05). The samples will be analyzed for trace level VOCs. As yet to be awarded, EPA Contract Laboratory Program (CLP) lab will perform the analyses.

Consensus Decisions: The laboratory Reporting Limits for each analysis will be equal to or less than the corresponding New York State Standard and Guidance values criterion for H(WS) Class GA groundwater.

QAPP Worksheet #10
Problem Definition

The problem to be addressed by the project:
The primary VOC of concern in the groundwater beneath and downgradient of the site are cis -dichloroethene, trichloroethene, tetrachloroethene and vinyl chloride. The contamination of the upper levels of the Aquifer which flows toward and discharges into the Allegheny River requires the annual monitoring of the groundwater to assess if there is a need for further response action at the site.

The environmental questions being asked:
Are the contaminants of concern, specifically VOCs cis-dichloroethene, trichloroethene, tetrachloroethene and vinyl chloride increasing, decreasing or staying the same over time?

The problem to be addressed by the project:
Continued sampling, analysis, monitoring and charting concentrations of VOCs in the groundwater collected from MW-1, MW-2, MW-3, MW-4 and MW-5 (See site map located in Apendix A). All results will be compared to New York State Criterion for H(WS) in Class GA groundwater.

A synopsis of secondary data or information from site reports:
The data from previous sampling of MW-1, MW-2, MW-3, MW-4 and MW-5 has been charted in each of the Final Reports from 2010 (excluding 2017 and 2020). Cis-1,2-Diochloroethene and tetrachloroethene continue to be present at concentrations exceeding New York State Criterion for H(WS) in Class GA groundwater in the samples collected from each of these wells with the exception of MW-1.

The possible classes of contaminants and the affected matrice:
Chlorinated VOCs in groundwater listed above.

The rationale for Inclusion of chemical and non-chemical analyses:
Historical groundwater sampling from this area of the site plume. Historical groundwater sampling within the plume indicates that Cis-1,2-Dichloroethene and tetrachloroethene concentrations exceed federal and/or state ARARs and/or TBCs.

Project Decisions:
Continued monitoring of current monitoring wells to gather sufficient data to determine if any further remedial alternatives are warrented at the Operable Unit of the larger Olean Wellfield site

QAPP Worksheet #11
Project Quality Objectives /Systematic Planning Process Statements

Overall project objectives include:

• Derive observable trends from the data.

• Investigate concentrations of the contaminants of concern, specifically VOCs cis-dichloroethene, trichloroethene, tetrachloroethene and vinyl chloride in the groundwater.

• Ensure natural attenuation is occurring at the site for the compounds of concern (COC).

• Compare results, to all site-specific, state, and/or federal applicable or relevant and appropriate requirements (ARARs) and or To Be Considereds (TBCs).

What will the data be used for?

Data will be used to derive observable trends of the results for the following analtyes:
VOAs (Trace)

Continue to monitor the existing groundwater contamination plume at the site.

Continue to evaluate the effects of the OU2 remedy on groundwater contamination.

To help support subsequent USEPA 5-year review to evaluate if the selected remedies are functioning as intended.

What type of data is needed?

Trace VOC definitive groundwater data are required. In addition, at each monitoring well location, potentiometric surface elevations and stabilization criteria of physio-chemical parameters will be collected and recorded via low-flow sampling reports.

How "good" do the data need to be in order to support the environmental decision?

Definitive and screening level data will be required to meet project objectives. The quantitation limits for the samples are specified on Worksheet #15.

All definitive laboratory analyses will be performed by PACE Analytical Services .Worksheets #12 and #28 contain the measurement performance criteria that are needed for the quality indicators.

Worksheet #20 contains the quality control (QC) samples required. All data generated via PACE Analytical Services will be validated by LSASD-HWSB-HWSS personnel with ESAT contractor support.

How much data are needed?

A total of eight (8) samples will be collected from various locations to characterize endemic groundwater conditions. The total number of samples includes: Five (5) groundwater samples including one (1) field duplicate for laboratory Quality Control (QC) purposes; and two (2) field QC samples which include one (1) rinsate blank and one (1) trip blank. Worksheets #17 and #18 define the number of samples planned.

Where, when, and how should the data be collected/generated?

U.S. EPA/LSASD/HWSB/SST employees will begin sampling 5 sample locations on 5/24/2021.

LSASD Region 2 Sampling SOPs which can be found Appendix B. The wells are located throughout the site boundaries. See Appendix A for the site map with well locations.

QAPP Worksheet #11
Project Quality Objectives /Systematic Planning Process Statements

Who will collect and generate the data?
Samples collected will be collected by EPA personnel and the data will be generated by PACE Analytical Services in West Columbia, South Carolina

How will the data be reported?
Data will be electronically reported in excel and .pdf format and posted to the Region 2 Environmental Data Services SharePoint site. Both the RPM and SST project Lead will receive notification once posted.

How will the data be archived?
A copy of the complete data package will be maintained with the project files at the Federal Records Center in Kansas City, Missouri for a period of thirty years.

QAPP Worksheet #12
Measurement Performance Criteria Table - VOAs (Trace)

Matrix	Aqueous
Analytical Group	VOAs (Trace)
Concentration Level (ug/L)	Trace

Sampling Procedure	Analytical Method/ SOP	Data Quality Indicators (DQIs)	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
SOP#FA-SST-T-07 Rev. 2.0	**SFAM01.1**	Precision	< 20 % RPD	Field Duplicate	S&A
		Accuracy	< Reporting Limit	Trip Blank/Method Blank	S&A
		Accuracy	% RSD < 10%	Initial Calibration	A
		Accuracy	Limits 60% - 140%	MS/Lab Fortified Sample Matrix/Lab Control Sample	A
		Accuracy	± 40% from Initial Calibration	ICV/CCV	A
		Accuracy	< Reporting Limit	Equipment Rinse Blank	S&A

QAPP Worksheet #13
Secondary Data Criteria and Limitations Table

Any data needed for project implementation or decision making that are obtained from non-direct measurement sources such as computer

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation / Collection Dates)	How Data May Be Used (if deemed usable during data assessment stage)	Limitations on Data Use
N/A	N/A	N/A	N/A	N/A

QAPP Worksheet #14
Summary of Project Tasks

Sampling Tasks:

Groundwater samples will be collected on site from 5 groundwater wells in accordance with the Sampling Standard Operating Procedure (SOP) which can be found in Appendix B. Prior to sampling, all monitoring wells are measured for potentiometric surface elevations and total depths.

This method requires stabilization of the following physio-chemical parameters prior to sample collection: turbidity, pH, depth to water, temperature, specific conductance, dissolved oxygen, and oxidation-reduction potential. One matrix spike/ matrix spike duplicate sample and one field duplicate sample will be collected per Sample Delivery Group (SDG) of 20 samples. One aqueous rinsate blank and one trip blank (VOC only) will be collected for this event.

Other tasks to be conducted in the field by the SST include:

Keep record of groundwater quality well data sheets. These records will be provided in the sampling Trip Report provided to the RPM.

Analysis Tasks:

The groundwater samples collected from each monitoring well will be definitively analyzed according to the PACE Analytical Services. Refer to CLP SOW link in Appendix C for the following analytes:

VOAs (Trace)

The samples will also be screened for pH, oxidation reduction potential, specific conductance, temperature, turbidity and DO in the field. All samples will be analyzed by the PACE Analytical Services and contracted lab via SOPs noted on Worksheets #23 and #28 and in Appendix C.

Quality Control Tasks:

Groundwater samples will have one or more of the following QC samples analyzed: field duplicates, matrix spike, VOC trip blanks, temperature blank, rinsate blanks, regent water blanks, and all other QA/QC samples as defined in the method. Rinsate blank samples will be collected on decontaminated equipment at a rate of one rinsate sample per day per decon event, not to exceed one/day. See worksheet #20 for the field quality control sample summary table.

Data Management Tasks:

The data collected for the sampling activities will be organized, analyzed, and summarized in a final project report that will be submitted to the RPM according to the Project Schedule. The report will be prepared by the project sampling lead and include appropriate data quality assessment. Standard methods and references will be used as guidelines for data reduction and reporting. Data management tasks include data receipt, verification, completeness check, uploading, usability evaluations, and the preparation of reports, tables, and figures. The sampling project lead will be downloading the data and Summary Report tables generated by the CLP Lab from the Region 2 Environmental Data Services SharePoint site for inclusion in the Trip Report. The contracted lab data will be provided to the SST Field Lead thru the Region 2 CLP liasion. The RPM will also be notified of data and Summary Report posting to the SharePoint (SP) site, with permissions to download. The Trip Report prepared by the sampling project lead will be uploaded onto the SP site upon completion and available to the RPM. The sample handling and custody requirements, including field logbook and generation of sample paperwork/sample labels, is discussed in worksheets #26 and #27. Data Summary Tables that compare the results obtained to the various EPA criteria will be prepared and included in the Trip Report. Data management will utilize personal computers, local area networks, and electronic communications to support the software.

QAPP Worksheet #14
Summary of Project Tasks

The following deliverables will be provided under this project:
Trip Report:
A Trip Report will be prepared to provide a detailed accounting of what occurred during each sampling event. Information will be provided in regards to time of major events, dates, and personnel on-site (including affiliations) as well as Site map, COCs, and well data sheets. Data Summary Tables and a field duplicate comparison table will be prepared subsequent to the receipt of final,validated laboratory data for inclusion in the Trip Report posted to the Region 2 Environmental Data Sercies Sharepoint site.
Trip Report to include (but not limited to):
Maps/Figures:
Maps depicting site layout, contaminant source areas, and sample locations will be included in the Final Trip Report, as appropriate.
Analytical Report:
An analytical report will be prepared for samples analyzed under this plan. Information regarding the analytical methods or procedures employed, sample results, QA/QC results, chain-of-custody documentation, laboratory correspondence, and raw data will be used for validation. The Trip Report deliverable will contain the laboratory's results per sample and Data Summary Tables containing the results and compared to the New York State GW Quality Standards.
Data Review:
A review of the data generated under this plan will be undertaken. The assessment of data acceptability or usability will be included and posted to the site-specific library on the Region 2 Environmental Data Services SharePoint site.
Documentation and Records:
All field and sample documents will be legibly written in indelible ink. Any correction or revisions will be made by lining through the original entry and initialing the change. The following field and sample documentation will be maintained by the Project Sampling Lead:
Chain-of-Custody Records:
Chain-of-Custody Records will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed for and a copy of the record will be kept for each individual who has signed it. The chain-of-custody records will include, at a minimum, sample identification number, number of samples collected, sample collection date and time, sample type, sample matrix, sample container type, sample analysis requested, sample preservation, and the name(s) and signature(s) of samplers and all individuals who have had custody. Copies of the COC will be provided in the Trip Report as an attachment. Well Data Sheets containing the well stabilization parameters will be available for each well sampled and included as an attachment in the Trip Report.
Field Logbook:
The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed in the writer's absence.

QAPP Worksheet #14
Summary of Project Tasks

All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following:
1. Site name and project number 2. Name(s) of personnel on-site 3. Dates and times of all entries (military time preferred) 4. Descriptions of all site activities, site entry, and exit times 5. Noteworthy events and discussions including any deviations from protocol 6. Daily weather conditions 7. Methods used 8. Field measurements 9. Site observations 10. Sample preservation 11. Location identification 12. Subcontractor information and names of on-site personnel (as applicable) 13. Date and time of sample collections along with chain of custody information 14. Record of photographs (as applicable) 15. Site sketches
Assessment/Audit Tasks:
No performance audit of field operations is anticipated at this time. If conducted, performance and systems audits will be in accordance with the U.S. EPA Region 2, Sample SOP listed in Apendix B.
Data Review Tasks:
All samples will be processed by the CLP Laboratory (Pace Analytical Services). Data will be validated by EPA Region 2 LSASD/HWSB/HWSS in accordance with their SOP for validating organic data (VOCs) located in Appendicies C and D.

UFP QAPP Worksheet #15 - Reference Limits and Evaluation Table

Matrix: Aqueous
Analytical Group: Volatile Organic Compounds
Concentration Level: Low
SOP Number: SFAM01.1

CAS	Parameters	June 20, 2018 NYS Criterion for H(WS) in Class GA Groundwater (ug/L)	CLP SFAM01.1 (11/2020) VOC Trace water (ug/L)
100-41-4	Ethylbenzene	5	0.5
100-42-5	Styrene	5	0.5
10061-01-5	cis-1,3-Dichloropropene	0.40	0.5
10061-02-6	trans-1,3-Dichloropropene	0.40	0.5
106-46-7	1,4-Dichlorobenzene	3	0.5
106-93-4	1,2-Dibromoethane	0.00060	0.5
107-06-2	1,2-Dichloroethane	0.60	0.5
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	na	5
108-87-2	METHYLCYCLOHEXANE	na	0.5
108-88-3	Toluene	5	0.5
108-90-7	Chlorobenzene	5	0.5
110-82-7	Cyclohexane	na	0.5
120-82-1	1,2,4-Trichlorobenzene	5	0.5
124-48-1	Dibromochloromethane (Chlorodibromomethane)	50	0.5
127-18-4	Tetrachloroethene	5	0.5
156-59-2	cis-1,2-Dichloroethene	5	0.5
156-60-5	trans-1,2-Dichloroethene	5	0.5
1634-04-4	Methyl tert-Butyl Ether (MTBE)	10	0.5
179601-23-1	M,P-XYLENE	5	0.5
541-73-1	1,3-Dichlorobenzene	3	0.5
56-23-5	Carbon Tetrachloride	5	0.5
563-58-6	1,1-Dichloropropene	5	0.5
591-78-6	Hexanone, 2-	50	5
67-64-1	Acetone	50	5
67-66-3	Chloroform	7	0.5
71-43-2	Benzene	1	0.5
71-55-6	1,1,1-Trichloroethane	5	0.5
74-83-9	Methyl bromide (bromomethane)	5	0.5
74-87-3	Chloromethane	5	0.5
74-97-5	Bromochloromethane	5	0.5
75-00-3	Chloroethane	5	0.5
75-01-4	Vinyl chloride	2	0.5
75-09-2	Methylene chloride	5	0.5
75-15-0	Carbon Disulfide	60	0.5

UFP QAPP Worksheet #15 - Reference Limits and Evaluation Table

Matrix: Aqueous
Analytical Group: Volatile Organic Compounds
Concentration Level: Low
SOP Number: SFAM01.1

CAS	Parameters	June 20, 2018 NYS Criterion for H(WS) in Class GA Groundwater (ug/L)	CLP SFAM01.1 (11/2020) VOC Trace water (ug/L)
75-25-2	Bromoform	50	0.5
75-27-4	Bromodichloromethane (Dichlorobromomethane)	50	0.5
75-34-3	1,1-Dichloroethane	5	0.5
75-35-4	1,1-Dichloroethylene	5	0.5
75-69-4	Trichlorofluoromethane	5	0.5
75-71-8	Dichlorodifluoromethane (Freon 12)	5	0.5
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-	5	0.5
78-87-5	1,2-Dichloropropane	1	0.5
78-93-3	Methyl Ethyl Ketone (2-Butanone)	50	5
79-00-5	1,1,2-Trichloroethane	1	0.5
79-01-6	Trichloroethylene	5	0.5
79-20-9	Methyl acetate	na	0.5
79-34-5	1,1,2,2-Tetrachloroethane	5	0.5
87-61-6	1,2,3-Trichlorobenzene	5	0.5
95-47-6	Xylene, o-	5	0.5
95-50-1	1,2-Dichlorobenzene	3	0.5
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.04	0.5
98-82-8	Isopropyl benzene (Cumene)	5	0.5
96-18-4	1,2,3-trichloropropane	0.04	0.5
95-63-6	1,2,4-trimethylbenzene	5	0.5
108-67-8	1,3,5-trimethylbenzene	5	0.5

QAPP Worksheet #16
Project Schedule / Timeline Table

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Preparation of UFP-QAPP	EPA/LSASD/SST	3/31/2021	4/15/2021	UFP-QAPP	5/20/2021
Preparation of Health and Safety Plan	EPA/LSASD/SST	3/10/2021	3/17/2021	HASP	3/25/2021
Procurement of Equipment	EPA/LSASD/SST	N/A	N/A	Procurement Form	N/A
Laboratory Request	EPA/LSASD/SST	3/22/2021	3/22/2021	Analytical Request Form	5/19/2021
Collection of Field Samples	EPA/LSASD/SST	5/24/2021	5/26/2021	C-O-C/SCRIBE File, Trip Report	5/31/2021
Electronic Laboratory Package Received	EPA/LSASD/SST	6/17/2021	6/17/2021	Unvalidated data package	6/17/2021
Hard Copy Laboratory Package Received	EPA/LSASD	N/A	NA	N/A. Electronic Copy only.	N/A
Validation of Laboratory Results	EPA R2 LSASD/HWSS	6/17/2021	7/8/2021	Validated data Packages	7/8/2021
Data Evaluation / Preparation of Final Report	EPA/LSASD/SST	7/8/2021	9/8/2021	Final Report	9/8/2021

QAPP Worksheet #17
Sampling Design and Rationale

Site Access
The EPA RPM has provided site access to wells for the Sampling Team.

Field Planning
Prior to each field mobilization, each team member will review all project plans and participate in a field planning meeting. The meeting will be conducted by the EPA R2 LSASD HWSB/SST Project Lead and attended by all field staff. The meeting objective is to allow team members to become familiar with the site history, special project requirements, and other items listed below:
-Objectives of field work
-Equipment and training needs
-Health and safety requirements
-Field operating procedures, schedules of events, communications, and individual assignments
-Required QC measures
-Documents governing field work that must be on site

Decontamination Procedures:
Field decontamination will be performed on an as-needed basis on the field monitoring equipment in accordance with the U.S. EPA DESA Region 2 Sampling Standard Operating Procedure (SOP), which can be found as Appendix B.

Describe and provide a rationale for choosing the approach:
The wells will be purged and sampled with a Grundfos Redi-flo 2 submersible pump following the EPA Region 2 LSASD HWSB-SST Standard Operating Procedure (SOP) #FA-SST-T-07 Rev. 2.0. The data will be compared to the New York State DEC applicable criteria.

Five (5) monitoring wells are proposed for the sampling event. The wells selected are MW-01, MW-02, MW-03, MW-04 and MW-05.

QAPP Worksheet #18
Sampling Locations and Methods/SOP Requirements Table

Sample Number	Sample Locations/Field Sample Number	Matrix	Depth (Feet)	Analytical Group(s)	Conc. Level	# Samples (Incl. Field Duplicates)	Sampling SOP Reference	Rationale For Sampling Location
BG0M5	MW-01	Groundwater	20-30	VOCs	trace	(3) 40ml VOA	Submersible pump	Existing Wells
BG0M6	MW-02	Groundwater	20-30	VOCs	trace	(3) 40ml VOA	Submersible pump	Existing Wells
BG0M7	MW-03	Groundwater	20-30	VOCs	trace	(3) 40ml VOA	Submersible pump	Existing Wells
BG0M8	MW-04	Groundwater	20-30	VOCs	trace	(3) 40ml VOA	Submersible pump	Existing Wells
BG0J8	MW-44 (Dup.)	Groundwater	20-30	VOCs	trace	(3) 40ml VOA	Submersible pump	Required QA
BG0J9	MW-05 (MS)	Groundwater	40-50	VOCs	trace	(6) 40ml VOA	Submersible pump	Existing Wells and required QA
BG0K0	RB-01	Deionized Water	N/A	VOCs	trace	(3) 40ml VOA	Submersible pump	Required QA
BG0K1	TB-01	Deionized Water	N/A	VOCs	trace	(3) 40ml VOA	Milipore Intragel 5	Required QA

QAPP Worksheet #19
Analytical SOP Requirements Table

Matrix	Approximate No. of Samples	Analytical Group [Lab Assignment]	Conc. Level	Analytical Prep. Method/ SOP Reference	Sample Volume	Containers (number, size, type)	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation /analysis)
Aqueous	5 plus 1 Field Duplicate, 1 Rinse Blank, 1 Trip Blank	VOAs (Trace)	Trace	SFAM01.1	120 mL	(3) 40 mL VOA vials w/Teflon lined septum	1:1 HCl to pH<2; cool to 4°C	14 days

QAPP Worksheet #20
Field Quality Control Sample Summary Table

Matrix	Analytical Group	Conc. Level	Analytical Prep. Method/ SOP Reference	Approx. No. of Sampling Locations	No. of Field Duplicate Pairs	No. of Extra Volume Lab QC (e.g., MS Samples	No. of Equipment Blanks	No. of Trip Blanks
Aqueous	VOAs (Trace)	Trace	SFAM01.1	5	1	2X (MS Only)	1	1

QAPP Worksheet #21
Project Samping SOP Reference Table

Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
SST-07	Standard Operating Procedure for Groundwater Sampling Procedure: Low Stress (Low-flow) Purging and Sampling 05/13/19 Rev 2.0	EPA/LSASD/HWSB/SST	Submersible, bladder or peristaltic (inorganic only) pump, Teflon lined tubing, water level meter, parameter meter, power source	N	N/A

QAPP Worksheet #22
Field Equipment Calibration, Maintenance, Testing, and Inspection Table

Field Equipment	Calibration Activity	Maintenance Activity	Frequency	Acceptance Criteria +/-		Corrective Action	Responsible Person(s)	SOP Reference
In-situ Sondes	Calibrate with standard solution	Check sensors for calbration errors or inconsistency.	Prior to day's activities; end of day's activities; anytime anomaly suspected.	pH	0.1 s.u	Clean probe, replace battery, replace membrane, replace probe.	EPA-SST	Manufacturer's Specifications and Operator Manuals
				ORP	5 mV			
				DO	0.1 mg/L			
				Spec Cond.	.5% + 1 µS/cm			
				Temp	0.1 °C			
Water Level Indicator or Interface Probe	NA	Visual inspection	Prior to day's activities	No defects noted		Replace Batteries; replace tape		
HaCH DR/2100Q Spectro-photometer	Calibrate with Stable Cal Standard	Periodic. Pre- & Post-daily activities; Anytime anomaly suspected.	Proactive, When capacity is reached	10% with 10 NTU StablCal Std.		Replace battery, replace standards, replace bottle, replace lightbulb		

QAPP Worksheet #23
Analytical SOP Reference Table

Reference Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
CLP SFAM01.1	EPA Contract Laboratory Program Statement of Work for Superfund Analytical Methods (Multi-Media, Multi-Concentration) SFAM01.1 November 2020	Definitive	Aqueous	GC	Pace Analytical Services	N

QAPP Worksheet #24

Analytical Instrument Calibration Table

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/MS	SFAM01.1	Initial calibration: Initially and whenever instrument CA performed. ICAL Verification (ICV): 1 per ICAL analytical sequence; Continuing calibration verification: Opening CCV prior to analysis of samples/blanks;Closing CCV after analysis of samples/blanks and before the end of the 12-hr period; GC/MS Tuning with 4-Bromoflurobenzene (BFB): Beginning of each 12 hour period during which standards and samples are analyzed. Retention Time Evaluation: each analysis	ICAL: % RSD: 20%-40% (cmpd specific); Min RRF 0.010 (cmpd specific)-per Table 4 of SOW; ICV: Max %D RRF +/-40% (cmpd specific per Table 4 of SOW) CCV: Min. RRF 0.01; Opening CCV max %D ±40; Closing CCV: max %D ±50 (Cmpd specificper Table 4 of SOW); Tuning: criteria per Table 2 of SOW	Initial calibration: inspect system for problems (e.g., clean ion source, change the column, service the purge and trap device), correct problem, re-calibrate. Continuing calibration: inspect system, recalibrate the instrument, reanalyze samples. GC/MS Tuning: inspect the system, identify problem, retune, reanalyze affected samples. MS tune criteria must be met before calibration. Retention time evaluation: re-calibrate and verify, re-analyze samples back to the last good calibration check verification	Pace Analytical Services	SFAM01.1

QAPP Worksheet #25
Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/ Equipment	Maintenance Activity	Testing/ Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
GC/MS	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0	See U.S. EPA CLP SOW SFAM01.1 https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0

QAPP Worksheet #26
Sample Handling System

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization): USEPA R2 LSASD HWSB SST
Sample Packaging (Personnel/Organization): USEPA R2 LSASD HWSB SST
Coordination of Shipment (Personnel/Organization): USEPA R2 LSASD HWSB SST
Type of Shipment/Carrier: United Parcel Service (UPS) Overnight shipment to CLP Lab
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization): Sample Custodian, Pace Analytical Services
Sample Custody and Storage (Personnel/Organization): Sample Custodian, Pace Analytical Services
Sample Preparation (Personnel/Organization): Laboratory Technicians, Pace Analytical Services
Sample Determinative Analysis (Personnel/Organization): Laboratory Analyst/Chemist, Pace Analytical Services
SAMPLE ARCHIVING
Field Sample Storage (No. of days from sample collection): Samples to be shipped immediately at the end of sampling event.
Sample Extract/Digestate Storage (No. of days from extraction/digestion): As per analytical SOW; see Worksheet #19
SAMPLE DISPOSAL
Personnel/Organization: Laboratory Technicians/Analysts, Pace Analytical Services.
Number of Days from Analysis: Until analysis and QA/QC checks are completed; per analytical SOP, see Worksheet #19

QAPP Worksheet #27
Sample Custody Requirements

Sample Identification Procedures:
Each sample will be labeled with the number that depicts a specific location.
Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory):
Each sample will be individually identified and labeled. All samples will be secured and maintained on ice.The sample information will be recorded on chain-of-custody (COC) forms, and the samples shipped to the appropriate laboratory via courier or hand delivered to the LSASD lab for analysis. EPA SCRIBE program will be used for field documentation including sample labels and COC records. Refer to the U.S. EPA ERT User Manual for Scribe CLP Sampling V3.10**,** See Appendix E.
Laboratory Sample Custody Procedures (receipt of samples, archiving, disposal):
A sample custodian at the laboratory will accept custody of the shipped samples, and check them for discrepancies, proper preservation, integrity, etc. If noted, issues will be forwarded to the laboratory manager for corrective action. The sample custodian will relinquish custody to the appropriate department for analysis. At this time, no samples will be archived at the laboratory. Disposal of the samples will occur only after analyses and QA/QC checks are completed.
Chain of Custody Procedures:
A COC record establishes the documentation necessary to trace sample possession from time of collection through sample analysis and disposition. A sample is in the custody of a person if any of the following criteria are met: 1) the sample is in a person's physical possession; 2) the sample is in a person's view after being in his or her physical possession; 3) the sample was in a person's physical possession and was then locked up or sealed to prevent tampering; and 4) the sample is kept in a secured area. The sample collector will complete a COC record to accompany each delivery container (cooler) and will be responsible for shipment of samples to the laboratory or delivery to lab courier. The sample collector will provide the site name and their signature in the designated fields on the COC record. For each sample submitted to the project laboratory, the sample collector will indicate the date, time, number of containers, analytical parameters, and designated sample ID numbers. When hand delivering the samples, the sample collector will sign the bottom of the form and enter the date and time (24-hour) at which the samples were relinquished. Lines not used on the COC record will be crossed out. Any required special handling of analyzed samples, such as hold or return, must be written on the COC record. A second member of the field crew will review the completed COC record to assure that required information is not omitted and that unused lines are crossed out. The original signature copy of the COC record will be enclosed in a plastic bag and placed in the shipping cooler. A copy of the COC record will be retained for project files.

QAPP Worksheet #28
QC Samples Table

Matrix	Aqueous
Analytical Group	VOC
Concentration Level	Trace
Sampling SOP	SOP#FA-SST-T-07 Rev. 2.0
Analytical method/SOP Reference	SFAM01.1
Sampler's Name	M. Denno/R.Finke
Field Sampling Organization	LSASD-HWSB-SST
Analytical Organization	Pace Analytical Services
No. of Sample Locations	5

Lab QC Sample	Frequency / Number	Method/ SOP QC Acceptance limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
Tuning	12 hr period	Pass all PBFB tune criteria	Check Instrument Reanalyze, Retune	Lab personnel	Sensitivity	Pass all PBFB tune criteria
Initial Calibration	SOP DW-1	% RSD +/- 20% Not more than 10% of total analytes failure	Check Instrument, Reanalyze	Lab personnel	Accuracy/ Precision	% RSD +/- 20% Not more than 10% of total analytes failure
Continuing Calibration Check Standard (Alternate check standard)	1 per analytical batch	Max %D RRF +/- 30% Not more than 10% of total analytes failure	Reanalyze, Qualify data	Lab personnel	Accuracy	Max %D RRF +/- 30% Not more than 10% of total analytes failure
Method Blank; Equipment Blank	1 per extraction batch	< RL	Investigate source of contamination	Lab personnel	Sensitivity Contamination	< RL
Trip Blank	1 per cooler containing VOC samples	Client Defined	Investigate source of contamination	Lab personnel	Sensitivity Contamination	
LCS/LFB	2 per extraction batch	Limits: Average Recovery 70-130% % RPD < 20	Qualify data unless high recovery and/or Not Detected)	Lab personnel	Accuracy/ Precision	Limits: Average Recovery 70-130% RPD 20%

QAPP Worksheet #28
QC Samples Table

Laboratory Matrix spikes	1 per extraction batch	Limits 70-130%	Qualify data unless high recovery and/or Not Detected)	Lab personnel	Accuracy	Limits 70-130%
Internal Standards	Each sample, standard, blank	+/- 40% from the initial/continuing calibration	Check Instrument Analyse / Qualify data	Lab personnel	Quantitation	+/- 40% from the initial/continuing calibration
Surrogates	Each sample, standard, blank	Limits 80%-120%	Reinject, Qualify data	Lab personnel	Extraction efficiency, Accuracy	Limits 80-120%
Field Duplicates	1 per batch of 20 samples	RPD < 50%	Note exceedances	Project Field Lead	Precision; Accuracy	RPD < 50%

QAPP Worksheet #29
Project Documents and Records Table

Sample Collection Documents and Records	Analysis Documents and Records	Data Assessment Documents and Records	Other
Site and field logbooks	Sample receipt logs	Final Data Package (Case narrative, Sample Results, Qualifiers, QC Summaries and Raw data)	Scribe
C-O-C forms	Internal and external C-O-C forms	Data validation reports & SOPs	Phone Logs
Field Data Sheets/Low-flow Test Reports	Sample preparation worksheets/logs	Field inspection checklist(s)	Equipment Maintenance Logs
Site map	Sample analysis worksheets/run logs	Laboratory Audit checklist (if performed)	Validated Computer Software Records
Signed QAPP	Telephone/email logs	Review forms for electronic entry of data into database	
Signed HASP	Corrective action documentation	Corrective action documentation	
Project Data Evaluation Report	Internal Chains-of-Custody	Sample acceptance checklist	
Trip Report	Sample Preparation Log	PT Sample Results	
Groundwater Well Sheet	Standard Traceability Record	Training Records	
Field Chain-of-Custody	Instrument Analysis Log	MDL Study Records	
Packing Slips, Sample Tags, and Sample Labels	QC summary checklist with all relevant information	Initial DOC/CDOC Records	
Analytical Request Forms	Sample Analysis Data	Internal Audit Reports	
Associated Correspondence	Instrument Calibration Data	Corrective Action Reports	
Laboratory sample identification numbers	Instrument/ Computer Printouts	External Laboratory Assessment	
	Definition of Qualifiers	NELAC Accreditation	
	Cover Letter		
	Approval Form		
	Case Narrative		
	Final Report		
	Overnight Carrier Receipts (if required)		

QAPP Worksheet #30
Analytical Services Table

Matrix	Analytical Group	Concentration Level	Analytical SOP	Data Package Turnaround Time (days)	Laboratory/ Organization (Name, Address, Contact Person and Telephone Number)	Backup Laboratory/ Organization (Name, Address, Contact Person and Telephone Number)
Aqueous	VOAs (Trace)	Trace	EPA CLP SOW SFAM01.1	21/42	Pace Analytical Services 106 Vantage Point Drive West Columbia, SC 29172803-791-9700 Laboratory Contact: Robert Zhu, 803-227-3152 rzhu@shealylab.com	Pace Analytical Services

QAPP Worksheet #31
Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment	Person(s) Responsible for Responding to Assessment Findings	Person(s) Responsible for Identifying and Implementing Corrective Actions	Person(s) Responsible for Monitoring Effectiveness of Corrective Actions
Data Review and Verification	As data becomes available from the laboratory	External	EPA R2 LSASD/HWSB/ HWSS	EPA R2 LSASD/HWSB/ HWSS	EPA R2 LSASD/HWSB/ HWSS	EPA R2 LSASD/HWSB/ HWSS	EPA SMO/EPA R2 LSASD/HWSB/ HWSS
Data Review and Verification	As data becomes available from their contracted laboratory	Pace Analytical Services, LLC performing analyses.	Pace Analytical Services, LLC performing analyses.	Pace Analytical Services, LLC performing analyses.	Pace Analytical Services, LLC performing analyses.	Pace Analytical Services, LLC performing analyses.	Pace Analytical Services, LLC performing analyses.
Field Observations Deviations from UFP-QAPP	Daily	Internal	EPA R2 LSASD SST	Field Lead (R. Finke)	SST Team leader-A. Jackson	Field Lead (R. Finke)	SST Team leader-A. Jackson

QAPP Worksheet #32
Assessment Findings and Corrective Response Actions

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (Name, Title, Organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Project Readiness Review	Checklist or logbook entry	SST Project Leader Robert Finke, EPA	Immediately to within 24 hours of review	Checklist or logbook entry	EPA Lead Auditor	Immediately to within 24 hours of review
Field Observations/ Deviations from Work Plan	Logbook and/or Sampling Reports	RPM Pietro Mannino SST Project Leader Robert Finke, EPA	Immediately to within 24 hours of deviation	Logbook	EPA Lead Auditor and EPA RPM	Immediately to within 24 hours of deviation
Laboratory Technical Systems/ Performance Audits	Written Report	Pace Analytical Services, LLC	30 days	Letter	Regulatory Agency Lead Auditor	14 days
On-Site Field Inspection	N/A	N/A	N/A	N/A	N/A	N/A
Performance Evaluation Samples	Electronic Report	N/A-if requested-Pace Analytical Services, LLC	30 days	Letter or Written Report	Regulatory Agency Lead Auditor or Regional Request	14 days
Data Review/ Verification	Laboratory Data Ommisions	Lab QA Officer	During data verification process	Laboratory Data Resubmissions	Field Sampling Lead. Lab data omissions will be received by the HWSS validation chemists.	ASAP

QAPP Worksheet #33 - QA Management Reports Table

Type of Report	Frequency (daily, weekly, monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person Responsible for Report Preparation (Title and Organizational Affiliation	Report Recipient(s) (Title and Organizational Affiliation)
Pace Analytical Services Lab Data package	As performed	up to 42 days after receipt of final sample.	Pace Analytical Services, Robert Zhu 803-227-3152 rzhu@shealylab.com	SST Project Leader Robert Finke, EPA
Pace Analytical Services Lab Data package	As performed	Up to 42 days after receipt of unvalidated data	Pace Analytical Services, Robert Zhu 803-227-3152 rzhu@shealylab.com	SST Project Leader Robert Finke, EPA
On-Site Field Inspection	N/A for this project	7 calendar days after completion of the inspection	SST Project Leader Robert Finke, EPA	SST Project Leader Robert Finke, EPA
Field Change Request	As required per field change	ASAP after identification of need for field change	RPM Pietro Mannino	SST Project Leader Robert Finke, EPA
Final Sampling Report	As performed	60 days after receipt of EPA approval of data package	SST Project Leader Robert Finke, EPA	RPM Pietro Mannino

QAPP Worksheet #34
Verification (Step I) Process Table

Verification Input	Description	Internal/External	Responsible for Verification (Name, Organization)
Field Logbooks	Field logbooks will be reviewed for accuracy and completeness and placed in project files.	Internal	SST Project Leader R. Finke, EPA
Chains of Custody (COC) Form	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed.	Internal	Pace Analytical Services Laboratory
Draft Trip Reports	A draft Trip Report will be prepared for the event, summarizing the name, number, date and time of collection, procedure used for collection, personnel on-site and parameters to be analyzed. Information in the report will be reviewed against the COC forms, and potential discrepancies will be discussed with field personnel to verify locations, dates, etc.	Internal	SST Project Leader R. Finke, EPA

QAPP Worksheet #34
Verification (Step I) Process Table

Analytical Data Package/Final Report	The procedures for data review at the CLP lab: 1)Data reduction/review by Primary Analyst. 2)Review complete data package (raw data) by independent Peer Reviewer 3) The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4) Final review by CLP Lab management prior to release. This review is to ensure completeness and general compliance with the SOW requirements. This final review typically does not include a review of raw data. 5) Submittal/upload to the appropriate system as specified by the CPL contract. The procedures for validation once data package is received by R2: 1) 100% of the data is validated using the appropriate R2 SOP. The data validation narrative, validated results EDD and Data Summary Tables are posted to the R2 Environmental Data Services sharepoint site for retrieval by the field Project Leader.	Internal	CLP Laboratory; and EPA R2 LSASD-HWSB-HWSS data validation personnel
Final Trip Report	The project data results and information from the draft TR will be compiled in a Final Trip Report for the project and posted to the R2 Environmental Data Services SharePoint site. Entries will be reviewed/verified against hardcopy information.	Internal	SST Project Leader R. Finke, EPA

QAPP Worksheet #35
Validation (Steps IIa and IIb) Process Table

Step IIa/IIb	Validation Input	Description	Responsible for Validation (Name, Organization)
IIa	Procedures/ Methods	Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.	SST Project Lead R. Finke
IIa	Chain-of-Custody	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed. The Pace Analytical ServicesLab staff utilizes the analytical request form and the external COC to review the accuracy and completeness of log-in entries, as reflected in the CLP lab's systems.	Pace Analytical Services Laboratory personnel
IIa	Data Packages (Internal)	The procedures for data review at the CLP lab: 1) Data reduction/review by Primary Analyst. 2) Review complete data package (raw data) by independent Peer Reviewer 3) The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4) Final review by CLP Lab management prior to release. This review is to ensure completeness and general compliance with the SOW requirements. This final review typically does not include a review of raw data. 5) Submittal/upload to the appropriate system as specified by the CPL contract. The procedures for validation once data package is received by R2: 100% of the data is validated using the appropriate R2 SOP. The data validation narrative, validated results EDD and Data Summary Tables are posted to the R2 Environmental Data Services sharepoint site for retrieval by the field lead.	Pace Analytical Services Laboratory personnel; EPA R2 LSASD-HWSB-HWSS data validation personnel
IIb	Field Documentation	Verify accuracy and completeness of field notes and documentation daily and that the sampling SOPs were followed.	SST Project Lead R. Finke
IIb	Laboratory data package	Determine potential impacts from noted/approved deviations, in regard to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).	SST Project Lead R. Finke
IIb	Field duplicates	Compare results of field duplicate (or replicate) analyses with RPD criteria	SST Project Lead R. Finke
IIb	Field and Laboratory QC Sample Results	A summary of all Field and Laboratory QC sample results for field duplicates, and trip blanks will be verified against measurement performance criteria.	EPA R2 LSASD-HWSB-HWSS data validation personnel & SST Project Lead R. Finke
IIb	Data Usability Evaluation	Evaluate data to precision, accuracy, representativeness, comparability, and completeness for project objectives.	SST Project Lead R. Finke

QAPP Worksheet #36 - Sampling and Analysis Validation (Steps Iia and Iib) Summary Table

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator (Title and Organizational Affiliation)
IIa / IIb	Aqueous	TAL VOCs (trace)	trace	EPA R2 LSASD-HWSB-HWSS SOP HW-34A: Validation of Trace VOC data by CLP SOW	EPA Region 2 LSASD-HWSB-HWSS Personnel with contractor support

QAPP Worksheet #37
Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:

Precision: Results of laboratory duplicates will be assessed during data validation and data will be qualified according to the data validation procedures cited in worksheet# 36. Field duplicates will be assessed during by matrix using the RPD for each pair of results above the RL for the performed analyses. RPD acceptance criteria, presented in Worksheet #12, will be used to access field sampling precision. Absolute difference will be used for low results as described in worksheet # #28. A discussion summarizing the results of laboratory and field precision and any limitations on the use of the data will be described.

To calculate field precision:

$$RPD = 100 \times \left(\frac{|X_1 - X_2|}{(X_1 + X_2)/2} \right)$$

where X1 and X2 are the reported concentrations for each duplicate or replicate.

Accuracy/Bias Contamination: Results for all laboratory blanks will be assessed as part of the data validation. During the data validation process, the validating personnel will qualify the data following the procedures described on Worksheet #36. A discussion summarizing the results of the laboratory accuracy and bias based on contamination will be presented and any limitations on the use of the data will be described. When the CLP Laboratory(ies) is used, the validating personnel will assess field QC results (equipment rinse blank and field duplicate) against the sample results. The project lead will discuss sample contamination relative to the equipment rinse blank and field duplicate results in the Final Trip Report.

Overall Accuracy/Bias: The results of instrument calibration and matrix spike recoveries will be reviewed and data will be qualified according to the data validation procedures cited on Worksheet #36. A discussion summarizing the results of laboratory accuracy and any limitations on the use of the data will be described.

Sensitivity: Data results will be compared to criteria provided in Worksheet #15. A discussion summarizing any conclusions about the sensitivity of the analyses will be presented and any limitations on the use of the data will be described.

Representativeness: Data representativeness will be assessed by collecting field replicate samples. The field replicates are, by definition, equally representative of a given point and space and time. Representativeness is a qualitative parameter which is dependent upon the proper design of the sampling program and proper laboratory protocol. The sampling design and locations are prescribed by the EPA RPM. Therefore, data representativeness will be satisfied by ensuring that: The sampling program is followed according to RPM instructions and use of cited SOPs (Appendix B).

EPA/LSASD/HWSB/SST SOP:

SOP#FA-SST-T-07 Rev. 2.0 & 0

Comparability: To ensure data comparability, sampling and analysis for all samples will be performed using standardized analytical methods and adherence to the quality control procedures outlined in the methods and this QAPP. Therefore, the data will be comparable.

QAPP Worksheet #37
Usability Assessment

Reconciliation: The PQOs presented in Worksheet #11 will be examined against the data quality to determine if the objectives were met. This examination will include a combined overall assessment of the results of each analysis pertinent to an objective. Each analysis will first be evaluated separately in terms of major impacts observed from data validation, data quality indicators, and measurement performance criteria assessments. Based on the results of these assessments, the quality and usability of the data will be determined. The combined usability of the data from all analyses will be used to determine if the PQOs were met and whether project goals have been achieved. Conclusions will be drawn and any limitations on the usability of the data will be described.

Completeness: Calculate completeness: Data completeness will be expressed as the percentage of valid data obtained from the measurement system. In other words, every well or location that was initially intended to be sampled, was sampled. For data to be considered valid, it must meet all the acceptable criteria including accuracy and precision, as well as any other criteria specified by the analytical method used. All data points submitted to Pace Analytical Services will be 100% validated by USEPA Region 2 LSASD HWSB-HWSS data validation chemists according to the SOPs specified on Worksheet #36.

Describe the evaluative procedures used to assess overall measurement error associated with the project:
EPA Region 2 LSASD-HWSB-HWSS personnel will determine if quality control data is within specification through the validation process IIb.

Identify the personnel responsible for performing the usability assessment:
LSASD-HWSB-SST Sampling Project Lead Robert Finke

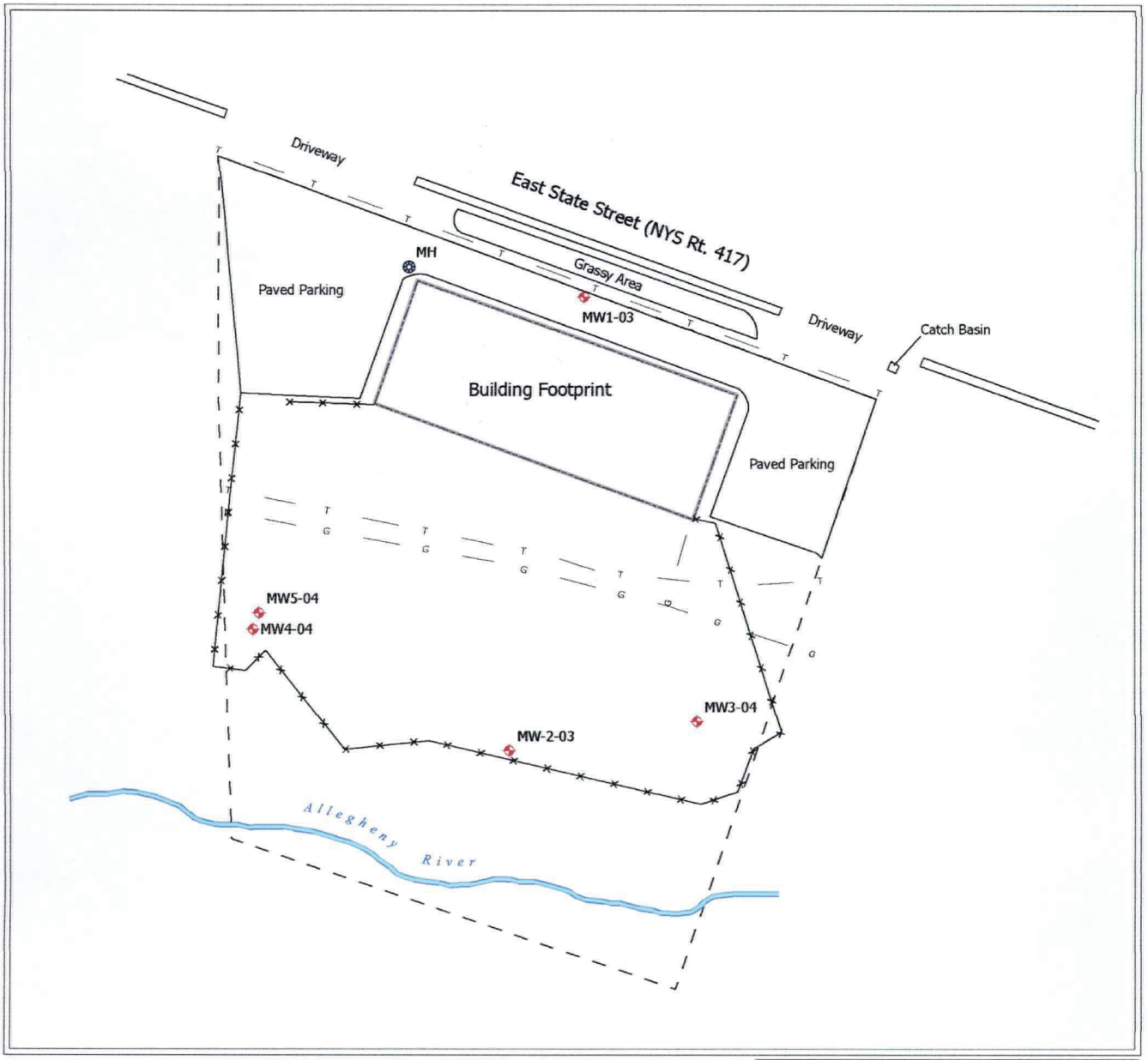
Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:
A Data Evaluation Report will describe the rationale for the data used and present any data limitations and qualifiers used. The report will include a discussion of the accuracy, precision, representativeness, completeness and comparability of the data set and deviations from planned procedures and analysis.

A final Trip Report will be generated by the SST Project Leader based on the final, validated data package and data evaluation report. Tables will be prepared and attached in the Final Trip Report, including: a summary of samples collected, parameters analyzed and results obtained as compared to the specified criteria; detections in field and trip blanks; and comparison of field duplicates.The report will be given to the RPM to allow examination of the current extent of groundwater contamination within Site and decide the strategy going forward.

Discuss the impacts of any qualified data, any deviations from the original plan or sampling procedures, whether the project objectives were met, etc.

Data qualified as estimated, J, is considered usable. Data qualified as rejected, R, is not usable and may need to be re-sampled.

Appendix A
Site Map



Map created using site survey GPS data collected in Lat, Lon, Decimal Degrees, WGS84. Base map created as an AutoCAD drawing, and georeferenced to GPS data. Estimated error is approximately 1.2 meters.

Map Creation Date: 14April2004

Coordinate System: State Plane, NY West
FIPS: 3103
Datum: NAD83
Units: Feet

N
W E
S Magnetic North

Legend

- Manhole
- Monitor Well Locations
- Fence
- Gas Line
- Telephone Line

50 0 50 100 Feet

Data: g:\arcviewprojects\276
MXD File: g:\arcinfoprojects\reac3\R1A00276_Olean\276_fig1

U.S. EPA Environmental Response Team Center
Response Engineering and Analytical Contract
68-C99-223
W.A. #R1A00276

Monitor Well Location Map
Olean Well Field Site
April 2004 Investigation
Olean, NY

Appendix B
Sampling SOPs

U.S. Environmental Protection Agency, Region 2 Field Operations Quality Procedures

TECHNICAL STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Groundwater Sampling Procedure: Low Stress (Low-flow) Purging and Sampling

Effective Date	Number
11/8/2019	FA-SST-T-007

Author

Name: Michael Mercado

Title: Environmental Scientist

Division/Branch/Section: LSASD/HWSB/SST

Signature: [signature] **Date:** 24 OCT 19

Review & Approvals

Name: Robert Finke

Title: Physical Scientist

Signature: [signature] **Date:** 10/24/19

Name:

Title:

Signature: **Date:**

Name: Amelia Jackson

Title: Lead Chemist, Superfund Support Team

Signature: Amelia Jackson **Date:** 10/30/19

Name: Jon Gabry

Title: Chief, Hazardous Waste Support Branch

Signature: [signature] **Date:** 10/30/19

The table below identifies information about the reviews conducted of this SOP.

REVIEW HISTORY		
Date	Reviewer Name	Changes Required (Y/N)

The table below identifies changes to this controlled document and the respective effective date(s) over time.

REVISION HISTORY		
Revision Number	Revision Description	Effective Date
1.0	Original Issue	10/28/10

TABLE OF CONTENTS

1.0 PURPOSE AND APPLICABILITY

The *Low Stress (or Low-Flow) Purging and Sampling Procedure* is the EPA LSASD-HWSB-SST standard method for collecting low stress (low-flow) groundwater samples from monitoring wells that are representative of conditions in the geological formation. This is accomplished by minimizing stress on the geological formation and disturbance of sediment that has collected in the well. The procedure applies to monitoring wells that have an inner casing with a diameter of 2.0 inches or greater, and maximum screened intervals of ten feet (unless multiple intervals require characterization). The procedure is appropriate for collection of groundwater samples that will be analyzed for volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, microbiological constituents and other contaminants in association with all EPA programs. This procedure does not address the collection of light or dense non-aqueous phase liquids (LNAPL or DNAPL) samples.

2.0 SUMMARY OF PROCESS OR METHODOLOGY

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure minimizes aeration of the groundwater during sample collection, which improves the sample quality for VOC analysis. Third, in most cases, the procedure significantly reduces the volume of groundwater purged from a well and the costs associated with its proper treatment and disposal.

3.0 DEFINITIONS

3.1. Glossary of Terms

DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
FID	Flame Ionization Detector
HNO_3	Nitric Acid
HWSB	Hazardous Waste Support Branch
LNAPL	Light Non-Aqueous Phase Liquid
LSASD	Laboratory Services and Applied Science Division
NAPL	Non-Aqueous Phase Liquid
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PID	Photon Ionization Detector
PVC	Polyvinyl Chloride
QA	Quality Assurance

QC	Quality Control
QAPP	Quality Assurance Project Plan
RPM	Remedial Project Manager
SST	Superfund Support Team
SOP	Standard Operating Procedure
SVOC	Semi-volatile Organic Compound
U.S. EPA	United States Environmental Protection Agency
UFP	Uniform Federal Policy
VOC	Volatile Organic Compound

4.0 RESPONSIBILITIES/QUALIFICATIONS

4.1. All field samplers are required to take the OSHA 40-hour health and safety training course and annual refresher courses prior to participating in any field collection activities.

5.0 REFERENCES

5.1. U.S. Environmental Protection Agency, ERT/SERAS SOP #2006: Sampling Equipment Decontamination, Revision 1.0, December 28, 2015

5.2. U.S. Environmental Protection Agency, ERT/SERAS SOP #2007: Groundwater Well Sampling, Revision 1.0, June 25, 2015

5.3. Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures, EPA/540/S-95/504.

5.4. Yeskis, Douglas and Zavala, Bernard, 2002, Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers, Ground Water Forum Issue Paper, EPA/542/S-02/001

5.5. U.S. EPA Field Operations Group Operational Guidelines for Field Activities, April 2013.

5.6. U.S. EPA QA Field Activities Procedure, CIO 2105-P-02.0, CIO Approval date 9/23/2014, Review Date 09/23/2017

5.7. U.S. EPA, 2007. Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality-Related Documents. EPA QA/G-6, EPA/600/B-07/001. April 2007

5.8. U.S. EPA Region II Groundwater Sampling Procedure: Low Stress (Low-flow) Purging and Sampling, Final March 16, 1998

6.0 HEALTH AND SAFETY WARNINGS

6.1. When working with potentially hazardous materials, follow EPA, OSHA and specific health and safety procedures.

6.2. When sampling a groundwater well containing known or suspected hazardous substances, take adequate precautions. Proper personal protective equipment, such as gloves and steel toed boots, should always be worn by all sampling personnel.

6.3. Prior to sampling a groundwater well, the well should be screened for volatile organic compounds and explosive atmosphere immediately upon opening the well. Proper personal protective equipment, such as respiratory protection, may be warranted if screening values exceed threshold limits specified in the health and safety plan.

7.0 CAUTIONS

7.1. Not Applicable

8.0 INTERFERENCES

8.1. Problems that may be encountered using this technique include:

8.1.1. Difficulty in sampling wells with insufficient yield;

8.1.2. Failure of one or more key indicator parameters to stabilize;

8.1.3. Cascading of water and/or formation of air bubbles in the tubing; and

8.1.4. Cross-contamination between wells.

8.2. Insufficient Yield:

8.2.1. Wells with insufficient yield (i.e., low recharge rate of the well) may dewater during purging. Care should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake.

8.2.2. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of the sand pack.

8.2.3. Pumping the well dry should be avoided to the greatest extent possible in all cases.

8.2.4. Sampling should commence as soon as the volume in the well has recovered sufficiently to allow the collection of samples.

8.2.5. Alternatively, groundwater samples may be obtained with techniques designed for the unsaturated zone, such as lysimeters.

8.3. Failure to Stabilize Key Indicator Parameters:

8.3.1. If one or more key indicator parameters fails to stabilize after 2 hours, one of four options should be considered:

8.3.1.1. Continue purging to achieve stabilization;

8.3.1.2. Discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book;

8.3.1.3. Discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or

8.3.1.4. Secure the well, purge and collect samples the next day (preferred). The key indicator parameter for samples to be analyzed for VOCs is dissolved oxygen. The key indicator parameter for all other samples is turbidity.

8.4. Cascading:

8.4.1. To prevent cascading and/or air bubble formation in the tubing, care should be taken to ensure that the flow rate is sufficient to maintain pump suction.

8.4.2. Minimize the length and diameter of tubing (i.e., 1/4 or 3/8-inch ID) to ensure that the tubing remains filled with groundwater during sampling.

8.5. Cross-Contamination

8.5.1. To prevent cross-contamination between wells, it is strongly recommended that dedicated, in-place pumps be used.

8.5.2. As an alternative, the potential for cross-contamination can be reduced by performing the more thorough "daily" decontamination procedures (refer to Reference 5.1) between sampling of each well in addition to the start of each sampling day.

8.6. Equipment Failure

8.6.1. Adequate equipment should be on hand so that equipment failures do not adversely impact sampling activities.

9.0 EQUIPMENT AND SUPPLIES

9.1. Well construction data, location map, field data from last sampling event.

9.2. Polyethylene sheeting

9.3. Flame Ionization Detector (FID) and Photo Ionization Detector (PID).

9.4. Adjustable rate, submersible groundwater sampling pump constructed of stainless steel or Teflon. A peristaltic or positive displacement pump may be used for certain categories of contaminants, provided the rationale is presented and approved in the project QAPP.

9.5. Interface probe or equivalent device for determining the presence or absence of NAPL.

9.6. Teflon or Teflon-lined polyethylene tubing to collect samples for organic analysis. Teflon or Teflon-lined polyethylene, PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Use of other tubing material compatible with the contaminants of concern must be presented and approved in the project QAPP. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.

9.7. Water level measuring device, minimum 0.01-foot accuracy, (electronic preferred for tracking water level drawdown during all pumping operations).

9.8. Flow measurement supplies (e.g., graduated cylinder and stop watch or in-line flow meter).

9.9. Power source (generator, nitrogen tank, etc.).

9.10. Monitoring instruments (e.g., Aqua Troll® 600 Multiparameter Sonde) for indicator parameters. Eh and dissolved oxygen must be monitored inline using an instrument with a continuous readout display. Specific conductance, pH, and temperature may be monitored either in-line or using separate probes. A nephelometer is used to measure turbidity if not using an inline instrument capable of measuring turbidity.

9.11. Decontamination supplies (refer to Reference 5.1. and 5.7)

9.12. Logbook

9.13. Sample bottles

9.14. Sample preservation supplies (as required by the analytical methods)

9.15. Sample tags or labels, chain of custody

10.0 PROCEDURAL STEPS

10.1. Pre-Sampling Activities:

10.1.1. Start at the well location known or believed to have the least contaminated groundwater and proceed systematically to the well with the most contaminated groundwater. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations.

10.1.2. Lay out sheet of polyethylene for placement of monitoring and sampling equipment.

10.1.3. Measure explosive atmosphere levels and ambient air VOCs at the rim of the unopened well with a PID and FID instrument and record the reading in the field log book.

10.1.4. Remove well cap.

10.1.5. Measure explosive atmosphere levels and VOCs at the rim of the opened well with a PID and an FID instrument and record the reading in the field log book.

10.1.6. If the well casing does not have a reference point (usually a V-cut or indelible mark in the well casing), make one. Note that the reference point should be surveyed for correction of groundwater elevations to the mean geodetic datum (MSL).

10.1.7. Measure and record the depth to water (to 0.01 feet) and total well depth in all wells to be sampled prior to purging. Care should be taken to minimize disturbance in the water column and dislodging of any particulate matter attached to the sides or settled at the bottom of the well. If desired, measure and record the depth of any NAPLs using an interface probe. Care should be taken to minimize disturbance of any sediment that has accumulated at the bottom of the well. Record the observations in the log book. If LNAPLs and/or DNAPLs are detected, install the pump now, as described below. Allow the well

to stabilize for several days between the measurement or sampling of any DNAPLs and the low-stress purging and sampling of the groundwater.

10.2. Sampling Procedures:

10.2.1. Install Pump: Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified for that well screen in the EPA-approved QAPP or a depth otherwise approved by the EPA regional hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and resuspension of any sediment or NAPL present in the bottom of the well. Record the depth to which the pump is lowered.

10.2.2. Measure Water Level: Before starting the pump, measure and record the water level again with the pump in the well. Leave the water level measuring device in the well.

10.2.3. Purge Well: Start pumping the well at 200 to 500 milliliters per minute (ml/min). The water level should be monitored and recorded every three to five minutes. Ideally, a steady flow rate should be maintained so that it results in a stabilized water level (drawdown of 0.3 feet or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.

10.2.4. Monitor Indicator Parameters using the Aqua Troll® 600 Multiparameter Sonde: During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and Dissolved Oxygen (DO)) every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):

- ±0.1 for pH
- ±3% for specific conductance (conductivity)
- ±3% for temperature
- ±10 mv for redox potential
- ±10% for turbidity
- ±10% for DO

Turbidity (10% for values greater than 5NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized).
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized).

Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. The pump must not be removed from the well between purging and sampling.

10.2.5. Collect Samples: Collect samples at a flow rate between 100 and 250 ml/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 feet. All sample containers should be filled (volatile organics samples filled first) with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container. Remove pump and tubing from the well. After collection of the samples, the tubing, unless permanently installed, must be properly discarded. Close and lock the well.

10.3. Post-Sampling Activities-Pump Decontamination:

10.3.1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

10.3.2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a mixture of potable water and a non-phosphate detergent solution, such as Alconox or Luminox, for 5 minutes. Flush other equipment with fresh detergent solution for 5 minutes. Luminox can be used in place of nitric acid for decontamination of sampling equipment to be used for analyzing samples for metals, use the detergent sparingly.

10.3.3. Rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

10.3.4. Solvent Rinse: Fill a container such as a PVC tube, with a 25% solvent such as acetone or isopropanol, transfer the pump into the PVC tube container with the solvent and run pump for 5 minutes.

10.3.5. Rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

10.3.6. Acid Rinse (if Luminox is not utilized): Fill a container such as a PVC tube, with 1% nitric acid (HNO_3), transfer the pump into the PVC tube container with the acid and run pump for 5 minutes.

10.3.7. Rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

10.3.8. Final Rinse: Operate pump in a deep basin of distilled/deionized water for 5 minutes and flush other equipment with distilled/deionized water for 5 minutes.

10.3.9. Let pumps and equipment air dry.

10.3.10. Wrap the pumps and equipment individually into aluminum foil.

11.0 DATA AND RECORDS MANAGEMENT

11.1. Data Management

11.1.1. All data and data collection information (e.g., sample date/time, personnel, weather conditions, equipment issues, deviations, etc.) must be documented in a bound field notebook or on a field data sheet with permanent ink. When using the Aqua Troll 600 Multiparameter Sondes, well specific information is collected and/or recorded electronically via a tablet. Each well specific file is subsequently transferred by the project lead to the site-specific file within the LSASDDIV/HWSB-SST/Superfund sites folder on the network.

11.2. Records Management

11.2.1. All project/field-related records must comply with the Region 2 Records Management guidance.

12.0 QUALITY ASSURANCE AND QUALITY CONTROL

12.1. Quality control samples must be collected to determine if sample collection and handling procedures have adversely affected the quality of the groundwater samples. The appropriate EPA Program Guidance should be consulted in determining the appropriate field QC sample requirements documented in the site-specific QAPP.

12.2. All field quality control samples must be prepared in the same manner as the site-specific samples regarding sample volume, containers, and preservation. The following quality control samples are typically collected during the sampling event:

- Field duplicates
- Trip blanks (for VOCs only)
- Equipment rinse blank (not necessary if equipment is dedicated to the well) - collected at the start of the day, prior to using equipment for sample collection.

12.3. As noted above, groundwater samples should be collected systematically, starting with wells with the lowest level of contamination and proceeding to wells with the highest level of contamination.

Appendix C
Analytical SOPs

U.S. EPA CLP SOW SFAM01.1:
https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-superfund-analytical-methods-multi-media-multi-0

Appendix D
Data Validation SOPs

Hazardous Waste Support Section
SOP No. HW-34A, Revision 1
SOM02.2
Trace Volatile Data Validation

Approvals:

Narendra Kumar — 12-8-2016
Narendra Kumar
Chemist, Hazardous Waste Support Section
Date

Philip Cocuzza — 12/8/16
Philip Cocuzza
Chief, Hazardous Waste Support Section
Date

Jon Gabry — 12/8/16
Jon Gabry
Chief, Hazardous Waste Support Branch
Date

NOTICE

The policies and procedures set forth here are intended as guidance to the United States Environmental Protection Agency (hereafter referred to as USEPA) and other governmental employees. They do not constitute rule making by USEPA, and may not be relied upon to create a substantive or procedural right enforceable by any other person. The Government may take action that is at variance with the policies and procedures in this manual.

The guidance for data validation set forth in the quality assurance project plan (QAPP) for the project associated with the data in question will always take precedence over the data validation guidance listed herein.

Validators should note that their professional judgment supersedes any guidance listed in this document.

This document can be obtained from the USEPA's Region 2 Quality Assurance website at:

http://www.epa.gov/region2/qa/documents.htm

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ACRONYMS

%D	Percent Difference
%RSD	Percent Relative Standard Deviation
ARO	Aroclor
ASB	Analytical Services Branch
BFB	Bromofluorobenzene
CCS	Contract Compliance Screening
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
CLP PO	Contract Laboratory Program Project Officer
COR	Contracting Officer Representative
CRQL	Contract Required Quantitation Limit
CSF	Complete SDG File
DART	Data Assessment Rapid Transmittal
DAT	Data Assessment Tool
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenylphosphine
DMC	Deuterated Monitoring Compound
DQA	Data Quality Assessment
DQO	Data Quality Objective
EDD	Electronic Data Deliverable
EDM	EXES Data Manager
ESAT	Environmental Services Assistance Team
EXES	Electronic Data Exchange and Evaluation System
GC	Gas Chromatograph
GC/ECD	Gas Chromatograph/Electron Capture Detector
GC/MS	Gas Chromatograph/Mass Spectrometer
GPC	Gel Permeation Chromatography
HWSS	Hazardous Waste Support Section
INDA	Individual Standard Mixture A
INDB	Individual Standard Mixture B
INDC	Individual Standard Mixture C
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
OSRTI	Office of Superfund Remediation and Technology Innovation
PCBs	Polychlorinated Biphenyls
PE	Performance Evaluation
PEM	Performance Evaluation Mixture
QA	Quality Assurance
QAC	Quality Assurance Coordinator
QAPP	Quality Assurance Project Plan
QC	Quality Control

RAS	Routine Analytical Services
RIC	Reconstructed Ion Chromatogram
RPD	Relative Percent Difference
RRF	Relative Response Factor
$\overline{\textbf{RRF}}$	Mean Relative Response Factor
RRT	Relative Retention Time
RSCC	Regional Sample Control Center Coordinator
RSD	Relative Standard Deviation
RT	Retention Time
SAP	Sampling and Analysis Plan
SCP	Single Component Pesticide
SDG	Sample Delivery Group
SIM	Selected Ion Monitoring
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
TCL	Target Compound List
TCLP	Toxicity Characteristics Leachate Procedure
TCX	Tetrachloro-m-xylene
TIC	Tentatively Identified Compound
TOPO	Task Order Project Officer
TR/COC	Traffic Report/Chain of Custody Record
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
VTSR	Validated Time of Sample Receipt

INTRODUCTION

This document is designed to offer the data reviewer guidance in determining the validity of analytical data generated through the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Multi-Media, Multi-Concentration Organics Analysis (SOM02.2), and any future editorial revisions of SOM02.2, hereinafter referred to as the SOM02.2 SOW. This guidance is somewhat limited in scope and is intended to be used as an aid in the formal technical review process.

The guidelines presented in the document will aid the data reviewer in establishing (a) if data meets the specific technical and QC criteria established in the SOW, and (b) the validity and extent of bias of any data not meeting the specific technical and QC criteria established in the SOW. It must be understood by the reviewer that acceptance of data not meeting technical requirements is based upon many factors, including, but not limited to site-specific technical requirements, the need to facilitate the progress of specific projects, and availability for re-sampling.

The reviewer should note that while this document is to be used as an aid in the formal data review process, other sources of guidance and information, as well as **professional judgment**, should also be used to determine the ultimate validity of data, especially in those cases where all data does not meet specific technical criteria.

DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

DATA PACKAGE INSPECTION

For data obtained through the Contract Laboratory Program (CLP), the EXES Data Manager (EDM) is a useful tool in the data review process. For more information about EDM, please refer to the following Sample Management Office (SMO) website:

https://epasmoweb.fedcsc.com/help/guides/Submit%20and%20Inspect%20Data%20Quick%20Guide%20%28EXES%29.pdf

EDM will identify any missing and/or incorrect information in the data package. The CLP laboratory may submit a reconciliation package for any missing items or to correct data.
If there are any concerns regarding the data package, contact the laboratory COR (CLP COR) from the Region where the samples were taken. For personnel contact information, please refer to the following CLP website:

http://www.epa.gov/superfund/programs/clp/contacts.htm

HWSS DATA VALIDATION PROCESS

After downloading the data package from EDM, the data validator will use the recommendations in this SOP as well as their own professional judgment to validate the data.

The data will be saved in the following location, under the appropriate case number folder:

G:\DESADIV\HWSS\DATA VALIDATION

The file naming conventions will consist of

A. case number	i.e., 12345
B. SDG name	i.e., BXY12
C. level of validation performed	i.e., S3VE

Examples: **12345_BXY12_S3VE.xls**

12345_BXY12_S3VEM.xls

When data validation is completed, the data package is uploaded for the client to download from the HWSS data delivery website.

The completed data package includes the Executive Narrative (see Appendix B for template), the Sample Summary Report (see Appendix C for example), and the Electronic Data Deliverable (EDD) (see Appendix D for an example list of the column headers included in this document). Additional deliverables per modified analysis request and QAPP are also included.

All data is initially marked as “reportable” (Y) in the EDM before validation is begun. Sometimes, due to dilutions, re-analysis, or SIM/scan runs all being performed, there will be multiple results for a single sample. The following criteria and professional judgment are used to determine which results should be reported:

Analysis with a lower CRQL
The analysis with a better QC results
The analysis with a higher result

The analysis values and their respective CRQLs are then transferred to a single sample run. Other runs which are not being used are updated as “Not Reportable” or (N) in the EDM.

PRELIMINARY REVIEW

This document is for the review of analytical data generated through the SOM02.2 SOW and any future editorial revisions of SOM02.2 for USEPA Region 2. To use this document effectively, the reviewer should have an understanding of the analytical method and a general overview of the Sample Delivery Group (SDG) or sample Case at hand. The exact number of samples, their assigned numbers, their matrix, and the number of laboratories involved in the analysis are essential information.

It is suggested that an initial review of the data package be performed, taking into consideration all information specific to the sample data package [e.g., Modified Analysis Requests, Traffic Report/Chain of Custody (TR/COC) documentation, SDG Narratives, etc.].

The reviewer should also have a copy of the Quality Assurance Project Plan (QAPP) or similar document for the project for which the samples were analyzed. The criteria for data validation outlined in the QAPP supersede this Standard Operating Procedure. The reviewer should contact the appropriate Laboratory COR to obtain copies of the QAPP and relevant site information. This information is necessary in determining the final usability of the analytical data.

The SDGs or Cases routinely have unique samples that require special attention from the reviewer. These include field blanks and trip blanks, field duplicates, and Performance Evaluation (PE) samples which must be identified in the sampling records. The sampling records (e.g., TR/COC records, field logs, and/or contractor tables) should identify:

1. The Region where the samples were taken,
2. The Case number,
3. The complete list of samples with information on:
    a. Sample matrix;
    b. Field blanks (i.e., equipment blanks or rinsate blanks) and trip blanks;
    c. Field duplicates;
    d. Field spikes;
    e. QC audit samples;
    f. Shipping dates;
    g. Preservatives; and
    h. Laboratories involved.

The TR/COC documentation includes sample descriptions and date(s) of sampling. The reviewer must consider lag times between sampling and start of analysis when assessing technical sample holding times.

The laboratory's SDG Narrative is another source of general information. Notable problems with matrices, insufficient sample volume for analysis or reanalysis, samples received in broken containers, preservation, and unusual events should be documented in the SDG Narrative. The reviewer should also inspect any email or telephone/communication logs detailing any discussion of sample or analysis issues between the laboratory, the CLP Sample Management Office (SMO), and USEPA Region 2.

Preservation

Action:

1. Qualify sample results using preservation and technical holding time information as follows (see Table 1):
    a. If there is no evidence that the samples were properly preserved (pH < 2, T = ≥ 6.0°C), but the samples were analyzed within the technical holding time [7 days from sample collection], qualify detects as estimated (J) and non-detects as estimated (UJ).
    b. If there is no evidence that the samples were properly preserved, and the samples were analyzed outside of the technical holding time [7 days from sample collection], qualify detects for all volatile compounds as estimated (J) and non-detects as unusable (R).
    c. If the samples were properly preserved, and the samples were analyzed within the technical holding time [14 days from sample collection], no qualification of the data is necessary.
    d. If the samples were properly preserved, but were analyzed outside of the technical holding time [14 days from sample collection], qualify detects as estimated (J) and non-detects as unusable (R).
2. Whenever possible, the reviewer should comment on the effect of the holding time exceedance on the resulting data in the Data Review Narrative.
3. Use professional judgment to qualify samples whose temperature upon receipt at the laboratory is either below 2° C or above 6.0° C.
4. If air bubbles were present in the sample vial used for analysis, qualify detected compounds as estimated (J) and non-detected compounds as estimated (UJ).
5. Note, for Contract Laboratory COR action, when technical holding times are exceeded.

Table 1. Holding Time Actions for Trace Volatile Analyses

Matrix	Preserved	Criteria	Action	
			Detected Associated Compounds	Non-Detected Associated Compounds
Aqueous	No	< 7 days	J	UJ
Aqueous	No	> 7 days	J	R
Aqueous	Yes	< 14 days	No qualification	
Aqueous	Yes	> 14 days	J	R
Aqueous	Samples ≥ 6.0°C or < 2°C upon arrival in the laboratory		Professional Judgment	

Gas Chromatograph/Mass Spectrometer (GC/MS) Instrument Performance Check

Action:

NOTES: This requirement does not apply when samples are analyzed by the Selected Ion Monitoring (SIM) technique.
All mass spectrometer instrument conditions must be identical to those used during the sample analysis. Background subtraction actions resulting in spectral distortions for the sole purpose of meeting the method specifications are contrary to the Quality Assurance (QA) objectives, and are therefore unacceptable.
No data should be qualified based on BFB or DFTTP failure. Instances of this should be noted in the narrative and professional judgement should be used.
All ion abundance ratios must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120% that of m/z 95.

1. If samples are analyzed without a preceding instrument performance check, qualify all data in those samples as unusable (R).
2. If the laboratory has made minor transcription errors which do not significantly affect the data, the data reviewer should make the necessary corrections on a copy of the form.
3. If the laboratory has failed to provide the correct forms or has made significant transcription or calculation errors, the Region's designated representative should contact the laboratory and request corrected data. If the information is not available, the reviewer must use professional judgment to assess the data. Notify the laboratory's Contract Laboratory Program Project Officer (CLP PO).
4. If ion abundance criteria are not met, professional judgment may be applied to determine to what extent the data may be utilized. When applying professional judgment to this topic, the most important factors to consider are the empirical results that are relatively insensitive to location on the chromatographic profile and the type of instrumentation. Therefore, the critical ion abundance criteria for BFB are the m/z 95/96, 174/175, 174/176, and 176/177 ratios. The relative abundances of m/z 50 and 75 are of lower importance. This issue is more critical for Tentatively Identified Compounds (TICs).
5. Note, in the Data Review Narrative, decisions to use analytical data associated with BFB instrument performance checks not meeting contract requirements.
6. If the reviewer has reason to believe that instrument performance check criteria were achieved using techniques other than those described in Trace Volatiles Organic Analysis, Section II.D.5 of the NFG SOM02.2, obtain additional information on the instrument performance checks. If the techniques employed are found to be at variance with the contract requirements, the performance and procedures of the laboratory may merit evaluation. Note, for laboratory COR action, concerns or questions regarding laboratory performance. For example, if the reviewer has reason to believe that an inappropriate technique was used to obtain background subtraction (such as background subtracting from the solvent front or from another region of the chromatogram rather than from the BFB peak), note this for laboratory COR action.
7. Use professional judgment to determine whether associated data should be qualified based on the spectrum of the mass calibration compound.

Initial Calibration

1. ICAL should be performed at the specified frequency and sequence. Each GC/MS system must be calibrated with a minimum of five concentrations to determine instrument sensitivity and the linearity of GC/MS response for the purgeable target analytes and Deuterated Monitoring Compounds (DMCs).
2. ICAL standards must be analyzed prior to any analysis of samples and required blanks and within 12 hours of the associated instrument performance check at the beginning of each analytical sequence, or as necessary if the CCV acceptance criteria are not met.
3. ICAL standards must contain all required target analytes and DMCs at concentrations of 0.50, 1.0, 5.0, 10, and 20 µg/L for non-ketones, and 5.0, 10, 50, 100, and 200 µg/L for ketones.
4. All three xylene isomers (o-, m-, and p-xylene) must be present in calibration standards. Concentrations for o-xylene must be at 0.50, 1.0, 5.0, 10, and 20 µg/L, while the total concentrations of the m- plus the p-xylene isomers must be at 0.50, 1.0, 5.0, 10, and 20 µg/L
5. The Relative Response Factor (RRF), mean RRF, and Percent Relative Standard Deviation (%RSD) must be calculated for each target analyte and DMC according to the SOW.
6. The RRF for each target analyte and DMC in each ICAL standard must be ≥ Minimum RRF value in Table 2.
7. The %RSD of the ICAL RRF for each target analyte and DMC must be ≤ Maximum %RSD value in Table 2.

NOTE: The technical acceptance criteria specified in a "Request for Quote (RFQ) for Modified Analysis" may impact some of the preceding evaluation criteria. A copy of this document should be present in the SDG, when applicable. Refer to the CLP home page at http://www.epa.gov/oerrpage/superfund/programs/clp/modifiedanalyses.htm for the specific method flexibility requirements.

Table 2. RRF, %RSD, and %D Acceptance Criteria in Initial Calibration and CCV for Trace Volatile Analysis

Analyte	Minimum RRF	Maximum %RSD	Opening Maximum %D[1]	Closing Maximum %D
Dichlorodifluoromethane	0.010	30.0	±40.0	±50.0
Chloromethane	0.010	30.0	±30.0	±50.0
Vinyl chloride	0.010	30.0	±30.0	±50.0
Bromomethane	0.010	40.0	±30.0	±50.0
Chloroethane	0.010	30.0	±30.0	±50.0
Trichlorofluoromethane	0.010	30.0	±30.0	±50.0
1,1-Dichloroethene	0.020	30.0	±20.0	±25.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.010	30.0	±30.0	±50.0

Analyte	Minimum RRF	Maximum %RSD	Opening Maximum $\%D_1$	Closing Maximum %D
Acetone	0.010	40.0	±40.0	±50.0
Carbon disulfide	0.010	20.0	±25.0	±25.0
Methyl acetate	0.010	40.0	±40.0	±50.0
Methylene chloride	0.010	40.0	±30.0	±50.0
trans-1,2-Dichloroethene	0.070	20.0	±20.0	±25.0
Methyl tert-butyl ether	0.010	30.0	±30.0	±50.0
1,1-Dichloroethane	0.100	20.0	±20.0	±25.0
cis-1,2-Dichloroethene	0.100	20.0	±20.0	±25.0
2-Butanone	0.010	40.0	±40.0	±50.0
Bromochloromethane	0.020	20.0	±20.0	±25.0
Chloroform	0.040	20.0	±20.0	±25.0
1,1,1-Trichloroethane	0.050	30.0	±20.0	±25.0
Cyclohexane	0.100	30.0	±25.0	±50.0
Carbon tetrachloride	0.020	20.0	±25.0	±50.0
Benzene	0.300	20.0	±20.0	±25.0
1,2-Dichloroethane	0.010	20.0	±25.0	±50.0
Trichloroethene	0.100	20.0	±20.0	±25.0
Methylcyclohexane	0.200	30.0	±25.0	±50.0
1,2-Dichloropropane	0.100	20.0	±20.0	±25.0
Bromodichloromethane	0.090	20.0	±20.0	±25.0
cis-1,3-Dichloropropene	0.100	20.0	±20.0	±25.0
4-Methyl-2-pentanone	0.010	30.0	±30.0	±50.0
Toluene	0.400	20.0	±20.0	±25.0
trans-1,3-Dichloropropene	0.010	30.0	±20.0	±25.0
1,1,2-Trichloroethane	0.040	20.0	±20.0	±25.0
Tetrachloroethene	0.100	20.0	±20.0	±25.0
2-Hexanone	0.010	40.0	±40.0	±50.0
Dibromochloromethane	0.050	20.0	±20.0	±25.0
1,2-Dibromoethane	0.010	20.0	±20.0	±25.0
Chlorobenzene	0.400	20.0	±20.0	±25.0
Ethylbenzene	0.500	20.0	±20.0	±25.0
m,p-Xylene	0.200	20.0	±20.0	±25.0
o-Xylene	0.300	30.0	±20.0	±25.0
Styrene	0.200	30.0	±20.0	±25.0
Bromoform	0.010	30.0	±30.0	±50.0
Isopropylbenzene	0.700	30.0	±25.0	±25.0
1,1,2,2-Tetrachloroethane	0.050	20.0	±25.0	±25.0
1,3-Dichlorobenzene	0.500	20.0	±20.0	±25.0
1,4-Dichlorobenzene	0.700	20.0	±20.0	±25.0
1,2-Dichlorobenzene	0.400	20.0	±20.0	±25.0
1,2-Dibromo-3-chloropropane	0.010	40.0	±40.0	±50.0
1,2,4-Trichlorobenzene	0.300	30.0	±30.0	±50.0
1,2,3-Trichlorobenzene	0.200	30.0	±40.0	±50.0

Analyte	Minimum RRF	Maximum %RSD	Opening Maximum %D[1]	Closing Maximum %D
Deuterated Monitoring Compound				
Vinyl chloride-d_3	0.010	30.0	±30.0	±50.0
Chloroethane-d_5	0.010	30.0	±30.0	±50.0
1,1-Dichloroethene-d_2	0.010	30.0	±25.0	±25.0
2-Butanone-d_5	0.010	40.0	±40.0	±50.0
Chloroform-d	0.010	20.0	±20.0	±25.0
1,2-Dichloroethane-d_4	0.010	20.0	±25.0	±25.0
Benzene-d_6	0.030	20.0	±20.0	±25.0
1,2-Dichloropropane-d_6	0.100	20.0	±20.0	±25.0
Toluene-d_8	0.200	20.0	±20.0	±25.0
trans-1,3-Dichloropropene-d_4	0.010	30.0	±25.0	±25.0
1,1,2,2- Tetrachloroethane-d_2	0.010	20.0	±25.0	±25.0
1,2-Dichlorobenzene-d_4	0.060	20.0	±20.0	±25.0
2-Hexanone-d5	0.01	40.0	±40.0	±50.0

[1] If a closing CCV is acting as an opening CCV, all target analytes must meet the requirements for an opening CCV.

Action:

Qualify all volatile target compounds using the following criteria:

a. If any volatile target compound has an RRF value less than the minimum criterion listed in Table 2, use professional judgment for detects, based on mass spectral identification to qualify the data as estimated (J+).
b. If any volatile target compound has an RRF value less than the minimum criterion listed in Table 2 qualify non-detected compounds as unusable (R).
c. If any of the volatile target compounds has %RSD greater than the maximum in table 2, qualify detects as estimated (J), and non-detected compounds using professional judgment (see Action 2).
d. If the volatile target compounds meet the acceptance criteria for RRF and the %RSD, no qualification of the data is necessary.
e. No qualification of the data is necessary on the DMC RRF and %RSD data alone. Use professional judgment and follow the guidelines in Action 2, to evaluate the DMC RRF and %RSD data in conjunction with the DMC recoveries to determine the need for qualification of data.

2. At the reviewer's discretion, and based on the project-specific Data Quality Objectives (DQOs), a more in-depth review may be considered using the following guidelines:
    a. If any volatile target compound has a %RSD greater than the maximum criterion in Table 2 and if eliminating either the high or the low-point of the curve does not restore the %RSD to less than or equal to the required maximum:
        i. Qualify detects for that compound(s) as estimated (J).
        ii. Qualify non-detected volatile target compounds using professional judgment.

b. If the high-point of the curve is outside of the linearity criteria (e.g., due to saturation):
    i. Qualify detects outside of the linear portion of the curve as estimated (J).
    ii. No qualifiers are required for detects in the linear portion of the curve.
    iii. No qualifiers are required for volatile target compounds that were not detected.
c. If the low-point of the curve is outside of the linearity criteria:
    i. Qualify low-level detects in the area of non-linearity as estimated (J).
    ii. No qualifiers are required for detects in the linear portion of the curve.
    iii. For non-detected volatile compounds, use the lowest point of the linear portion of the curve to determine the new quantitation limit.

3. If the laboratory has failed to provide adequate calibration information, the Region's designated representative should contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgment to assess the data.
4. Note in the Data Review Narrative, whenever possible, the potential effects on the data due to calibration criteria exceedance.
5. Note, for Laboratory COR action, if calibration criteria are grossly exceeded.

Table 3. Initial Calibration Actions for Trace Volatiles Analyses

Criteria	Action	
	Detect	**Non-detect**
Initial Calibration not performed at specified frequency and sequence	Use professional judgment R	Use professional judgment R
Initial Calibration not performed at the specified concentrations	J	UJ
RRF < Minimum RRF in Table 2 for target analyte	Use professional judgment J+ or R	R
RRF > Minimum RRF in Table 2 for target analyte	No qualification	No qualification
%RSD > Maximum %RSD in Table 2 for target analyte	J	Use professional judgment
%RSD ≤ Maximum %RSD in Table 2 for target analyte	No qualification	No qualification

Continuing Calibration Verification (CCV)

Action:

1. If a CCV (opening and closing) was not run at the appropriate frequency, qualify data using professional judgment.
2. Qualify all volatile target compounds listed in table 2 using the following criteria:
    a. For an opening CCV, if any volatile target compound has an RRF value less than the minimum stated in table 2 above use professional judgment for detects, based on mass spectral identification, to qualify the data as estimated (J).
    b. For a closing CCV, if any volatile target compound has an RRF value less than stated in the table 2 above use professional judgment for detects based on mass spectral identification to qualify the data as estimated (J).
    c. For an opening CCV, if any volatile target compound has an RRF value less than the minimum stated in table 2 above, qualify non-detected compounds as unusable (R).
    d. For a closing CCV, if any volatile target compound has an RRF value less than the limit stated in table 2 above, qualify non-detected compounds as unusable (R).
    e. For an opening CCV, if the Percent Difference value for any of the volatile target compounds is outside the limits stated in table 2 above, qualify detects as estimated (J) and non-detected compounds as estimated (UJ).
    f. For a closing CCV, if the Percent Difference value for any of the volatile target compounds is outside the limit listed in Table 2, qualify detects as estimated (J) and non-detected compounds as estimated (UJ).
    g. If the volatile target compounds meet the acceptable criteria for RRF and the Percent Difference, no qualification of the data is necessary.
    h. No qualification of the data is necessary on the DMC RRF and the Percent Difference data alone. Use professional judgment to evaluate the DMC RRF and Percent Difference data in conjunction with the DMC recoveries to determine the need for qualification of data.
3. If the laboratory has failed to provide adequate calibration information, the Region's designated representative should contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgment to assess the data.
4. Note in the Data Review Narrative, whenever possible, the potential effects on the data due to calibration criteria exceedance.
5. Note, for Laboratory COR action, if calibration criteria are grossly exceeded.

Table 4. Continuing Calibration Verification (CCV) Actions for Trace Volatiles Analyses

Criteria for Opening CCV	Criteria for Closing CCV	Action	
		Detect	Non-detect
CCV not performed at required frequency	CCV not performed at required frequency	Use professional judgment R	Use professional judgment R
CCV not performed at specified concentration	CCV not performed at specified concentration	Use professional judgment	Use professional judgment
RRF < the Minimum RRF in Table 2 for target analytes	RRF < Minimum RRF in Table 2 for target analytes	Use professional judgment J or R	R
RRF > the Minimum RRF in Table 2 for target analytes	RRF > Minimum RRF in Table 2 for target analytes	No qualification	No qualification
%D outside the Opening Maximum %D limits in Table 2 for target analytes	%D outside the Closing Maximum %D limits in Table 2 for target analytes	J	UJ
%D within the inclusive Opening Maximum %D limits in Table 2 for target analytes	%D within the inclusive Opening Maximum %D limits in Table 2 for target analytes	No qualification	No qualification

Blanks

Action:

NOTES: The concentration of each target compound found in the storage, method, field, or trip blanks must be less than its CRQL listed in the method, except for methylene chloride, acetone, and 2-butanone, which must be less than 2x their respective CRQLs. The concentration of non-target compounds in all blanks must be less than 0.5 µg/L.
Data concerning the field or trip blanks are not evaluated as part of the CCS process. If field or trip blanks are present, the data reviewer should evaluate this data in a similar fashion as the method blanks.

"Water blanks, "drill blanks", and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Action regarding unsuitable blank results depends on the circumstances and origin of the blank. The method blank, like any other sample in the SDG, must meet the technical acceptance criteria for sample analysis. In instances where more than one of the same type of blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Do not correct the results by subtracting any blank value.

1. If a volatile compound is found in a method blank, but not found in the sample, no qualification of the data is necessary (Table 5).
2. If the method , storage, field, or trip blanks contain a listed volatile Target compound(s) (TCL) at a concentration less than the CRQL (less than 2x the CRQL for methylene chloride, 2-butanone, and acetone) and:
    a. The sample concentration is less than the CRQL (less than 2x the CRQL for methylene chloride, 2-butanone, and acetone), report the CRQL value with a "U".
    b. The sample concentration is greater than or equal to the CRQL (greater than or equal to 2x the CRQL for methylene chloride, 2-butanone, and acetone), and less than 2x the CRQL (less than 4x the CRQL for methylene chloride, 2-butanone, and acetone), report the concentration of the compound in the sample and qualify with a "U".
    c. The sample concentration is greater than or equal to 2x the CRQL (greater than or equal to 4x the CRQL for methylene chloride, 2-butanone, and acetone), no qualification of the data is necessary.
3. If the method, storage, field, or trip blanks contain a volatile TCL compound(s) at a concentration greater than the CRQL (greater than 2x the CRQL for methylene chloride, 2-butanone, and acetone) and:
    a. The sample concentration is less than the CRQL (less than 2x the CRQL for methylene chloride, 2-butanone, and acetone), report the CRQL value with a "U".
    b. The sample concentration is greater than or equal to the CRQL (greater than or equal to 2x the CRQL for methylene chloride, 2-butanone, and acetone), and less

than the blank concentration, report the concentration of the compound in the sample at the same concentration found in the blank and qualify with a "U".

c. The sample concentration is greater than or equal to the CRQL (greater than or equal to 2x the CRQL for methylene chloride, 2-butanone, and acetone) and greater than the blank concentration, no qualification is required.

4. If the method , storage, field, or trip blanks contain a volatile TCL compound(s) at a concentration equal to the CRQL (equal to 2x the CRQL for methylene chloride, 2-butanone, and acetone) and:
    a. The sample concentration is less than or equal to the CRQL (less than or equal to 2x the CRQL for methylene chloride, 2-butanone, and acetone), report the CRQL value with a "U".
    b. The sample concentration is greater than the CRQL (greater than 2x the CRQL for methylene chloride, 2-butanone, and acetone), no qualification is required.
5. If gross contamination exists (i.e., blank contamination > 2x the CRQL) in the method, storage, field, or trip blanks, raise the CRQL to the level of the blank contamination and report the associated sample data below this level as CRQL-U.
6. If contaminants are found in the storage, field, or trip blanks, the following is recommended:
    a. Review the associated method blank data to determine if the contaminant(s) was also present in the method blank.
        i. If the analyte was present at a comparable level in the method blank, the source of the contamination may be in the analytical system and the action recommended for the method blank would apply.
        ii. If the analyte was not present in the method blank, the source of contamination may be in the storage area, in the field, or during sample transport. Consider all associated samples for possible cross-contamination.
7. Tentatively Identified Compounds (TICs) should only be considered if requested.
    a. For TICs, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank (TIC concentration < 5xblank concentration), qualify the sample data as unusable (R).
8. If an instrument blank was not analyzed following a sample analysis which contained an analyte(s) at high concentration(s) (i.e., exceeding the calibration range), evaluate the sample analysis results immediately after the high concentration sample for carryover. The system is considered uncontaminated if the target analyte is below the CRQL. Use professional judgment to determine if instrument cross-contamination has affected any positive compound identification(s). Note, for laboratory COR action, if instrument cross-contamination is suggested and suspected of having an effect on the sample results.

NOTE: There may be instances where little or no contamination was present in the associated blanks, but qualification of the sample is deemed necessary. If the reviewer determines that the contamination is from a source other than the sample, they should qualify the data. Contamination introduced through dilution water is one example. Although it is not always possible to determine, instances of this occurring can be detected when contaminants are found in the diluted sample result, but are absent in the undiluted sample result.

Table 5. Blank Actions for Trace Volatiles Analyses

Blank Type	Blank Result	Sample Result	Action for Samples
Method, Storage, Field, Trip, Instrument***	Detects	Not detected	No qualification required
	< CRQL *	< CRQL*	Report CRQL value with a U
		≥ CRQL* and < 2x the CRQL**	Report concentration of sample with a U
		≥ 2x the CRQL**	No qualification required
	> CRQL *	< CRQL*	Report CRQL value with a U
		≥ CRQL* and ≤ blank concentration	Report blank value for sample concentration with a U
		≥ CRQL* and > blank concentration	No qualification required
	= CRQL*	≤ CRQL*	Report CRQL value with a U
		> CRQL*	No qualification required
	Gross contamination **	Detects	Report blank value for sample concentration with a U

* 2x the CRQL for methylene chloride, 2-butanone and acetone.
** 4x the CRQL for methylene chloride, 2-butanone, and acetone.
*** Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 μg/L.

Deuterated Monitoring Compounds (DMCs)

Table 6. Volatile Deuterated Monitoring Compounds (DMCs) and Recovery Limits

DMC	Recovery Limits (%)
Vinyl chloride-d3	40-130
Chloroethane-d5	65-130
1,1-Dichloroethene-d2	60-125
2-Butanone-d5	40-130
Chloroform-d	70-125
1,2-Dichloroethane-d4	70-130
Benzene-d6	70-125
1,2-Dichloropropane-d6	60-140
Toluene-d8	70-130
trans-1,3-Dichloropropene-d4	55-130
2-Hexanone-d5	45-130
1,1,2,2-Tetrachloroethane-d2	65-120
1,2-Dichlorobenzene-d4	80-120

Action:

NOTES: Recoveries for DMCs in volatile samples and blanks must be within the limits specified in Table 6.
The recovery limits for any of the compounds listed in Table 6 may be expanded at any time during the period of performance if USEPA determines that the limits are too restrictive.

NOTE: Up to three (3) DMCs per sample, excluding SIM analysis, may fail to meet the recovery limits. As per SOM02.2, any sample which has more than 3 DMCs outside the limits must be reanalyzed.

Table 8 lists the volatile DMCs and their associated target compounds. If **any** DMC recovery in the volatiles fraction is out of specification, qualify the data considering the existence of interference in the raw data (see Table 7). Considerations include, but are not limited to:

1. For any recovery greater than the upper acceptance limit:
    a. Qualify detected associated volatile target compounds as estimated high (J+).
    b. Do not qualify non-detected associated volatile target compounds.
2. For any recovery greater than or equal to 10%, and less than the lower acceptance limit:
    a. Qualify detected associated volatile target compounds as estimated low (J-).
    b. Qualify non-detected associated volatile target compounds as estimated (UJ).
3. For any recovery less than 10%:
    a. Qualify detected associated volatile target compounds as estimated low (J-).
    b. Qualify non-detected associated volatile target compounds as unusable (R).
4. For any recovery within acceptance limits, no qualification of the data is necessary.
5. In the special case of a blank analysis having DMCs out of specification, the reviewer must give special consideration to the validity of associated sample data. The basic

concern is whether the blank problems represent an isolated problem with the blank alone, or whether there is a fundamental problem with the analytical process. For example, if one or more samples in the batch show acceptable DMC recoveries, the reviewer may choose to consider the blank problem to be an isolated occurrence. However, even if this judgment allows some use of the affected data, note analytical problems for Laboratory COR action.

6. If more than three DMCs are outside of the recovery limits for trace volatiles analysis and the sample was not reanalyzed, note under Contract Problems/Non-Compliance.

Table 7. Deuterated Monitoring Compound (DMC) Recovery Actions for Trace Volatiles Analyses

Criteria	Action	
	Detect	**Non-detect**
%R < 10%	J-	R
10% ≤ %R < Lower Acceptance Limit	J-	UJ
Lower Acceptance Limit ≤ %R ≤ Upper Acceptance Limit	No qualification	No qualification
%R > Upper Acceptance Limit	J+	No qualification

Table 8. Volatile Deuterated Monitoring Compounds (DMCs) and the Associated Target Compounds

Vinyl chloride-d_3 (DMC-1)	**Chloroethane-d_5 (DMC-2)**	**1,1-Dichloroethene-d_2 (DMC-3)**
Vinyl chloride	Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide	trans-1,2-Dichloroethene cis-1,2-Dichloroethene 1,1-Dichloroethene
2-Butanone-d_5 (DMC-4)	**Chloroform-d (DMC-5)**	**1,2-Dichloroethane-d_4 (DMC-6)**
Acetone 2-Butanone	1,1-Dichloroethane Bromochloromethane Chloroform Dibromochloromethane Bromoform	Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-trifluoroethane Methyl acetate Methylene chloride Methyl-tert-butyl ether 1,1,1-Trichloroethane Carbon tetrachloride 1,2-Dibromoethane 1,2-Dichloroethane
Benzene-d_6 (DMC-7)	**1,2-Dichloropropane-d_6 (DMC-8)**	**Toluene-d_8 (DMC-9)**
Benzene	Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane	Trichloroethene Toluene Tetrachloroethene Ethylbenzene o-Xylene m,p-Xylene Styrene Isopropylbenzene

trans-1,3-Dichloropropene-d_4 (DMC-10)	**2-Hexanone-d_5 (DMC-11)**	**1,1,2,2-Tetrachloroethane-d_2 (DMC-12)**
cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane	4-Methyl-2-pentanone 2-Hexanone	1,1,2,2,-Tetrachloroethane 1,2-Dibromo-3-chloropropane
1,2-Dichlorobenzene-d_4 (DMC-13)		
Chlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene		

Matrix Spike/Matrix Spike Duplicates (MS/MSDs)

Action:

NOTES: Data for MS and MSDs will not be present unless requested by the Region. Notify the Laboratory COR if a field or trip blank was used for the MS and MSD.

NOTE: For a Matrix Spike that does not meet criteria, apply the action to only the field sample used to prepare the Matrix Spike sample. If it is clearly stated in the data validation materials that the samples were taken through incremental sampling or some other method guaranteeing the homogeneity of the sample group, then the entire sample group may be qualified.

1. No qualification of the data is necessary on MS and MSD data alone. However, using professional judgment, the validator may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Internal Standards

Action:

1. If an internal standard area count for a sample or blank is greater than 140%of the area for the associated standard (opening CCV or mid-point standard from initial calibration) (see Table 9):
    a. Qualify detects for compounds quantitated using that internal standard as estimated low (J-).
    b. Do not qualify non-detected associated compounds.
2. If an internal standard area count for a sample or blank is less than 60% of the area for the associated standard (opening CCV or mid-point standard from initial calibration):
    a. Qualify detects for compounds quantitated using that internal standard as estimated high (J+).
    b. Qualify non-detected associated compounds as unusable (R).
3. If an internal standard area count for a sample or blank is greater than or equal to 60%, and less than or equal to140% of the area for the associates standard opening CCV or mid-point standard from initial calibration, no qualification of the data is necessary.
4. If an internal standard RT varies by more than 10.0 seconds: Examine the chromatographic profile for that sample to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Detects should not need to be qualified as unusable (R) if the mass spectral criteria are met.
5. If an internal standard RT varies by less than or equal to 10.0 seconds, no qualification of the data is necessary.
6. Note, for Laboratory COR action, if the internal standard performance criteria are grossly exceeded. Note in the Data Review Narrative potential effects on the data resulting from unacceptable internal standard performance.

Table 9. Internal Standard Actions for Trace Volatiles Analyses

Criteria	Action	
	Detect	Non-detect
Area response < 20% of the opening CCV or mid-point standard CS3 from initial calibration	J+	R
20% ≤ Area response < 50% of the opening CCV or mid-point standard CS3 from initial calibration	J+	UJ
50% ≤ Area response ≤ 200% of the opening CCV or mid-point standard CS3 from initial calibration	No qualification	No qualification
Area response > 200% of the opening CCV or mid-point standard CS3 from initial calibration	J-	No qualification
RT shift between sample/blank and opening CCV or mid-point standard CS3 from initial calibration > 10.0 seconds	R	R

* For volatile compounds associated to each internal standard, see Table 3 - Trace Volatile Target Compounds and Deuterated Monitoring Compounds with Corresponding Internal Standards for Quantitation in SOM02.2, Exhibit D, available at: http://www.epa.gov/superfund/programs/clp/som2.htm

** Examine the chromatographic profile for that sample to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Detects should not need to be qualified as unusable (R) if the mass spectral criteria are met.

Standards Data

Action:

If any calibration standards data are missing, contact the laboratory COR to obtain an explanation/resubmittal from the lab. If missing deliverables are unavailable, document the effect in the Data Assessment.

Target Compound Identification

Action:

1. The application of qualitative criteria for GC/MS analysis of target compounds requires professional judgment. It is up to the reviewer's discretion to obtain additional information from the laboratory. If it is determined that incorrect identifications were made, qualify all such data as unusable (R).
2. Use professional judgment to qualify the data if it is determined that cross-contamination has occurred.
3. Note in the Data Review Narrative any changes made to the reported compounds or concerns regarding target compound identifications. Note, for Laboratory COR action, the necessity for numerous or significant changes.

Tentatively Identified Compounds (TICs)

Action:

NOTE: Tentatively identified compounds should only be evaluated when requested by a party from outside of the Hazardous Waste Support Section (HWSS).

1. Qualify all TIC results for which there is presumptive evidence of a match (e.g. greater than or equal to 85% match) as tentatively identified (NJ), with approximated concentrations.
2. General actions related to the review of TIC results are as follows:
    a. If it is determined that a tentative identification of a non-target compound is unacceptable, change the tentative identification to “unknown” or another appropriate identification, and qualify the result as estimated (J).
    b. If all contractually-required peaks were not library searched and quantitated, the Region's designated representative may request these data from the laboratory.
3. In deciding whether a library search result for a TIC represents a reasonable identification, use professional judgment. If there is more than one possible match, report the result as “either compound X or compound Y”. If there is a lack of isomer specificity, change the TIC result to a nonspecific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene isomer) or to a compound class (e.g., 2-methyl, 3-ethyl benzene to a substituted aromatic compound).
4. The reviewer may elect to report all similar compounds as a total (e.g., all alkanes may be summarized and reported as total hydrocarbons).
5. Target compounds from other fractions and suspected laboratory contaminants should be marked as “non-reportable”.
6. Other Case factors may influence TIC judgments. If a sample TIC match is poor, but other samples have a TIC with a valid library match, similar RRT, and the same ions, infer identification information from the other sample TIC results.
7. Note in the Data Review Narrative any changes made to the reported data or any concerns regarding TIC identifications.
8. Note, for the Laboratory COR action any failure to properly evaluate and report TICs.

Compounds Quantitation and Reported Contract Required Quantitation Limits (CRQLs)

Action:

1. When a sample is analyzed at more than one dilution, the lowest CRQLs are used unless a QC exceedance dictates the use of the higher CRQLs from the diluted sample. Replace concentrations that exceed the calibration range in the original analysis by replacing the "E" and its corresponding value on the original Form I and substituting the data from the diluted sample.
2. If any discrepancies are found, the Region's designated representative may contact the laboratory to obtain additional information that could resolve any differences. If a discrepancy remains unresolved, the reviewer must use professional judgment to decide which value is the most accurate. Under these circumstances, the reviewer may determine that qualification of data is warranted. Note in the Data Review Narrative a description of the reasons for data qualification and the qualification that is applied to the data.
3. Note, for laboratory COR action, numerous or significant failures to accurately quantify the target compounds or to properly evaluate and adjust CRQLs.
4. Results between MDL and CRQL should be qualified as estimated "J".
5. Results < MDL should be reported at the CRQL and qualified "U". MDLs themselves are not reported.

Field Duplicates

Action:

NOTE: In the absence of QAPP guidance for validating data from field duplicates, the following action will be taken.

Identify which samples within the data package are field duplicates. Estimate the relative percent difference (RPD) between the values for each compound. Use professional judgment to note large RPDs (> 50%) in the narrative.

System Performance

Action:

Use professional judgment to qualify the data if it is determined that system performance has degraded during sample analyses. Note, for Contract Laboratory Program Project Officer (CLP PO) action, any degradation of system performance which significantly affected the data.

Regional Quality Assurance (QA) and Quality Control (QC)

Action:

Any action must be in accordance with Regional specifications and the criteria for acceptable PE sample results. Note, for the Laboratory COR action any unacceptable results for PE samples.

Overall Assessment of Data

Action:

1. Use professional judgment to determine if there is any need to qualify data which were not qualified based on the Quality Control (QC) criteria previously discussed.
2. Write a brief narrative to give the user an indication of the analytical limitations of the data. Note, for the Laboratory COR action, any inconsistency of the data with the Sample Delivery Group (SDG) Narrative. If sufficient information on the intended use and required quality of the data is available, the reviewer should include their assessment of the usability of the data within the given context. This may be used as part of a formal Data Quality Assessment (DQA).

APPENDIX A: GLOSSARY

Analyte -- The element of interest, ion, or parameter an analysis seeks to determine.
Analytical Services Branch (ASB) -- Directs the Contract Laboratory Program (CLP) from within the Office of Superfund Remediation and Technical Innovation (OSRTI) in the Office of Solid Waste and Emergency Response (OSWER).
Analytical Sample -- Any solution or media introduced into an instrument on which an analysis is performed excluding instrument calibration, Initial Calibration Verification (ICV), Initial Calibration Blank (ICB), Continuing Calibration Verification (CCV), and Continuing Calibration Blank (CCB). Note that the following are all defined as analytical samples: undiluted and diluted samples (USEPA and non-USEPA); Matrix Spike samples; duplicate samples; serial dilution samples, analytical (post-digestion/post-distillation) spike samples; Interference Check Samples (ICSs); Laboratory Control Samples (LCSs); and Preparation Blanks.
Associated Samples -- Any sample related to a particular Quality Control (QC) analysis. For example, for Initial Calibration Verification (ICV), all samples run under the same calibration curve. For duplicates, all Sample Delivery Group (SDG) samples digested/distilled of the same matrix.
Blank -- A sample designed to assess specific sources of contamination. See individual definitions for types of blanks.
Calibration -- The establishment of an analytical curve based on the absorbance, emission intensity, or other measured characteristic of known standards. The calibration standards are to be prepared using the same type of reagents or concentration of acids as used in the sample preparation.
Calibration Blank -- A blank solution containing all of the reagents in the same concentration as those used in the analytical sample preparation. This blank is not subject to the preparation method.
Calibration Curve -- A plot of instrument response versus concentration of standards.
Calibration Standards -- A series of known standard solutions used by the analyst for calibration of the instrument (i.e., preparation of the analytical curve). The solutions may or may not be subjected to the preparation method, but contain the same matrix (i.e., the same amount of reagents and/or preservatives) as the sample preparations to be analyzed.
Case -- A finite, usually predetermined number of samples collected over a given time period from a particular site. Case numbers are assigned by the Sample Management Office (SMO). A Case consists of one or more Sample Delivery Groups (SDGs).
Contract Compliance Screening (CCS) -- A screening of electronic and hardcopy data deliverables for completeness and compliance with the contract. This screening is performed under USEPA direction by the Contract Laboratory Program (CLP) Sample Management Office (SMO) contractor.
Continuing Calibration Verification (CCV) -- A single parameter or multi-parameter standard solution prepared by the analyst and used to verify the stability of the instrument calibration with time, and the instrument performance during the analysis of samples. The CCV can be one of the calibration standards. However, all parameters being measured by the particular system must be represented in this standard and the standard must have the same matrix (i.e., the same amount of reagents and/or preservatives) as the samples.

Contract Laboratory Program (CLP) -- Supports the USEPA's Superfund effort by providing a range of state-of-the-art chemical analytical services of known quality. This program is directed by the Analytical Services Branch (ASB) of the Office of Superfund Remediation and Technical Innovation (OSRTI) of USEPA.
Laboratory COR -- The Regional USEPA official responsible for monitoring laboratory performance and/or requesting analytical data or services from a CLP laboratory.
Contract Required Quantitation Limit (CRQL) -- Minimum level of quantitation acceptable under the contract Statement of Work (SOW).
Duplicate -- A second aliquot of a sample that is treated the same as the original sample in order to determine the precision of the method.
Field Blank -- Any sample that is submitted from the field and identified as a blank. A field blank is used to check for cross-contamination during sample collection, sample shipment, and in the laboratory. A field blank includes trip blanks, rinsate blanks, bottle blanks, equipment blanks, preservative blanks, decontamination blanks, etc.
Field Duplicate -- A duplicate sample generated in the field, not in the laboratory.
Holding Time -- The maximum amount of time samples may be held before they are processed.
Contractual -- The maximum amount of time that the Contract Laboratory Program (CLP) laboratory may hold the samples from the sample receipt date until analysis and still be in compliance with the terms of the contract, as specified in the CLP Analytical Services Statement of Work (SOW). These times are the same or less than technical holding times to allow for sample packaging and shipping.
Technical -- The maximum amount of time that samples may be held from the collection date until analysis.
Initial Calibration -- Analysis of analytical standards for a series of different specified concentrations to define the quantitative response, linearity, and dynamic range of the instrument to target analytes.
Initial Calibration Verification (ICV) -- Solution(s) prepared from stock standard solutions, metals, or salts obtained from a source separate from that utilized to prepare the calibration standards. The ICV is used to verify the concentration of the calibration standards and the adequacy of the instrument calibration. The ICV should be traceable to National Institute of Standards and Technology (NIST) or other certified standard sources when USEPA ICV solutions are not available.
Internal Standard -- A non-target element added to a sample at a known concentration after preparation but prior to analysis. Instrument responses to internal standards are monitored as a means of assessing overall instrument performance.
Matrix -- The predominant material of which the sample to be analyzed is composed. For the purposes of this document, the matrices are aqueous/water, soil/sediment, wipe, and filter.
Matrix Spike -- Introduction of a known concentration of analyte into a sample to provide information about the effect of the sample matrix on the digestion and measurement methodology (also identified as a pre-distillation/digestion spike).
Method Detection Limit (MDL) -- The concentration of a target parameter that, when a sample is processed through the complete method, produces a signal with 99 percent probability that it is different from the blank. For 7 replicates of the sample, the mean value must be 3.14s above the blank, where "s" is the standard deviation of the 7 replicates.
Narrative (SDG Narrative) -- Portion of the data package which includes laboratory, contract, Case, Sample Number identification, and descriptive documentation of any problems

encountered in processing the samples, along with corrective action taken and problem resolution.

Office of Solid Waste and Emergency Response (OSWER) – The USEPA office that provides policy, guidance, and direction for the USEPA's solid waste and emergency response programs, including Superfund.

Percent Difference (%D) -- As used in this document and the Statement of Work (SOW), is used to compare two values. The difference between the two values divided by one of the values.

Performance Evaluation (PE) Sample -- A sample of known composition provided by USEPA for contractor analysis. Used by USEPA to evaluate Contractor performance.

Preparation Blank -- An analytical control that contains reagent water and reagents, which is carried through the entire preparation and analytical procedure.

Relative Percent Difference (RPD) -- As used in this document and the Statement of Work (SOW) to compare two values, the RPD is based on the mean of the two values, and is reported as an absolute value (i.e., always expressed as a positive number or zero).

Regional Sample Control Center Coordinator (RSCC) -- In USEPA Regions, coordinates sampling efforts and serves as the central point-of-contact for sampling questions and problems. Also assists in coordinating the level of Regional sampling activities to correspond with the monthly projected demand for analytical services.

Relative Standard Deviation (RSD) -- As used in this document and the Statement of Work (SOW), the mean divided by the standard deviation, expressed as a percentage.

Sample -- A single, discrete portion of material to be analyzed, which is contained in single or multiple containers and identified by a unique Sample Number.

Sample Delivery Group (SDG) -- A unit within a sample Case that is used to identify a group of samples for delivery. An SDG is defined by the following, whichever is most frequent:

a. Each 20 field samples [excluding Performance Evaluation (PE) samples] within a Case; or
b. Each 7 calendar day period (3 calendar day period for 7-day turnaround) during which field samples in a Case are received (said period beginning with the receipt of the first sample in the SDG).
c. Scheduled at the same level of deliverable.

In addition, all samples and/or sample fractions assigned to an SDG must be scheduled under the same contractual turnaround time. Preliminary Results have **no impact** on defining the SDG. Samples may be assigned to SDGs by matrix (i.e., all soil/sediment samples in one SDG, all aqueous/water samples in another) at the discretion of the laboratory.

Sample Management Office (SMO) -- A contractor-operated facility operated under the SMO contract, awarded and administered by the USEPA. Provides necessary management, operations, and administrative support to the Contract Laboratory Program (CLP).

Statement of Work (SOW) -- A document which specifies how laboratories analyze samples under a particular Contract Laboratory Program (CLP) analytical program.

APPENDIX B: ORGANIC DATA EXECUTIVE NARRATIVE TEMPLATE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
DESA/HWSB/HWSS
2890, Woodbridge Avenue, Edison, NJ 08837

EXECUTIVE NARRATIVE

Case No. :
Site:
Number of Samples:
Analysis:

SDG No.:
Laboratory:
Sampling dates:

QAPP
HWSS #:
Contractor Document #:

SUMMARY:

Critical: Results have an unacceptable level of uncertainty and should not be used for making decisions. Data have been qualified "R" rejected.
Major: A level of uncertainty exists that may not meet the data quality objectives for the project. A bias is likely to be present in the results. Data has been qualified "J" estimated.
Minor: The level of uncertainty is acceptable. No significant bias in the data was observed.

Critical Findings:

Major Findings:

Minor Findings:

COMMENT:

Reviewer Name(s):

Approver's Signature: **Date:**

Name:

Affiliation: **USEPA/R2/HWSB/HWSS**

Page 1 of 3

APPENDIX C: SAMPLE ORGANIC DATA SAMPLE SUMMARY

Case No:	00001	Contract:	XYZ1234	SDG No:	XY123	Lab Code:	00001
Sample Number:	XY123	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	SOMEWHERE OUT THERE	pH:	2.0	Sample Date:	13322059	Sample Time:	08:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S3VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S3VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Acetone	5.0	ug/L	1.0		U	Yes	S3VEM
Carbon Disulfide	0.46	ug/L	1.0	J	J	Yes	S3VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S3VEM
Methylene chloride	0.50	ug/L	1.0	JB	U	Yes	S3VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S3VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S3VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
cis-1,2-Dichloroethene	1.7	ug/L	1.0			Yes	S3VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S3VEM
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Chloroform	1.6	ug/L	1.0			Yes	S3VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S3VEM
Benzene	0.20	ug/L	1.0	J	J	Yes	S3VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S3VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S3VEM
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	S3VEM

APPENDIX D: ELECTRONIC DATA DELIVERABLE TEMPLATE

DATA_PROVIDER	LAB_MATRIX_CODE	RESULT_UNIT
SYS_SAMPLE_CODE	ANAL_LOCATION	DETECTION_LIMIT_UNIT
SAMPLE_NAME	BASIS	TIC_RETENTION_TIME
SAMPLE_MATRIX_CODE	CONTAINER_ID	RESULT_COMMENT
SAMPLE_TYPE_CODE	DILUTION_FACTOR	QC_ORIGINAL_CONC
SAMPLE_SOURCE	PREP_METHOD	QC_SPIKE_ADDED
PARENT_SAMPLE_CODE	PREP_DATE	QC_SPIKE_MEASURED
SAMPLE_DEL_GROUP	LEACHATE_METHOD	QC_SPIKE_RECOVERY
SAMPLE_DATE	LEACHATE_DATE	QC_DUP_ORIGINAL_CONC
SYS_LOC_CODE	LAB_NAME_CODE	QC_DUP_SPIKE_ADDED
START_DEPTH	QC_LEVEL	QC_DUP_SPIKE_MEASURED
END_DEPTH	LAB_SAMPLE_ID	QC_DUP_SPIKE_RECOVERY
DEPTH_UNIT	PERCENT_MOISTURE	QC_RPD
CHAIN_OF_CUSTODY	SUBSAMPLE_AMOUNT	QC_SPIKE_LCL
SENT_TO_LAB_DATE	SUBSAMPLE_AMOUNT_UNIT	QC_SPIKE_UCL
SAMPLE_RECEIPT_DATE	ANALYST_NAME	QC_RPD_CL
SAMPLER	INSTRUMENT_ID	QC_SPIKE_STATUS
SAMPLING_COMPANY_CODE	COMMENT	QC_DUP_SPIKE_STATUS
SAMPLING_REASON	PRESERVATIVE	QC_RPD_STATUS
SAMPLING_TECHNIQUE	FINAL_VOLUME	BREAK_2
TASK_CODE	FINAL_VOLUME_UNIT	SYS_SAMPLE_CODE
COLLECTION_QUARTER	CAS_RN	LAB_ANL_METHOD_NAME
COMPOSITE_YN	CHEMICAL_NAME	ANALYSIS_DATE
COMPOSITE_DESC	RESULT_VALUE	TOTAL_OR_DISSOLVED
SAMPLE_CLASS	RESULT_ERROR_DELTA	COLUMN_NUMBER
CUSTOM_FIELD_1	RESULT_TYPE_CODE	TEST_TYPE
CUSTOM_FIELD_2	REPORTABLE_RESULT	TEST_BATCH_TYPE
CUSTOM_FIELD_3	DETECT_FLAG	TEST_BATCH_ID
COMMENT	LAB_QUALIFIERS	CASE
BREAK_1	VALIDATOR_QUALIFIERS	CONTRACT_NUM
SYS_SAMPLE_CODE	INTERPRETED_QUALIFIERS	SCRIBE_SAMPLE_ID
LAB_ANL_METHOD_NAME	ORGANIC_YN	SAMPLE_TIME
ANALYSIS_DATE	METHOD_DETECTION_LIMIT	FRACTION
TOTAL_OR_DISSOLVED	REPORTING_DETECTION_LIMIT	PH
COLUMN_NUMBER	QUANTITATION_LIMIT	DATA_VAL_LABEL
TEST_TYPE		

REQUEST FOR SOP CHANGE

Initiator Name:	Archana Mirle/Dorina Christina Alliu	Date of Initiation:	8/18/17

Dept :	ESAT DV	SOP #: HW-34A		Revision #:	1

SOP Title:	**SOM02.2 Trace Volatile Data**

Please Check One	MINOR REVISION	MAJOR REVISION

CHANGE(S) (Use attachment if necessary):

CHANGE FROM:

1. **Preservation 1 a:** If there is no evidence that the samples were properly preserved (pH < 2, T ≥6 °C), but the samples were analyzed within the technical holding time [7 days from sample collection], Detects J, Non-detects UJ.

TO:

2. **Preservation 1 a: Add-** If there is an evidence that the samples were not properly preserved (T >6 °C). but the samples were extracted or analyzed within the technical holding time [7 days from sample collection], Detects J, Non-detects UJ.
3. **1 a'. Add :** If there is an evidence that the samples were not properly preserved (pH >2), but the samples were extracted or analyzed within the technical holding time [7 days from sample collection], no qualification of the data is necessary.

REASON(S) FOR CHANGE(S):

1. To cover all possible conditions.

APPROVAL	NAME:	Signature/Date
EPA Branch Chief / Section Chief/Team Leader	Jon Gabry phil concurs	
ESAT Sr. Designee QA Auditor	**Dorina Christina Alliu**	
EPA TOCOR	**Narendra Kumar**	

Effective Date		
9/11/17	~~EPA QAO~~	

Appendix E
Manuals and Guides

ERT

QUICK START GUIDE
Part 1

SCRIBE V3.10

Contents

PART 1 – QUICK START GUIDE

Starting a New Project

The first time Scribe is opened, the New Project Wizard starts and offers two (2) options:

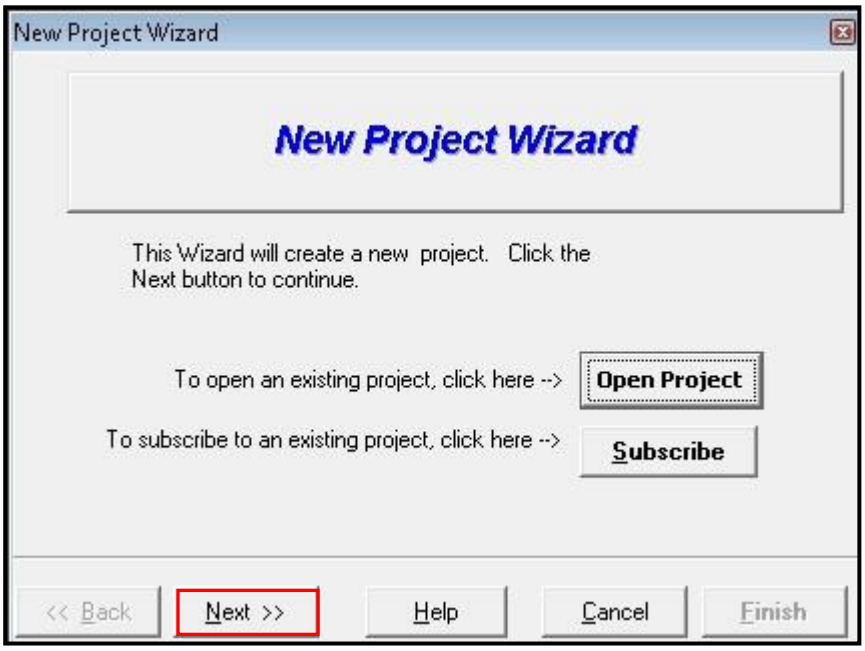
- Open a Project - if you already have an active Scribe project and would like to open it.
- Subscribe - if you have subscription information for a project that you wish to download.

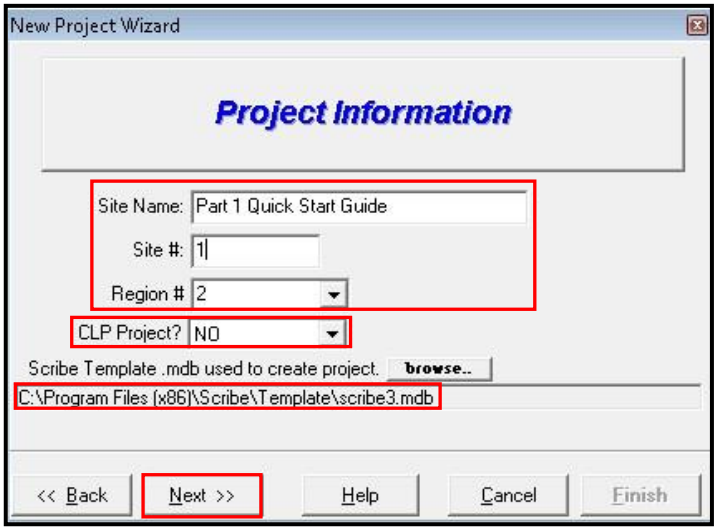
Follow the steps below to start a New Scribe project:

New Project Wizard Screen

To Start a New Scribe project,

Click the '**Next'** button.





1. Input the Site Name, Site # or Project Identifier and the Region.

2. Select 'Yes' or 'No' depending on if it is a CLP Project (Note: If Yes is selected, screen layouts and COC Types will default to CLP). However, both CLP and non-CLP samples and analyses can still be entered.

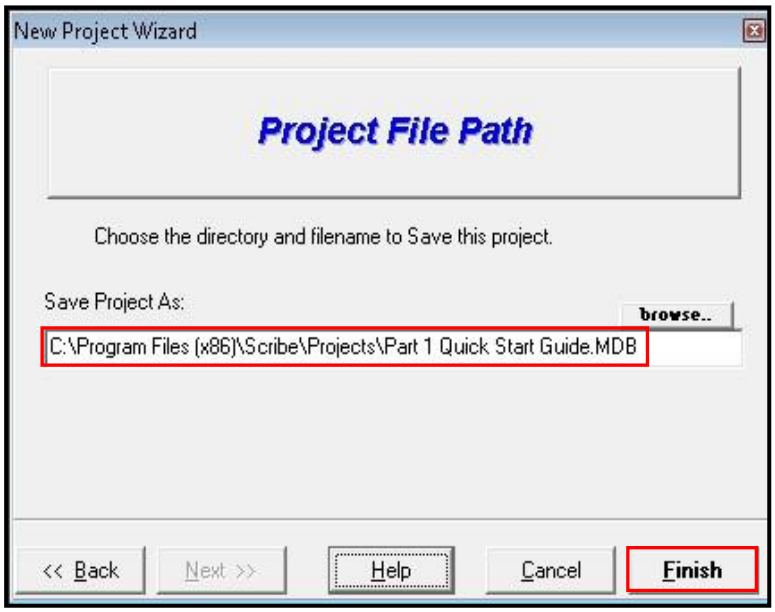
3. Use the default Template (scribe3.mdb) or a Region specific Template. Templates contain the pick-lists and layouts loaded with your new project.

4. Click the 'Next' button.

5. The Project File Path screen displays a **default location and filename** for the project.

   Optional: To change the location, click on the 'browse' button.

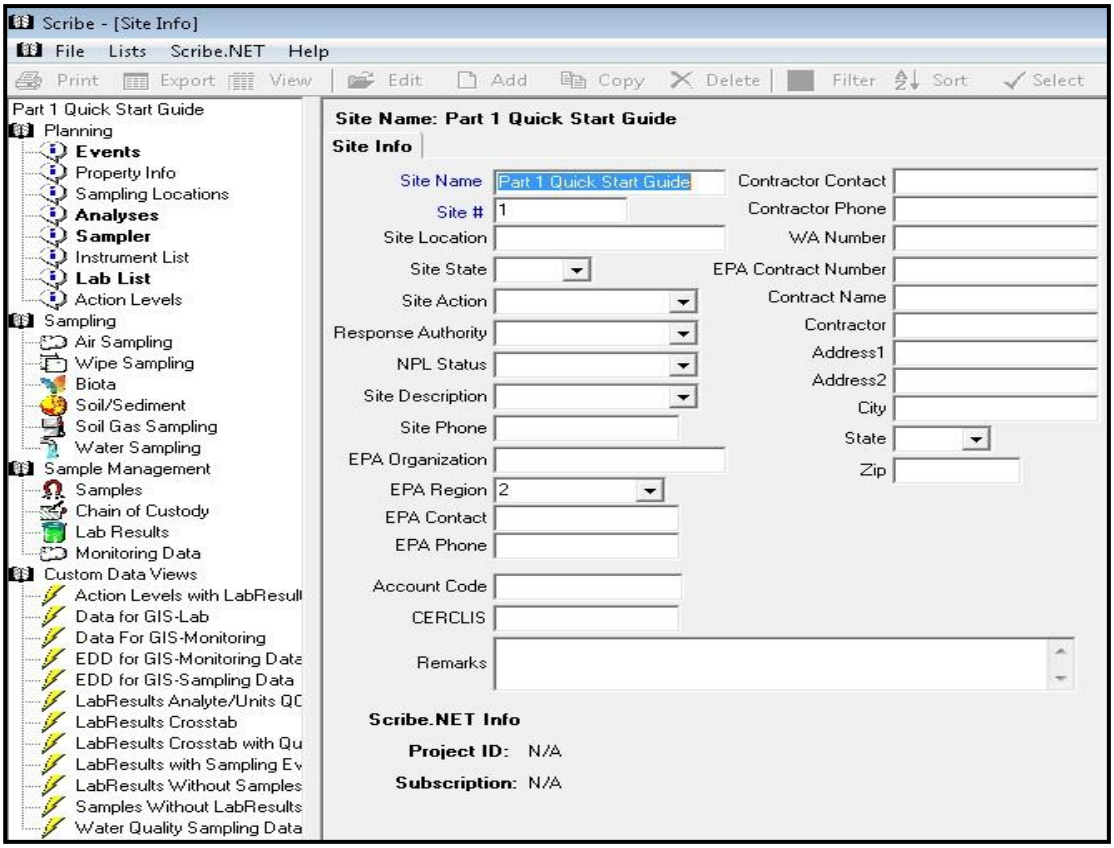
6. Click Finish to complete the creation of the new project.



The New Project Wizard closes and the 'Site Info' screen is displayed. Completing the information on this screen is not required, but is recommended when time permits.

The left navigation bar is laid out in the order of work flow.

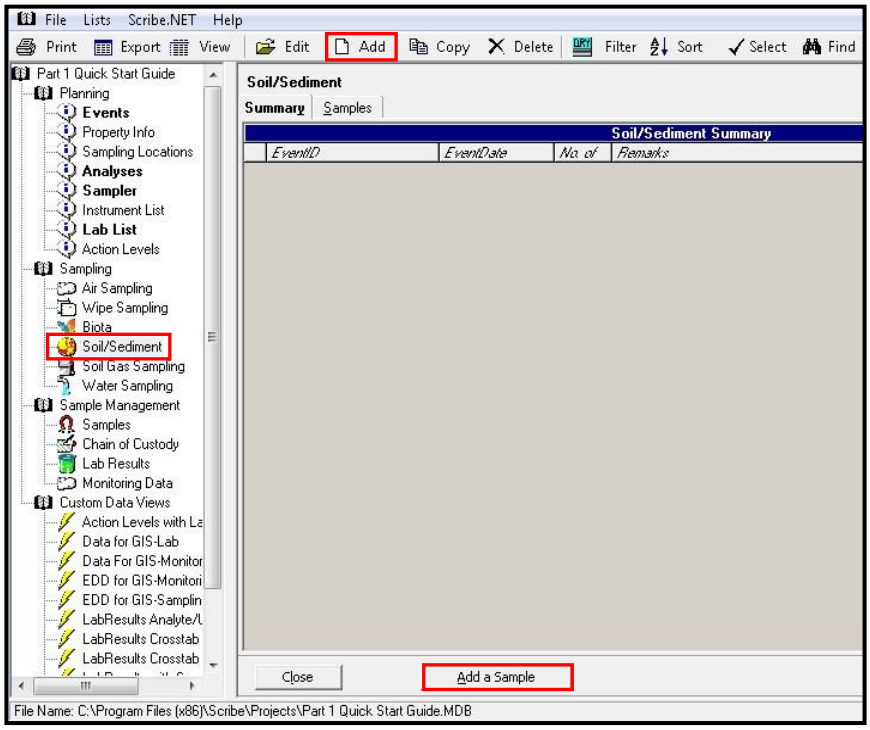
- Planning – manage lists to pre-populate certain fields in sampling tasks
- Sampling – manage sampling tasks and analyses
- Sample Management – manage sample data including labels and chains
- Custom Data Views – query your sample data



Add Samples

Sampling information can be input manually or by importing from a spreadsheet (see Management and Advanced Features Guide)

To manually add samples to the project, select one of the 'Sampling' tasks in the 'Navigation Pane' (i.e., Soil/Sediment).



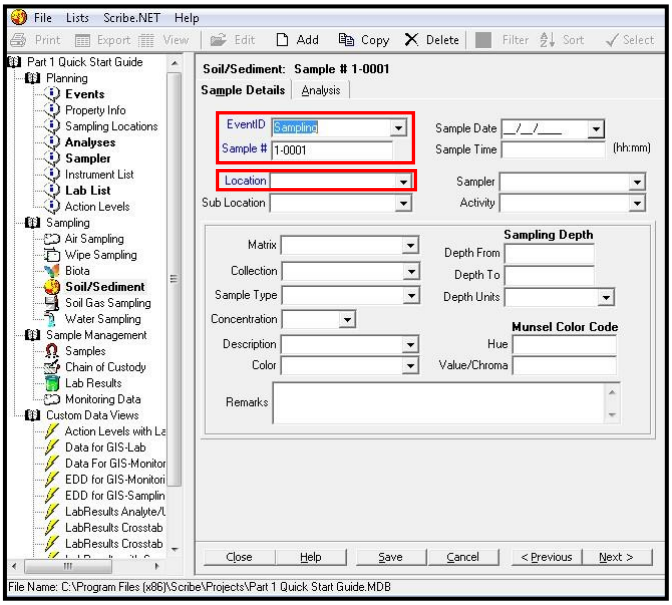
1. Click on 'Add' (on the toolbar) or 'Add a Sample' button at the bottom of the window.

2. The Sample Details tab will display.

   Note: Any field highlighted in Blue denotes a required field.

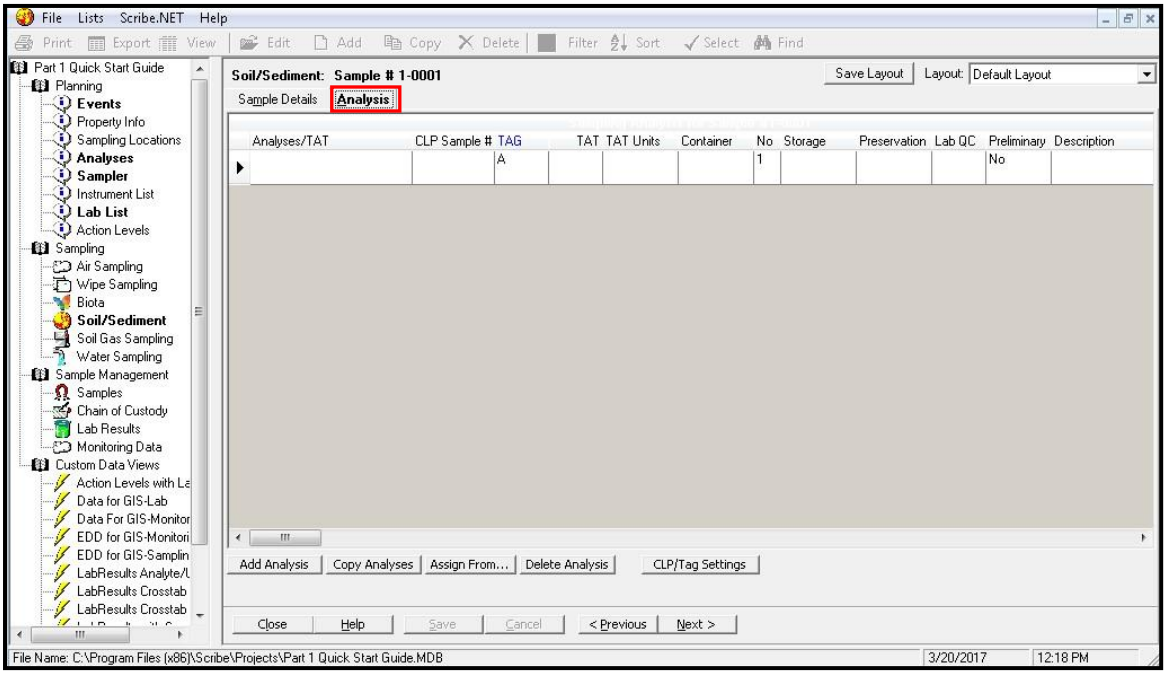
   By default, Scribe will auto-populate the EventID field with 'Sampling' and the Sample # will be the Site # you entered when creating the project, followed by sample number (1-0001). These fields can be changed at any time by entering a new value directly in the field.

3. Enter the Location and all other sample details.



Add an Analysis(es)

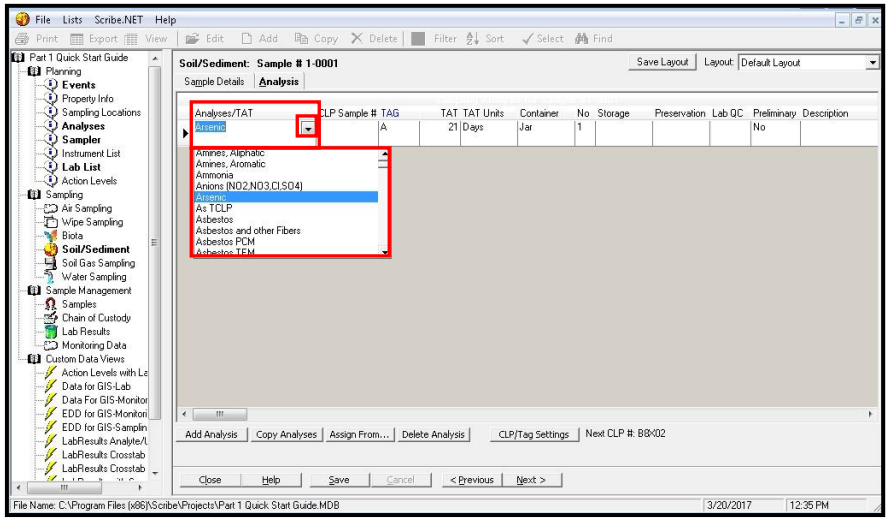
To add an analysis(es), click on the **Analysis** Tab. The information entered here will be added to the Chain of Custody.



1. Click in the **Analyses/TAT** field. A drop down arrow will appear.

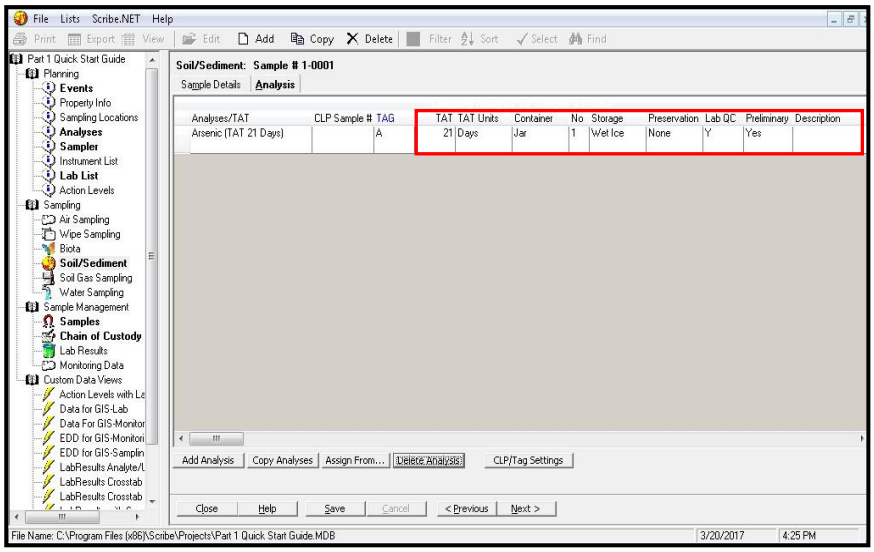
2. Click on the drop down arrow to display the list of analyses.

3. Select the analysis(es).



Note: *The 'TAG' field will automatically increment with an Alpha character (i.e., A, B, C, etc.).*

4. Enter TAT, TAT Units, Container (type), No. of Containers, Storage, Preservation, Lab QC (MS/MSD), Preliminary (Results), and additional description (if necessary).



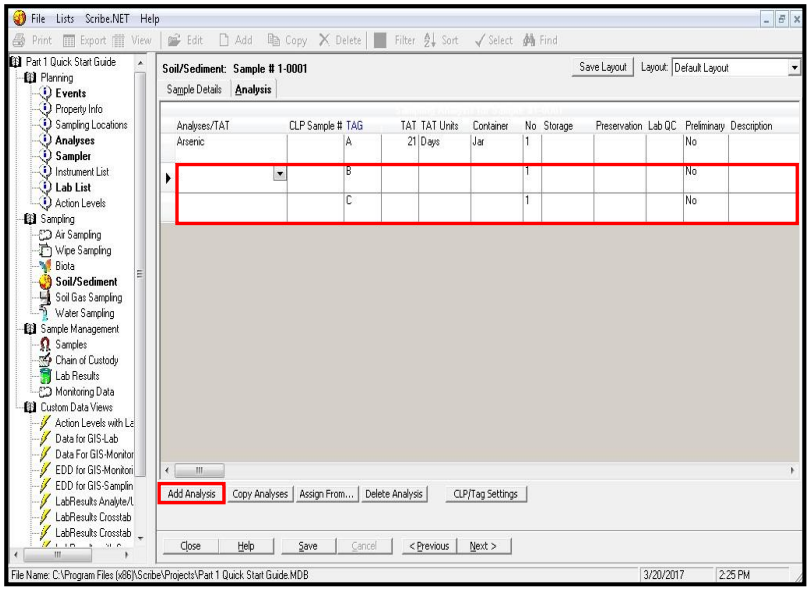
Note: TAT, Container and Preservation can also be entered in the Analyses table under the Planning section in Scribe. When entered in the analyses table first, the information will automatically carry over to the sample analysis fields when the Analysis is selected.

Note: *CLP Sample # will not be populated unless the CLP/Tag Settings have been set up and the analysis is part of the CLP Program. Please refer to the* ***Scribe CLP User Guide*** *for Adding CLP Analyses.*

5. To add additional analyses, click on 'Add Analysis'.

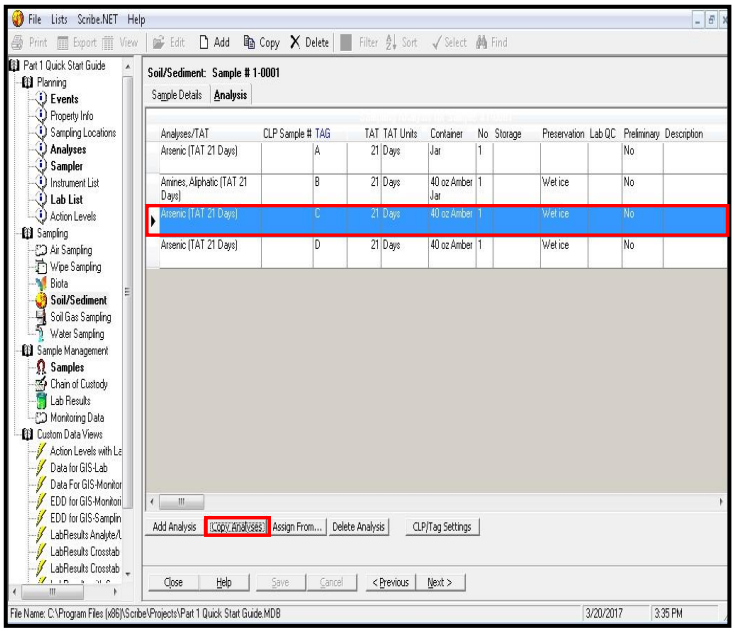
6. Follow Steps 1 and 2 above.

7. Click 'Close' to save and close the screen.



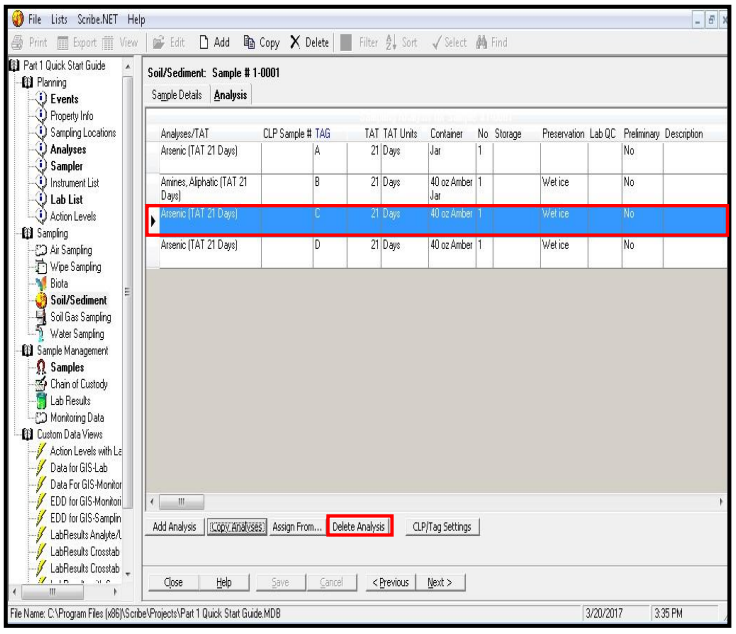
Copy an Analysis(es)

1. Highlight an analysis.
2. Click ‘Copy Analyses’.
3. Click Close to close the screen.



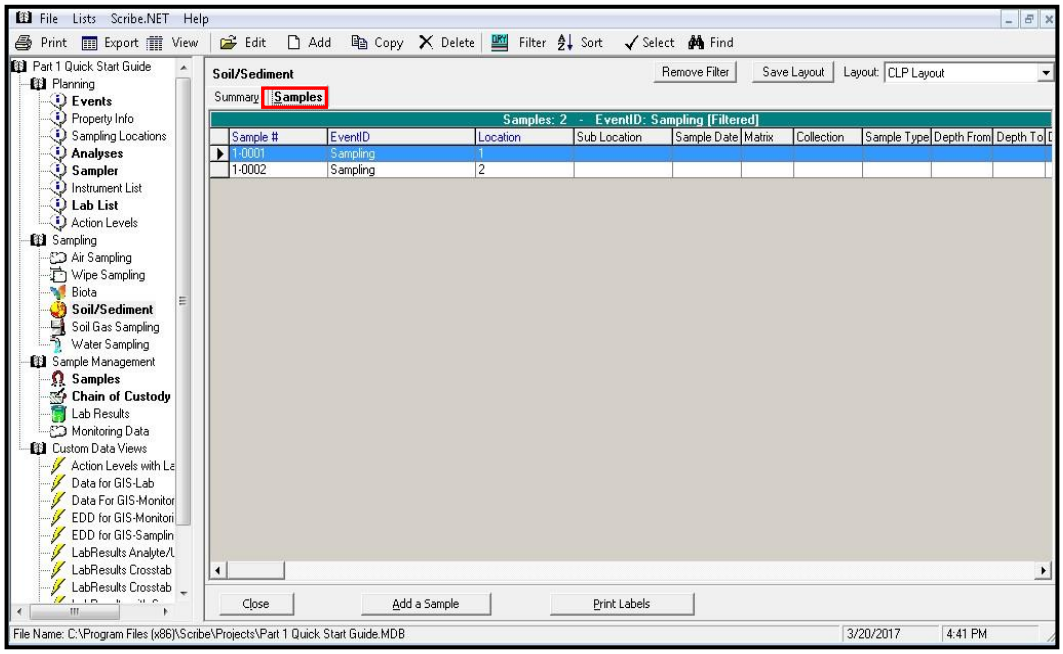
Delete an Analysis

1. Highlight an Analysis.
2. Click ‘Delete Analyses’.
3. Click Close to close the screen.



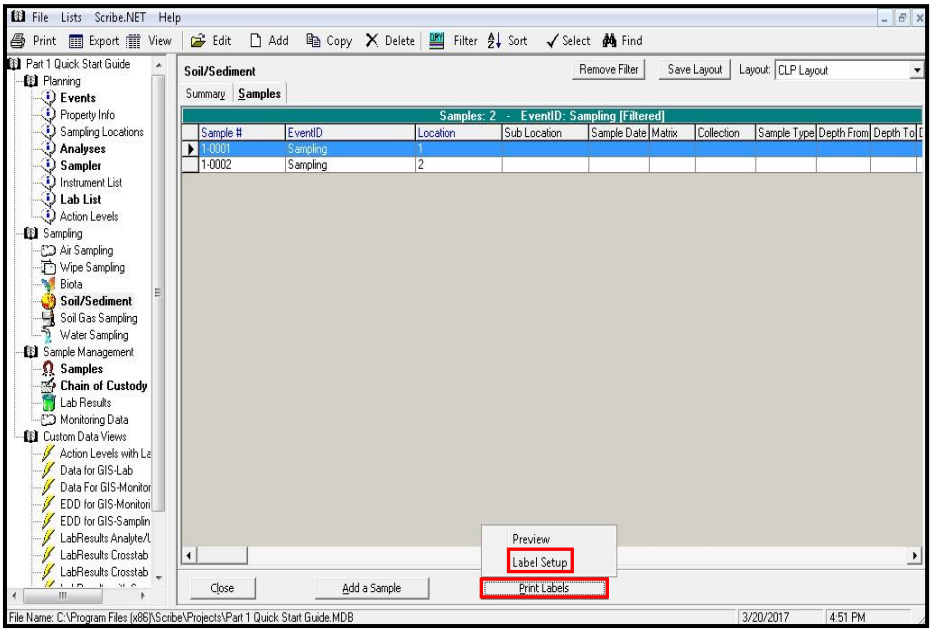
Print Labels

To print labels, return to the **Samples** tab. By default, all samples shown on the screen will be printed. For printing specific samples, use the 'Filter' feature to retrieve specific samples.



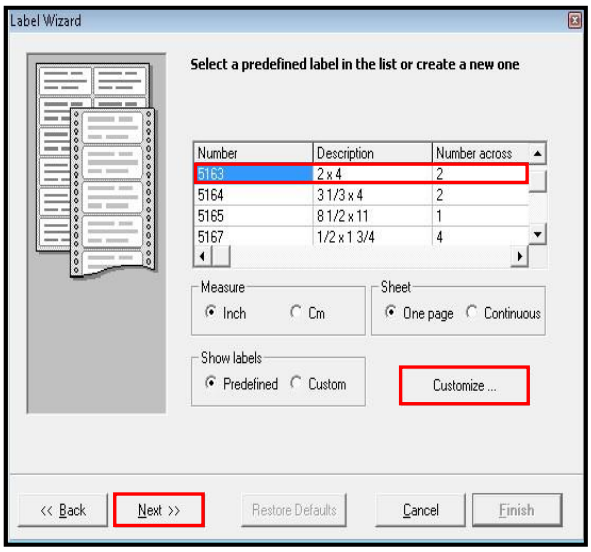
1. Click on **Print Labels** button.

2. Select 'Label Setup'.



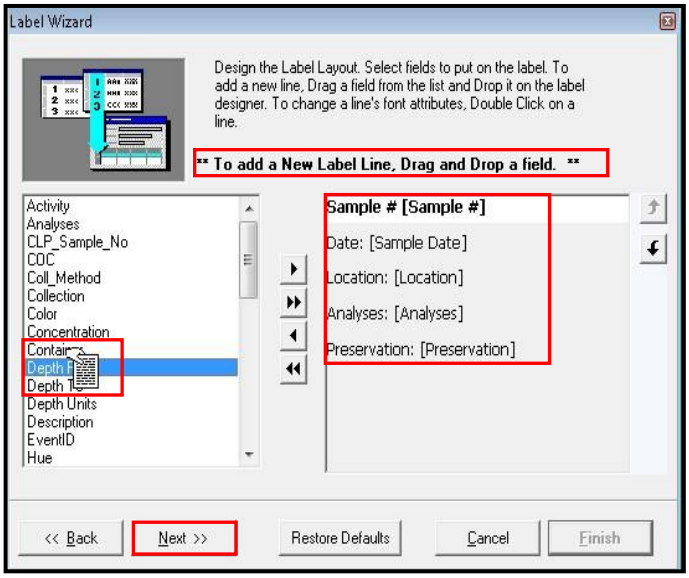
3. Select a pre-defined label (Avery) in the list or create a new one (Customize).

4. Click 'Next'.

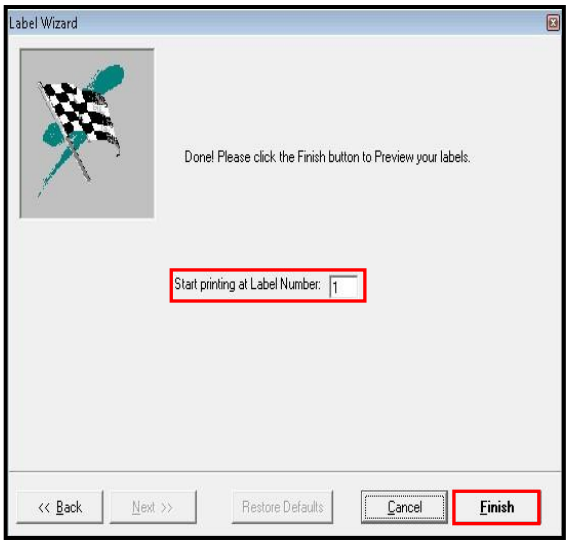


5. You may change the design by dragging and dropping fields, or accept the default Label Layout.

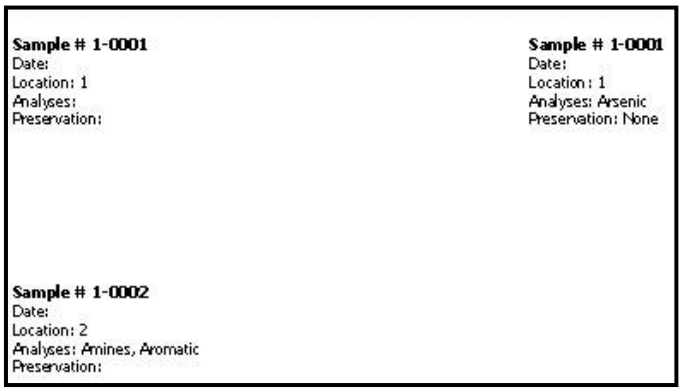
6. Click 'Next' to continue.



7. Enter the Label Number to start printing from.



8. Click 'Finish' to Preview the labels before printing.



9. Click the Printer Icon to print the labels.

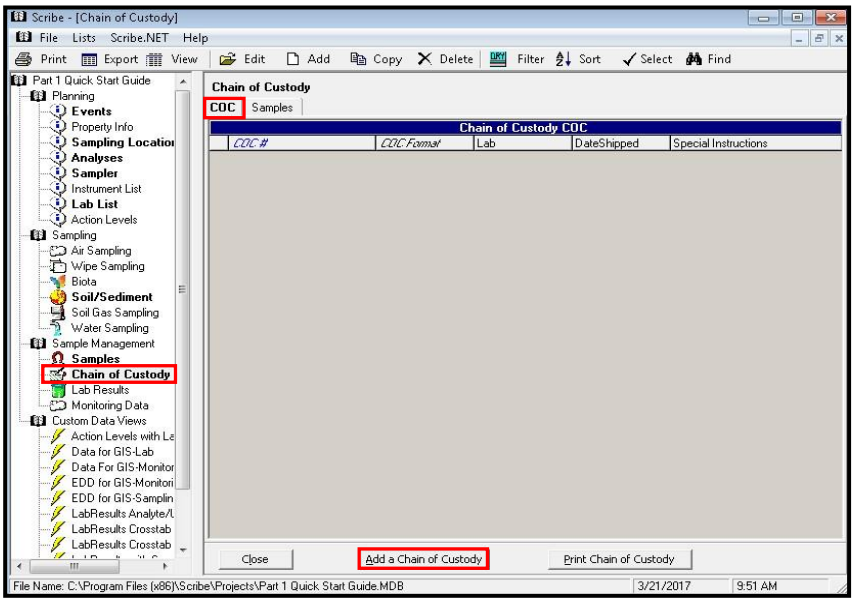
10. Click Close.

Chain of Custody

To prepare and print a Chain of Custody:

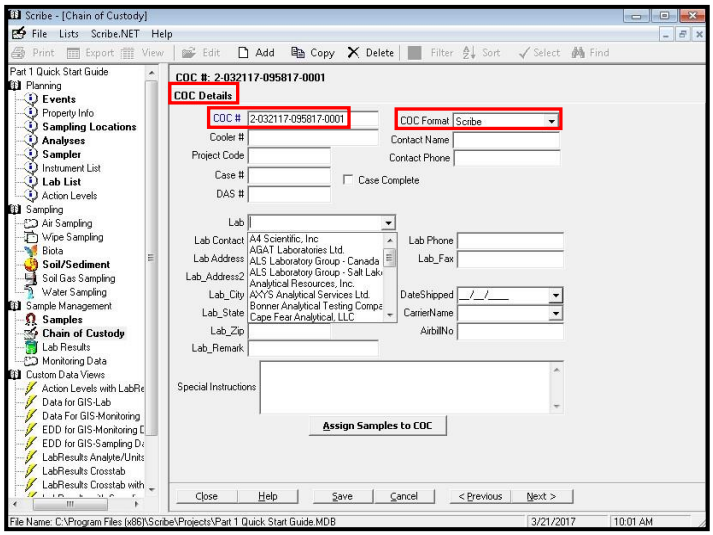
1. Select 'Chain of Custody' in left the Navigation Pane.

2. Click on the 'Add a Chain of Custody' button on the bottom of the window.



3. The COC Details form will come up. Scribe will automatically assign a unique COC number that contains the Region # (2), current date (032117), current time (095817) and COC # (0001). This number can be changed at any time.

4. By default, the COC format will be set to Scribe (if you did not say yes to CLP project when initially starting the new project. ***See Starting a New Project*.**



5. Fill out the remainder of the COC Details, as needed. ***Note:*** *the completion of other COC details will print in the header of the Chain of Custody.*

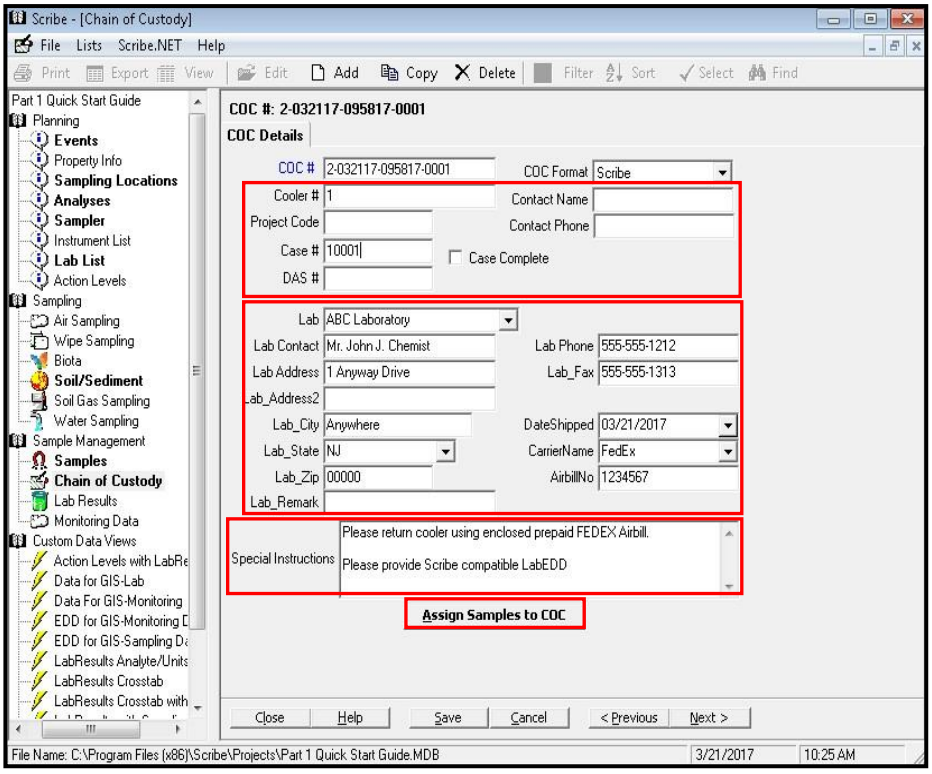
6. Select a Lab from the dropdown box or hand enter the Lab information (if the Lab was not part of the Lab picklist).

7. Select a DateShipped.

8. Select a Carrier Name from the dropdown box or hand enter a new Carrier Name.

9. Add an Airbill number.

10. Add Special Instructions, as needed.

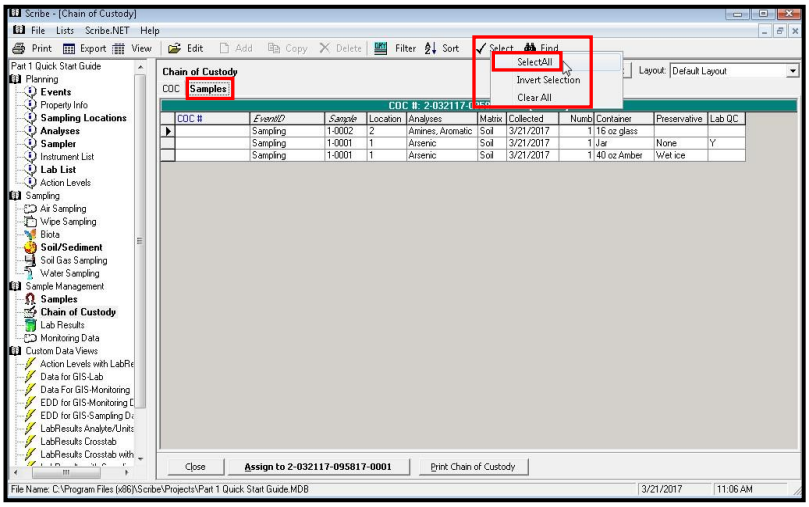


After preparing your Chain of Custody details, you can now assign samples to the Chain of Custody

11. Click '<u>A</u>ssign Samples to COC'.

The list of Samples will display.

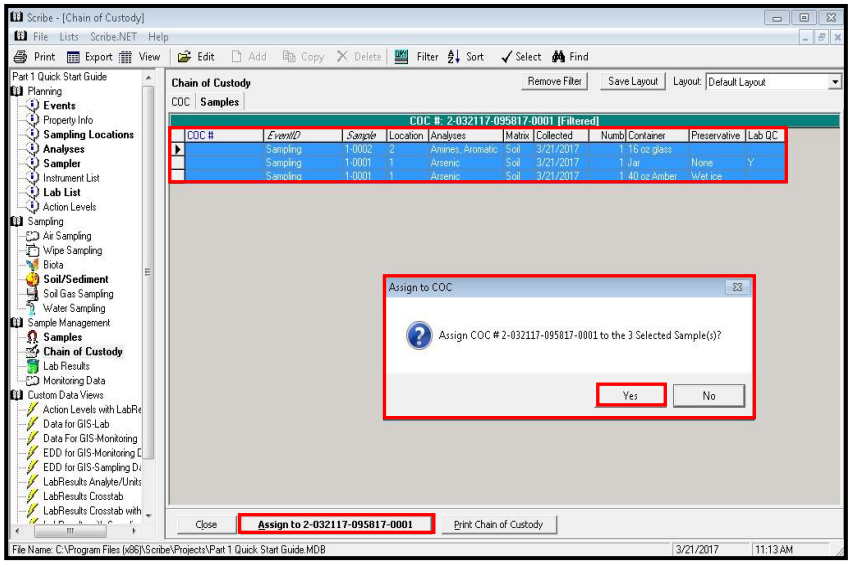
12. Click on the 'Select' button on the toolbar and click 'SelectAll' or highlight individual samples if all will not be assigned to the same COC (see step 15). The samples/analyses will be highlighted in blue.



13. Click on the ‘Assign to…’ button.

14. A prompt will display asking if you want to Assign those selected Sample(s) to the COC.

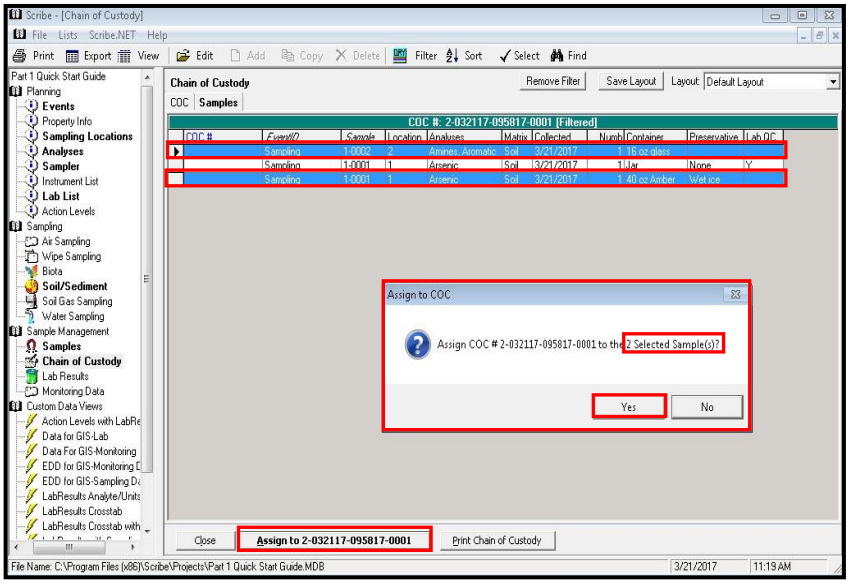
15. Click ‘Yes’.

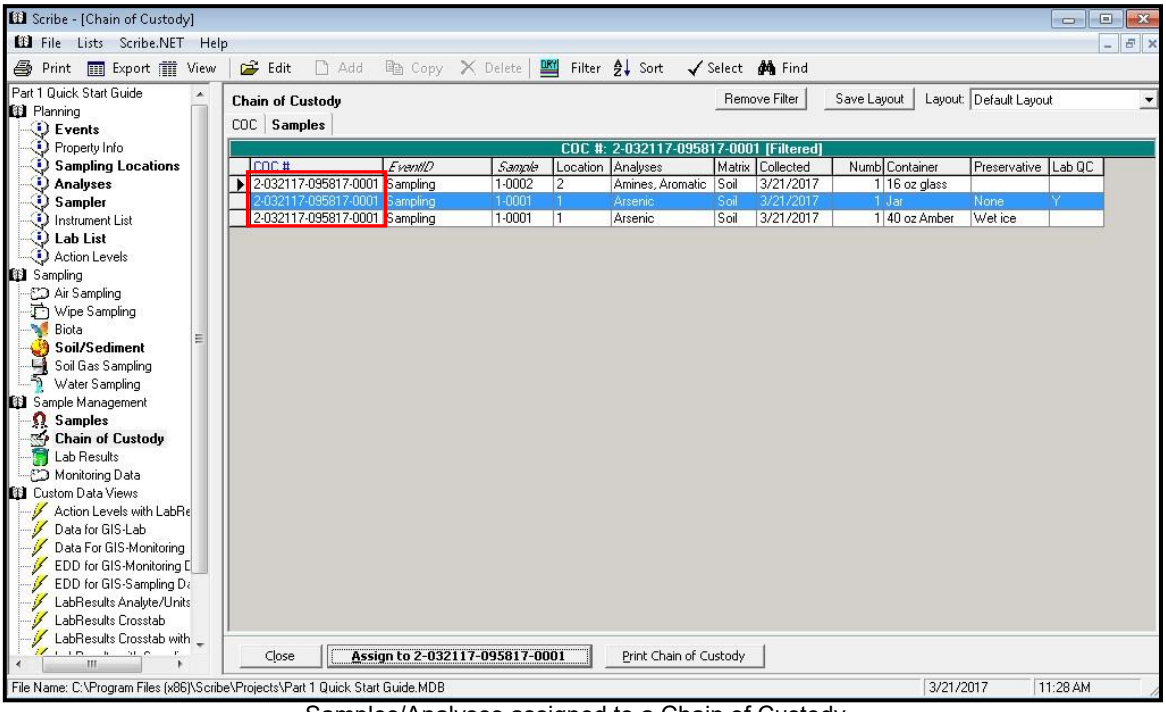


16. To select specific samples, highlight the samples by holding down the **Ctrl** key + Click on the sample(s). Or use the **Shift** + Click to highlight a series of samples.

17. Click on the ‘Assign to…’ button.

18. Click Yes.





Samples/Analyses assigned to a Chain of Custody

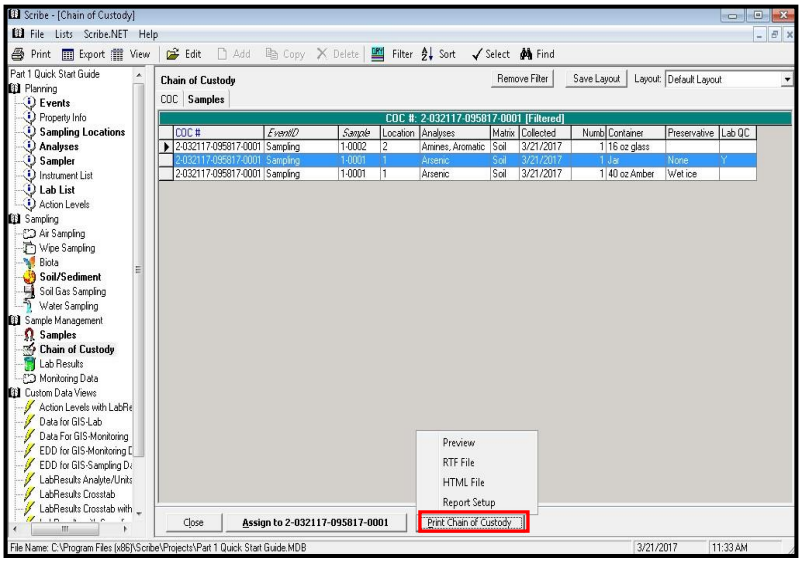
Print Chain of Custody

To print a Chain of Custody:

1. Click on 'Print Chain of Custody' button on the bottom of the window.

2. Click on Preview, RTF File, or HTML File

   Note: The Report Setup window will be displayed first for all options.

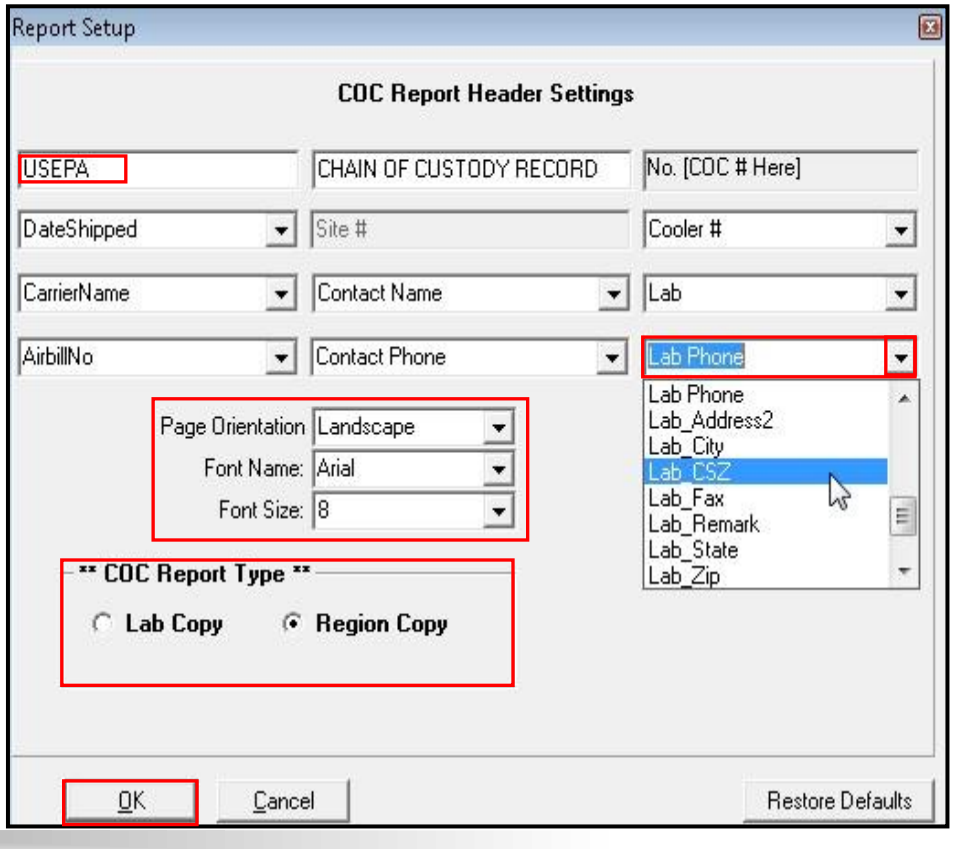


The Report Setup screen allows you to customize the Chain of Custody Report Header. Modify the fields as necessary. If the field has a drop down arrow, click on the drop down arrow and select an item from the list (see Planning section lists).

3. Select the COC Report Type.

   Note: The Lab Copy of the COC should be selected when shipping samples. Certain information about the sample/analysis is omitted from the Lab Copy of the COC (i.e., Site Name).

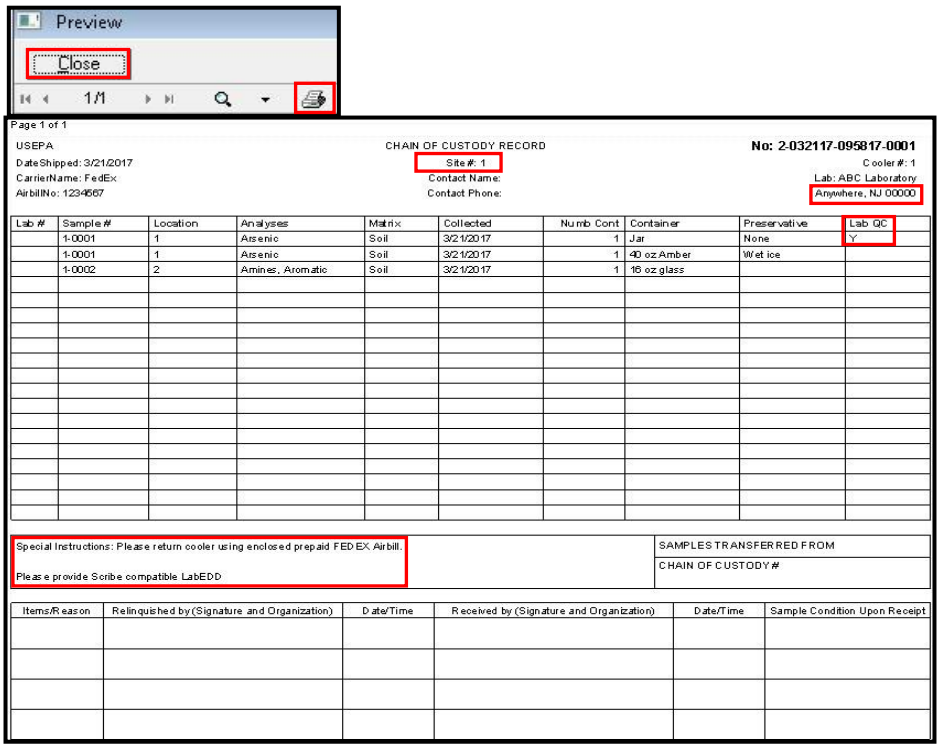
4. Click 'OK'.



A Preview of the Chain of Custody Record will display. ***Note:*** *The Site Name is not identified on a Lab Copy; changes to the Report Setup; the Lab QC from the sample; and the Special Instructions entered when creating the Chain of Custody.*

5. Click on the Printer icon to print.

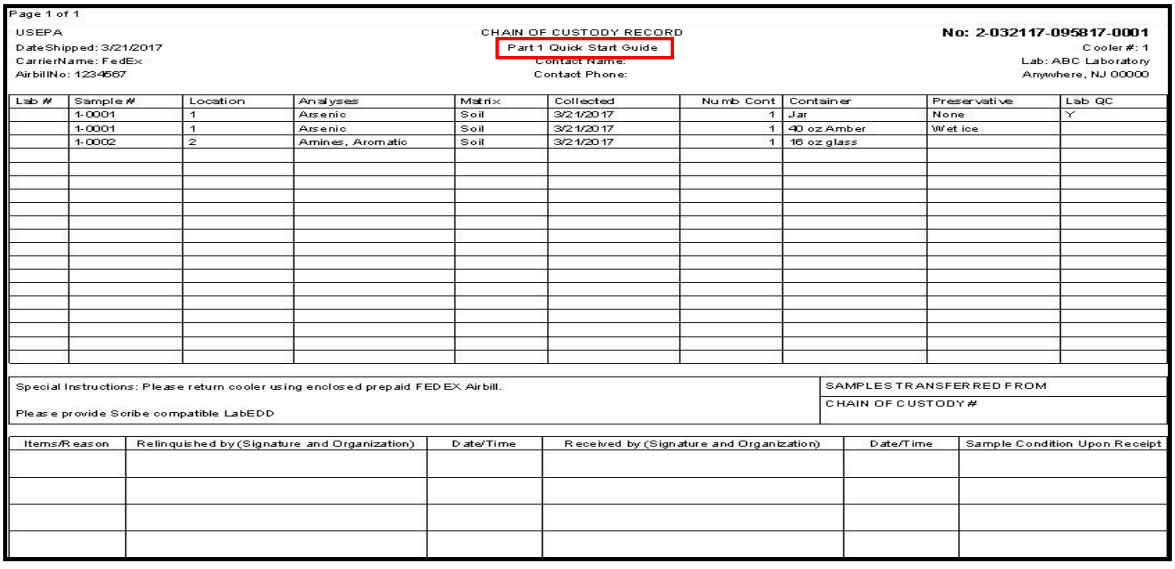
6. Click 'Close'.



Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	Lab QC
	1-0001	1	Arsenic	Soil	3/21/2017	1	Jar	None	Y
	1-0001	1	Arsenic	Soil	3/21/2017	1	40 oz Amber	Wet ice	
	1-0002	2	Amines, Aromatic	Soil	3/21/2017	1	16 oz glass		

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

Example 'Lab Copy' of Chain of Custody



Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	Lab QC
	1-0001	1	Arsenic	Soil	3/21/2017	1	Jar	None	Y
	1-0001	1	Arsenic	Soil	3/21/2017	1	40 oz Amber	Wet ice	
	1-0002	2	Amines, Aromatic	Soil	3/21/2017	1	16 oz glass		

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

Example 'Region Copy' of Chain of Custody

This completes the Part 1 -- Quick Start Guide. For more information on any feature discussed in this guide, refer to Part 2 -- Field Use Basics, which presents extensive information on the use of this database.

ERT

FIELD USE BASICS
Part 2
SCRIBE V3.10

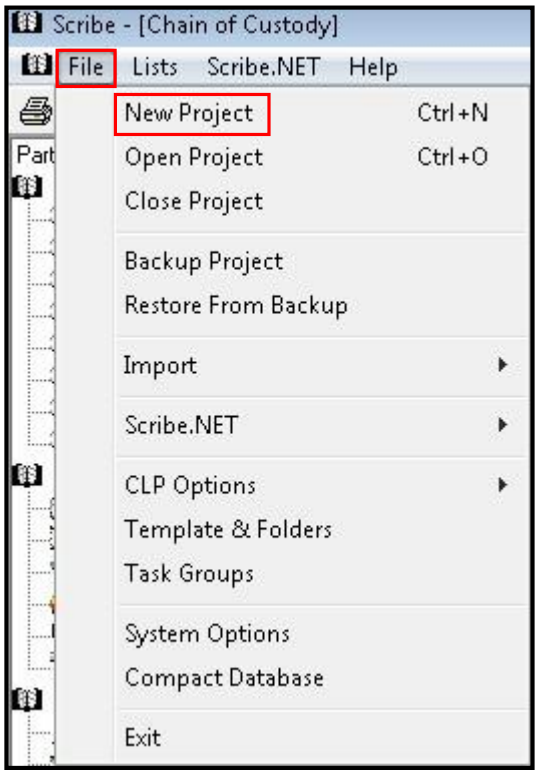
Contents

PART 2 – FIELD USE BASICS

The information presented in this Section describes he various fields and their purpose. You will start each new project with the default set of data in the new database (Scribe3.mdb template file), and then tailor that database to your specific project.

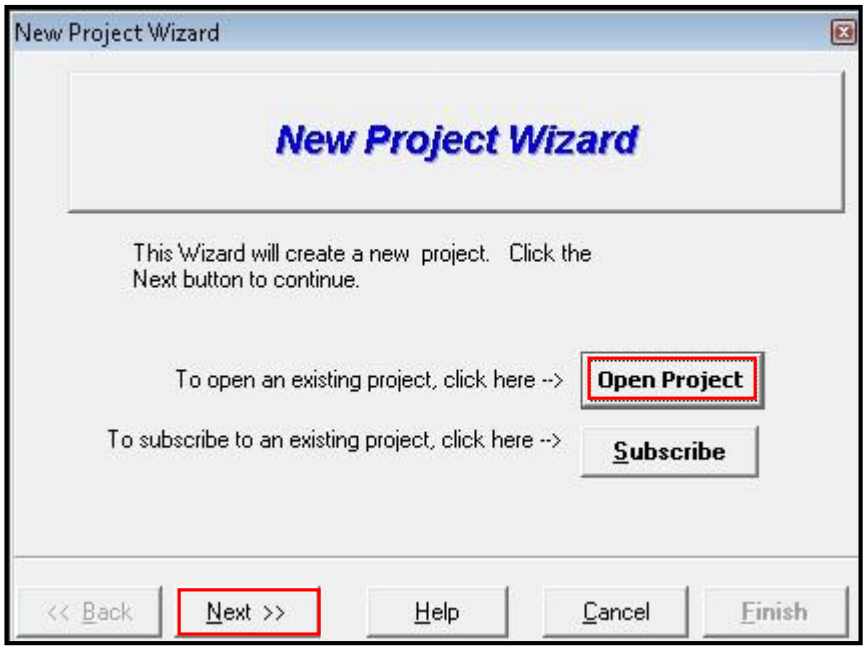
Starting a New Project

After an initial installation of Scribe, the New Project Wizard automatically helps create the first Scribe project. If you have already started a project and need to create another one, click **File | New Project** and the New Project Wizard will be displayed.

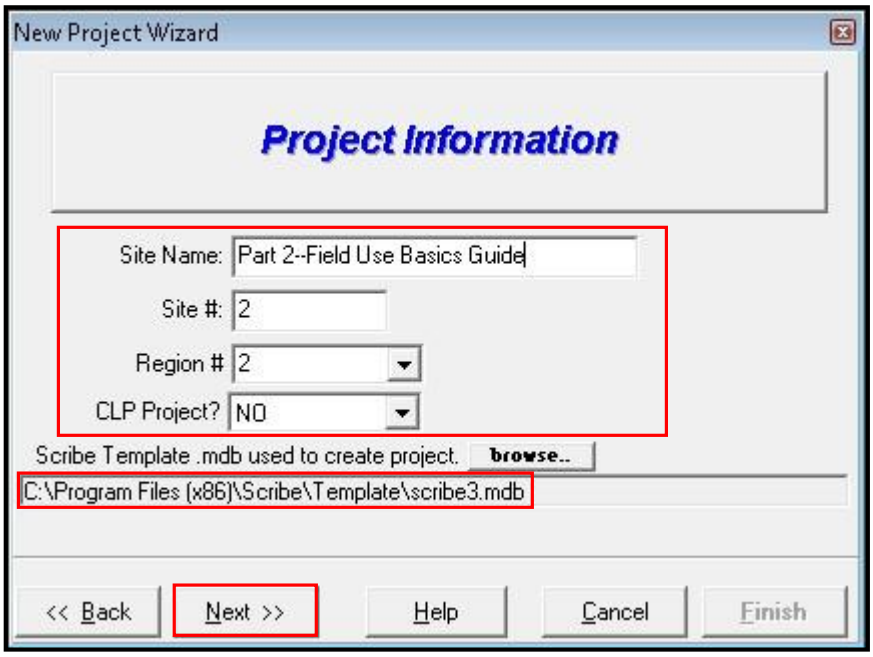


New Project Wizard

If you are starting Scribe for the first time, the dialog box shown below will be displayed.



1. To Open an existing Project, click Open Project.
2. To Create a New Project, click Next.
3. To download a project with a Subscription ID and password, click 'Subscribe'. You must have the Subscription ID and password to use this option.

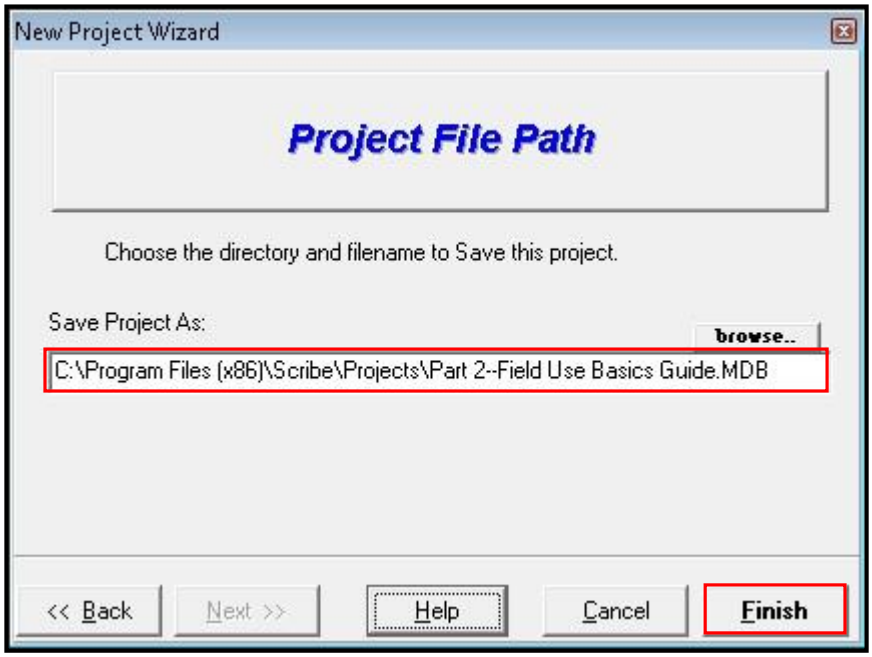


4. Input the Site Name, Site # (or Project Identifier) and the Region.
5. Select 'Yes' or 'No' depending on if it is a CLP Project (Note: If Yes is selected, all of the CLP functionality will be set as the default)
6. Use the default Template (scribe3.mdb) or a Region specific Template.

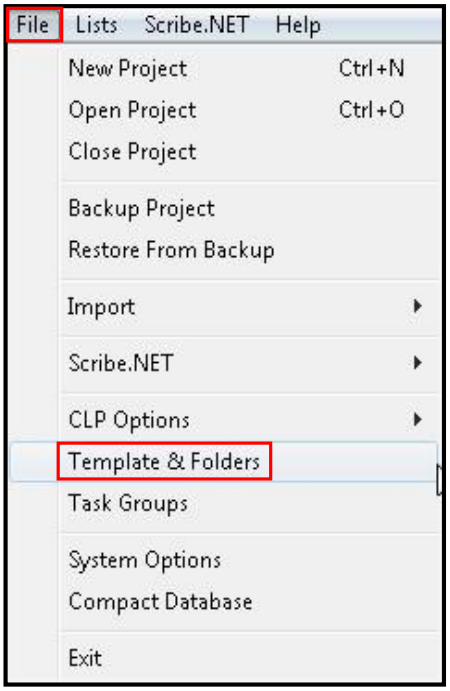
   Templates contain the picklists, layouts, Custom Tasks and Custom Data Views loaded with your new project.
7. Click the Next button.

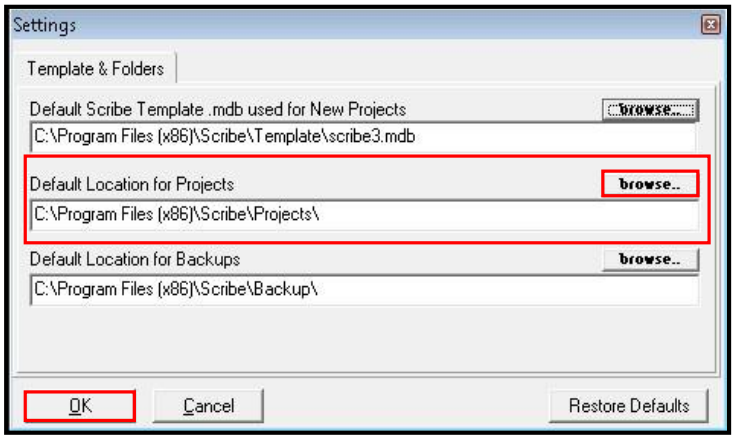
8. The Project File Path screen is displayed

   To accept the default location and filename for the project, Click Finish to complete the creation of the new project.



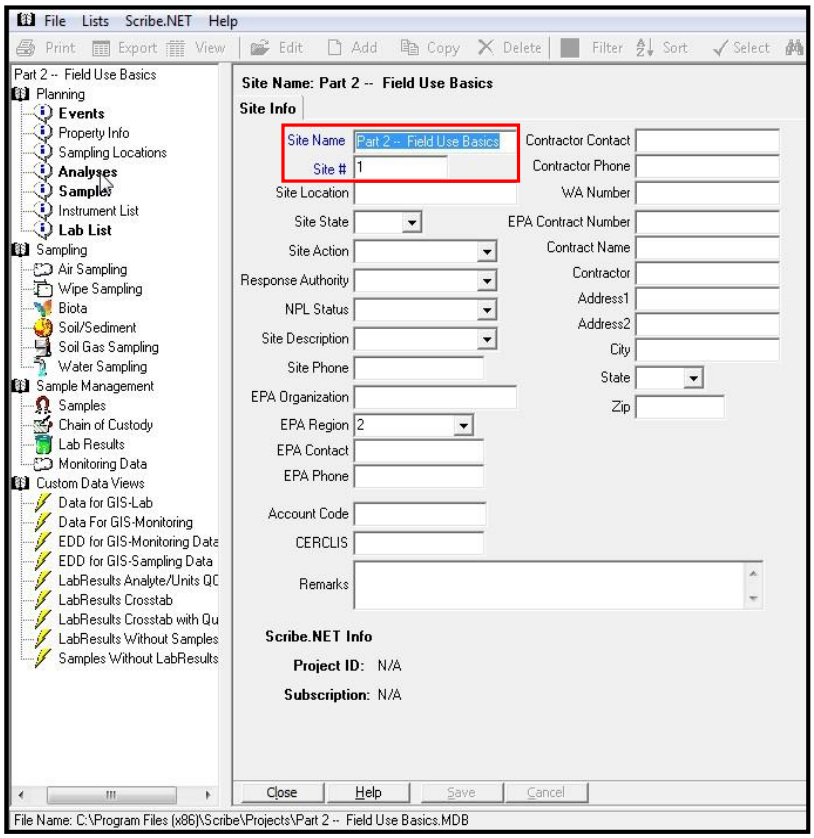
The *default* Project File Path can be changed by clicking on **File|Template & Folders.** Browse to where your new default Project File Path will be. ***Note:*** *All new Projects created will now be saved in this default directory. You can set different default directories for the Scribe Template file and for the Backups.*





9. The New Project Wizard closes and the ‘Site Info’ screen is displayed.

   The ‘Site Name’ and ‘Site #’ are the only two required fields to start a new Scribe Project. Completing the information on this screen is not required at this time, but it is recommended that as much of this information is pre-populates fields in later tasks.



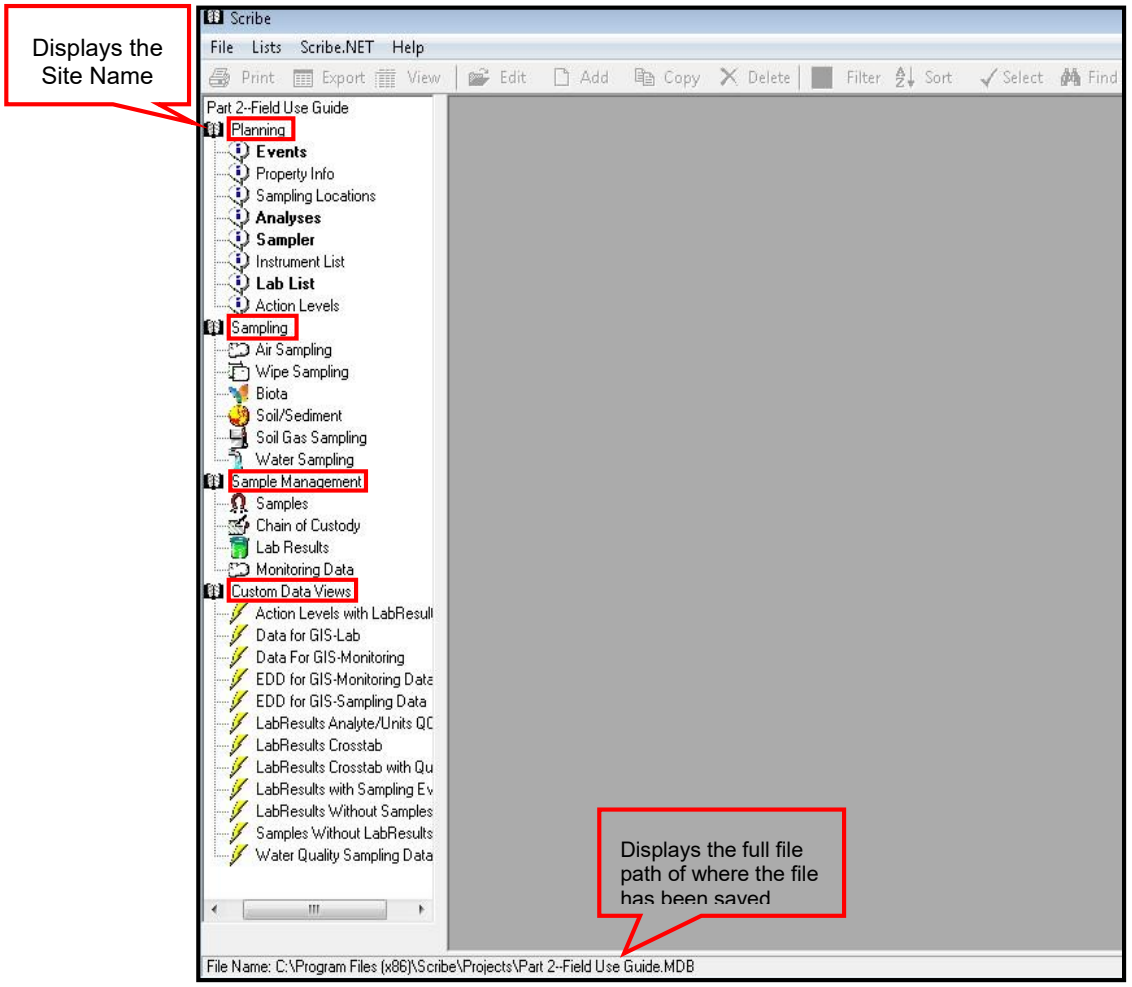
NAVIGATING SCRIBE

Navigation Pane

Scribe is broken down into four (4) main tasks as displayed in the Navigation Pane (Planning, Sampling, Sample Management and Custom Data Views). In some cases, another section called Custom Tasks will also be available (see Advanced Scribe Guide for adding Custom Tasks).

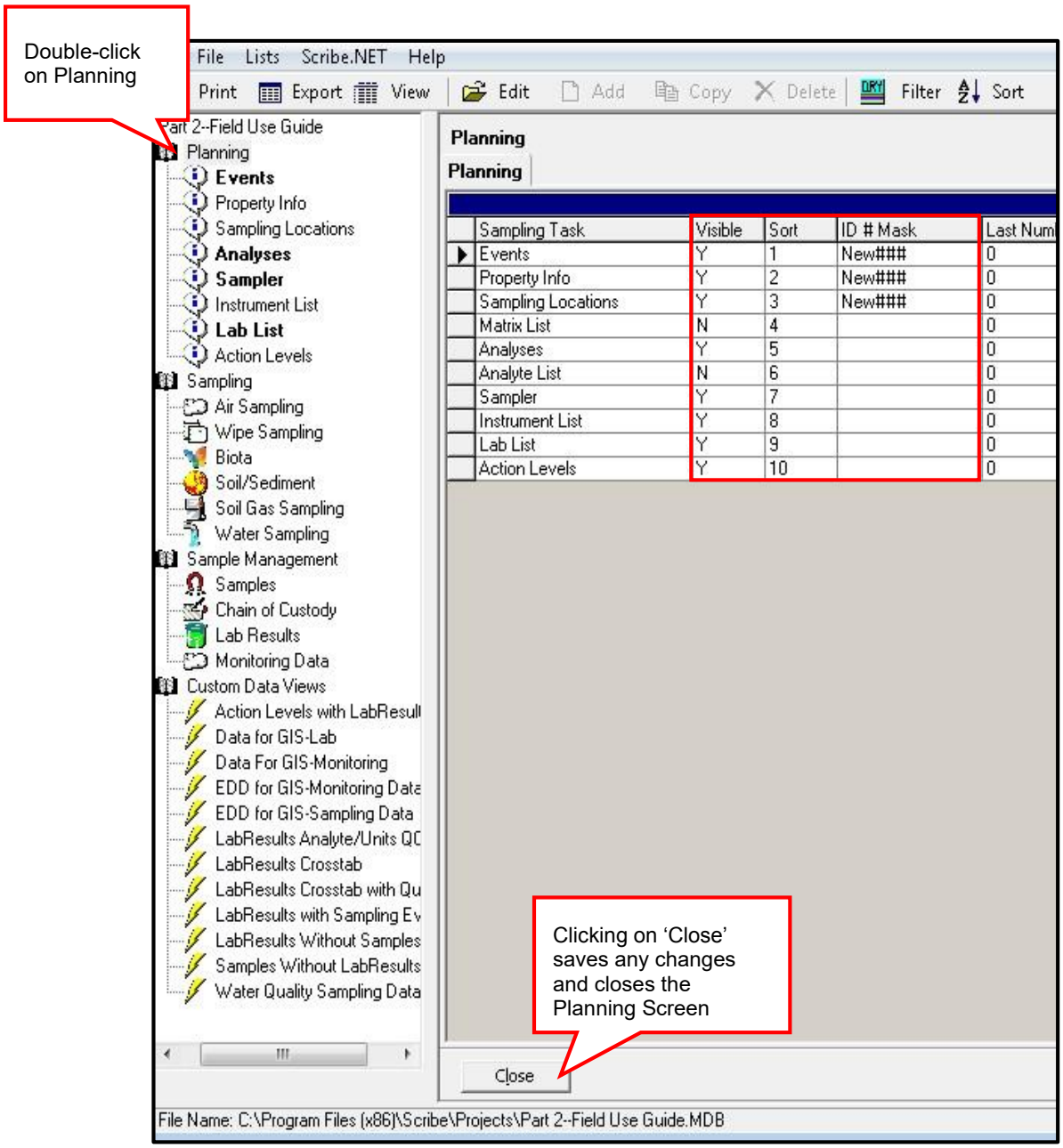
The left side of the screen is called the 'Navigation Pane'. Clicking on an item in the 'Navigation Pane' opens a screen for that function (i.e., Events, Soil/Sediment, Chain of Custody, etc.) on the right side of the screen. By default, you may have up to four screens open at the same time. When you open the fifth screen, the first screen closes. To close a screen, click on the Close button on the bottom. To close all screens, keep clicking Close until you go to a grey screen.

The following sections will discuss each Task, what information should be entered and how it is used.



Planning

The Planning section is a useful tool for pre-populating information that might facilitate sampling activities. The Planning section consists of eight (8) Planning Tasks entitled Events, Property Info, Sampling Locations, Analyses, Sampler, Instrument List, Lab List and Action Levels. These tasks aid in the planning process, allowing you to group and copy information and facilitate tailoring projects to project specific needs. By double-clicking on the word Planning, you can set the Visibility of each Sampling Task, the Sort Order of the Task, and set an ID Mask.



Events

The first task in the Planning section is Events. Events are groupings of data. For example, you may group your sampling effort by the reason you are taking samples. In that case, all your samples for a given day would be considered one event. You may also do a complete yearlong project under one event. Grouping by Events may be quite helpful when conducting monitoring jobs. For example you are required to do air monitoring every day at the same ten locations for the next six months. Name the first sampling event and enter all of the samples for that event. The following day, you can copy the first event, give it a new event name and Scribe will copy all of the previous sample info to new samples for the new event.

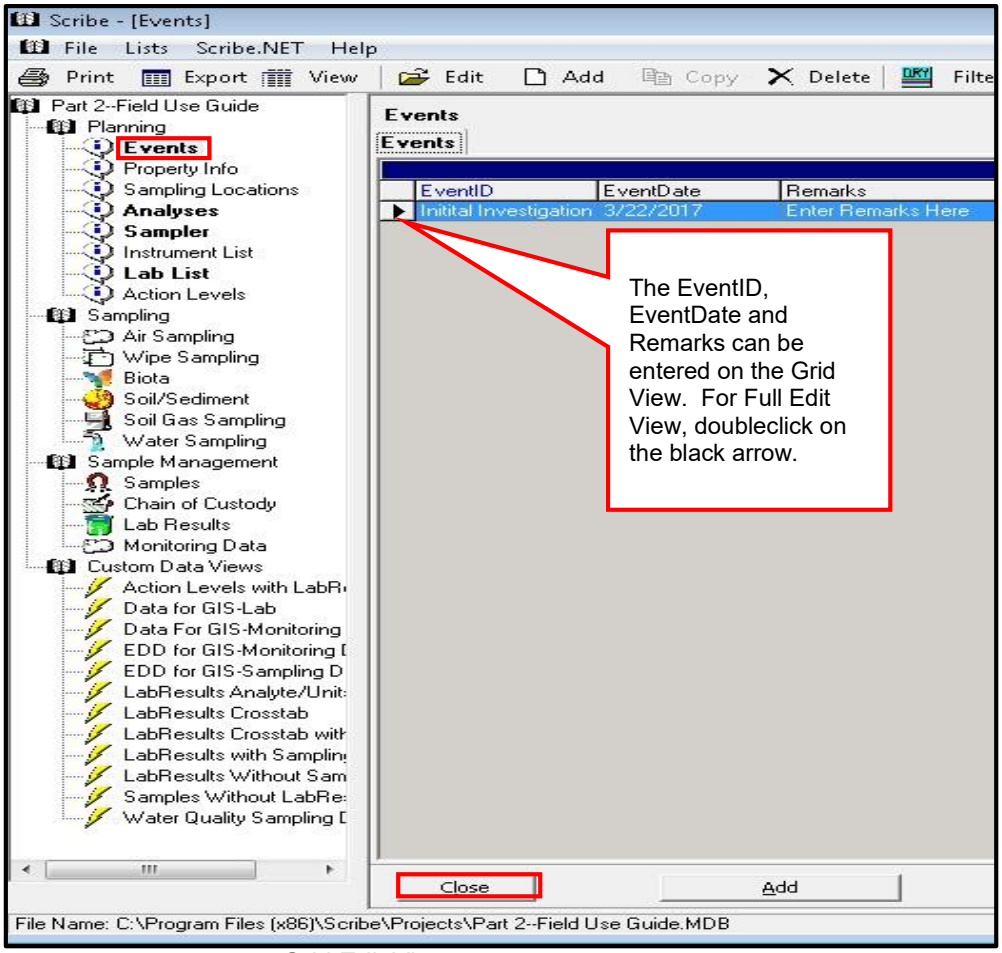
If your event(s) will have the same type of samples, analysis, sample collection, etc., it can then by copied to the next event and so on. This saves time when typing in repetitive information for multiple samples for each day and reduces data entry errors.

Note: *By default, Event is a required field (denoted in blue). In order to get a new project started, Scribe will assign a default Event of Sampling. It is highly recommended that careful thought is used when setting up your Scribe sampling events.*

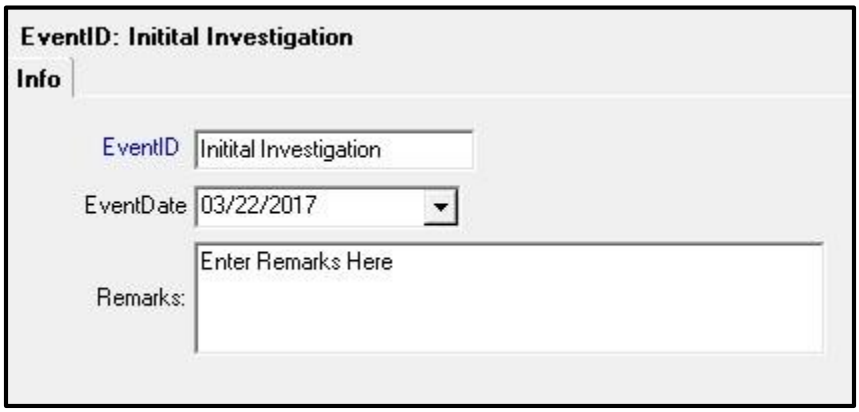
Add an Event:

Enter the new Event ID, EventDate and any remarks.

Click the Close button at the bottom of the screen to save the Event.



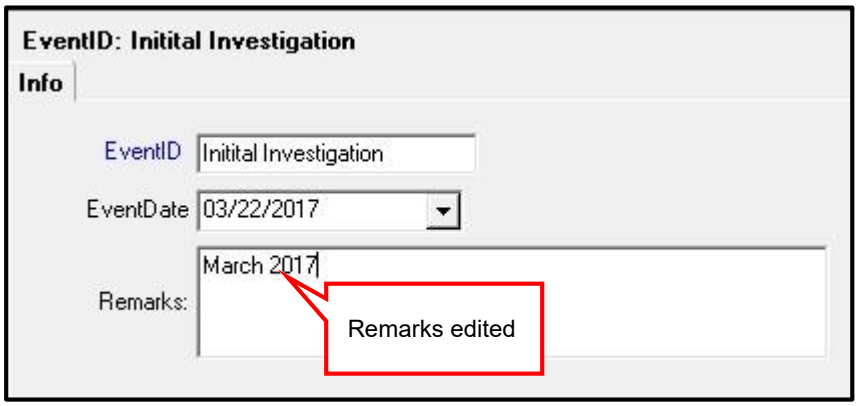
Grid Edit View



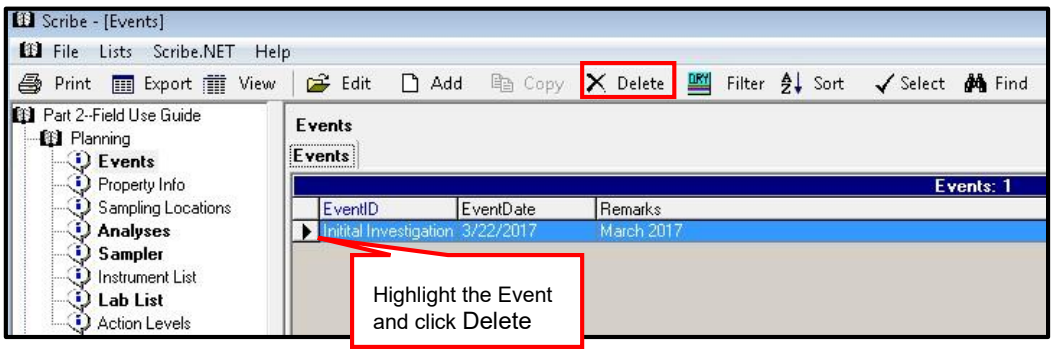
Full Edit View

Edit/Delete Event Information:

To **edit** 'Event' Information, it can be changed from the Grid View (see above) or by selecting the Event and double clicking in the block just to the left of the Event to bring up the Full Edit Screen (see above).

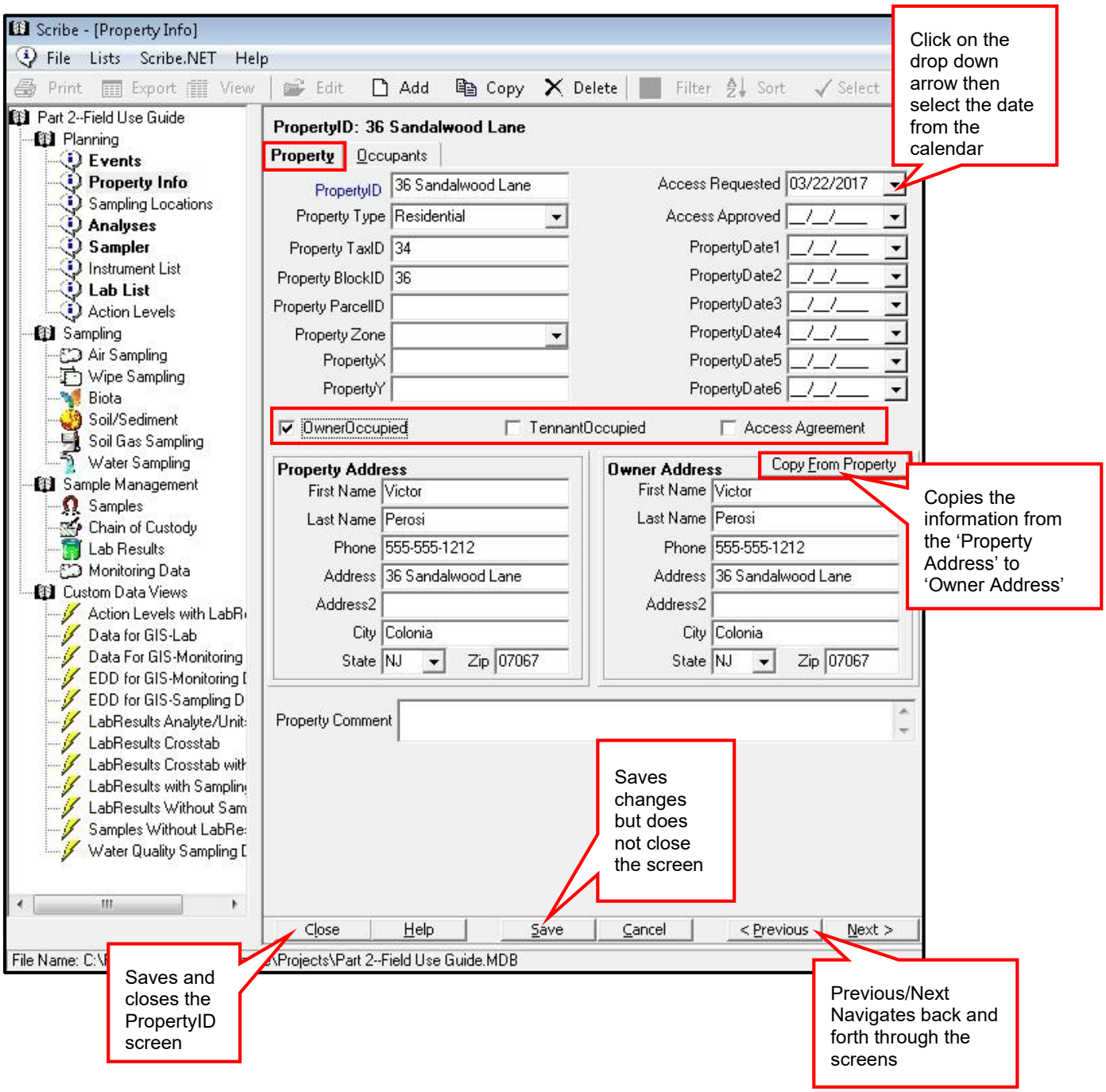


To **delete** 'Event' information, highlight the event in the Grid View and press the 'Delete' key.



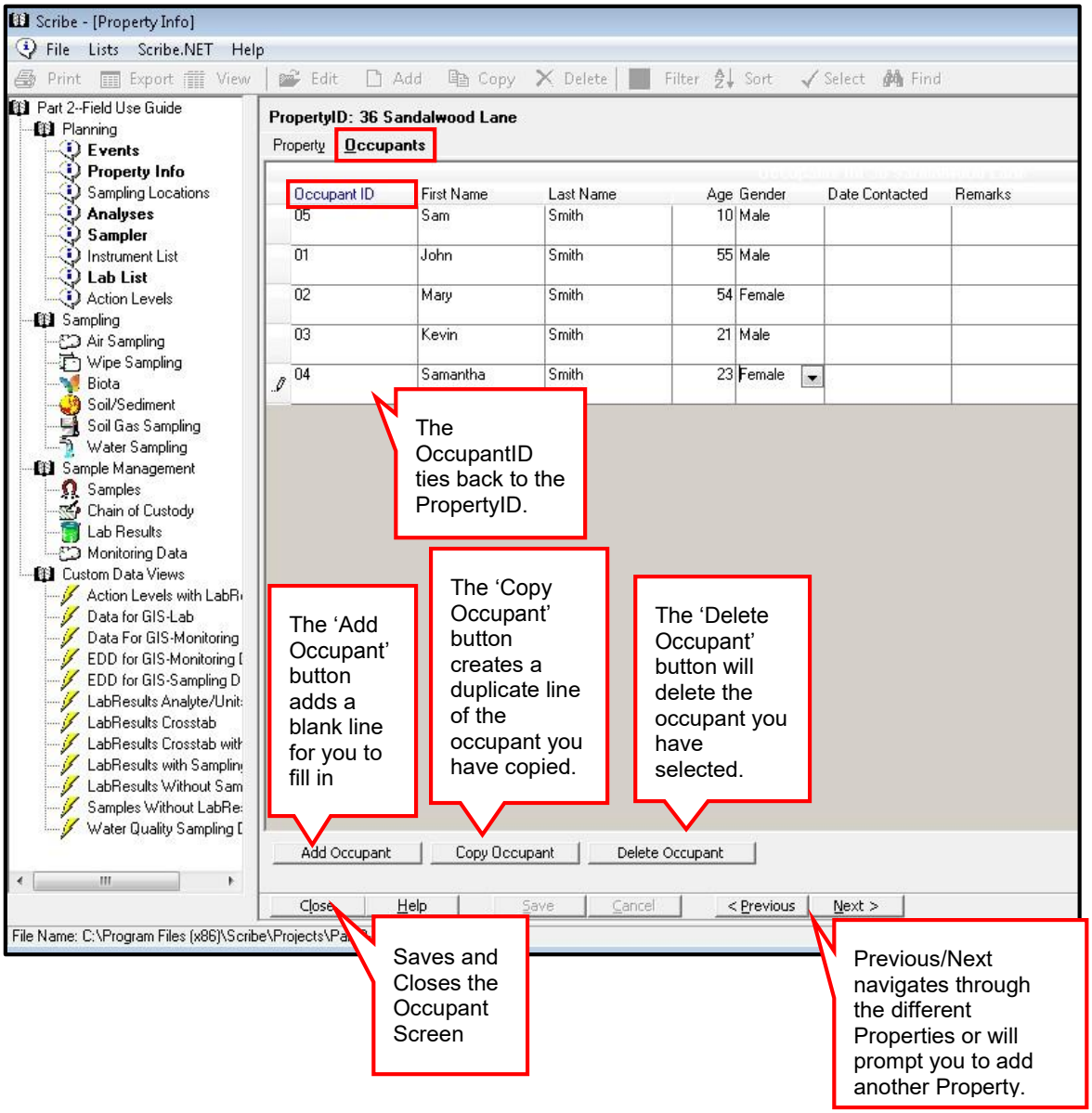
Property Info

The **Property *Info*** tab opens a screen that provides a way to input specific Property and Occupant information. Property information, Property Dates, Property Addresses and Property Comments are entered in this screen. The Property Dates can be used to record property access agreement dates.



Occupants

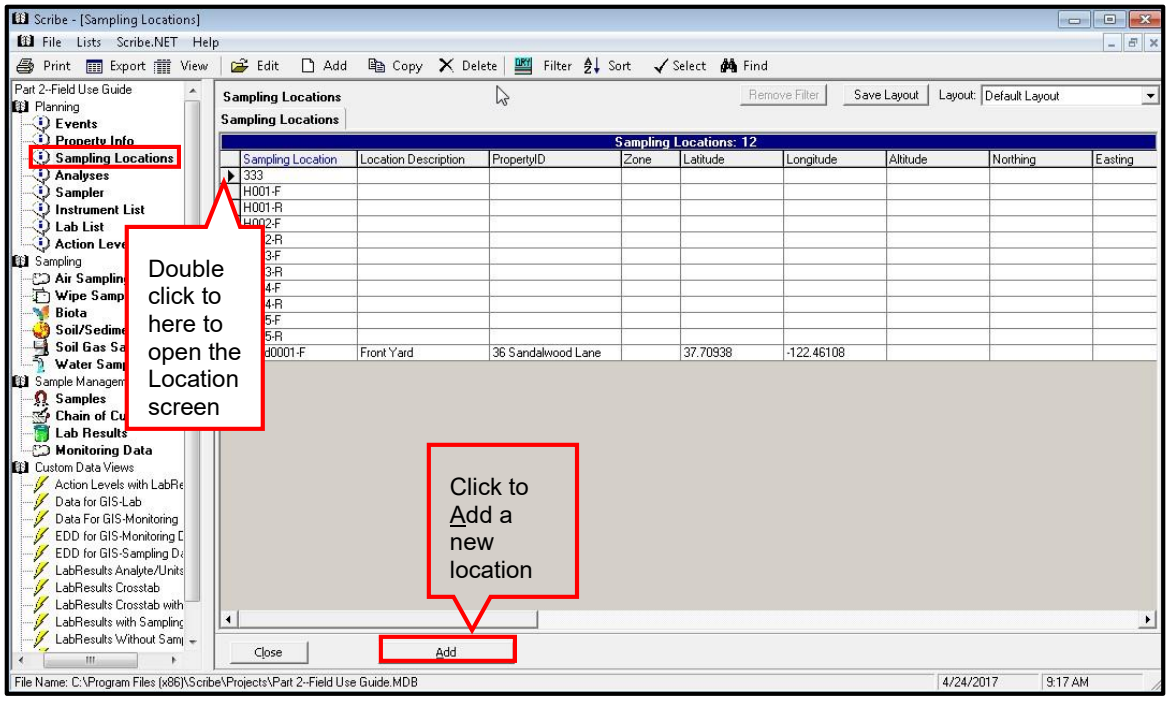
The **Occupants** tab opens a screen that contains specific information regarding the occupant(s) of the Property. This tab allows you to Add, Copy or Delete occupants.



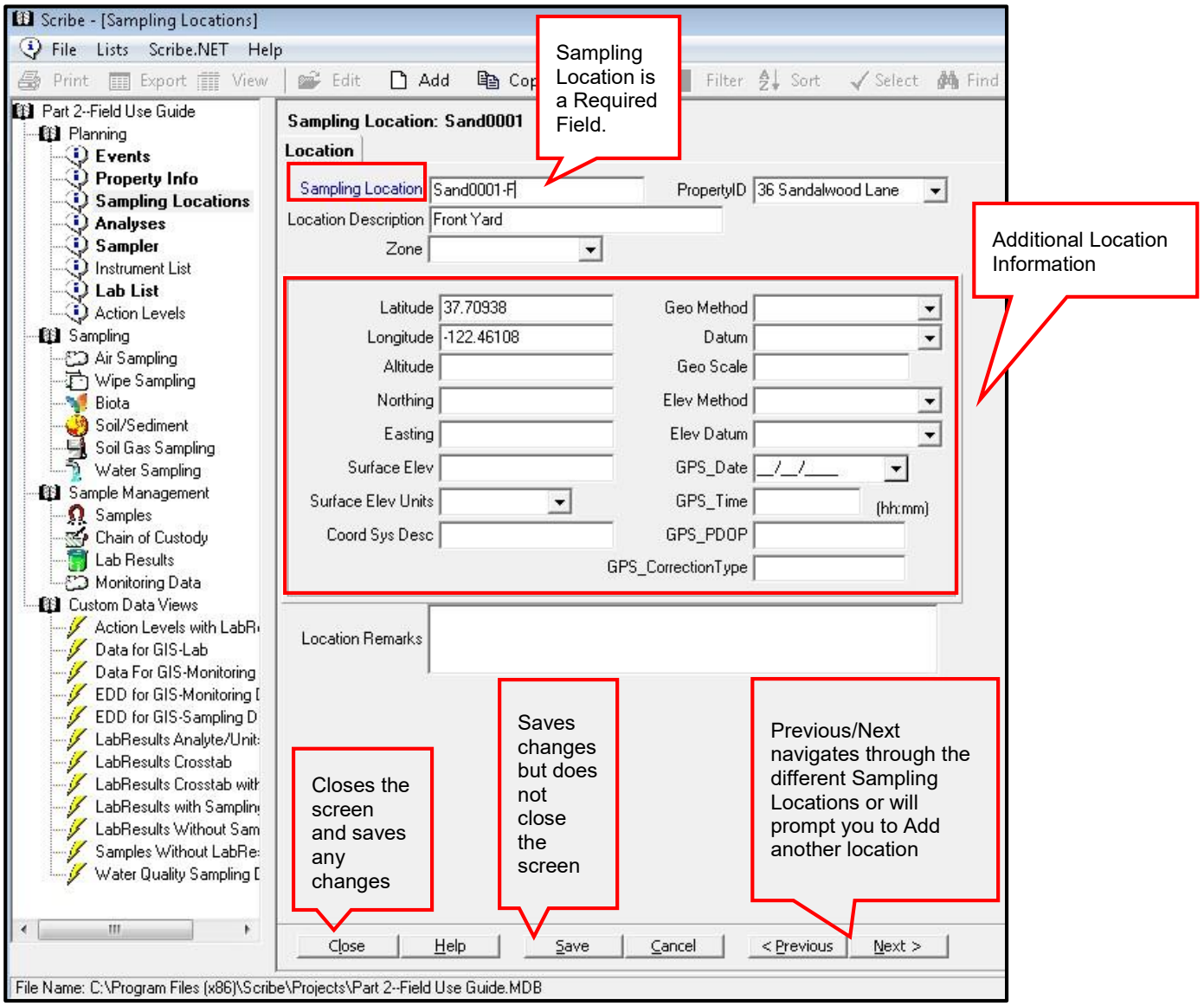
Sampling Locations

Each sample that you take should have location information associated with it (i.e., GPS coordinates). It is important to understand that you can have many samples taken at one (1) Sampling Location. In addition, Sampling Locations can be associated with a specific PropertyID. **Sampling Location** (denoted in blue) is a required field and must be entered at the **Sampling Locations** table or under a specific **Sampling** task. All other Location information can be filled out or imported in at a later time.

To add a sampling location, click on the Add button at the bottom of the Sampling Locations screen.

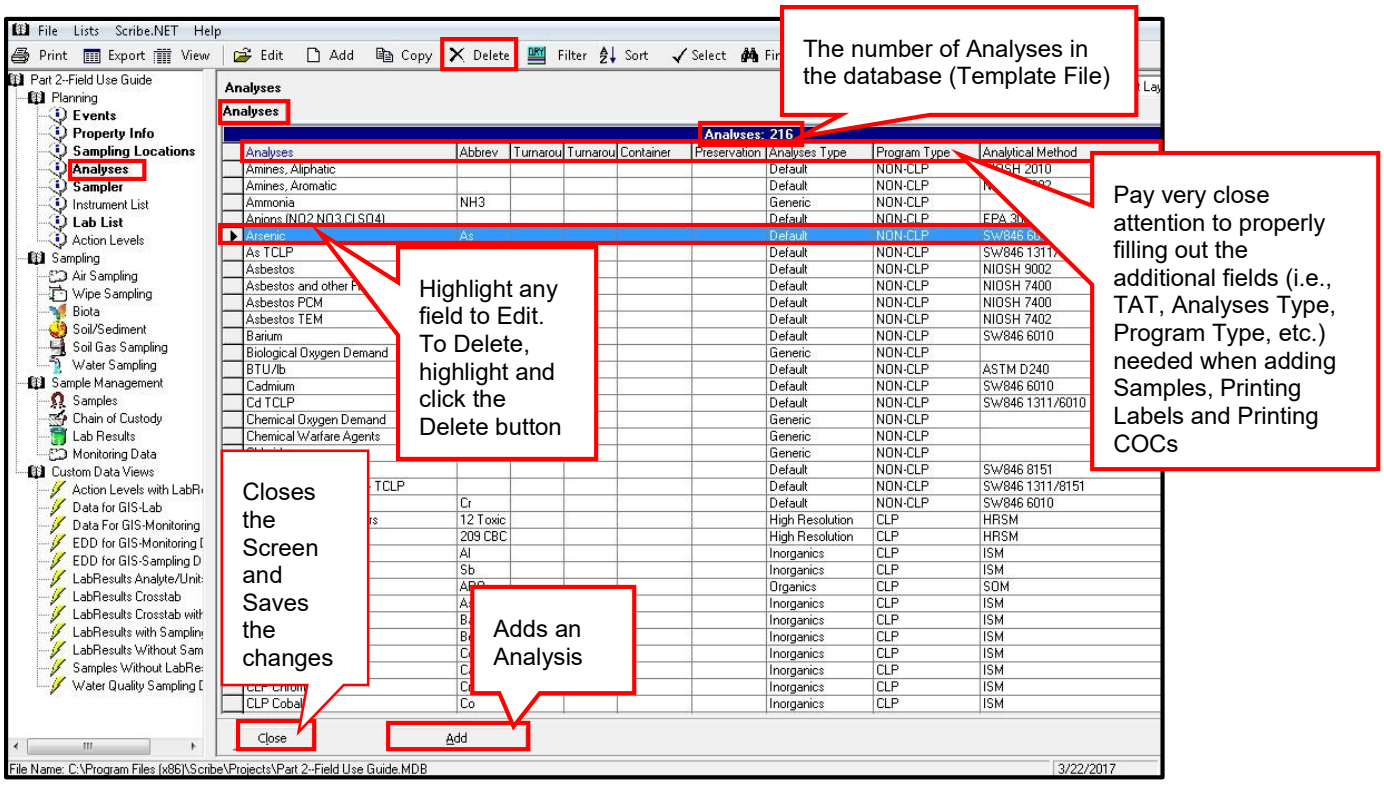


The Location Screen allows you to enter basic information about a sampling location. More than one sampling location can be associated with one Property ID. For example, a Sampling Location could be Sand0001-F and the Property ID would be 36 Sandalwood Lane, that was previously entered under the Property Info table.



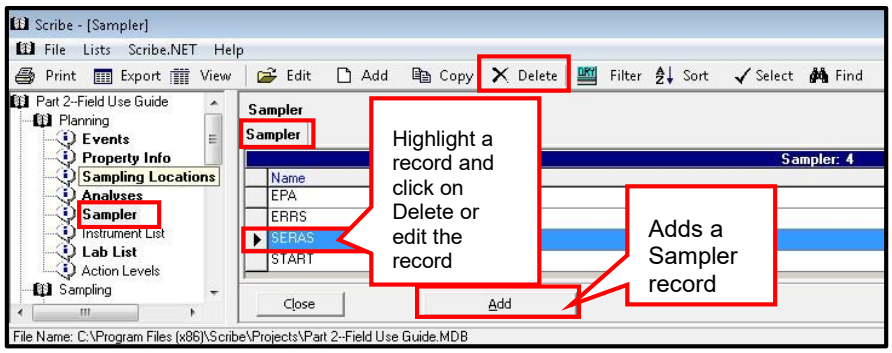
Analyses

The **Analyses** Table provides a default set of analyses that comes prepopulated when you start a New Scribe Project from the Scribe3.mdb Template file. If using a Regional specific Template file, your default set of analyses may be different. Optionally, **Analyses** that do/do not apply can be added and deleted to the table.



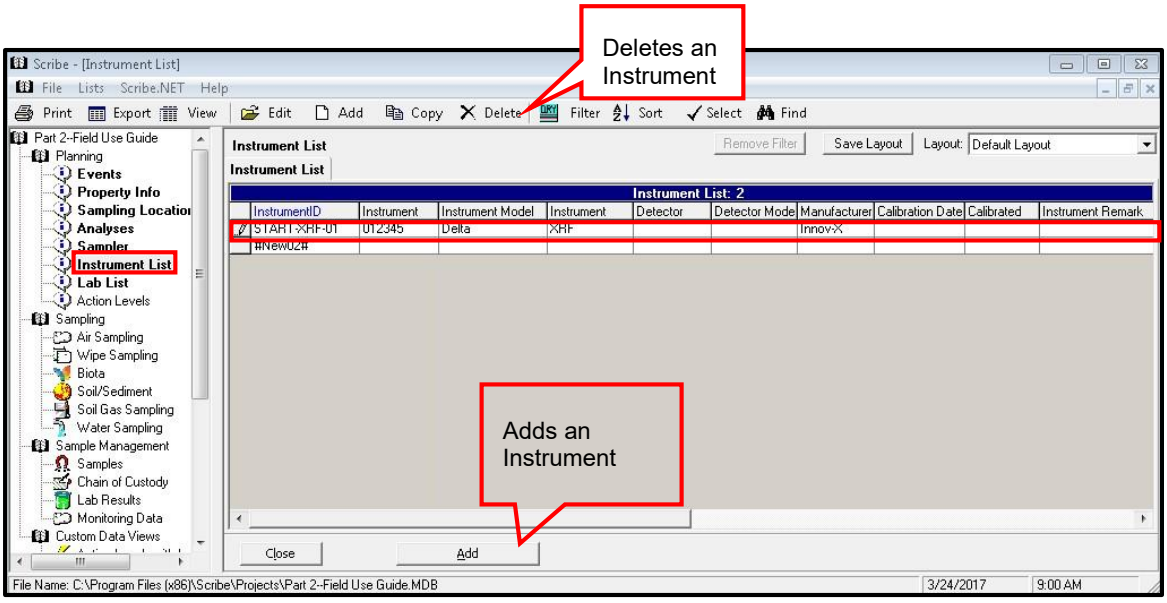
Sampler

Sampler contains the names of sampling 'teams' or individuals. The default set of **Sampler**s comes prepopulated when you start a New Scribe Project from the Scribe3.mdb Template file. If using a Regional specific Template file, your default set of Sampler(s) may be different. Optionally, **Sampler(s)** that do/do not apply can be added and deleted to the table.



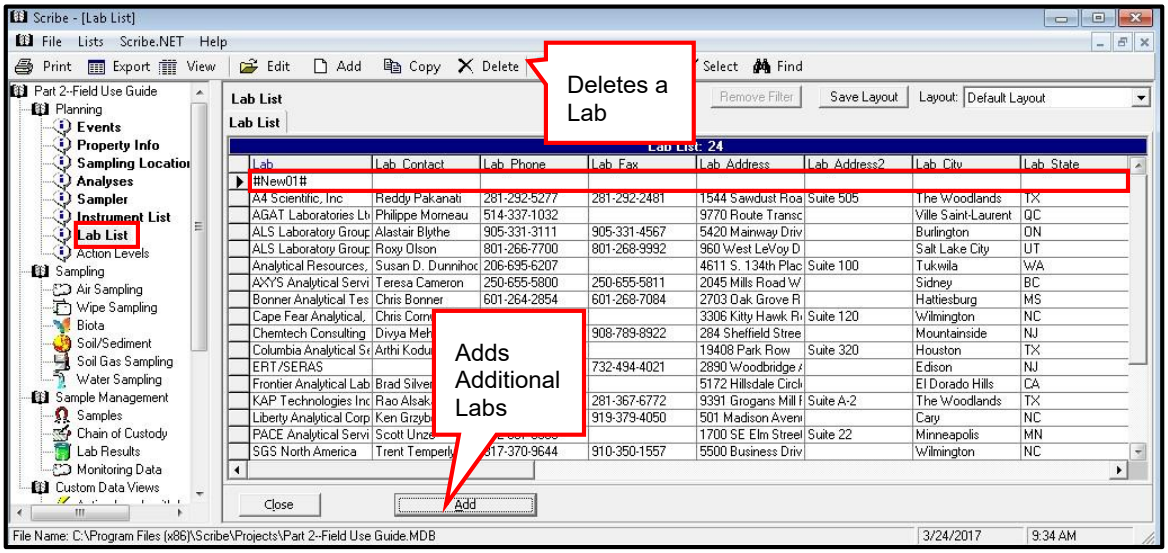
Instrument List

The Instrument List screen provides you with a means of identifying real-time monitoring instruments used for field sampling.



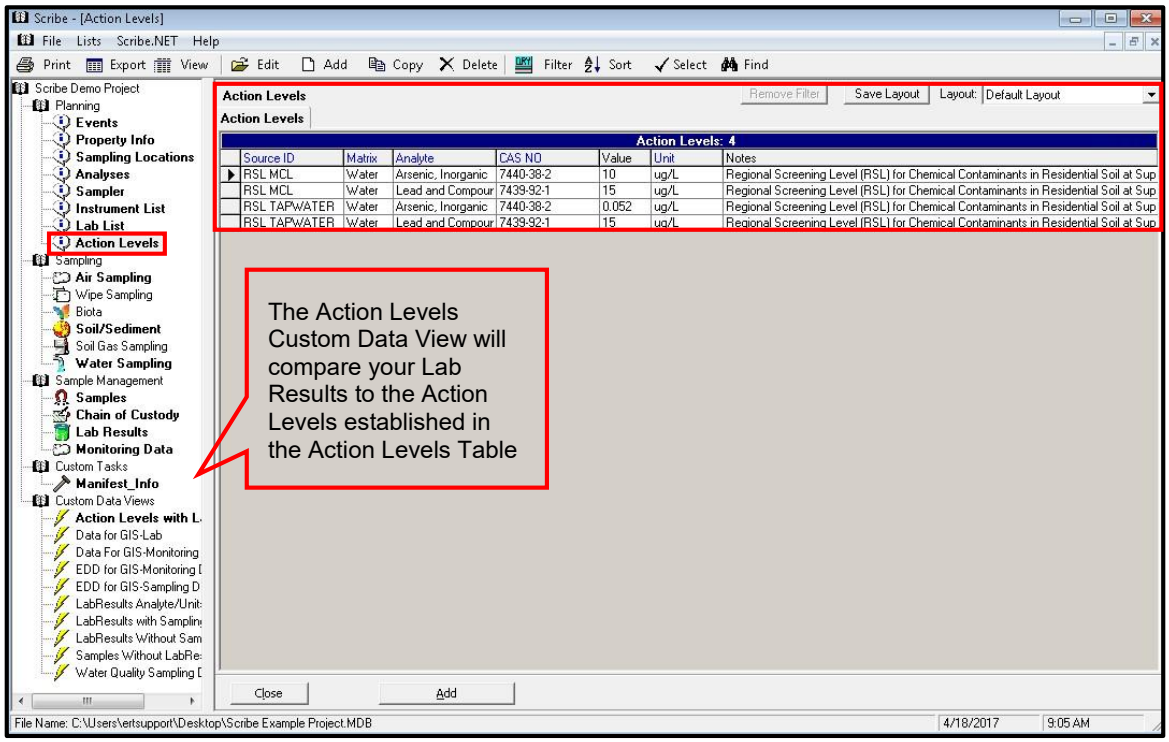
Lab List

The **Lab List** contains a list of Laboratories. The default **Lab List** comes pre-populated when you start a New Scribe Project from the Scribe3.mdb Template file. If using a Regional specific Template file, your default Lab List set may be different. Optionally, **Labs** that do/do not apply can be added and deleted to the table.



Action Levels

The Action Levels table is where you can load project specific Actions Levels (MCLs, Benchmarks, etc.). If Action Levels are loaded, a query exists under Custom Data Views that will compare the Analyte in the Action Levels table to Lab Results and identify which results exceed the Action Level. (The CAS # and Result Units are the key fields compared between tables.

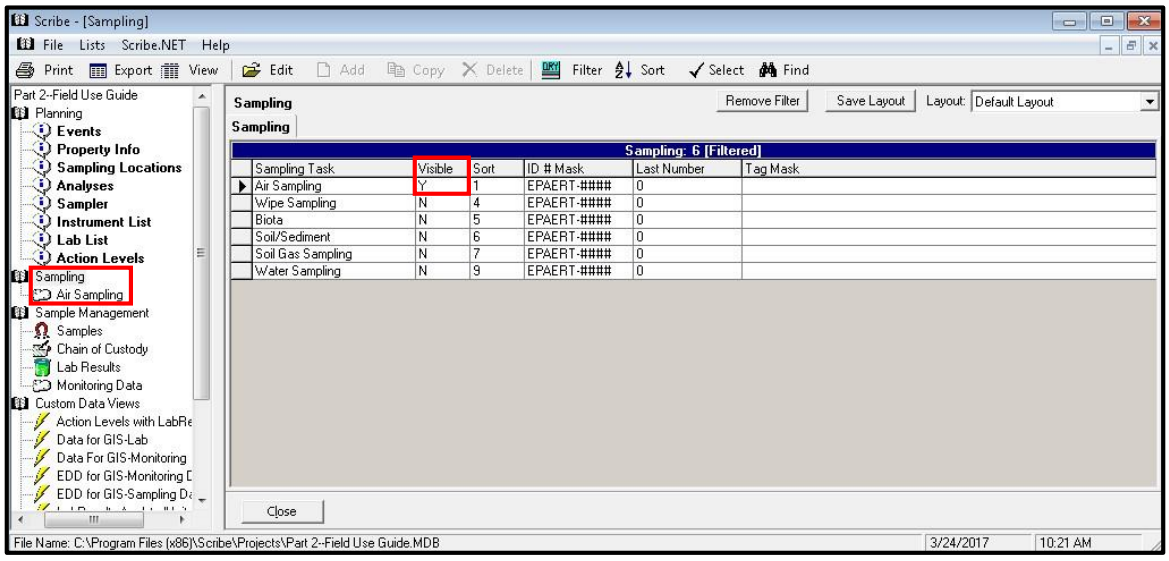


Sampling

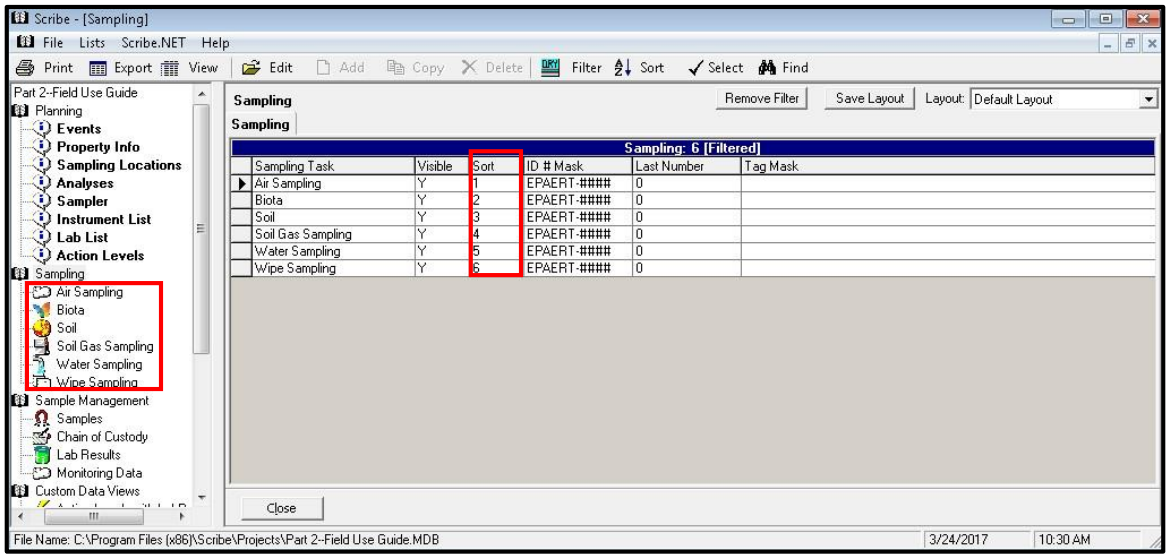
The **Sampling** section provides a means for creating, updating and viewing Sampling Tasks. Clicking on 'Sampling' in the Navigation Pane opens the 'Sampling' screen.

The first column on the Sampling screen lists the 'Sampling Tasks' available.

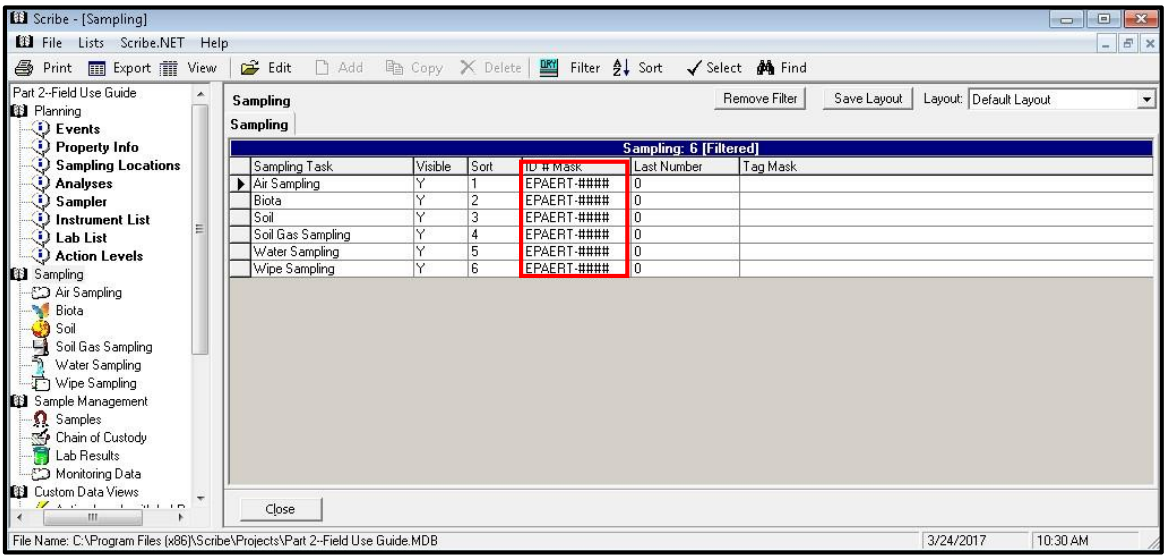
By default, all Sampling Tasks are visible in the Navigation Pane. By changing **Visible** to an 'N', the Sampling Task will no longer be visible and not available for selection in the Navigation Pane. A 'Y' indicates that a task is visible and available for selection. For example, if your project only requires Air Sampling, you can place an 'N' in all other sampling tasks so that only 'Air Sampling' is visible in the Navigation Pane. You can also edit/modify the Sampling Task Name (i.e., Soil/Sediment to Soil).



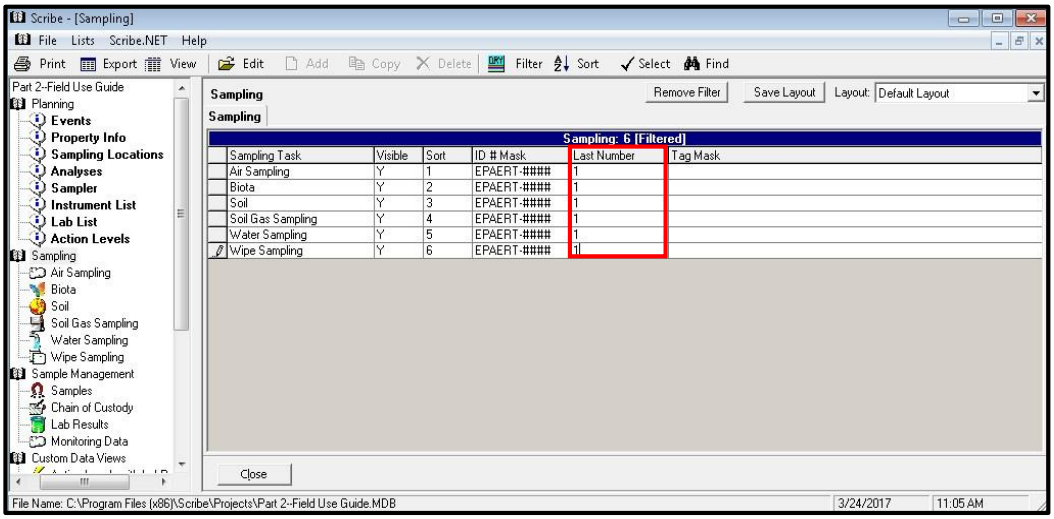
Sort allows you to sort your Sampling Tasks in another order. For example, alphabetical, etc.).



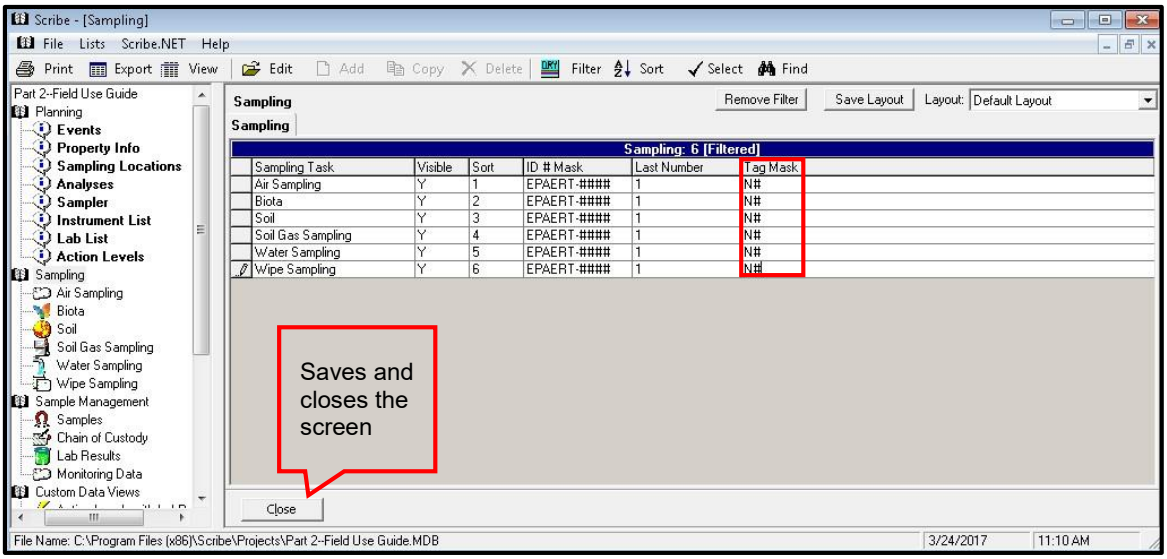
ID # Mask is useful when a specific Sampling Number (Mask) scheme is outlined in a site specific Data Management Plan, as well as when multiple crews are sampling the same project using Scribe and all the data is to be merged to one central database. You customize your sample numbers using the ID #Mask. The # symbol represents an auto-incrementing numeric field. For example, if you want your sample numbers to appear as EPAERT-0001, your ID # Mask would read 'EPAERT-####'. ***Note:*** *By default, you Sample ID # Mask will be set with your Site # followed by an auto-incrementing numeric field.*



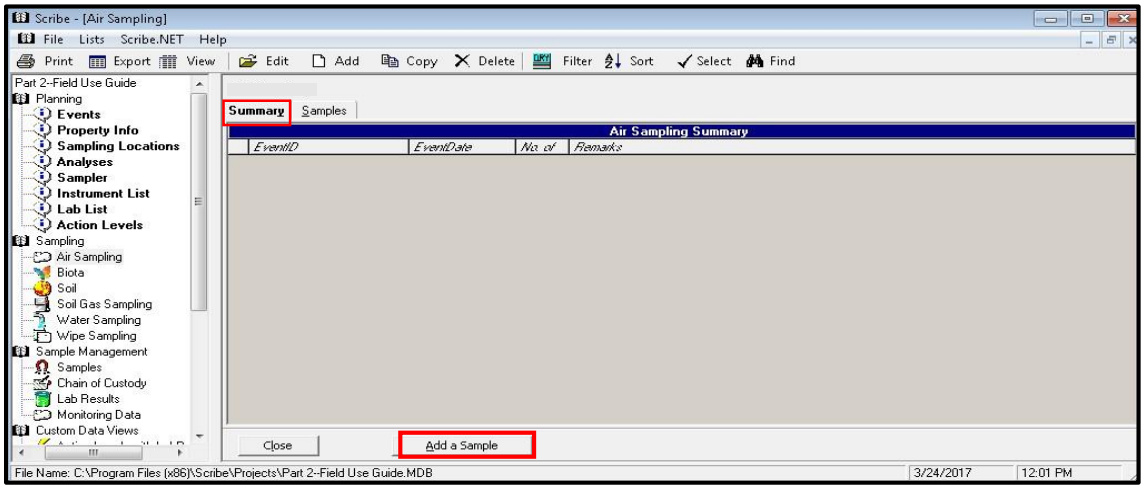
The **Last Number** field will show the last sample number used (i.e., the last sample # used was EPAERT-0001 (next one would be 0002). Changing the Last Number field can be particularly helpful when multiple sampling crews are out sampling at the same project, different locations and you do not want duplicate sample numbers in each project.

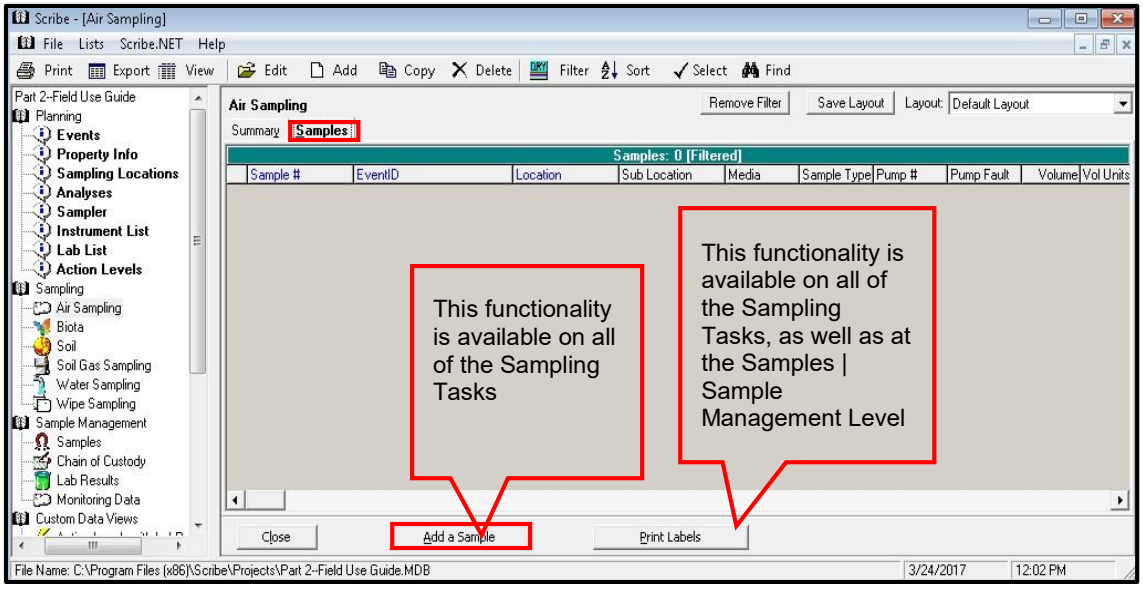


By default, the Tag settings in Scribe are set to 'Alpha' characters for generic Scribe samples and 'Numeric' for CLP Scribe samples. Some Regional Data Management Plans require that the Sample Tag consist of both an Alpha and auto-incrementing numeric field. Under Sampling, a custom **Tag Mask** can be configured. Remember that at least one auto-incrementing digit (#) needs to be included in a custom mask.. In this example, the Tag settings will be set to N1, N2, etc.



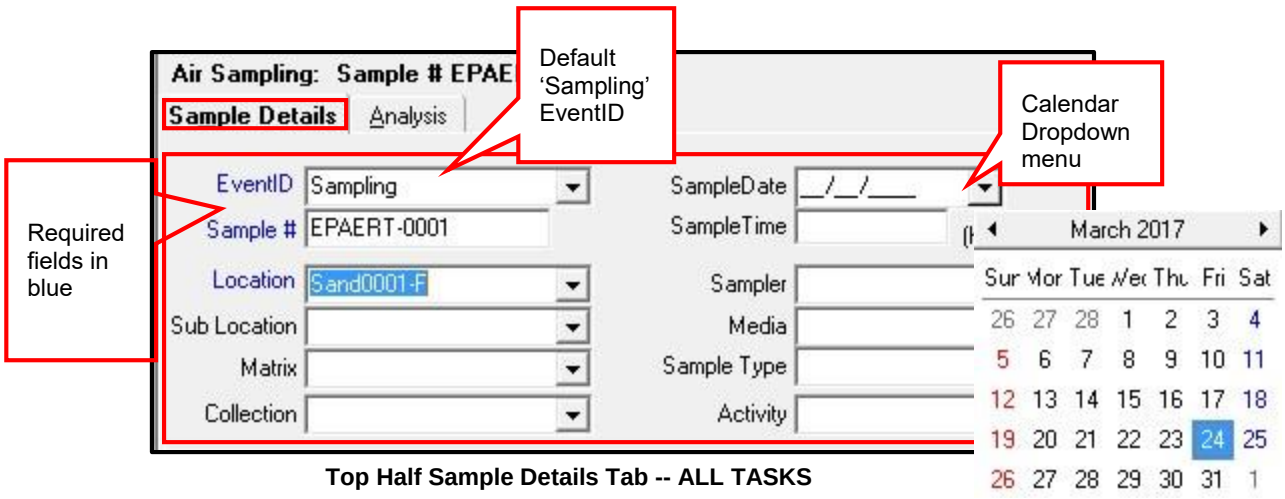
By clicking on any of the Sampling Task(s) (e.g., Air, Biota, Soil, Soil Gas, Water, Wipe), a Summary screen for the sampling task is displayed. The 'Summary' screen contains a **Summary** tab and a **Samples** tab. Before any samples are entered in Scribe, the Summary tab will be blank. Going forward, a summary of the Sampling Events will be displayed on the Summary tab, showing the number of samples collected in that event..



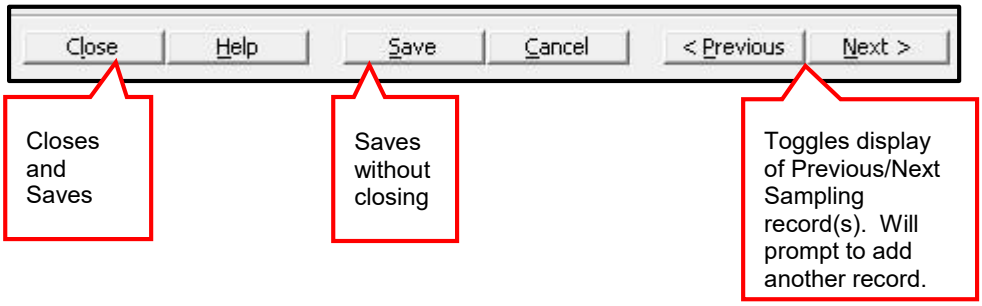


You can click on Add a Sample on the Summary or Samples Tab. ***Note:*** *This same functionality is available on all of the Sampling Tasks.*

In each Sampling task, the upper half of the Sample Details tab will capture the exact same information for each Task. The lower half of the Sample Details tab will include specific sample detail information to the task. ***Note:*** *The functionality of Closing, Saving, Cancel and Previous/Next are the same in each one of the sampling Tasks.*

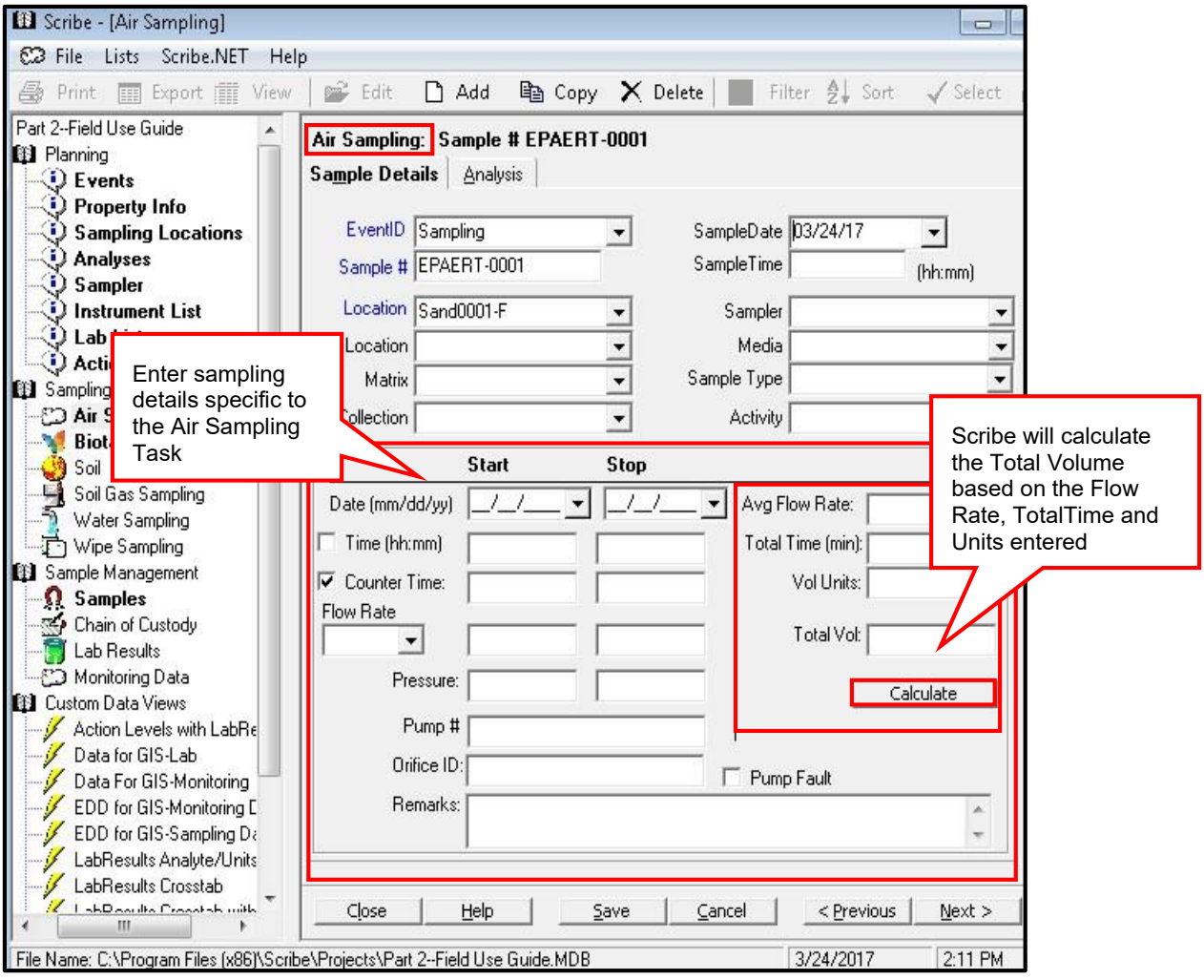


Top Half Sample Details Tab -- ALL TASKS



Air Sampling

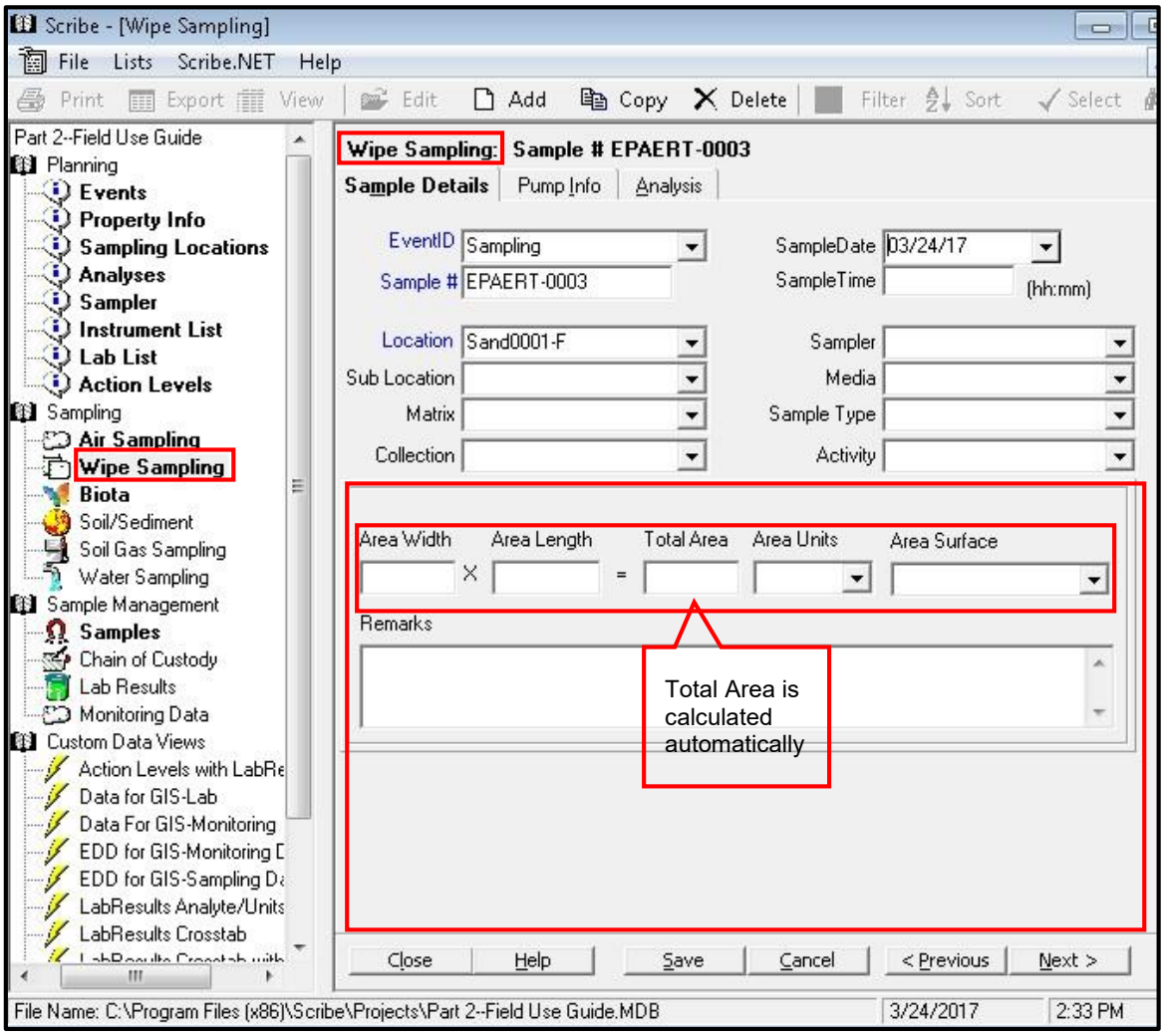
The bottom half of the Sample Details screen will capture the sample details specific to the task. In this example, Flow Rates, Pressure, Pump #, Time, Units, etc. can be captured for each Air Sample taken.

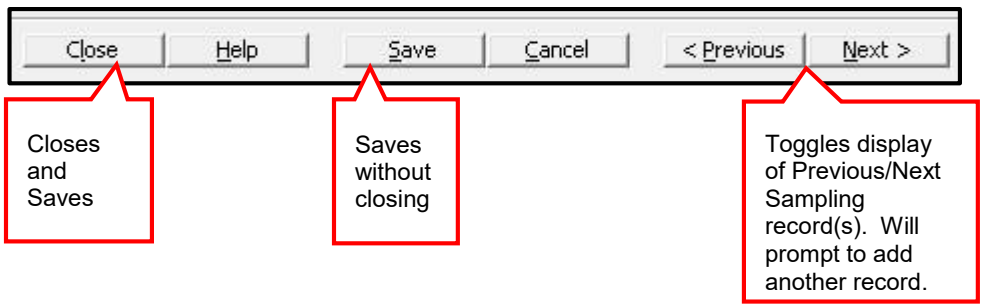


Bottom Half of Sample Details Tab -- Air Sampling

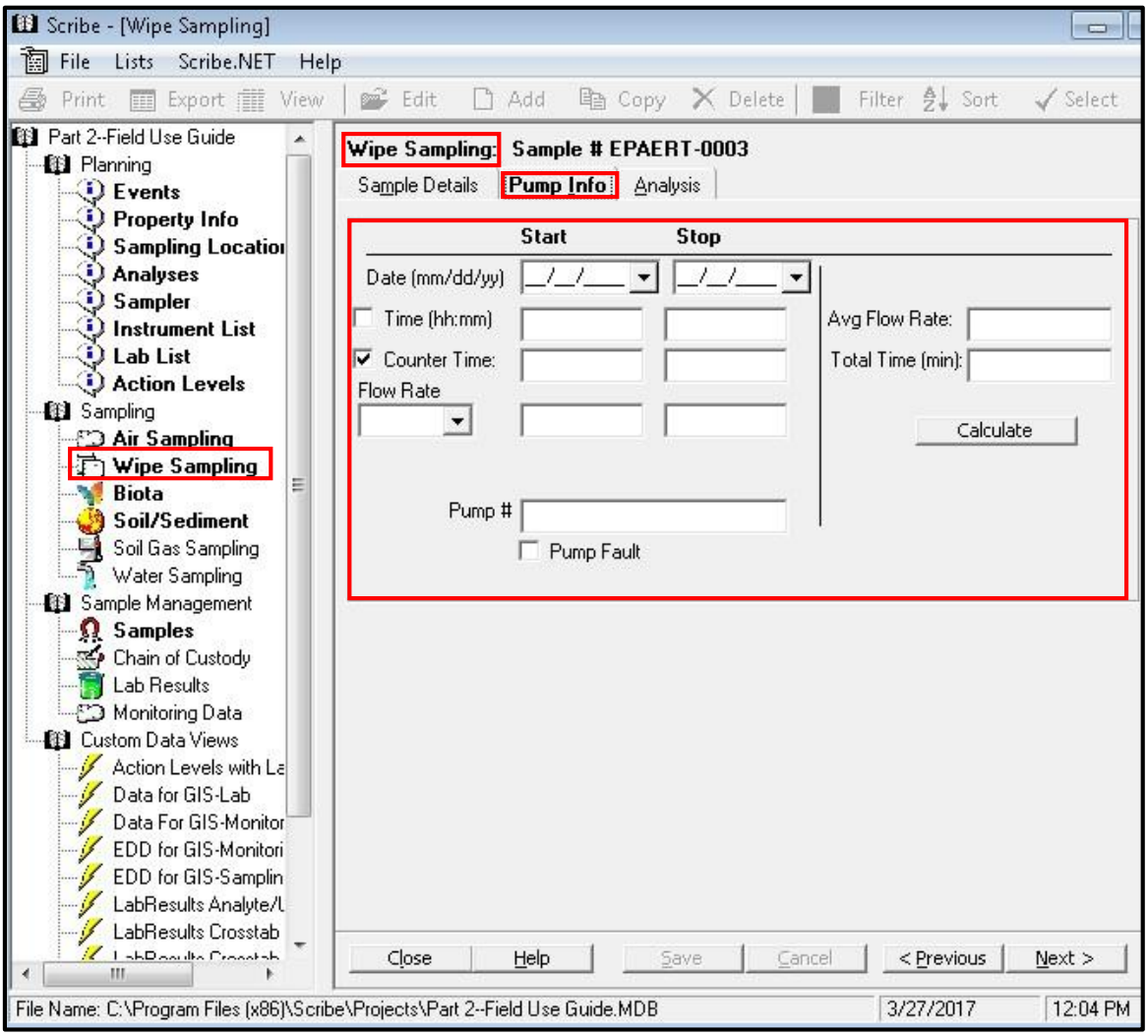
Wipe Sampling

Sample detail fields specific to Wipe Sampling include the Area Width, Length, Total Area, Units and Area Surface can be captured for each Wipe Sample taken. Total Area is calculated automatically based on the width and length.



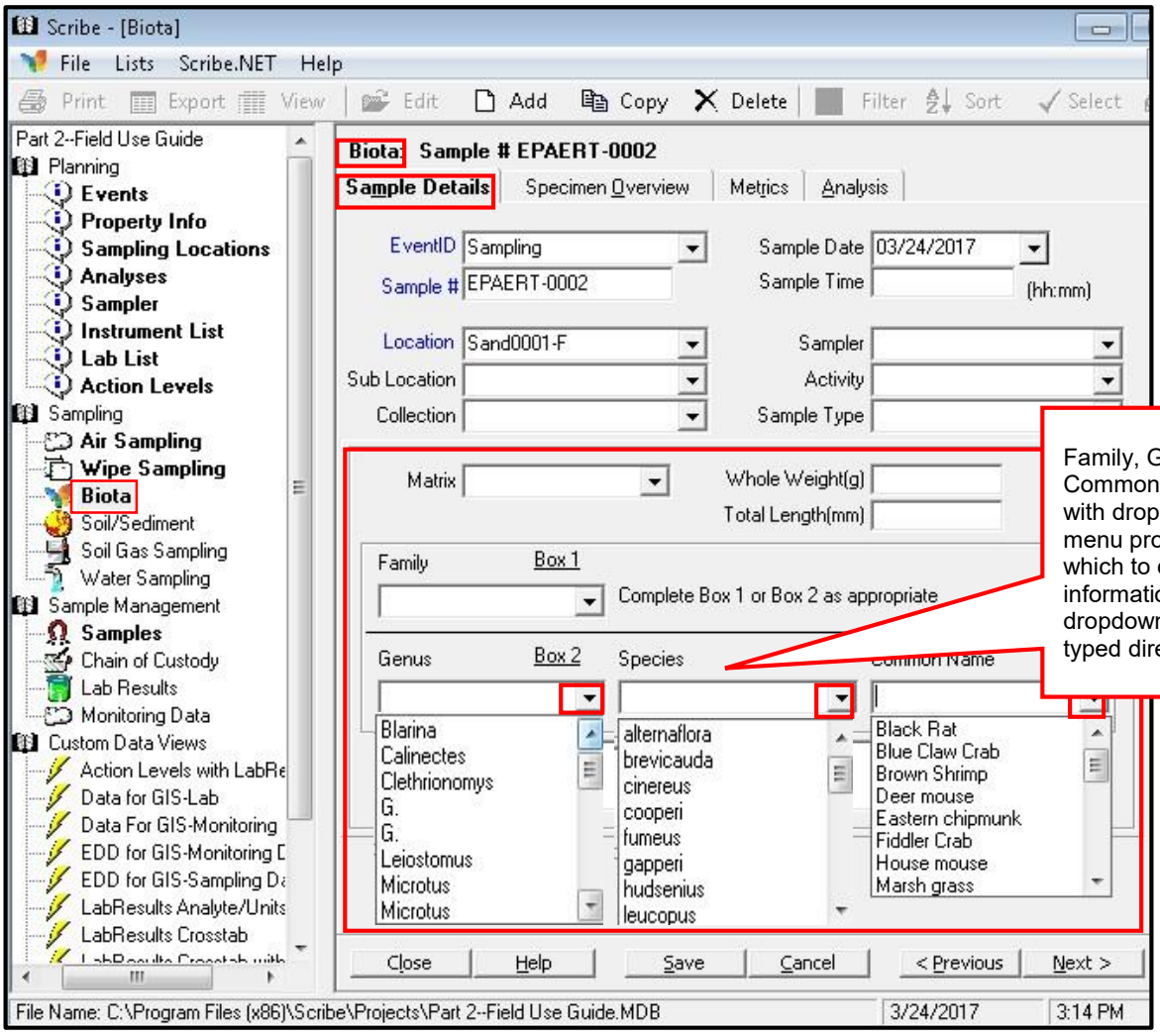


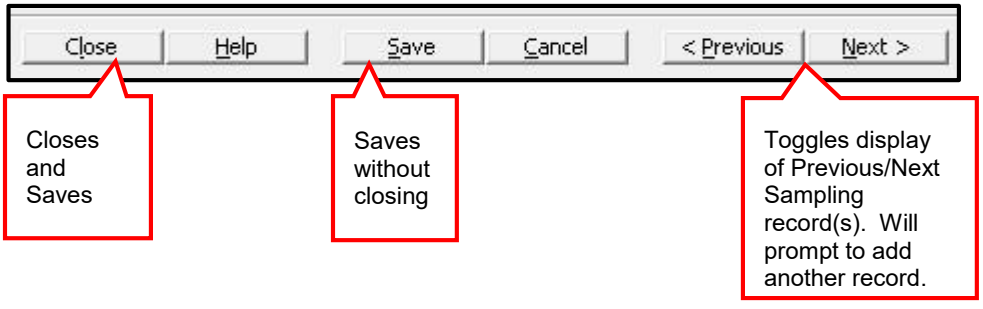
The **Pump Info** tab captures pre and post (Start/Stop) flow data from dust/microvac sampling using an SKC pump.



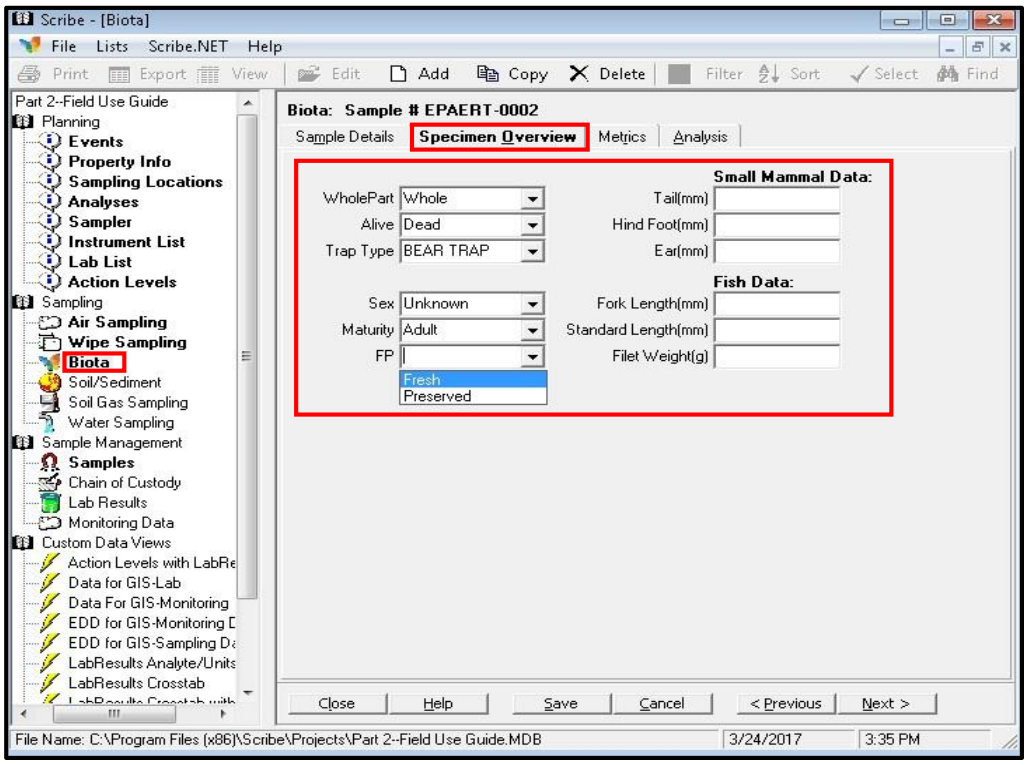
Biota Sampling

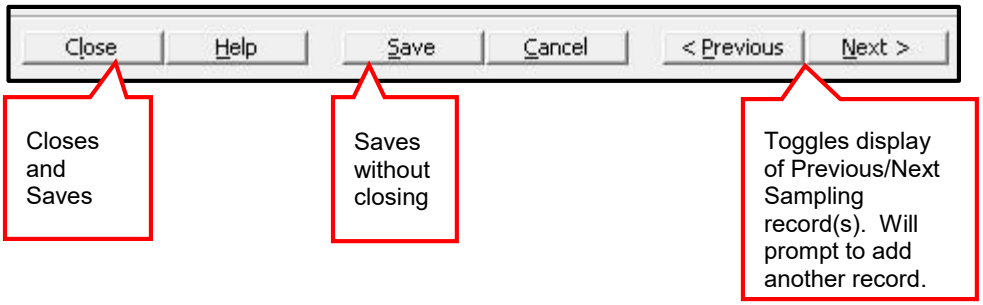
Sample detail fields specific to Biota Sampling include, the Genus, Species and Common Names, etc.



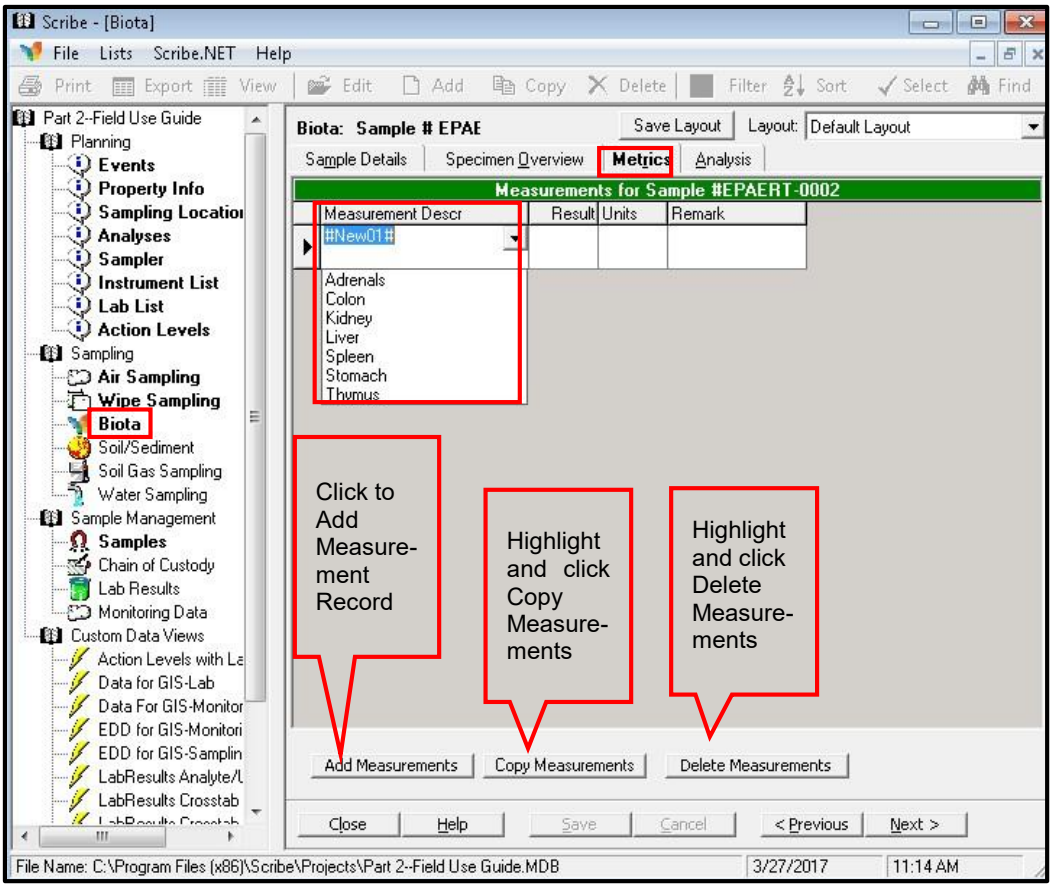


Additional Biota-specific information can be found on the **Specimen Overview** tab. Dropdown menus provide selections for Specimen Overview information. Select from the dropdown menu(s) or enter new data as appropriate.



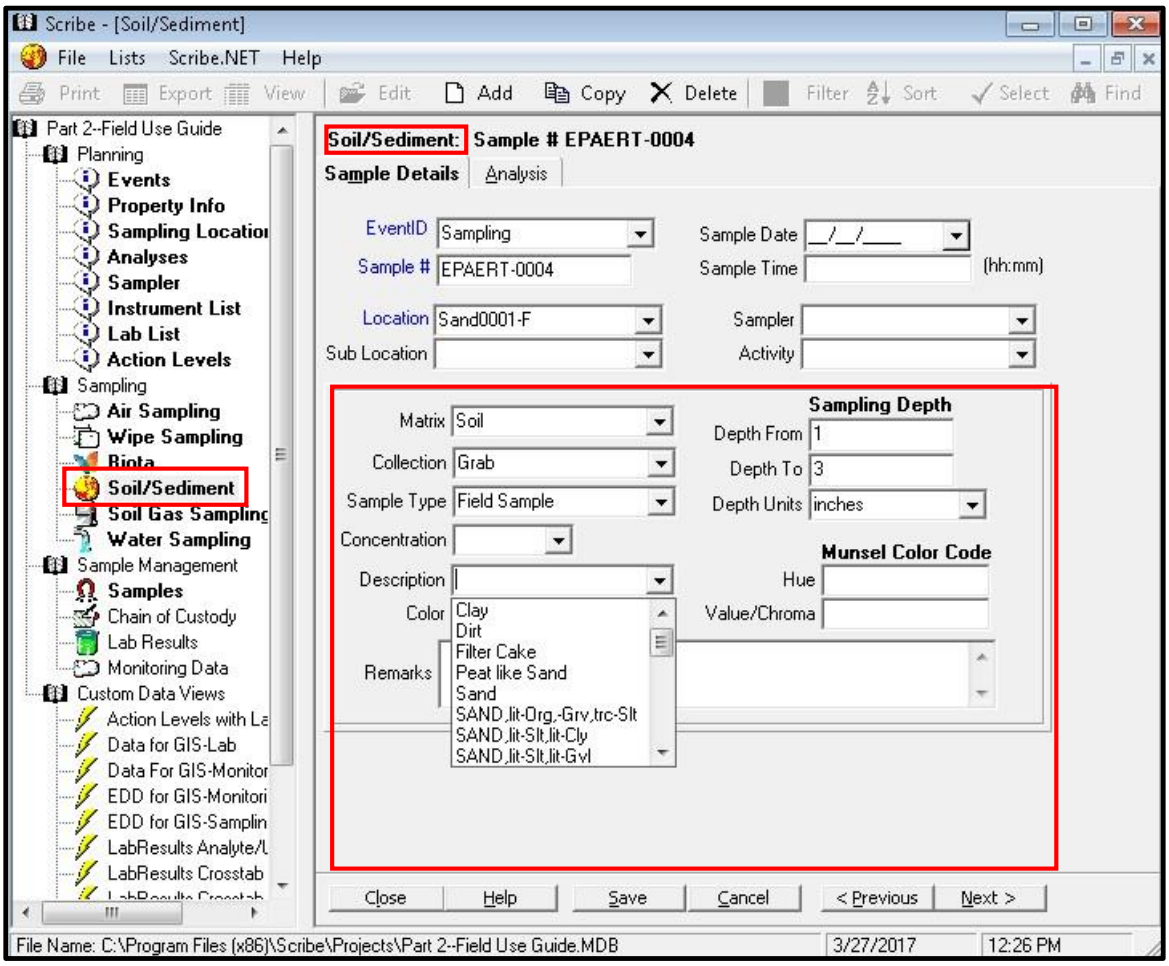


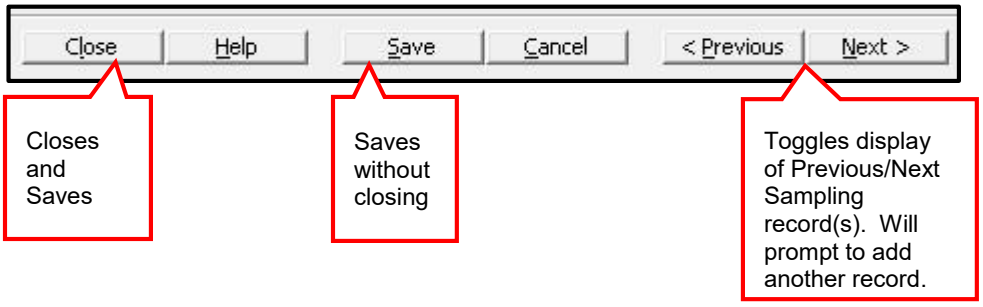
Clicking on the **Metrics** tab opens the Measurements for Sample screen. Dropdown menus provide selections for measurement information. Select from the dropdown menus or enter new data as appropriate.



Soil/Sediment Sampling

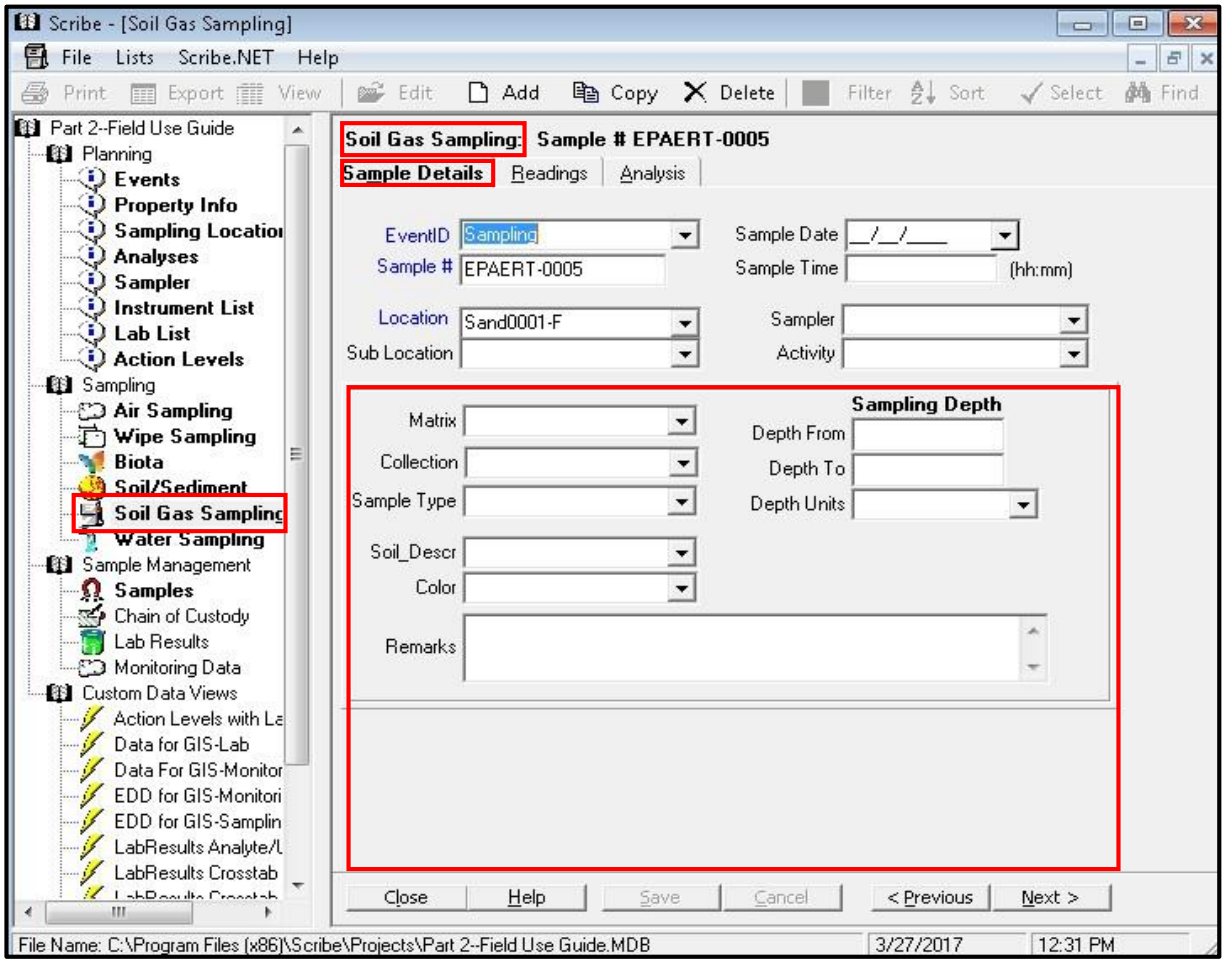
Sample detail fields specific to Soil/Sediment sampling include Depths, Color, Hue, etc. Details can be selected by clicking on the dropdown list or by entering the information directly.



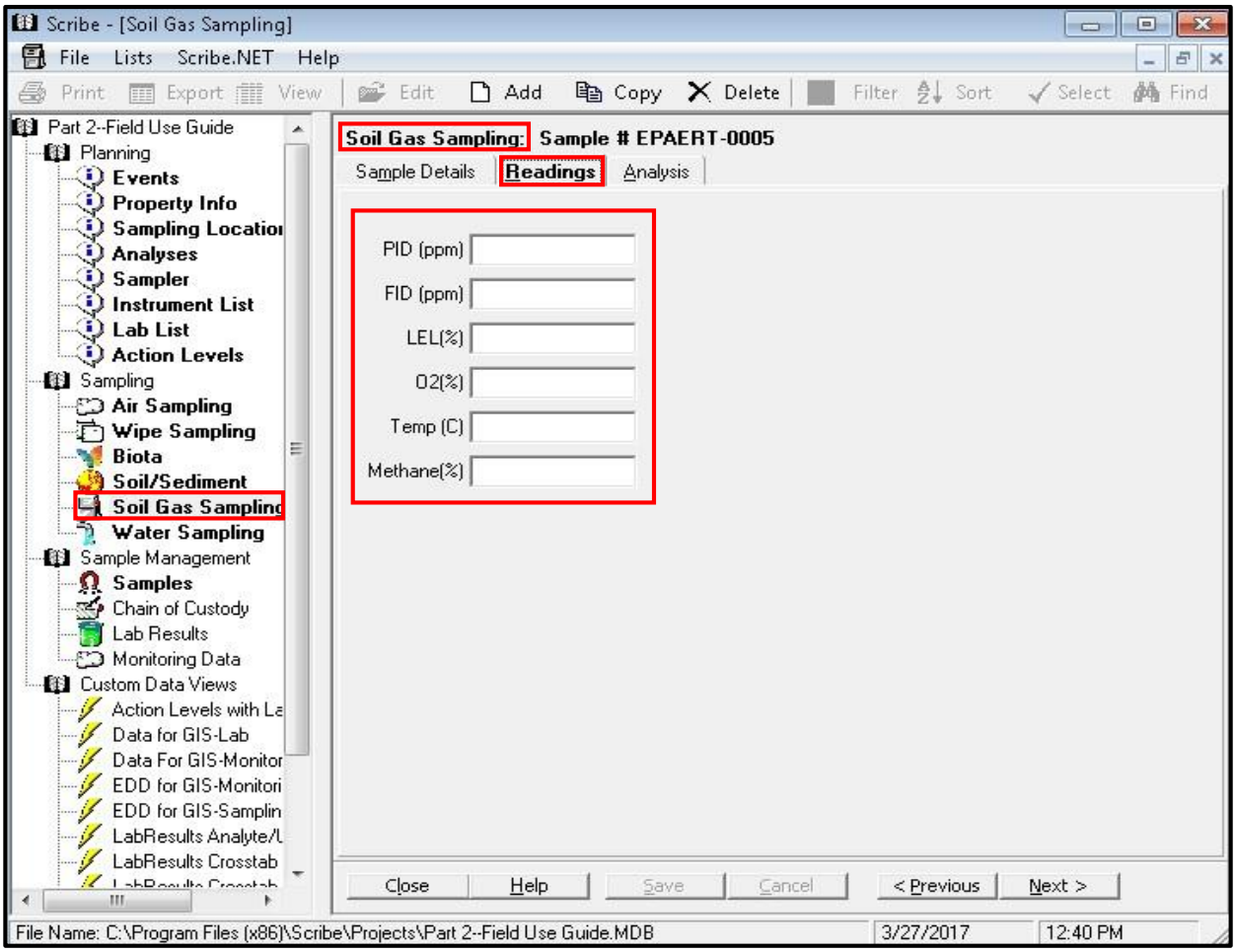


Soil Gas Sampling

The bottom half of the Sample Details screen captures the sample details (Matrix, Depths, Sample Type, Color, etc. Details can be selected by clicking on the dropdown list or by entering the information directly.

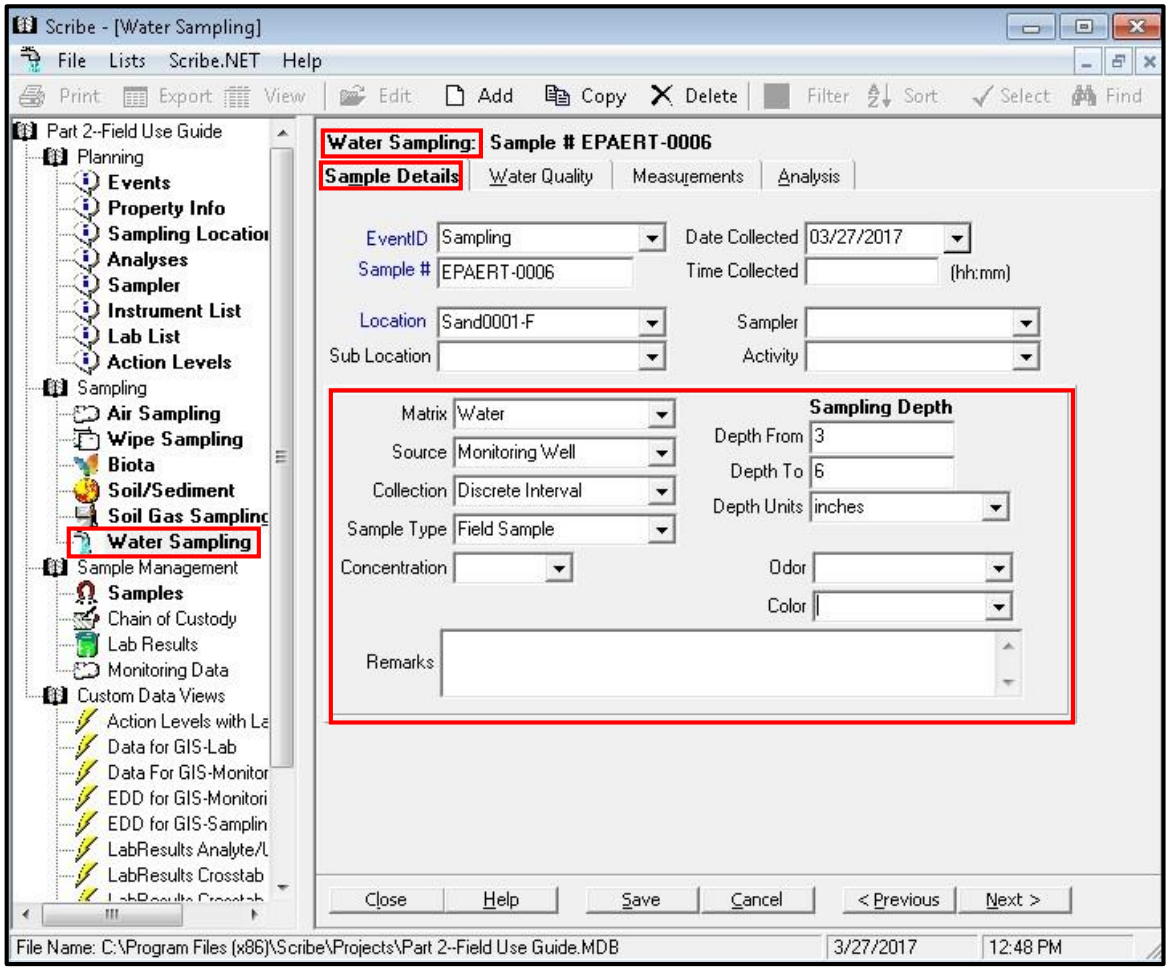


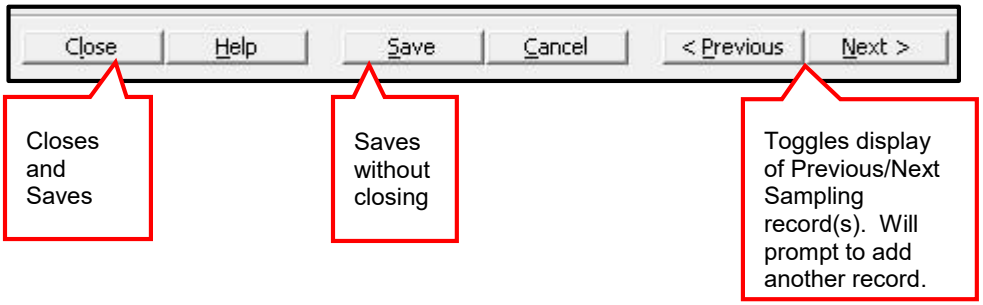
Clicking on the **Readings** tab opens the Readings screen. Enter appropriate readings in each of the fields.



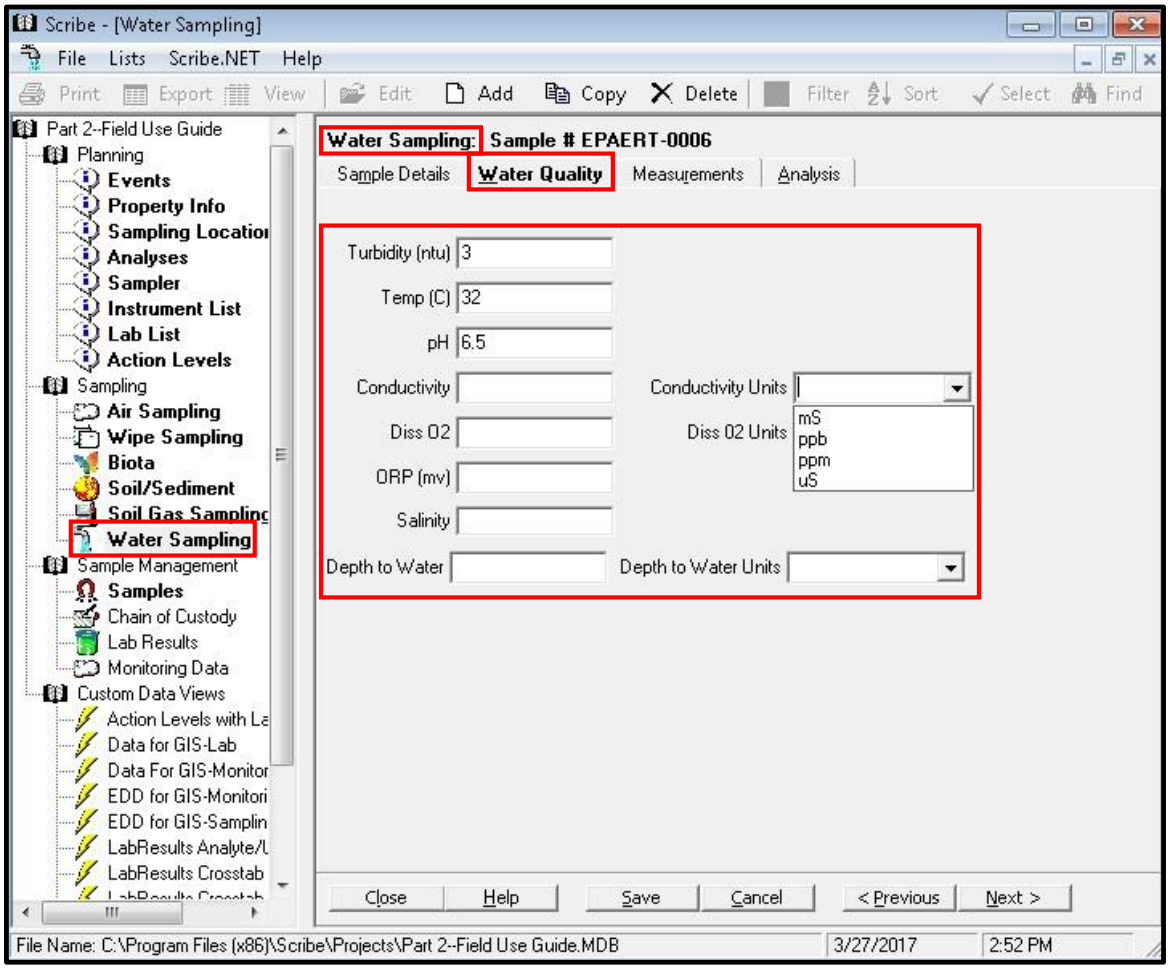
Water Sampling

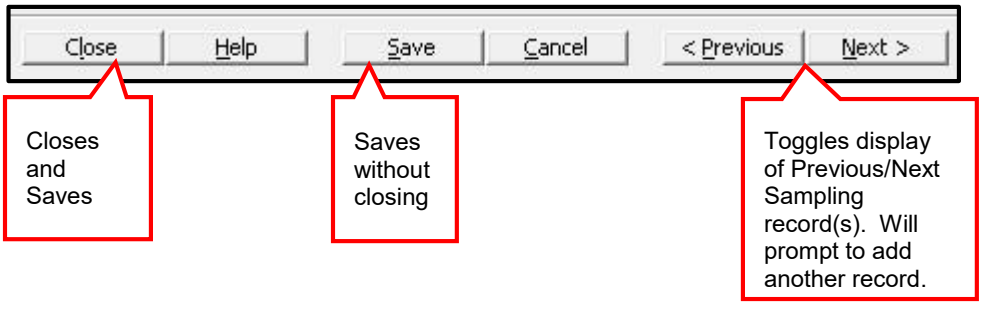
Sample detail fields specific to Water Sampling include Source, Odor, Color, etc. Details can be selected by clicking on the dropdown list or by entering the information directly.



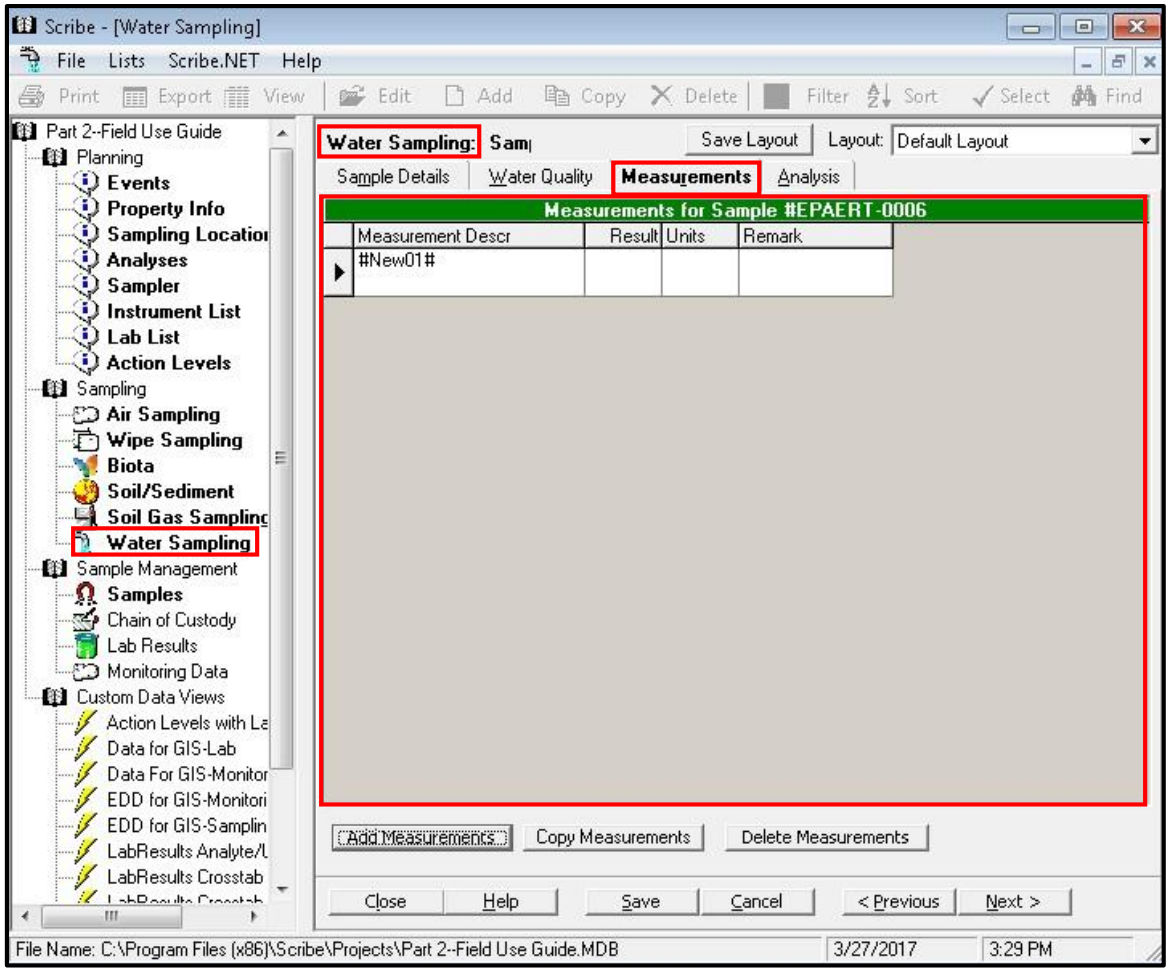


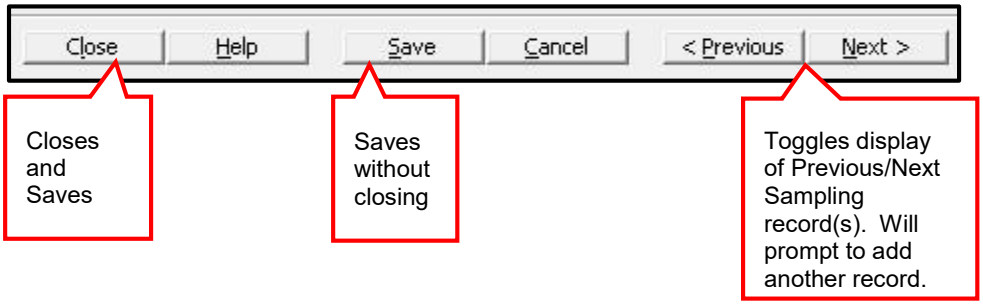
Click on the **Water Quality** tab to enter the appropriate water quality readings collected along with the sample.





Clicking on the **Measurements** tab opens the Measurements for Sample screen. Use this screen to add any additional water quality or water measurement information not specifically address in any of the other Water Sampling tabs.





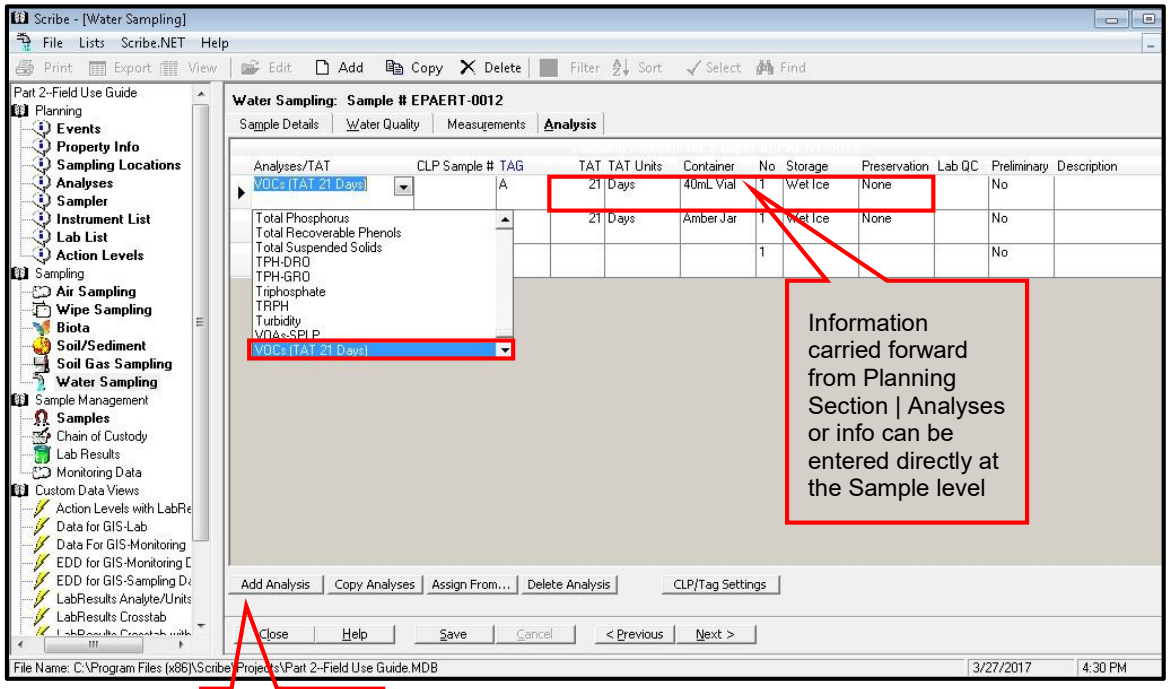
Add Analysis(es) to All Sampling Tasks

The **Analysis Tab** is the same in all of the Sampling Tasks (e.g., Air, Wipe, Soil/Sediment, etc.)

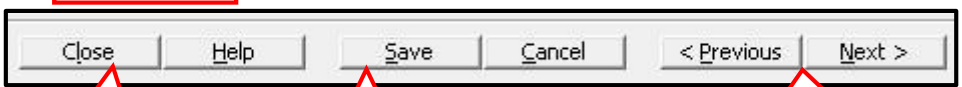
To add an Analyses, click on the Analysis tab and click in the Analyses/TAT field .

Click on the dropdown arrow for a list of Analyses in your Scribe project.

Note: *The dropdown list of Analyses can be customized under Planning | Analyses. (refer to Analyses, Page 15). Analyses can be added, edited and deleted and include TAT, TAT Units, Container(s), Preservation. Analyses Type and Program Type are extremely important when adding CLP samples. Refer to the CLP Guide for additional information. If TAT, Conatiner, Preservative is added in the Planning Section, Analyses table, the information will automatically carry forward to your Sample/Analyses.* The information can also be entered directly in the field(s) in the Analysis section.



Click on Add Analysis to create a new analysis record

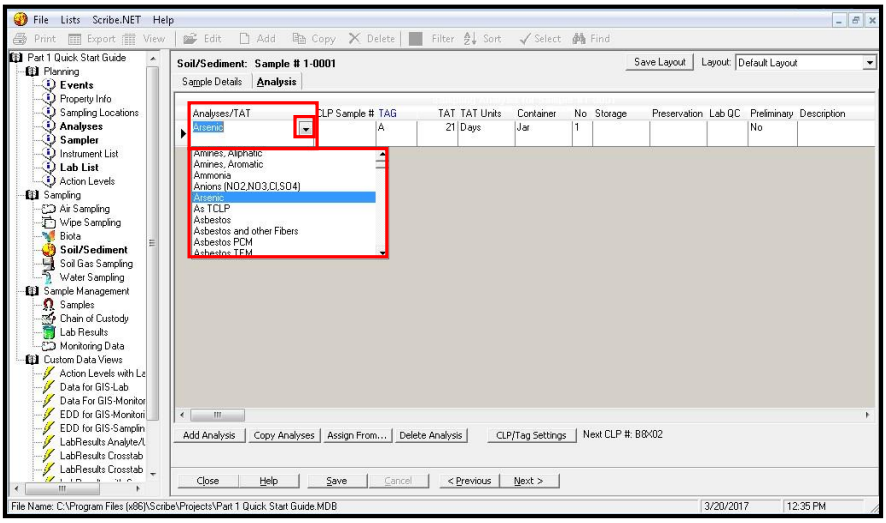


Closes and Saves

Saves without closing

Toggles display of Previous/Next Sampling record(s). Will prompt to add another record.

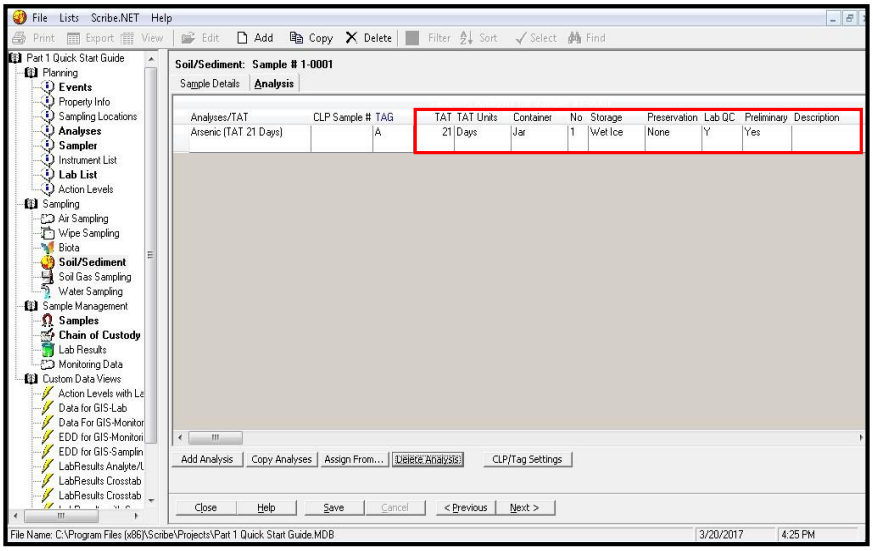
1. Click in the Analyses/TAT field. A drop down arrow will appear.
2. Click on the drop down arrow to display the list of analyses.
3. Select the analysis(es).



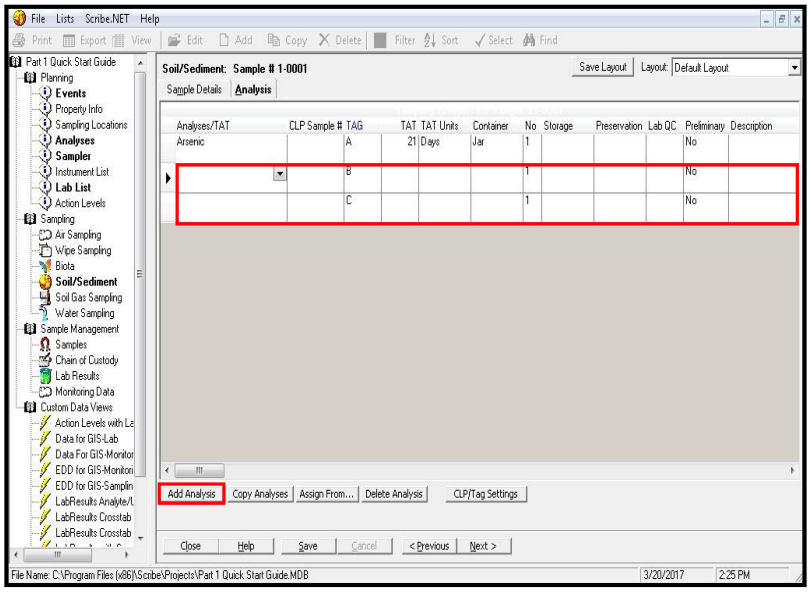
Note: The 'TAG' field will automatically increment with an Alpha character (i.e., A, B, C, etc.).

4. Enter TAT, TAT Units, Container (type), No. of Containers, Storage, Preservation, Lab QC (MS/MSD), Preliminary (Results), and additional description (if necessary).

Note: *CLP Sample # will not be populated unless the CLP/Tag Settings have been set up and the analysis is part of the CLP Program. Please refer to the* ***Scribe CLP User Guide*** *for Adding CLP Analyses.*

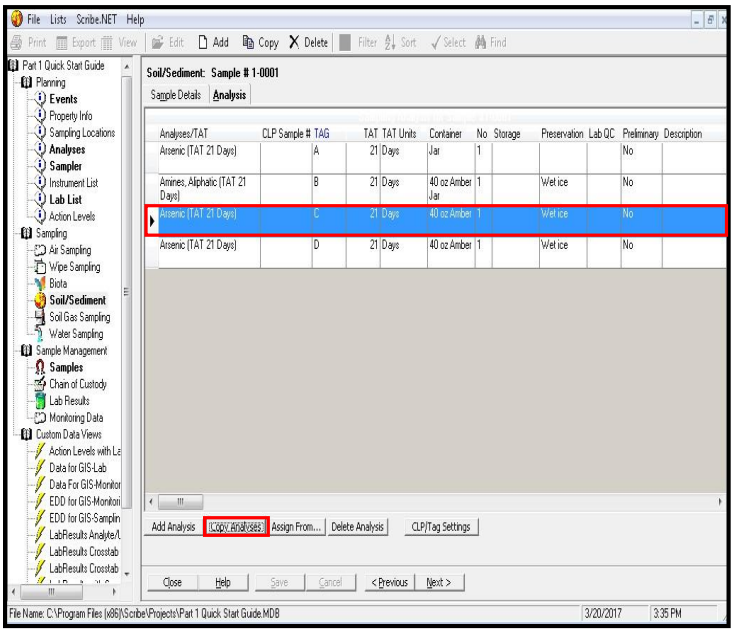


5. To add additional analyses, click on ‘Add Analysis’.
6. Follow Steps 1 and 2 above.
7. Click Close to close the screen.



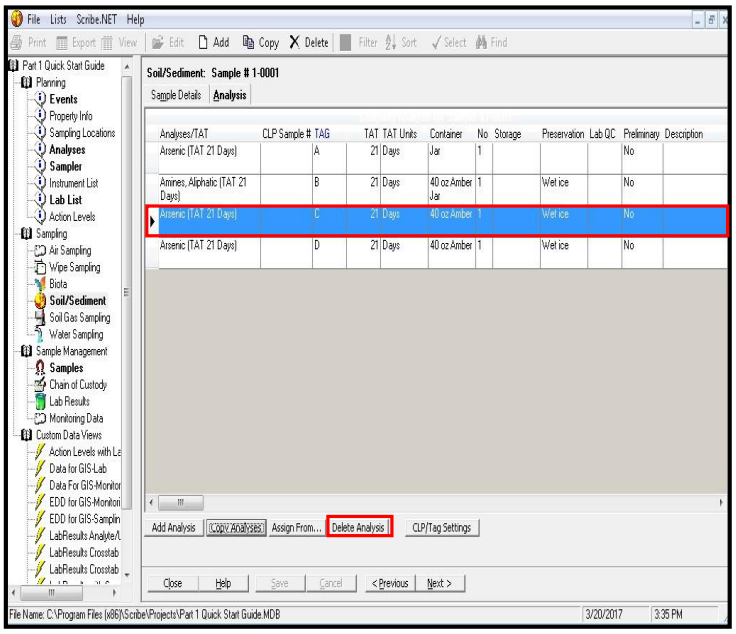
Copy an Analysis(es)

1. Highlight an analysis.
2. Click ‘Copy Analyses’.
3. Click Close to close the screen.



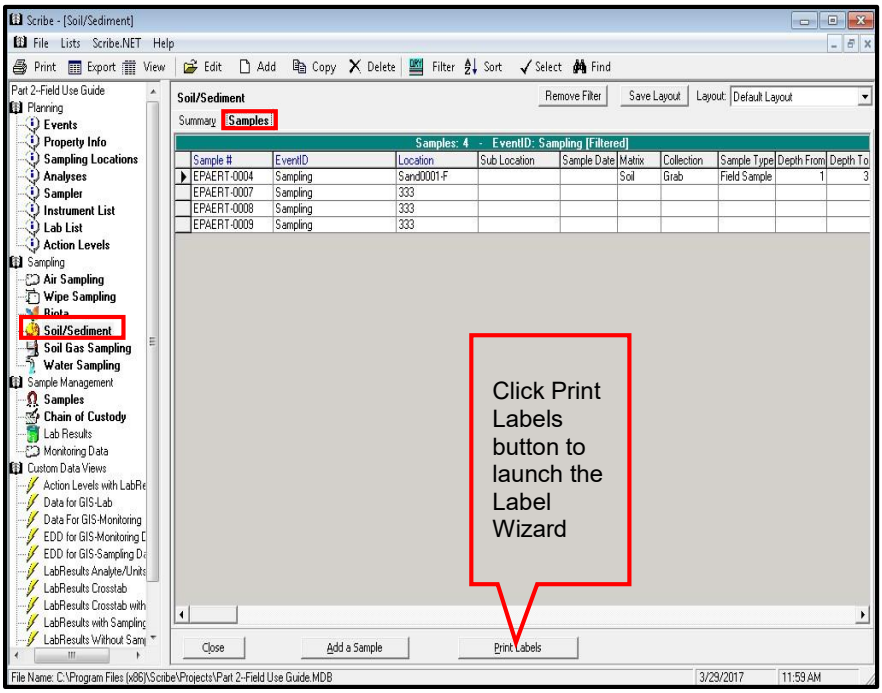
Delete an Analysis

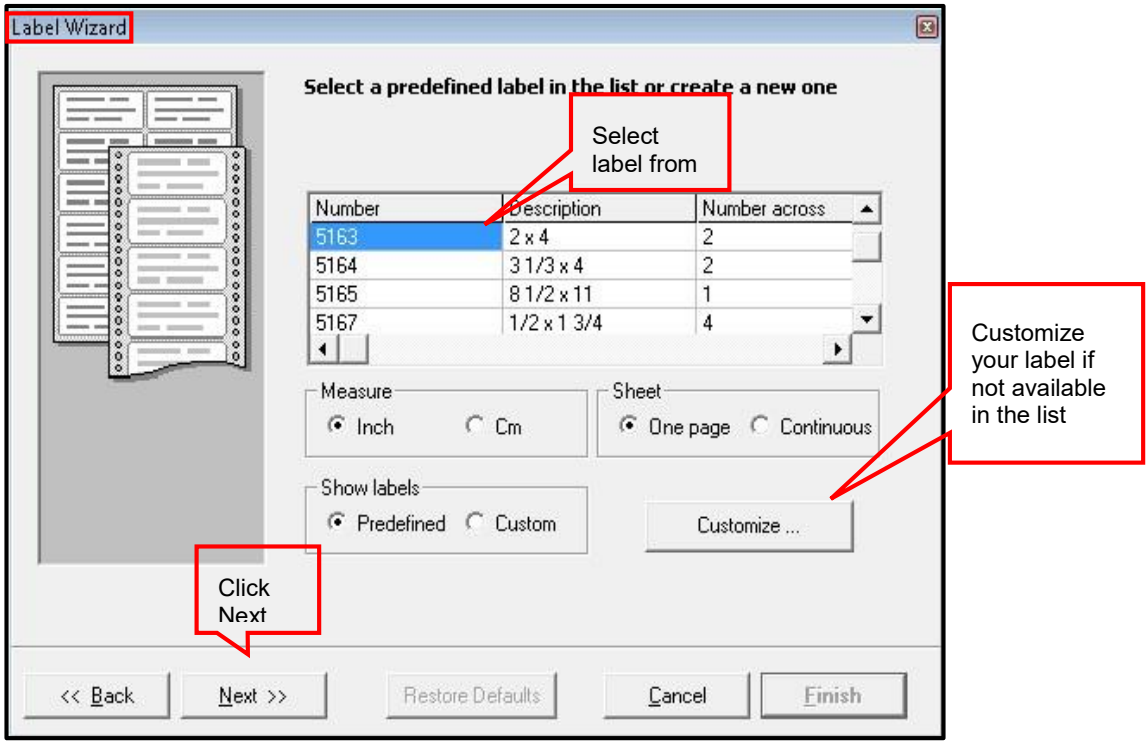
1. Highlight an Analysis.
2. Click 'Delete Analyses'.
3. Click Close to close the screen.

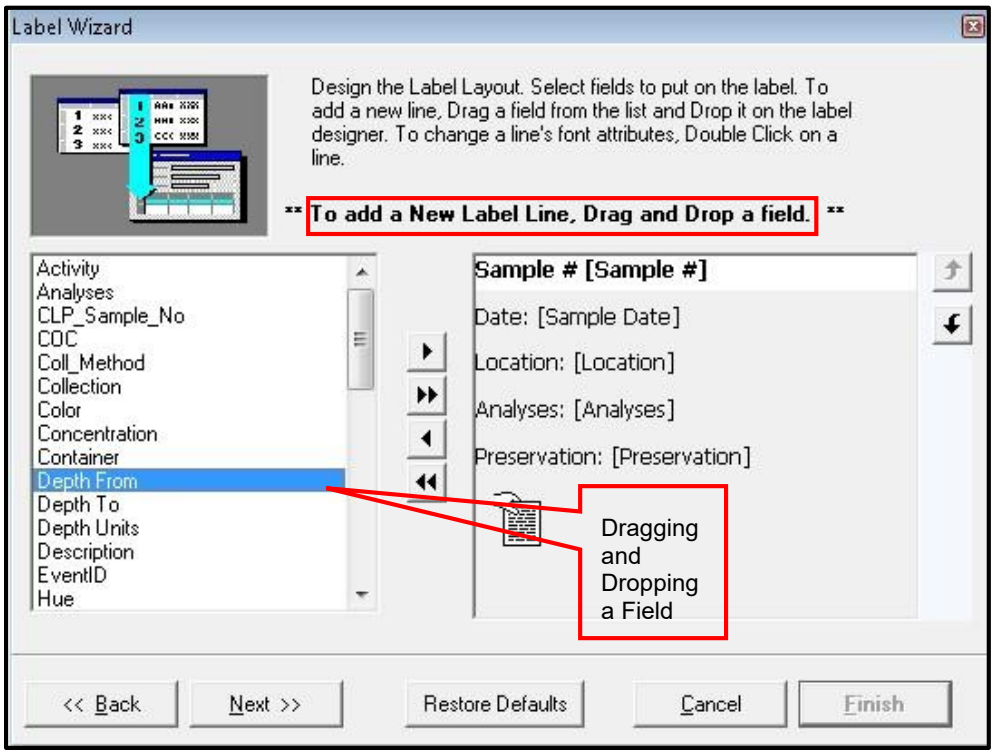


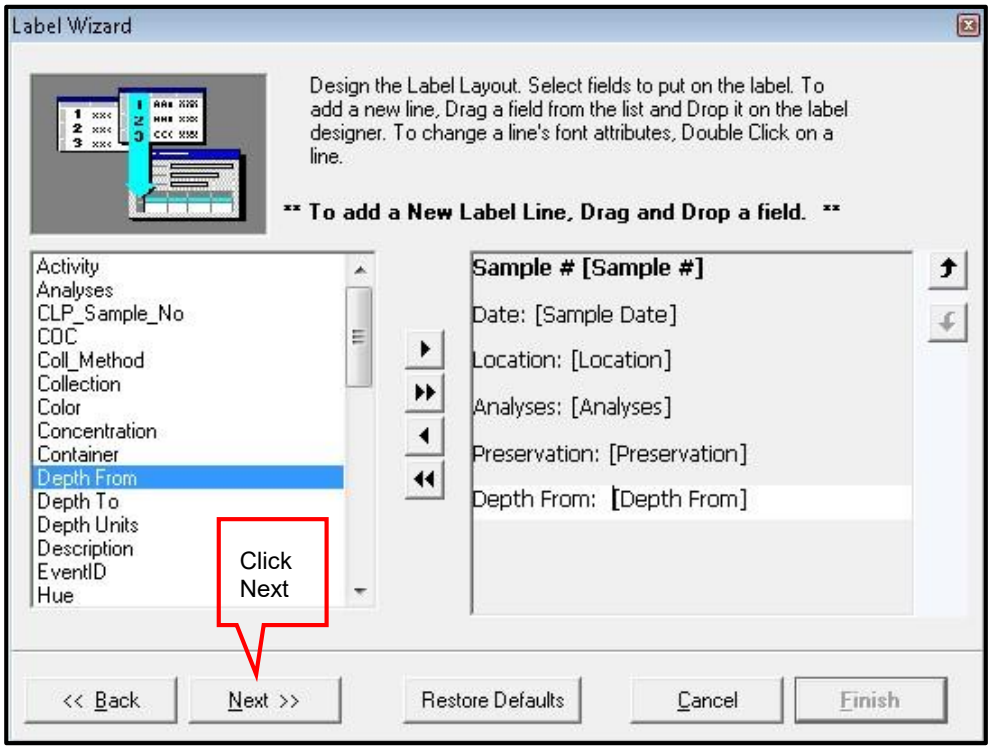
Print Labels (from Sampling)

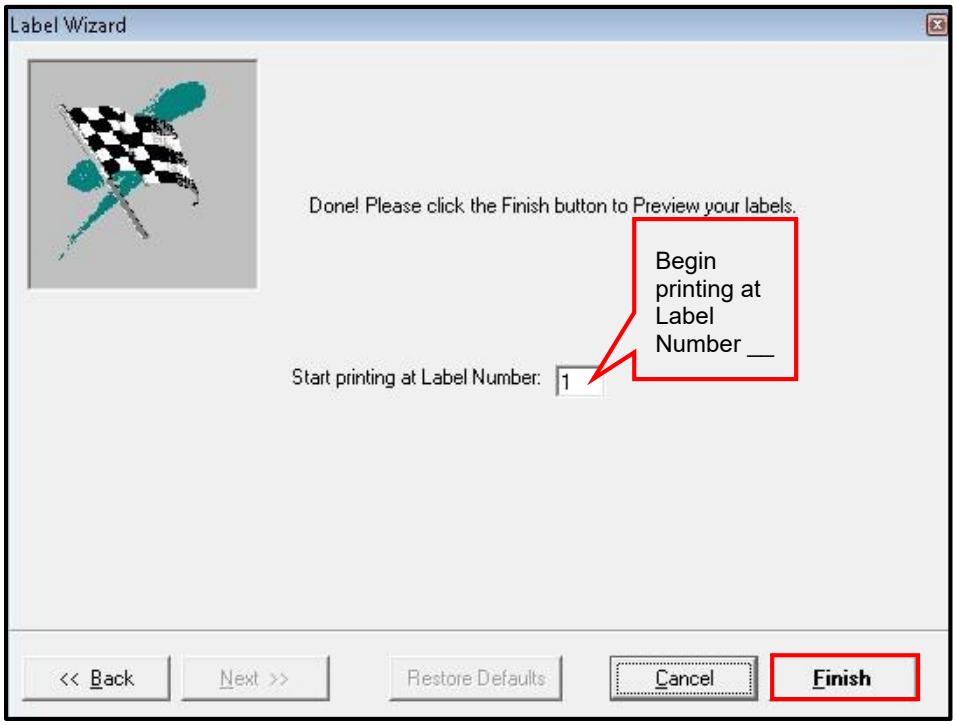
To Print Labels from the individual Sampling Task, return to the Samples Tab. By default, all samples shown on the screen will be printed. For printing specific samples, the Filter Button should be used.

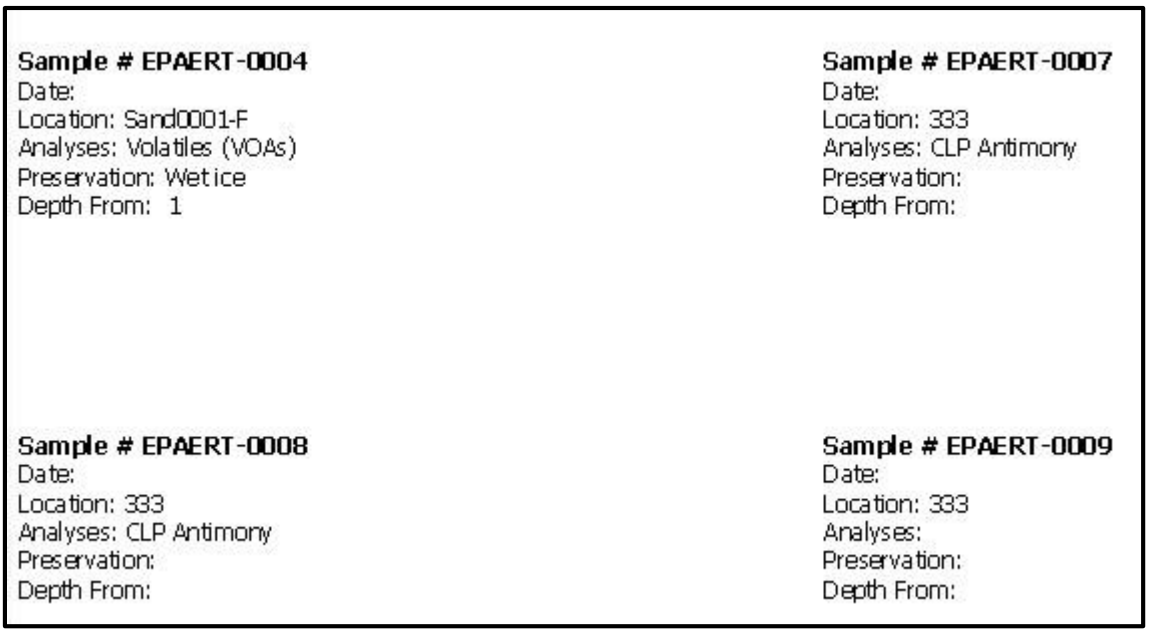



Label Wizard
Select a predefined label in the list or create a new one
Select label from
Number
Description
Number across
5163
2 x 4
2
5164
3 1/3 x 4
2
5165
8 1/2 x 11
1
5167
1/2 x 1 3/4
4
Measure
Inch
Cm
Sheet
One page
Continuous
Show labels
Predefined
Custom
Customize ...
Customize your label if not available in the list
Click Next
<< Back
Next >>
Restore Defaults
Cancel
Finish


Label Wizard
Design the Label Layout. Select fields to put on the label. To add a new line, Drag a field from the list and Drop it on the label designer. To change a line's font attributes, Double Click on a line.
** To add a New Label Line, Drag and Drop a field. **
Activity
Analyses
CLP_Sample_No
COC
Coll_Method
Collection
Color
Concentration
Container
Depth From
Depth To
Depth Units
Description
EventID
Hue
Sample # [Sample #]
Date: [Sample Date]
Location: [Location]
Analyses: [Analyses]
Preservation: [Preservation]
Dragging and Dropping a Field
<< Back
Next >>
Restore Defaults
Cancel
Finish


Label Wizard
Design the Label Layout. Select fields to put on the label. To add a new line, Drag a field from the list and Drop it on the label designer. To change a line's font attributes, Double Click on a line.
** To add a New Label Line, Drag and Drop a field. **
Activity
Analyses
CLP_Sample_No
COC
Coll_Method
Collection
Color
Concentration
Container
Depth From
Depth To
Depth Units
Description
EventID
Hue
Sample # [Sample #]
Date: [Sample Date]
Location: [Location]
Analyses: [Analyses]
Preservation: [Preservation]
Depth From: [Depth From]
Click Next
<< Back
Next >>
Restore Defaults
Cancel
Finish



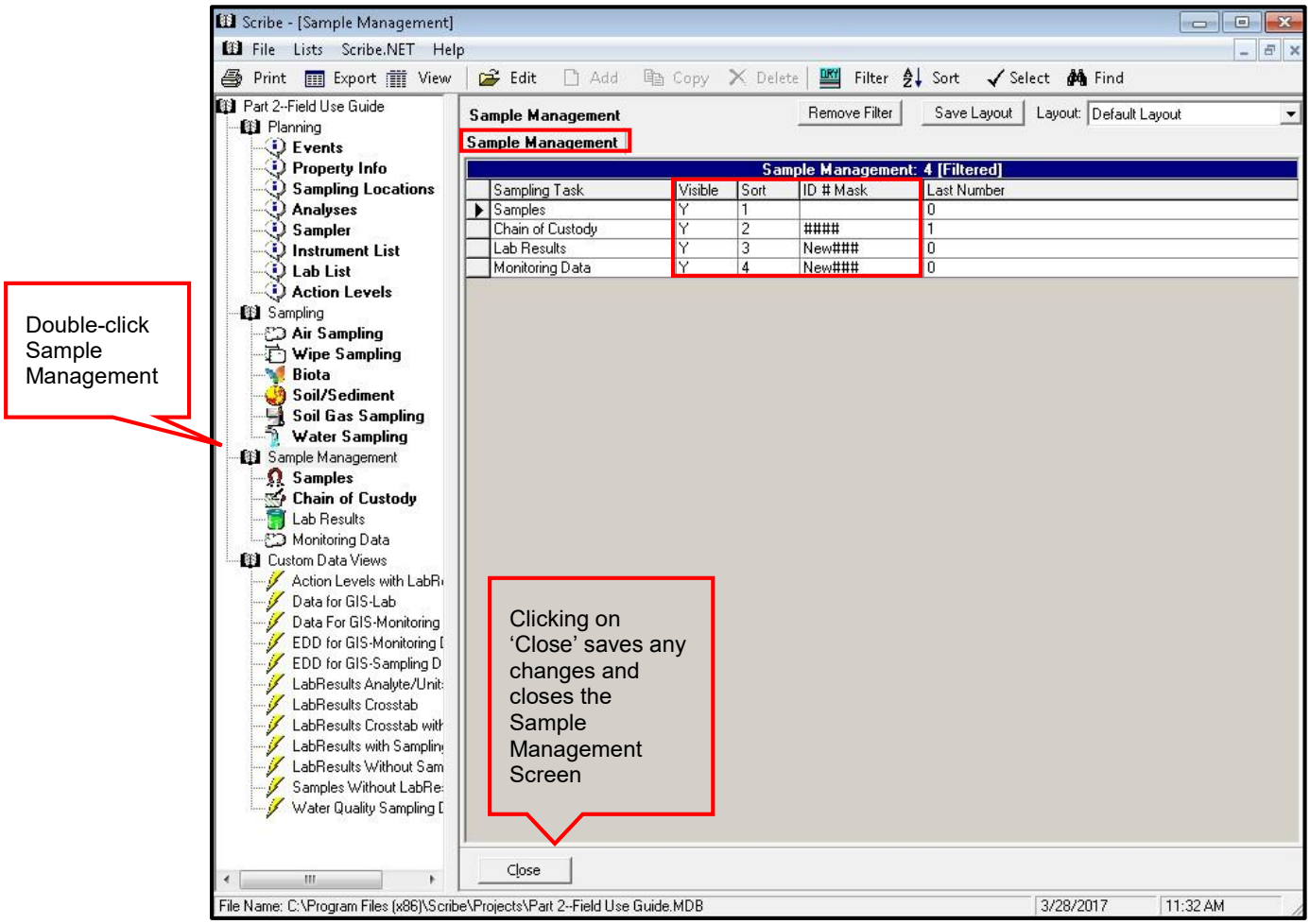


Print Preview

In addition, labels can be printed under the Sample Management | Samples section.

Sample Management

The **Sample Management** section consists of four (4) sections: **Samples, Chain of Custody**, **Lab Results** and **Monitoring Data**. By double-clicking on the word Sample Management you can set the Visibility, Sort Order, and set an ID Mask.



The first column on the **Sample Management** screen lists the type of Sampling Tasks available. By default, the Tasks are visible in the Navigation Pane. By changing **Visible** to an 'N', the Task will no longer be visible and not available for selection in the Navigation Pane. For example, if your project will only include Samples, Chain of Custody and Lab Results, change the 'Y' to an 'N' in Monitoring Data and that Task will no longer be visible in the Navigation Pane.

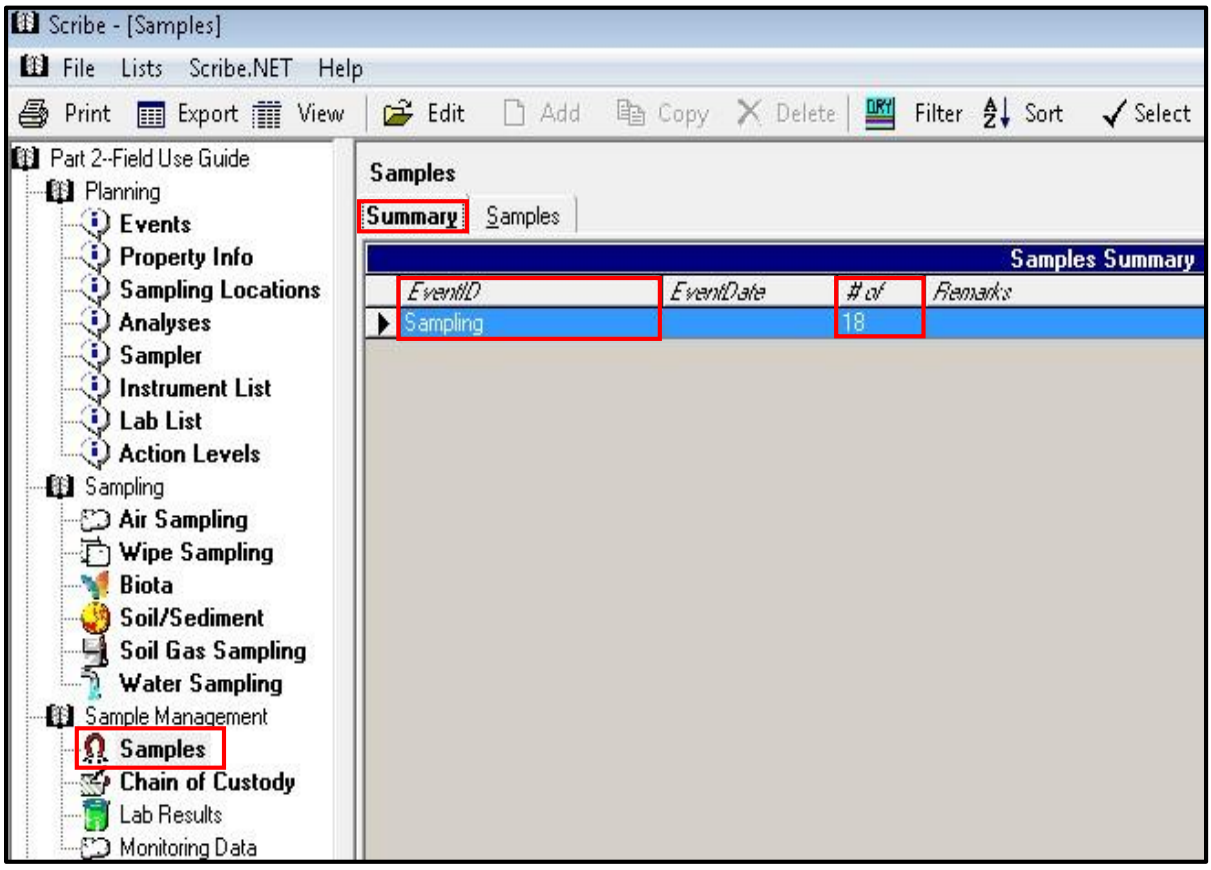
Sort allows you to sort your Tasks in another order. For example, alphabetical, etc.

Chain of Custody ID # Mask is useful when a specific Chain of Custody number (Mask) scheme is outline in a site specific Data Management Plan, as well when multiple crews are sampling and distinct Chain of Custodies per crew need to be configured.

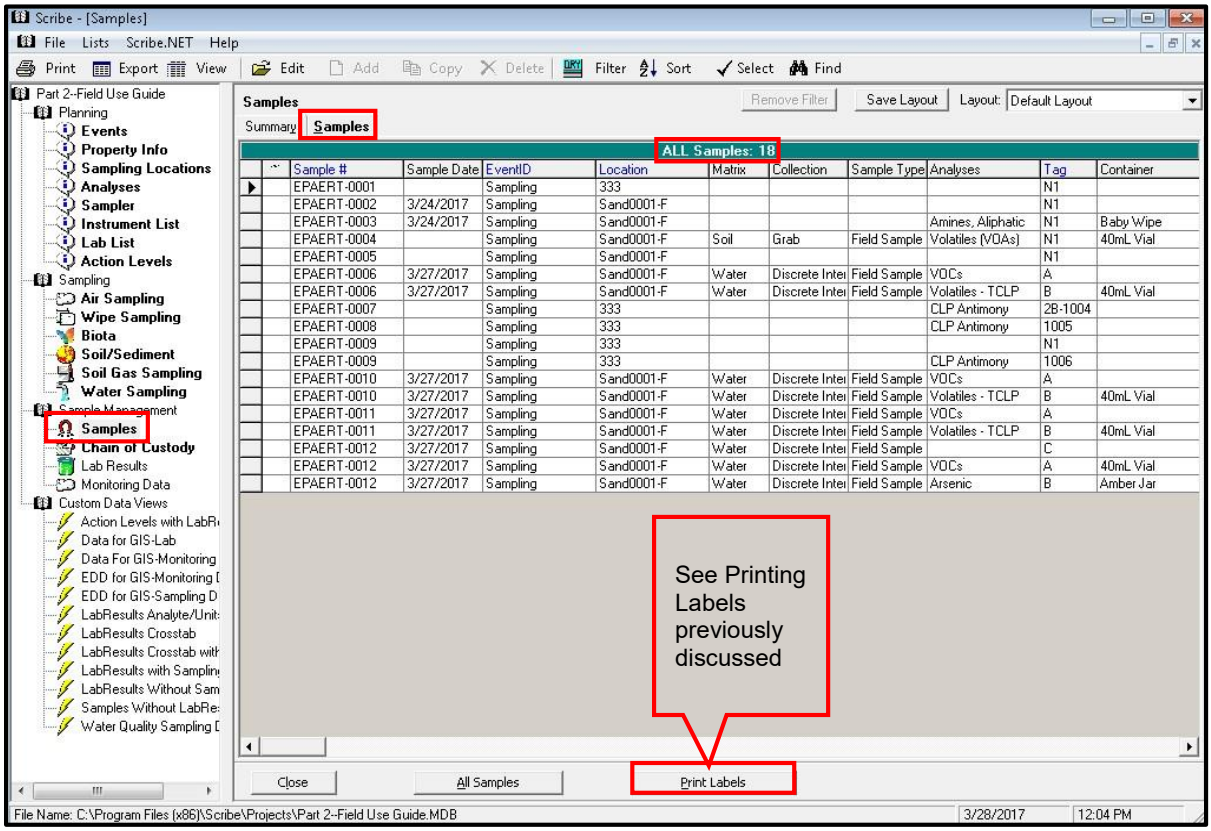
The **Last Number** field will show the last Chain of Custody number used (i.e., the last COC # was 0001 (the next ne would be 0002).

Samples

Clicking on '**Samples**' in the Navigation pane displays a **Summary** tab and a **Samples** tab. The Summary tab summarizes the number of Samples per EventID in the Scribe project.



Clicking on the **'Samples'** tab will display ALL the samples – more specifically – all the analyses assigned to samples in the Scribe project. This differs from the Sampling section because you can see each analysis for each Sample Type. When working in the Sampling Section, Samples for only one type at a time can be viewed.

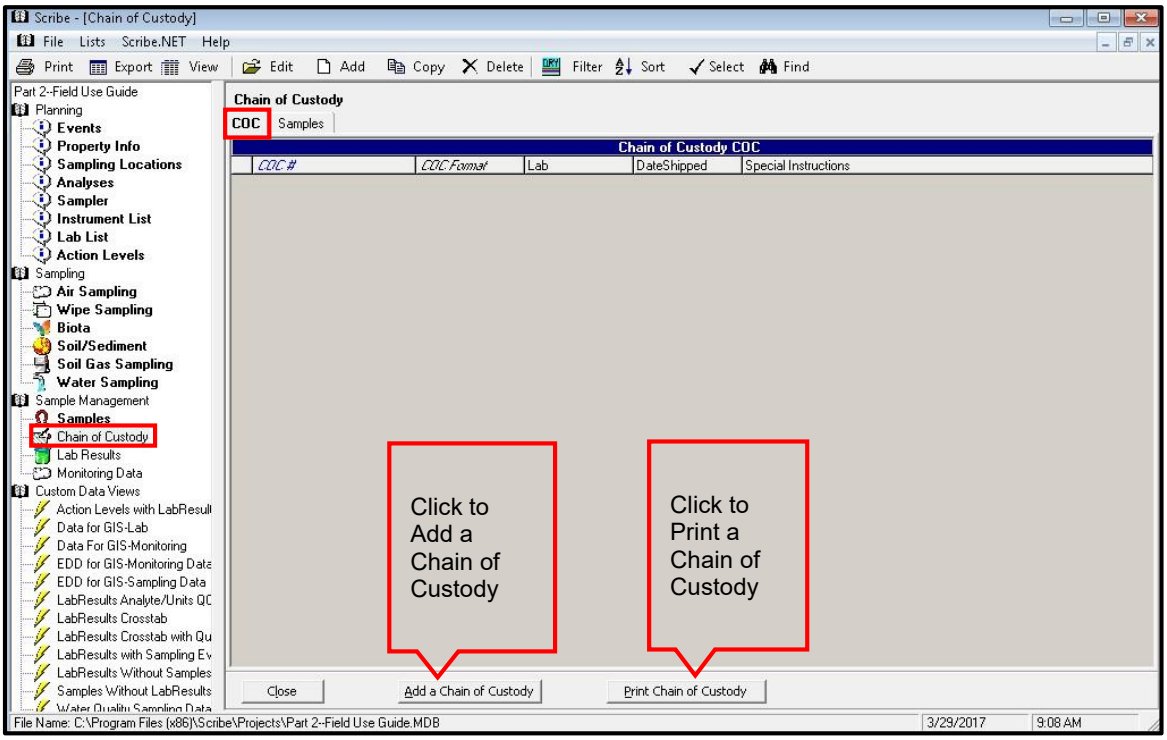


Example: ALL Samples displayed

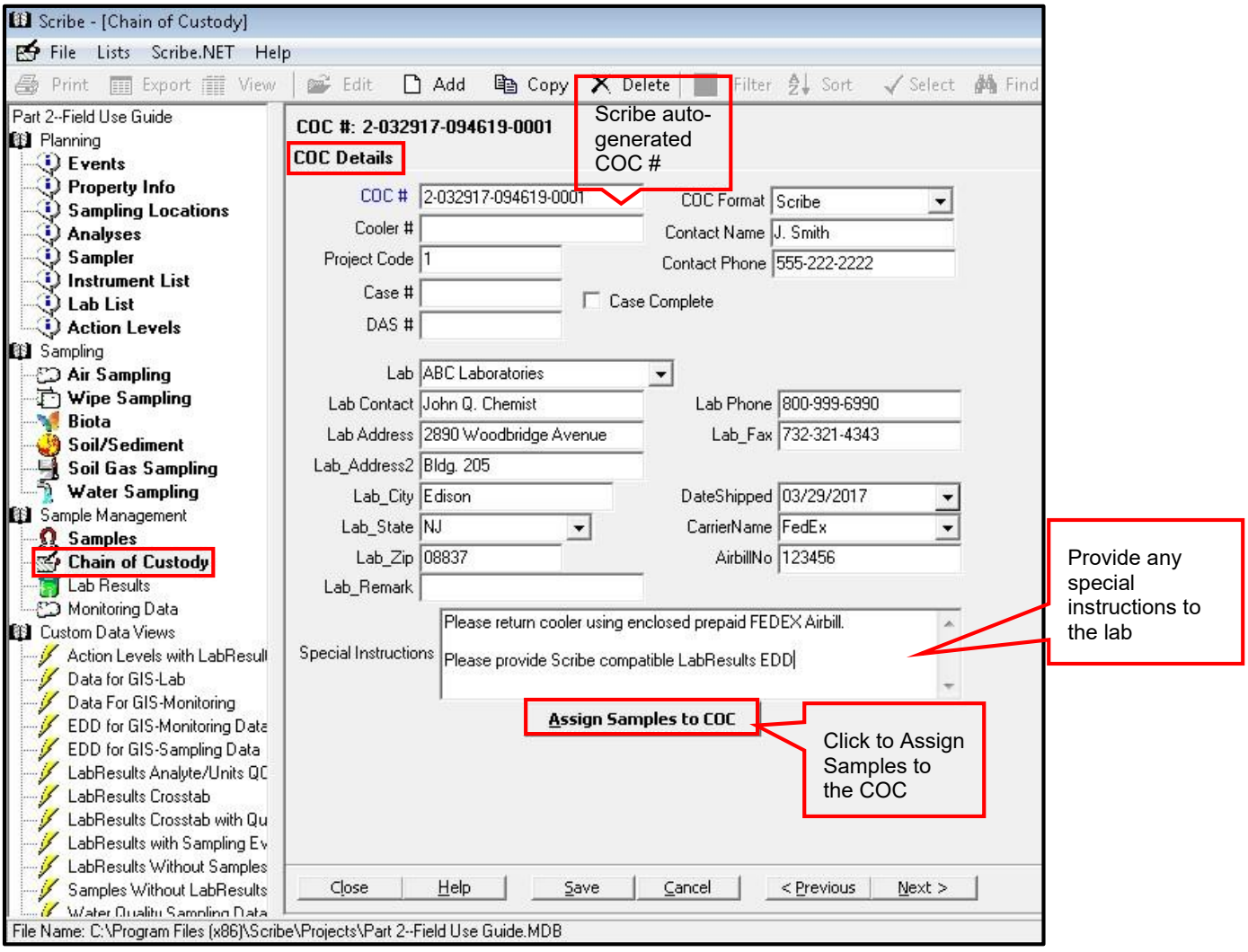
Samples can also be filtered for a specific Sample #, Location, EventID, etc.

Chain of Custody

Chain of Custody records are created under the Chain of Custody section under Sample Management. Clicking on Chain of Custody displays a COC tab and Samples tab. By clicking on Add a Chain of custody, a COC Details screen will display.

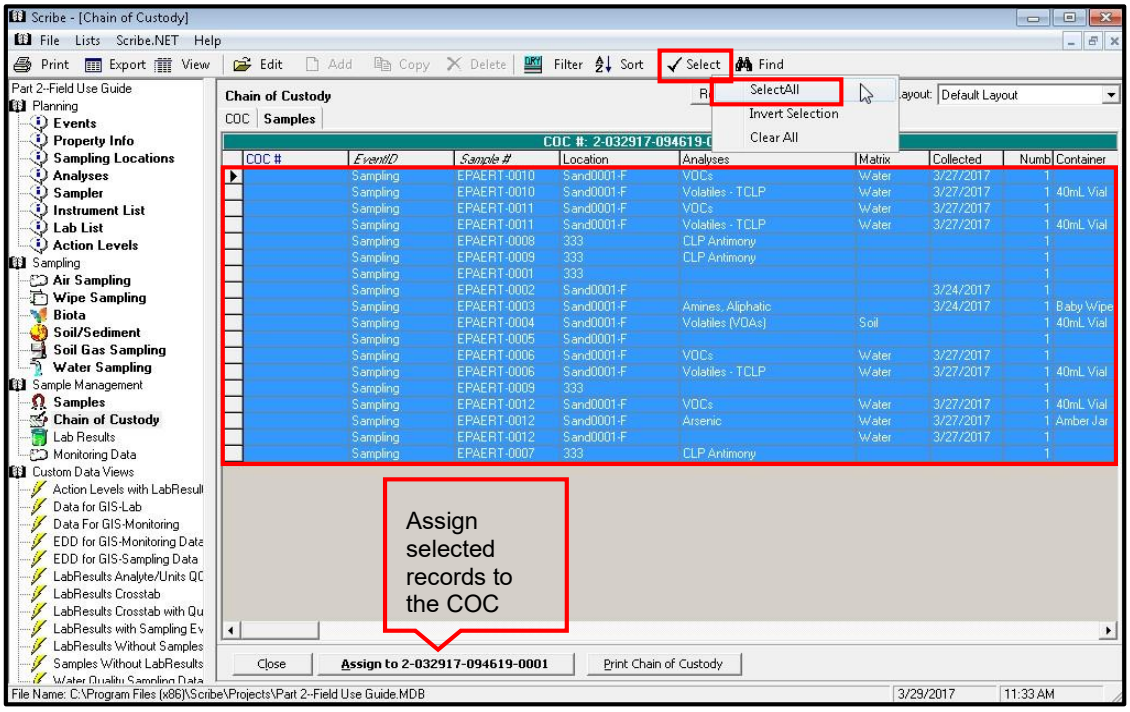


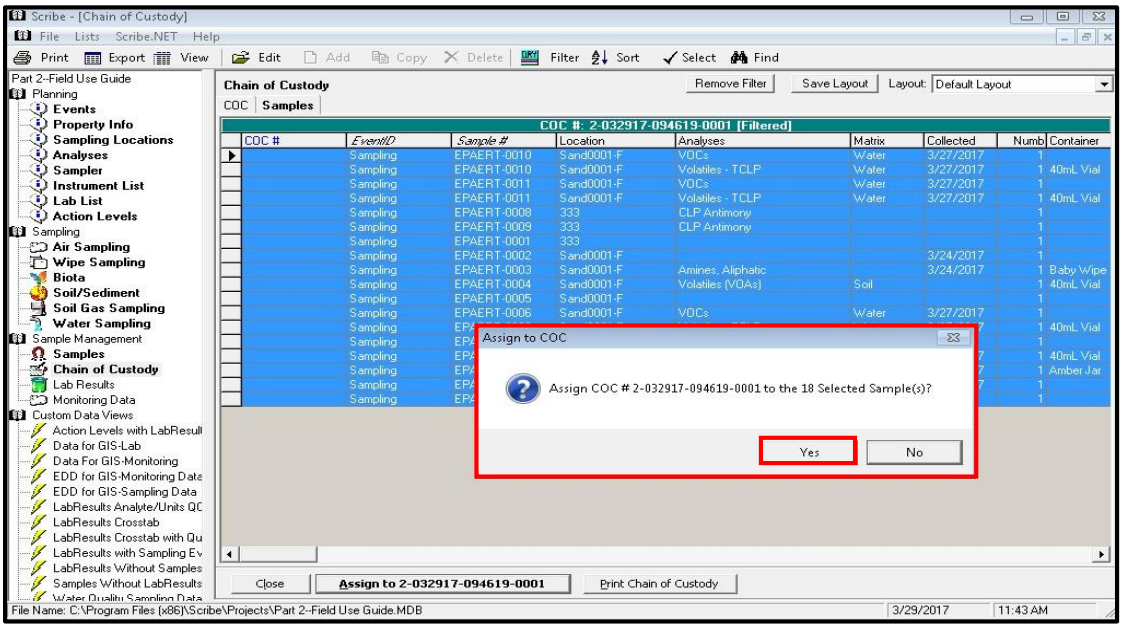
On the COC Details screen, the COC # (denoted in **blue**) is a required field. By default, Scribe will auto-generate a COC # (Region #-Date-Time-####). This number can be changed. Additional information is added to the COC by adding directly into the field, or by clicking on the dropdown arrows.

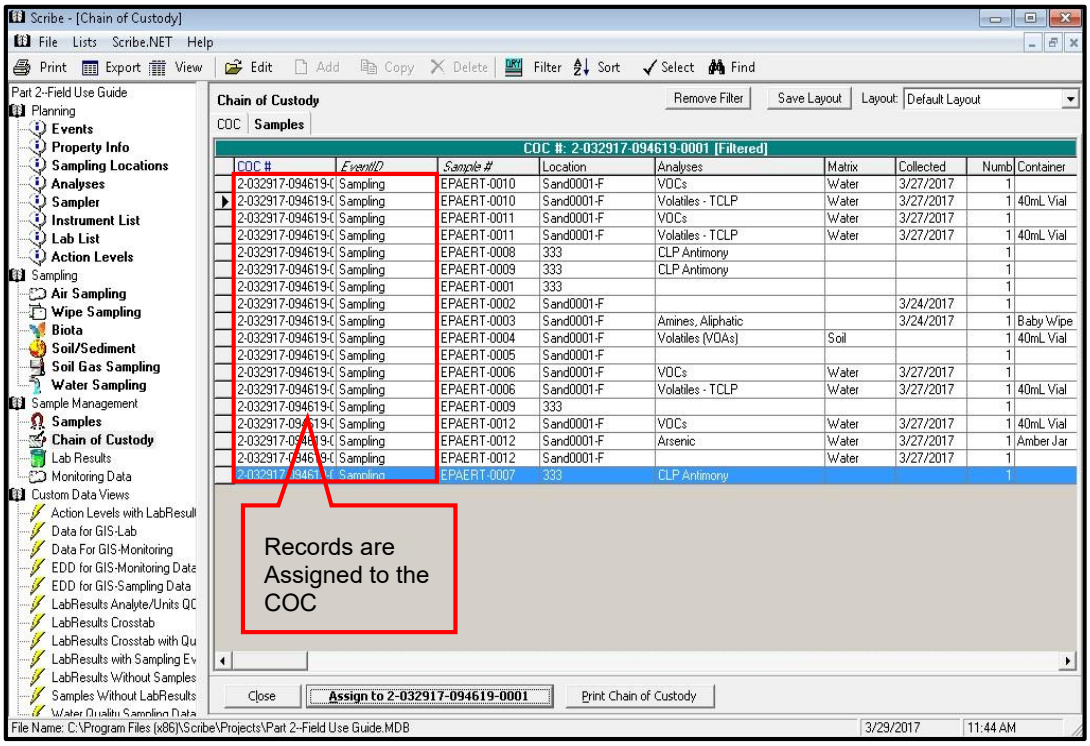


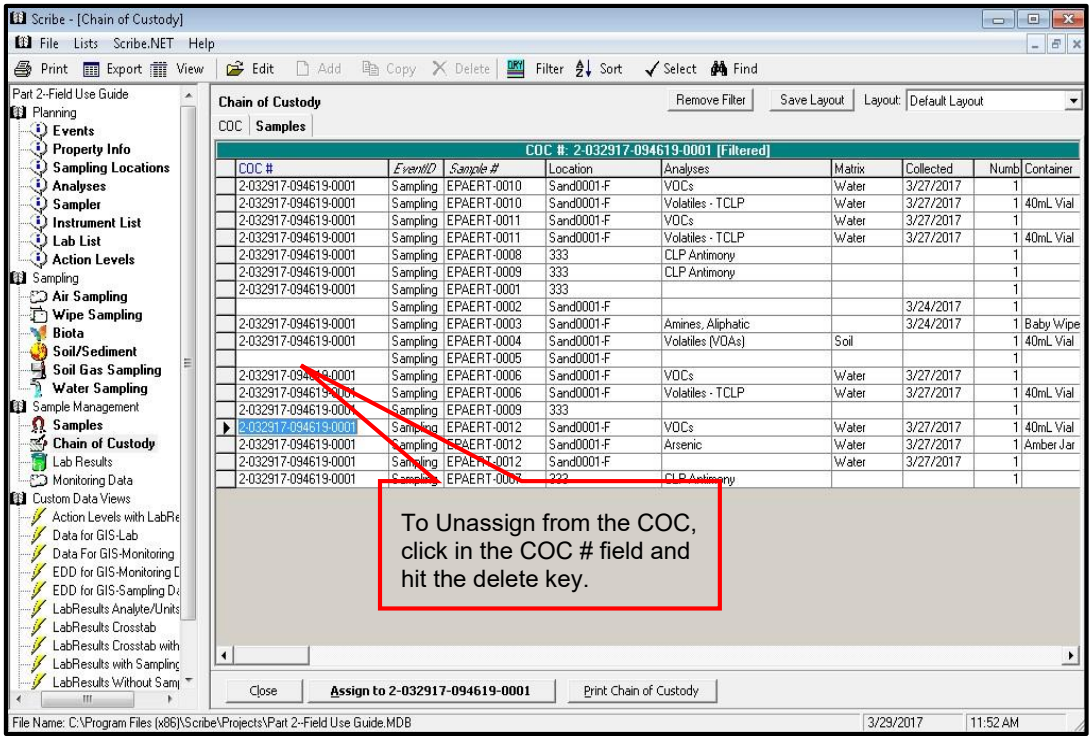
Assigning Samples to a COC

By clicking on the Select | Select All button, the Samples/analyses are highlighted. To assign all of the selected records, click **Assign to** button. To assign only certain records, use the Ctrl key to deselect records to be assigned.



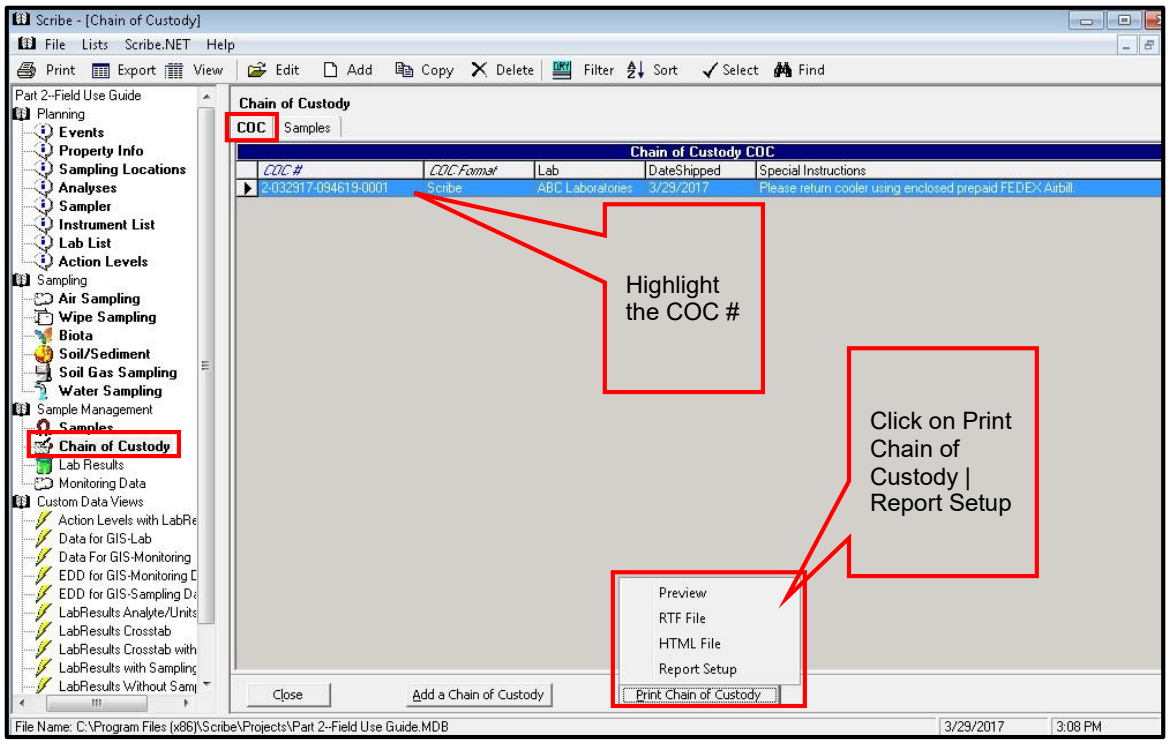



Scribe - [Chain of Custody]
File Lists Scribe.NET Help
Print Export View Edit Add Copy Delete Filter Sort Select Find
Part 2-Field Use Guide
Planning
Events
Property Info
Sampling Locations
Analyses
Sampler
Instrument List
Lab List
Action Levels
Sampling
Air Sampling
Wipe Sampling
Biota
Soil/Sediment
Soil Gas Sampling
Water Sampling
Sample Management
Samples
Chain of Custody
Lab Results
Monitoring Data
Custom Data Views
Chain of Custody
Remove Filter
Save Layout
Layout: Default Layout
COC
Samples
COC #: 2-032917-094619-0001 [Filtered]
COC # EventID Sample # Location Analyses Matrix Collected Numb Container
Records are Assigned to the COC
Close
Assign to 2-032917-094619-0001
Print Chain of Custody
File Name: C:\Program Files (x86)\Scribe\Projects\Part 2-Field Use Guide.MDB
3/29/2017
11:44 AM

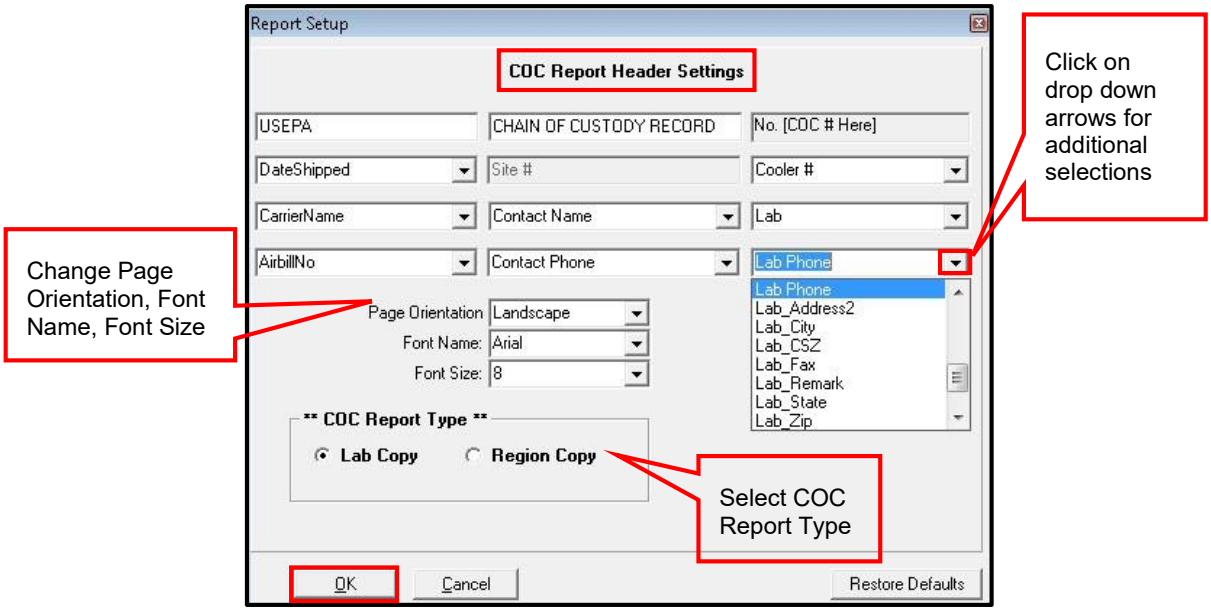

Scribe - [Chain of Custody]
File Lists Scribe.NET Help
Print Export View Edit Add Copy Delete Filter Sort Select Find
Part 2-Field Use Guide
Chain of Custody
Remove Filter
Save Layout
Layout: Default Layout
COC
Samples
COC #: 2-032917-094619-0001 [Filtered]
To Unassign from the COC, click in the COC # field and hit the delete key.
Close
Assign to 2-032917-094619-0001
Print Chain of Custody
File Name: C:\Program Files (x86)\Scribe\Projects\Part 2-Field Use Guide.MDB
3/29/2017
11:52 AM

Printing a Chain of Custody

To print a Chain of Custody, click on the COC tab and select Report Setup.



The **Report Header** screen allows you to customize the Chain of Custody Report Header by clicking in the field you wish to change and/or by clicking on a drop down arrow and select an item from the menu.



Page 1 of 1

USEPA | CHAIN OF CUSTODY RECORD | **No: 2-032917-094619-0001**

DateShipped: 3/29/2017 | Site #: 1 | Cooler #:
CarrierName: FedEx | Contact Name: J. Smith | Lab: ABC Laboratories
AirbillNo: 123456 | Contact Phone: 555-222-2222 | Lab Phone: 800-999-6990

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	Lab QC
	EPAERT-0001	333				1			
	EPAERT-0003	Sand0001-F	Amines, Aliphatic		3/24/2017	1	Baby Wipe	None	
	EPAERT-0004	Sand0001-F	Volatiles (VOAs)	Soil		1	40mL Vial	Wet ice	
	EPAERT-0006	Sand0001-F	VOCs	Water	3/27/2017	1			
	EPAERT-0006	Sand0001-F	Volatiles - TCLP	Water	3/27/2017	1	40mL Vial	Wet ice	
	EPAERT-0009	333				1			
	EPAERT-0010	Sand0001-F	VOCs	Water	3/27/2017	1			
	EPAERT-0010	Sand0001-F	Volatiles - TCLP	Water	3/27/2017	1	40mL Vial	Wet ice	
	EPAERT-0011	Sand0001-F	VOCs	Water	3/27/2017	1			
	EPAERT-0011	Sand0001-F	Volatiles - TCLP	Water	3/27/2017	1	40mL Vial	Wet ice	
	EPAERT-0012	Sand0001-F	VOCs	Water	3/27/2017	1	40mL Vial	None	
	EPAERT-0012	Sand0001-F	Arsenic	Water	3/27/2017	1	Amber Jar	None	
	EPAERT-0012	Sand0001-F		Water	3/27/2017	1			
	EPAERT-0007	333	CLP Antimony			1			
	EPAERT-0008	333	CLP Antimony			1			
	EPAERT-0009	333	CLP Antimony			1			

Special Instructions: Please return cooler using enclosed prepaid FEDEX Airbill.

Please provide Scribe compatible LabResults EDD

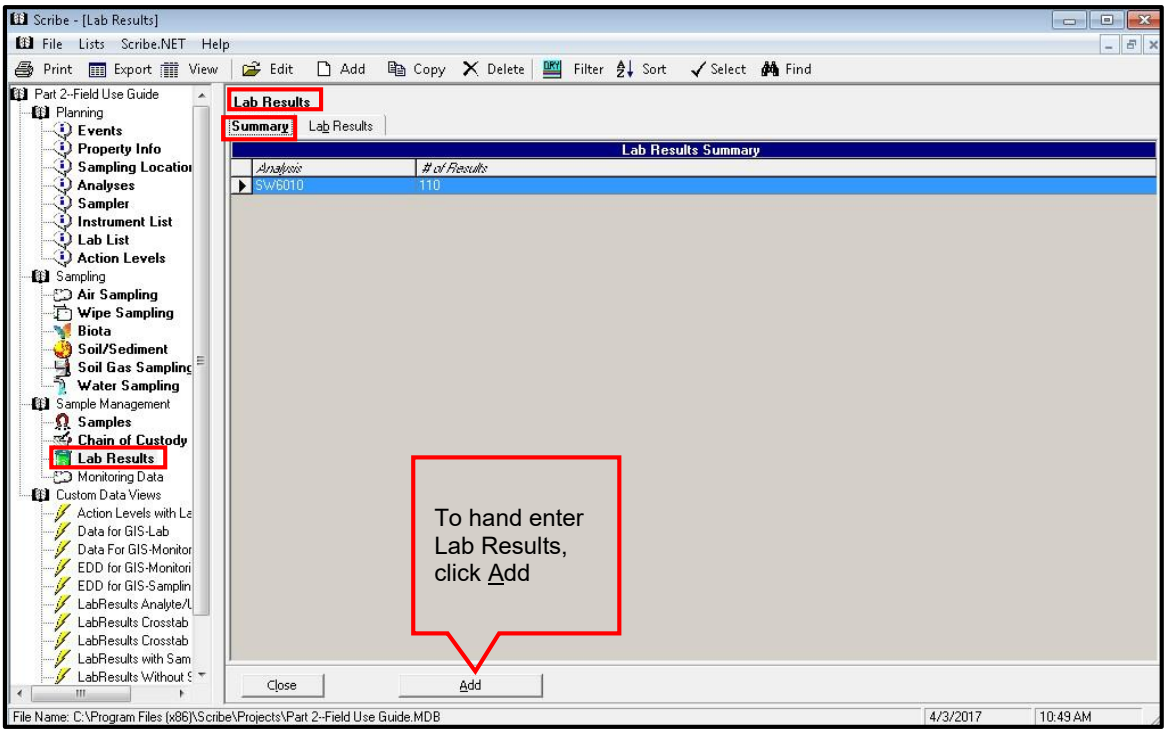
SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

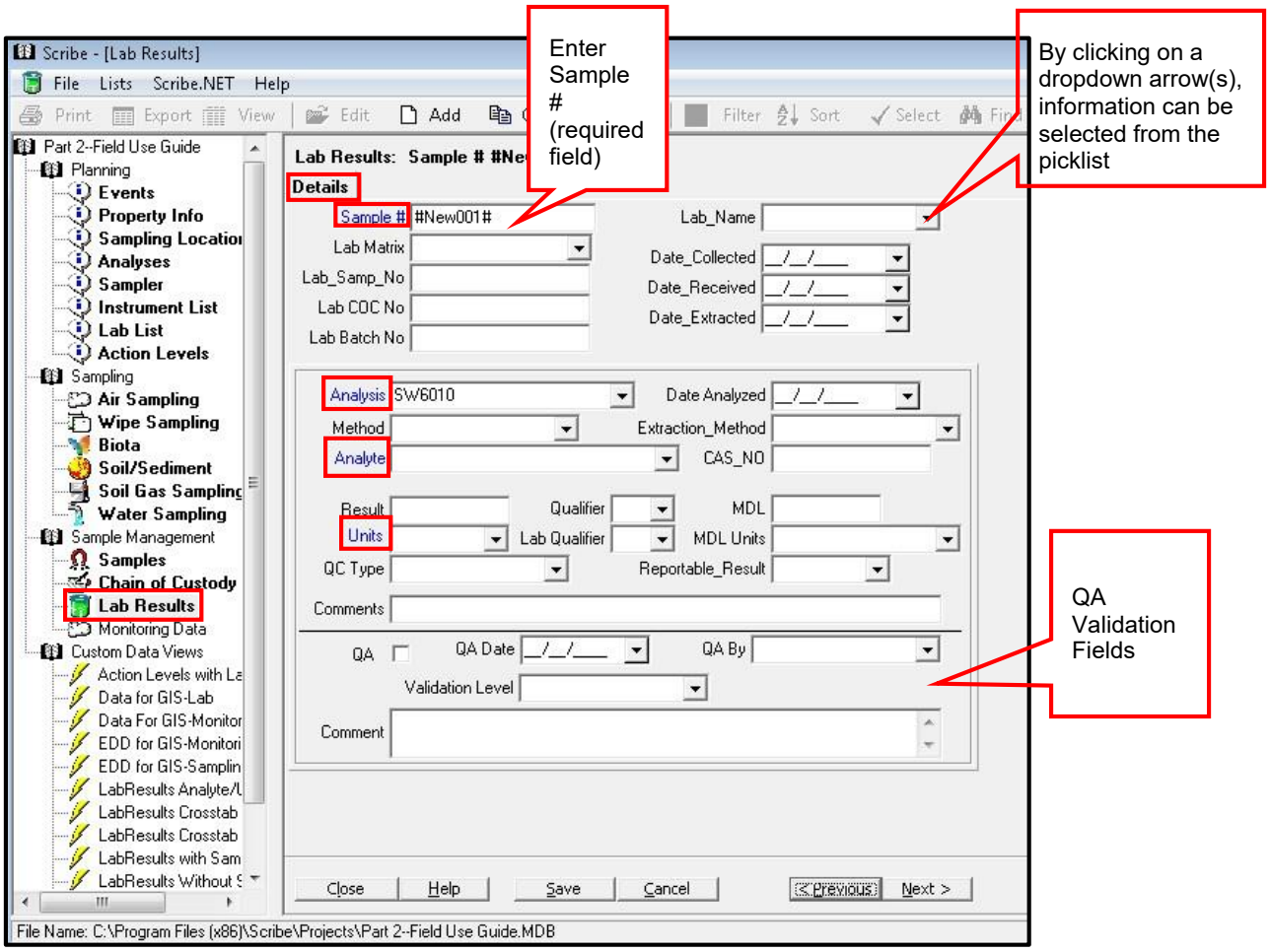
Example Scribe Chain of Custody Record

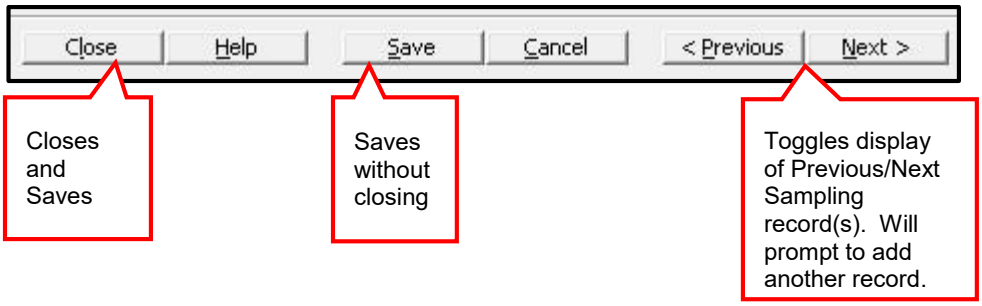
Lab Results

The Lab Results screen contains a **Summary** tab and **Lab Results** tab. Lab Results can easily be *imported* into a Scribe project from a laboratory supplied EDD (electronic data deliverable) file. *Refer to Management and Advanced Features – Part 3.* If an EDD is not supplied, lab results can be hand entered individually. ***Note:*** *the Sample # being entered on the Lab Results Detail tab should match the Sample # in the Samples screen exactly. Otherwise any corresponding Sample information will not be linked.*



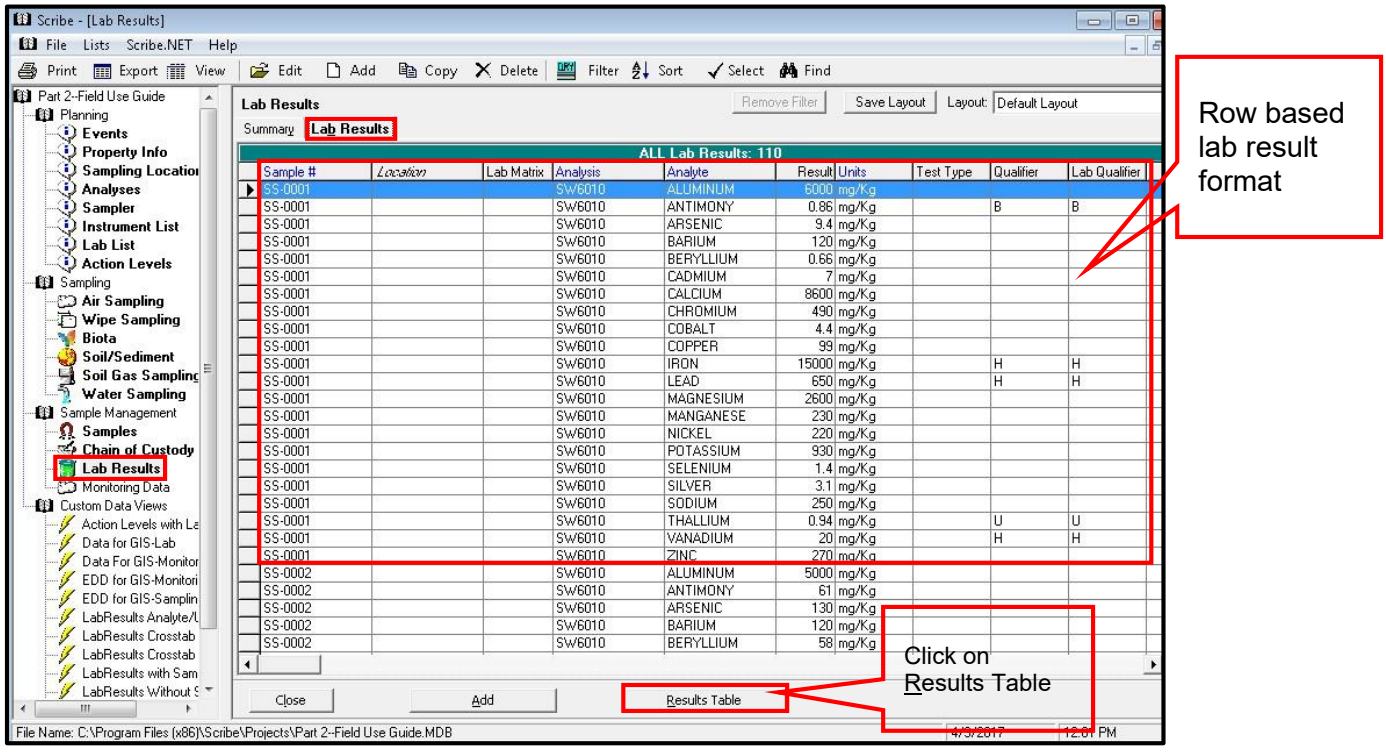
The Details tab contains several dropdown menus with information to support each sample. Fields denoted in **blue** are required fields (Sample #, Analysis, Analyte and Units).



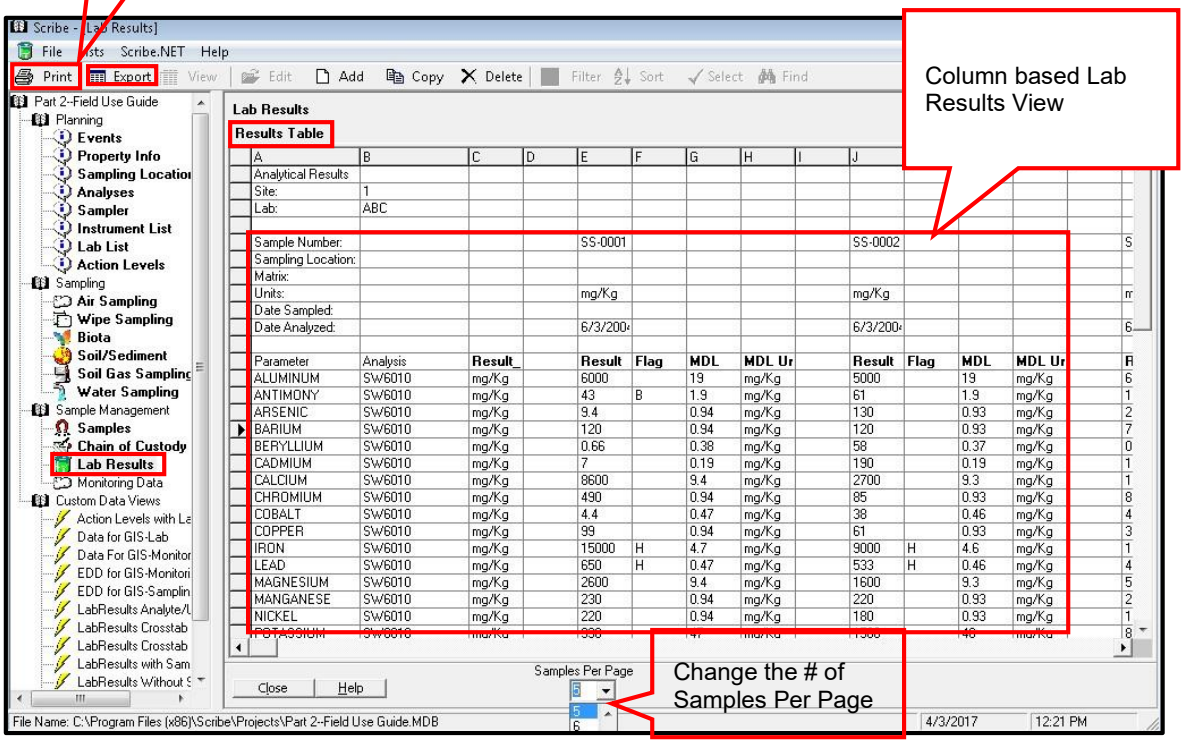


Results Table

The default Lab Results view in Scribe is a row-based format (i.e., one line per analyte per sample). By clicking the Results Table button, Scribe will provide a column based, standard format of the sample results.



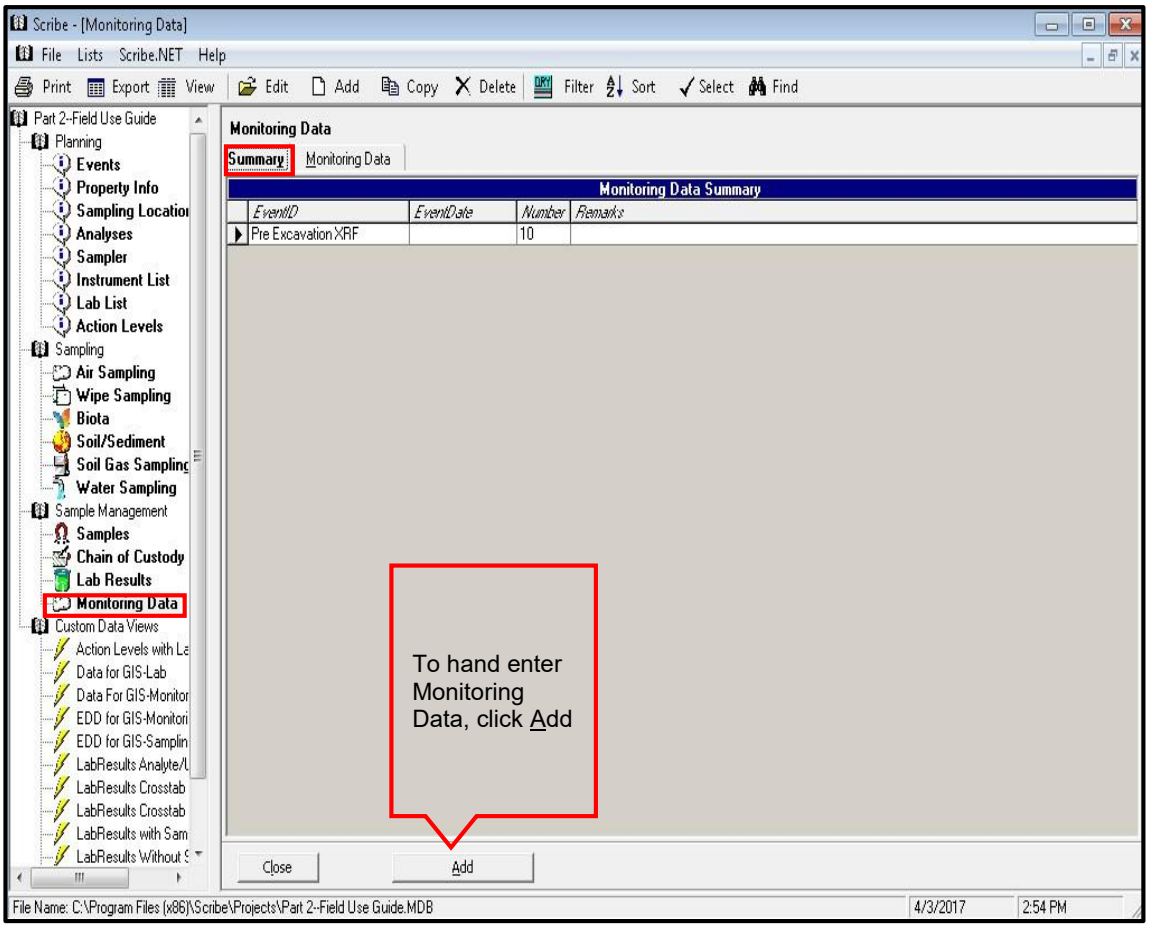
Print or Export table to different formats (preview, .html, .xls, etc.)



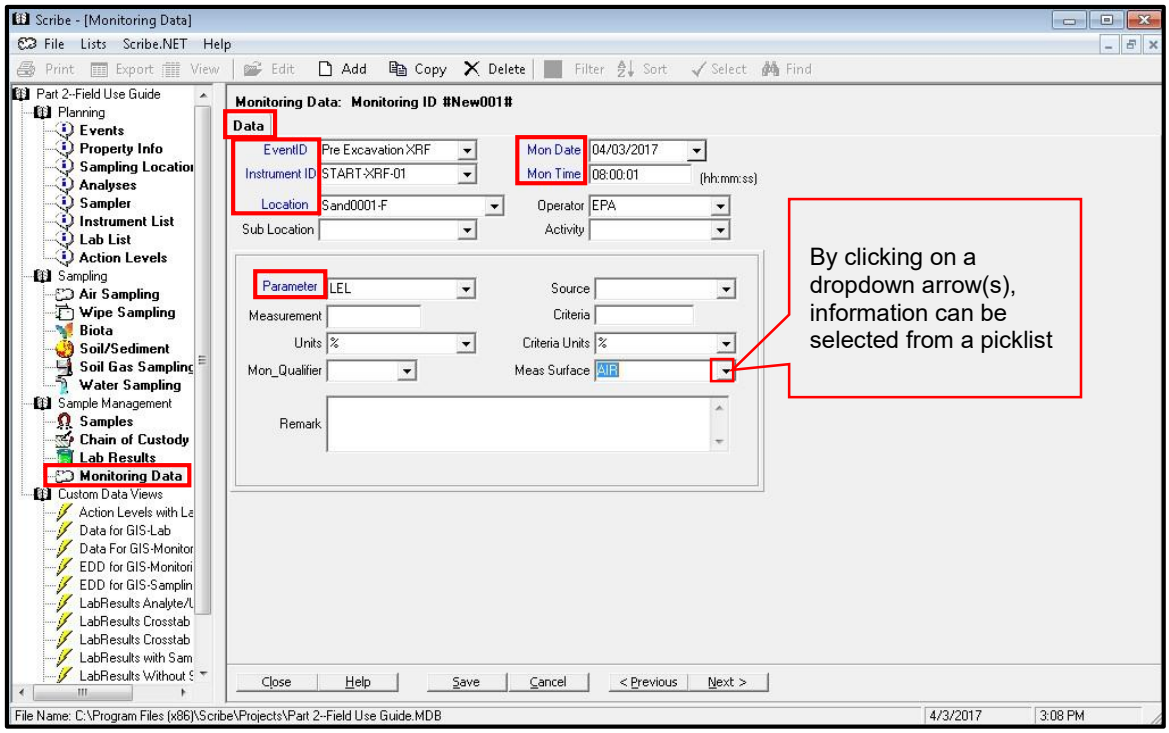
Lab Results Table

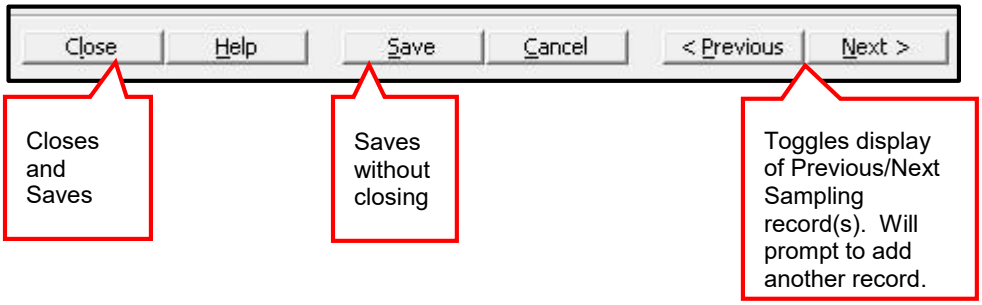
Monitoring Data

The Monitoring Data screen contains a **Summary** tab and **Monitoring Data** tab. Monitoring Data can easily be *imported* into a Scribe project from an EDD (electronic data deliverable) file. If an EDD is not available, monitoring data can be hand entered.



The Data tab contains fields that may contain dropdown menus with information in support of monitoring data. Fields denoted in **blue** are required fields (EventID, InstrumentID, Mon Date, Mon Time, Location and Parameter). ***Note:*** *EventID will be prepopulated with a default Sampling EventID.*

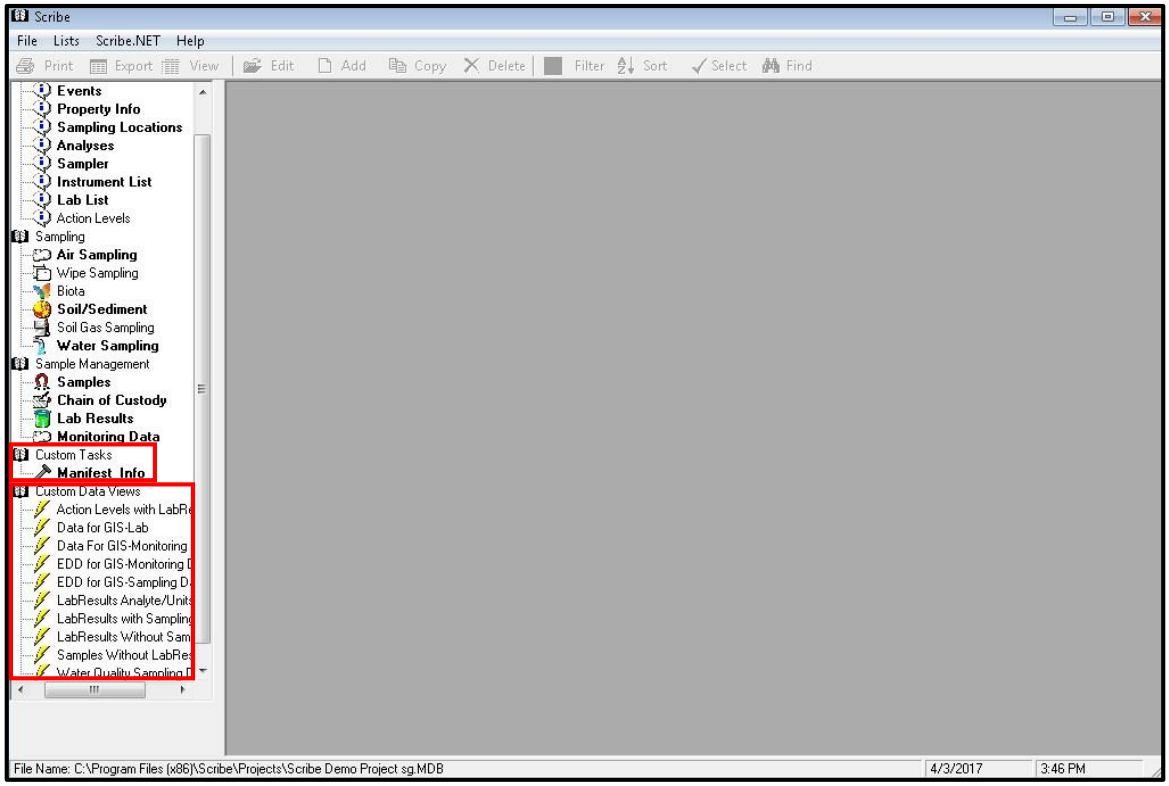




Custom Task(s) and Data Views

Custom Task(s) and Data Views

Custom Task(s) and Custom Data Views will be discussed in Part 3 – Management and Advanced Features. Please refer to that guide for assistance.



ERT

MANAGEMENT AND ADVANCED FEATURES
Part 3
SCRIBE V3.10

Contents

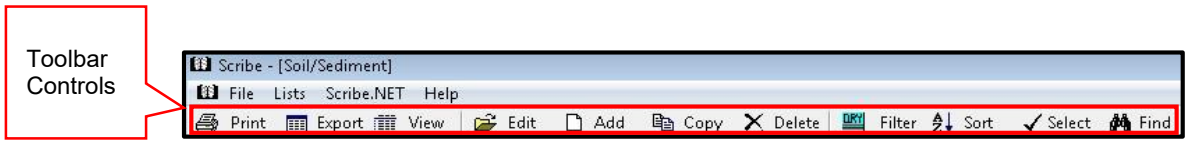
PART 3 - MANAGEMENT FEATURES & ADVANCED FEATURES

The information presented in this section describes the advanced functionality of Scribe. This section will address importing data (e.g. lab results), using the common controls (sorting, filtering), creating custom labels and grid layouts, Custom Tasks (MS Access Tables) and Custom Data Views (MS Access queries). Custom Templates, Custom Tasks and Custom Data Views will require that the user is familiar with MS Access and working the MS Access database tools on a live database.

Common Controls - Toolbar

Scribe has many features that offer convenient ways to manage and update records and files. They are also convenient when you want to display specific data in a specific format (i.e. reports). The following information will be discussed using the 'Samples' and 'Lab Results' screens as examples, but applies to most Scribe screens.

Some features and controls available on the toolbar work the same as those in the Grid Controls (right-click option). These features include Print, Export, View, Edit, Add, Copy, Delete, Filter Sort and Find.



Print

The Print feature offers several printing options:

- Preview – Preview your current grid view
- Page Setup – Change your page setup, margins, orientation
- Print – Print the current grid view to a printer
- Export – Grid data can be exported and then used in other applications for reporting, mapping or modeling. Scribe supports several standard data formats. Choices for exporting include .txt, .csv, .html, .xml file formats. ***NOTE:*** *When working in the Chain of Custody (COC) section, there is an additional export option of COC .xml. This option is required when exporting CLP COC files to be uploaded to the Sample Management Office (SMO) Portal. See User Manual for Scribe CLP Sampling.*
- Labels – Can print standard mailing labels (e.g. if Property Info is captured, standard mailing labels with property information can be created from this print feature)
- Worksheet – Can be used to create Worksheets (e.g. Sample Receipt Worksheet and Sample Weight Log reports)

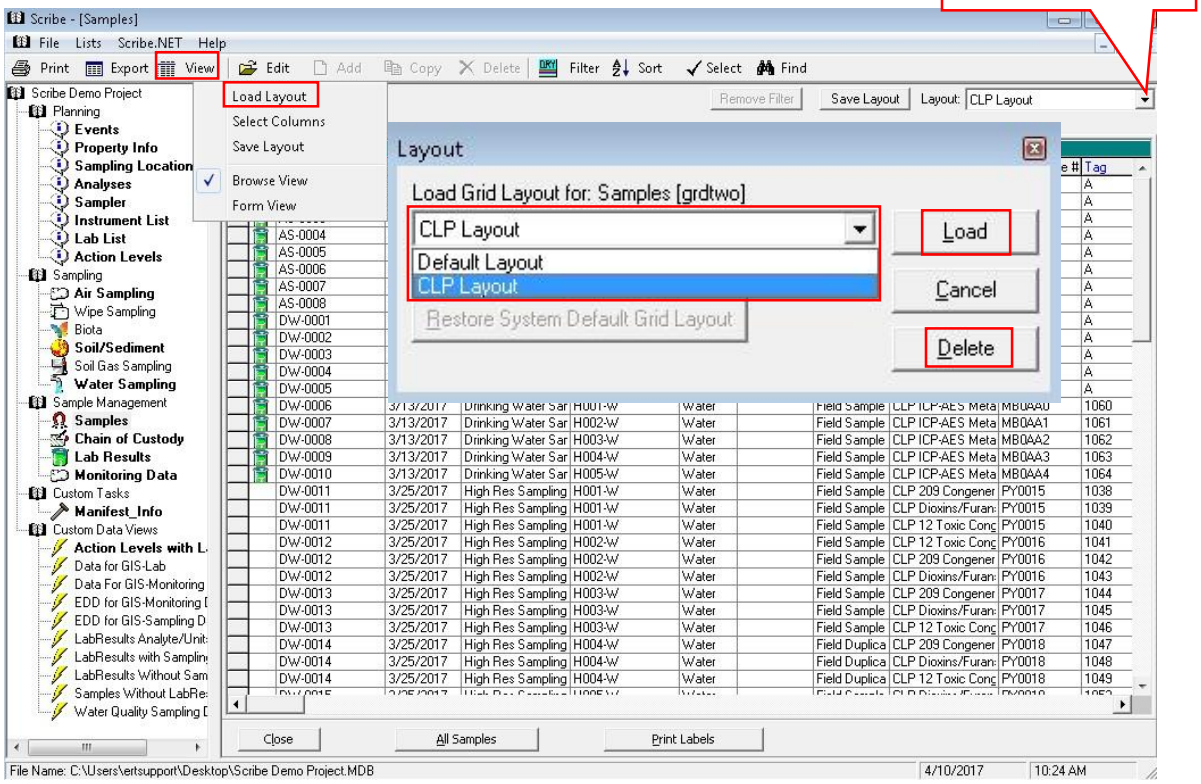
View

Depending on which section of the Navigation Pane you are in, there are a default view of columns (column headings) exposed in the grid. Under the 'View' option on the Toolbar, you can:

Load Grid Layout

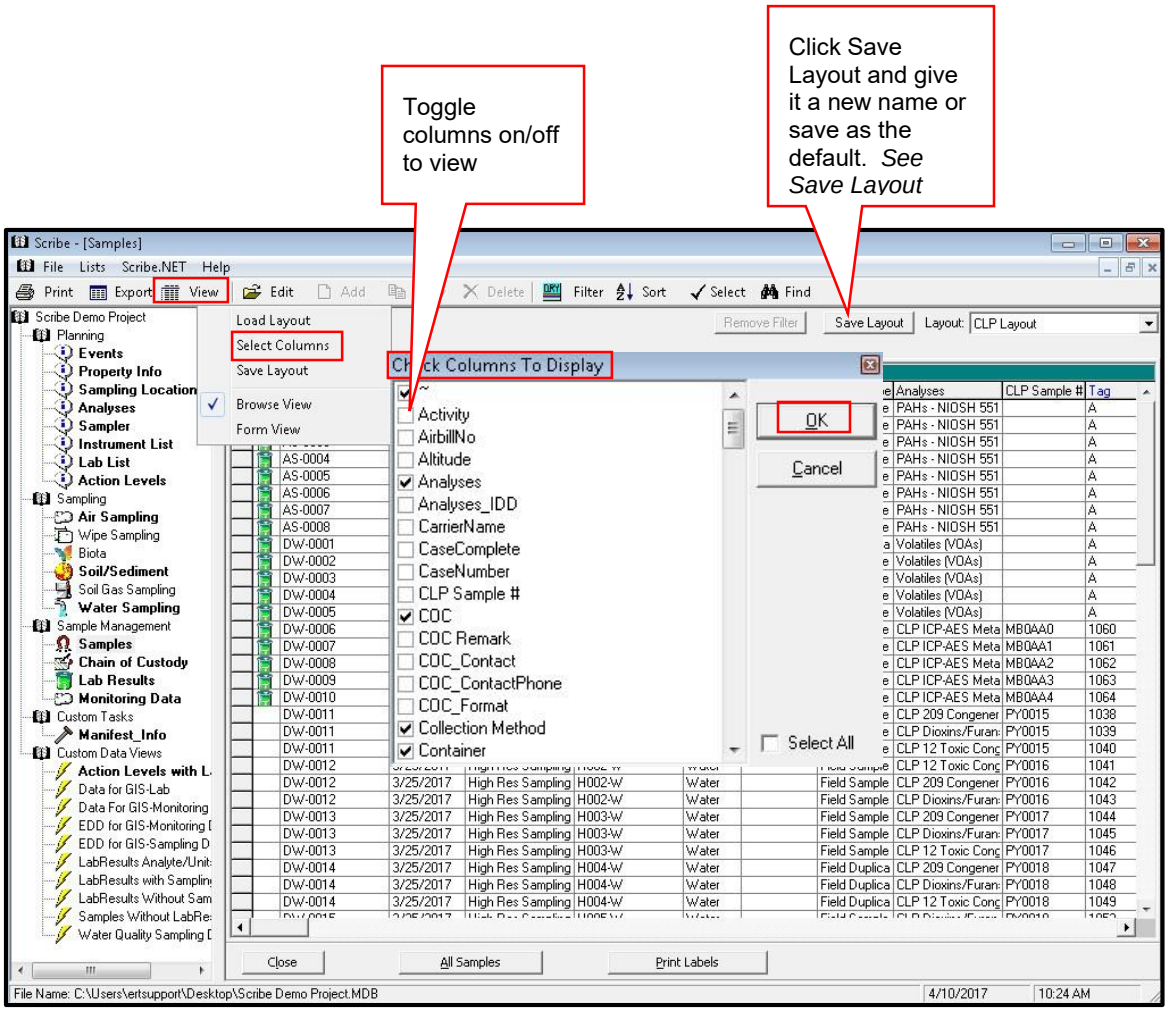
When Scribe is installed, there are two (2) Layouts: Default Layout or CLP Layout. The 'View' of the layout is determined when first creating the Scribe project. If CLP is NOT selected as the project type, the layout will be set to Default. Changing the layout is very easy and can be done from the View | Load Layout or by clicking on the down arrow at the top of the grid. Once new Layouts have been created, they will be available.

Layouts can also be loaded and/or saved as new layouts. *See Save Layout*



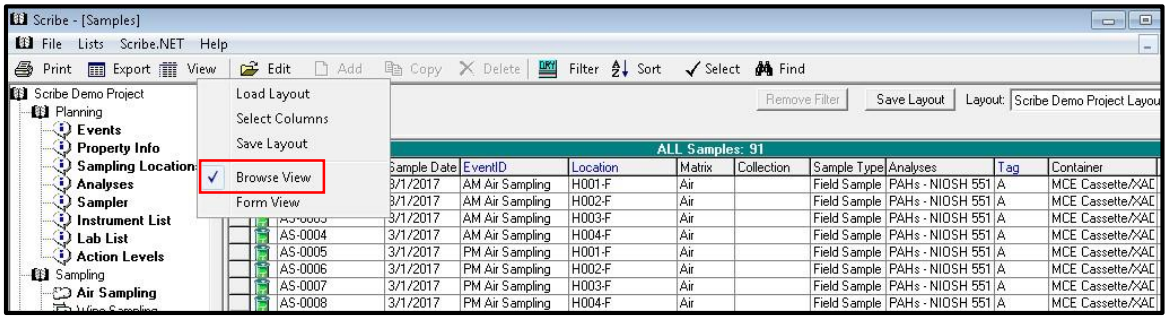
Select Columns

By default certain columns are turned on in the grid view. Columns can be turned on/off, moved and viewed differently on the grid and specific layouts can be saved.



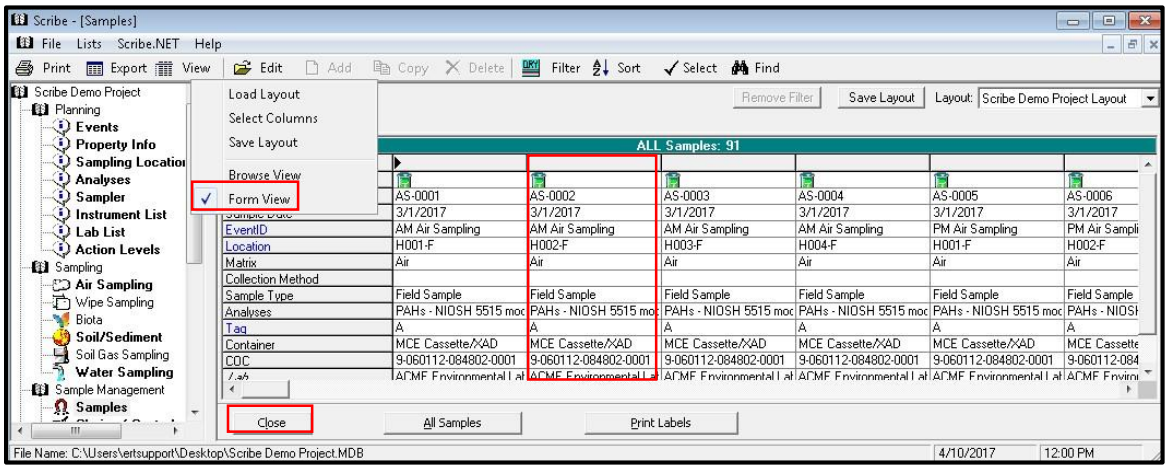
Browse View

The Browse View shows the samples in row format (default view)



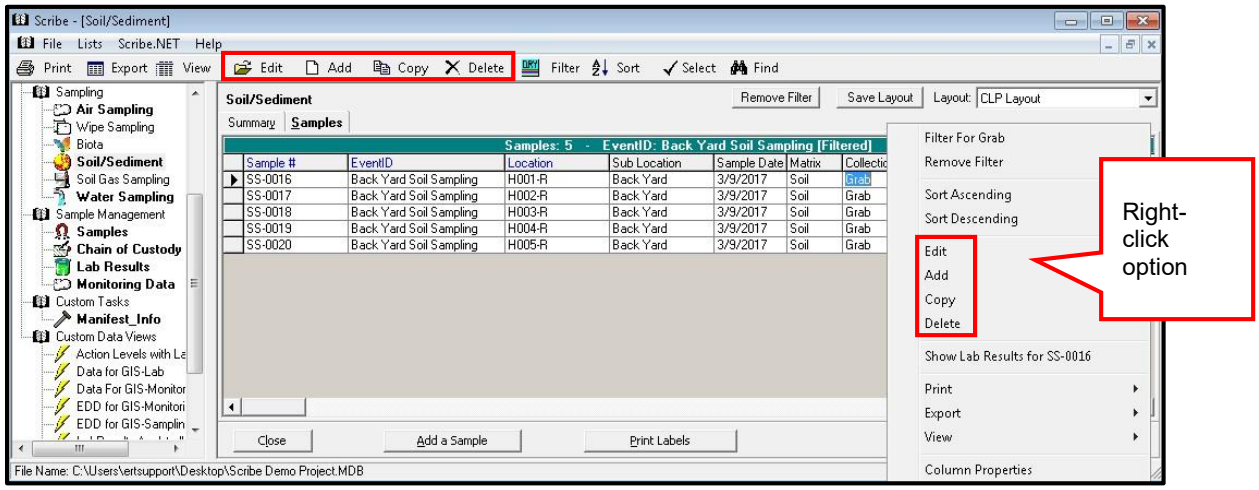
Form View

The Form View allows you to view each sample in column format. To return to the Browse View, click on Close.

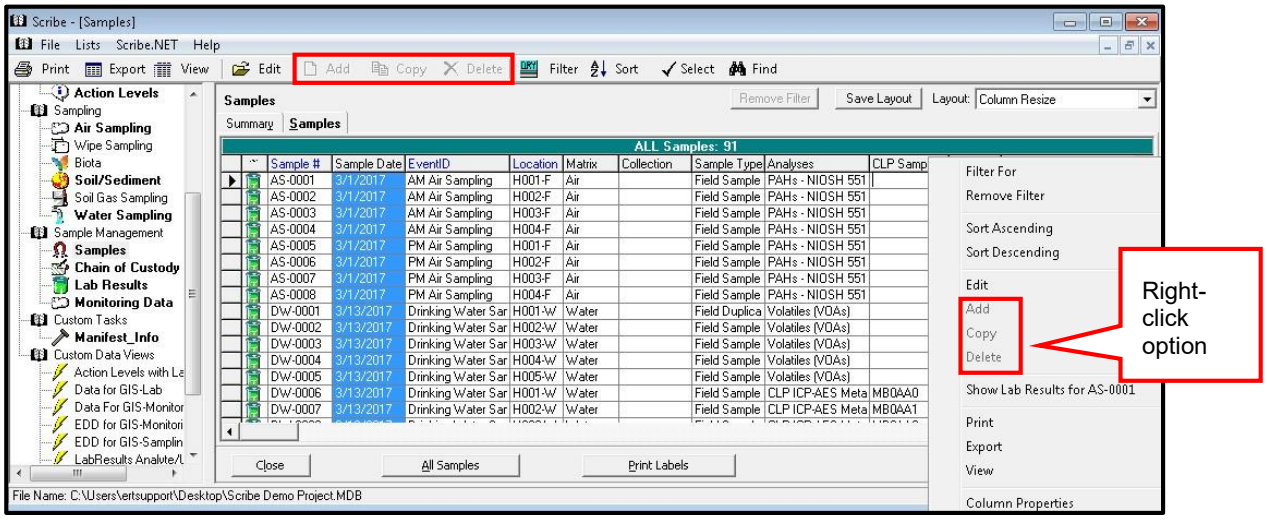


Edit, Add, Copy and Delete

The Edit, Add, Copy and Delete controls are only available on the Toolbar and right-click feature when you are working in the individual sampling tasks (e.g. Air, Soil/Sediment, Water). They can be used when editing, adding, copying or deleting samples, analyses, events, etc.

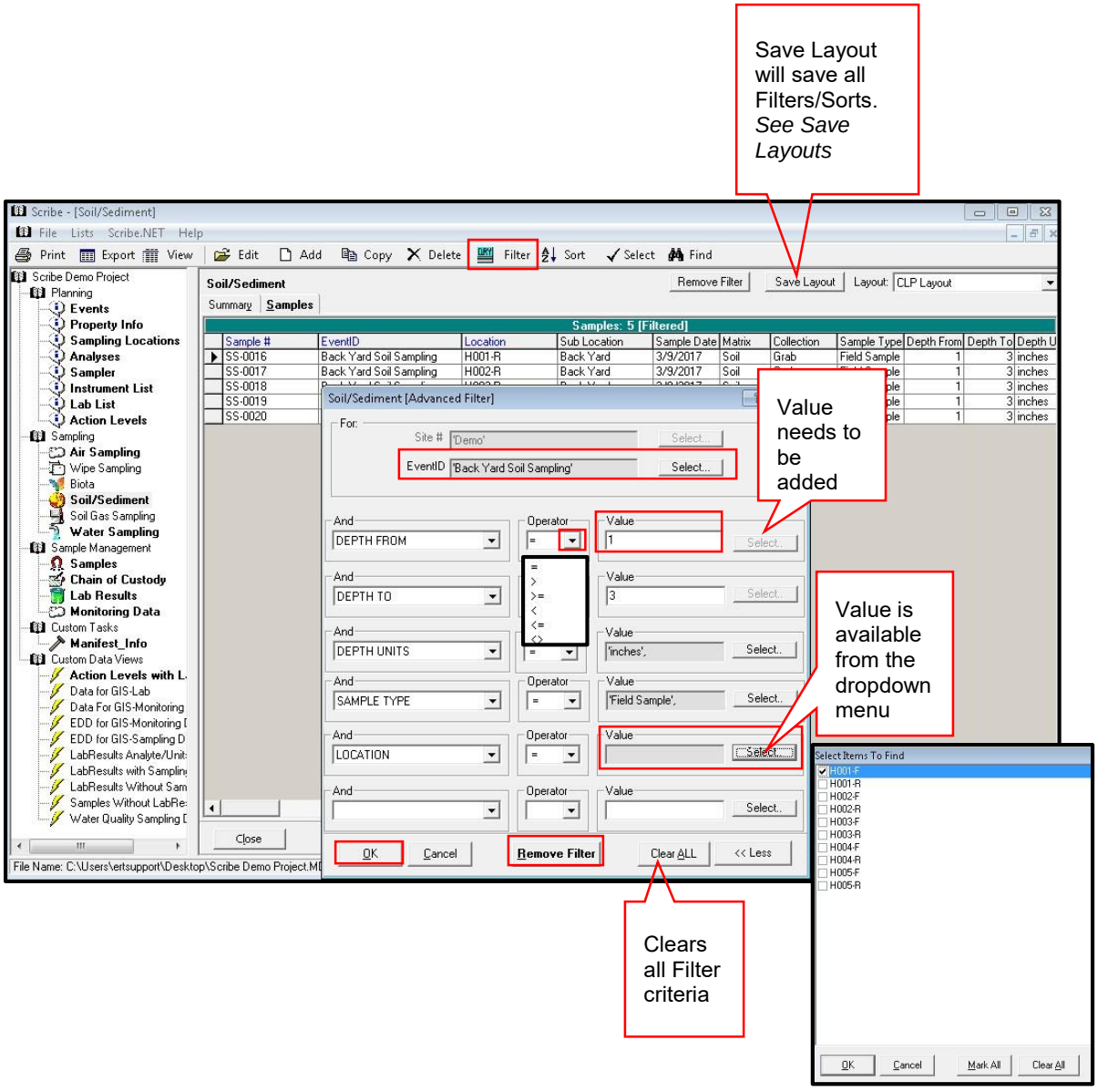


The Add, Copy and Delete controls are **not** available options under Sample Management | Samples.



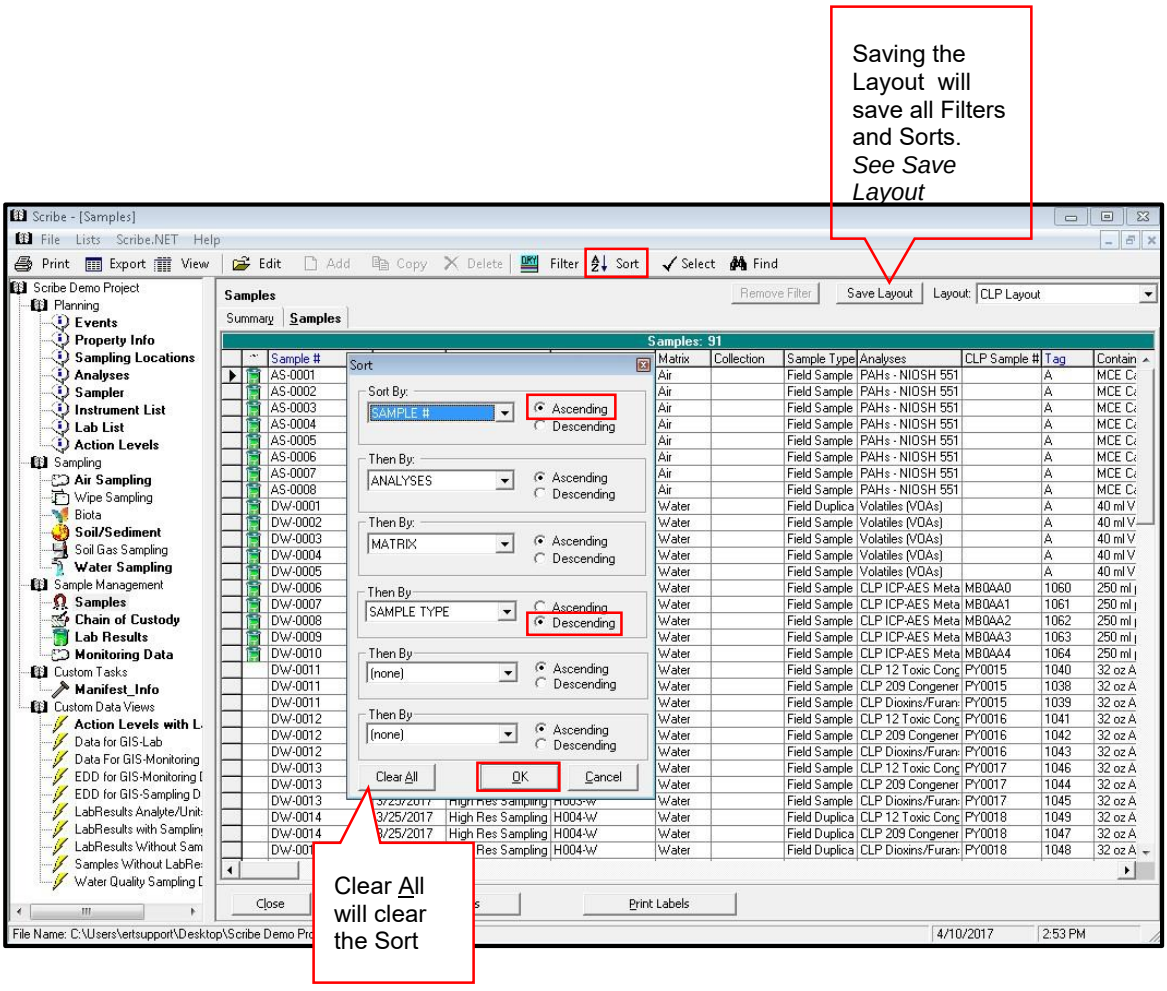
Advanced Filter

The 'Filter' on the toolbar offers a more advanced filter for up to six (6) fields. In this example, we are filtering for the Back Yard Soil Sampling EventID. Numerous filtering options are available using dropdown menus and select buttons. Select as many fields as needed and click OK. If the Select button is grayed out, you will need to enter a value. If the Select button is highlighted, a dropdown is available to select the field(s) in the Scribe project that need to be filtered.



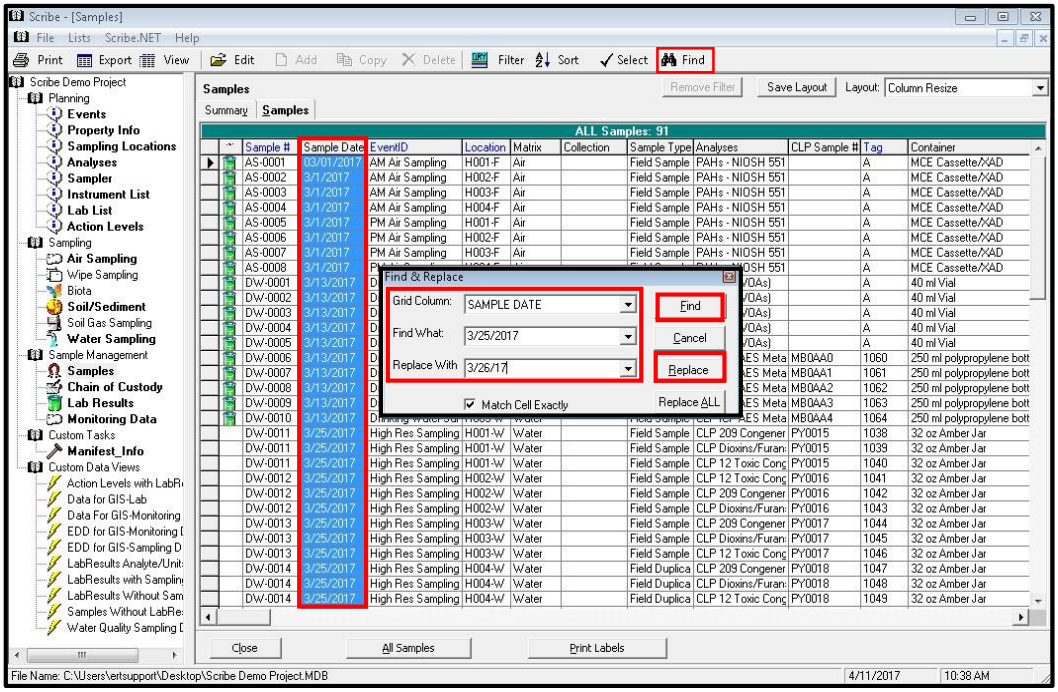
Advanced Sort

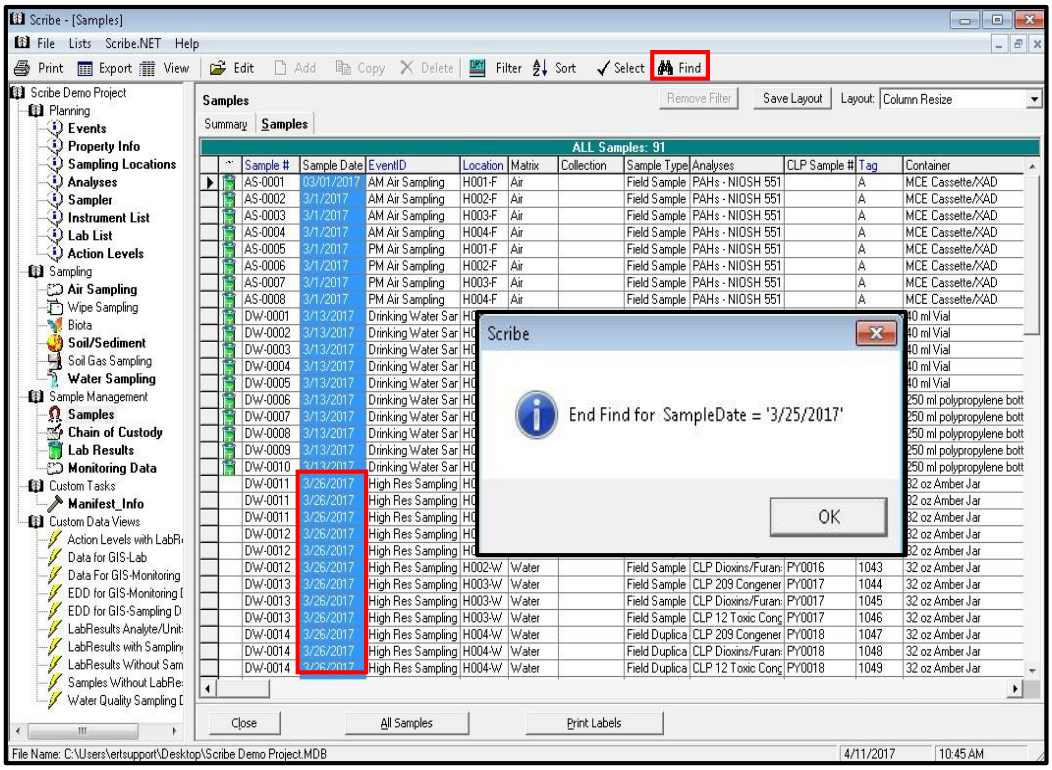
The 'Sort' on the toolbar opens a more advanced Sort window. The advanced feature offers a more advanced sort for up to six (6) fields. In this example, we are sorting by Sample #, Analyses and Matrix **Ascending** and Sample Type **Descending**. Select as many fields as needed and click OK.



Find and Replace

Use the Find and Replace feature in Scribe (similar to Excel) to search for something in your project, such as a particular sampling date, and replace it with another value.

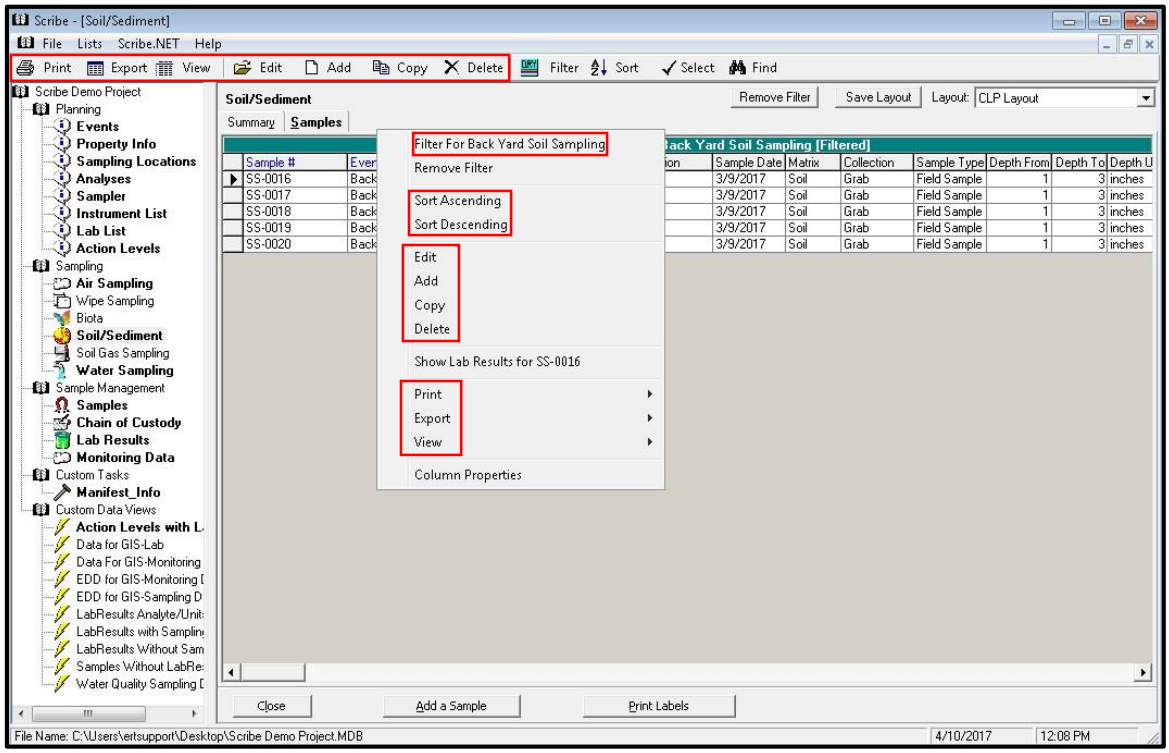




Common Controls – Right-Click

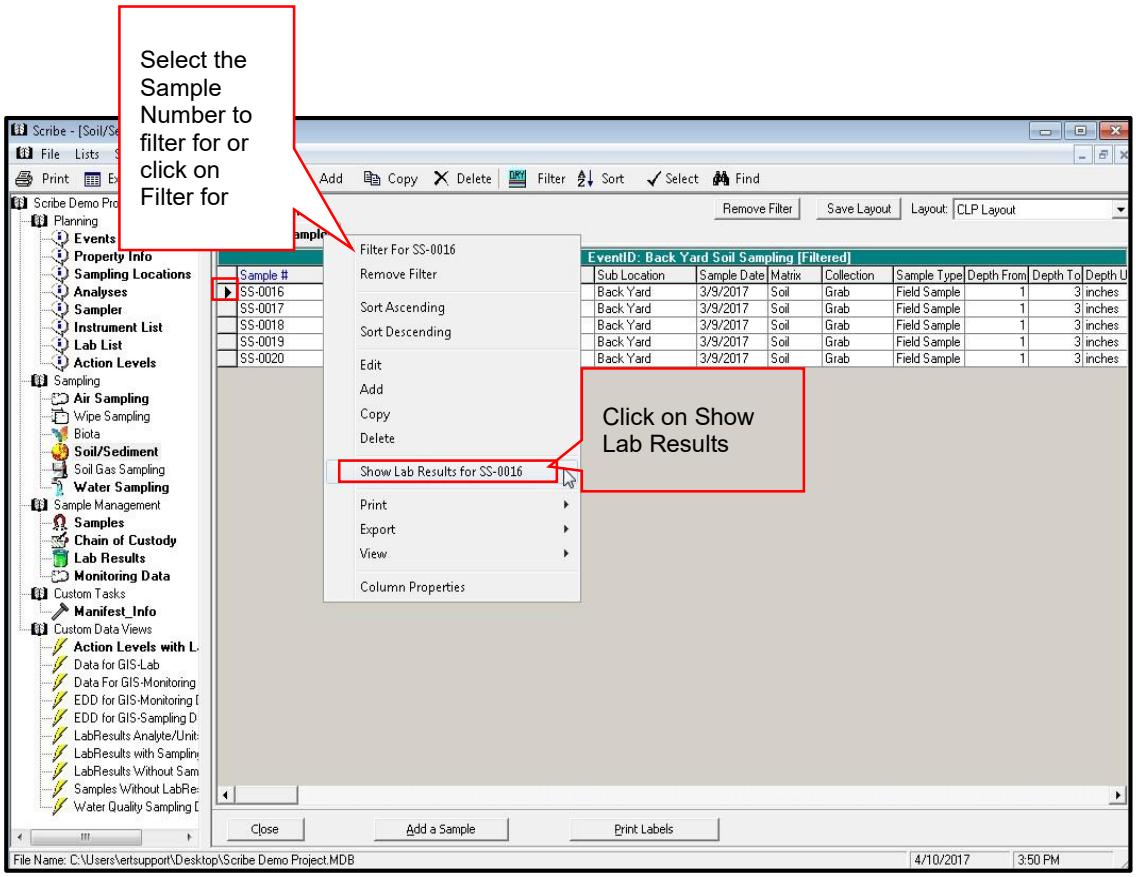
Some features and controls available on the toolbar work the same way as those in the Grid Controls (right click in the Grid). These features are **Edit**, **Add**, **Copy**, **Delete**, **Print**, **Export** and **View**.

The **Filter** and **Sort** feature on the Grid provides a simplified Filter and Sort. For example, the grid filter allows you to filter on one item (i.e., Back Yard Soil Sampling) and the Sort only allows for Ascending or Descending.



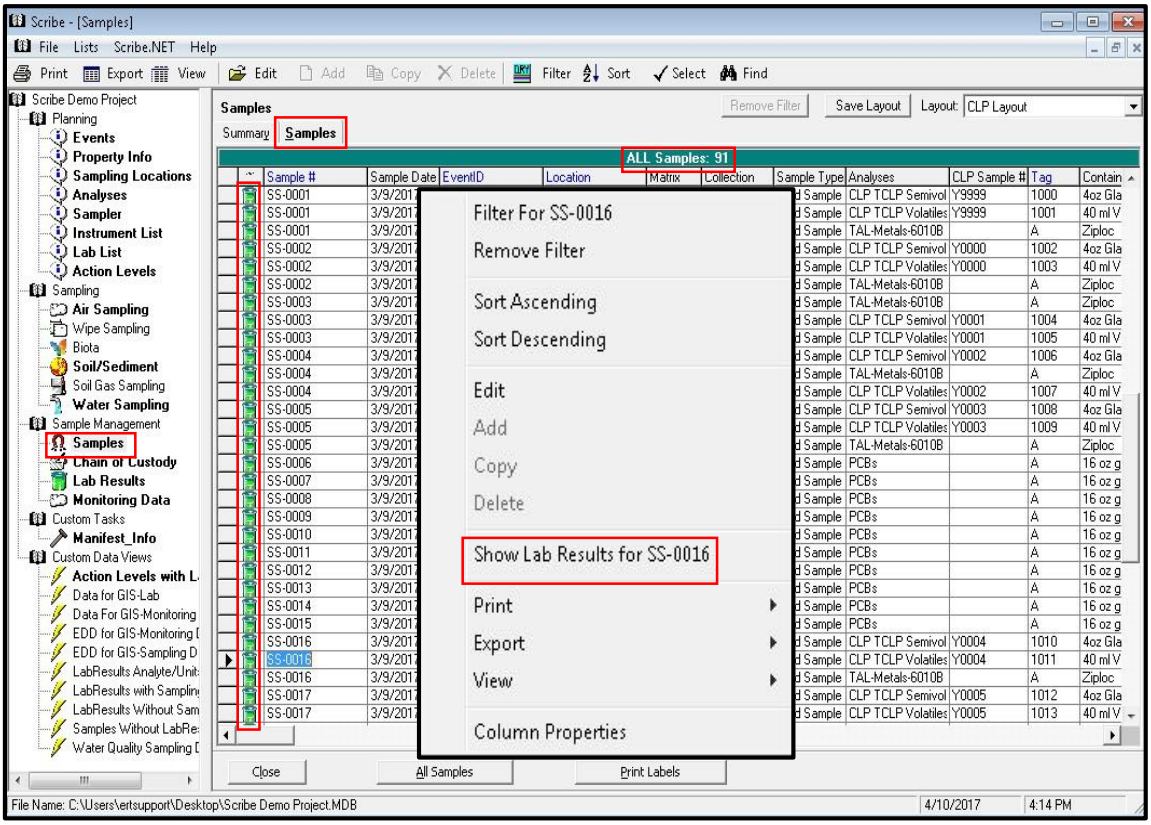
Right-Click Options in the Sampling sections

To show any **Lab Results** for a particular sample using the right click option, right-click a sample and selecting Show Lab Results, the Lab Results section of Scribe will be displayed and the results will be filtered for any Lab Results pertaining to the selected sample number.

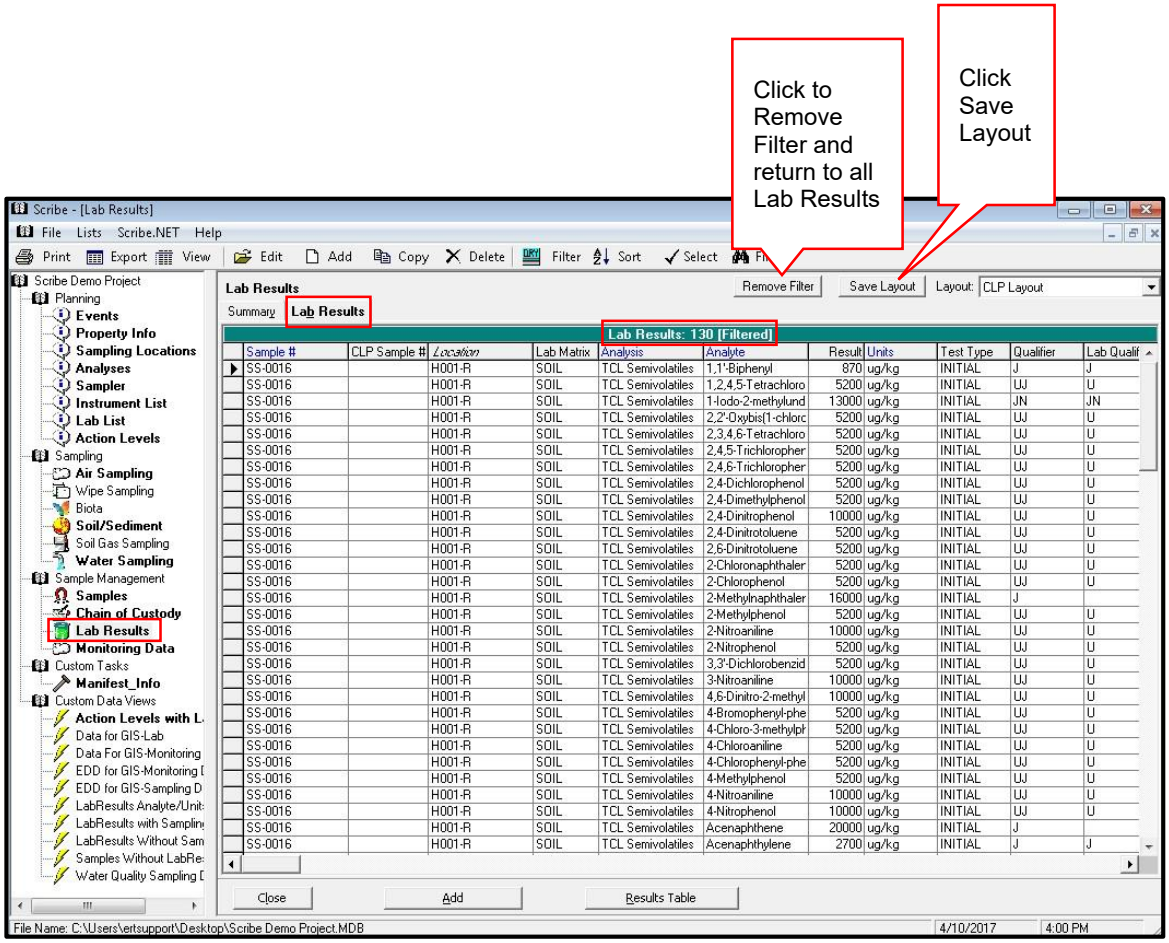


Filtering for Sample SS-0016 Under Sampling Task (Soil/Sediment)

Under Sample Management | Samples - a green beaker next to the Sample # indicates that the sample has lab results data.

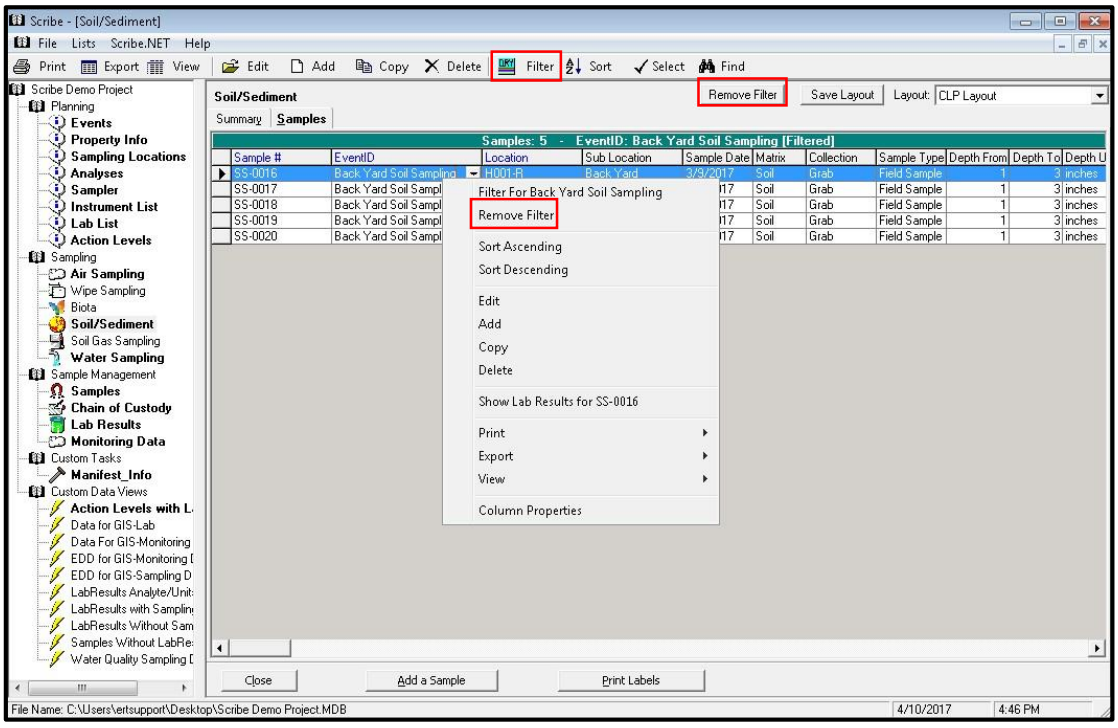


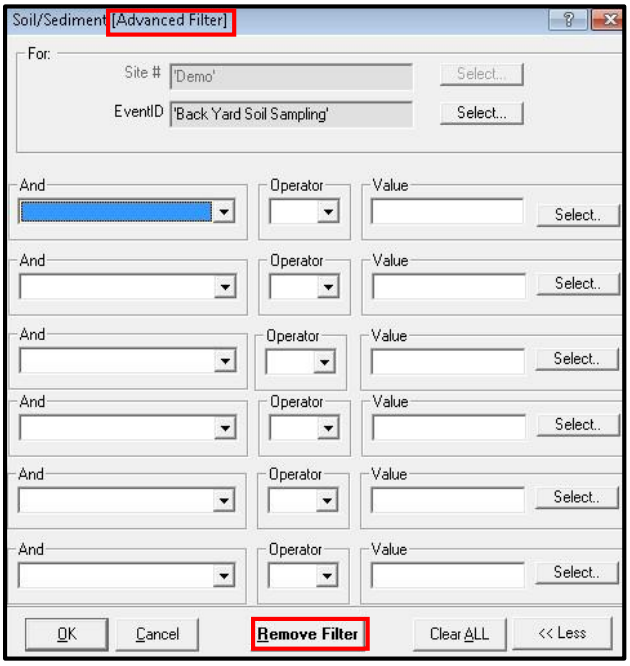
When in the Lab Results table, additional Filters and Sorts can be done. New Layouts can be created and saved.



Remove Filters

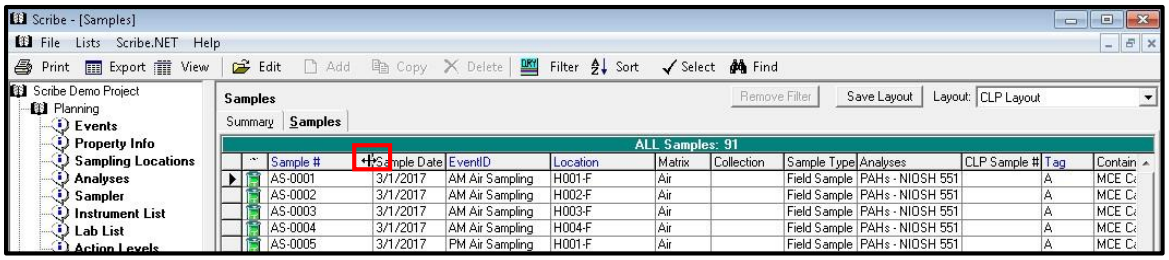
When working with the data and applying Filters, it is important to **Remove** any filter that has been applied to get back to your full data set. There are three (3) ways to remove a filter from the Grid View clicking on Remove Filter, right-clicking and select Remove Filter, or by clicking on the Filter button and click Remove Filter.



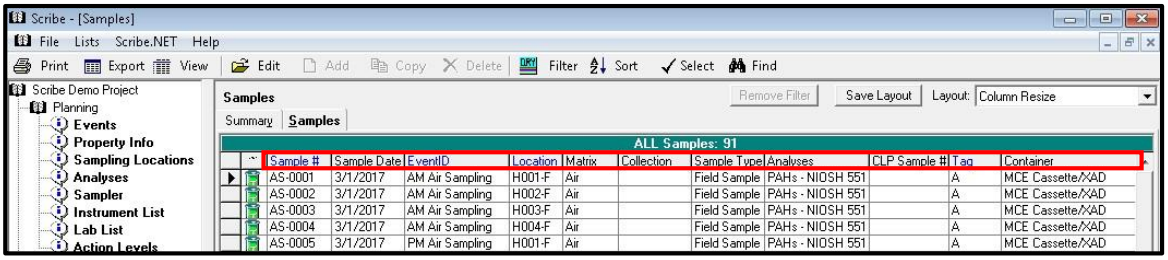


Column Resizing

To resize the columns in the Grid (similar to resizing columns in Excel), hover the mouse between columns to expose a double-sided arrow  . Drag the double-sided arrow (left or right) to adjust the column width. The resizing of columns can be saved with Layouts.



Example prior to resizing



Example after resizing

Create Layouts

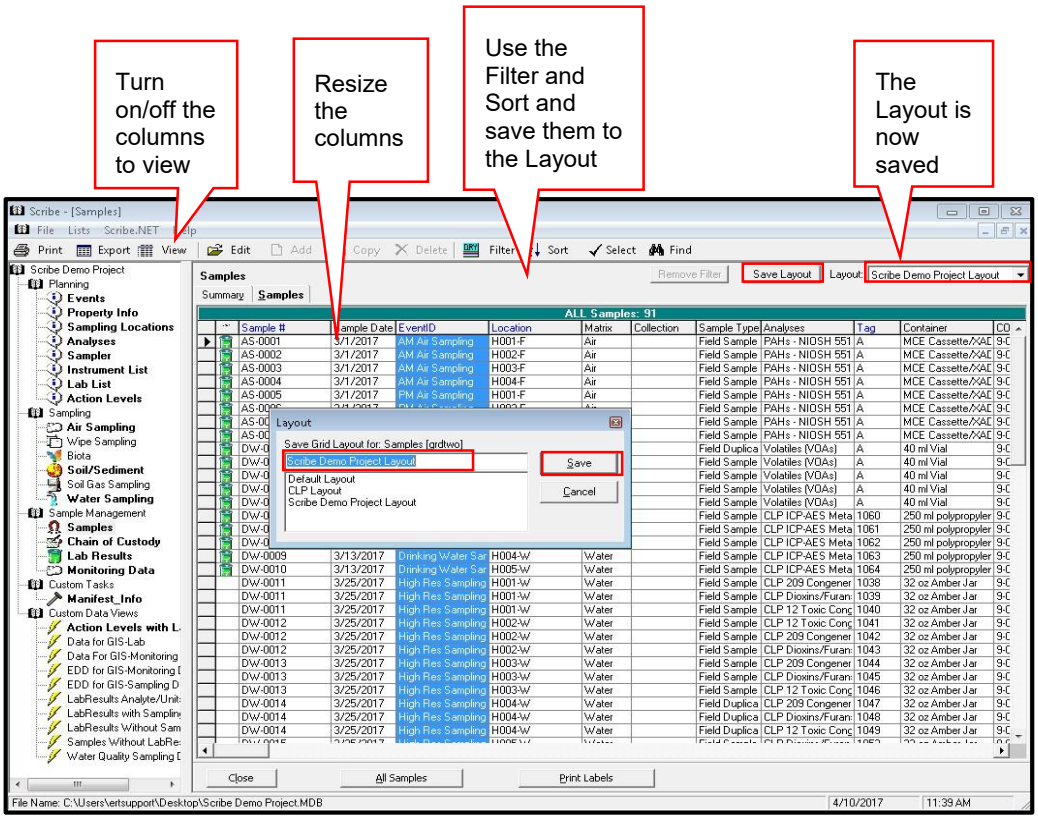
In Scribe, you can create and customize Grid Layouts and Label Layouts. These custom layouts can then be imported into new Scribe projects or be made part of a custom Template for use in future projects.

Grid Layout

Scribe is loaded with two (2) default layouts with certain fields displayed on the grid (Default and CLP). They are also sorted in a specific order.

There are many fields that are available to view/display in the various sections of Scribe (Planning, Sampling, Sample Management). Prior to saving the layout, format the grid by turning columns on/off and providing any filter or sort order required.

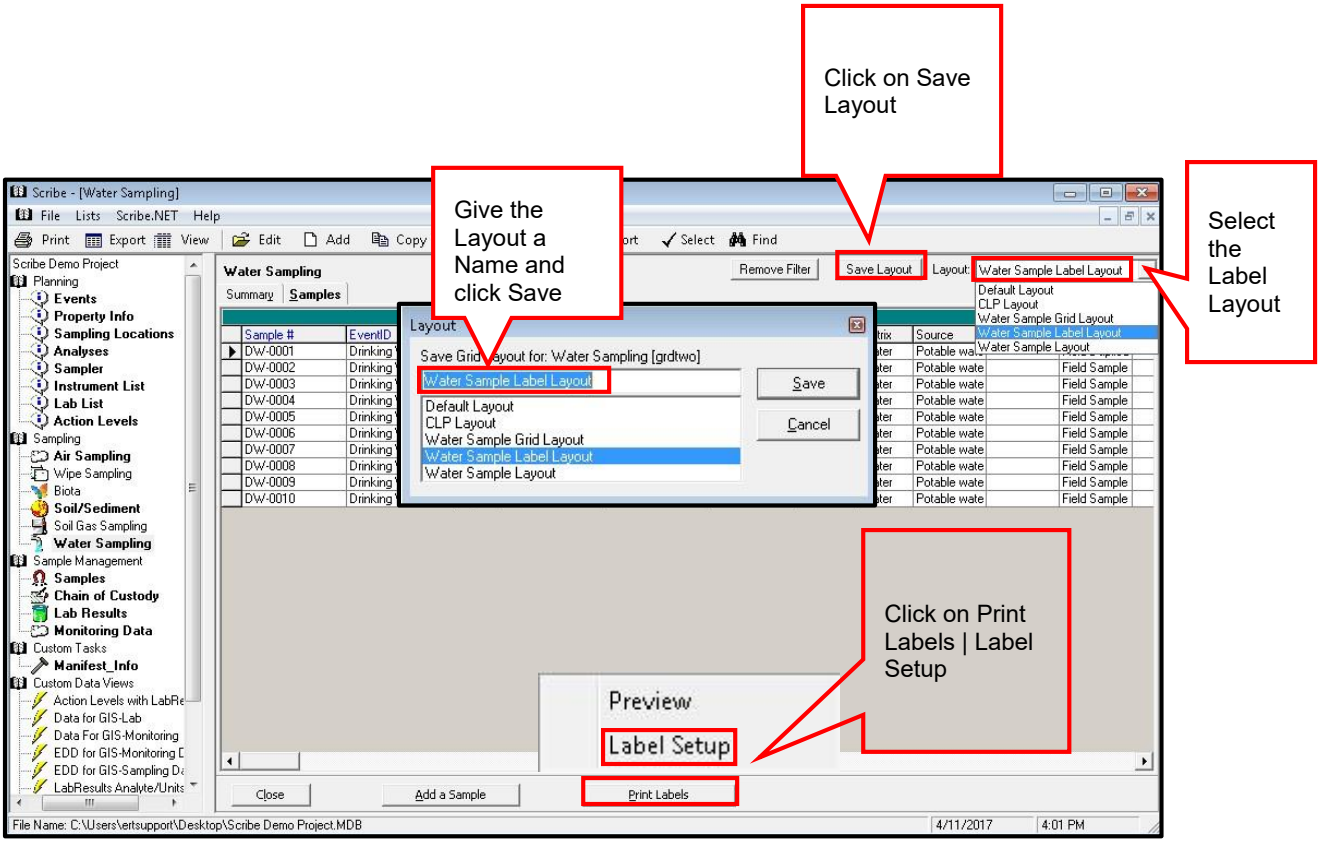
When the grid is formatted, select View | Save Layout from the toolbar or click on Save Layout on the grid. Provide a name for the grid layout and click the Save button. ***Note:*** *Layouts are only saved to the section of Scribe you are in. For example, if you are creating a layout under the Samples section, that layout is only available in that section. Many Layouts can be created.*

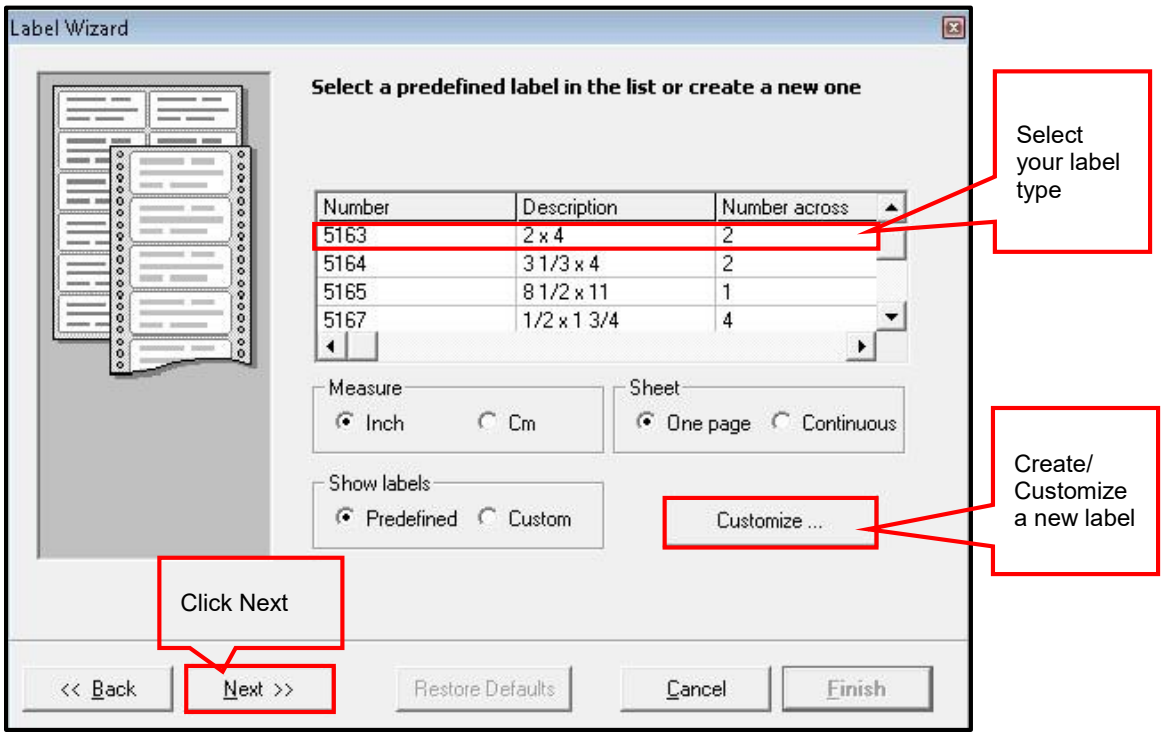


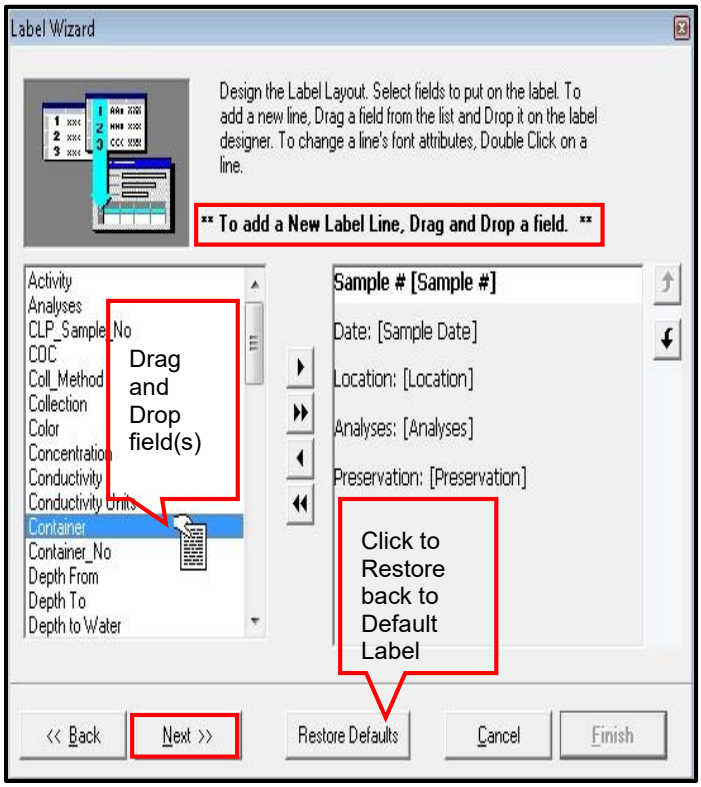
Label Layouts

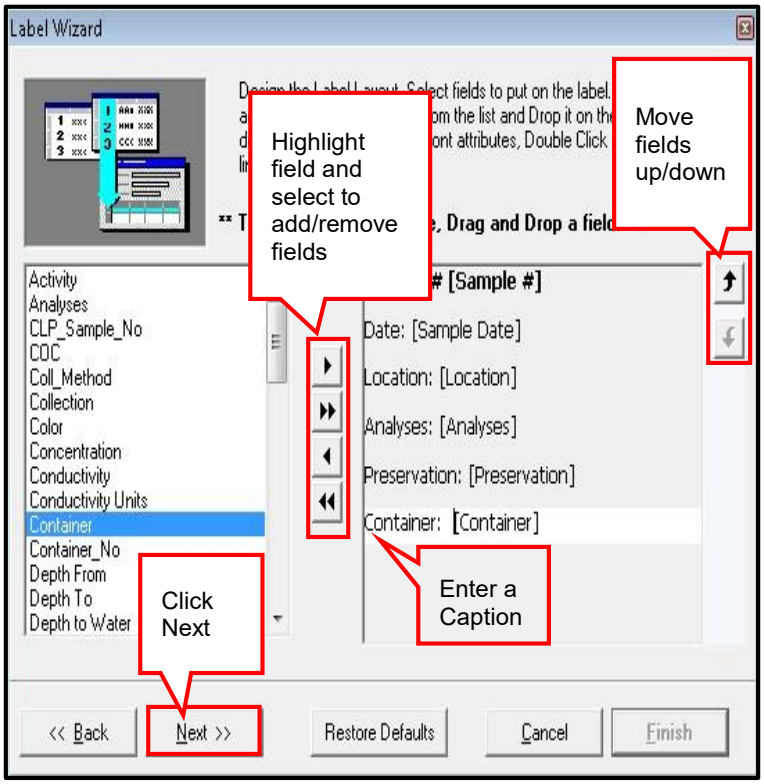
For each of the default layouts in the Samples and Sample Management sections, a default label exists. This label can be modified if necessary. Also, new custom labels can be created if you want to maintain the default label options.

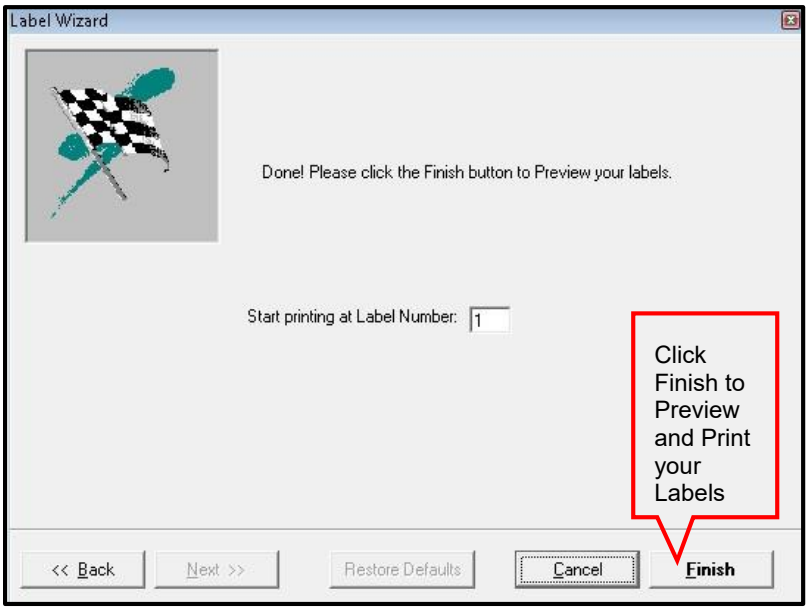
Prior to creating a Label Layout, you must first save a new Grid Layout. Labels are tied to grid layouts. Once you save a new grid layout, labels for that layout can be configured from the Print Labels button. Once the fields have been selected, that Label Layout will be available any time you select the custom grid layout it was designed under. ***Note:*** *Layouts are only saved to the section of Scribe you are in. For example, if you are creating a Label layout under the Samples section, that layout is only available in that section.*

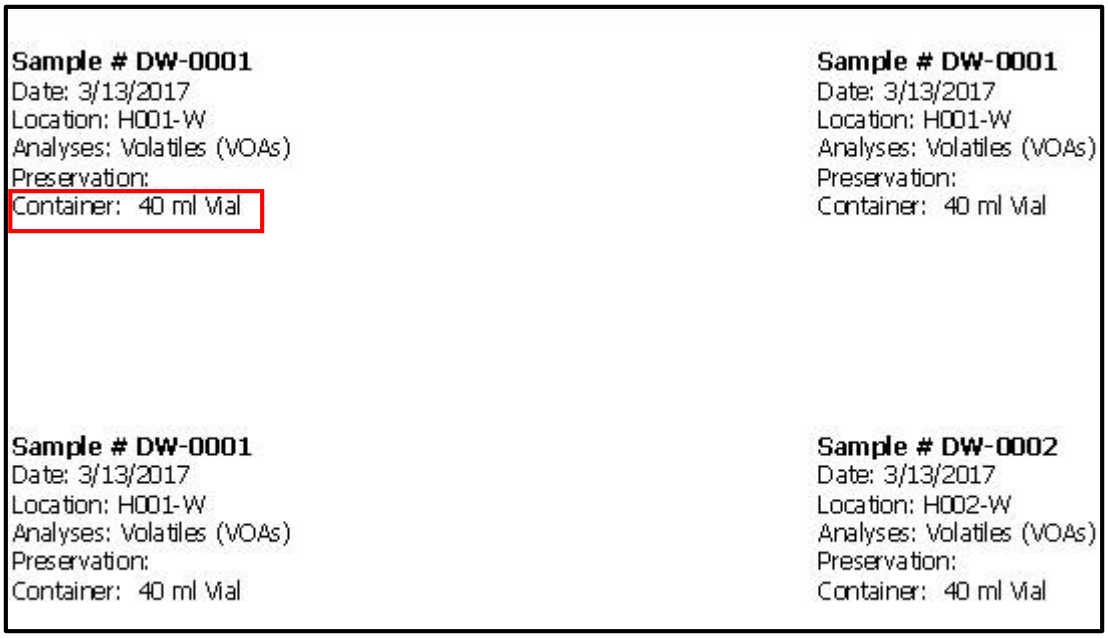



Label Wizard
Select a predefined label in the list or create a new one
Number
Description
Number across
5163
2 x 4
2
5164
3 1/3 x 4
2
5165
8 1/2 x 11
1
5167
1/2 x 1 3/4
4
Measure
Inch
Cm
Sheet
One page
Continuous
Show labels
Predefined
Custom
Customize ...
Select your label type
Create/ Customize a new label
Click Next
<< Back
Next >>
Restore Defaults
Cancel
Finish


Label Wizard
Design the Label Layout. Select fields to put on the label. To add a new line, Drag a field from the list and Drop it on the label designer. To change a line's font attributes, Double Click on a line.
** To add a New Label Line, Drag and Drop a field. **
Activity
Analyses
CLP_Sample_No
COC
Coll_Method
Collection
Color
Concentration
Conductivity
Conductivity Units
Container
Container_No
Depth From
Depth To
Depth to Water
Sample # [Sample #]
Date: [Sample Date]
Location: [Location]
Analyses: [Analyses]
Preservation: [Preservation]
Drag and Drop field(s)
Click to Restore back to Default Label
<< Back
Next >>
Restore Defaults
Cancel
Finish


Label Wizard
Highlight field and select to add/remove fields
Move fields up/down
Activity
Analyses
CLP_Sample_No
COC
Coll_Method
Collection
Color
Concentration
Conductivity
Conductivity Units
Container
Container_No
Depth From
Depth To
Depth to Water
Sample # [Sample #]
Date: [Sample Date]
Location: [Location]
Analyses: [Analyses]
Preservation: [Preservation]
Container: [Container]
Enter a Caption
Click Next
<< Back
Next >>
Restore Defaults
Cancel
Finish





Custom Label Layout Preview

Custom Import

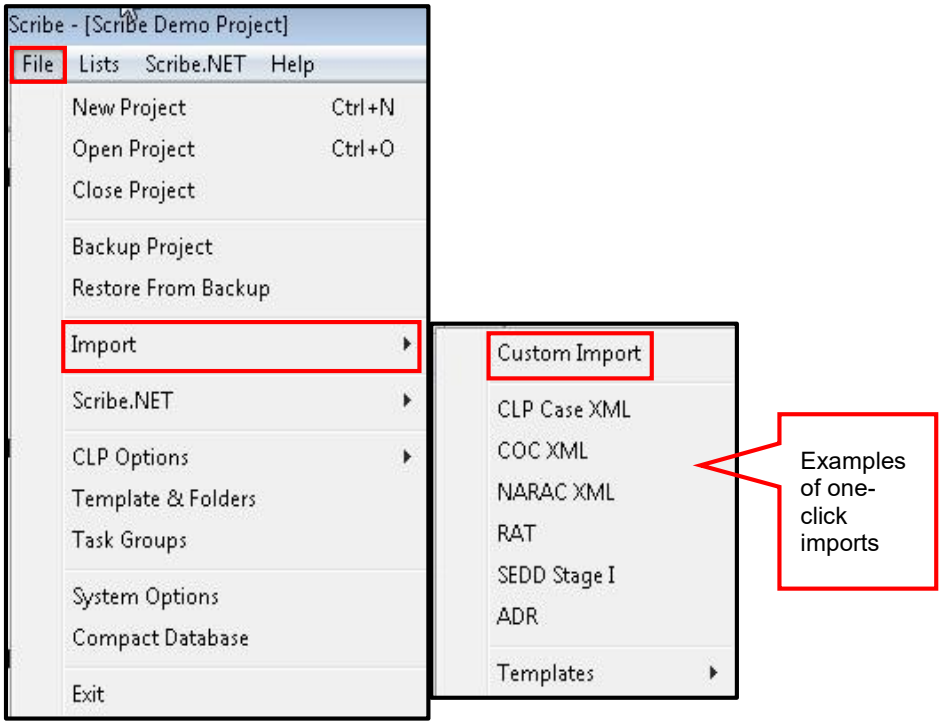
The File Menu contains several of the features described above. This section will address some of the more advanced features included with Scribe.

Import a File

Scribe supports importing of data to facilitate data entry. Rather than re-typing data into Scribe from another source (e.g., spreadsheet), the data can be imported into Scribe, thereby reducing the level of effort and transcription errors. It is very important to be familiar with the data you are importing. Column headings in your import source may differ significantly from the Column headings in Scribe.

NOTE: All file imports go through an Import Wizard that are similar in execution. This guide will only illustrate the Import process using an Electronic Data Deliverable (EDD) containing lab results. All EDDs need to be in a .csv or .txt format to go through the import process. If you are supplied with an .xlsx format, you can open it up on Excel and save it as a .csv file. PDFs are NOT Electronic Data Deliverables.

Click on File | Import | Custom Import

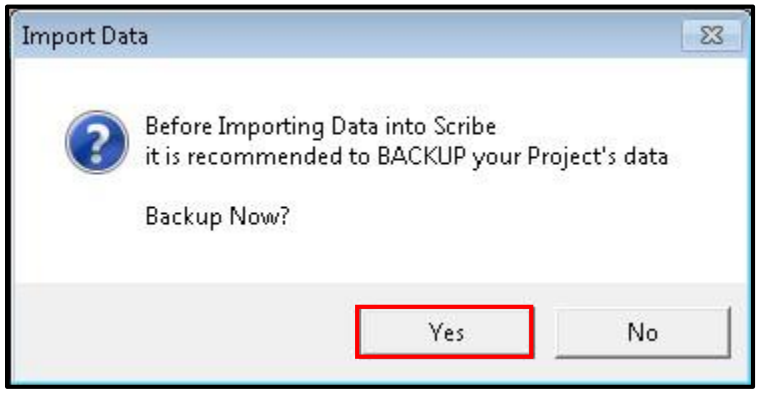


Backup Project

When doing any type of Import, Scribe will prompt you to Backup your projects data. It's always a good idea to make a backup of the project. The Backup will take a snapshot of your existing project, prior to the import. In the event something is wrong with the import data, you will be able to Restore your project prior to the import.

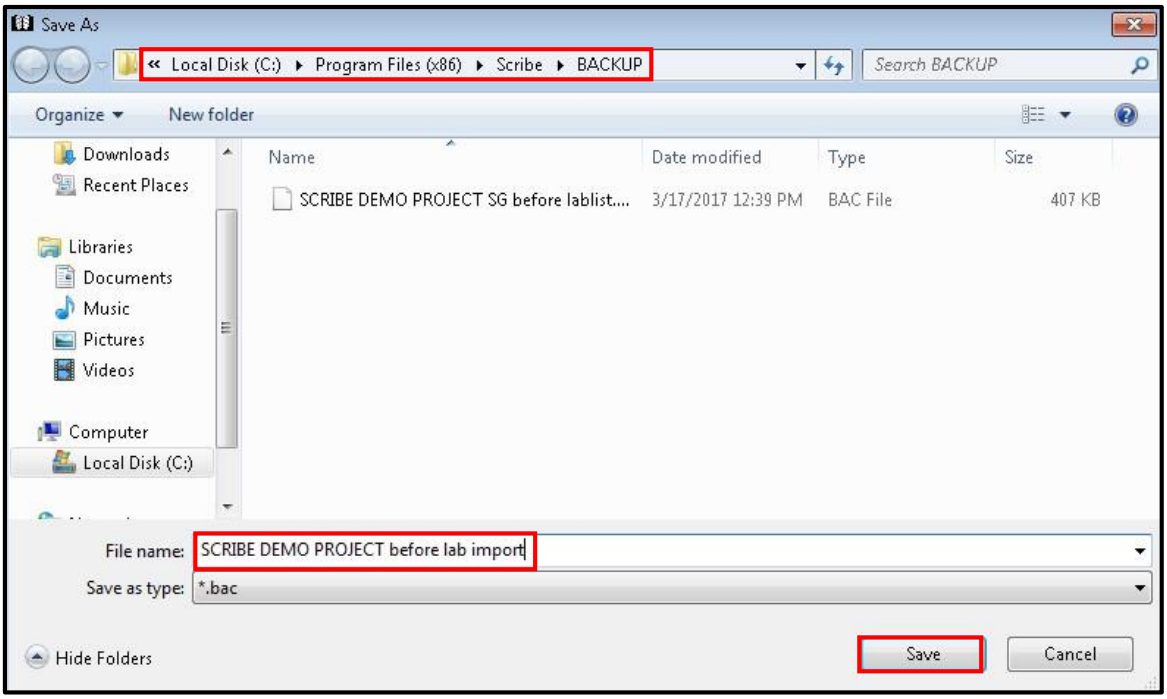
In addition to backing up your project prior to an import, you can Backup your project at anytime.

Under the File Menu select Backup Project. The following prompts remain the same throughout any backup process.



By default, Scribe will save your backup file to the BACKUP directory. BACKUPs, as well as your PROJECT files and TEMPLATE files, can be saved wherever you choose. Under the File Menu | Template and Folder, you can change your default directory or browse to another location at this screen.

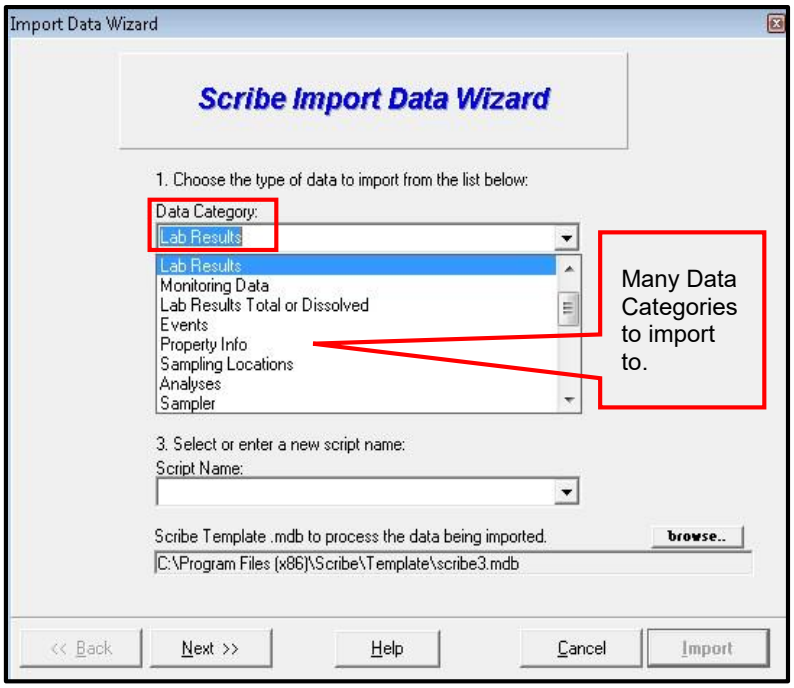
Naming your Backup file is important. By default, Scribe will stamp it with just the File Name of your project, with a .bac extension. Additional information in the file name (e.g., before import or date) is very helpful in the event there is an issue with the import and you want to restore your project prior to the import.


Save As
« Local Disk (C:) ▸ Program Files (x86) ▸ Scribe ▸ BACKUP
Search BACKUP
Organize
New folder
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Local Disk (C:)
Name
Date modified
Type
Size
SCRIBE DEMO PROJECT SG before lablist....
3/17/2017 12:39 PM
BAC File
407 KB
File name: SCRIBE DEMO PROJECT before lab import
Save as type: *.bac
Hide Folders
Save
Cancel

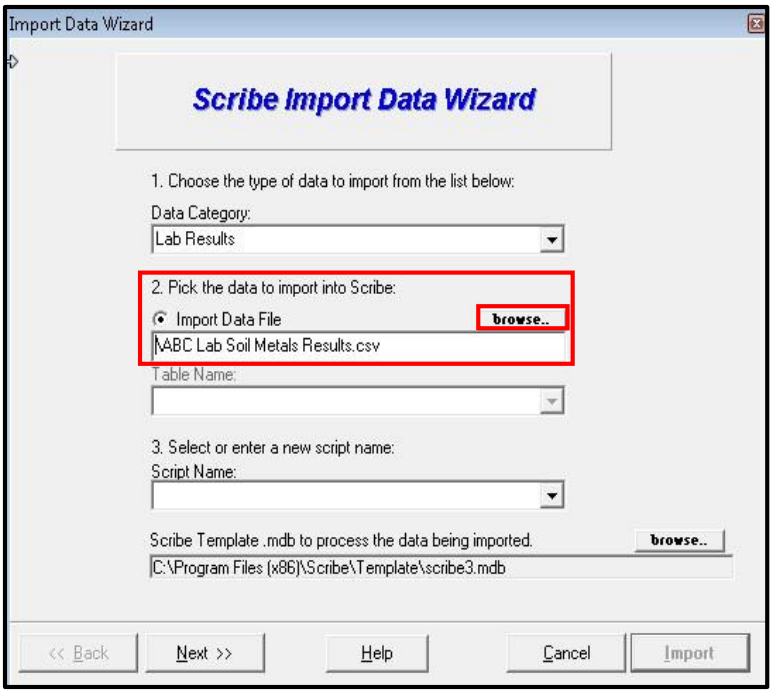

Backup
Backup To:
C:\PROGRAM
(X86)\SCRIBE
PROJECT
SCRIBE
DB
Backup
Backup Completed
OK

Scribe Import Data Wizard

The Scribe Import Data Wizard will launch. Click on the Data Category dropdown box and select the specific category you will be importing data to. In this example, we've selected Lab Results.

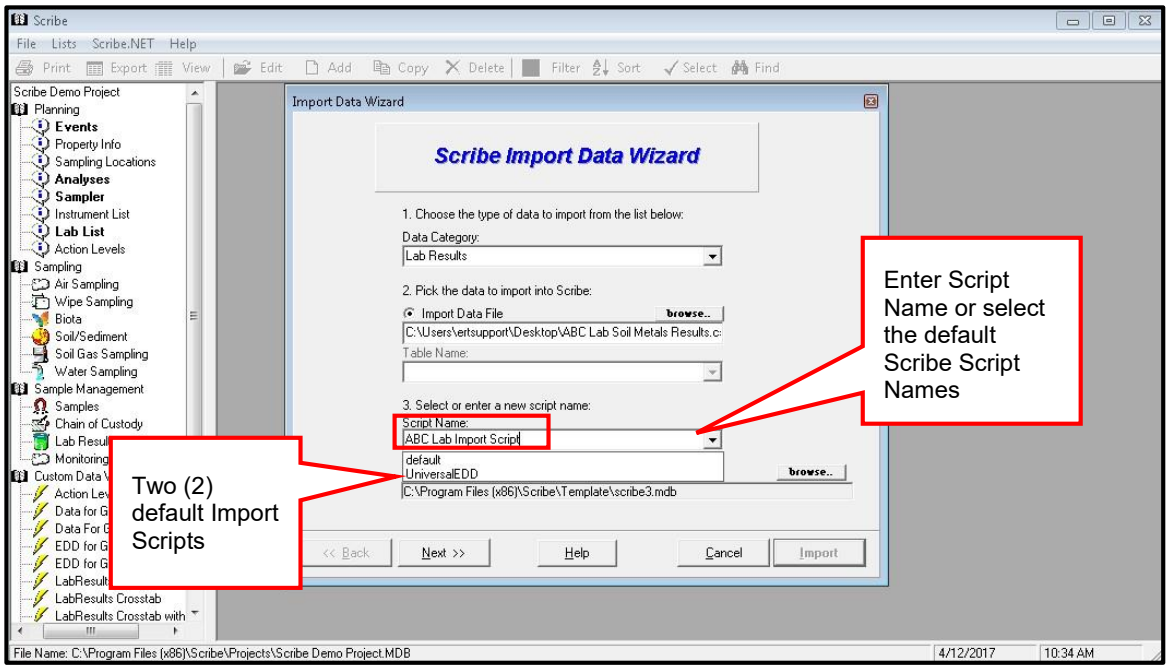


Use the 'browse' button to locate the file you want to import.

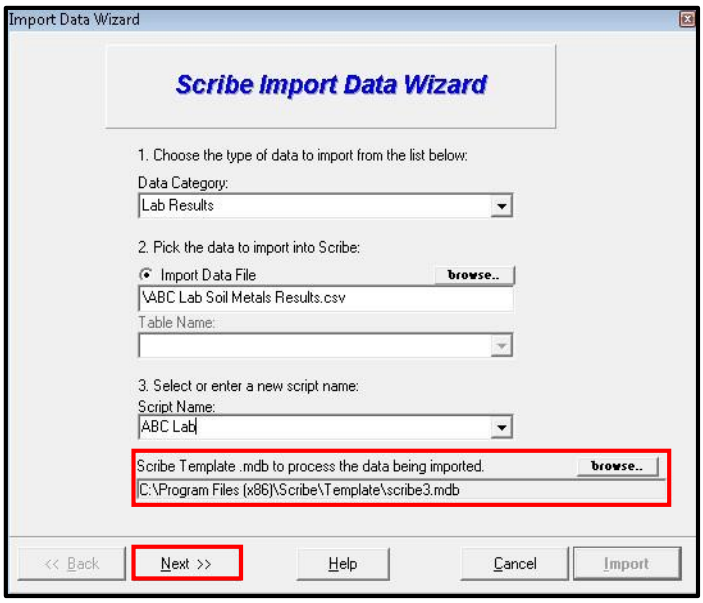


Import Scripts

Script Names provide a way to save your data mappings for a specific EDD format to avoid having to re-map future imports of similar files. For example, if you regularly get import files from a lab, you can save the data mappings to a Script Name (e.g., ABC Lab). Subsequent files from ABC Lab would not require re-mapping the data fields when importing. **Note:** *Script Names must be entered **prior** to mapping the fields. In this example, we are creating a Script Name for our ABC Lab Import.*

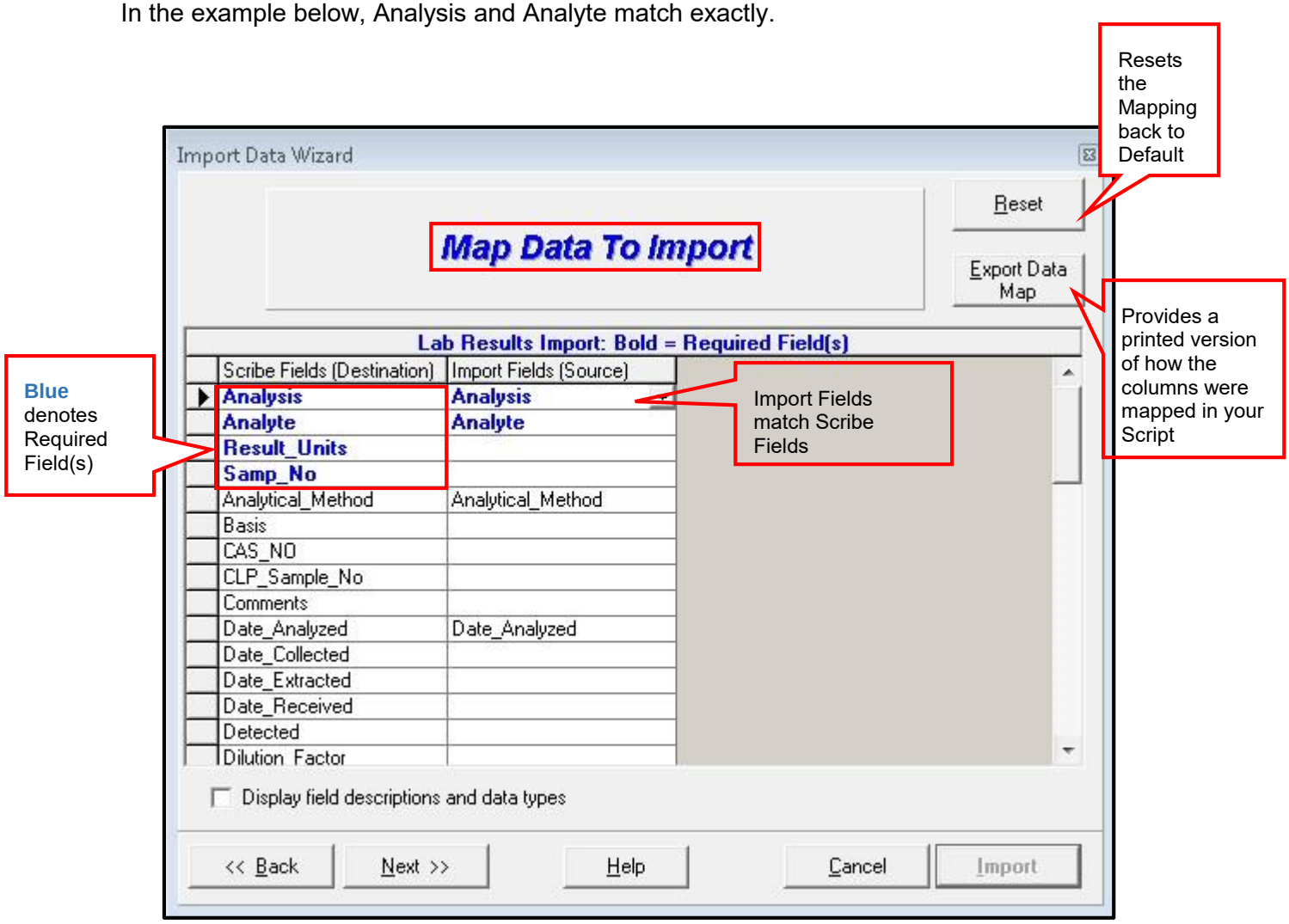


By default, Scribe uses the scribe3.mdb template file. If you are using a site/region specific template file, browse to where the file is stored. In this example, we will use the default Scribe template. When completed, click on Next.

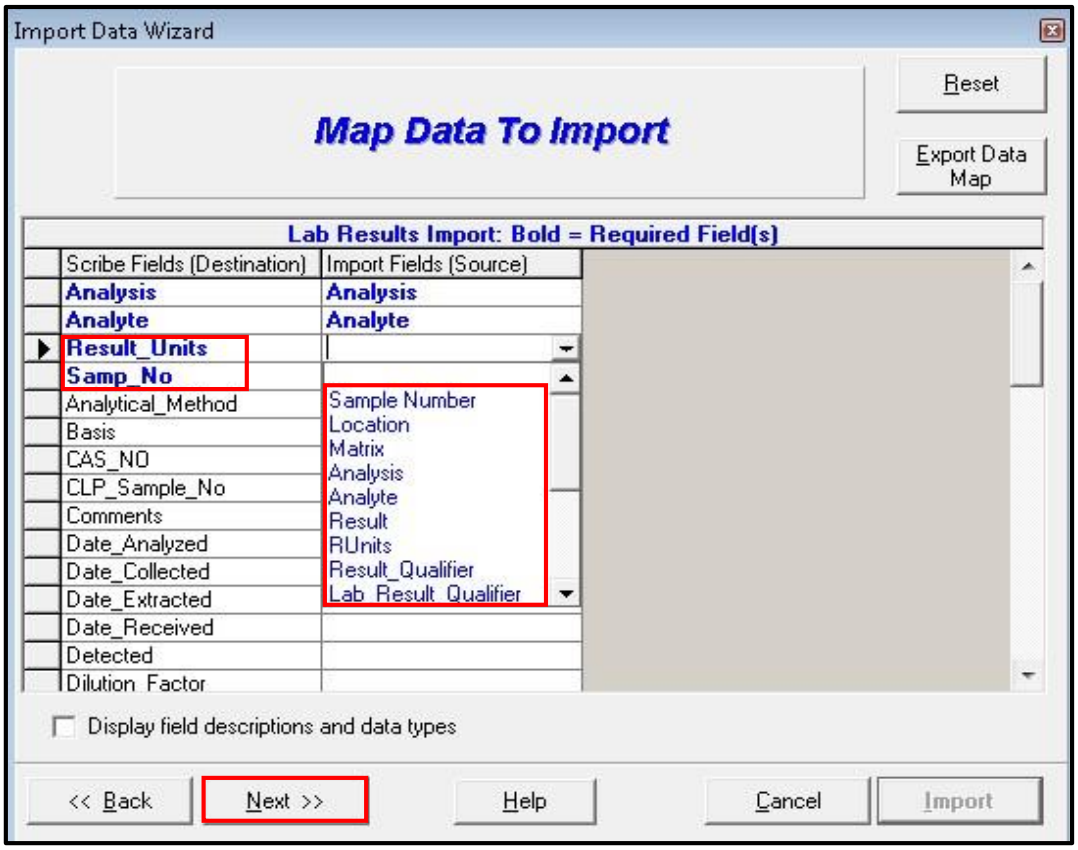


Map Data To Import

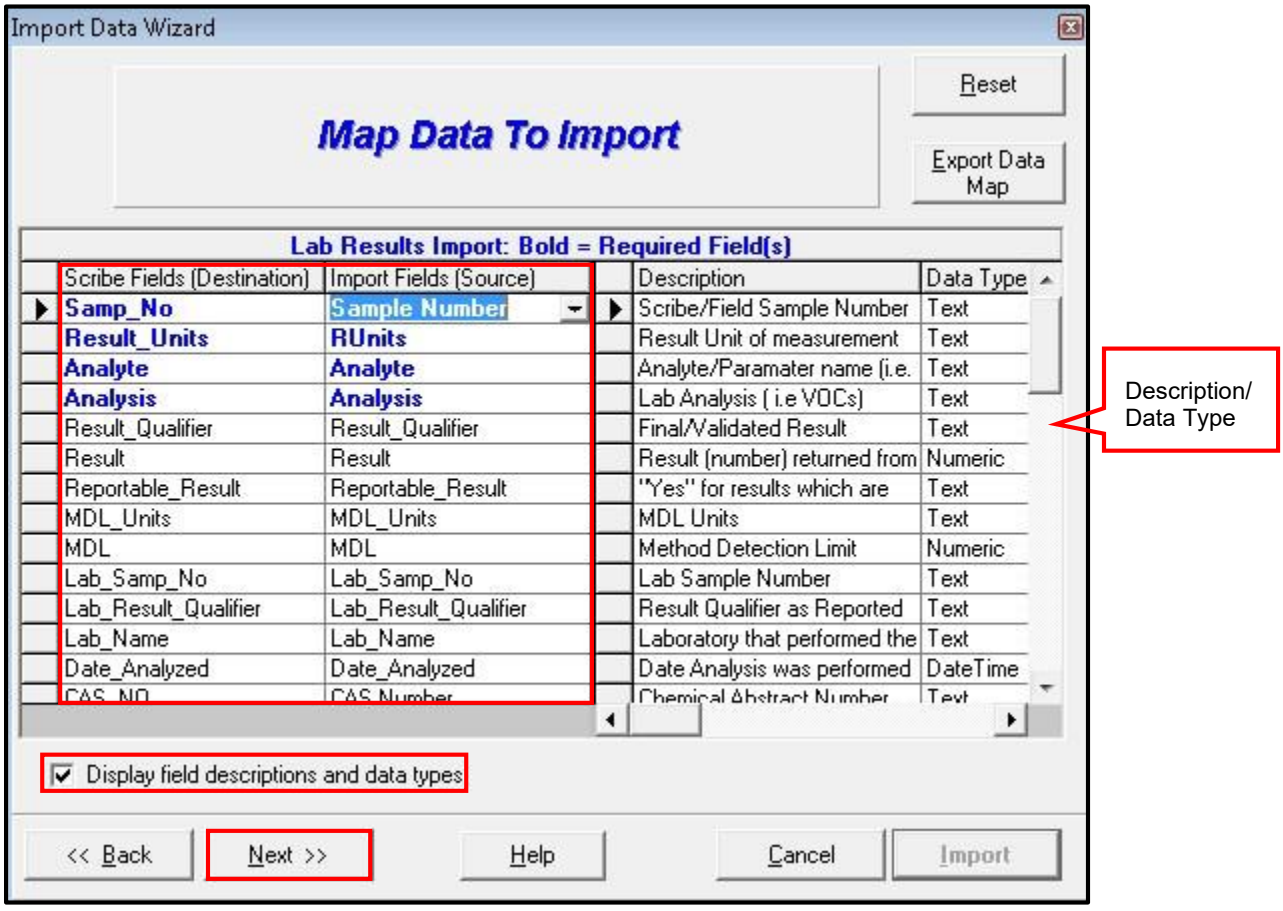
The 'Map Data To Import' window allows you to correlate Scribe data headings with the information contained in the EDD file. Any fields highlighted in **Blue** are required fields and must be mapped for the data to be imported. If the EDD (Import Fields (Source)) column headers match the Scribe Fields Destination, they will be mapped automatically. In the example below, Analysis and Analyte match exactly.



If headings do not match (e.g. Result_Units and Samp_No), click on the dropdown arrow in the cell to view the list of column headings in your EDD. Select the correct field in the EDD to map. Only data in the mapped fields will be imported into Scribe. Any heading that is not mapped will not be imported. ***NOTE**: As indicated earlier, it is very important to be familiar with your EDD. Knowing what your column headings are and what data is contained in them before the import will help eliminate any errors of data being mapped incorrectly.*

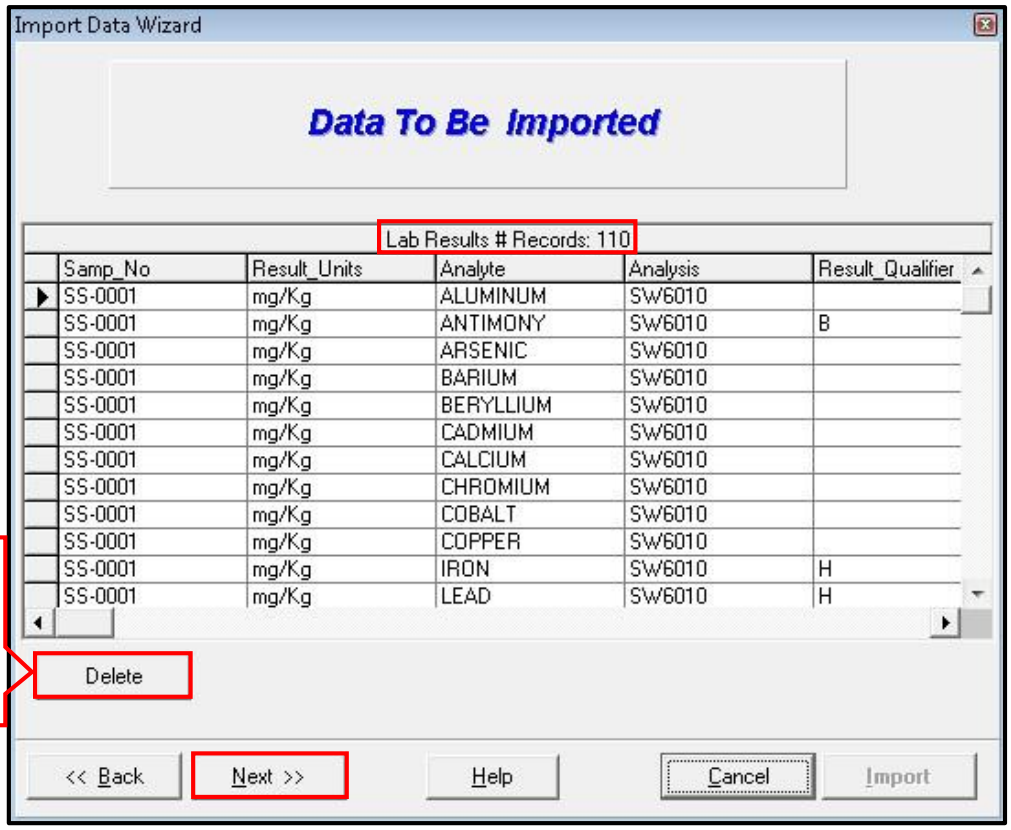


Continue mapping all other fields, as needed. ***NOTE:*** *To view the Scribe Field Description and Data Types, place a checkmark in the Display field descriptions and data types.* When all of the fields have been mapped, click Next.



Data To Be Imported

All data to be imported is displayed for you to review **before** the import process begins. ***NOTE**: As indicated earlier, it is very important to be familiar with your EDD. This screen will give you a preview of how many records will be imported and how you mapped your data. If something is mapped incorrectly, use the Back button to get back to the Map Data To Import screen.* Click the Next button to continue.



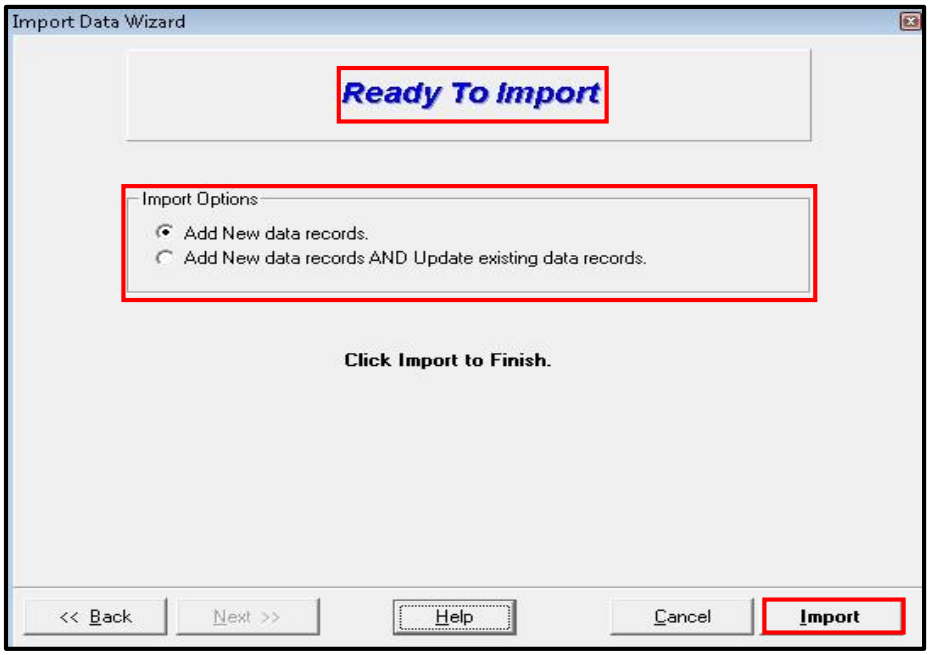
Ready To Import

The 'Ready to Import' screen opens. You are presented with two (2) Import Options:

- Add New data records
- Add New data records AND update existing data records

Add New data records is on by default. If this is the first time bringing this data set into Scribe, you would select this option.

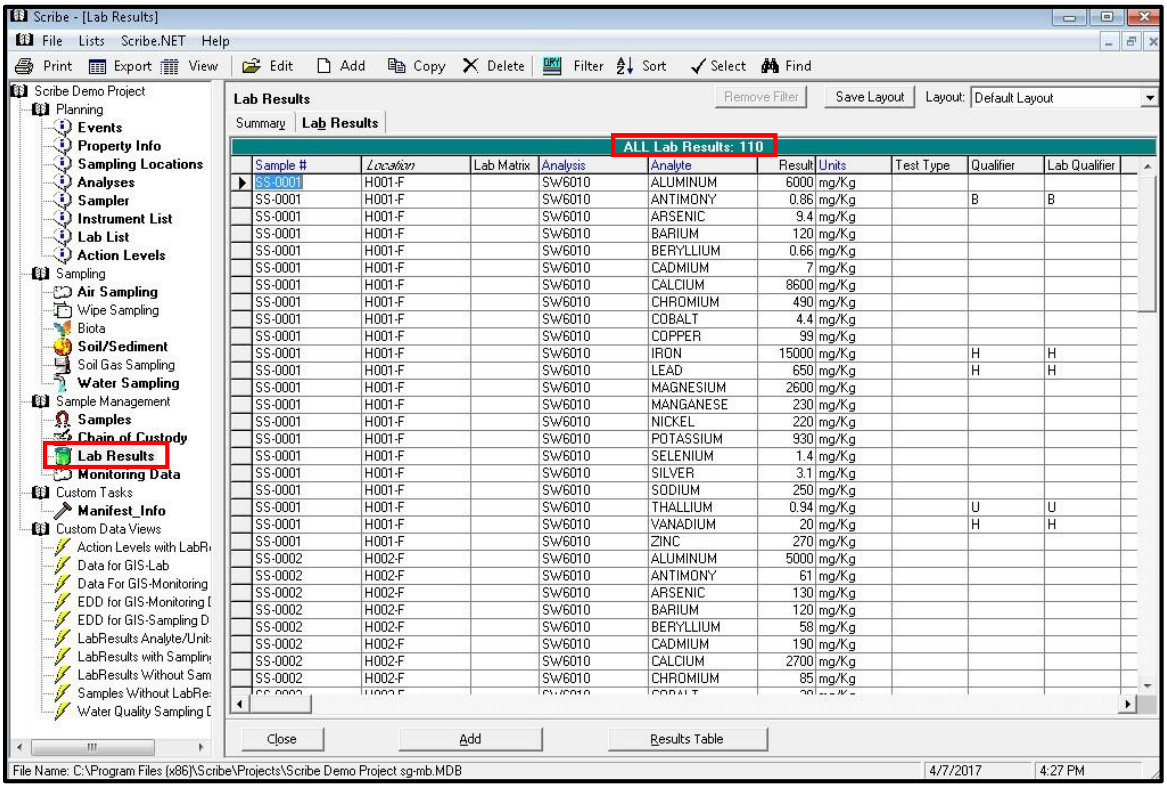
Add New data records AND Update existing data records. Use this option if updates need to be made to data already loaded or if additional information needs to be added to data already loaded.



Once the import is complete, a prompt appears asking if you wish to import more data. If no more data is to be imported, click No.

Displays # of records added

In this Import example, Lab Results were imported. Clicking on 'Lab Results' in the Navigation Pane will open the Lab Results window and display the imported records. 110 LabResult Records were imported and are displayed. ***NOTE:*** *To manually add Lab Results, please refer to Field Use Basics – Part 2 Guide.*



Export Data Map Example

A	B
Scribe Fields (Destination)	Import Fields (Source)
Samp_No	Sample Number
Result_Units	RUnits
Analyte	Analyte
Analysis	Analysis
Result_Qualifier	Result_Qualifier
Result	Result
Reportable_Result	Reportable_Result
MDL_Units	MDL_Units
MDL	MDL
Lab_Samp_No	Lab_Samp_No
Lab_Result_Qualifier	Lab_Result_Qualifier
Lab_Name	Lab_Name
Date_Analyzed	Date_Analyzed
Analytical_Method	Analytical_Method
Basis	
CAS_NO	
CLP_Sample_No	

Custom Data

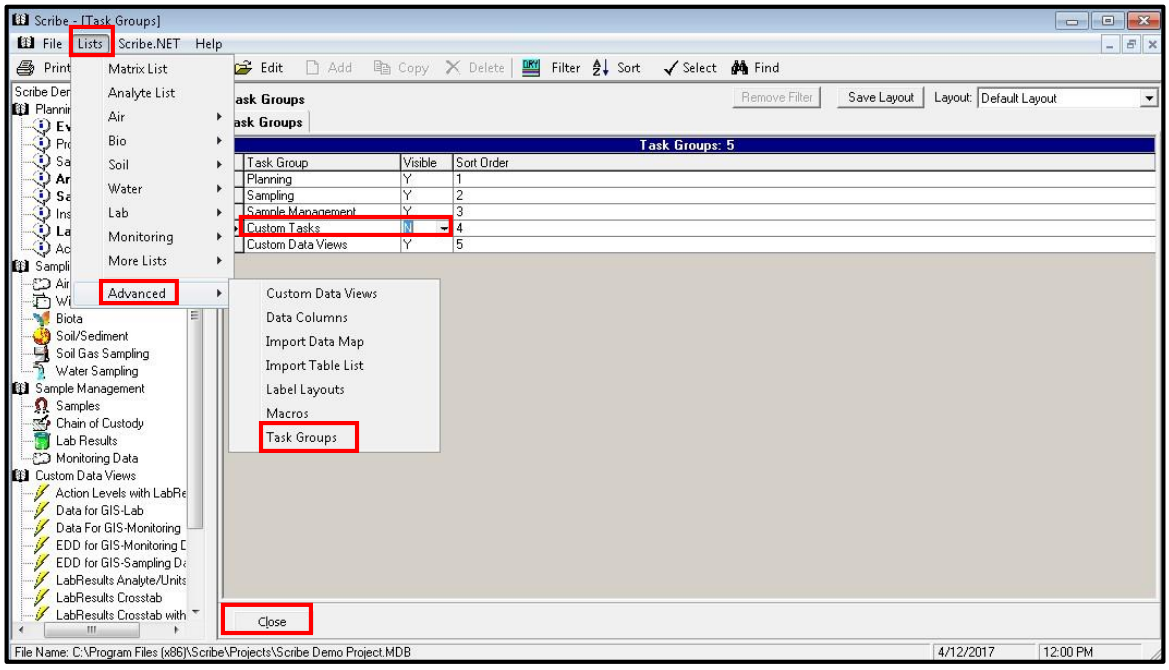
Custom Tasks and Custom Data Views are Scribe advanced features that allow users to either import or reference data external to the Scribe database. It can also be used for providing a one-click access to commonly used queries. The user must possess an understanding of Microsoft Access to create new tables for use in Custom Tasks or write a query that Scribe can then use in Custom Data Views. Scribe is the User Interface (UI) for the new database elements. Once created, the new database elements can be imported into Scribe as a new table (Custom Task) or query (Custom Data View). Below describes how to add these database elements to your Scribe project.

For additional information on creating Custom Tasks and Custom Data Views please refer to the Custom Tasks Guide and Custom Data Views Guide or contact ertsupport at 1-800-999-6990 or ertsupport@epa.gov.

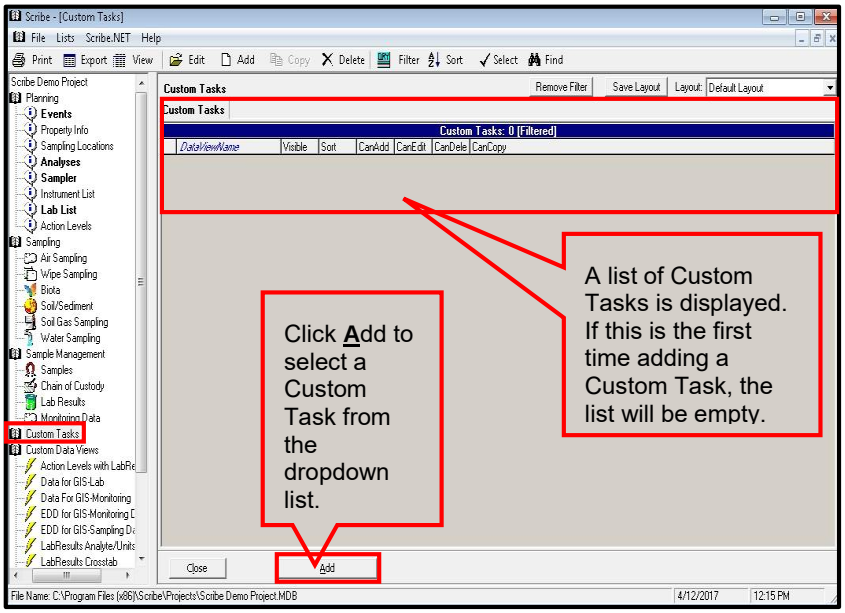
Adding Custom Tasks

When users have identified data that needs to be captured in their Scribe Project that is not native to the Scribe Database, it may be necessary to add a new table (Custom Task) to the database using MS Access. By adding this table to the database and exposing it in the Scribe User Interface (UI), users will be able to utilize many of the data functions available in Scribe (e.g., Data Entry, Import, Find, Filter and Sort). ***Note: To expose the Custom Task in your Scribe project, you must have already created the table, through MS Access in the Scribe project.***

Click on 'Lists' from the top menu bar and select the 'Advanced' option.
Then select the 'Task Group's option. A list of Task Groups is displayed.
Modify the Visibility of the Custom Tasks Column to **'Y'** by clicking on the down arrow.
Click Close.

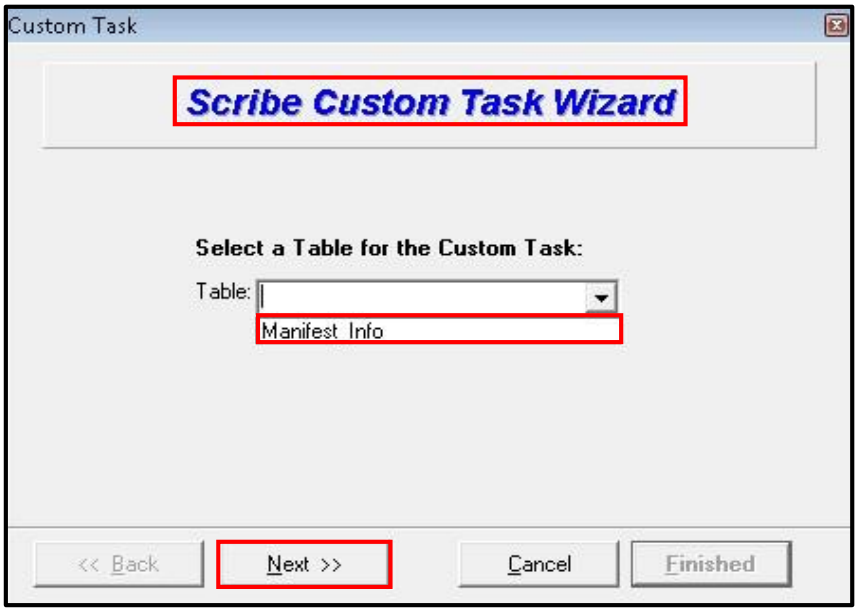


The Custom Tasks option will now be available in the Navigation Pane, below Sample Management. Click Add



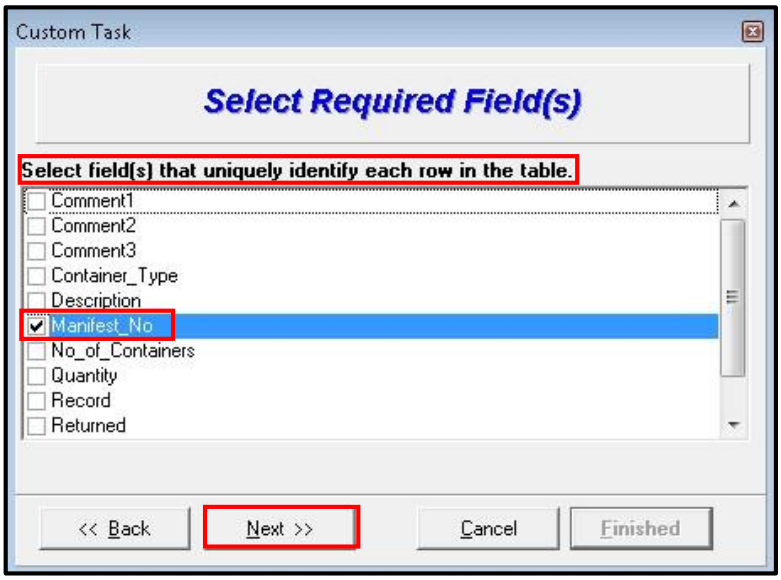
In this example, we created a Manifest table in MS Access to track Manifest data for the project. ***NOTE:*** *After adding a new database element to a Scribe project .mdb, the associated Scribe template file must also be updated with the new database element if additional data will be added using Scribe's Import wizard. If the default Scribe3.mdb template is updated, the new database element will appear in every subsequent new Scribe project created with that template.* **See Modify Scribe Template section**.

The Scribe Custom Task Wizard will display. Select the Manifest_Info table and click Next

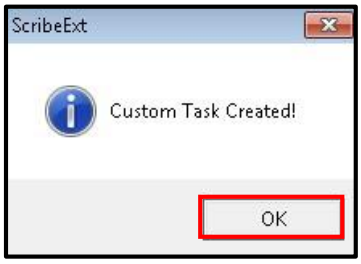


In our example, the Primary Key in the Manifest table was defined with an AutoNumber field in MS Access. Scribe, however requires that the table be defined with unique fields other than the Primary Key. The field/fields that make up a unique record in the custom table must be defined before the table is added to Scribe's user interface.

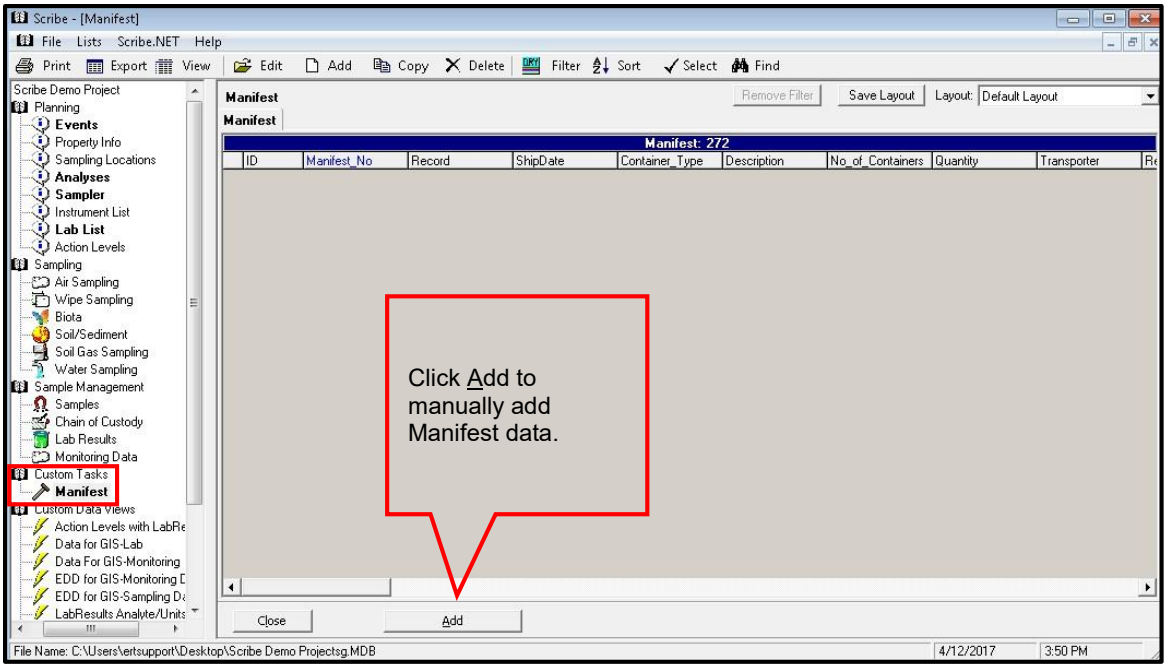
Check the 'Manifest_No" field to uniquely identify each row in the table. Click the Next button to continue.



Enter a name for the Custom Task and Click Finished. Click OK.



The Manifest Task is now listed under Custom Tasks. Access to the Manifest table is now available in the Scribe UI by clocking on Manifest under Custom Tasks. The field from the Manifest table are displayed, but there are no records in the table yet.



If additional data will be added using Scribe's Import wizard, the Scribe template file must be updated with the new database element. **Please see Update Scribe Template section of this guide.**

Add a Custom Data View

When users have identified data that needs to be provided over and over again and creating filters and sorts become cumbersome, an advanced feature would be to create a Custom Data View (query) that would provide a one-click option to answer the same commonly asked question over and over again. The user must possess an understanding of Microsoft Access to write a query that Scribe can use in Custom Data Views. Scribe is the User Interface (UI) for the new database elements. Once created, the new database elements can be imported in Scribe as a new query (Custom Data View). Below describes how to add these database elements to your Scribe project.
Note: To expose the Custom Data View in your Scribe project, you must have already created the query, through MS Access in the Scribe project.

For additional information on creating Custom Tasks and Custom Data Views please refer to the Custom Tasks Guide and Custom Data Views Guide or contact ertsupport at 1-800-999-6990 or ertsupport@epa.gov.

Update/Modify Scribe Template

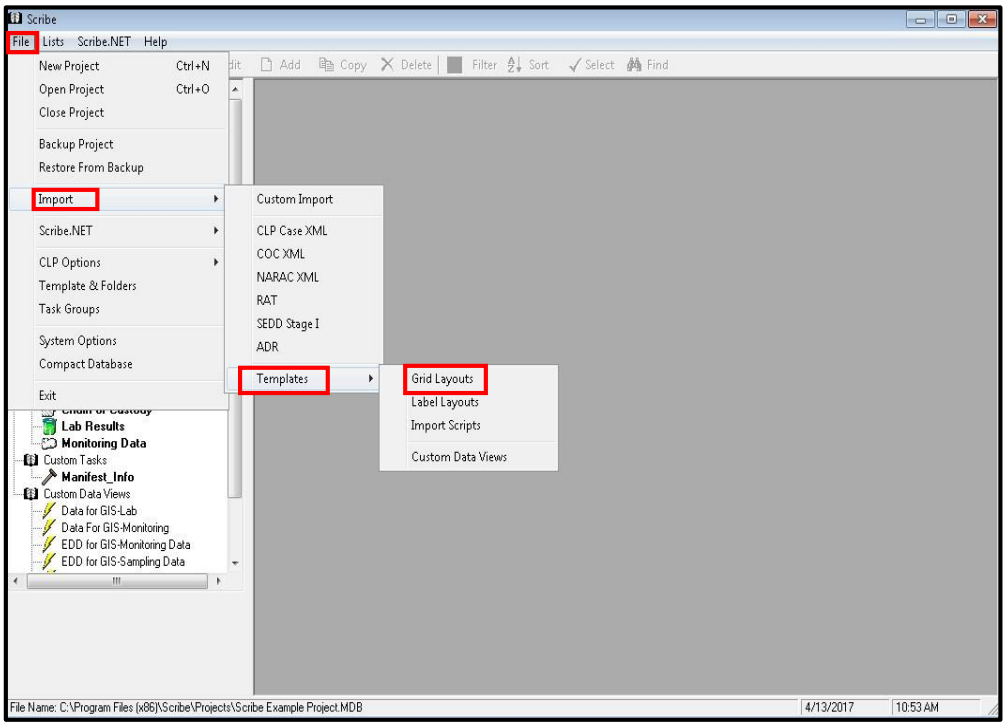
After adding a new table (Custom Task) or adding new database elements to an existing Scribe project table. The associated Scribe template file must also be updated if additional data will be added using Scribe's Import wizard.

Import Templates

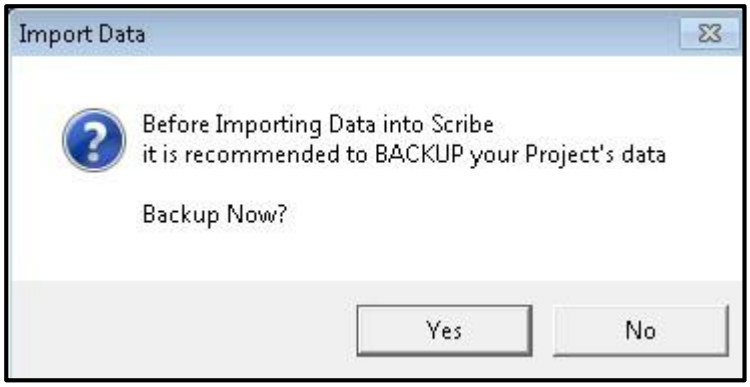
Customized layouts that were saved in previous Scribe projects can be imported into other Scribe projects. This section will describe how to import your Grid and Label layouts, Import Scripts and Custom Data Views into other Scribe projects.

Grid Layout

Click on File | Import | Templates and select Grid Layouts



A prompt to Backup your project will display. Click Yes or No. (*See Custom Import | Backup your Project*)

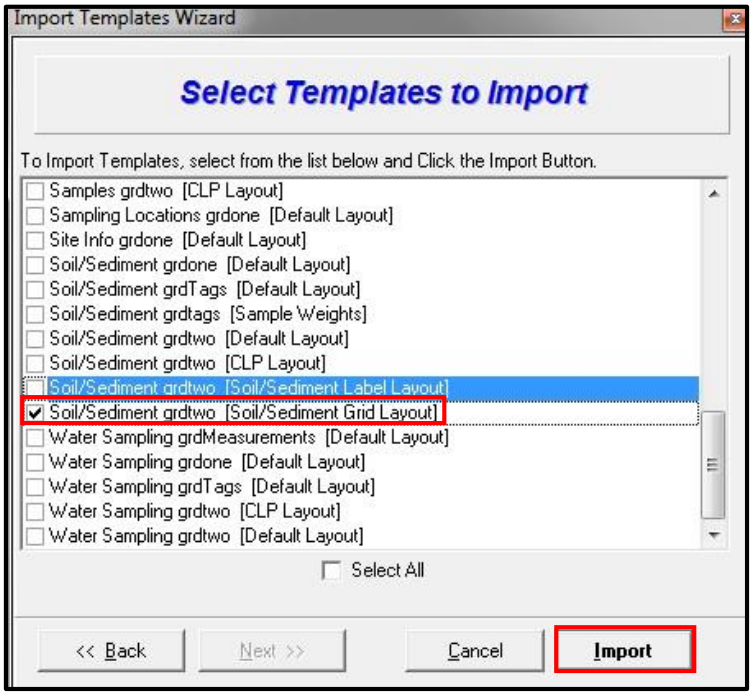


The Scribe Import Templates Wizard will display.

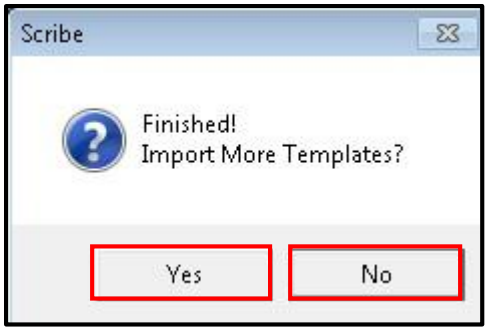
Browse to the Scribe project that you are importing templates from.

Click Next.

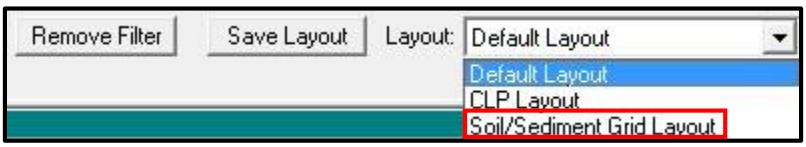
Select the Grid Layout(s) to be imported. Click Import.



When finished, you will be prompted to Import More Templates? Click Yes or No.



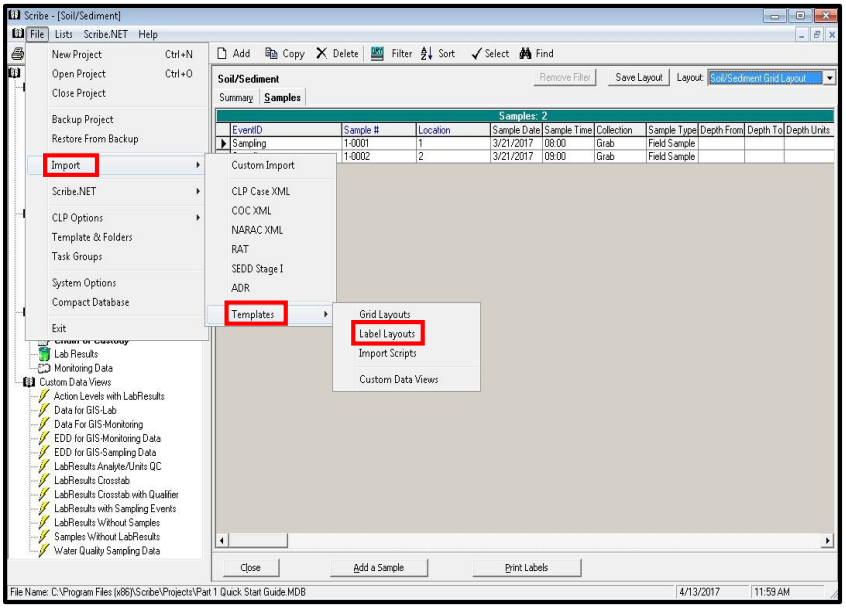
The Grid Layout is now available in the dropdown.



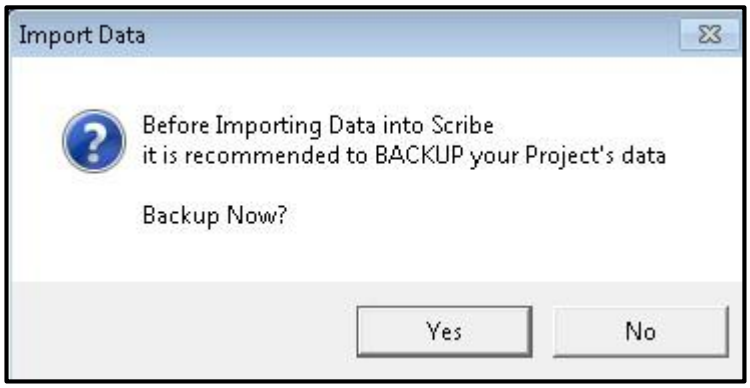
Note: *Layouts (Grid and Labels) are only imported to the section of Scribe they were created in. In this example, we are importing the Soil/Sediment Grid Layout that will import to the Soil/Sediment section in Scribe.*

Label Layout

Click on File | Import | Templates and select Label Layouts



A prompt to Backup your project will display. Click Yes or No. See Custom Import | Backup your Project.

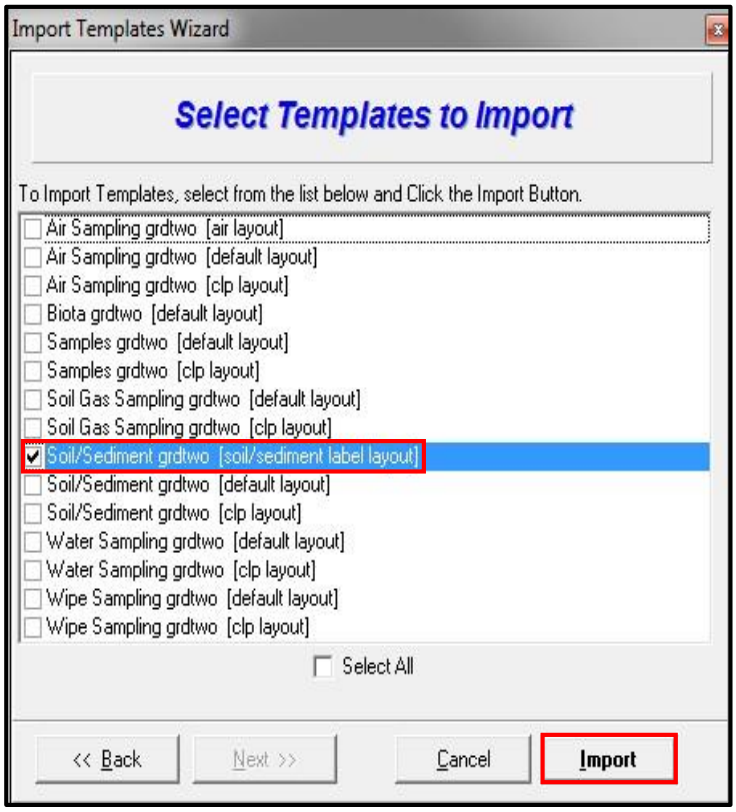


The Scribe Import Templates Wizard will display.

Browse to the Scribe project that that you are importing templates from.

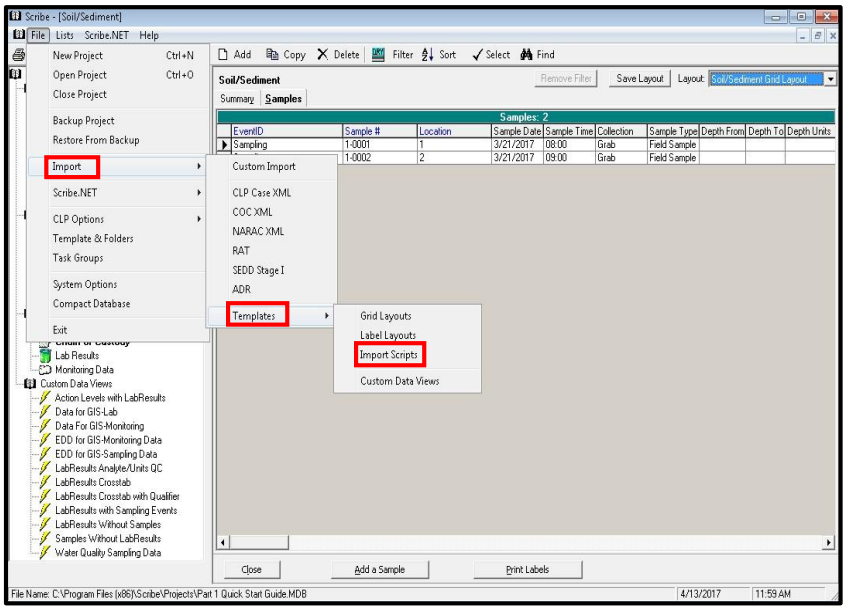
Click Next.

Select the Label Layout(s) to be imported. ***Note:*** *Layouts (Grid and Labels) are only imported to the section of Scribe they were created in. In this example, we are importing the Soil/Sediment Grid Layout that will import to the Soil/Sediment section in Scribe.* Click Import

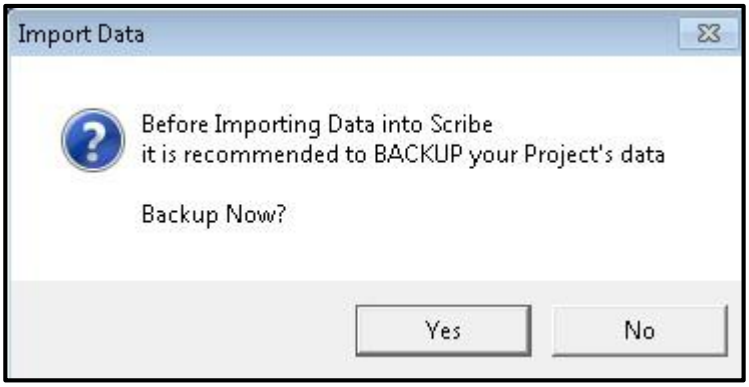


Import Scripts

Click on File | Import | Templates and select Import Scripts



A prompt to Backup your project will display. Click Yes or No. See Custom Import | Backup your Project.

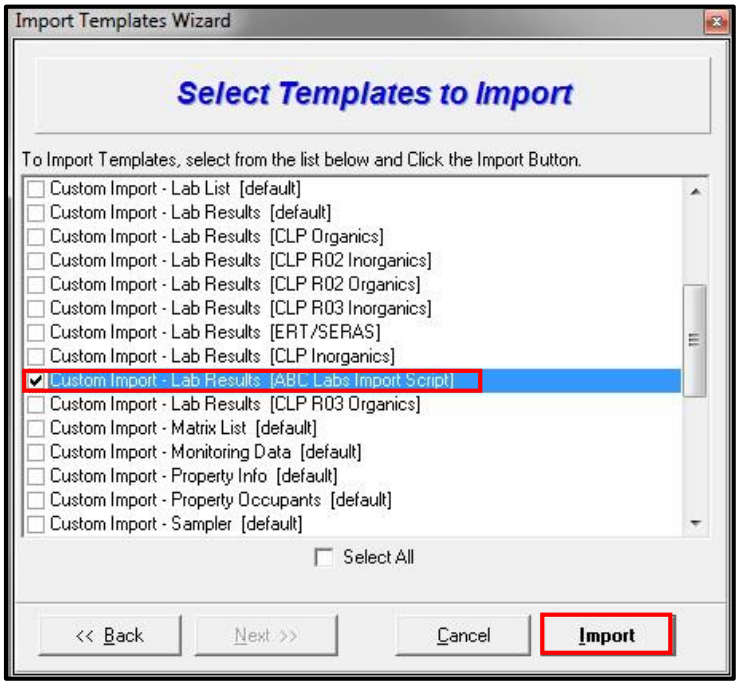


The Scribe Import Templates Wizard will display.

Browse to the Scribe project that that you are importing templates from.

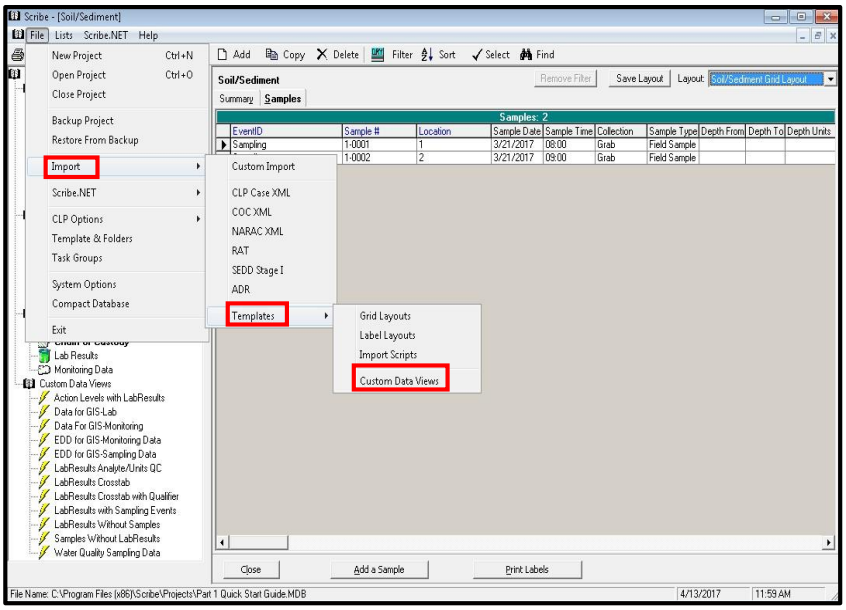
Click Next.

Select the Import Script(s) to be imported.
Click Import

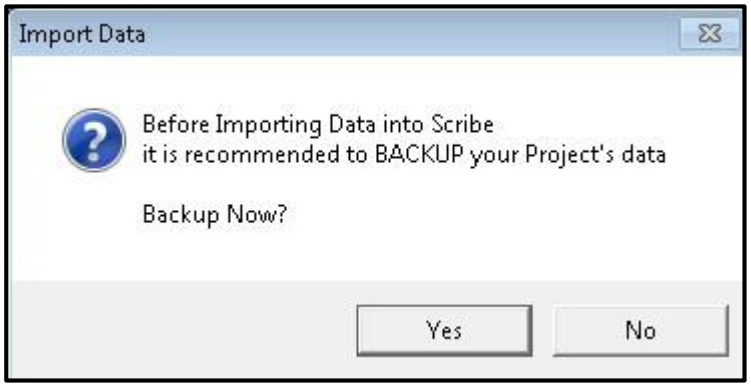


Custom Data Views

Click on File | Import | Templates and select Label Layouts



A prompt to Backup your project will display. Click Yes or No. See Custom Import | Backup your Project.

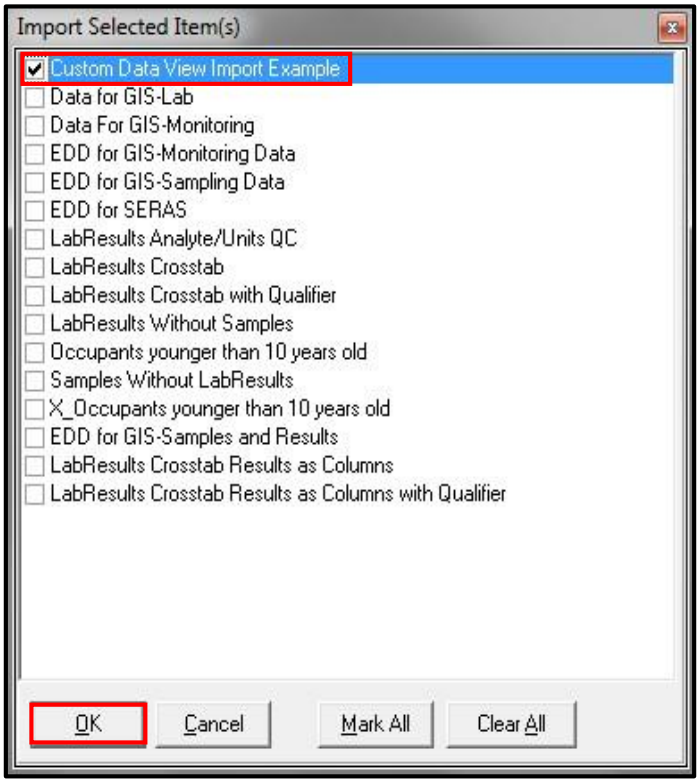


The Scribe Import Templates Wizard will display.

Browse to the Scribe project that that you are importing templates from.

Click Next.

Select the Custom Data View(s) to be imported. Click OK.



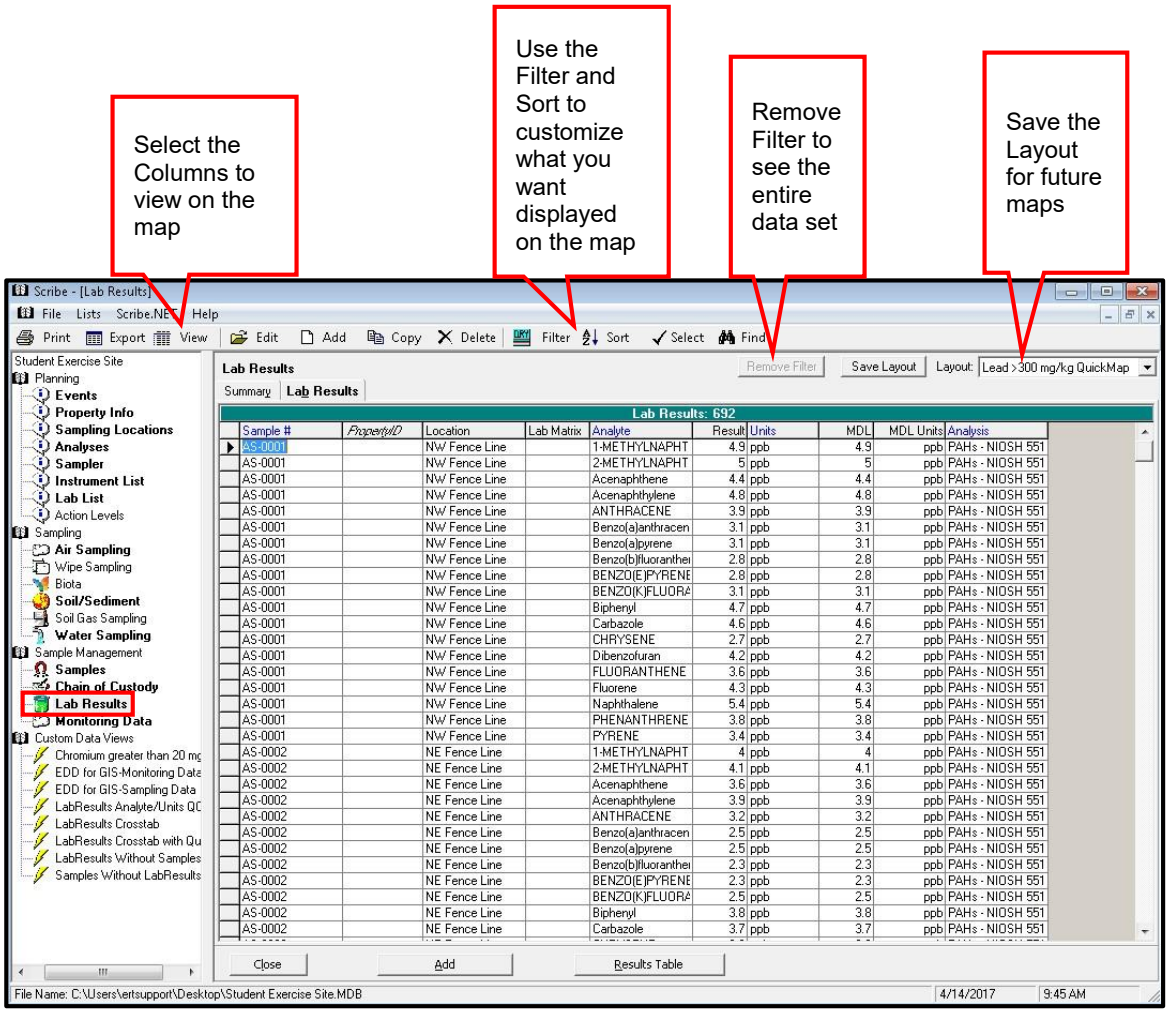
QuickMap

The option to export to a Quickmap (powered by Google Earth) is available in any section of Scribe than can display (view) longitude and latitude (e.g. Sampling Locations, Property Info, Samples task and the EDD to GIS custom data views). To use the Quickmap option an internet connection is required. To download Google Earth visit http://earth.google.com/download-earth.html.

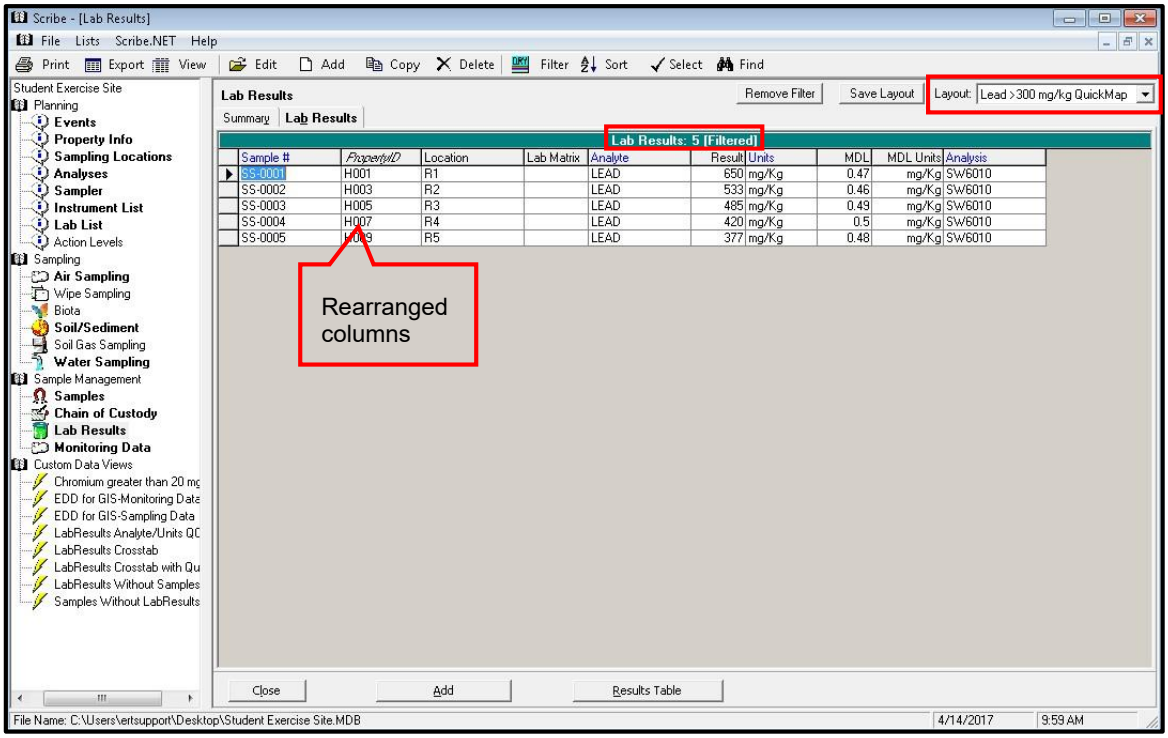
Creating a QuickMap

The Scribe grid screens are ideal for creating QuickMaps for reporting purposes. In the example below, a grid layout will be created for all Lead Levels above 300 and generate a QuickMap to display the data in Google Earth. The QuickMap will be generated from the Lab Results table of our project.

Click on Lab Results and click the 'Remove Filter' button so the entire data set is available. Use Scribes Filter, Sorts, etc. to display the data that will be displayed on the QuickMap.



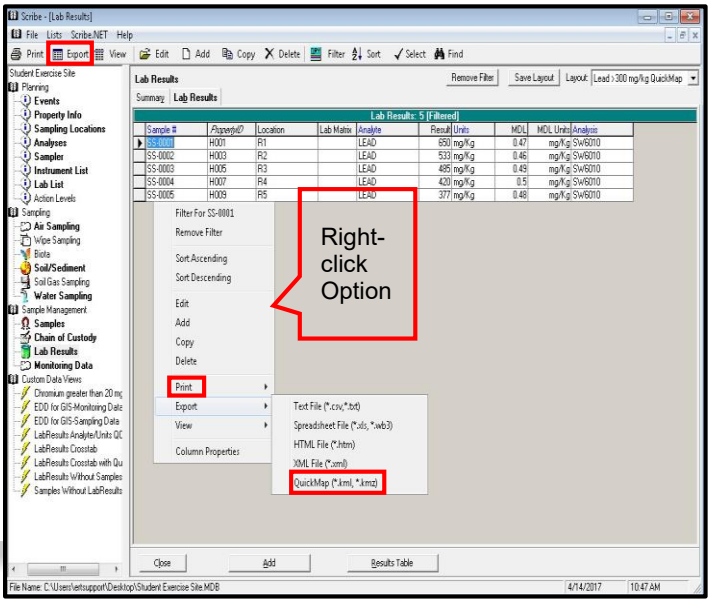
In this example, we Filtered for Lead >300 mg/kg in Ascending Sort order, limited our view to specific columns, moved (rearranged) the column order and created a Layout.



Generate a QuickMap

If your data contains latitude and longitude values, you can generate the QuickMap to display in Google Earth.

Click the Export button from the Toolbar (or use the right-click option). Select QuickMap (*.kml, *.kmz)

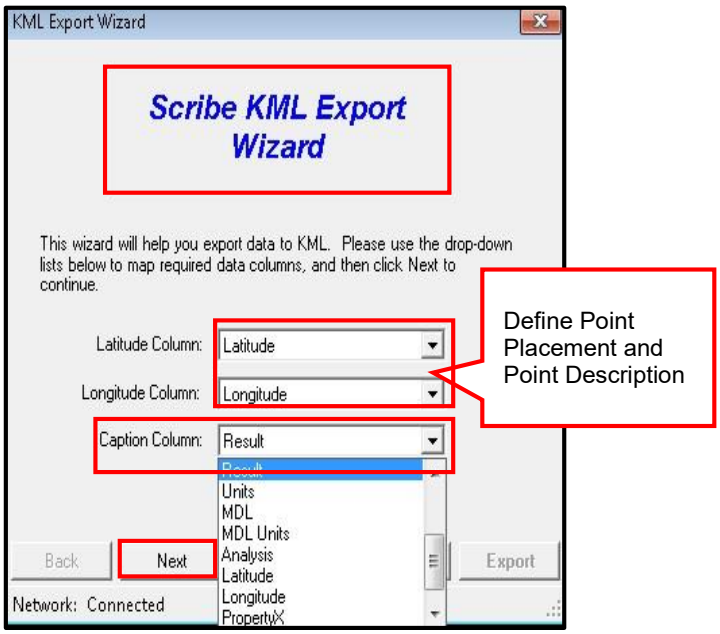


The Scribe KML Export Wizard will launch. Latitude and Longitude fields are mapped automatically.

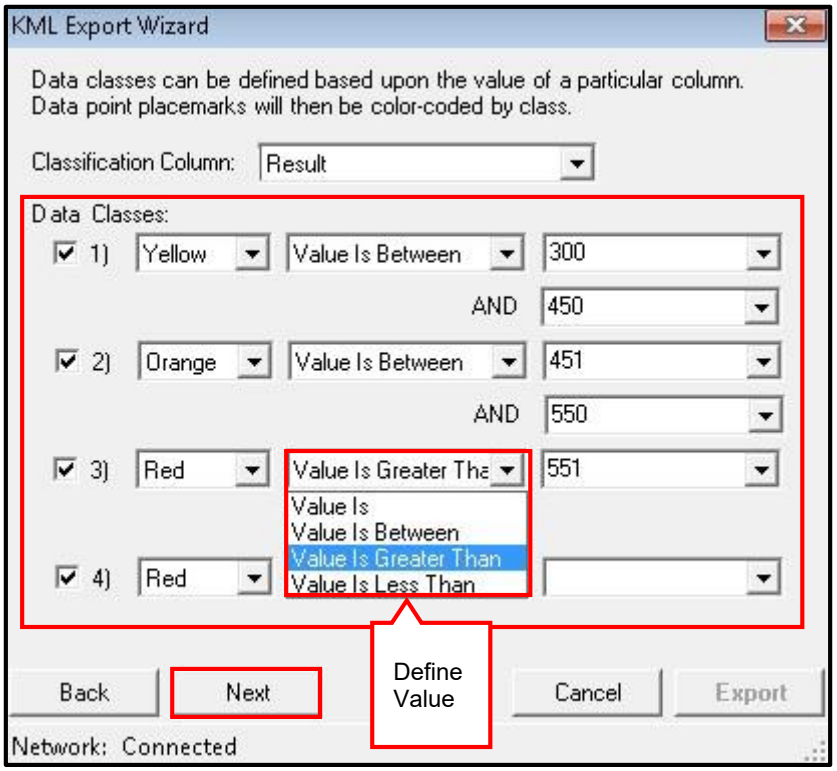
Click the down arrow to display a picklist of fields available based on your grid data (discussed above).

Select the field that will be used to identify (label) the individual data points on the map (e.g. Result or SampleID). In this example, we are using the Result field.

Click Next.

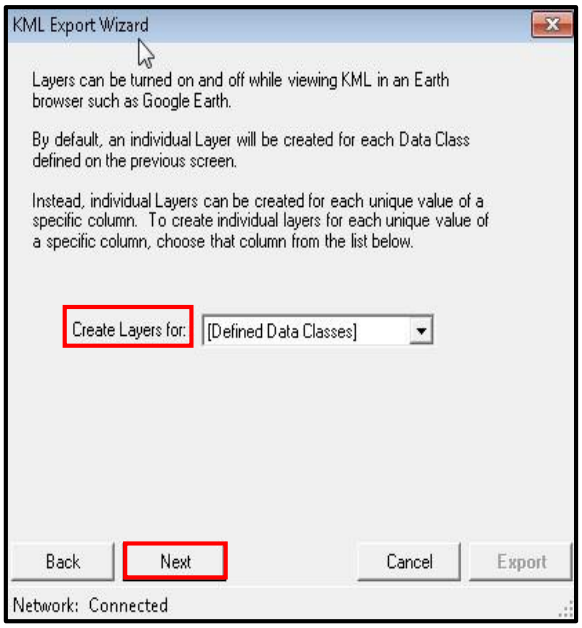


Define the Data classes of the data points. When the map is displayed, the property colors will be based on the result value. In this example, we've classified each data point based on the Results value greater than.
Click Next.



This screen allows you to create additional layers to turn on and off in Google Earth.

For example, if you used Sublocation to define front yards and backyards, you could define a layer for Sublocation and turn the yard info on and off in Google Earth.
Click Next.

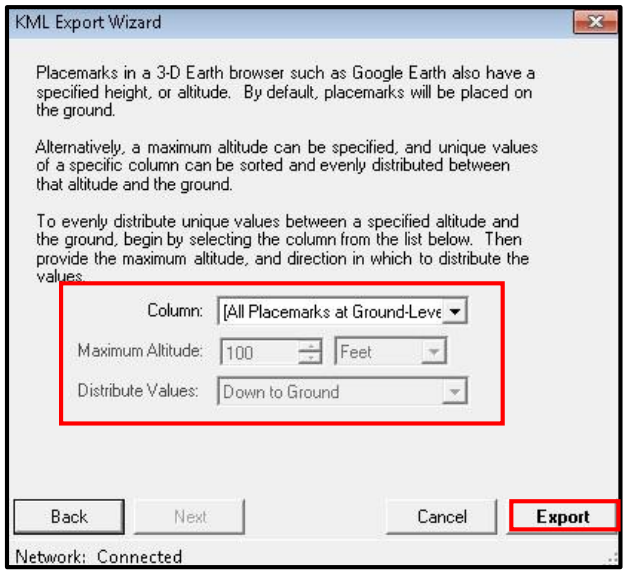


This screen allows you to define Placemarks. Datapoints can be displayed in a 3D format based on a value allowing the user to stack data points.

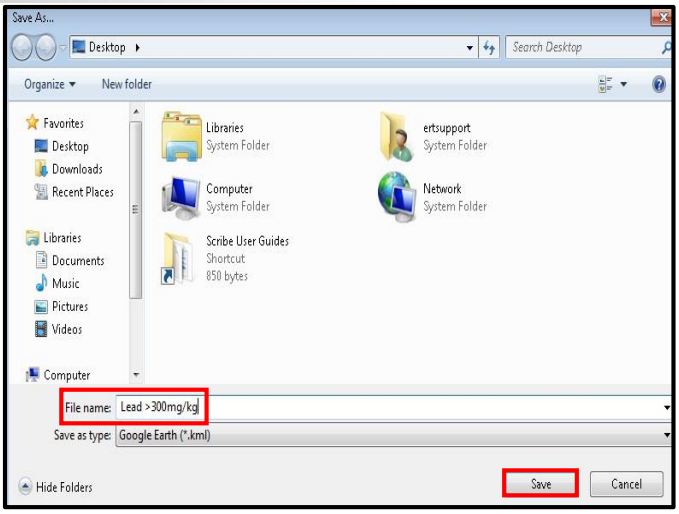
By default, all data points will be placed at ground level. To stack datapoints, select the field on which to base the stacked points i.e. Depth or Result.

Define the Maximum Altitude and Distribute Values. Data in Google Earth based on altitude.

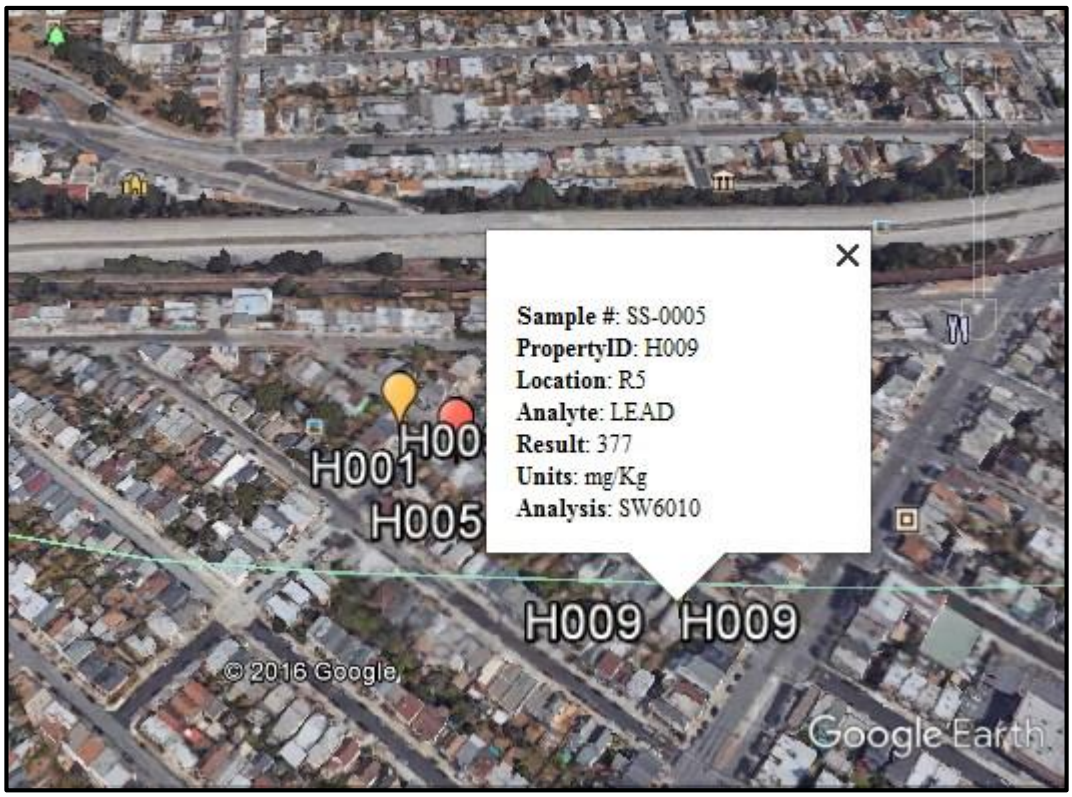
Click Export.



Name the *.kml file and click ‘Save’.
If Google Earth does not automatically launch and display the lab results, run Google Earth and open the .kml file.



An image similar to the one below should display in Google Earth. Notice the Property IDs are displayed by color using the value ranges specified in the Wizard. Also notice the additional information displayed when a pin is selected. Additional pin information could be displayed by turning those columns on in Scribe before creating the QuickMap export.



Scribe.NET

Scribe.NET provides a method of storing and sharing Scribe projects in a controlled environment. Using Scribe.NET, Scribe projects can be shared between Scribe desktop clients and/or enterprise Oracle/SQL database clients. Scribe projects are "Published" from the Scribe desktop client, and other desktop/enterprise users "Subscribe" to the published projects. Users can subscribe to individual or multiple projects. Regional or global subscriptions can also be created for sharing entire sets of published projects.

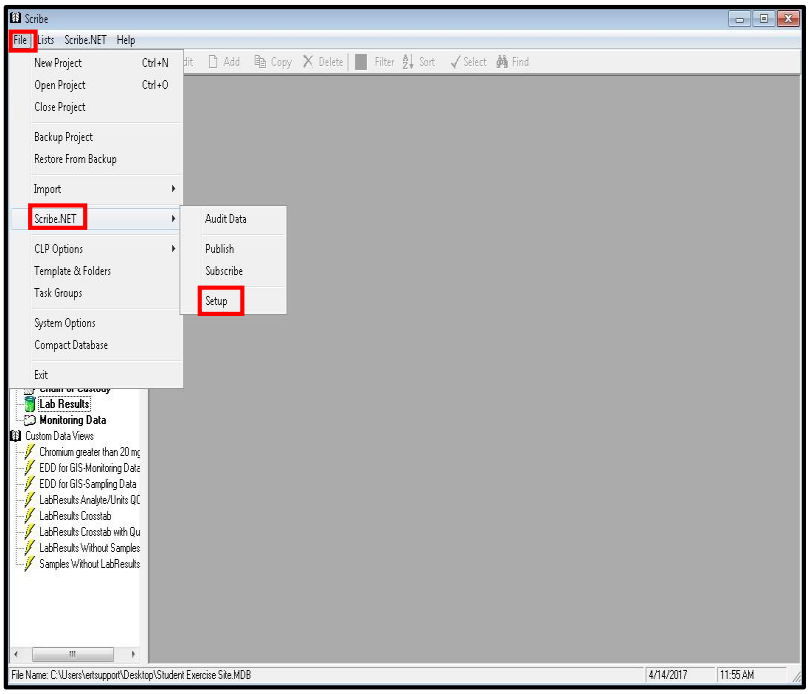
By default, Scribe desktop clients have access to generic publisher accounts in order to quickly and easily publish their project to Scribe.NET. Subscriptions, however, are managed on the server to provide secure access to the published data. An end user must have the subscription ID and Password before they can access the published project(s). The configuration of the subscription will determine which projects a user will acquire when they use a particular subscription ID. Subscriptions function differently for desktop clients than enterprise SQL clients.

An Internet Connection is required to Publish or Subscribe.

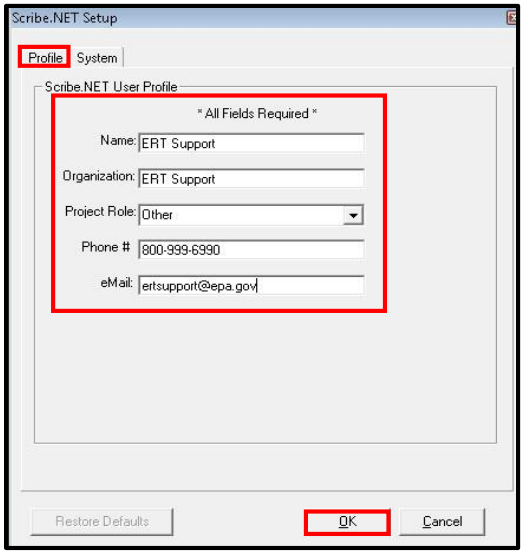
Scribe.NET Setup

The first time you use Scribe.NET, you will be prompted for some basic user identification information. This data is only used to attach ownership of the project and to ensure data integrity of published project files and is not publicly displayed.

Click on File | Scribe.NET | Setup



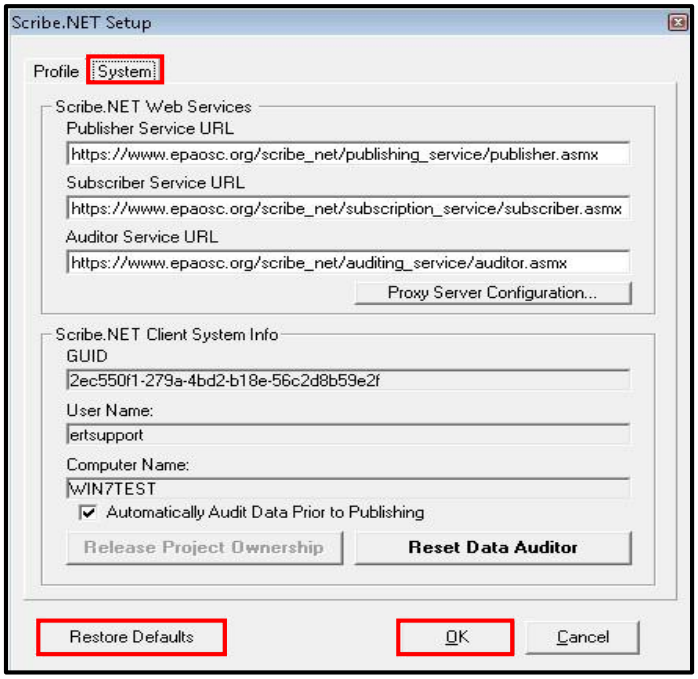
Fill in the fields on the Profile tab and click OK



The information on the System tab does not need to be modified.

To restore system default settings, click on the 'Restore Default's' button.

Click OK

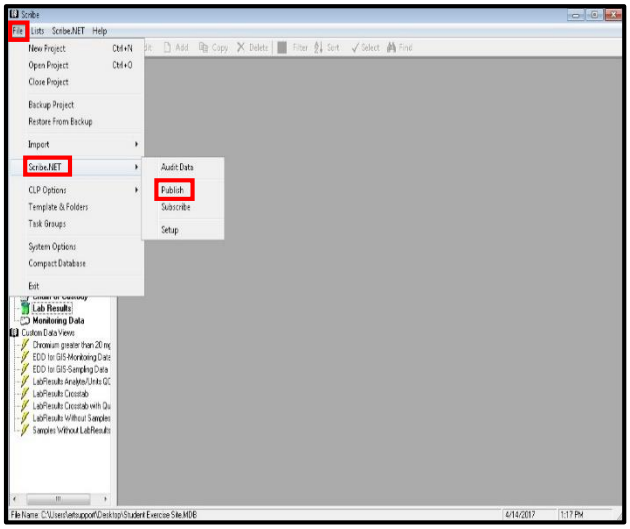


Publish to Scribe.NET

Publishing a project(s) to Scribe.NET stores your project(s) on a secure web server. By Publishing, your data can then be shared through a Subscription. By publishing to Scribe.NET, you have a backup of your project in the event something happens to the data (hard drive crash, lost computer, etc.). Scribe.NET updates the Scribe project each time the project is published.

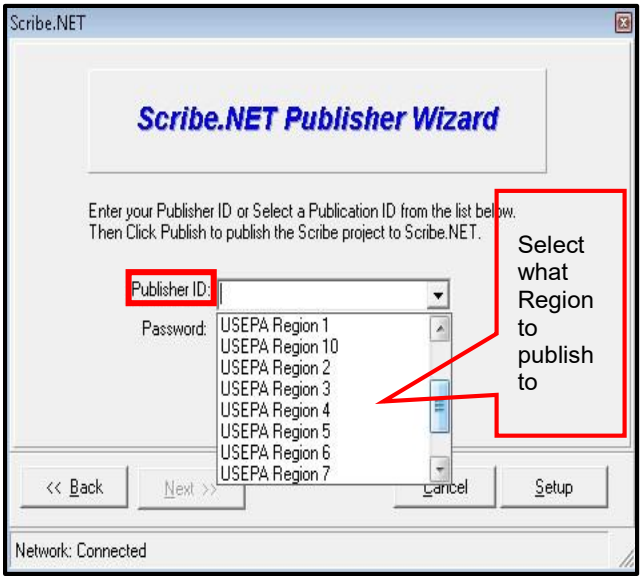
Once your project has been published to Scribe.NET, the computer it was published from becomes the 'owner' of the project. Any subsequent publishing of the project must be done from that computer. In the event the computer is damaged or the owner is no longer responsible for the project and publishing, ownership will need to be released. ***See Release Project Ownership***.

To publish a project to Scribe.NET, click on File | Scribe.NET | Publish

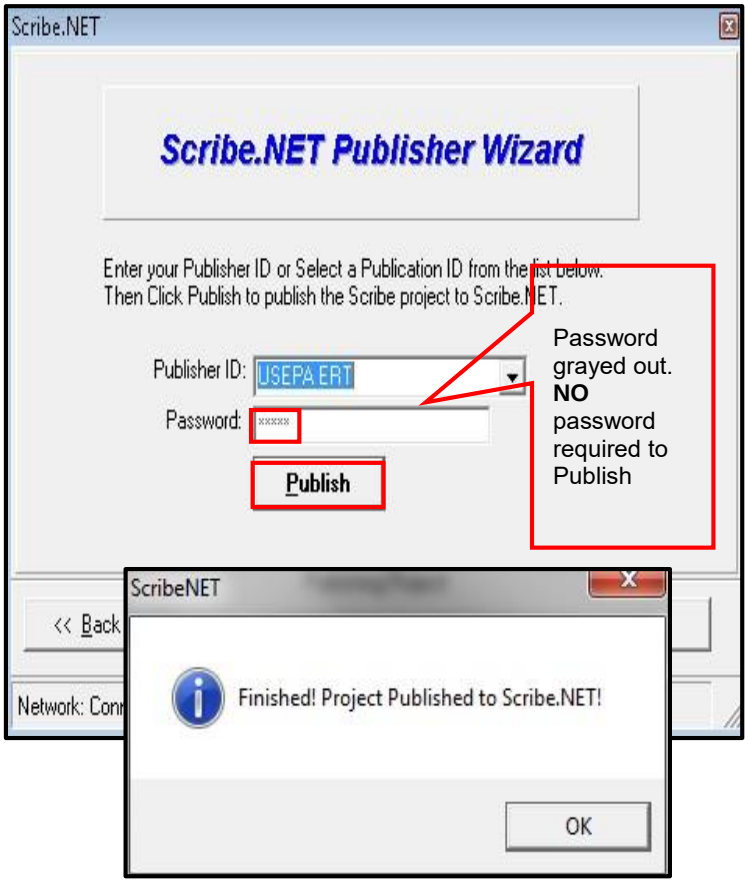


The Scribe.NET Publisher Wizard screen is displayed. Click Next.

Click the dropdown arrow and select the Publisher ID (which Region to publish it to).
Note: You must have an Internet Connection to publish toScribe.NET.

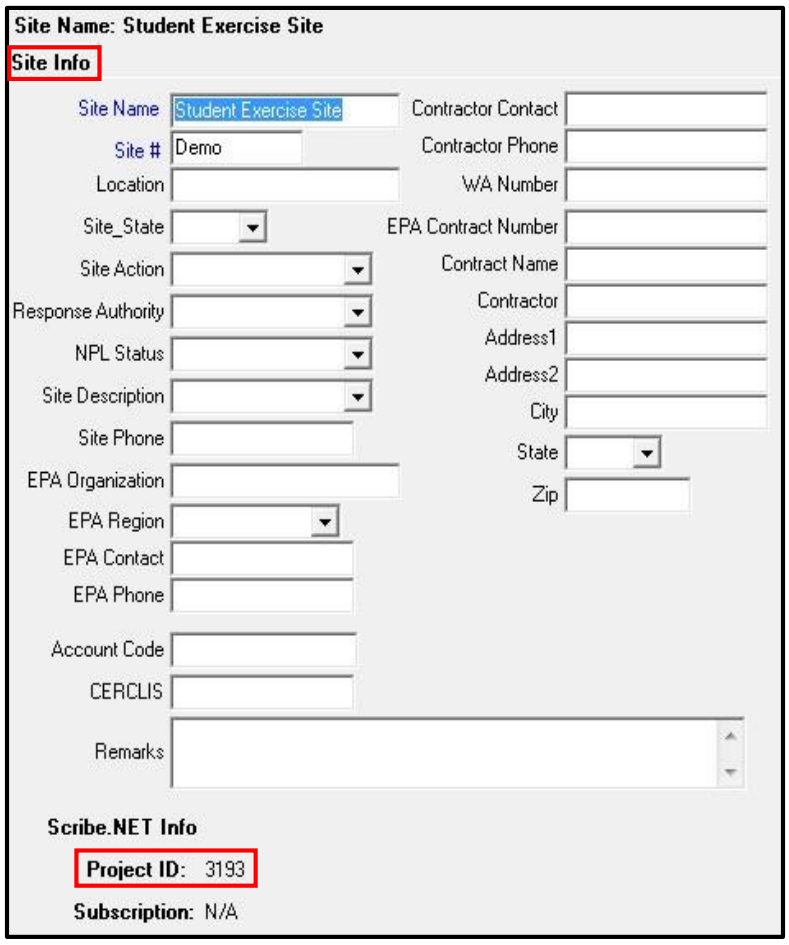


Click Publish. *Note: The password box is grayed out.* ***NO*** *password is required to publish a project to Scribe.NET*



Your project has now been Published to Scribe.NET. When a project has been Published, the project will be stamped with a ProjectID Number which can be located in the Site Info table in your Scribe project.

To request a Subscription, please email ertsupport@epa.gov with the Project ID.

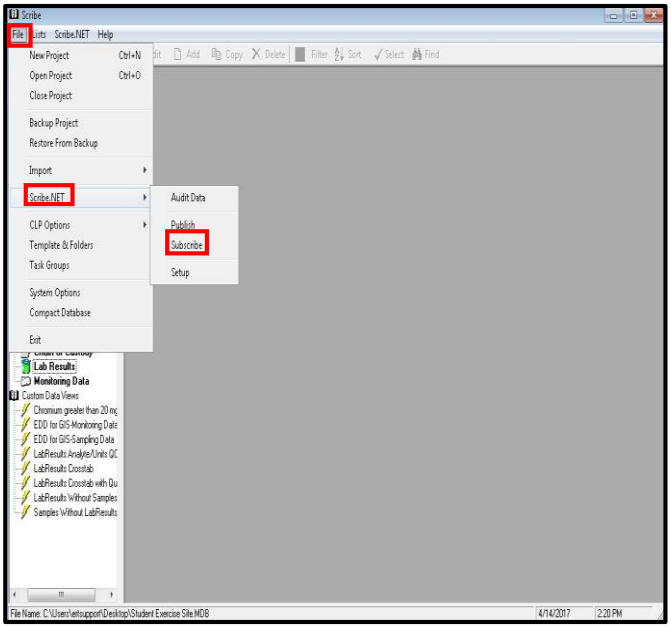


Subscribe to a Project

Subscribing/downloading a published project(s) from Scribe.NET requires a Subscription ID and password. To request a SubscriptionID and password, please contact **ERT Support at 1-800-999-6990 or via email at ertsupport@epa.gov.**

Note: There are several types of Subscriptions that can be setup (database subscription, multiple project subscriptions, etc.). **Please contact ERT Support at 1-800-999-6990 or email at ertsupport@epa.gov for additional information**

To Subscribe to a project from Scribe.NET, click on File | Scribe.NET | Subscribe

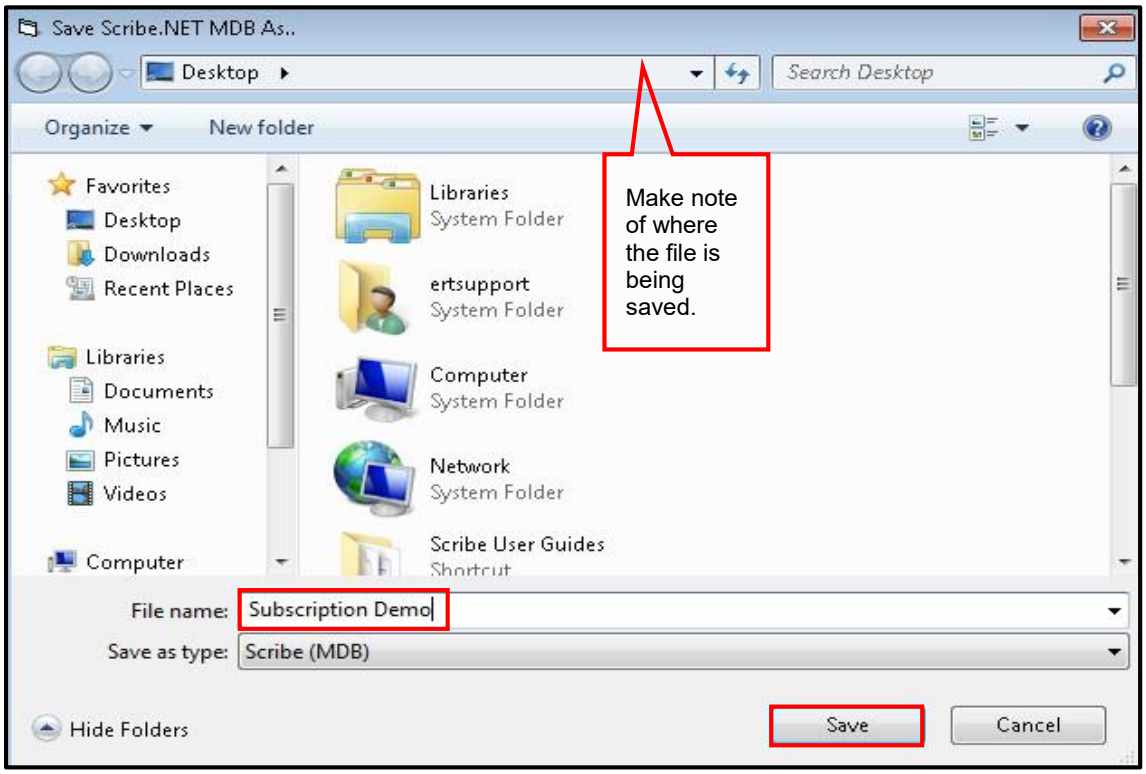


The Scribe.NET Subscriber Wizard screen is displayed. Click Next.

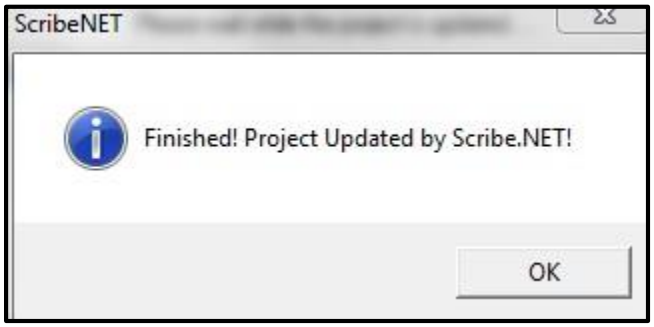
Enter the SubscriptionID and password. Click on the Subscribe button to begin downloading. **Note: You must have an Internet Connection to subscribe to a Scribe.NET project.**

First Time Subscribing

If this is the first time subscribing to this project, you will be prompted to enter a file name. Enter a filename and click Save.



Below are some screenshots of the Subscribing process

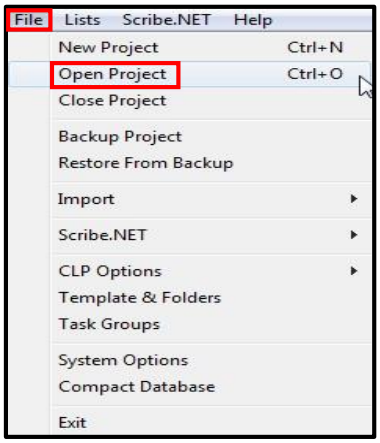


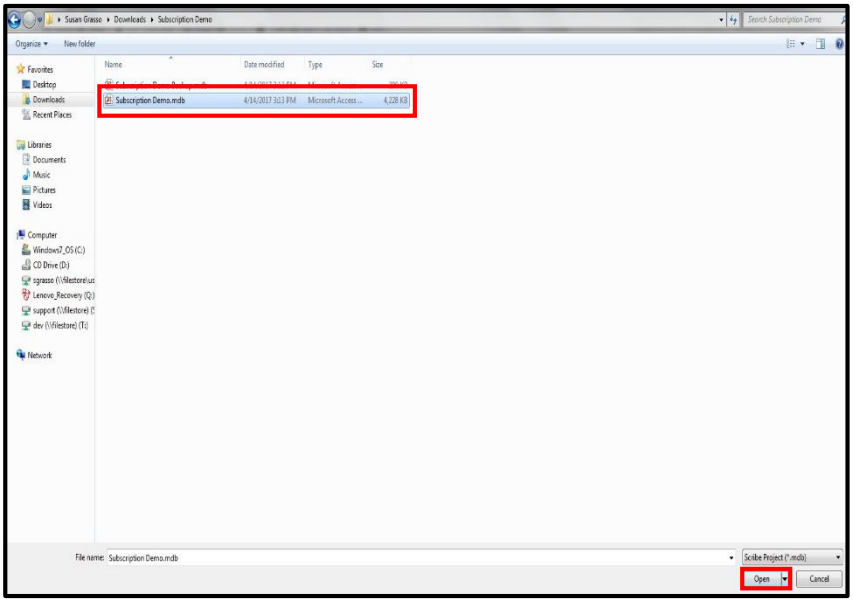
Updating Existing Subscriptions

When Scribe projects have been updated and republished to Scribe.NET, the subscription is automatically updated. A user must **re-subscribe** to update the existing local project file.

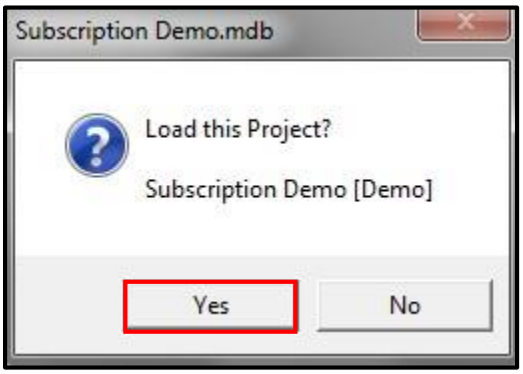
Prior to re-subscribing, open Scribe and **Open** the Scribe project that you will be updating/replacing.

File | Open Project. Browse to the project and Click Open

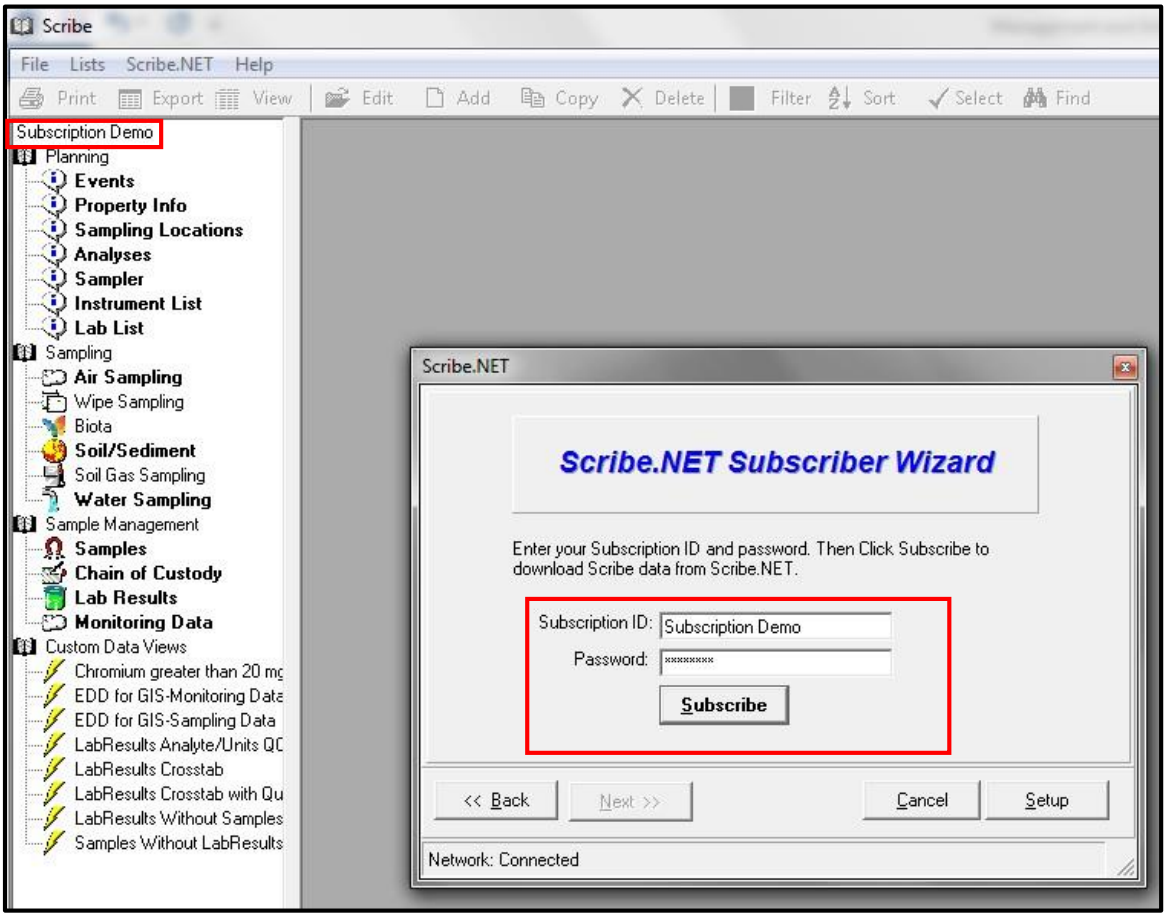




Click Yes to Load this Project.



Verify that you are in the project and click on File | Scribe.NET | Subscribe.
Enter the SubscriptionID and Password.
Click Subscribe.

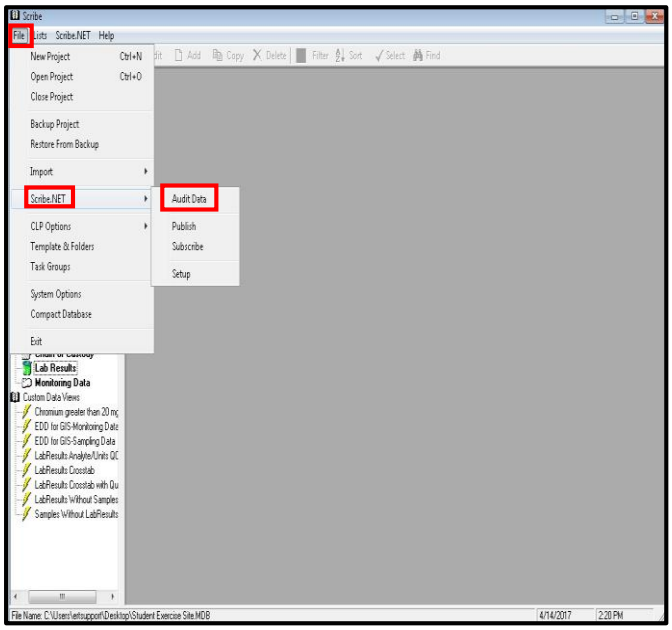


Audit Data

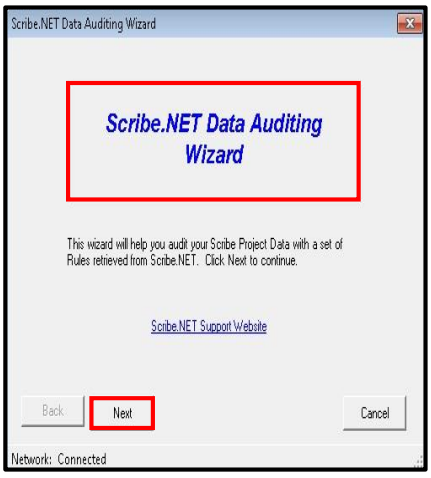
The data Auditor is a tool that allows you to audit the data in a Scribe project against a set of valid values. Valid Values can be established on a site specific basis, as a regionally based set or on a national level. Auditing is done by comparing the data in Scribe project to one or many 'rules'. A Scribe project can be audited against any set of rules uploaded to Scribe.NET. In order to audit a Scribe project, the Scribe project must be open in Scribe and the computer must have an active internet connection.

Please contact ERT Support at 1-800-999-6990 or ertsupport@epa.gov for additional information on creating an Auditor Ruleset. Users must have a working knowledge of creating queries in MS Access, as well as knowledge of the table names and field names in their Scribe Projects.

To Audit a Scribe project, click on File | Scribe.NET | Audit Data



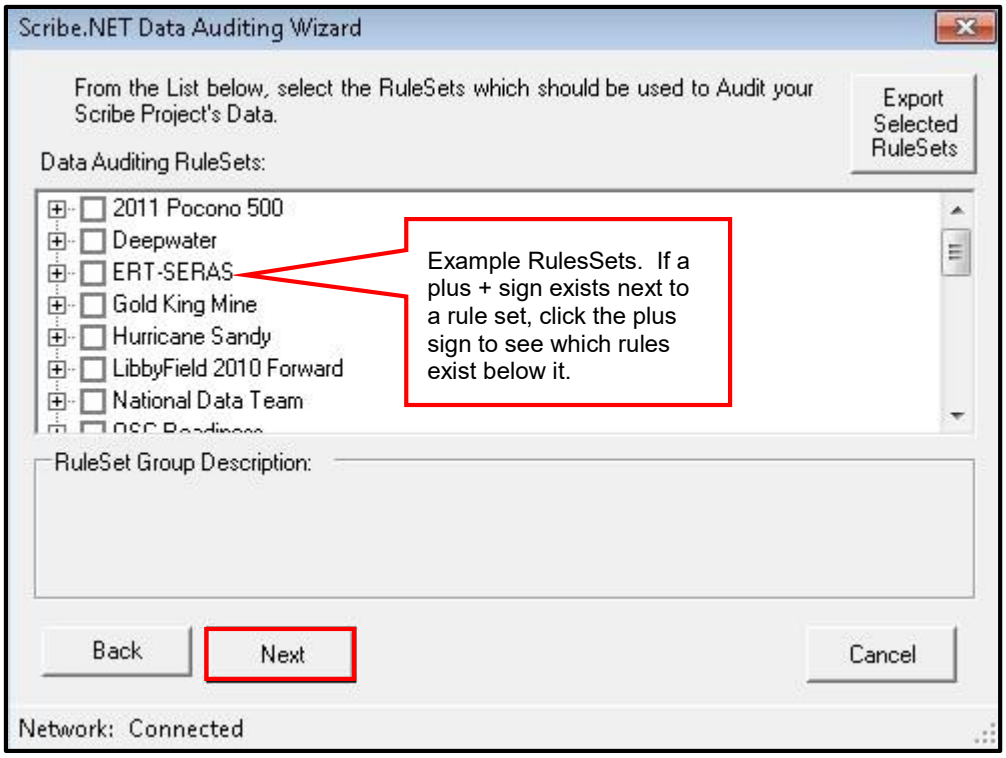
The Scribe.NET Data Auditing Wizard will display. Click Next. The RuleSets will begin downloading.

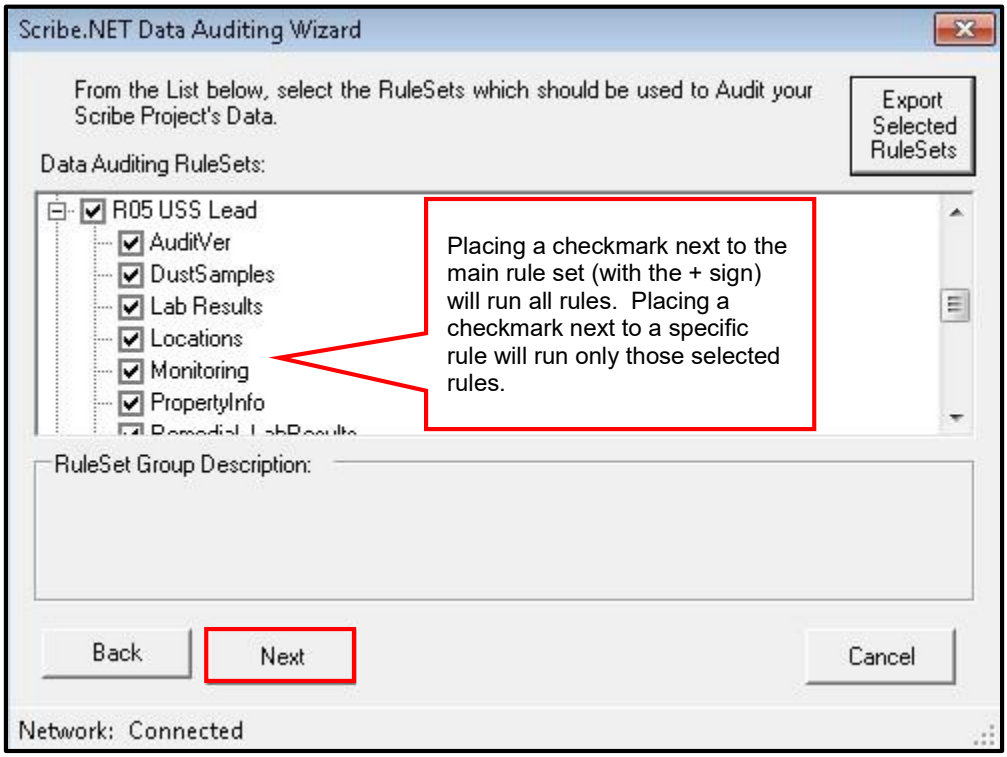


A list of all the RuleSets that have been uploaded to Scribe.NET will display.

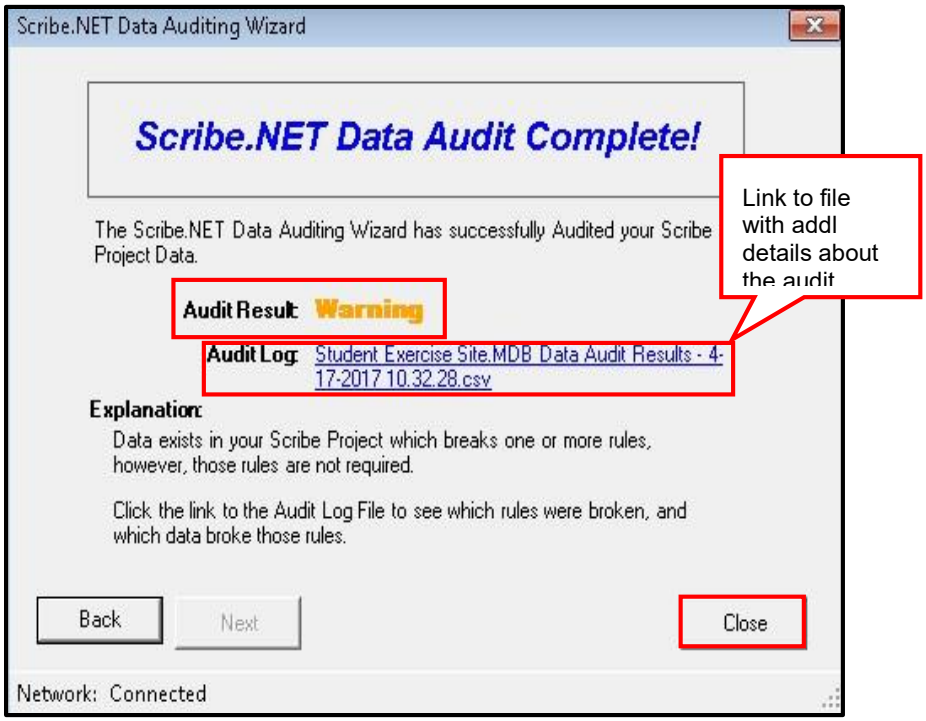
Select which RuleSet and which Rule(s) will be used to Audit your Scribe Project's Data.

Click Next.



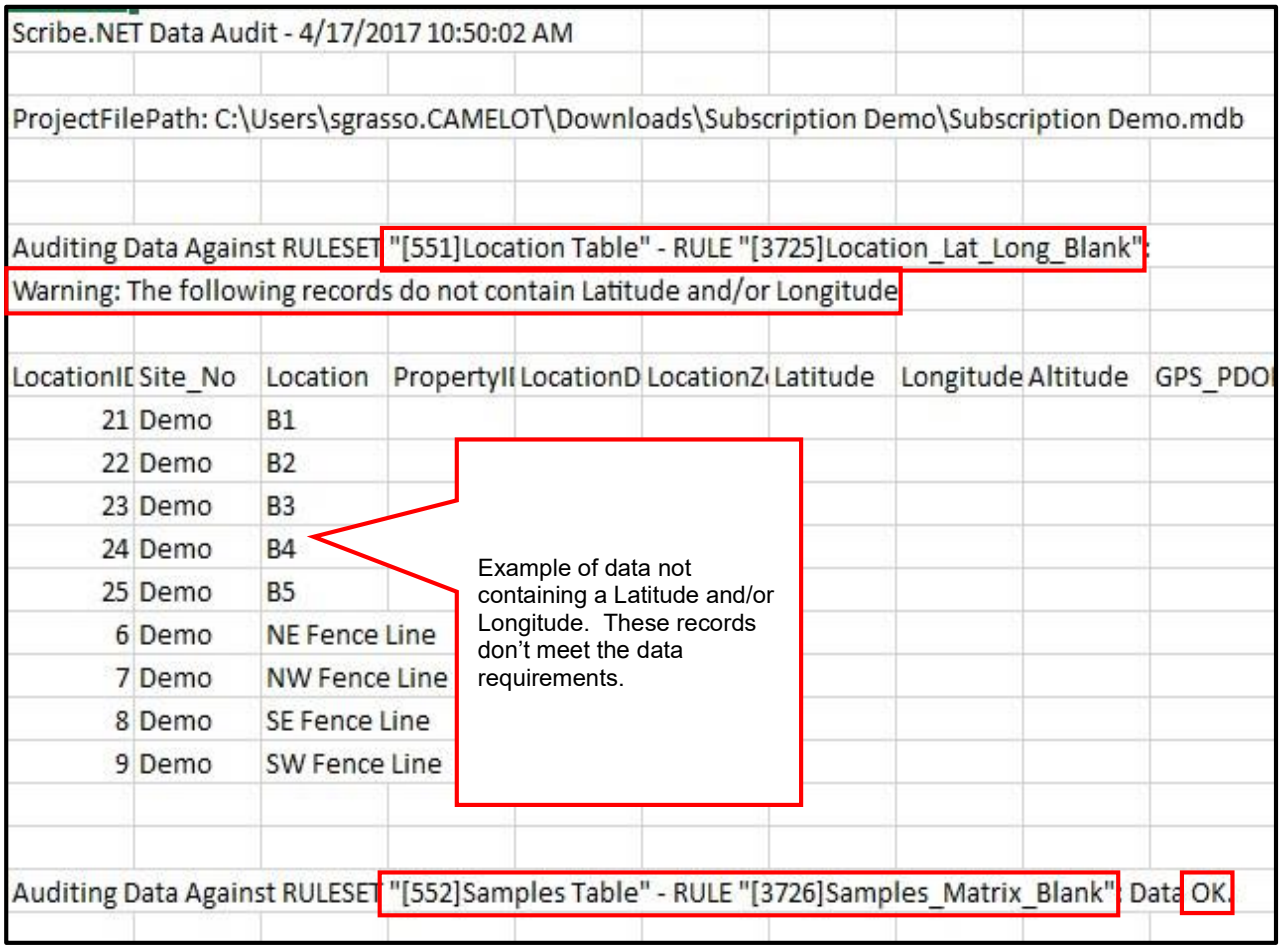


When auditing is complete, a dialog box will display. This dialog box will indicate the error severity (Warning or Error) of any issues found and will provide a link to a file containing additional details about the audit results.



Note: *The error severity determines if a Scribe project can be published to Scribe.NET. An Audit Result of Warning indicates that some records don't meet the data requirement, but* ***can*** *be published to Scribe.NET.*

An Audit Result of Error indicates that some records don't meet the data requirements and ***cannot*** *be published to Scribe.NET until the issues are corrected.*



Scribe.NET Data Audit - 4/17/2017 10:50:02 AM

ProjectFilePath: C:\Users\sgrasso.CAMELOT\Downloads\Subscription Demo\Subscription Demo.mdb

Auditing Data Against RULESET "[551]Location Table" - RULE "[3725]Location_Lat_Long_Blank":

Warning: The following records do not contain Latitude and/or Longitude

LocationID	Site_No	Location	PropertyID	LocationD	LocationZ	Latitude	Longitude	Altitude	GPS_PDO
21	Demo	B1							
22	Demo	B2							
23	Demo	B3							
24	Demo	B4							
25	Demo	B5							
6	Demo	NE Fence Line							
7	Demo	NW Fence Line							
8	Demo	SE Fence Line							
9	Demo	SW Fence Line							

Example of data not containing a Latitude and/or Longitude. These records don't meet the data requirements.

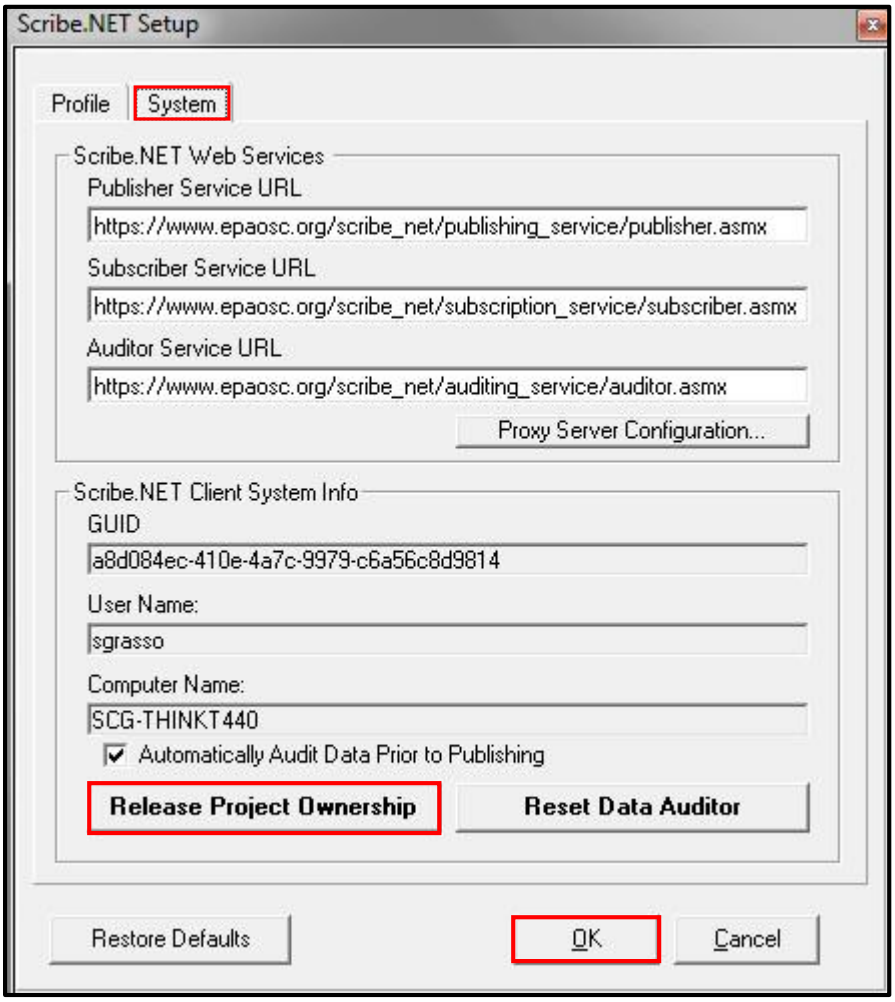
Auditing Data Against RULESET "[552]Samples Table" - RULE "[3726]Samples_Matrix_Blank": Data OK.

Example of how data is displayed in the audit report

Release Project Ownership

Once a Scribe project has been published to Scribe.NET, the computer it was published from becomes the 'owner' of the project. Any subsequent publishing of the project must be done from that computer. In the event the computer is damaged or the owner is no longer responsible for the project and publishing, ownership will need to be released.

Click on File | Scribe.NET | Setup. Click on the System tab. Click on Release Project Ownership.



Note: *If Project Ownership cannot be released from the computer, please contact ERT Support at 1-800-999-6990 or email at ertsupport@epa.gov.*

ERT

USER MANUAL
for
SCRIBE CLP SAMPLING

V3.10

TABLE OF CONTENTS

INTRODUCTION

The intent of this User Guide is to provide a basic overview of how to use Scribe to create a new sampling project and manage samples collected for the EPA's Contract Lab Program (CLP). Scribe provides support for CLP sample documentation including the CLP Chain of Custody (COC) reports and the CLP XML file. This document also assumes that the user is already familiar with the Scribe application for sampling. Otherwise, please refer to the Scribe User guides for detailed Scribe application instructions.

Create a New Project

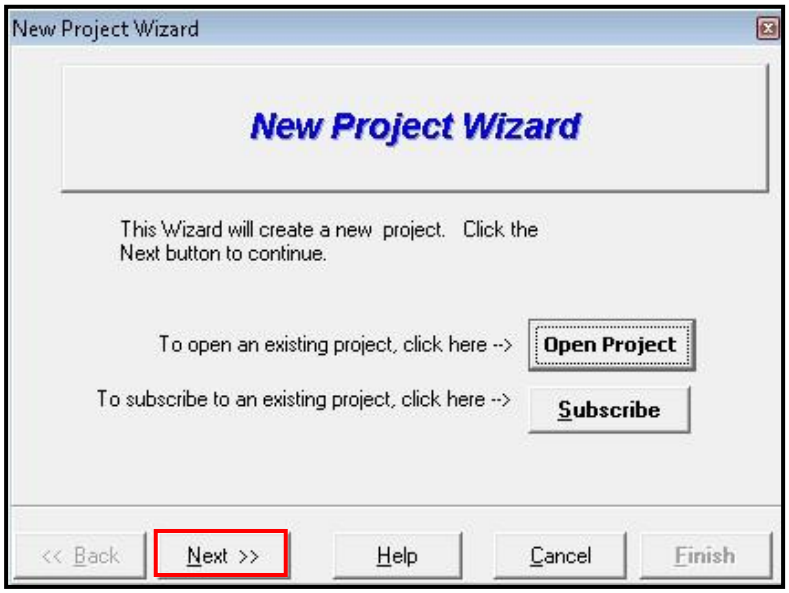
New Project Wizard

If you are starting Scribe for the first time after installation, the New Project Wizard will run automatically. You can open the 'Scribe Example Project' with Demo data. Otherwise, to create a new project in Scribe:

1. Click on '**File'**.

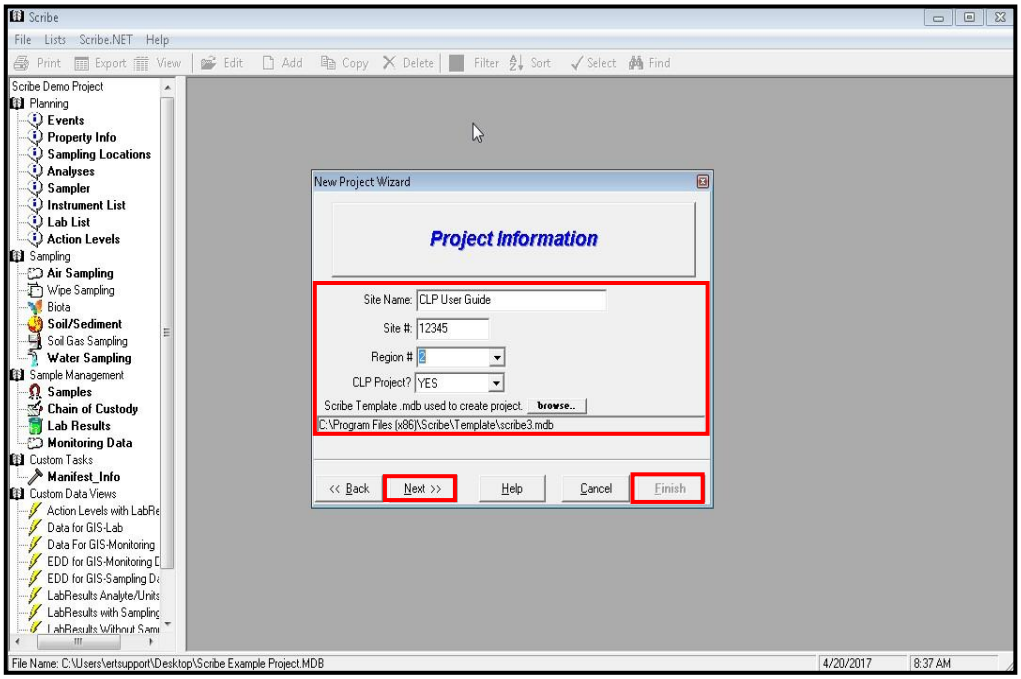
2. Select '**New Project'**.

3. A New Project Wizard window is displayed.

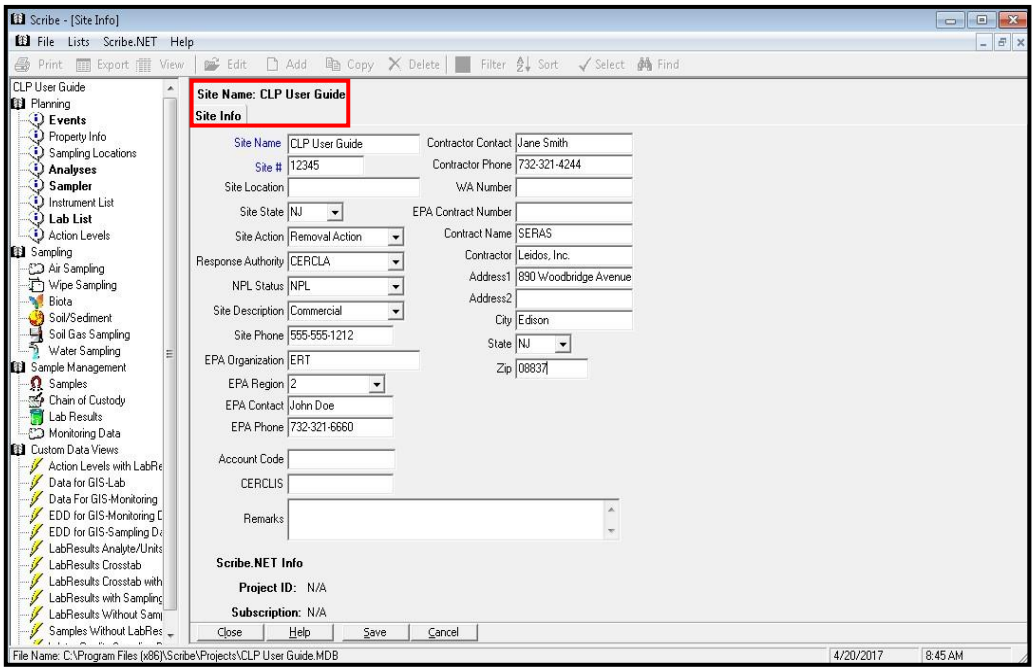


4. Click '**Next'** to continue.

5. Enter the **Site Name**, **Site #** (Common ID for Project Data Management), **EPA Region #, CLP Project (if YES, all layouts (grid and label) will default to CLP format),** and the **Scribe Template (default template is Scribe3.mdb).** *NOTE: Users are advised to NOT include any site identifying information in the Site # field i.e. address, etc..*



6. Click '**Next**' and then click '**Finish**' to create the new project.



The New Project Wizard closes and the "**Site Info**" screen displays. ONLY the field names in **BLUE** are required, however it is recommended that you complete as many fields as possible.

CLP SAMPLING IN SCRIBE

CLP Samples

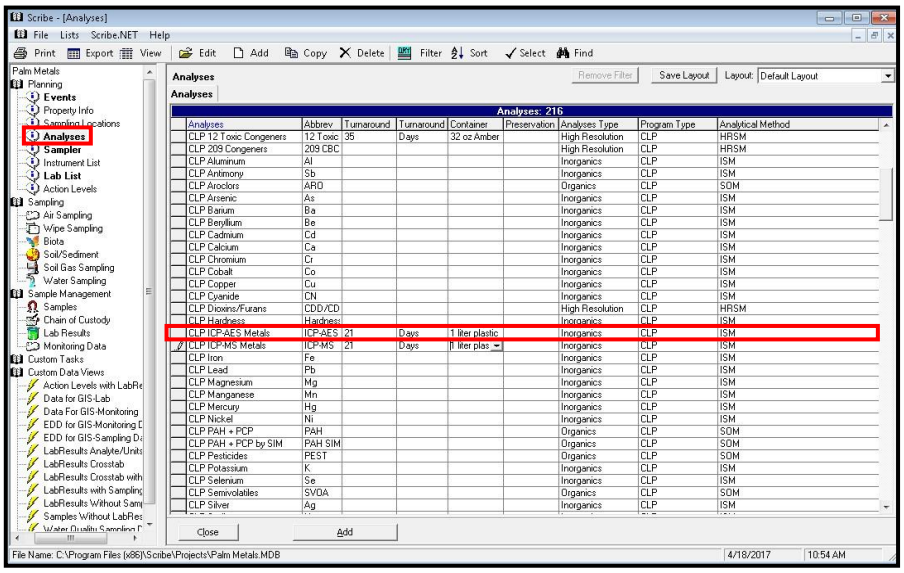
CLP Analyses

The Scribe Analyses List includes default CLP Analyses. The analyses in this list are available to be assigned to a sample when sample details are entered. If only a few analyses will be needed for the sampling effort, removing the unwanted analyses will speed the selection process at the time sample information is entered. At a minimum, Turnaround Time, Container and Preservation should be populated for the required analyses so they populate when adding an analysis(es) to your sample(s) and will print on the Chain of Custody (COC). This list can be modified as needed to customize the pick list selections when entering Sample information. Below describes how to modify, add and delete the list of analyses for your specific sampling effort. ***Note:*** *Abbreviation and Turnaround Time are required for CLP Analyses and must appear on the Chain of Custody.*

To **MODIFY** an analysis(es):

1. Click on "**Analyses**" under Planning in the Navigation Pane.

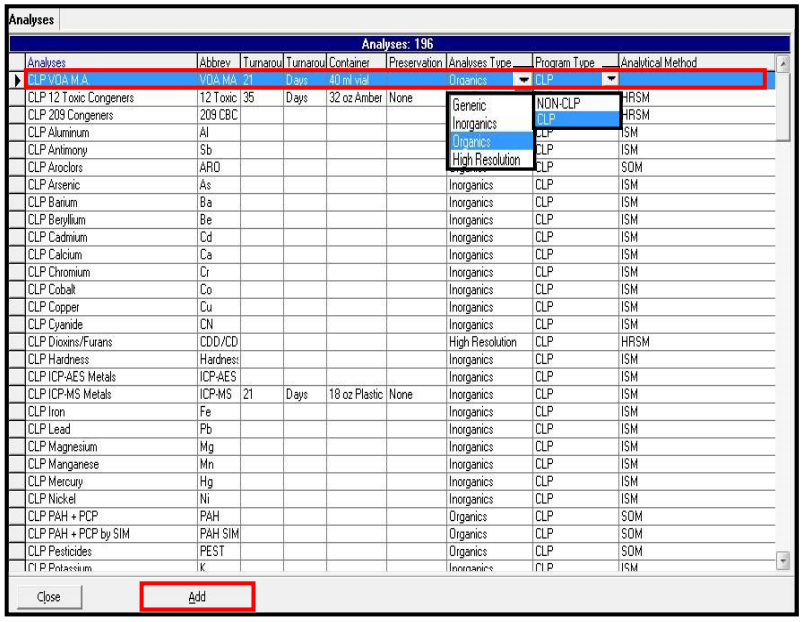
2. Select the analysis and modify the name or enter Turnaround, Container, Preservation etc.



NOTE: *If you add or modify a CLP Analysis, you **MUST** provide the analysis name, abbreviation, turnaround time, Analysis Type of either **Inorganic, Organic or High Resolution** and the **Program Type of CLP**, in order to correctly assign a CLP sample number and print the CLP Chain of Custody.*

To **ADD** an analysis:

1. Click on Add.
2. Replace the #New01# with the new analysis name, and enter the Abbreviation, Turnaround, Container and Preservation. Select the Analysis Type and select the Program Type of CLP from the dropdown.

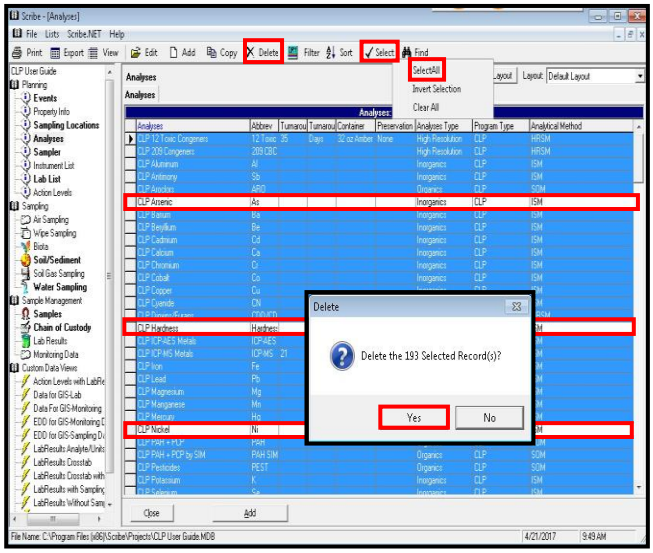


NOTE: *If you add or modify a new CLP Analysis, you **MUST** provide the analysis name, abbreviation, turnaround time, and Analysis Type of either **Inorganic, Organic or High Resolution** and the **Program Type of CLP**, in order to correctly assign a CLP sample number and CLP Chain of Custody.*

Also, when entering a modified analysis, please use the abbreviation **MA** when possible in the Analysis name and abbreviation (for example: "CLP VOA by MA 1301.0" – abbreviated as "VOA MA"

To **DELETE** an analysis(es):

1. Click the **'Select'** button on the Toolbar and click '**Select All**'.
2. De-select the analysis(es) by holding the Ctrl (control) key and clicking on each analysis.
3. Click the '**Delete'** button.
4. Click **'Yes'** when prompted to delete the selected records.

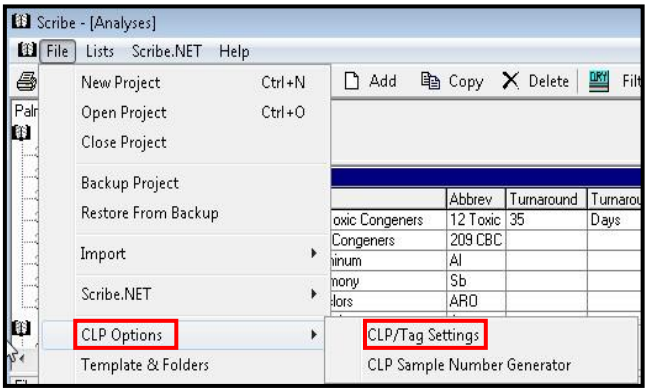


CLP/Tag Settings

Scribe allows users to configure the starting CLP Sample numbers and numeric Tag numbers (if applicable). When a CLP Analysis is selected for a sample, Scribe will assign a CLP Sample number starting with the configured CLP Sample number. The numbers auto-increment as samples are added using the CLP business rules.

To configure the settings for CLP Sample Numbers and Tags:

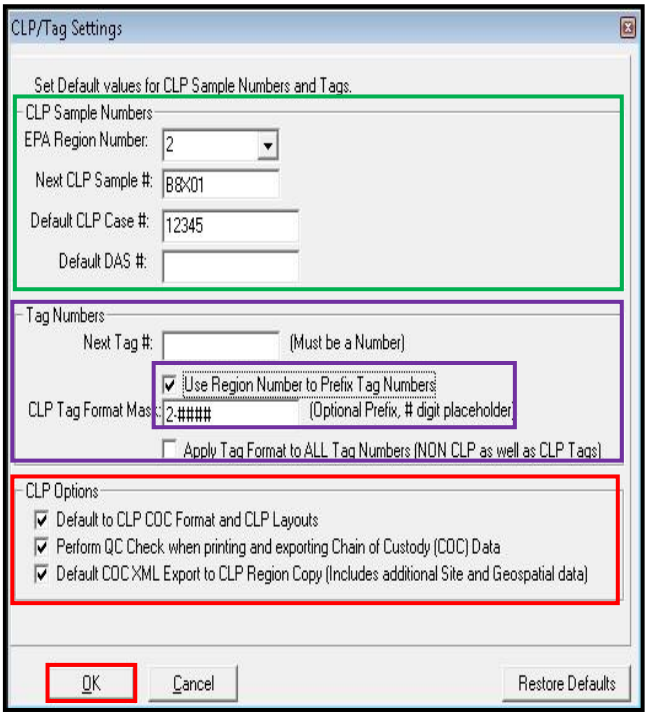
1. Click on **File | CLP Options | CLP/Tag Settings**. The window for CLP/Tag Settings is displayed.



2. In the **CLP Sample Numbers** section, the Region Number will default to what you entered when you first created the project. Enter a starting CLP Sample #, a Case # and/or a DAS # as needed.

3. In the **Tag Numbers** section, enter the Next Tag # if you are assigning specific numeric tag numbers. If no specific Tag Number is required, Scribe will auto-generate the first **Tag Number** of 1000 and increment by 1.

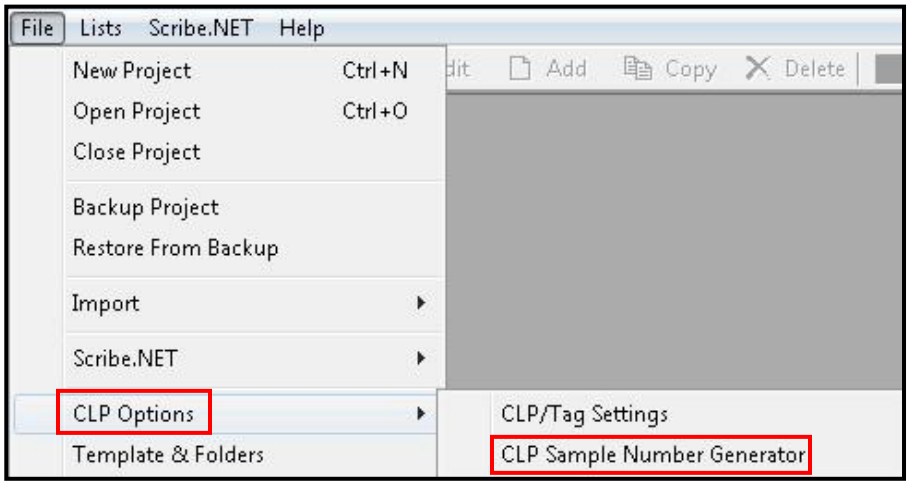
4. If a checkmark is placed in the 'Use Region Number to Prefix Tag Numbers', the CLP Tag Format Mask will populate with Region # and four (4) # digit placeholders (2--####). The **Tag #** will print 2-1000, 2-1001, etc. If a checkmark is in Apply Tag Format to ALL Tag Numbers (NON CLP as well as CLP Tags), all analyses will follow that specified Tag Format.



5. Under the **CLP Options**, Scribe performs a QC Check when printing and exporting Chain of Custody (COC) data. This check ensures that Turnaround Time (TAT), Turnaround Time Units, Analysis, Abbreviations, etc. are included on the COC and in the XML file. This feature is **ON** by default. In addition, Scribe will default to the CLP COC Format and CLP Layouts, as well as the COC XML Export to CLP Region Copy when YES is answered as a CLP Project at the Project Information screen. Click **OK** to Save and Close.

CLP Sample Number Generator

Also included with the CLP Options, is the ability to generate a list of CLP Sample Numbers that follow the CLP business rules. This list can be exported to a spreadsheet. Follow the steps below to build and export a list of CLP Sample Numbers.



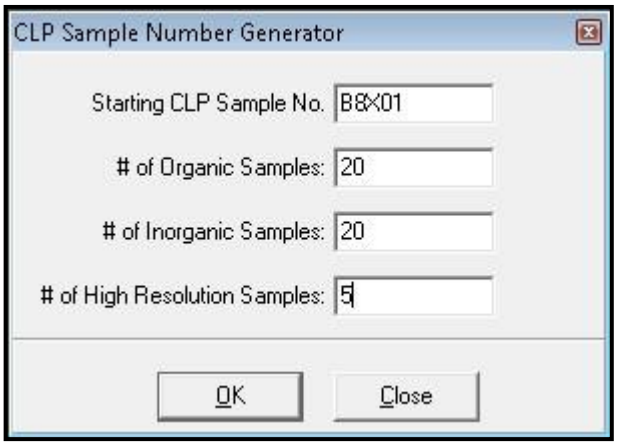
1. Click on **File | CLP Options | CLP Sample Number Generator.**

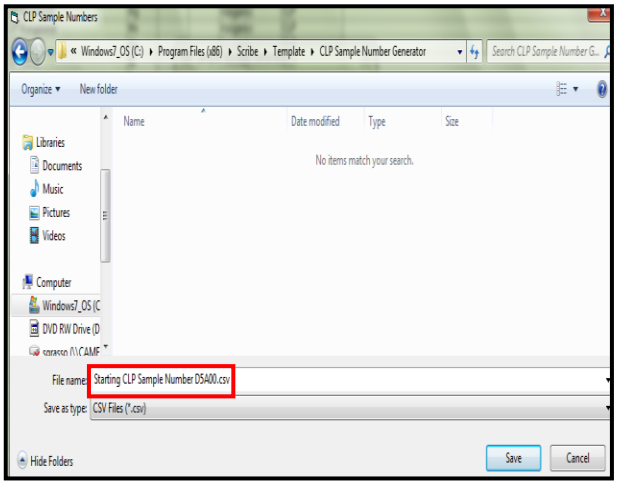
2. Enter the Starting CLP Sample No., # of Organic Samples, # of Inorganic Samples, # of High Resolution Samples.

3. Click **OK.**

4. A dialog box will open asking for a file name. By default, Scribe saves the file as a .csv (comma separated file) that can be opened up in MS Excel.

5. Click **Save.**





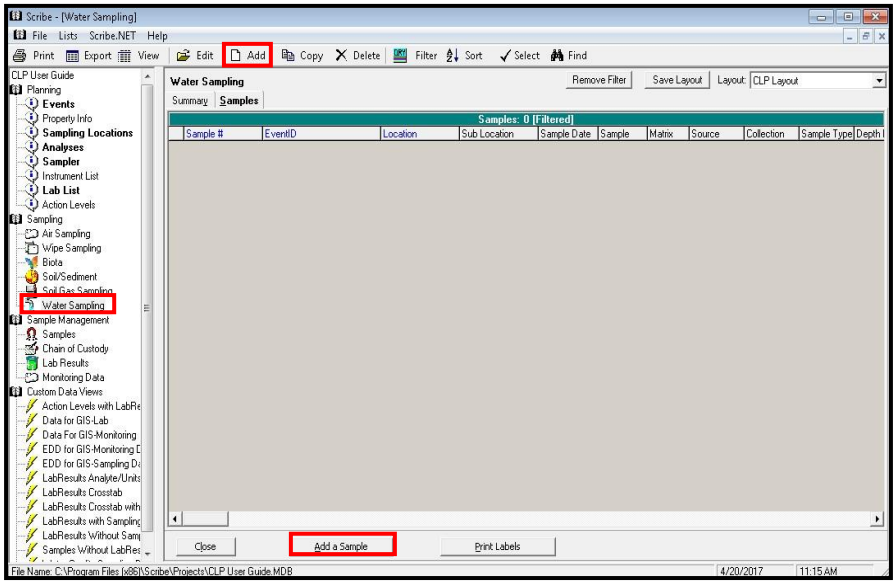
A
CLP Sample No
PB8X01
PB8X02
PB8X03
MB8X01
MB8X02
MB8X03
B8X01
B8X02
B8X03

Adding CLP Samples

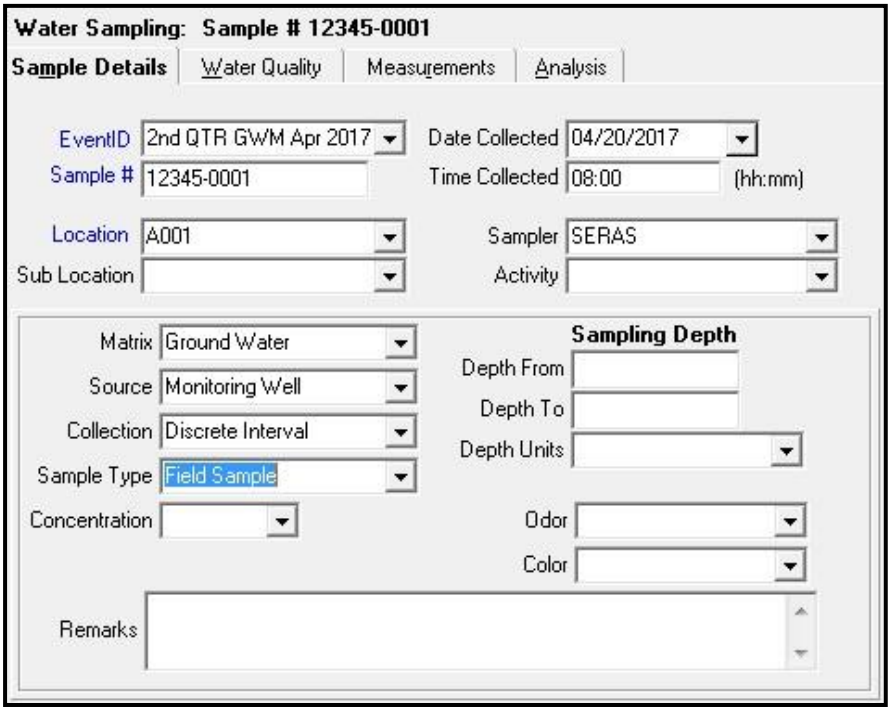
Depending on the type of sampling you will be performing, click on the appropriate sampling task under Sampling in the Navigation Pane. For example:

1. Click on 'Water Sampling'.

2. Click the '**Add**' button on the top menu or the **'Add a Sample'** button on the bottom.



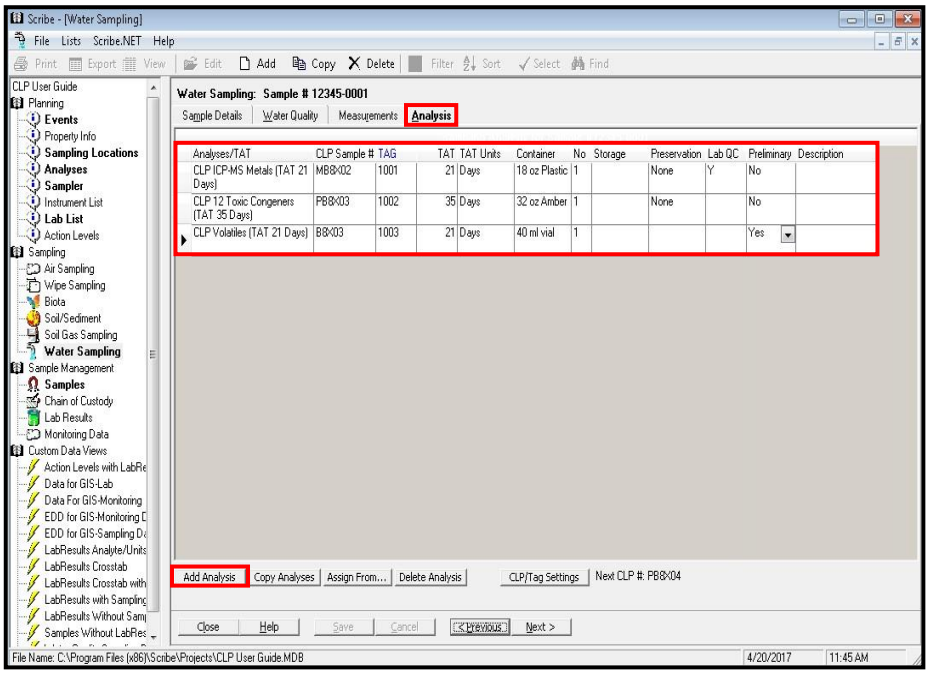
3. Enter sample information into the "**Sample Details"** screen.



Note: *The Water Sampling task contains a Water Quality and Measurements tab. The tabs will vary by Sampling Task.*

Assigning Analyses

1. Select the **Analysis** tab.
2. Click in the **Analyses/TAT** field.
3. Click the **down arrow** for the list of CLP Analyses.
4. Select the analysis to be performed on this sample.
5. Click in the CLP Sample # field to display the CLP Sample # and Tag number based on the CLP/Tag Settings.
6. To assign additional Analyses, click '**Add Analysis'.**



7. When all analyses have been added, click the '**Close**' button on the bottom of the window to save and close.

NOTE: CLP Volatile analysis for Soil/Sediment samples may require sample weights to be recorded. Right-click in the Analyses grid and pick "Select Columns" to include the sample weight columns. Otherwise, this information can be recorded in the COC section by selecting the "Sample Weight Layout".

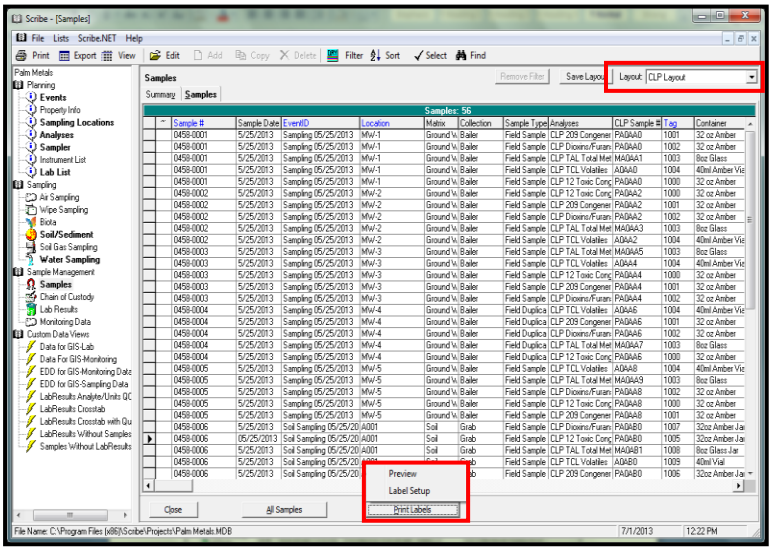
LABELS AND CHAIN OF CUSTODY

CLP Sample Labels

Print Sample Labels

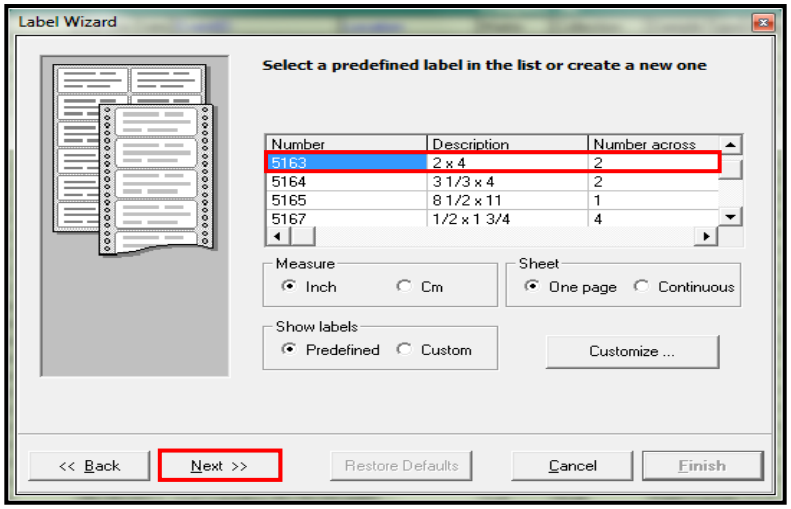
Sample Label options are available on the individual Sampling Task view (e.g. Soil/Sediment, Water, etc) or in the Samples section under Sample Management in the Navigation Pane. All samples shown on the screen are available to be printed on labels. You can apply Filters, Finds and Sorts to limit which labels will print. Before printing labels, make sure the CLP Layout is loded (upper right corner of the screen).

To configure your labels and print:



1. Click on the '**Print Labels'** button on the bottom.

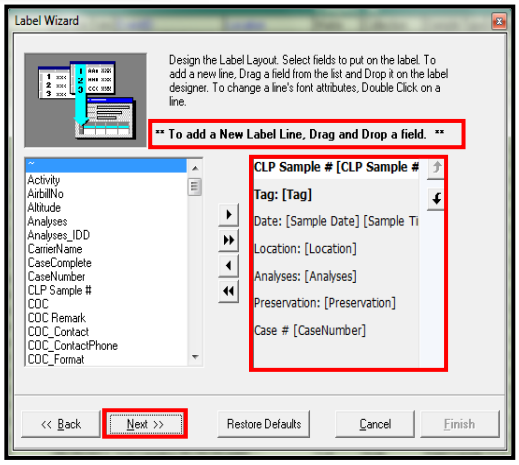
2. Select '**Label Setup'**.



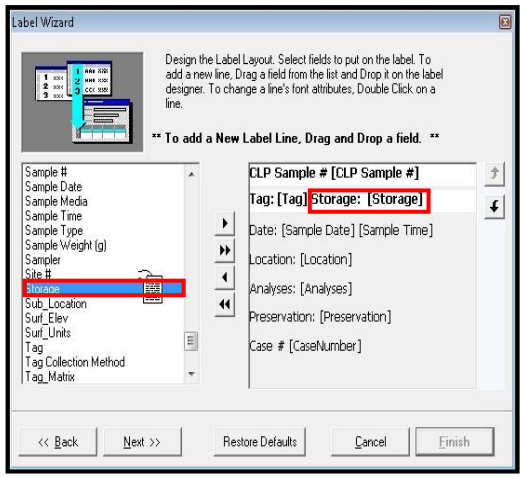
3. Select a pre-defined label format that matches your labels or create a customized label.

4. Click **Next.**

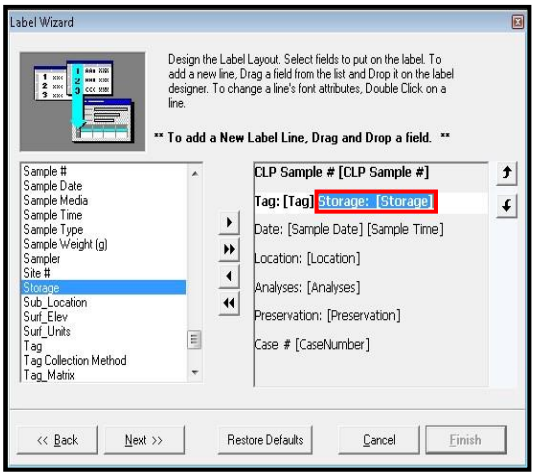
5. Use the default CLP label design or design your label by adding/removing label lines.



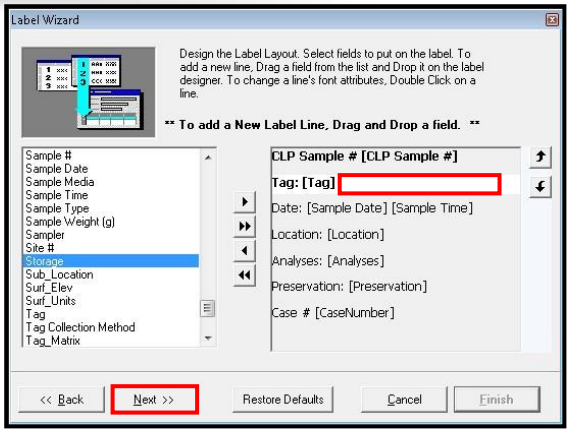
6. To Add a new Label Line, select the field (on the left), hold the mouse down, and drag and drop the field onto the label. Enter a caption name (e.g. Storage).



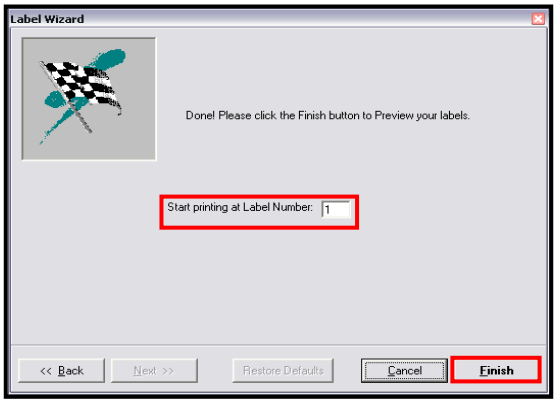
7. To Remove a Label Line, highlight the field (on the right), and click the delete key.



8. When the Label Layout is complete, click **Next.**

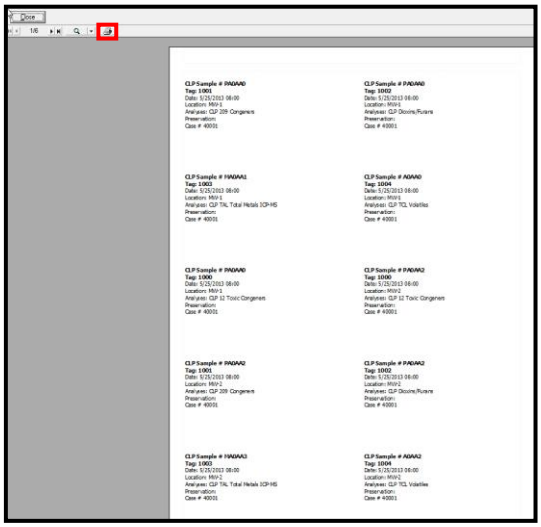


9. Click **Finish.** (If you need to print on half a sheet of labels, use this option to select which label to print on first).



10. A preview of the labels to be printed is displayed.

11. To print, click the Printer icon.



CLP Chain of Custody

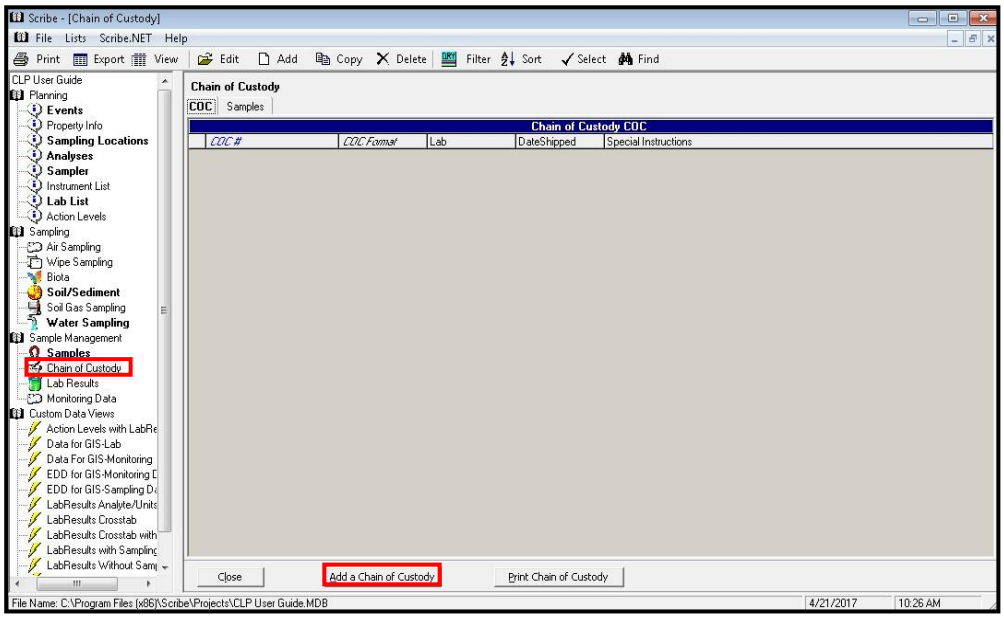
When creating a CLP Chain of Custody (COC) in Scribe, multiple analysis types can be added to the same COC. For example, Inorganic, Organic, High Resolution and non-CLP analysis can all be placed on the same chain by selecting the "CLP Generic COC" format when creating a new COC or by removing the filter when on the Samples Tab of the COC section. As a convenience, Scribe contains functionality to group analyses by type when creating a COC. By selecting one of the CLP types (Organic, Inorganic, High Resolution) from the COC Format list, Scribe will filter the Samples for that specific analysis type. Remember, if multiple analysis types need to be added to the same COC, simply remove the filter and a complete list of analysis(es) will be available.

Note: After submitting samples to the CLP labs, it is recommended that users request the labs to return lab results in electronic format i.e. a spreadsheet (.xls) or a comma-separated text (.csv). Scribe has a Custom Import feature that will import lab result data and marry them up with your sampling data already in Scribe. This effectively eliminates transcription errors and reduces data processing time. See the "Scribe Manual Advanced Part III" for importing details.

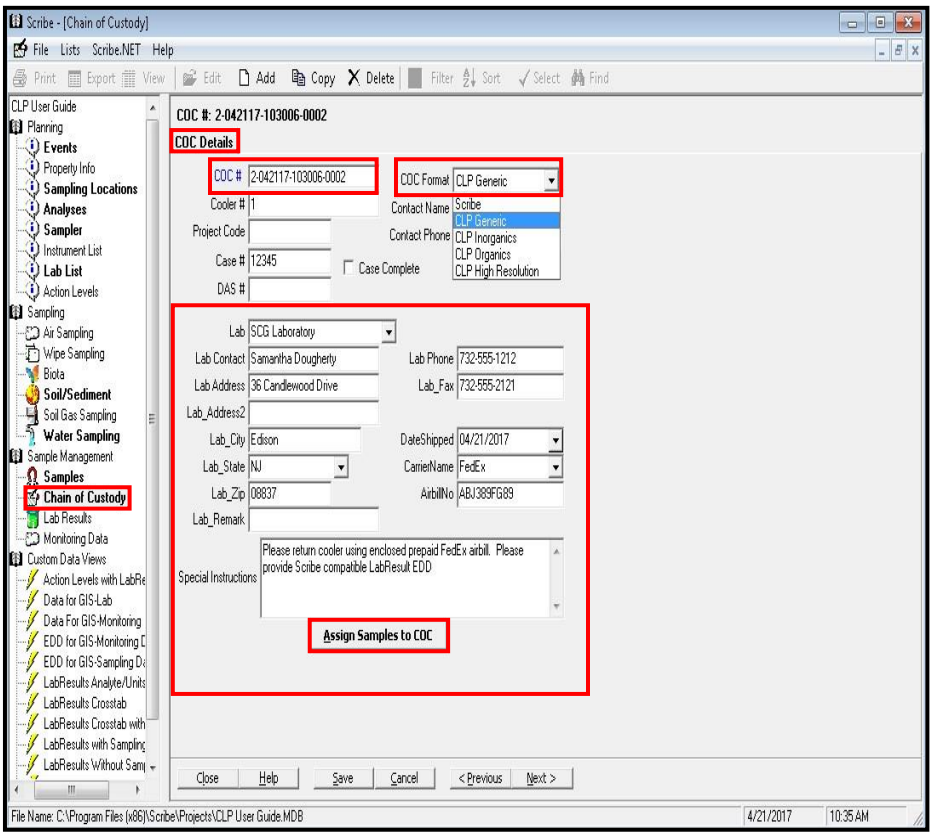
Create COC and Assign Samples

To manage and print a Chain of Custody (COC), a COC needs to be created and then samples have to be assigned to the COC:

1. Select '**Chain of Custody**' under Sample Management in the Navigation Pane.
2. Click the '**Add a Chain of Custody**' button on the bottom of the window.



3. The "**COC Details**" screen is displayed. By default, Scribe assigns a unique generic COC # across projects. The COC number auto-increments based on the COC ID# Mask. The COC number and mask can be changed at any time.



4. Complete the form selecting the Lab and entering other fields such as the Cooler #, COC Format, Date Shipped and any Special Instructions.

5. Select the correct **COC Format** based on the type of Samples you are packing. All CLP COCs are identical, however, selecting a COC Format is a convenience option that filters the samples based on the format selected (i.e., Inorganic Format will filter for Inorganic Analyses). However, if a COC needs to contain multiple Anayses types, (Organics and Inorganics) Select the CLP Generic and all samples will be available to be placed on the COC.

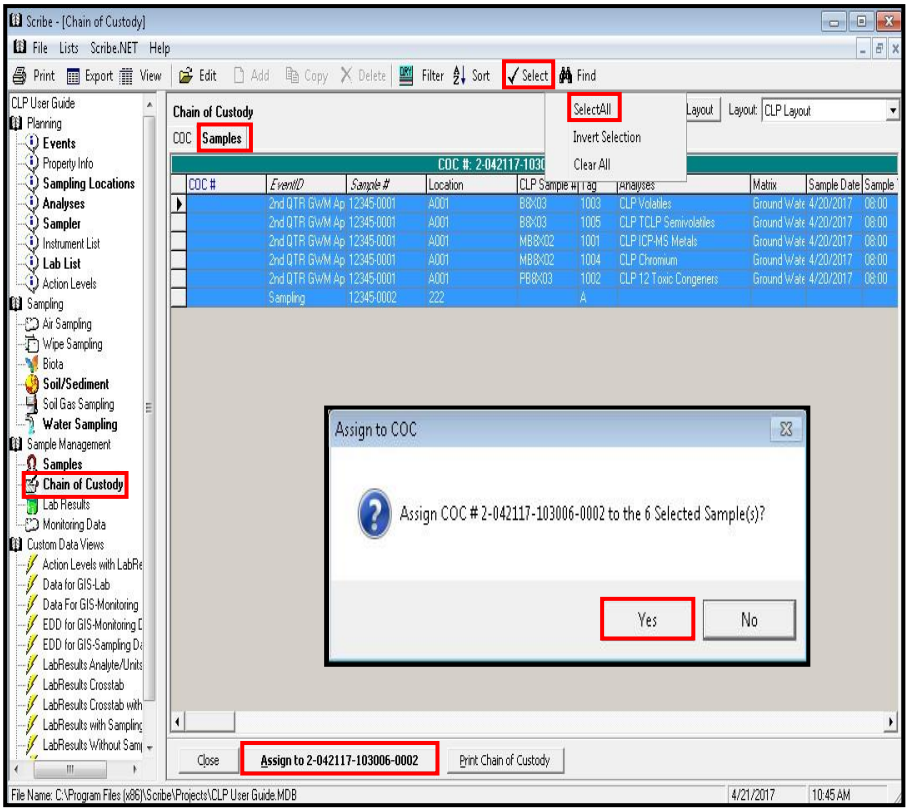
6. Click '**Assign Samples to the COC'** to continue.

7. The '**Chain of Custody Samples'** tab is displayed and lists samples that have not yet been assigned to a COC.

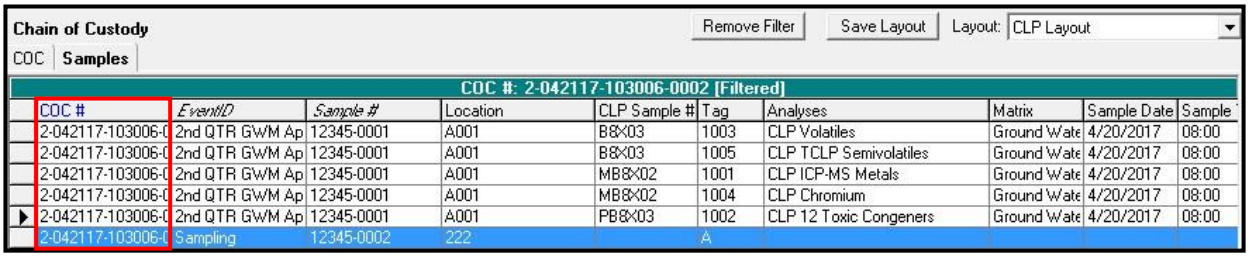
8. Select the samples to assign to the Chain of Custody by using the Select Button on the toolbar or by holding down the Shift key or Ctrl key while clicking on the first column before COC# of the samples you wish to assign to the COC.

9. Click **'Assign to'** button on the bottom of the window to assign the samples to the Chain of Custody.

10. Click '**Yes'** to assign the selected samples to the COC.



11. The selected samples are assigned to the COC.

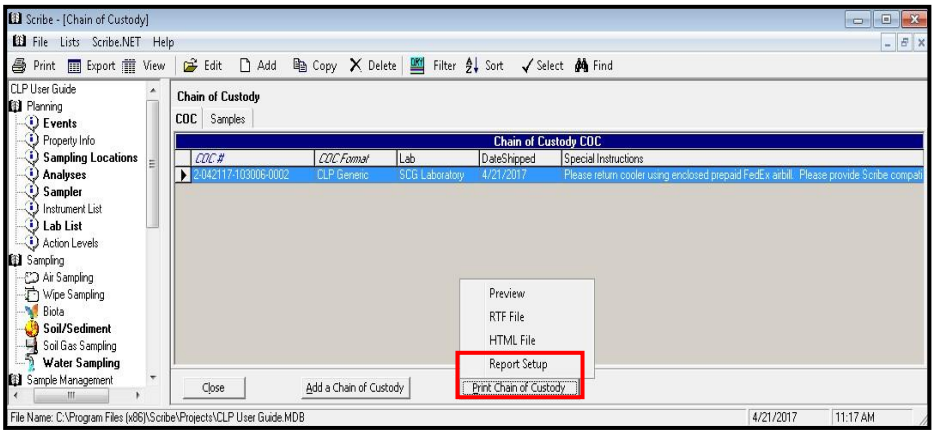


COC #	EventID	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample
2-042117-103006-0	2nd QTR GWM Ap	12345-0001	A001	B8X03	1003	CLP Volatiles	Ground Wate	4/20/2017	08:00
2-042117-103006-0	2nd QTR GWM Ap	12345-0001	A001	B8X03	1005	CLP TCLP Semivolatiles	Ground Wate	4/20/2017	08:00
2-042117-103006-0	2nd QTR GWM Ap	12345-0001	A001	MB8X02	1001	CLP ICP-MS Metals	Ground Wate	4/20/2017	08:00
2-042117-103006-0	2nd QTR GWM Ap	12345-0001	A001	MB8X02	1004	CLP Chromium	Ground Wate	4/20/2017	08:00
2-042117-103006-0	2nd QTR GWM Ap	12345-0001	A001	PB8X03	1002	CLP 12 Toxic Congeners	Ground Wate	4/20/2017	08:00
2-042117-103006-0	Sampling	12345-0002	222		A				

Configure and Print COC

To configure and print a COC:

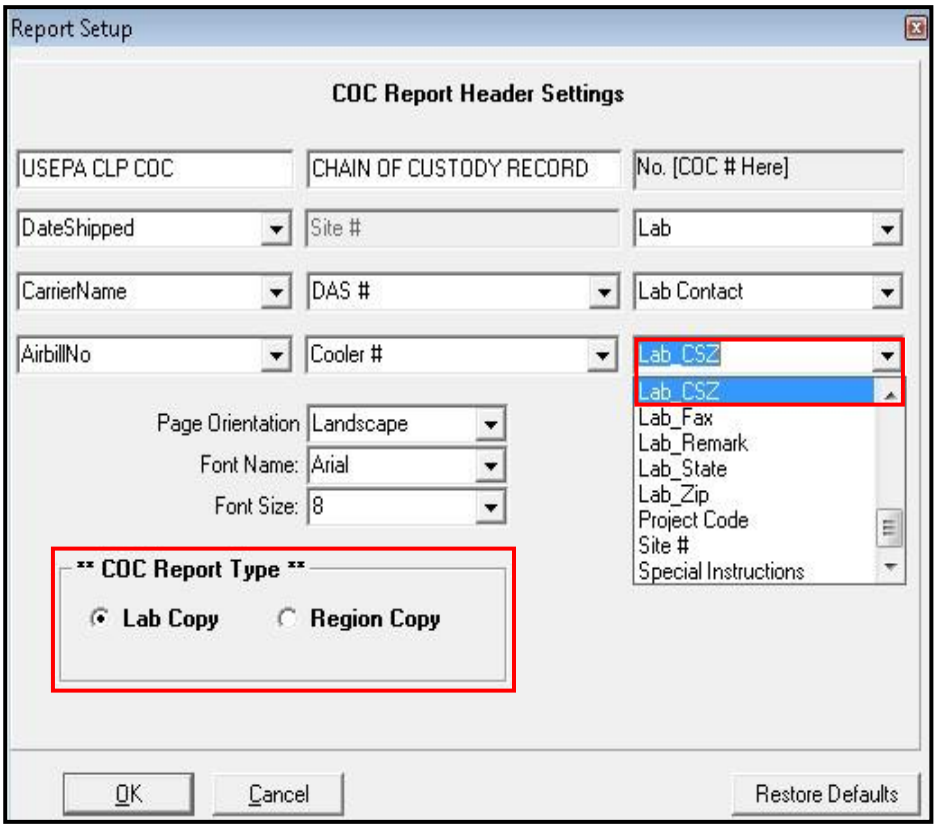
1. Click '**Print Chain of Custody**' button on the bottom of the Chain of Custody window.



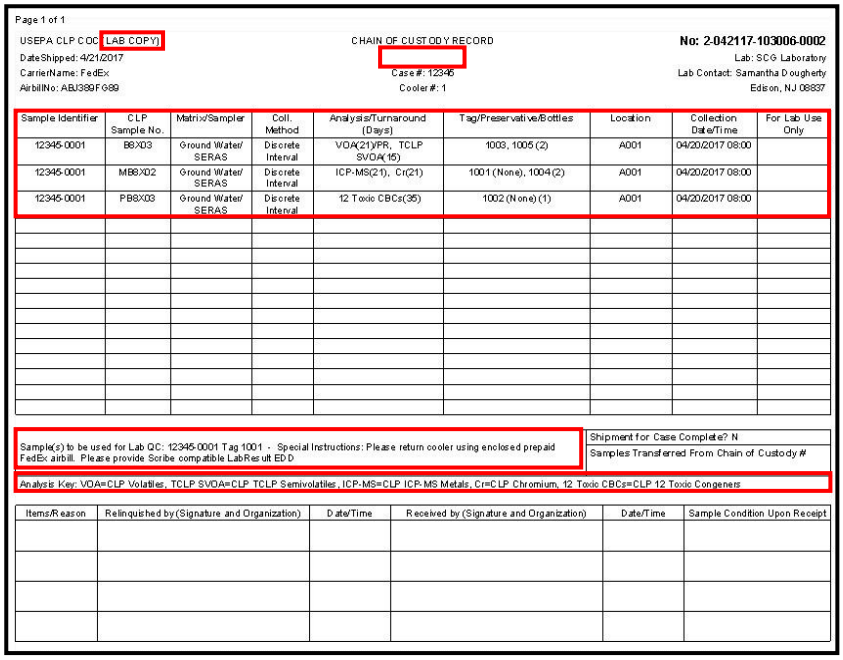
2. Select '**Report Setup**'.

3. The COC Report Header Settings are displayed. The Report Header can be customized by clicking on the down arrows and selecting different Report Header criteria (i.e., Lab_CSZ – City/State/Zip)

4. The COC Report Type (Lab or Region Copy) can also be selected. ***Note:*** *The Lab Copy does not include any Site or Project names, as well as Sample Type.*



5. Click '**OK**' to preview and click on the Printer icon on the top to print the Chain of Custody.



Page 1 of 1

USEPA CLP COC LAB COPY)

CHAIN OF CUSTODY RECORD

No: 2-042117-103006-0002

DateShipped: 4/21/2017
CarrierName: FedEx
AirbillNo: ABJ389FG89

Case #: 12345
Cooler #: 1

Lab: SCG Laboratory
Lab Contact: Samantha Dougherty
Edison, NJ 08837

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
12345-0001	B8X03	Ground Water/ SERAS	Discrete Interval	VOA(21)/PR, TCLP SVOA(15)	1003, 1005 (2)	A001	04/20/2017 08:00	
12345-0001	MB8X02	Ground Water/ SERAS	Discrete Interval	ICP-MS(21), Cr(21)	1001 (None), 1004 (2)	A001	04/20/2017 08:00	
12345-0001	PB8X03	Ground Water/ SERAS	Discrete Interval	12 Toxic CBCs(35)	1002 (None) (1)	A001	04/20/2017 08:00	

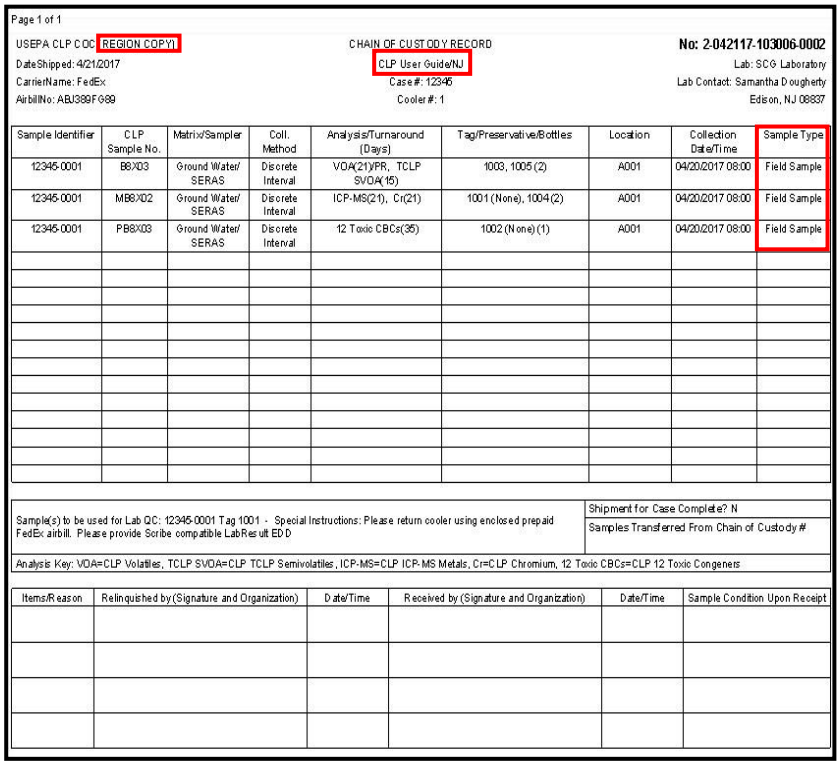
Sample(s) to be used for Lab QC: 12345-0001 Tag 1001 - Special Instructions: Please return cooler using enclosed prepaid FedEx airbill. Please provide Scribe compatible LabResult EDD

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOA=CLP Volatiles, TCLP SVOA=CLP TCLP Semivolatiles, ICP-MS=CLP ICP-MS Metals, Cr=CLP Chromium, 12 Toxic CBCs=CLP 12 Toxic Congeners

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

CLP Generic Lab Copy



Page 1 of 1

USEPA CLP COC REGION COPY)

CHAIN OF CUSTODY RECORD

No: 2-042117-103006-0002

DateShipped: 4/21/2017
CarrierName: FedEx
AirbillNo: ABJ389FG89

CLP User Guide/NJ
Case #: 12345
Cooler #: 1

Lab: SCG Laboratory
Lab Contact: Samantha Dougherty
Edison, NJ 08837

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
12345-0001	B8X03	Ground Water/ SERAS	Discrete Interval	VOA(21)/PR, TCLP SVOA(15)	1003, 1005 (2)	A001	04/20/2017 08:00	Field Sample
12345-0001	MB8X02	Ground Water/ SERAS	Discrete Interval	ICP-MS(21), Cr(21)	1001 (None), 1004 (2)	A001	04/20/2017 08:00	Field Sample
12345-0001	PB8X03	Ground Water/ SERAS	Discrete Interval	12 Toxic CBCs(35)	1002 (None) (1)	A001	04/20/2017 08:00	Field Sample

Sample(s) to be used for Lab QC: 12345-0001 Tag 1001 - Special Instructions: Please return cooler using enclosed prepaid FedEx airbill. Please provide Scribe compatible LabResult EDD

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

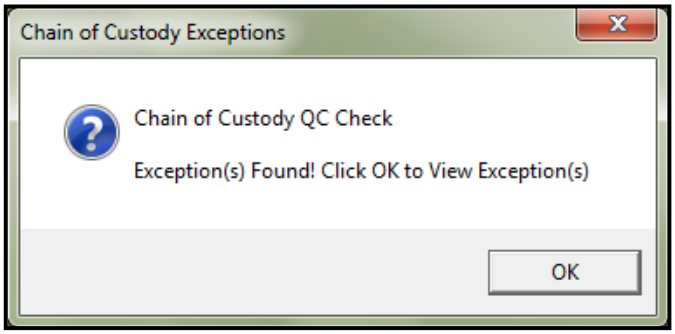
Analysis Key: VOA=CLP Volatiles, TCLP SVOA=CLP TCLP Semivolatiles, ICP-MS=CLP ICP-MS Metals, Cr=CLP Chromium, 12 Toxic CBCs=CLP 12 Toxic Congeners

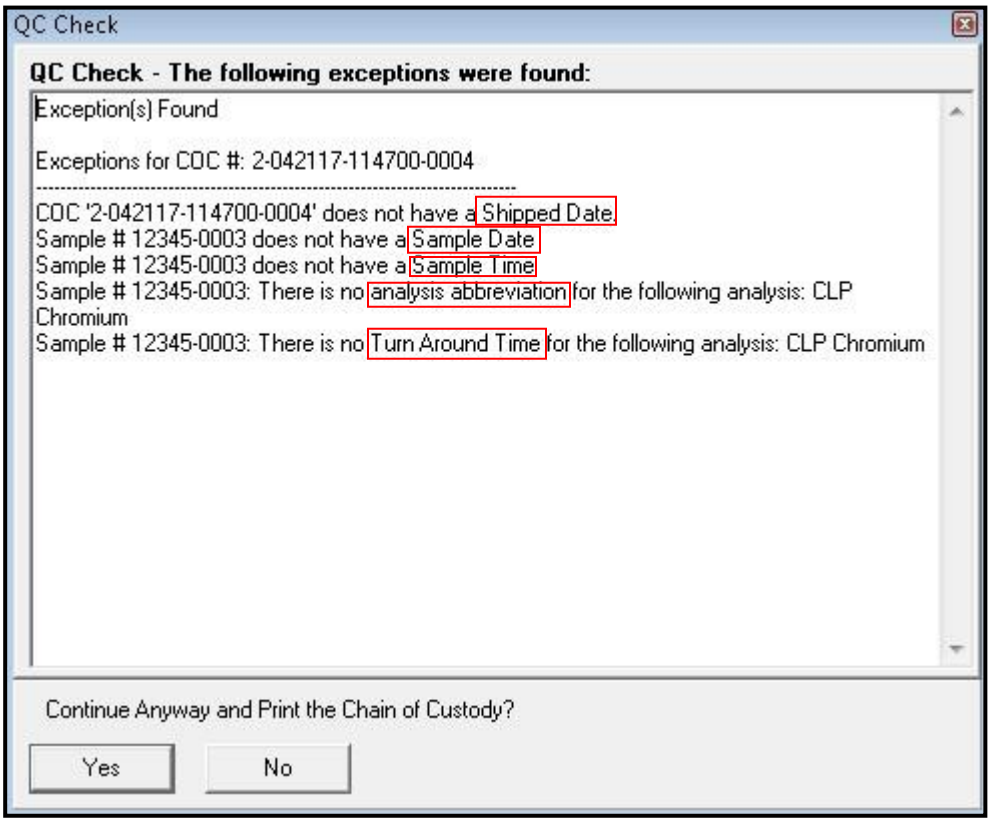
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

CLP Generic Region Copy

COC QC Check

Scribe performs a QC Check for the COC hardcopy and .XML export. The QC check will generate a Chain of Custody Exceptions notification and a log indicating what information is missing from which samples. Examples of missing information are shown below. Users should correct the missing information prior to continuing with the COC. *Note: Users can continue and print the COC; however, the .XML may be rejected by the Sample Management Office (SMO). All information identified in the QC Check that is not resolved prior to providing the COC to the laboratory, will most likely result in a discrepancy and potential delay in the laboratory being able to log and process the samples.*

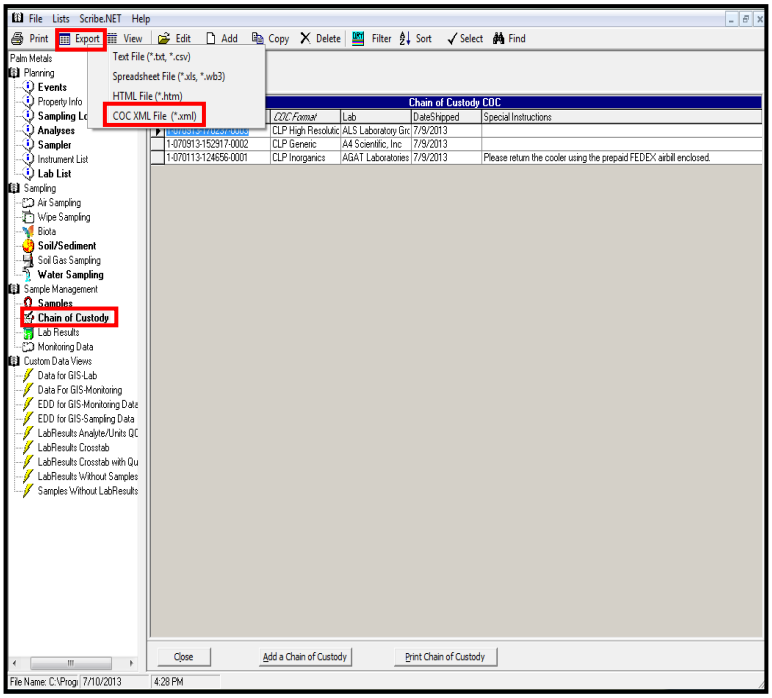




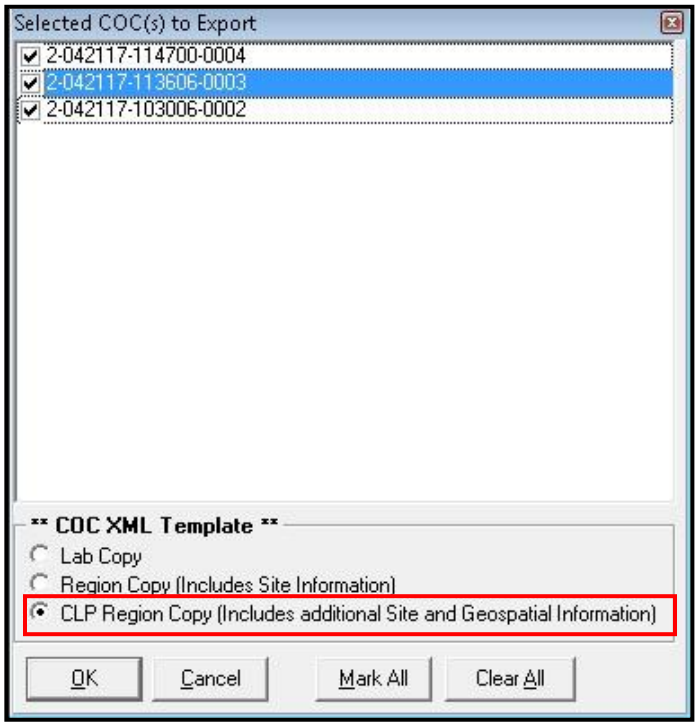
Export to XML File

Export COC to XML

To export the COC to an XML file:



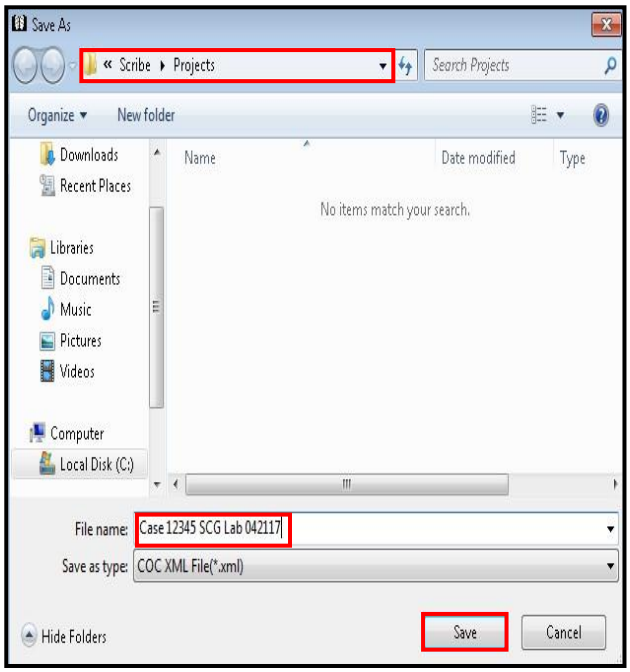
1. Click on **Chain of Custody** under Sample Management in the left Navigation bar.
2. Click the '**Export'** button on the menu bar.
3. Select '**COC XML File (*.xml)**' option.



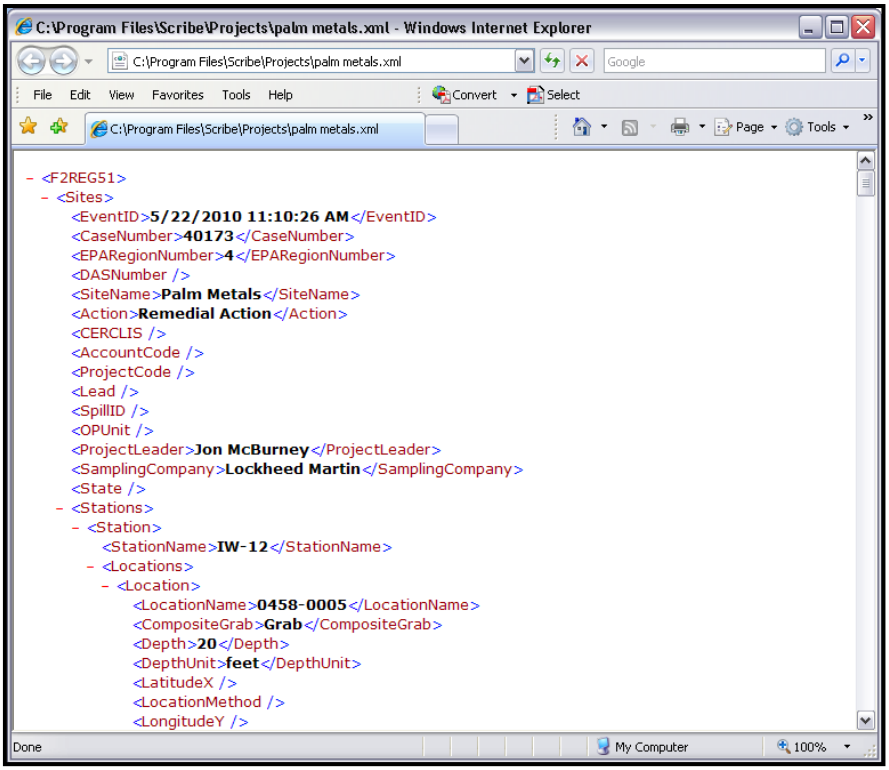
4. Select the Chain(s) of Custody records to export by checking the individual records or click the **'Mark All'** button to select all COCs.

Note: *By default, the CLP Region Copy is selected. This format should be used for uploading to the SMO portal. If the .xml is uploaded into something other than the SMO portal and is rejected, try the Lab Copy (Legacy .XML) or the Region Copy instead.*

5. Select your file location and provide a filename and click '**Save**'.



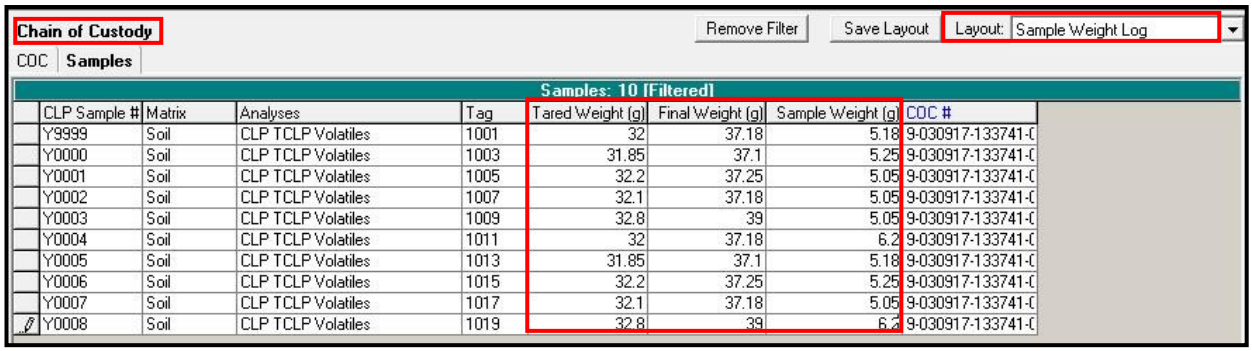
6. The .XML file may open in Windows Internet Explorer while the file is created and saved.



Sample Weight Log

Worksheet reports are also useful for creating the Sample Weight Log. After assigning the samples to a chain of custody, switch to the Sample Weight Log layout and follow the instructions above to select samples, configure the report header and generate the worksheet report. In addition, after displaying the samples with weight information, you can export the list to Microsoft Excel and configure a custom header outside of Scribe using MS Excel.

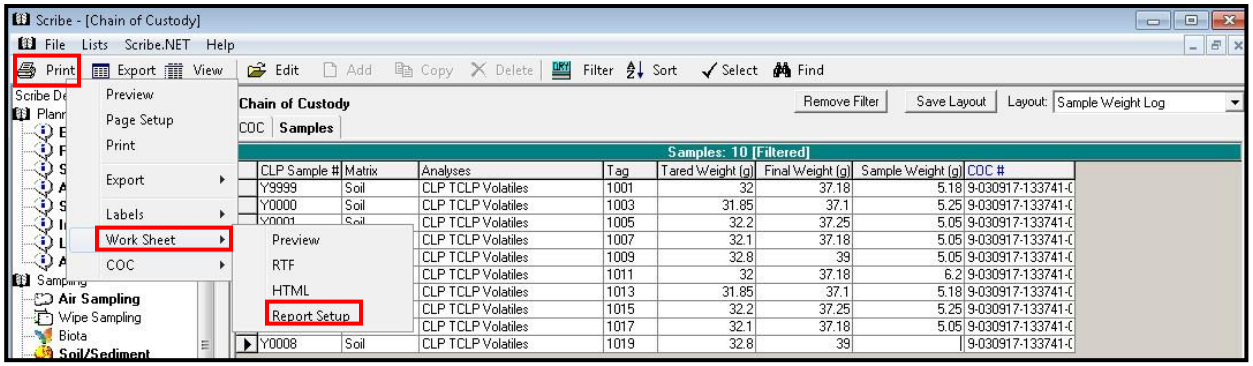
1. In the Chain of Custody section, switch to the Sample Weight Log layout.



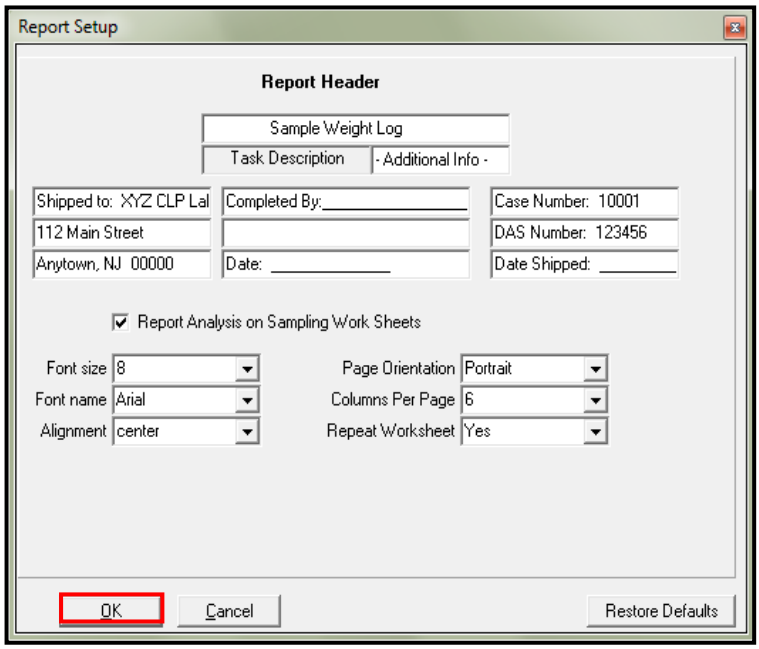
CLP Sample #	Matrix	Analyses	Tag	Tared Weight (g)	Final Weight (g)	Sample Weight (g)	COC #
Y9999	Soil	CLP TCLP Volatiles	1001	32	37.18	5.18	9-030917-133741-(
Y0000	Soil	CLP TCLP Volatiles	1003	31.85	37.1	5.25	9-030917-133741-(
Y0001	Soil	CLP TCLP Volatiles	1005	32.2	37.25	5.05	9-030917-133741-(
Y0002	Soil	CLP TCLP Volatiles	1007	32.1	37.18	5.05	9-030917-133741-(
Y0003	Soil	CLP TCLP Volatiles	1009	32.8	39	5.05	9-030917-133741-(
Y0004	Soil	CLP TCLP Volatiles	1011	32	37.18	6.2	9-030917-133741-(
Y0005	Soil	CLP TCLP Volatiles	1013	31.85	37.1	5.18	9-030917-133741-(
Y0006	Soil	CLP TCLP Volatiles	1015	32.2	37.25	5.25	9-030917-133741-(
Y0007	Soil	CLP TCLP Volatiles	1017	32.1	37.18	5.05	9-030917-133741-(
Y0008	Soil	CLP TCLP Volatiles	1019	32.8	39	6.2	9-030917-133741-(

2. Enter the Tared, Final and Sample Weight.

3. Click on the **'Print'** | Work Sheet | Report Setup.



4. Configure the Report Header fields to reflect the information that will be displayed at the top of the report.



5. Click **'OK'** and the Sample Weight Log report is generated.

Page 1 of 1

Sample Weight Log
Chain of Custody - Additional Info -

Shipped to: XYZ CLP Lab
112 Main Street
Anytown, NJ 00000

Completed By:_____
Date: _____

Case Number: 10001
DAS Number: 123456
Date Shipped: _____

CLP Sample #	A0AB0	A0AB2	A0AB4	A0AB6	A0AC4
Matrix	Soil	Soil	Soil	Soil	Soil
Analyses	CLP TCL Volatiles	CLP TCL Volatiles	CLP TCL Volatiles	CLP TCL Volatiles	CLP TCL Volatiles
Preservative					
Tag	1009	1009	1009	1009	1009
Tared Weight (g)	32	31.85	32.2	32.1	32.8
Final Weight (g)	37.18	37.1	37.25	37.18	39
Sample Weight (g)	5.18	5.25	5.05	5.05	6.2
COC #	1-071113-163043-0004	1-071113-163043-0004	1-071113-163043-0004	1-071113-163043-0004	1-071113-163043-0004

APPENDIX C

LABORATORY ANALYTICAL RESULTS

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM1	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-01	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.14	J	1.0	YES	S3VEM
Vinyl chloride	Target	2.9		ug/L	2.9		1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	2.2		ug/L	2.2		1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.065	J	ug/L	0.065	J	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.25	J	ug/L	0.25	J	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM2	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-02	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Chloromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Vinyl chloride	Target	200		ug/L	200	D	50.0	YES	S3VEM
Bromomethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Chloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Trichlorofluoromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,1-Dichloroethene	Target	8.5	J	ug/L	8.5	J D	50.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Acetone	Target	250	U	ug/L	250	U	50.0	YES	S3VEM
Carbon disulfide	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Methyl acetate	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Methylene chloride	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	6.7	J	ug/L	6.7	J D	50.0	YES	S3VEM
Methyl tert-butyl ether	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,1-Dichloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	1200		ug/L	1200	D	500.0	YES	S3VEM
2-Butanone	Target	250	U	ug/L	250	U	50.0	YES	S3VEM
Bromochloromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Chloroform	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,1,1-Trichloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Cyclohexane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Carbon tetrachloride	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Benzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2-Dichloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Trichloroethene	Target	440		ug/L	440	D	50.0	YES	S3VEM
Methylcyclohexane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2-Dichloropropane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Bromodichloromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
4-Methyl-2-pentanone	Target	250	U	ug/L	250	U	50.0	YES	S3VEM
Toluene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,1,2-Trichloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Tetrachloroethene	Target	4800		ug/L	4800	D	500.0	YES	S3VEM
2-Hexanone	Target	250	U	ug/L	250	U	50.0	YES	S3VEM
Dibromochloromethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2-Dibromoethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Chlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Ethylbenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
o-Xylene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
m, p-Xylene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Styrene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Bromoform	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Isopropylbenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2,3-Trichloropropane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,3-Dichlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,4-Dichlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2-Dichlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	25	U	ug/L	25	U	50.0	YES	S3VEM
Cyclotetrasiloxane, octamethyl-	TIC	28	NJ D	ug/L	28	NJ D	50.0	YES	NV
Cyclotrisiloxane, hexamethyl-	TIC	610	NJ D	ug/L	610	NJ D	500.0	YES	NV

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM3	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-03	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.18	J	1.0	YES	S3VEM
Vinyl chloride	Target	0.32	J	ug/L	0.32	J	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.34	J	ug/L	0.34	J	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	3.7	J	ug/L	3.7	J	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.76		ug/L	0.76		1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.45	J	ug/L	0.45	J	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	44		ug/L	44	D	5.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.079	J	ug/L	0.079	J	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	20		ug/L	20	D	5.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	27		ug/L	27	D	5.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclotetrasiloxane, octamethyl-	TIC	0.60	NJ	ug/L	0.60	NJ	1.0	YES	NV
Cyclotrisiloxane, hexamethyl-	TIC	2.8	NJ D	ug/L	2.8	NJ D	5.0	YES	NV

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM4	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-04	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.13	J	1.0	YES	S3VEM
Vinyl chloride	Target	2.6		ug/L	2.6		1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.25	J	ug/L	0.25	J	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.41	J	ug/L	0.41	J	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.091	J	ug/L	0.091	J	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	48		ug/L	48	D	10.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.079	J	ug/L	0.079	J	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	26		ug/L	26	D	10.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	89		ug/L	89	D	10.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclotrisiloxane, hexamethyl-	TIC	0.88	NJ	ug/L	0.88	NJ	1.0	YES	NV
Cyclotetrasiloxane, octamethyl-	TIC	1.3	NJ	ug/L	1.3	NJ	1.0	YES	NV

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM5	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-05	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.083	J	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.51		ug/L	0.51		1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	1.5		ug/L	1.5		1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50		ug/L	0.50		1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclotrisiloxane, hexamethyl-	TIC	0.74	NJ	ug/L	0.74	NJ	1.0	YES	NV
Cyclotetrasiloxane, octamethyl-	TIC	1.4	NJ	ug/L	1.4	NJ	1.0	YES	NV

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM6	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW-44	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Vinyl chloride	Target	2.4		ug/L	2.4		1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.25	J	ug/L	0.25	J	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.37	J	ug/L	0.37	J	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.085	J	ug/L	0.085	J	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	47		ug/L	47	D	10.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	27		ug/L	27	D	10.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	90		ug/L	90	D	10.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Unknown-01	TIC	0.79	J	ug/L	0.79	J	1.0	YES	NV
Cyclotetrasiloxane, octamethyl-	TIC	1.2	NJ	ug/L	1.2	NJ	1.0	YES	NV

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM7	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: RB-01	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.14	J	ug/L	0.14	J	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: BFWM8	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: TB-01	pH: 2.0	Sample Date: 05/24/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.16	J	ug/L	0.16	J	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: VBLKMK	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: VBLKNJ	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Sample Number: VHBLK01	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH: 2.0	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project **GroupID: 49406/68HERH20D0015/BFWM1** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: OLEAN WELL FIELD Project | **GroupID: 49406/68HERH20D0015/BFWM1** | **Lab Name: Pace Analytical Services, LLC**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
LSASD/HWSB/HWSS
2890 Woodbridge Avenue, Edison, NJ 08837

EXECUTIVE NARRATIVE

Case No.: 49406
Site: Olean Well Creek
Number of Samples: 6 (GW), 2 (Water/FB,TB)
Analysis: TVOA

SDG No.: BFWM1
Laboratory: Pace Analytical Services, LLC
Sampling dates: 05/24/2021-05/25/2021
Validation SOP: HW-34A (Rev 1)

QAPP:
Contractor: LSASD-HWSB-SST
Reference: DCN: OLEAN_UFPQAPP_MAY2021, May 21, 2021

SUMMARY OF DEFINITIONS:
Critical: Results have an unacceptable level of uncertainty and should not be used for making decisions. Data have been qualified "R" rejected.
Major: A level of uncertainty exists that may not meet the data quality objectives for the project. A bias is likely to be present in the results. Data has been qualified "J" estimated. "J+" and "J-" represent likely direction of the bias.
Minor: The level of uncertainty is acceptable. No significant bias in the data was observed.

Critical Findings:
None.

Major Findings:
None.

Minor Findings:
One or more analytes in one or more samples are qualified "J" due to results between MDL and CRQL.

COMMENTS:	Per ARF, Summary Reports were created using NYS Criterion for H(WS) in Class GA Groundwater as project action levels (PALs). One or more detected and non-detected analyte results exceeded the PALs for one or more samples. For sample BFWM2,Tetrachloroethene and Cis-1,2-Dichloroethene exceeded the PALs by more than 100 folds.

Reviewer Name(s): Archana Mirle

Approver's Signature:

Date: 7/1/2021

Name: **Narendra Kumar**

Affiliation: USEPA/R2/HWSB/HWSS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
LSASD/HWSB/HWSS
2890 Woodbridge Avenue, Edison, NJ 08837

Data Qualifier Definitions (National Functional Guidelines)			
Qualifier Symbol	Explanation		
	INORGANICS	ORGANICS	CHLORINATED DIOXIN/FURAN
U	The analyte was analyzed for, but was not detected above the level of the reported quantitation limit.	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method	The analyte was analyzed for but not detected. The value preceding the "U" may represent the adjusted Contract Required Quantitation Limit (see DLM02.X, Exhibit D, Section 1.2 and Table 2), or the sample specific estimated detection limit (EDL, see Method 8290A, Section 11.9.5).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL.	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to an issue with the quality of the data generated because certain QC criteria were not met, or the concentration of the analyte was below the adjusted CRQL).
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.	
J–	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.	
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.	The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.	The analyte was not detected (see definition of "U" flag, above). The reported value should be considered approximate.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
N		The analysis indicates the presence of an analyte for which there is presumptive evidence to make a “tentative identification”.	
NJ		The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	
C		This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).	
X		This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.	

DATA ASSESSMENT

ANALYSIS: TVOA

The current SOP HW-34A (Rev 1) September 2016, USEPA Region II for the evaluation of Trace Volatile organic data, and all related Change Request Forms (CRF) for this SOP, generated through Statement of Work SFAM01.1, and any future editorial revisions of SFAM01.1 has been applied. Data have been reviewed according to TDF specifications, the National Functional Guidelines Report and the CCS Semi-Automated Screening Results Report. Tentatively Identified Compounds (TICs) for TVOA organic fraction is not validated.

1. HOLDING TIME AND PRESERVATION:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as unusable, "R". For analytes detected in aqueous samples whose temperature is above 6 degree Centigrade will be qualified as estimated "J" and non-detected analytes will be qualified "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

2. DEUTERATED MONITORING COMPOUNDS (DMC's):

All samples are spiked with DMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured DMC recovery limits were outside Table 6 of the SOP HW-34A (Rev 1), qualifications were applied as per Table 7 of the SOP HW-34A (Rev 1) to all the samples and analytes as shown below.

No problems were found for this criterion.

3. MATRIX SPIKE/ MATRIX SPIKE RECOVERY:

MS/MSD data is generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other QC criteria for additional qualification of data.

Not applicable.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Depending on

the amount of contamination present in the QA blanks, the analytes are qualified as per Table 5 of SOP HW-34A (Rev 1).

A) Method blank contamination:

No problems were found for this criterion.

B) Field or rinse blank contamination: BFWM7

No qualification is required due to rinse blank contamination

C) Trip blank contamination: BFWM8

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is less than the CRQL. Detected compounds are qualified U. Non-detected compounds are not qualified. Sample concentrations have been reported at the CRQL.

Chloromethane BFWM1, BFWM3, BFWM4, BFWM5

D) Storage Blank associated with TVOA samples only:

No problems were found for this criterion.

E) Tentatively Identified Compounds:

Tentatively Identified Compounds (TICs) for TVOA organic fraction are not validated.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene. If the mass calibration is in error, all associated data will be classified as unusable "R". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. All analytes for initial, ICV and continuing calibration should meet the

minimum RRF criteria as listed in Table 2 of SOP HW-34A (Rev 1). If RRF is less than minimum RRF specified in Table 2 for all target analytes, use professional judgment and all detects in the sample will be qualified as "J+" or "R". All non-detects for that compound will be rejected "R".

No problems were found for this criterion.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration.

Percent RSD must be less than maximum %RSD in Table 2 of SOP HW-34A (Rev 1) for all target analytes. For the opening or closing CCV %D must be within the inclusive opening or closing maximum %D limits as listed in Table 2 of SOP HW-34A (Rev 1) for all Target compounds. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and Non-detects are flagged "UJ" for %D values outside criteria only. If %RSD exceeds QC criteria, detects may be qualified as "J" and use professional judgment to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

7. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must be in the range as specified in Table 9 of SOP HW-34A (Rev 1) of the associated continuing calibration internal standard area. The retention time of the internal standards must be within the range as specified in Table 9 of SOP HW-34A (Rev 1). If the area count is greater than, all positive results quantitated using that IS are qualified as estimated "J-", and non-detects are not qualified. If the area count is less than the associated standard, all positive results for compounds quantitated with that IS are qualified as estimated "J+" and all non-detects are qualified "R".

If an internal standard retention time were not met as specified in Table 9 of SOP HW-34A (Rev 1), the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. Qualifications were applied to the samples and analytes as shown below. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

8. FIELD DUPLICATES:

No field duplicate sample was identified in this SDG.

9. COMPOUND IDENTIFICATION:

Target compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within a window of 0.06 RRT units of the standard compound and have ion spectra which has a ratio of the primary and secondary m/z intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

None.

11. FIELD DOCUMENTATION:

No problems were identified.

12. OTHER PROBLEMS:

None.

13. DILUTIONS, RE-EXTRACTIONS & REANALYSIS:

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used. See summary report and EDD for applicable samples and analytes.

The following dilution sample was only used for one or more analytes.
BFWM2DL, BFWM3DL, BFWM4DL, BFWM6DL

APPENDIX D

LOW-FLOW TEST REPORTS

Low-Flow Test Report:

Test Date / Time: 5/24/2021 5:17:52 PM
Project: Olean Well Field - Loohns Cleaners Source Area MW-01
Operator Name: M.Denno, R.Finke

Location Name: MW-01 **Longitude: -78.400160** **Latitude: 42.071951** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 17.5 ft Total Depth: 27.5 ft** **Initial Depth to Water: 13.3 ft**	**Pump Type: Grundfos RediFLO2 S.S. Submersible Pump** **Tubing Type: 5/8" O.D. LDPE with 1/2" I.D. Teflon-Lined** **Tubing Inner Diameter: 0.5 in** **Tubing Length: 33 ft** **Pump Intake From TOC: 26 ft** **Estimated Total Volume Pumped: 15600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600 Vented. Serial Number: 540717** **HACH 2100Q Turbidimeter Serial #: 13020C023545**

Test Notes:

Weather Conditions:
Overcast 73F at 4:30

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10	+/- 0.33	
5/24/2021 5:17 PM	00:00	7.31 pH	16.21 °C	1,429.4 µS/cm	0.27 mg/L	52.80 NTU	122.3 mV	13.30 ft	200.00 ml/min
5/24/2021 5:20 PM	03:00	7.31 pH	16.51 °C	1,424.4 µS/cm	0.27 mg/L	43.70 NTU	101.0 mV	13.30 ft	200.00 ml/min
5/24/2021 5:23 PM	06:00	7.33 pH	16.13 °C	1,405.7 µS/cm	0.27 mg/L	34.80 NTU	86.3 mV	13.30 ft	200.00 ml/min
5/24/2021 5:26 PM	09:00	7.33 pH	16.38 °C	1,405.4 µS/cm	0.27 mg/L	29.10 NTU	77.0 mV	13.30 ft	200.00 ml/min
5/24/2021 5:29 PM	12:00	7.33 pH	16.64 °C	1,400.9 µS/cm	0.26 mg/L	23.90 NTU	73.0 mV	13.30 ft	200.00 ml/min
5/24/2021 5:32 PM	15:00	7.33 pH	16.70 °C	1,388.1 µS/cm	0.25 mg/L	25.90 NTU	67.9 mV	13.30 ft	200.00 ml/min
5/24/2021 5:35 PM	18:00	7.34 pH	15.83 °C	1,394.3 µS/cm	0.25 mg/L	29.20 NTU	60.9 mV	13.30 ft	200.00 ml/min
5/24/2021 5:38 PM	21:00	7.32 pH	15.77 °C	1,382.1 µS/cm	0.29 mg/L	33.10 NTU	65.6 mV	13.30 ft	200.00 ml/min
5/24/2021 5:41 PM	24:00	7.33 pH	15.56 °C	1,382.5 µS/cm	0.26 mg/L	27.20 NTU	70.5 mV	13.30 ft	200.00 ml/min
5/24/2021 5:44 PM	27:00	7.34 pH	15.34 °C	1,351.1 µS/cm	0.25 mg/L	28.90 NTU	72.0 mV	13.30 ft	200.00 ml/min
5/24/2021 5:47 PM	30:00	7.34 pH	15.20 °C	1,343.2 µS/cm	0.24 mg/L	26.90 NTU	72.7 mV	13.30 ft	200.00 ml/min

5/24/2021 5:50 PM	33:00	7.34 pH	15.03 °C	1,303.4 µS/cm	0.20 mg/L	18.50 NTU	72.9 mV	13.30 ft	200.00 ml/min
5/24/2021 5:53 PM	36:00	7.35 pH	15.14 °C	1,286.8 µS/cm	0.18 mg/L	13.00 NTU	72.5 mV	13.30 ft	200.00 ml/min
5/24/2021 5:56 PM	39:00	7.36 pH	15.20 °C	1,257.9 µS/cm	0.16 mg/L	9.24 NTU	71.4 mV	13.30 ft	200.00 ml/min
5/24/2021 5:59 PM	42:00	7.36 pH	15.55 °C	1,238.8 µS/cm	0.14 mg/L	7.95 NTU	69.8 mV	13.30 ft	200.00 ml/min
5/24/2021 6:02 PM	45:00	7.37 pH	15.73 °C	1,223.4 µS/cm	0.12 mg/L	6.32 NTU	68.3 mV	13.30 ft	200.00 ml/min
5/24/2021 6:05 PM	48:00	7.37 pH	16.05 °C	1,205.8 µS/cm	0.12 mg/L	6.17 NTU	65.8 mV	13.30 ft	200.00 ml/min
5/24/2021 6:08 PM	51:00	7.38 pH	16.43 °C	1,193.0 µS/cm	0.11 mg/L	4.94 NTU	63.8 mV	13.30 ft	200.00 ml/min
5/24/2021 6:11 PM	54:00	7.39 pH	15.68 °C	1,173.7 µS/cm	0.11 mg/L	4.74 NTU	60.6 mV	13.30 ft	200.00 ml/min
5/24/2021 6:14 PM	57:00	7.38 pH	15.75 °C	1,220.7 µS/cm	0.11 mg/L	4.60 NTU	60.2 mV	13.30 ft	200.00 ml/min
5/24/2021 6:17 PM	01:00:00	7.38 pH	15.46 °C	1,229.1 µS/cm	0.12 mg/L	4.78 NTU	62.2 mV	13.30 ft	200.00 ml/min
5/24/2021 6:20 PM	01:03:00	7.37 pH	15.37 °C	1,262.3 µS/cm	0.14 mg/L	4.65 NTU	64.4 mV	13.30 ft	200.00 ml/min
5/24/2021 6:23 PM	01:06:00	7.37 pH	15.73 °C	1,259.0 µS/cm	0.14 mg/L	4.86 NTU	66.6 mV	13.30 ft	200.00 ml/min
5/24/2021 6:26 PM	01:09:00	7.38 pH	15.92 °C	1,221.9 µS/cm	0.13 mg/L	4.78 NTU	66.8 mV	13.30 ft	200.00 ml/min
5/24/2021 6:29 PM	01:12:00	7.39 pH	15.69 °C	1,195.2 µS/cm	0.12 mg/L	4.70 NTU	64.3 mV	13.30 ft	200.00 ml/min
5/24/2021 6:32 PM	01:15:00	7.39 pH	15.98 °C	1,191.6 µS/cm	0.11 mg/L	4.50 NTU	62.4 mV	13.30 ft	200.00 ml/min
5/24/2021 6:35 PM	01:18:00	7.39 pH	16.06 °C	1,181.7 µS/cm	0.10 mg/L	4.55 NTU	62.3 mV	13.30 ft	200.00 ml/min

Samples

Sample ID:	Description:
BFWM1/MW-01	Sampled @ 1836

Low-Flow Test Report:

Test Date / Time: 5/25/2021 9:22:46 AM
Project: Olean Well Field - Loohns Cleaners Source Area MW-02
Operator Name: M.Denno, R.Finke

Location Name: MW-02 **Longitude: -78.400044** **Latitude: 42.071568** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 19.95 ft Total Depth: 29.95 ft** **Initial Depth to Water: 12.95 ft**	**Pump Type: Grundfos RediFLO2 S.S. Submersible Pump** **Tubing Type: 5/8" O.D. LDPE with 1/2" I.D. Teflon-Lined** **Tubing Inner Diameter: 0.5 in** **Tubing Length: 33 ft** **Pump Intake From TOC: 26 ft** **Estimated Total Volume Pumped: 1800 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.2 ft**	**Instrument Used: Aqua TROLL 600 Vented. Serial Number: 537135** **HACH 2100Q Turbidimeter Serial #: 12020C015874**

Test Notes:

Weather Conditions:
Cloudy 62F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10	+/- 0.33	
5/25/2021 9:22 AM	00:00	7.26 pH	11.76 °C	1,998.0 µS/cm	0.00 mg/L	4.21 NTU	128.1 mV	12.95 ft	200.00 ml/min
5/25/2021 9:25 AM	03:00	7.27 pH	11.86 °C	1,988.9 µS/cm	0.00 mg/L	3.64 NTU	127.0 mV	13.15 ft	200.00 ml/min
5/25/2021 9:28 AM	06:00	7.27 pH	11.79 °C	1,989.9 µS/cm	0.00 mg/L	3.70 NTU	125.8 mV	13.15 ft	200.00 ml/min
5/25/2021 9:31 AM	09:00	7.28 pH	11.81 °C	1,991.5 µS/cm	0.00 mg/L	3.50 NTU	124.9 mV	13.15 ft	200.00 ml/min

Samples

Sample ID:	Description:
BFWM2/MW-02	2021

Low-Flow Test Report:

Test Date / Time: 5/25/2021 10:11:12 AM
Project: Olean Well Field - Loohns Cleaners Source Area MW-03
Operator Name: Denno, Finke

Location Name: MW-03 **Longitude: -78.400021** **Latitude: 42.071563** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 24 ft** **Total Depth: 33.95 ft** **Initial Depth to Water: 11.73 ft**	**Pump Type: Grundfos RediFLO2 S.S. Submersible Pump** **Tubing Type: 5/8" O.D. LDPE with 1/2" I.D. Teflon-Lined** **Tubing Inner Diameter: 0.5 in** **Tubing Length: 16.6 ft** **Pump Intake From TOC: 13.6 ft** **Estimated Total Volume Pumped: 1800 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.18 ft**	**Instrument Used: Aqua TROLL 600 Vented. Serial Number: 540699** **HACH 2100Q Turbidimeter Serial #: 13020C023545**

Test Notes:

Weather Conditions:
Ptly. Cloudy 69F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10	+/- 0.33	
5/25/2021 10:11 AM	00:00	7.90 pH	13.39 °C	476.76 µS/cm	0.00 mg/L	9.23 NTU	-24.3 mV	11.73 ft	200.00 ml/min
5/25/2021 10:14 AM	03:00	7.91 pH	13.42 °C	477.09 µS/cm	0.00 mg/L	9.37 NTU	-26.6 mV	11.91 ft	200.00 ml/min
5/25/2021 10:17 AM	06:00	7.91 pH	13.06 °C	476.88 µS/cm	0.00 mg/L	9.11 NTU	-28.2 mV	11.91 ft	200.00 ml/min
5/25/2021 10:20 AM	09:00	7.90 pH	13.18 °C	478.00 µS/cm	0.00 mg/L	9.16 NTU	-29.6 mV	11.91 ft	200.00 ml/min

Samples

Sample ID:	Description:
BFWM3/MW-03	Olean 2021

Low-Flow Test Report:

Test Date / Time: 5/25/2021 10:33:40 AM
Project: Olean Well Field - Loohns Cleaners Source Area MW-04
Operator Name: M.Denno, R.Finke

Location Name: MW-04 **Longitude: -78.400433** **Latitude: 42.071655** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 20 ft** **Total Depth: 28.55 ft** **Initial Depth to Water: 13.38 ft**	**Pump Type: Grundfos RediFLO2 S.S. Submersible Pump** **Tubing Type: 5/8" O.D. LDPE with 1/2" I.D. Teflon-Lined** **Tubing Inner Diameter: 0.5 in** **Tubing Length: 35 ft** **Pump Intake From TOC: 26 ft** **Estimated Total Volume Pumped: 3600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600 Vented. Serial Number 540443** **HACH 2100Q Turbidimeter Serial #: 12020C015874**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10	+/- 0.33	
5/25/2021 10:33 AM	00:00	7.71 pH	12.95 °C	520.42 µS/cm	0.04 mg/L	3.58 NTU	65.2 mV	13.38 ft	200.00 ml/min
5/25/2021 10:36 AM	03:00	7.73 pH	13.37 °C	521.08 µS/cm	0.03 mg/L	2.21 NTU	63.7 mV	13.38 ft	200.00 ml/min
5/25/2021 10:39 AM	06:00	7.73 pH	13.13 °C	517.94 µS/cm	0.04 mg/L	1.95 NTU	62.2 mV	13.38 ft	200.00 ml/min
5/25/2021 10:42 AM	09:00	7.73 pH	13.28 °C	522.38 µS/cm	0.04 mg/L	2.05 NTU	60.3 mV	13.38 ft	200.00 ml/min
5/25/2021 10:45 AM	12:00	7.72 pH	13.31 °C	521.69 µS/cm	0.04 mg/L	2.00 NTU	58.9 mV	13.38 ft	200.00 ml/min
5/25/2021 10:48 AM	15:00	7.72 pH	13.38 °C	520.52 µS/cm	0.04 mg/L	1.90 NTU	57.9 mV	13.38 ft	200.00 ml/min
5/25/2021 10:51 AM	18:00	7.73 pH	13.35 °C	523.05 µS/cm	0.04 mg/L	1.89 NTU	57.1 mV	13.38 ft	200.00 ml/min

Samples

Sample ID:	Description:
BFWM4/MW-04	Sampled @ 1052/Field Duplicate collected here. Field Duplicate ID= MW-44/BFWM6

Low-Flow Test Report:

Test Date / Time: 5/25/2021 9:41:22 AM
Project: Olean Well Field - Loohns Cleaners Source Area MW-05
Operator Name: M.Denno, R.Finke

Location Name: MW-05
Longitude: -78.400451
Latitude: 42.071647
Well Diameter: 2 in
Casing Type: PVC
Screen Length: 10 ft
Top of Screen: 39 ft
Total Depth: 48.05 ft
Initial Depth to Water: 13.32 ft

Pump Type: Grundfos RediFLO2 S.S. Submersible Pump
Tubing Type: 5/8" O.D. LDPE with 1/2" I.D. Teflon-Lined
Tubing Inner Diameter: 0.5 in
Tubing Length: 54 ft
Pump Intake From TOC: 46 ft
Estimated Total Volume Pumped: 6600 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 200 ml/min
Final Draw Down: 0 ft

Instrument Used: Aqua TROLL 600 Vented. Serial Number: 540717

HACH 2100Q Turbidimeter Serial #: 12020C015874

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10	+/- 0.33	
5/25/2021 9:41 AM	00:00	7.42 pH	13.38 °C	503.75 µS/cm	1.20 mg/L	40.00 NTU	120.4 mV	13.32 ft	200.00 ml/min
5/25/2021 9:44 AM	03:00	7.42 pH	13.08 °C	502.38 µS/cm	0.95 mg/L	37.50 NTU	120.3 mV	13.32 ft	200.00 ml/min
5/25/2021 9:47 AM	06:00	7.44 pH	12.49 °C	503.02 µS/cm	0.91 mg/L	34.20 NTU	95.4 mV	13.32 ft	200.00 ml/min
5/25/2021 9:50 AM	09:00	7.44 pH	12.40 °C	505.01 µS/cm	0.88 mg/L	29.70 NTU	81.0 mV	13.32 ft	200.00 ml/min
5/25/2021 9:53 AM	12:00	7.44 pH	12.47 °C	506.71 µS/cm	0.88 mg/L	26.40 NTU	75.1 mV	13.32 ft	200.00 ml/min
5/25/2021 9:56 AM	15:00	7.45 pH	12.55 °C	506.36 µS/cm	0.88 mg/L	23.20 NTU	71.2 mV	13.32 ft	200.00 ml/min
5/25/2021 9:59 AM	18:00	7.45 pH	12.59 °C	507.55 µS/cm	0.87 mg/L	21.70 NTU	67.7 mV	13.32 ft	200.00 ml/min
5/25/2021 10:02 AM	21:00	7.46 pH	12.55 °C	507.72 µS/cm	0.86 mg/L	19.80 NTU	64.8 mV	13.32 ft	200.00 ml/min
5/25/2021 10:05 AM	24:00	7.47 pH	12.75 °C	507.94 µS/cm	0.85 mg/L	16.70 NTU	62.4 mV	13.32 ft	200.00 ml/min
5/25/2021 10:08 AM	27:00	7.47 pH	12.95 °C	507.95 µS/cm	0.85 mg/L	15.80 NTU	60.5 mV	13.32 ft	200.00 ml/min
5/25/2021 10:11 AM	30:00	7.48 pH	13.13 °C	508.56 µS/cm	0.84 mg/L	15.10 NTU	58.8 mV	13.32 ft	200.00 ml/min
5/25/2021 10:14 AM	33:00	7.49 pH	13.23 °C	506.93 µS/cm	0.83 mg/L	15.70 NTU	57.4 mV	13.32 ft	200.00 ml/min

Samples

Sample ID:	Description:
BFWM5/MW-05	Sampled @ 1014

APPENDIX E

DATA SUMMARY REPORT

Loohn's Cleaners/Olean Wellfield
VOCs-May 2021

Result Rejected, Qualified R
Result equal to or over action level but Not Detected
Detected result equal to or over the action level

June 20, 2018 NYS Standard and Guidance Values in Criterion for H(WS) in Class GA Groundwater (ug/L)

CAS No.	Fraction.	June 20, 2018 NYS Standard and Guidance Values in Criterion for H(WS) in Class GA Groundwater (ug/L) Action Level	BFWM1 Result	BFWM1 Qualifier	BFWM2 Result	BFWM2 Qualifier	BFWM3 Result	BFWM3 Qualifier	BFWM4 Result	BFWM4 Qualifier	BFWM6 Result	BFWM6 Qualifier	BFWM5 Result	BFWM5 Qualifier	BFWM7 Result	BFWM7 Qualifier	BFWM8 Result	BFWM8 Qualifier
Lab Sample ID:																		
Field Sample ID:			BFWM1		BFWM2		BFWM3		BFWM4		BFWM6		BFWM5		BFWM7		BFWM8	
Sampling Location Code:			MW-01		MW-02		MW-03		MW-04		MW-44 (DUP.)		MW-05		RB-01		TB-01	
Latitude:			42.071951		42.071568		42.071563		42.071655		42.071655		42.071647		N/A		N/A	
Longitude:			-78.400160		-78.400044		-78.400021		-78.400433		-78.400433		-78.400451		N/A		N/A	
Sampling Sub-location:			20'-30'		20'-30'		25'-35'		20'-30'		20'-30'		40'-50'		Sample Pump		DI Water Unit	
Sampling Date:			5/24/2021		5/25/2021		5/25/2021		5/25/2021		5/25/2021		5/25/2021		5/24/2021		5/24/2021	
Units:			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
100-41-4	Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
100-42-5	Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-01-5	cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-02-6	trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
106-46-7	1,4-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
106-93-4	1,2-Dibromoethane	0.0006	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
107-06-2	1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-10-1	4-Methyl-2-Pentanone	-	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
108-67-8	1,3,5-Trimethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-87-2	Methylcyclohexane	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-88-3	Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-90-7	Chlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
110-82-7	Cyclohexane	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
120-82-1	1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
124-48-1	Dibromochloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
127-18-4	Tetrachloroethene	5	0.25	J	4800		27		89		90		0.5	U	0.5	U	0.5	U
156-59-2	cis-1,2-Dichloroethene	5	2.2		1200		44		48		47		0.5		0.5	U	0.5	U
156-60-5	trans-1,2-Dichloroethene	5	0.5	U	6.7	J	0.76		0.41	J	0.37	J	0.51		0.5	U	0.5	U
1634-04-4	Methyl tert-Butyl Ether	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
179601-23-1	m,p-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
541-73-1	1,3-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
56-23-5	Carbon Tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
591-78-6	2-Hexanone	50	5	U	5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
67-64-1	Acetone	50	5	U	5	U	3.7	J	5	U	5	U	5	U	5	U	5	U
67-66-3	Chloroform	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5	U	5	U	5	U
71-43-2	Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
71-55-6	1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.079	J	0.079	J	0.5	U	0.5	U	0.5	U	0.5	U
74-83-9	Bromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-87-3	Chloromethane	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-97-5	Bromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.16	J
75-00-3	Chloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-01-4	Vinyl Chloride	2	2.9		200		0.32	J	2.6		2.4		0.5	U	0.5	U	0.5	U
75-09-2	Methylene Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-15-0	Carbon Disulfide	60	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-25-2	Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.14	J	0.5	U
75-27-4	Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-34-3	1,1-Dichloroethane	5	0.5	U	0.5	U	0.45	J	0.091	J	0.085	J	0.5	U	0.5	U	0.5	U
75-35-4	1,1-Dichloroethene	5	0.5	U	8.5	J	0.34	J	0.25	J	0.25	J	0.5	U	0.5	U	0.5	U
75-69-4	Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-71-8	Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-87-5	1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-93-3	2-Butanone	50	5	U	5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
79-00-5	1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5	U	5	U	5	U
79-01-6	Trichloroethene	5	0.065	J	440		20		26		27		0.5	U	0.5	U	0.5	U
79-20-9	Methyl Acetate	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.5		0.5	U	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
87-61-6	1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
95-47-6	o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
95-50-1	1,2-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
95-63-6	1,2,4-Trimethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
96-18-4	1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
98-82-8	Isopropylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Qualifier Key:

U - Not detected at or above the Reporting Limit;

J - The identification of the analyte is acceptable, the reported value is an estimate;

K - The identification of the analyte is acceptable, the reported value may be biased high;

L - The identification of the analyte is acceptable, the reported value may be biased low;

NJ - There is presumptive evidence that the analyte is present, the analyte is reported as a tentative identification, the reported value is an estimate.

B - Analyte is present in associated laboratory and/or field blank.