




Communicating Environmental Data

Are your data communicated clearly?

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Today's Data



Samp_ No	Analysis	Analyte	Total Or Dissolved	Result	Result Units	Detected	Result Qualifier	Sample Date	MDL	MDL Units	Reporting Limit	Reporting Limit Units	Matrix	QA Comment
1	200.8 Metals (ICP/MS)	As	T	0.58	ppb	Y	J ⁵	08-Aug-15	0.58	ug/L	2.0	ug/L	Surface Water	5 = Field duplicate precision outside criteria; S4VEM
2	6020	Arsenic	T	2.25	ug/L	Y	UB	10-Aug-15	0.6	ug/L	2	ug/L	Well Water	B = Analyte found in blank
3	200.8	Arsenic	D	< 20	ug/L	N	U	3/22/2018	5.00	ug/L				
4	ICPMS Diss. Metals	Selenium	D	150	ug/L	Y	AJ	08-Aug-15	1	ug/L	2	ug/L	Surface Water	A = Averaged result; S4VEM
5	ICPMS Tot. Rec. Metals	Se	T	0.005	mg/L	N	U	08-Aug-15	5	ug/L	0.01	mg/L	Surface Water	
6	M	Selenium	D	1.4	ug/Liter	Y	LJ+	9-Aug-15	1.0	ug/L	5.0	ug/L		L = Result between MDL and low standard; J+ = Estimated value, biased high; S4VEM
7	ICPMS Tot. Rec. Metals	Selenium	T	5	ug/L	N	U	08-Aug-15	5	ug/L	10	ug/L	Surface Water	
8	ICPMS Tot. Rec. Metals	Selenium	T	< 10	ug/L	N	U	3/22/2018	10.0	ug/L	20.0	ug/L	W	
9	Metals, ICP	Lead	D	0.56	ug/L		C1, J	1/18/2018	0.50	ug/L	1.0	ug/L	Water	S4VEM C1 = reported value < reporting limit

Agenda



- Data Harmonization Considerations
- Data Harmonization Approach
- Data Harmonization Plan
- Execute the Plan

Data Harmonization Considerations



Data Needs

Acceptable level of Uncertainty

- How much data is needed?
- Sampling / Analysis Methods
- Level of Documentation

Data Sources

- Primary, Secondary

Data Harmonization Considerations



Data Review / Validation

- Peer or Independent
- Computer-aided?
- Level of Review

Data Processing / Reporting

- Compatibility with other stakeholders

Data Management / Storage

- Electronic-only or hard-copy

Who are the data Recipients?

Data Harmonization Approach



- Transparency ... The quality of being clear and transparent
- Integrity ... The quality or state of being complete, upright, honest, sincere
- Purpose ... The reason or intent for which something is done, unification, solidarity

Data Harmonization Approach



- Transparency, Integrity, Solidarity
 - ✓ In project planning and execution (QAPP)
 - ✓ In how data are produced
 - Project Controls
 - Analytical Methods
 - Quality Systems
 - Documentation
 - ✓ In Review / Validation
 - ✓ In Data Management and Reporting

Data Harmonization Approach



- Coordination between Stakeholders
 - QAPP
 - Well-managed Contracting
 - Sampling / Shipping
 - Careful vetting of laboratories
 - Clear Instructions to laboratories
 - Deliverables Requirements
 - Data of Known and Documented Quality

Tools for Executing the Plan



- EPA Quality System
 - EPA Quality Manual: EPA CIO 2105-P-01-0
 - Systematic Planning: QA/G-4
 - QAPP: QA/G-5 & QA/R-5
 - Design, Construction, Operation: QA/G-11
 - Standard Operating Procedures: QA/G-6
 - Technical Audits: QA/G-7
 - Data Verification and Validation: QA/G-8
 - Data Quality Assessment: QA/G-9R and QA/G-9S

OLEM Tools



- UFP QAPP
- Superfund Response and Remedial Contracts
 - Scribe
- Tiered Analytical Service Regime
 1. Regional Labs
 2. CLP Contracts and SOWs
 3. Consider ERLN as Tier 3
 4. Field Support subcontracts
- National Functional Guidelines
 - EXES
- SEMS

Tools for Executing the Plan



- Data Dissemination by HQ Team
 - Mgt-level Technical Expertise
 - OGC Consultant
 - Public Information Team
 - Tribal Liaison
 - Data Review Capability: water and mining
- Data Management
 - Distribution and Storage
 - EPA Web Site, Scribe, and SEMS
- Project Review and Follow-up

Parting Thought



- Work to Achieve Uniformity in Data Reporting
 - Broader Understanding of Environmental Threats
 - Environmental Stewardship

- Through...
 - Planning
 - Executing
 - Review and Follow-up

Contact Us



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Fine



UFP QAPP



- What is the UFP QAPP?
 - Uniform Federal Policy for QAPPs
 - Based on ANSI/ASQ E-4, EPA QA/R-5 and QA/G-5
Developed by the Intergovernmental
 - Data Quality Task Force (IDQTF)
 - Reps from EPA, DOD, DOE signed UFP QAPP Manual in 2004
 - Implemented by OSWER directives in 2005
 - Required in the Federal Facilities Restoration and Reuse Office (FFRRO)

Data Review / Verification

Data Qualifiers



Example Qualifier Hierarchy								
Initial Qualifier	J	N	JN	NJ	R	U	UJ	UR
J	J	NJ	NJ					
N	NJ	N	NJ					
NJ	NJ	NJ	NJ					
R	R	R	R	R				
U	UJ	U	U	UJ	R	U		
UJ	UJ	UJ	UJ	UJ	R	UJ	UJ	
UR	UR	UR	UR	UR	UR	UR	UR	UR

Labels for Communicating Data Review Levels



- ◆ Stage_1_Validation_Electronic S1VE
- ◆ Stage_1_Validation_Manual S1VM
- ◆ Stage_1_Validation_Electronic_and_Manual S1VEM
- ◆ Stage_2A_Validation_Electronic S2AVE
- ◆ Stage_2A_Validation_Manual S2AVM
- ◆ Stage_2A_Validation_Electronic_and_Manual S2AVEM
- ◆ Stage_2B_Validation_Electronic S2BVE
- ◆ Stage_2B_Validation_Manual S2BVM
- ◆ Stage_2B_Validation_Electronic_and_Manual S2BVEM
- ◆ Stage_3_Validation_Electronic S3VE
- ◆ Stage_3_Validation_Manual S3VM
- ◆ Stage_3_Validation_Electronic_and_Manual S3VEM
- ◆ Stage_4_Validation_Electronic S4VE
- ◆ Stage_4_Validation_Manual S4VM
- ◆ Stage_4_Validation_Electronic_and_Manual S4VEM
- ◆ Not Validated NV

Data Harmonization Considerations



- Examples of Secondary Data:
 - Literature Research
 - Survey Data
 - Compilations from Databases
 - Mathematical Models
 - Externally Generated Monitoring Data
 - Previous Site Data