

**Appendix A:  
Example Data Inventory**

	Laboratory EDDs		Laboratory EDDs		Project Database		Semi-Annual GW reports		Remedial Investigation Report				
<b>File Attributes</b>													
# of Files	20		15		1		13		1				
File Name(s)	A[SDG#].zip		ProjectA-[SDG#].txt		EDMS.mdb		SemiAnnual_2Q12.pdf,		RI_Contaminated Area.pdf				
File Location	ProjectFiles/DataFrom/ConsultantA/Data				ProjectFiles/DataFrom/ConsultantA/Reports								
File Type	Excel EDDs		Text Files		Access Database		PDF Report (selectable), with		PDF Report (scanned), with tables/maps				
File Format	EFWEDD EDD		ESBasic EDD		Custom Database Schema		PDF (selectable)		PDF (scanned copy)				
Source / Author	Lab Beta		Lab Delta		Consultant Alpha (incl. data from multiple sources)		Consultant Alpha		Consultant Omega				
File Date(s)	2/2012 - 10/2015		2/2015 - 10/2016		October-16		4/2012 - 12/2016		March-10				
Data Provider	Consultant Alpha		Consultant Alpha		Consultant Alpha		Consultant Alpha		Consultant Alpha				
Notes	GW Monitoring Data		Soil/GW/Air Investigation Data		Soil Inv & GW Monitoring data		SemiAnnual_2Q12.pdf,		dated 3/3/10				
<b>Location Data</b>													
Coordinate System					State Plane		No		State Plane				
Spatial Datum Information					Horizontal		NAD27		No		Horizontal		NAD27
					Vertical		Unknown				Vertical		NAD83
Point Location Data	None		None		SBs, MWs - limited, some coordinates		MWs - very limited info		SBs, MWs - survey info Air data - limited				
Lithology / Boring Logs					Yes		No		Yes - appendix				
Well Construction					Yes - limited		No		Yes - appendix				
<b>Analytical Data</b>													
Attributes	Start	February-12		Start	February-15		Start	July-99		Start	July-99		
	End	October-15		End	October-16		End	October-16		End	July-09		
	Media	GW		Media	Soil/GW/Air		Media	Soil/GW		Media	Soil/GW/Air		
Notes					Pre-2005 - Consultant Zeta; minimal metadata 2005-12 - Consultant Omega; limited metadata 2012-16 - Consultant Alpha		Summary cross-tab tables. No unique analytical results - all exists in project database		summary cross-tab tables. Pre-2005 data - collected by earlier consultants,				
Data Validation Results	None		None		Pre-2005 data - unknown, can't tell from records. 2005-12 - assumed validated, only final qualifier populated. 2012-16 - validated, with validation metadata (who, when, val level, etc.)		Yes - reference for qualifier definitions		pre-2005 Unknown - does not specify on historical data  post-2005 assumed yes (this consultant contracted with 3rd party validator)				
<b>Field Data</b>													
Water Levels					None		Yes - table		Yes - table				
Field Measurements							Yes - scanned		None				
Well Stabilization / Purge Records							Yes - scanned		None				
O&M Routine Monitoring							None		None				
<b>Continuous or High Density Data</b>													
Transducers	N/A				None		None		Yes - table summary				
Downhole Dataloggers									None				
O&M Data									None				
<b>Investigative Data</b>													
General Site/Project GIS	N/A				N/A		None		None				
Geologic Cross Sections							Yes		Yes				
Conceptual Site Models							None		Yes - 2D map				
Potentiometric Maps							Yes - 1 map per quarter		Yes				
Topographic Maps							Yes		Yes				
Data Management Plans							None		None				
Quality Assurance Project Plans							None		Yes				

**Appendix B1:  
Example Data Evaluation: Location Data**

	Project Database		Remedial Investigation Report		Semi-Annual GW reports
<b>File Attributes</b>					
# of Files	1		1		13
File Name(s)	EDMS.mdb		RI_ Contaminated Area.pdf		SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf, etc
File Location					ProjectFiles/DataFrom/ConsultantA/Reports
File Type	Access Database		PDF Report (scanned), with tables/maps		PDF Report (selectable), with tables/maps
File Format	Custom Database Schema		PDF (scanned copy)		PDF (selectable)
Source / Author	Consultant Alpha (incl. data from multiple sources)		Consultant Omega		Consultant Alpha
File Date(s)	October-16		March-10		4/2012 - 12/2016
Data Provider	Consultant Alpha		Consultant Alpha		Consultant Alpha
Notes	Soil Inv & GW Monitoring data		dated 3/3/10		SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf,
<b>Location Data</b>					
Coordinate System	State Plane		State Plane		No
Spatial Datum Information	Horizontal	NAD27	Horizontal	NAD27	No
	Vertical	Unknown	Vertical	NAD83	
Point Location Data	SBs - 46, coordinates for all but 10 (from 1999 investigation), no elevations, no location type/descriptions  MWs - 10, coordinates for all but 2 (re-drilled wells?), MP elevations, no surface elevations, some events/location types defined  Survey metadata not included.		SBs - 52, no coordinates but has site map with locations, some location descriptions within report text.  MWs - 8, no coordinates but has site map with locations  Air - 5, no coordinates but has site map with locations  Only reference to air locations is this report.		MWs - 8, MP elevations listed.  Info matches with project database
Lithology / Boring Logs	Yes		Yes - appendix		No
Well Construction	Yes - limited		Yes - appendix		No
<b>Review Criteria</b>					
Data Comprehensiveness	Fair, XYZ data for MWs, XY for most SBs, no air location data		Good - most complete list of points but XYZ data is inconsistent		Good - validates database
Data File Format	database		pdf		PDF
Temporal Completeness	Fair - All historical locations subsurface accounted for with varying degrees of information, air XY missing		All historical sampling point locations are present, with varying degrees of location data from 1999-2012		Only data >2012
Data Normalization / Valid Values	good - standardized nomenclature, no duplicate values		good - standardized nomenclature		good - standardized nomenclature
Source Tracking / Metadata	available		available		available

**Appendix B2:  
Example Data Evaluation: Analytical Data**

	Laboratory EDDs	Laboratory EDDs	Project Database	Semi-Annual GW reports	Remedial Investigation Report	
<b>File Attributes</b>						
# of Files	20	15	1	13	1	
File Name(s)	A[SDG#].zip	ProjectA-[SDG#].txt	EDMS.mdb	SemiAnnual_2Q12.pdf,	RI_Contaminated Area.pdf	
File Location	ProjectFiles/DataFrom/ConsultantA/Data			ProjectFiles/DataFrom/ConsultantA/Reports		
File Type	Excel EDDs	Text Files	Access Database	PDF Report (selectable), with	PDF Report (scanned), with	
File Format	EFWEDD EDD	ESBasic EDD	Custom Database Schema	PDF (selectable)	PDF (scanned copy)	
Source / Author	Lab Beta	Lab Delta	Consultant Alpha (incl. data from	Consultant Alpha	Consultant Omega	
File Date(s)	2/2012 - 10/2015	2/2015 - 10/2016	October-16	4/2012 - 12/2016	March-10	
Data Provider	Consultant Alpha	Consultant Alpha	Consultant Alpha	Consultant Alpha	Consultant Alpha	
Notes	GW Monitoring Data	Soil/GW/Air Investigation Data	Soil Inv & GW Monitoring data	SemiAnnual_2Q12.pdf,	dated 3/3/10	
<b>Analytical Data</b>						
Attributes	Start	February-12	Start	February-15	Start	July-99
	End	October-15	End	October-16	End	October-16
	Media	GW	Media	Soil/GW/Air	Media	Soil/GW
Notes	Field results present in project database; includes some	Soil/GW field results present in project database.  Includes air results and lab QC not present in database	Separate detailed evaluation saved in document.  Pre-2005 - Consultant Zeta; minimal metadata 2005-12 - Consultant Omega; limited metadata 2012-16 - Consultant Alpha  Lab QC - none except MS/MSD	Summary cross-tab tables. No unique analytical results - all exists in project database	summary cross-tab tables. Pre-2005 data - collected by earlier consultants,  Only source of air sample results prior to 2015.	
Data Validation Results	None	None	Pre-2005 data - unknown, can't tell from records. 2005-12 - assumed validated, only final qualifier populated. 2012-16 - validated, with validation metadata (who, when, val level,etc.)	Yes - reference for qualifier definitions	pre-2005 Unknown - does not specify on historical data  post-2005 assumed yes (this consultant contracted with 3rd party validator)	
<b>Review Criteria</b>						
Data Comprehensiveness	good	good	ok	minimal	minimal	
Data File Format	very good, but preliminary	good, but preliminary	good	ok - PDF data is selectable	poor - need OCR and review	
Temporal Completeness	2012-2015 complete (1999-2016 full timeframe)	2015-2016 complete (1999-2016 full timeframe)	ok - missing all air results and QC	ok for 2012-16 GW timeframe, but duplicate to project database	1999-2009 complete (1999-2016 full timeframe)	
Data Normalization / Valid Values	very good (inconsistent with other lab EDDs)	very good (inconsistent with other lab EDDs)	ok to poor - valid values used, but contains duplications. Same info stored in multiple places, some of which is different.	very good	very good	
Source Tracking / Metadata	ok - no lab reports	very good - lab reports available	ok - laboratory and SDG info listed, but no task associations or source file names	very good	good - some info in the text on sources, labs, etc.	

**Appendix B3:  
Example Data Evaluation: Field Data**

	Project Database	Semi-Annual GW reports	Remedial Investigation Report			
<b>File Attributes</b>						
# of Files	1	13	1			
File Name(s)	EDMS.mdb	SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf,	RI_Contaminated Area.pdf			
File Location	ProjectFiles/DataFrom/ConsultantA/Data	ProjectFiles/DataFrom/ConsultantA/Reports				
File Type	<b>Access Database</b>	<b>PDF Report (selectable), with tables/maps</b>	<b>PDF Report (scanned), with tables/maps</b>			
File Format	Custom Database Schema	PDF (selectable)	PDF (scanned copy)			
Source / Author	Consultant Alpha (incl. data from multiple	Consultant Alpha	Consultant Omega			
File Date(s)	October-16	4/2012 - 12/2016	March-10			
Data Provider	Consultant Alpha	Consultant Alpha	Consultant Alpha			
Notes	Soil Inv & GW Monitoring data	SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf,	dated 3/3/10			
<b>Field Data</b>						
Attributes	Start	July-99	Start	February-12	Start	July-99
	End	October-16	End	October-16	End	July-09
	Media	Soil/GW	Media	GW	Media	Soil/GW/Air
Field Data Types Present	GW: GW Elev, NAPL Thicknesses, no purge data SBs: Blow Counts, PID/FID readings	GW: GW elev, NAPL Thickness, purge records	GW: GW Elev, NAPL Thicknesses; Purge Records, includes field Ferrous Iron summary tables SBs: Blow Counts, PID/FID readings, Air: Pre-sampling checklists; well purge and leak testing info			
Other Notes	Database format, queryable	Pdf files	Not-selectable PDF files, will need transcribed.			
<b>Review Criteria</b>						
Data Comprehensiveness	ok	minimal	ok			
Data File Format	good	ok - PDF data is selectable	poor - need OCR and review			
Temporal Completeness	good	ok for 2012-16 GW timeframe, but duplicate to project database	1999-2009 complete (1999-2016 full timeframe)			
Data Normalization / Valid Values	ok to poor - valid values used, but contains duplications. Same info stored in multiple places, some of which is different.	good - except MW-2 renamed to MW-8D in 2012	very good			
Source Tracking / Metadata	ok - no existing linkage between field data and performing consultant	very good	good - info in the text on sources			

**Appendix B4:  
Example Data Evaluation: High Density Data**

Remedial Investigation Report		
<b>File Attributes</b>		
# of Files	1	
File Name(s)	RI_Contaminated Area.pdf	
File Location	ProjectFiles/DataFrom/ConsultantA/Reports	
File Type	<b>PDF Report (scanned), with tables/maps</b>	
File Format	PDF (scanned copy)	
Source / Author	Consultant Omega	
File Date(s)	March-10	
Data Provider	Consultant Alpha	
Notes	dated 3/3/10	
<b>Continuous or High Density Data</b>		
Attributes	Start	July-99
	End	July-09
	Media	Soil/GW/Air
High Density Data Type	Transducer data in 2009 for hydraulic conductivity (slug testing), summary table present in report. Source data unavailable.	
Notes	Need to contact former consultant for raw transducer files, if deemed necessary based on project objectives.	
<b>Review Criteria</b>		
Data Comprehensiveness	Poor - only summary statistics	
Data File Format	poor - need OCR and review	
Temporal Completeness	good - only one testing event is documented and accounted for	
Data Normalization / Valid Values	good	
Source Tracking / Metadata	good - info in the text on data source	

**Appendix B5:  
Example Data Evaluation: Investigative Data**

	Semi-Annual GW reports		Remedial Investigation Report	
<b>File Attributes</b>				
<b># of Files</b>	13		1	
<b>File Name(s)</b>	SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf,		RI_Contaminated Area.pdf	
<b>File Location</b>	ProjectFiles/DataFrom/ConsultantA/Reports			
<b>File Type</b>	PDF Report (selectable), with tables/maps		PDF Report (scanned), with tables/maps	
<b>File Format</b>	PDF (selectable)		PDF (scanned copy)	
<b>Source / Author</b>	Consultant Alpha		Consultant Omega	
<b>File Date(s)</b>	4/2012 - 12/2016		March-10	
<b>Data Provider</b>	Consultant Alpha		Consultant Alpha	
<b>Notes</b>	SemiAnnual_2Q12.pdf, SemiAnnual_4Q13.pdf,		dated 3/3/10	
<b>Investigative Data</b>				
Attributes	Start	February-12	Start	July-99
	End	October-16	End	July-09
	Media	GW	Media	Soil/GW/Air
General Site/Project GIS	None		None	
Geologic Cross Sections	Yes		Yes, includes survey elevations for points of interest on fence diagram	
	Can Verify	Boring surface elevations	Can Verify	Boring surface elevations
Conceptual Site Models	None		Yes - 2D map	
	Can Verify		Can Verify	former source area
Potentiometric Maps	Yes - 1 map per quarter		Yes	
	Can Verify	GW elevation data	Can Verify	GW elevation data
Isopleth / Isopach Maps	Yes		Yes - both soil and GW for each COC	
	Can Verify	investigation point surface elevs.	Can Verify	contaminant distribution and concentration data
Topographic Maps	Yes		Yes	
	Can Verify	investigation point surface elevs.	Can Verify	investigation point surface elevs.
Data Management Plans	None		None	
Quality Assurance Project Plans	None		Yes, describes data qualifier use (I/B/E/R Flags)	
	Can Verify		Can Verify	analytical tables
Notes	None		Database upload can be cross-referenced to investigative data to validate entry for GW elevs and surface elevs, and pre-2012 soil/GW COC data	
<b>Review Criteria</b>				
<b>Data Comprehensiveness</b>	NA		Good	
<b>Data File Format</b>	NA		poor - not selectable, can only be used as static verification	
<b>Temporal Completeness</b>	NA		Good -incorporates all data within 1999-2012 timeframe	
<b>Data Normalization / Valid Values</b>	NA		good	
<b>Source Tracking / Metadata</b>	NA		good - info in the text on data source	

**Appendix C:  
Example Data Quality Matrix**

		Review Criteria					Comments	
		Data Comprehensiveness	Data File Format	Temporal Completeness	Data Normalization / Valid Values	Source Tracking / Metadata		
Data Categories	Location Data	Coordinates	Yellow	Green	Red	Green	Red	Missing pre-2010 coordinates
		Coordinate System Defined	N/A	N/A	N/A	Green	Green	Consistent
		Datums Defined	N/A	N/A	N/A	Green	Green	Consistent
		Lithologic Logs	Yellow	Red	Yellow	Green	Green	Exist for wells installed in 2010 only
		Drilling Info	Yellow	Red	Green	Yellow	Green	Limited electronic data
		Well construction logs	Yellow	Red	Green	Yellow	Green	Limited electronic data
	Analytical Data		Yellow	Green	Yellow	Yellow	Yellow	Best source is project database; older data unvalidated.
	Field Data	Well Stabilization	Green	Green	Yellow	Green	Green	Complete detail since 2012, older data missing.
		Water Levels	Green	Green	Green	Yellow	Yellow	Spreadsheet source only; questionable calculations
	Continuous or High Density Data	Transducers	Red	Red	N/A	N/A	N/A	Transducers measured in 2009, but no data provided other than a summary. Follow up with former consultant.
	Investigative Data	Site GIS Features	Yellow	Green	Green	Green	Red	Building and parcel GIS features only
		Geologic Cross-Sections	Green	Red	Green	Green	Yellow	PDFs only
Site Model		Yellow	Green	Yellow	Green	Yellow	Older Rockworks model	