Comparison Matrix of Detection and Quantitation Procedures (Version 7, January 11, 2006)

Please note that the Technical Work Group did not have time to normalize the matrix, but they did have a contractor evaluate the matrix and fill in the Matrix. The Technical Work Group feels that this effort has furthered the Matrix from the version the FACDQ received at its September 29-30, 2005 meeting, though the Matrix is not normalized with consensus agreement from the Technical Work Group because of time availability. March 8, 2006

			Detection							Quantitation		
Characteristics of Detection and Quantitation Procedures		*response*	**MDL**	**IDE (YC, LC, IDE)**	**ACIL (Lc and Ld)**	**Hubaux & Vos Procedure (Lc and Ld)** [1]	**USGS (LTMDL, LRL)**	**Consensus Group (Lc and Ld)**	**Osborn Lab QC (rMDL, FNQS)**	**ML**[1]	**IQE**	**LCMRL**
Measurement Quality Objectives (MQO)												
	Bias	*Y/N*	Y	Y	Uncensored: Y Censored: N	Y	Y	Uncensored: Y Censored: N	Y	Y	Y	Y
	Precision	*Y/N*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	% False Negatives	*NA/Y/N*	N	Y	Y	Y	Y	Y	N	NA	NA	NA
	% False Positives	*NA/Y/N*	Y	Y	Y	Y	Y	Y	Y	NA	N	NA
	Qualitative Criteria Considered	*NA/Y/N*	N	Y	Y	N	N	Y	N	N	Y	Y
	Uncertainty Calculated	*Y/N*	Y	N	N	N	N	N	N	N	N	Y
	Concentration Estimate Uncertainty	*Y/N*	N	Y	N	Y	N	Uncensored: N Censored: maybe	N	N	Y	Y
Evaluation of Method Performance												
	Limit Evaluation Frequency	*not specified, once, monthly, annually, on-going, other (specify)*	not specified	not specified	Uncensored:annually Censored: quarterly	not specified	annually	annually or when 20-100 data points available	not specified	not specified	not specified	not specified
	Data Generation Frequency	*not specified, once, monthly, annually, on-going, other (specify)*	not specified	over multiple batches	Uncensored: ongoing Censored: over multiple batches	not specified	24 samples per year	Uncensored: ongoing Censored: over multiple batches	several days	not specified	over multiple batches	not specified
	Reflects Routine Performance	*Y/N*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Addresses Matrices	*Y/N*	Y	Y	N	Y	N	Y	N	Y	Y	N
	Evaluates Entire Test Method	*Y/N*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Addresses Recovery	*Y/N/NC*	N	YC: N LC, IDE: Y	Uncensored: Y (Ld, low recovery only) Censored: Y (Ld only)	Y (Ld only)	Maybe	Uncensored: Y (Ld, low recovery only) Censored: Y (Ld only)	rMDL: N FNQS: NC	NC	Y	Y
	Consistent or Chronic Blank Bias Addressed	*Y/N/NC*	NC	Y	Y	Y	Y	Y	NC	NC	Y	Y
	Intermittent Blank Contamination	*Y/N/NC*	N	N	N	N	N	N	N	N	N	N
	Non-Positive Results	*Y/N/NC/NA*	NC	Y	Y	NC	NC	Y	NC	NC	Y	NC
Prescriptive/Descriptive												
	Prescriptive	*Y/N*	N	N	N	N	N	N	FNQS: Y rMDL: N	N	N	Y
	Descriptive	*Y/N*	Y	Y	Y	Y	Y	Y	rMDL: Y FNQS: N	Y	Y	Y
	Bias	*%, None*	None	None	None	None	None	Uncensored: < Rep. Limit Censored: Mean>40%	LCS: 50%	None	None	single result within 50 150%
	Precision	*%, None*	None	None	None	None	None	Censored: RSD<50%	LCS: 15-30%	None	10,20,30%	None
	%False Positives	*%, N/A, None*	1%	YC/LC: 1% IDE: N/A	1%	0.5%	LT-MDL: 1% LRL: N/A	1%	1%	NA	NA	NA
	% False Negatives	*%, N/A, None*	NA	YC/LC: N/A IDE: 5%	1%	0.5%	LT-MDL: N/A LRL: 1%	1%	NA	NA	NA	NA
Degree of Procedural Complexity												
	Data Processing	*1 to 10*	9	1	8	2	7	8	8	9	1	2
	Laboratory Procedures	*1 to 10*	6	2	Uncensored: 8 Censored: 6	3	7	Uncensored: 8 Censored: 6	8	6	2	3
	Is it a Clearly Written Procedure	*Y/N*	Y	Y	Y	N	N	Y	Y	N	Y	N
	Can the Procedure be Clearly Written	*NA/Y/N*	NA	NA	NA	Y	Y	NA	NA	Y	NA	Y
	Ability to Communicate Concepts	*1 to 10*	4	7	6	8	4	5	4	3	9	7
Relative Cost		*1 to 10*	7	4	Uncensored: 8 Censored: 7	single lab case: 4 method dev. Case: 6	7	Uncensored: 8 Censored: 7	8	7	4	single lab case: 4 method dev. Case: 6
Interlaboratory Procedure												
	As Written	*Y/N*	N	Y	N	N	N	N	N	N	Y	N
	Could Be Written As	*NA/Y/N*	Y	NA	Y	Y	Y	Y	Y	Y	NA	Y

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		Detection							Quantitation		
Characteristics of Detection and Quantitation Procedures	*response*	**MDL**	**IDE (YC, LC, IDE)**	**ACIL (Lc and Ld)**	**Hubaux & Vos Procedure (Lc and Ld)** [1]	**USGS (LTMDL, LRL)**	**Consensus Group (Lc and Ld)**	**Osborn Lab QC (rMDL, FNQS)**	**ML**[1]	**IQE**	**LCMRL**
Relative Implications	*1 to 10/NA*	N/A	5	N/A	8	N/A	N/A	N/A	10	5	8
(How will existing CWA programs be impacted?)											
Procedural Properties											
Detection	*L_C, L_D, Other, NA, Unknown*	Lc	Lc,Ld	Lc,Ld	Lc,Ld	Lc,Ld	Lc,Ld	Lc, FNQS/LCS	NA	NA	NA
Quantitation	*L_Q, % RSD, NA, Other, Unknown*	NA	NA	NA	NA	NA	NA	FNQS/LCS	Lq	Lq (RSD)	OTHER
Can be Evaluated with Existing Data	*Y/N*	Y	N	Y	N	Y	Y	Y	Y	N	N
Has been Evaluated with Existing Data	*Y/N/unknown*	Y	N	Y	N	Y	Y	Y	Y	N	N
One Size Fits All	*1 to 10/N*	6	4	2	5	5	2	6	4	6	4
Flexible for Each	*Y/N*	Y	depends on the study design	Y	depends on the study design	N	Y	Y	Y	depends on the study design	depends on the study design
Data Types											
Censored Methods	*Y/N*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Uncensored Methods	*Y/N*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y