

## Summary of EPA Regional Analytical Data Quality “Best Practices”

Practice Description	EPA Region	Is Practice Documented?	Benefits	Limitations	Measures of Success	Current Status
<b>Project Planning</b>						
Quality Assurance Project Planning (QAPP) Guidance	1	<i>Region 1, EPA-NE Quality Assurance Project Plan Guidance</i>	<ul style="list-style-type: none"> <li>• Consistent application of QA activities in project planning and application</li> <li>• Applied to EPA-lead and nonEPA-lead projects</li> <li>• Specifies adherence to QA/R-5</li> <li>• Provide “fill in the blank” worksheets to facilitate preparation of QAPP</li> </ul>			Revision to older guidance under development, projected for completion early 1998.
DQO Summary Form	1	EPA-NE-DQO Summary Form	<ul style="list-style-type: none"> <li>• Summarizes specific DQOs for each sampling event</li> <li>• Copies required for the QAPP/SAP, RSCC/authorizing organization, and data validation report/Tier I cover letter</li> </ul>			Current form in use since 1996
Regional QA Manual	2	<ul style="list-style-type: none"> <li>• <i>Region 2 CERCLA QA Manual</i>, Revised in 1989</li> </ul>	<ul style="list-style-type: none"> <li>• Delineates Region specific requirements for each step in the data collection process</li> <li>• Improves efficiency of project planning</li> <li>• Improves efficiency of document review and approval</li> <li>• Aids in obtaining data of known and documented quality</li> <li>• Enhances the consistency of investigations at various sites</li> </ul>	<ul style="list-style-type: none"> <li>• Increased costs associated with QA/QC implementation</li> <li>• Only applicable to CERCLA Sites??(Clarification needed)</li> </ul>		<p>Last revised in 1989, current plans are to produce another revision.</p> <p><b>Used for all CERCLA investigations? ??? Private and Feds???</b></p>

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<b>Project Planning, cont.</b>						
<p><u>Pre-QAPP Meetings</u> - Region’s policy to have pre-QAPP meeting for all sampling events before QAPP preparation. Meeting involves the lab, the state, Federal Facility representative and their contractor, and EPA site manager and support staff. Purpose of the meeting is to define project objectives and potential quality assurance problems.</p>	5	<ul style="list-style-type: none"> <li>Quality Assurance Management Plan for the Superfund Division</li> </ul>	<ul style="list-style-type: none"> <li>Clarifies project requirements and goals prior to sample collection</li> <li>Expedites the document approval process</li> <li>Saves time and money</li> </ul>		<ul style="list-style-type: none"> <li>Shorter QAPP review and approval process</li> </ul> <p><b>Region said it has the data but did not provide</b></p>	In standard use since 1987
<p><u>Regional Model QAPPs</u> - Requires the use of a model QAPP format, including the use of a “document control format”.</p>	5	Yes, Regional policy	<ul style="list-style-type: none"> <li>Expedited QAPP approval process</li> <li>Ensures a consistent, complete document submitted for review</li> <li>Instituted mini-QAPPs for small, in-house projects</li> <li>Describes how and when to use QAPP amendments and addenda</li> <li>Document control format allows revisions to be prepared, identified, and reviewed more efficiently</li> </ul>		<ul style="list-style-type: none"> <li>Shorter QAPP review and approval process</li> </ul> <p><b>Region said it has the data but did not provide</b></p>	In standard use since 1991

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<b>Project Planning, cont.</b>						
Regional Quality Management Plan	6	<ul style="list-style-type: none"> <li>• <i>Quality Management Plan for EPA, Region 6 (Q-96-039)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Establishes QA policy and program requirements for all environmental measurement projects in the Region</li> <li>• Allows Region to make “good decisions”</li> </ul>	<ul style="list-style-type: none"> <li>• Increased cost and time required to ensure Plan requirements are being implemented, periodically assessed, and improved</li> </ul>		In standard use since February 1996
Technical Review of QAPPs	10	No	<ul style="list-style-type: none"> <li>• Region identifies QAPP expectations for the Federal Facility</li> <li>• Field work cannot begin until EPA approves the QAPP</li> </ul>			In standard use
<b>Data Generation</b>						
Field audit procedures for sampling operations and field laboratories	1	<ul style="list-style-type: none"> <li>• <i>SOP for Technical System Audits, Rev. 0, 6/28/96</i></li> <li>• <i>Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Ground Water Samples from Monitoring Wells, Rev. 2, 7/30/96</i></li> </ul>	<ul style="list-style-type: none"> <li>• Ensures consistency of data quality from field component</li> <li>• Reduces field error</li> </ul>			In standard use since 1990

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Practice Description	EPA Region	Is Practice Documented?	Benefits	Limitations	Measures of Success	Current Status
<b>Data Generation, cont.</b>						
Standard Field Analytical Procedures	1	<ul style="list-style-type: none"> <li>• <i>SOP for Elemental Analysis Using the X-Met 920 Field X-Ray Fluorescence Analyzer</i>, 10/29/96</li> <li>• <i>Region 1, EPA-NE Immunoassay Guidelines for Planning Environmental Projects</i>, 10/96</li> <li>• <i>PCB Field Testing Analytical Methods for Soil and Sediment Samples</i>, Rev. 3, 6/21/95</li> </ul>	<ul style="list-style-type: none"> <li>• Ensures consistency of data quality from field sampling</li> <li>• Promotes use of innovative technologies</li> </ul>			In standard use since publication date of each document
Field Oversight - EPA Region 10 does field oversight during sampling events using oversight contractors and EPA personnel.	10	No.	<ul style="list-style-type: none"> <li>• Ensures consistency of data quality from field sampling</li> </ul>			Conducted on a “regular basis”
<b>Data Validation and Use</b>						

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Data Validation Guidelines (including the Quality System)	1	<ul style="list-style-type: none"> <li>Region 1, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, 12/96 revision</li> </ul>	<ul style="list-style-type: none"> <li>Applies to all programs in Region</li> <li>Ensures consistency of data quality</li> </ul>			In standard use since 1988
<b>Data Validation and Use, cont.</b>						
Data Validation Oversight and Method Modifications Program	1	<ul style="list-style-type: none"> <li>SOP for Data Validation of EPA/Region 1 Contractors, Rev. 2, 5/26/93</li> </ul>	<ul style="list-style-type: none"> <li>Promotes data quality by ensuring adherence to Regional data validation policy</li> </ul>			In standard use since 1988
Tiered Data Validation	1	<ul style="list-style-type: none"> <li>Region 1 Tiered Organic and Inorganic Data Validation Guidelines, draft, July 1, 1993</li> </ul>	<ul style="list-style-type: none"> <li>Reduced data validation costs</li> <li>Tier II requires 50% less time than Tier III</li> <li>A Tier I completeness check requires even less time</li> </ul>	<ul style="list-style-type: none"> <li>Time savings dependent on case size and fraction</li> </ul>		In standard use since July 1993
Electronic Data Validation	1	<ul style="list-style-type: none"> <li>Guidance Document for Completing Region 1 Data Validation Utilizing CADRE Data Review, February 1995</li> </ul>	<ul style="list-style-type: none"> <li>Data validation performed electronically</li> <li>Reduced data validation costs</li> </ul>	<ul style="list-style-type: none"> <li>Only applicable to volatile and semivolatile organic CLP data</li> </ul>		In standard use since February 1995

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Practice Description	EPA Region	Is Practice Documented?	Benefits	Limitations	Measures of Success	Current Status
<u>Data Validation Summary Report</u> - Region requires that a data validation summary be submitted with all reports (e.g., Remedial Investigations) at BRAC sites.	5	No	<ul style="list-style-type: none"> <li>• Determination whether data quality meets intended use</li> <li>• Identification of uncertainties in the data</li> <li>• Identification of lab problems</li> </ul>	<ul style="list-style-type: none"> <li>• Federal Facility submittals are not always as detailed as the Regional example report</li> </ul>		<b>Under development, but has been instituted for 2 years?????</b>

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<b>Data Validation and Use, cont.</b>						
<p><u>Oversight of Data Validation</u> - On a regular basis, EPA’s contractors, and, at times, the EPA Regional QA office validate raw lab packages. When necessary, EPA will also re-review or perform oversight data validation on raw data packages originally validated by other government agencies or their contractors.</p>	10	No	<ul style="list-style-type: none"> <li>Provides a high level of assurance validation was done correctly</li> </ul>	<ul style="list-style-type: none"> <li>Increased cost and length of investigations</li> </ul>		Performed on a regular or as needed basis
<b>Laboratory Evaluations</b>						
Performance Evaluation (PE) Samples	1	<ul style="list-style-type: none"> <li><i>EPA Region 1 Performance Evaluation Program Guidance</i>, July 1996 revision</li> <li><i>SOP for Using Organic and Inorganic PE Samples</i>, 8/6/96 revision</li> <li><i>SOP for Using PE Samples in Analysis of Polychlorinated Di-Benzo-Dioxins</i>, 6/22/93 revision</li> </ul>	<ul style="list-style-type: none"> <li>Apply to all programs in the Region</li> <li>Potential cost savings if failed PE samples result in reduced payment or non-payment to laboratory</li> </ul>	<ul style="list-style-type: none"> <li>Limited range of PE samples available (in terms of matrices, analytes, and concentrations)</li> </ul>		In standard use since July 1993

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<b>Laboratory Evaluations, cont.</b>						
PE Sample Database	1	<ul style="list-style-type: none"> <li><i>EPA Region 1 Performance Evaluation Program Guidance</i>, July 1996 revision</li> </ul> <p><b>Not sure about this?????????</b></p>	<ul style="list-style-type: none"> <li>Provides data quality information on each sample batch</li> <li>Provides lab performance data</li> </ul>	<ul style="list-style-type: none"> <li>Only contains lab performance data for labs that have analyzed Region 1 samples</li> </ul>		In standard use since July 1993
Laboratory Prequalification for Analytical Services	1	<ul style="list-style-type: none"> <li><i>Region 1 Laboratory Pre-Qualification SOP</i>, 3/94</li> <li><i>Region 1 Laboratory Audit SOP</i>, 3/94</li> </ul>	<ul style="list-style-type: none"> <li>Method for evaluating lab qualifications and ensuring technical capability before obtaining analytical services</li> </ul>			In standard use since March 1994
Laboratory Audits	1	<ul style="list-style-type: none"> <li><i>Standard Operating Procedure for Technical Systems Audits</i>, Rev. 0, 6/28/96</li> </ul>	<ul style="list-style-type: none"> <li>Provides for assessment of lab capabilities for specific programs, projects, and/or methods</li> </ul>			In standard use since 1988
Reduced Payment/Data Rejection	1	<ul style="list-style-type: none"> <li><i>SOP for Submitting Data for Reduced Payment/Data Rejection</i>, Sept. 9, 1991</li> </ul>	<ul style="list-style-type: none"> <li>Cost savings from reduced payments for poor data</li> <li>Means for rejecting unusable data</li> </ul>			In standard use since 1991



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<u>Communication of Laboratory Problems</u> - For BRAC sites, Region requests that the Federal Facility communicate lab problems during the process not after the fact.	5	No	<ul style="list-style-type: none"> <li>• EPA aware of lab problems earlier</li> <li>• EPA can be involved in determining corrective actions and therefore reduce the need for re-sampling</li> </ul>	<ul style="list-style-type: none"> <li>• Federal Facility does not always cooperate</li> </ul>		<b>Under development. Has been instituted for less than a year???</b>

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<b>Laboratory Evaluations, cont.</b>						
Performance Evaluation Samples	10	No	<ul style="list-style-type: none"> <li>Provides measure of lab performance</li> </ul>	<ul style="list-style-type: none"> <li>PE samples can be time consuming and expensive</li> <li>only used if lab is to be used on a long-term basis</li> </ul>		Performed on a as requested or as needed basis
On-site Technical Lab Audits	10	No	<ul style="list-style-type: none"> <li>Provides measure of lab performance</li> </ul>	<ul style="list-style-type: none"> <li>Not performed regularly due to time and expense involved</li> <li>Most labs not used on a long-term basis (used on an event by event basis), therefore pre-award and on-going lab audits become very expensive</li> </ul>		Done on occasion, but not regularly
Split Sampling	10	No	<ul style="list-style-type: none"> <li>Provides measure of lab performance</li> </ul>			Done on a regular basis as deemed necessary by the EPA site manager

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<b>Miscellaneous Related Topics</b>						
Sample Tracking Database	1	<ul style="list-style-type: none"> <li>• <i>The Regional Sample Control Center Guidance for the CLP and Delivery of Analytical Services (DAS) Program for EPA-NE</i>, July 1996</li> <li>• NESTS - current database</li> <li>• CLPSTS - precursor database</li> </ul>	<ul style="list-style-type: none"> <li>• Tracks samples from field collection through analysis and validation</li> <li>• Includes QC information and validation tier</li> </ul>	<ul style="list-style-type: none"> <li>• Does not include non-CLP samples collected by other Federal Agencies</li> </ul>		
Quality Assurance Training	6	<ul style="list-style-type: none"> <li>• <i>Quality Management Plan, Region 6</i> (Q-96-039) - Section 3, Personnel Qualifications and Training</li> </ul>	<ul style="list-style-type: none"> <li>• Provides training to EPA personnel on Regional QA policies</li> <li>• Four different training courses depending on individual's involvement in the QA program</li> </ul>			Required for Regional personnel involved in the QA program