

U.S. Environmental Protection Agency
Region 2

Quality Assurance Project Plan Guidance
for
Transitional or Follow-up Monitoring



October
2009

QUALITY ASSURANCE PROJECT PHASE GUIDANCE

Transitional or Follow-up Monitoring

Introduction

In emergency situations there is not sufficient time (or information) to develop Quality Assurance Project Plans (QAPP) satisfying all of the EPA Regional and HQ requirements and guidance. QAPP requirements for the emergency response must be streamlined to suit the environmental data collection activities being performed, as well as the situation taking place. For this reason, Region 2, implements QA/QC policies and procedures through the “graded approach” for Emergency Response environmental data collection activities using three categories. Each category is defined by the status of the situation, the degree of time criticality, immediate life threats, the potential for follow-up monitoring and the potential for long term monitoring.

This QAPP guidance has been prepared to account for environmental monitoring activities during Transitional or Follow-up Monitoring (TFM) situation in an emergency response. During this period the responders are transitioning from the crisis situation to a period of non-crisis or follow-up monitoring is proposed based on data collected during IIM. At this point, the QAPPs are the intermediate documents that use a more directed and logical planning process for the environmental data collection activities. TFM can accomplish 3 things:

- Confirm IIM data collected based on the needs demonstrated by IIM;
- provide information to make further decisions beyond the initial response;
- provide additional data and information, if needed, for longer term monitoring.

TFM is still considered to be stop-gap and uses a less rigorous planning process to produce the QAPP than what would be used for routine projects.

The QAPP worksheets as presented may only be used for transitional or follow-up monitoring conducted as part of a Regional emergency response.

This TFM QAPP has been developed from information contained in the UFP Generic QAPP for Chemical Measurements, October 2009 as prepared by Weston Solutions, Inc. for Region 2.

For responses to environmental emergency events which are expected to continue for an extended period, a long term strategic QAPP needs to be developed by all contributing agencies. The Long Term Monitoring QAPP follows the requirements presented in the Uniform Federal Policy for Quality Assurance Plans (UFP-QAPP), which has been adopted by Region 2. The QAPP worksheets along with the UFP-QAPP guidance document can be located at the following EPA website: <http://www.epa.gov/fedfac/documents/qualityassurance.htm>.

Transitional QAPP Worksheet #1
Title and Approval Page

Site Name/Project Name _____

Lead Organization _____

Preparer's Name and Organizational Affiliation _____

Preparer's Address, Telephone Number, and E-mail Address _____

Preparation Date (Day/Month/Year) _____

Environmental Unit Leader : _____
Signature

Printed Name/Title/Date

Planning Section Chief: _____
Signature

Printed Name/Title/Date

Ops Section Chief: _____
Signature

Printed Name/Title/Date

Other Approval Signatures: _____
Signature

Printed Name/Title/Date

Transitional QAPP Worksheet #2

List those entities who will receive copies of the approved QAPP, subsequent QAPP revisions, addenda, and amendments.

Distribution List

QAPP Recipient	Title	Organization	Telephone Number	Fax Number	E-mail Address
[Project Manager Name]	Contractor Project Manager; and EPA Region 2 Remedial Project Manager, or On-Scene Coordinator	Name of Organization	[]	[]	[Name]@e-mail address
[QAO Name]	Contractor QA Officer; and EPA Region 2 QAO	Name of Organization	[]	[]	[Name]@e-mail address
[Lead Sampler's Name]	Contractor Project Manager	Name of Organization	[]	[]	[Name]@e-mail address
[ENVL Name]	Environmental Unit Leader	Name of Organization	[]	[]	[Name]@e-mail address
(Ops. Section Chief)	Operation Section Chief	Name of Organization	[]	[]	[Name]@e-mail address

Transitional QAPP Worksheet #3

Identify project personnel associated with each organization, contractor, and subcontractor participating in responsible roles. Include data users, decision-makers, project managers, QA officers, project contacts for organizations involved in the project, project health and safety officers, geotechnical engineers and hydrogeologists, field operation personnel, analytical services, and data reviewers.

Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities
	Environmental Unit Leader (ENVL)		Responsible for Environmental matters associated with the response, including strategic assessment, modeling, and environmental monitoring and permitting. Provide reports to PIO, EPA ORD, IC commander and other inquiries.
	Assistant Environmental Unit Leader		Ensure that quality assurance is fully integrated into the entire response; Provide oversight of data assessment and interpretation; Establish procedures to ensure integration of sampling data and analytical results; and Arrange for use of special equipment.
	Analytical Coordinator		Schedule all environmental sample analyses, utilize EPA and other federal, state, academic, and private laboratories as necessary. Maintain COCs throughout project; and receive all analytical data. Check for completeness, appropriate level of validation before submittal to the QA coordinator for QA review.
	Quality Assurance Coordinator		Review and approve QAPP and SOPs, advise Unit Leader, division/group supervisors and Incident Command on quality assurance issue and limitations on the use of their data; Resolve QA issues with outside laboratories and sampling team,

Name	Title	Organizational Affiliation	Responsibilities
			Review data package as appropriate.
	Sampling and Monitoring Plan Coordinator		Develop and review Sampling Plans for all phases of the Incident as requested by the IC and/or Operations Section Chief; Initial sampling procedures, Ensure sampling team are trained in use of SCRIBE.
	Data Assessment and Interpretation Coordinator		Assemble assessment team with technical expertise appropriate to the project; Provide preliminary assessments of environmental data regarding implications to human health and the environment, consult with experts in other agencies and outside of government when appropriate and prepare data for internal use and public consumption.
	Safety Officer		Responsible for the overall safety of the incident within the scope of the Incident Management Team (IMT). The safety officer's function is to develop and recommend measures for ensuring personnel safety, and to assess and anticipate hazardous and unsafe situations.
	Laboratory Manager		Maintain an Information database on chemical parameters. Coordinate with other agencies and organizations (e.g., EPA NYSDOH, NJDEP, DOE, ORD, HHS/CDC/ATSDR)

Transitional QAPP Worksheet #4

Provide the following information for those projects requiring personnel with specialized training. Attach training records and/or certificates to the QAPP or note their location. Otherwise, write "NONE".

Special Personnel Training Requirements Table

Project Function	Specialized Training By Title or Description of Course	Training Provider	Training Date	Personnel / Groups Receiving Training	Personnel Titles / Organizational Affiliation	Location of Training Records / Certificates ¹
[Specify location of training records and certificates for samplers]						
QAPP Training: IIM, TFM, Long Term Monitoring	Introduction to provisions, requirements, and responsibilities detailed in the UFP. The training presents the relationship between the Generic QAPP and IIM/TFM/LTM QAPPs. Refresher training will be presented following guidance revision.	EPA Region 2 DESA	As needed/ requested	ALL OSCs upon initial employment and as refresher training	EPA Region 2	Within Division
Health and Safety Training	Ensures compliance with Occupational Safety and Health Administration (OSHA) as established in 29 CFR 1910.120.	Health and Safety Officer	Yearly at a minimum	ALL Employees upon initial employment and as refresher training every year	EPA Region 2	Within Division
Other	FORMS II Lite, Scribe, ICS, and Air Monitoring Equipment Training provided to all employees	EPA DESA - FORMS II Lite // EPA ERT - all other training	Upon initial employment and as needed			
	Dangerous Goods Shipping	JJ Keller Corp.	Every 3 years			

¹If training records and/or certificates are on file elsewhere, document their location in this column. If training records and/or certificates do not exist or are not available, then this should be noted.

Transitional QAPP Worksheet #5

Clearly define the problem and the environmental questions that should be answered for the transitional or follow-up monitoring and develop the project decision. The four questions (**in bold**) below are intended to lead the thought process from the physical situation (explosion, train derailment, etc.) down to the actual type of information needed to answer the environmental question (extent of soil contamination, air quality issues etc). The prompts (*in italics*) are meant to help the project team define the problem. They are not comprehensive.

Problem Definition

The problem to be addressed by the project:

Short description of the nature of response/emergency

The environmental questions being asked: *(Develop monitoring objectives.)*

1. **Assessing current air quality** following the first round of sampling in an explosion scenario
2. **Continued assessment** of areas for appropriate protective actions to the public-perimeter sampling
3. **Additional determination** of impact to the environment.

The possible classes of contaminants and the affected matrices:

VOC, SVOC, metals-Pb, PCBs, dioxin/furan, asbestos in soil/sediment, air

Information concerning various environmental indicators: *(Observations from previous sampling or other available information)*

Meteorological data, population data, local hydrology/topography, etc....

Transitional QAPP Worksheet #6

Use this worksheet to develop project quality objectives (PQOs) in terms of type, quantity, and quality of data determined using a systematic planning process. These questions and example answers are neither inclusive nor appropriate for all projects.

Project Quality Objectives/Systematic Planning Process Statements

<p>Who will use the data?</p> <p>Incident Commander/other members, EPA, ATSDR, NYDEC, State Health Department</p>
<p>What will the data be used for? (Think about possible actions that will be made based on the data/results generated)</p> <p>Site worker Health and Safety, determination of subsequent Work Plan activities</p>
<p>What type of data are needed?</p> <p>On-site field screening and off-site lab analyses for-- Air: VOC, PCBs, asbestos Water: VOC, SVOC, metals-Lead, PCBs Soil/Sediment: VOC, SVOC, metals-Lead, PCBs, asbestos</p>
<p>How much data are needed? (number of samples for each analytical group, matrix, and concentration)</p>
<p>Where, when, and how should the data be collected/generated? Describe and provide a rationale for choosing the sampling approach.</p> <p>Site Maps w/ locations, access agreements, time frames/schedule, Sampling/Analytical SOPs</p>
<p>Who will collect and generate the data?</p> <p>EPA RSC, RST 2 contractor, ERT, REAC, partners (States)</p>

How will the data be reported?

1. Documentation of Field Analytical results (air monitoring logs)
2. Verbal Preliminary data from off-site lab(s), electronic copy of validated results (for Scribe), followed by hardcopy data package
3. Provide data to EU Leader and IMT

What is the expected or needed turnaround time for the data?

On-site analyses (mobile lab): approx. 0-2 hours

Off-site analyses:

Verbal Preliminary data turnaround time is expected to be 24 hours

Full data deliverables in 7 days

Transitional QAPP Worksheet #7

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the project required action limits for the target analytes/contaminants of concern. Next, determine the quantitation limits (QLs) that must be met to achieve the project quality objectives. Finally, list the achievable detection and quantitation limits for each analyte. Note that the worksheet can be modified for use with real time monitoring and field screening instrumentation

Reference Limits and Evaluation Table

Matrix: Soil/sediment

Analytical Group/Method: VOC, Metals-Pb, PCBs, Asbestos

Concentration Level:

Analyte	NYSDEC 6NYCRR Part 375 Regulatory Limit (applicable units)	Project QL (units)	Analytical Method Quantitation Limit or Reporting Limit	Achievable Laboratory Limits ¹	
				Minimum Detection Limit (units)	QL/RLs (units)
VOCs: BTEX	Benzene=0.06 ppm Tol.=0.7ppm Ethylbenzene=1.0ppm Xylene-total=0.26ppm		0.005ppm(low) or 0.25ppm (medium) for each	tbd tbd tbd tbd	0.005ppm-low or 0.25ppm- med for each
Lead	63 ppm		1 ppm	tbd	1 ppm
PCB Aroclors	0.1ppm each aroclor		0.033ppm each	tbd	0.033ppm each
Polarized Light Microscopy (PLM); Phase Contrast microscopy (PCM); Transmission Electron Microscopy (TEM)			> 1um in diameter, dl=1% asbestos in bulk; >5um in length,0.25um in diameter ; <0.01um in diameter		

¹Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method.

Transitional QAPP Worksheet #8

List all site locations that will be sampled and include sample ID number. Specify matrix and, if applicable, depth at which samples will be taken. Only a short reference for the sampling location rationale is necessary for the table. The narrative provided in QAPP Worksheet #6 should clearly identify the detailed rationale associated with each reference. Complete all required information, using additional worksheets if necessary. Note that the worksheet can be modified (add/delete columns, change headings) as necessary to meet the project needs.

Sampling Locations, Methods/SOP Requirements Table

Matrix	Sampling Location(s)	Units	Analytical Group(s)	Concentration Level	No. of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
Gas		ug/m ³	VOCs	Low - Scan	e.g., 15	SOP#1704	
			Asbestos			SOP#2015	
Soil		mg/kg	SVOCs	Low	e.g., 12	SOP#2012	
		um	Asbestos			CO state guidance	
		mg/kg	VOC			SOP#2012	
Groundwater		mg/kg	PCB-Aroclors			SOP#2012	
		mg/kg	Metals-PB			SOP#2012	
		ug/L	VOCs	Trace	e.g., 12	SOP#2007	
		ug/L	Metals-Pb	ICP/AES	e.g., 12	SOP#2007	
		ug/L	Metals-Pb	ICP/MS	e.g., 19	SOP#2007	

See Generic QAPP for Chem. Measurements, 11/09, Worksheet #22 for information regarding the Quickstart Guides for Field Equipment.

Note: The website for EPA-ERT SOPs is: www.ert.org/mainContent.asp?section=Products&subsection=List

**The website for the Colorado DPHE Asbestos in Soil guidance is: <http://www.cdph.state.co.us/hm/asbestosinsoil.pdf>

Transitional QAPP Worksheet #9

Summarize by matrix and analytical group the number of field samples and the relevant QC samples that will be collected and sent to the laboratory. The Table can be modified to accommodate any QC samples that will be collected for field screening instruments, in-situ instruments, etc.

Field and Quality Control Sample Summary Table

Matrix	Analyte Group	Analytical Method²	Concentration Level	No. of Samples	No. of Field Duplicate Pairs	No. of MS/MSD samples	No. of Field/Equipment Blanks	No. of PT Samples	Total No. of Samples to Lab¹
<i>Soil</i>	<i>VOC: BTEX</i>	<i>SOMO1.2</i>		<i>25</i>	<i>1</i>	<i>IMS/IMSD</i>	<i>One/equip. type</i>	<i>1</i>	<i>28</i>
<i>Soil</i>	<i>SVOC</i>	<i>SOMO1.2</i>		<i>25</i>	<i>1</i>	<i>IMS/IMSD</i>	<i>One/equip. type</i>	<i>1</i>	<i>28</i>
<i>Soil</i>	<i>PCB-Aroclors</i>	<i>SOMO1.2</i>		<i>25</i>	<i>1</i>	<i>IMS/IMSD</i>	<i>One/equip. type</i>	<i>1</i>	<i>28</i>
<i>Soil</i>	<i>Lead</i>	<i>ILMO5.4</i>		<i>25</i>	<i>1</i>	<i>IMS/MD</i>	<i>One/equip. type</i>	<i>1</i>	<i>28</i>
<i>Soil</i>	<i>Asbestos</i>	<i>PLM³</i>		<i>25</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>*</i>	

¹-Individual methods should be consulted for the type and number of QC required.

²-See Generic QAPP for Chemical Measurements 11/09, Worksheet #19, 20 for assistance in completing the analytical method requirements. In addition, the generic worksheet should be use as a reference for the analytical method preservation and holding time requirements.

³-PLM=polarized light microscopy. Method primarily used as screening soil samples of a large area to determine presence and extent of contamination. Not suitable for risk assessment.

*PLM labs should participate in a PT program such as the AIHA-NIOSH bulk asbestos proficiency analytical testing program (qualitative and semi-quantitative).

Transitional QAPP Worksheet #10

List all the SOPs associated with the project including, but not limited to, Chain of custody procedures, sample collection, sample preservation, equipment cleaning and decontamination, equipment testing, inspection and maintenance, supply inspection and acceptance, and sample handling and custody. Also, list all the SOPs that will be used to perform on-site (field analytical or screening) or off-site analysis. Include copies of the SOPs as attachment or reference in the QAPP. Sequentially number sampling SOP references in the Reference Number column. The reference number can be used throughout the QAPP to refer to a specific SOP.

Project SOP References Table

SOP Reference Number¹	Title, Revision Date and/or Number	Originating Organization	Equipment Type
<i>SOP #1704</i>	Summa Canister Sampling	<i>EPA/OSWER/ERT</i>	<i>Summa canister</i>
<i>SOP #2012</i>	Soil Sampling	<i>EPA/OSWER/ERT</i>	<i>Auger, tube, split spoon</i>
<i>SOP#2007</i>	Groundwater Well Sampling	<i>EPA/OSWER/ERT</i>	<i>Various pumps, bailer</i>
<i>SOP #2017</i>	Waste Pile Sampling	<i>EPA/OSWER/ERT</i>	<i>Scoop, Shovel, Bucket Auger, other</i>
<i>SOP #2009</i>	Drum Sampling	<i>EPA/OSWER/ERT</i>	<i>Drum Thief or Coliwasa</i>
<i>SOP #2015</i>	Asbestos Sampling	<i>EPA/OSWER/ERT</i>	<i>Sampling Pumps, Canisters</i>

* Sources of SOPs could be either EPA, contractor generated or other appropriate entity.

¹ The EPA-ERT SOPs are located at: www.ert.org/mainContent.asp?section=Products&subsection=List
See Generic QAPP for Chemical Measurements, 11/09, Worksheet #22 for information regarding the Quickstart Guides for Field Equipment.

Transitional QAPP Worksheet #11

For each matrix and analytical group, list the analytical and preparation method/SOP and associated sample volume, container specifications, preservation requirements, and maximum holding time. Identify all laboratories or organizations that will provide analytical services for the project, including on-site screening, on-site definitive, and off-site laboratory analytical work.

Analytical Services Table

Matrix	Analytical Group	Analytical and Preparation Method/SOP Reference ¹	Sample Volume	Containers (number, size, and type)	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation/analysis)	Laboratory (name, address and phone number)
Soil Gas	TO-15 Scan VOCs	TO-15	6 L	SUMMA canister	NA	30 days	
Soil	TCL Volatile Organics [CLP]	SOM01.2 or SW 846, Method 8260B	15 grams	(3) EnCore Samplers	Cool to 4°C	48 hours (from time of sample collection)	
	TAL Metals	ILM05.4	250 grams	(1) 8 oz. glass jar w/Teflon lined cap	Cool to 4°C	180 days (Hg-28 days)	
	Asbestos	PLM/TEM	**				
Aqueous	PCB Compounds	SOM01.2	1000 ml	(2) 1L amber glass bottle w/Teflon lined cap	Cool to 4°C	7 days extract, 40 days analyze	

¹Specify the appropriate SOP reference number for any applicable analytical SOP from the Project SOP References table (Worksheet #10).

****Consult with individual laboratory**

Transitional QAPP Worksheet #12

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQIs), measurement performance criteria (MPC), and QC sample and/or activity used to assess the measurement performance for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If MPC for a specific DQI vary within an analytical parameter, i.e., MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet. Examples are in *italics*.

Measurement Performance Criteria Table

Matrix	<i>Aqueous</i>		
Analytical Group¹ / Method	<i>Volatile Organics</i>		
QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)	Data Quality Indicators (DQIs)²	Measurement Performance Criteria
<i>Field Duplicate</i>	<i>S & A</i>	<i>Precision</i>	<i>≤ 20%RPD</i>
<i>Field Blank</i>	<i>S & A</i>	<i>Accuracy</i>	<i>No analyte > QL</i>
<i>Lab Audit Standard</i>	<i>A</i>	<i>Accuracy</i>	<i>70-130%R</i>

¹If information varies within an analytical group, separate by individual analyte.

²Data Quality Indicators (a.k.a. PARCC parameters, i.e., precision, accuracy/bias, sensitivity, data completeness, comparability)

Measurement Performance Criteria Table

Matrix	<i>Aqueous/Soil/Waste</i>		
Analytical Group¹ / Method	<i>PCB-M. 8082A-PCBs</i>		
QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)	Data Quality Indicators (DQIs)²	Measurement Performance Criteria
<i>Matrix Spike/ Matrix Spike Duplicate</i>	<i>A</i>	<i>Precision /Accuracy</i>	<i>50-150% Recovery ≤ 20%RPD</i>
<i>Surrogate Compounds</i>	<i>A</i>	<i>Accuracy</i>	<i>70-130%R</i>
<i>Method Blank</i>	<i>A</i>	<i>Accuracy</i>	<i>No analyte > QL</i>
<i>LCS</i>	<i>A</i>	<i>Accuracy</i>	<i>70-130%R</i>

Transitional QAPP Worksheet #13

Identify all secondary data and information that will be used for the project and their originating sources. Specify how the secondary data will be used and the limitations on their use.

Secondary Data Criteria and Limitations Table

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation/Collection Dates)	How Data Will Be Used	Limitations on Data Use
Previous Investigation Sampling Results	Document with results, e.g., <u>ER Removal Action Report</u> , dated 'x'	Who collected data and when	What was purpose of previous sampling and how does it relate to current event	Reason for additional sampling: -data gaps -discussion on comparability issues - incomplete data sets as well as qualified data

Transitional QAPP Worksheet #14

Identify the documents and records that will be generated for all aspects of the project including, but not limited to, sample collection and field measurement, on-site and off-site analysis, and data assessment. Examples are in *italics*.

Project Documents and Records Table

Sample Collection Documents and Records	On-site Analysis Documents and Records	Off-site Analysis Documents and Records	Data Assessment Documents and Records	Other
Site Logbooks	COC forms	Sample receipt logs	Data validation reports	Telephone and e-mail logs
Field Data Sheets	Calibration logs	Sample preparation logs	Field inspection checklist	Laboratory Analytical Services Request Forms
COC forms	Maintenance logs	Sample analysis worksheets/run logs	Corrective action documentation	
Well data sheets	Telephone/email logs	Corrective action documentation	Laboratory Final Data	
GIS map for sampling locations	Corrective action documentation	Telephone/email logs	Review forms for electronic entry of data into database	
Incident Action plan	Sample preparation worksheets/logs	Data package		
	Sample analysis worksheets/run logs			

Transitional QAPP Worksheet #15

Identify the type, frequency, and responsible parties of planned assessment activities that will be performed for the project. In *italics* is an example narrative.

Planned Project Assessment

Formal field audits by QA personnel are not anticipated for this project. Identification of problems related to technical performance will be the responsibility of the technical staff working on this project.

The Sampling Team Leader will assess any problems that arise in the field, and make modifications to technical procedures, if needed. Any changes in technical procedures will be documented in field notes/QAPP worksheet amendments, and highlighted in reports related to this project.

The Data Management Coordinator will receive a summary of any changes and the associated justification, so that this information may become part of project records for historical reference.

Laboratory personnel will perform self audits and institute corrective actions in accordance with their respective written procedures.

Transitional QAPP Worksheet #16

Identify the frequency and type of planned reports, the project delivery dates, the personnel responsible for report preparation, and the report recipients. Examples are in *italics*.

Reports to Management Table

Type of Report	Frequency (daily, weekly, monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
Daily Sampling Report	Daily	At the end of each work day	Sampling Team Leader	Sampling Coordinator
Site Specific QAPP	As performed	Prior to sampling date	Sampling and Monitoring Plan Coordinator	ENVL, Incident/Unified Command Leader
Health and Safety Plan	As performed	Prior to sampling date	Safety Officer	ENVL, Incident/Unified Command Leader
Laboratory Data (Preliminary)	As performed	ASAP after receipt of preliminary data	Analytical Coordinator	Quality Assurance Coordinator
Final Report	Project Specified	2 to 4 weeks after receipt of EPA approval of data package	Quality Assurance Coordinator and Environmental Unit Leader	Incident/Unified Command Leader and General staff

Transitional QAPP Worksheet #17

Describe the processes that will be followed to verify and validate project data. Describe how each item will be verified and validated, when the activity will occur, and what documentation is necessary, and identify the person responsible. *Internal* or *external* is in relation to the data generator.

Verification and Validation Process Table

Verification/ Validation Input	Description	Internal / External	Responsible for Verification (Name, Organization)
Chain of custody	COC will be reviewed against samples packed in the specific cooler prior to shipment. The reviewer will initial the form.	Internal	Sampling Team Leader
Field change memos	Determine potential impacts from the approved deviation in regard to the project quality objectives	External	QA officer
Laboratory Preliminary Data	Preliminary data – limited review for either contract compliance or technical compliance.	Int/Ext	Data Validation Personnel
Volatile Organics Data Package	The data package for the volatile organics analysis will be reviewed for completeness and validated for technical compliance using EPA's Region 2 SOP HW-24 Validating Volatile Organics Compounds by SW-846 8260B and TFM QAPP Worksheet #10	External	Data Validation Personnel
Final Sample Report	The project data results will be compiled in a sample report for the project. Entries will be reviewed/verified against hardcopy information.	I/E	Data Validation Personnel

Transitional QAPP Worksheet #18

Describe the procedures/methods/activities that will be used to determine whether data are of the right type, quality, and quantity to support environmental decision-making for the project. Describe how data quality issues will be addressed and how limitations on the use of the data will be handled. Who is responsible for ensuring that field SOPs are followed and that the sampling /monitoring strategies meet the data needs based on the current situation and known information?

Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps that will be used. In addition, the documentation that will be generated should also be presented.

Data, whether generated in the field or by the laboratory, are tabulated and reviewed for Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCC).

A “Graded Approach” will be implemented for data collection activities that are either exploratory or small in nature or where specific decisions cannot be identified (the formal DQO process is not necessary).

The data will be evaluated to determine whether they satisfy the PQO for the project. The validation process determines if the data satisfy the QA criteria. After the data undergoes the data validation process, comparison of results with the PQOs is performed. For example, if the PQO specify that the data are to be compared to New Jersey Soil Cleanup Criteria for an extent of contamination study at a site, the results can then be used to determine if additional sampling is necessary to complete the extent of contamination

A copy of the most current approved QAPP, including any graphs, maps and text summary reports developed will be provided to all personnel identified on the distribution list.