Item #3

Dupont Pompton Lakes Works

Residential Vapor Intrusion

Quality Assurance Project Plan

ADD CONTRACTOR FIRM NAME and DATE here

Contractor is to complete all following sections highlighted yellow

If you have any question on filling the worksheets, contact:

Clifford Ng
US EPA Region 2
290 Broadway, Floor 22
New York, NY
10007-1866
Telephone: (212) 637-4113

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CROSSWALK

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QAPP Worksheet #1
Title and Approval Page

Title: Quality Assurance Project Plan
Site Name/Project Name: Dupont Pompton Lakes Works
Site Location: Pompton Lakes, NJ
Revision Number:
Revision Date:

Lead Organization

Contractor/Field Sampler organization name inserted here

QAPP Preparer's Name and Organizational Affiliation
Address, Telephone Number, and E-mail Address

Insert information for Project Leader here

Preparation Date (Day/Month/Year)

FILL IN

Contractor Project Manager:

Sign here _____
Signature

_____
Date

Contractor QA Officer:

Sign here _____
Signature

_____
Date

QAPP Worksheet #2
QAPP Identifying Information

Site Name/Project Name: Dupont Pompton Lakes Works
Site Location: Pompton Lakes, NJ
Operable Unit:
Title: UFP Quality Assurance Project Plan
Revision Number:
Revision Date:

1. Identify guidance used to prepare QAPP: Uniform Federal Policy for Quality Assurance Project Plans, March 2005

2. Identify regulatory program: EPA NY RCRA Program and NJDEP Site Remediation

3. Identify approval entity: EPA and NJDEP

4. Indicate whether the QAPP is a generic or a project-specific QAPP. Project specific

5. List dates of scoping sessions that were held:

Not applicable

6. List dates and titles of QAPP documents written for previous site work, if applicable:

Vapor Interim Remedial Measure Work Plan, Dupont Pompton Lakes Works, June 16, 2008

7. List organizational partners (stakeholders) and connection with lead organization:

Regulators: EPA and NJDEP
Clients: Resident

8. List data users:

EPA in coordination with NJDEP

9. If any required QAPP elements and required information are not applicable to the project, then provide an explanation for their exclusion below:
Worksheet 9 is not applicable since scoping meeting(s) will not be held.
Worksheet 13 is not applicable as previous data for these residences is not available.
Worksheet 22 is not applicable as no field equipment will be used.

QAPP Worksheet #3
Distribution List

[List those entities to whom copies of the approved QAPP, subsequent QAPP revisions, addenda, and amendments are sent]

QAPP Recipient	Title	Organization	Telephone Number	E-mail Address
Cliff Ng	EPA Project Manager (PM)	EPA NY	212-637-4113	ng.clifford@epa.gov
Amelia Jackson	EPA QA	EPA Edison	732-906-6164	jackson.amelia@epa.gov
Frank Faranca	NJDEP Case Manager	NJDEP	609-984-4071	Frank.Faranca@dep.state.nj.us

QAPP Worksheet #4
Project Personnel Sign-Off Sheet

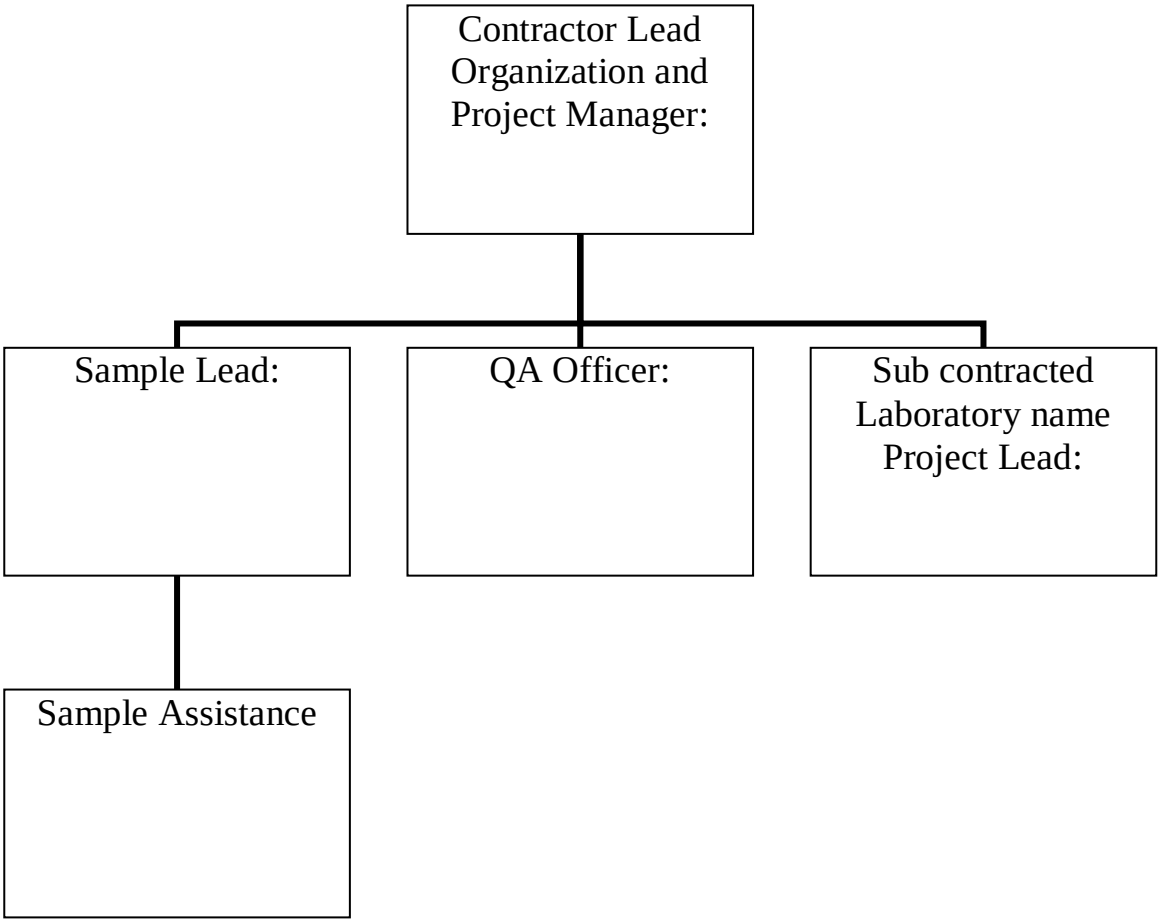
Have copies of this form signed by key project personnel from each Contractor organization to indicate that they have read the applicable sections of the QAPP and will perform the tasks as described; add additional sheets as required.

Organization: Name of Contractor Firm(s)

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read

Fill in necessary information

QAPP Worksheet #5
Project Organizational Chart



Fill in necessary information for each hired contractor. This chart can be reformatted so all subcontracted organizations are identified and inserted.

QAPP Worksheet #6

Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathways, etc.)
Point of contact with EPA Project Manager	Contractor Sampling Project Manager	**	**	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic)
Adjustments to QAPP	Contractor Quality Assurance Officer	**	**	QAPP approval dialogue between Contractor and EPA
Field Corrective Action	Field Team Leader	**	**	Contractor and/or EPA Edison oversight personnel determines the need for corrective actions.
Analytical Data Reporting	-NJDEP Certified lab & -Contractor Firm	**	**	Contract lab generates and performs internal review. Contractor firm reviews data and prepares Report.
Analytical Data Validation	-EPA R2 DESA-HWSB	Russ Arnone	732-321-6791	Data submitted to EPA Edison for validation and communicates results to EPA NY Project Manager before data is used.
Health and safety decisions, reporting of safety issues	Contractor H&S officer	**	**	Responsible for ensuring the protocols specified in the HASP are carried out during field activities.

****Fill in necessary information for the contractor and hired lab.**

QAPP Worksheet #7

Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
	Sampling Project Manager		Implementing and executing the technical, QA and health and safety during sampling event	Experience per Pre-qualifications requirements
	Field Sampler		Field Sampling, and Sample Management	Experience per Pre-qualifications requirements
	Contractor Project Manager		Implementing and executing the technical, QA and health and safety during sampling event	Experience per Pre-qualifications requirements
Frank Faranca	NJDEP Case Manager	NJDEP-Site Remediation	Overall project coordination	On file at NJDEP
Cliff Ng	EPA Project Manager	EPA Region 2 NY	Overall project coordination	On file at EPA-NY

Fill in necessary information for each hired Contractor and Samplers. Qualifications can refer back to the Pre-qualification requirements and the NJDEP LSRP requirements

QAPP Worksheet #8

Special Personnel Training Requirements Table

Project Function	Specialized Training – Title or Description of Course	Training Provider	Training Date	Personnel/Groups Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/Certificates
[Specify location of training records and certificates for samplers]						
Field Sampling	Per NJDEP LSRP requirements	**	**	All field team members	**	**
Sample Analysis	Per NJDEP Lab certification requirements	**	**	Lab staff	Chemists/ **	**
Data Validation	CLP and Non-RAS data validation	EPA	Various	EPA Edison	EPA DESA Chemists	USEPA R2 Edison Office/ DESA/HWSB Personnel Files
Data Assessment	Assessment performed by experienced project management personnel	USEPA/NJDEP	Various	EPA PM/ NJDEP Case Manager	Project Managers	Agency Human Resources -Personnel Records

Fill in necessary information for Contractor Field Samplers and Laboratory personnel

QAPP Worksheet #9

Project Scoping Session Participants Sheet

This Worksheet is not applicable.

QAPP Worksheet #10

Problem Definition

PROBLEM DEFINITION

Collection of sub-slab air samples from residences for the constituents of concern will be performed and the results compared to applicable NJDEP standards.

SITE HISTORY/CONDITIONS

Refer to the Dupont Vapor Interim Remedial Measure Work Plan, Dupont Pompton Lakes Works, Pompton Lakes, NJ dated June 16, 2008 for a discussion of site history.

Site Location and Description

Fill in address and description for each residence to be sampled. Include map and diagram identifying sampling location(s), per the Scope of Work provided by EPA and NJDEP.

PROJECT DECISION STATEMENTS

If concentrations are detected above the action limits, then vapor mitigation system will be installed. EPA and NJDEP recommend the installation of a vapor mitigation sytem in homes within the vapor mitigation area regardless of the results produced.

QAPP Worksheet #11

Project Quality Objectives/Systematic Planning Process Statements

Overall project objectives include:

To determine the concentrations of constituents of concern in sub-slab, indoor air and ambient air samples at addresses provided.

Who will use the data?

Results will be provided for each residence.

What will the data be used for?

To confirm the presence and concentration levels of the contaminants of concern.

What types of data are needed?

Definitive data will be produced via sampling and analytical techniques defined in attached Scope of Work and in other worksheets of this QAPP. All sub-slab samples will be analyzed for the 10 VOCs identified below by PROVIDE LAB NAME via NJDEP METHOD LL TO-15.

The 10 target analytes for sub-slab samples include tetrachloroethen (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), vinyl chloride (VC) and carbon tetratchloride (carbon tet).

The indoor air and ambient samples will be analyzed for these COCs plus those listed in Worksheet 15 below.

Worksheet #15 also provides project reporting limits (RLs), method detection limits, and control limit goals for precision and accuracy. Analytical data will be reported to the reporting limit and then compared with the project action levels/site specific comparison levels. When analytical results are determined to be greater than the project action levels in Worksheet #15, further evaluation will be performed. Installation of a vapor mitigation system is recommended for those homes within the vapor mitigation area.

How "good" do the data need to be in order to support the environmental decision?

All analytical methods are planned to be definitive quality data. Definitive data are defined as data that are suitable for final decision making. They are generated using rigorous, approved USEPA analytical methods. Definitive data are not restricted in their use unless quality problems require data qualification resulting in unusable data. Data will need to meet the

requirements for precision, accuracy, representativeness, comparability, and completeness as defined in this QAPP to meet project objectives. Worksheets #12 and #28 show the measurement performance criteria that are needed for the quality indicators. Worksheet #20 shows the quality control (QC) samples required. Refer to Worksheet #36 for complete details regarding data verification.

How much data are needed?

Fill in necessary information. Include the number of samples for each analytical group per residence. (The number of ambient samples may differ depending on whether the sampling event includes multiple neighboring residences. See below regarding ambient samples.)

Worksheets #17 and #18 define the number of samples planned.

One sub-slab sample will be collected and analyzed per residence for the 10 COCs.

One indoor air sample will be collected and analyzed per residence for the 10 COCs plus those analytes listed in Worksheet 15 below.

Ambient Air samples will be collected and analyzed for the 10 COCs plus those analytes listed in Worksheet 15 below.

When collecting indoor air samples, an ambient air sample should also be collected and analyzed simultaneously, representing structures within a 1000 ft radius. Ambient air sample collection should be performed by the same contractor, analyzed by the same lab, and at the same time as those samples from the residences in order to correlate the results and minimize the variability that could occur due to differing sampling and analytical procedures.

DEFINE THE ANTICIPATED NUMBER OF SAMPLES TO BE COLLECTED PER DAY AND SUBSEQUENTLY, THE ASSOCIATED NUMBER OF AMBIENT SAMPLES.

Individual canister certifications are required for indoor air samples. Batch certifications are required for sub-slab samples. Results are to be provided to EPA Edison with the hardcopy data package.

QAPP Worksheet #11
Project Quality Objectives/Systematic Planning Process Statements

Where, when, and how should the data be collected/generated?

Sampling will be performed in accordance with the procedures in Scope of Work..

Addresses of homes where sampling will occur are as follows: PROVIDE ADDRESSES.

The sampling and analysis schedule is as follows: PROVIDE SCHEDULE. Sampling will occur after approval of this QAPP.

Who will collect and generate the data?

Fill in necessary information. Include names, roles and responsibilities of the Lab, of the Contractor receiving the lab data and of the subsequent provision of data packages to EPA Edison for validation.

Samples will be packaged and transported in accordance with U.S.EPA, Department of Transportation (DOT), and International Air Transport Association (IATA) procedures. All samples will be delivered within 24 hours of collection to the assigned Laboratory for the analysis of VOCs.

How will the data be reported?

Data deliverables are listed in Attachment A to this QAPP.

The laboratory will submit both a hard copy and electronic copy (if capable) of analytical results per their contractual requirements with the Contractor Firm. Delivery of results from the Lab to the Contractor Firm will occur within 30 days of sample receipt. Subsequent delivery of data to EPA Edison for validation will occur within 2 weeks of the Contractor receipt of data from the lab. Provide the data package and Trip Report to EPA Edison at the following address:

USEPA Region 2
2890 Woodbridge Ave.
Document Control Room (DCR), Bldg. 205
Edison, NJ 08837
Att'n.: Adly Michael
Tel.: (732) 906-6161

Hard copy data packages shall contain a Table of Contents. Data package should be paginated for easy cross reference between the table of contents and relevant portions of the data. Data packages shall be submitted with data grouped together per sample (i.e., related forms, raw data, etc), with additional information, such as required individual canister certifications, included.

Results of data validation will be provided by EPA Edison to the EPA NY PM.

How will the data be archived?

All harcopy data packages and any accompanying information will be returned to the PROVIDE CONTRACTOR FIRM NAME AND ADDRESS upon completion of validation.

EPA Edison does not maintain nor archive packages for non-CLP data.

QAPP Worksheet #12
Measurement Performance Criteria Table

(UFP-QAPP Manual Section 2.6.2)

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQI), 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 specific DQI vary within an analytical parameter, i.e., MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet.

Matrix	Gas
Analytical Group	Volatile Organics
Concentration Level	Low (ppv)

Sampling Procedure	Analytical Method/SOP	Data Quality Indicators (DQIs)	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
per the Scope of Work provided	NJDEP LL TO-15 Scan	Precision (laboratory)	≤ 25 % RPD	Laboratory Replicate Sample	A
		Accuracy (laboratory)	70-130 %R or ± 30%	Laboratory Audit Standard	A
		Accuracy (laboratory)	No analyte > CRQL*	Method Blank	A

Measurement Performance criteria per NJDEP Method LL TO-15 must be followed. Insert into table above if different from that provided.

QAPP Worksheet #13
Secondary Data Criteria and Limitations Table

This worksheet is not applicable.

QAPP Worksheet #14
Summary of Project Tasks

Sampling Tasks: The following overview represents the type of field sampling activities to be conducted. Note that the numbers of samples listed are estimated and may change based on conditions encountered in the field. Worksheet #15 provides lists of compounds and methods that are to be analyzed for each type of sample, and Worksheet #17 provides descriptions of sampling procedures.

The Contractor will follow the procedures specified in the Scope of Work for sample collection.

Analysis Tasks:

- The sub-slab samples will be analyzed for the 10 COCs:

  tetrachloroethen (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), vinyl chloride (VC) and carbon tetratchloride (carbon tet) by TO-15, SCAN method.

- The Ambient and Indoor Air samples will be analyzed for the 10 COCs plus those listed in Worksheet 15 below.

All laboratory analyses are further defined in worksheets 17, 18 and 20 and follow specific, method-compliant SOPs that are referenced in Worksheet #23.

Quality Control Tasks:

When collecting indoor air samples, an ambient air sample should also be collected and analyzed simultaneously and results applied to structures within a 1000 ft radius. Ambient air sample collection should be performed by the same contractor, analyzed by the same lab, and at the same time as those samples from the residences in order to correlate the results and minimize the variability that could occur due to differing sampling and analytical procedures.

Data Management Tasks:

The data collected for the sampling activities will be organized, analyzed, and summarized in a project report by the Field Contractor and will be submitted to EPA Edison for data validation within 2 weeks of receipt of data from the lab. The Field Contractor will also provide a summary of unvalidated results to the resident.

The report will be prepared by STATE WHO FROM THE FIELD CONTRACTOR WILL BE PREPARING THE PROJECT REPORT. (THE ATTACHED TRIP REPORT MAY BE USED AS AN EXAMPLE FORMAT), including appropriate data quality assessment. Standard lab methods and references will be used as guidelines for data reduction and reporting. SPECIFY THE MECHANISM/SOFTWARE USED BY THE CONTRATOR TO COMPLETE CHAIN OF CUSTODY RECORDS, SAMPLING INFORMATION AND DATA TABLES.

The Field Contractor will then submit data packages, Traffic/Trip Reports, a Summary Report and any other accompanying information to EPA EDISON for subsequent validation. See Worksheet 11 above for address of EPA Edison.

Documentation and Records:

An Indoor Air Building Survey and Sampling Form, Chain of Custody and the field notebook will be completed by each resident and STATE FIELD CONTRACTOR for each sample collected. All field and sample documents will be legibly written in indelible ink. Any corrections or revisions will be made by lining through the original entry and initialing the change.

The Chain of Custody is a record of the sample location, sample canister and valve numbers and time and date of the sample.

The field notebook will be used by field personnel to record all aspects of sample collection and handling, visual observations, and field measurements. The field notebook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed.

Per the Scope of Work, a Survey and Sampling Form will be completed at each residence by the Contractor to assess for any possible cross-contaminants which will be removed if necessary.

The samples will be shipped in boxes sealed with custody seals via overnight courier.

Assessment/Audit Tasks:

EPA Edison personnel will provide oversight of field operations, as requested by EPA NY RCRA Program. Performance and systems audits will be conducted in accordance with the USEPA Region 2, SST SOP #01, Performing Oversight of CERCLA Field Operations, Revision 0, April 2000 (latest annual review performed in 9/09).

Data Review Tasks:

Data Verification will be performed by the CONTRACTOR FIRM NAME. The objective of this review is to determine compliance of submitted deliverables to the terms of the contract.

Data Validation will be performed by EPA R2 Edison personnel. The objective of this review is to assess and document the performance of the field sample collection process and the analytical process against the approved measurement performance criteria specified in this QAPP. All data will be validated by USEPA Region 2 DESA/HWSB/HWSS in accordance with USEPA Region 2 SOP #*HW-31: Volatile Organic Analysis of Ambient Air in Canister by Method TO-15*, Revision 4, April 2006 (latest annual review performed 8/09).

Data usability Assessment will be performed by the EPA NY PROJECT MANAGER. The objective is to assess and document the usability of the data results as compared to the Comparison Levels. The EPA NY PM will communicate the results to the residents.

QAPP Worksheet #15

Reference Limits and Evaluation Table

Matrix: Air Sub-slab
Analytical Group: Volatile Organic Compounds
Concentration Level: Low (Scan and SIM)

Analyte	CAS Number	Comparison Levels				Laboratory Required Reporting Limit via Analytical Method TO-15[1]			
						Scan (Soil Gas)			
		ug/m3	ppbv			ppbv	µg/m^3	ppbv	ug/m3
1,1-Dichloroethane	75-34-3	5,000	1200			0.5	2.02		
1,1-Dichloroethene	75-35-4	2,000	500			0.5	2.02		
cis-1,2-Dichloroethene	156-59-2	350	88			0.5	1.98		
trans-1,2-Dichloroethene	156-60-5	700	180			0.5	1.98		
Tetrachloroethene	127-18-4	16	2			0.5	3.39		
1,1,1-Trichloroethane	71-55-6	22,000	4000			0.5	2.73		
Trichloroethene	79-01-6	11	2			0.5	2.69		
Vinyl Chloride	75-01-4	5	2			0.5	1.28		
1,2 Dichloroethane	107-06-2	8	2			0.5	2.02		
Carbon Tetrachloride	56-23-5	13	2			0.5	3.20		

fromU.S. EPA Compendium Method *TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specialty-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* MDL for SCAN is 0.5 ppbv (Section 1.2), but laboratories are able to achieve lower Reporting Limits/MDLs.

FROM Dupont Pompton lakes Works, Final VIRRWork Plan, 6/16/08:
(1) It is important to note that guidance on the evaluation of the vapor intrusion pathway continues to be developed. As discussed in the NJDEP's 2005 VIG, the USEPA draft Subsurface Vapor Intrusion Guidance uses a shallow soil gas-to-indoor air attenuation factor of 0.1 based on the information available in the USEPA Vapor Intrusion Database when the 2002 USEPA guidance was drafted. USEPA's current reevaluation of the database, which includes additional empirical data, suggests that a reduced attenuation factor may be more appropriate in the development of shallow/sub-slab soil screening levels (NJDEP 2005; USEPA 2005, 2006, 2007, 2008). Based on more recent information, the NJDEP selected an attenuation factor of 0.02 in the development of its health-based soil gas screening levels. Since the USEPA 2002 draft guidance has not yet been updated, DuPont proposes to use the USEPA screening levels for five constituents as indicated in the table, because they are more conservative (lower) than the current NJDEP screening levels, recognizing that the NJDEP screening levels are based on more recent information and that the state of the science continues to advance.
(2) NJDEP anticipated residential screening levels for soil gas (NJDEP, 2007).
(3) USEPA draft generic screening level for shallow soil gas (USEPA, 2002).

QAPP Worksheet #15

Reference Limits and Evaluation Table

Matrix: Air : Indoor and Ambient
Analytical Group: Volatile Organic Compounds
Concentration Level: Low ug/m3

ChemicCal	Site-Specific Indoor Air Comparison Levels ug/m3 **	
SITE COMPOUNDS OF CONCERN		
Carbon tetrachloride	1	
1 ,1-Dichloroethane	510	
1 ,2-Dichloroethane	0.8	
1,1-Dichloroethene	220	
1,2-Dichloroethene (cis)	36	
1 ,2-Dichloroethene (trans)	73	
T etrachloroethene	1	
1,1,1-Trichloroethane	1,000	
Trichloroethene	1	
Vinvl chloride	0.5	
OTHER VOLATILE ORGANIC COMPOUNDS		
Acetone	3,300	
Allvi chloride	0.6	
Benzene	0.6	
Bromodichloromethane	1	
Bromoform	2	
Bromomethane	5	
1,3-Butadiene	0.4	
Chlorobenzene	51	
Chloroethane	2	
Chloroform	1	
Chloromethane	95	
Carbon disulfide	730	
2-Chlorotoluene	73	
Cyclohexane	6,200	
Dibromochloromethane	2	
1,2-Dibromoethane	2	~
1,2-Dichlorobenzene	150	
1,3-Dichlorobenzene	11	

1,4-Dichlorobenzene	1
Dichlorodifluoromethane	180
1,2-Dichloropropane	0.9
1 ,3-Dichloropropene (cis)	0.9 (total)
1,3-Dichloropropene (trans)	
1,2-Dichlorotetrafluoroethane	No Criteria Available
1,4-Dioxane	No Criteria Available
Ethylbenzene	1,100
4-Ethyltoluene	No Criteria Available
n-Heptane	No Criteria Available
1,3-Hexachlorobutadiene	No Criteria Available
n-Hexane	730
Isopropanol	No Criteria Available
MethYlene Chloride	4
Methyl ethyl ketone	5,100
Methyl isobutyl ketone	3,100
Methyl methacrylate	No Criteria Available
Methyl tert-butyl ether	2
Styrene	1,000
Tert-butyl alcohol	66
1,1,2,2- Tetrachloroethane	1
Tetrahydrofuran	No Criteria Available
Toluene	5,100
1,2,4- Trichlorobenzene	36
1,1,2-Trichloroethane	1
Trichlorofluoromethane	730
1,1,2- Trichloro-1 ,2,2-trifluoroethane	31,000
1,2,4-TrimethYlbenzene	No Criteria Available
1,3,5- Trimethylbenzene	No Criteria Available
2,2,4- T rimethylpentane	No Criteria Available
Vinyl bromide	0.9
Xylenes (m&p)	110 (total)
Xylenes (o)	

** The selected laboratory is to add their Reporting Levels for Scan mode for all compounds listed in order to achieve results < the Comparison levels stated.

QAPP Worksheet #16
Project Schedule/Timeline Table

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		#days to start *	Anticipated #days to Completion		
Preparation of QAPP	**	**	**	QAPP	**
Collection of Field Samples	Contractor Name	**	**	Chain of Custody, Traffic Reports	**
Laboratory analyses	Contractor Lab	Samples will be shipped to lab within 24 hrs from collection	Complete analyses within 30 days of sample receipt	Lab data packages	**
Data compilation and summary report to EPA	Contractor Name	Immediately upon receipt of data from the lab	Submit data package and reports to EPA within 2 weeks of receipt from the lab	Unvalidated data package and Data Summary Report to EPA Edison	**
Data compilation and Summary report of unvalidated results to Resident	Contractor Name	Immediately upon receipt of data from the lab	Submit report to resident within 2 weeks of receipt from the lab	Unvalidated Data Summary Report to Resident	
Validation of Results and data assessment	EPA Edison	Upon receipt	As agreed upon with EPA NY	Validated data Packages	**
Preparation of Final Report Letter	EPA- NY	Upon receipt of results		Final Report Letter	**

* Days are contingent upon completion of preceeding activity listed

**FILL IN

QAPP Worksheet #17
Sampling Design and Rationale

Contractor will collect sub-slab air samples from ports located at STATE ADDRESS(ES).

DEFINE THE ANTICIPATED NUMBER OF SAMPLES TO BE COLLECTED PER DAY AND SUBSEQUENTLY, THE ASSOCIATED NUMBER OF AMBIENT SAMPLES

The ports will be installed and the sub-slab samples will be collected according to the procedures specified in the Scope of Work.

The samples will be analyzed by the laboratory for by NJDEP Method LL TO-15.

Provide maps of each residence with the location of the sampling port identified, per Scope of Work.

QAPP Worksheet #18
Sampling Locations and Methods/SOP Requirements Table

Matrix	Sampling Location(s)	Analytical Group(s)	Concentration Level	No. of Samples	Sampling SOP Reference	Rationale for Sampling Location
Sub-slab Soil Gas	PROVIDE ADDRESS	Select VOCs-per Worksheet #15	Low - Scan	Fill In	Scope of Work	monitor sub-slab
Ambient Air	PROVIDE LOCATION	Select VOCs per Worksheet #15	Low – Scan or SIM to achieve Comparison Levels	Fill In	Scope of Work	Quality control
Indoor Air	PROVIDE ADDRESS	Select VOCs per Worksheet #15	Low-Scan or SIM to achieve Comparison Levels	Fill In	Scope of Work	monitor

QAPP Worksheet #19
Analytical SOP Requirements Table

Matrix	No. of Samples	Analytical Group [Lab Assignment]	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type)	Preservation Requirements	Maximum Holding Time (preparation/ analysis)
Sub-slab Air	Fill In	NJDEP Certified Laboratory Name	Low	NJDEP LL TO-15 STATE LAB SOP #	6 L	SUMMA™ canister	NA	30 days
Ambient Air	Fill In	NJDEP Certified Laboratory Name	Low	NJDEP LL TO-15 STATE LAB SOP #	6 L	SUMMA™ canister	NA	30 days
Indoor Air	Fill In	NJDEP Certified Laboratory Name	Low	NJDEP LL TO-15 STATE LAB SOP #	6L	SUMMA™ canister	NA	30 days

QAPP Worksheet #20
Field Quality Control Sample Summary Table

Matrix	Analytical Group	Concentration Level	Analytical and Preparation SOP Reference	No. of Sampling Locations	No. of Field Duplicate Pairs	No of PE Samples
Air	Sub-slab Air	Low	NJDEP LL TO-15 STATE LAB SOP #	FILL IN	0	N/A
	Ambient Air	Low	NJDEP LL TO-15 STATE LAB SOP #	FILL IN	0	N/A
	Indoor Air	Low	NJDEP LL TO-15 STATE LAB SOP #	FILL IN	0	N/A

AMBIENT Air samples COLLECTED per Worksheet #17

QAPP Worksheet #21
Project Sampling SOP References Table

Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
REFER TO SCOPE OF WORK	Cover Letter from EPA NY to Each Resident contains the Scope of Work for Sampling Procedures	EPA NY	SUMMA Canisters with pressure gauge, wrench, Teflon tubing	N	

QAPP Worksheet #22
Field Equipment Calibration, Maintenance, Testing, and Inspection Table

This worksheet is not applicable.

QAPP Worksheet #23
Analytical SOP References Table

Reference Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)*
NJDEP LL TO-15	PROVIDE NJDEP CERTIFIED LAB SOP REFERENCE	Definitive	Gases	GC/MS	NJDEP CERTIFIED LABORATORY NAME	FILL IN

QAPP Worksheet #24
Analytical Instrument Calibration Table

THE SELECTED LAB MUST VERIFY COMPLIANCE WITH all Criteria per NJDEP Method LL TO-15 and must be entered below, if different than what is currently stated here.

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/MS	See NJDEP LL TO-15	Initial calibration: upon award of the contract, whenever the laboratory takes corrective action which may change or affect the initial calibration criteria (e.g., ion source cleaning or repair, column replacement, etc.), or if the continuing calibration acceptance criteria have not been met. Continuing calibration: Following initial calibration verification, once every 12 hours, end of run. GC/MS Tuning with 4-Bromoflurobenzene (BFB): Beginning of each 12 hour period during which standards and samples are analyzed. Retention Time Evaluation: each	Initial calibration/ Continuing calibration: relative response factor (RRF) greater than or equal to minimum acceptable response factor listed in Table 5 of procedure; %RSD must be less than or equal to value listed in Table 5 of procedure. GC/MS Tuning: See ion abundance table in TO-15. Retention Time Evaluation: +/- 0.50 minute of the internal standard retention time in the associated calibration check verification	Initial calibration: inspect system for problems (e.g., clean ion source, change the column, service the purge and trap device), correct problem, re-calibrate. Continuing calibration: inspect system, recalibrate the instrument, reanalyze samples. GC/MS Tuning: inspect the system, identify problem. MS tune criteria must be met before calibration Retention time evaluation: re-calibrate and verify, re-analyze samples back to the last good calibration check verification	NJDEP CERTIFIED LABORATORY GC/MS Technician	TO-15 STATE LAB SOP NUMBER

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
		analysis.				

QAPP Worksheet #25
Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/ Equipment	Maintenance Activity	Testing/Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
GC/MS	See NJ DEP LL TO-15; as per instrument manufacturer's recommendations	See NJDEP LL TO-15; as per instrument manufacturer's recommendations	See NJDEP LL TO-15; as per instrument manufacturer's recommendations	Acceptable re-calibration; see NJDEP LL TO-15	Inspect the system, correct problem, re-calibrate and/or reanalyze samples.	NJDEP CERTIFIED LABORATORY NAME GC/MS Technician	NJDEP LL TO-15 PROVIDE NJDEP LAB'S SOP FOR THIS ANALYSIS

QAPP Worksheet #26
Sample Handling System

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization): FILL IN
Sample Packaging (Personnel/Organization): FILL IN
Coordination of Shipment (Personnel/Organization): FILL IN
Type of Shipment/Carrier: FILL IN
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization): Sample Custodian, NJDEP CERTIFIED LAB NAME
Sample Custody and Storage (Personnel/Organization): Sample Custodian, NJDEP CERTIFIED LAB NAME
Sample Preparation (Personnel/Organization): Sample Technicians, NJDEP CERTIFED LAB NAME
Sample Determinative Analysis (Personnel/Organization): Sample Analysts, NJDEP CERTIFIED LAB NAME
SAMPLE ARCHIVING
Field Sample Storage (No. of days from sample collection): Samples to be shipped within 24 hours of collection and arrive at laboratory within 24 hours (1 day) of sample shipment
Sample Extract/Digestate Storage (No. of days from extraction/digestion): As per analytical methodology; see Worksheet #19
SAMPLE DISPOSAL
Personnel/Organization: Sample Technicians, NJDEP CERTIFIED LAB NAME
Number of Days from Analysis: Until analysis and QA/QC checks are completed; as per contractual requirements.

QAPP Worksheet #27
Sample Custody Requirements

Sample Identification Procedures: Each sample will be labeled with a unique site identification code: location=SS for sub-slab and IA for indoor air. Each sample will also be labeled with the number assigned by THE NJDEP CERTIFIED LAB NAME. Depending on the type of sample, additional information such as depth, sampling round, date, etc. will be added. Example: 274Rich-SS
Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory): Each sample will be individually identified and labeled after collection, then sealed with custody seals and enclosed a box. The sample information will be recorded on chain-of-custody (COC) forms, and the samples shipped to the appropriate laboratory via overnight delivery service or courier. Scribe™ will be used for field documentation. IF NOT USING SCRIBE, THEN STATE HOW FIELD DOCUMENTATION WILL BE PERFORMED.
Laboratory Sample Custody Procedures (receipt of samples, archiving, disposal): A sample custodian at the NJDEP Certified laboratory NAME will accept custody of the shipped samples, and check them for discrepancies, integrity, etc. If noted, issues will be forwarded to the laboratory manager for corrective action. The sample custodian will relinquish custody to the appropriate department for analysis. At this time, no samples will be archived at the laboratory.

QAPP Worksheet #28
QC Samples Table

(UFP-QAPP Manual Section 3.4)
Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, analytical group, and concentration level. If method/SOP QC acceptance limit exceed the measurement performance criteria, the data obtained may be unusable for making project decisions.

Matrix	Air
Analytical Group	Volatile Compounds
Concentration Level	Low
Sampling SOP(s)	per the site specific Scope of Work
Analytical Method/SOP Reference	NJ DEP LL TO-15
Sampler's Name	FILL IN
Field Sampling Organization	FILL IN
Analytical Organization	NJDEP Certified Lab Name FILL IN
No. of Sample Locations	FILL IN

Lab QC Sample:	Frequency / Number	Method/SOP QC Acceptance Limits*	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria*
Laboratory Method Blank	1 per ≤ 20 samples	No analyte > CRQL	Suspend analysis unit source recertified	NJDEP Certified lab Name Laboratory Technician	Accuracy	No analyte > CRQL
Laboratory Replicate Sample	1 per ≤ 20 samples	≤ 25%RPD	Per validation SOP	NJDEP Certified lab Name Laboratory Technician	Precision	≤ 25%RPD
Laboratory Audit Standard Sample	1 per ≤ 20 samples	±30% R	Flag outliers	NJDEP Certified lab Name Laboratory Technician	Accuracy	±30% R

***Criteria per NJDEP Method LL TO-15 must be followed and entered above if different that currently provided.**

QAPP Worksheet #29
Project Documents and Records Table

Sample Collection Documents and Records	Analysis Documents and Records	Data Assessment Documents and Records	Other
• Site and field logbooks • COC forms • Field Data Sheets. • SUMMA™ Sampling Work Sheet	• Sample receipt logs • Internal and external COC forms • Equipment calibration logs • Sample preparation worksheets/logs • Sample analysis worksheets/run logs • Telephone/email logs • Corrective action documentation	• Data validation reports • Field inspection checklist(s) • Laboratory Audit checklist (if performed) • Review forms for electronic entry of data into database • Corrective action documentation	Report will be produced by the Hired Contractor and submitted with the data for validation by Edison

QAPP Worksheet #30
Analytical Services Table

Matrix	Analytical Group	Concentration Level	Analytical SOP	Data Package Turnaround Time	Laboratory/Organization (Name and Address, Contact Person and Telephone Number)	Backup Laboratory/Organization (Name and Address, Contact Person and Telephone Number)
Soil Gas	NJ DEP LL TO-15 Scan VOCs	Low	Lab SOP for NJDEP Method LL TO-15	30 days- hard copy data delivered from lab to CONTRACT FIRM	NJDEP CERTIFIED LAB NAME	NA

QAPP Worksheet #31
Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment	Person(s) Responsible for Responding to Assessment Findings	Person(s) Responsible for Identifying and Implementing Corrective Actions	Person(s) Responsible for Monitoring Effectiveness of Corrective Actions
Laboratory Technical Systems/ Performance Audits	FREQUENCY per NJDEP Certification Requirements	External	NJDEP Regulatory Agency	NJDEP OQA AUDITOR	NJDEP CERTIFIED LAB	NJDEP CERTIFIED LAB	NJDEP as Regulatory Agency
Performance Evaluation Samples	FREQUENCY per NJDEP Certification Requirements	External	NJDEP Regulatory Agency	NJDEP OQA AUDITOR	NJDEP CERTIFIED LAB	NJDEP CERTIFIED LAB	NJDEP as Regulatory Agency
On-Site Field Inspection	As requested	External	EPA	EPA Edison personnel	STATE FIELD CONTRACTOR FIRM	STATE FIELD CONTRACTOR FIRM	EPA Edison

QAPP Worksheet #32
Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response	Timeframe for Response
Project Readiness Review	Checklist or logbook entry	CONTRACTOR FIRM PROJECT MANAGER	Immediately to within 24 hours of review	Checklist or logbook entry	EPA Oversight Team	Immediately to within 24 hours of review
Field Observations/ Deviations from Work Plan	Logbook and Observations	CONTRACTOR FIRM PROJECT MANAGER	Immediately to within 24 hours of deviation	Logbook correction and procedure correction	EPA Oversight Team	Immediately to within 24 hours of deviation
Laboratory Technical Systems/ Performance Audits	Written Report	NJDEP CERTIFIED LAB NAME	Per NJDEP Certification requirements	Letter	NJDEP LAB AUDITORS	14 days
On-Site Field Inspection	Written Report	EPA NY PROJECT MANAGER, Cliff Ng	30 calendar days after completion of the audit	Letter/Internal Memorandum	EPA NY PM, Cliff Ng	To be identified in the cover letter of the report

QAPP Worksheet #33
QA Management Reports Table

Type of Report	Frequency (daily, weekly, monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation	Report Recipient(s)
NJDEP CERTIFIED LAB data (unvalidated)	As performed	30 days from sample receipt	NJDEP CERTIFIED LAB NAME	CONTRACTOR FIRM PROJECT MANAGER
SUMMARY REPORT INCLUDING FIELD AND LAB RESULTS	As performed	2 weeks FOR DELIVERY OF DATA and REPORT FROM CONTRACTOR FIRM TO EPA Edison	CONTRACTOR FIRM AND NAME	EPA Edison
Laboratory Technical Systems/ Performance Audits	Per NJDEP Certification Requirements	Unknown	NJDEP LAB AUDITORS	NJDEP CERTIFIED LAB NAME
On-Site Field Inspection	As requested	30 calendar days after completion of the inspection	EPA Edison personnel	EPA NY Project Manager Cliff Ng
Corrective Action Request	As required per field change	Three days after identification of need for field change	Field Contractor PM	EPA DEPP Project Manager, Cliff Ng
Data Validation Report	As performed	As produced by EPA Edison	EPA Edison	EPA NY PM, Cliff Ng
Project Report/Letter to each residence	PER RESIDENCE	As determined by EPA NY	EPA NY PM, Cliff Ng	RESIDENT(S)

QAPP Worksheet #34
Verification (Step I) Process Table

Verification Input	Description	Internal/ External	Responsible for Verification (Name, Organization)
Site/field logbooks	Field notes will be prepared daily by the CONTRACTOR Sample Leader and will be complete, appropriate, legible and pertinent. Upon completion of field work, logbooks will be placed in the project files.	I	CONTRACTOR FIRM PROJECT MANAGER
Chains of custody	COC forms will be reviewed against the samples packed in the specific cooler prior to shipment. The reviewer will initial the form. An original COC will be sent with the samples to the laboratory, while copies are retained for (1) the Sampling Trip Report and (2) the project files.	I	CONTRACTOR FIRM PROJECT MANAGER
Sampling Trip Reports	Trip Reports s will be prepared for each RESIDENCE field sampling. Information in the report will be reviewed against the COC forms, and potential discrepancies will be discussed with field personnel to verify locations, dates, etc.	I	CONTRACTOR FIRM PROJECT MANAGER
Laboratory analytical data package	Data packages will be reviewed/verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal.	I	NJDEP CERTIFIED LAB
Laboratory analytical data package	Data packages will be reviewed by the CONTRACTOR FIRM for contractual compliance and data summary.	E	CONTRACTOR FIRM
Sample data and Summary Report	The project data results will be compiled in a sample report by the contractor firm for submittal to EPA Edison. Entries will be reviewed/verified against hardcopy information.	I	CONTRACTOR FIRM

QAPP Worksheet #35
Validation (Steps IIa and IIb) Process Table

Step IIa/IIb	Validation Input	Description	Responsible for Validation (Name, Organization)
IIa	SOPs	Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.	EPA Edison
IIb	SOPs	Determine potential impacts from noted/approved deviations, in regard to PQOs.	EPA Edison
IIa	Chains of custody	Examine COC forms against QAPP and laboratory contract requirements (e.g., analytical methods, sample identification, etc.).	EPA Edison
IIa	Laboratory data package	Examine packages against QAPP and laboratory contract requirements, and against COC forms (e.g., holding times, sample handling, analytical methods, sample identification, data qualifiers, QC samples, etc.).	EPA Edison
IIb	Laboratory data package	Determine potential impacts from noted/approved deviations, in regard to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).	EPA Edison

QAPP Worksheet #36
Validation (Steps IIa and IIb) Summary Table

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator (title and organizational affiliation)
IIa / IIb	Air	VOCs	Low	EPA Edison R2 SOP HW-31 Validating Volatile Organic Analysis of Ambient Air in canister by Method TO-15, Rev.4, April 2006 (reviewed 8/09)	EPA R2 Edison Data Validation Personnel

QAPP Worksheet #37
Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:

Results of the evaluation to the Measurement Performance Criteria stated in WS#12 will be summarized.

The measure of replicate precision is the absolute value of the difference between replicate measurements of the sample divided by the average value and expressed as a percentage as follows:

$$\text{RPD or Percent difference} = \frac{|X_1 - X_2|}{X} \times 100$$

where: X_1 - First measurement value
X_2 - Second Measurement value
X - Average of the two values

Factors that affected the precision of the measurement are: molecular weight, water solubility, polarizability, etc. A primary influence is the concentration level of the compound. A replicate precision value of 25 percent can be achieved for each of the target compounds. For more information, refer to Compendium Method *TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specialty-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS).*

A measurement of analytical accuracy is the degree of agreement with audit standards. It is defined as the difference between the nominal concentration of the audit compound and the measured value divided by the audit value and expressed as a percentage as follows:

$$\text{Audit Accuracy, \%} = \frac{\text{Spiked Value - Observed Value}}{\text{Spiked Value}} \text{ X } 100$$

For more information, refer to Compendium Method *TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specialty-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS.).* As per Method TO-15, the performance criteria for audit accuracy should be within 30 percent for concentrations normally expected within contaminated ambient air.

QAPP Worksheet #37
Usability Assessment

The TO-15 method must meet the following method performance criteria:

The performance criteria for a system to qualify under this method are as follows:

- All technical criteria for the analysis of samples, standards and quality control samples
- Establish the CRQL ≤0.5 ppbv for SCAN analysis
- MDL concentration determined must be less than or equal to the 0.2 ppbv using SCAN mode of analysis.
- Routinely meet the clean canister criteria for all SUMMA Canisters.
- Mass spectra of each target compound must meet the qualitative identification criteria
- Audit accuracy ≤ 30% for all target compounds

Criteria per NJDEP Method LL TO-15 must be followed and will be assessed during validation for compliance and usability.

The method blank should not contain any target analyte at a concentration greater than the CRQL and should not contain additional compounds with elution characteristics and mass spectral features that would interfere with identification and measurement of a method analyte. If the blanks do not meet the technical acceptance criteria, the analyst should consider the analytical system to be out of control. It is the responsibility of the analyst to ensure that contaminants in solvents, reagents, glassware, and other sample storage and processing hardware that lead to discrete artifacts and/or elevated baselines in gas chromatograms be eliminated. If contamination is a problem, the source of the contamination must be investigated and appropriate corrective measures need to be taken and documented before further sample analysis proceeds. If an analyte in the blank is found to be out of control (i.e., contaminated) and the analyte is also found in associated samples, those sample results should be "flagged" as possibly contaminated.

QAPP Worksheet #37
Usability Assessment

Describe the evaluative procedures used to assess overall measurement error associated with the project:

Precision for laboratory replicate precision must be $\leq$ 25%, laboratory accuracy must be between 70 and 130% or the Laboratory Audit Standard must be ± 30%. The method blank requires no analyte to be greater than half the reporting limit. See Worksheet #12.

Identify the personnel responsible for performing the usability assessment:
EPA Edison will validate the data, compile the results and compare to the Comparison Levels. This assessment will be provided to EPA NY Project Manager, Cliff Ng.

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

A final report will be generated by EPA NY PM, Cliff Ng based on the final, validated data package. The data will be validated by the EPA Edison in accordance with U.S. EPA Region II SOP *HW-31: Volatile Organic Analysis of Ambient Air in Canister by Method TO-15,12/06 (LATEST REVIEW 8/09)*. The final validated data package includes a data assessment/usability statement explaining any qualifiers that were added to the data.

Discuss the impacts of any qualified data, any deviations from original plan or sampling procedures, whether the project objectives were met, etc.

Data qualified as estimated with a "J" is considered usable, data qualified with an "R" is not usable and may need to be resampled. Deviations from the approved QAPP will be addressed in the assessment after the sampling event is complete.

Attachment 1

Data Deliverables

The following is a list of the required contents of the data package to be submitted to EPA Edison for data validation.

Data Deliverables:

Contractors will be required to **submit a hard copy and PDF of all analytical results**. Each delivery package will be comprised of forms that convey the following:

1. A group of 20 samples or less is known as a sample delivery group (SDG).

2. The contractor shall forward the data to the address provided in Worksheet # 11.

3. All results shall be reported in ppbv and ug/m$^{3.}$

4. Hard copy data packages shall contain a Table of contents or CLP equivalent DC-2 Form. Data package should be paginated for easy cross reference between the table of contents and relevant portions of the data. Data packages shall be submitted, per the CLP DC-2 form, with data grouped together per sample (i.e., related forms, raw data, etc), with additional information, such as the individual canister certifications, included toward the end of the package. A blank DC-2 used in the EPA CLP is attached and can be used as reference for a table of contents.

5. Submitted information includes: each target analyte analyzed for by the method, the CAS number for each analyte, the concentration and concentration units for each analyte (e.g. ppbv), the reporting limit for each “non-detect” analyte, a qualifier for each analyte (e.g. an E qualifier indicates concentration is an estimate. Qualifiers will be defined by the lab in each data package), field sample number, corresponding laboratory specific sample identification number, Laboratory name, date sample received, date sample analyzed, instrument identification number, sample size analyzed, and level of dilution, if applicable.

6. Summa Canister Final Pressure Check Record. This includes sample lab ID, canister serial number and initial pressure Hg, final pressure Hg. A table shall be submitted containing the following information:

a. Canister ID
b. Date/Time of initial vacuum
c. Value of initial vacuum (“Hg)
d. Date/Time of vacuum after at least 24 hours has elapsed
e. Value for 24 hour vacuum (“Hg)
f. Difference between two vacuum values.

A canister that has more than 0.5” Hg loss must not be used with these projects.

7. Results of canisters and orifice/sample train certification for **each individual canister.** Results for all compounds shall include actual detection limits found in certification, not simply a “non-detect”. Cross reference should be provided between canisters and orifice/sample train certification number and individual sample number.

8. Results of initial calibration analyses as specified in the analytical method. Results shall include name of each calibration analyte standard, the concentration and concentration units for each calibration analyte, the relative response factor or calibration factor determined for each calibration analyte, the statistical evaluation of each calibration analyte for each concentration level (usually five calibration levels are specified in each method) that shows degree of linearity or acceptability of the “calibration curve” (usually as a %RSD), the acceptable criteria for the initial calibration analyses as described by the formal analytical method and laboratory SOP, Laboratory name, Instrument Identification number, and calibration dates for each calibration level.

9. A run log should be provided. The run log states the order of the run in the following sequence: BFB tuning, ICAL (Initial Calibration) /CCV, Method Blank, LCS (Laboratory Control Sample, which is a fortified, spiked blank), LCSD (Laboratory Control Sample Duplicate), followed by the samples. A BFB, CCV (Continuing Calibration Verification), MB (Method Blank), LCS, LCSD

must be run every 24 hours of sample analysis per instrument.

10. Data should be tabulated and presented per run log order.

11. Results of Mass Spectra tuning (BFB) for each tuning performed.

12. Results of all daily or continuing calibration analyses as specified in the analytical method. Results shall include name of each calibration analyte standard, the concentration and concentration units for each calibration analyte, the relative response factor or calibration factor determined for each calibration analyte, the statistical evaluation of each calibration analyte with respect to the initial calibration analysis (usually as a %Difference from the initial calibration analyses for each analyte), the acceptable criteria for the continuing calibration analyses as described by the formal analytical method and laboratory SOP, Laboratory name, Instrument Identification number, and Calibration date.

13. Results of Mass Spectrometer tuning analyses where samples have been analyzed by GC/MS (as specified in the formal analytical method). Laboratory name, Instrument Identification number, date of tuning analyses, acceptance criteria as listed by the formal method for the tuning analysis, and samples that are associated with the tuning analysis.

14. The mass spectra for all GS/MS performance check, Bromofluorobenzene (BFB), must be shown.
15. Results of all blank analyses pertinent to a set of data. Results of blank analyses may be submitted using forms used to report sample analyses as per instructions in item (1) above.
16. Each sample and method blank must include a data summary report, quantitation report, mass spectra and reference mass spectra for all positive compounds of interest.
17. Results of all Quality Control/Assurance samples pertinent to a group of 20 samples. This may include matrix spike and matrix spike duplicate analysis (spike of a field sample), or a Laboratory Control Sample (LCS).
18. LCS/LCSD must include quantitation report.

19. Internal Standard Area and RetentionTime (RT) summary forms. A table containing the following information shall be submitted in the data package:

a. Col 1: 24 hour Standard, Upper Limit, Lower Limit, EPA Samples
b. Col 2: Area count for Internal Standard (IS) #1
c. RT of IS #1
d. Area count for Internal Standard (IS) # 2
e. RT for IS #2
f. Same as Col 2 & 3 if there is a 3rd IS.

If needed, additional columns may be created. Place an asterisk next to the area count(s) that do not meet the ± 40 % criteria.

20. All canisters must be leak tested prior to sampling use. The initial gauge pressure should be approximately 30 psi with zero air. The canister pressure test must not vary by more than +/- 2psi over a 24 hour period. This data is to be presented in a summary form for all canisters and should include the canister serial number, initial pressure, final pressure and times.

21. The following is a summary of required deliverables:

1. <u>QC Summary</u>
   a. Lab Control Sample/Lab Control Sample Duplicate Recovery Summary Form
   b. Method Blank Summary Form
   c. GC/MS Instrument Performance Check
      List all associated samples
   d. Internal Standard Area, RT and Recovery Summary Form
      List all associated samples including standards and LCS/LCSD
2. <u>Sample Data</u>
   a. <u>T0-15 Results – Volatile Analysis Data Summary Form (Form 1)</u>
   b. For each sample, blank and LCS/LCSD:
      i. Reconstruction total ion chromatograms (RIC)
      ii. Quantitation reports
      iii. Raw spectra, background-subtracted mass spectra and

reference spectra of target compounds identified

3. Standards Data (All Instruments)
   a. Initial and Continuing Calibration Verification (CCV) Data
      i. RIC and Quantitation reports for all standards (mass spectra not required)

4. Raw/Quality (QC) Data
   a. BFB
   b. Blank Data
   c. LCS/LCSD Data
   d. Leak Test Data Table
   e. Clean Canister Verification Documentation

Attachment 2

Example Trip Report

This Trip Report is to be submitted with the data package for validation, for each group of 20 samples.

SAMPLING TRIP REPORT

Contractor Name: Fill In
Contractor Address: Fill In
Site Name: Dupont Public Lakes Works
Sampling Dates: Fill In

Site Location:

Pompton Lakes, Passaic County, New Jersey

Sample Descriptions:

Refer to Table 1 for all sample information.

Laboratories Receiving Samples:

Matrix	**Sample Type**	**Laboratory Name**	**Laboratory Address**
Air Samples in 6 lt. SUMMA™ canisters	VOCs	**Fill In**	**Fill In**

4. Sample Summary:

[Include a brief description of vapor intrusion sample collection; i.e. number of samples, quality control samples, any discrepencies from the QAPP, site conditions, weather etc.]
Include the Chain of Custody Records as an Appendix.

5. Sampling Personnel:

Name	Organization	Site Duties
Fill In	**Fill In**	**Fill In**

6. Additional Comments:

7. Report Prepared By:

Signature:_____ **Fill In** _____ Date:_____

TABLE 1
SAMPLE DESCRIPTIONS
DUPONT PUBLIC LAKES WORKS SITE

Address Of Resident	Sample Type i.e. Sub-slab, Indoor air	Sample #	Canister #	Valve/ Orifice #	Pressure (inches Hg)		Begin Date	Begin Time	End Date	End Time
					Initial	Final				

TABLE 2 LAB DUPLICATE COMPARISONS			
Compound	**Original Sample Results (µg/m^3)**	**Duplicate Sample Results (µg/m^3)**	**Relative Percent Differnce (%)**

Fill In Tables above

APPENDIX A

CHAIN OF CUSTODY RECORD