EPA CONTRACT LABORATORY PROGRAM

STATEMENT OF WORK

FOR

ORGANIC SUPERFUND METHODS

Multi-Media, Multi-Concentration

SOM02.3
September 2015

STATEMENT OF WORK

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ORGANIC ABBREVIATIONS/ACRONYM LIST	
ABBREVIATION/ACRONYM	DEFINITION
ASB	Analytical Services Branch
ASB CLP COR	Analytical Services Branch Contract Laboratory Program Contracting Officer's Representative
ASE	Accelerated Solvent Extractor
BFB	4-bromofluorobenzene
BNA	Base Neutral Acid
%Breakdown	Percent Breakdown
°C	Degrees Celsius (unit of measurement)
CAS	Chemical Abstracts Service
CCS	Contract Compliance Screening
CCV	Continuing Calibration Verification
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CF	Calibration Factor
CFR	Code of Federal Regulations
CLP	EPA Contract Laboratory Program
cm	Centimeter (unit of measurement)
CO	Contracting Officer
COC	Chain of Custody
COR	Contracting Officer's Representative
CRQL	Contract Required Quantitation Limits
CSF	Complete SDG File
%D	Percent Difference
DF	Dilution Factor
DFTPP	Decafluorotriphenylphosphine
DMC	Deuterated Monitoring Compound
DRD	Data Receipt Date
DTD	Document Type Definition
EDD	Electronic Data Deliverable
EI	Electron Ionization
EICP	Extracted Ion Current Profile
EPA	United States Environmental Protection Agency
EXES	Electronic Data Exchange and Evaluation System
g	Gram (unit of measurement)
GC	Gas Chromatography
GC/ECD	Gas Chromatograph/Electron Capture Detector
GC/MS	Gas Chromatograph/Mass Spectrometer
GPC	Gel Permeation Chromatography
HPLC	High Performance Liquid Chromatography
HRS	Hazard Ranking System
ICAL	Initial Calibration
ICV	Initial Calibration Verification
ID	Identifier
IPC	Instrument Performance Check
IR	Infrared

ORGANIC ABBREVIATIONS/ACRONYM LIST	
ABBREVIATION/ACRONYM	DEFINITION
IUPAC	International Union of Pure and Applied Chemistry
K-D	Kuderna-Danish
L	Liter (unit of measurement)
Lab	Laboratory
Lb	Pound (unit of measurement)
LCS	Laboratory Control Sample
LRD	Laboratory Receipt Date
MA	Modified Analysis
MDL	Method Detection Limits
mg	Milligram (unit of measurement)
mL	Milliliter (unit of measurement)
mm	Millimeter (unit of measurement)
MS	Mass Spectrometry
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µL	Microliter (unit of measurement)
µm	Micrometer (unit of measurement)
NCS	Non-Client Sample
ng	Nanogram (unit of measurement)
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration
OSRTI	EPA Office of Superfund Remediation and Technology Innovation
PAH	Polynuclear Aromatic Hydrocarbon
PCP	Pentachlorophenol
PDF	Portable Document Format
PE	Performance Evaluation
PEM	Performance Evaluation Mixture
PFE	Pressurized Fluid Extraction
PFK	Perfluorokerosene
PRPs	Potentially Responsible Parties
Psi	Pounds Per Square Inch (unit of measurement)
P/T	Purge-and-trap
PT	Proficiency Testing
PTFE	Polytetrafluoroethylene
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QATS	Quality Assurance Technical Support
QC	Quality Control
QMP	Quality Management Plan
%R	Percent Recovery
RESC	Resolution Check Standard
RIC	Reconstructed Ion Chromatogram
RPM	Revolutions Per Minute (unit of measurement)
RRF	Relative Response Factor

ORGANIC ABBREVIATIONS/ACRONYM LIST	
ABBREVIATION/ACRONYM	DEFINITION
RRT	Relative Retention Time
%RSD	Percent Relative Standard Deviation
RPD	Relative Percent Difference
RT	Retention Time
%S	Percent Solids
SA	Spike Added
SARA	Superfund Amendments and Reauthorization Act of 1986
SD	Standard Deviation
SDG	Sample Delivery Group
SEDD	Staged Electronic Data Deliverable
SIM	Selected Ion Monitoring
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
SPLP	Synthetic Precipitation Leaching Procedure
SVOA	Semivolatile Organic Analyte
TAL	Target Analyte List
TBA	Tetrabutylammonium
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TR	Traffic Report
TR/COC	Traffic Report/Chain of Custody
UTF-8	Unicode Transformation Format - 8 bit
UV	Ultraviolet
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
VTSR	Validated Time of Sample Receipt
W3C	World Wide Web Consortium
XML	eXtensible Markup Language
ZHE	Zero Headspace Extraction

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EXHIBIT A

SUMMARY OF REQUIREMENTS

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Exhibit A - Summary of Requirements

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1.0 PURPOSE

The purpose of this analytical service is to provide analytical data for use by the U.S. Environmental Protection Agency (EPA), in support of the investigation and clean-up activities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Other EPA Program Offices, as well as customers outside the Agency, that have similar analytical data needs also use this service.

2.0 DESCRIPTION OF SERVICE

This Statement of Work (SOW) provides a contractual framework for laboratories to perform analytical services. This framework applies EPA Contract Laboratory Program (CLP) analytical methods for isolation, detection, and quantitative measurement of 51 Trace Volatiles, 51 Low/Medium Volatiles, 69 Semivolatiles, 18 Semivolatiles by SIM, 21 Pesticides, and 9 Aroclors in aqueous/water and soil/sediment samples. The SOW also includes Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) leachate extraction procedures. The analytical service contract provides the methods to be used and the specific contractual requirements by which the EPA will evaluate the data.

3.0 DATA USES

This analytical service provides data used for a variety of purposes, such as: determining the nature and extent of contamination at a hazardous waste site, assessing priorities for response based on risks to human health and the environment, determining appropriate clean-up actions, and determining when remedial actions are complete. The data may be used in all stages in the investigation of hazardous waste sites, including site inspections, Hazard Ranking System (HRS) scoring, remedial investigation/feasibility studies, remedial design, treatability studies, and removal actions.

In addition, the Contractor must be aware of the importance of maintaining the integrity of data generated under the contract, since it is used to make major decisions regarding public health and environmental welfare. The data may also be used in litigation against Potentially Responsible Parties (PRPs) in the enforcement of Superfund legislation.

4.0 SUMMARY OF REQUIREMENTS

The SOW is comprised of eight exhibits:

- Exhibit A – Summary of Requirements
- Exhibit B – Reporting and Deliverables Requirements
- Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits
- Exhibit D – Analytical Methods
- Exhibit E – Quality Systems
- Exhibit F - Programmatic Quality Assurance/Quality Control Elements
- Exhibit G – Glossary of Terms
- Exhibit H – Format for Electronic Data Deliverables

4.1 Major Task Areas

For each sample, the Contractor shall perform the tasks described in each section. Specific requirements for each task are detailed in the exhibits referenced.

4.1.1 Sample Receiving, Storage, and Disposal

The Contractor will receive samples from potential hazardous waste sites and shall store and maintain these samples under proper chain of custody (COC) procedures. The Contractor shall follow procedures outlined in Section 5.0 of this Exhibit for proper sample receipt and handling as well as each Exhibit D – Analytical Methods for proper storage and disposal of unused portion of samples. All anomalies and identified issues shall be communicated to the EPA via the CLP Sample Management Office (SMO) Contractor.

4.1.2 Sample Preparation and Analysis

The Contractor is advised that the samples received under this contract are usually from known or suspected hazardous waste sites and may contain high levels of organic and inorganic materials of a potentially hazardous nature and of unknown structure and concentration, and should be handled throughout the analysis with appropriate caution. It is the Contractor's responsibility to take all necessary measures to ensure laboratory safety.

4.1.2.1 The Contractor shall prepare samples as described in the respective Exhibit D – Analytical Methods for the requested analysis type. Sample preparation methods shall remain consistent for all samples analyzed within a Sample Delivery Group (SDG).

4.1.3 Sample Reporting and Resubmission of Data

4.1.3.1 Required formats for the reporting of data are found in Exhibits B – Reporting and Deliverables Requirements and Exhibit H – Format for Electronic Data Deliverables. The Contractor shall be responsible for completing and submitting analysis data sheets and electronic data as requested in a format specified in this SOW and within the time specified in Exhibit B – Reporting and Deliverables Requirements, Section 1.1.

4.1.3.2 Use of formats other than those approved will be deemed as noncompliant. Such data are unacceptable. Resubmission in the specified format will be required at no additional cost to the Government.

4.1.4 Quality Assurance/Quality Control

The Contractor shall maintain a Quality Assurance Project Plan (QAPP) with the objective of providing sound analytical chemical measurements. This program shall incorporate the Quality Control (QC) procedures, any necessary corrective action, and all documentation required during data collection, as well as the Quality Assurance (QA) measures performed by management to ensure acceptable data production.

4.1.4.1 The Contractor shall strictly adhere to all specific QA/QC procedures prescribed in Exhibits D – Analytical Methods and F – Programmatic Quality Assurance/Quality Control Elements. Records documenting the use of the protocol shall be maintained in accordance with the document control procedures prescribed in Exhibit E – Quality Systems, and shall be reported in accordance with Exhibit B – Reporting and Deliverables Requirements and Exhibit H – Format for Electronic Data Deliverables.

4.1.4.2 Additional QC shall be conducted in the form of the analysis of Performance Evaluation (PE) samples submitted to the laboratory by the EPA. Unacceptable results of all such QC or PE samples may be used as the basis for an equitable adjustment to reflect the reduced value of the data to the EPA or rejection of the data for specific analyte(s) within an SDG or the entire SDG. Also, unacceptable results may be used as the basis for contract action. "Compliant performance" is defined as that which yields correct analyte identification and concentration values as determined by the EPA, as well as meeting the contract requirements for analysis (Exhibit D – Analytical Methods), QA/QC (Exhibit F – Programmatic Quality Assurance/Quality Control Elements), data reporting and other deliverables (Exhibits B – Reporting and Deliverables Requirements and H – Format for Electronic Data Deliverables), and sample custody, sample documentation, and Standard Operating Procedure (SOP) documentation (Exhibit E – Quality Systems). As an alternative to data rejection, the EPA may require reanalysis of noncompliant samples. Reanalysis will be performed by the Contractor at no additional cost to the EPA.

4.1.5 Modified Analysis

The Contractor may be requested by the EPA to perform a Modified Analysis (MA). The modifications may include, but are not limited to: modified preparation or analysis procedures; additional analytes; sample matrices other than those present in the SOW; and/or lower quantitation limits. The requests will be made in writing, prior to sample scheduling. All contract requirements specified in the SOW/Specifications will remain in effect unless specifically modified.

5.0 SAMPLE RECEIPT AND HANDLING

5.1 Chain of Custody

The Contractor shall receive and maintain samples under proper COC procedures. All associated document control and inventory procedures shall be developed and followed. Documentation described herein shall be required to show that all procedures are strictly followed. This documentation shall be reported as the Complete SDG File (CSF) (See Exhibit B – Reporting and Deliverables Requirements). The Contractor shall establish and use appropriate procedures to handle confidential information received from the EPA.

5.2 Sample Scheduling

5.2.1 Sample shipments to the Contractor’s facility will be scheduled and coordinated by the CLP SMO. The EPA may request analyses that include all or a subset of the Target Analytes listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits. The EPA may also request modified analyses due to the nature of the samples or project requirements. The Contractor shall communicate with SMO personnel as necessary, throughout the process of sample scheduling, shipment, analysis, and data reporting, to ensure that samples are properly processed.

5.2.2 The Contractor shall accept all samples scheduled by SMO, provided that the total number of samples received in any calendar month does not exceed the monthly limitation defined in the contract. Should the Contractor elect to accept additional samples, the Contractor shall remain bound by all contract requirements for analysis of those samples accepted.

5.3 Sample Shipments

5.3.1 Samples will be shipped routinely to the Contractor through an overnight delivery service. However, as necessary, the Contractor shall be responsible for any handling or processing of the receipt of sample shipments. This includes the pick-up of samples at the nearest servicing airport, bus station, or other carrier within the Contractor's geographical area. The Contractor shall be available to receive sample shipments at any time the delivery service is operating, including weekends.

5.3.2 Unless otherwise instructed by the EPA Region or originating sampler, the Contractor shall be required to routinely return sample shipping containers to the appropriate sampling office within 14 calendar days following shipment receipt. This shipment must be done via ground transportation only pending receipt of a valid return authorization, unless specifically instructed to do otherwise. The Contractor will be provided a shipping mechanism by the EPA Region or originating sampler (e.g., field sampler). The Contractor shall ensure that the account numbers provided are used only for the return of Government-owned shipping containers.

5.3.2.1 The Contractor shall remove packing and other materials from the shipping containers before each pick-up and shall ensure that the shipping containers are clean. The Contractor can determine from visual inspection whether the shipping container is clean.

5.4 Sample Receipt

5.4.1 If insufficient sample amount (less than the required amount) is received to perform the analyses, the Contractor shall contact SMO and proceed with the analysis of the sample at reduced volume. The Contractor shall document this action and the response from SMO in the SDG Narrative.

5.4.2 If the Contractor receives broken sample containers, with enough remaining sample to perform sample analysis, but potentially not enough volume to analyze any possible re-extractions/reanalyses, the Contractor shall note the issue in the SDG Narrative, proceed with analysis of the samples and notify SMO. If re-extraction/reanalyses are necessary, the Contractor shall contact SMO. The Contractor shall document the provided resolution in the SDG Narrative.

5.4.3 If the Contractor encounters other problems with samples or related documentation [e.g., mixed media, sample pH, sample documentation and paperwork such as Traffic Report/Chain of Custody (TR/COC) Records not with shipment, sample and TR/COC do not correspond], the Contractor shall immediately contact SMO for resolution.

5.4.4 Shipping Container Temperature Monitoring

5.4.4.1 To monitor the temperature of the sample shipping container more effectively, a sample shipping container temperature indicator bottle may be included with each shipping container shipped. The applicable temperature blank will be clearly labeled.

5.4.4.2 When a shipping container temperature indicator bottle is included in the sample shipping container, the Contractor shall use the supplied shipping container temperature indicator bottle to determine the shipping container temperature. The temperature of the sample shipping container shall be measured and recorded immediately upon opening the shipping container, and prior to unpacking the samples or removing the packing material.

5.4.4.3 To determine the temperature of the shipping container, the Contractor shall locate the shipping container temperature indicator bottle in the sample shipping container, invert it several times, remove the cap, and insert a calibrated (NIST-traceable) thermometer into the shipping container temperature indicator bottle. Prior to recording the temperature, the Contractor shall allow a minimum of 3 minutes, but not greater than 5 minutes, for the thermometer to equilibrate with the liquid in the bottle. At a minimum, the thermometer used shall be capable of measuring and registering the temperature of the shipping container with an accuracy of ±1°C.

5.4.4.4 If a temperature indicator bottle is not present in the shipping container, an alternative means of determining shipping container temperature shall be used. Under no circumstances shall a thermometer or any other device be inserted into a sample bottle for the purpose of determining shipping container temperature. Other devices (e.g., infrared thermometer) which can measure temperature may be used if they can be calibrated to ±1°C.

5.4.4.5 If a temperature indicator bottle is not present in the shipping container, and the temperature of the shipping container is not less than or equal to 6°C, the Contractor shall note the issue, and the method used to determine the temperature, in the SDG Narrative and proceed with analysis of the samples. If the temperature exceeds 10°C, the Contractor shall contact SMO and inform them of the temperature deviation. SMO will contact the EPA for instructions on how to proceed. SMO will in turn notify the Contractor of the EPA's decision. The Contractor shall document the EPA's decision and the EPA Sample Numbers of all samples for which temperatures exceeded 10°C in the SDG Narrative.

5.4.4.6 Liquid bearing thermometers such as mercury or alcohol thermometers shall be traceable to NIST calibration and verified at least annually, and whenever the thermometer has been exposed to temperature extremes. The correction factor shall be indicated on the thermometer and the date the thermometer was calibrated and the calibration factor shall be kept as prescribed in the laboratory's QA documents and be available for inspection. The NIST thermometer shall be recalibrated at least every five years or whenever the thermometer has been exposed to temperature extremes.

Digital thermometers, thermocouples and other similar electronic temperature measuring devices shall be calibrated at least quarterly. The date the thermometer was calibrated and the calibration factor shall be kept as prescribed in the laboratory's QA documents and be available for inspection.

When an infrared (IR) detection device is used to measure the temperature of samples, the device shall be verified at least every six months using a NIST certified thermometer over the full temperature range that the IR thermometer will be used. This would include ambient (20-30°C), iced (4°C) and frozen (0 to -5°C). Each day of use, a single check of the IR shall be made by measuring the temperature of a bottle of water, that contains a calibrated thermometer, at the temperature of interest. Agreement between the two readings should be within 0.5°C, or the device shall be recalibrated.

5.4.5 Recording Sample pH

5.4.5.1 The pH for all aqueous/water samples received by the Contractor shall be measured, using a method capable of demonstrating that proper preservation was performed (e.g., pH test strips, electronic hand-held pen, pH meter), and recorded. The pH shall be determined using a small aliquot of the sample to prevent contamination. Under no circumstances shall a strip or any device be inserted into a sample bottle for the purpose of determining pH.

5.4.5.2 All pens and pH meter electrodes shall be rinsed with reagent water between sample readings.

5.5 Sample Case

Sample analyses will be scheduled by groups of samples, each defined as a Case and identified by a unique EPA Case Number assigned by SMO. A Case signifies a group of samples collected at one site or geographical area over a finite time period, and will include one or more field samples with associated blanks. Samples may be shipped to the Contractor in a single shipment or multiple shipments over a period of time, depending on the size of the Case.

5.5.1 A Case consists of one or more SDGs. An SDG is defined by the following, whichever is most frequent:

- Each Case of field samples received; or
- Each 20 samples (excluding PE samples) within a Case; or
- Each 7 calendar day period (3 calendar day period for 7-day turnaround) during which field samples in a Case are received (said period beginning with receipt of the first sample in the SDG).
- In addition, all samples assigned to an SDG must have been scheduled under the same contractual turnaround time. Preliminary Results have no impact on defining an SDG.
- All samples scheduled with the same level of deliverables.

5.5.2 Samples may be assigned to SDGs by matrix (i.e., all soil/sediment in one SDG, all aqueous/water in another), at the discretion of the laboratory. If PE samples are received within a Case, they shall be assigned to an SDG containing field samples for that Case. Such assignment shall be made at the time the samples are received and shall not be made retroactively. The SDG may exceed the 20 samples limit since the limitation excludes PE samples.

5.5.3 Each sample received by the Contractor will be labeled with an EPA Sample Number and accompanied by a TR/COC Record bearing the Sample Number and descriptive information regarding the sample. The EPA Sample Numbers are continuous, without spaces or hyphens. If the sample numbers do not conform to this requirement, contact SMO. The Contractor shall complete and sign the TR/COC Record, recording the date of sample receipt and sample condition on receipt for each sample container.

5.5.3.1 The Contractor shall follow the instructions given on the TR/COC Record in choosing the QC samples, when such information is provided. If no QC sample is designated on the TR/COC Record, the Contractor shall select a sample and notify SMO for the EPA Regional acceptance. SMO shall contact the Region for confirmation immediately after notification.

5.5.3.2 If the Sampler designated two (or more) samples as QC for the same matrix, and the QC samples are not specifically labeled with the analysis they are to be used for, then the Contractor is to contact SMO to report the issue. SMO shall then contact the EPA Region and notify the Contractor of the EPA Regional decision. If the Sampler did not designate QC samples, then the Contractor is to select a sample for QC and to contact SMO to report the issue.

5.5.4 The date of delivery of the SDG, or any samples within the SDG, is the date that the last sample in the SDG is received. Validated Time of Sample Receipt (VTSR) is the date of sample receipt at the Contractor's facility, as recorded on the shipper's delivery receipt and sample TR/COC Record.

5.5.5 The Contractor shall submit electronic copy(ies) of signed TR/COC Record in PDF format for all samples in an SDG to SMO via the Superfund Analytical Services SMO Portal at http://epasmoweb.fedcsc.com within 3 working days following the receipt of the last sample in the SDG. TR/COCs shall be submitted with their SDG information as specified in Exhibit B – Reporting and Deliverables Requirements.

5.5.6 The EPA Case Numbers, SDG Numbers, and EPA Sample Numbers shall be used by the Contractor in identifying samples received under this contract, both verbally and in reports/correspondence.

5.5.7 The Contractor shall immediately notify SMO regarding any problems and laboratory conditions that affect the timeliness of analyses and data reporting. In particular, the Contractor shall immediately notify SMO personnel in advance regarding sample data that will be delivered late and shall specify the estimated delivery date.

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EXHIBIT B

REPORTING AND DELIVERABLES REQUIREMENTS

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Exhibit B – Reporting and Deliverables Requirements

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1.0 CONTRACT REPORTS/DELIVERABLES DISTRIBUTION

1.1 Report Deliverable Schedule

The following table identifies the contract reporting and deliverables requirements, and specifies the distribution that is required for each deliverable.

TABLE 1. DELIVERABLE SCHEDULE

Item		No. of Copies[1]	Delivery Schedule	Distribution		
				SMO	Region	QATS
A.	Sample Traffic Reports/Chain of Custody (TR/COC) Records	1	3 working days after receipt of last sample in Sample Delivery Group (SDG).	X		
B.[2,3]	Complete SDG File (CSF)	1	XX[4] days after Validated Time of Sample Receipt (VTSR) of last sample in SDG.		X	
C.[2,5,7]	Copy of CSF and Hardcopy Data in Portable Document Format (PDF) Format	1	XX[4] days after VTSR of last sample in SDG.	X		
D.[2,6]	Preliminary Results (Volatiles Analyses)	1	Within 48 hours after receipt of each sample at laboratory, if requested.	X	X	
	Preliminary Results (Semivolatiles, Pesticides, and Aroclor Analyses)	1	Within 72 hours after receipt of each sample at laboratory, if requested.	X	X	
E.[2,7]	Electronic Data Deliverable (EDD)	1	XX[4] days after VTSR of last sample in SDG.	X		
F.[2]	Proficiency Testing (PT) Audits	1	XX[4] days after VTSR of last sample in SDG.	X		

TABLE 1. DELIVERABLE SCHEDULE (CON'T)

Item		No. of Copies[1]	Delivery Schedule	Distribution		
				SMO	Region	QATS
G.[7]	Determination of Method Detection Limits (MDL)	1	MDL values in spreadsheet format specified in Appendix A of Exhibit H prior to analysis of field samples, annually thereafter, and after major instrument adjustments to SMO and QATS. MDL study data prior to analysis of field samples, annually thereafter, and after major instrument adjustments to QATS only. Submission of all deliverables within 7 days of determinations.	X		X
H.	Standard Operating Procedures (SOPs)	1	Submit within 60 days after contract award. Submit the latest version within 7 days of receipt of written request, to recipients as directed. (See Exhibit E, Section 4.0) Submit amended documents within 14 days of amended SOP(s) as directed in Exhibit E, Section 4.4.			X
I.	Quality Assurance Project Plan (QAPP)	1	Submit within XX[4] days after contract award. Submit the latest version within 7 days of receipt of written request, to recipients as directed. (See Exhibit E, Section 3.0) Submit amended documents within 14 days of amended QAPP as directed in Exhibit E, Section 3.3.			X

TABLE 1. DELIVERABLE SCHEDULE (CON'T)

Item		No. of Copies[1]	Delivery Schedule	Distribution		
				SMO	Region	QATS
J.	Instrument Electronic Data	Lot	Retain for 3 years after data submission of the reconciled CSF. Submit within 7 days of receipt of written request, to recipients as directed. (See Exhibit F, Section 8.3)	As Directed		X
K.	Extracts	Lot	Retain for 1 year after data submission. Submit within 7 days after receipt of written request, to recipients as directed.	As Directed		
L.	Samples	Lot	Retain for 60 days after data submission. Submit within 7 days after receipt of written request, to recipients as directed.	As Directed		

Footnotes:

[1] The number of copies specified is the number of copies required to be delivered to each recipient.

[2] **DELIVERABLES ARE TO BE REPORTED TOTAL AND COMPLETE.** Concurrent delivery is required. Delivery shall be made such that all designated recipients receive the item on the same calendar day. This includes resubmission of both the hardcopy and electronic deliverable. The date of delivery of the SDG, or any sample within the SDG, is the date that all samples have been delivered. **If the deliverables are due on a Saturday, Sunday, or Federal holiday, then they shall be delivered on the next business day. Deliverables received after this time will be considered late.**

[3] CSF will contain the original Sample Data for Level 2a, 2b, and 3 deliverables, plus all of the original documents described in Exhibit B, Section 2.4.

[4] The number of days associated with these elements will be provided in the associated laboratory contract document and will also be provided at the time of sample scheduling by the Sample Management Office (SMO) Contractor.

[5] Retain for 365 days after data submission, and submit as directed within 7 days after receipt of written request by the U.S. Environmental Protection Agency's Regional Contract Laboratory Program Contracting Officer's Representative(EPA Regional CLP COR) and Analytical Services Branch CLP COR (ASB CLP COR). Supplemental data (i.e., logbooks) may be requested in writing from the EPA Regional staff or the ASB CLP COR. All written communication sent by the EPA must include the EPA Regional CLP COR in the distribution list. If the EPA Regional CLP COR has not been included in the distribution list, contact the ASB CLP COR.

[6] If requested at the time of sample scheduling, the Contractor shall provide Preliminary Results, consisting of Form 1-OR sample analyses and field Quality Control (QC) analyses. The Contractor shall provide the SMO copy via the EPA Electronic Data Exchange and Evaluation System (EXES) at http://epasmoweb.fedcsc.com as a PDF file as preliminary results. The PDF file name should be PR_Case Number_SDG Number_Contract Number_Method. Sample TR/COC Records and SDG Cover Page per Exhibit B Section 2.6.2 shall be submitted with the Preliminary Results. The designated Regional recipient shall receive the Preliminary Results as a PDF file or in alternative electronic formats (e.g., Microsoft® Word) via email. The Contractor will be notified of the email address and format at the time of sample scheduling.

NOTE: Preliminary Results Delivery Schedule:

If a sample requiring Preliminary Results arrives at the laboratory before 5 p.m., the Preliminary Results are due within the required turnaround time. If a sample requiring Preliminary Results is received at the laboratory after 5 p.m., the Preliminary Results are due within the required turnaround time beginning at 8 a.m. the following day.

[7] The Contractor shall provide SMO the electronic files via EXES at http://epasmoweb.fedcsc.com.

1.2 Distribution

The following addresses correspond to the "Distribution" column in Exhibit B, Section 1.1, Table 1 – Deliverable Schedule.

Sample Management Office (SMO)[1]:

Delivery instructions shall be provided upon contract award.

EPA Region:

SMO will provide the Contractor with the list of addressees for data delivery for the 10 EPA Regions. SMO will provide the Contractor with updated EPA Regional address/name lists as necessary throughout the period of the contract and identify other client recipients on a case-by-case basis.

EPA Regional CLP Contracting Officer's Representative:

SMO will provide the Contractor with the list of addresses for the EPA Regional CLP CORs. SMO will provide the Contractor with updated name/address lists as necessary throughout the period of the contract.

Quality Assurance Technical Support (QATS)[2]:

Delivery instructions shall be provided upon contract award.

[1] SMO is a Contractor-operated facility operating under the SMO contract awarded and administered by the EPA.
[2] QATS is a Contractor-operated facility operating under the QATS contract awarded and administered by the EPA.

2.0 REPORTING REQUIREMENTS AND ORDER OF DATA DELIVERABLES

2.1 Introduction

The Contractor shall provide reports and other deliverables as specified in Exhibit B, Section 1.1 (for hardcopy) and Exhibit H (for electronic). The required content and form of each deliverable are described in this Exhibit. All reports and documentation **shall be:**

- Legible;
- Clearly labeled and completed in accordance with instructions in this Exhibit;
- Arranged in the order specified in this Exhibit;
- Paginated sequentially according to instructions in this Exhibit; and
- Double-sided.
- Information reported on the forms listed in this Exhibit [excluding the Sample Log-In Sheet (DC-1) and the Complete SDG File (CSF) Inventory Sheet (DC-2)] must be computer-generated.
- The Contractor shall use EPA Case Numbers, SDG Numbers, and EPA Sample Numbers to identify samples received under this contract, verbally, electronically, and in reports and correspondence. The Contract Number and the Statement of Work (SOW) Number shall be specified in all correspondence. The Modification Analysis Number (MA No.) shall also be included for all Modified Analyses.

2.1.1 The Contractor shall submit Staged Electronic Data Deliverable (SEDD) Level 2a, Level 2b, or Level 3 deliverables as specified at the time of scheduling.

- Level 2a deliverables consist of a specified limited subset of the data reporting forms as specified in this Exhibit.
- Level 2b deliverables include all data reporting forms as specified in this Exhibit.
- Level 3 deliverables include all data reporting forms and supporting raw data as specified in this Exhibit.

2.1.2 Section 3.0 of this Exhibit contains instructions to the Contractor for properly completing all data reporting forms to provide the EPA with all required data. Section 4.0 of this Exhibit contains the required Data Reporting Forms in Agency-specified format. Data elements and instructions for electronically reporting data are contained in Exhibit H – Format for Electronic Data Deliverables.

2.2 Resubmission of Data

If submitted documentation does not conform to the above criteria, the Contractor is required to resubmit such documentation with deficiency(ies) corrected, at no additional cost to the EPA.

2.2.1 Whenever the Contractor is required to submit or resubmit data as a result of an on-site laboratory evaluation, through an EPA Regional CLP COR action, or through an EPA Regional data reviewer's request, the data shall be clearly marked as "Additional Data" and shall be sent to both contractual data recipients (SMO and EPA Region) and to the EPA's designated recipient when a written request for a copy of the CSF has been made within 5 business days (3 business days for a 7-day turnaround) of receipt of the request. A cover letter shall be included which describes what data are being delivered, to which EPA Case Number(s) and SDG Number(s) the data pertains, and who requested the data.

2.2.2 Whenever the Contractor is required to submit or resubmit data as a result of Contract Compliance Screening (CCS) review by SMO, the data shall be sent to both contractual data recipients (SMO and EPA Region), and to the EPA's designated recipient when a written request for a copy of the CSF has been made, within 6 business days of receipt of the request. In all instances, the Contractor shall include a cover sheet (Laboratory Response to Results of Contract Compliance Screening). Electronic deliverables shall be submitted or resubmitted to SMO only. Revised DC-1 and DC-2 forms shall be resubmitted to SMO and the EPA Region.

2.3 Sample Traffic Report/Chain of Custody Records

2.3.1 Each sample received by the Contractor shall be labeled with an EPA Sample Number and will be accompanied by a TR/COC Record bearing the Sample Number and descriptive information regarding the sample. The Contractor shall complete the TR/COC Record, recording the date of sample receipt, verifying the number of samples, and signing the TR/COC Record.

2.3.1.1 Upon receipt, the Contractor shall sign for the receipt of samples in the COC Record section. The laboratory Sample Custodian or designated recipient opening and verifying the contents of the shipping container shall then verify receipt of all samples identified within the CLP Traffic Report section and sign and date the signature box located in the CLP Traffic Report section. If a non-CLP TR/COC Record is submitted with the samples (e.g., a Regional TR/COC Record), then the Contractor shall: (1) sign and date receipt of the samples to maintain the chain-of-custody and (2) the Sample Custodian or designated recipient shall sign and date the TR/COC Record to verify sample information.

NOTE: If the laboratory is requested to transfer samples to another facility, the Contractor shall date and enter the name of the facility to where the samples will be transferred on the CLP TR/COC Record and document in the SDG Narrative.

2.3.1.2 The Contractor shall also enter the SDG Number, Case Number, and the Laboratory Contract Number on the CLP TR/COC Record. The EPA Sample Number of the first sample received in the SDG is the SDG Number. When several samples are received together in the first SDG shipment, the SDG Number shall be the lowest sample number (considering both alpha and numeric designations) in the first group of samples received under the SDG. Under no circumstances should any SDG Number be replicated within a Case. If necessary, select an alternative sample number for the SDG Number. The SDG Number is also reported on all data reporting forms (see Exhibit B, Section 3.0 - Form Instructions).

2.3.2 The Contractor shall submit TR/COC Records in SDG sets (i.e., TR/COC Records for all samples in an SDG), with an SDG Definition Sheet attached. The SDG Definition Sheet shall contain the following items:

- Laboratory Name;
- Contract Number;
- Modified Analysis Number (if applicable);
- Case Number;
- List of the method/analysis for each sample; and
- List of EPA Sample Numbers of all samples in the SDG, identifying the first and last samples received, and their Laboratory Receipt Dates (LRDs).

NOTE: When more than one sample is received in the first or last SDG shipment, the "first" sample received would be the sample with the lowest sample number (considering both alpha and numeric designations); the "last" sample received would be the sample with the highest sample number (considering both alpha and numeric designations).

2.3.3 EPA Sample Numbers are continuous, without spaces or hyphens. The original Sample TR/COC Record page, with laboratory receipt information and signed with an original Contractor signature, shall be submitted for each sample in the SDG.

2.3.4 If samples are received at the laboratory with multi-sample TR/COC Records, all the samples on one multi-sample TR/COC Record may not necessarily be in the same SDG. In this instance, the Contractor must make the appropriate number of photocopies of the TR/COC Record and submit one copy with each SDG Definition Sheet.

2.4 Complete Sample Delivery Group File

The CSF is described in this section. Sections 2.4.7 through 2.4.11 are specific to the individual analytical methods. If analysis by one or more of the analytical methods is not required, then those method sections are not required as a deliverable. Each method section shall include data for analysis of all samples in one SDG, including field samples, calibrations, QC samples, and supporting documentation. The CSF shall be complete before submission. The CSF shall be consecutively paginated (starting with page number one and ending with the number of all pages in the package).

2.4.1 The CSF shall contain all original documents where possible. No photocopies of original documents shall be placed in the CSF unless the original data was initially written in a bound notebook, maintained by the Contractor, or the originals were previously submitted to the EPA with another Case/SDG. The CSF shall contain all original documents and be numbered according to the specifications in Exhibit B, Sections 3.0 and 4.0; and organized according to Form DC-2.

NOTE: The Contractor shall retain a legible electronic (PDF) or hardcopy of the CSF for 365 days after submission of the reconciled data package to the Government. After this time, the Contractor may dispose of the package.

2.4.2 The CSF shall consist of the following original documents:

- Completed SDG Cover Page with signature and date
- EPA Sample TR/COC Record
- Completed and signed Sample Log-In Sheet [Form DC-1]
- Completed and signed Full Organics Complete SDG File (CSF) Inventory Sheet [Form DC-2]
- SDG Narrative
- All original shipping documents, including, but not limited to, the following documents:
  - Airbills (if an airbill is not received, include a hardcopy receipt requested from the shipping company or a printout of the shipping company's electronic tracking information);
  - Sample Tags (if present) sealed in plastic bags; and
  - All original receiving documents, including, but not limited to, other receiving forms or copies of receiving logbooks.

NOTE: All Case-related documentation may be used or admitted as evidence in subsequent legal proceedings. Any other Case-specific documents generated after the CSF is sent to the EPA, as well as copies that are altered in any fashion, are also deliverables to the EPA. Send the original to the EPA Region and a copy to SMO. Send to the EPA's designated recipient only upon written request.

2.4.3 For Level 3 deliverables, all original laboratory records of sample transfer, preparation, and analysis, including, but not limited to, the following documents:

- Percent Solids Log;
- Original preparation, cleanup, and analysis forms, or copies of preparation, cleanup, and analysis logbook pages;
- Internal sample and sample extract transfer Chain of Custody Records;
- Screening records;
- All instrument output, including strip charts, Gel Permeation Chromatography (GPC), High Performance Liquid Chromatography (HPLC), and all cleanup activities; and
- Performance Evaluation (PE) Instruction forms.

2.4.4 All other original SDG-specific documents in the possession of the laboratory, including, but not limited to, the following documents:

- Communication logs;
- Copies of personal logbook pages;
- All handwritten SDG-specific notes; and
- Any other SDG-specific documents not covered by the above.

If the Contractor does submit SDG-specific documents to the EPA after the submission of the CSF, the documents shall be identified with submission codes. For example, if a page or pages were submitted with errors, the corrected pages would be identified with

the Case and SDG Number, and the code R#, where the "#" is incremented for any subsequent resubmissions. If a page has been left out of a CSF, it must be submitted with the code A#. If the entire CSF is to be resubmitted, it must be designated with the code RS#. A revised Form DC-2 should be submitted, and the submission codes and locations of the documents in the CSF shall be recorded in the "Other Records" section on the revised Form DC-2.

2.4.5 SDG Narrative

This document shall be clearly labeled "SDG Narrative" and shall contain: Laboratory Name, SOW Number, Contract Number, Case Number, SDG Number, Modified Analysis Number (if applicable), and detailed documentation of any QC, sample, shipment, and/or analytical problems encountered in processing the samples reported in the CSF.

2.4.5.1 The Contractor shall include any technical and administrative problems encountered, and the resolution or corrective actions taken. These problems may include, but are not limited to interference problems encountered during analysis, dilutions, reanalyses and/or reextractions performed, and any problems with the analysis of samples.

2.4.5.2 Document the alternative temperature technique used, if applicable, to determine shipping container temperature if a temperature indicator bottle is not present in the shipping container.

2.4.5.3 The Contractor shall also provide at least one example of each type of calculation, including relative response factors or calibration factors, as well as sample results to allow the recalculation of sample results from raw instrument output.

2.4.5.4 The Contractor shall also include a discussion of any SOW Modified Analyses. This includes attaching a copy of the approved modification form to the SDG Narrative.

2.4.5.5 The Contractor shall also identify and explain any differences which exist between the Form(s) 1-OR and supporting documentation provided in the data package and those previously provided as Preliminary Results.

2.4.5.6 SDG Narrative associated attachments, including, but not limited to:

- GC column information; and
- Unequivocal cross reference of laboratory to EPA Sample Numbers.

2.4.6 SDG Cover Page

Cover Page for the organic analyses data shall include: Laboratory Name; Laboratory Code; Contract Number; Case Number; SDG Number; Modified Analysis Number (MA No.) (if appropriate); SOW Number; EPA Sample Numbers in alphanumeric order cross-referenced with Laboratory Sample ID numbers; and Analytical Method.

2.4.6.1 The SDG Cover Page shall contain the following statement, verbatim: "I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature." This statement shall be

directly followed by the signature of the Laboratory Manager or designee with typed lines containing the signer's name and title, and the date of signature.

2.4.7 Trace Volatile Organics Sample Data Forms and Raw Data

2.4.7.1 Quality Control Summary

2.4.7.1.1 Deuterated Monitoring Compound Recovery [Form 2A-OR and Form 2B-OR].

2.4.7.1.2 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]. This data shall be provided upon the EPA Region's request for analysis of Matrix Spike/Matrix Spike Duplicates (MS/MSDs).

2.4.7.1.3 Method Blank Summary [Form 4-OR]. If more than a single form is necessary, forms shall be in chronological order by date of analysis of the blank, by instrument.

2.4.7.1.4 GC/MS Instrument Performance Check [Form 5-OR]. If more than a single form is necessary, forms shall be in chronological order, by instrument. Not required for Level 2a deliverables.

2.4.7.1.5 Internal Standard Area and Retention Time Summary [Form 8A-OR]. If more than a single form is necessary, forms shall be arranged in chronological order, by instrument. Not required for Level 2a deliverables.

2.4.7.2 Sample Data

Sample data shall be submitted with the organic analysis data reporting forms for all samples in the SDG. Data shall be arranged in increasing alphanumeric EPA Sample Number order. For Level 3 deliverables, the forms for each sample analysis shall be followed by the sample raw data for that analysis.

2.4.7.2.1 Organic Analysis Data Sheet [Form 1A-OR and Form 1B-OR]. Tabulated analytical results (identification and quantitation of the requested analytes shall be included). The validation and release of these results shall be authorized by a specific signed statement on the Cover Page. In the event that the Laboratory Manager cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.4.7.2.2 Appropriate concentration units shall be specified and entered on Form 1A-OR. The quantitative values shall be reported in units of micrograms/Liter (µg/L) for aqueous/water samples (no other units are acceptable). Analytical results shall be reported to two significant figures.

2.4.7.2.3 Tentatively Identified Compounds (TICs) [Form 1B-OR]. Form 1B-OR is the tabulated list of the highest probable match for up to 30 organic compounds that are not trace volatile, low/medium volatile, or semivolatile target analytes, Deuterated Monitoring Compounds (DMCs), internal standard compounds, or alkanes, and are not listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits. An alkane is defined as any hydrocarbon with the generic formula C_nH_{2n+2} (straight-chain or branched) or C_nH_{2n} (cyclic) that contains only C-H and C-C single bonds. The tabulated list includes the Chemical Abstracts Service (CAS) Number (if applicable), tentative identification, and

estimated concentration. This form shall be included even if no compounds are found. No duplicated CAS numbers should be reported for TICs. Follow the instructions in Exhibit D – Trace Concentrations of Volatile Organic Compounds Analysis, Section 11.1.2.4 when reporting TICs.

2.4.7.2.4 Reconstructed Total Ion Chromatograms (for each sample including dilutions and reanalyses). Reconstructed ion chromatograms shall be normalized to the largest nonsolvent component and shall contain the following header information:

- EPA Sample Number;
- Date and time of analysis;
- Gas Chromatograph/Mass Spectrometer (GC/MS) instrument identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.7.2.4.1 Internal standards and DMCs shall be labeled with the names of analytes, either directly out from the peak or on a printout of Retention Times (RTs) if RTs are printed over the peak. Labeling of other analytes is not required and should not detract from the legibility of the required labels.

2.4.7.2.4.2 If automated data system procedures are used for preliminary identification and/or quantitation of the target analytes, the complete data system report shall be included in the Level 3 CSF, in addition to the reconstructed ion chromatogram. The complete data system report shall include the following information:

- EPA Sample Number;
- Date and time of analysis;
- RT or scan number of identified target analytes;
- Ion used for quantitation with measured area;
- Copy of area table from data system;
- On-column concentration/amount, including units;
- GC/MS instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.7.2.4.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hardcopy printout of the Extracted Ion Current Profile (EICP) of the quantitation ion displaying the manual integration shall be included in the raw data. This applies to all trace volatile target analytes listed in Exhibit C – Organic

Target Analytes and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.7.2.4.4 Other Required Information for Level 3 reporting. For each sample, by each analyte identified, the following items shall be included in the data package:

- Copies of raw spectra and copies of background-subtracted mass spectra of trace volatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits that are identified in the sample and corresponding background-subtracted target analyte standard mass spectra. Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra; and
- Copies of mass spectra of organic analytes not listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits with associated best-match spectra (maximum of three best matches). Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra.

2.4.7.3 Standards Data

2.4.7.3.1 GC/MS Initial Calibration Data [Form 6A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Volatile standard(s) reconstructed ion chromatograms and quantitation reports for the five-point initial calibration, labeled as in Section 2.4.7.2.4. Spectra are not required.
- All initial calibration data that pertain to samples in the data package shall be included, regardless of when it was performed or for which Case. When more than one initial calibration is performed, the data shall be in chronological order, by instrument.
- Labels for standards shall reflect the concentrations of the non-ketone analytes in µg/L. (If the non-ketone analytes have a concentration of 5.0 µg/L, then the reported label shall be RRF5.0).
- EICPs displaying each manual integration.

2.4.7.3.2 Continuing Calibration Verification for GC/MS [Form 7A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Volatile standard(s) reconstructed ion chromatograms and quantitation reports for all continuing (12-hour) calibration verifications, labeled as in Section 2.4.7.2.4. Spectra are not required.

- When more than one Continuing Calibration Verification (CCV) is performed, forms shall be in chronological order, by instrument.
- EICPs displaying each manual integration.

2.4.7.3.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hard copy printout of the EICP of the quantitation ion displaying the manual integration shall be included in the raw data. This applies to all trace volatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.7.4 Quality Control Data – Raw data only required for Level 3 deliverables.

2.4.7.4.1 4-bromofluorobenzene data shall be arranged in chronological order by instrument for each 12-hour period, for each GC/MS system utilized.

- Bar graph spectrum, labeled as in Section 2.4.7.2.4.
- Mass listing, labeled as in Section 2.4.7.2.4.
- Reconstructed total ion chromatogram, labeled as in Section 2.4.7.2.4.

2.4.7.4.2 Blank data shall be arranged by type of blank (method, storage, or instrument) and shall be in chronological order, by instrument.

NOTE: This order is different from that used for samples.

- Tabulated results [Form 1A-OR].
- Tentatively Identified Compounds [Form 1B-OR] even if none are found.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.7.2.4.
- Target analyte spectra with laboratory-generated standard, labeled as in Section 2.4.7.2.4. Data systems that are incapable of dual display shall provide spectra in the following order:
  - Raw target compound spectra.
  - Enhanced or background-subtracted spectra.
  - Laboratory-generated standard spectra.
- GC/MS library search spectra for TICs, labeled as in Section 2.4.7.2.4.
- Quantitation/calculation of TIC concentrations.

2.4.7.4.3 Matrix Spike and Matrix Spike Duplicate Data

- Tabulated results [Form 1A-OR] of target analytes is required if MS/MSD analysis is requested at the time of scheduling by the EPA Region. Form 1B-OR is not required.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.7.2.4. Spectra are not required.

2.4.8 Low/Medium Volatile Organics Sample Data Forms and Raw Data

2.4.8.1 Quality Control Summary

2.4.8.1.1 Deuterated Monitoring Compound Recovery [Form 2A-OR and Form 2B-OR]

2.4.8.1.2 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]. This data shall be provided upon the EPA Region's request for analysis of MS/MSDs.

2.4.8.1.3 Method Blank Summary [Form 4-OR]. If more than a single form is necessary, forms shall be in chronological order by date of analysis of the blank, by instrument.

2.4.8.1.4 GC/MS Instrument Performance Check [Form 5-OR]. If more than a single form is necessary, forms shall be in chronological order, by instrument. Not required for Level 2a deliverables.

2.4.8.1.5 Internal Standard Area and Retention Time Summary [Form 8A-OR]. If more than a single form is necessary, forms shall be in chronological order, by instrument. Not required for Level 2a deliverables.

2.4.8.2 Sample Data

Sample data shall be submitted with the organic analysis data reporting forms for all samples in the SDG. Data shall be arranged in increasing alphanumeric EPA Sample Number order. For Level 3 deliverables, the forms for each sample analysis shall be followed by the sample raw data for that analysis.

2.4.8.2.1 Organic Analysis Data Sheet [Form 1A-OR and Form 1B-OR]. Tabulated analytical results (identification and quantitation) of the requested analytes shall be included. The validation and release of these results shall be authorized by a specific signed statement on the Cover Page. In the event that the Laboratory Manager cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.4.8.2.2 Appropriate concentration units shall be specified and entered on Form 1A-OR. The quantitative values shall be reported in units of µg/L for aqueous/water samples, milligrams/Liter (mg/L) for Toxicity Characteristic Leaching Procedure (TCLP) leachate samples, and micrograms/kilogram (µg/kg) for soil/sediment samples (no other units are acceptable). Results for soil/sediment samples shall be reported on a dry weight basis. Analytical results shall be reported to two significant figures.

2.4.8.2.3 Tentatively Identified Compounds (TICs) [Form 1B-OR]. Form 1B-OR is the tabulated list of the highest probable match for up to 30 organic compounds that are not trace volatile, low/medium volatile, or semivolatile target analytes, DMCs, internal standard compounds, or alkanes, and are not listed in

Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits. An alkane is defined as any hydrocarbon with the generic formula C_nH_{2n+2} (straight-chain or branched) or C_nH_{2n} (cyclic) that contains only C-H and C-C single bonds. The tabulated list includes the CAS Number (if applicable), tentative identification, and estimated concentration. This form shall be included even if no compounds are found. No duplicated CAS numbers should be reported for TICs. Follow the instructions in Exhibit D – Low/Medium Concentrations of Volatile Organic Compounds Analysis, Section 11.1.2.4 when reporting TICs.

2.4.8.2.4 Reconstructed Total Ion Chromatograms (for each sample including dilutions and reanalyses). Reconstructed ion chromatograms shall be normalized to the largest nonsolvent component and shall contain the following header information:

- EPA Sample Number;
- Date and time of analysis;
- GC/MS instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.8.2.4.1 Internal standards and DMCs shall be labeled with the names of analytes, either directly out from the peak or on a printout of RTs if RTs are printed over the peak. Labeling of other analytes is not required and should not detract from the legibility of the required labels.

2.4.8.2.4.2 If automated data system procedures are used for preliminary identification and/or quantitation of the target analytes, the complete data system report shall be included in the Level 3 CSF, in addition to the reconstructed ion chromatogram. The complete data system report shall include the following information:

- EPA Sample Number;
- Date and time of analysis;
- RT or scan number of identified target analytes;
- Ion used for quantitation with measured area;
- Copy of area table from data system;
- On-column concentration/amount, including units;
- GC/MS instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.8.2.4.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hardcopy printout of the EICP of the quantitation ion displaying the manual

integration shall be included in the raw data. This applies to all low/medium volatile target analytes listed in Exhibit C –Organic Target Analyte List and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.8.2.4.4 Other Required Information for Level 3 reporting. For each sample, by each analyte identified, the following items shall be included in the data package:

- Copies of raw spectra and copies of background-subtracted mass spectra of low/medium volatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits that are identified in the sample and corresponding background-subtracted target analyte standard mass spectra. Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra; and

- Copies of mass spectra of organic compounds not listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits with associated best-match spectra (maximum of three best matches). Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra.

2.4.8.3 Standards Data

2.4.8.3.1 GC/MS Initial Calibration Data [Form 6A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Volatile standard(s) reconstructed ion chromatograms and quantitation reports for the five-point initial calibration, labeled as in Section 2.4.8.2.4. Spectra are not required.

- All initial calibration data that pertain to samples in the data package shall be included, regardless of when it was performed or for which Case. When more than one initial calibration is performed, the data shall be in chronological order, by instrument.

- Labels for standards shall reflect the concentrations of the non-ketone analytes in µg/L. (If the non-ketone analytes have a concentration of 5.0 µg/L, then the reported label shall be RRF5.0).

NOTE: For low-level soil sediment samples, the concentration of the low standard is 2.5 µg/L. Since 10 mL purge volumes are required for low-level soil standards, the reported label shall be RRF2.5.

- EICPs displaying each manual integration.

2.4.8.3.2 Continuing Calibration Verification Data for GC/MS [Form 7A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Volatile standard(s) reconstructed ion chromatograms and quantitation reports for all continuing (12-hour) calibration verifications, labeled as in Section 2.4.8.2.4. Spectra are not required.
- When more than one CCV is performed, forms shall be in chronological order, by instrument.
- EICPs displaying each manual integration.

In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hardcopy printout of the EICP of the quantitation ion displaying the manual integration shall be included in the raw data. This applies to all low/medium volatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.8.4 Quality Control Data – Raw data only required for Level 3 deliverables.

2.4.8.4.1 4-bromofluorobenzene data shall be arranged in chronological order by instrument for each 12-hour period, for each GC/MS system utilized.

- Bar graph spectrum, labeled as in Section 2.4.8.2.4.
- Mass listing, labeled as in Section 2.4.8.2.4.
- Reconstructed total ion chromatogram, labeled as in Section 2.4.8.2.4.

2.4.8.4.2 Blank data shall be arranged by type of blank (method, storage, and instrument) and shall be in chronological order, by instrument.

NOTE: This order is different from that used for samples.

- Tabulated results [Form 1A-OR].
- Tentatively Identified Compounds [Form 1B-OR] even if none are found.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.8.2.4.
- Target analyte spectra with laboratory-generated standard, labeled as in Section 2.4.8.2.4. Data systems that are incapable of dual display shall provide spectra in the following order:
  - Raw target analyte spectra.
  - Enhanced or background-subtracted spectra.
  - Laboratory-generated standard spectra.
- GC/MS library search spectra for TICs, labeled as in Section 2.4.8.2.4.

- Quantitation/calculation of TIC concentrations.

2.4.8.4.3 Matrix Spike and Matrix Spike Duplicate Data

- Tabulated results [Form 1A-OR] of target analytes are required if MS/MSD analysis is requested at the time of scheduling by the EPA Region. Form 1B-OR is not required.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.8.2.4. Spectra are not required.

2.4.9 Semivolatile Organics Sample Data Forms and Raw Data

2.4.9.1 Quality Control Summary

2.4.9.1.1 Deuterated Monitoring Compound Recovery [Form 2A-OR and Form 2B-OR]

2.4.9.1.2 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]. This data shall be provided upon the EPA Region's request for analysis of MS/MSDs.

2.4.9.1.3 Method Blank Summary [Form 4-OR]. If more than a single form is necessary, forms shall be in chronological order by date of analysis of the blank, by instrument.

2.4.9.1.4 GC/MS Instrument Performance Check [Form 5-OR]. If more than a single form is necessary, forms shall be in chronological order, by instrument. Not required for Level 2a deliverables.

NOTE: For the SIM analysis technique, this form is required for analytical sequence although Instrument Performance Check information on this form is optional.

2.4.9.1.5 Internal Standard Area and Retention Time Summary [Form 8A-OR]. If more than a single form is necessary, forms shall be in chronological order, by instrument. Not required for Level 2a deliverables.

2.4.9.2 Sample Data

Sample data shall be submitted with the organic analysis data reporting forms for all samples in the SDG. Data shall be arranged in increasing alphanumeric EPA Sample Number order. For Level 3 deliverables, the forms for each sample analysis shall be followed by the sample raw data for that analysis.

Semivolatile sample data for SIM analysis shall be arranged together with the rest of the SIM Semivolatiles data at the end of the subsection.

2.4.9.2.1 Organic Analysis Data Sheet [Form 1A-OR and Form 1B-OR]. Tabulated analytical results (identification and quantitation) of the requested analytes shall be included. The validation and release of these results shall be authorized by a specific signed statement on the Cover Page. In the event that the Laboratory Manager cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.4.9.2.2 Appropriate concentration units shall be specified and entered on Form 1A-OR. The quantitative values shall be reported in units of µg/L for aqueous/water samples, mg/L for TCLP leachate samples, and µg/kg for soil/sediment samples (no other units are acceptable). Results for soil/sediment

samples shall be reported on a dry weight basis. Analytical results shall be reported to two significant figures.

2.4.9.2.3 Tentatively Identified Compounds (TICs) [Form 1B-OR]. Form 1B-OR is the tabulated list of the highest probable match for up to 30 organic compounds that are not trace volatile, low/medium volatile, and semivolatile target analytes, DMCs, internal standard compounds, or alkanes, and are not listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits. An alkane is defined as any hydrocarbon with the generic formula C_nH_{2n+2} (straight-chain or branched) or C_nH_{2n} (cyclic) that contains only C-H and C-C single bonds. The tabulated list includes the CAS Number (if applicable), tentative identification, and estimated concentration. This form shall be included even if no compounds are found. No duplicated CAS numbers should be reported for TICs. Follow the instructions in Exhibit D – Semivolatiles Organic Compounds Analysis Section 11.1.2.5 when reporting TICs.

2.4.9.2.4 Reconstructed Total Ion Chromatograms (for each sample including dilutions and reanalyses). Reconstructed ion chromatograms shall be normalized to the largest non-solvent component and shall contain the following header information:

- EPA Sample Number;
- Date and time of analysis;
- GC/MS instrument identifier;
- Laboratory File Identifier; and
- Analyst ID.

NOTE: Each Selected Ion Current Profile (SICP) for samples taken through the optional analysis using the SIM technique shall be labeled as in this section.

2.4.9.2.4.1 Internal standards and DMCs shall be labeled with the names of analytes, either directly out from the peak or on a printout of RTs if RTs are printed over the peak. Labeling of other analytes is not required and should not detract from the legibility of the required labels.

2.4.9.2.4.2 If automated data system procedures are used for preliminary identification and/or quantitation of the target analytes, the complete data system report shall be included in the Level 3 CSF, in addition to the reconstructed ion chromatogram. The complete data system report shall include the following information:

- EPA Sample Number;
- Date and time of analysis;
- RT or scan number of identified target analytes;
- Ion used for quantitation with measured area;
- Copy of area table from data system;
- On-column concentration/amount, including units;
- GC/MS instrument and column identifier;
- Laboratory File Identifier; and

- Analyst ID.

2.4.9.2.4.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hardcopy printout of the EICP of the quantitation ion displaying the manual integration shall be included in the raw data. This applies to all semivolatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.9.2.4.4 Other Required Information for Level 3 reporting. For each sample, by each analyte identified, the following items shall be included in the data package:

- Copies of raw spectra and copies of background-subtracted mass spectra of semivolatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits that are identified in the sample and corresponding background-subtracted target analyte standard mass spectra. This includes target analytes that are identified during the optional analysis using the SIM technique. Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra; and

- Copies of mass spectra of organic analytes not listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits with associated best-match spectra (maximum of three best matches). Spectra shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/MS instrument identifier. Analyte names shall be clearly marked on all spectra.

2.4.9.3 Standards Data

2.4.9.3.1 GC/MS Initial Calibration Data [Form 6A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Semivolatile standard(s) reconstructed ion chromatograms and quantitation reports for the five-point initial calibration, labeled as in Section 2.4.9.2.4. Spectra are not required.

- All initial calibration data that pertain to samples in the data package shall be included, regardless of when it was performed or for which Case. When more than one initial calibration is performed, the data shall be in chronological order, by instrument.

- Labels for standards shall reflect the concentrations of the analytes in ng/µL. (If the target analytes have a concentration of 5.0 ng/µL, then the reported label shall be RRF5.0).
- EICPs displaying each manual integration.

2.4.9.3.2 Continuing Calibration Verification for GC/MS [Form 7A-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables.

For Level 3 deliverables, the Contactor shall submit the following raw data:

- Semivolatile standard(s) reconstructed ion chromatograms and quantitation reports for all continuing (12-hour) calibration verifications, labeled as in Section 2.4.9.2.4. Spectra are not required.
- When more than one CCV is performed, forms shall be in chronological order, by instrument.
- EICPs displaying each manual integration.

2.4.9.3.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC/MS instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the integration scan range. The GC/MS instrument operator shall also mark each integrated area with the letter "m" on the quantitation report. In addition, a hardcopy printout of the EICP of the quantitation ion displaying the manual integration shall be included in the raw data. This applies to all semivolatile target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, internal standards, and DMCs.

2.4.9.4 Quality Control Data – Raw data only required for Level 3 deliverable.

2.4.9.4.1 DFTPP data shall be arranged in chronological order by instrument for each 12-hour period, for each GC/MS system utilized. Not required for Level 2a deliverables.

- Bar graph spectrum, labeled as in Section 2.4.9.2.4.
- Mass listing, labeled as in Section 2.4.9.2.4.
- Reconstructed total ion chromatogram, labeled as in Section 2.4.9.2.4.

2.4.9.4.2 Blank data shall be arranged by type of blank (method) and shall be in chronological order, by instrument.

NOTE: This order is different from that used for samples.

- Tabulated results [Form 1A-OR].
- Tentatively Identified Compounds [Form 1B-OR] even if none are found.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.9.2.4.

- Target analyte spectra with laboratory-generated standard, labeled as in Section 2.4.9.2.4. Data systems that are incapable of dual display shall provide spectra in the following order:
  - Raw target analyte spectra.
  - Enhanced or background-subtracted spectra.
  - Laboratory-generated standard spectra.
- GC/MS library search spectra for TICs, labeled as in Section 2.4.9.2.4.
- Quantitation/calculation of TIC concentrations.

2.4.9.4.3 Matrix Spike and Matrix Spike Duplicate Data

- Tabulated results [Form 1A-OR] of target analytes are required if MS/MSD analysis is requested at the time of scheduling by the EPA Region. Form 1B-OR is not required.
- Reconstructed ion chromatogram(s) and quantitation report(s), labeled as in Section 2.4.9.2.4. Spectra are not required.

2.4.10 Pesticide Organics Sample Data Forms and Raw Data

2.4.10.1 Quality Control Summary

2.4.10.1.1 Surrogate Recovery [Form 2C-OR]

2.4.10.1.2 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]. MS/MSD analysis is required for the pesticide method unless otherwise specified by the EPA Region. See Exhibit D – Pesticides Analysis for frequency.

2.4.10.1.3 Laboratory Control Sample Recovery [Form 3B-OR]

2.4.10.1.4 Method Blank Summary [Form 4-OR]. If more than a single form is necessary, forms shall be in chronological order by date of analysis of the blank, by instrument.

2.4.10.2 Sample Data

Sample data shall be submitted with the organic analysis data reporting forms for all samples in the SDG. Data shall be arranged in increasing alphanumeric EPA Sample Number order. For Level 3 deliverables, the form for each sample shall be followed by the sample raw data for both analyses.

2.4.10.2.1 Organic Analysis Data Sheet [Form 1A-OR]. The lower concentration of the requested analytes tabulated (identification and quantitation) using both analytical GC columns must be reported. The validation and release of these results shall be authorized by a specific signed statement on the Cover Page. In the event that the Laboratory Manager cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.4.10.2.2 Appropriate concentration units shall be specified and entered on Form 1A-OR. The quantitative values shall be reported in units of µg/L for aqueous/water samples, mg/L for TCLP leachate samples, and µg/kg for soil/sediment samples (no other units are acceptable). Results for soil/sediment

samples shall be reported on a dry weight basis. Analytical results shall be reported to two significant figures.

2.4.10.2.3 Chromatograms (for each sample including dilutions and reanalyses). Chromatograms shall be normalized to the largest non-solvent component and shall contain the following header information:

- EPA Sample Number;
- Date and time of analysis;
- Gas Chromatograph/Electron Capture Detector (GC/ECD) instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.10.2.4 Surrogates shall be labeled with the names of analytes, either directly out from the peak or on a printout of RTs if RTs are printed over the peak. Labeling of other analytes is not required and should not detract from the legibility of the required labels.

2.4.10.2.4.1 If automated data system procedures are used for preliminary identification and/or quantitation of the target analytes, the complete data system report shall be included in the Level 3 CSF, in addition to the chromatogram. The complete data system report shall include the following information:

- EPA Sample Number;
- Date and time of analysis;
- RT of identified target analytes;
- Peak area responses used for quantitation;
- On-column concentration/amount, including units;
- GC/ECD instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.10.2.4.2 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the properly scaled raw chromatogram that clearly shows the manual integration. The GC instrument operator shall also mark each integrated area with the letter "m" on the quantitation report, and initial and date the changes. This applies to all pesticide target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits and surrogates.

2.4.10.2.4.3 Other Required Information for Level 3 reporting. For each sample, by each analyte identified, the following items shall be included in the data package:

- Copies of raw chromatograms from both GC columns used to analyze the pesticide target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits. Chromatograms shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/ECD instrument identifier. Analyte names shall be clearly marked on all chromatograms.

2.4.10.3 Standards Data

2.4.10.3.1 Initial Calibration Data [Form 6B-OR, 6C-OR, 6D-OR, 6E-OR, 6F-OR, and 6G-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Pesticide standard(s) chromatograms and quantitation reports for the five-point initial calibration, labeled as in Section 2.4.10.2.3. The calibration factors and retention times for each concentration level of Pesticide target analytes and surrogates.
- All initial calibration data that pertain to samples in the data package shall be included, regardless of when it was performed and for which Case. When more than one initial calibration is performed, the data shall be in chronological order, by instrument.
- Labels for standards shall reflect the concentration levels of the initial calibration standards. The lowest level is labeled as CF1, the next level is labeled sequentially as CF2, and the 5th level is labeled as CF5.
- Chromatograms displaying each manual integration.

2.4.10.3.2 Continuing Calibration Verification Data [Form 7B-OR, 7C-OR, and 7D-OR] shall be included in order by instrument, for each instrument used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Pesticide standard(s) chromatograms and quantitation reports for all continuing (12-hour) calibration verifications, labeled as in Section 2.4.10.2.3.
- When more than one CCV is performed, forms shall be in chronological order, by instrument.
- Chromatograms displaying each manual integration.

2.4.10.3.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the properly scaled raw chromatogram that clearly shows the manual integration. The GC instrument operator shall also mark each integrated area with the letter "m" on the quantitation report, initial and date the changes. This applies to all pesticide target analytes listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits and surrogates.

2.4.10.3.4 Analytical Sequence [Form 8B-OR] for pesticide analyses must be included for each GC column used. Not required for Level 2a deliverables.

2.4.10.3.5 Florisil Cartridge Check [Form 9A-OR] for mandatory cleanup of sample extracts. Florisil check chromatograms and quantitation reports for each lot of Florisil cartridge used to cleanup up sample extracts must be included. Not required for Level 2a deliverables.

2.4.10.3.6 GPC Calibration Verification [Form 9B-OR] for sample extracts that underwent GPC cleanup. GPC check and GPC blank chromatograms and quantitation reports must be reported weekly for each GPC system used to cleanup sample extracts included in the SDG. Not required for Level 2a deliverables.

2.4.10.3.7 Identification Summary [Form 10A-OR and 10B-OR] for all samples with positively identified single and multi-component analytes, in order by increasing EPA Sample Number. Form 10B-OR not required for Level 2a deliverables.

2.4.10.4 Quality Control Data – Raw data only required for Level 3 deliverables.

2.4.10.4.1 QC data shall be arranged in chronological order by instrument for each 12-hour period, for each GC/ECD system utilized.

- Chromatogram, labeled as in Section 2.4.10.2.3.

2.4.10.4.2 Blank data shall be arranged by type of blank (method and instrument) and shall be in chronological order, by instrument.

NOTE: This order is different from that used for samples.

- Tabulated results [Form 1A-OR].
- Chromatograms and quantitation report from each analytical GC column used for analysis, labeled as in Section 2.4.10.2.3.
- Quantitation/calculation of analyte and surrogate concentrations.

2.4.10.4.3 Laboratory Control Sample Data

- Tabulated results [Form 1A-OR] of target analytes from each analytical column used for analysis.
- Chromatogram(s) and quantitation report(s), labeled as in Section 2.4.10.2.3.

2.4.10.4.4 Matrix Spike and Matrix Spike Duplicate Data

- Tabulated results [Form 1A-OR] of target analytes from each analytical column used for analysis.
- Chromatogram(s) and quantitation report(s), labeled as in Section 2.4.10.2.3.

2.4.11 Aroclor Organics Sample Data Forms and Raw Data

2.4.11.1 Quality Control Summary

2.4.11.1.1 Surrogate Recovery [Form 2C-OR]

2.4.11.1.2 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]. MS/MSD analysis is required for the Aroclor method unless otherwise specified by the EPA Region. See Exhibit D – Aroclors Analysis for frequency.

2.4.11.1.3 Laboratory Control Sample Recovery [Form 3B-OR]

2.4.11.1.4 Method Blank Summary [Form 4-OR]. If more than a single form is necessary, forms shall be in chronological order by date of analysis of the blank, by instrument.

2.4.11.2 Sample Data

Sample data shall be submitted with the organic analysis data reporting forms for all samples in the SDG. Data shall be arranged in increasing alphanumeric EPA Sample Number order. For Level 3 deliverables, the form for each sample shall be followed by the sample raw data for both analyses.

2.4.11.2.1 Organic Analysis Data Sheet [Form 1A-OR]. The lower concentration of the requested analytes tabulated (identification and quantitation) using both analytical GC columns must be reported. The validation and release of these results shall be authorized by a specific signed statement on the Cover Page. In the event that the Laboratory Manager cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.4.11.2.2 Appropriate concentration units shall be specified and entered on Form 1A-OR. The quantitative values shall be reported in units of µg/L for aqueous/water samples and µg/kg for soil/sediment samples (no other units are acceptable). Results for soil/sediment samples shall be reported on a dry weight basis. Analytical results shall be reported to two significant figures.

2.4.11.2.3 Chromatograms (for each sample including dilutions and reanalyses). Chromatograms shall be normalized to the largest non-solvent component and shall contain the following header information:

- EPA Sample Number;
- Date and time of analysis;
- GC/ECD instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.11.2.4 Surrogates shall be labeled with the names of analytes, either directly out from the peak or on a printout of RTs if RTs are printed over the peak. Labeling of other analytes is not required and should not detract from the legibility of the required labels.

2.4.11.2.4.1 If automated data system procedures are used for preliminary identification and/or quantitation of the target analytes, the complete data system report shall be included in Level 3 CSF, in addition to the chromatogram.

The complete data system report shall include the following information:

- EPA Sample Number;
- Date and time of analysis;
- RT of identified target analytes;
- Peak area responses used for quantitation;
- On-column concentration/amount, including units;
- GC/ECD instrument and column identifier;
- Laboratory File Identifier; and
- Analyst ID.

2.4.11.2.4.2 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the properly scaled raw chromatogram that clearly shows the manual integration. The GC instrument operator shall also mark each integrated area with the letter "m" on the quantitation report, and initial and date the changes. This applies to all Aroclor target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits and surrogates.

2.4.11.2.4.3 Other Required Information for Level 3 reporting. For each sample, by each analyte identified, the following items shall be included in the data package:

- Copies of raw chromatograms from both GC columns used to analyze the Aroclor target analytes listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits. Chromatograms shall be labeled with EPA Sample Number, Laboratory File Identifier, date and time of analysis, and GC/ECD instrument identifier. Analyte names shall be clearly marked on all chromatograms.

2.4.11.3 Standards Data

2.4.11.3.1 Initial Calibration Data [Form 6D-OR, 6E-OR, and 6F-OR] shall be included in order by instrument, if more than one instrument is used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Aroclor standard(s) chromatograms and quantitation reports for the five-point initial calibration and for the single-point calibration, labeled as in Section 2.4.11.2.3. The calibration factors and retention times for each concentration level of Aroclor target analytes and surrogates.
- All initial calibration data that pertain to samples in the data package shall be included, regardless of when it was performed or for which Case. When more than one initial calibration is performed, the data shall be in chronological order, by instrument.

- Labels for standards shall reflect the concentration levels of the initial calibration standards. The lowest level is labeled as CF1, the next level is labeled sequentially as CF2, and the 5th level is labeled as CF5.
- Chromatograms displaying each manual integration.

2.4.11.3.2 Continuing Calibration Verification Data [Form 7D-OR] shall be included in order by instrument, for each instrument used. Not required for Level 2a deliverables. For Level 3 deliverables, the Contractor shall submit the following raw data:

- Aroclor standard(s) chromatograms and quantitation reports for all continuing (12-hour) calibration verifications, labeled as in Section 2.4.11.2.3.
- When more than one CCV is performed, forms shall be in chronological order, by instrument.
- Chromatograms displaying each manual integration.

2.4.11.3.3 In all instances where the data system report has been edited, or where manual integration or quantitation has been performed, the GC instrument operator shall identify such edits or manual procedures by initialing and dating the changes made to the report, and shall include the properly scaled raw chromatogram that clearly shows the manual integration. The GC instrument operator shall also mark each integrated area with the letter "m" on the quantitation report, initial and date the changes. This applies to all Aroclor target analytes listed in Exhibit C - Organic Target Analyte List and Contract Required Quantitation Limits and surrogates.

2.4.11.3.4 Analytical Sequence [Form 8B-OR] for Aroclor analyses must be included for each GC column used. Not required for Level 2a deliverables.

2.4.11.3.5 GPC Calibration Verification [Form 9B-OR] for sample extracts that underwent GPC cleanup. GPC check and GPC blank chromatograms and quantitation reports must be reported weekly for each GPC system used to cleanup sample extracts included in the SDG. Not required for Level 2a deliverables.

2.4.11.3.6 Identification Summary [10B-OR] for all samples with positively identified Aroclor target analytes, in order by increasing EPA Sample Number. Not required for Level 2a deliverables.

2.4.11.4 Quality Control Data – Raw data only required for Level 3 deliverables.

2.4.11.4.1 QC data shall be arranged in chronological order by instrument for each 12-hour period, for each GC/ECD system utilized.

- Chromatogram, labeled as in Section 2.4.11.2.3.

2.4.11.4.2 Blank data shall be arranged by type of blank (method and instrument) and shall be in chronological order, by instrument.

NOTE: This order is different from that used for samples.

- Tabulated results [Form 1A-OR].
- Chromatograms and quantitation report from each analytical GC column used for analysis, labeled as in Section 2.4.11.2.3.
- Quantitation/calculation of analyte and surrogate concentrations.

2.4.11.4.3 Laboratory Control Sample Data

- Tabulated results [Form 1A-OR] of target analytes from each analytical column used for analysis.
- Chromatogram(s) and quantitation report(s), labeled as in Section 2.4.11.2.3.

2.4.11.4.4 Aroclor Matrix Spike and Matrix Spike Duplicate Data

- Tabulated results [Form 1A-OR] of target analytes from each analytical column used for analysis.
- Chromatogram(s) and quantitation report(s), labeled as in Section 2.4.11.2.3.

2.5 Copy of Complete Sample Delivery Group File

The laboratory shall provide a copy of the CSF and a PDF file to SMO, as specified in Table 1 – Deliverable Schedule, of this Exhibit.

2.6 Electronic Data Deliverables

The Contractor shall provide the required electronic data deliverable as specified in Table 1 – Deliverable Schedule, of this Exhibit.

2.6.1 Electronic Data Delivery in Staged Electronic Data Deliverable

The Contractor shall provide an EDD in SEDD format for Levels 2a, 2b, and 3. The EDD shall include analytical data for all samples in the SDG, as specified in Exhibit H – Format for Electronic Data Deliverables.

2.6.2 Portable Document Format of Complete Sample Delivery Group File

The Contractor shall provide a complete copy of the CSF, and any additional or reconciled hardcopy deliverables, in a PDF file via EXES at http://epasmoweb.fedcsc.com, and follow the naming convention for the PDF file. The format of the PDF file should be HCD_Case Number_SDG Number_Contract Number_Submission Type.

2.6.2.1 The following identifiers are used based on submission type:

TABLE 2. PDF SUBMISSION IDENTIFIERS

Submission Type	Identifier
First Submission	FS
Replacement Submission (if a complete replacement of the first submission PDF is required)	RS
Reconciliation Submission	R# (The # character represents the number of the reconciliation. For example, the first reconciliation submission would be identified as R1.)
Additional Data Submission	A# (The # character represents the number of the additional data submissions. For example, the first additional data submission would be identified as A1.)

2.6.2.1.1 The PDF file shall be organized in accordance with the directions provided in Exhibit B, Section 2.0 of the SOW.

2.6.2.1.2 Organic data shall be bookmarked using a hierarchical bookmark structure (i.e., an overview or "parent" bookmark, and a subordinate or "child" bookmark nested underneath the "parent" bookmark). The required hierarchical structure is shown in Table 3 – Hierarchical Bookmark Structure.

TABLE 3. HIERARCHICAL BOOKMARK STRUCTURE

Group Bookmark	Parent Bookmark	Child Bookmark
SDG Cover Page, Sample TR/COC Records, Form DC-1, Form DC-2, and SDG Narrative		
Trace Volatile Organic Data	QC Summary	Deuterated Monitoring Compound Recovery
		Matrix Spike and Matrix Spike Duplicate Sample Recovery
		Method Blank Summary
		Instrument Performance Check
		Internal Standard
	Sample Data	Organic Analysis Data Sheet in increasing alphanumeric EPA Sample Number order
		Tentatively Identified Compounds (with supporting raw data)
	Standards Data	Initial Calibration
		Continuing Calibration Verification

TABLE 3. HIERARCHICAL BOOKMARK STRUCTURE (CON'T)

Group Bookmark	Parent Bookmark	Child Bookmark
Trace Volatile Organic Data (Cont'd)	QC Data	GC/MS Raw Data
		GC/MS Performance Check Raw Data
		Blanks
		Matrix Spike and Matrix Spike Duplicate Data
		Preparation Logs
		Standard and Reagent Preparation Logs
		Analysis Logs
Low/Medium Volatile Organic Data	QC Summary	Deuterated Monitoring Compound Recovery
		Matrix Spike and Matrix Spike Duplicate Sample Recovery
		Method Blank Summary
		Instrument Performance Check
		Internal Standard
	Sample Data	Organic Analysis Data Sheet in increasing alphanumeric EPA Sample Number order
		Tentatively Identified Compounds (with supporting raw data)
	Standards Data	Initial Calibration
		Continuing Calibration Verification
	QC Data	GC/MS Raw Data
		GC/MS Performance Check Raw Data
		Blanks
		Matrix Spike and Matrix Spike Duplicate Data
		Preparation Logs
		Standard and Reagent Preparation Logs
		TCLP/SPLP Logbooks
		Analysis Logs
Semivolatile Organic Data	QC Summary	Deuterated Monitoring Compound Recovery
		Matrix Spike and Matrix Spike Duplicate Sample Recovery
		Method Blank Summary
		Instrument Performance Check
		Internal Standard
	Sample Data	Organic Analysis Data Sheet in increasing alphanumeric EPA Sample Number order
		Tentatively Identified Compounds (with supporting raw data)
	Standards Data	Initial Calibration
		Continuing Calibration Verification
	QC Data	GC/MS Raw Data
		GC/MS Performance Check Raw Data
		Blanks
		Matrix Spike and Matrix Spike Duplicate Data
		Preparation Logs
		Standard and Reagent Preparation Logs
		TCLP/SPLP Logbooks
		Analysis Logs

TABLE 3. HIERARCHICAL BOOKMARK STRUCTURE (CON'T)

Group Bookmark	Parent Bookmark	Child Bookmark
Pesticide Data	QC Summary	Surrogate Recovery
		Matrix Spike and Matrix Spike Duplicate Sample Recovery
		Laboratory Control Sample Recovery
		Method Blank Summary
	Sample Data	Organic Analysis Data Sheet (with supporting raw data) in increasing alphanumeric EPA Sample Number order
	Standards Data	Resolution Checks
		Instrument Performance Checks
		Initial Calibration
		Continuing Calibration Verification
		Analytical Sequence
		Cleanup Checks
		Analyte Identification Summary
	QC Data	Blanks
		Matrix Spike and Matrix Spike Duplicate Data
		Laboratory Control Sample Data
		Preparation Logs
		TCLP/SPLP Logbooks
		Standard and Reagent Preparation Logs
		Analysis Logs
Aroclor Data	QC Summary	Surrogate Recovery
		Matrix Spike and Matrix Spike Duplicate Sample Recovery
		Laboratory Control Sample Recovery
		Method Blank Summary
	Sample Data	Organic Analysis Data Sheet (with supporting raw data) in increasing alphanumeric EPA Sample Number order
	Standards Data	Initial Calibration
		Continuing Calibration Verification
		Analytical Sequence
		Cleanup Checks
		Analyte Identification Summary
	QC Data	Blanks
		Matrix Spike and Matrix Spike Duplicate Data
		Laboratory Control Sample Data
		Preparation Logs
		Standard and Reagent Preparation Logs
		Analysis Logs
Receiving Documents, Transfer Records, and Miscellaneous	Additional Documents	Receiving Logbooks
		Internal Sample, Sample Extract, and Transfer Chain-of-Custody Records
		PE/PT Instruction Forms
		Communication Logs

2.7 Preliminary Results

The Form(s) 1-OR data results (including all appropriate qualifiers and flags) shall be submitted for all samples in one SDG of a Case. Sample analysis shall follow all requirements stipulated in Exhibit D. The Contractor shall clearly identify the Preliminary Results by labeling each Form(s) 1-OR as "Preliminary Results" under the form title (i.e., under Organic Analysis Data Sheet). The Contractor shall also include a disclaimer on all Form(s) 1-OR stating that the "Data results contained on this Form 1 are for screening purposes only, and may not have been validated for CLP criteria". Sample TR/COC Records and SDG Cover Page (per Exhibit B, Section 2.7.1) shall be submitted with the Preliminary Results.

2.7.1 The Contractor shall submit the SDG Cover Page following the specifications in Exhibit B, Section 2.4.6 and 3.4.1. The SDG Cover Page shall be clearly labeled to indicate that the data being reported are Preliminary Results. The SDG Cover Page shall contain the following statement, verbatim: "I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy Data Package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature". This statement shall be directly followed by the signature of the Laboratory Manager or designee with typed lines containing the signer's name and title, and the date of signature.

2.8 Method Detection Limits

The Contractor shall perform and report determination of the MDLs by the method specified in Exhibit D – Analytical Methods for each instrument used under this contract.

The Contractor shall deliver all determined MDLs to SMO and QATS electronically in the format described in Appendix A – Format Characteristics for Method Detection Limit Study Data, of Exhibit H – Format for Electronic Deliverables, according to the delivery schedule specified in Table 1 – Deliverable Schedule, of Exhibit B – Reporting and Deliverables Requirements.

Submission of the study data for the determination of method and instrument parameters, to QATS only, shall include the data used to determine the values reported. The Contractor shall provide MDL raw data including sample, calibration, and QC data and supporting documentation, including, but not limited to: Extraction Logs, Standard and Reagent Preparation Logs, and Analysis Logs, where applicable, to QATS only, according to the delivery schedule specified in Table 1 – Deliverable Schedule, of Exhibit B – Reporting and Deliverables Requirements.

3.0 FORM INSTRUCTIONS

3.1 Introduction

This section contains specific instructions for the completion of all required Organic Data Reporting Forms.

3.2 General Information

Values shall be reported on the hardcopy forms according to the respective form instructions in this section.

3.2.1 The data reporting forms discussed in Exhibit B, Section 3.4, and presented in Exhibit B, Section 4.0, have been designed in conjunction with the electronic data format specified in Exhibit H – Format for Electronic Data Deliverables. Information entered on these forms shall **not** exceed the size of the field given on the form, including such laboratory-generated items as "Lab Name" and "Lab Sample ID". See Table 4 – Required Forms for Reporting Level, for a listing of required forms by reporting level.

TABLE 4. REQUIRED FORMS FOR REPORTING LEVEL

Level	Required Forms
SEDD 2a	Forms 1, 2, 3, 4
SEDD 2b	Forms 1-10 (all Forms)
SEDD 3	Forms 1-10 (all Forms)

3.2.2 All characters which appear on the data reporting forms presented in Section 4.0 shall be reproduced by the Contractor when submitting data, and the format of the forms submitted shall provide exactly the same information as that shown in the contract. No information may be added, deleted, or moved from its specified position. The names of various fields and analytes (i.e., "Lab Code", "Extract Volume") shall appear as they are listed in Exhibits B – Reporting and Deliverables Requirements, and Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, of this SOW.

3.2.3 Rounding Rules

For rounding off numbers to the appropriate level of precision, observe the following common rules. If the figure following those to be retained is greater than or equal to 5, the result is to be rounded up; otherwise the result is rounded down. For example, 0.4365 rounds to 0.44 and 102.4443 rounds to 100. Also see "Rounding Rules" in Exhibit G – Glossary of Terms.

3.2.3.1 Before evaluating a number for being in control or out of control of a certain limit [other than the Contract Required Quantitation Limit (CRQL)], the number evaluated shall be rounded using the above rounding rules to the significance reported for that limit. For example, the control limit for a surrogate Percent Recovery (%R) is 30-150%. Then a calculated %R of 150.46 shall be reported on Form 2C-OR as 150, which is within the control limits of 30-150. On the other hand, a calculated %R of 150.5 shall be reported on Form 2C-OR as 151, which is not within the 30-150 percent control limits.

3.3 Header and General Form Information

Six pieces of information are common to the header sections of each data reporting form. These are Lab Name, Contract, Lab Code, Case Number (Case No.), Modified Analysis Number (MA No.), and SDG Number (SDG No.). Except as noted below for MA No., this information shall be entered on every form and shall match on all forms.

3.3.1 "Lab Name" shall be the name chosen by the Contractor to identify the laboratory.

3.3.2 "Contract" is the number of the EPA contract under which the analyses were performed.

3.3.3 "Lab Code" is an alphanumeric abbreviation, assigned by the EPA, to identify the laboratory and aid in data processing. This Lab Code will be assigned by the EPA at the time a contract is awarded and shall not be modified by the Contractor, except at the direction of the EPA Contracting Officer (CO). If a change of name or ownership occurs at the laboratory, the Lab Code will remain the same unless and until the Contractor is directed by the EPA CO to use another EPA-assigned Lab Code.

3.3.4 "Case No." is the SMO-assigned Case Number associated with the sample, and reported on the TR/COC Record or sample shipping paperwork.

3.3.5 "MA No." is the EPA-assigned number for analyses performed for an analytical method under the Modified Analysis clause in Exhibit A – Summary of Requirements. If samples are to be analyzed under the Modified Analysis clause, the Contractor shall list the modification reference number on all forms. If the analyses have no modified requirements, leave the "MA No." field blank.

3.3.6 "SDG No." is the SDG Number.

3.3.7 "EPA SAMPLE NO." appears either in the header information of the form or as the left column of a table summarizing data from a number of samples.

3.3.7.1 All samples, dilutions, reanalyses, leachates, blanks, matrix spikes, matrix spike duplicates, laboratory control samples, and standards shall be identified with an EPA Sample Number. For samples, an EPA Sample Number is the unique identifying number given on the TR/COC Record or sample shipping records that accompanied that sample. In order to facilitate data assessment, the sample suffixes listed in Exhibit B, Table 5 - Codes for Labeling Data, must be used.

TABLE 5. CODES FOR LABELING DATA[1,2,3,4]

Name	Sample Number
Sample in SDG (TCLP/SPLP Leachate included)	XXXXX
Sample Not Part of the SDG	ZZZZZ
Matrix Spike[1]	XXXXXMS
Matrix Spike Duplicate[1]	XXXXXMSD
Re-extracted and reanalyzed Sample	XXXXXRX
Re-extracted and reanalyzed Sample at a dilution	XXXXXRXDL
Reanalyzed (re-injected) Sample	XXXXXRE
Reanalyzed (re-injected) Sample at a dilution	XXXXXREDL
Sample analyzed at a dilution	XXXXXDL
Sample analyzed at a secondary dilution	XXXXXDL2

TABLE 5. CODES FOR LABELING DATA[1,2,3,4] (CON'T)

Name	Sample Number
Sample analyzed at a third dilution	XXXXXDL3
Soil/sediment samples analyzed using the medium level method when the low-level analysis of the same sample is also present	XXXXXME
Instrument Calibration Standards:	
Volatile Instrument Performance Checks	BFB##
Semivolatile Instrument Performance Checks	DFTPP##
Volatile Standard[2]	VSTD***##
Semivolatile Standard[2]	SSTD***##
Pesticides Resolution Check	RESC##
Pesticides Performance Evaluation Mixture	PEM##
Pesticides Individual Mixture A (CS*)[3]	INDA*##
Pesticides Individual Mixture B (CS*)[3]	INDB*##
Pesticides Individual Mixture C (CS*)[3]	INDC*##
Toxaphene (CS*)[3]	TOXAPH*##
Aroclor 1016 (CS*)[3]	AR1016*##
Aroclor 1221 (CS*)[3]	AR1221*##
Aroclor 1232 (CS*)[3]	AR1232*##
Aroclor 1242 (CS*)[3]	AR1242*##
Aroclor 1248 (CS*)[3]	AR1248*##
Aroclor 1254 (CS*)[3]	AR1254*##
Aroclor 1260 (CS*)[3]	AR1260*##
Aroclor 1262 (CS*)[3]	AR1262*##
Aroclor 1268 (CS*)[3]	AR1268*##
Aroclor 1016/1260 Mixture (CS*)[3]	AR1660*##
QC Sample:	
Volatile Method Blank	VBLK##
Volatile Instrument Blank	VIBLK##
Volatile Storage Blank	VHBLK##
Volatile Leachate Extraction Blank	VLEB##
Semivolatile Method Blank	SBLK##
Semivolatile Leachate Extraction Blank	SLEB##
Pesticide Method Blank	PBLK##
Pesticide Instrument Blank[1]	PIBLK##
Pesticide Sulfur Blank	PSBLK##
Pesticide Leachate Extraction Blank	PLEB##
Pesticide Laboratory Control Sample	PLCS##
Aroclor Method Blank	ABLK##
Aroclor Instrument Blank[1]	AIBLK##
Aroclor Sulfur Blank	ASBLK##
Aroclor Laboratory Control Sample[1]	ALCS##
Florisil Cleanup Sample[4]	FLO#########
Gel Permeation Chromatograph Cleanup Sample[5]	GPC#########

Footnotes:

[1] When reporting results on forms, "1" or "2" is appended to the EPA Sample Number indicating that the results are from Gas Chromatograph (GC) column (1), [e.g., PLCS01(1) or PLCS01(2) for the second column].

[2] *** = concentration of the standards in µg/L (e.g., 005, 010, etc.). When standard concentrations for semivolatile analysis are in nanograms/microliter (ng/µl) use 005, 010, 020, 040, and 080. Use 0.10, 0.20, 0.40, 0.80, and 1.6 for the SIM analysis of Polynuclear Aromatic Hydrocarbon analytes and pentachlorophenol.

is the identifier with one or two characters or numbers, or a combination of both.

[3] * = standard level for GC/ECD analyses where numbers 1-5 usually represent the standard levels analyzed from low to high as specified in Exhibit D. For example, INDA1## represents the lowest level ICAL standard and INDA5## for the highest level.

[4] ######### is the Florisil cartridge lot number.

[5] ######### is the GPC column ID.

3.3.7.2 These sample numbers shall be listed on the form in ascending alphanumeric order. Thus, if A1111 is the lowest (considering both alpha and numeric characters) EPA Sample Number within the SDG, it would be entered in the first EPA Sample Number field. Samples would be listed below it, in ascending sequence – A1111, A1111MS, A1111MSD, AB125, AC111, etc.

3.3.8 "Matrix" is the matrix of the sample. Enter "Soil" for soil/sediment samples and "Water" for aqueous/water and leachate samples, as appropriate.

3.3.9 "Analytical Method" is the method used to analyze the sample. Enter "Trace VOA", "VOA", "SVOA", "SVOA SIM", "PEST" or "ARO", as appropriate.

3.3.10 "Level" is applicable to the soil/sediment samples and blanks analyzed by volatile and semivolatile methods. Enter "LOW" for the low level analysis and "MED" for the medium level analysis.

3.3.11 "Lab Sample ID" is an optional laboratory-generated internal identifier. If the Contractor does not have a Lab Sample ID, this field may be left blank. However, if this identifier is used on any of the forms or accompanying hardcopy data deliverables, it must be reported on all the appropriate forms.

3.3.12 "Sample wt/vol:" is the aliquot amount of the sample used for sample analysis or extraction. Enter the number of grams as measured for soil/sediment samples. Enter the volumes as measured for water samples. Report weights and volumes to three significant figures (e.g., 10.0 g, 955 mL).

3.3.13 "Lab File ID" is the laboratory-generated name of the instrument data system file containing information pertaining to a particular analysis.

3.3.14 "% Solids" is the percent solids of the soil/sediment sample as determined by the procedure in Exhibit D – General Organic Analysis. Report the calculated % Solids to three significant figures.

3.3.15 "Date Extracted" is applicable to samples that have undergone an extraction procedure by the analytical method. The format of MM/DD/YYYY shall be used for the date. When continuous liquid-liquid extraction procedures are used for water samples, enter the date that the procedure was started in the "Date Extracted" field. If separatory funnel, sonication, soxhlet, or pressurized fluid extraction procedures are used, enter the date that the procedure was completed in the "Date Extracted" field.

3.3.16 "Date Analyzed" is common to all samples, blanks, and standards. The format of MM/DD/YYYY shall be used for the date.

3.3.17 "Injection Volume" is volume of the sample extract injected into the GC/MS or GC/ECD instrument for analysis. Report this volume in µL to one decimal place (e.g., 1.0 µL).

3.3.18 "Instrument ID" is the instrument identifier used by the laboratory, particularly on forms containing calibration data. The identifier must include some indication of the manufacturer and/or model of the instrument, and contain additional characters or numbers that differentiate between all instruments of the same type in the laboratory. The instrument identifier must be consistent on all forms within the SDG.

3.3.19 "GC Column" and "ID: (mm)" are two (2) fields used to identify the stationary phase of the GC column, and the internal diameter of the GC column in millimeters (mm).

3.3.20 "Extract Volume" is the volume of the final concentrated extract at the completion of the sample extraction process. It is also applicable to medium level sample analysis by the purge-and-trap analytical method where sample is extracted in methanol. It is entered as the volume measured in the unit of "µL".

3.3.21 "Heated Purge" is applicable to volatiles by purge-and-trap analytical methods. Enter "Y" for heated purge or "N" for ambient temperature purge.

3.3.22 "Extraction Type" is applicable to samples that have undergone extractions per the analytical methods. Enter "SEPF" for separatory funnel, "CLLE" for continuous liquid-liquid extraction without hydrophobic membrane, "CONH" for continuous liquid-liquid extraction with hydrophobic membrane, "SONC" for Sonication Extraction, "SOXH" for Soxhlet Extraction, or "PFEX" for Pressurized Fluid Extraction, as appropriate. For the trace and low/medium volatile analytical methods, enter "PT" for "Purge_and_Trap".

3.3.23 "Cleanup Types" is applicable to samples that have undergone certain cleanup processes by the analytical method. Enter "GPC", "Florisil", "Acid", or "Sulfur" separated by commas, as appropriate.

3.3.24 "Concentration Units" are the units in which the analytical result is reported. Enter "µg/L", "mg/L", or "µg/kg" as appropriate.

3.3.25 "Analyte" is identified in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits, and must be reported in the order given in Exhibit C.

3.4 Reporting Forms

3.4.1 SDG Cover Page

3.4.1.1 Purpose

This form is used to list all samples analyzed within an SDG and provide certain analytical information and general comments. It is also the document that is signed by the Laboratory Manager or designee to authorize and release all data and deliverables associated with the SDG.

3.4.1.2 Instructions

Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.1.2.1 For samples analyzed using this SOW, enter "SOM02.3" for the SOW Number.

3.4.1.2.2 Under column "EPA Sample No.", enter each EPA Sample Number.

3.4.1.2.3 Under column "Lab Sample ID", enter each Laboratory sample identifier.

3.4.1.2.4 Under column "Analysis Method", enter an "X" under each Analytical Method scheduled for analysis for each EPA Sample Number.

3.4.1.2.5 Each SDG Cover Page shall be signed and dated, in original, by the Laboratory Manager or the Manager's designee to authorize the release and verify the contents of all data and deliverables associated with an SDG.

3.4.2 Organic Analysis Data Sheet [Form 1A-OR and Form 1B-OR]

3.4.2.1 Purpose

Form 1A-OR is used to tabulate and report sample analysis results for organic target analyte(s) per analytical method (see Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits).

Form 1B-OR is used to report sample analysis results for non-target analytes (e.g., analytes not listed in Exhibit C).

3.4.2.2 Instructions

Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.2.2.1 "Date Received" is the date (formatted MM/DD/YYYY) of sample receipt at the laboratory, as recorded on the TR/COC Record (i.e., the VTSR).

3.4.2.2.2 "Extract Concentrated" is applicable to samples that have undergone sample cleanup procedures. Enter "Y" for sample extracts concentrated after cleanup; otherwise enter "N".

3.4.2.2.3 "Soil Aliquot (VOA)" is applicable to medium level sample analysis by purge-and-trap analytical method where sample is extracted in methanol. Enter the methanol extract volume added to the reagent water in the purge tube for analysis in the unit of "µL".

3.4.2.2.4 "Purge Volume" is applicable to volatiles. Enter the volume purged in the unit of "mL".

3.4.2.2.5 "pH" is required for aqueous/water samples. Enter the pH determined. Report the pH value for soil/sediment samples, if the measurement is requested.

3.4.2.2.6 "Dilution Factor" is indicative of sample whether it is analyzed undiluted or at dilution. The dilution factor (DF) value shall be reported to one decimal place. Enter 1.0 for an undiluted sample with a dilution factor of 1.

3.4.2.2.7 "Cleanup Factor" is applicable to the sequential cleanup types reported in "Cleanup Types" field. Cleanup factor for each applicable cleanup procedure is determined per Exhibit D and reported in the order of the corresponding cleanup type separated as appropriate by a comma.

3.4.2.2.8 Under column "CAS No.", enter the CAS Number for each analyte as listed in Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits.

3.4.2.2.9 Under column "Concentration", enter for each analyte, the value of the result if the concentration or mass is greater than or equal to the MDL corrected for any dilutions. If the concentration is less than the MDL, enter the CRQL for the analyte, adjusted if necessary and corrected for any dilutions. The concentration or mass result shall be reported to two significant figures.

3.4.2.2.10 Under column "Q", enter result qualifiers as identified below. If additional qualifiers are used, their explicit definitions shall be included in the SDG Narrative.

3.4.2.2.10.1 The MDL obtained for a given preparation method, analysis method, and instrument shall be used for the qualification of the results for samples associated with that preparation method, analysis method, and instrument.

All values for result, CRQL, and MDL shall be in the same units prior to determining the appropriate qualifier.

3.4.2.2.10.2 Specified entries and their meanings are as follows:

U: The result was less than the MDL.

J: The reported value is less than the CRQL, but greater than or equal to the MDL. This flag is also used for all TICs.

B: The same analyte is found in the associated blank as well.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

D: The reported value is from a dilution.

C: The identification of the analyte is confirmed by GC/MS when the primary analytical method employed is GC/ECD as appropriate.

A: The reported TIC is a suspected Aldol-condensation product.

N: The reported TIC is has a ≥ 85% match on the mass spectral library search.

P: The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.

S: The reported value is determined using a single-point ICAL by GC/ECD analytical method, as appropriate.

H: The reported value is quantitated using peak heights rather than peak areas.

X: The reported value is with laboratory-defined flag. These flags are limited to the letters "X", "Y", and "Z".

3.4.2.2.11 Form 1B-OR shall be submitted for **every trace volatile, low/medium volatile, and semivolatile analysis,** including required dilutions, reanalyses, and blanks, even if no TICs are found. Forms 1B-OR are not required for requested MS/MSD or SIM analyses. See instructions in Exhibit D on TIC identification and quantitation.

3.4.3 Deuterated Monitoring Compound Recovery [Form 2A and 2B-OR] and Surrogate Recovery [Form 2C-OR]

3.4.3.1 Purpose

Form 2A-OR and 2B-OR are used to report the recoveries of the DMCs added to each volatile and semivolatile sample, including dilutions, reanalyses, blanks, and requested MS/MSDs.

Form 2C-OR is used to report the recoveries of the surrogate compounds added to each pesticide and Aroclor sample, blank, LCS, and requested MS/MSD.

3.4.3.2 Instructions

Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.3.2.1 For volatile and semivolatile samples, report the %R of each DMC to the nearest whole percentage point on Forms 2A-OR and 2B-OR.

For pesticide and Aroclor samples, report the %R of each surrogate to the nearest whole percentage point on Form 2C-OR.

3.4.3.2.2 Flag each DMC or surrogate recovery outside the QC limits with an asterisk ("*"). The asterisk shall be placed next to the result value.

3.4.3.2.3 Under column "TOT OUT" report the total number of DMC or surrogate recoveries that are outside the QC limits for each sample. If no DMC or surrogate recoveries were outside the limits, enter "0" (zero).

3.4.3.2.4 If the diluted sample is with DMC or surrogate percent recoveries outside the acceptance window, enter the %R values and flag with a "D" where applicable.

3.4.3.2.5 The pesticide and Aroclor surrogate recoveries shall be reported for **both** GC columns. Identify each GC column at the top of Form 2C-OR, entering the stationary phase in the "GC Column" field, and the internal diameter of the column in millimeter (mm) in the "ID" field.

3.4.3.2.6 The assignment of columns as "1" and "2" is left to the discretion of the Contractor when the analyses are performed by simultaneous injection into a two-column GC. The assignment of "GC Column 1" and "GC Column 2" shall be consistent across all reporting forms. If the analysis is **not** performed by simultaneous injection, then the assignment of GC column number shall be based on the chronological order of the two analyses.

3.4.3.2.7 The compound names listed in Exhibit D, Section 17, Table 3 (for Trace Volatiles, Low/Medium Volatiles, and Semivolatiles), Table 10 (for Pesticides), and Table 6 (for Aroclors) for all DMCs or surrogates applicable to the analytical method, shall be reported under each table along with their respective QC limits.

3.4.4 Matrix Spike/Matrix Spike Duplicate Recovery [Form 3A-OR]

3.4.4.1 Purpose

This form is used to report the results of the MS/MSD analyses for all applicable methods.

NOTE: Form 3A-OR shall only be submitted if the analyses of MS/MSD samples are requested or scheduled by the EPA Region. Submit form(s) for each MS/MSD performed.

3.4.4.2 Instructions

Complete the header information according to the instructions in Section 3.3. Include the EPA Sample Number for the Matrix Spike or Matrix Spike Duplicate, without the suffixes "MS" or "MSD". Complete the remainder of the form using the following instructions.

3.4.4.2.1 For pesticides and Aroclors, this form is required for each column. Enter the instrument ID, the stationary phase in the "GC Column" field, and the internal diameter of the column in millimeters (mm) in the "ID" field. The results reported on this order shall be consistent with the information reported on Form 10-OR.

3.4.4.2.2 Under column "SPIKE ADDED", enter the calculated concentration of each spike analyte to the same significant figure as reported for the sample concentration in the appropriate unit.

3.4.4.2.3 Under column "SAMPLE CONCENTRATION", enter the sample concentration of each spike analyte in the original sample in the appropriate unit. If a spike analyte is not detected in the original sample, enter "0" (zero) as the concentration for the analyte.

3.4.4.2.4 Under column "MS CONCENTRATION", enter the concentration of each spike analyte determined in the Matrix Spike sample.

3.4.4.2.5 Under column "MS %R", enter the calculated %R of each spiked analyte in the Matrix Spike sample to the nearest whole percent.

3.4.4.2.6 Under column "QC LIMITS %R", enter the %R limits for each spike analyte as specified in Exhibit D.

3.4.4.2.7 Flag each %R outside the QC limits with an asterisk ("*") next to the %R value in the "MS %R#" column.

3.4.4.2.8 Follow Sections 3.4.4.2.2 through 3.4.4.2.7 to complete the table for the MSD sample.

3.4.4.2.9 Under column "RPD", enter the calculated Relative Percent Difference (RPD) between the Matrix Spike recovery and the Matrix Spike Duplicate recovery. Report the RPD to the nearest whole percent.

3.4.4.2.10 Under column "QC LIMITS", enter the applicable QC limits for %R and RPD respectively as specified in Exhibit D.

3.4.4.2.11 Flag each RPD outside the QC limits with an asterisk ("*") next to the value in the "RPD" column.

3.4.4.2.12 Flag each %R outside the QC limits with an asterisk ("*") next to the value in the "%R" column.

3.4.5 Laboratory Control Sample Recovery [Form 3B-OR]

3.4.5.1 Purpose

This form is used to report the results of the analyses of LCSs for pesticides and Aroclors.

3.4.5.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.5.2.1 "LCS Lot No." is applicable for identifying the LCS solution purchased from a third party. Enter the identification number used by the third party to identify the LCS lot, if available. Leave the field blank if the LCS solution was prepared in-house.

3.4.5.2.2 "Instrument ID", "GC Column", "ID", and "Date Analyzed" fields above each table are entered for each column applicable to pesticides and Aroclors.

3.4.5.2.3 Under column "AMOUNT ADDED", enter the calculated concentration of each spike analyte to the same significant figure as reported for the concentration in the appropriate unit.

3.4.5.2.4 Under column "AMOUNT RECOVERED", enter the concentration of each spike analyte in the LCS sample.

3.4.5.2.5 Under column "%R", enter the calculated %R of each spike analyte to the nearest whole percent.

3.4.5.2.6 Flag each %R value outside the QC limits with an asterisk (*) next to the value.

3.4.5.2.7 Complete the second table according to the instructions above for pesticides and Aroclor secondary column analysis as applicable.

3.4.6 Method Blank Summary [Form 4-OR]

3.4.6.1 Purpose

This form summarizes the samples including dilutions, reanalyses, re-extractions/reanalyses, and the requested MS/MSDs associated with each method blank analysis. The Contractor shall submit the appropriate Form 4-OR for each blank and for all methods. This form is not required for an instrument blank.

3.4.6.2 Instructions

Complete the header information according to the instructions in Section 3.3. The EPA Sample Number entered in the upper right-hand corner shall be the same number entered on Form 1-OR for the blank. Complete the remainder of the form using the following instructions.

3.4.6.2.1 "Instrument ID", "GC Column", "ID", and "Date Analyzed" and "Time Analyzed" fields are entered for each column applicable to pesticide and Aroclor analyses. If the analyses were analyzed simultaneously, the information entered here shall be consistent with that on all other applicable forms.

3.4.6.2.2 "Date Analyzed" and "Time Analyzed" fields shall indicate the analysis on both primary and secondary columns (i.e., Time Analyzed: 11:00/11:50, or 11:00, 11:50).

3.4.6.2.3 "Cleanup (Y/N)" is applicable to method blanks that have undergone cleanup procedures. Enter "Y" if any cleanup procedure is performed; otherwise enter "N".

3.4.6.2.4 Under column "EPA SAMPLE No.", enter EPA Sample Number of samples including LCSs, requested MS/MSDs, storage blanks, and volatile instrument blanks, associated with the reported method blank.

3.4.6.2.5 Under column "LAB SAMPLE ID", enter the Laboratory Sample Identifier for each reported sample under the first column.

3.4.6.2.6 Under column "LAB FILE ID", enter the Laboratory assigned file Identifier of the analysis for each sample reported under the first column.

3.4.6.2.7 Under column "DATE/TIME ANALYZED", enter the date or time of the analysis of each sample. For volatiles and semivolatiles, enter the date of analysis. For pesticides and Aroclors, enter both analyses times for each column (i.e., 11:00/11:50, or 11:00, 11:50).

3.4.7 GC/MS Instrument Performance Check [Form 5-OR]. This form is not required for Level 2a deliverables.

3.4.7.1 Purpose

This form is used to report the results of the GC/MS instrument performance check for the volatile and semivolatile methods, and to summarize the date and time of analyses for samples, including dilutions, reanalyses, calibration standards, blanks, and requested MS/MSDs associated with each analysis of the Instrument Performance Check solution.

3.4.7.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.7.2.1 "BFB/DFTPP" is the compound used to tune the instrument. Enter "BFB" for volatiles or "DFTPP" for semivolatiles.

3.4.7.2.2 "Injection Date" is the date of injection of the instrument performance check solution [4-Bromofluorobenzene (BFB) for volatiles or Decafluorotriphenylphosphine (DFTPP) for semivolatiles]. Enter the date as MM/DD/YYYY.

3.4.7.2.3 "Injection Time" is the time of injection of the instrument performance check solution (BFB for volatiles or DFTPP for semivolatiles). Enter time using military time format.

3.4.7.2.4 Under columns "m/e" and "ION ABUNDANCE CRITERIA" in the first table, enter the m/e value and the mass spectral ion abundance criteria for each instrument performance check (IPC) analysis as specified in Exhibit D.

3.4.7.2.5 Under column "% RELATIVE ABUNDANCE" in the first table, enter the percent relative abundance for the respective ion to the number of significant figures specified in Exhibit D.

NOTE: For both BFB and DFTPP, one or more of the high mass ions may exceed the abundance of the ion listed on the form as the nominal base peak [mass-to-charge ratio (m/z) 95 for BFB and m/z 198 for DFTPP]. Despite this possibility, all ion abundances shall be normalized to the nominal base peaks listed on Form 5-OR.

3.4.7.2.6 All relative abundances shall be reported as a number. If the relative abundance is zero, enter "0", not a dash or other non-numeric character. Where parentheses appear, enter the calculated percentage of the ion abundance of the mass given in Exhibit D.

3.4.7.2.7 Under column "EPA SAMPLE NO." in the second table, enter the EPA Sample Number for the applicable initial calibration, standards, opening/closing CCVs, and all samples, including dilutions, reanalyses, blanks, and requested MS/MSDs associated to that instrument performance check in chronological order, by time of analysis (using military time).

3.4.7.2.8 Under columns "LAB SAMPLE ID", "LAB FILE ID", "DATE ANALYZED", and "TIME ANALYZED" in the second table, enter the appropriate information according to Sections 3.4.6.2.4 – 3.4.6.2.7 for the respective analysis reported in the first column.

3.4.8 GC/MS Initial Calibration Data [Form 6A-OR]. This form is not required for Level 2a deliverables.

3.4.8.1 Purpose

This form contains the summary of an initial calibration of the GC/MS analytical methods (volatile and semivolatile). The five-point initial calibration associated to sample analyses is analyzed at the specific concentration levels described in Exhibit D. An initial calibration containing more than five standards may be performed, but only five standards demonstrating the linearity of the calibration at the specified concentration levels in Exhibit D are to be reported on the form.

3.4.8.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.8.2.1 "Calibration Date(s)" is the date(s) of the calibration (entered as MM/DD/YYYY). If the calendar date changes during the calibration procedure, the inclusive dates shall be recorded.

3.4.8.2.2 "Calibration Time(s)" is the time of injections for the first and the last of the analyzed initial calibration standards using military time format.

3.4.8.2.3 "Length" is the GC column length in the unit of "m".

3.4.8.2.4 "Purge Volume" is applicable to volatiles. Enter the volume purged in the unit of "mL".

3.4.8.2.5 "Lab File ID" is the Laboratory File Identifier of the initial calibration standards. Enter the Laboratory File Identifier of the initial calibration standard at the lowest concentration level in the space provided. Enter the Laboratory File Identifier for each initial calibration standard in the order of low to high in the space provided after the "=" sign.

3.4.8.2.6 "RRF" is the Relative Response Factor (RRF) calculated for each target analyte and DMC in the initial calibration standards. Enter the concentration of each of the five standards after "RRF" in the spaces. For example, for a calibration standard concentration at 5.0 µg/L, enter 5.0

after "RRF" in the spaces in the top most row and the appropriate column header.

3.4.8.2.7 Under column "ANALYTE", enter all target analytes and DMC as applicable.

3.4.8.2.7.1 The Trace and Low/Medium Volatile target analytes shall be listed in the same order as in Exhibit D – Trace Concentrations of Volatile Organic Compounds Analysis, Table 4 – Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Trace Volatile Organic Compounds, and Exhibit – D – Low/Medium Concentrations of Volatile Organic Compounds Analysis, Table 4 – Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Volatile Organic Compounds.

3.4.8.2.7.2 The Semivolatile target analytes shall be listed in the same order as in Exhibit D – Semivolatile Organic Compounds Analysis, Table 5 - Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Semivolatile Organic Compounds.

3.4.8.2.8 Under columns "$\overline{\text{RRF}}$" and "%RSD", enter the calculated mean RRF and %RSD for each target analyte and DMC reported under the "ANALYTE" column.

3.4.9 Initial Calibration of Single Component Analytes [Form 6B-OR and Form 6C-OR]. These forms are not required for Level 2a deliverables.

3.4.9.1 Purpose

These forms contain the summary of the initial calibration of single component pesticide target analytes and surrogates. For single component pesticide target analtyes and surrogates: mean RTs ($\overline{\text{RT}}$s), RT windows, Calibration Factors (CFs), mean Calibration Factor ($\overline{\text{CF}}$) and %RSD are calculated from the five Individual Standard Mixtures A and B or C at the concentrations specified in Exhibit D. Form 6B-OR is for reporting the RTs, $\overline{\text{RT}}$, RT windows, and Form 6C-OR is for reporting $\overline{\text{CF}}$s, CFs and %RSD.

3.4.9.2 Instructions

Complete Form 6B-OR and Form 6C-OR for **each** GC column used for the five initial individual calibration standards. Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.9.2.1 "Level (x CS1)" is the concentration of the five calibration standards as a multiplier of CS1 (Calibration Standard 1). Enter "1.0" for CS1 and 2.0, 4.0, 8.0, and 16.0 for the subsequent CS levels as specified in the Exhibit D in the spaces provided. If the CS5 standard is higher than 16 times CS1, enter the appropriate multiplier to one decimal place.

3.4.9.2.2 "Calibration Date(s)" is the date(s) of the calibration (entered as MM/DD/YYYY). If the calendar date changes during the calibration procedure, the inclusive dates shall be recorded.

3.4.9.2.3 "Calibration Time(s)" is the time of injections for the first and last of the initial calibration standards using military time.

3.4.9.2.4 Under column "ANALTYE", enter all applicable target analytes and surrogates in the five initial calibration standards as specified in Exhibit D – Pesticides Analysis, Table 5 – Retention Time Windows for Single Component Analytes, Toxaphene, and Surrogates.

3.4.9.2.5 Under column "RT OF STANDARDS" on Form 6B-OR, enter the RT of each applicable target analyte and surrogate determined from each of the initial calibration standards in minutes to the hundredth place.

3.4.9.2.6 Under column "$\overline{RT}$" on Form 6B-OR, enter the calculated Mean RT ($\overline{RT}$) of each target analyte and surrogate determined from each of the five initial calibration standards.

3.4.9.2.7 Under column "RT WINDOW" on Form 6B-OR, enter the calculated RT window for each target analyte and surrogate using the specifications in Exhibit D. The lower limit and upper limit of the RT window shall be entered under "FROM" and "TO" respectively. If there are more than one set of surrogates present due to Individual Standard Mixture A and B analysis for pesticides, enter only one set RTs of the surrogates as appropriate.

3.4.9.2.8 Under column "CF OF STANDARDS" on Form 6C, enter the calibration factor of each applicable target analyte and surrogate determined from each of the initial calibration standards.

3.4.9.2.9 Under column "$\overline{CF}$" on Form 6C-OR, enter the calculated mean calibration factor ($\overline{CF}$) of each target analyte and surrogate determined from each of the five initial calibration standards.

3.4.9.2.10 Under column "%RSD" on Form 6C-OR, enter the calculated %RSD using the specifications in Exhibit D. If there are more than one set of surrogates present due to Individual Standard Mixture A and B analyses for pesticides, enter the appropriate values determined from the same set of surrogates used for RT window listed above in Section 3.4.9.2.7.

3.4.10 Initial Calibration of Multicomponent Analytes [Form 6D-OR and 6E-OR]. These forms are not required for Level 2a deliverables.

3.4.10.1 Purpose

These forms contain the summary of the initial calibration of multicomponent pesticide, Toxaphene, and Aroclor target analytes and surrogates. For multicomponent pesticide analyte, Toxaphene, and surrogates: $\overline{RT}$s, RT windows, CFs, $\overline{CF}$, and %RSD are calculated from the five Individual Standard Mixtures A and B or C at the concentrations specified in Exhibit D. For the applicable Aroclor target analytes and surrogates, the same parameters are determined from the five initial calibration standards at concentrations specified in Exhibit D. Form 6D-OR is for reporting RTs, $\overline{RT}$s, RT windows, and Form 6E-OR is for reporting CFs, $\overline{CF}$s, and %RSD.

3.4.10.2 Instructions

Complete Form 6D-OR and Form 6E-OR for each GC column used for the five initial calibration standards of Toxaphene and Aroclors. Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.10.2.1 "Level (x CS1)" is the concentration of the five calibration standards as a multiplier of CS1 (Calibration Standard 1). Enter "1.0" for CS1 and 2.0, 4.0, 8.0, and 16.0 for the subsequent CS levels as specified in the Exhibit D in the spaces provided. If the CS5 standard is higher than 16 times CS1, enter the appropriate multiplier to one decimal place.

3.4.10.2.2 "Calibration Date(s)" is the date(s) of the calibration (entered as MM/DD/YYYY). If the calendar date changes during the calibration procedure, the inclusive dates shall be recorded.

3.4.10.2.3 "Calibration Time(s)" is the injection times of the first and last of the initial calibration standards using military time.

3.4.10.2.4 Under column "ANALYTE", enter Toxaphene for the pesticide method and all applicable Aroclor target analytes for the Aroclor method in the five initial calibration standards as specified in Exhibit D – Pesticides Analysis, Table 5 - Retention Time Windows for Single Component Analytes, Toxaphene, and Surrogates, or Exhibit D - Aroclors Analysis, Table 2 - Concentration Levels of Initial Calibration and Continuing Calibration Verification Standards and Technical Acceptance Criteria for Aroclors.

3.4.10.2.5 Under column "RT OF STANDARDS" on Form 6D-OR, enter the RT determined for each identified peak from the five individual initial calibration standards for Toxaphene and surrogates of the pesticide method, and each applicable Aroclor target analyte and surrogate of the Aroclor method. RT shall be entered in minutes to the hundredth place.

3.4.10.2.6 Under column "$\overline{RT}$" on Form 6D-OR, enter the calculated $\overline{RT}$ of each identified peak for Toxaphene and applicable Aroclor target analytes and surrogates determined from each of the five initial calibration standards.

3.4.10.2.7 Under column "RT WINDOW" on Form 6D-OR, enter the calculated RT window for identified peak of Toxaphene and surrogates as well as applicable Aroclor target analytes and surrogates using the specifications in Exhibit D. The lower limit and upper limit of the RT window shall be entered under "FROM" and "TO" respectively. If Aroclors 1016 and 1260 are analyzed as a combined standard Aroclor 1660, enter the surrogate RT window determined according to the specifications in Exhibit D.

3.4.10.2.8 Under column "CF OF STANDARDS" on Form 6E-OR, enter the calibration factor for each identified peak of Toxaphene and surrogates as well as applicable Aroclor target analytes and surrogates determined from each of the initial calibration standards.

3.4.10.2.9 Under column "$\overline{CF}$" on Form 6E-OR, enter the calculated $\overline{CF}$ for each identified peak of Toxaphene and surrogates as well as applicable Aroclor target analytes and surrogates determined from each of the five initial calibration standards.

3.4.10.2.10 Under column "%RSD" on Form 6E-OR, enter the calculated %RSD for each identified peak using the specifications in Exhibit D. If Aroclors 1016 and 1260 are analyzed as a combined standard Aroclor 1660, enter the appropriate values determined from the same set of surrogates used for RT window listed above in Section 3.4.10.2.7.

3.4.11 Initial Calibration (Single Point) of Multicomponent Analytes [Form 6F-OR]. This form is not required for Level 2a deliverables.

3.4.11.1 Purpose

This form contains the summary of single point initial calibration of Toxaphene, applicable Aroclor target analytes, and surrogates. It is for reporting RTs, RT windows, and CFs.

3.4.11.2 Instructions

Complete Form 6F-OR for each GC column used for Toxaphene and Aroclor single point initial calibration standards. Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.11.2.1 "Calibration Date(s)" is the date(s) of the calibration (entered as MM/DD/YYYY). If the calendar date changes during the calibration procedure, the inclusive dates shall be recorded.

3.4.11.2.2 "Calibration Time(s)" is the injection times of the first and last of the initial calibration standards using military time.

3.4.11.2.3 Under column "ANALYTE", enter Toxaphene for the pesticide method and all applicable Aroclor target analytes for the Aroclor method in the single point initial calibration standards as specified in Exhibit D. The target analytes shall be listed in the same order as in Exhibit D – Pesticides Analysis, Table 5 – Retention Time Windows for Single Component Analytes, Toxaphene, and Surrogates, or Exhibit – D – Aroclors Analysis, Table 2 – Concentration Levels of Initial Calibration and Continuing Calibration Verification Standards and Technical Acceptance Criteria for Aroclors.

3.4.11.2.4 Under column "AMOUNT (ng)", enter the amount of the analyte for each standard in the unit of ng.

3.4.11.2.5 Under column "RT", enter the RT determined for each identified peak for Toxaphene and surrogates of the pesticide method and each applicable Aroclor target analyte and surrogate of the Aroclor method.

3.4.11.2.6 Under column "RT WINDOW", enter the calculated lower and upper limits for each identified peak of Toxaphene and applicable Aroclor target analytes and surrogates determined from the initial calibration standards. The lower and upper limits of the RT window shall be entered under "FROM" and "TO" respectively.

3.4.11.2.7 Under column "CALIBRATION FACTOR", enter the calibration factor for each identified peak of Toxaphene and surrogates as well as applicable Aroclor target analytes and surrogates determined from each of the initial calibration standards.

3.4.12 Resolution Check Summary [Form 6G-OR]. This form is not required for Level 2a deliverables.

3.4.12.1 Purpose

This form contains the summary of the results for Resolution Check Standard (RESC), Performance Evaluation Mixture standard (PEM), and Individual Standards A, B, or C (CS3) that shall begin each pesticide initial calibration sequence. This form is also used for reporting the PEM and Individual Standards A, B, or C as CCVs analyzed during the analytical sequence. Form 6G-OR is applicable for each analysis or each GC column used.

3.4.12.2 Instructions

Complete the header information as described in Section 3.3. Use the same assignment of first and second GC columns for reporting the initial calibration standards. Enter the EPA Sample Number for RESC, PEM, or CS3 as specified in Section 3.3.7. If simultaneous injections on a single GC column are used, the EPA Sample Number may be the same for both columns. If simultaneous injections are not used, use different suffixes to identify the standards. Complete the remainder of the form using the following instructions.

3.4.12.2.1 "Time Analyzed" is the injection time of the applicable RESC, PEM, and CS3 of pesticide initial calibration and the PEM and CS3 continuing calibration standards using military time.

3.4.12.2.2 Under column "ANALYTE", enter each analyte as specified in Exhibit D, in RT order, including both surrogate compounds.

3.4.12.2.3 Under column "RT", enter the RT for each target analyte and surrogate reported under column "ANALYTE".

3.4.12.2.4 Under column "RESOLUTION(%)", enter the calculated percent resolution between each pair of the analytes. Enter the resolution between the first and second peaks on the line for the first analyte listed. Enter the resolutions for the subsequent analyte pairs until all resolutions for the applicable analyte pairs are entered.

3.4.13 Continuing Calibration Verification for GC/MS [Form 7A-OR]. This form is not required for Level 2a deliverables.

3.4.13.1 Purpose

This form contains the summary of the CCV for volatile and semivolatile analyses applicable to GC/MS methods. The Contractor shall submit this form for each associated opening and closing CCV relevant to sample analysis.

3.4.13.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.13.2.1 "Time" is the analysis time of the CCV. Enter time using military time.

3.4.13.2.2 "Init. Calib Date(s)" is for the initial calibration standards associated to the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.13.2.3 "EPA Sample No." is for the CCV. Enter the appropriate EPA Sample Number following the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.13.2.4 "Init. Calib Time(s)" is for the initial calibration standards associated with the CCV. Enter the corresponding times using military time.

3.4.13.2.5 "Length" is the GC column length in the unit of "m".

3.4.13.2.6 "Purge Volume" is applicable to volatiles. Enter the volume purged in the unit of "mL".

3.4.13.2.7 Under column "ANALYTE", enter the target analytes and DMCs applicable to the specific methods as specified in Exhibit D.

3.4.13.2.7.1 The Trace and Low/Medium Volatile target analytes shall be listed in the same order as in Exhibit D – Trace Concentrations of Volatile Organic Compounds Analysis, Table 4 – Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Trace Volatile Organic Compounds, and Exhibit D – Low/Medium Concentrations of Volatile Organic Compounds Analysis, Table 4 – Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Volatile Organic Compounds.

3.4.13.2.7.2 The Semivolatile target analytes shall be listed in the same order as in Exhibit D – Semivolatile Organic Compounds Analysis, Table 5 – Technical Acceptance Criteria for Initial and Continuing Calibration Verification for Semivolatile Organic Compounds.

3.4.13.2.8 Under column "$\overline{RRF}$", enter the mean RRF determined from the associated initial calibration standards for each target analyte and DMC reported under column "ANALYTE".

3.4.13.2.9 The space in "RRF__" is for reporting the concentration of the CCV applicable to the method as specified in Exhibit D. For example, 50 in the space provided indicates that the concentration of the CCV is at 50 µg/L as specified for the low/medium volatiles method.

3.4.13.2.10 Under column "RRF__", enter the calculated RRF value for each target analyte and DMC reported under column "ANALYTE" for the CCV.

3.4.13.2.11 Under column "MIN RRF", enter the appropriate values or either opening or closing CCV for each target analyte and DMC as specified in Exhibit D. For a CCV serving as both opening and closing CCV, enter the values for opening CCV.

3.4.13.2.12 Under column "%D", enter the calculated Percent Difference (%D) for each target analyte and DMC reported under column "ANALYTE".

3.4.13.2.13 Under column "MAX %D", enter the appropriate values for either opening or closing CCV for each target analyte and DMC as specified in Exhibit D.

3.4.14 Pesticides Performance Evaluation Mixture Calibration Verification Summary [Form 7B-OR]. This form is not required for Level 2a deliverables.

3.4.14.1 Purpose

This form contains the results of pesticide PEMs that bracket each 12-hour analytical sequence. The Contractor shall submit this form for each PEM associated to the analytical sequence of sample analysis for each GC column.

3.4.14.2 Instructions

Complete Form 7B-OR for each PEM reported on Form 8B-OR. Complete the header information according to the instructions in Section 3.3. Complete the remainder of the forms using the following instructions.

3.4.14.2.1 "Init. Calib Date(s)" is for the initial calibration standards associated with the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.14.2.2 "EPA Sample No. (PEM##)" is for the PEM. Enter the appropriate EPA Sample Number following the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.14.2.3 "Instrument Blank EPA Sample No. (PIBLK##)" and "Instrument Blank Lab Sample ID" are for the instrument blank analyzed right before the CCV in the analytical sequence. Enter the EPA Sample Number and the laboratory sample identifier in the respective fields. For reporting the instrument blank, the laboratory shall follow the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data. Leave the fields blank for the PEM starting the initial calibration sequence.

3.4.14.2.4 "Time Analyzed" are for the time of the instrument blank and PEM pairs. Enter time using military time. Leave the fields blank for instrument blank when the PEM is starting the initial calibration sequence.

3.4.14.2.5 Under column "RT", enter the RT determined in PEM for each target analyte and surrogate reported under column "ANALYTE" in the table.

3.4.14.2.6 Under column "RT window", enter the calculated lower and upper limits for each target analyte and surrogate determined from the associated initial calibration standards. The lower and upper limits of the RT window shall be entered under "FROM" and "TO" respectively.

3.4.14.2.7 Under column "CALC AMOUNT (ng)", enter the calculated amount or each target analyte and surrogate under column "ANALYTE". The values shall be reported to three decimal places with the unit of ng.

3.4.14.2.8 Under column "NOM AMOUNT", enter the nominal amount for each analyte and surrogate that are under column "ANALYTE". The values shall be reported to three decimal places with the unit of ng.

3.4.14.2.9 Under column "%D", enter the calculated %D between the calculated amount and nominal amount for each analyte according to Exhibit D.

3.4.14.2.10 "4,4'-DDT %Breakdown", "Endrin %Breakdown", and "Combined %Breakdown" are for the calculated Percent Breakdown (%Breakdown) as specified in Exhibit D.

3.4.15 Continuing Calibration Verification Summary [Form 7C-OR]. This form is not required for Level 2a deliverables.

3.4.15.1 Purpose

This form contains the summary of the applicable CCV for pesticide and Aroclor analyses by GC/ECD methods. The Contractor shall submit this form for each associated opening and closing CCV relevant to sample analysis for each GC column.

3.4.15.2 Instructions

Complete Form 7C-OR for each CCV standard reported on Form 8B-OR. Complete the header information according to the instructions in Section 3.3. Complete the reminder of the forms using the following instructions.

3.4.15.2.1 "Init. Calib Date(s)" is for the initial calibration standards associated to the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.15.2.2 "EPA Sample No." is for the CCV. Enter the appropriate EPA Sample Number following the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.15.2.3 "Instrument Blank EPA Sample No." and "Instrument Blank Lab Sample ID". are for the instrument blank analyzed right before the CCV in the analytical sequence. Enter the EPA Sample Number and the laboratory identifier in the respective fields. For reporting the instrument blank, the laboratory shall follow the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.15.2.4 "Time Analyzed" are for the time of the instrument blank and CCV (CS3) pairs. Enter time using military time.

3.4.15.2.5 Under column "ANALYTE", enter the target analytes and surrogates applicable to the specific methods as specified in Exhibit D. The target analytes shall be listed in the same order as in Exhibit D – Pesticides Analysis, Table 5 – Retention Time Windows for Single Component Analytes, Toxaphene, and Surrogates, or Exhibit D – Aroclors Analysis, Table 2 – Concentration Levels of Initial Calibration and Continuing Calibration Verification Standards and Technical Acceptance Criteria for Aroclors.

3.4.15.2.6 Under column "RT", enter the RT determined in the CCV for each target analyte and surrogate reported under column "ANALYTE".

3.4.15.2.7 Under column "RT window", enter the calculated lower and upper limits for each target analyte and surrogate determined from the associated initial calibration standards. The lower and upper limits of the RT window shall be entered under "FROM" and "TO" respectively.

3.4.15.2.8 Under column "$\overline{CF}$", enter the mean CF determined from the associated initial calibration standards for each target analyte and surrogate reported under column "ANALYTE".

3.4.15.2.9 Under column "CF", enter the calculated CF value for each target analyte and surrogate reported under column "ANALYTE" for the CCV.

3.4.15.2.10 Under column "%D", enter the calculated %D value between the CF and $\overline{CF}$ for each target analyte and surrogate reported under column "ANALYTE" for the CCV.

3.4.16 Multi-component Continuing Calibration Verification Summary [Form 7D-OR]. This form is not required for Level 2a deliverables.

3.4.16.1 Purpose

This form contains the summary of the results for Toxaphene and Aroclor CCVs (CS3). The contractor shall submit this form for each associated opening and closing Toxaphene and Aroclor CCVs relevant to sample analysis for each GC column.

3.4.16.2 Instructions

Complete this form for each Toxaphene and Aroclor CCV reported on Form 8B-OR. Complete the header information according to the instructions in Section 3.3. Complete the remainder of the forms using the following instructions.

3.4.16.2.1 "Init. Calib Date(s)" is for the initial calibration standards associated to the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.16.2.2 "Instrument Blank EPA Sample No." and "Instrument Blank Lab Sample ID" are for the instrument blank analyzed right before the Toxaphene or Aroclor CCV in the analytical sequence. Enter the EPA Sample Number and the laboratory identifier in the respective fields. For reporting the instrument blank, the laboratory shall follow the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.16.2.3 "EPA Sample No." is for the Toxaphene and Aroclor CCV. Enter the appropriate EPA Sample Number following the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.16.2.4 "Time Analyzed" are for the time of the instrument blank and CCV (CS3) pairs. Enter time using military time.

3.4.16.2.5 Under column "ANALYTE", enter the target analytes and surrogates applicable to the specific methods as specified in Exhibit D. The target analytes shall be listed in the same order as in Exhibit D – Pesticides Analysis, Table 5 – Retention Time Windows for Single Component Analytes, Toxaphene, and Surrogates, or Exhibit D – Aroclors Analysis, Table 2 – Concentration Levels of Initial Calibration and Continuing Calibration Verification Standards and Technical Acceptance Criteria for Aroclors.

3.4.16.2.6 Under column "RT", enter the RT determined in the CCV (CS3) for each identified peak of each target analyte and surrogate reported under column "ANALYTE".

3.4.16.2.7 Under column "RT Window", enter the calculated lower and upper limits for each identified peak of each target analyte and surrogate determined from the associated initial calibration standards. The lower and upper limits of the RT window shall be entered for each corresponding peak under "FROM" and "TO" respectively.

3.4.16.2.8 Under column "$\overline{CF}$", enter the mean CF determined from the associated initial calibration standards for each identified peak of each target analyte and surrogate reported under column "ANALYTE".

3.4.16.2.9 Under column "CF", enter the calculated CF value for each identified peak of each target analyte and surrogate reported under column "ANALYTE" for the CCV.

3.4.16.2.10 Under column "%D", enter the calculated %D value between CF and $\overline{CF}$ for each identified peak of each target analyte and surrogate reported under column "ANALYTE" for the CCV.

3.4.17 Internal Standard Area and Retention Time Summary [Form 8A-OR]. This form is not required for Level 2a deliverables.

3.4.17.1 Purpose

This form contains the summary of peak areas and RTs of the internal standards in all volatile and semivolatile calibration standards and samples, including dilutions, reanalyses, and blanks. This form shall be completed for each analytical sequence with either the initial calibration or opening CCV associated to the sample analyses.

3.4.17.2 Instructions

Complete the header information according to Section 3.3. Complete the remainder of the form using the following instructions. If samples are analyzed immediately following an initial calibration, this form shall be completed with the CCV or mid-level calibration standard of the initial calibration (CS3) as the equivalent of an opening CCV. This form can be modified to accommodate more than three internal standards when necessary.

3.4.17.2.1 "Init. Calib Date(s)" is for the initial calibration standards associated to the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.17.2.2 "EPA Sample No." is for the CCV or the mid-level initial calibration standard CS3. Enter the appropriate EPA Sample Number following the naming convention as specified in Section 3.3, Table 5 – Codes for Labeling Data.

3.4.17.2.3 "Time Analyzed" is for reporting the injection time of the CCV or the mid-level initial calibration standard CS3. Enter time using military time.

3.4.17.2.4 For the "IS AREA" in the header column of the table, report "IS1 AREA" for the first internal standard, "IS2 AREA" for the second internal standard, and "IS3 AREA" for the third internal standard. Additional Form(s) 8A-OR shall be used for additional internal standards, and the number after "IS" incremented accordingly.

3.4.17.2.5 "EPA SAMPLE NO." under the first column is for reporting EPA Sample Numbers for all samples including dilutions, reanalyses, blanks, and requested MS/MSDs that are associated to the CCV or the mid-level initial calibration standard CS3.

3.4.17.2.6 Under column "IS AREA", enter the area responses of the internal standards measured in the CCV or the mid-level initial calibration standard CS3 in the row "12 HOUR STD" in the first column. Enter the calculated upper and lower limits

of the areas for each internal standard per specifications in Exhibit D in the rows "UPPER LIMIT" and "LOWER LIMIT" respectively. Enter the area responses of the internal standards measured in each sample reported in the first column.

3.4.17.2.7 Under column "RT", enter the RTs of the internal standards determined in the CCV or the mid-level initial calibration standard CS3 in the row "12 HOUR STD" in the first column. Enter the calculated upper and lower limits of the RTs for each internal standard per specifications in Exhibit D in the rows "UPPER LIMIT" and "LOWER LIMIT" respectively. Enter the RTs of the internal standards measured in each sample reported in the first column.

3.4.17.2.8 If any internal standard area or RT is outside the upper or lower limits as specified in Exhibit D, flag the outlier with an asterisk ("*") to the right of the reported value.

3.4.17.2.9 Report under the table, the compound names listed in Exhibit D, Section 17, Table 9, for all internal standards in the header columns. For example, IS1 = Chlorobenzene-d_5. In addition, report the area and RT upper and lower limits specified in Exhibit D.

3.4.18 Analytical Sequence [Form 8B-OR]. This form is not required for Level 2a deliverables.

3.4.18.1 Purpose

This form contains the summary of the analytical sequence for pesticide and Aroclor analyses. This form shall include the calibration standards, samples, blanks, LCSs and MS/MSDs within a particular analytical sequence. The form is submitted for each column used for the analyses.

3.4.18.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.18.2.1 "Init. Calib Date(s)" is for the initial calibration standards associated to the CCV. Enter dates in the same format as in Section 3.4.8.2.1. Give inclusive dates if the initial calibration is performed over more than one date.

3.4.18.2.2 "Init. Calib Time(s)" is for the initial calibration standards associated with the CCV. Enter the corresponding times using military time.

3.4.18.2.3 "SURROGATE ( ):__" is for the surrogates in the GC/ECD methods and mean RTs from initial calibration as specified in Exhibit D. Enter surrogate names, TCX for Tetrachloro-m-xylene and DCB for Decachlorobiphenyl, in the parentheses provided after "SURROGATE 1" and "SURROGATE 2" respectively; and enter the mean retention time for each surrogate respectively in the space provided on Form 8B-OR.

3.4.18.2.4 Under column "EPA SAMPLE NO.", enter every analysis associated with a particular analytical sequence as specified in Exhibit D. The Contractor shall include all samples analyzed within the reported analytical sequence. Enter ZZZZZ as the EPA Sample Number to indicate any sample that is not part of the SDG.

3.4.18.2.5 Under column "LAB FILE ID", enter the unique lab file identifier for each analysis reported in the column "EPA SAMPLE NO.".

3.4.18.2.6 Under column "DATE ANALYZED", enter the date using the format of MM/DD/YYYY.

3.4.18.2.7 Under column "TIME ANALYZED", enter the time of each analysis reported in the column "EPA SAMPLE NO.". Enter time using military time.

3.4.18.2.8 Under columns "SUR 1 RT#" and "SUR 2 RT#", enter the RTs for both surrogates determined in each analysis. Flag any RT value which does not meet the contract requirements by placing an asterisk ("*") to the right of the reported value.

3.4.18.2.9 If the RT cannot be calculated due to interfering peaks, leave the "RT" column blank for that surrogate, enter an asterisk in the last column, and document the problem in the SDG Narrative.

3.4.18.2.10 Multiple forms shall be submitted with consistent header information in order to include all analyses for a particular analytical sequence.

3.4.19 Florisil Cartridge Check [Form 9A-OR]. This form is not required for Level 2a deliverables.

3.4.19.1 Purpose

This form contains the summary of the results for the Florisil Cartridge check analysis with the specific lot of the Florisil Cartridge used for Florisil cleanup.

3.4.19.2 Instructions

Complete the header information according to the instructions in Section 3.3. Enter the Case Number and SDG Number for the current data package, regardless of the original Case for which the cartridge check was performed. Complete the remainder of the form using the following instructions.

3.4.19.2.1 "Florisil Cartridge Lot Number:" is for the Lot Number of the Florisil cartridge used for all sample extracts during the Florisil cleanup process.

3.4.19.2.2 Under column "ANALYTE" in the first table, enter the analyte names for the target analytes included in the Florisil Cartridge check solution as specified in Exhibit D.

3.4.19.2.3 Under columns "SPIKE ADDED (ng)" and "SPIKE RECOVERED (ng)" in the upper table, enter the amount of each spike analyte added and the calculated amount of the same analyte recovered with a unit of ng as specified in Exhibit D.

3.4.19.2.4 Under column "%R#" in the first table, enter the calculated %R for each spike analyte as specified in Exhibit D. Flag any recovery value that is outside the QC limits as specified in Exhibit D by placing an asterisk ("*") to the right of the reported value.

3.4.19.2.5 Under column "QC LIMITS" in the first table, enter the low and high limits as specified in Exhibit D.

3.4.19.2.6 Under column "EPA SAMPLE NO." in the second table, enter the EPA Sample Number for each sample and blank within the SDG that has undergone the Florisil cleanup procedure using this Florisil Cartridge lot.

3.4.19.2.7 Under column "LAB SAMPLE ID" in the second table, enter the unique laboratory sample identifier for each reported sample in the column under "EPA SAMPLE NO.".

3.4.19.2.8 Under columns "DATE ANALYZED 1" and "DATE ANALYZED 2", enter the dates in the format of DD/MM/YYYY for each reported sample analyzed on two GC columns respectively. Leave "DATE ANALYZED 2" blank if the second column analysis was not performed.

3.4.20 GPC Calibration Verification [Form 9B-OR]. This form is not required for Level 2a deliverables.

3.4.20.1 Purpose

This form contains the summary of the results for GPC Calibration Verification analysis when samples have undergone the GPC cleanup procedures.

3.4.20.2 Instructions

Complete the header information according to the instructions in Section 3.3. Enter the Case Number and SDG Number for the current data package, regardless of the original Case for which the cartridge check was performed. Complete the remainder of the form using the following instructions.

3.4.20.2.1 "GPC column" is for reporting the identifier of the GPC column.

3.4.20.2.2 Under column "ANALYTE" in the first table, enter the analyte names for the target analytes included in the GPC Calibration Verification solution as specified in Exhibit D.

3.4.20.2.3 Under columns "SPIKE ADDED (ng)" and "SPIKE RECOVERED (ng)" in the first table, enter the amount of each spike analyte added and the calculated amount of the same analyte recovered with a unit of ng as specified in Exhibit D.

3.4.20.2.4 Under column "%R#" in the first table, enter the calculated %R for each spike analyte as specified in Exhibit D. Flag any recovery value that is outside the QC limits as specified in Exhibit D by placing an asterisk ("*") to the right of the reported value.

3.4.20.2.5 Under column "QC LIMITS" in the first table, enter the low and high limits as specified in Exhibit D.

3.4.20.2.6 Under column "EPA SAMPLE NO." in the second table, enter the EPA Sample Number for each sample and blank within the SDG that has undergone the GPC cleanup process.

3.4.20.2.7 Under column "LAB SAMPLE ID" in the second table, enter the unique laboratory sample identifier for each reported sample in the column under "EPA SAMPLE NO.".

3.4.20.2.8 Under column "GPC CLEANUP DATE", enter the date in the format of MM/DD/YYYY that the sample was subjected to GPC cleanup.

3.4.21 Identification Summary for Single component Analytes [Form 10A-OR]. This form is not required for Level 2a deliverables.

3.4.21.1 Purpose

This form contains the summary of the concentrations of all single component target analytes that are detected on both GC columns. This form shall be submitted for each applicable sample, including dilutions, reanalyses, blanks, LCSs, and MS/MSDs.

3.4.21.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.21.2.1 "EPA SAMPLE NO." at the upper right hand corner is for reporting the EPA Sample Number of each applicable sample that has analyte concentrations reported for both GC columns.

3.4.21.2.2 Under column "ANALYTE", enter the analyte name as appears on Form 1A-OR for each single component pesticide analyte that is positively identified on both columns.

3.4.21.2.3 Under column "RT", enter the RTs of the analytes for each column designated as 1 and 2 respectively. Under column "RT WINDOW", enter the determined lower and upper RT windows for the same analyte from the associated initial calibration standards. The lower and upper limits shall be entered under "FROM" and "TO" for each column designated 1 and 2 respectively.

3.4.21.2.4 Under column "CONCENTRATION", enter the calculated concentration for each column designated 1 or 2 respectively. The concentrations shall be in the same units as that reported on Form 1A-OR.

3.4.21.2.5 Under column "%D", enter the calculated %D between the two concentrations for the designated columns 1 and 2 entered on this form. %D values shall be reported to the same significant figures as specified in Exhibit D. Flag any %D value that is greater than 25% by placing an asterisk ("*") to the right of the reported value.

3.4.21.2.6 Multiple forms shall be submitted with consistent header information in order to include all target analytes that are positively identified on both columns.

3.4.22 Identification Summary for Multicomponent Analytes [Form 10B-OR]. This form is not required for Level 2a deliverables.

3.4.22.1 Purpose

This form contains the summary of the concentrations of the multicomponent target analyte Toxaphene for pesticide analysis and Aroclor target analytes for Aroclor analysis where the reported target analytes are detected on both GC columns. This form shall be submitted for each applicable sample, including dilutions, reanalyses, blanks, LCSs, and MS/MSDs.

3.4.22.2 Instructions

Complete the header information according to the instructions in Section 3.3. Complete the remainder of the form using the following instructions.

3.4.22.2.1 Under column "ANALYTE", enter the analyte name as appears on Form 1A-OR for each multicomponent pesticide target analyte, Toxaphene, and Aroclor target analytes that are positively identified on both columns.

3.4.22.2.2 Under column "RT", enter the RT of each identified peak for the analytes for each column designated as 1 and 2 respectively.

3.4.22.2.3 Under column "RT WINDOW", enter the determined lower and upper RT windows of each corresponding peak for the same analyte from the associated initial calibration standards. The lower and upper limits shall be entered under "FROM" and "TO" for each column designated 1 and 2 respectively.

3.4.22.2.4 Under column "CONCENTRATION" and sub-column "PEAK", enter the calculated concentration of each identified peak for each column designated 1 or 2 respectively. The concentration values shall be unrounded that will fit the field and in the same units as that reported on Form 1A-OR.

3.4.22.2.5 Under column "CONCENTRATION" and sub-column "MEAN", enter the calculated mean concentration from the peak concentrations for each reported analyte for each column designated 1 and 2 respectively. The mean concentration values shall be rounded to the same significant figures as the values reported on Form 1A-OR.

3.4.22.2.6 Under column "%D", enter the calculated %D between the two concentrations for the designated columns 1 and 2 entered on this form. %D values shall be reported to the same significant figures as specified in Exhibit D. Flag any %D value that is greater than 25% by placing an asterisk ("*") to the right of the reported value.

3.4.22.2.7 Multiple forms shall be submitted with consistent header information in order to include all target analytes that are positively identified on both columns.

3.5 Sample Log-In Sheet [Form DC-1]

3.5.1 Purpose

This form is used to document the receipt and inspection of samples and containers. At least one original Form DC-1 is required for each sample shipping container (e.g., cooler). If the samples in a single sample shipping container must be assigned to more than one SDG, the original Form DC-1 shall be placed with the deliverables for the SDG that has the lowest alpha-numeric number and a copy of Form DC-1 shall be placed with the deliverables for the other SDG(s). The copies should be identified as "copy(ies)", and the location of the original should be noted on the copies.

3.5.2 Instructions

3.5.2.1 Sign and date the airbill. (If an airbill is not received, include a hardcopy receipt requested from the shipping company or a printout of the shipping company’s electronic tracking information).

3.5.2.2 Examine the shipping container and record the presence/absence of custody seals and their condition (i.e., intact, broken) in Item 1.

3.5.2.3 Record the custody seal numbers in Item 2.

3.5.2.4 Open the container, remove the enclosed sample documentation, and record the presence/absence of EPA forms (i.e., TR/COC Records, packing lists) and airbills or airbill stickers in Items 3 and 4. Specify if there is an airbill present or an airbill sticker in Item 4. Record the airbill or sticker number in Item 5.

3.5.2.5 Remove the samples from the shipping container(s), examine the samples and the Sample Tags (if present), and record the condition of the sample bottles (i.e., intact, broken, leaking) and presence or absence of Sample Tags in Items 6 and 7.

3.5.2.6 Record the presence or absence of a shipping container temperature indicator bottle in Item 8.

3.5.2.7 Record the shipping container temperature in Item 9. If ice is present, that shall be noted in the "Remarks" column.

3.5.2.8 Review the sample shipping documents and compare the information recorded on all the documents and samples and mark the appropriate answer in Item 10.

3.5.2.9 The log-in date should be recorded at the top of Form DC-1; record the date and time of shipping container receipt at the laboratory in Items 11 and 12.

3.5.2.10 If there are no problems observed during receipt, sign and date (include the time) Form DC-1 and the TR/COC Record, and write the sample numbers in the "EPA Sample #" column.

3.5.2.11 Record the appropriate Sample Tags and assigned laboratory numbers, if applicable.

3.5.2.12 Any comments should be made in the "Remarks" column.

3.5.2.13 For Items 1, 3, 4, 6, 7, 8, and 10, circle the appropriate response. Responses can be underlined if this form is completed by automated equipment. Unused columns and spaces shall be crossed out, initialed, and dated.

3.5.2.14 If there are problems observed during receipt or an answer marked with an asterisk (e.g., "absent*") was circled, contact SMO and document the contact as well as resolution of the problem on a CLP Communication Log and in the SDG Narrative. Following resolution, sign and date the forms as specified in the preceding paragraph and note, where appropriate, the resolution of the problem.

3.6 Full Organics Complete SDG File (CSF) Inventory Sheet [Form DC-2]

3.6.1 Purpose

The CSF Inventory Sheet is used to record both the inventory of CSF documents and the number of documents in the original Sample Data Package which is sent to the EPA Region.

3.6.2 Instructions

3.6.2.1 Organize all EPA-CSF documents as described in Exhibit B, Sections 2 and 3. Assemble the documents in Exhibit B, Section 2 in the order specified on Form DC-2, and stamp each page with the consecutive number. Inventory the CSF by reviewing the document numbers and recording page number ranges in the columns provided on Form DC-2. The Contractor shall verify and record in the "Comments" section on Form DC-2 all intentional gaps in the page numbering sequence (for example, "page numbers not used, XXXX-XXXX, XXXX-XXXX"). For example, when filling out the page numbers for the "Sample Data" section on Form DC-2, enter the page number of the first Form 1A-OR of the sample analysis under the "From" column, and the last page of the raw data of the last sample analysis under the "To" column. The subsequent lines under the "Sample Data" section may be left blank. If there are

no documents for a specific document type, enter an "NA" in the empty space.

3.6.2.2 Certain laboratory-specific documents related to the CSF may not fit into a clearly defined category. The laboratory should review Form DC-2 to determine if it is most appropriate to place them under Categories 99 through 101. Category 101 should be used if there is no appropriate previous category. These types of documents should be described or listed in the blanks under each appropriate category.

3.6.2.3 If it is necessary to insert new or inadvertently omitted documents, the Contractor shall follow these steps:

- Number all documents to be inserted with the next sequential numbers and file the inserts in their logical positions within the CSF (e.g., document to be inserted between pages 6 and 7 shall be numbered as 6a, 6b, 6c, etc.). Identify where the inserts are filed in the CSF by recording the document numbers and their locations under the "Other Records" section of Form DC-2 (e.g., documents to be inserted between pages 6 and 7 shall be numbered as 6a, 6b, 6c, etc.).

4.0 DATA REPORTING FORMS

The data reporting forms are shown on the following pages.

THIS PAGE INTENTIONALLY LEFT BLANK

EXHIBIT B

ORGANIC FORMS

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SDG COVER PAGE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

SOW No.: _____

EPA Sample No.	Lab Sample ID	Analysis Method					
		Trace VOA	Low Med VOA	SVOA	SVOA SIM	PEST	ARO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

EPA SAMPLE NO.

FORM 1A-OR
ORGANIC ANALYSIS DATA SHEET
TARGET ANALYTE LIST

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

% Solids: _____ Date Received: _____

GC Column: _____ ID: _____(mm) Date Extracted: _____

GC Column: _____ ID: _____(mm) Date Analyzed: _____

Extract Concentrated:(Y/N) _____ Extract Volume: _____(µL)

Soil Aliquot (VOA): _____(µL) Extraction Type: _____

Heated Purge: (Y/N) _____ Injection Volume: _____(µL)

Purge Volume: _____(mL) pH: _____ Dilution Factor: _____

Cleanup Types: _____ Cleanup Factor: _____

Concentration Units (µg/L, mg/L, µg/kg): _____

CAS NO.	ANALYTE	CONCENTRATION	Q

EPA SAMPLE NO.

FORM 1B-OR
ORGANIC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

% Solids: _____ Date Received: _____

GC Column: _____ ID: _____(mm) Date Extracted: _____

Extract Concentrated:(Y/N) _____ Date Analyzed: _____

Soil Aliquot (VOA): _____(µL) Extract Volume: _____(µL)

Heated Purge: (Y/N) _____ Extraction Type: _____

Purge Volume: _____(mL) Injection Volume: _____(µL)

Cleanup Types: _____ pH: _____ Dilution Factor: _____

Concentration Units (µg/L, µg/kg): _____ Cleanup Factor: _____

	CAS No.	ANALYTE	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

FORM 2A-OR
DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____

EPA SAMPLE NO.	DMC1	DMC2	DMC3	DMC4	DMC5	DMC6	DMC7	DMC8	DMC9

FORM 2B-OR
DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____

EPA SAMPLE NO.	DMC10	DMC11	DMC12	DMC13	DMC14	DMC15	DMC16	DMC17	TOT OUT

FORM 2C-OR
SURROGATE RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____

Matrix: _____

GC Column ( ): _____ ID: _____(mm) GC Column ( ): _____ ID: _____(mm)

EPA SAMPLE NO.	SUR 1-1 %R	SUR 1-2 %R	SUR 2-1 %R	SUR 2-2 %R	OTHER (1)	OTHER (2)	TOT OUT

FORM 3A-OR
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____

EPA Sample No. (Matrix Spike/Matrix Spike Duplicate): _____

Instrument ID: _____ GC Column: _____ ID: _____(mm)

Concentration Units (ug/L, mg/L, ug/kg): _____

ANALYTE	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS %R#	QC LIMITS %R

ANALYTE	SPIKE ADDED	MSD CONCENTRATION	MSD %R#	RPD	QC LIMITS	
					RPD	%R

EPA SAMPLE NO.

FORM 3B-OR
LABORATORY CONTROL
SAMPLE RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____

Matrix: _____ Lab Sample ID: _____

LCS Lot No.: _____ Date Extracted: _____

Concentration Units (µg/L, mg/L, µg/Kg): _____

Instrument ID ( ): _____ GC Column ( ): _____ ID: _____(mm)

Date Analyzed ( ): _____

ANALYTE	AMOUNT ADDED	AMOUNT RECOVERED	%R	QC LIMITS

Instrument ID ( ): _____ GC Column ( ): _____ ID: _____(mm)

Date Analyzed ( ): _____

ANALYTE	AMOUNT ADDED	AMOUNT RECOVERED	%R	QC LIMITS

EPA SAMPLE NO.

FORM 4-OR
METHOD BLANK SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Matrix: _____ Lab Sample ID: _____

Instrument ID: _____ Lab File ID: _____

Extraction Type: _____ Date Extracted: _____

GC Column ( ): _____ ID: _____(mm) Date Analyzed: _____

GC Column ( ): _____ ID: _____(mm) Time Analyzed: _____

Heated Purge: (Y/N) __ Cleanup (Y/N): __ Cleanup Types: _____

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED

EPA SAMPLE NO.

Form 5-OR
GC/MS Instrument Performance Check

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Lab File ID: _____

Instrument ID: _____ BFB/DFTPP _____

GC Column: _____ ID: _____(mm)

Injection Date: _____ Injection Time: _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )
		( )

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED

FORM 6A-OR
GC/MS INITIAL CALIBRATION DATA

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: _____________________ Level: _________________________________

Instrument ID: _________________________ Calibration Date(s): _________ ________

GC Column: _________ ID: _________(mm) Calibration Time(s): _________ ________

Length: _____________________________(m)

Heated Purge: (Y/N) ____________________ Purge Volume: ______________________(mL)

LAB FILE ID: _______________ RRF ____ = ____________________ RRF ____ = __________________

RRF _______ = _______________ RRF ____ = ____________________ RRF ____ = __________________

ANALYTE	RRF____	RRF____	RRF____	RRF___	RRF___	$\overline{RRF}$	%RSD

FORM 6B-OR

INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: ______________________

Instrument ID: __________________________

Level (x CS1): CS1 ______ CS2 ________ CS3 _________ CS4 ________ CS5 _______

GC Column: __________ ID: ________(mm) Calibration Date(s): ________ _________

Calibration Time(s): ________ _________

ANALYTE	RT OF STANDARDS					$\overline{RT}$	RT WINDOW	
	CS1	CS2	CS3	CS4	CS5		FROM	TO

FORM 6C-OR
INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: _____________________

Instrument ID: _________________________

Level (x CS1): CS1 ______ CS2 ________ CS3 _________ CS4 ________ CS5 _______

GC Column: __________ ID: ________(mm) Calibration Date(s): ________ _________

Calibration Time(s): ________ _________

ANALYTE	CF OF STANDARDS					$\overline{CF}$	%RSD
	CS1	CS2	CS3	CS4	CS5		

FORM 6D-OR
INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: _____________________

Instrument ID: _________________________

Level (x CS1): CS1 ______ CS2 ________ CS3 _________ CS4 ________ CS5 _______

GC Column: __________ ID: ________(mm) Calibration Date(s): ________ _________

Calibration Time(s): ________ _________

ANALYTE	PEAK	RT OF STANDARDS					$\overline{RT}$	RT WINDOW	
		CS1	CS2	CS3	CS4	CS5		FROM	TO
	1								
	2								
	3								
	4								
	5								
TCX									
DCB									
	1								
	2								
	3								
	4								
	5								
TCX									
DCB									
	1								
	2								
	3								
	4								
	5								
TCX									
DCB									

FORM 6E-OR
INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____

Instrument ID: _____

Level (x CS1): CS1 _____ CS2 _____ CS3 _____ CS4 _____ CS5 _____

GC Column: _____ ID: _____(mm) Calibration Date(s): _____ _____

Calibration Time(s): _____ _____

ANALYTE	PEAK	CF OF STANDARDS						
		CS1	CS2	CS3	CS4	CS5	$\overline{CF}$	%RSD
	1							
	2							
	3							
	4							
	5							
TCX								
DCB								
	1							
	2							
	3							
	4							
	5							
TCX								
DCB								
	1							
	2							
	3							
	4							
	5							
TCX								
DCB								

FORM 6F-OR
INITIAL CALIBRATION (SINGLE POINT) OF MULTICOMPONENT ANALYTES

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: ______________________

Instrument ID: __________________________

GC Column: _______ ID: ________(mm) Calibration Date(s): ________ _________

Calibration Time(s): ________ _________

ANALYTE	AMOUNT (ng)	PEAK	RT	RT WINDOW		CALIBRATION FACTOR
				FROM	TO	
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				
		1				
		2				
		3				
		4				
		5				

FORM 6G-OR
RESOLUTION CHECK SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Lab Sample ID ( ): _____

Instrument ID ( ): _____ EPA Sample No.: _____

GC Column ( ): _____ ID: _____(mm) Date Analyzed ( ): _____

Time Analyzed ( ): _____

ANALYTE	RT	RESOLUTION (%)

FORM 7A-OR
CONTINUING CALIBRATION VERIFICATION FOR GC/MS

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

Instrument ID: _____ Date Analyzed: _____ Time:_____

Lab File ID: _____ Init. Calib Date(s): _____ _____

EPA Sample No.: _____ Init. Calib Time(s): _____ _____

GC Column: _____ ID: _____(mm) Length: _____(m)

Heated Purge: (Y/N) _____ Purge Volume: _____(mL)

ANALYTE	$\overline{\text{RRF}}$	RRF___	MIN RRF	%D	MAX %D

FORM 7B-OR
PESTICIDE PERFORMANCE EVALUATION MIXTURE CALIBRATION VERIFICATION SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Instrument Blank EPA Sample No. (PIBLK##): _____

Instrument Blank Lab Sample ID: _____

EPA Sample No. (PEM##): _____ Init. Calib Date(s):_____ _____

Lab Sample ID (PEM): _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm) Time Analyzed: _____

Date Analyzed: _____

Time Analyzed: _____

ANALYTE	RT	RT WINDOW		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		FROM	TO			
alpha-BHC						
beta-BHC						
gamma-BHC (Lindane)						
Endrin						
4,4'-DDT						
Methoxychlor						
TCX						
DCB						

4,4'-DDT %Breakdown ( ): _____ Endrin %Breakdown ( ): _____

Combined %Breakdown ( ): _____

FORM 7C-OR
CONTINUING CALIBRATION VERIFICATION SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Init. Calib Date(s): _____ _____

Instrument Blank EPA Sample No.: _____ Date Analyzed: _____

Instrument Blank Lab ID: _____ Time Analyzed: _____

EPA Sample No.: _____ Date Analyzed: _____

Lab Sample ID: _____ Time Analyzed: _____

GC Column: _____ ID: _____(mm)

ANALYTE	RT	RT WINDOW		$\overline{CF}$	CF	%D
		FROM	TO			

FORM 7D-OR

MULTICOMPONENT CONTINUING CALIBRATION VERIFICATION SUMMARY

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: _________

Analytical Method: _____________________ Init. Calib Date(s): _______ _________

Instrument Blank EPA Sample No.: _______ Date Analyzed: _________________________

Instrument Blank Lab ID: _______________ Time Analyzed: _________________________

EPA Sample No.: ________________________ Date Analyzed: _________________________

Lab Sample ID: _________________________ Time Analyzed: _________________________

GC Column: __________ ID: _______(mm)

ANALYTE	PEAK	RETENTION	RT WINDOW		$\overline{CF}$	CF	%D
		RT	FROM	TO			
	1						
	2						
	3						
	4						
	5						
TCX							
DCB							
	1						
	2						
	3						
	4						
	5						
TCX							
DCB							
	1						
	2						
	3						
	4						
	5						
TCX							
DCB							
	1						
	2						
	3						
	4						
	5						
TCX							
DCB							
	1						
	2						
	3						
	4						
	5						
TCX							
DCB							

FORM 8A-OR
INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Level: _____

EPA Sample No.: _____ Lab File ID (Standard): _____

Instrument ID: _____ Init. Calib. Date(s): _____ _____

GC Column: _____ ID: _____(mm) Date Analyzed: _____

Heated Purge: (Y/N) _____ Time Analyzed: _____

	IS AREA	RT	IS AREA	RT	IS AREA	RT
12 HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE NO.						

FORM 8B-OR
ANALYTICAL SEQUENCE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Init. Calib. Date(s): _____ _____

Instrument ID: _____ Init. Calib. Time(s): _____ _____

GC Column: _____ ID: _____(mm)

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs, and LCSs IS GIVEN BELOW:

SURROGATE MEAN RT FROM INITIAL CALIBRATION SURROGATE 1 ( ): _____ SURROGATE 2 ( ): _____					
EPA SAMPLE NO.	LAB FILE ID	DATE ANALYZED	TIME ANALYZED	SUR 1 RT#	SUR 2 RT#

Column used to flag RT values with an asterisk.

FORM 9A-OR
FLORISIL CARTRIDGE CHECK

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____

Florisil Cartridge Lot Number: _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm)

ANALYTE	SPIKE ADDED (ng)	SPIKE RECOVERED (ng)	%R#	QC LIMITS

Column to be used to flag recovery with an asterisk.

THIS CARTRIDGE LOT APPLIES TO THE FOLLOWING SAMPLES, BLANKS, LCSs, AND MS/MSDs:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2

FORM 9B-OR
GPC CALIBRATION VERIFICATION

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____

GPC Column: _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm)

ANALYTE	SPIKE ADDED (ng)	SPIKE RECOVERED (ng)	%R#	QC LIMITS

Column to be used to flag recovery with an asterisk.

THIS GPC CALIBRATION VERIFICATION APPLIES TO THE FOLLOWING SAMPLES, BLANKS, LCSs, AND MS/MSDs:

EPA SAMPLE NO.	LAB SAMPLE ID	GPC CLEANUP DATE

EPA SAMPLE NO.

FORM 10A-OR
IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No.: _____ SDG No.: _____

Analytical Method: _____ Lab Sample ID: _____

Instrument ID ( ): _____ Date(s) Analyzed: _____ _____

Instrument ID ( ): _____

GC Column ( ): _____ ID: _____(mm) GC Column ( ): _____ ID: _____(mm)

Concentration Units (µg/L, mg/L, µg/kg): _____

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

EPA SAMPLE NO.

FORM 10B-OR
IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

Lab Name: ______________________________ Contract: ______________________________

Lab Code: _________ Case No.: ________ MA No.: ____________ SDG No.: __________

Analytical Method: _____________________ Lab Sample ID: __________________________

Instrument ID ( ): _____________________ Date(s) Analyzed: __________ __________

Instrument ID ( ): _____________________

GC Column ( ): _______ ID: _______(mm) GC Column ( ): _______ ID: ________(mm)

Concentration Units (µg/L, mg/L, µg/kg): _____________

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION		%D
			FROM	TO	PEAK	MEAN	
__________________	1						
COLUMN 1	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
__________________	1						
COLUMN 1	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
__________________	1						
COLUMN 1	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name		Page of
Received By (Print Name)		Log-in Date
Received By (Signature)		
Case Number	SDG No.	MA No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	_____ _____
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	_____ _____
6. Sample Tags Sample Tag Numbers	Present/Absent* Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Shipping Container Temperature Indicator Bottle	Present/Absent*
9. Shipping Container Temperature	_____
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree?	Yes/No*
11. Date Received at Lab	_____
12. Time Received	_____

	EPA Sample #	Corresponding		Remarks: Condition of Sample Shipment, etc.
		Sample Tag #	Assigned Lab #	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

* Contact SMO and attach record of resolution

Reviewed By	Logbook No.
Date	Logbook Page No.

FORM DC-2
FULL ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME _____

LAB CODE _____

CONTRACT NO. _____

CASE NO. _____ SDG NO. _____

MA NO. _____

SOW NO. _____

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

		PAGE NOs.		CHECK	
		FROM	TO	LAB	REGION
1.	SDG Cover Page				
2.	Traffic Report/Chain of Custody Record(s)				
3.	Sample Log-In Sheet (DC-1)				
4.	CSF Inventory Sheet (DC-2)				
5.	SDG Narrative				
Organic Analysis					
Trace Volatiles					
	Quality Control Summary				
6.	Deuterated Monitoring Compound Recovery (Form 2A-OR and Form 2B-OR)				
7.	Matrix Spike/Matrix Spike Duplicate Recovery (Form 3A-OR) (if requested by the EPA Region)				
8.	Method Blank Summary (Form 4-OR)				
9.	GC/MS Instrument Performance Check (Form 5-OR)				
10.	Internal Standard Area and Retention Summary (Form 8A-OR)				
	Sample Data				
11.	TAL Results – Organic Analysis Data Sheet (Form 1A-OR)				
12.	Tentatively Identified Compounds (Form 1B-OR)				
13.	Raw Data for Each Sample:				
	Reconstructed total ion chromatograms (RICs) for each sample				
	Raw Spectra and background-subtracted mass spectra of target analytes identified				
	Quantitation Reports				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
	Mass Spectra of all reported TICs with three best library matches				
	Standards Data (All Instruments)				
14.	GC/MS Initial Calibration Data (Form 6A-OR)				
15.	RICs and Quantitation Reports for all Standards				
16.	Continuing Calibration Verification for GC/MS (Form 7A-OR)				
17.	RICs and Quantitation Reports for all Standards				
	Quality Control Data				
18.	Performance Check				
19.	Blank Data				
20.	Matrix Spike/Matrix Spike Duplicate Data (Form 3A-OR) (if requested by the EPA Region)				
21.	Original preparation and analysis forms or copies of preparation and analysis logbook pages (including screening records if applicable)				
Low-Medium Volatiles					
	Quality Control Summary				
22.	Deuterated Monitoring Compound Recovery (Form 2A-OR and Form 2B-OR)				
23.	Matrix Spike/Matrix Spike Duplicate Recovery (Form 3A-OR) (if requested by the EPA Region)				
24.	Method Blank Summary (Form 4-OR)				
25.	GC/MS Instrument Performance Check (Form 5-OR)				
26.	Internal Standard Area and Retention Time Summary (Form 8A-OR)				
	Sample Data				
27.	TAL Results – Organic Analysis Data Sheet (Form 1A-OR)				
28.	Tentatively Identified Compounds (Form 1B-OR)				
29.	Raw Data for Each Sample:				
	Reconstructed total ion chromatograms (RICs) for each sample				
	Raw Spectra and background-subtracted mass spectra of target analytes identified				
	Quantitation Reports				
	Mass Spectra of all reported TICs with three best library matches				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs.		CHECK	
		FROM	TO	LAB	REGION
	Standards Data (All Instruments)				
30.	GC/MS Initial Calibration Data (Form 6A-OR)				
31.	RICs and Quantitation Reports for all Standards				
32.	Continuing Calibration Verification for GC/MS (Form 7A-OR)				
33.	RICs and Quantitation Reports for all Standards				
	Quality Control Data				
34.	Performance Check				
35.	Blank Data				
36.	Matrix Spike/Matrix Spike Duplicate Data (if requested by the EPA Region)				
37.	Original preparation and analysis forms or copies of preparation and analysis logbook pages (including TCLP/SPLP logs, Percent Solid Determinations logs, and screening records if applicable)				
Semivolatiles					
	Quality Control Summary				
38.	Deuterated Monitoring Compound Recovery (Form 2A-OR and Form 2B-OR)				
39.	Matrix Spike/Matrix Spike Duplicate Recovery (Form 3A-OR) (if requested by the EPA Region)				
40.	Method Blank Summary (Form 4-OR)				
41.	GC/MS Instrument Performance Check (Form 5-OR)				
42.	Internal Standard Area and Retention Time Summary (Form 8A-OR)				
	Sample Data				
43.	TAL Results – Organic Analysis Data Sheet (Form 1A-OR)				
44.	Tentatively Identified Compounds (Form 1B-OR)				
45.	Raw Data for Each Sample:				
	Reconstructed total ion chromatograms (RICs) for each sample				
	Raw Spectra and background-subtracted mass spectra of target analytes identified				
	Quantitation Reports				
	Mass Spectra of all reported TICs with three best library matches				
	GPC chromatograms (if GPC is required)				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
	Standards Data (All Instruments)				
46.	GC/MS Initial Calibration Data (Form 6A-OR)				
47.	RICs and Quantitation Reports for all Standards				
48.	Continuing Calibration Verification for GC/MS (Form 7A-OR)				
49.	RICs and Quantitation Reports for all Standards				
	Quality Control Data				
50.	Performance Check				
51.	Blank Data				
52.	Matrix Spike/Matrix Spike Duplicate Data (if requested by the EPA Region)				
53.	Raw GPC Data				
54.	For SIM analysis (if requested), at the same sequence as listed above, except for that Form 1B-OR and TIC spectra data which are not required for SIM method.				
55.	Original preparation and analysis forms or copies of preparation and analysis logbook pages (including TCLP/SPLP logs, Percent Solid Determinations logs, and screening records if applicable)				
Pesticides					
	Quality Control Summary				
56.	Surrogate Recovery (Form 2C-OR)				
57.	Matrix Spike/Matrix Spike Duplicate Recovery (Form 3A-OR each columns)				
58.	Laboratory Control Sample Recovery (Form 3B-OR for each column)				
59.	Method Blank Summary (Form 4-OR)				
	Sample Data				
60.	TAL Results – Organic Analysis Data Sheet (Form 1A-OR)				
61.	Raw Data for Each Sample:				
	Chromatograms (Primary Column)				
	Chromatograms (Secondary Column)				
	Quantitation Reports				
	Manual Worksheets				
62.	For Pesticides by GC/MS Confirmation:				
	Copies of raw spectra and copies of background-subtracted mass spectra of target analytes (samples & standards)				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
	Standards Data				
63.	Initial Calibration of Single Component Analytes (Form 6B-OR and 6C-OR)				
64.	Initial Calibration of Multicomponent Analytes (Form 6D-OR and 6E-OR)				
65.	Analyte Resolution Summary (Form 6G-OR)				
66.	Pesticide Performance Evaluation Mixture Calibration Verification Summary (Form 7B-OR)				
67.	Continuing Calibration Verification Summary (Form 7C-OR)				
68.	Multicomponent Continuing Calibration Verification Summary (Form 7D-OR)				
69.	Analytical Sequence (Form 8B-OR)				
70.	Florisil Cartridge Check (Form 9A-OR)				
71.	GPC Calibration Verification (Form 9B-OR)				
72.	Identification Summary for Single Component Analytes (Form 10A-OR)				
73.	Identification Summary for Multicomponent Analytes (Form 10B-OR)				
74.	Chromatograms and Quantitation Reports:				
	A printout of Retention Times and corresponding peak areas or peak heights				
	Quality Control Data				
75.	Blank Data				
76.	Matrix Spike/Matrix Spike Duplicate Data				
77.	Laboratory Control Sample				
78.	Raw GPC Data				
79.	Raw Florisil Data				
80.	Original preparation and analysis forms or copies of preparation and analysis logbook pages (including TCLP/SPLP logs, Percent Solid Determinations logs, and screening records if applicable)				
Aroclors					
	Quality Control Summary				
81.	Surrogate Recovery (Form 2C-OR)				
82.	Matrix Spike/Matrix Spike Duplicate Summary (Form 3A-OR)				
83.	Laboratory Control Sample Recovery (Form 3B-OR for each column)				
84.	Method Blank Summary (Form 4-OR)				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs.		CHECK	
		FROM	TO	LAB	REGION
	Sample Data				
85.	TAL Results – Organic Analysis Data Sheet (Form 1A-OR)				
86.	Raw Data for Each Sample:				
	Chromatograms (Primary Column)				
	Chromatograms (Secondary Column)				
	Quantitation Reports				
	Manual Worksheets				
87.	For Aroclors by GC/MS Confirmation:				
	Copies of raw spectra and copies of background-subtracted mass spectra of target analytes (samples & standards)				
	Standards Data				
88.	Initial Calibration of Multicomponent Analytes (Form 6D-OR, Form 6E-OR, and Form 6F-OR)				
89.	Multicomponent Continuing Calibration Verification Summary (Form 7D-OR)				
90.	Analytical Sequence (Form 8B-OR)				
91.	Identification Summary for Multicomponent Analytes (Form 10B-OR)				
92.	Chromatograms and data system printouts:				
	A printout of Retention Times and corresponding peak areas or peak heights				
	Quality Control Data				
93.	Blank Data				
94.	Matrix Spike/Matrix Spike Duplicate Data				
95.	Laboratory Control Sample (LCS) Data				
96.	Raw GPC Data (if performed)				
97.	Original preparation and analysis forms or copies of preparation and analysis logbook pages (including Percent Solid Determinations logs and screening records if applicable)				
Additional					
98.	EPA Shipping/Receiving Documents				
	Airbill (No. of Shipments_____)				
	Sample Tags				
	Sample Log-In Sheet (Lab)				

FORM DC-2
ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs.		CHECK	
	FROM	TO	LAB	REGION
99. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs				
100. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
101. PE/PT Instruction Forms				
102. Other Records (describe or list)				
Communication Logs				

103. Comments:

Completed by:
(CLP Lab) _____ (Signature) _____ (Print Name & Title) _____ (Date)

Audited by:
(EPA) _____ (Signature) _____ (Print Name & Title) _____ (Date)

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EXHIBIT C

ORGANIC TARGET ANALYTE LIST AND
CONTRACT REQUIRED QUANTITATION LIMITS

NOTE: The Contract Required Quantitation Limit (CRQL) values listed on the following pages are based on the analysis of samples according to the specifications given in Exhibit D.

Changes to the CRQL may be requested under the Modified Analysis (MA) clause in the contract.

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Exhibit C – Organic Target Analyte List and Contract Required Quantitation Limits

Table of Contents

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1.0 TRACE VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

TABLE 1. TRACE VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A]

Analyte Name	CAS Number	CRQLs Trace Water (µg/L)
Dichlorodifluoromethane	75-71-8	0.50
Chloromethane	74-87-3	0.50
Vinyl chloride	75-01-4	0.50
Bromomethane	74-83-9	0.50
Chloroethane	75-00-3	0.50
Trichlorofluoromethane	75-69-4	0.50
1,1-Dichloroethene	75-35-4	0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.50
Acetone	67-64-1	5.0
Carbon disulfide	75-15-0	0.50
Methyl acetate	79-20-9	0.50
Methylene chloride	75-09-2	0.50
trans-1,2-Dichloroethene	156-60-5	0.50
Methyl tert-butyl ether	1634-04-4	0.50
1,1-Dichloroethane	75-34-3	0.50
cis-1,2-Dichloroethene	156-59-2	0.50
2-Butanone	78-93-3	5.0
Bromochloromethane	74-97-5	0.50
Chloroform	67-66-3	0.50
1,1,1-Trichloroethane	71-55-6	0.50
Cyclohexane	110-82-7	0.50
Carbon tetrachloride	56-23-5	0.50
Benzene	71-43-2	0.50
1,2-Dichloroethane	107-06-2	0.50
Trichloroethene	79-01-6	0.50
Methylcyclohexane	108-87-2	0.50
1,2-Dichloropropane	78-87-5	0.50
Bromodichloromethane	75-27-4	0.50
cis-1,3-Dichloropropene	10061-01-5	0.50
4-Methyl-2-pentanone	108-10-1	5.0
Toluene	108-88-3	0.50
trans-1,3-Dichloropropene	10061-02-6	0.50
1,1,2-Trichloroethane	79-00-5	0.50
Tetrachloroethene	127-18-4	0.50

TABLE 1. TRACE VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A] (CON'T)

Analyte Name	CAS Number	CRQLs Trace Water (µg/L)
2-Hexanone	591-78-6	5.0
Dibromochloromethane	124-48-1	0.50
1,2-Dibromoethane	106-93-4	0.50
Chlorobenzene	108-90-7	0.50
Ethylbenzene	100-41-4	0.50
o-Xylene	95-47-6	0.50
m,p-Xylene	179601-23-1	0.50
Styrene	100-42-5	0.50
Bromoform	75-25-2	0.50
Isopropylbenzene	98-82-8	0.50
1,1,2,2-Tetrachloroethane	79-34-5	0.50
1,3-Dichlorobenzene	541-73-1	0.50
1,4-Dichlorobenzene	106-46-7	0.50
1,2-Dichlorobenzene	95-50-1	0.50
1,2-Dibromo-3-chloropropane	96-12-8	0.50
1,2,4-Trichlorobenzene	120-82-1	0.50
1,2,3-Trichlorobenzene	87-61-6	0.50

2.0 LOW/MEDIUM VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

TABLE 2. LOW/MEDIUM VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A]

Analyte Name	CAS Number	CRQLs Low Water[I] (µg/L)	Low Soil[B] (µg/kg)	Medium Soil[B] (µg/kg)
Dichlorodifluoromethane	75-71-8	5.0	5.0	250
Chloromethane	74-87-3	5.0	5.0	250
Vinyl chloride[C]	75-01-4	5.0	5.0	250
Bromomethane	74-83-9	5.0	5.0	250
Chloroethane	75-00-3	5.0	5.0	250
Trichlorofluoromethane	75-69-4	5.0	5.0	250
1,1-Dichloroethene[C]	75-35-4	5.0	5.0	250
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5.0	5.0	250
Acetone	67-64-1	10	10	500
Carbon disulfide	75-15-0	5.0	5.0	250
Methyl acetate	79-20-9	5.0	5.0	250
Methylene chloride	75-09-2	5.0	5.0	250
trans-1,2-Dichloroethene	156-60-5	5.0	5.0	250
Methyl tert-butyl ether	1634-04-4	5.0	5.0	250
1,1-Dichloroethane	75-34-3	5.0	5.0	250

TABLE 2. LOW/MEDIUM VOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A] (CON'T)

Analyte Name	CAS Number	CRQLs		
		Low Water[I] (µg/L)	Low Soil[B] (µg/kg)	Medium Soil[B] (µg/kg)
cis-1,2-Dichloroethene	156-59-2	5.0	5.0	250
2-Butanone[C]	78-93-3	10	10	500
Bromochloromethane	74-97-5	5.0	5.0	250
Chloroform[C]	67-66-3	5.0	5.0	250
1,1,1-Trichloroethane	71-55-6	5.0	5.0	250
Cyclohexane	110-82-7	5.0	5.0	250
Carbon tetrachloride[C]	56-23-5	5.0	5.0	250
Benzene[C]	71-43-2	5.0	5.0	250
1,2-Dichloroethane[C]	107-06-2	5.0	5.0	250
Trichloroethene[C]	79-01-6	5.0	5.0	250
Methylcyclohexane	108-87-2	5.0	5.0	250
1,2-Dichloropropane	78-87-5	5.0	5.0	250
Bromodichloromethane	75-27-4	5.0	5.0	250
cis-1,3-Dichloropropene	10061-01-5	5.0	5.0	250
4-Methyl-2-pentanone	108-10-1	10	10	500
Toluene	108-88-3	5.0	5.0	250
trans-1,3-Dichloropropene	10061-02-6	5.0	5.0	250
1,1,2-Trichloroethane	79-00-5	5.0	5.0	250
Tetrachloroethene[C]	127-18-4	5.0	5.0	250
2-Hexanone	591-78-6	10	10	500
Dibromochloromethane	124-48-1	5.0	5.0	250
1,2-Dibromoethane	106-93-4	5.0	5.0	250
Chlorobenzene[C]	108-90-7	5.0	5.0	250
Ethylbenzene	100-41-4	5.0	5.0	250
o-Xylene	95-47-6	5.0	5.0	250
m,p-Xylene	179601-23-1	5.0	5.0	250
Styrene	100-42-5	5.0	5.0	250
Bromoform	75-25-2	5.0	5.0	250
Isopropylbenzene	98-82-8	5.0	5.0	250
1,1,2,2-Tetrachloroethane	79-34-5	5.0	5.0	250
1,3-Dichlorobenzene	541-73-1	5.0	5.0	250
1,4-Dichlorobenzene[C]	106-46-7	5.0	5.0	250
1,2-Dichlorobenzene	95-50-1	5.0	5.0	250
1,2-Dibromo-3-chloropropane	96-12-8	5.0	5.0	250
1,2,4-Trichlorobenzene	120-82-1	5.0	5.0	250
1,2,3-Trichlorobenzene	87-61-6	5.0	5.0	250

3.0 SEMIVOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

TABLE 3. SEMIVOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A]

Analyte Name	CAS Number	CRQLs				
		Low Water By SIM[D] (µg/L)	Low Water[I] (µg/L)	Low Soil By SIM[B,D] (µg/kg)	Low Soil[B] (µg/kg)	Med. Soil[B] (µg/kg)
1,4-Dioxane	123-91-1		2.0		67	2000
Benzaldehyde	100-52-7		10		330	10000
Phenol	108-95-2		10		330	10000
Bis(2-chloroethyl) ether	111-44-4		10		330	10000
2-Chlorophenol	95-57-8		5.0		170	5000
2-Methylphenol[C]	95-48-7		10		330	10000
3-Methylphenol[C,K]	108-39-4		5.0			
2,2'-Oxybis(1-chloropropane)[E]	108-60-1		10		330	10000
Acetophenone	98-86-2		10		330	10000
4-Methylphenol[A,C]	106-44-5		10		330	10000
N-Nitroso-di-n propylamine	621-64-7		5.0		170	5000
Hexachloroethane[C]	67-72-1		5.0		170	5000
Nitrobenzene[C]	98-95-3		5.0		170	5000
Isophorone	78-59-1		5.0		170	5000
2-Nitrophenol	88-75-5		5.0		170	5000
2,4-Dimethylphenol	105-67-9		5.0		170	5000
Bis(2-chloroethoxy)methane	111-91-1		5.0		170	5000
2,4-Dichlorophenol	120-83-2		5.0		170	5000
Naphthalene[F]	91-20-3	0.10	5.0	3.3	170	5000
4-Chloroaniline	106-47-8		10		330	10000
Hexachlorobutadiene[C]	87-68-3		5.0		170	5000
Caprolactam	105-60-2		10		330	10000
4-Chloro-3-methylphenol	59-50-7		5.0		170	5000
2-Methylnaphthalene[F]	91-57-6	0.10	5.0	3.3	170	5000
Hexachlorocyclo-pentadiene	77-47-4		10		330	10000
2,4,6-Trichlorophenol[C]	88-06-2		5.0		170	5000
2,4,5-Trichlorophenol[C]	95-95-4		5.0		170	5000
1,1'-Biphenyl	92-52-4		5.0		170	5000
2-Chloronaphthalene	91-58-7		5.0		170	5000
2-Nitroaniline	88-74-4		5.0		170	5000
Dimethylphthalate	131-11-3		5.0		170	5000
2,6-Dinitrotoluene	606-20-2		5.0		170	5000
Acenaphthylene[F]	208-96-8	0.10	5.0	3.3	170	5000
3-Nitroaniline	99-09-2		10		330	10000
Acenaphthene[F]	83-32-9	0.10	5.0	3.3	170	5000
2,4-Dinitrophenol	51-28-5		10		330	10000
4-Nitrophenol	100-02-7		10		330	10000
Dibenzofuran	132-64-9		5.0		170	5000
2,4-Dinitrotoluene[C]	121-14-2		5.0		170	5000
Diethylphthalate	84-66-2		5.0		170	5000

TABLE 3. SEMIVOLATILES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[A] (CON'T)

Analyte Name	CAS Number	CRQLs Low Water By SIM[D] (µg/L)	Low Water[I] (µg/L)	Low Soil By SIM[B,D] (µg/kg)	Low Soil[B] (µg/kg)	Med. Soil[B] (µg/kg)
Fluorene[F]	86-73-7	0.10	5.0	3.3	170	5000
4-Chlorophenyl-phenyl ether	7005-72-3		5.0		170	5000
4-Nitroaniline	100-01-6		10		330	10000
4,6-Dinitro-2-methylphenol	534-52-1		10		330	10000
N-Nitrosodiphenylamine	86-30-6		5.0		170	5000
1,2,4,5-Tetrachlorobenzene	95-94-3		5.0		170	5000
4-Bromophenyl-phenylether	101-55-3		5.0		170	5000
Hexachlorobenzene	118-74-1		5.0		170	5000
Atrazine	1912-24-9		10		330	10000
Pentachlorophenol[F]	87-86-5	0.20	10	6.7	330	10000
Phenanthrene[C,F]	85-01-8	0.10	5.0	3.3	170	5000
Anthracene[F]	120-12-7	0.10	5.0	3.3	170	5000
Carbazole	86-74-8		10		330	10000
Di-n-butylphthalate	84-74-2		5.0		170	5000
Fluoranthene[F]	206-44-0	0.10	10	3.3	330	10000
Pyrene[F]	129-00-0	0.10	5.0	3.3	170	5000
Butylbenzylphthalate	85-68-7		5.0		170	5000
3,3'-Dichlorobenzidine	91-94-1		10		330	10000
Benzo(a)anthracene[F]	56-55-3	0.10	5.0	3.3	170	5000
Chrysene[F]	218-01-9	0.10	5.0	3.3	170	5000
Bis(2-ethylhexyl)phthalate	117-81-7		5.0		170	5000
Di-n-octylphthalate	117-84-0		10		330	10000
Benzo(b)fluoranthene[F]	205-99-2	0.10	5.0	3.3	170	5000
Benzo(k)fluoranthene[F]	207-08-9	0.10	5.0	3.3	170	5000
Benzo(a)pyrene[F]	50-32-8	0.10	5.0	3.3	170	5000
Indeno(1,2,3-cd)pyrene[F]	193-39-5	0.10	5.0	3.3	170	5000
Dibenzo(a,h)anthracene[F]	53-70-3	0.10	5.0	3.3	170	5000
Benzo(g,h,i)perylene[F]	191-24-2	0.10	5.0	3.3	170	5000
2,3,4,6-Tetrachlorophenol	58-90-2		5.0		170	5000

4.0 PESTICIDES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

TABLE 4. PESTICIDES TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANITATION LIMITS[A,G]

Analyte Name	CAS Number	CRQLs	
		Water (µg/L)	Soil[B] (µg/kg)
alpha-BHC	319-84-6	0.050	1.7
beta-BHC	319-85-7	0.050	1.7
delta-BHC	319-86-8	0.050	1.7
gamma-BHC (Lindane)[C]	58-89-9	0.050	1.7
Heptachlor[C]	76-44-8	0.050	1.7
Aldrin	309-00-2	0.050	1.7
Heptachlor epoxide[C,H]	1024-57-3	0.050	1.7
Endosulfan I	959-98-8	0.050	1.7
Dieldrin	60-57-1	0.10	3.3
4,4'-DDE	72-55-9	0.10	3.3
Endrin	72-20-8	0.10	3.3
Endosulfan II	33213-65-9	0.10	3.3
4,4'-DDD	72-54-8	0.10	3.3
Endosulfan sulfate	1031-07-8	0.10	3.3
4,4'-DDT	50-29-3	0.10	3.3
Methoxychlor[C]	72-43-5	0.50	17
Endrin ketone	53494-70-5	0.10	3.3
Endrin aldehyde	7421-93-4	0.10	3.3
cis-Chlordane[C,J]	5103-71-9	0.050	1.7
trans-Chlordane[C,J]	5103-74-2	0.050	1.7
Toxaphene[C]	8001-35-2	5.0	170

5.0 AROCLORS TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

TABLE 5. AROCLORS TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS[G]

Analyte Name	CAS Number	CRQLs	
		Water (µg/L)	Soil[B] (µg/kg)
Aroclor-1016	12674-11-2	1.0	33
Aroclor-1221	11104-28-2	1.0	33
Aroclor-1232	11141-16-5	1.0	33
Aroclor-1242	53469-21-9	1.0	33
Aroclor-1248	12672-29-6	1.0	33
Aroclor-1254	11097-69-1	1.0	33
Aroclor-1260	11096-82-5	1.0	33
Aroclor-1262	37324-23-5	1.0	33
Aroclor-1268	11100-14-4	1.0	33

Endnotes:

A. Changes to the Organic Target Analyte List (TAL) (e.g., adding an additional analyte) may be requested under the Modified Analysis clause in the contract.

B. The CRQLs for soil/sediment are based on 100% solids and on the minimum weights and volumes specified in Exhibit D. The moisture content of the samples must be used to adjust the CRQL values appropriately.

C. Toxicity Characteristic Leaching Procedure (TCLP) analyte list. The CRQLs for the TCLP analytes are the "Low Water" CRQLs (Low/Medium Volatiles and Semivolatiles) and the "Water" CRQLs (Pesticides) divided by 1000 in units of mg/L.

D. CRQL for analysis of water and soil samples using SIM technique for PAHs and phenols.

E. Previously known as Bis(2-chloroisopropyl) ether.

F. Target Analyte List for PAHs and Pentachlorophenol analyses request.

G. There is no differentiation between the preparation of low and medium soil samples in this method for analysis.

H. Only the exo_epoxy isomer.

I. Use the water CRQLs for Synthetic Precipitation Leaching Procedures (SPLP).

J. Formerly known as alpha-Chlordane and gamma-Chlordane respectively.

K. Semivolatile target analyte 3-methylphenol is included in this table ONLY for inclusion in the list of TCLP and/or SPLP analytes. Compounds 3-Methylphenol and 4-Methylphenol cannot be separated by the extraction techniques or GC columns used in this method. Therefore, both are represented in this SOW by the 4-methylphenol isomer only. Those data users who wish to analyze 3- and 4-methylphenol separately are encouraged to utilize the CLP-MA process to obtain data for these compounds from the derivatization/GC method (8041A or equivalent).

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