



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

13 FEB 2009

MEMORANDUM

*Rockwood  
BGM = 1/13/9*  
SUBJECT: Site Addendum for the Generic QAPP for Superfund Site Assessment Activities  
(July 2007) for ~~Rockford~~ Industries Substation, Cameron, Missouri - Approved

FROM: Diane Harris *Diane Harris*  
Regional Quality Assurance Manager  
ENSV/IO

TO: Ron King  
EPA Project Manager  
SUPR/ERNB

The review of the subject document, prepared February 2009, has been completed according to "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," EPA QA/R-5 March 2001.

The document is approved; it complies with R-5 and addresses the key issues satisfactorily.

If you have any questions, please contact me at x7258 or the lead reviewer, Gabrielle Thompson at x7569.

R7QAO Document Number: 2009084



**1.5 Quality Objectives and Criteria for Measurement Data:**

- |                        |                                 |
|------------------------|---------------------------------|
| a. Accuracy:           | ■ Identified in attached table. |
| b. Precision:          | ■ Identified in attached table. |
| c. Representativeness: | ■ Identified in attached table. |
| d. Completeness:       | ■ Identified in attached table. |
| e. Comparability:      | ■ Identified in attached table. |

Other Description:

\*A completeness goal of 100 percent has been established for this project. However, if the completeness goal is not met, EPA may still be able to make site Decisions based on any or all of the remaining validated data.

**1.6 Special Training/Certification Requirements:**

- OSHA 1910
- Special Equipment/Instrument Operator (describe below):
- Other (describe below):

**1.7 Documentation and Records:**

- |                    |                                   |                                        |             |                                |
|--------------------|-----------------------------------|----------------------------------------|-------------|--------------------------------|
| ■ Field Sheets     | <input type="checkbox"/> Site Log | ■ Removal Assessment Report            | ■ Site Maps | <input type="checkbox"/> Video |
| ■ Chain of Custody | ■ Health and Safety Plan          | <input type="checkbox"/> Letter Report | ■ Photos    |                                |
- Sample documentation will follow EPA Region 7 SOP 2420.5.
- Other: Analytical information will be handled according to procedures identified in Table 2.

**2.0 Measurement and Data Acquisition:****2.1 Sampling Process Design:**

- |                                                                |                                            |                                                               |                                                     |
|----------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Random Sampling                       | <input type="checkbox"/> Transect Sampling | ■ Biased/Judgmental Sampling                                  | <input type="checkbox"/> Stratified Random Sampling |
| <input type="checkbox"/> Search Sampling                       | <input type="checkbox"/> Systematic Grid   | <input type="checkbox"/> Systematic Random Sampling           | <input type="checkbox"/> Definitive Sampling        |
| <input type="checkbox"/> Screening w/o Definitive Confirmation |                                            | <input type="checkbox"/> Screening w/ Definitive Confirmation |                                                     |
| <input type="checkbox"/> Sample                                |                                            |                                                               |                                                     |

Attached is map showing the proposed sampling location. The exact soil/waste sample location will be determined in the field. The sampling location may need to be altered in the field due to site terrain conditions. EPA will utilize best engineering practices/judgment and field screening instrumentation to identify the sample location. EPA will also utilize best engineering practices/judgment and field screening instrumentation to identify and collect samples from the proposed location. The proposed sampling scheme for taking samples will be biased/judgmental, with definitive laboratory analysis, in accordance with procedures included in OSWER Directive 9345.0-01A, "Guidance for Performing Preliminary Assessments Under CERCLA", dated September 1991, EPA/540/G-91/013; and OSWER Directive 9345.1-05, "Guidance for Performing Site Inspections Under CERCLA", dated September 1992, EPA/540-R-92-021. All samples will be submitted for analysis to the EPA Region 7 laboratory. The proposed number of samples is a balance between cost and coverage and represents a reasonable attempt to meet the study objectives while staying within the budget constraints of a typical investigation.

Sample Summary Location	Matrix	# of Samples*	Analysis
Three (3) soil/waste samples will be collected from the Substation Sampling Location. The attached map identifies the location.	soil/waste/solid	3	Metals + Hg, 3122.3 + 3121.23 VOCs, 3230.15 SVOC,s 3230.2 PCBs, 3240.2 Formaldehyde, ??? TPH, 3230.19 SV TPH ORO & DRO, SW846 8015 Vol TPH GRO, ???
One QC trip blank	soil/waste/solid	1	VOCs, 3230.15

NOTE: QC samples are not included above.

**2.2 Sample Methods Requirements:**

Matrix	Sampling Method	EPA R7 SOP(s)/EPA Methods
<i>soil/waste/solid</i>	<i>See Table 1 Sample Summary</i>	<i>See Section 2.1</i>
<p><b>2.3 Sample Handling and Custody Requirements:</b></p> <ul style="list-style-type: none"> <li>■ Samples will be packaged and preserved in accordance with procedures defined in Region 7 EPA SOP 2420.6.</li> <li>■ COC will be maintained as directed by Region 7 EPA SOP 2420.4.</li> <li>■ Samples will be accepted according to Region 7 EPA SOP 2420.1.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<p><b>2.4 Analytical Methods Requirements:</b></p> <ul style="list-style-type: none"> <li>■ Identified in attached table.</li> <li>■ Identified in attached Analytical Services Request (ASR) Form</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<p><b>2.5 Quality Control Requirements:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li><input type="checkbox"/> Identified in attached table.</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007). Describe Field QC Samples to be collected: For this investigation, one trip blank (soil) sample will be prepared by the EPA R7 Lab and provided to the samplers. The trip blank will only be analyzed for</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<p><b>2.6 Instrument/Equipment Testing, Inspection, and Maintenance Requirements:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<p><b>2.7 Instrument Calibration and Frequency:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ Inspection/acceptance requirements are in accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> Calibration of laboratory equipment will be performed as described in the previously referenced EPA R7 SOPs and/or manufacturers' recommendations.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<p><b>2.8 Inspection/Acceptance Requirements for Supplies and Consumables:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> All sample containers will meet EPA criteria for cleaning procedures for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in Specifications and Guidelines for Obtaining Contaminant-Free Containers.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		

**2.9 Data Acquisition Requirements:**

- Not Applicable
- In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).
- Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by EPA and/or its contractor(s) from other sources. Some of that data has not been verified by EPA and/or its contractor(s); however, the information will not be used for decision-making purposes by EPA without verification by an independent professional qualified to verify such data/information.
- Other (Describe):

**2.10 Data Management:**

- All laboratory data acquired will be managed in accordance with Region 7 EPA SOP 2410.1.
- Other (Describe):

**3.0 Assessment and Oversight:****3.1 Assessment and Response Actions:**

- Peer Review                       Management Review                       Field Audit                       Lab Audit
- Assessment and response actions pertaining to analytical phases of the project are addressed in Region 7 EPA SOPs 2430.6 and 2430.12.
- Other (Describe):

**3.1A Corrective Action:**

- Corrective actions will be taken at the discretion of the EPA project manager, whenever there appears to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site.
- Other (Describe):

**3.2 Reports to Management:**

- Audit Report                       Data Validation Report                       Project Status Report                       None Required
- A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by Tetra Tech START and submitted to the EPA.
- Other (Describe): *A Removal Assessment Report will be prepared describing the findings of the assessment.*

**4.0 Data Validation and Usability:****4.1 Data Review, Validation, and Verification Requirements:**

- Identified in attached table.
- Data review and verification will be performed in accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).
- Data review and verification will be performed by a qualified analyst and the laboratory's section manager as described in Region 7 EPA SOPs 2430.6 and 2430.12.
- Other (Describe):

**4.2 Validation and Verification Methods:**

- Identified in attached table.
- The data will be validated in accordance with Region 7 EPA SOPs 2430.6 and 2430.12.
- The EPA site manager will inspect the data to provide a final review. The EPA site manager will review the data, if applicable, for laboratory spikes and duplicates, laboratory blanks, and the field blank to ensure that they are acceptable. The EPA site manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.
- Other (Describe):

**4.3 Reconciliation with User Requirements:**

- Identified in attached table
- If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded and re-sampling or re-analysis of the subject samples may be required by the EPA site manager.
- Other (Describe):

**Table 1: Sample Summary**

Table 1: Sample Summary							
Site Name: <i>Rockwool Industries Substation, MON000705657</i>				City: <i>Cameron, MO</i>			
A7L1 RS00 302DC6C							
START Project Manager: <i>NA</i>				Activity/ASR #:		Date: <i>February 6, 2009</i>	
No. of Samples	Matrix	Location	Purpose	Depth or other Description	Requested Analysis	Sampling Method	Analytical Method/SOP
3	<i>Soil/Waste/Solid</i>	<i>See attached map</i>	<i>Checking for contamination</i>	<i>To be determined in the field</i>	<i>Metals + Hg VOCs SVOC,s PCBs Formaldehyde TPH, SV TPH ORO &amp; DRO Vol TPH GRO</i>	<i>EPA R7 SOP 4230.03</i>	<i>3122.3 + 3121.23 3230.15 3230.2 3240.2 <del>???</del> 3215 3230.19 SW846 8015 <del>???</del> 3230.19</i>
				<i>QC Samples</i>			
<i>1</i>	<i>soil</i>	<i>Trip blank</i>	<i>To assess field/lab contamination</i>	<i>N/A</i>	<i>VOCs</i>	<i>N/A</i>	<i>EPA R7 SOPs 3230.15</i>

Table 2: Data Quality Objective Summary								
<b>Site Name:</b> <i>Rockwool Industries Substation, MON00070565, A7L1 RS00 302DC6C</i>				<b>City:</b> <i>Cameron, MO</i>				
<b>START Project Manager:</b> <i>NA</i>				<b>Activity/ASR #:</b>			<b>Date:</b> <i>2/6/9</i>	
Analysis	Analytical Method	Data Quality Measurements					Sample Handling Procedures	Data Management Procedures
		Accuracy	Precision	Representativeness	Completeness	Comparability		
<b>Soil/Waste/Solid</b>								
<i>Metals + Hg VOCs SVOC,s PCBs Formaldehyde TPH, SV TPH ORO &amp; DRO Vol TPH GRO</i>	see Table 1	per analytical method	per analytical method	Biased/judgmental sampling based on professional judgment of the sampling team	100%; all samples are considered critical samples	Standardized procedures for sample collection and analysis will be used	See Section 2.3 of QAPP	See Section 2.10 of QAPP form

## Sampling Narrative

### Introduction

Representatives of the United States Environmental Protection Agency (EPA) Region 7 will conduct a Removal Assessment at the Rockwool Industries Site Substation, located in Cameron, Missouri. The attached map shows the sampling location.

EPA is investigating the Substation for potential contamination. During this sampling event soilwaste/solid samples will be collected as described herein and at the locations identified on the attached map. The Quality Assurance Project Plan (QAPP) identifies the site-specific features and addresses elements of the sampling strategy and analytical methods proposed for this investigation.

### Site Location/Description

Rockwool Industries Substation, Cameron, Missouri.

### Previous Investigations

None.

### Sampling Strategy and Methodology

The sampling activities are tentatively scheduled to begin on March 3, 2009 and will require approximately 2 days to complete. The laboratory data will be compared against EPA MCLs and EPA Screening Assessment Levels in order to determine whether additional activities are necessary.

A field sheet will be completed for each sample location. The field sheet will include the following information: property ownership information, sample location, sample description, GPS coordinates, and analyses to be performed. The samples will be submitted to the EPA Region 7 laboratory for analysis of metals + Hg, VOCs, SVOCs, PCBs, TPH ORO & DRO, TPH, TPH GRO, and formaldehyde...see Table 1. Samples will be collected in

containers and preserved in accordance with the EPA R7 SOPs and EPA methods identified in Table 1. All samples will be preserved/stored/transported in an iced cooler at an approximate temperature of 4 degrees Celsius.

Quality Control Samples

To evaluate sample quality control, a trip blank will be prepared as specified in Section 2.5 of the QAPP Form.

Analytical Methods

All samples will be submitted to the EPA Region 7 laboratory in Kansas City, Kansas for analysis. The samples will be analyzed for metals + Hg., VOCs, SVOCs, PCBs, TPH ORO & DRO, TPH, TPH GRO, and formaldehyde...see Table 1.

All samples will be analyzed according to EPA R7 SOPs and EPA methods referenced in the QAPP Form. Standard detection limits for those methods will be adequate for this project. Appropriate containers and physical/chemical preservation techniques will be employed during the field activities. An Analytical Services Request Form and Sampling Supplies Request Form will be provided to the EPA Region 7 laboratory. Submittal of samples to the laboratory is expected on March 4 or 5, 2009. Attached hereto are Laboratory Analysis Information sheets for some specific EPA R7 SOP referenced herein.

QAPP consists of:

- QAPP body.....7 pages
- Attached map.....1 page
- EPAR7 SOP Onformation.....19 pages



Substation Sampling Location	2/6/9
Rockwool Industries Site Cameron, MO MON000705657 A7L1 RS00 302DC6C	

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:03

**Analysis Name:** Metals in Solids by ICP

**Sample Tag Name:** Met S.3C

**Parameter Class:** Metals

**Matrix:** Solid

## Analysis Summary:

This analysis is performed following RLAB Method 3122.3C and provides analytical data for up to 23 elements in solids. Many of the elements in soil are naturally occurring, but some elements may have elevated concentrations due to improper waste disposal or pesticide applications that contained metals such as arsenic. Other types of solid samples that can be analyzed include dust, sediment, industrial waste, sludges, etc. Solid samples analyzed for metals originate from an array of different sources, as well as different programs, such as Superfund and RCRA. However, this method still satisfies all of the applicable program requirements for both Superfund and RCRA (and potentially other programs as well).

The presence and concentrations of these elements are determined by the soil sample going through digestion phase followed by analysis of the extract. An aliquot, 1 g, of the sample is digested by adding 2 milliliters nitric acid (HNO<sub>3</sub>) and 3 milliliters of hydrochloric acid (HCl) and then heated in a block digester at 85 C. The digested sample is brought up to 100 milliliters with DI water and then an aliquot is centrifuged for analysis. The sample is analyzed by inductively coupled argon plasma (ICAP) atomic emission spectroscopy. The detection limits range from 0.101 ppm (mg/kg) for beryllium to 23.4 ppm for sodium, and are typically in the low (less than 2) ppm range. Matrix interferences sometimes occur and may complicate the analytical process. If there is a matrix interference, dilutions may be performed and higher detection limits reported. Potential other sources of interferences include contaminated laboratory equipment and/or chemicals. However, analytical interferences are typically the result of the sample matrix and not laboratory materials.

**Method:** EPA Region 7 RLAB Method 3122.3C

**Method Title:** Analysis of Metals by PE Optima ICP

## Base Method(s)

SW846 6010B

## Title

Analysis of Metals by ICP

**Capable Labs:** EPA (In-House)

ESAT (In-House)

CLP (Out-Source)

REAP (Out-Source)

**Sample Holding Time:** 180 Days

**Container Type:** 8 oz glass

**No. Of Containers:** 1

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No. Of Tags:** 1

## Sampling Info:

(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Yes	Aluminum	7429-90-5	5	mg/kg	Certified	SW846 6010
Yes	Antimony	7440-36-0	2	mg/kg	Certified	SW846 6010
Yes	Arsenic	7440-38-2	5	mg/kg	Certified	SW846 6010

**Analysis Name:** Metals in Solids by ICP

<b>Default Report Flag</b>	<b>Analyte Name</b>	<b>CAS Number</b>	<b>TRL</b>	<b>Units</b>	<b>RLAB NELAC Status</b>	
Yes	Barium	7440-39-3	2	mg/kg	Certified	SW846 6010
Yes	Beryllium	7440-41-7	1	mg/kg	Certified	SW846 6010
Con	Bismuth	7440-69-9	5	mg/kg		
Yes	Cadmium	7440-43-9	1	mg/kg	Certified	SW846 6010
Yes	Calcium	7440-70-2	50	mg/kg	Certified	SW846 6010
Yes	Chromium	7440-47-3	2	mg/kg	Certified	SW846 6010
Yes	Cobalt	7440-48-4	1	mg/kg	Certified	SW846 6010
Yes	Copper	7440-50-8	1	mg/kg	Certified	SW846 6010
Yes	Iron	7439-89-6	5	mg/kg	Certified	SW846 6010
Yes	Lead	7439-92-1	5	mg/kg	Certified	SW846 6010
Non	Lithium	7439-93-2	2	mg/kg		
Yes	Magnesium	7439-95-4	50	mg/kg	Certified	SW846 6010
Yes	Manganese	7439-96-5	5	mg/kg	Certified	SW846 6010
Yes	Molybdenum	7439-98-7	2	mg/kg	Certified	SW846 6010
Yes	Nickel	7440-02-0	2	mg/kg	Certified	SW846 6010
Yes	Potassium	7440-09-7	50	mg/kg	Certified	SW846 6010
Yes	Selenium	7782-49-2	10	mg/kg	Certified	SW846 6010
Con	Silicon	7440-21-3		mg/kg		
Yes	Silver	7440-22-4	2	mg/kg	Certified	SW846 6010
Yes	Sodium	7440-23-5	50	mg/kg	Certified	SW846 6010
Non	Strontium	7440-24-6	5	mg/kg	Certified	SW846 6010
Yes	Thallium	7440-28-0	10	mg/kg	Certified	SW846 6010
Con	Titanium	7440-32-6	1	mg/kg	Certified	SW846 6010
Yes	Vanadium	7440-62-2	5	mg/kg	Certified	SW846 6010
Yes	Zinc	7440-66-6	5	mg/kg	Certified	SW846 6010
Con	Zirconium	7440-67-7		mg/kg		

**Analysis Name:** Metals in Solids by ICP

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- Default Report Flag:**
- Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.
  - Non Analyte that is not routinely reported from in-house analysis, but can be if it is needed.
  - Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:09

**Analysis Name:** Mercury in Soil or Sediment

**Sample Tag Name:** Hg S.23A

**Matrix:** Solid

**Parameter Class:** Metals

**Analysis Summary:**

This analysis is performed following RLAB Method 3121.23A which substantially meets the requirements of SW-846 Method 7473. Mercury is considered one of the most toxic of the elements. Mercury toxicity differs by the type of mercury; organic mercury compounds are most toxic, and inorganic mercury compounds are more toxic than elemental mercury. There have been cases of blindness, neurological disorders, and even death caused by people eating seed corn coated with a mercury fungicide. And many people were affected in Japan on the Minamata Bay in the late 1970's because of eating fish contaminated with mercury from a nearby plant. Mercury combines with the proteins in the body, and thus enzymes (which are proteins) do not work correctly for a body poisoned with mercury. A chemical professor died in 1997 from absorbing a small amount of organic mercury through a glove.

**Method:** EPA Region 7 RLAB Method 3121.23A

**Method Title:** Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Adsorption Spectrophotometry

**Base Method(s)**

SW846 7473

**Title**

Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry

**Capable Labs:** EPA (In-House)

ESAT (In-House)

CLP (Out-Source)

REAP (Out-Source)

**Sample Holding Time:** 28 Days

**Container Type:** 8 oz glass

**No. Of Containers:** 1

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No. Of Tags:** 1

**Sampling Info:**

(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Mercury	7439-97-6	0.0056	mg/kg	

**Analysis Name:** Mercury in Soil or Sediment

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**Default Report Flag:** Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:04

**Analysis Name:** VOCs in Solid Matrices by GC/MS

**Sample Tag Name:** VOA S.15D

**Parameter Class:** Volatiles

**Matrix:** Solid

## Analysis Summary:

This analysis follows RLAB Method 3230.15D and provides analytical data for 51 volatile organic compounds (VOCs) in a solid samples. This method satisfies all the applicable program requirements for both Superfund and RCRA. This method is a compilation of EPA Method 624 (40 CFR 136), SW-846 Method 8260B, and the Contract Laboratory Program Statement of Work (CLP-SOW). Method modifications are summarized in the appendices of the standard operating procedure (SOP).

The presence and concentrations of these compounds are determined by analyzing an aliquot (5 g) of sample submersed in 10 mL of water. The sample is purged with an inert gas, helium, collecting the purged components on an analytical trap. The analytical trap is desorbed onto a gas chromatograph (GC) with a mass spectrometer (MS) detector. Compound detection limits are dependent upon the volume of sample which is purged. Two filled 40 mL VOA vials should be collected for each sample following the soil sampling SOP. Method detection limits range from 1-10 ug/kg.

Matrix interferences can occur when using non-polytetrafluoroethylene plastic tubing, and when waste streams contain surfactants/detergents. Interfering contamination may occur from ambient air contamination, from solvent used within proximity of the samples, from other high level samples, and from improperly sealed sample vials.

**Method:** EPA Region 7 RLAB Method 3230.15D

**Method Title:** GC/MS Analysis of Volatile Organic Compounds in a Solid Matrix

## Base Method(s)

Method 624

SW846 8260C

## Title

Purgeables

Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

**Capable Labs:** EPA (In-House)

ESAT (In-House)

CLP (Out-Source)

REAP (Out-Source)

**Sample Holding Time:** 14 Days

**Container Type:** 40mL VOA vial

**No. Of Containers:** 2

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No.Of Tags:** 3

## Sampling Info:

As with any sampling procedure for volatiles, care must be taken to minimize the disturbance of the sample in order to minimize the loss of volatile components. Several techniques may be used to transfer a sample to the relatively narrow opening of the soil vial. Using the appropriate sample collection device, collect the sample and fill the VOA vial so there is no head space as soon as possible after the surface of the soil or other solid material has been exposed to the atmosphere. Quickly brush any soil off the vial threads and immediately seal the vial with the septum and screw-cap. Store samples on ice at 4 degrees C. Collect at least two replicate samples. This will allow the laboratory an additional sample for reanalysis. The second sample should be taken from the same soil stratum or the same section of the solid waste being sampled, and within close proximity to the location from which the original sample was collected.

**Analysis Name:** VOCs in Solid Matrices by GC/MS

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Acetone	67-64-1	10	ug/kg	Certified SW846 8260
Yes	Benzene	71-43-2	5	ug/kg	Certified SW846 8260
Con	Bromochloromethane	74-97-5		ug/kg	
Yes	Bromodichloromethane	75-27-4	5	ug/kg	Certified SW846 8260
Yes	Bromoform	75-25-2	5	ug/kg	Certified SW846 8260
Yes	Bromomethane	74-83-9	5	ug/kg	Certified SW846 8260
Yes	2-Butanone	78-93-3	10	ug/kg	Certified SW846 8260
Yes	Carbon Disulfide	75-15-0	5	ug/kg	Certified SW846 8260
Yes	Carbon Tetrachloride	56-23-5	5	ug/kg	Certified SW846 8260
Yes	Chlorobenzene	108-90-7	5	ug/kg	Certified SW846 8260
Yes	Chloroethane	75-00-3	5	ug/kg	Certified SW846 8260
Yes	Chloroform	67-66-3	5	ug/kg	Certified SW846 8260
Yes	Chloromethane	74-87-3	5	ug/kg	Certified SW846 8260
Yes	Cyclohexane	110-82-7	5	ug/kg	
Yes	1,2-Dibromo-3-Chloropropane	96-12-8	5	ug/kg	
Yes	Dibromochloromethane	124-48-1	5	ug/kg	Certified SW846 8260
Yes	1,2-Dibromoethane	106-93-4	5	ug/kg	Certified SW846 8260
Yes	1,2-Dichlorobenzene	95-50-1	5	ug/kg	Certified SW846 8260
Yes	1,3-Dichlorobenzene	541-73-1	5	ug/kg	Certified SW846 8260
Yes	1,4-Dichlorobenzene	106-46-7	5	ug/kg	Certified SW846 8260
Yes	Dichlorodifluoromethane	75-71-8	5	ug/kg	Certified SW846 8260
Yes	1,1-Dichloroethane	75-34-3	5	ug/kg	Certified SW846 8260
Yes	1,2-Dichloroethane	107-06-2	5	ug/kg	Certified SW846 8260
Yes	1,1-Dichloroethene	75-35-4	5	ug/kg	Certified SW846 8260
Yes	cis-1,2-Dichloroethene	156-59-2	5	ug/kg	Certified SW846 8260
Yes	trans-1,2-Dichloroethene	156-60-5	5	ug/kg	Certified SW846 8260
Yes	1,2-Dichloropropane	78-87-5	5	ug/kg	Certified SW846 8260
Yes	cis-1,3-Dichloropropene	10061-01-5	5	ug/kg	Certified SW846 8260
Yes	trans-1,3-Dichloropropene	10061-02-6	5	ug/kg	Certified SW846 8260
Con	1,4-Dioxane	123-91-1		ug/kg	
Yes	Ethyl Benzene	100-41-4	5	ug/kg	Certified SW846 8260
Yes	2-Hexanone	591-78-6	5	ug/kg	Certified SW846 8260
Yes	Isopropylbenzene	98-82-8	5	ug/kg	
Yes	Methyl Acetate	79-20-9	5	ug/kg	
Yes	Methyl tert-butyl ether	1634-04-4	5	ug/kg	
Yes	Methylcyclohexane	108-87-2	5	ug/kg	
Yes	Methylene Chloride	75-09-2	5	ug/kg	Certified SW846 8260
Yes	4-Methyl-2-Pentanone	108-10-1	5	ug/kg	Certified SW846 8260
Yes	Naphthalene	91-20-3	10	ug/kg	Certified SW846 8260
Yes	Styrene	100-42-5	5	ug/kg	Certified SW846 8260
Yes	1,1,2,2-Tetrachloroethane	79-34-5	5	ug/kg	Certified SW846 8260
Yes	Tetrachloroethene	127-18-4	5	ug/kg	Certified SW846 8260
Yes	Toluene	108-88-3	5	ug/kg	Certified SW846 8260
Yes	1,2,3-Trichlorobenzene	87-61-6	5	ug/kg	

**Analysis Name:** VOCs in Solid Matrices by GC/MS

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Yes	1,2,4-Trichlorobenzene	120-82-1	5	ug/kg		
Yes	1,1,1-Trichloroethane	71-55-6	5	ug/kg	Certified	SW846 8260
Yes	1,1,2-Trichloroethane	79-00-5	5	ug/kg	Certified	SW846 8260
Yes	Trichloroethene	79-01-6	5	ug/kg	Certified	SW846 8260
Yes	Trichlorofluoromethane	75-69-4	5	ug/kg	Certified	SW846 8260
Yes	1,1,2-Trichlorotrifluoroethane	76-13-1	5	ug/kg		
Yes	Vinyl Chloride	75-01-4	5	ug/kg	Certified	SW846 8260
Yes	m and/or p-Xylene	179601-23- 1	10	ug/kg	Certified	SW846 8260
Yes	o-Xylene	95-47-6	5	ug/kg	Certified	SW846 8260
Con	total Xylene	1330-20-7		ug/kg		

**Default Report Flag:** Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.  
 Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:06

**Analysis Name:** Semi-Volatile Organic Compounds in Soil

**Sample Tag Name:** SVOC S.2E

**Parameter Class:** Semi-Volatiles

**Matrix:** Solid

## Analysis Summary:

Semi-volatile organic compounds in soil:

This analysis is performed using Region 7 RLAB Method 3230.2E. A 50 gram sample is extracted with methylene chloride using accelerated solvent extraction, a sonication probe, or chromatographic column. The extract is cleaned-up using gel permeation chromatography (GPC). The cleaned extract is concentrated to 1.0 mL and analyzed by Gas Chromatography using a Mass Spectrometer detector (GC/MS). The detection limits range from 40 to 200 ug/Kg (ppb). The SOP is based on EPA methods SW846-8270D and -3550, and meets the requirements of the RCRA, and Superfund programs. It is applicable to soil and sediment samples. The analytes, which are also referred to as BNA's, consist of 66 compounds from various chemical classes including phenols, polynuclear aromatic compounds (PAH's), anilines, phthalates, chlorinated benzenes, and others. A tentatively identified compound (TIC) list is also included in the data package and aids in determining interferences and other types compounds that could be present, although the quantified amount for TIC's are a rough estimate. The samples need to be collected in 8 oz glass jars, refrigerated at 4 C, and protected from exposure to light. Interferences usually result from high molecular weight hydrocarbons or other contaminants co-extracted with the sample. Holding time is 14 days.

**Method:** EPA Region 7 RLAB Method 3230.2E

**Method Title:** Extraction and Analysis of Water, Solids, and Hazardous Waste for Semivolatile Organic Compounds

## Base Method(s)

SW846 3550

SW846 8270D

## Title

Ultrasonic Extraction

Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

**Capable Labs:** EPA (In-House)

ESAT (In-House)

CLP (Out-Source)

REAP (Out-Source)

**Sample Holding Time:** 14 Days

**Container Type:** 8 oz glass

**No. Of Containers:** 1

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No. Of Tags:** 1

## Sampling Info:

Collect soil samples in 8 oz glass containers. Follow conventional sampling practices. Ice or refrigerate the samples at 4 degrees C from the time of collection until extraction.

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Acenaphthene	83-32-9	80	ug/kg	Certified SW846 8270
Yes	Acenaphthylene	208-96-8	80	ug/kg	Certified SW846 8270
Con	Acetophenone	98-86-2	330	ug/kg	

**Analysis Name:** Semi-Volatile Organic Compounds in Soil

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Con	Aniline	62-53-3		ug/kg		
Yes	Anthracene	120-12-7	80	ug/kg	Certified	SW846 8270
Con	Atrazine	1912-24-9	330	ug/kg		
Con	Benzaldehyde	100-52-7	330	ug/kg		
Yes	Benzo(a)anthracene	56-55-3	80	ug/kg	Certified	SW846 8270
Yes	Benzo(a)pyrene	50-32-8	80	ug/kg	Certified	SW846 8270
Yes	Benzo(b)fluoranthene	205-99-2	80	ug/kg	Certified	SW846 8270
Yes	Benzo(g,h,i)perylene	191-24-2	80	ug/kg	Certified	SW846 8270
Yes	Benzo(k)fluoranthene	207-08-9	80	ug/kg	Certified	SW846 8270
Yes	Benzoic acid	65-85-0	400	ug/kg	Certified	SW846 8270
Yes	Benzyl alcohol	100-51-6	200	ug/kg	Certified	SW846 8270
Con	Biphenyl	92-52-4	330	ug/kg		
Yes	bis(2-Chloroethoxy)methane	111-91-1	80	ug/kg	Certified	SW846 8270
Yes	bis(2-Chloroethyl)ether	111-44-4	80	ug/kg	Certified	SW846 8270
Yes	bis(2-Chloroisopropyl)ether	108-60-1	80	ug/kg	Certified	SW846 8270
Con	bis(2-Ethylhexyl)adipate	103-23-1		ug/kg		
Yes	bis(2-Ethylhexyl)phthalate	117-81-7	200	ug/kg	Certified	SW846 8270
Yes	4-Bromophenyl-phenylether	101-55-3	80	ug/kg	Certified	SW846 8270
Yes	Butylbenzylphthalate	85-68-7	200	ug/kg	Certified	SW846 8270
Con	Caprolactam	105-60-2	330	ug/kg		
Yes	Carbazole	86-74-8	200	ug/kg		
Yes	4-Chloro-3-methylphenol	59-50-7	200	ug/kg	Certified	SW846 8270
Yes	4-Chloroaniline	106-47-8	400	ug/kg	Certified	SW846 8270
Yes	2-Chloronaphthalene	91-58-7	80	ug/kg	Certified	SW846 8270
Yes	2-Chlorophenol	95-57-8	200	ug/kg	Certified	SW846 8270
Yes	4-Chlorophenyl-phenylether	7005-72-3	80	ug/kg	Certified	SW846 8270
Yes	Chrysene	218-01-9	80	ug/kg	Certified	SW846 8270
Yes	Di-n-butylphthalate	84-74-2	200	ug/kg	Certified	SW846 8270
Yes	Di-n-octylphthalate	117-84-0	200	ug/kg	Certified	SW846 8270
Yes	Dibenz(a,h)anthracene	53-70-3	80	ug/kg	Certified	SW846 8270
Yes	Dibenzofuran	132-64-9	80	ug/kg	Certified	SW846 8270
Yes	1,2-Dichlorobenzene	95-50-1	80	ug/kg	Certified	SW846 8270
Yes	1,3-Dichlorobenzene	541-73-1	80	ug/kg	Certified	SW846 8270
Yes	1,4-Dichlorobenzene	106-46-7	80	ug/kg	Certified	SW846 8270
Yes	3,3'-Dichlorobenzidine	91-94-1	400	ug/kg	Certified	SW846 8270
Yes	2,4-Dichlorophenol	120-83-2	200	ug/kg	Certified	SW846 8270
Yes	Diethylphthalate	84-66-2	80	ug/kg	Certified	SW846 8270
Yes	2,4-Dimethylphenol	105-67-9	200	ug/kg	Certified	SW846 8270
Yes	Dimethylphthalate	131-11-3	80	ug/kg	Certified	SW846 8270
Yes	4,6-Dinitro-2-methylphenol	534-52-1	400	ug/kg	Certified	SW846 8270
Yes	2,4-Dinitrophenol	51-28-5	400	ug/kg	Certified	SW846 8270
Yes	2,4-Dinitrotoluene	121-14-2	80	ug/kg	Certified	SW846 8270
Yes	2,6-Dinitrotoluene	606-20-2	80	ug/kg	Certified	SW846 8270
Con	1,4-Dioxane	123-91-1		ug/kg		

**Analysis Name:** Semi-Volatile Organic Compounds in Soil

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Yes	Fluoranthene	206-44-0	80	ug/kg	Certified	SW846 8270
Yes	Fluorene	86-73-7	80	ug/kg	Certified	SW846 8270
Yes	Hexachlorobenzene	118-74-1	80	ug/kg	Certified	SW846 8270
Yes	Hexachlorobutadiene	87-68-3	80	ug/kg	Certified	SW846 8270
Yes	Hexachlorocyclopentadiene	77-47-4	80	ug/kg	Certified	SW846 8270
Yes	Hexachloroethane	67-72-1	80	ug/kg	Certified	SW846 8270
Yes	Indeno(1,2,3-cd)pyrene	193-39-5	80	ug/kg	Certified	SW846 8270
Yes	Isophorone	78-59-1	80	ug/kg	Certified	SW846 8270
Yes	2-Methylnaphthalene	91-57-6	80	ug/kg	Certified	SW846 8270
Yes	2-Methylphenol	95-48-7	200	ug/kg	Certified	SW846 8270
Con	3-Methylphenol	108-39-4	200	ug/kg		
Con	3 and/or 4-Methylphenol		400	ug/kg		
Yes	4-Methylphenol	106-44-5	200	ug/kg	Certified	SW846 8270
Yes	Naphthalene	91-20-3	80	ug/kg	Certified	SW846 8270
Yes	2-Nitroaniline	88-74-4	200	ug/kg	Certified	SW846 8270
Yes	3-Nitroaniline	99-09-2	200	ug/kg	Certified	SW846 8270
Yes	4-Nitroaniline	100-01-6	400	ug/kg	Certified	SW846 8270
Yes	Nitrobenzene	98-95-3	80	ug/kg	Certified	SW846 8270
Yes	2-Nitrophenol	88-75-5	200	ug/kg	Certified	SW846 8270
Yes	4-Nitrophenol	100-02-7	400	ug/kg	Certified	SW846 8270
Yes	N-nitroso-di-n-propylamine	621-64-7	200	ug/kg	Certified	SW846 8270
Yes	N-nitrosodiphenylamine	86-30-6	80	ug/kg	Certified	SW846 8270
Yes	Pentachlorophenol	87-86-5	200	ug/kg	Certified	SW846 8270
Yes	Phenanthrene	85-01-8	80	ug/kg	Certified	SW846 8270
Yes	Phenol	108-95-2	80	ug/kg	Certified	SW846 8270
Yes	Pyrene	129-00-0	80	ug/kg	Certified	SW846 8270
Con	Pyridine	110-86-1	200	ug/kg		
Con	1,2,4,5-Tetrachlorobenzene	95-94-3		ug/kg		
Yes	1,2,4-Trichlorobenzene	120-82-1	80	ug/kg	Certified	SW846 8270
Yes	2,4,5-Trichlorophenol	95-95-4	200	ug/kg	Certified	SW846 8270
Yes	2,4,6-Trichlorophenol	88-06-2	200	ug/kg	Certified	SW846 8270

**Analysis Name:** Semi-Volatile Organic Compounds in Soil

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**Default Report Flag:** Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.  
Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAP Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:08

**Analysis Name:** PCBs in Soil by GC/EC

**Sample Tag Name:** PCB S.2G  
**Matrix:** Solid

**Parameter Class:** Pesticides

## Analysis Summary:

PCBs in soil by GC/EC:

This analysis provides analytical data for 7 commercial mixtures of polychlorinated biphenyls (Aroclor 1016, 1221, 1232, 1242, 1248, 1254, and 1260) in a soil sample by RLAB Method 3240.2G. Soil samples analyzed for PCBs originate from an array of different sources, as well as different programs, such as Superfund, RCRA, and Monitoring. However, this method still satisfies all of the applicable program requirements for both Superfund, RCRA, and Monitoring activities (and potentially other programs as well). This method is based on SW846 method 8082.

The presence and concentrations of these compounds are determined through an extraction phase followed by analysis of the extract. A subsample, 50g, is extracted with methylene chloride. The analysis is conducted by injecting the sample extract into a gas chromatograph (GC) with an electron capture detector (EC). Compound detection limits are typically in the low (<1-10) part per billion range. Matrix interferences can occur and may complicate the analytical process. If there is a matrix interference, dilutions may be performed and higher detection limits reported. Potential other sources of interferences include contaminated laboratory equipment and/or chemicals. However, higher detection limits are typically the result of the sample matrix interferences and not laboratory materials.

**Method:** EPA Region 7 RLAB Method 3240.2G with Acid Cleanup

**Method Title:** Organochlorine Pesticides and PCBs

## Base Method(s)

SW846 8082

## Title

Polychlorinated Biphenyls (PCB's) by Gas Chromatography

**Capable Labs:** EPA (In-House)  
ESAT (In-House)  
CLP (Out-Source)  
REAP (Out-Source)

**Sample Holding Time:** 14 Days  
**Container Type:** 8 oz glass  
**No. Of Containers:** 1

**Preservative:** 4 Deg C  
**Weight Type:** Dry  
**No. Of Tags:** 1

## Sampling Info:

Collect soil samples in 8 oz glass containers. Follow conventional sampling practices. Ice or refrigerate the samples at 4 degrees C from the time of collection until extraction.

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Yes	Aroclor 1016	12674-11-2	20	ug/kg	Certified	SW846 8082
Yes	Aroclor 1221	11104-28-2	20	ug/kg	Certified	SW846 8082
Yes	Aroclor 1232	11141-16-5	20	ug/kg	Certified	SW846 8082
Yes	Aroclor 1242	53469-21-9	20	ug/kg	Certified	SW846 8082
Yes	Aroclor 1248	12672-29-6	20	ug/kg	Certified	SW846 8082
Yes	Aroclor 1254	11097-69-1	10	ug/kg	Certified	SW846 8082

**Analysis Name:** PCBs in Soil by GC/EC

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<b>Default Report Flag</b>	<b>Analyte Name</b>	<b>CAS Number</b>	<b>TRL</b>	<b>Units</b>	<b>RLAB NELAC Status</b>	
Yes	Aroclor 1260	11096-82-5	10	ug/kg	Certified	SW846 8082
Con	Aroclor 1262	37324-23-5		ug/kg		
Con	Aroclor 1268	11100-14-4		ug/kg		

**Default Report Flag:** Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.  
Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:11

**Analysis Name:** TPH Volatiles in Soil by GC/MS

**Sample Tag Name:** VOA TPH S.19A

**Parameter Class:** Volatiles

**Matrix:** Solid

## Analysis Summary:

This analysis provides analytical data for various volatile fuels in soil and is performed following RLAB Method 3230.19A. This method is modeled after the Iowa State specified method OA-1, Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline). A fingerprint of the chromatogram is compared to standards and a suspected source fuel, if available.

The presence and concentrations of these compounds are determined by purging a 5 gram aliquot of the sample with an inert gas and collecting the purged components on an analytical trap. The analytical trap is desorbed onto a gas chromatograph (GC) with a mass spectrometer (MS) detector. For high concentration samples, the sample is first prepared by methanolic extraction by adding 1 g of sample to 40 mL of methanol. An aliquot of the extract is then analyzed by purge and trap. Compound detection limits are dependent upon the volume of sample (or extract) which is purged. The method detection limits are approximately 50 ug/kg but can be much higher if the matrix interferes with the analysis. Two filled 40 mL VOA vials should be collected for each sample following the soil sampling SOP.

Matrix interferences can occur when using non-polytetrafluoroethylene plastic tubing, and when waste streams contain surfactants/detergents. Interfering contamination may occur from ambient air contamination, from solvent used within proximity of the samples, from other high level samples, and from improperly sealed sample vials.

**Method:** EPA Region 7 RLAB Method 3230.19A

**Method Title:** GC/MS Analysis of Purgeable Total Petroleum Hydrocarbons (Gasoline)

## Base Method(s)

## Title

OA-1

Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)

**Capable Labs:** EPA (In-House)  
ESAT (In-House)  
REAP (Out-Source)

**Sample Holding Time:** 14 Days

**Preservative:** 4 Deg C

**Container Type:** 40mL VOA vial

**Weight Type:** Dry

**No. Of Containers:** 2

**No. Of Tags:** 3

## Sampling Info:

(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Purgeable TPH		50	ug/kg	

**Analysis Name:** TPH Volatiles in Soil by GC/MS

---

**Default Report Flag:** Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:21

**Analysis Name:** Semi-Volatile TPH (DRO & ORO) in Soil by GC/FID

**Sample Tag Name:** TPH SV S.FID

**Parameter Class:** Semi-Volatiles

**Matrix:** Solid

## Analysis Summary:

This analysis is for diesel range organics (DRO), C10-C25, and oil range organics (ORO), C25-C36, total petroleum hydrocarbons (TPH) in soil by GC/FID and is based on a modified version of SW846 Method 8015. This analysis is NOT performed by the EPA Region 7 lab, but samples can be contracted out to a private lab. Contact the laboratory customer service department for information about obtaining this analysis.

**Method:** Modified version of SW846 Method 8015

**Method Title:** Total Petroleum Hydrocarbons Analysis Using Gas Chromatography-Flame Ionization Detector

## Base Method(s)

SW846 8015M

## Title

Total Petroleum Hydrocarbons Analysis Using Gas Chromatography-Flame Ionization Detector

**Capable Labs:** REAP (Out-Source)

**Sample Holding Time:** 14 Days

**Container Type:** 8 oz glass

**No. Of Containers:** 1

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No. Of Tags:** 1

## Sampling Info:

(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Con	TPH DRO			mg/kg	
Con	TPH ORO			mg/kg	

**Analysis Name:** Semi-Volatile TPH (DRO & ORO) in Soil by GC/FID

---

**Default Report Flag:** Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

02/05/2009 17:23

**Analysis Name:** Volatile TPH in Soil by GC/MS

**Sample Tag Name:** TPH VOA S.MS

**Parameter Class:** Volatiles

**Matrix:** Solid

## Analysis Summary:

This analysis is for GRO TPH in soil by GC/MS. This analysis is NOT performed by the EPA Region 7 lab, but samples can be contracted out to a private lab. Contact the laboratory customer service department for information about obtaining this analysis.

**Method:** Volatile TPH by GC/MS

**Method Title:**

**Base Method(s)**

TPH VOA GCMS

**Title**

(Not Available)

**Capable Labs:** REAP (Out-Source)

**Sample Holding Time:** 14 Days

**Container Type:** 40mL VOA vial

**No. Of Containers:** 2

**Preservative:** 4 Deg C

**Weight Type:** Dry

**No.Of Tags:** 3

## Sampling Info:

(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Con	TPH GRO			mg/kg	

**Default Report Flag:** Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

25 MAR 2009

**MEMORANDUM**

**SUBJECT:** Region 7 Superfund Program Site Addendum for the Generic QAPP for Superfund Site Assessment Activities for Rockwool Industries Substation - Approved with Comment

**FROM:** Diane Harris *Diane Harris*  
Regional Quality Assurance Manager  
ENSV/IO

**TO:** Ron King  
EPA Project Manager  
SUPR/ERNB

The review of the subject document, dated March 23, 2009, has been completed according to "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," EPA QA/R-5 March 2001.

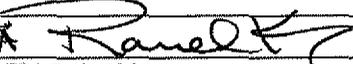
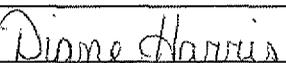
Based on the comments below, the document is approved with comment. Although the document satisfactorily addresses most of the key issues, minor issues were noted. These issues do not have an impact on the approval of the document, but are noteworthy of pointing out for the record.

**General Comments**

1. **Analytical Methods. Page 7.** Will a specific laboratory turnaround time be required for this project?
2. **Analytical Methods. Page 7.** Submittal of samples to the laboratory is expected on April 30 or May 1, 2009? This section reads that samples will be submitted on April 30 or 31, 2009.

If you have any questions, please contact me at x7258, or the lead reviewer, Gabrielle Thompson at x7569.

R7QAO Document Number: 2009114

Region 7 Superfund Program Site Addendum for the Generic QAPP for Superfund Site Assessment Activities (July 2007)			
Project Information:			
<b>Site Name:</b> <i>Rockwool Industries Substation, MON000705657 A7L1 RS00 302DC6C</i>		<b>City:</b> <i>Cameron</i>	<b>State:</b> <i>Missouri</i>
<b>EPA Project Manager:</b> <i>Ron King</i>		<b>START Project Manager:</b> <i>NA</i>	
<b>Approved By:</b>	<i>NA</i>		
<b>Title:</b>	<i>START Project Manager</i>	<b>Date:</b>	<b>Prepared For:</b> <i>EPA Region 7 Superfund Division</i>
<b>Approved By:</b>	<i>NA</i>		
<b>Title:</b>	<i>START Project Manager</i>	<b>Date:</b>	<b>Prepared By:</b> <i>Ron King/Brian Mitchell</i>
<b>Approved By:</b>	<i>NA</i>		
<b>Title:</b>	<i>START QA Manager</i>	<b>Date:</b>	<b>Date:</b> <i>March 23, 2009</i>
<b>Approved By:</b>	<i>NA</i>		
<b>Approved By:</b>			<b>START Contractor:</b> <i>NA</i>
<b>Title:</b>	<i>EPA Project Manager</i>	<b>Date:</b> <i>3/23/09</i>	
<b>Approved By:</b>			<b>START Project Number:</b> <i>NA</i>
<b>Title:</b>	<i>EPA Regional Quality Assurance Manager</i>	<b>Date:</b> <i>03/25/2009</i>	
1.0 Project Management:			
1.1 Distribution List			
<b>EPA--Region 7:</b>		<b>START:</b>	
<i>Ron King</i>		<i>NA</i>	
<i>EPA Project Manager</i>		<i>Start Project Manager</i>	
<i>Diane Harris</i>			
<i>EPA RQAM</i>			
1.2 Project/Task Organization			
<i>Ron King will serve as the Project Manager and will likely utilize EPA R7OSC personnel to complete the sampling activity.</i>			
1.3 Problem Definition/Background:			
<b>Description:</b> This site-specific Quality Assurance Project Plan form is prepared as an addendum to the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007), and contains site-specific data quality objectives for the sampling activities described herein.			
<input type="checkbox"/> Description attached. <input checked="" type="checkbox"/> Description below:			
<p><i>A buried grey colored sludge was recently identified near a buried utility power line near a substation at the former Rockwool Industries facility in Cameron, Missouri. The EPA Region 7 Superfund Program sampled the grey sludge during a recent investigation. The grey sludge was analyzed and found to contain high concentrations of lead and arsenic. The EPA Region 7 Superfund Program plans to utilize a geo-probe unit to take waste and soil samples in order to define the extent of the grey sludge and lead/arsenic contamination and to determine if the grey sludge and/or contaminated soil need to be managed in accordance with RCRA waste management requirements. Samples will be analyzed for total and TCLP metals.</i></p>			

2009114  
**RECEIVED**  
MAR 23 2009



NOTE: QC samples are included above.		
<b>2.2 Sample Methods Requirements:</b>		
Matrix	Sampling Method	EPA R7 SOP(s)/EPA Methods
<i>soil/waste/solid</i>	<i>See Table 1 Sample Summary</i>	<i>See Section 2.1</i>
<i>water</i>	<i>See Table 1 Sample Summary</i>	<i>See Section 2.1</i>
<b>2.3 Sample Handling and Custody Requirements:</b>		
<ul style="list-style-type: none"> <li>■ Samples will be packaged and preserved in accordance with procedures defined in Region 7 EPA SOP 2420.6.</li> <li>■ COC will be maintained as directed by Region 7 EPA SOP 2420.4.</li> <li>■ Samples will be accepted according to Region 7 EPA SOP 2420.1.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<b>2.4 Analytical Methods Requirements:</b>		
<ul style="list-style-type: none"> <li>■ Identified in attached table.</li> <li>■ Identified in attached Analytical Services Request (ASR) Form</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<b>2.5 Quality Control Requirements:</b>		
<ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li><input type="checkbox"/> Identified in attached table.</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li>■ Describe Field QC Samples to be collected: Rinse sample taken after field equipment decontamination.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<b>2.6 Instrument/Equipment Testing, Inspection, and Maintenance Requirements:</b>		
<ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<b>2.7 Instrument Calibration and Frequency:</b>		
<ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ Inspection/acceptance requirements are in accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> Calibration of laboratory equipment will be performed as described in the previously referenced EPA R7 SOPs and/or manufacturers' recommendations.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		
<b>2.8 Inspection/Acceptance Requirements for Supplies and Consumables:</b>		
<ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li>■ In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> All sample containers will meet EPA criteria for cleaning procedures for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in Specifications and Guidelines for Obtaining Contaminant-Free Containers.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>		

<p><b>2.9 Data Acquisition Requirements:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not Applicable</li> <li><input checked="" type="checkbox"/> In accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input type="checkbox"/> Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by EPA and/or its contractor(s) from other sources. Some of that data has not been verified by EPA and/or its contractor(s); however, the information will not be used for decision-making purposes by EPA without verification by an independent professional qualified to verify such data/information.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>
<p><b>2.10 Data Management:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> All laboratory data acquired will be managed in accordance with Region 7 EPA SOP 2410.1.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>
<p><b>3.0 Assessment and Oversight:</b></p>
<p><b>3.1 Assessment and Response Actions:</b></p> <p><input type="checkbox"/> Peer Review                      <input type="checkbox"/> Management Review                      <input type="checkbox"/> Field Audit                      <input type="checkbox"/> Lab Audit</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Assessment and response actions pertaining to analytical phases of the project are addressed in Region 7 EPA SOPs 2430.6 and 2430.12.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>
<p><b>3.1A Corrective Action:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Corrective actions will be taken at the discretion of the EPA project manager, whenever there appears to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site.</li> <li><input type="checkbox"/> Other (Describe):</li> </ul>
<p><b>3.2 Reports to Management:</b></p> <p><input type="checkbox"/> Audit Report                      <input type="checkbox"/> Data Validation Report                      <input type="checkbox"/> Project Status Report                      <input type="checkbox"/> None Required</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by Tetra Tech START and submitted to the EPA.</li> <li><input checked="" type="checkbox"/> Other (Describe): <i>A Removal Assessment Report will be prepared describing the findings of the assessment.</i></li> </ul>
<p><b>4.0 Data Validation and Usability:</b></p>
<p><b>4.1 Data Review, Validation, and Verification Requirements:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identified in attached table.</li> <li><input type="checkbox"/> Data review and verification will be performed in accordance with the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: July 2007).</li> <li><input checked="" type="checkbox"/> Data review and verification will be performed by a qualified analyst and the laboratory's section manager as described in Region 7 EPA SOPs 2430.6 and 2430.12.</li> </ul> <p>Other (Describe):</p>

<b>4.2</b>	<p><b>Validation and Verification Methods:</b></p> <p><input type="checkbox"/> Identified in attached table.</p> <p><input checked="" type="checkbox"/> The data will be validated in accordance with Region 7 EPA SOPs 2430.6 and 2430.12.</p> <p><input type="checkbox"/> The EPA site manager will inspect the data to provide a final review. The EPA site manager will review the data, if applicable, for laboratory spikes and duplicates, laboratory blanks, and the field blank to ensure that they are acceptable. The EPA site manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.</p> <p><input type="checkbox"/> Other (Describe):</p>
<b>4.3</b>	<p><b>Reconciliation with User Requirements:</b></p> <p><input type="checkbox"/> Identified in attached table</p> <p><input checked="" type="checkbox"/> If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded and re-sampling or re-analysis of the subject samples may be required by the EPA site manager.</p> <p><input type="checkbox"/> Other (Describe):</p>

Table 1: Sample Summary

Site Name: <i>Rockwool Industries Substation, MON000705657</i>				City: <i>Cameron, MO</i>			
A7L1 RS00 302DC6C							
START Project Manager: <i>NA</i>				Activity/ASR #:		Date: <i>March 23, 2009</i>	
No. of Samples	Matrix	Location	Purpose	Depth or other Description	Requested Analysis	Sampling Method	Analytical Method/SOP
<i>10</i>	<i>Soil/Waste/Solid</i>	<i>See attached map for general location...exact locations to be determined in the field.</i>	<i>Defining the extent of contamination</i>	<i>To be determined in the field</i>	<i>Total metals</i> <i>TCLP metals</i>	<i>EPA R7 SOP 4230.03</i>	<i>Total metals, 3122.3</i> <i>TCLP metals, 3122.3 &amp; TCLP</i>
				<i>QC Samples</i>			
<i>1</i>	<i>water</i>	<i>Equipment rinse sample</i>	<i>To assess field decontamination procedures</i>	<i>N/A</i>	<i>Total metals</i>	<i>EPA R7 SOP 4230.10</i>	<i>Total metals, 3123.2</i>

**Table 2: Data Quality Objective Summary**

Table 2: Data Quality Objective Summary								
<b>Site Name:</b> <i>Rockwool Industries Substation, MON00070565, A7L1 RS00 302DC6C</i>				<b>City:</b> <i>Cameron, MO</i>				
<b>START Project Manager:</b> <i>NA</i>				<b>Activity/ASR #:</b>				<b>Date:</b> <i>3/23/9</i>
Analysis	Analytical Method	Data Quality Measurements					Sample Handling Procedures	Data Management Procedures
		Accuracy	Precision	Representativeness	Completeness	Comparability		
<b>Soil/Waste/Solid</b>								
<i>Soil Metals &amp; TCLP Water metals</i>	<i>see Table 1</i>	<i>per analytical method</i>	<i>per analytical method</i>	<i>Biased/judgmental sampling based on professional judgment of the sampling team</i>	<i>100%; all samples are considered critical samples</i>	<i>Standardized procedures for sample collection and analysis will be used</i>	<i>See Section 2.3 of QAPP</i>	<i>See Section 2.10 of QAPP form</i>

## Sampling Narrative

### Introduction

Representatives of the United States Environmental Protection Agency (EPA) Region 7 will conduct a Removal Assessment at the Rockwool Industries Substation Site, located in Cameron, Missouri. The attached map shows the general location. The exact sampling locations and depths will be determined in the field.

EPA investigated the Substation for potential contamination. A grey sludge was identified. The grey sludge contained high concentrations of arsenic and lead. During this sampling event, the extent of the grey sludge and arsenic and lead contamination will be identified. The Quality Assurance Project Plan (QAPP) identifies the site-specific features and addresses elements of the sampling strategy and analytical methods proposed for this investigation.

### Site Location/Description

Rockwool Industries Substation, Cameron, Missouri.

### Previous Investigations

In February 2009, EPA sampled the identified grey sludge. The sludge was found to contain high concentrations of lead and arsenic.

### Sampling Strategy and Methodology

The sampling activities are tentatively scheduled to begin on April 27, 2009 and will require approximately 3 days to complete. The laboratory data will be compared against EPA MCLs, EPA Screening Assessment Levels, and EPA RCRA regulatory levels in order to determine the next necessary steps.

A field sheet will be completed for each sample location. The field sheet will include the following information: property ownership information, sample location, sample description, GPS coordinates, and analyses to be performed. The soil/waste samples will be submitted to the EPA Region 7 laboratory for analysis of total metals and TCLP metals...see Table 1. The equipment rinse sample will be submitted to the EPA Region 7 laboratory for

analysis of total metals...see Table 1. Samples will be collected in containers and preserved in accordance with the EPA R7 SOPs and EPA methods and procedures identified herein. All samples will be preserved/stored/transported in iced coolers at an approximate temperature of 4° C.

Quality Control Samples

To evaluate equipment decontamination procedures, an equipment rinse sample will be taken and analyzed in accordance with the procedures described herein.

Analytical Methods

All samples will be submitted to the EPA Region 7 laboratory in Kansas City, Kansas for analysis. The soil/waste samples will be submitted to the EPA Region 7 laboratory for analysis of total metals and TCLP metals...see Table 1. The equipment rinse sample will be submitted to the EPA Region 7 laboratory for analysis of total metals...see Table 1.

All samples will be analyzed according to EPA R7 SOPs and EPA methods referenced in the QAPP Form. Standard detection limits for those methods will be adequate for this project. Appropriate containers and physical/chemical preservation techniques will be employed during the field activities. An Analytical Services Request Form and Sampling Supplies Request Form will be provided to the EPA Region 7 laboratory. Submittal of samples to the laboratory is expected on April 30 or 31, 2009. Attached hereto are Laboratory Analysis Information sheets for some specific EPA R7 SOP referenced herein.

QAPP consists of:

- QAPP body.....7 pages
- Attached map.....1 page
- EPAR7 Analysis Information....7 pages
- ASR/SSR.....3 pages



<p>Google Earth Map 1: Showing the general location of the Substation at former Rockwool Industries facility in Cameron, Missouri.</p>	<p>↑ North</p>	<p>3/23/2009</p>
<p>Former Rockwool Industries Substation Site Cameron, Missouri MON000705657 A7L1 RS00 302DC6C</p>	<p>1.7 inches ~ 1 mile</p>	

# EPA Region 7 Laboratory Analysis Information

03/23/2009 11:01

**Analysis Name:** Metals in Solids by ICP

**Sample Tag Name:** Met S.3C  
**Matrix:** Solid

**Parameter Class:** Metals

## Analysis Summary:

This analysis is performed following RLAB Method 3122.3C and provides analytical data for up to 23 elements in solids. Many of the elements in soil are naturally occurring, but some elements may have elevated concentrations due to improper waste disposal or pesticide applications that contained metals such as arsenic. Other types of solid samples that can be analyzed include dust, sediment, industrial waste, sludges, etc. Solid samples analyzed for metals originate from an array of different sources, as well as different programs, such as Superfund and RCRA. However, this method still satisfies all of the applicable program requirements for both Superfund and RCRA (and potentially other programs as well).

The presence and concentrations of these elements are determined by the soil sample going through digestion phase followed by analysis of the extract. An aliquot, 1 g, of the sample is digested by adding 2 milliliters nitric acid (HNO<sub>3</sub>) and 3 milliliters of hydrochloric acid (HCl) and then heated in a block digester at 85 C. The digested sample is brought up to 100 milliliters with DI water and then an aliquot is centrifuged for analysis. The sample is analyzed by inductively coupled argon plasma (ICAP) atomic emission spectroscopy. The detection limits range from 0.101 ppm (mg/kg) for beryllium to 23.4 ppm for sodium, and are typically in the low (less than 2) ppm range. Matrix interferences sometimes occur and may complicate the analytical process. If there is a matrix interference, dilutions may be performed and higher detection limits reported. Potential other sources of interferences include contaminated laboratory equipment and/or chemicals. However, analytical interferences are typically the result of the sample matrix and not laboratory materials.

**Method:** EPA Region 7 RLAB Method 3122.3C

**Method Title:** Analysis of Metals by PE Optima ICP

Base Method(s)	Title
SW846 6010B	Analysis of Metals by ICP

**Capable Labs:** EPA (In-House)  
ESAT (In-House)  
CLP (Out-Source)  
REAP (Out-Source)

**Sample Holding Time:** 180 Days  
**Container Type:** 8 oz glass  
**No. Of Containers:** 1

**Preservative:** 4 Deg C  
**Weight Type:** Dry  
**No. Of Tags:** 1

**Sampling Info:**  
(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Aluminum	7429-90-5	5	mg/kg	Certified SW846 6010
Yes	Antimony	7440-36-0	2	mg/kg	Certified SW846 6010
Yes	Arsenic	7440-38-2	5	mg/kg	Certified SW846 6010

**Analysis Name:** Metals in Solids by ICP

<b>Default Report Flag</b>	<b>Analyte Name</b>	<b>CAS Number</b>	<b>TRL</b>	<b>Units</b>	<b>RLAB NELAC Status</b>	
Yes	Barium	7440-39-3	2	mg/kg	Certified	SW846 6010
Yes	Beryllium	7440-41-7	1	mg/kg	Certified	SW846 6010
Con	Bismuth	7440-69-9	5	mg/kg		
Yes	Cadmium	7440-43-9	1	mg/kg	Certified	SW846 6010
Yes	Calcium	7440-70-2	50	mg/kg	Certified	SW846 6010
Yes	Chromium	7440-47-3	2	mg/kg	Certified	SW846 6010
Yes	Cobalt	7440-48-4	1	mg/kg	Certified	SW846 6010
Yes	Copper	7440-50-8	1	mg/kg	Certified	SW846 6010
Yes	Iron	7439-89-6	5	mg/kg	Certified	SW846 6010
Yes	Lead	7439-92-1	5	mg/kg	Certified	SW846 6010
Non	Lithium	7439-93-2	2	mg/kg		
Yes	Magnesium	7439-95-4	50	mg/kg	Certified	SW846 6010
Yes	Manganese	7439-96-5	5	mg/kg	Certified	SW846 6010
Yes	Molybdenum	7439-98-7	2	mg/kg	Certified	SW846 6010
Yes	Nickel	7440-02-0	2	mg/kg	Certified	SW846 6010
Yes	Potassium	7440-09-7	50	mg/kg	Certified	SW846 6010
Yes	Selenium	7782-49-2	10	mg/kg	Certified	SW846 6010
Con	Silicon	7440-21-3		mg/kg		
Yes	Silver	7440-22-4	2	mg/kg	Certified	SW846 6010
Yes	Sodium	7440-23-5	50	mg/kg	Certified	SW846 6010
Non	Strontium	7440-24-6	5	mg/kg	Certified	SW846 6010
Yes	Thallium	7440-28-0	10	mg/kg	Certified	SW846 6010
Con	Titanium	7440-32-6	1	mg/kg	Certified	SW846 6010
Yes	Vanadium	7440-62-2	5	mg/kg	Certified	SW846 6010
Yes	Zinc	7440-66-6	5	mg/kg	Certified	SW846 6010
Con	Zirconium	7440-67-7		mg/kg		

**Analysis Name:** Metals in Solids by ICP

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- Default Report Flag:**
- Con Analyte that is not reported from in-house analysis and must be obtained through an out-source contract lab.
  - Non Analyte that is not routinely reported from in-house analysis, but can be if it is needed.
  - Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

03/23/2009 11:03

**Analysis Name:** TCLP Metals in Soil

**Sample Tag Name:** Met TCLP S.3C  
**Matrix:** Solid

**Parameter Class:** Metals

## Analysis Summary:

This analysis is performed following RLAB Method 3122.3C and provides analytical data for 7 RCRA regulated elements in TCLP extracts of solid samples. The 7 elements are silver, arsenic, barium, cadmium, chromium, lead, and selenium. Samples taken through the leaching procedure and analyzed for these 7 metals can originate from a variety of different sources, but usually come from the RCRA program. However, this method still satisfies all of the applicable program requirements for Superfund and potentially other programs as well.

The presence and concentrations of these elements are determined by the sample first going through a leaching procedure wherein 100 g of sample is tumbled with acetic acid buffer solution for 18 hours and then filtered. The filtered leachate is then taken through a digestion process followed by analysis of the extract. An aliquot of the leachate, 100 milliliters, of the sample is digested by adding 2 milliliters nitric acid (HNO<sub>3</sub>) and 3 milliliters of hydrochloric acid (HCl) and then heated in a block digester at 85 C until the apparent volume is 25 - 50 milliliters. The digested sample is brought up to 100 milliliters with DI water and then an aliquot is centrifuged for analysis. The sample is analyzed by inductively coupled argon plasma (ICAP) atomic emission spectroscopy. The detection limits range from 0.002 ppm (mg/L) for barium to 0.05 ppm for arsenic, lead, and selenium. Matrix interferences sometimes occur and may complicate the analytical process. If there is a matrix interference, dilutions may be performed and higher detection limits reported. Potential other sources of interferences include contaminated laboratory equipment and/or chemicals. However, analytical interferences are typically the result of the sample matrix and not laboratory materials.

**Method:** EPA Region 7 RLAB Method 3122.3C Applied to TCLP extracts

**Method Title:** Analysis of Metals by PE Optima ICP

**Base Method(s)**                      **Title**  
(None)

**Capable Labs:** EPA (In-House)  
                    ESAT (In-House)  
                    REAP (Out-Source)

**Sample Holding Time:** 180 Days  
**Container Type:** 8 oz glass  
**No. Of Containers:** 1

**Preservative:** 4 Deg C  
**Weight Type:** N/A  
**No. Of Tags:** 1

**Sampling Info:**  
(Not Available)

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status	
Yes	Arsenic	7440-38-2	0.050	mg/L	Certified	SW846 1311
					Certified	SW846 6010
Yes	Barium	7440-39-3	0.010	mg/L	Certified	SW846 1311
					Certified	SW846 6010

**Analysis Name:** TCLP Metals in Soil

<b>Default Report Flag</b>	<b>Analyte Name</b>	<b>CAS Number</b>	<b>TRL</b>	<b>Units</b>	<b>RLAB NELAC Status</b>	
Yes	Cadmium	7440-43-9	0.005	mg/L	Certified	SW846 1311
					Certified	SW846 6010
Yes	Chromium	7440-47-3	0.015	mg/L	Certified	SW846 1311
					Certified	SW846 6010
Yes	Lead	7439-92-1	0.050	mg/L	Certified	SW846 1311
					Certified	SW846 6010
Yes	Selenium	7782-49-2	0.050	mg/L	Certified	SW846 1311
					Certified	SW846 6010
Yes	Silver	7440-22-4	0.025	mg/L	Certified	SW846 1311

**Default Report Flag:** Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

# EPA Region 7 Laboratory Analysis Information

03/23/2009 11:09

**Analysis Name:** Metals in Drinking Water by ICP/MS

**Sample Tag Name:** Met DW.2A  
**Matrix:** Water

**Parameter Class:** Metals

## Analysis Summary:

This analysis is for metals in drinking water using RLAB Method 3123.2A. It substantially meets the requirements of EPA Method 200.8. If turbidity is < 1, the sample may be analyzed directly and without digestion. If turbidity is > 1, an aliquot of sample is digested with nitric acid prior to analysis. Elements are qualitatively identified by mass spectrometry and quantitatively measured by internal standard calibration.

**Method:** EPA Region 7 RLAB Method 3123.2A

**Method Title:** Analysis of Drinking Water Metals by Inductively Coupled Plasma-Mass Spectrometry

Base Method(s)	Title
Method 200.8	Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry

**Capable Labs:** EPA (In-House)  
CLP (Out-Source)  
REAP (Out-Source)

**Sample Holding Time:** 180 Days  
**Container Type:** 1 Liter Cubitainer  
**No. Of Containers:** 1

**Preservative:** HNO<sub>3</sub> to pH<2  
**Weight Type:** N/A  
**No.Of Tags:** 1

## Sampling Info:

For the determination of total recoverable elements in aqueous samples, samples are not filtered, but acidified with (1+1) nitric acid to pH <2 (normally, 3 mL of (1+1) acid per liter of sample is sufficient for most ambient and drinking water samples). Preservation may be done at the time of collection, however, to avoid the hazards of strong acids in the field, transport restrictions, and possible contamination it is recommended that the samples be returned to the laboratory within two weeks of collection and acid preserved upon receipt in the laboratory.

Default Report Flag	Analyte Name	CAS Number	TRL	Units	RLAB NELAC Status
Yes	Antimony	7440-36-0	2	ug/L	
Yes	Arsenic	7440-38-2	1	ug/L	
Yes	Barium	7440-39-3	3	ug/L	
Yes	Beryllium	7440-41-7	0.4	ug/L	
Yes	Cadmium	7440-43-9	1	ug/L	
Yes	Chromium	7440-47-3	1	ug/L	
Yes	Copper	7440-50-8	2	ug/L	
Yes	Lead	7439-92-1	1	ug/L	
Yes	Selenium	7782-49-2	5	ug/L	
Yes	Silver	7440-22-4	1	ug/L	
Yes	Thallium	7440-28-0	1	ug/L	
Yes	Zinc	7440-66-6	1	ug/L	

**Analysis Name:** Metals in Drinking Water by ICP/MS

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**Default Report Flag:** Yes Analyte that is routinely reported from in-house analysis.

RLAB NELAC Status applies specifically to analyses performed in the Region 7 Laboratory. Analyses done by out-source contract labs may not have this certification.

Superfund Extended Analytical Services Request (S-ASR) Form

\*Activity Number: \_\_\_\_\_

\*ASR #: \_\_\_\_\_

\*Projected Delivery Date:

4/30 or 5/31/9

Activity Desc: define extent of grey sludge & lead/arsenic contamination

City: Cameron

State: MO

Type: Removal Assessment

Site Name: Former Rockwood Industries Substation

Site ID: MON000705657

Site OU: 00

GPRA PRC: 302DC6C

Billing: A7L1 RS00

Activity Leader: Ron King

Mail Drop: SUPR/ERNB

Phone Number: (913) 551-7568

Contact: Ron King

Organization: SUPR/ERNB

Phone Number: (913) 551-7568

ASR Purpose: Removal Assessment

Comments:

\*This information is required only for activities that involve samples that are submitted to RLAB.

Field Contract Section (Complete only when field contract is utilized.)

The analytical services described above/below have been or will be completed through use of a field contract. The field contract utilized is:

START (lab selected) \_\_\_\_\_

RAC (lab selected) \_\_\_\_\_

Other (specify contract & lab selected) \_\_\_\_\_

NA

The rationale for utilizing the field contract is:

The activity is not/was not plannable (ref: "Region 7 Superfund Analytical Protocol"). Briefly describe circumstances: \_\_\_\_\_

NA

The activity is plannable, but the following special circumstances warrant the use of a field contract: \_\_\_\_\_

NA

STOP: The remainder of this form is required only when samples are referred to RLAB for lab assignment.

**Superfund Extended Analytical Services Request (S-ASR) Form page 2**

\*Activity Number: \_\_\_\_\_ \*ASR #: \_\_\_\_\_

Is this activity currently or potentially a criminal investigation? NO

Has a QAPP for the requested services been approved? no, QAPP has been submitted for approval

For, health, safety and environmental compliance are any samples expected to contain:

Dioxin > 1ppb: no  
 RCRA Listed Wastes: no  
 Toxic/Hazardous Chemicals >1000ppm: yes As & Pb

Number of Samples	Analysis	Concentration of Interest	Expected Concentration
10	total metals & TCLP metals, soil/waste, 3122.3	MDL	>1000 mg/Kg
1	total metals, water, 3123.2	MDL	MDL

*For assistance, call the Region VII Laboratory Customer Service Department at 913-551-5295.*

Special Analytical Requirements or Comments:

Date Submitted: 3/23/9

By: Ron King

**USEPA Region VII Sampling Supplies Request (SSR) Form**

*Former Rockwool Industries Substation Site*

Activity No.: \_\_\_\_\_ Site Name: \_\_\_\_\_

Contact Name: Ron King Telephone No.: 913-551-7568

Date Equipment to be Picked Up: 4/27/9

Item Description Amount Needed

Sample Containers:

- 4-oz. (100 ml) Plastic Bottle . . . . . 01
- 1-Liter Plastic Cubitainer . . . . . \_\_\_\_\_
- 4-Liter Plastic Cubitainer . . . . . \_\_\_\_\_
- 8-Liter Plastic Cubitainer . . . . . \_\_\_\_\_
- 20-Liter Plastic Cubitainer . . . . . \_\_\_\_\_
- 40-ml Glass Vials (Routine - 2 ea in 1-1 cubie with charcoal thimble) . . . . . \_\_\_\_\_
- 40-ml Glass Vials (Low DL - 4 ea in 1-1 cubie with charcoal thimble) . . . . . \_\_\_\_\_
- 8-oz. (250 ml) Wide Mouth Glass Jar . . . . . 24
- 32-oz. (1 Liter) Wide Mouth Glass Jar . . . . . \_\_\_\_\_
- 8-oz. (250 ml) Amber Glass Bottle . . . . . \_\_\_\_\_
- 128 - oz. (3.8 Liter) Amber Glass Bottle . . . . . \_\_\_\_\_

Sampling Supplies:

- Sampling Spoons . . . . . 22
- Aluminum Pans . . . . . 22
- 1-qt. Metal Paint Can (with 2 plastic bags and Vermiculite®) . . . . . \_\_\_\_\_
- 1-gal. Metal Paint Can (with 2 plastic bags and Vermiculite®) . . . . . \_\_\_\_\_
- Stainless Steel Canister for Ambient / Soil Gas (circle one) . . . . . \_\_\_\_\_
- Dionized (DI) Water . . . . . 5 gallon
- Large Plastic Bags . . . . . 1
- Ice Chests . . . . . 1
- ~~Fiber~~ clear Fiber Tape (by roll) . . . . . 1
- Custody-Seal Tape (by piece) . . . . . 4
- Chain-Of-Custody Forms . . . . . 2
- Other: field sheets & tags . . . . . \_\_\_\_\_

Preservatives: (return preservative containers to the laboratory)

- HCl (1:1) . . . . . \_\_\_\_\_
- HNO<sub>3</sub> (1:1) . . . . . X
- H<sub>2</sub>SO<sub>4</sub> (Concentrated) . . . . . \_\_\_\_\_
- NaOH (Pellets) . . . . . \_\_\_\_\_
- Other: \_\_\_\_\_

Quality Control Samples:

- VOA Trip Blanks for Water . . . . . \_\_\_\_\_
- VOA Trip Blanks for Soil . . . . . \_\_\_\_\_
- ~~Field Blanks~~ (Specify Types: equipment rinse sample to be) . . . . . \_\_\_\_\_
- Performance Evaluation (PE) Samples: taken in the field . . . . . \_\_\_\_\_

No. of PE Samples	Media	Target Analytes	Desired Concentration Range

(Revised Oct. 1995)