# SWISHER INTERNATIONAL, INC.



November 27, 2012

Emerson Raulerson
Florida Department of Environmental Protection
Northeast District
7777 Baymeadows Way West, Suite 100
Jacksonville, FL 32256

Jabe Breland
Florida Department of Environmental Protection
Northeast District
7777 Baymeadows Way West, Suite 100
Jacksonville, FL 32256

**Re: Reuse of Swisher Byproduct by Water Recovery, LLC**

Dear Emerson and Jabe:

Thank you for meeting with Brenna Durden and me on 31 October, 2012, to discuss the reuse of tobacco byproducts by Water Recovery, LLC. Per your request it is my pleasure to provide this letter describing the proposed reuse of the tobacco byproducts and enclosing the TCLP results.

Water Recovery ("WR") will receive the tobacco byproducts from Swisher. The byproducts consist of cigar seconds and tobacco leaf and stems resulting from the manufacture of cigars at our plant here in Jacksonville. WR will use them as raw materials in the treatment and processing of wastewaters received at their Centralized Wastewater Treatment plant located at 1819 Albert Street, Jacksonville, Florida, as solidifiers and stabilization agents. Swisher will be providing approximately ten tons to Water Recovery on a weekly basis.

The enclosed report, prepared by ALS Environmental and dated November 5, 2012, contains the results from a full TCLP analysis of the solids resulting from a trial using the Swisher byproducts to stabilize typical WR wastewaters. WR has reviewed the report and finds the data consistent with their expectation, that the Swisher byproduct would be suitable for reuse at WR. The trial generated a non-hazardous solids material based on review of the attached TCLP report.

During the course of our meeting on 31 October, you indicated that you would complete some additional inquiry to ensure that no regulations or requirements exist which could impact the proposed reuse of these tobacco byproducts, such as any hazardous substance provisions applicable to nicotine. It is my understanding that you have completed your investigation and determined that there are no regulations, restrictions or prohibitions applicable to the proposed reuse of the tobacco byproducts and that neither Swisher nor WR needs to provide any further information to you or obtain any authorization from the Department prior to implementing reuse of the tobacco byproducts. As a result, Swisher has begun to


POST OFFICE BOX 2230 JACKSONVILLE, FLORIDA 32203 (904) 353-4311 FAX (904) 353-9175

provide tobacco byproducts to WR on a weekly basis. If this is not accurate, please contact me immediately at (904)353-4311, extension 3369.

Again, thank you for your assistance.

Sincerely,

David Wood
Director of Engineering
Swisher International, Inc.
dwood@swisher.com

cc: Greg Reynolds, Water Recovery (w/ encl.)
Brenna M. Durden, Esquire (w/ encl.)

WRL
Water Recovery, LLC

**Mr. David Wood**
Director of Engineering
Swisher International Inc.
459 E 16th Street
Jacksonville, Florida 32206



November 8, 2012

**Re: Beneficial Reuse of Swisher Byproducts TCLP Analytical**

Dear Mr. Wood,

Attached you'll find Report J1205059 to reference the analysis for TCLP Regulatory levels on Water Recovery LLC's solidification process with Swisher's byproduct material.
All of the parameters were under or "Not Detected" with the sample tested.

The sample was formed with 1200 gallons of industrial waste water and 1000 pounds of Swisher's byproducts in a rectangular pit. After the sample finished with the mixing process, a grab sample was collected from four corners of the pit and two additional were grabbed from the left and the right middle of the pit to ensure a representative sample for analysis.

Please feel free to contact us with any questions or concerns.

Sincerely,

Ken Khim
Plant Chemist
Water Recovery, LLC
kkhim@wrijax.com

November 05, 2012 Service Request No:J1205059

Ken Khim
Water Recovery, LLC
1819 Albert Street
Jacksonville, FL 32202



**Laboratory Results for: Sludge TCLP**

Dear Ken,

Enclosed are the results of the sample(s) submitted to our laboratory October 17, 2012 For your reference, these analyses have been assigned our service request number **J1205059.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 4410. You may also contact me via email at Jerry.Allen@alsglobal.com.

Respectfully submitted,

**Columbia Analytical Services, Inc. dba ALS Enviromental**

Jerry Allen
Project Manager

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Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company

9143 Philips Highway, Jacksonville, FL 32256 | 904-739-2277 | www.caslab.com

ALS Environmental

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:**J1205059
**Date Received:**10/17/12

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables, including results of QC samples analyzed from this delivery group. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

One soil sample was received for analysis at Columbia Analytical Services on 10/17/12. The sample was received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at ≤6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

**Volatile Organic Analyses:**

No significant data anomalies were noted with this analysis.

**Semi-Volatile Organic Analyses:**

Method 8270C: The matrix spike recovery of 2,4,6-Trichlorophenol for sample SP101612 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential bias in this matrix. No further corrective action was appropriate.

Method 8270C: The Relative Percent Difference (RPD) for the following analyte in the replicate matrix spike analyses of sample SP101612 was outside control criteria: 2,4,5-Trichlorophenol. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

**Metals Analyses:**

No significant data anomalies were noted with this analysis.

**General Chemistry Analyses:**

No significant data anomalies were noted with this analysis.

Approved by _____ Date 11/5/2012

ALS Environmental

## State Certifications, Accreditations, and Licenses

| Agency | Number | Expire Date |
|---|---|---|
| Florida Department of Health | E82502 | 6/30/2013 |
| North Carolina Department of Environment and Natural Resources | 527 | 12/31/2012 |
| Virginia Environmental Accreditation Program | 460191 | 12/14/2012 |
| Louisiana Department of Environmental Quality | 02086 | 6/30/2013 |
| Georgia Department of Natural Resources | 958 | 6/30/2013 |
| Kentucky Division of Waste Management | 63 | 7/5/2013 |
| South Carolina Department of Health and Environmental Control | 96021001 | 6/30/2013 |
| Texas Commision on Environmental Quality | T104704197-09-TX | 5/31/2013 |
| Maine Department of Health and Human Services | 2011006 | 2/3/2013 |
| Department of Defense | 66206 | 5/31/2013 |

# Data Qualifiers

## Florida-DEP

| | |
|---|---|
| ! | Data deviates from historically established concentration ranges |
| * | Not reported due to interference |
| ? | Data is rejected and should not be used |
| A | Value reported is the arithmetic mean of two or more determininations |
| B | Results based upon colony counts outside the acceptable range. |
| D | Measurement was made in the field. |
| E | Extra samples were taken at composite stations |
| H | Value based on field kit determination; results may not be accurate. |
| I | The reported value is between the laboratory method detection limit and the laboratory PQL. |
| J | Estimated value. |
| K | Off scale low. The value is less than the lowest calibration standard. |
| L | Off scale high. The analyte is above the acceptable level of quantitation. |
| M | The MDL/MRL has been elevated because the analyte could not be accurately quantified. |
| N | Presumptive evidence of presence of material. |
| O | Sampled, but analysis lost or not performed |
| Q | Sample held beyond the acceptable holding time. |
| R | Significant rain in the past 48 hours (typically in excess of 0.5 inches) |
| T | Estimated value, less than the MDL |
| U | Indicates that the compound was analyzed for but not detected. |
| V | Indicates that the analyte was detected in both the sample and the associated method blank. |
| X | Insufficient individuals were present in the sample to achieve a minimum of 280 organisms for identification (Stream Condition Index Analysis only) |
| Y | The laboratory analysis was from an unpreserved or improperly preserved sample. |
| Z | Too many colonies were present, the numeric value represents the filtration volume |

**Acronyms**

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

**Client:** Water Recovery, LLC **Service Request:**J1205059
**Project:** Sludge TCLP

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| J1205059-001 | SP101612 | 10/16/2012 | 1300 |

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Units:** | mg/L |
| **Lab Code:** | J1205059-001 | **Basis:** | As Received |

## TCLP Volatile Organics by GC/MS

**Analysis Method:** 8260B

**Pre-Prep Method:** EPA 1311
**Pre-Prep Date:** 10/23/12

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|
| 1,1-Dichloroethene (1,1-DCE) | 0.0160 U | 0.100 | 0.0160 | 100 | 10/28/12 00:37 | |
| 1,2-Dichloroethane | 0.0220 U | 0.100 | 0.0220 | 100 | 10/28/12 00:37 | |
| 1,4-Dichlorobenzene | 0.0160 U | 0.100 | 0.0160 | 100 | 10/28/12 00:37 | |
| 2-Butanone (MEK) | 0.380 U | 2.50 | 0.380 | 100 | 10/28/12 00:37 | |
| Benzene | 0.0210 U | 0.100 | 0.0210 | 100 | 10/28/12 00:37 | |
| Carbon Tetrachloride | 0.0340 U | 0.100 | 0.0340 | 100 | 10/28/12 00:37 | |
| Chlorobenzene | 0.0160 U | 0.100 | 0.0160 | 100 | 10/28/12 00:37 | |
| Chloroform | 0.0350 U | 0.100 | 0.0350 | 100 | 10/28/12 00:37 | |
| Tetrachloroethene (PCE) | 0.0220 U | 0.100 | 0.0220 | 100 | 10/28/12 00:37 | |
| Trichloroethene (TCE) | 0.0361 U | 0.100 | 0.0361 | 100 | 10/28/12 00:37 | |
| Vinyl Chloride | 0.0361 U | 0.100 | 0.0361 | 100 | 10/28/12 00:37 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 106 | 72 - 121 | 10/28/12 00:37 | |
| 4-Bromofluorobenzene | 101 | 86 - 113 | 10/28/12 00:37 | |
| Dibromofluoromethane | 100 | 86 - 112 | 10/28/12 00:37 | |
| Toluene-d8 | 99 | 88 - 115 | 10/28/12 00:37 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Units:** | mg/L |
| **Lab Code:** | J1205059-001 | **Basis:** | As Received |

## TCLP Semivolatile Organic Compounds by GC/MS

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8270C | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | EPA 3510C | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| o-Cresol, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 16:13 | 10/25/12 | |
| m,p-Cresols, TCLP | 0.0100 U | 0.0500 | 0.0100 | 1 | 10/26/12 16:13 | 10/25/12 | |
| 2,4-Dinitrotoluene, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Hexachlorobenzene, TCLP | 0.0170 U | 0.0500 | 0.0170 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Hexachlorobutadiene, TCLP | 0.0120 U | 0.0500 | 0.0120 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Hexachloroethane, TCLP | 0.00811 U | 0.0500 | 0.00811 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Nitrobenzene, TCLP | 0.0210 U | 0.0500 | 0.0210 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Pentachlorophenol (PCP), TCLP | 0.0110 U | 0.200 | 0.0110 | 1 | 10/26/12 16:13 | 10/25/12 | |
| Pyridine, TCLP | 0.0110 U | 0.200 | 0.0110 | 1 | 10/26/12 16:13 | 10/25/12 | |
| 2,4,5-Trichlorophenol, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 16:13 | 10/25/12 | |
| 2,4,6-Trichlorophenol, TCLP | 0.00890 U | 0.0500 | 0.00890 | 1 | 10/26/12 16:13 | 10/25/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 2,4,6-Tribromophenol | 53 | 13 - 133 | 10/26/12 16:13 | |
| 2-Fluorobiphenyl | 60 | 22 - 105 | 10/26/12 16:13 | |
| 2-Fluorophenol | 29 | 10 - 69 | 10/26/12 16:13 | |
| Nitrobenzene-d5 | 54 | 10 - 123 | 10/26/12 16:13 | |
| Phenol-d6 | 28 | 10 - 59 | 10/26/12 16:13 | |
| p-Terphenyl-d14 | 58 | 28 - 120 | 10/26/12 16:13 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Units:** | mg/L |
| **Lab Code:** | J1205059-001 | **Basis:** | As Received |

## TCLP Organochlorine Pesticides by Gas Chromatography

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8081A | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | EPA 3510C | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Chlordane, TCLP | 0.00131 U | 0.0500 | 0.00131 | 1 | 10/29/12 21:47 | 10/25/12 | |
| Endrin, TCLP | 0.0000791 U | 0.000200 | 0.0000791 | 1 | 10/29/12 21:47 | 10/25/12 | |
| gamma-BHC (Lindane), TCLP | 0.000180 U | 0.000200 | 0.000180 | 1 | 10/29/12 21:47 | 10/25/12 | |
| Heptachlor, TCLP | 0.0000670 U | 0.000200 | 0.0000670 | 1 | 10/29/12 21:47 | 10/25/12 | |
| Heptachlor Epoxide, TCLP | 0.0000930 U | 0.000200 | 0.0000930 | 1 | 10/29/12 21:47 | 10/25/12 | |
| Methoxychlor, TCLP | 0.0000770 U | 0.000400 | 0.0000770 | 1 | 10/29/12 21:47 | 10/25/12 | |
| Toxaphene, TCLP | 0.00261 U | 0.00500 | 0.00261 | 1 | 10/29/12 21:47 | 10/25/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 32 | 10 - 160 | 10/29/12 21:47 | |
| Tetrachloro-m-xylene | 37 | 22 - 126 | 10/29/12 21:47 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Units:** | ug/L |
| **Lab Code:** | J1205059-001 | **Basis:** | As Received |

## TCLP Chlorinated Herbicides by GC

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8151A | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | Method | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| 2,4-D | 0.60 U | 25 | 0.60 | 5.0 | 10/30/12 10:42 | 10/26/12 | |
| 2,4,5-TP (Silvex) | **150** | 25 | 0.40 | 5.0 | 10/30/12 10:42 | 10/26/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| DCAA | 64 | 12 - 131 | 10/30/12 10:42 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Basis:** | As Received |
| **Lab Code:** | J1205059-001 | | |

**Toxicity Characteristics Leachate Procedure (TCLP)**

**Inorganic Parameters**

**Pre-Prep Method:** EPA 1311

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic, TCLP | 6010B | **0.06** | mg/L | 0.10 | 0.04 | 1 | 10/24/12 18:23 | 10/24/12 | **I** |
| Barium, TCLP | 6010B | **0.22** | mg/L | 0.10 | 0.003 | 1 | 10/24/12 18:23 | 10/24/12 | **V** |
| Cadmium, TCLP | 6010B | 0.002 U | mg/L | 0.050 | 0.002 | 1 | 10/24/12 18:23 | 10/24/12 | |
| Chromium, TCLP | 6010B | 0.005 U | mg/L | 0.10 | 0.005 | 1 | 10/24/12 18:23 | 10/24/12 | |
| Lead, TCLP | 6010B | 0.04 U | mg/L | 0.10 | 0.04 | 1 | 10/24/12 18:23 | 10/24/12 | |
| Mercury, TCLP | 7470A | 0.0010 U | mg/L | 0.0010 | 0.0010 | 1 | 10/25/12 11:18 | 10/24/12 | |
| Selenium, TCLP | 6010B | 0.07 U | mg/L | 0.10 | 0.07 | 1 | 10/24/12 18:23 | 10/24/12 | |
| Silver, TCLP | 6010B | 0.02 U | mg/L | 0.10 | 0.02 | 1 | 10/24/12 18:23 | 10/24/12 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | 10/16/12 13:00 |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | 10/17/12 10:15 |
| **Sample Name:** | SP101612 | **Basis:** | As Received |
| **Lab Code:** | J1205059-001 | | |

## General Chemistry Parameters

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| Solids, Total | 160.3 Modified | **72** | Percent | 0.10 | 0.10 | 1 | 10/18/12 14:09 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | mg/L |
| **Lab Code:** | JQ1206809-01 | **Basis:** | As Received |

## TCLP Volatile Organics by GC/MS

**Analysis Method:** 8260B

**Pre-Prep Method:** EPA 1311
**Pre-Prep Date:** 10/23/12

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|
| 1,1-Dichloroethene (1,1-DCE) | 0.0160 U | 0.100 | 0.0160 | 100 | 10/27/12 22:31 | |
| 1,2-Dichloroethane | 0.0220 U | 0.100 | 0.0220 | 100 | 10/27/12 22:31 | |
| 1,4-Dichlorobenzene | 0.0160 U | 0.100 | 0.0160 | 100 | 10/27/12 22:31 | |
| 2-Butanone (MEK) | 0.380 U | 2.50 | 0.380 | 100 | 10/27/12 22:31 | |
| Benzene | 0.0210 U | 0.100 | 0.0210 | 100 | 10/27/12 22:31 | |
| Carbon Tetrachloride | 0.0340 U | 0.100 | 0.0340 | 100 | 10/27/12 22:31 | |
| Chlorobenzene | 0.0160 U | 0.100 | 0.0160 | 100 | 10/27/12 22:31 | |
| Chloroform | 0.0350 U | 0.100 | 0.0350 | 100 | 10/27/12 22:31 | |
| Tetrachloroethene (PCE) | 0.0220 U | 0.100 | 0.0220 | 100 | 10/27/12 22:31 | |
| Trichloroethene (TCE) | 0.0361 U | 0.100 | 0.0361 | 100 | 10/27/12 22:31 | |
| Vinyl Chloride | 0.0361 U | 0.100 | 0.0361 | 100 | 10/27/12 22:31 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 106 | 72 - 121 | 10/27/12 22:31 | |
| 4-Bromofluorobenzene | 99 | 86 - 113 | 10/27/12 22:31 | |
| Dibromofluoromethane | 100 | 86 - 112 | 10/27/12 22:31 | |
| Toluene-d8 | 95 | 88 - 115 | 10/27/12 22:31 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | mg/L |
| **Lab Code:** | JQ1206811-01 | **Basis:** | As Received |

## TCLP Semivolatile Organic Compounds by GC/MS

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8270C | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | EPA 3510C | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| o-Cresol, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 13:37 | 10/25/12 | |
| m,p-Cresols, TCLP | 0.0100 U | 0.0500 | 0.0100 | 1 | 10/26/12 13:37 | 10/25/12 | |
| 2,4-Dinitrotoluene, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Hexachlorobenzene, TCLP | 0.0170 U | 0.0500 | 0.0170 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Hexachlorobutadiene, TCLP | 0.0120 U | 0.0500 | 0.0120 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Hexachloroethane, TCLP | 0.00811 U | 0.0500 | 0.00811 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Nitrobenzene, TCLP | 0.0210 U | 0.0500 | 0.0210 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Pentachlorophenol (PCP), TCLP | 0.0110 U | 0.200 | 0.0110 | 1 | 10/26/12 13:37 | 10/25/12 | |
| Pyridine, TCLP | 0.0110 U | 0.200 | 0.0110 | 1 | 10/26/12 13:37 | 10/25/12 | |
| 2,4,5-Trichlorophenol, TCLP | 0.0131 U | 0.0500 | 0.0131 | 1 | 10/26/12 13:37 | 10/25/12 | |
| 2,4,6-Trichlorophenol, TCLP | 0.00890 U | 0.0500 | 0.00890 | 1 | 10/26/12 13:37 | 10/25/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 2,4,6-Tribromophenol | 66 | 13 - 133 | 10/26/12 13:37 | |
| 2-Fluorobiphenyl | 66 | 22 - 105 | 10/26/12 13:37 | |
| 2-Fluorophenol | 58 | 10 - 69 | 10/26/12 13:37 | |
| Nitrobenzene-d5 | 63 | 10 - 123 | 10/26/12 13:37 | |
| Phenol-d6 | 36 | 10 - 59 | 10/26/12 13:37 | |
| p-Terphenyl-d14 | 75 | 28 - 120 | 10/26/12 13:37 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | mg/L |
| **Lab Code:** | JQ1206811-01 | **Basis:** | As Received |

## TCLP Organochlorine Pesticides by Gas Chromatography

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8081A | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | EPA 3510C | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Chlordane, TCLP | 0.00131 U | 0.0500 | 0.00131 | 1 | 10/29/12 20:03 | 10/25/12 | |
| Endrin, TCLP | 0.0000791 U | 0.000200 | 0.0000791 | 1 | 10/29/12 20:03 | 10/25/12 | |
| gamma-BHC (Lindane), TCLP | 0.000180 U | 0.000200 | 0.000180 | 1 | 10/29/12 20:03 | 10/25/12 | |
| Heptachlor, TCLP | 0.0000670 U | 0.000200 | 0.0000670 | 1 | 10/29/12 20:03 | 10/25/12 | |
| Heptachlor Epoxide, TCLP | 0.0000930 U | 0.000200 | 0.0000930 | 1 | 10/29/12 20:03 | 10/25/12 | |
| Methoxychlor, TCLP | 0.0000770 U | 0.000400 | 0.0000770 | 1 | 10/29/12 20:03 | 10/25/12 | |
| Toxaphene, TCLP | 0.00261 U | 0.00500 | 0.00261 | 1 | 10/29/12 20:03 | 10/25/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 63 | 10 - 160 | 10/29/12 20:03 | |
| Tetrachloro-m-xylene | 50 | 22 - 126 | 10/29/12 20:03 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | ug/L |
| **Lab Code:** | JQ1206811-01 | **Basis:** | As Received |

## TCLP Chlorinated Herbicides by GC

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8151A | **Pre-Prep Method:** | EPA 1311 |
| **Prep Method:** | Method | **Pre-Prep Date:** | 10/22/12 |

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| 2,4-D | 0.12 U | 5.0 | 0.12 | 1 | 10/29/12 17:34 | 10/26/12 | |
| 2,4,5-TP (Silvex) | 0.080 U | 5.0 | 0.080 | 1 | 10/29/12 17:34 | 10/26/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| DCAA | 93 | 12 - 131 | 10/29/12 17:34 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | ug/L |
| **Lab Code:** | RQ1212836-01 | **Basis:** | As Received |

## TCLP Chlorinated Herbicides by GC

**Analysis Method:** 8151A
**Prep Method:** Method

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| 2,4-D | 0.12 U | 5.0 | 0.12 | 1 | 10/29/12 10:54 | 10/26/12 | |
| 2,4,5-TP (Silvex) | 0.080 U | 5.0 | 0.080 | 1 | 10/29/12 10:54 | 10/26/12 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| DCAA | 80 | 12 - 131 | 10/29/12 10:54 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Water Recovery, LLC | **Service Request:** | J1205059 |
| **Project:** | Sludge TCLP | **Date Collected:** | NA |
| **Sample Matrix:** | Sludge, Solid | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Basis:** | As Received |
| **Lab Code:** | J1205059-MB1 | | |

## Toxicity Characteristics Leachate Procedure (TCLP)

### Inorganic Parameters

**Pre-Prep Method:** EPA 1311

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic, TCLP | 6010B | 0.04 U | mg/L | 0.10 | 0.04 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Barium, TCLP | 6010B | **0.04 I** | mg/L | 0.10 | 0.003 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Cadmium, TCLP | 6010B | 0.002 U | mg/L | 0.050 | 0.002 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Chromium, TCLP | 6010B | 0.005 U | mg/L | 0.10 | 0.005 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Lead, TCLP | 6010B | 0.04 U | mg/L | 0.10 | 0.04 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Mercury, TCLP | 7470A | 0.0010 U | mg/L | 0.0010 | 0.0010 | 1 | 10/25/12 11:14 | 10/24/12 | |
| Selenium, TCLP | 6010B | 0.07 U | mg/L | 0.10 | 0.07 | 1 | 10/24/12 18:16 | 10/24/12 | |
| Silver, TCLP | 6010B | 0.02 U | mg/L | 0.10 | 0.02 | 1 | 10/24/12 18:16 | 10/24/12 | |

QA/QC Report

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**SURROGATE RECOVERY SUMMARY**
**TCLP Volatile Organics by GC/MS**

**Analysis Method:** 8260B

| Sample Name | Lab Code | 1,2-Dichloroethane-d4 72 - 121 | 4-Bromofluorobenzene 86 - 113 | Dibromofluoromethane 86 - 112 |
|---|---|---|---|---|
| SP101612 | J1205059-001 | 106 | 101 | 100 |
| Method Blank | JQ1206809-01 | 106 | 99 | 100 |
| Lab Control Sample | JQ1206947-01 | 106 | 97 | 101 |

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

## SURROGATE RECOVERY SUMMARY
## TCLP Volatile Organics by GC/MS

**Analysis Method:** 8260B

| Sample Name | Lab Code | Toluene-d8<br>88 - 115 |
|---|---|---|
| SP101612 | J1205059-001 | 99 |
| Method Blank | JQ1206809-01 | 95 |
| Lab Control Sample | JQ1206947-01 | 96 |

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Analyzed:** 10/27/12

## Lab Control Sample Summary
## TCLP Volatile Organics by GC/MS

**Analysis Method:** 8260B

**Units:** mg/L
**Basis:** As Received
**Analysis Lot:** 315869

**Lab Control Sample**
**JQ1206947-01**

| Analyte Name | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|
| 1,1-Dichloroethene (1,1-DCE) | 0.0203 | 0.0200 | 102 | 79-123 |
| 1,2-Dichloroethane | 0.0209 | 0.0200 | 104 | 73-120 |
| 1,4-Dichlorobenzene | 0.0187 | 0.0200 | 94 | 77-117 |
| 2-Butanone (MEK) | 0.0988 | 0.100 | 99 | 38-152 |
| Benzene | 0.0196 | 0.0200 | 98 | 83-118 |
| Carbon Tetrachloride | 0.0206 | 0.0200 | 103 | 67-129 |
| Chlorobenzene | 0.0189 | 0.0200 | 95 | 83-122 |
| Chloroform | 0.0200 | 0.0200 | 100 | 81-118 |
| Tetrachloroethene (PCE) | 0.0176 | 0.0200 | 88 | 77-129 |
| Trichloroethene (TCE) | 0.0193 | 0.0200 | 96 | 81-120 |
| Vinyl Chloride | 0.0248 | 0.0200 | 124 | 72-133 |

QA/QC Report

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

## SURROGATE RECOVERY SUMMARY
### TCLP Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270C
**Extraction Method:** EPA 3510C

| Sample Name | Lab Code | 2,4,6-Tribromophenol 13 - 133 | 2-Fluorobiphenyl 22 - 105 | 2-Fluorophenol 10 - 69 |
|---|---|---|---|---|
| SP101612 | J1205059-001 | 53 | 60 | 29 |
| Method Blank | JQ1206811-01 | 66 | 66 | 58 |
| Lab Control Sample | JQ1206811-02 | 61 | 63 | 46 |
| SP101612 | JQ1206879-01 | 47 | 65 | 35 |
| SP101612 | JQ1206879-02 | 49 | 49 | 39 |

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

## SURROGATE RECOVERY SUMMARY
## TCLP Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270C
**Extraction Method:** EPA 3510C

| Sample Name | Lab Code | Nitrobenzene-d5 10 - 123 | Phenol-d6 10 - 59 | p-Terphenyl-d14 28 - 120 |
|---|---|---|---|---|
| SP101612 | J1205059-001 | 54 | 28 | 58 |
| Method Blank | JQ1206811-01 | 63 | 36 | 75 |
| Lab Control Sample | JQ1206811-02 | 57 | 34 | 65 |
| SP101612 | JQ1206879-01 | 58 | 31 | 61 |
| SP101612 | JQ1206879-02 | 45 | 27 | 48 |

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**SURROGATE RECOVERY SUMMARY**
**TCLP Semivolatile Organic Compounds by GC/MS**

**Analysis Method:** 8270C
**Extraction Method:** EPA 3510C

| Sample Name | Lab Code |
|---|---|
| SP101612 | J1205059-001 |
| Method Blank | JQ1206811-01 |
| Lab Control Sample | JQ1206811-02 |
| SP101612 | JQ1206879-01 |
| SP101612 | JQ1206879-02 |

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Collected:** 10/16/12
**Date Received:** 10/17/12
**Date Analyzed:** 10/26/12
**Date Extracted:** 10/25/12

## Duplicate Matrix Spike Summary
## TCLP Semivolatile Organic Compounds by GC/MS

**Sample Name:** SP101612
**Lab Code:** J1205059-001
**Analysis Method:** 8270C
**Prep Method:** EPA 3510C

**Units:** mg/L
**Basis:** As Received

| | | Matrix Spike JQ1206879-01 | | | Duplicate Matrix Spike JQ1206879-02 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| 2,4,5-Trichlorophenol, TCLP | ND | 0.260 | 0.500 | 52 | 0.396 | 0.500 | 79 | 51-126 | 42* | 30 |
| 2,4,6-Trichlorophenol, TCLP | ND | 0.287 | 0.500 | 57 | 0.238 | 0.500 | 48 * | 51-120 | 19 | 30 |
| 2,4-Dinitrotoluene, TCLP | ND | 0.436 | 0.500 | 87 | 0.339 | 0.500 | 68 | 59-133 | 25 | 30 |
| Hexachlorobenzene, TCLP | ND | 0.451 | 0.500 | 90 | 0.351 | 0.500 | 70 | 49-140 | 25 | 30 |
| Hexachlorobutadiene, TCLP | ND | 0.394 | 0.500 | 79 | 0.309 | 0.500 | 62 | 18-131 | 24 | 30 |
| Hexachloroethane, TCLP | ND | 0.374 | 0.500 | 75 | 0.298 | 0.500 | 60 | 26-112 | 22 | 30 |
| m,p-Cresols, TCLP | ND | 0.290 | 0.500 | 58 | 0.305 | 0.500 | 61 | 23-104 | 5 | 30 |
| Nitrobenzene, TCLP | ND | 0.390 | 0.500 | 78 | 0.308 | 0.500 | 62 | 17-150 | 24 | 30 |
| o-Cresol, TCLP | ND | 0.392 | 0.500 | 78 | 0.310 | 0.500 | 62 | 26-108 | 24 | 30 |
| Pentachlorophenol (PCP), TCLP | ND | 0.198 | 0.500 | 40 | 0.269 | 0.500 | 54 | 29-145 | 30 | 30 |
| Pyridine, TCLP | ND | 0.281 | 0.500 | 56 | 0.226 | 0.500 | 45 | 10-78 | 22 | 30 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Analyzed:** 10/26/12
**Date Extracted:** 10/25/12

## Lab Control Sample Summary
## TCLP Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270C
**Prep Method:** EPA 3510C

**Units:** mg/L
**Basis:** As Received
**Analysis Lot:** 316661

**Lab Control Sample**
**JQ1206811-02**

| Analyte Name | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|
| o-Cresol, TCLP | 0.379 | 0.500 | 76 | 26-108 |
| m,p-Cresols, TCLP | 0.375 | 0.500 | 75 | 23-104 |
| 2,4-Dinitrotoluene, TCLP | 0.450 | 0.500 | 90 | 59-133 |
| Hexachlorobenzene, TCLP | 0.447 | 0.500 | 89 | 49-140 |
| Hexachlorobutadiene, TCLP | 0.411 | 0.500 | 82 | 18-131 |
| Hexachloroethane, TCLP | 0.383 | 0.500 | 77 | 26-112 |
| Nitrobenzene, TCLP | 0.385 | 0.500 | 77 | 17-150 |
| Pentachlorophenol (PCP), TCLP | 0.382 | 0.500 | 76 | 29-145 |
| Pyridine, TCLP | 0.257 | 0.500 | 51 | 10-78 |
| 2,4,5-Trichlorophenol, TCLP | 0.420 | 0.500 | 84 | 51-126 |
| 2,4,6-Trichlorophenol, TCLP | 0.425 | 0.500 | 85 | 51-120 |

QA/QC Report

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

## SURROGATE RECOVERY SUMMARY
## TCLP Organochlorine Pesticides by Gas Chromatography

**Analysis Method:** 8081A
**Extraction Method:** EPA 3510C

| Sample Name | Lab Code | Decachlorobiphenyl 10 - 160 | Tetrachloro-m-xylene 22 - 126 |
|---|---|---|---|
| SP101612 | J1205059-001 | 32 | 37 |
| Method Blank | JQ1206811-01 | 63 | 50 |
| Lab Control Sample | JQ1206811-02 | 67 | 63 |
| SP101612 | JQ1206880-01 | 33 | 47 |
| SP101612 | JQ1206880-02 | 31 | 36 |

**Client:** Water Recovery, LLC **Service Request:** J1205059
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**SURROGATE RECOVERY SUMMARY**
**TCLP Chlorinated Herbicides by GC**

**Analysis Method:** 8151A
**Extraction Method:** Method

| Sample Name | Lab Code | DCAA 12 - 131 |
|---|---|---|
| SP101612 | J1205059-001 | 64 |
| Method Blank | JQ1206811-01 | 93 |
| Method Blank | RQ1212836-01 | 80 |
| Lab Control Sample | RQ1212836-02 | 100 |
| Duplicate Lab Control Sample | RQ1212836-03 | 88 |

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Collected:** 10/16/12
**Date Received:** 10/17/12
**Date Analyzed:** 10/29/12
**Date Extracted:** 10/25/12

## Duplicate Matrix Spike Summary
## TCLP Organochlorine Pesticides by Gas Chromatography

**Sample Name:** SP101612
**Lab Code:** J1205059-001
**Analysis Method:** 8081A
**Prep Method:** EPA 3510C

**Units:** mg/L
**Basis:** As Received

| | | Matrix Spike JQ1206880-01 | | | Duplicate Matrix Spike JQ1206880-02 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte Name | Sample Result | Result | Spike Amount | % Rec | Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
| Endrin, TCLP | ND | 0.00243 | 0.00400 | 61 | 0.00206 | 0.00400 | 52 | 24-141 | 16 | 30 |
| gamma-BHC (Lindane), TCLP | ND | 0.00217 | 0.00400 | 54 | 0.00211 | 0.00400 | 53 | 26-114 | 3 | 30 |
| Heptachlor Epoxide, TCLP | ND | 0.00265 | 0.00400 | 66 | 0.00262 | 0.00400 | 66 | 30-124 | 1 | 30 |
| Heptachlor, TCLP | ND | 0.00230 | 0.00400 | 58 | 0.00199 | 0.00400 | 50 | 27-119 | 14 | 30 |
| Methoxychlor, TCLP | ND | 0.000700 | 0.00400 | 18 | 0.000810 | 0.00400 | 20 | 18-153 | 15 | 30 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Analyzed:** 10/29/12
**Date Extracted:** 10/25/12

## Lab Control Sample Summary
## TCLP Organochlorine Pesticides by Gas Chromatography

**Analysis Method:** 8081A
**Prep Method:** EPA 3510C

**Units:** mg/L
**Basis:** As Received
**Analysis Lot:** 316084

**Lab Control Sample**
**JQ1206811-02**

| Analyte Name | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|
| Endrin, TCLP | 0.00312 | 0.00400 | 78 | 24-141 |
| gamma-BHC (Lindane), TCLP | 0.00309 | 0.00400 | 77 | 26-114 |
| Heptachlor, TCLP | 0.00351 | 0.00400 | 88 | 27-119 |
| Heptachlor Epoxide, TCLP | 0.00305 | 0.00400 | 76 | 30-124 |
| Methoxychlor, TCLP | 0.00330 | 0.00400 | 83 | 18-153 |

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Analyzed:** 10/29/12
**Date Extracted:** 10/26/12

## Duplicate Lab Control Sample Summary
## TCLP Chlorinated Herbicides by GC

**Analysis Method:** 8151A
**Prep Method:** Method

**Units:** ug/L
**Basis:** As Received
**Analysis Lot:** 316074

| | Lab Control Sample RQ1212836-02 | | | Duplicate Lab Control Sample RQ1212836-03 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| 2,4-D | 23.2 | 25.0 | 93 | 28.9 | 25.0 | 116 | 29-146 | 22 | 30 |
| 2,4,5-TP (Silvex) | 24.9 | 25.0 | 100 | 25.3 | 25.0 | 101 | 40-121 | 1 | 30 |

QA/QC Report

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Collected:** 10/16/12
**Date Received:** 10/17/12
**Date Analyzed:** 10/25/12
**Date Extracted:** 10/24/12

## Duplicate Matrix Spike Summary
## Inorganic Parameters

**Sample Name:** SP101612
**Lab Code:** J1205059-001
**Analysis Method:** 7470A
**Prep Method:** Method

**Units:** mg/L
**Basis:** As Received

| | | Matrix Spike J1205059-001MS | | | Duplicate Matrix Spike J1205059-001DMS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte Name | Sample Result | Result | Spike Amount | % Rec | Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
| Mercury, TCLP | ND | 0.0120 | 0.0125 | 96 | 0.0119 | 0.0125 | 95 | 75-125 | 1 | 20 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Client:** Water Recovery, LLC
**Project:** Sludge TCLP
**Sample Matrix:** Sludge, Solid

**Service Request:** J1205059
**Date Analyzed:** 10/24/12 - 10/25/12

## Lab Control Sample Summary
## Inorganic Parameters

**Units:** mg/L
**Basis:** As Received

### Lab Control Sample
J1205059-LCS

| Analyte Name | Analytical Method | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Arsenic, TCLP | 6010B | 5.10 | 5.00 | 102 | 80-120 |
| Barium, TCLP | 6010B | 5.02 | 5.00 | 100 | 80-120 |
| Cadmium, TCLP | 6010B | 2.54 | 2.50 | 102 | 80-120 |
| Chromium, TCLP | 6010B | 5.01 | 5.00 | 100 | 80-120 |
| Lead, TCLP | 6010B | 5.11 | 5.00 | 102 | 80-120 |
| Mercury, TCLP | 7470A | 0.0122 | 0.0125 | 97 | 80-120 |
| Selenium, TCLP | 6010B | 5.25 | 5.00 | 105 | 80-120 |
| Silver, TCLP | 6010B | 5.10 | 5.00 | 102 | 80-120 |

ALS Environmental

# Cooler Receipt Form

Client: Water Recovery  Service Request #: J1205059

Project: _____

Cooler received on 10/10/12 and opened on 10/10/12 by SC

COURIER: (ALS) UPS FEDEX Client Other _____ Airbill # _____

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | Were custody seals on outside of cooler? | | | Yes | (No) | | | |
| | If yes, how many and where? | | | #:___ on lid | | other | | |
| 2 | Were seals intact and signature and date correct? | | | Yes | No | (N/A) | | |
| 3 | Were custody papers properly filled out? | | | (Yes) | No | N/A | | |
| 4 | Temperature of cooler(s) upon receipt (Should be > 0°C and < 6°C) | 1.0°C | | | | | | |
| 5 | Thermometer ID | IR1 | | | | | | |
| 6 | Temperature Blank Present? | | | Yes | (No) | | | |
| 7 | Were Ice or Ice Packs present | | | (Ice) | Ice Packs | | No | |
| 8 | Did all bottles arrive in good condition (unbroken, etc....)? | | | (Yes) | No | N/A | | |
| 9 | Type of packing material present | | | (Netting) | Vial Holder | Bubble Wrap | | |
| | | | | Paper | Styrofoam | Other | N/A | |
| 10 | Were all bottle labels complete (sample ID, preservation, etc....)? | | | (Yes) | No | N/A | | |
| 11 | Did all bottle labels and tags agree with custody papers? | | | (Yes) | No | N/A | | |
| 12 | Were the correct bottles used for the tests indicated? | | | (Yes) | No | N/A | | |
| 13 | Were all of the preserved bottles received with the appropriate preservative? | | | Yes | No | (N/A) | | |
| | HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2 | | | | | | | |
| | Preservative additions noted below | | | | | | | |
| 14 | Were all samples received within analysis holding times? | | | (Yes) | No | N/A | | |
| 15 | Were all VOA vials free of air bubbles? If present, note below | | | Yes | No | (N/A) | | |
| 16 | Where did the bottles originate? | | | (ALS) | Client | | | |

| Sample ID | Reagent | Lot # | ml added | Initials Date/Time |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted: Date:

# CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

ALS Environmental

9143 Philips Highway, Suite 200 Jacksonville, FL 32256 / Ph(904) 739-2277 / FAX (904) 739-2011

SR # 3120 5059
ALS Contact



J1205059 5
Water Recovery, LLC
Sludge TCLP

| Project Name | Project Number |
|---|---|
| Sludge TCLP | |
| Report To | Report CC |
| Ken Khim | |
| Company/Address | |
| Water Recovery LLC | |
| 1819 Albert St. | |
| Jacksonville FL. 32202 | |
| Phone # | FAX # |
| 904.475.9320 | 904.475.9449 |
| Sampler's Signature | Sampler's Printed Name |

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

Preservative: 0

| CLIENT SAMPLE ID | LAB ID | SAMPLING DATE | SAMPLING TIME | Matrix | NUMBER OF CONTAINERS | | Full TCLP | Total Solids | | | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP101612 | | 10.16.12 | 1300 | SL | 2 | | X | X | | | | | | | | | | | | GRAB |
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1. HCL
2. HNO3
3. H2SO4
4. NaOH
5. Zn. Acetate
6. MeOH
7. NaHSO4
8. Other

Special Instructions/Comments:

1.0°C

TURNAROUND REQUIREMENTS
- [ ] RUSH (SURCHARGES APPLY)
- [x] STANDARD

REQUESTED FAX DATE

REQUESTED REPORT DATE

REPORT REQUIREMENTS
- I. Results Only
- [x] II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
- III. Results + QC and Calibration Summaries
- IV. Data Validation Report with Raw Data

Edata [x] Yes ___ No

INVOICE INFORMATION
P.O. #
Bill to:

| Relinquished By | Received By | Relinquished By | Received By | Relinquished By | Received By |
|---|---|---|---|---|---|
| Signature | Signature Shawn Lightsey | Signature Shawn Lightsey | Signature | Signature | Signature |
| Printed Name Ken Khim | Printed Name Shawn Lightsey | Printed Name Shawn Lightsey | Printed Name | Printed Name | Printed Name |
| Firm Water Recovery LLC | Firm ALS | Firm ALS | Firm ALS | Firm | Firm |
| Date/Time 10.16.12/1300 | Date/Time 10/17/12 0930 | Date/Time 10-17-12 1015 | Date/Time 10-17-12 1015 | Date/Time | Date/Time |