



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 17K0330

Client Name: APEX Companies, LLC. -Manassas
8854 Rixlew Lane
Manassas, VA 20109

Date Received: November 9, 2017 13:50
Date Issued: November 20, 2017 15:31
Project Number: [none]

Submitted To: William Thomas

Purchase Order:

Client Site I.D.: Widewater ES

Enclosed are the results of analyses for samples received by the laboratory on 11/09/2017 13:50. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads "Ted Soyars".

Ted Soyars
Laboratory Manager

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.





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8854 Rixlew Lane
Manassas VA, 20109

Submitted To: William Thomas Project Number: [none]
Client Site I.D.: Widewater ES Purchase Order:

ANALYTICAL REPORT FOR SAMPLES

Laboratory Order ID 17K0330

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|--------------------|---------------|----------------|------------------|------------------|
| WWE3-Field Blank | 17K0330-01 | Drinking Water | 11/08/2017 12:40 | 11/09/2017 13:50 |
| WWE3-FS-C3-C2 | 17K0330-02 | Drinking Water | 11/08/2017 12:29 | 11/09/2017 13:50 |
| WWE3-FS-EXTENT-1B | 17K0330-03 | Drinking Water | 11/08/2017 12:32 | 11/09/2017 13:50 |
| WWE3-FS-EXTENT-10L | 17K0330-04 | Drinking Water | 11/08/2017 12:36 | 11/09/2017 13:50 |



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| Submitted To: | William Thomas | Project Number: | [none] |
| Client Site I.D.: | Widewater ES | Purchase Order: | |

Laboratory Order ID: 17K0330

Analytical Results

| | |
|---|---|
| Sample I.D. WWE3-Field Blank | Laboratory Sample ID: 17K0330-01 |
| Grab Date/Time: 11/08/2017 12:40 | |

| Parameter | Samp ID | Method | Result | Qual | Reporting Limit | D.F. | Sample Prep Date/Time | Analysis Date/Time | Analyst |
|-----------|---------|--------|--------|------|-----------------|------|-----------------------|--------------------|---------|
|-----------|---------|--------|--------|------|-----------------|------|-----------------------|--------------------|---------|

Metals (Total) by EPA 200 Series Methods

| | | | | | | | | |
|------|----|---------------|------------|------|---|----------------|----------------|----|
| Lead | 01 | EPA200.8 R5.4 | <1.00 ug/L | 1.00 | 1 | 11/14/17 15:00 | 11/15/17 19:02 | BG |
|------|----|---------------|------------|------|---|----------------|----------------|----|



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Laboratory Order ID: 17K0330

Analytical Results

| | |
|---|---|
| Sample I.D. WWE3-FS-C3-C2 | Laboratory Sample ID: 17K0330-02 |
| Grab Date/Time: 11/08/2017 12:29 | |

| Parameter | Samp ID | Method | Result | Reporting Qual | Limit | D.F. | Sample Prep Date/Time | Analysis Date/Time | Analyst |
|-----------|---------|--------|--------|----------------|-------|------|-----------------------|--------------------|---------|
|-----------|---------|--------|--------|----------------|-------|------|-----------------------|--------------------|---------|

Metals (Total) by EPA 200 Series Methods

| | | | | | | | | |
|------|----|---------------|-----------|------|---|----------------|----------------|----|
| Lead | 02 | EPA200.8 R5.4 | 8.82 ug/L | 1.00 | 1 | 11/14/17 15:00 | 11/15/17 19:06 | BG |
|------|----|---------------|-----------|------|---|----------------|----------------|----|



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Laboratory Order ID: 17K0330

Analytical Results

| | |
|---|---|
| Sample I.D. WWE3-FS-EXTENT-1B | Laboratory Sample ID: 17K0330-03 |
| Grab Date/Time: 11/08/2017 12:32 | |

| Parameter | Samp ID | Method | Result | Reporting Qual | Limit | D.F. | Sample Prep Date/Time | Analysis Date/Time | Analyst |
|-----------|---------|--------|--------|----------------|-------|------|-----------------------|--------------------|---------|
|-----------|---------|--------|--------|----------------|-------|------|-----------------------|--------------------|---------|

Metals (Total) by EPA 200 Series Methods

| | | | | | | | | |
|------|----|---------------|-----------|------|---|----------------|----------------|----|
| Lead | 03 | EPA200.8 R5.4 | 2.54 ug/L | 1.00 | 1 | 11/14/17 15:00 | 11/15/17 19:10 | BG |
|------|----|---------------|-----------|------|---|----------------|----------------|----|



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Laboratory Order ID: 17K0330

Analytical Results

| | |
|----------------------------------|----------------------------------|
| Sample I.D. WWE3-FS-EXTENT-10L | Laboratory Sample ID: 17K0330-04 |
| Grab Date/Time: 11/08/2017 12:36 | |

| Parameter | Samp ID | Method | Result | Qual | Reporting Limit | D.F. | Sample Prep Date/Time | Analysis Date/Time | Analyst |
|-----------|---------|--------|--------|------|-----------------|------|-----------------------|--------------------|---------|
|-----------|---------|--------|--------|------|-----------------|------|-----------------------|--------------------|---------|

Metals (Total) by EPA 200 Series Methods

| | | | | | | | | |
|------|----|---------------|------------|------|---|----------------|----------------|----|
| Lead | 04 | EPA200.8 R5.4 | <1.00 ug/L | 1.00 | 1 | 11/14/17 15:00 | 11/15/17 19:13 | BG |
|------|----|---------------|------------|------|---|----------------|----------------|----|

Analytical Summary

| Sample ID | Preparation Factors Initial / Final | Method | Batch ID | Sequence ID | Calibration ID |
|---|--|--|----------|-------------|----------------|
| Metals (Total) by EPA 200 Series Methods | | Preparation Method: EPA200.8 R5.4 | | | |
| 17K0330-01 | 50.0 mL / 50.0 mL | EPA200.8 R5.4 | BAK0401 | SAK0500 | AK70097 |
| 17K0330-02 | 50.0 mL / 50.0 mL | EPA200.8 R5.4 | BAK0401 | SAK0500 | AK70097 |
| 17K0330-03 | 50.0 mL / 50.0 mL | EPA200.8 R5.4 | BAK0401 | SAK0500 | AK70097 |
| 17K0330-04 | 50.0 mL / 50.0 mL | EPA200.8 R5.4 | BAK0401 | SAK0500 | AK70097 |



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Metals (Total) by EPA 200 Series Methods - Quality Control

Air Water and Soil Laboratories, Inc.

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qual |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|------|

Batch BAK0401 - EPA200.8 R5.4

| | | | | | | | | | | |
|--|------------|------|------|--|------------|------|--------|-------|----|--|
| Blank (BAK0401-BLK1) | | | | Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | <1.00 ug/L | 1.00 | ug/L | | | | | | | |
| LCS (BAK0401-BS1) | | | | Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 48.4 ug/L | 1.00 | ug/L | 50.0 | ug/L | 96.8 | 85-115 | | | |
| LCS Dup (BAK0401-BSD1) | | | | Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 47.4 ug/L | 1.00 | ug/L | 50.0 | ug/L | 94.8 | 85-115 | 2.10 | 20 | |
| Matrix Spike (BAK0401-MS1) | | | | Source: 17K0326-04 Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 47.9 ug/L | 1.00 | ug/L | 50.0 | <1.00 ug/L | 94.7 | 70-130 | | | |
| Matrix Spike (BAK0401-MS2) | | | | Source: 17K0328-04 Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 49.8 ug/L | 1.00 | ug/L | 50.0 | 1.24 ug/L | 97.1 | 70-130 | | | |
| Matrix Spike Dup (BAK0401-MSD1) | | | | Source: 17K0326-04 Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 48.1 ug/L | 1.00 | ug/L | 50.0 | <1.00 ug/L | 95.3 | 70-130 | 0.595 | 20 | |
| Matrix Spike Dup (BAK0401-MSD2) | | | | Source: 17K0328-04 Prepared: 11/14/2017 Analyzed: 11/15/2017 | | | | | | |
| Lead | 50.2 ug/L | 1.00 | ug/L | 50.0 | 1.24 ug/L | 97.9 | 70-130 | 0.833 | 20 | |



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Certified Analyses included in this Report

| Analyte | Certifications | | |
|---------------------------------------|----------------------------------|------------|------------|
| <i>EPA200.8 R5.4 in Potable Water</i> | | | |
| Lead | VELAP | | |
| Code | Description | Lab Number | Expires |
| MdDOE | Maryland DE Drinking Water | 341 | 12/31/2017 |
| NC | North Carolina DENR | 495 | 12/31/2017 |
| VELAP | NELAC-Virginia Certificate #9439 | 460021 | 06/14/2018 |
| WVDEP | West Virginia DEP | 350 | 11/30/2017 |



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Summary of Data Qualifiers

RPD Relative Percent Difference
Qual Qualifiers
-RE Denotes sample was re-analyzed
D.F. Dilution Factor. Please also see the Preparation Factor in the Analysis Summary section.
TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library .
A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

CHAIN OF CUSTODY

PAGE 1 OF 1

| | | |
|--|----------------------------------|---|
| COMPANY NAME: Apex Companies, LLC | INVOICE TO: Same | PROJECT NAME/Quote #: SCPS Lead DW |
| CONTACT: William Thomas | INVOICE CONTACT: | SITE NAME: Widewater ES |
| ADDRESS: 8854 Rixlow Lane, Manassas, VA 20108 | INVOICE ADDRESS: | PROJECT NUMBER: |
| PHONE #: 703.396.6730 | INVOICE PHONE #: | P.O. #: |
| FAX #: 703.396.6743 | EMAIL: wthoma@apexcos.com | Pretreatment Program: |

Is sample for compliance reporting? YES **NO** Is sample from a chlorinated supply? YES NO PWS I.D. #:

SAMPLER NAME (PRINT): **Toni Sander** SAMPLER SIGNATURE: *Toni Sander* Turn Around Time: Circle **10** 5 Days or ___ Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

| CLIENT SAMPLE I.D. | Grab | Composite | Field Filtered (Dissolved Metals) | Composite Start Date | Composite Start Time | Grab Date or Composite Stop Date | Grab Time or Composite Stop Time | Time Preserved | Matrix (See Codes) | Number of Containers | ANALYSIS / (PRESERVATIVE) | | | | | COMMENTS | |
|-----------------------|------|-----------|-----------------------------------|----------------------|----------------------|----------------------------------|----------------------------------|----------------|--------------------|----------------------|---------------------------|--|--|--|--|----------|---|
| | | | | | | | | | | | | | | | | | |
| 1) WWE3-Field Blank | X | | | | | 11/8/17 | 1240 | 1246 | DW | 1 | X | | | | | | Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min) |
| 2) WWE3-FS-C3-C2 | X | | | | | 11/8/17 | 1229 | 1229 | DW | 1 | X | | | | | | |
| 3) WWE3-FS-EXTENT-1A | X | | | | | 11/8/17 | 1232 | 1232 | DW | 1 | X | | | | | | |
| 4) WWE3-FS-EXTENT-10L | X | | | | | 11/8/17 | 1236 | 1236 | DW | 1 | X | | | | | | |
| 5) | | | | | | | | | | | | | | | | | |
| 6) | | | | | | | | | | | | | | | | | |
| 7) | | | | | | | | | | | | | | | | | |
| 8) | | | | | | | | | | | | | | | | | |
| 9) | | | | | | | | | | | | | | | | | |
| 10) | | | | | | | | | | | | | | | | | |

| | | | | |
|--|--|------------------------------------|----------------------------------|----------------------------|
| RELINQUISHED: <i>[Signature]</i> DATE / TIME: 11/9/17 9:08 | RECEIVED: <i>B Mes</i> DATE / TIME: 11-9-17 9:08 | QC Data Package | LAB USE ONLY | COOLER TEMP 18.5 °C |
| RELINQUISHED: <i>[Signature]</i> DATE / TIME: 11-9-17 150 | RECEIVED: <i>[Signature]</i> DATE / TIME: 09 NOV 2017 1350 | Level III <input type="checkbox"/> | APEX-Manassas 17K0330 | |
| RELINQUISHED: DATE / TIME: | RECEIVED: DATE / TIME: | Level IV <input type="checkbox"/> | SCPS - Widewater ES | |
| | | | Recd: 11/09/2017 Due: 11/27/2017 | |



Metals were received with pH= 5&6.
 HNO3 was added at 19.00 on 9 Nov 2017
 by Shannon Long in the Log-In to bring
 pH=<2.

Sample Preservation Log

Sample Preservation Log
 Form #: F1301
 Rev # 7.0
 Effective: Feb 21, 2017
 Page 1 of 1

Order ID 17K0330

Date Performed: 9 Nov 2017

Analyst Performing Check: TL/SL

| Sample ID | Container ID | Metals | | | Cyanide | | | Sulfide | | | Ammonia | | | TKN | | | Phos, Tot | | | NO3+NO2 | | | DRO | | | Pesticide (8081/608/508) | | | SVOC (525.2/8270/625) | | | CrVI* | | | | | | | |
|-----------|--------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|----------------|-------|-----------------------|--------------------------|--------|-------------------------|-----------------------|--------|-------------------------|----------------|-------------------|----------------|-------|-----------------------|--|--|--|
| | | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | pH as Received | | Final pH (If adjust.) | Res.Cl as Received | | Res.Cl P/A (If adjust.) | Res.Cl as Received | | Res.Cl P/A (If adjust.) | pH as Received | Adjusted final pH | pH as Received | | Final pH (If adjust.) | | | |
| | | < 2 | Other | | > 12 | Other | | > 9 | Other | | < 2 | Other | | < 2 | Other | | < 2 | Other | | < 2 | Other | | < 2 | Other | | Present | Absent | | Present | Absent | | | Other | | Other | | | | |
| 01 | A | 5 | <2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | A | 6 | <2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | A | 6 | <2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | A | 6 | <2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

NaOH ID: _____ HNO3 ID: 7101699
 H2SO4 ID: _____ Na2S2O3 ID: _____
 HCL ID: _____ Na2SO3 ID: _____

CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 Buffer Sol'n ID: _____
 1N NaOH ID: _____ 5N NaOH: _____



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| Client Site I.D.: | Widewater ES | Purchase Order: | |

Sample Conditions Checklist

| | |
|--|---------|
| Samples Received at: | 18.50°C |
| How were samples received? | Courier |
| Were Custody Seals used? If so, were they received intact? | Yes |
| Are the custody papers filled out completely and correctly? | Yes |
| Do all bottle labels agree with custody papers? | Yes |
| Is the temperature blank or representative sample within acceptable limits? (above freezing to 6°C) or received on ice and recently taken? | No |
| Are all samples within holding time for requested laboratory tests? | Yes |
| Is a sufficient amount of sample provided to perform the tests included? | Yes |
| Are all samples in appropriate containers for the analyses requested? | Yes |
| Were volatile organic containers received? | No |
| Are all volatile organic and TOX containers free of headspace? | NA |
| Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175. | NA |
| Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. | Yes |

Work Order Comments