

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-43479-1

Client Project/Site: Weston - Abandoned Mining Waste

For:

Michigan Dept of Environmental Quality

Constitution Hall

525 W. Allegan Street

Lansing, Michigan 48909

Attn: Amy Keranen



Authorized for release by:

10/28/2014 5:30:19 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Qualifiers

General Chemistry

| Qualifier | Qualifier Description |
|-----------|--|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| α | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

Case Narrative

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Job ID: 240-43479-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Michigan Dept of Environmental Quality

Project: Weston - Abandoned Mining Waste

Report Number: 240-43479-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 10/23/2014 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

TOTAL CYANIDE

Samples CHLL-WP01-101514 (240-43479-1), CHLL-WP02-101514 (240-43479-2), CHLL-WP03-101514 (240-43479-3), CHLL-SS04-101514 (240-43479-4), CHLL-SS05-101514 (240-43479-5), CHLL-SS06-101514 (240-43479-6) and CHLL-SS07-101514 (240-43479-7) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012A. The samples were prepared and analyzed on 10/27/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples CHLL-WP01-101514 (240-43479-1), CHLL-WP02-101514 (240-43479-2), CHLL-WP03-101514 (240-43479-3), CHLL-SS04-101514 (240-43479-4), CHLL-SS05-101514 (240-43479-5), CHLL-SS06-101514 (240-43479-6) and CHLL-SS07-101514 (240-43479-7) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 10/27/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

| Method | Method Description | Protocol | Laboratory |
|----------|--------------------------------|----------|------------|
| 9012A | Cyanide, Total and/or Amenable | SW846 | TAL CAN |
| Moisture | Percent Moisture | EPA | TAL CAN |

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 240-43479-1 | CHLL-WP01-101514 | Solid | 10/15/14 16:20 | 10/23/14 08:45 |
| 240-43479-2 | CHLL-WP02-101514 | Solid | 10/15/14 16:36 | 10/23/14 08:45 |
| 240-43479-3 | CHLL-WP03-101514 | Solid | 10/15/14 16:56 | 10/23/14 08:45 |
| 240-43479-4 | CHLL-SS04-101514 | Solid | 10/15/14 14:30 | 10/23/14 08:45 |
| 240-43479-5 | CHLL-SS05-101514 | Solid | 10/15/14 14:45 | 10/23/14 08:45 |
| 240-43479-6 | CHLL-SS06-101514 | Solid | 10/15/14 14:50 | 10/23/14 08:45 |
| 240-43479-7 | CHLL-SS07-101514 | Solid | 10/15/14 15:17 | 10/23/14 08:45 |

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Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-WP01-101514

Lab Sample ID: 240-43479-1

No Detections.

Client Sample ID: CHLL-WP02-101514

Lab Sample ID: 240-43479-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------------|--------|-----------|------|------|-------|---------|---|--------|-----------|
| Cyanide, Total | 0.33 | J | 0.56 | 0.33 | mg/Kg | 1 | ☼ | 9012A | Total/NA |

Client Sample ID: CHLL-WP03-101514

Lab Sample ID: 240-43479-3

No Detections.

Client Sample ID: CHLL-SS04-101514

Lab Sample ID: 240-43479-4

No Detections.

Client Sample ID: CHLL-SS05-101514

Lab Sample ID: 240-43479-5

No Detections.

Client Sample ID: CHLL-SS06-101514

Lab Sample ID: 240-43479-6

No Detections.

Client Sample ID: CHLL-SS07-101514

Lab Sample ID: 240-43479-7

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-WP01-101514

Lab Sample ID: 240-43479-1

Date Collected: 10/15/14 16:20

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 92.7

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|------------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.54 | 0.32 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:10 | 1 |
| Percent Solids | 93 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 7.3 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-WP02-101514

Lab Sample ID: 240-43479-2

Date Collected: 10/15/14 16:36

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 90.0

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------|--------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | 0.33 | J | 0.56 | 0.33 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:10 | 1 |
| Percent Solids | 90 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 10 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-WP03-101514

Lab Sample ID: 240-43479-3

Date Collected: 10/15/14 16:56

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 89.0

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|-----------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.55 | 0.33 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:10 | 1 |
| Percent Solids | 89 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 11 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-SS04-101514

Lab Sample ID: 240-43479-4

Date Collected: 10/15/14 14:30

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 79.7

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|-----------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.60 | 0.36 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:10 | 1 |
| Percent Solids | 80 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 20 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-SS05-101514

Lab Sample ID: 240-43479-5

Date Collected: 10/15/14 14:45

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 89.3

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|-----------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.55 | 0.33 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:14 | 1 |
| Percent Solids | 89 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 11 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-SS06-101514

Lab Sample ID: 240-43479-6

Date Collected: 10/15/14 14:50

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 77.9

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|-----------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.64 | 0.39 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:14 | 1 |
| Percent Solids | 78 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 22 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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Client Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-SS07-101514

Lab Sample ID: 240-43479-7

Date Collected: 10/15/14 15:17

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 62.8

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------|-----------|-----------|------|------|-------|---|----------------|----------------|---------|
| Cyanide, Total | ND | | 0.80 | 0.48 | mg/Kg | ☼ | 10/27/14 09:13 | 10/27/14 11:14 | 1 |
| Percent Solids | 63 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |
| Percent Moisture | 37 | | 0.10 | 0.10 | % | | | 10/27/14 13:57 | 1 |

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QC Sample Results

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Method: 9012A - Cyanide, Total and/or Amenable

Lab Sample ID: MB 240-153415/1-A
Matrix: Solid
Analysis Batch: 153476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153415

| Analyte | MB MB | | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------|--------|-----------|------|------|-------|---|----------------|----------------|---------|
| | Result | Qualifier | | | | | | | |
| Cyanide, Total | ND | | 0.50 | 0.30 | mg/Kg | | 10/27/14 09:13 | 10/27/14 11:10 | 1 |

Lab Sample ID: LCS 240-153415/2-A
Matrix: Solid
Analysis Batch: 153476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153415

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | |
|----------------|-------------|------------|---------------|-------|---|------|--------------|-----------|
| | | | | | | | Result | Qualifier |
| Cyanide, Total | 9.21 | 9.06 | | mg/Kg | | 98 | 68 - 123 | |

Lab Sample ID: 240-43479-1 MS
Matrix: Solid
Analysis Batch: 153476

Client Sample ID: CHLL-WP01-101514
Prep Type: Total/NA
Prep Batch: 153415

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | |
|----------------|---------------|------------------|-------------|-----------|--------------|-------|---|------|--------------|-----------|
| | | | | | | | | | Result | Qualifier |
| Cyanide, Total | ND | | 4.31 | 4.26 | | mg/Kg | ☼ | 99 | 50 - 134 | |

Lab Sample ID: 240-43479-1 MSD
Matrix: Solid
Analysis Batch: 153476

Client Sample ID: CHLL-WP01-101514
Prep Type: Total/NA
Prep Batch: 153415

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | | RPD | Limit |
|----------------|---------------|------------------|-------------|------------|---------------|-------|---|------|--------------|-----------|-----|-------|
| | | | | | | | | | Result | Qualifier | | |
| Cyanide, Total | ND | | 4.31 | 4.00 | | mg/Kg | ☼ | 93 | 50 - 134 | 6 | 20 | |

Lab Sample ID: MRL 240-153476/6
Matrix: Solid
Analysis Batch: 153476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

| Analyte | Spike Added | MRL Result | MRL Qualifier | Unit | D | %Rec | %Rec. Limits | |
|----------------|-------------|------------|---------------|------|---|------|--------------|-----------|
| | | | | | | | Result | Qualifier |
| Cyanide, Total | 0.0100 | 0.0101 | | mg/L | | 101 | 70 - 130 | |

Method: Moisture - Percent Moisture

Lab Sample ID: 240-43479-1 DU
Matrix: Solid
Analysis Batch: 153430

Client Sample ID: CHLL-WP01-101514
Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit | |
|------------------|---------------|------------------|-----------|--------------|------|---|------|-----------|-----------|
| | | | | | | | | Result | Qualifier |
| Percent Solids | 93 | | 93 | | % | | 0.05 | 20 | |
| Percent Moisture | 7.3 | | 7.3 | | % | | 0.6 | 20 | |

QC Association Summary

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

General Chemistry

Prep Batch: 153415

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-43479-1 | CHLL-WP01-101514 | Total/NA | Solid | 9012A | |
| 240-43479-1 MS | CHLL-WP01-101514 | Total/NA | Solid | 9012A | |
| 240-43479-1 MSD | CHLL-WP01-101514 | Total/NA | Solid | 9012A | |
| 240-43479-2 | CHLL-WP02-101514 | Total/NA | Solid | 9012A | |
| 240-43479-3 | CHLL-WP03-101514 | Total/NA | Solid | 9012A | |
| 240-43479-4 | CHLL-SS04-101514 | Total/NA | Solid | 9012A | |
| 240-43479-5 | CHLL-SS05-101514 | Total/NA | Solid | 9012A | |
| 240-43479-6 | CHLL-SS06-101514 | Total/NA | Solid | 9012A | |
| 240-43479-7 | CHLL-SS07-101514 | Total/NA | Solid | 9012A | |
| LCS 240-153415/2-A | Lab Control Sample | Total/NA | Solid | 9012A | |
| MB 240-153415/1-A | Method Blank | Total/NA | Solid | 9012A | |

Analysis Batch: 153430

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|----------------|------------------|-----------|--------|----------|------------|
| 240-43479-1 | CHLL-WP01-101514 | Total/NA | Solid | Moisture | |
| 240-43479-1 DU | CHLL-WP01-101514 | Total/NA | Solid | Moisture | |
| 240-43479-2 | CHLL-WP02-101514 | Total/NA | Solid | Moisture | |
| 240-43479-3 | CHLL-WP03-101514 | Total/NA | Solid | Moisture | |
| 240-43479-4 | CHLL-SS04-101514 | Total/NA | Solid | Moisture | |
| 240-43479-5 | CHLL-SS05-101514 | Total/NA | Solid | Moisture | |
| 240-43479-6 | CHLL-SS06-101514 | Total/NA | Solid | Moisture | |
| 240-43479-7 | CHLL-SS07-101514 | Total/NA | Solid | Moisture | |

Analysis Batch: 153476

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-43479-1 | CHLL-WP01-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-1 MS | CHLL-WP01-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-1 MSD | CHLL-WP01-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-2 | CHLL-WP02-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-3 | CHLL-WP03-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-4 | CHLL-SS04-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-5 | CHLL-SS05-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-6 | CHLL-SS06-101514 | Total/NA | Solid | 9012A | 153415 |
| 240-43479-7 | CHLL-SS07-101514 | Total/NA | Solid | 9012A | 153415 |
| LCS 240-153415/2-A | Lab Control Sample | Total/NA | Solid | 9012A | 153415 |
| MB 240-153415/1-A | Method Blank | Total/NA | Solid | 9012A | 153415 |
| MRL 240-153476/6 | Lab Control Sample | Total/NA | Solid | 9012A | |

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-WP01-101514

Lab Sample ID: 240-43479-1

Date Collected: 10/15/14 16:20

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 92.7

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:10 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Client Sample ID: CHLL-WP02-101514

Lab Sample ID: 240-43479-2

Date Collected: 10/15/14 16:36

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 90.0

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:10 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Client Sample ID: CHLL-WP03-101514

Lab Sample ID: 240-43479-3

Date Collected: 10/15/14 16:56

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 89.0

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:10 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Client Sample ID: CHLL-SS04-101514

Lab Sample ID: 240-43479-4

Date Collected: 10/15/14 14:30

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 79.7

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:10 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Client Sample ID: CHLL-SS05-101514

Lab Sample ID: 240-43479-5

Date Collected: 10/15/14 14:45

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 89.3

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:14 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Lab Chronicle

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Client Sample ID: CHLL-SS06-101514

Lab Sample ID: 240-43479-6

Date Collected: 10/15/14 14:50

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 77.9

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:14 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Client Sample ID: CHLL-SS07-101514

Lab Sample ID: 240-43479-7

Date Collected: 10/15/14 15:17

Matrix: Solid

Date Received: 10/23/14 08:45

Percent Solids: 62.8

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 9012A | | | 153415 | 10/27/14 09:13 | SEM | TAL CAN |
| Total/NA | Analysis | 9012A | | 1 | 153476 | 10/27/14 11:14 | SEM | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 153430 | 10/27/14 13:57 | NJE | TAL CAN |

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Certification Summary

Client: Michigan Dept of Environmental Quality
 Project/Site: Weston - Abandoned Mining Waste

TestAmerica Job ID: 240-43479-1

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|-------------------|---------------|------------|------------------|-----------------|
| California | NELAP | 9 | 01144CA | 06-30-14 * |
| California | State Program | 9 | 2927 | 04-30-15 |
| Connecticut | State Program | 1 | PH-0590 | 12-31-14 |
| Florida | NELAP | 4 | E87225 | 06-30-15 |
| Georgia | State Program | 4 | N/A | 06-30-15 |
| Illinois | NELAP | 5 | 200004 | 07-31-15 |
| Kansas | NELAP | 7 | E-10336 | 01-31-15 |
| Kentucky (UST) | State Program | 4 | 58 | 06-30-15 |
| L-A-B | DoD ELAP | | L2315 | 07-18-16 |
| Minnesota | NELAP | 5 | 039-999-348 | 12-31-14 |
| Nevada | State Program | 9 | OH-000482008A | 07-31-15 |
| New Jersey | NELAP | 2 | OH001 | 06-30-15 |
| New York | NELAP | 2 | 10975 | 03-31-15 |
| Ohio VAP | State Program | 5 | CL0024 | 10-31-15 |
| Pennsylvania | NELAP | 3 | 68-00340 | 08-31-15 |
| Texas | NELAP | 6 | | 08-31-15 |
| USDA | Federal | | P330-13-00319 | 11-26-16 |
| Virginia | NELAP | 3 | 460175 | 09-14-15 |
| Washington | State Program | 10 | C971 | 01-12-15 |
| West Virginia DEP | State Program | 3 | 210 | 12-31-14 |
| Wisconsin | State Program | 5 | 999518190 | 08-31-15 |

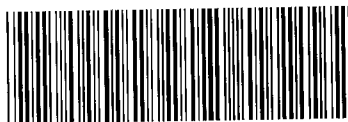
* Certification renewal pending - certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

**CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS**



240-43479 Chain of Custody





Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

2 of 3

| | | |
|--|--|--|
| Lab Work Order Number 1410132 | Project Name A BANDONED MINING WASTES TOGETHER LAKE NIS SITE | Matrix SOIL/SEDIMENT |
| Site Code/Project Number 31000098 | AV 13 | CC Email 1 j.binkley@westonsolutions.com |
| State Division/District DEQ-R&D-UP | Index 44251 | CC Email 2 |
| State Project Manager AMY KERANENA | PCA 30572 | CC Email 3 |
| State Project Manager Email KERANENA@ | Project 456990 | Overflow Lab Choice 1 Test Analyze |
| State Project Manager Phone 906-337-0389 | Phase 00 | Overflow Lab Choice 2 |
| | | Project TAT Days STD |
| | | Sample Collector D. LIEBAN |
| | | Project Due Date |
| | | Sample Collector Phone 906-370-0524 |
| | | Contract Firm WESTON SOLUTIONS |
| | | Contract Firm Primary Contact JEFF BINKLEY |
| | | Accept Analysis Hold Area Codes NO |
| | | Primary Contact Phone 906-523-5457 |

| Lab Use Only | Field Sample Identification | Collection Date | Collection Time | Container Count | Comments |
|--------------|-----------------------------|-----------------|-----------------|-----------------|----------|
| 1 | 08 CHL-WP01-101514 | 10/15/14 | 1620 | 2802 120ML | |
| 2 | 09 CHL-WP02-101514 | | 1638 | | |
| 3 | 10 CHL-WP03-101514 | | 1656 | | |
| 4 | 11 CHL-RPM04-101514 | | 1630 | 1802 | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |

| ORGANIC CHEMISTRY | METALS CHEMISTRY PACKAGES | MS - TOTAL METALS | GENERAL CHEMISTRY |
|--|--|---|--|
| VDA - Volatile Organic Acids Volatiles - Full List BTEX/MY6/TMB only Chlorinated only GHO 1,4 Dioxane | OpMsm02 - Total (As,Ag,Ba,Cd,Cr,Cu,Co,Fe,Pb,Mn,Hg,Mo,Ni,Se,Aa,Tl,V,Zn) Michigan10 - Total (As,Ba,Cd,Cr,Cu,Fe,Hg,Se,Aa,Zn) | Silver - Ag Aluminum - Al Arsenic - As Barium - Ba Beryllium - Be Cadmium - Cd Cobalt - Co Chromium - Cr Copper - Cu Iron - Fe Mercury - Hg Uthium - U Manganese - Mn Molybdenum - Mo Nickel - Ni Lead - Pb Antimony - Sb Selenium - Se Strontium - Sr Titanium - Ti Thallium - Tl Vanadium - V Zinc - Zn Calcium - Ca Radium - Ra Magnesium - Mg Sodium - Na | GS - General Chemistry Total Oxalide - CN Available Cyanide - CN Chem Oxyg Dem - COD Total Org Carbon - TOC Kjeldahl Nitrogen - NH Total Phosphorus - TP |

| | | | |
|-------------------------------------|---|---------------------|-----------------|
| Chain of Custody | Relinquished by WESTON SOLUTIONS | Received By | Date / Time |
| | Print Name & Org. DANIEL LIEBAN | FEDDY | |
| | Signature: <i>[Signature]</i> | 906-337-0524 | |
| | Print Name & Org. Fedex | Jordan Hank | 10/17/14 |
| Print Name & Org. Gary Schaf | Jordan Hank | | |
| Signature: <i>[Signature]</i> | 10/23/14 | | |



Analysis Request Sheet

| | | |
|--|---|--|
| Lab Work Order Number 1410132 | Project Name ABANDONED MIMING WASTES - TORCH LAKE NS SITE | Matrix SOIL/SEDIMENT |
| Site Code/Project Number 31000098 | AV 13 | CC Email 1 j.binkley@WESTON SOLUTIONS.COM |
| Project TAT Days STD | Sample Collector DLIEBAU | |
| Upper Division/District DEQ-RED-UP | Index 44251 | CC Email 2 |
| State Project Manager AMY KERANEN | Phone 30872 | CC Email 3 |
| State Project Manager Email KERANENA@ | Project 456990 | Overflow Lab Choice 1 Test America |
| State Project Manager Phone 900-337-0389 | Phase 00 | Overflow Lab Choice 2 |
| | | Accept/Analysis hold time codes No |
| | | Contract Firm WESTON SOLUTIONS |
| | | Contract Firm Primary Contact JEFF BINKLEY |
| | | Primary Contact Phone 900-523-5457 |

| Lab Use Only | Field Sample Identification | Collection Date | Collection Time | Container Count | Comments |
|--------------|-----------------------------|-----------------|-----------------|-----------------|------------------------|
| 1 | 01 CHL-SS01-101514 | 10/15/14 | 1401 | 1802 | |
| 2 | 02 CHL-SS02-101514 | | 1413 | 1 | |
| 3 | 03 CHL-SS03-101514 | | 1346 | 1 | |
| 4 | 04 CHL-SS04-101514 | | 1430 | 2802 1802 | |
| 5 | 05 CHL-SS05-101514 | | 1445 | 1 | |
| 6 | 06 CHL-SS06-101514 | | 1450 | 1 | |
| 7 | 07 CHL-SS07-101514 | | 1517 | 1 | |
| 8 | CHL-SS08-101514 | | | DL | |
| 9 | CHL-SS09-101514 | | | DL | |
| 10 | CHL-DRUMWC-101514 | | 1550 | | WASTE CHARACTERIZATION |



| ORGANIC CHEMISTRY | METALS CHEMISTRY PACKAGES | MS - TOTAL METALS | GENERAL CHEMISTRY |
|---|--|--|---|
| VDA - Volatile Organic Acidic Volatiles - Full List 1 2 3 4 5 6 7 8 9 10 BTEX/MTBE/TMS only 1 2 3 4 5 6 7 8 9 10 Chlorinated only 1 2 3 4 5 6 7 8 9 10 GRO 1 2 3 4 5 6 7 8 9 10 1,4 Dioxane 1 2 3 4 5 6 7 8 9 10 | OpMemo2 - Total 1 2 3 4 5 6 7 8 9 10 (As, Ba, Be, Bi, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, V, Zn) Michigan10 - Total 1 2 3 4 5 6 7 8 9 10 (As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, Zn) | Silver - Ag 1 2 3 4 5 6 7 8 9 10 Aluminum - Al 1 2 3 4 5 6 7 8 9 10 Arsenic - Ar 1 2 3 4 5 6 7 8 9 10 Barium - Ba 1 2 3 4 5 6 7 8 9 10 Beryllium - Be 1 2 3 4 5 6 7 8 9 10 Cadmium - Cd 1 2 3 4 5 6 7 8 9 10 Cobalt - Co 1 2 3 4 5 6 7 8 9 10 Chromium - Cr 1 2 3 4 5 6 7 8 9 10 Copper - Cu 1 2 3 4 5 6 7 8 9 10 Iron - Fe 1 2 3 4 5 6 7 8 9 10 Mercury - Hg 1 2 3 4 5 6 7 8 9 10 Lithium - Li 1 2 3 4 5 6 7 8 9 10 Manganese - Mn 1 2 3 4 5 6 7 8 9 10 Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10 Nickel - Ni 1 2 3 4 5 6 7 8 9 10 Lead - Pb 1 2 3 4 5 6 7 8 9 10 Antimony - Sb 1 2 3 4 5 6 7 8 9 10 Selenium - Se 1 2 3 4 5 6 7 8 9 10 Strontium - Sr 1 2 3 4 5 6 7 8 9 10 Tantalum - Ta 1 2 3 4 5 6 7 8 9 10 Thallium - Tl 1 2 3 4 5 6 7 8 9 10 Vanadium - V 1 2 3 4 5 6 7 8 9 10 Zinc - Zn 1 2 3 4 5 6 7 8 9 10 Calcium - Ca 1 2 3 4 5 6 7 8 9 10 Potassium - K 1 2 3 4 5 6 7 8 9 10 Magnesium - Mg 1 2 3 4 5 6 7 8 9 10 Sodium - Na 1 2 3 4 5 6 7 8 9 10 | GS - General Chemistry Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10 Available Cyanide - CN 1 2 3 4 5 6 7 8 9 10 Chem Oxy Dem - COD 1 2 3 4 5 6 7 8 9 10 Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10 Kjeldahl Nitrogen - KN 1 2 3 4 5 6 7 8 9 10 Total Phosphorus - TP 1 2 3 4 5 6 7 8 9 10 |

TCLP VOCs (10)
TCLP METALS (10)
Sulfide - reactivity
Cyanide - reactivity

| | | | |
|--|---|---|---------------|
| Chain of Custody | Relinquished by WESTON SOLUTIONS | Received By | Date / Time |
| | Print Name & Org. DAVID LIEBAU 10/16/14 Signature: <i>[Signature]</i> | FEDEX 8467 3845 7134 | |
| | Print Name & Org. FedEx Signature: <i>[Signature]</i> | Jordan Hardley DEQ <i>[Signature]</i> | 11/9 10/17/14 |
| Print Name & Org. Gary Schauf Test America Signature: <i>[Signature]</i> | | | |

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 43479

Client DEA Site Name _____

Cooler unpacked by: _____

Cooler Received on 10-23-14 Opened on 10-23-14

FedEx: 1st Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

| | | |
|----------------------|-------------------------------------|--------------------------------------|
| IR GUN# A (CF +2 °C) | Observed Cooler Temp. _____ °C | Corrected Cooler Temp. _____ °C |
| IR GUN# 4 (CF -2 °C) | Observed Cooler Temp. _____ °C | Corrected Cooler Temp. _____ °C |
| IR GUN# 5 (CF 0 °C) | Observed Cooler Temp. _____ °C | Corrected Cooler Temp. _____ °C |
| IR GUN# 8 (CF 0 °C) | Observed Cooler Temp. <u>2.0</u> °C | Corrected Cooler Temp. <u>2.0</u> °C |

See Multiple Cooler Form

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No

-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were custody seals on the bottle(s)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Did all bottles arrive in good condition (Unbroken)? Yes No

7. Could all bottle labels be reconciled with the COC? Yes No

8. Were correct bottle(s) used for the test(s) indicated? Yes No

9. Sufficient quantity received to perform indicated analyses? Yes No

10. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC412469

11. Were VOAs on the COC? Yes No

12. Were air bubbles >6 mm in any VOA vials? Yes No NA

13. Was a trip blank present in the cooler(s)? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____