WOOD PLAYSCAPE ASSESSMENT
COMMUNITY PLAYGROUND
VETERAN'S MEMORIAL PARK
BOYNE CITY, MICHIGAN

PREPARED FOR

The City of Boyne City
319 North Lake Street
Boyne City, Michigan 49712

PREPARED BY

Sagasser & Associates, Inc.
699 South Wisconsin
Gaylord, Michigan

Project #41505
July 7, 2015

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1.0 INTRODUCTION

Sagasser & Associates, Inc. has completed an assessment of the wood playscape structure, wood chips, and underlying soils at the community playground located in Veteran's Memorial Park, Boyne City, Charlevoix County, Michigan (Site).

1.1 PURPOSE

The purpose of the playground assessment was to evaluate the wood in the playscape structure, wood chips and underlying soils for arsenic leaching from the chromated copper arsenate (CCA) pressure-treated lumber which had been reportedly utilized in the construction of the playscape structure.

1.2 AUTHORIZATION

Authorization for performance of the assessment was provided to Sagasser & Associates, Inc. by Mr. Andrew Kovoski on June 3, 201, by acceptance of Sagasser & Associates, Inc. Proposal #P41501, dated April 24, 2015, which detailed the scope of work, estimated cost and conditions for completing the assessment.

1.3 SCOPE OF WORK

Sagasser & Associates, Inc. completed the assessment using due care in accordance with customary practices, as ordinarily exercised by other reputable members of the profession under similar circumstances. Sagasser & Associates, Inc. completed the following scope of work:

- Sagasser & Associates, Inc. personnel completed an assessment of the wood playscape structure by collecting nine (9) wood samples from the CCA pressure-treated lumber of the playscape structure itself.
- Sagasser & Associates, Inc. submitted an initial five (5) wood samples for analysis to determine if the wood playscape was constructed of CCA pressure-treated wood and determine the concentrations of the chemicals of concern.
- The initial five (5) wood samples were submitted for laboratory analysis of Arsenic (Ar) by EPA Method 6020.
- Sagasser & Associates, Inc. personnel collected five (5) wood chip samples and submitted the samples for analysis of arsenic by EPA Method 6020.
- Sagasser & Associates, Inc. personnel collected nine (9) soil samples from within the playground area from below the wood chips and weed barrier and submitted the samples for analysis of arsenic by EPA Method 6020.
- Sagasser & Associates, Inc. personnel also collected three (3) soil samples from outside of the playground area as a background level comparison and submitted the samples for analysis of arsenic by EPA Method 6020.
- Reviewed analytical results and compared the results with Michigan Department of Environmental Quality (MDEQ) Part 201 Generic Residential Cleanup Criteria & Screening Levels.
- Prepared a Wood Playscape Assessment Report documenting the findings of the assessment activities and analysis review.

2.0 SITE DESCRIPTION

The community playground was constructed in the early 2000s and Chromated Copper Arsenate (CCA) pressure-treated lumber appears to have been utilized in its construction. The playground is comprised of several play structures, a wood perimeter fence, and the overall playground area is covered with wood chips. Studies (*completed by others*) are reported to have shown that chemical residuals (arsenic pentoxide, chromic acid & cupric oxide) can leach from CCA pressure-treated wood. The rate of leaching of the chemical residues varies and is dependent upon climate, rainfall and wood age.

3.0 PLAYSCAPE ASSESSMENT ACTIVITIES

On June 9 and 11, 2015, Sagasser & Associates, Inc. personnel collected wood samples (WS-1 though WS-9) from the various wood elements (decking, facing, posts & fencing) of the playscape structure utilizing a drill to core samples from the wood and collect the wood shavings. Grab samples of the wood chips (WC-1 through WC-5) were collected at various locations from within the playground area.

Sagasser & Associates, Inc. collected soil samples from within the playground area from a depth of 0 to 3 inches in the soils underlying the wood chips and weed barrier. Several sample locations were located adjacent to locations where samples of the wood playscape were collected and from locations beneath the overhead portions of the playscape structure. As arsenic is a naturally occurring element, three (3) soil samples (BG-1, BG-2 & BG-3) were collected from outside of the playscape area to assess the background concentrations of arsenic in the vicinity of the Site. *The photographs of the sample locations are presented as Appendix A.*

The samples were placed in laboratory supplied jars and submitted to TestAmerica Laboratories of Brighton, Michigan under standard chain-of-custody protocols.

4.0 LABORATORY ANALYTICAL RESULTS

The results of the select CCA pressure-treated wood samples submitted for laboratory analysis identified arsenic concentration ranging between 1,100,000 micrograms per kilogram (ug/Kg) which is equivalent to parts per billion (ppb) and 2,300,000 ppb.

The results of the wood chip samples (WC-1 though WC-5) identified concentrations of arsenic at concentrations ranging between 4,800 ppb to 49,000 ppb. There is not a specific cleanup criterion for wood chips. Though when compared to the Part 201 Direct Contact Criteria for soils, all but one of the wood chip samples exceeds the Direct Contact Criteria (7,600 ppb). *The wood sample and wood chip analytical results are presented as Table 1 in Appendix B.*

Three background soil samples (BG-1, BG-2 & BG-3) were collected from outside of the playground area to determine what the typical natural occurring background concentrations of arsenic exist in the nearby soils. The results of the background soil samples identified arsenic at concentrations of 2,200 ppb, 2,800 ppb, and 2,300 ppb. The Statewide Background Default Level for arsenic is 5,800 ppb.

Soil samples SB-1 and SB-2 reported concentrations of arsenic below background levels and below any of the Part 201 Cleanup Criteria. It should be noted that the locations of SB-1 and SB-2 are located west of the CCA pressure-treated lumber of the playground structure and not adjacent or beneath the structure.

Soil samples (SB-2 though SB-9) collected from within the playground area under the wood chips and weed barrier identified arsenic at concentrations ranging from 8,200 ppb to 120,000 ppb. The arsenic concentrations in the soils were determined to exceed the Part 201 Generic Residential Cleanup Criteria & Screening Levels for Drinking Water Protection and Groundwater to Surface Water Interface (GIS) Protection (both at 4,600 ppb), and/or the Direct Contact Criteria (7,600 ppb). *The soil sample analytical results are presented as Table 2 in Appendix B. The laboratory analytical reports are presented in Appendix C.*

The analytical results of the CCA pressure-treated wood samples indicate that elevated levels of arsenic are present in the wood of the playground structure.

The playground area wood chip analytical results also identified elevated levels of arsenic which may be the result of either CCA pressure-treated lumber being made into wood chips or that arsenic is leaching from the lumber of the playground structure into the wood chips.

Comparing the analytical results of the background soil samples and soil samples SB-1 and SB-2 collected west of the playground structure with the soil samples collected from adjacent or beneath the playground structure, it appears CCA pressure-treated lumber is leaching arsenic at concentrations exceeding the Part 201 Generic Residential Cleanup Criteria & Screening Levels.

5.0 FINDINGS & CONCLUSIONS

The purpose of the playground assessment was to evaluate the wood in the playscape structure, wood chips and underlying soils for arsenic leaching from the chromated copper arsenate (CCA) pressure-treated lumber which had been reportedly utilized in the construction of the playscape structure.

The analytical results specifically from the soil samples appear to indicate that the arsenic is leaching from the CCA pressure treated lumber at levels exceeding the Part 201 Drinking Water Protection Criteria, the GSI Protection Criteria, and the Direct Contact Criteria.

Based on the aforementioned findings, the following can be implemented to mitigate the identified impacts:

- The CCA pressure-treated lumber utilized to construct various elements of the playground structure and the wood chips can be removed and properly disposed off-Site in a Type II landfill.
- The vertical extent of arsenic impacted soils can be defined to determine the necessary depth of soil excavation.
- The soils underlying the playground area can be excavated and appropriately disposed of off-Site in a Type II landfill with follow-up verification of soil remediation (VSR) samples collected.
- Additionally, the landfill should be contacted to determine if any additional analysis (e.g. other metals, leachate analysis, etc.) of the wood, wood chips, and/or soils will be required by the landfill prior to approval.

6.0 CLOSING

Sagasser & Associates, Inc. sincerely appreciated the opportunity to provide our services. In the event that questions arise regarding the contents of this report or if you should need any further assistance, please feel free to contact us.

Respectfully submitted,
Sagasser & Associates, Inc.

Scot Egleston
Environmental Scientist

Kevin D. Sagasser, P.E.
Senior Project Engineer

7.0 LIMITATIONS AND EXCEPTIONS

Sagasser & Associates, Inc. has performed the scope of work using due care in accordance with good and customary practices, as ordinarily exercised by other reputable members of the profession under similar circumstances. The nature of the services performed inevitably results in uncertainties with respect to exact contaminant conditions and/or subsurface characteristics, and certain interpolations and assumptions are often necessary. Therefore, Sagasser & Associates, Inc. makes no warranty or guarantee, expressed or implied, with respect to the services performed.

The sampling activities completed as part of this assessment were conducted following systematic methods and procedures. The laboratory analyses were performed on the select samples collected, and represent the characteristics at those select sample locations at the time collected. No representation can be made concerning the future quality of these locations, or the quality of other areas of the Site. No sampling or analysis of groundwater, sediment, surface water, air, or other building materials was performed and Sagasser & Associates, Inc. makes no representation or warranty concerning their quality.

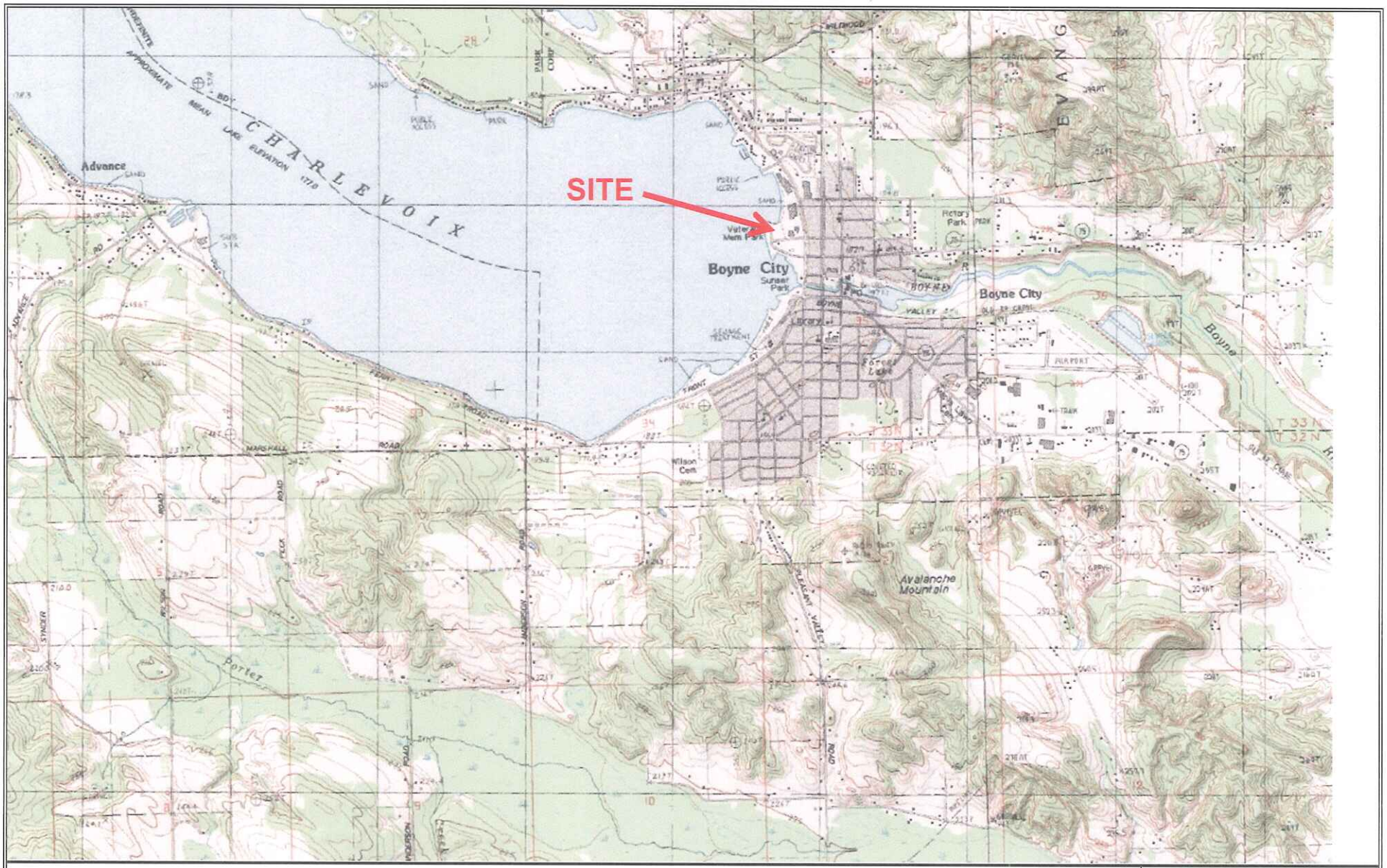
This report has been prepared for the exclusive use of the Client and the Client's representatives. Maps and sketches are provided for informational purposes and should not be considered surveys or engineering studies.

Sagasser & Associates, Inc. conclusions and recommendation are based on the data gathered at the date of this report. In the event additional information is obtained subsequent to the report submittal, it will be submitted, intact, for the Client's review. Sagasser & Associates, Inc. accepts no liability for information obtained subsequent to report submittal. The conclusions and recommendations are based on Sagasser & Associates, Inc. interpretation of the data gathered. Sagasser & Associates, Inc. recommends that legal counsel be consulted regarding potential liabilities and/or determination of responsible parties with respect to the findings of this report.

8.0 QUALIFICATIONS

Personnel at Sagasser & Associates, Inc. have completed numerous environmental assessment and remediation projects ranging in scope from hydrogeologic investigations to spill prevention, control and countermeasure (SPCC) plans. Sagasser & Associates, Inc. personnel have completed specific training courses in performing Phase I Environmental Site Assessments and Phase II Preliminary Contamination Assessments, and have completed hundreds of Phase I site assessments throughout the country.

The assessment was completed by Scot Egleston under the direction of Kevin D. Sagasser, P.E. Mr. Sagasser has twenty-six years of diversified experience in the environmental field, primarily in environmental consulting and engineering. He has significant experience in development and performance of various environmental site investigations such as Phase I site assessments, preliminary contamination assessments, non-intrusive geophysical surveys, and hydrogeologic/remedial investigations. He has supervised and managed numerous site investigation projects, underground storage tank closures and soil/ground water contaminant remediation programs. Mr. Egleston is working as an environmental scientist with Sagasser & Associates, Inc. He has Bachelor's of Science degrees in Environmental Science and Zoology with seventeen years of experience in environmental consulting.



SITE LOCATION DIAGRAM

FIGURE 1

Sagasser & Associates, Inc.

Environmental Assessment & Consulting Services

COMMUNITY PLAYGROUND
VETERAN'S MEMORIAL PARK
BOYNE CITY, MICHIGAN

PROJECT: 41505

DATE: JUL 2015

WOOD CHIP SAMPLE LOCATIONS		FIGURE 2
Sagasser & Associates, Inc. *Environmental Assessment & Consulting Services*	COMMUNITY PLAYGROUND VETERAN'S MEMORIAL PARK BOYNE CITY, MICHIGAN	PROJECT: 41505 DATE: JUL 2015

SOIL SAMPLE LOCATIONS		FIGURE 3
Sagasser & Associates, Inc. *Environmental Assessment & Consulting Services*	COMMUNITY PLAYGROUND VETERAN'S MEMORIAL PARK BOYNE CITY, MICHIGAN	PROJECT: 41505 DATE: JUL 2015

APPENDIX A

PHOTOGRAPHS

PHOTO NO. 1: View of wood sample location WS-1.

PHOTO NO. 2: View of wood sample location WS-2 and wood chip sample location SB-4.

Photograph by:	**Scot Egleston**
Date:	**June 9, 2015**

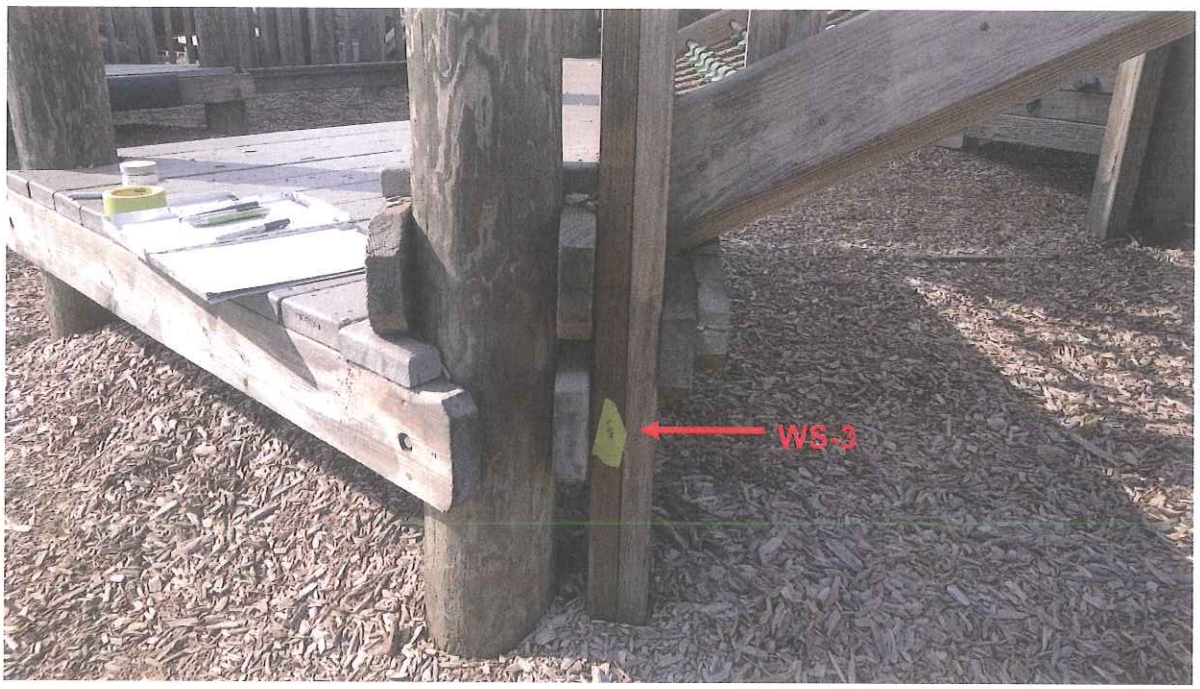


PHOTO NO. 3: View of wood sample location WS-3.

PHOTO NO. 4: View wood sample location WS-5.

Photograph by:	**Scot Egleston**
Date:	**June 9, 2015**

PHOTO NO. 5: View of wood sample location WS-7.

PHOTO NO. 6: View of wood chip sample location WC-2.

Photograph by:	**Scot Egleston & Alex Wangeman**
Date:	**June 9, 2015**

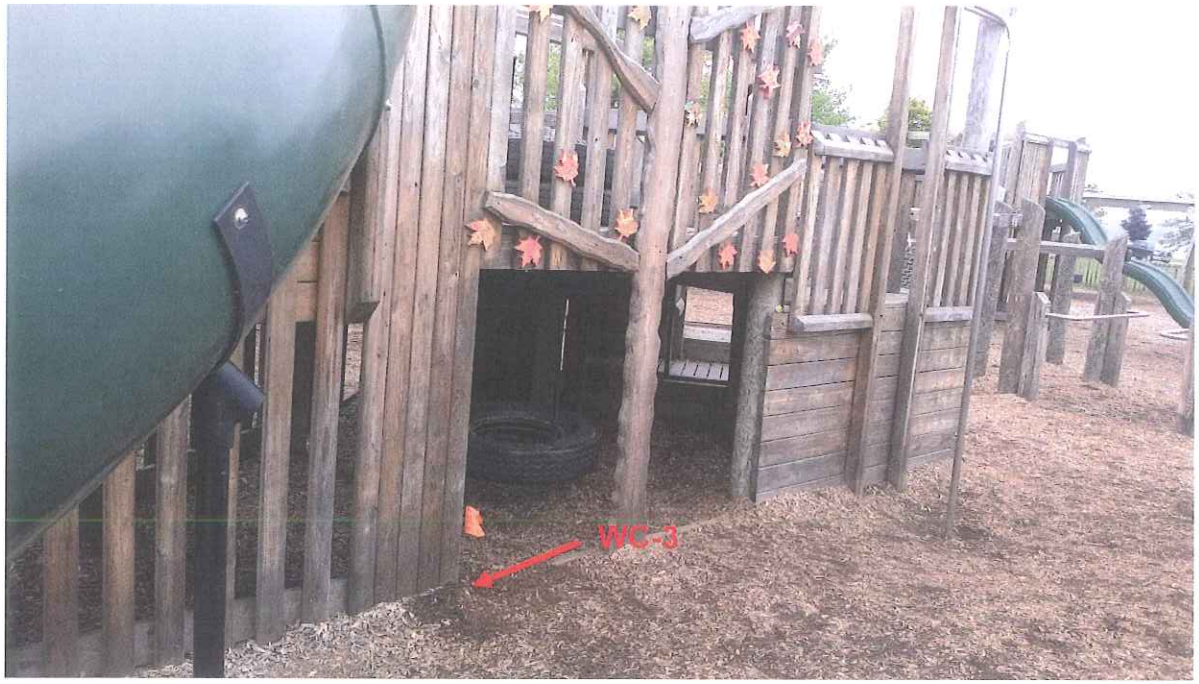


PHOTO NO. 7: View of wood chip sample location WC-3.

PHOTO NO. 8: View of wood chip sample location WC-4.

Photograph by:	**Alex Wangeman**
Date:	**June 9, 2015**

PHOTO NO. 9: View of wood chip sample location WC-5.

PHOTO NO. 10: View of soil sample location SB-1.

Photograph by:	**Alex Wangeman**
Date:	**June 9 & 11, 2015**

PHOTO NO. 11: View of soil sample location SB-2.

PHOTO NO. 12: View of soil sample location SB-3.

Photograph by:	**Alex Wangeman**
Date:	**June 11, 2015**

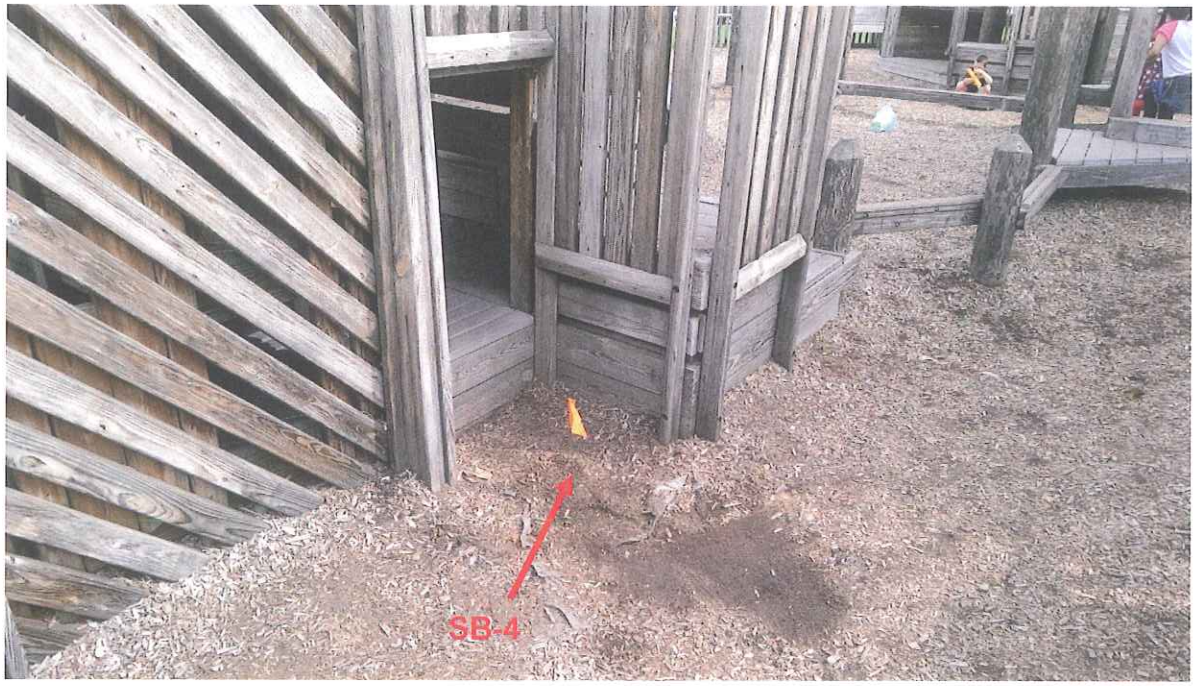


PHOTO NO. 13: View of soil sample location SB-4.

PHOTO NO. 14: View of soil sample location SB-5.

Photograph by:	**Alex Wangeman**
Date:	**June 11, 2015**

PHOTO NO. 15: View of soil sample location SB-6.

PHOTO NO. 16: View of soil sample location SB-7.

Photograph by:	**Alex Wangeman**
Date:	**June 11, 2015**

PHOTO NO. 17: View of soil sample location SB-8.

PHOTO NO. 18: View of soil sample location SB-9.

Photograph by:	**Alex Wangeman**
Date:	**June 11, 2015**

APPENDIX B

ANALYTICAL RESULTS COMPARSION TABLES

TABLE 1
SUMMARY OF PLAYGROUND WOOD STRUCTURE ANALYTICAL RESULTS
Community Playground
Veteran's Memorial Park
Boyne City, Michigan

Sample I.D.	WS-1	WS-2	WS-3	WS-5	WS-7
Date Collected	6/9/2015	6/9/2015	6/9/2015	6/11/2015	6/11/2015
Date Analyzed	6/17/2015	6/17/2015	6/17/2015	6/17/2015	6/17/2015
Collection Method	Wood Core	Wood Core	Wood Core	Wood Core	Wood Core
Metals by EPA Method 6020 (ug/Kg)					
Arsenic	**2,300,000**	**1,900,000**	**1,800,000**	**2,100,000**	**1,100,000**

SUMMARY OF PLAYGROUND WOOD CHIP ANALYTICAL RESULTS

Sample I.D.	WC-1	WC-2	WC-3	WC-4	WC-5
Date Collected	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015
Date Analyzed	6/17/2015	6/17/2015	6/17/2015	6/17/2015	6/17/2015
Collection Method	Grab	Grab	Grab	Grab	Grab
Metals by EPA Method 6020 (ug/Kg)					
Arsenic	**15,000**	**24,000**	**49,000**	**4,800**	**35,000**

Notes:

1. All wood concentrations in micrograms per kilogram - ug/Kg, equivalent to parts per billion (ppb).
2. Collection method codes (list all that apply): GRAB & WOOD CORE.
3. Note: Selct wood samples initially submitted for lab analysis.

TABLE 2
SUMMARY & COMPARISION OF PLAYGROUND SOIL ANALYTICAL RESULTS
Community Playground
Veteran's Memorial Park
Boyne City, Michigan

Sample I.D.	BG-1	BG-2	BG-3	SB-1	SB-2	SB-3	Part 201 Generic Residential Cleanup Criteria & Screening Levels					
Sample Depth (in. bgs)	0-3	0-3	0-3	0-3	0-3	0-3						
Date Collected	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	Statewide Background Default Levels	Drinking Water Protection	GSI Protection	Volatilization to Indoor Air Inhalation	Particulate Soil Inhalation Criteria	Direct Contact
Date Analyzed	6/23/2015	6/23/2015	4/10-13/2015	6/23/2015	6/23/2015	6/23/2015						
Collection Method	Hand Auger	Hand Auger	Hand Auger	Hand Auger	Hand Auger	Hand Auger						
Metals by EPA Method 6020 (ug/Kg)												
Arsenic	2,200	2,800	2,300	1,700	850	**49,000**	5,800	4,600	4,600	NLV	720,000	7,600

Sample I.D.	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	Part 201 Generic Residential Cleanup Criteria & Screening Levels					
Sample Depth (in. bgs)	0-3	0-3	0-3	0-3	0-3	0-3						
Date Collected	6/9/2015	4/7/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	Statewide Background Default Levels	Drinking Water Protection	GSI Protection	Volatilization to Indoor Air Inhalation	Particulate Soil Inhalation Criteria	Direct Contact
Date Analyzed	6/23/2015	6/23/2015	6/23/2015	6/23/2015	6/23/2015	6/23/2015						
Collection Method	Hand Auger	Hand Auger	Hand Auger	Hand Auger	Hand Auger	Hand Auger						
Metals by EPA Method 6020 (ug/Kg)												
Arsenic	**8,200**	**120,000**	**29,000**	**33,000**	**43,000**	**25,000**	5,800	4,600	4,600	NLV	720,000	7,600

Notes:

1. All soil concentrations in micrograms per kilogram - ug/Kg, equivalent to parts per billion (ppb).
2. Residentia Part 201 Generic I Cleanup Criteria & Screening Levels dated 30 DEC 13.
3. NLV - Not likely to volatilize.
4. N/A - Not Applicable.
6. NLL - Not Likely to Leach.
7. NA - Not Analyzed
8. Bolded and yellow shaded values exceed one or more cleanup criteria/screening level/background level.
9. Collection method codes (list all that apply): GRAB, hand auger (HA), hydraulic probe (HP), split spoon (SS).
10. Soil samples collected from beneath wood chips & weed barrier.

APPENDIX C

LABORATORY ANALYTICAL REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

TestAmerica Job ID: 190-7601-1
Client Project/Site: Boyne City Playground

For:
Sagasser & Associates Inc
699 South Wisconsin Avenue
Gaylord, Michigan 49735

Attn: Kevin Sagasser

Sue Schafer

Authorized for release by:
6/18/2015 11:35:18 AM

Sue Schafer, Project Manager II
(810)229-2763
sue.schafer@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

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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Sample Summary

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-7601-1	WS-1	Wood	06/09/15 08:15	06/12/15 14:37
190-7601-2	WS-2	Wood	06/09/15 08:20	06/12/15 14:37
190-7601-3	WS-3	Wood	06/09/15 08:54	06/12/15 14:37
190-7601-4	WS-5	Wood	06/11/15 10:00	06/12/15 14:37
190-7601-5	WS-7	Wood	06/11/15 10:33	06/12/15 14:37
190-7601-6	WC-1	Wood Chips	06/09/15 08:00	06/12/15 14:37
190-7601-7	WC-2	Wood Chips	06/09/15 08:03	06/12/15 14:37
190-7601-8	WC-3	Wood Chips	06/09/15 08:08	06/12/15 14:37
190-7601-9	WC-4	Wood Chips	06/09/15 08:15	06/12/15 14:37
190-7601-10	WC-5	Wood Chips	06/09/15 08:25	06/12/15 14:37

Job ID: 190-7601-1

Laboratory: TestAmerica Michigan

Narrative

Job Narrative
190-7601-1

Comments
No additional comments.

Receipt
The samples were received on 6/12/2015 2:37 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.0° C.

Metals
Method(s) 200.8, 6020: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WS-1 (190-7601-1), WS-2 (190-7601-2), WS-3 (190-7601-3), WS-5 (190-7601-4), WS-7 (190-7601-5), WC-1 (190-7601-6), WC-2 (190-7601-7), WC-3 (190-7601-8), WC-4 (190-7601-9) and WC-5 (190-7601-10)The continuing calibration blanks and method blanks may not support the lower PQL.

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

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

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WS-1

Date Collected: 06/09/15 08:15
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-1

Matrix: Wood
Percent Solids: 92.1

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2300000		840		ug/Kg	☼	06/15/15 12:38	06/17/15 09:32	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10		%			06/16/15 17:35	1
Percent Moisture	7.9		0.10		%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WS-2

Date Collected: 06/09/15 08:20
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-2

Matrix: Wood
Percent Solids: 61.3

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1900000		630	ug/Kg	☼	06/15/15 12:38	06/17/15 09:36	5

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	61		0.10	%			06/16/15 17:35	1
Percent Moisture	39		0.10	%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WS-3

Date Collected: 06/09/15 08:54
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-3

Matrix: Wood
Percent Solids: 88.2

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1800000		820		ug/Kg	☼	06/15/15 12:38	06/17/15 09:39	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88		0.10		%			06/16/15 17:35	1
Percent Moisture	12		0.10		%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WS-5

Date Collected: 06/11/15 10:00
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-4

Matrix: Wood
Percent Solids: 91.9

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2100000		810	ug/Kg	☼	06/15/15 12:38	06/17/15 09:43	10

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10	%			06/16/15 17:35	1
Percent Moisture	8.1		0.10	%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WS-7

Date Collected: 06/11/15 10:33
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-5

Matrix: Wood
Percent Solids: 82.5

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1100000		470	ug/Kg	☼	06/15/15 12:38	06/17/15 09:46	5

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82		0.10	%			06/16/15 17:35	1
Percent Moisture	18		0.10	%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WC-1

Date Collected: 06/09/15 08:00
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-6

Matrix: Wood Chips
Percent Solids: 46.1

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	15000		320	ug/Kg	☼	06/15/15 12:38	06/17/15 09:50	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	46		0.10	%			06/16/15 17:35	1
Percent Moisture	54		0.10	%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WC-2

Date Collected: 06/09/15 08:03
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-7

Matrix: Wood Chips
Percent Solids: 42.7

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	24000		280	ug/Kg	☼	06/15/15 12:38	06/17/15 09:53	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	43		0.10	%			06/16/15 17:35	1
Percent Moisture	57		0.10	%			06/16/15 17:35	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WC-3

Date Collected: 06/09/15 08:08
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-8

Matrix: Wood Chips
Percent Solids: 29.8

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	49000		470		ug/Kg	☼	06/15/15 12:38	06/17/15 09:57	2

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	30		0.10		%			06/16/15 17:57	1
Percent Moisture	70		0.10		%			06/16/15 17:57	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WC-4

Date Collected: 06/09/15 08:15
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-9

Matrix: Wood Chips
Percent Solids: 40.3

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4800		340	ug/Kg		06/15/15 12:38	06/17/15 10:08	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	40		0.10	%			06/16/15 17:57	1
Percent Moisture	60		0.10	%			06/16/15 17:57	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Client Sample ID: WC-5

Date Collected: 06/09/15 08:25
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7601-10

Matrix: Wood Chips
Percent Solids: 26.0

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	35000		570		ug/Kg	☼	06/15/15 12:38	06/17/15 10:11	2

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	26		0.10		%			06/16/15 17:57	1
Percent Moisture	74		0.10		%			06/16/15 17:57	1

QC Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7601-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-185171/1-A ^2
Matrix: Solid
Analysis Batch: 185497

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185171

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<160		160	ug/Kg		06/15/15 12:38	06/17/15 09:25	2

Lab Sample ID: LCS 240-185171/2-A ^2
Matrix: Solid
Analysis Batch: 185497

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185171

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100000	90900		ug/Kg		91	73 - 110

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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)

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085411

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Scot Egleston	Site Contact:	Date: 6/11/15	COC No:
Company Name: SAGASSER & ASSOCIATES	Tel/Fax:	Lab Contact: Sue Schach	Carrier:	1 of 3 COCs
Address: 699 South Wisconsin	Analysis Turnaround Time			Sampler:
City/State/Zip: GAYLORD MI 49735	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below _____			Walk-in Client:
Fax: 989-732-5825	☐ 2 weeks			Lab Sampling:
Project Name: BOYNE CITY PLAYGROUND	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 41505	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Arsenic	Chromium	Copper	Sample Specific Notes:
WS-1	6/9/15	0815	G	WOOD	1			✓			
WS-2	↓	0820	↓	↓	↓			✓			
WS-3	↓	0854	↓	↓	↓			✓			
WS-4	↓	0945	↓	↓	↓						
WS-5	6/11/15	1000	↓	↓	↓			✓			
WS-6	↓	1027	↓	↓	↓						
WS-7	↓	1033	↓	↓	↓			✓			
WS-8	↓	1043	↓	↓	↓						
WC-1	6/9/15	0800	↓	O	↓			✓			
WC-2	↓	0803	↓	↓	↓			✓			
WC-3	↓	0808	↓	↓	↓			✓			
WC-4	↓	0815	↓	↓	↓			✓			

190-7601 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: * Hold Remaining SAMPLES PENDING initial ANALYSIS *
O - WOOD chips

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scot Egleston	SA INC	6/11/15 1400	Levi Hauli	TAL	6/12/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/18/2015

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085410

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Scot Egleston	Site Contact:	Date: 6/11/15	COC No:
Company Name: Sagasser & Associates	Tel/Fax:	Lab Contact: Sue Schaefer	Carrier:	2 of 3 COCs
Address: 699 South Wisconsin	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49735	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below _____			Walk-in Client:
Fax: 989-732-5825	☐ 2 weeks			Lab Sampling:
Project Name: Boyne City Playground	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O # 41505	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Arsenic	Chromium	Copper	Sample Specific Notes:
WC-5	6/9/15	0825	G	O	1			✓			
BG-1	↓	0900	↓	↓	↓						
BG-2	↓	0902	↓	↓	↓						
BG-3	↓	0905	↓	↓	↓						
WS-9	6/11/15	1100	↓	wood	↓						
SB-1	↓	0940	↓	soil	↓						
SB-2	↓	0945	↓	↓	↓						
SB-3	↓	0950	↓	↓	↓						
SB-4	↓	0955	↓	↓	↓						
SB-5	↓	1000	↓	↓	↓						
SB-6	↓	1005	↓	↓	↓						
SB-7	↓	1010	↓	↓	↓						

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
D - wood chips *Hold remaining samples pending initial analysis results*

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scot Egleston	SA	6/11/15 1400	Terri Harlin	TAL	6/12/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085409

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THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Scot Egleston	Site Contact:	Date: 6/11/15	COC No:
Company Name: Sogasser & Associates	Tel/Fax:	Lab Contact:	Carrier:	3 of 3 COCs
Address: 699 S. Wisconsin Ave	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49777	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below _____			Walk-in Client:
Fax: 989-732-5825	☐ 2 weeks			Lab Sampling:
Project Name: Boyne City Playground	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O # 41505	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp. G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
SB-8	6/11/15	1013	G	soil	1			
SB-9	↓	1020	G	↓	1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: * Hold samples pending results from initial analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scot Egleston	SA	6/11/15 1400	Jim Hurlin	TAR	6/12/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/18/2015

8

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt

(AFTER HOURS receipt- complete gray areas
Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____

☐ MSDS or Known Hazard Information Supplied by Client
☐ Bottle stickers applied ☐ ELEMENT comment entered ☐ MSDS/COC scanned/emailed to EH&S
☐ Discrepancies Client ID Jagasser Associates
☐ Short Hold Work Order # 190-7601
☐ Rush ☐24hr ☐2day ☐3day ☐5day ☐other _____
Receipt evaluation performed by - Initials TRH Date 6/12/15 Time 1437

Method of Shipment:
☐ Walk-In Client ☐ TestAmerica Field/Courier
☐ Other Client/3rd Party Courier _____
☐ Fed Ex Tracking # _____
☒ UPS Tracking # Ground
☐ Other _____

Shipping Container Type:
☒ Cooler ☐ Box
☐ None ☐ Other _____
Packing Materials:
☐ Plastic Bags ☐ Foam
☒ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☒ Other Box

Custody Seals Intact:
☒ Yes ☐ No
☐ N/A (not used or required)
Cooling Materials:
☐ Ice *(solid)* ☒ Ice *(Melted)*
☐ Blue Ice ☐ None
☐ Other _____

Are there any soil samples from areas requiring USDA quarantine? *(AL, AR, AZ, CA, FL, GA, HI, ID, LA MS, NC, NM, NY, OK, SC TN, TX, VA, Puerto Rico, Virgin Islands, any other Non-Domestic area)* ☐ No ☐ Yes (If Yes, *Project Manager must be notified*)

☐ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483	9.0	13.0	☐	☒	☐Yes ☒No	☒Yes ☐No		metals only
			☐	☐	☐Yes ☐No	☐Yes ☐No		
			☐	☐	☐Yes ☐No	☐Yes ☐No		

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	X			
Containers & labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	X			
Appropriate containers used & adequate volume provided?	X			
Number of sample containers match COC?	X			
Samples received within hold time?	X			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?			X	
Was a Trip Blank received with VOA samples?			X	
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	X			
Were the COC, bottle labels, and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	X			Temp >6°C

** May not be applicable if samples are not for compliance testing

Client Contact Record
Contact via: ☐ Phone ☐ Email ☐ Other _____ **Person Contacted:** _____ **Date/Time:** _____
☐ Discrepancy allowance agreement is on record in the client project file
Discussion/Resolution:

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory.

Tim Hark 6/12/15
Reviewed by PM Signature Date

WI Page 1 of 1

WI No DT-SCA-WI-001 10
effective 06/11/12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

TestAmerica Job ID: 190-7657-1
Client Project/Site: Boyne City Playground

For:
Sagasser & Associates Inc
699 South Wisconsin Avenue
Gaylord, Michigan 49735

Attn: Scot Egleston

Sue Schafer

Authorized for release by:
6/25/2015 1:43:43 PM

Sue Schafer, Project Manager II
(810)229-2763
sue.schafer@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Sample Summary

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7657-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-7657-1	BG-1	Soil	06/09/15 09:00	06/12/15 14:37
190-7657-2	BG-2	Soil	06/09/15 09:02	06/12/15 14:37
190-7657-3	SB-1	Soil	06/11/15 09:40	06/12/15 14:37
190-7657-4	SB-2	Soil	06/11/15 09:45	06/12/15 14:37
190-7657-5	SB-3	Soil	06/11/15 09:50	06/12/15 14:37
190-7657-6	SB-4	Soil	06/11/15 09:55	06/12/15 14:37
190-7657-7	SB-5	Soil	06/11/15 10:00	06/12/15 14:37
190-7657-8	SB-6	Soil	06/11/15 10:05	06/12/15 14:37
190-7657-9	SB-7	Soil	06/11/15 10:10	06/12/15 14:37
190-7657-10	SB-8	Soil	06/11/15 10:13	06/12/15 14:37
190-7657-11	SB-9	Soil	06/11/15 10:20	06/12/15 14:37

Job ID: 190-7657-1

Laboratory: TestAmerica Michigan

Narrative

Job Narrative
190-7657-1

Comments
No additional comments.

Receipt
The samples were received on 6/12/2015 2:37 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.0° C.

Metals
Method(s) 6020: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: BG-1 (190-7657-1), BG-2 (190-7657-2), SB-1 (190-7657-3), SB-2 (190-7657-4), SB-3 (190-7657-5), SB-4 (190-7657-6), SB-5 (190-7657-7), SB-6 (190-7657-8), SB-7 (190-7657-9) and SB-8 (190-7657-10)The continuing calibration blanks and method blanks may not support the lower PQL.

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

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

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7657-1

Client Sample ID: BG-1
Lab Sample ID: 190-7657-1
Date Collected: 06/09/15 09:00
Date Received: 06/12/15 14:37
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84		0.10	%			06/23/15 08:48	1
Percent Moisture	16		0.10	%			06/23/15 08:48	1

Client Sample ID: BG-1
Lab Sample ID: 190-7657-1
Date Collected: 06/09/15 09:00
Date Received: 06/12/15 14:37
Matrix: Soil
Percent Solids: 84.2

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2200		780	ug/Kg	☼	06/22/15 13:03	06/23/15 16:15	10

Client Sample ID: BG-2
Lab Sample ID: 190-7657-2
Date Collected: 06/09/15 09:02
Date Received: 06/12/15 14:37
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86		0.10	%			06/23/15 08:48	1
Percent Moisture	14		0.10	%			06/23/15 08:48	1

Client Sample ID: BG-2
Lab Sample ID: 190-7657-2
Date Collected: 06/09/15 09:02
Date Received: 06/12/15 14:37
Matrix: Soil
Percent Solids: 85.6

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2800		780	ug/Kg	☼	06/22/15 13:03	06/23/15 16:40	10

Client Sample ID: SB-1
Lab Sample ID: 190-7657-3
Date Collected: 06/11/15 09:40
Date Received: 06/12/15 14:37
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85		0.10	%			06/23/15 08:48	1
Percent Moisture	15		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-1
Lab Sample ID: 190-7657-3
Date Collected: 06/11/15 09:40
Date Received: 06/12/15 14:37
Matrix: Soil
Percent Solids: 84.9

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1700		810	ug/Kg	☼	06/22/15 13:03	06/23/15 16:44	10

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7657-1

Client Sample ID: SB-2
Lab Sample ID: 190-7657-4
Date Collected: 06/11/15 09:45
Matrix: Soil
Date Received: 06/12/15 14:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10	%			06/23/15 08:48	1
Percent Moisture	8.3		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-2
Lab Sample ID: 190-7657-4
Date Collected: 06/11/15 09:45
Matrix: Soil
Date Received: 06/12/15 14:37
Percent Solids: 91.7

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	850		660	ug/Kg	☼	06/22/15 13:03	06/23/15 16:47	10

Client Sample ID: SB-3
Lab Sample ID: 190-7657-5
Date Collected: 06/11/15 09:50
Matrix: Soil
Date Received: 06/12/15 14:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80		0.10	%			06/23/15 08:48	1
Percent Moisture	20		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-3
Lab Sample ID: 190-7657-5
Date Collected: 06/11/15 09:50
Matrix: Soil
Date Received: 06/12/15 14:37
Percent Solids: 80.0

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	49000		750	ug/Kg	☼	06/22/15 13:03	06/23/15 16:51	10

Client Sample ID: SB-4
Lab Sample ID: 190-7657-6
Date Collected: 06/11/15 09:55
Matrix: Soil
Date Received: 06/12/15 14:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86		0.10	%			06/23/15 08:48	1
Percent Moisture	14		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-4
Lab Sample ID: 190-7657-6
Date Collected: 06/11/15 09:55
Matrix: Soil
Date Received: 06/12/15 14:37
Percent Solids: 86.2

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8200		730	ug/Kg	☼	06/22/15 13:03	06/23/15 16:54	10

Client Sample ID: SB-5
Date Collected: 06/11/15 10:00
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-7
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80		0.10	%			06/23/15 08:48	1
Percent Moisture	20		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-5
Date Collected: 06/11/15 10:00
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-7
Matrix: Soil
Percent Solids: 80.4

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	120000		900	ug/Kg	☼	06/22/15 13:03	06/23/15 16:58	10

Client Sample ID: SB-6
Date Collected: 06/11/15 10:05
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-8
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	70		0.10	%			06/23/15 08:48	1
Percent Moisture	30		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-6
Date Collected: 06/11/15 10:05
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-8
Matrix: Soil
Percent Solids: 69.7

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	29000		970	ug/Kg	☼	06/22/15 13:03	06/23/15 17:09	10

Client Sample ID: SB-7
Date Collected: 06/11/15 10:10
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-9
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69		0.10	%			06/23/15 08:48	1
Percent Moisture	31		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-7
Date Collected: 06/11/15 10:10
Date Received: 06/12/15 14:37

Lab Sample ID: 190-7657-9
Matrix: Soil
Percent Solids: 69.4

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	33000		1100	ug/Kg	☼	06/22/15 13:03	06/23/15 17:13	10

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7657-1

Client Sample ID: SB-8

Lab Sample ID: 190-7657-10
Matrix: Soil

Date Collected: 06/11/15 10:13
Date Received: 06/12/15 14:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84		0.10	%			06/23/15 08:48	1
Percent Moisture	16		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-8

Lab Sample ID: 190-7657-10
Matrix: Soil
Percent Solids: 83.8

Date Collected: 06/11/15 10:13
Date Received: 06/12/15 14:37

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	43000		780	ug/Kg	☼	06/22/15 13:03	06/23/15 17:17	10

Client Sample ID: SB-9

Lab Sample ID: 190-7657-11
Matrix: Soil

Date Collected: 06/11/15 10:20
Date Received: 06/12/15 14:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	73		0.10	%			06/23/15 08:48	1
Percent Moisture	27		0.10	%			06/23/15 08:48	1

Client Sample ID: SB-9

Lab Sample ID: 190-7657-11
Matrix: Soil
Percent Solids: 73.1

Date Collected: 06/11/15 10:20
Date Received: 06/12/15 14:37

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	25000		1100	ug/Kg	☼	06/23/15 10:03	06/24/15 12:20	10

QC Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7657-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-186148/1-A ^10 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 186486 — **Prep Batch: 186148**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<800		800	ug/Kg		06/22/15 13:03	06/23/15 16:07	10

Lab Sample ID: LCS 240-186148/2-A ^10 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 186486 — **Prep Batch: 186148**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100000	97600		ug/Kg		98	73 - 110

Lab Sample ID: 190-7657-1 MS — **Client Sample ID: BG-1**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 186486 — **Prep Batch: 186148**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2200		104000	95600		ug/Kg	☼	90	75 - 125

Lab Sample ID: 190-7657-1 MSD — **Client Sample ID: BG-1**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 186486 — **Prep Batch: 186148**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	2200		104000	97700		ug/Kg	☼	92	75 - 125	2	20

Lab Sample ID: MB 240-186303/1-A ^2 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 186584 — **Prep Batch: 186303**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<160		160	ug/Kg		06/23/15 10:03	06/24/15 12:13	2

Lab Sample ID: LCS 240-186303/2-A ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 186584 — **Prep Batch: 186303**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100000	86700		ug/Kg		87	73 - 110

Method: Moisture - Percent Moisture

Lab Sample ID: 190-7657-6 DU — **Client Sample ID: SB-4**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 186275

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	86		87		%		1	20
Percent Moisture	14		13		%		8	20

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 190-7657-10 DU
Matrix: Soil
Analysis Batch: 186275

Client Sample ID: SB-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	84			78		%				7	20
Percent Moisture	16			22	F3	%				31	20

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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)

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085410

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TestAmerica Laboratories, Inc.

TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Scot Eglestow	Site Contact:	Date: 6/11/15	COC No:
Company Name: Sagasser & Associates	Tel/Fax:	Lab Contact: Sue Schaub	Carrier:	2 of 3 COCs
Address: 699 South Wisconsin	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49735	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5811	TAT if different from Below _____			Walk-in Client:
Fax: 989-732-5825	☐ 2 weeks			Lab Sampling:
Project Name: Boyne City Playground	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O # 41505	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Arsenic	Chromium	Copper	Sample Specific Notes
WC-5	6/9/15	0825	G	O	1			✓			
BG-1	↓	0900	↓	↓	↓			✓			
BG-2	↓	0902	↓	↓	↓			✓			
BG-3	↓	0905	↓	↓	↓						
WS-9	6/11/15	1100	↓	WOOD	↓						
SB-1	↓	0940	↓	Soil	↓			✓			
SB-2	↓	0945	↓	↓	↓			✓			
SB-3	↓	0950	↓	↓	↓			✓			
SB-4	↓	0955	↓	↓	↓			✓			
SB-5	↓	1000	↓	↓	↓			✓			
SB-6	↓	1005	↓	↓	↓			✓			
SB-7	↓	1010	↓	↓	↓			✓			

190-7657 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
✓ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ✓ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
D - WOOD chips
* Hold remaining samples PENDING initial analysis results *

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No. _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	SA	6/11/15 1400	[signature]	TAL	6/12/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085409

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TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact			
Company Name: Sugasser & Associates	Project Manager: Scott Egleston	Site Contact:	Date: 6/11/15
Address: 699 S. Wisconsin Ave	Tel/Fax:	Lab Contact:	Carrier:
City/State/Zip: Gaylord MI 49735	Analysis Turnaround Time: ☐ CALENDAR DAYS ☐ WORKING DAYS		
Phone: 989-732-5800	TAT if different from Below ____		
Fax: 989-732-5825	☐ 2 weeks		
Project Name: Boyne City Playground	☐ 1 week		
Site:	☐ 2 days		
P O # 41505	☐ 1 day		

COC No: 3 of 3 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Arsenic	Sample Specific Notes
SB-8	6/11/15	1013	G	soil	1			✓	
SB-9	↓	1020	G	↓	1			✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:
* Hold samples pending results from initial analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No.: ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scott Egleston	SA	6/11/15 14:00	Jim Hurli	TR	6/12/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete gray areas. Place cooler in walk-in, place this form in Receiving in box. Date Time rec'd _____ Initials _____)

- ❑ MSDS or Known Hazard Information Supplied by Client
  - ❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS/COC scanned/emailed to EH&S
- ❑ Discrepancies
- ❑ Short Hold
- ❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID: Sugasser Associates 190-7059

Work Order #: 1917-7601

Receipt evaluation performed by - Initials: TEH Date: 6/12/15 Time: 1437

Method of Shipment:
- ❑ Walk-In Client ❑ TestAmerica Field/Courier
- ❑ Other Client/3rd Party Courier _____
- ❑ Fed Ex Tracking # _____
- ☒ UPS Tracking # Ground
- ❑ Other _____

Shipping Container Type:
- ☒ Cooler ❑ Box
- ❑ None ❑ Other _____

Packing Materials:
- ❑ Plastic Bags ❑ Foam
- ☒ Bubble Wrap ❑ Paper
- ❑ Packing Peanuts ❑ None
- ☒ Other Box

Custody Seals Intact:
- ☒ Yes ❑ No
- ❑ N/A (not used or required)

Cooling Materials:
- ❑ Ice (solid) ☒ Ice (Melted)
- ❑ Blue Ice ❑ None
- ❑ Other _____

8

Are there any soil samples from areas requiring USDA quarantine? (AL, AR, AZ, CA, FL, GA, HI, ID, LA, MS, NC, NM, NY, OK, SC, TN, TX, VA, Puerto Rico, Virgin Islands, any other Non-Domestic area) ❑ No ❑ Yes (If Yes, Project Manager must be notified)

❑ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483	9.0	13.0	❑	☒	❑Yes ☒No	☒Yes ❑No		metals only
			❑	❑	❑Yes ❑No	❑Yes ❑No		
			❑	❑	❑Yes ❑No	❑Yes ❑No		

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	X			
Containers & labels in good condition? (unbroken, not leaking, appropriately filled, labels legible & attached)	X			
Appropriate containers used & adequate volume provided?	X			
Number of sample containers match COC?	X			
Samples received within hold time?	X			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?			X	
Was a Trip Blank received with VOA samples?			X	
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	X			
Were the COC, bottle labels, and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	X			Temp 7.6 C

** May not be applicable if samples are not for compliance testing

Client Contact Record

Contact via: ❑ Phone ☒ Email ❑ Other _____ Person Contacted: S. Schafer Date/Time: 6/15/15 10:15

❑ Discrepancy allowance agreement is on record in the client project file

Discussion/Resolution:

Add'l COC's sent w/ work added on samples which were on hold.

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory.

Jim Hecht 6/17/15

Reviewed by PM Signature Date

WI Page 1 of 1

WI No. DT-SCA-WI-001.10 effective 06/11/12

6/25/2015

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

TestAmerica Job ID: 190-7706-1
Client Project/Site: Boyne City Playground

For:
Sagasser & Associates Inc
699 South Wisconsin Avenue
Gaylord, Michigan 49735

Attn: Kevin Sagasser

Sue Schafer

Authorized for release by:
7/6/2015 3:39:18 PM

Sue Schafer, Project Manager II
(810)229-2763
sue.schafer@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Sample Summary

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7706-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-7706-1	BG-3	Soil	06/09/15 09:05	06/12/15 14:37

Job ID: 190-7706-1

Laboratory: TestAmerica Michigan

Narrative

Job Narrative
190-7706-1

Comments
No additional comments.

Receipt
The sample was received on 6/12/2015 2:37 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.0° C.

Metals
Method(s) 6020: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: BG-3 (190-7706-1)The continuing calibration blanks and method blanks may not support the lower PQL.

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

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

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7706-1

Client Sample ID: BG-3

Lab Sample ID: 190-7706-1

Date Collected: 06/09/15 09:05
Date Received: 06/12/15 14:37

Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79		0.10	%			07/02/15 14:14	1
Percent Moisture	21		0.10	%			07/02/15 14:14	1

Client Sample ID: BG-3

Lab Sample ID: 190-7706-1

Date Collected: 06/09/15 09:05
Date Received: 06/12/15 14:37

Matrix: Soil
Percent Solids: 79.1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2300		150	ug/Kg	☼	07/01/15 08:14	07/02/15 13:49	2

QC Sample Results

Client: Sagasser & Associates Inc
Project/Site: Boyne City Playground

TestAmerica Job ID: 190-7706-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-187555/1-A ^2
Matrix: Solid
Analysis Batch: 187839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 187555

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<160		160	ug/Kg		07/01/15 08:14	07/02/15 12:05	2

Lab Sample ID: LCS 240-187555/3-A ^2
Matrix: Solid
Analysis Batch: 187839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 187555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100000	99500		ug/Kg		100	73 - 110

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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)

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

Chain of Custody Record

085410

TestAmerica
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: DW NPDES RCRA Other

Client Contact	Project Manager: Scott Egleston	Site Contact:	Date: 6/11/15	COC No.
Company Name: Sagasser & Associates	Tel/Fax:	Lab Contact: Sue Schaefer	Carrier:	2 of 3 COCs
Address: 699 South W. Sunrise	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49735	CALENDAR DAYS / WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below			Walk-in Client:
Fax: 989-732-5825	2 weeks			Lab Sampling:
Project Name: Boyne City Playground	1 week			
Site:	2 days			Job / SDG No:
P O # 41505	1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp. G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Arsenic	Chromium	Copper	Sample Specific Notes
WC-5	6/9/15	0825	G	O	1			✓			
BG-1		0900						✓			
BG-2		0902						✓			
BG-3		0905						✓			
NS-9	6/11/15	1100		Wood							
SB-1		0940		Soil				✓			
SB-2		0945						✓			
SB-3		0950						✓			
SB-4		0955						✓			
SB-5		1000						✓			
SB-6		1005						✓			
SB-7		1010						✓			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

190-7706 Chain of Custody

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
✓ Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return to Client ✓ Disposal by Lab Archive for ____ Months

Special Instructions/QC Requirements & Comments:
D - Wood Chips * Hold remaining samples pending initial analysis results *

Custody Seals Intact Yes No | Custody Seal No. | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No. ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scott Egleston	[signature]	6/11/15 1400	[signature]	TAL	6/17/15 1437
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/25/2015

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete gray areas. Place cooler in walk-in, place this form in Receiving in box. Date/Time rec'd _____ Initials _____)

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS COC scanned emailed to EH&S

❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID Jagasser Associates
Work Order # 190-7601 + 190-7059 + 190-7906
Receipt evaluation performed by - Initials TRH Date 6/12/15 Time 1431

Method of Shipment:
❑ Walk-In Client ❑ TestAmerica Field/Courier
❑ Other Client/3rd Party Courier _____
❑ Fed Ex Tracking # _____
☒ UPS Tracking # Ground
❑ Other _____

Shipping Container Type:
☒ Cooler ❑ Box
❑ None ❑ Other _____

Packing Materials:
❑ Plastic Bags ❑ Foam
☒ Bubble Wrap ❑ Paper
❑ Packing Peanuts ❑ None
☒ Other Box

Custody Seals Intact:
☒ Yes ❑ No
❑ N/A (not used or required)

Cooling Materials:
❑ Ice (solid) ☒ Ice (Melted)
❑ Blue Ice ❑ None
❑ Other _____

Are there any soil samples from areas requiring USDA quarantine? (AL, AR, AZ, CA, FL, GA, HI, ID, LA, MS, NC, NM, NY, OK, SC, TN, TX, VA, Puerto Rico, Virgin Islands, any other Non-Domestic area) ❑ No ❑ Yes (If Yes, Project Manager must be notified)

❑ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252433	90	180	❑	☒	❑Yes ☒No	☒Yes ❑No		metals only
			❑	❑	❑Yes ❑No	❑Yes ❑No		
			❑	❑	❑Yes ❑No	❑Yes ❑No		

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	X			
Containers & labels in good condition? (unbroken, not leaking, appropriately filled, labels legible & attached)	X			
Appropriate containers used & adequate volume provided?	X			
Number of sample containers match COC?	X			
Samples received within hold time?	X			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?			X	
Was a Trip Blank received with VOA samples?			X	
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	X			
Were the COC, bottle labels, and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	X			Temp >6 C

** May not be applicable if samples are not for compliance testing

Client Contact Record
Contact via: ❑ Phone ☒ Email ❑ Other _____ Person Contacted: S. Schafer Date/Time: 6/19/15 10:15
❑ Discrepancy allowance agreement is on record in the client project file

Discussion/Resolution
Addl COC's sent w/ work added on samples which were on hold.
6/20/15 Added Sample BG-3 for As.

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory

[signature] 6/17/15
Reviewed by PM Signature Date

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WI No. DT-SCA-WI-001.10
effective 06/11/12

7/6/2015