

1210 N. Cedar Street, Suite A Lansing, Michigan 48906 517-702-0470 Fax 517-702-0477 www.triterra.us

June 22, 2016 (16-1598-06)

Okemos Public Schools Steve Lathrop, Director of Operations 4406 Okemos Road Okemos, Michigan 48864

SUBJECT: Okemos Public Schools Water Sampling – Lead in Drinking Water

Kinawa Middle School, 1900 Kinawa Drive, Okemos, Michigan 48864

Dear Mr. Lathrop,

This letter is a summary of drinking water sampling procedures and results for the Kinawa Middle School building, located at 1900 Kinawa Drive, Okemos, Michigan. As requested, these sampling events were designed to offer an assessment of whether water at likely drinking sources within this location contains lead at or above the EPA action level of 15 parts per billion (ppb), and as such does not offer a comprehensive assessment of the entire building and its drinking water system.

#### SCOPE OF SERVICES

Triterra personnel mobilized to the site on May 6, 2016 and conducted the prescribed sampling protocol. This included the following:

- > A 250 milliliter (ml) flush sample (three minute flush time) from the tap closest to the water service inlet, in order to determine whether an external source of lead contamination exists;
- > A 250 ml initial draw sample from four drinking water source fixtures within the building (fountain, bubbler, kitchen sink, etc.), to determine whether the fixture itself may be a source of lead contamination, and;
- A 250 ml flush sample (30 seconds flush time) from the same four fixtures within the building.

These specimens, as well as a 250 ml field blank (distilled water), were then submitted to Merit Laboratories, Inc. (East Lansing, Michigan) for analysis via EPA Method 200.8 Revision 5.4. All samples were collected in laboratory-prepared, nitric acid-preserved, 250 ml Nalgene bottles, in order to meet the EPA-prescribed 250 ml sample size requirement.

#### **FINDINGS**

Analytical results are included as Table 1, attached, as well as within the included Merit Laboratories, Inc. analytical report (Attachment 1).

Okemos Public Schools - Drinking Water Sampling Kinawa Middle School June 22, 2016



The analytical results from the collected samples do not indicate that the Kinawa Middle School building has lead within drinking water at levels that exceed the EPA action level (15 ppb) at the time of testing, with the exception of the stainless steel kitchen sink location (18 ppb). Analysis of the follow-up flush sample at that location indicated that this lead level was not caused by the water system, but by the fixture itself. Based on these results, Okemos Public Schools immediately planed the replacement of the kitchen fixtures in this building.

A second set of samples was then collected from the replacement fixture, on June 3, 2016. This second sampling event followed the protocol established for the initial event, and was limited to collection of initial draw and follow-up flush samples for the replacement fixture location. The analytical results from the collected samples for this event do not indicate that lead was present in the drinking water at levels that exceed the EPA action level (15 ppb) at the time of testing.

#### RECOMMENDATIONS

It is apparent that the stainless steel sink fixture within the kitchen was a source of lead contamination. Once this was identified, Okemos Public Schools took appropriate measures to remove/replace similar fixtures throughout the kitchen. Additionally, a protocol for periodic follow-up sampling should be implemented at the Kinawa Middle School, in order to verify that any such sources of lead in drinking water have been eliminated.

It is Triterra's opinion that a more comprehensive set of sampling for might be beneficial. During this sampling event, it was noted that multiple types of potential drinking water sources are present within the building. A more comprehensive sampling strategy would offer more conclusive information as to if any individual type(s) of fixture poses a concern.

Should you have any questions or comments regarding this correspondence, please contact the undersigned at (517) 702-0470.

Sincerely,

TRIOTERRA

lukmred

Ian O. Smith, PhD Materials Scientist

Don McNabb, CGWP, CP CEO | Principal Scientist

**Attachments** 

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**TABLES** 

		4 - C - C - C - C - C - C - C - C - C -	Project: Okemos P	Project: Okemos Public Schools - Lead Testing	Testing
		IABLE I	Location: Kinawa Middle School	Middle School	
		SAMPLE RESULTS - LEAD IN WATER	Project Number: 16-1598-06	16-1598-06	
		5/6/2016	Personnel: DKM		
Sample	Description	Location	Volume	Watrix	Result (ppb)
KIN-W-01	Flush Sample - 3 min	Service Line	250 ml	Drinking Water	4
KIN-W-02	Initial Draw Sample	Kitchen - Steel Sink	250 ml	Drinking Water	18
KIN-W-03	Flush Sample - 30 sec	Kitchen - Steel Sink	250 ml	Drinking Water	ND
KIN-W-04	Initial Draw Sample	Hallway Near Room 100 - Fountain	250 ml	Drinking Water	ND
KIN-W-05	Flush Sample - 30 sec	Hallway Near Room 100 - Fountain	250 ml	Drinking Water	ı
90-M-NIX	Initial Draw Sample	Hallway Near Auditorium - Fountain	250 mi	Drinking Water	7
KIN-W-07	Flush Sample - 30 sec	Hallway Near Auditorium - Fountain	250 ml	Drinking Water	***
KIN-W-08	Initial Draw Sample	Hallway Near Gymnasium - Fountain	250 mi	Drinking Water	ON
60-W-NIX	Flush Sample - 30 sec	Hallway Near Gymnasium - Fountain	250 ml	Drinking Water	ţ
KIN-Blank	Field Blank	_	250 ml	Drinking Water	ND
Notes:	EPA Lead in Drinking Water action level is 15 ppb Initial Draw Sample is taken prior to any usage of the water source, following at least 8 hours of idle time Flush Sample is taken following a prescribed amount of time with water running Bold text indicates sample is above EPA action level	source, following at least 8 hours of idle time e with water running			

			Project: Okemos F	Project: Okemos Public Schools - Lead Testing	esting
		IABLE 2	Location: Kinawa Middle School	Viiddle School	
		SAMPLE RESULTS - LEAD IN WATER	Project Number: 16-1598-06	6-1598-06	
		6/3/2016	Personnel: DKM		
Sample	Description	noixebol	Volume	Matrix	Result (pob)
KIN-W-102 Initial E	Initial Draw Sample	Kitchen - Steel Sink	250 ml	Drinking Water	2
KIN-W-103 Flush Sa	Flush Sample - 30 sec	Kitchen - Steel Sink	250 ml	Drinking Water	t
Notes: EPA Lead in Drinking Water action level is 15 ppb Initial Draw Sample is taken prior to any usage of Flush Sample is taken following a prescribed amo Bold text indicates sample is above EPA action lev	EPA Lead in Drinking Water action level is 15 ppb Initial Draw Sample is taken prior to any usage of the water Flush Sample is taken following a prescribed amount of tim Bold text indicates sample is above EPA action level	EPA Lead in Drinking Water action level is 15 ppb Initial Draw Sample is taken prior to any usage of the water source, following at least 8 hours of idle time Flush Sample is taken following a prescribed amount of time with water running Bold text indicates sample is above EPA action level			



# **ATTACHMENT 1**

MERIT LABORATORIES, INC. ANALYTICAL REPORTS



Supplemental Report

Report ID: S73252.01(02)
Generated on 05/11/2016
Replaces report S73252.01(01) generated on 05/09/2016

Report to

Attention: Don McNabb

TriTerra

1210 N Cedar Street

Suite A

Lansing MI 48906

Phone: 517-702-0470 FAX: 517-702-0477

Email: don.mcnabb@triterra.us

Additional Contacts: Brad Buswell

Report Summary

Lab Sample ID(s): S73252.01-S73252.10

Project: 15-1598 Kinawa Collected Date: 05/06/2016

Submitted Date/Time: 05/06/2016 14:17

Sampled by: Don McNabb

P.O. #:

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Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:

Kevin George (kgeorge@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Maya Mushak
Technical Director



Supplemental Report

#### **General Report Notes**

Results relate only to items tested as received by laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

#### Report Narrative

Sample .03 removed from hold and analyzed per client request.

Generated on 05/11/2016 Report ID: S73252.01(02)



### **Laboratory Certifications**

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

### **Qualifier Descriptions**

Qualifier	Description
I	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
Ε	EPA Methods
SM	Standard Methods



Supplemental Report

#### **Method Summary**

Method Version

E200.8 EPA Method 200.8 Revision 5.4

SW3015A SW 846 Method 3015A Revision 1 February 2007



Supplemental Report

### Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
\$73252.01	KIN-W-01	Drinking Water	05/06/16 03:22
\$73252.02	KIN-W-02	Drinking Water	05/06/16 03:25
\$73252.03	KIN-W-03	Drinking Water	05/06/16 03:26
S73252.04	KIN-W-04	Drinking Water	05/06/16 03:46
\$73252.05	KIN-W-05	Drinking Water	05/06/16 03:47
S73252.06	KIN-W-06	Drinking Water	05/06/16 03:36
S73252.07	KIN-W-07	Drinking Water	05/06/16 03:37
S73252.08	KIN-W-08	Drinking Water	05/06/16 03:30
S73252.09	KIN-W-09	Drinking Water	05/06/16 03:31
S73252.10	KIN-Blank	Drinking Water	05/06/16 03:40

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Supplemental Report

Lab Sample ID: S73252.01 Sample Tag: KIN-W-01

Collected Date/Time: 05/06/2016 03:22

Matrix: Drinking Water COC Reference: 097709

### Sample Containers

#	Type	Preserva	tive(s)	Refriger	ated? Arrival	Temp. (C) Thermo	meter#		
1	250ml Plastic	HNO3		Yes	12.1	IR			
Ana	alysis		Results	Units	RL.	Method	Run Date/Time	Tech CAS#	Flags
	traction / Prep. tal Digestion		Completed			SW3015A	05/09/16 14:30	CCM	
Me Lea	etals ad		0.004	mg/L	0.001	E200.8	05/09/16 16:43	PER 7439-92-	1



Supplemental Report

Lab Sample ID: S73252.02 Sample Tag: KIN-W-02

Collected Date/Time: 05/06/2016 03:25

Matrix: Drinking Water COC Reference: 097709

#### Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer#
1	250ml Plastic	HNO3	Yes	12.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
Extraction / Prep. Metal Digestion	Completed			SW3015A	05/09/16 14:30	ССМ	
<i>Metals</i> Lead	0.018	mg/L	0.001	E200.8	05/09/16 16:44	PER 7439-92-	-1

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Supplemental Report

Lab Sample ID: S73252.03 Sample Tag: KIN-W-03

Collected Date/Time: 05/06/2016 03:26

Matrix: Drinking Water COC Reference: 097709

#### Sample Containers

#	Туре	Preservat	ive(s)	Refrigera	ted? Arrival	Temp. (C) Thermo	meter#		
1	250ml Plastic	HNO3		Yes	12.1	IR			
An	alysis		Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
	traction / Prep. tal Digestion		Completed			SW3015A	05/11/16 09:30	CCM	
<i>Me</i> Lea	etals ad		Not detected	mg/L.	0.001	E200.8	05/11/16 13:10	CCM 7439-92-1	



Supplemental Report

Lab Sample ID: S73252.04 Sample Tag: KIN-W-04

Collected Date/Time: 05/06/2016 03:46

Matrix: Drinking Water COC Reference: 097709

#### Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yeş	12.1	IR

Analysis	Results	Units	RL.	Method	Run Date/Time	Tech CAS# Flags
Extraction / Prep. Metal Digestion	Completed			SW3015A	05/09/16 14:30	ССМ
<b>Metals</b> Lead	Not detected	mg/L	0.001	E200.8	05/09/16 16:45	PER 7439-92-1



Supplemental Report

Lab Sample ID: S73252.05 Sample Tag: KIN-W-05

Collected Date/Time: 05/06/2016 03:47

Matrix: Drinking Water COC Reference: 097709

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	12.1	IR

Analysis Results Units RL Method Run Date/Time Tech CAS # Flags

Other / Misc.

Hold until notified Completed 05/09/16 14:20 KAG



Supplemental Report

Lab Sample ID: S73252.06 Sample Tag: KIN-W-06

Collected Date/Time: 05/06/2016 03:36

Matrix: Drinking Water COC Reference: 097709

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer#
1	250ml Plastic	HNO3	Yes	12.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
Extraction / Prep. Metal Digestion	Completed			SW3015A	05/09/16 14:30	CCM	
<b>Metals</b> Lead	0.007	mg/L	0.001	E200.8	05/09/16 16:46	PER 7439-92-1	



Supplemental Report

Lab Sample ID: S73252.07 Sample Tag: KIN-W-07

Collected Date/Time: 05/06/2016 03:37

Matrix: Drinking Water COC Reference: 097709

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	12.1	IR

Analysis Results Units RL Method Run Date/Time Tech CAS # Flags

Other / Misc.

Hold until notified Completed 05/09/16 14:20 KAG



Supplemental Report

PER 7439-92-1

Lab Sample ID: S73252.08 Sample Tag: KIN-W-08

Collected Date/Time: 05/06/2016 03:30

Preservative(s)

Not detected

Matrix: Drinking Water COC Reference: 097709

#### Sample Containers # Type

Lead

1	250ml Plastic	HNO3		Yes	12.1	IR			
Analy	sis		Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
	ction / Prep. Digestion		Completed			SW3015A	05/09/16 14:30	ССМ	
Meta	ls								

0.001

Arrival Temp. (C) Thermometer #

E200.8

05/09/16 16:47

Refrigerated?

mg/L



Supplemental Report

Lab Sample ID: S73252.09 Sample Tag: KIN-W-09

Collected Date/Time: 05/06/2016 03:31

Matrix: Drinking Water COC Reference: 097709

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	12.1	IR

Analysis Results Units RL Method Run Date/Time Tech CAS# Flags

Other / Misc.

Hold until notified Completed 05/09/16 14:20 KAG



Supplemental Report

Lab Sample ID: S73252.10 Sample Tag: KIN-Blank

Collected Date/Time: 05/06/2016 03:40

Preservative(s)

Matrix: Drinking Water COC Reference: 097709

# Sample Containers # Type

1 250ml Plastic	HNO3		Yes	12.1	IR			
Analysis		Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
Extraction / Prep.								
Metal Digestion		Completed			SW3015A	05/09/16 14:30	CCM	

Refrigerated? Arrival Temp. (C) Thermometer #

Metals

Lead Not detected mg/L 0.001 E200.8 05/09/16 16:48 PER 7439-92-1

Report to TriTerra Project: 15-1598 Kinawa Page 15 of 15

Generated on 05/11/2016 Report ID: S73252.01(02)



REPORT TO

2680 East Lansing Dr., East Lansing, MI 48823 Fax (517) 332-4034 Phone (517) 332-0167 www.meritlabs.com

4 C.O.C. PAGE #

097709

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MATRIX GW=GROUNDWATER WW=WASTEWATER CODE: SL=SLUDGE DW=DRINKING WATER O.	SW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE	# Containers & C	Project Locations
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Rev 5.18,12



Report ID: S73854.01(01) Generated on 06/06/2016

Report to

Attention: Don McNabb

TriTerra

1210 N Cedar Street

Suite A

Lansing MI 48906

Phone: 517-702-0470 FAX: 517-702-0477

Email: don.mcnabb@triterra.us

Addtional Contacts: Brad Buswell, Ian Smith

Report Summary

Lab Sample ID(s): S73854.01-S73854.02

Project: 16-1598 Kinewa Collected Date: 06/03/2016

Submitted Date/Time: 06/03/2016 15:30

Sampled by: Don McNabb

P.O. #:

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Maya Mushah

Maya Murshak Technical Director Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: Kevin George (kgeorge@meritlabs.com)

Barbara Ball (bball@meritlabs.com)



#### **General Report Notes**

Results relate only to items tested as received by laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling. QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client. Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

#### Report Narrative

There is no additional narrative for this analytical report

Report to TriTerra Project: 16-1598 Kinewa



#### **Laboratory Certifications**

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

### **Qualifier Descriptions**

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
×	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods



**Method Summary** 

Method Version

E200.8 EPA Method 200.8 Revision 5.4

SW3015A SW 846 Method 3015A Revision 1 February 2007

Report to TriTerra Project: 16-1598 Kinewa Page 4 of 7 Generated on 06/06/2016 Report ID: S73854.01(01)



### Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
\$73854.01	KIN-W-102	Drinking Water	06/03/16 06:15
S73854.02	KIN-W-103	Drinking Water	06/03/16 06:16

Report to TriTerra Project: 16-1598 Kinewa



Lab Sample ID: S73854.01 Sample Tag: KIN-W-102

Collected Date/Time: 06/03/2016 06:15

Matrix: Drinking Water COC Reference: 097423

#### Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #	
1	250ml Plastic	HNO3	Yes	12.8	IR .	
Ana	llysis	Results	Units R	L Method	Run Date/Time	Tech CAS#

Analysis	Results	Units	RL	Method	Run Date/Time	Tech CAS# Flags
Extraction / Prep. Metal Digestion	Completed			SW3015A	06/06/16 08:15	JRH
<i>Metals</i> Lead	0.002	mg/L	0.001	E200.8	06/06/16 11:59	JRH 7439-92-1

Report to TriTerra Project: 16-1598 Kinewa Page 6 of 7



Lab Sample ID: S73854.02 Sample Tag: KIN-W-103

Collected Date/Time: 06/03/2016 06:16

Matrix: Drinking Water COC Reference: 097423

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	12.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech CAS#	Flags
Other / Misc.							
Hold until notified	Completed				06/06/16 15:29	JAL	

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Report to TriTerra Project: 16-1598 Kinewa



Merit National State (17) 332-0167 Fax (517) 332-4034  www.meritlabs.com	nnsing, MI 48823 517) 332-4034	C.O.C. PAGE #OF	097423
REPORT TO CHAIN OF CUS	CHAIN OF CUSTODY RECORD		INVOICE TO
CONTACT NAME DUE MC MASE	CONTACT NAME		E WE
COMPANY T. Larr	COMPANY	17.74	
ADDRESS 1210 N. Ceder Steft	ADDRESS	Shall	
CITY Lansing SPATE 1989 SPATE	)	STATE	ZIP CODE
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PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE