



April 11, 2017

ATC Group Services
Attn: Mr. Robert Smith
46555 Humboldt, Suite 100
Novi, MI 48377

Project: School Drinking Water Testing

Dear Mr. Robert Smith,

Enclosed is a copy of the laboratory report for the following work order(s) received by Pace Analytical:

Work Order	Received	Description
1703424	03/23/2017	Thirkell

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ANAB DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Georgia EPD (#026-999-161/1023062); Illinois DEP (#200026/003329); Kentucky DEP (AL123065/#0021); Michigan DPH (#0034); Minnesota DPH (#026-999-161/1023062); New York ELAP (#11776/53116); North Carolina DNRE (#659); Virginia DCLS (#460153/7952); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-14-00305).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications and Project Technical Narrative sections of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Gary L. Wood
Client Services Manager



PROJECT TECHNICAL NARRATIVE(s)

No Project Narrative is associated with this report.



STATEMENT OF DATA QUALIFICATIONS

All analyses have been validated and comply with our Quality Control Program.
No Qualification is required.



ANALYTICAL REPORT

Client: **ATC Group Services** Work Order: **1703424**
Project: School Drinking Water Testing Description: Thirkell
Client Sample ID: **DWF-P-THIRK-Hall @ Gym (L)** Sampled: 03/23/17 06:05
Lab Sample ID: **1703424-01** Sampled By: ATC
Matrix: Drinking Water Received: 03/23/17 17:00

Metals in Drinking Water by EPA 200 Series Methods

Analyte	Analytical Result	RL	Action Limit	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Copper	0.034	0.0010	1.3	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:42	KLV	1702815
Lead	0.033	0.0010	0.015	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:42	KLV	1702815



ANALYTICAL REPORT

Client: **ATC Group Services** Work Order: **1703424**
Project: School Drinking Water Testing Description: Thirkell
Client Sample ID: **DWF-F-THIRK-Hall @ Gym (L)** Sampled: 03/23/17 06:06
Lab Sample ID: **1703424-02** Sampled By: ATC
Matrix: Drinking Water Received: 03/23/17 17:00

Metals in Drinking Water by EPA 200 Series Methods

Analyte	Analytical Result	RL	Action Limit	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Copper	0.0035	0.0010	1.3	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:52	KLV	1702815
Lead	0.0073	0.0010	0.015	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:52	KLV	1702815



ANALYTICAL REPORT

Client: **ATC Group Services** Work Order: **1703424**
Project: School Drinking Water Testing Description: Thirkell
Client Sample ID: **DWF-P-THIRK-Hall @ Gym (R)** Sampled: 03/23/17 06:08
Lab Sample ID: **1703424-03** Sampled By: ATC
Matrix: Drinking Water Received: 03/23/17 17:00

Metals in Drinking Water by EPA 200 Series Methods

Analyte	Analytical Result	RL	Action Limit	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Copper	0.20	0.0050	1.3	mg/L	5	USEPA-200.8 Rev. 5.4	04/07/17 09:12	KLV	1702815
Lead	0.036	0.0010	0.015	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:55	KLV	1702815



ANALYTICAL REPORT

Client: **ATC Group Services** Work Order: **1703424**
Project: School Drinking Water Testing Description: Thirkell
Client Sample ID: **DWF-F-THIRK-Hall @ Gym (R)** Sampled: 03/23/17 06:09
Lab Sample ID: **1703424-04** Sampled By: ATC
Matrix: Drinking Water Received: 03/23/17 17:00

Metals in Drinking Water by EPA 200 Series Methods

Analyte	Analytical Result	RL	Action Limit	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Copper	0.0084	0.0010	1.3	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:57	KLV	1702815
Lead	0.0070	0.0010	0.015	mg/L	1	USEPA-200.8 Rev. 5.4	04/06/17 11:57	KLV	1702815



QUALITY CONTROL REPORT

Metals in Drinking Water by EPA 200 Series Methods

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL
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Analyte: Copper/USEPA-200.8 Rev. 5.4

QC Batch: 1702815 (Metals Direct Analysis) Analyzed: 04/06/2017 By: KLV

Method Blank			<0.0010	mg/L					0.0010
Laboratory Control Sample		0.0400	0.0395	mg/L	99	85-115			0.0010
1703424-01 [DWF-P-THIRK-Hall @ Gym (L)]									
Matrix Spike	0.0343	0.0200	0.0532	mg/L	95	70-130			0.0010
Matrix Spike Duplicate	0.0343	0.0200	0.0544	mg/L	101	70-130	2	20	0.0010

Analyte: Lead/USEPA-200.8 Rev. 5.4

QC Batch: 1702815 (Metals Direct Analysis) Analyzed: 04/06/2017 By: KLV

Method Blank			<0.0010	mg/L					0.0010
Laboratory Control Sample		0.0400	0.0391	mg/L	98	85-115			0.0010
1703424-01 [DWF-P-THIRK-Hall @ Gym (L)]									
Matrix Spike	0.0334	0.0200	0.0527	mg/L	96	70-130			0.0010
Matrix Spike Duplicate	0.0334	0.0200	0.0532	mg/L	99	70-130	1	20	0.0010



PRETREATMENT SUMMARY PAGE

Client: **ATC Group Services**
Project: **School Drinking Water Testing**

Pretreatment	Lab Sample ID	Batch	By	Date & Time Prepared
USEPA 600/R-94/173	1703424-01	1702815	JBA	03/30/17 16:52
	1703424-02	1702815	JBA	03/30/17 16:52
	1703424-03	1702815	JBA	03/30/17 16:52
	1703424-04	1702815	JBA	03/30/17 16:52

E: 1703424

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:

Company: **AIC GROUP SERVICES**
Address: **4555 HUMBOLDT DRIVE**
SUITE 100
Email To: **robert.smith@atcassociates.com**
Phone: **248-449-5140** Fax: **248-449-5147**
Requested Due Date/AT:

Section B
Required Project Information:

Report To: **ROBERT SMITH**
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C
Invoice Information:

Attention: **ROBERT SMITH**
Company Name: **AIC GROUP SERVICES**
Address: **4555 HUMBOLDT DRIVE**
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location STATE:
 Page: 1 of 1
 2159575

ITEM #	Section D Required Client Information	Matrix Codes MATRIX L CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB				H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other				
1	DWF-P-THIRK-HALL @ GYM (L) THIRKELL	DW	DN 9	G	DATE	TIME	DATE	TIME	1											
2	DWF-F-THIRK-HALL @ GYM (L)	WT					3/23/17	6:05												
3	DWF-P-THIRK-HALL @ GYM (R)	WW						6:08												
4	DWF-F-THIRK-HALL @ GYM (R)	P						6:09												
5		SL																		
6		OL																		
7		WP																		
8		AR																		
9		TS																		
10		OT																		
11																				
12																				

ADDITIONAL COMMENTS: **Kimberly Johnson/ATC 3/23/17 8:40 Dunc**
 RELINQUISHED BY / AFFILIATION: **Dunc**
 DATE: **3-23-17** TIME: **7:00**
 ACCEPTED BY / AFFILIATION: **Pace**
 DATE: **3-28-17** TIME: **12:00**
 SAMPLE CONDITIONS: **30817 1700**

Temp in °C: _____
 Received on Ice (Y/N): _____
 Custody Sealed Cooler (Y/N): _____
 Samples Intact: _____

ORIGINAL

SAMPLER NAME AND SIGNATURE: **Kimberly Johnson**
 PRINT Name of SAMPLER: **Kimberly Johnson**
 SIGNATURE of SAMPLER: *Kimberly Johnson*
 DATE Signed (MM/DD/YY): **3/23/17**



SAMPLE RECEIVING / LOG-IN CHECKLIST

Client: <u>ATC</u>	Work Order #: <u>1703424</u>
Receipt Record Page/Line #: <u>42-34</u>	Project Chemist: <u>[Signature]</u>
	Sample #s: _____

Recorded by (initials/date): <u>DN 3-23-17</u>	<input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other	Qty Received: <u>1</u>	<input checked="" type="checkbox"/> IR Gun (#202) <input type="checkbox"/> Digital Thermometer (#54) <input type="checkbox"/> Other (# _____)	<input type="checkbox"/> See Additional Cooler Information Form
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Cooler #	Time	Cooler #	Time	Cooler #	Time	Cooler #	Time
<u>11884</u>	<u>3:09</u>						
Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	
Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input checked="" type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None	
Coolant Location: Dispersed / Top / Middle / Bottom		Coolant Location: Dispersed / Top / Middle / Bottom		Coolant Location: Dispersed / Top / Middle / Bottom		Coolant Location: Dispersed / Top / Middle / Bottom	
Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative	
Observed °C	Correction Factor °C	Actual °C	Observed °C	Correction Factor °C	Actual °C	Observed °C	Correction Factor °C
Temp Blank:			Temp Blank:			Temp Blank:	
Sample 1:	<u>15.7</u>	<u>0</u>	<u>15.7</u>			Sample 1:	
Sample 2:	<u>17.8</u>	<u>0</u>	<u>17.8</u>			Sample 2:	
Sample 3:	<u>17.1</u>	<u>0</u>	<u>17.1</u>			Sample 3:	
3 Sample Average °C:		<u>16.9</u>	3 Sample Average °C:			3 Sample Average °C:	
<input type="checkbox"/> Cooler ID on COC?			<input type="checkbox"/> Cooler ID on COC?			<input type="checkbox"/> Cooler ID on COC?	
<input type="checkbox"/> VOC Trip Blank received?			<input type="checkbox"/> VOC Trip Blank received?			<input type="checkbox"/> VOC Trip Blank received?	

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes	No	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Chain of Custody record(s)? If No, Initiated By _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Received for Lab Signed/Date/Time?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Shipping document?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other _____

COC Information

Pace COC Other _____

COC ID Numbers: 2159575

Check COC for Accuracy

Yes	No	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Analysis Requested?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID matches COC?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample Date and Time matches COC?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Container type completed on COC?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All container types indicated are received?

Sample Condition Summary

N/A	Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Broken containers/lids?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Missing or incomplete labels?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Illegible information on labels?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Low volume received?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Inappropriate or non-Pace containers received?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	VOC vials / TOX containers have headspace?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Blank OR average sample temperature, ≥6° C?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If either is ≥6° C, was thermal preservation required?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "Yes", Project Chemist Approval Initials: _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "Yes" Completed Non Con Cooler - Cont Inventory Form?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed Sample Preservation Verification Form?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Samples chemically preserved correctly?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "No", added orange tag?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Received pre-preserved VOC soils?
		<input type="checkbox"/>	MeOH
		<input type="checkbox"/>	Na ₂ SO ₄

Check for Short Hold-Time Prep/Analyses

<input type="checkbox"/>	Bacteriological
<input type="checkbox"/>	Air Bags
<input type="checkbox"/>	EnCores / Methanol Pre-Preserved
<input type="checkbox"/>	Formaldehyde/Aldehyde
<input type="checkbox"/>	Green-tagged containers
<input type="checkbox"/>	Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:

COPIES OF COC TO LAB AREA(S)

NONE RECEIVED

RECEIVED, COCs TO LAB(S)

Notes

Trip Blank received Trip Blank not listed on COC

Cooler Received (Date/Time): <u>DN 3/23/17</u>	Paperwork Delivered (Date/Time): <u>3/23/17</u>	≤1 Hour Goal Met? <u>Yes / No</u>
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SAMPLE PRESERVATION VERIFICATION FORM

page 1 of 1

Client: <u>ATC</u>	Work Order #: <u>1703424</u>
Receipt Log #: <u>42-34</u>	Project Chemist: _____
Completed By (initials/date): <u>DN 3/23/17</u>	

COC ID #: <u>2159575</u>				Adjusted by: _____ Date: _____				DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13	6	15						
Tag Color	Lt. Blue	Blue	Brown	Red	Red Stripe						
Preservative	NaOH	H ₂ SO ₄	H ₂ SO ₄	HNO ₃	HNO ₃						
Expected pH	>12	<2	<2	<2	<2						
COC Line #1				✓							
COC Line #2				✓							
COC Line #3				✓							
COC Line #4				✓							
COC Line #5											
COC Line #6											
COC Line #7											
COC Line #8											
COC Line #9											
COC Line #10											

pH Strip Reagent # / Lot #

7021862 / HC693124

Other _____

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form. If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 6 and 15.

Comments: _____

COC ID #: _____				Adjusted by: _____ Date: _____				DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13	6	15						
Tag Color	Lt. Blue	Blue	Brown	Red	Red Stripe						
Preservative	NaOH	H ₂ SO ₄	H ₂ SO ₄	HNO ₃	HNO ₃						
Expected pH	>12	<2	<2	<2	<2						
COC Line #1											
COC Line #2											
COC Line #3											
COC Line #4											
COC Line #5											
COC Line #6											
COC Line #7											
COC Line #8											
COC Line #9											
COC Line #10											

Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5 (NaOH)	
500	2.5
1000	5.0
Container Type 4 (H ₂ SO ₄)	
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13 (H ₂ SO ₄)	
500	2.5

Comments: _____