



ARKANSAS
Department of Environmental Quality

WATER DIVISION INSPECTION REPORT

AFIN: 57-00423 PERMIT #: AR0036692 DATE: 4/5/2016
COUNTY: 57 Polk PDS #: 090879 MEDIA: WN
GPS LAT: 34.56314 LONG: -94.18771 LOCATION: Sample Point

FACILITY INFORMATION

NAME:
Mena Wastewater Plant

LOCATION:
323 Polk 53

CITY:
Mena, AR

RESPONSIBLE OFFICIAL

NAME: / TITLE
Mike Spencer / Wastewater Supervisor

COMPANY:
City of Mena

MAILING ADDRESS:
323 Polk 53

CITY, STATE, ZIP:
Mena AR 71953

PHONE & EXT: / FAX:
479-234-2592 /

EMAIL:
menawwtp@gmail.com

CONTACTED DURING INSPECTION: **Yes**

INSPECTION INFORMATION

FACILITY TYPE:
1 - Municipal INSPECTOR ID#:
84022 S - State

FACILITY EVALUATION RATING:
3 - Satisfactory INSPECTION TYPE:
Compliance Sampling

DATE(S): 4/5/2016	ENTRY TIME: 13:00	EXIT TIME: 14:30	PERMIT EFFECTIVE DATE: 3/1/2012
4/6/2016	09:30	13:45	PERMIT EXPIRATION DATE: 2/28/2017

FAYETTEVILLE SHALE RELATED: **N**

FAYETTEVILLE SHALE VIOLATIONS: **N**

INSPECTION PARTICIPANTS

NAME/TITLE/PHONE/FAX/EMAIL/ETC.:
Mike Spencer (Lic# 007917)/WW Supervisor/(479) 234-2592/menawwtp@gmail.com
District 4 Inspector Dannielle Gray
District 4 Inspector Alana Sullivan

AREA EVALUATIONS

(S=Satisfactory, M=Marginal, U=Unsatisfactory, N=Not Applicable/Evaluated)

**	PERMIT	**	FLOW MEASUREMENT	**	STORMWATER
**	RECORDS/REPORTS	**	LABORATORY	**	FACILITY SITE REVIEW
**	OPERATION & MAINTENANCE	**	EFFLUENT/RECEIVING WATER	**	SELF-MONITORING PROGRAM
**	SAMPLING	**	SLUDGE HANDLING/DISPOSAL	**	PRETREATMENT
S	OTHER: CSI				

SUMMARY OF FINDINGS

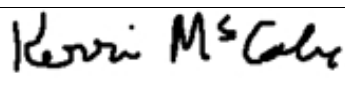
No violations were noted during the inspection. All samples were within permit effluent limits.

GENERAL COMMENTS

On April 5 and 6, 2016 a compliance sampling inspection was conducted with the above inspection participants. The inspection consisted of splitting samples both days with the City utilizing the City's automatic sampler setup at Outfall 001 for a 24-hr, flow-weighted composite and taking grab samples for specific parameters. Field analyses were conducted for DO, TRC, and pH. The Operator supplied daily totalized flow measurements for both days for mass loading calculations.

A HACH Pocket Colorimeter II (chlorine) was used for Total Residual Chlorine (TRC) using EPA Method 8167 with a detection range of 0.02 – 2.00 mg/l Cl₂. The meter is calibrated using a field blank. Samples and duplicates were over the permitting limit of <0.1 mg/l.

Total Recoverable Copper (Cu) was taken as a grab on April 5, 2016; however, the permit calls for composite. This parameter was collected April 6, 2016 from the automatic sampler as a composite. The Total Phosphorus (TP) sample collected April 5, 2016 was not analyzed by the ADEQ lab and is listed as a "lab error" in Table 1 below.

INSPECTOR'S SIGNATURE:  Kerri McCabe

DATE: 5/23/2016

SUPERVISOR'S SIGNATURE:  Jason Bolenbaugh

DATE: 5/23/2016

SECTION I: SAMPLING INSPECTION PROCEDURES	
SAMPLE RESULTS WITHIN PERMIT REQUIREMENTS	☒ S ☐ M ☐ U ☒ NA ☐ NE
DETAILS: <u>Two days of sampling for all required parameters; TP and NO3+NO2-N collected once (April 5); ADEQ lab did not run TP as requested. Field samples for DO, TRC, and pH. Totalized flow supplied by Operator.</u>	
1. SAMPLES OBTAINED THIS INSPECTION:	☒ Y ☐ N ☐ NA ☐ NE
2. TYPE OF SAMPLE: ☒ GRAB: <u> </u> ☒ COMPOSITE: <u>24-hr</u> METHOD: <u>N/A</u> FREQUENCY: <u>CBOD5, TSS, NH3-N, DO, FCB, TRC, pH twice/week; TP, NO3+NO2-N, Total Cu once/month</u>	
3. SAMPLES PRESERVED:	☒ Y ☐ N ☐ NA ☐ NE
4. FLOW PROPORTIONED SAMPLES OBTAINED:	☒ Y ☐ N ☐ NA ☐ NE
5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE: <u>Used City's automatic sampler; 24-hr composite (noon-noon for April 4 - 6).</u>	☒ Y ☐ N ☐ NA ☐ NE
6. SAMPLE REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE:	☒ Y ☐ N ☐ NA ☐ NE
7. SAMPLE SPLIT WITH PERMITTEE:	☒ Y ☐ N ☐ NA ☐ NE
8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED:	☒ Y ☐ N ☐ NA ☐ NE
9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT: <u>Total Cu for April 5 was collected as a grab (permit requires composite); resampled Total Cu on April 6 as composite.</u>	☒ Y ☐ N ☐ NA ☐ NE

Table 1. Effluent Limitations and Monitoring Requirements: Outfall 001 (treated municipal wastewater)								
Effluent Characteristics	Discharge Limitations			Sample Results			Monitoring Requirements	
	Mass (lbs/day)	Concentration (mg/l, unless otherwise specified)		Mass (lbs/day)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Monthly Avg.	7-Day Avg.	Monthly Avg.	Monthly Avg.	7-Day Avg.		
Flow	N/A	Report, MGD	Report, MGD (Daily Max)	N/A	1.24	1.24	once/day	totalized
Carbonaceous Biochemical Oxygen Demand (CBOD5)	259	10	15	2.08	0.2	0.2	two/week	composite
Total Suspended Solids (TSS)	388	12	22.5	86.1	8.3	8.3	two/week	composite
Ammonia Nitrogen (NH3-N)								
April	127	4.9	12	10.4	1.0	1.0	two/week	composite
May	78	3	4.5				two/week	composite
June-Oct	55	2.1	4.5				two/week	composite
Nov-March	153	5.9	12				two/week	composite
Dissolved Oxygen (DO)	N/A	7.1 (Inst. Min.)		N/A	9.5	10.0	two/week	grab
Fecal Coliform Bacteria (FCB)	N/A	colonies/100ml						
		1000	2000	N/A	<4	<4	two/week	grab
Total Residual Chlorine (TRC)	N/A	<0.1 mg/l (Inst. Max.)		N/A	0.2	0.3	two/week	grab
Total Phosphorus (TP)	Report	Report	Report	Did Not Run; Lab Error	Did Not Run; Lab Error	Did Not Run; Lab Error	once/month	grab
Nitrate+Nitrite Nitrogen (NO3+NO2-N)	Report	Report	Report	16	1.56	1.56	once/month	grab
Total Recoverable Copper (Cu)	0.3	10.5 ug/l	21 ug/l	0.04	3.86	3.86	once/month	composite
pH	N/A	Minimum	Maximum	N/A	6.43	6.58	once/month	grab
		6.0 s.u.	9.0 s.u.					



5301 Northshore Drive
North Little Rock, AR 72118
Telephone: 501-682-0744

Client Report For: City of Mena 2016 0989
Attention:
Client Address:

,

Report Date: May 09, 2016
LAB ID: AR16APR05-04
Comment:

Approved By: _____

Date: May 09, 2016

Client: CSI

Client Sample ID: Outfall 001

Lab ID: 2016-0989

Collection Date: 4/5/2016 1:05:00 PM

Matrix: Water

Analyses

Fecal Coliforms

SM 9222 D

Batch: 16040703 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Fecal Coliforms	<4	4	4		cfu/100ml
Analyzed By	Melanie Treat				
Analysis Date/Time	4/5/2016 16:40				

<u>Client:</u>	CSI	<u>Client Sample ID:</u>	Outfall 001
<u>Lab ID:</u>	2016-0989	<u>Collection Date:</u>	4/5/2016 1:05:00 PM
		<u>Matrix:</u>	Water

Analyses

Ammonia as Nitrogen

SM 4500-NH3 H (20th)

Batch: 16041403 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Ammonia as N	1.16	0.03	0.03		mg/L
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:07:59 PM				

***Carb. Biochemical Oxygen Demand
(CBOD) 5 Day***

SM 5210-B

Batch: 16041802 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Carbonaceous BOD	<0.2	0.2	0.2		mg/L
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

Nitrate and Nitrite

SM 4500-NO3 I (20th)

Batch: 16041405 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Nitrate/Nitrite as N	1.56	0.03	0.03		mg/L
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:07:59 PM				

Total Suspended Solids

EPA 160.2

Batch: 16041206 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Total Suspended Solids	8.8	1.0	1.0		mg/L
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

<u>Client:</u>	CSI	<u>Client Sample ID:</u>	Outfall 001
<u>Lab ID:</u>	2016-0989	<u>Collection Date:</u>	4/5/2016 1:05:00 PM
		<u>Matrix:</u>	Water

Analyses

Total Metals by EPA 200.8

EPA 200.8

Batch: 16042001 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Aluminum	125	20	20		ug/L
Antimony	<10	10	5		ug/L
Arsenic	<1	1	0.5		ug/L
Barium	<10	10	2.0		ug/L
Beryllium	<0.5	0.5	0.1		ug/L
Boron	54.7	25	5.0		ug/L
Cadmium	<1	1	0.3		ug/L
Calcium	6.66	0.04	0.04		mg/L
Chromium	<1	1	0.3		ug/L
Cobalt	<1	1	0.5		ug/L
Copper	2.22	1	0.5		ug/L
Iron	25.7	20	10.0		ug/L
Lead	<1	1	0.1		ug/L
Magnesium	1.77	0.1	0.1		mg/L
Manganese	32.4	1	0.2		ug/L
Nickel	<2.5	2.5	0.5		ug/L
Potassium	3.31	1	0.05		mg/L
Selenium	<2	2	0.5		ug/L
Silver	<5	5	1.0		ug/L
Sodium	11.3	0.04	0.02		mg/L
Thallium	<2.5	2.5	0.05		ug/L
Vanadium	<2.5	2.5	1.0		ug/L
Zinc	<3	3	2.0		ug/L

Dilution Factor	1
Analyzed By	Robert Graddy
Analysis Date/Time	Apr 13 2016 7:30PM
Prep By	
Prep Date/Time	

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

Laboratory Contact: Jeff Ruehr
Ruehr@adeq.state.ar.us
501-682-0955

Client: CSI

Client Sample ID: Outfall 001

Lab ID: 2016-0989

Collection Date: 4/5/2016 1:05:00 PM

Matrix: Water

Analyses

Field Data

Batch: 16041803 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Dissolved Oxygen	10.0				mg/L
pH	6.46				SU
Temperature	18.8				C
Analyzed By	Kerri McCabe				
Analysis Date/Time	4/5/2016 13:05				

Analytical Quality Control Results Report

Batch: 16040703	Fecal Coliforms - water
Outfall 001	LIMS ID: 2016-0989

Fecal Coliforms DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Fecal Coliforms (RPD)	0 %				0 - 20
Fecal Coliforms	<4 cfu/100ml	4	4		
Analysis Date/Time	4/5/2016 16:40				
Analyzed By	Melanie Treat				

Analytical Quality Control Results Report

Batch: 16041802	CBOD5 - water
Outfall 001	LIMS ID: 2016-0989

CBOD - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD	<0.2 mg/L	0.2	0.2		
Carbonaceous BOD (RPD)	0 %				0 - 20
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

MB	LIMS ID: 16041802-MB-01
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CBOD - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD	<0.2 mg/L	0.2	0.2		
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

LCS	LIMS ID: 16041802-LCS-01
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CBOD - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD (% Recovery)	106 %			80 - 120	
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

LCS	LIMS ID: 16041802-LCS-02
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CBOD - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD (% Recovery)	102 %			80 - 120	
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

Analytical Quality Control Results Report

Batch: 16042001	ICP Metals - water (total)
Outfall 001	LIMS ID: 2016-0989

ICP Metals - water (Total) DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum	131 ug/L	20	20		
Aluminum (RPD)	4.8 %				0 - 20
Antimony (RPD)	1.8 %				0 - 20
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Arsenic (RPD)	3.2 %				0 - 20
Barium (RPD)	0.7 %				0 - 20
Barium	<10 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Beryllium (RPD)	333 %				0 - 20
Boron (RPD)	0.3 %				0 - 20
Boron	54.6 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Cadmium (RPD)	28.6 %				0 - 20
Calcium (RPD)	2.5 %				0 - 20
Calcium	6.83 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Chromium (RPD)	114 %				0 - 20
Cobalt (RPD)	3.6 %				0 - 20
Cobalt	<1 ug/L	0.5	1		
Copper	2.19 ug/L	0.5	1		
Copper (RPD)	1.3 %				0 - 20
Iron (RPD)	7.0 %				0 - 20
Iron	27.5 ug/L	10	20		
Lead	<1 ug/L	0.1	1		
Lead (RPD)	2.4 %				0 - 20
Magnesium (RPD)	2.1 %				0 - 20
Magnesium	1.81 mg/L	0.1	0.1		
Manganese	32 ug/L	0.2	1		
Manganese (RPD)	0.2 %				0 - 20
Nickel (RPD)	7.3 %				0 - 20
Nickel	<2.5 ug/L	0.5	2.5		
Potassium	3.38 mg/L	0.05	1		
Potassium (RPD)	2.2 %				0 - 20
Selenium (RPD)	20.9 %				0 - 20
Selenium	<2 ug/L	0.5	2		
Silver	<5 ug/L	1	5		
Silver (RPD)	0 %				0 - 20
Sodium	11.3 mg/L	0.02	0.04		

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North Little Rock, AR 72118

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Sodium (RPD)	0.3 %		0 - 20
Thallium (RPD)	0 %		0 - 20
Thallium	<2.5 ug/L	0.05	2.5
Vanadium (RPD)	0.5 %		0 - 20
Vanadium	<2.5 ug/L	1	2.5
Zinc	<3 ug/L	2	3
Zinc (RPD)	1.5 %		0 - 20
Dilution Factor	1		
Analyzed By	Robert Graddy		
Analysis Date/Time	Apr 13 2016 7:37PM		

MB	LIMS ID: 16042001-MB-01
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ICP Metals - water (Total) MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum	<20 ug/L	20	20		
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Barium	<10 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Boron	<25 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Calcium	<0.04 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Cobalt	<1 ug/L	0.5	1		
Copper	<1 ug/L	0.5	1		
Iron	<20 ug/L	10	20		
Lead	<1 ug/L	0.1	1		
Magnesium	<0.1 mg/L	0.1	0.1		
Manganese	<1 ug/L	0.2	1		
Nickel	<2.5 ug/L	0.5	2.5		
Potassium	<1 mg/L	0.05	1		
Selenium	<2 ug/L	0.5	2		
Silver	<5 ug/L	1	5		
Sodium	<0.04 mg/L	0.02	0.04		
Thallium	<2.5 ug/L	0.05	2.5		
Vanadium	<2.5 ug/L	1	2.5		
Zinc	<3 ug/L	2	3		
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016 12:59PM				

LCS	LIMS ID: 16042001-LCS-01
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ICP Metals - water (Total) LCS**Run: 1**

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501-682-0955

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Aluminum (% Recovery)	104 %			70 - 130	
Antimony (% Recovery)	103 %			70 - 130	
Arsenic (% Recovery)	109 %			70 - 130	
Barium (% Recovery)	103 %			70 - 130	
Beryllium (% Recovery)	109 %			70 - 130	
Boron (% Recovery)	109 %			70 - 130	
Cadmium (% Recovery)	106 %			70 - 130	
Calcium (% Recovery)	104 %			70 - 130	
Chromium (% Recovery)	103 %			70 - 130	
Cobalt (% Recovery)	103 %			70 - 130	
Copper (% Recovery)	104 %			70 - 130	
Iron (% Recovery)	103 %			70 - 130	
Lead (% Recovery)	101 %			70 - 130	
Magnesium (% Recovery)	104 %			70 - 130	
Manganese (% Recovery)	100 %			70 - 130	
Nickel (% Recovery)	100 %			70 - 130	
Potassium (% Recovery)	103 %			70 - 130	
Selenium (% Recovery)	112 %			70 - 130	
Silver (% Recovery)	103 %			70 - 130	
Sodium (% Recovery)	104 %			70 - 130	
Thallium (% Recovery)	101 %			70 - 130	
Vanadium (% Recovery)	103 %			70 - 130	
Zinc (% Recovery)	111 %			70 - 130	
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016 1:06PM				

MB	LIMS ID: 16042001-MB-02
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*ICP Metals - water (Total) MB**Run: 1*

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Aluminum	<20 ug/L	20	20		
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Barium	<10 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Boron	<25 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Calcium	<0.04 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Cobalt	<1 ug/L	0.5	1		
Copper	<1 ug/L	0.5	1		
Iron	<20 ug/L	10	20		

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North Little Rock, AR 72118

501-682-0955

Lead	<1 ug/L	0.1	1
Magnesium	<0.1 mg/L	0.1	0.1
Manganese	<1 ug/L	0.2	1
Nickel	<2.5 ug/L	0.5	2.5
Potassium	<1 mg/L	0.05	1
Selenium	<2 ug/L	0.5	2
Silver	<5 ug/L	1	5
Sodium	<0.04 mg/L	0.02	0.04
Thallium	<2.5 ug/L	0.05	2.5
Vanadium	<2.5 ug/L	1	2.5
Zinc	<3 ug/L	2	3
Dilution Factor	1		
Analyzed By	Robert Graddy		
Analysis Date/Time	Apr 13 2016 4:22PM		

LCS	LIMS ID: 16042001-LCS-02
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ICP Metals - water (Total) LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum (% Recovery)	107 %			70 - 130	
Antimony (% Recovery)	100 %			70 - 130	
Arsenic (% Recovery)	107 %			70 - 130	
Barium (% Recovery)	102 %			70 - 130	
Beryllium (% Recovery)	107 %			70 - 130	
Boron (% Recovery)	107 %			70 - 130	
Cadmium (% Recovery)	104 %			70 - 130	
Calcium (% Recovery)	103 %			70 - 130	
Chromium (% Recovery)	101 %			70 - 130	
Cobalt (% Recovery)	101 %			70 - 130	
Copper (% Recovery)	102 %			70 - 130	
Iron (% Recovery)	101 %			70 - 130	
Lead (% Recovery)	101 %			70 - 130	
Magnesium (% Recovery)	105 %			70 - 130	
Manganese (% Recovery)	100 %			70 - 130	
Nickel (% Recovery)	100 %			70 - 130	
Potassium (% Recovery)	103 %			70 - 130	
Selenium (% Recovery)	112 %			70 - 130	
Silver (% Recovery)	102 %			70 - 130	
Sodium (% Recovery)	105 %			70 - 130	
Thallium (% Recovery)	100 %			70 - 130	
Vanadium (% Recovery)	101 %			70 - 130	
Zinc (% Recovery)	110 %			70 - 130	
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016				

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

Laboratory Contact: Jeff Ruehr
Ruehr@adeq.state.ar.us
501-682-0955

4:29PM

Analytical Quality Control Results Report

Batch: 16041206	TSS - water
Outfall 001	LIMS ID: 2016-0989

Solids, Total Suspended - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	9.8 mg/L	1	1		
Total Suspended Solids (RPD)	10.8 %				0 - 20
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

MB	LIMS ID: 16041206-MB-01
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Solids, Total Suspended - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-01
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Solids, Total Suspended - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	104 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-02
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Solids, Total Suspended - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-02
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Solids, Total Suspended - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	105 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

5301 Northshore Drive

Ruehr@adeq.state.ar.us

North Little Rock, AR 72118

501-682-0955

MB	LIMS ID: 16041206-MB-03
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-03
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	91.0 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-04
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-04
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	97.2 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-05
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

LCS	LIMS ID: 16041206-LCS-05
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	94.0 %			90 - 110	

5301 Northshore Drive

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501-682-0955

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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MB	LIMS ID: 16041206-MB-06
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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LCS	LIMS ID: 16041206-LCS-06
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	98.5 %			90 - 110	

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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MB	LIMS ID: 16041206-MB-07
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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LCS	LIMS ID: 16041206-LCS-07
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	96.2 %			90 - 110	

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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MB	LIMS ID: 16041206-MB-08
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By	Patrick Rawhouser
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Analysis Date/Time	4/6/2016 7:30
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LCS	LIMS ID: 16041206-LCS-08
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5301 Northshore Drive

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North Little Rock, AR 72118

501-682-0955

Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	96.8 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

Analytical Quality Control Results Report

Batch: 16041403	Lachat - Ammonia (water)
Outfall 001	LIMS ID: 2016-0989

Ammonia as N - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	1.16 mg/L	0.03	0.03		
Ammonia as N (RPD)	0 %				0 - 20
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:09:02 PM				

MB	LIMS ID: 16041403-MB-01
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:30:29 AM				

LCS	LIMS ID: 16041403-LCS-01
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Ammonia as N - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N (% Recovery)	96.8 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:31:32 AM				

MB	LIMS ID: 16041403-MB-02
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:01:44 PM				

LCS	LIMS ID: 16041403-LCS-02
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Ammonia as N - water LCS

Run: 1

5301 Northshore Drive
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501-682-0955

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	96.8 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:02:45 PM				

MB	LIMS ID: 16041403-MB-03
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Ammonia as N - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:35:05 PM				

LCS	LIMS ID: 16041403-LCS-03
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Ammonia as N - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	101 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:36:07 PM				

MB	LIMS ID: 16041403-MB-04
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Ammonia as N - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:23:40 PM				

LCS	LIMS ID: 16041403-LCS-04
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Ammonia as N - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	90.2 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:24:43 PM				

MB	LIMS ID: 16041403-MB-05
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:16:35 PM				

LCS	LIMS ID: 16041403-LCS-05
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Ammonia as N - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N (% Recovery)	92.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:17:37 PM				

Analytical Quality Control Results Report

Batch: 16041405	Lachat - NO3+NO2 (water)
Outfall 001	LIMS ID: 2016-0989

Nitrate and Nitrite - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N	1.56 mg/L	0.03	0.03		
Nitrate/Nitrite as N (RPD)	0 %				0 - 20
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:09:02 PM				

MB	LIMS ID: 16041405-MB-01
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Nitrate and Nitrite - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:30:29 AM				

LCS	LIMS ID: 16041405-LCS-01
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Nitrate and Nitrite - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N (% Recovery)	95.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:31:32 AM				

MB	LIMS ID: 16041405-MB-02
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Nitrate and Nitrite - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:01:44 PM				

LCS	LIMS ID: 16041405-LCS-02
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Nitrate and Nitrite - water LCS

Run: 1

5301 Northshore Drive

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North Little Rock, AR 72118

501-682-0955

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Nitrate/Nitrite as N (% Recovery)	95.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:02:45 PM				

MB	LIMS ID: 16041405-MB-03
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Nitrate and Nitrite - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Nitrate/Nitrite as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:35:05 PM				

LCS	LIMS ID: 16041405-LCS-03
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Nitrate and Nitrite - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Nitrate/Nitrite as N (% Recovery)	94.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:36:07 PM				

MB	LIMS ID: 16041405-MB-04
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Nitrate and Nitrite - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Nitrate/Nitrite as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:23:40 PM				

LCS	LIMS ID: 16041405-LCS-04
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Nitrate and Nitrite - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Nitrate/Nitrite as N (% Recovery)	95.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:24:43 PM				

MB	LIMS ID: 16041405-MB-05
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Nitrate and Nitrite - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:16:35 PM				

LCS	LIMS ID: 16041405-LCS-05
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Nitrate and Nitrite - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Nitrate/Nitrite as N (% Recovery)	96.7 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:17:37 PM				



5301 Northshore Drive
North Little Rock, AR 72118
Telephone: 501-682-0744

Client Report For: City of Mena CSI 2016 1060
Attention:
Client Address:

,

Report Date: May 09, 2016
LAB ID: AR16APR06-06
Comment:

Approved By: _____

Date: May 09, 2016

Client: CSI

Client Sample ID: Outfall 001

Lab ID: 2016-1060

Collection Date: 4/6/2016 1:17:00 PM

Matrix: Water

Analyses

Fecal Coliforms

SM 9222 D

Batch: 16040704 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Fecal Coliforms	<4	4	4		cfu/100ml
Analyzed By	Melanie Treat				
Analysis Date/Time	4/6/2016 16:35				

<u>Client:</u>	CSI	<u>Client Sample ID:</u>	Outfall 001
<u>Lab ID:</u>	2016-1060	<u>Collection Date:</u>	4/6/2016 1:17:00 PM
		<u>Matrix:</u>	Water

Analyses

Total Metals by EPA 200.8

EPA 200.8

Batch: 16042001 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Aluminum	352	20	20		ug/L
Antimony	<10	10	5		ug/L
Arsenic	<1	1	0.5		ug/L
Barium	10.2	10	2.0		ug/L
Beryllium	<0.5	0.5	0.1		ug/L
Boron	56.2	25	5.0		ug/L
Cadmium	<1	1	0.3		ug/L
Calcium	6.96	0.04	0.04		mg/L
Chromium	<1	1	0.3		ug/L
Cobalt	<1	1	0.5		ug/L
Copper	3.86	1	0.5		ug/L
Iron	104	20	10.0		ug/L
Lead	<1	1	0.1		ug/L
Magnesium	1.79	0.1	0.1		mg/L
Manganese	47.3	1	0.2		ug/L
Nickel	<2.5	2.5	0.5		ug/L
Potassium	3.48	1	0.05		mg/L
Selenium	<2	2	0.5		ug/L
Silver	<5	5	1.0		ug/L
Sodium	11.5	0.04	0.02		mg/L
Thallium	<2.5	2.5	0.05		ug/L
Vanadium	<2.5	2.5	1.0		ug/L
Zinc	4	3	2.0		ug/L
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016 7:58PM				
Prep By					
Prep Date/Time					

<u>Client:</u>	CSI	<u>Client Sample ID:</u>	Outfall 001
<u>Lab ID:</u>	2016-1060	<u>Collection Date:</u>	4/6/2016 1:17:00 PM
		<u>Matrix:</u>	Water

Analyses

Ammonia as Nitrogen

SM 4500-NH3 H (20th)

Batch: 16041403 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Ammonia as N	0.849	0.03	0.03		mg/L
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:18:40 PM				

Carb. Biochemical Oxygen Demand (CBOD) 5 Day

SM 5210-B

Batch: 16041802 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Carbonaceous BOD	<0.2	0.2	0.2		mg/L
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

Total Suspended Solids

EPA 160.2

Batch: 16041206 Run: 1

	<u>Result</u>	<u>Reporting Limit</u>	<u>MDL</u>	<u>Qual</u>	<u>Unit</u>
Total Suspended Solids	7.8	1.0	1.0		mg/L
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

Analytical Quality Control Results Report

Batch: 16040704	Fecal Coliforms - water
Outfall 001	LIMS ID: 2016-1060

Fecal Coliforms DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Fecal Coliforms	<4 cfu/100ml	4	4		
Fecal Coliforms (RPD)	0 %				0 - 20
Analysis Date/Time	4/6/2016 16:35				
Analyzed By	Melanie Treat				

Analytical Quality Control Results Report

Batch: 16041802	CBOD5 - water
Outfall 001	LIMS ID: 2016-1060

CBOD - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD	<0.2 mg/L	0.2	0.2		
Carbonaceous BOD (RPD)	0 %				0 - 20
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

MB	LIMS ID: 16041802-MB-01
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CBOD - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD	<0.2 mg/L	0.2	0.2		
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

LCS	LIMS ID: 16041802-LCS-01
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CBOD - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD (% Recovery)	106 %			80 - 120	
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

LCS	LIMS ID: 16041802-LCS-02
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CBOD - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Carbonaceous BOD (% Recovery)	102 %			80 - 120	
Analyzed By	Robert Graddy				
Analysis Date/Time	4/11/2016 14:00				

Analytical Quality Control Results Report

Batch: 16042001	ICP Metals - water (total)
Outfall 001	LIMS ID: 2016-1060

ICP Metals - water (Total) DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum	359 ug/L	20	20		
Aluminum (RPD)	1.7 %				0 - 20
Antimony (RPD)	18.5 %				0 - 20
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Arsenic (RPD)	15.5 %				0 - 20
Barium (RPD)	1.2 %				0 - 20
Barium	10.1 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Beryllium (RPD)	85.7 %				0 - 20
Boron (RPD)	1.9 %				0 - 20
Boron	55.1 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Cadmium (RPD)	60.9 %				0 - 20
Calcium (RPD)	0.1 %				0 - 20
Calcium	6.95 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Chromium (RPD)	3.6 %				0 - 20
Cobalt (RPD)	2.5 %				0 - 20
Cobalt	<1 ug/L	0.5	1		
Copper	3.82 ug/L	0.5	1		
Copper (RPD)	1.2 %				0 - 20
Iron (RPD)	4.2 %				0 - 20
Iron	108 ug/L	10	20		
Lead	<1 ug/L	0.1	1		
Lead (RPD)	0.9 %				0 - 20
Magnesium (RPD)	0.2 %				0 - 20
Magnesium	1.79 mg/L	0.1	0.1		
Manganese	46 ug/L	0.2	1		
Manganese (RPD)	1.6 %				0 - 20
Nickel (RPD)	0.2 %				0 - 20
Nickel	<2.5 ug/L	0.5	2.5		
Potassium	3.45 mg/L	0.05	1		
Potassium (RPD)	0.9 %				0 - 20
Selenium (RPD)	17.4 %				0 - 20
Selenium	<2 ug/L	0.5	2		
Silver	<5 ug/L	1	5		
Silver (RPD)	3.9 %				0 - 20
Sodium	11.3 mg/L	0.02	0.04		

5301 Northshore Drive

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North Little Rock, AR 72118

501-682-0955

Sodium (RPD)	1.1 %		0 - 20
Thallium (RPD)	0 %		0 - 20
Thallium	<2.5 ug/L	0.05	2.5
Vanadium (RPD)	5.2 %		0 - 20
Vanadium	<2.5 ug/L	1	2.5
Zinc	4.11 ug/L	2	3
Zinc (RPD)	2.7 %		0 - 20
Dilution Factor	1		
Analyzed By	Robert Graddy		
Analysis Date/Time	Apr 13 2016 8:05PM		

MB	LIMS ID: 16042001-MB-01
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ICP Metals - water (Total) MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum	<20 ug/L	20	20		
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Barium	<10 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Boron	<25 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Calcium	<0.04 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Cobalt	<1 ug/L	0.5	1		
Copper	<1 ug/L	0.5	1		
Iron	<20 ug/L	10	20		
Lead	<1 ug/L	0.1	1		
Magnesium	<0.1 mg/L	0.1	0.1		
Manganese	<1 ug/L	0.2	1		
Nickel	<2.5 ug/L	0.5	2.5		
Potassium	<1 mg/L	0.05	1		
Selenium	<2 ug/L	0.5	2		
Silver	<5 ug/L	1	5		
Sodium	<0.04 mg/L	0.02	0.04		
Thallium	<2.5 ug/L	0.05	2.5		
Vanadium	<2.5 ug/L	1	2.5		
Zinc	<3 ug/L	2	3		
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016 12:59PM				

LCS	LIMS ID: 16042001-LCS-01
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ICP Metals - water (Total) LCS**Run: 1**

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North Little Rock, AR 72118

501-682-0955

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Aluminum (% Recovery)	104 %			70 - 130	
Antimony (% Recovery)	103 %			70 - 130	
Arsenic (% Recovery)	109 %			70 - 130	
Barium (% Recovery)	103 %			70 - 130	
Beryllium (% Recovery)	109 %			70 - 130	
Boron (% Recovery)	109 %			70 - 130	
Cadmium (% Recovery)	106 %			70 - 130	
Calcium (% Recovery)	104 %			70 - 130	
Chromium (% Recovery)	103 %			70 - 130	
Cobalt (% Recovery)	103 %			70 - 130	
Copper (% Recovery)	104 %			70 - 130	
Iron (% Recovery)	103 %			70 - 130	
Lead (% Recovery)	101 %			70 - 130	
Magnesium (% Recovery)	104 %			70 - 130	
Manganese (% Recovery)	100 %			70 - 130	
Nickel (% Recovery)	100 %			70 - 130	
Potassium (% Recovery)	103 %			70 - 130	
Selenium (% Recovery)	112 %			70 - 130	
Silver (% Recovery)	103 %			70 - 130	
Sodium (% Recovery)	104 %			70 - 130	
Thallium (% Recovery)	101 %			70 - 130	
Vanadium (% Recovery)	103 %			70 - 130	
Zinc (% Recovery)	111 %			70 - 130	
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016 1:06PM				

MB	LIMS ID: 16042001-MB-02
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ICP Metals - water (Total) MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Aluminum	<20 ug/L	20	20		
Antimony	<10 ug/L	5	10		
Arsenic	<1 ug/L	0.5	1		
Barium	<10 ug/L	2	10		
Beryllium	<0.5 ug/L	0.1	0.5		
Boron	<25 ug/L	5	25		
Cadmium	<1 ug/L	0.3	1		
Calcium	<0.04 mg/L	0.04	0.04		
Chromium	<1 ug/L	0.3	1		
Cobalt	<1 ug/L	0.5	1		
Copper	<1 ug/L	0.5	1		
Iron	<20 ug/L	10	20		

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501-682-0955

Lead	<1 ug/L	0.1	1
Magnesium	<0.1 mg/L	0.1	0.1
Manganese	<1 ug/L	0.2	1
Nickel	<2.5 ug/L	0.5	2.5
Potassium	<1 mg/L	0.05	1
Selenium	<2 ug/L	0.5	2
Silver	<5 ug/L	1	5
Sodium	<0.04 mg/L	0.02	0.04
Thallium	<2.5 ug/L	0.05	2.5
Vanadium	<2.5 ug/L	1	2.5
Zinc	<3 ug/L	2	3
Dilution Factor	1		
Analyzed By	Robert Graddy		
Analysis Date/Time	Apr 13 2016 4:22PM		

LCS	LIMS ID: 16042001-LCS-02
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ICP Metals - water (Total) LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum (% Recovery)	107 %			70 - 130	
Antimony (% Recovery)	100 %			70 - 130	
Arsenic (% Recovery)	107 %			70 - 130	
Barium (% Recovery)	102 %			70 - 130	
Beryllium (% Recovery)	107 %			70 - 130	
Boron (% Recovery)	107 %			70 - 130	
Cadmium (% Recovery)	104 %			70 - 130	
Calcium (% Recovery)	103 %			70 - 130	
Chromium (% Recovery)	101 %			70 - 130	
Cobalt (% Recovery)	101 %			70 - 130	
Copper (% Recovery)	102 %			70 - 130	
Iron (% Recovery)	101 %			70 - 130	
Lead (% Recovery)	101 %			70 - 130	
Magnesium (% Recovery)	105 %			70 - 130	
Manganese (% Recovery)	100 %			70 - 130	
Nickel (% Recovery)	100 %			70 - 130	
Potassium (% Recovery)	103 %			70 - 130	
Selenium (% Recovery)	112 %			70 - 130	
Silver (% Recovery)	102 %			70 - 130	
Sodium (% Recovery)	105 %			70 - 130	
Thallium (% Recovery)	100 %			70 - 130	
Vanadium (% Recovery)	101 %			70 - 130	
Zinc (% Recovery)	110 %			70 - 130	
Dilution Factor	1				
Analyzed By	Robert Graddy				
Analysis Date/Time	Apr 13 2016				

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5301 Northshore Drive
North Little Rock, AR 72118

Laboratory Contact: Jeff Ruehr
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4:29PM

Analytical Quality Control Results Report

Batch: 16041403	Lachat - Ammonia (water)
Outfall 001	LIMS ID: 2016-1060

Ammonia as N - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	0.853 mg/L	0.03	0.03		
Ammonia as N (RPD)	0.5 %				0 - 20
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:19:43 PM				

MB	LIMS ID: 16041403-MB-01
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:30:29 AM				

LCS	LIMS ID: 16041403-LCS-01
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Ammonia as N - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N (% Recovery)	96.8 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 11:31:32 AM				

MB	LIMS ID: 16041403-MB-02
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:01:44 PM				

LCS	LIMS ID: 16041403-LCS-02
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Ammonia as N - water LCS

Run: 1

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<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	96.8 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:02:45 PM				

MB	LIMS ID: 16041403-MB-03
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Ammonia as N - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:35:05 PM				

LCS	LIMS ID: 16041403-LCS-03
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Ammonia as N - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	101 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 12:36:07 PM				

MB	LIMS ID: 16041403-MB-04
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Ammonia as N - water MB**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:23:40 PM				

LCS	LIMS ID: 16041403-LCS-04
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Ammonia as N - water LCS**Run: 1**

<i>Parameter</i>	<i>Result</i>	<i>DL</i>	<i>RL</i>	<i>Accuracy Control</i>	<i>Precision Control</i>
Ammonia as N (% Recovery)	90.2 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/6/2016 1:24:43 PM				

MB	LIMS ID: 16041403-MB-05
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Ammonia as N - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N	<0.03 mg/L	0.03	0.03		
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:16:35 PM				

LCS	LIMS ID: 16041403-LCS-05
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Ammonia as N - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Ammonia as N (% Recovery)	92.3 %			80 - 120	
Dilution Factor	1				
Analyzed By	Chad Carrington				
Analysis Date/Time	4/7/2016 3:17:37 PM				

Analytical Quality Control Results Report

Batch: 16041206	TSS - water
Outfall 001	LIMS ID: 2016-1060

Solids, Total Suspended - water DUP

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	6.7 mg/L	1	1		
Total Suspended Solids (RPD)	15.2 %				0 - 20
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

MB	LIMS ID: 16041206-MB-01
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Solids, Total Suspended - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-01
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Solids, Total Suspended - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	104 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-02
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Solids, Total Suspended - water MB

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-02
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Solids, Total Suspended - water LCS

Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	105 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

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MB	LIMS ID: 16041206-MB-03
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-03
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	91.0 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-04
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

LCS	LIMS ID: 16041206-LCS-04
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	97.2 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	3/24/2016 7:30				

MB	LIMS ID: 16041206-MB-05
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Solids, Total Suspended - water MB**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				

LCS	LIMS ID: 16041206-LCS-05
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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	94.0 %			90 - 110	

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Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

MB **LIMS ID: 16041206-MB-06****Solids, Total Suspended - water MB****Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

LCS **LIMS ID: 16041206-LCS-06****Solids, Total Suspended - water LCS****Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	98.5 %			90 - 110	

Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

MB **LIMS ID: 16041206-MB-07****Solids, Total Suspended - water MB****Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

LCS **LIMS ID: 16041206-LCS-07****Solids, Total Suspended - water LCS****Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	96.2 %			90 - 110	

Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

MB **LIMS ID: 16041206-MB-08****Solids, Total Suspended - water MB****Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids	<1 mg/L	1	1		

Analyzed By

Patrick Rawhouser

Analysis Date/Time

4/6/2016 7:30

LCS **LIMS ID: 16041206-LCS-08**

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Solids, Total Suspended - water LCS**Run: 1**

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Total Suspended Solids (% Recovery)	96.8 %			90 - 110	
Analyzed By	Patrick Rawhouser				
Analysis Date/Time	4/6/2016 7:30				