AMERICAN INTERPLEX CORPORATION
LABORATORIES

January 15, 2015
Control No. 186484

McClelland Consulting Engineers, Inc.
ATTN: Mr. Matt Bienvenu
Post Office Box 34087
Little Rock, AR 72203-4087

This report contains the analytical results and supporting information for the sample submitted on January 9, 2015. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: McClelland Consulting Engineers, Inc.
ATTN: Mr. Matt Bienvenu
mbienvenu@mcclelland-engrs.com

McClelland Consulting Engineers, Inc.
ATTN: Mr. Dan Beranek
dberanek@mcclelland-engrs.com

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SAMPLE INFORMATION

Project Description:
One (1) sludge sample(s) received on January 9, 2015

Receipt Details:
A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
186484-1	Calico Rock	07-Jan-2015	1

Notes:
1. Sample label was incomplete in regard to date/time of sampling

Qualifiers:
H Analytical holding time exceeded regulatory requirements
X Spiking level is invalid due to the high concentration of analyte in the spiked sample

Case Narrative:
Analysis of soils/sludges are reported on a dry-weight basis unless otherwise specified.

References:
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).
"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.
"Standard Methods for the Examination of Water and Wastewaters", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

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ANALYTICAL RESULTS

AIC No. 186484-1
Sample Identification: Calico Rock 07-Jan-2015

Analyte		Result	RL	Units	Qualifier
pH		**6.5**		**Units**	H
EPA 9045C	Prep: 12-Jan-2015 1523 by 93	Analyzed: 12-Jan-2015 1630 by 93		Batch: W50569	
Electrical Conductivity		**640**	2	**umho/cm**	
Mod. EPA 9050A	Prep: 13-Jan-2015 1512 by 93	Analyzed: 13-Jan-2015 1715 by 93		Batch: W50587	
Cation-Exchange Capacity		**190**	0.6	**meq/100g**	
Mod. EPA 9080		Analyzed: 14-Jan-2015 0808 by 308		Batch: W50595	
Total Solids		**18**	0.01	**wt %**	
SM 2540 G 1997	Prep: 09-Jan-2015 1459 by 302	Analyzed: 12-Jan-2015 1429 by 302		Batch: W50547	
Ammonia as N		**5400**	300	**mg/Kg**	
SM 4500-NH3 B,G 1997	Prep: 12-Jan-2015 1522 by 93	Analyzed: 12-Jan-2015 2032 by 93		Batch: W50568	
Arsenic		**< 5**	5	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Cadmium		**< 0.4**	0.4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Copper		**170**	0.6	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Lead		**< 4**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Magnesium		**3600**	3	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Nickel		**9.3**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Phosphorus		**11000**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1925 by 311		Batch: S38072	
Potassium		**1700**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Selenium		**< 7**	7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Zinc		**240**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 12-Jan-2015 1233 by 313	Analyzed: 13-Jan-2015 1922 by 311		Batch: S38072	
Mercury		**0.56**	0.08	**mg/Kg**	
EPA 7471B	Prep: 14-Jan-2015 0834 by 302	Analyzed: 14-Jan-2015 1451 by 311		Batch: S38083	

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DUPLICATE RESULTS

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Total Solids		186445-3	3.3 wt %			09Jan15 1459 by 302	12Jan15 1429 by 302		
	Batch: W50547	Duplicate	3.3 wt %	1.36	10.0	09Jan15 1459 by 302	12Jan15 1429 by 302		
pH		186445-3	7.2 Units			12Jan15 1523 by 93	12Jan15 1630 by 93		H
	Batch: W50569	Duplicate	7.2 Units	0.555	5.00	12Jan15 1523 by 93	12Jan15 1630 by 93		H
Electrical Conductivity		186483-1	860 umho/cm			13Jan15 1512 by 93	13Jan15 1715 by 93		
	Batch: W50587	Duplicate	830 umho/cm	3.77	20.0	13Jan15 1513 by 93	13Jan15 1715 by 93		
Cation-Exchange Capacity		186483-1	79 meq/100g				14Jan15 0808 by 308		
	Batch: W50595	Duplicate	74 meq/100g	6.50	19.6		14Jan15 0809 by 308		

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
pH	-	99.9	98.0-102			W50569	12Jan15 1523 by 93	12Jan15 1630 by 93		
Electrical Conductivity	1410 umho/cm	101	97.1-105			W50587	13Jan15 1513 by 93	13Jan15 1715 by 93		
Ammonia as N	20.0 mg/Kg	99.8	80.0-120			W50568	12Jan15 1523 by 93	12Jan15 1843 by 93		
Arsenic	500 mg/Kg	99.5	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Cadmium	500 mg/Kg	97.3	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Copper	50.0 mg/Kg	95.9	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Lead	500 mg/Kg	97.7	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Magnesium	1000 mg/Kg	99.4	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Nickel	50.0 mg/Kg	96.9	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Phosphorus	500 mg/Kg	106	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Potassium	1000 mg/Kg	97.7	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Selenium	500 mg/Kg	98.3	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Zinc	50.0 mg/Kg	94.7	85.0-115			S38072	12Jan15 1233 by 313	13Jan15 1742 by 311		
Mercury	1.25 mg/Kg	94.6	85.0-115			S38083	14Jan15 0834 by 302	14Jan15 1417 by 311		

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MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	186445-3	20.1 mg/Kg	97.2	80.0-120	W50568	12Jan15 1523 by 93	12Jan15 2027 by 93		
	186445-3	19.5 mg/Kg	118	80.0-120	W50568	12Jan15 1523 by 93	12Jan15 2028 by 93		
	Relative Percent Difference:		0.900	25.0	W50568				
Arsenic	186454-2	498 mg/Kg	97.2	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		
	186454-2	496 mg/Kg	95.1	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		
	Relative Percent Difference:		2.16	20.0	S38072				
Cadmium	186454-2	498 mg/Kg	93.6	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		
	186454-2	496 mg/Kg	91.5	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		
	Relative Percent Difference:		2.21	20.0	S38072				
Copper	186454-2	49.8 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		X
	186454-2	49.6 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		X
	Relative Percent Difference:		2.30	20.0	S38072				
Lead	186454-2	498 mg/Kg	95.9	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		
	186454-2	496 mg/Kg	93.2	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		
	Relative Percent Difference:		2.67	20.0	S38072				
Magnesium	186454-2	995 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		X
	186454-2	992 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		X
	Relative Percent Difference:		4.95	20.0	S38072				
Nickel	186454-2	49.8 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		X
	186454-2	49.6 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		X
	Relative Percent Difference:		0.723	20.0	S38072				
Phosphorus	186454-2	498 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1750 by 311		X
	186454-2	496 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1802 by 311		X
	Relative Percent Difference:		7.17	20.0	S38072				
Potassium	186454-2	995 mg/Kg	87.7	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		
	186454-2	992 mg/Kg	84.4	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		
	Relative Percent Difference:		1.97	20.0	S38072				
Selenium	186454-2	498 mg/Kg	92.5	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		
	186454-2	496 mg/Kg	89.9	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		
	Relative Percent Difference:		2.65	20.0	S38072				
Zinc	186454-2	49.8 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1747 by 311		X
	186454-2	49.6 mg/Kg	-	75.0-125	S38072	12Jan15 1233 by 313	13Jan15 1759 by 311		X
	Relative Percent Difference:		5.67	20.0	S38072				
Mercury	186454-2	2.47 mg/Kg	112	70.0-130	S38083	14Jan15 0834 by 302	14Jan15 1421 by 311		
	186454-2	2.46 mg/Kg	88.0	70.0-130	S38083	14Jan15 0834 by 302	14Jan15 1424 by 311		
	Relative Percent Difference:		15.6	20.0	S38083				

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LABORATORY BLANK RESULTS

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Electrical Conductivity	< 2 umho/cm	2	2	W50587-1	13Jan15 1513 by 93	13Jan15 1715 by 93	
Cation-Exchange Capacity	< 0.1 meq/100g	0.1	0.1	W50595-1		14Jan15 0809 by 308	
Total Solids	< 0.01 wt %	0.01	0.01	W50547-1	09Jan15 1459 by 302	12Jan15 1429 by 302	
Ammonia as N	< 1 mg/Kg	1	1	W50568-1	12Jan15 1523 by 93	12Jan15 1842 by 93	
Arsenic	< 5 mg/Kg	5	5	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Cadmium	< 0.4 mg/Kg	0.4	0.4	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Copper	< 0.6 mg/Kg	0.6	0.6	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Lead	< 4 mg/Kg	4	4	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Magnesium	< 3 mg/Kg	3	3	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Nickel	< 1 mg/Kg	1	1	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Phosphorus	< 10 mg/Kg	10	10	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Potassium	< 100 mg/Kg	100	100	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Selenium	< 7 mg/Kg	7	7	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Zinc	< 0.2 mg/Kg	0.2	0.2	S38072-1	12Jan15 1233 by 313	13Jan15 1736 by 311	
Mercury	< 0.1 mg/Kg	0.1	0.1	S38083-1	14Jan15 0834 by 302	14Jan15 1413 by 311	

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CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 1

Client: MCE
Project Reference:
Project Manager: Ric Roll
Sampled By: Jessica Brown

PO No.:

AIC CONTROL NO: 186484
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 1.8

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	SAMPLE MATRIX: WATER	SOIL	Sludge	NO OF BOTTLES	pH	Electrical Conductivity	Cation-Exchange Capacity	Total Soilds	Ammonia as N	Arsenic	Cadium	Copper	Lead	Magnesium	Nickel	Phosphorus	Potassium	Selenium	Zinc	Mercury	Remarks
(1)	Calico Rock	1/7/15	✓				✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Container Type						P																	Field pH calibration on ____ @ ____
		Preservative																							Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: _____
Phone: _____ Fax: _____
Report Attention to:
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
Jessica Brown	1/9/15 1135		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
		Tyger Hyatt	1-9-15 1135

Comments:

5/01 WS 5981 8/02 FORM 0060

From:	Solaimanian, Jamal
To:	Richardson, Stefanie
Subject:	FW: AR0044016 and AR0045578_Biosolids Report
Date:	Tuesday, May 05, 2015 2:50:00 PM
Attachments:	AR0044016_Biosolids Report.pdf AR0045578_Biosolids Report.pdf

---

Jamal Solaimanian, Ph.D., P.E.
Engineering Supervisor
Water Division, *ADEQ*
501-682-0620
jamal@adeq.state.ar.us

From: Lester, Guy
Sent: Tuesday, May 05, 2015 2:48 PM
To: Solaimanian, Jamal
Subject: FW: AR0044016 and AR0045578_Biosolids Report

Jamal:

Here are some more biosolids reports.

Guy Lester - Engineer
Water Division
501-682-0023

From: Yarberry, Katherine
Sent: Tuesday, May 05, 2015 2:41 PM
To: Lester, Guy
Cc: Trotta, Jacqueline
Subject: FW: AR0044016 and AR0045578_Biosolids Report

Guy—

See attached.

Thanks,

Katherine Yarberry, PE
501-682-0647

From: Trotta, Jacqueline
Sent: Tuesday, May 05, 2015 2:15 PM
To: Yarberry, Katherine
Cc: Peltier, Hannah
Subject: AR0044016 and AR0045578_Biosolids Report

Katherine,

I normally send these to Kim and she forwards them to the engineer over the facility. See attached.

Thanks,

Jacqueline Trotta
Enforcement Analyst
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118
501-682-0632