

**MAGNOLIA WASTEWATER SYSTEM**

**P.O. BOX 666**

**MAGNOLIA, ARKANSAS 71754-066**

**(870) 234-2955**

**mwws@sbcglobal.net**

May 23, 2022

Joshua Hickey  
Enforcement Analyst  
Division of Environmental Quality  
Office of Water Quality  
5301 Northshore Dr.  
North Little Rock, Arkansas 72118

RE: Progress report; City of Magnolia-Big Creek WWTP NPDES Permit No. AR0043613, AFIN 14-00059.

Joshua Hickey,

This Letter will serve as the City of Magnolia-Big Creek WWTP progress report as required by NPDES No. AR0043613.

**TRC;**

The City of Magnolia-Big Creek WWTP is currently using chlorine gas to reduce pathogens and using Sulfur Dioxide to remove the chlorine from the final effluent to obtain the current permit requirements.

	January	February	March	April	May	June	July	August	September	October	November	December	
TRC,mg/l	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	2020
TRC,mg/l	0.08	0.00	0.01	0.00	0.00	0.04	0.03	0.02	0.00	0.00	0.00	0.00	2021
TRC,mg/l	0.00	0.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2022

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The City of Magnolia remained in compliance in 2019 with the current permit requirements. We are currently exploring other alternative options of disinfection of our final effluent. We have enlisted A.L. Franks Engineering to design an alternative disinfection for the plant, such as paracetic acid.

### Total Recoverable lead;

The City of Magnolia is still in dialogue with A.L. Franks engineering to determine how we will meet the new permit requirements.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lead/ug/l				
2020	0.013	0.86	164.0	10.0
2021	0.5	15.0	15.0	15.0
2022	0.5	15.6	n/a	n/a

### WET Testing;

The City of Magnolia has met the current permit requirements for WET testing 2020

In 2021 the lab had some problems with their material used in testing, we also experienced some pathogen interference during our test.

We are discussing the permit requirement changes with our current Lab.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2020	PASS	PASS	PASS	PASS
retest				
retest				
retest				

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	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2021	PASS	PASS/FAIL	PASS/FAIL	PASS
retest		PASS	PASS	
retest			PASS	
retest				

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2022	PASS	PASS	N/A	N/A
retest				
retest				
retest				

If you have any questions, please feel free in contacting me at 870-234-2955

Thank you,

Russell Thomas, Superintendent  
City of Magnolia Big-Creek WWTP  
NPDES Permit No. AR0043613  
AFIN # 1400059

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TRC,mg/l	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	2020
TRC,mg/l	0.08	0.00	0.01	0.00	0.00	0.04	0.03	0.02	0.00	0.00	0.00	0.00	2021
TRC,mg/l	0.00	0.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2022

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### **Total Recoverable lead;**

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Lead/ug/l				
2020	0.013	0.86	164.0	10.0
2021	0.5	15.0	15.0	15.0
2022	0.5	15.6	n/a	n/a

### **\*UPDATED AS OF 08/24/2022**

Upon further review and examination of the reports received, we have discovered that the laboratory analysis performed was done so incorrectly. The MQL for lead was not met; therefore, erroneous results were obtained. A retest of the sample was performed on 08/14/2022 with a resulting lead concentration of 0.313 ug/l.

We believe this was due to a miscommunication with the lab. They were unaware of the MQL. However, they have been made aware and will run to the correct MQL from now on. Due to the low results obtained after correcting the method, we no longer believe we have any lead issues. We will continue to monitor with increased frequency the lead concentrations.

### **WET Testing;**

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	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2020	PASS	PASS	PASS	PASS
retest				
retest				
retest				

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2021	PASS	PASS/FAIL	PASS/FAIL	PASS
retest		PASS	PASS	
retest			PASS	
retest				

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2022	PASS	PASS	N/A	N/A
retest				
retest				
retest				

If you have any questions, please feel free in contacting me at 870-234-2955

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Thank you,

Russell Thomas, Superintendent  
City of Magnolia Big-Creek WWTP  
NPDES Permit No. AR0043613  
AFIN # 1400059

**DMR Copy of Record**

<b>Permit #:</b> AR0043613	<b>Permittee:</b> MAGNOLIA, CITY OF-BIG CREEK WWTP	<b>Facility:</b> MAGNOLIA, CITY OF-BIG CREEK WWTP
<b>Major:</b> Yes	<b>Permittee Address:</b> P.O. BOX 686 72 COLUMBIA 300 MAGNOLIA, AR 71754-0666	<b>Facility Location:</b> 72 COLUMBIA 300 MAGNOLIA, AR 71753
<b>Permitted Feature:</b> 001 External Outfall	<b>Discharge:</b> 001-Q 001-CALENDAR QTR-TRTD MUNICIPAL WW	
<b>Report Dates &amp; Status</b>		
<b>Monitoring Period:</b> From 04/01/22 to 06/30/22	<b>DMR Due Date:</b> 07/25/22	<b>Status:</b> NetDMR Validated
<b>Considerations for Form Completion</b> CALENDAR QUARTERS: (JAN-MAR) (APR-JUN) (JUL- SEP) & (OCT-DEC), 14-00059		
<b>Principal Executive Officer</b>		
<b>First Name:</b> Russell	<b>Title:</b> Superintendent	<b>Telephone:</b> 870-234-2955
<b>Last Name:</b> Thomas		
<b>No Data Indicator (NODI)</b>		
<b>Form NODI:</b> -		

Code	Parameter Name	Monitoring Location	Season #	Param. NODI	Qualifier 1	Quantity or Loading Value 1	Qualifier 2	Value 2	Units	Qualifier 1 Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units	# of Ex.	Frequency of Analysis	Sample Type
X 01114	Lead, total recoverable	1 - Effluent Gross	0	-	Sample Permit Res Value NODI	0.0558 MO AVG		26	- lb/d	<=	2.67 MO AVG		Req Mon 7 DA AVG	28	- ug/L	01/90	- Quarterly	CP - COMPOS
						P - Laboratory Error or Invalid Test						P - Laboratory Error or Invalid Test						

**Submission Note**  
If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

**Edit Check Errors**

Code	Parameter Name	Monitoring Location	Field	Type	Description	Acknowledge
01114	Lead, total recoverable	1 - Effluent Gross	All	Soft	EPA's NPDES national data system recognizes the selected No Data Indicator (NODI) code as a reporting violation, NPDES permittees are responsible for ensuring full compliance with their permits, the Clean Water Act, and state law.	Yes

**Comments**  
Lab; Arkansas Analytical 8100 National Dr. Little Rock AR,72209 501-455-3233

**Attachments**

Name	Type	Size
lead2ndqtrly2022Noncompliance.docx	docx	16673.0
Leadretest.pdf	pdf	796684.0

**Report Last Saved By**  
**MAGNOLIA, CITY OF-BIG CREEK WWTP**

User: mwwssewer  
Name: Russell Thomas  
E-Mail: mwws@sbcglobal.net  
Date/Time: 2022-08-24 13:24 (Time Zone: -05:00)

**Report Last Signed By**

User: mwwssewer  
Name: Russell Thomas  
E-Mail: mwws@sbcglobal.net  
Date/Time: 2022-08-24 13:26 (Time Zone: -05:00)





8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

03 February 2021

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: January 2021 -- Effluent Sample  
SDG Number: 2101431

Enclosed are the results of analyses for samples received by the laboratory on 25-Jan-21 11:39. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

<u>Custody Seals</u>	✓
<u>Containers Correct</u>	✓
<u>COC/Labels Agree</u>	✓
<u>Received On Ice</u>	✓
Temperature on Receipt	2.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James / Teresa Coins".

---

Norma James and/or Teresa Coins  
Technical Director and/or QA Officer

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03 February 2021

**Gija Geme**  
**Southern Arkansas University**  
**P.O. Box 9289**  
**Magnolia, AR 71754-9289**  
**Project: Magnolia Effluent/Influent Sample(s)**  
**Project Number: January 2021 -- Effluent Sample**  
**Date Received: 25-Jan-21 11:39**



## **CASE NARRATIVE**

Sample Delivery Group – 2101431

**One OR more of the qualifiers described below may appear in this report. Qualifiers in RED apply to this SDG (Sample Delivery Group).**

### **CALIBRATION QUALIFIERS:**

<u>Qualifier</u>	<u>Description</u>
CR	Result above highest calibration standard, but within linear calibration range.
Est3	Result at the instrument was above the concentration of the highest standard in the calibration curve.
E2-F	Second Source Verification Failure
E7	Internal Standard Response Failure
E11	Initial Calibration Minimum Response Factor Failure
E21	CCV Low
E-01	CCV High
E35	Low Level CCV Failure

### **QUALITY CONTROL QUALIFIERS:**

<u>Qualifier</u>	<u>Description</u>
E20	Sample used as "parent" for the associated analytical batch.
%D3/S-01	Surrogate failed to recover within acceptance criteria (%D3/S-01).
E1	Results associated with this surrogate were qualified as "estimated" (E1).
B	Present in the Associated Blank
B1	Present in Blank, but Not In the Sample.
%D2 / E5	Laboratory Control Spike (LCS) and/or Laboratory Control Spike Duplicate (LCSD) failed to recover with acceptance criteria (%D2). Associated results were qualified as "estimated" (E5).
%D1	Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) failed acceptance criteria.
MBA	Failed criteria due to the high concentration of analyte in the parent sample.
MBI	Failed criteria due to an interference in the parent sample.
%D3	Quality Control Surrogate failed acceptance criteria.

03 February 2021



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2021 -- Effluent Sample  
 Date Received: 25-Jan-21 11:39

**ANALYTICAL RESULTS**

Lab Number: 2101431-01  
 Sample Name: Effluent  
 Date/Time Collected: 1/24/21 18:00  
 Sample Matrix: Water

Acid Compounds	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
2,4,6-Trichlorophenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,4-Dichlorophenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,4-Dimethylphenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,4-Dinitrophenol	ug/L	< 50.0		1/26/21 14:00	B101436	EPA 625.1-2016
2-Chlorophenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2-Nitrophenol	ug/L	< 20.0		1/26/21 14:00	B101436	EPA 625.1-2016
4,6-Dinitro-o-cresol	ug/L	< 50.0		1/26/21 14:00	B101436	EPA 625.1-2016
4-Chloro-3-methylphenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
4-Nitrophenol	ug/L	< 50.0		1/26/21 14:00	B101436	EPA 625.1-2016
Pentachlorophenol	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Phenol	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,4,6-Tribromophenol [surr]	%	83.1		1/26/21 14:00	B101436	EPA 625.1-2016
2-Fluorophenol [surr]	%	47.3		1/26/21 14:00	B101436	EPA 625.1-2016
Phenol-d5 [surr]	%	39.0		1/26/21 14:00	B101436	EPA 625.1-2016
Base/Neutral Compounds	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
1,2,4-Trichlorobenzene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
1,2-Dichlorobenzene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
1,2-Diphenyl Hydrazine	ug/L	< 20.0		1/26/21 14:00	B101436	EPA 625.1-2016
1,3-Dichlorobenzene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
1,4-Dichlorobenzene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,3,7,8-TCDD (SIM)	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,2'-Oxybis(1-Chloropropane)	ug/L	< 10.0	E2-F	1/26/21 14:00	B101436	EPA 625.1-2016
2,4-Dinitrotoluene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2,6-Dinitrotoluene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2-Chloronaphthalene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
3,3'-Dichlorobenzidine	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
4-Bromophenyl-phenylether	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
4-Chlorophenyl-phenylether	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Acenaphthene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Acenaphthylene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Anthracene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Benzidine	ug/L	< 50.0		1/26/21 14:00	B101436	EPA 625.1-2016
Benzo[a]pyrene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Benzo[b]fluoranthene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Benzo[g,h,i]perylene	ug/L	< 20.0		1/26/21 14:00	B101436	EPA 625.1-2016
Benzo[k]fluoranthene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Benzo (a) anthracene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Bis(2-chloroethoxy)methane	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Bis(2-chloroethyl)ether	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Bis(2-ethylhexyl)phthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Butylbenzylphthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Chrysene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Dibenz[a,h]anthracene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016

03 February 2021



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)

Project Number: January 2021 -- Effluent Sample  
 Date Received: 25-Jan-21 11:39

**ANALYTICAL RESULTS**

Lab Number: 2101431-01  
 Sample Name: Effluent  
 Date/Time Collected: 1/24/21 18:00  
 Sample Matrix: Water

<u>Base/Neutral Compounds</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Diethylphthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Dimethylphthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Di-n-butylphthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Di-n-octylphthalate	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Fluoranthene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Fluorene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Hexachlorobenzene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Hexachlorobutadiene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Hexachlorocyclopentadiene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Hexachloroethane	ug/L	< 20.0		1/26/21 14:00	B101436	EPA 625.1-2016
Indeno[1,2,3-cd]pyrene	ug/L	< 5.00		1/26/21 14:00	B101436	EPA 625.1-2016
Isophorone	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Naphthalene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Nitrobenzene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
N-Nitrosodimethylamine	ug/L	< 50.0		1/26/21 14:00	B101436	EPA 625.1-2016
n-Nitrosodiphenylamine	ug/L	< 20.0	E21	1/26/21 14:00	B101436	EPA 625.1-2016
N-Nitroso-di-n-propylamine	ug/L	< 20.0		1/26/21 14:00	B101436	EPA 625.1-2016
Phenanthrene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
Pyrene	ug/L	< 10.0		1/26/21 14:00	B101436	EPA 625.1-2016
2-Fluorobiphenyl [surr]	%	69.0		1/26/21 14:00	B101436	EPA 625.1-2016
Nitrobenzene-d5 [surr]	%	67.4		1/26/21 14:00	B101436	EPA 625.1-2016
Terphenyl-d14 [surr]	%	100		1/26/21 14:00	B101436	EPA 625.1-2016
<u>Anions</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Nitrate + Nitrite	mg/L	1.52		1/26/21 8:50	[CALC]	EPA 300.0, 2.1-1993
Nitrate as N	mg/L	1.52		1/26/21 8:50	B101438	EPA 300.0, 2.1-1993
Nitrite as N	mg/L	< 0.250		1/26/21 8:50	B101438	EPA 300.0, 2.1-1993
<u>Hardness by Calculation</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
CaCO3	mg/L	17.4		1/27/21 13:08	[CALC]	[CALC]
<u>Pesticides/PCBs</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Aldrin	ug/L	< 0.010		1/29/21 12:53	B101515	EPA 608.3-2016
alpha-BHC	ug/L	< 0.009		1/29/21 12:53	B101515	EPA 608.3-2016
beta-BHC	ug/L	< 0.018	E21	1/29/21 12:53	B101515	EPA 608.3-2016
gamma-BHC (Lindane)	ug/L	< 0.027		1/29/21 12:53	B101515	EPA 608.3-2016
delta-BHC	ug/L	< 0.012		1/29/21 12:53	B101515	EPA 608.3-2016
Chlordane	ug/L	< 0.042		1/29/21 12:53	B101515	EPA 608.3-2016
alpha-Chlordane	ug/L	< 0.050		1/29/21 12:53	B101515	EPA 608.3-2016
gamma-Chlordane	ug/L	< 0.050		1/29/21 12:53	B101515	EPA 608.3-2016
4,4'-DDT	ug/L	< 0.036		1/29/21 12:53	B101515	EPA 608.3-2016
4,4'-DDE	ug/L	< 0.012		1/29/21 12:53	B101515	EPA 608.3-2016
4,4'-DDD	ug/L	< 0.033		1/29/21 12:53	B101515	EPA 608.3-2016
Dieldrin	ug/L	< 0.020		1/29/21 12:53	B101515	EPA 608.3-2016

03 February 2021



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2021 -- Effluent Sample  
 Date Received: 25-Jan-21 11:39

**ANALYTICAL RESULTS**

Lab Number: 2101431-01  
 Sample Name: Effluent  
 Date/Time Collected: 1/24/21 18:00  
 Sample Matrix: Water

<u>Pesticides/PCBs</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Endosulfan I	ug/L	< 0.042		1/29/21 12:53	B101515	EPA 608.3-2016
Endosulfan II	ug/L	< 0.012		1/29/21 12:53	B101515	EPA 608.3-2016
Endosulfan sulfate	ug/L	< 0.012		1/29/21 12:53	B101515	EPA 608.3-2016
Endrin	ug/L	< 0.018		1/29/21 12:53	B101515	EPA 608.3-2016
Endrin aldehyde	ug/L	< 0.070		1/29/21 12:53	B101515	EPA 608.3-2016
Heptachlor	ug/L	< 0.009	E21	1/29/21 12:53	B101515	EPA 608.3-2016
Heptachlor epoxide	ug/L	< 0.010		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1242	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1254	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1221	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1232	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1248	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1260	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Aroclor-1016	ug/L	< 0.200		1/29/21 12:53	B101515	EPA 608.3-2016
Toxaphene	ug/L	< 0.300		1/29/21 12:53	B101515	EPA 608.3-2016
TCMX [surr]	%	63.4		1/29/21 12:53	B101515	EPA 608.3-2016
DCBP [surr]	%	109		1/29/21 12:53	B101515	EPA 608.3-2016
<u>PPS Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Antimony	ug/L	< 60.0		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Arsenic	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Beryllium	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Cadmium	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Chromium	ug/L	< 10.0		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Copper	ug/L	3.21		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Hexavalent Chromium	ug/L	< 10.0		1/25/21 14:01	B101422	SM3500-Cr B, 2009
Lead	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Mercury	ng/L	28.1		2/1/21 10:34	B102018	EPA 1631 E
Nickel	ug/L	1.19		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Selenium	ug/L	< 5.00		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Silver	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Thallium	ug/L	< 0.500		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
Zinc	ug/L	< 20.0		1/27/21 14:26	B101458	EPA 200.8, Rev. 5.4(1994)
<u>Total Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Phosphorus	mg/L	0.139		1/27/21 13:08	B101423	EPA 200.7, Rev 4.4 (1994)
<u>Volatiles</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
1,1-Dichloroethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,1-Dichloroethene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,1,1-Trichloroethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,1,2-Trichloroethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,1,2,2-Tetrachloroethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,2-Dichlorobenzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016

03 February 2021



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 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2021 -- Effluent Sample  
 Date Received: 25-Jan-21 11:39

**ANALYTICAL RESULTS**

Lab Number: 2101431-01  
 Sample Name: Effluent  
 Date/Time Collected: 1/24/21 18:00  
 Sample Matrix: Water

<u>Volatiles</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
1,2-Dichloropropane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,2-Dichloroethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,3-Dichlorobenzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
1,4-Dichlorobenzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
2-Chloroethyl vinyl ether	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Acrylonitrile	ug/L	< 20.0		2/1/21 12:14	B101524	EPA 624.1-2016
Benzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Bromodichloromethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Bromoform	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Acrolein	ug/L	< 50.0	E2-F	2/1/21 12:14	B101524	EPA 624.1-2016
Bromomethane	ug/L	< 50.0		2/1/21 12:14	B101524	EPA 624.1-2016
Carbon tetrachloride	ug/L	< 2.00		2/1/21 12:14	B101524	EPA 624.1-2016
Chlorobenzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Dibromochloromethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Chloroethane	ug/L	< 50.0		2/1/21 12:14	B101524	EPA 624.1-2016
Chloroform	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Chloromethane	ug/L	< 50.0		2/1/21 12:14	B101524	EPA 624.1-2016
cis-1,3-Dichloropropene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Ethylbenzene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Methylene chloride	ug/L	< 20.0		2/1/21 12:14	B101524	EPA 624.1-2016
Tetrachloroethene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Toluene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
trans-1,2-Dichloroethene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Trichloroethene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
trans-1,3-Dichloropropene	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Vinyl chloride	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
Trichlorofluoromethane	ug/L	< 10.0		2/1/21 12:14	B101524	EPA 624.1-2016
4-Bromofluorobenzene [surr]	%	103		2/1/21 12:14	B101524	EPA 624.1-2016
1,2-Dichloroethane-d4 [surr]	%	104		2/1/21 12:14	B101524	EPA 624.1-2016
Toluene-d8 [surr]	%	100		2/1/21 12:14	B101524	EPA 624.1-2016

<u>Wet Chemistry</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Cyanide (total)	mg/L	< 0.010		1/26/21 15:10	B101451	SM 4500-CN B,E-2011
Phenolics	mg/L	< 0.00500		2/2/21 18:04	B102009	EPA 420.1-1978
TKN	mg/L	< 0.50		1/29/21 10:18	B102002	Hach 10242, Rev. 1.1, 2013

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**QUALITY CONTROL RESULTS**

**PPS Metals -- Batch: B101422 (Water)**

Prepared: 25-Jan-21 14:01 By: SPS -- Analyzed: 25-Jan-21 14:01 By: SPS

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Hexavalent Chromium	<10.0 ug/L	102% / 99.1%	97.1% / NA		3.17%	

**Total Metals -- Batch: B101423 (Water)**

Prepared: 25-Jan-21 14:11 By: ST -- Analyzed: 27-Jan-21 12:43 By: ST

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Calcium	<0.114 mg/L	115% / NA	100% / 118%		1.07%	
Magnesium	<0.104 mg/L	115% / NA	101% / 104%		1.40%	
Phosphorus	<0.036 mg/L	103% / NA	79.2% / 82.0%		0.737%	

**Base/Neutral Compounds -- Batch: B101436 (Water)**

Prepared: 25-Jan-21 16:37 By: JM -- Analyzed: 26-Jan-21 14:46 By: TB

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
1,2,4-Trichlorobenzene	<0.561 ug/L	70.1% / NA	69.4% / 67.0%		3.58%	
1,2-Dichlorobenzene	<0.514 ug/L	66.5% / NA	69.9% / 67.6%		3.47%	
1,2-Diphenyl Hydrazine	<1.81 ug/L	90.6% / NA	86.9% / 88.9%		2.38%	
1,3-Dichlorobenzene	<0.470 ug/L	63.9% / NA	65.4% / 65.1%		0.423%	
1,4-Dichlorobenzene	<0.527 ug/L	65.1% / NA	66.8% / 64.6%		3.30%	
2,2'-Oxybis(1-Chloropropane)	<0.394 ug/L	73.7% / NA	68.9% / 68.7%		0.297%	E2-F
2,4,6-Trichlorophenol	<0.507 ug/L	90.3% / NA	91.8% / 91.2%		0.612%	
2,4-Dichlorophenol	<0.449 ug/L	89.6% / NA	90.2% / 91.8%		1.78%	
2,4-Dimethylphenol	<1.12 ug/L	84.6% / NA	85.7% / 86.7%		0.810%	
2,4-Dinitrophenol	<0.642 ug/L	79.0% / NA	87.9% / 92.0%		4.57%	
2,4-Dinitrotoluene	<0.656 ug/L	91.4% / NA	86.6% / 91.7%		5.70%	
2,6-Dinitrotoluene	<0.656 ug/L	86.7% / NA	84.0% / 85.1%		1.23%	
2-Chloronaphthalene	<0.515 ug/L	93.4% / NA	98.6% / 96.2%		2.45%	
2-Chlorophenol	<0.433 ug/L	84.9% / NA	81.2% / 84.0%		3.33%	
2-Nitrophenol	<0.554 ug/L	91.0% / NA	89.6% / 91.5%		2.13%	
3,3'-Dichlorobenzidine	<0.233 ug/L	134% / NA	41.1% / 44.2%		7.44%	
4,6-Dinitro-o-cresol	<0.643 ug/L	99.8% / NA	100% / 105%		4.64%	
4-Bromophenyl-phenylether	<0.580 ug/L	91.3% / NA	88.3% / 91.2%		3.21%	
4-Chloro-3-methylphenol	<0.567 ug/L	91.0% / NA	100% / 103%		2.42%	
4-Chlorophenyl-phenylether	<0.563 ug/L	86.2% / NA	82.1% / 78.6%		4.36%	
4-Nitrophenol	<0.607 ug/L	54.6% / NA	59.3% / 58.6%		1.27%	
Acenaphthene	<0.523 ug/L	80.9% / NA	77.6% / 66.4%		3.34%	
Acenaphthylene	<0.487 ug/L	84.3% / NA	83.6% / 83.1%		0.625%	
Anthracene	<0.566 ug/L	93.0% / NA	88.1% / 89.7%		1.60%	
Benzidine	<0.522 ug/L	87.5% / NA	MBI / MBI		NA	MBI
Benzo (a) anthracene	<0.475 ug/L	93.8% / NA	91.3% / 92.2%		0.963%	
Benzo[a]pyrene	<0.566 ug/L	99.5% / NA	96.9% / 98.7%		1.84%	
Benzo[b]fluoranthene	<0.482 ug/L	97.9% / NA	97.4% / 98.4%		1.07%	
Benzo[g,h,i]perylene	<0.529 ug/L	85.6% / NA	83.3% / 83.5%		0.184%	
Benzo[k]fluoranthene	<0.516 ug/L	95.5% / NA	92.0% / 91.8%		0.193%	
Bis(2-chloroethoxy)methane	<0.461 ug/L	83.6% / NA	82.3% / 82.5%		0.248%	
Bis(2-chloroethyl)ether	<0.458 ug/L	85.0% / NA	82.1% / 81.3%		1.03%	
Bis(2-ethylhexyl)phthalate	<0.598 ug/L	98.3% / NA	98.5% / 100%		1.52%	

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Project Number: January 2021 -- Effluent Sample

Date Received: 25-Jan-21 11:39

**QUALITY CONTROL RESULTS****Base/Neutral Compounds -- Batch: B101436 (Water)**

Prepared: 25-Jan-21 16:37 By: JM -- Analyzed: 26-Jan-21 14:46 By: TB

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Butylbenzylphthalate	<0.637 ug/L	103% / NA	104% / 103%		0.585%	
Chrysene	<0.489 ug/L	93.0% / NA	89.9% / 91.4%		1.58%	
Dibenz[a,h]anthracene	<0.389 ug/L	91.8% / NA	89.3% / 91.7%		2.67%	
Diethylphthalate	<0.456 ug/L	94.3% / NA	92.5% / 94.0%		1.62%	
Dimethylphthalate	<0.516 ug/L	100% / NA	96.1% / 98.1%		2.01%	
Di-n-butylphthalate	<0.607 ug/L	109% / NA	106% / 111%		4.34%	
Di-n-octylphthalate	<0.407 ug/L	95.9% / NA	97.5% / 100%		2.53%	
Fluoranthene	<0.575 ug/L	94.4% / NA	92.3% / 93.4%		0.830%	
Fluorene	<0.498 ug/L	89.7% / NA	79.5% / 80.5%		0.461%	
Hexachlorobenzene	<0.560 ug/L	97.2% / NA	94.1% / 96.5%		2.54%	
Hexachlorobutadiene	<0.461 ug/L	61.9% / NA	64.4% / 61.4%		4.84%	
Hexachlorocyclopentadiene	<0.303 ug/L	58.6% / NA	53.3% / 49.0%		8.36%	
Hexachloroethane	<0.958 ug/L	60.9% / NA	134% / 130%		2.59%	%D1
Indeno[1,2,3-cd]pyrene	<0.502 ug/L	93.0% / NA	90.7% / 94.6%		4.17%	
Isophorone	<0.535 ug/L	96.7% / NA	91.4% / 91.8%		0.431%	
Naphthalene	<0.480 ug/L	76.0% / NA	MBA / MBA		3.37%	MBA
Nitrobenzene	<0.456 ug/L	86.3% / NA	79.4% / 79.3%		0.144%	
N-Nitrosodimethylamine	<0.372 ug/L	54.6% / NA	53.7% / 53.8%		0.216%	
N-Nitroso-di-n-propylamine	<0.414 ug/L	93.0% / NA	86.5% / 85.4%		1.20%	
n-Nitrosodiphenylamine	<0.425 ug/L	92.1% / NA	87.2% / 89.6%		2.75%	E21
Pentachlorophenol	<0.311 ug/L	88.3% / NA	99.9% / 100%		0.0236%	
Phenanthrene	<0.572 ug/L	90.3% / NA	85.2% / 82.6%		1.25%	
Phenol	<0.348 ug/L	51.4% / NA	52.8% / 55.6%		5.22%	
Pyrene	<0.489 ug/L	96.2% / NA	96.5% / 97.1%		0.556%	
2,4,6-Tribromophenol [surr]	79.6 %	94.9% / NA	101% / 99.7%		NA	
2-Fluorobiphenyl [surr]	83.7 %	84.4% / NA	78.2% / 77.8%		NA	
2-Fluorophenol [surr]	60.7 %	66.5% / NA	65.0% / 65.5%		NA	
Nitrobenzene-d5 [surr]	81.8 %	91.4% / NA	91.4% / 88.0%		NA	
Phenol-d5 [surr]	47.2 %	52.3% / NA	48.6% / 49.7%		NA	
Terphenyl-d14 [surr]	110 %	114% / NA	108% / 111%		NA	

**Anions -- Batch: B101438 (Water)**

Prepared: 26-Jan-21 08:45 By: MB -- Analyzed: 26-Jan-21 11:54 By: MB

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Nitrate as N	<0.250 mg/L	104% / NA	104% / 103%		0.193%	
Nitrite as N	<0.250 mg/L	98.2% / NA	98.2% / 98.0%		0.204%	

**Wet Chemistry -- Batch: B101451 (Water)**

Prepared: 26-Jan-21 15:10 By: JH -- Analyzed: 26-Jan-21 15:10 By: JH

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Cyanide (total)	<0.010 mg/L	114% / NA	115% / 114%		0.873%	



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**QUALITY CONTROL RESULTS**

**PPS Metals -- Batch: B101458 (Water)**

Prepared: 27-Jan-21 07:18 By: SPS -- Analyzed: 27-Jan-21 13:01 By: SPS

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Antimony	<57.6 ug/L	97.5% / NA	97.0% / 96.4%		0.609%	
Arsenic	<0.481 ug/L	100% / NA	105% / 103%		1.46%	
Beryllium	<0.481 ug/L	99.8% / NA	98.7% / 97.6%		1.12%	
Cadmium	<0.481 ug/L	98.0% / NA	96.6% / 96.5%		0.0880%	
Chromium	<9.64 ug/L	102% / NA	96.8% / 95.8%		0.991%	
Copper	<0.481 ug/L	101% / NA	101% / 99.6%		1.57%	
Lead	<0.481 ug/L	101% / NA	99.6% / 99.1%		0.513%	
Nickel	<0.481 ug/L	101% / NA	101% / 98.8%		1.84%	
Selenium	<5.00 ug/L	100% / NA	107% / 103%		3.47%	
Silver	<0.481 ug/L	97.9% / NA	97.6% / 96.6%		1.01%	
Thallium	<0.250 ug/L	103% / NA	101% / 101%		0.0456%	
Zinc	<19.2 ug/L	102% / NA	105% / 97.1%		2.40%	

**Pesticides/PCBs -- Batch: B101515 (Water)**

Prepared: 28-Jan-21 15:14 By: JM -- Analyzed: 29-Jan-21 12:02 By: TB

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
4,4'-DDD	<0.002 ug/L	69.2% / NA	69.0% / 77.3%		10.3%	
4,4'-DDE	<0.001 ug/L	62.6% / NA	60.8% / 65.2%		6.41%	
4,4'-DDT	<0.001 ug/L	64.8% / NA	63.7% / 70.3%		8.79%	
Aldrin	<0.0005 ug/L	53.8% / NA	44.7% / 52.4%		15.9%	
alpha-BHC	<0.0006 ug/L	57.6% / NA	40.9% / 47.2%		12.0%	
beta-BHC	<0.002 ug/L	63.9% / NA	77.1% / 86.8%		10.3%	E21
delta-BHC	<0.002 ug/L	41.7% / NA	35.4% / 39.1%		7.77%	
Dieldrin	<0.001 ug/L	61.9% / NA	64.0% / 67.9%		5.63%	
Endosulfan I	<0.0003 ug/L	59.0% / NA	56.5% / 62.4%		9.39%	
Endosulfan II	<0.0009 ug/L	62.1% / NA	61.7% / 67.0%		7.72%	
Endosulfan sulfate	<0.001 ug/L	66.3% / NA	62.1% / 65.4%		4.41%	
Endrin	<0.001 ug/L	65.3% / NA	58.0% / 65.9%		11.9%	
Endrin aldehyde	<0.001 ug/L	72.5% / NA	63.8% / 74.1%		14.9%	
gamma-BHC (Lindane)	<0.001 ug/L	59.0% / NA	46.7% / 53.7%		12.4%	
Heptachlor	<0.001 ug/L	57.4% / NA	44.7% / 54.0%		16.1%	E21
Heptachlor epoxide	<0.0005 ug/L	61.6% / NA	59.2% / 64.7%		8.46%	
DCBP [surr]	77.5 %	60.9% / NA	67.2% / 76.0%		NA	
TCMX [surr]	75.1 %	57.8% / NA	60.4% / 65.6%		NA	

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Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289  
Project: Magnolia Effluent/Influent Sample(s)

Project Number: January 2021 -- Effluent Sample  
Date Received: 25-Jan-21 11:39

**QUALITY CONTROL RESULTS****Volatiles -- Batch: B101524 (Water)**

Prepared: 01-Feb-21 08:51 By: CT -- Analyzed: 01-Feb-21 21:06 By: ct

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
1,1,1-Trichloroethane	<0.319 ug/L	105% / NA	115% / 113%		1.89%	
1,1,2,2-Tetrachloroethane	<0.290 ug/L	89.4% / NA	107% / 108%		1.13%	
1,1,2-Trichloroethane	<0.238 ug/L	98.5% / NA	109% / 105%		4.14%	
1,1-Dichloroethane	<0.200 ug/L	105% / NA	110% / 111%		1.02%	
1,1-Dichloroethene	<0.355 ug/L	107% / NA	105% / 104%		1.48%	
1,2-Dichlorobenzene	<0.206 ug/L	94.2% / NA	99.5% / 100%		0.990%	
1,2-Dichloroethane	<0.248 ug/L	102% / NA	121% / 120%		0.267%	
1,2-Dichloropropane	<0.220 ug/L	99.8% / NA	104% / 106%		1.85%	
1,3-Dichlorobenzene	<0.249 ug/L	89.9% / NA	99.4% / 99.0%		0.379%	
1,4-Dichlorobenzene	<0.187 ug/L	88.1% / NA	96.8% / 97.9%		1.13%	
2-Chloroethyl vinyl ether	<0.328 ug/L	70.7% / NA	MBI / MBI		%	MBI
Acrolein	<1.10 ug/L	123% / NA	198% / 201%		1.27%	%D1, E2-F
Acrylonitrile	<0.539 ug/L	111% / NA	109% / 109%		0.294%	
Benzene	<0.174 ug/L	104% / NA	98.8% / 98.1%		0.695%	
Bromodichloromethane	<0.278 ug/L	105% / NA	112% / 111%		0.933%	
Bromoform	<0.160 ug/L	93.4% / NA	99.5% / 102%		2.39%	
Bromomethane	<0.579 ug/L	100% / NA	92.8% / 89.6%		3.58%	
Carbon tetrachloride	<0.170 ug/L	104% / NA	107% / 107%		0.255%	
Chlorobenzene	<0.100 ug/L	97.7% / NA	101% / 97.9%		3.03%	
Chloroethane	<0.993 ug/L	96.6% / NA	113% / 114%		1.28%	
Chloroform	<0.591 ug/L	106% / NA	129% / 127%		0.967%	
Chloromethane	<0.660 ug/L	116% / NA	108% / 107%		1.01%	
cis-1,3-Dichloropropene	<0.258 ug/L	94.7% / NA	101% / 101%		0.761%	
Dibromochloromethane	<0.130 ug/L	96.0% / NA	103% / 104%		1.34%	
Ethylbenzene	<0.216 ug/L	97.6% / NA	108% / 106%		1.64%	
Methylene chloride	<0.751 ug/L	111% / NA	109% / 108%		0.614%	
Tetrachloroethene	<0.280 ug/L	89.1% / NA	113% / 102%		10.4%	
Toluene	<0.245 ug/L	97.4% / NA	102% / 102%		0.0680%	
trans-1,2-Dichloroethene	<0.258 ug/L	102% / NA	105% / 102%		2.09%	
trans-1,3-Dichloropropene	<0.287 ug/L	94.1% / NA	102% / 107%		4.66%	
Trichloroethene	<0.280 ug/L	103% / NA	94.0% / 94.4%		0.438%	
Trichlorofluoromethane	<0.465 ug/L	90.1% / NA	97.4% / 96.9%		0.519%	
Vinyl chloride	<0.373 ug/L	116% / NA	102% / 104%		1.79%	
1,2-Dichloroethane-d4 [surr]	106 %	101% / NA	114% / 111%		NA	
4-Bromofluorobenzene [surr]	102 %	98.1% / NA	102% / 103%		NA	
Toluene-d8 [surr]	98.3 %	98.8% / NA	101% / 102%		NA	

**Wet Chemistry -- Batch: B102002 (Water)**

Prepared: 29-Jan-21 10:18 By: EN -- Analyzed: 29-Jan-21 10:18 By: EN

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
TKN	<0.50 mg/L	99.9% / 100%	98.9% / NA		0.280%	

03 February 2021



Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289  
Project: Magnolia Effluent/Influent Sample(s)  
Project Number: January 2021 -- Effluent Sample  
Date Received: 25-Jan-21 11:39

**QUALITY CONTROL RESULTS**

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**Wet Chemistry -- Batch: B102009 (Water)**  
**Prepared: 01-Feb-21 09:00 By: CNW -- Analyzed: 02-Feb-21 18:04 By: CNW**

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<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Phenolics	<0.00500 mg/L	91.5% / 96.4%	111% / NA		5.22%	

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**PPS Metals -- Batch: B102018 (Water)**  
**Prepared: 01-Feb-21 10:34 By: AA -- Analyzed: 01-Feb-21 10:34 By: AA**

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<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Mercury	<5.00 ng/L	101% / NA	83.1% / 81.4%		0.754%	

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**QUALIFIER(S)**

- \*%D1: Matrix Spike and/or Matrix Spike Duplicate Percent Recovery Does Not Meet Laboratory Acceptance Criteria
  - \*E21: Estimated Result; This Analyte failed (low) in the CCV.
  - \*E2-F: Second Source Verification Failure
  - \*MBA: Masked By Analyte
  - \*MBI: Masked By Interference
- 

All Analysis performed according to EPA approved methodology when available :  
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.  
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

Reviewed by: *Norma James / Teresa Coins*  
Norma James and/or Teresa Coins  
Technical Director and/or QA Officer



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description		Turnaround Time	Preservation Codes:										
Southern Arkansas University 100 E. University -- MSC 9289 Magnolia, AR 71753			Magnolia WW -- Annual Effluent		1 Day (100%) 2 Day (50%) 3 Day (25%) 5 Day	1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2					4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12					
Attn: Gija Geme			Telephone: 870-235-5342		Preservative Code:	TEST PARAMETERS										Arkansas Analytical Work Order Number:
Email: gijageme@saumag.edu			Fax:		Bottle Type:	1, 6	1, 2	1	1, 4	1, 4	1, 3	1	1	1	1, 2	G = Glass, P = Plastic V = Septum, A = Amber
Signature: <i>Mia Love</i>			Sampler(s) Printed: <i>Tracie Love</i>			PPS Cyanide	PPS T. Phenolics	PPS Volatiles	PPS Base Neutral/Acid Compounds (includes TCOD Screen)	PPS Pesticides, PCBs	PPS Metals (ICP/MS-200 8 - Sb, As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn) P	PPS Hexavalent Chromium	Low Level Mercury	Nitrate+Nitrite	TKN	2101431
Field Number	SAMPLE COLLECTION		Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION									
	1/24/21	1200-1900		X	16/18	W	Effluent									
1. Relinquished by: (Signature)			Date/Time		2. Received by: (Signature)		SAMPLE CONDITION UPON RECEIPT IN LAB					REMARKS / SAMPLE COMMENTS				
<i>Mia Love</i>			1/25/21 906		<i>[Signature]</i>		1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 2 °C 6. TEMPERATURE GUN ID: HHT# 2					Please add Phosphorus, total - effluent <hr/> G, 1, 2 Please add hardness, effluent, P, 1, 3				
3. Relinquished by: (Signature)			Date/Time		4. Received by lab: (Signature)		FOR COMPLETION BY LAB ONLY									
<i>[Signature]</i>			1-25-21 1139		<i>[Signature]</i>											



8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

29 April 2021

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: April 2021 -- Effluent  
SDG Number: 2104384

Enclosed are the results of analyses for samples received by the laboratory on 23-Apr-21 09:20. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

Custody Seals	✓
Containers Correct	✓
COC/Labels Agree	✓
Received On Ice	✓
Temperature on Receipt	5.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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29 April 2021



**Gija Geme**  
**Southern Arkansas University**  
**P.O. Box 9289**  
**Magnolia, AR 71754-9289**  
**Project: Magnolia Effluent/Influent Sample(s)**  
**Project Number: April 2021 -- Effluent**  
**Date Received: 23-Apr-21 09:20**

**ANALYTICAL RESULTS**

**Lab Number:** 2104384-01  
**Sample Name:** Effluent Composite (6hr)  
**Date/Time Collected:** 4/18/21 18:00  
**Sample Matrix:** Water

<u>Total Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Arsenic	mg/L	< 0.0260		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Cadmium	mg/L	< 0.00120		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Chromium	mg/L	< 0.0120		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Copper	mg/L	< 0.00500		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Lead	mg/L	< 0.0150		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Nickel	mg/L	< 0.0100		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Selenium	mg/L	< 0.0500		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Silver	mg/L	< 0.0200		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Thallium	mg/L	< 0.070		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
Zinc	mg/L	< 0.0150		4/28/21 12:24	B104465	EPA 200.7, Rev 4.4 (1994)
<u>Wet Chemistry</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Cyanide (total)	mg/L	< 0.010		4/28/21 10:55	B104489	SM 4500-CN B,E-2011
Phenolics	mg/L	< 0.00500		4/28/21 13:14	B104487	EPA 420.1-1978

29 April 2021



Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289  
Project: Magnolia Effluent/Influent Sample(s)  
Project Number: April 2021 -- Effluent  
Date Received: 23-Apr-21 09:20

**QUALITY CONTROL RESULTS**

**Total Metals -- Batch: B104465 (Water)**

**Prepared: 28-Apr-21 07:47 By: SPS -- Analyzed: 28-Apr-21 12:23 By: SPS**

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Arsenic	<0.0260 mg/L	95.4% / NA	99.6% / 100%		0.467%	
Cadmium	<0.00120 mg/L	98.4% / NA	100% / 101%		0.316%	
Chromium	<0.0120 mg/L	96.7% / NA	97.6% / 98.1%		0.455%	
Copper	<0.00500 mg/L	95.1% / NA	98.5% / 98.8%		0.277%	
Lead	<0.0150 mg/L	100% / NA	98.9% / 99.7%		0.790%	
Nickel	<0.0100 mg/L	97.6% / NA	97.4% / 97.9%		0.500%	
Selenium	<0.0500 mg/L	99.5% / NA	101% / 100%		0.652%	
Silver	<0.0200 mg/L	97.7% / NA	96.0% / 97.9%		1.97%	
Thallium	<0.070 mg/L	95.4% / NA	101% / 96.3%		4.33%	
Zinc	<0.0150 mg/L	97.0% / NA	103% / 102%		0.682%	

**Wet Chemistry -- Batch: B104487 (Water)**

**Prepared: 28-Apr-21 13:14 By: CNW -- Analyzed: 28-Apr-21 13:14 By: CNW**

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Phenolics	<0.00500 mg/L	101% / NA	94.6% / 80.2%		16.5%	

**Wet Chemistry -- Batch: B104489 (Water)**

**Prepared: 28-Apr-21 10:55 By: JH -- Analyzed: 28-Apr-21 10:55 By: JH**

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Cyanide (total)	<0.010 mg/L	103% / NA	97.0% / 102%		5.03%	

All Analysis performed according to EPA approved methodology when available :  
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.  
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

Reviewed by: \_\_\_\_\_  
Norma James  
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

<b>CLIENT INFORMATION</b>		<b>Project Description</b>	<b>Turnaround Time</b>	<b>Preservation Codes:</b>					
Southern Arkansas University		Magnolia Effluent	1 Day (100%)	1. Cool, 6 Degrees Centigrade		4. Thiosulfate for Dechlorination			
100 E. University -- MSC 9289			2 Day (50%)	2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2		5. Hydrochloric Acid(HCl)			
Magnolia, AR 71753		<b>Reporting Information</b>	3 Day (25%)	3. Nitric Acid (HNO <sub>3</sub> ), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12			
Attn: Gija Geme		Telephone: 870-235-5342	5 Day (Routine)	<b>TEST PARAMETERS</b>				<b>Bottle Type Code</b>	
		Fax: 870-235-4936	Preservative Code:	1, 3	1, 3	1, 3	1, 6	1, 2	G = Glass; P = Plastic
		Email: gjageme@saumag.edu	Bottle Type:	P	P	P	P	A	V = Septum; A = Amber

Sampler(s) Signature			Sampler(s) Printed											Arkansas Analytical Work Order Number:		
Tracie Love			Tracie Love											2104384		
<b>Field Number</b>	<b>SAMPLE COLLECTION</b>		<b>Grab</b>	<b>Comp</b>	<b>Number of Bottles</b>	<b>Sample Matrix</b>	<b>SAMPLE IDENTIFICATION/ DESCRIPTION</b>		Arsenic, Selenium, Thallium	Cadmium, chromium, nickel, zinc	Silver, copper, lead	Cyanide (Total)	Phenolics			
	18-Apr-21	1200-1800		X	3	water	Effluent	X	X	X	X	X				

<b>1. Relinquished by: (Signature)</b>	<b>Date/Time</b>	<b>2. Received by: (Signature)</b>	<b>SAMPLE CONDITION UPON RECEIPT IN LAB</b>	<b>REMARKS / SAMPLE COMMENTS</b>
Tracie Love	4-19-21 1330	[Signature]	1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 5 °C 6. TEMPERATURE GUN ID: HHT# 4	No restrictions on the MDLs. Metals are in one bottle, I split between the cells here since I ran out of room metals - Arsenic, selenium, thallium, cadmium, chromium, nickel, pH, Silver, Copper, Lead
<b>3. Relinquished by: (Signature)</b>	<b>Date/Time</b>	<b>4. Received by lab: (Signature)</b>	<b>FOR COMPLETION BY LAB ONLY</b>	
[Signature]	4-22-21 1308	Jammy Riddle		

Via FedEx 4/23/21-9:20





8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

16 September 2021

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: September 2021 -- Effluent Sample  
SDG Number: 2109144

Enclosed are the results of analyses for samples received by the laboratory on 09-Sep-21 09:30. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

<u>Custody Seals</u>	✓
<u>Containers Correct</u>	✓
<u>COC/Labels Agree</u>	✓
<u>Received On Ice</u>	✓
<u>Temperature on Receipt</u>	3.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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16 September 2021



Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)

Project Number: September 2021 -- Effluent Sample

Date Received: 09-Sep-21 09:30

**ANALYTICAL RESULTS**

Lab Number: 2109144-01  
Sample Name: Effluent Composite (6hr)  
Date/Time Collected: 9/7/21 18:00  
Sample Matrix: Water

<u>Total Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Arsenic	mg/L	< 0.0260		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Cadmium	mg/L	< 0.00120		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Chromium	mg/L	< 0.0120		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Copper	mg/L	<b>0.00770</b>		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Lead	mg/L	< 0.0150		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Nickel	mg/L	< 0.0100		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Selenium	mg/L	< 0.0500		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Silver	mg/L	< 0.0200		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Thallium	mg/L	< 0.070		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
Zinc	mg/L	<b>0.0180</b>		9/10/21 10:51	B109137	EPA 200.7, Rev 4.4 (1994)
<u>Wet Chemistry</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Cyanide (total)	mg/L	< 0.010		9/14/21 15:31	B109234	SM 4500-CN B,E-2011
Phenolics	mg/L	< 0.00500		9/13/21 8:15	B109174	EPA 420.1-1978

16 September 2021



Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)

Project Number: September 2021 -- Effluent Sample

Date Received: 09-Sep-21 09:30

**QUALITY CONTROL RESULTS**

**Total Metals -- Batch: B109137 (Water)**

Prepared: 09-Sep-21 14:13 By: ST -- Analyzed: 10-Sep-21 10:26 By: ST

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Arsenic	<0.0260 mg/L	99.8% / NA	104% / 106%		1.91%	
Cadmium	<0.00120 mg/L	102% / NA	103% / 105%		1.48%	
Chromium	<0.0120 mg/L	99.1% / NA	100% / 102%		1.90%	
Copper	<0.00500 mg/L	95.7% / NA	97.7% / 99.4%		1.67%	
Lead	<0.0150 mg/L	99.9% / NA	99.6% / 101%		1.58%	
Nickel	<0.0100 mg/L	100% / NA	99.8% / 101%		1.25%	
Selenium	<0.0500 mg/L	103% / NA	106% / 106%		0.459%	
Silver	<0.0200 mg/L	98.8% / NA	99.0% / 101%		1.91%	
Thallium	<0.070 mg/L	98.2% / NA	97.0% / 101%		4.14%	
Zinc	<0.0150 mg/L	98.8% / NA	103% / 105%		1.90%	

**Wet Chemistry -- Batch: B109174 (Water)**

Prepared: 13-Sep-21 08:13 By: CNW -- Analyzed: 13-Sep-21 08:15 By: CNW

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Phenolics	<0.00500 mg/L	93.6% / NA	109% / 83.2%		26.4%	

**Wet Chemistry -- Batch: B109234 (Water)**

Prepared: 14-Sep-21 15:31 By: JH -- Analyzed: 14-Sep-21 15:31 By: JH

<u>Analyte</u>	<u>BLK</u>	<u>LCS / LCSD</u>	<u>MS / MSD</u>	<u>Dup</u>	<u>RPD</u>	<u>Qualifiers</u>
Cyanide (total)	<0.010 mg/L	102% / 100%	109% / NA		1.98%	

All Analysis performed according to EPA approved methodology when available :

SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.

Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

A handwritten signature in blue ink that reads "Norma James".

Reviewed by:

Norma James  
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description			Turnaround Time		Preservation Codes:						
Southern Arkansas University 100 E. University -- MSC 9289 Magnolia, AR 71753			Magnolia Effluent			1 Day (100%) 2 Day (50%) 3 Day (25%) 5 Day (Routine)		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2			4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12			
Attn: Gija Geme			Reporting Information Telephone: 870-235-5342 Fax: 870-235-4936 Email: gjageme@saumag.edu			Preservative Code: Bottle Type:		TEST PARAMETERS						Bottle Type Code
<i>Juan Lopez</i> Sampler(s) Signature			TRECUE LOPEZ Sampler(s) Printed					Arsenic, Selenium, Thallium, Cyanide (Total) Phenolics <i>Ca, Cr, Cu, Pb, Ni, Ag, Zn</i>						G - Glass; P = Plastic V = Septum; A = Amber  Arkansas Analytical Work Order Number: 2109144
Field Number	SAMPLE COLLECTION Date/s Time/s		Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION							
	7-Sep-21	1200-1800		X	3	water	Effluent						01	
1. Relinquished by: (Signature) <i>Juan Lopez</i>			Date/Time 9-8-21 0851		2. Received by: (Signature) <i>Gija Geme</i>			SAMPLE CONDITION UPON RECEIPT IN LAB				REMARKS / SAMPLE COMMENTS		
3. Relinquished by: (Signature) <i>Gija Geme</i>			Date/Time 9-8-21 1206		4. Received by lab: (Signature) <i>Sidney James</i> delivered via FedEx 9-9-21. 0930			1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: ___ Yes ___ No 5. TEMPERATURE ON RECEIPT: 3 °C 6. TEMPERATURE GUN ID: HHT# 4				No restrictions on the MDLs.  <i>* Metals added to sample - per Gija Geme - 9/14/21-8</i>		
FOR COMPLETION BY LAB ONLY														



8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

28 October 2021

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: October 2021 -- Effluent Sample  
SDG Number: 2110429

Enclosed are the results of analyses for samples received by the laboratory on 26-Oct-21 09:35. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

<u>Custody Seals</u>	✓
<u>Containers Correct</u>	✓
<u>COC/Labels Agree</u>	✓
<u>Received On Ice</u>	✓
Temperature on Receipt	2.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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28 October 2021



Gija Geme
Southern Arkansas University
P.O. Box 9289
Magnolia, AR 71754-9289
Project: Magnolia Effluent/Influent Sample(s)
Project Number: October 2021 -- Effluent Sample
Date Received: 26-Oct-21 09:35

ANALYTICAL RESULTS

Lab Number: 2110429-01
Sample Name: Effluent Composite (6hr)
Date/Time Collected: 9/24/21 18:00
Sample Matrix: Water

Table with 7 columns: Total Metals, Units, Result, Qualifier(s), Date/Time Analyzed, Batch, Method. Lists various metals like Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Zinc with their respective results and methods.

QUALITY CONTROL RESULTS

Total Metals -- Batch: B110431 (Water)
Prepared: 27-Oct-21 09:46 By: SPS -- Analyzed: 28-Oct-21 10:55 By: SPS

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Shows recovery percentages for various metals.

All Analysis performed according to EPA approved methodology when available:
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

Handwritten signature of Norma James

Reviewed by: Norma James
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description			Turnaround Time		Preservation Codes:											
Southern Arkansas University 100 E. University -- MSC 9289 Magnolia, AR 71753			Magnolia Effluent			1 Day (100%) 2 Day (50%) 3 Day (25%) 5 Day (Routine)		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2					4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12						
Attn: Gija Geme			Telephone: 870-235-5342 Fax: 870-235-4936 Email: gijageme@saumag.edu			Preservative Code: Bottle Type:		TEST PARAMETERS										Bottle Type Code	
Gija Geme			Trace blue			1, 3 P P												G - Glass; P - Plastic V = Septum; A = Amber	
Sampler(s) Signature			Sampler(s) Printed															Arkansas Analytical Work Order Number:	
																		2110429 01	
Field Number	SAMPLE COLLECTION		Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION										Arsenic, Selenium, Thallium, Cadmium	Chromium, copper, lead, nickel, silver, zinc	
	24-Sep-21	1200-1800		X	1	water	Effluent										X	X	
1. Relinquished by: (Signature)			Date/Time		2. Received by: (Signature)			SAMPLE CONDITION UPON RECEIPT IN LAB										REMARKS / SAMPLE COMMENTS	
Gija Geme			10-25-21 1308		Gija Geme			1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 2 °C 6. TEMPERATURE GUN ID: HHT# 4										No restrictions on the MDLs.	
3. Relinquished by: (Signature)			Date/Time		4. Received by lab: (Signature)			FOR COMPLETION BY LAB ONLY											
Gija Geme			10-25-21 1400		FedEx														



10-26-21  
9:35

Tammy Riddle



8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

19 January 2022

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: January 2022 -- Effluent  
SDG Number: 2201162

Enclosed are the results of analyses for samples received by the laboratory on 11-Jan-22 10:26. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

Custody Seals	✓
Containers Correct	✓
COC/Labels Agree	✓
Received On Ice	✓
Temperature on Receipt	2.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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19 January 2022

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289  
Project: Magnolia Effluent/Influent Sample(s)  
Project Number: January 2022 -- Effluent  
Date Received: 11-Jan-22 10:26



## CASE NARRATIVE

---

Sample Delivery Group – 2201162

**One OR more of the qualifiers described below may appear in this report. Qualifiers in RED apply to this SDG (Sample Delivery Group).**

### CALIBRATION QUALIFIERS:

<u>Qualifier</u>	<u>Description</u>
CR	Result above highest calibration standard, but within linear calibration range.
Est3	Result at the instrument was above the concentration of the highest standard in the calibration curve.
E2-F	Second Source Verification Failure
E7	Internal Standard Response Failure
E11	Initial Calibration Minimum Response Factor Failure
E21	CCV Low
E-01	CCV High
E35	Low Level CCV Failure

### QUALITY CONTROL QUALIFIERS:

<u>Qualifier</u>	<u>Description</u>
E20	Sample used as "parent" for the associated analytical batch.
%D3/S-01	Surrogate failed to recover within acceptance criteria (%D3/S-01).
E1	Results associated with this surrogate were qualified as "estimated" (E1).
B	Present in the Associated Blank
B1	Present in Blank, but Not In the Sample.
%D2 / E5	Laboratory Control Spike (LCS) and/or Laboratory Control Spike Duplicate (LCSD) failed to recover with acceptance criteria (%D2). Associated results were qualified as "estimated" (E5).
%D1	Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) failed acceptance criteria.
MBA	Failed criteria due to the high concentration of analyte in the parent sample.
MBI	Failed criteria due to an interference in the parent sample.
%D3	Quality Control Surrogate failed acceptance criteria.
NREC	Quality Control Surrogate failed.

19 January 2022



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2022 -- Effluent  
 Date Received: 11-Jan-22 10:26

**ANALYTICAL RESULTS**

Lab Number: 2201162-01  
 Sample Name: Effluent Composite (6hr)  
 Date/Time Collected: 1/9/22 18:00  
 Sample Matrix: Water

Acid Compounds	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
2,4,6-Trichlorophenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,4-Dichlorophenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,4-Dimethylphenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,4-Dinitrophenol	ug/L	< 50.0		1/13/22 17:31	B201176	EPA 625.1-2016
2-Chlorophenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2-Nitrophenol	ug/L	< 20.0		1/13/22 17:31	B201176	EPA 625.1-2016
4,6-Dinitro-o-cresol	ug/L	< 50.0		1/13/22 17:31	B201176	EPA 625.1-2016
4-Chloro-3-methylphenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
4-Nitrophenol	ug/L	< 50.0		1/13/22 17:31	B201176	EPA 625.1-2016
Pentachlorophenol	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Phenol	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,4,6-Tribromophenol [surr]	%	76.5		1/13/22 17:31	B201176	EPA 625.1-2016
2-Fluorophenol [surr]	%	55.2		1/13/22 17:31	B201176	EPA 625.1-2016
Phenol-d5 [surr]	%	39.9		1/13/22 17:31	B201176	EPA 625.1-2016
Base/Neutral Compounds	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
1,2,4-Trichlorobenzene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
1,2-Dichlorobenzene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
1,2-Diphenyl Hydrazine	ug/L	< 20.0		1/13/22 17:31	B201176	EPA 625.1-2016
1,3-Dichlorobenzene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
1,4-Dichlorobenzene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,3,7,8-TCDD (SIM)	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,2'-Oxybis(1-Chloropropane)	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,4-Dinitrotoluene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2,6-Dinitrotoluene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2-Chloronaphthalene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
3,3'-Dichlorobenzidine	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
4-Bromophenyl-phenylether	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
4-Chlorophenyl-phenylether	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Acenaphthene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Acenaphthylene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Anthracene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Benzidine	ug/L	< 50.0		1/13/22 17:31	B201176	EPA 625.1-2016
Benzo[a]pyrene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Benzo[b]fluoranthene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Benzo[g,h,i]perylene	ug/L	< 20.0		1/13/22 17:31	B201176	EPA 625.1-2016
Benzo[k]fluoranthene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Benzo (a) anthracene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Bis(2-chloroethoxy)methane	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Bis(2-chloroethyl)ether	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Bis(2-ethylhexyl)phthalate	ug/L	16.4	B	1/13/22 17:31	B201176	EPA 625.1-2016
Butylbenzylphthalate	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Chrysene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016

19 January 2022



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2022 -- Effluent  
 Date Received: 11-Jan-22 10:26

**ANALYTICAL RESULTS**

Lab Number: 2201162-01  
 Sample Name: Effluent Composite (6hr)  
 Date/Time Collected: 1/9/22 18:00  
 Sample Matrix: Water

<u>Base/Neutral Compounds</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Dibenz[a,h]anthracene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Diethylphthalate	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Dimethylphthalate	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Di-n-butylphthalate	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Di-n-octylphthalate	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Fluorene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Hexachlorobenzene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Hexachlorobutadiene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Hexachlorocyclopentadiene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Hexachloroethane	ug/L	< 20.0		1/13/22 17:31	B201176	EPA 625.1-2016
Indeno[1,2,3-cd]pyrene	ug/L	< 5.00		1/13/22 17:31	B201176	EPA 625.1-2016
Isophorone	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Naphthalene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Nitrobenzene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
N-Nitrosodimethylamine	ug/L	< 50.0		1/13/22 17:31	B201176	EPA 625.1-2016
n-Nitrosodiphenylamine	ug/L	< 20.0	E21	1/13/22 17:31	B201176	EPA 625.1-2016
N-Nitroso-di-n-propylamine	ug/L	< 20.0		1/13/22 17:31	B201176	EPA 625.1-2016
Phenanthrene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
Pyrene	ug/L	< 10.0		1/13/22 17:31	B201176	EPA 625.1-2016
2-Fluorobiphenyl [surr]	%	67.3		1/13/22 17:31	B201176	EPA 625.1-2016
Nitrobenzene-d5 [surr]	%	82.8		1/13/22 17:31	B201176	EPA 625.1-2016
Terphenyl-d14 [surr]	%	99.6		1/13/22 17:31	B201176	EPA 625.1-2016
<u>Hardness by Calculation</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
CaCO3	mg/L	18.2		1/17/22 10:59	[CALC]	[CALC]
<u>Pesticides/PCBs</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Aldrin	ug/L	< 0.010		1/14/22 17:06	B201238	EPA 608.3-2016
alpha-BHC	ug/L	< 0.009		1/14/22 17:06	B201238	EPA 608.3-2016
beta-BHC	ug/L	< 0.018		1/14/22 17:06	B201238	EPA 608.3-2016
gamma-BHC (Lindane)	ug/L	< 0.027		1/14/22 17:06	B201238	EPA 608.3-2016
delta-BHC	ug/L	< 0.012		1/14/22 17:06	B201238	EPA 608.3-2016
Chlordane	ug/L	< 0.042		1/14/22 17:06	B201238	EPA 608.3-2016
alpha-Chlordane	ug/L	< 0.050		1/14/22 17:06	B201238	EPA 608.3-2016
gamma-Chlordane	ug/L	< 0.050		1/14/22 17:06	B201238	EPA 608.3-2016
4,4'-DDT	ug/L	< 0.036		1/14/22 17:06	B201238	EPA 608.3-2016
4,4'-DDE	ug/L	< 0.012		1/14/22 17:06	B201238	EPA 608.3-2016
4,4'-DDD	ug/L	< 0.033		1/14/22 17:06	B201238	EPA 608.3-2016
Dieldrin	ug/L	< 0.020		1/14/22 17:06	B201238	EPA 608.3-2016
Endosulfan I	ug/L	< 0.042		1/14/22 17:06	B201238	EPA 608.3-2016
Endosulfan II	ug/L	< 0.012		1/14/22 17:06	B201238	EPA 608.3-2016
Endosulfan sulfate	ug/L	< 0.012		1/14/22 17:06	B201238	EPA 608.3-2016
Endrin	ug/L	< 0.018		1/14/22 17:06	B201238	EPA 608.3-2016
Endrin aldehyde	ug/L	< 0.070		1/14/22 17:06	B201238	EPA 608.3-2016

19 January 2022



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: January 2022 -- Effluent  
 Date Received: 11-Jan-22 10:26

**ANALYTICAL RESULTS**

Lab Number: 2201162-01  
 Sample Name: Effluent Composite (6hr)  
 Date/Time Collected: 1/9/22 18:00  
 Sample Matrix: Water

<u>Pesticides/PCBs</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Heptachlor	ug/L	< 0.009		1/14/22 17:06	B201238	EPA 608.3-2016
Heptachlor epoxide	ug/L	< 0.010		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1242	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1254	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1221	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1232	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1248	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1260	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Aroclor-1016	ug/L	< 0.200		1/14/22 17:06	B201238	EPA 608.3-2016
Toxaphene	ug/L	< 0.300		1/14/22 17:06	B201238	EPA 608.3-2016
TCMX [surr]	%	38.5		1/14/22 17:06	B201238	EPA 608.3-2016
DCBP [surr]	%	101		1/14/22 17:06	B201238	EPA 608.3-2016
<u>PPS Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Antimony	ug/L	< 60.0		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Arsenic	ug/L	<b>0.624</b>		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Beryllium	ug/L	< 0.500		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Cadmium	ug/L	< 0.500		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Chromium	ug/L	< 10.0		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Copper	ug/L	<b>5.23</b>		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Lead	ug/L	< 0.500		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Mercury	ng/L	<b>18.3</b>		1/18/22 14:55	B201268	EPA 1631 E
Nickel	ug/L	<b>1.30</b>		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Selenium	ug/L	< 5.20		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Silver	ug/L	< 0.500		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Thallium	ug/L	< 0.260		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
Zinc	ug/L	<b>31.3</b>		1/17/22 13:50	B201230	EPA 200.8, Rev. 5.4(1994)
<u>Volatiles</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
1,1-Dichloroethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,1-Dichloroethene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,1,1-Trichloroethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,1,2-Trichloroethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,1,2,2-Tetrachloroethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,2-Dichloropropane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
1,2-Dichloroethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
2-Chloroethyl vinyl ether	ug/L	< 10.0	E20	1/12/22 14:54	B201185	EPA 624.1-2016
Acrylonitrile	ug/L	< 20.0		1/12/22 14:54	B201185	EPA 624.1-2016
Benzene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Bromodichloromethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Bromoform	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Acrolein	ug/L	< 50.0	E20, E21, E2-F, E5	1/12/22 14:54	B201185	EPA 624.1-2016
Bromomethane	ug/L	< 50.0		1/12/22 14:54	B201185	EPA 624.1-2016

19 January 2022



**Gija Geme**  
**Southern Arkansas University**  
**P.O. Box 9289**  
**Magnolia, AR 71754-9289**  
**Project: Magnolia Effluent/Influent Sample(s)**  
**Project Number: January 2022 -- Effluent**  
**Date Received: 11-Jan-22 10:26**

**ANALYTICAL RESULTS**

**Lab Number: 2201162-01**  
**Sample Name: Effluent Composite (6hr)**  
**Date/Time Collected: 1/9/22 18:00**  
**Sample Matrix: Water**

<u>Volatiles</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Carbon tetrachloride	ug/L	< 2.00		1/12/22 14:54	B201185	EPA 624.1-2016
Chlorobenzene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Dibromochloromethane	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Chloroethane	ug/L	< 50.0		1/12/22 14:54	B201185	EPA 624.1-2016
Chloroform	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Chloromethane	ug/L	< 50.0		1/12/22 14:54	B201185	EPA 624.1-2016
Ethylbenzene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Methylene chloride	ug/L	< 20.0		1/12/22 14:54	B201185	EPA 624.1-2016
Tetrachloroethene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Toluene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
trans-1,2-Dichloroethene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Trichloroethene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
trans-1,3-Dichloropropene	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
Vinyl chloride	ug/L	< 10.0		1/12/22 14:54	B201185	EPA 624.1-2016
4-Bromofluorobenzene [surr]	%	99.5		1/12/22 14:54	B201185	EPA 624.1-2016
1,2-Dichloroethane-d4 [surr]	%	106		1/12/22 14:54	B201185	EPA 624.1-2016
Toluene-d8 [surr]	%	104		1/12/22 14:54	B201185	EPA 624.1-2016
<u>Wet Chemistry</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Cyanide (total)	mg/L	< 0.010		1/18/22 9:02	B201265	SM 4500-CN B,E-2011
Phenolics	mg/L	< 0.00500		1/14/22 7:59	B201229	EPA 420.1-1978
TKN	mg/L	< 0.50		1/17/22 9:44	B201252	Hach 10242, Rev. 1.1, 2013

**ANALYTICAL RESULTS**

**Lab Number: 2201162-02**  
**Sample Name: Effluent Cr+6 Composite (6hr)**  
**Date/Time Collected: 1/10/22 20:00**  
**Sample Matrix: Water**

<u>PPS Metals</u>	<u>Units</u>	<u>Result</u>	<u>Qualifier(s)</u>	<u>Date/Time Analyzed</u>	<u>Batch</u>	<u>Method</u>
Hexavalent Chromium	ug/L	< 10.0		1/12/22 14:54	B201156	SM3500-Cr B, 2009

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**QUALITY CONTROL RESULTS**

**PPS Metals -- Batch: B201156 (Water)**

Prepared: 11-Jan-22 13:11 By: SPS -- Analyzed: 12-Jan-22 14:54 By: SPS

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Hexavalent Chromium	<10.0 ug/L	101% / 101%	103% / NA		0.616%	

**Base/Neutral Compounds -- Batch: B201176 (Water)**

Prepared: 12-Jan-22 09:45 By: TB -- Analyzed: 13-Jan-22 14:45 By: CT

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
1,2,4-Trichlorobenzene	<0.561 ug/L	81.3% / NA	59.2% / 55.6%		6.21%	
1,2-Dichlorobenzene	<0.514 ug/L	88.3% / NA	61.5% / 58.1%		5.64%	
1,2-Diphenyl Hydrazine	<1.81 ug/L	109% / NA	93.2% / 83.4%		11.1%	
1,3-Dichlorobenzene	<0.470 ug/L	88.9% / NA	61.0% / 57.8%		5.30%	
1,4-Dichlorobenzene	<0.527 ug/L	86.8% / NA	59.5% / 56.4%		5.30%	
2,2'-Oxybis(1-Chloropropane)	<0.394 ug/L	125% / NA	85.5% / 79.9%		6.67%	
2,3,7,8-TCDD (SIM)	<1.00 ug/L	NA / NA	NA / NA		NA	
2,4,6-Trichlorophenol	<0.507 ug/L	101% / NA	79.1% / 74.4%		6.06%	
2,4-Dichlorophenol	<0.449 ug/L	91.2% / NA	70.7% / 65.5%		7.53%	
2,4-Dimethylphenol	<1.12 ug/L	89.2% / NA	69.9% / 65.5%		6.48%	
2,4-Dinitrophenol	<0.642 ug/L	111% / NA	108% / 103%		5.46%	
2,4-Dinitrotoluene	<0.656 ug/L	97.4% / NA	88.4% / 84.8%		4.16%	
2,6-Dinitrotoluene	<0.656 ug/L	96.8% / NA	85.2% / 78.2%		8.56%	
2-Chloronaphthalene	<0.515 ug/L	103% / NA	77.3% / 71.4%		8.04%	
2-Chlorophenol	<0.433 ug/L	105% / NA	71.7% / 67.2%		6.46%	
2-Nitrophenol	<0.554 ug/L	106% / NA	78.9% / 73.2%		7.52%	
3,3'-Dichlorobenzidine	<0.233 ug/L	88.2% / NA	79.8% / 74.3%		7.22%	
4,6-Dinitro-o-cresol	<0.643 ug/L	106% / NA	99.5% / 91.0%		8.88%	
4-Bromophenyl-phenylether	<0.580 ug/L	104% / NA	87.8% / 80.4%		8.81%	
4-Chloro-3-methylphenol	<0.567 ug/L	95.5% / NA	81.8% / 74.5%		9.30%	
4-Chlorophenyl-phenylether	<0.563 ug/L	107% / NA	88.7% / 79.3%		11.2%	
4-Nitrophenol	<0.607 ug/L	70.5% / NA	61.0% / 54.0%		12.3%	
Acenaphthene	<0.523 ug/L	97.5% / NA	76.2% / 70.3%		8.01%	
Acenaphthylene	<0.487 ug/L	98.2% / NA	77.2% / 71.0%		8.32%	
Anthracene	<0.566 ug/L	107% / NA	95.3% / 85.5%		10.8%	
Benidine	<0.522 ug/L	46.1% / NA	43.6% / 38.6%		12.0%	
Benzo (a) anthracene	<0.475 ug/L	111% / NA	100% / 93.2%		7.28%	
Benzo[a]pyrene	<0.566 ug/L	107% / NA	97.1% / 89.1%		8.53%	
Benzo[b]fluoranthene	<0.482 ug/L	112% / NA	100% / 93.4%		7.14%	
Benzo[g,h,i]perylene	<0.529 ug/L	104% / NA	93.1% / 85.9%		8.01%	
Benzo[k]fluoranthene	<0.516 ug/L	107% / NA	97.8% / 90.0%		8.34%	
Bis(2-chloroethoxy)methane	<0.461 ug/L	94.8% / NA	71.2% / 67.2%		5.79%	
Bis(2-chloroethyl)ether	<0.458 ug/L	104% / NA	72.7% / 68.1%		6.51%	
Bis(2-ethylhexyl)phthalate	15.2 ug/L	147% / NA	112% / 103%		6.92%	B
Butylbenzylphthalate	<0.637 ug/L	115% / NA	105% / 97.2%		7.44%	
Chrysene	<0.489 ug/L	106% / NA	96.4% / 88.8%		8.16%	
Dibenz[a,h]anthracene	<0.389 ug/L	103% / NA	95.2% / 88.0%		7.83%	
Diethylphthalate	<0.456 ug/L	110% / NA	97.6% / 90.7%		7.31%	
Dimethylphthalate	<0.516 ug/L	105% / NA	91.6% / 84.1%		8.56%	
Di-n-butylphthalate	<0.607 ug/L	99.1% / NA	92.3% / 83.3%		10.2%	
Di-n-octylphthalate	<0.407 ug/L	103% / NA	94.6% / 87.4%		7.90%	

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**QUALITY CONTROL RESULTS**

Base/Neutral Compounds -- Batch: B201176 (Water)

Prepared: 12-Jan-22 09:45 By: TB -- Analyzed: 13-Jan-22 14:45 By: CT

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Fluorene	<0.498 ug/L	106% / NA	89.4% / 81.0%		9.86%	
Hexachlorobenzene	<0.560 ug/L	107% / NA	94.4% / 83.9%		11.7%	
Hexachlorobutadiene	<0.461 ug/L	81.7% / NA	60.4% / 55.6%		8.35%	
Hexachlorocyclopentadiene	<0.303 ug/L	68.3% / NA	48.9% / 42.6%		13.8%	
Hexachloroethane	<0.958 ug/L	92.2% / NA	63.7% / 60.0%		6.09%	
Indeno[1,2,3-cd]pyrene	<0.502 ug/L	93.9% / NA	85.7% / 80.1%		6.71%	
Isophorone	<0.535 ug/L	135% / NA	96.4% / 96.4%		0.0250%	
Naphthalene	<0.480 ug/L	88.0% / NA	65.8% / 61.6%		6.58%	
Nitrobenzene	<0.456 ug/L	112% / NA	81.5% / 77.6%		4.90%	
N-Nitrosodimethylamine	<0.372 ug/L	62.9% / NA	43.0% / 40.3%		6.60%	
N-Nitroso-di-n-propylamine	<0.414 ug/L	105% / NA	76.7% / 70.8%		7.99%	
n-Nitrosodiphenylamine	<0.425 ug/L	104% / NA	92.4% / 82.2%		11.6%	E21
Pentachlorophenol	<0.311 ug/L	118% / NA	113% / 106%		6.47%	
Phenanthrene	<0.572 ug/L	106% / NA	97.2% / 86.8%		11.3%	
Phenol	<0.348 ug/L	63.8% / NA	46.2% / 41.7%		10.3%	
Pyrene	<0.489 ug/L	108% / NA	97.6% / 91.6%		6.33%	
2,4,6-Tribromophenol [surr]	77.4 %	93.5% / NA	81.4% / 76.3%		NA	
2-Fluorobiphenyl [surr]	77.0 %	83.5% / NA	69.1% / 61.2%		NA	
2-Fluorophenol [surr]	69.8 %	75.5% / NA	51.6% / 48.4%		NA	
Nitrobenzene-d5 [surr]	106 %	111% / NA	81.4% / 75.5%		NA	
Phenol-d5 [surr]	50.8 %	54.1% / NA	39.8% / 36.5%		NA	
Terphenyl-d14 [surr]	106 %	106% / NA	96.4% / 90.1%		NA	

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**QUALITY CONTROL RESULTS**

**Volatiles -- Batch: B201185 (Water)**

Prepared: 12-Jan-22 12:50 By: CT -- Analyzed: 12-Jan-22 20:22 By: ct

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
1,1,1-Trichloroethane	<0.319 ug/L	109% / NA	121% / 113%		6.75%	
1,1,2,2-Tetrachloroethane	<0.290 ug/L	99.5% / NA	101% / 99.8%		1.69%	
1,1,2-Trichloroethane	<0.238 ug/L	107% / NA	110% / 107%		3.17%	
1,1-Dichloroethane	<0.200 ug/L	112% / NA	123% / 121%		1.55%	
1,1-Dichloroethene	<0.355 ug/L	110% / NA	116% / 115%		1.60%	
1,2-Dichloroethane	<0.248 ug/L	99.4% / NA	112% / 112%		0.409%	
1,2-Dichloropropane	<0.220 ug/L	105% / NA	116% / 116%		0.741%	
2-Chloroethyl vinyl ether	<0.328 ug/L	38.3% / NA	MBI / MBI		%	MBI
Acrolein	<1.10 ug/L	32.4% / NA	33.2% / 36.0%		7.92%	%D1, %D2, E21, E2-F
Acrylonitrile	<0.539 ug/L	112% / NA	121% / 119%		1.37%	
Benzene	<0.174 ug/L	112% / NA	119% / 114%		4.35%	
Bromodichloromethane	<0.278 ug/L	109% / NA	116% / 112%		3.85%	
Bromoform	<0.160 ug/L	92.9% / NA	98.1% / 94.7%		3.52%	
Bromomethane	<0.579 ug/L	102% / NA	105% / 108%		2.33%	
Carbon tetrachloride	<0.170 ug/L	109% / NA	118% / 110%		6.95%	
Chlorobenzene	<0.100 ug/L	97.4% / NA	104% / 102%		2.05%	
Chloroethane	<0.993 ug/L	98.5% / NA	119% / 112%		6.02%	
Chloroform	<0.591 ug/L	113% / NA	120% / 115%		4.10%	
Chloromethane	<0.660 ug/L	108% / NA	127% / 131%		2.85%	
Dibromochloromethane	<0.130 ug/L	107% / NA	111% / 103%		6.68%	
Ethylbenzene	<0.216 ug/L	97.0% / NA	106% / 105%		1.16%	
Methylene chloride	<0.751 ug/L	107% / NA	117% / 112%		4.41%	
Tetrachloroethene	<0.280 ug/L	103% / NA	113% / 109%		4.29%	
Toluene	<0.245 ug/L	107% / NA	115% / 109%		4.90%	
trans-1,2-Dichloroethene	<0.258 ug/L	114% / NA	120% / 117%		2.66%	
trans-1,3-Dichloropropene	<0.287 ug/L	104% / NA	110% / 106%		3.37%	
Trichloroethene	<0.280 ug/L	101% / NA	108% / 101%		6.82%	
Vinyl chloride	<0.373 ug/L	106% / NA	120% / 122%		1.94%	
1,2-Dichloroethane-d4 [surr]	111 %	105% / NA	109% / 110%		NA	
4-Bromofluorobenzene [surr]	101 %	100% / NA	99.9% / 99.2%		NA	
Toluene-d8 [surr]	103 %	103% / NA	103% / 104%		NA	

**Wet Chemistry -- Batch: B201229 (Water)**

Prepared: 14-Jan-22 07:59 By: CNW -- Analyzed: 14-Jan-22 07:59 By: CNW

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Phenolics	<0.00500 mg/L	98.8% / NA	117% / 101%		15.3%	



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**QUALITY CONTROL RESULTS**

**PPS Metals -- Batch: B201230 (Water)**

Prepared: 14-Jan-22 09:44 By: ST -- Analyzed: 17-Jan-22 13:43 By: ST

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Antimony	<60.0 ug/L	104% / NA	106% / 105%		0.542%	
Arsenic	<0.500 ug/L	102% / NA	108% / 109%		0.797%	
Beryllium	<0.500 ug/L	100% / NA	99.0% / 99.7%		0.758%	
Cadmium	<0.500 ug/L	104% / NA	103% / 104%		0.402%	
Chromium	<10.0 ug/L	105% / NA	103% / 103%		0.461%	
Copper	<0.500 ug/L	106% / NA	105% / 106%		0.733%	
Lead	<0.500 ug/L	103% / NA	103% / 103%		0.170%	
Nickel	<0.500 ug/L	104% / NA	104% / 104%		0.0360%	
Selenium	<5.20 ug/L	102% / NA	111% / 112%		1.29%	
Silver	<0.500 ug/L	103% / NA	101% / 102%		1.04%	
Thallium	<0.260 ug/L	101% / NA	97.3% / 99.5%		2.25%	
Zinc	<20.0 ug/L	106% / NA	111% / 111%		0.0937%	

**Total Metals -- Batch: B201231 (Water)**

Prepared: 17-Jan-22 08:45 By: ST -- Analyzed: 17-Jan-22 12:26 By: ST

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Calcium	<0.110 mg/L	113% / NA	117% / 119%		0.180%	
Magnesium	<0.100 mg/L	114% / NA	112% / 114%		1.05%	

**Pesticides/PCBs -- Batch: B201238 (Water)**

Prepared: 12-Jan-22 15:03 By: TB -- Analyzed: 14-Jan-22 16:40 By: JM

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
4,4'-DDD	<0.002 ug/L	79.6% / NA	82.4% / 79.7%		3.28%	
4,4'-DDE	<0.001 ug/L	69.0% / NA	66.2% / 65.0%		1.83%	
4,4'-DDT	<0.001 ug/L	75.5% / NA	75.3% / 74.5%		1.13%	
Aldrin	<0.0005 ug/L	57.7% / NA	55.1% / 47.7%		14.5%	
alpha-BHC	<0.0006 ug/L	59.8% / NA	50.7% / 50.8%		0.208%	
beta-BHC	<0.002 ug/L	62.4% / NA	79.7% / 78.6%		1.42%	
delta-BHC	<0.002 ug/L	96.8% / NA	96.9% / 96.1%		0.748%	
Dieldrin	<0.001 ug/L	59.8% / NA	58.8% / 58.5%		0.620%	
Endosulfan I	<0.0003 ug/L	57.3% / NA	52.8% / 52.3%		1.06%	
Endosulfan II	<0.0009 ug/L	62.6% / NA	61.1% / 59.8%		2.17%	
Endosulfan sulfate	<0.001 ug/L	70.8% / NA	71.7% / 71.3%		0.657%	
Endrin	<0.001 ug/L	68.2% / NA	60.6% / 60.6%		0.0380%	
Endrin aldehyde	<0.001 ug/L	68.4% / NA	64.0% / 64.6%		0.890%	
gamma-BHC (Lindane)	<0.001 ug/L	63.4% / NA	60.6% / 59.6%		1.62%	
Heptachlor	<0.001 ug/L	56.8% / NA	50.2% / 48.0%		4.52%	
Heptachlor epoxide	<0.0005 ug/L	60.1% / NA	54.7% / 53.9%		1.45%	
DCBP [surr]	70.8 %	60.9% / NA	78.5% / 73.9%		NA	
TCMX [surr]	63.5 %	59.7% / NA	45.0% / 44.8%		NA	

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QUALITY CONTROL RESULTS

Wet Chemistry -- Batch: B201252 (Water)

Prepared: 17-Jan-22 09:44 By: JH -- Analyzed: 17-Jan-22 09:44 By: JH

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Row 1: TKN, <0.50 mg/L, 93.0% / 105%, 93.1% / NA, 12.4%

Wet Chemistry -- Batch: B201265 (Water)

Prepared: 18-Jan-22 09:02 By: JH -- Analyzed: 18-Jan-22 09:02 By: JH

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Row 1: Cyanide (total), <0.010 mg/L, 91.0% / 108%, 116% / NA, 17.1%, D

PPS Metals -- Batch: B201268 (Water)

Prepared: 18-Jan-22 13:00 By: SPS -- Analyzed: 18-Jan-22 15:20 By: SPS

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Row 1: Mercury, <5.00 ng/L, 98.3% / NA, 96.6% / 99.0%, 1.28%

QUALIFIER(S)

- \*%D1: Matrix Spike and/or Matrix Spike Duplicate Percent Recovery Does Not Meet Laboratory Acceptance Criteria
\*%D2: Laboratory Control Spike and/or Laboratory Control Spike Duplicate Percent Recovery Does Not Meet Laboratory Acceptance Criteria
\*B: Analyte Is Found In The Associated Blank
\*D: RPD Value Does Not Meet Laboratory Acceptance Criteria
\*E20: Estimated Result Due to Matrix Spike and/or Matrix Spike Duplicate Failure; This sample was used as the "parent sample" in MS/MSD prep.
\*E21: Estimated Result; This Analyte failed (low) in the CCV.
\*E2-F: Second Source Verification Failure
\*E5: Estimated Result Due to Quality Control Failure
\*MBI: Masked By Interference

All Analysis performed according to EPA approved methodology when available:
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

Handwritten signature: Norma James

Reviewed by: Norma James
Technical Director





8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

07 April 2022

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: April 2022 -- Effluent Sample  
SDG Number: 2204051

Enclosed are the results of analyses for samples received by the laboratory on 05-Apr-22 09:34. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

Custody Seals	✓
Containers Correct	✓
COC/Labels Agree	✓
Received On Ice	✓
Temperature on Receipt	3.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

*This document is intended only for the use of the person(s) to whom it is expressly addressed. This document may contain information that is confidential and legally privileged. If you are not the intended recipient, you are notified that any disclosure, distribution, or copying of this document is strictly prohibited. If you have received this document in error, please destroy.*

07 April 2022



Gija Geme
Southern Arkansas University
P.O. Box 9289
Magnolia, AR 71754-9289
Project: Magnolia Effluent/Influent Sample(s)
Project Number: April 2022 -- Effluent Sample
Date Received: 05-Apr-22 09:34

ANALYTICAL RESULTS

Lab Number: 2204051-01
Sample Name: Effluent Composite - 6hr (Metals Only)
Date/Time Collected: 4/3/22 18:00
Sample Matrix: Water

Table with 7 columns: Total Metals, Units, Result, Qualifier(s), Date/Time Analyzed, Batch, Method. Lists metals like Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Zinc with their respective results and methods.

QUALITY CONTROL RESULTS

Total Metals -- Batch: B204076 (Water)
Prepared: 06-Apr-22 12:10 By: ST -- Analyzed: 06-Apr-22 16:13 By: ST

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Shows quality control percentages for various metals.

All Analysis performed according to EPA approved methodology when available:
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

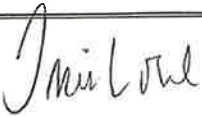
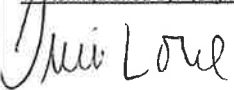


Handwritten signature of Norma James

Reviewed by: Norma James
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description			Turnaround Time		Preservation Codes:															
Southern Arkansas University			Magnolia Effluent			1 Day (100%)		1. Cool, 6 Degrees Centigrade			4. Thiosulfate for Dechlorination												
100 E. University -- MSC 9289						2 Day (50%)		2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2			5. Hydrochloric Acid(HCl)												
Magnolia, AR 71753			Reporting Information			3 Day (25%)		3. Nitric Acid (HNO <sub>3</sub> ), pH < 2			6. Sodium Hydroxide (NaOH), pH > 12												
			Telephone: 870-235-5342			5 Day (routine)		TEST PARAMETERS										Bottle Type Code					
Attn: Gija Geme			Fax: 870-235-4936			Preservative Code:		1, 3	1,3														G = Glass; P = Plastic
			Email: gjgageme@saumag.edu			Bottle Type:		P	P														V = Septum; A = Amber
 Sampler(s) Signature			Mike Love Sampler(s) Printed			Arsenic, Selenium, Thallium, Cadmium Chromium, copper, lead, nickel, silver, zinc	X	X															Arkansas Analytical Work Order Number:  2204051
Field Number	SAMPLE COLLECTION		Grab	Comp	Number of Bottles																		
	3-Apr-22	1200-1800		X	1	water	Effluent															01	
1/ Relinquished by: (Signature)			Date/Time			2. Received by: (Signature)			SAMPLE CONDITION UPON RECEIPT IN LAB										REMARKS / SAMPLE COMMENTS				
			4/4/22 1329						1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 3 °C 6. TEMPERATURE GUN ID: HHT#5										No restrictions on the MDLs.				
3. Relinquished by: (Signature)			Date/Time			4. Received by lab: (Signature)			FOR COMPLETION BY LAB ONLY														
			4-4-22 1413			Sydney James 4/5/22.0934 delivered via FedEx																	

## Healey, Richard

---

**From:** tlove@magnolia-ar.com  
**Sent:** Wednesday, August 17, 2022 8:35 AM  
**To:** Healey, Richard  
**Cc:** mwws@sbcglobal.net  
**Subject:** 2021-2022 Reports for MWWS  
**Attachments:** 2101431 -- Magnolia Effluent.pdf; 2104384 -- Magnolia Effluent 20210419.pdf; 2109144 -- Magnolia Effluent 20210908 quarterly.pdf; Q4 2021 Metals.pdf; Q1 Effluent.pdf; Q2 2022 Metals.pdf

Good morning, Richard. Attached are the lead reports you requested. Arkansas Analytical does report in mg/l so we simply covert that number to ug/l and report that on the DMR. However, you will notice there are no samples from which they were able to obtain a number higher than the readable limits of their test so every results is listed as "less than."

Please let me know if you need any other reports or have any further questions.

Regards,

Tracie Love  
Magnolia Wastewater

## Healey, Richard

---

**From:** tlove@magnolia-ar.com  
**Sent:** Wednesday, August 24, 2022 7:31 AM  
**To:** Healey, Richard  
**Subject:** Metal Results for MWWS  
**Attachments:** 2208238 -- Magnolia Eff\_20220815.pdf

Good morning Richard, attached are the results from the most recent lead testing we did in August. From the report, you can see the lead is 0.313 ug/l

We will begin to monitor lead on a monthly basis for the next 12 months to establish a consistent pattern of lead concentration below the permit limits. We will report results on the DMR but if you would like a separate email of the report in its entirety, just let me know.

If you have any other questions, feel free to reach out to Russell or myself.

Thanks

Tracie Love  
Magnolia Wastewater





8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

23 August 2022

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: August 2022 -- Effluent  
SDG Number: 2208238

Enclosed are the results of analyses for samples received by the laboratory on 16-Aug-22 09:09. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

<u>Custody Seals</u>	✓
<u>Containers Correct</u>	✓
<u>COC/Labels Agree</u>	✓
<u>Received On Ice</u>	✓
Temperature on Receipt	2.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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23 August 2022



Gija Geme
Southern Arkansas University
P.O. Box 9289
Magnolia, AR 71754-9289
Project: Magnolia Effluent/Influent Sample(s)
Project Number: August 2022 -- Effluent
Date Received: 16-Aug-22 09:09

ANALYTICAL RESULTS

Lab Number: 2208238-01
Sample Name: Effluent Composite - 6hr (Metals Only)
Date/Time Collected: 8/14/22 18:00
Sample Matrix: Water

Table with 7 columns: Total Metals, Units, Result, Qualifier(s), Date/Time Analyzed, Batch, Method. Lists various metals like Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Zinc with their respective results and methods.

QUALITY CONTROL RESULTS

Total Metals -- Batch: B208275 (Water)
Prepared: 16-Aug-22 13:52 By: ST -- Analyzed: 17-Aug-22 14:28 By: ST

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Shows quality control data for Lead.

Total Metals -- Batch: B208315 (Water)
Prepared: 18-Aug-22 16:01 By: BS -- Analyzed: 19-Aug-22 13:30 By: ST

Table with 7 columns: Analyte, BLK, LCS / LCSD, MS / MSD, Dup, RPD, Qualifiers. Shows quality control data for various metals including Arsenic, Cadmium, Chromium, Copper, Nickel, Selenium, Silver, Thallium, and Zinc.

23 August 2022



**Gija Geme**  
**Southern Arkansas University**  
**P.O. Box 9289**  
**Magnolia, AR 71754-9289**  
**Project: Magnolia Effluent/Influent Sample(s)**  
**Project Number: August 2022 -- Effluent**  
**Date Received: 16-Aug-22 09:09**

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All Analysis performed according to EPA approved methodology when available:  
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.  
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

A handwritten signature in blue ink that reads "Norma James".

Reviewed by: \_\_\_\_\_

Norma James  
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description			Turnaround Time		Preservation Codes:												
Southern Arkansas University 100 E. University -- MSC 9289 Magnolia, AR 71753			Magnolia Effluent			1 Day (100%) 2 Day (50%) 3 Day (25%) 5 Day (Routine)		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2					4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12							
Attn: Gija Geme			Telephone: 870-235-5342 Fax: 870-235-4936 Email: gjjageme@saumag.edu			Preservative Code: Bottle Type:		TEST PARAMETERS										Bottle Type Code		
Tracie Love			Tracie Love			1, 3 P P												G = Glass; P = Plastic V = Septum; A = Amber		
Sampler(s) Signature			Sampler(s) Printed															Arkansas Analytical Work Order Number: 2208238		
Field Number	SAMPLE COLLECTION		Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION													
	14-Aug-22	1200-1800		X	1	water	Effluent										01			
1. Relinquished by: (Signature) Tracie Love			Date/Time 8-15-22 1322			2. Received by: (Signature) 			SAMPLE CONDITION UPON RECEIPT IN LAB						REMARKS / SAMPLE COMMENTS					
3. Relinquished by: (Signature) 			Date/Time 8-15-22 1440			4. Received by lab: (Signature) Tammy Riddle 8/16/22 909			1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 28 °C 6. TEMPERATURE GUN ID: HHT# 5						No restrictions on the MDLs. *Pb on sample needs to be low level - per Gija Geme - 8/17/22 - (8)					
															FOR COMPLETION BY LAB ONLY					

Via-FedEx



8100 National Dr. - Little Rock, AR 72209  
501-455-3233 Fax 501-455-6118

23 August 2022

Gija Geme  
Southern Arkansas University  
P.O. Box 9289  
Magnolia, AR 71754-9289

Project: Magnolia Effluent/Influent Sample(s)  
Project Number: August 2022 -- Effluent  
SDG Number: 2208238

Enclosed are the results of analyses for samples received by the laboratory on 16-Aug-22 09:09. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

Custody Seals	✓
Containers Correct	✓
COC/Labels Agree	✓
Received On Ice	✓
Temperature on Receipt	2.0°C

Sincerely,

A handwritten signature in blue ink that reads "Norma James".

---

Norma James  
Technical Director

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23 August 2022



Gija Geme  
 Southern Arkansas University  
 P.O. Box 9289  
 Magnolia, AR 71754-9289  
 Project: Magnolia Effluent/Influent Sample(s)  
 Project Number: August 2022 -- Effluent  
 Date Received: 16-Aug-22 09:09

**ANALYTICAL RESULTS**

Lab Number: 2208238-01  
 Sample Name: Effluent Composite - 6hr (Metals Only)  
 Date/Time Collected: 8/14/22 18:00  
 Sample Matrix: Water

Total Metals	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
Arsenic	mg/L	< 0.0624		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Cadmium	mg/L	< 0.00125		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Chromium	mg/L	< 0.0125		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Copper	mg/L	< 0.0208		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Lead	ug/L	0.313		8/17/22 14:51	B208275	EPA 200.8, Rev. 5.4(1994)
Nickel	mg/L	< 0.0104		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Selenium	mg/L	< 0.0624		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Silver	mg/L	< 0.0208		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Thallium	mg/L	< 0.104		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)
Zinc	mg/L	< 0.0208		8/19/22 13:35	B208315	EPA 200.7, Rev 4.4 (1994)

**QUALITY CONTROL RESULTS**

Total Metals -- Batch: B208275 (Water)  
 Prepared: 16-Aug-22 13:52 By: ST -- Analyzed: 17-Aug-22 14:28 By: ST

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Lead	<0.260 ug/L	106% / NA	101% / 105%		4.22%	

Total Metals -- Batch: B208315 (Water)  
 Prepared: 18-Aug-22 16:01 By: BS -- Analyzed: 19-Aug-22 13:30 By: ST

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Arsenic	<0.0624 mg/L	98.3% / NA	101% / 97.5%		3.65%	
Cadmium	<0.00125 mg/L	105% / NA	105% / 100%		4.66%	
Chromium	<0.0125 mg/L	101% / NA	101% / 96.1%		5.00%	
Copper	<0.0208 mg/L	95.9% / NA	103% / 97.2%		5.32%	
Nickel	<0.0104 mg/L	101% / NA	102% / 97.2%		4.82%	
Selenium	<0.0624 mg/L	101% / NA	98.8% / 94.8%		4.18%	
Silver	<0.0208 mg/L	100% / NA	99.6% / 97.3%		2.37%	
Thallium	<0.104 mg/L	102% / NA	101% / 96.6%		4.46%	
Zinc	<0.0208 mg/L	103% / NA	106% / 99.7%		6.01%	

23 August 2022



**Gija Geme**  
**Southern Arkansas University**  
**P.O. Box 9289**  
**Magnolia, AR 71754-9289**  
**Project: Magnolia Effluent/Influent Sample(s)**  
**Project Number: August 2022 -- Effluent**  
**Date Received: 16-Aug-22 09:09**

---

All Analysis performed according to EPA approved methodology when available:  
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.  
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

A handwritten signature in blue ink that reads "Norma James". The signature is written in a cursive style.

Reviewed by: \_\_\_\_\_

Norma James  
Technical Director



8100 National Dr.  
 Little Rock, AR 72209  
 PHONE: 501-455-3233  
 FAX: 501-455-6118

# CHAIN OF CUSTODY RECORD

CLIENT INFORMATION			Project Description			Turnaround Time		Preservation Codes:												
Southern Arkansas University 100 E. University -- MSC 9289 Magnolia, AR 71753			Magnolia Effluent			1 Day (100%) 2 Day (50%) 3 Day (25%) 5 Day (Routine)		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2					4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12							
Attn: Gija Geme			Telephone: 870-235-5342			Preservative Code:		TEST PARAMETERS										Bottle Type Code		
Email: gjggame@saumag.edu			Fax: 870-235-4936			Bottle Type:		G = Glass; P = Plastic V = Serum; A = Amber												
Tracie Love			Tracie Love					Arsenic, Selenium, Thallium, Cadmium, Chromium, copper, lead, nickel, silver, zinc										Arkansas Analytical Work Order Number:		
Sampler(s) Signature			Sampler(s) Printed															2208238		
Field Number	SAMPLE COLLECTION		Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION													
	14-Aug-22	1200-1800		X	1	water	Effluent	X	X											01
1. Relinquished by: (Signature)			Date/Time			2. Received by: (Signature)			SAMPLE CONDITION UPON RECEIPT IN LAB						REMARKS / SAMPLE COMMENTS					
Tracie Love			8-15-22 1322			[Signature]			1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes ___ No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes ___ No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes ___ No 5. TEMPERATURE ON RECEIPT: 28 °C TR 6. TEMPERATURE GUN ID: HHT# 5						No restrictions on the MDLs.					
3. Relinquished by: (Signature)			Date/Time			4. Received by lab: (Signature)			FOR COMPLETION BY LAB ONLY						*Pb on sample needs to be low level - per Gija Geme - 8/17/22 - (8)					
[Signature]			8-15-22 1440			Tammy Riddle 8/16/22 909														

Via-FedEx



## Healey, Richard

---

**From:** Wastewater System Magnolia <mwws@sbcglobal.net>  
**Sent:** Wednesday, August 24, 2022 1:45 PM  
**To:** Healey, Richard  
**Subject:** Reports for MWWS  
**Attachments:** Q2 Resubmit 2022.pdf; 2022progressreport2.docx; Leadretest.pdf

Richard,

We have updated the DMR with the NODI and included the non compliance report. We have also updated the progress report previously submitted. Copies of both are attached. Please let us know if there's anything we we can do.

Thanks,

Russell