

May 14, 2019

Alabama Department of Environmental Management PO Box 301463 1400 Coliseum Boulevard Montgomery, AL 36110

ATTEN: Ms. Cammie Ashmore

Reference: MS4 Annual Report 2018/2019 Period

City of Tuscumbia Separate Storm Sewer System

NPDES #ALR040022 Colbert County (33)

Mahte

Dear Ms. Ashmore,

On the behalf of the *City of Tuscumbia*, please find enclosed a copy of the supporting material regarding the above reference Annual Report.

If you have any questions, please feel free to contact me by phone at 256.566.9220 or by email at <a href="mailto:rmcwhorter@enersolv.com">rmcwhorter@enersolv.com</a>

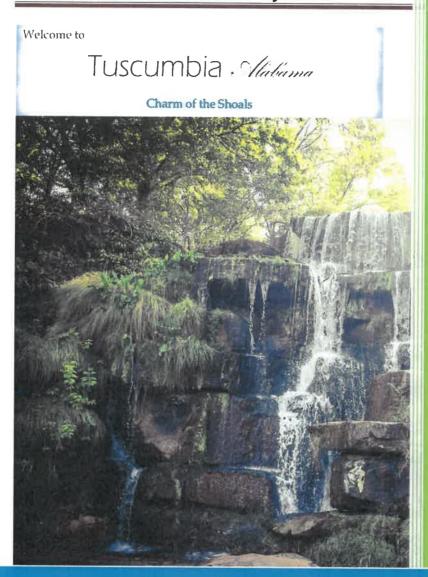
Sincerely,

Ricky McWhorter

Sr. Environmental Project Scientist

**ENERSOLV CORP** 

# City of Tuscumbia



2018/2019

# City of Tuscumbia NPDES Permit # ALR040022 Annual Report

Submitted by the Stormwater Advisory Committee

Prepared by:

Prepared by: ENERSOLV CORP



2018/2019

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Welcome to

Tuscumbia : Mabana

Charm of the Shoals

## City of Tuscumbia

Annual Report General Permit for Phase II Municipal Separate Storm Sewer Systems (MS4) NPDES Permit No. ALR 040022

May 14, 2019

Submitted by:

City of Tuscumbia:

Katherine Logan

Chairperson Pro Tempore

**Tuscumbia Stormwater Advisory Committee:** 

William Foster, Board Member

Robert Mitchell, Board Member

Ron Kirkland, Board Member

Prepared for the City of Tuscumbia by: ENERSOLV CORP

Ricky McWhorter, Sr. Environmental Project Scientist

I certify under penalty of law that I have reviewed this Annual Report and all attachments contained in the appendix thereto and that the same are tlue and correct. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Dated this the day May 14, 2019

City of Tuscumbia

Katherine Logan

Chairperson Pro Tempore

**Tuscumbia Stormwater Advisory Committee** 

William Foster, Board Member

Robert Mitchell, Board Member

Ron Kirkland, Board Member\_

#### Introduction

This Annual Report was developed in accordance with the guidelines provided in Title 40 Code of Federal Regulations (CFR), Part 122.26(b)(16) which authorizes discharges of stormwater from small MS4s incorporated by reference in the Alabama Administrative Code 335-6 as administered by the Alabama Department of Environmental Management (ADEM) and NPDES ALR040022 Phase II General Permit effective October 1, 2016.

The City of Tuscumbia has completed this Annual Report in Compliance with Part V. C. Reporting of the NPDES Phase II Permit No. ALR040022. The purpose of this Annual Report is to describe the compliance efforts reflected in the City's Storm Water Management Plan (SWMP) and to better understand the need for additional compliance measure. It also gives the Stormwater Committee (SWC) an opportunity to evaluate compliance, and to propose additional controls, activities and documentation. The permit requires that the City of Tuscumbia to submit an annual report to ADEM each year by May 31st. The Annual Reports cover the year (April 1 - March 31) prior to the submittal date. This annual report covers the period from April 1, 2018 to March 31, 2019. In accordance with the requirements of the permit, the Annual Report includes the following:

- The status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the Maximum Extent Possible (MEP), and the measurable goals for each of the minimum control measures;
- · Results of information collected and analyzed, if any, during the reporting period,
- including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;
- A summary of the stormwater activities we plan to undertake during the next reporting
- cycle (including an implementation schedule).
- Proposed changes to the SMWP, including changes to any BMPs or any identified measurable goals that apply to the program elements;
- Notice that we are relying on another government entity to satisfy some permit obligations (if applicable); and
- All monitoring results collected during the previous year in accordance with Part V, if applicable. The monitoring reports shall be submitted in a format acceptable to the Department.

These elements will be addressed within the Annual Report and in each section detailing the implementation of the six minimum measures:

- I. Public Education and Public Involvement
- II. Illicit Discharge Detection and Elimination
- III. Erosion and Sedimentation Controls
- IV. Post-Construction Storm Water Runoff Control
- V. Pollution Prevention and Good Housekeeping

#### **MS4** Description

The City of Tuscumbia is a mixed-used community consisting of urban, residential, and light industry located Colbert County, Alabama comprised of approximately 22.8 km². Tuscumbia is located northeast of the center of Colbert County at 34°43′51″N 87°42′10″W (34.730839, -87.702854). It is bordered to the north by the city of Sheffield and to the northeast by the city of Muscle Shoals. The Tennessee River is 1 mile (1.6 km) to the northwest. The main receiving stream is Spring Creek which flows through the center of the City.

#### **Evaluation Discussion**

The Tuscumbia MS4 Program continues to make significant strides in the past few years in working toward achieving improvements regarding it's NPDES Phase II MS4 Permit. Since the permit reissuance in October 2016, a more defined program is being implemented pursuant to the Storm Water Management Plan (SWMP) related to public involvement, illicit discharges, construction stormwater, good housekeeping and stream monitoring. In July 2017, the SWC began the Spring Creek stream monitoring - 303(d) listed for agricultural impairments - and city point source monitoring programs in partnership with Enersolv Corporation - acting as an environmental consulting agency to help with compliance issues. However, significant strides have been made; there are still areas that need more focus such as public involvement, stormwater inspections and enforcement.

In the next coming reporting period, the program will focus on public participation activities and outreach, construction stormwater compliance, stream monitoring, record keeping, and a SWMP update.

The City of Tuscumbia has entered an agreement with Enersolv Corp to help manage the MS4 Program. As part of this program, Enersolv is planning to augment construction stormwater enforcement by conducting inspections, and work with file management. They also plan to update the current SWMP to be more representative of current challenges.

## City of Tuscumbia

Alabama NPDES Phase II Annual Report Permit # ALR040022 May 14, 2019

This report documents the activities related to each of the 6 Minimum Control Measures, including the BMP and rationale statement, as required by the City of Tuscumbia's NPDES Stormwater (MS4) permit.

The Appendix includes documentation of the action items and the Spring Creek monitoring plan and data information.

#### I Public Education and Outreach

# BMP No. 1- Mail out flyers to homes and businesses two times per year.

**Challenges:** The primary source of pollution addressed by public education and outreach is trash, litter, soil disturbances, chemicals, and individual oil changes.

BMP Rationale: The problems addressed by this BMP are most common to residences and businesses in this area. Correcting these problems will go a long way toward cleaning up the waters in this area. The published information reaches a large segment of the population by placing billboards and signs at strategic locations and coordinating with "Keep the Shoals Beautiful" and the Chamber of Commerce and Civic Organizations.

#### **Activities:**

Ongoing: In previous years, ordinances have been adopted which encourage the limited use of fertilizer, pesticides, and herbicides within the City. The City continues to get involved and support activities and events that educate the public on how litter and pollution control can help the environment.

#### 2018-2019 Activities:

Local News Media Exposure: Tuscumbia Public Works Administrative Assistant was interviewed on June 15, 2018, by WAFF News Channel 48 concerning the 2<sup>nd</sup> Annual Chunk the Junk Clean Up Day. She talked about the effects of stormwater runoff, steps the public can take to prevent stormwater pollution, as well as ways the public can get involved in stormwater program activities such as the Citywide Clean-up Day. (Aired on WAFF 48 June 15, 2018at 6:00 pm)

Shoals Solid Waste Authority (SSWA): This organization is supported by the City, with funding and drop off locations. Special projects include:

- Mentioned in news articles in the local newspaper (Times Daily)
  - "City Cleanup Day" (6/14/18)

- "Council Facebook Stream" 5365 Total Followers
- o Helped Sponsor Community Events
  - o "Shoals Earth Month" (April 2018)
  - "Shoals Earth Day Fest" (4/7/18) <a href="http://quadcitiesdaily.com/?p=448253">http://quadcitiesdaily.com/?p=448253</a> (See Appendix A photo)
  - o "Jazz it up with Trash" <a href="https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html">https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html</a>

### Webpage Update: Continuous updates are ongoing. (Total views 5722)

Home Page Focus Element Links:

http://cityoftuscumbia.org/?page\_id=89

- Stormwater Management Plan 2011-2015
- o 2014-2015 SWMP Annual Report
- o 2015-2016 MS4 Annual Report
- o Removal of Trash, Waste, and Debris Ordinance
- o Sewer Do's and Dont's
- Storm Water FAQs
- o Basic Report FINAL 05 15 2018
- o Basic Report FINAL 07 13 2018
- Basic Report FINAL 09 04 2018
- Spring Creek Analytical Report October 2018
- 2018 Annual MS4 Report
- Buildings & Permit Page Focus Elements Links:

http://cityoftuscumbia.org/?page\_id=2151

- Ordinance for Illicit Discharge
- o Ordinance for Stormwater Operation
- o Ordinance for Erosion and Sediment Control
- o SWMPP Jan 8, 2017
- Contacts for IDDE
- o 1709973 Basic Report FINAL 07 26 2017 1048
- o 1710072 Basic Report FINAL 08 01 2017 0949
- o 1710509 Basic Report FINAL 08 07 2017 1704
- o 1710508 Basic Report FINAL 08 08 2017 1018
- 1712220 Basic Report FINAL 09 11 2017 1520
- 1712221 Basic Report FINAL 09 07 2017 1523

The following events and distributed literature related to recycling:

- Helen Keller Festival
- W.C. Handy Festival

- Shoals Earth Day
- *Earth Day* 4/22/2018
- Partner with Keep the Shoals Beautiful-Platinum Leaf Sponsor of the Tennessee River Litter Tournament on 9/15/18

Citywide Cleanup Day "Chunk the Junk": Organized and implemented a City Cleanup day in which 392 lbs of trash and debris was recovered around the City. 6/16/18. See City of Tuscumbia Facebook page links below. (See Appendix A photo)

https://www.facebook.com/TuscumbiaSanitation/

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support for public education. Special projects included:

· Provided sign advertising encouraging citizens to stop litter and keep the Shoals area clean.

"Annual Tennessee Litter Tournament": Event participation as a sponsor with KTSB.

#### https://www.quadcities.com/?p=476247

Signs: The City continues to maintain various anti-litter signs throughout the area to remind people to keep the Shoals clean. "Do Not Dump" and "Do Not Litter" signs were replaced and installed in various places. The Street Department also continues to install tags on storm drain inlets and junction boxes to warn the public that drainage enters waterways and discourage dumping. (See Appendix A)

Brochures, Flyers, Etc.: Materials are displayed at the utility department and the building department for citizens to pick up. Information related to stormwater management is shared with civic organizations such as Kiwanis Club and Civitan Club.

*Utility Bills Notifications:* Statements asking for citizens to help prevent stormwater pollution and describing actions to take are periodically placed on utility bills before mailing – 8/28/18 & 9/28/18 (See Appendix A for copy of utility bill).

#### BMP No. 2: Run-Off Reduction/ Permeable Pavement

Challenge: The main source of pollution addressed by this BMP is soil erosion during construction.

BMP Rationale: Most of the soil erosion and introduction of silt into the stormwater system is due to construction activities which disturb the landscape. By placing restrictions of this BMP on contractors and developers, soil erosion will be better managed and improve water quality. Requirements are outlined in the subdivision regulations, SWMP, and the new stormwater ordinances.

#### **Activities:**

Ongoing: Regulations and ordinances now dictate that contractors and developers will adhere to the rules which have been adopted to control erosion. The City requires engineers to provide monthly inspection reports for the City to review. The City's staff also provided inspection and enforcement of the rules. BMP for each project exceeding 1 acre is required and is reviewed by the City Review office. Permits are required before excavation or prior to any soil disturbance.

2019-2019 Activities: The frequency of action is continual. Every construction project is reviewed for compliance with the city regulations. See link for City Ordinances related to erosion control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

# BMP No. 4 - Storm Drain Inlet Protection and Public Awareness

**Challenge:** Storm drains are an easy and visible way to dump unwanted materials. However, when the public is made aware that the storm drains lead to creeks and rivers, they are less likely to dump materials in the storm drains.

BMP Rationale: To make the public aware of the harm to dumping material in the storm drain.

#### **Activities:**

Ongoing - Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city. (See Appendix A photo)

Ongoing - Increased the number of participation in specific events

Ongoing - Continuing to work with KTSB to educate the public

#### Extra Information:

Stormwater FAQs and Sewer Do's and Don'ts were published on the City's website for the public. See link <a href="https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf">https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf</a>

Tuscumbia Street and Sanitation Department posted a notice to public on its Facebook page to contact the Tuscumbia Street and Sanitation Department if they had a sewer problem at their home or business before calling a plumbing contractor.

# Measure specific activities planned for the next reporting period

During this next reporting period, City of Tuscumbia plans to continue to promote the MS4 Public Education and Outreach best management measures to include at a minimum:

- 1. Continue ongoing activities related to public education and outreach.
- 2. Continue to work with KTSB to help initiate public education and outreach programs.
- 3. Increase the number of participations in specific events.
- 4. Increase the efficiency of record keeping and documentation related to public education activities.
- 5. Continue working to label storm drain inlets to promote public education regarding impacts.

# II. Public Involvement and Participation

**Challenge:** The challenge addressed in this BMP is associated mainly with littering by the public and the general disregard for erosion and pollution problems.

BMP Rationale: The rationale for this BMP is to create ownership and transparency for citizens. That is, the more they are involved with the decision-making process and cleanup activities, the more they will be aware of the problems related to litter and erosion. Public involvement and participation helps to increase general awareness and concern over these issues. These activities also involve environmentally concerned individuals and help get citizens involved in reporting violations to be enforced by City officials.

#### **Activities:**

Ongoing: Citizens are encouraged to clean up their areas and to stop littering and notify City officials of littering and erosion issues. The City has also participated in the Groundwater Guardian Program which is a committee of local officials, business owners, and concerned citizens that implements educational programs for children and adults about the importance of protecting the natural groundwater resources in the area. This committee continues to distribute literature and promote education programs.

#### 2018-2019 Activities:

**Public Hearing:** Scheduled for every other year and was last held on 2/17/17, and we proposed to have one during the 2019 calendar year. Stormwater Committee presented to City Council and the public the goals of and objectives of the SWMPP and reduction of stormwater impacts.

Shoals Solid Waste Authority (SSWA): This organization is supported by the City with funding and to help with drop off locations. Special projects include:

• Distributed brochures and other materials to the general public on recycling at several public events in the area throughout the year. Also provided recycle bins during community events.

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special public involvement projects included:

- Organized and implemented the 2<sup>nd</sup> Annual "Chuck the Junk Citywide Cleanup" day in which 392 lbs of trash and debris was recovered around the City. 6/19/18, See City of Tuscumbia Facebook page link:
  - http://cityoftuscumbia.org/?page\_id=89 (See Appendix A)
- Sponsored an Earth Day event on 4/7/18. (Sponsor with KTSB)
- Assisted other organizations with clean-up events: Participated in the Annual Tennessee Litter Tournament for the Shoals – 8/22/18
- Collected over 15,163 pounds of debris within the City of Tuscumbia by employees in which the Shoals Solid Waste Authority collects from the City

### BMP No. 2: Stenciling at Stormwater Inlets

**Challenge:** The challenge addressed in this BMP is associated mainly with illicit dumping by the general public into stormwater system inlets. Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city.

BMP Rationale: The rationale for this BMP is to make citizens aware that whatever enters a stormwater inlet may eventually enter our rivers and streams. This awareness should reduce the amount of illicit discharges by the general public.

#### **Activities:**

2018-2019 Activities: The City of Tuscumbia Public Works Department continues to maintain and install curb tags at storm drains around the City.

#### BMP No. 3 - Art Contest at Elementary Schools

Challenge: The challenge addressed in this BMP is associated mainly with littering and the general disregard for pollution problems.

**BMP Rationale:** the rationale for this BMP is that good habits are best learned at a young age. If our children can be involved in litter prevention and become aware of the issues related to pollution, they will be more proactive as adults.

#### **Activities:**

2018-2019 Activities:

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special projects focusing on elementary schools include:

• "Cleanup Campus Contest" for all Tuscumbia elementary students. This contest provided an opportunity to win the Steve Trash Award in which G.W. Trenholm from Tuscumbia was the winner.

## Measure specific activities planned for the next reporting period

Tuscumbia will continue to implement the Public Involvement & Participation measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to work with the Groundwater Guardian Program.
- 2. Continue to work with the Shoals Solid Waste Authority (SSWA) in partnership regarding public awareness of water quality and litter control.
- 3. Continue to work with the Keep the Shoals Beautiful (KTSB) in partnership regarding public awareness of water quality and litter control.
- 4. Work with local schools regarding public awareness of water quality and litter control.
- 5. Continue to increase the efficiency of record keeping and documentation related to public awareness activities.

# III. Illicit Discharge Detection & Elimination

## BMP No. 1: Enforcement Personnel to Re-certify QCI

**Challenge:** The problem addressed with this BMP is the lack of training regarding the effects of illicit discharges, proper BMP measures and the lack of enforcement of City ordinances.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to work toward eliminating the problem associated with illicit discharges. City officials will be informed and trained regarding the hazards associated with illicit discharges and proper BMP measures.

#### **Activities:**

Ongoing: All ordinance requirements related to illicit discharges were completed prior to 2010. Mr. Greg Willingham with the City of Tuscumbia is responsible for BMP review and code enforcements. See webpage link:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Illicit Discharge.pdf

2018-2019 Activities: Greg Willingham was certified as QCI on April 28, 2018 QCI#73967. (See Appendix B for certificate copy)

#### BMP No. 2: Site Inspections - Industrial, Commercial, Construction Sites

**Challenge:** The problem addressed with this BMP is the illicit discharge by industrial, commercial sites, and construction sites into the City stormwater system.

BMP Rationale: The rationale for this BMP is that an inspection process is necessary to identify illicit discharges and enable the City to enforce the ordinances related to such discharges.

#### **Activities:**

Ongoing: Greg Willingham was recertified on April 28, 2018 QCI#73967. The City continues to conduct routine inspections of the stormwater discharge points and other sites. The records of certifications and facility inspections are kept on file at City Hall.

2018-2019 Activities: The City's QCIs conducted approximately 93 onsite construction site inspections and observations. There were no referrals based on inspections. There were no construction site complaints received during the reporting year.

# BMP No. 3: Stormwater Runoff Sampling & 303(d) Spring Creek Stream Sampling

*Challenges:* The problem addressed with this BMP is stream contamination caused by illicit discharges and stormwater runoff.

**BMP Rationale:** The rationale for this BMP is that sampling and testing stormwater at the known outfall of the City's stormwater system will help to identify issues so further inspection and enforcement can take place. Also, seasonal monthly stormwater sampling will be conducted on Spring Creek at specific locations identified in the SWMPP during seasonal months triggered by rainfall and dry events.

#### Activities:

Ongoing: GIS mapped has occurred on approximately 50% of the city's stormwater drain inlets and the stormwater collection system and a map was created. Locations along Spring Creek have been delineated as seasonal sampling points and they continue to be monitored for City impact.

2018-2019 Activities: According to the SWMPP, four locations along Spring Creek were chosen as required by the SWMPP related to 303(d) listing requirements. According to the data collected, it again appears that the City of Tuscumbia is not a significant contributor to the current 303(d) impairments. Monitoring is planned during the 2019 monitoring to continue to evaluate potential sources and impacts. (See Appendix C for data and 2018/2019 Sampling Plan)

### Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue the Illicit Discharge Detection and Elimination measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to promote the objectives of the measure through education and outreach activities.
- 2. Train additional City personnel to support the IDDE control measures.
- 3. Increase the quantity of training to support the IDDE control measures.
- 4. Increase the efficiency of record keeping and documentation related to IDDE activities.

#### IV. Construction Site Stormwater Runoff Control

#### BMP No. 1: Construction Sites Permitted by City and ADEM

**Challenge:** The challenge addressed with this BMP is the runoff of silt and other illicit discharges into the City stormwater system from construction sites.

BMP Rationale: The rationale for this BMP is that by requiring contractors to follow the permitting process for stormwater runoff, they will be given the proper BMP measures to follow to minimize erosion and illicit discharges. These permits also include regular inspections that will hold them accountable to the permit requirements.

#### **Activities:**

Ongoing: The City addresses erosion and sediment controls at construction sites through subdivision regulations and ordinances. These are enforceable by City officials and apply to non-subdivision type construction projects. Mr. Greg Willingham with the City of Tuscumbia is responsible for reviewing all inspection reports, keeping a copy on file and enforcing all related ordinances and regulations. See City Ordinance links for Stormwater Operations and Erosion Control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Stormwater Operation.pdf

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

2018-2019 Activities: Approximately 93 onsite construction inspection/observations were recorded as being conducted during the monitoring period. There were no referrals based on inspections. There were no construction site complaints received during the reporting year. Inspection record keeping is located at the Building Department.

Storm drain inspection log was kept by city employees as storm drains were inspected and cleaned. The city recorded 47 inspections during the reporting period.

#### BMP No. 2: Follow Up on Inspections If Required

**Challenge:** The challenge addressed with this BMP is the lack of concern of the holder of the stormwater permit to address deficiencies noted in the inspection reports.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to ensure compliance with the permitting requirements.

#### **Activities:**

Ongoing: Follow up inspections of permitted construction sites is an ongoing activity by the City Building Department and conducted as needed. Copies of inspection reports outlining any problems or deficiencies are held at City Hall.

2018-2019 Activities: Follow-up inspections were conducted based on the extent of the conditions at the site to achieve compliance.

# BMP No. 3: Construction Stormwater Runoff Sampling and Testing

Challenge: The problem addressed with this BMP is stream contamination caused by erosion of silt and/or illicit discharges.

BMP Rationale: The rationale for this BMP is that sampling and testing stormwater runoff from construction sites should ensure the contractor's compliance with BMP measures and determine if additional measures need to be put in place.

#### **Activities:**

2017-2018 Activities: No samples were collected from discharges from construction sites during sampling period. However, monitoring was conducted on four Spring Creek sampling/monitoring points during the seasonal monitoring period to establish instream water quality baseline data and potential impacts.

#### Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue implementing Construction Site Stormwater Runoff Control as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue program implementation to ensure the requirements of the BMPs are met.
- 2. To have third-party consultant (Enersolv Corp) perform audits of programs in accordance with the environmental management system (EMS).
- 3. To have third-party (Enersolv Corp) increase and develop training programs for personnel to better communicate the programs requirements and the responsibilities of everyone involved in the construction and enforcement process.
- 4. Increase the efficiency of record keeping and documentation related to IDDE activities.

# V. Post Construction Stormwater Management in New Development and Re-Development

BMP No. 1: All Construction Sites Secured with Vegetation and Run-off Control Challenge: The challenge addressed with this BMP is soil erosion and sedimentation due to construction sites that are completed long term soil stabilization.

BMP Rationale: The rationale for this BMP is it will ensure the continuation of sediment and erosion control measures until permanent stabilization is achieved by requiring owners to provide a bond to cover the cost of replacing or establishing such measures.

#### **Activities:**

Ongoing: The City addresses this requirement by requiring all construction and development plans to have a BMP that shows erosion control measures and final permanent stabilization. Mr. Greg Willingham (QCI) with the City of Tuscumbia is responsible for overseeing and enforcing all related ordinances and regulations.

2018-2019 Activities: No follow-ups during the reporting period.

### **BMP No. 2: Post Construction Maintenance Agreements**

Challenge: The problem addressed with this BMP is that once some developments are completed, the site is not maintained for sediment and erosion control.

BMP Rationale: The rationale for this BMP is it will ensure the long term operation and maintenance of sediment and erosion control measures by requiring owners to sign an agreement to be recorded with the property deed or plat that transfers to any new owner or operator the responsibility for post-construction management.

#### **Activities:**

Ongoing: This requirement is monitored with existing ordinances and regulations. The City continues to require a Post-Construction Maintenance Agreement to be recorded with the final plat.

2018-2019 Activities: No new activities reported for this BMP.

# Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue implementation of Post Construction Stormwater Management in new development and redevelopment as defined in the SWMP. During the next reporting period, the following activities are planned:

- 1. Work toward implementing system standards and plan review as defined in the SWMP.
- 2. Provide training on standards and requirements for new projects related to post construction maintenance.
- 3. Initiate implementing a maintenance schedule and/or observations of control measures.
- 4. Increase the efficiency of record keeping and documentation related to post-constructions maintenance activities.

# VI. Pollution Prevention / Good Housekeeping for Municipal Operations.

#### BMP No. 1: Personnel Training

**Challenge:** The problem addressed with this BMP is City personnel not adequately trained and aware of BMP requirements and the effects of pollution.

BMP Rationale: The rationale for this BMP is that many of the City personnel can prevent pollution and erosion or at least observe the activities of others. By adequately training them in proper BMP requirements, it will help to ensure good housekeeping practices and pollution prevention through personal practice or notification of observed violations.

#### **Activities:**

Ongoing: The City continues to educate employees through training and conferences.

2018-2019 Activities: Greg Willingham was certified as QCI on April 28, 2018 QCI#73967. (See Appendix B for Certificate)

The Building Department maintains copies of the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas (Volumes 1 & 2) for use and reference by City officials.

### BMP No. 2: Solid Waste Collection from Streets and Drains

Challenge: The challenge addressed with this BMP is the polluted runoff that occurs when runoff from impervious areas wash litter and other floatables into the stormwater system.

**BMP Rationale:** The rationale for this BMP is that by collecting solid waste from streets and drains will prevent it from getting into the stormwater system and making its way into rivers and streams.

#### **Activities:**

Ongoing: The City continues to conduct regular surveys throughout the city for litter and collects it for proper disposal. Records are kept and reported each year as to the total poundage of litter retrieved and disposes of at the landfill. They also pick up leaves piled up along gutters by citizens from October through March.

2018-2019 Activities: The Public Works Department cleaned out numerous storm drains and gutters and collected litter to prevent it from reaching the storm system. This prevented debris from reaching Spring Creek. See below:

- Municipal Inspections: Monthly inspections were conducted at the seven facilities for City SOP issues.
   53 inspections were conducted during the monitoring period.
- Storm Drains Monitored: 47 monitoring inspections were conducted during the reporting period.
- Routine Litter Cleanup/ Right-of-Way Maintenance: 97 bags totaling approximately 987 lbs., of litter was removed and prevented from entering waters of the State.
- Municipal Facilities and SOPs: The City has seven municipal facility locations that are monitored on a routine basis. The City has developed SOPs for operation at these seven facilities to help preclude the introduction of storm water pollutants.
- Sewer Maintenance: Contracted rot control in two locations helping to preclude the City's impact on water quality of receiving streams.

# Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue to perform and promote sound pollution prevention good housekeeping management practices. During the next reporting period, the following activities are planned:

- 1. Continue to train City personnel related to pollution prevention and good housekeeping of municipal facilities.
- 2. Continue to conduct routine inspections of facilities related to SOP implementation activities.
- 3. Continue to conduct routine and special litter cleanup days and right-of-way maintenance to preclude water quality impacts.
- 4. Increase the efficiency of record keeping and documentation related to good housekeeping and pollution prevention activities.

# Appendix A

Shoals Earth Day Feast 2018 City of Tuscumbia "Chunk the Junk 2018" Storm Drain Makers **Utility Bill Mail outs** 

# Shoals Earth Day Feast 2018



Earth Day Fest 2018

# Chunk the Junk Citywide Litter Clean Day

# The City of Tuscumbia Presents The 2nd Annual "Chunk the Junk"



#### BEAUTIFUL NEIGHBORHOODS HAPPEN BECAUSE OF YOU!!!!

To sign up please contact the Public Works Department at 256-366-5674

Supplies will be provided and refreshments will be served

Time: 8:00 - 11:00 Date: 06/16/2018

On June 16, 2018, residents, civic groups, church groups and businesses of Tuscumbia will gather to clean up their city which will

- Improve our community
- Invest & show pride in our beautiful City
- Give an opportunity for social fellowship & participation

Prize will be awarded to the one who gathers the most junk!



Chunk the Junk Cleanup Day

# Sign in List - 2018-Employees

# Sign in Sheet for 2018 Chunk the Junk **Employees**

1.	Kim Holley ( shit)
	Doma Burkar shit)
	Bryce Rocce 11 (V strict)
4.	JOSHUA LANDERS (Vashirt)
5.	EARL WILLARD (VShirt)
6.	James Smith
7.	W.J. Clemen (V shid)
	Bo Stanle (Shit)
	Dommy Mc Cray ( Shirt)
10.	Luster Echols (V shirt)
12.	
13.	
14.	
15.	

# Sign In Sheet -2018 - Volunteers

# Sign in Sheet for 2018 Chunk the Junk

# Volunteers

1. Kyr Brown 81 256-700-1337
2. Patrice Brown 8hot
3. Andrena Mitchell Chischel (65) 8hut -
4. Emily chey short Scouts a few kids
5. Michael cheer Shirt
6. Roger Fuller Vshut
7. may Woodie Churtopher Shirt
8. Kin Roge Shit
9 Kyle Rogers Vont
10. Lee Rogers Shot By Malos
11. Michael Eleanor ven (GS)
12. Kelli & Khloe Jeffieys (GS) value
13. Deff Austin Shut
14. Whitney marshall & Gabby Dean (65)
15. Mary Kimbrough (CS)

# Storm Darin Marking



North Cave Street and McIntosh Ave

### **Utility Bill Mail Outs**

	09-28-18	28 1 22	10-22-	18
PLEASE DO NOT PLACE FATS CILS, GREASE OR SOLID WASTE IN THE SEWER SYST. THESE MAY CLOG PIPES AND CAUSE SEWER OVERFLOWS. CALL TUSCUMBIA PUBLIC WORKS AT 256-386-5674.		60409- 346 2386	1195 EL 5 WA 5 GA 6 GB 5 SW TX	128.76 28.63 12.00 16.00 13.70 7.33
Paid from Bank Acct 10/2	2 013-1580-00	206.42 0.00 206.42		216.74 0.00 216.74
013-1580-00 206.4	STANLEY	II, HUGH , KRISTA		
0.00 10.3	TUSCUMB			
10-22-18 216.7		35674-3		
STAPLEY II, HUGH	1-11441141414	ւրկիկովկումենայից	վինկի <u>կի</u> կինիկի	<sub>11</sub> 1 <sub>1</sub> 1

HELP PREVENT STORMWATER
POLLUTION BY NOT DRAINING
PROLIBIZED SUBSTANCES OR
FLACING LEAVES, DEBRIS OR
FLACING LEAVES, DEBRIS OR
TRASH INTO GUTTERS. THESE
ITEMS CAN POLLUTE CUP.
WATERWAY. THANK YOU

Paid from Bank Acct 09/22

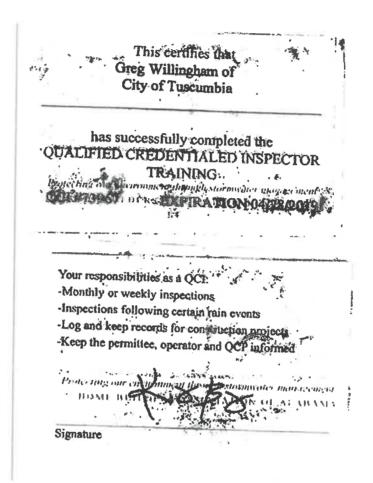
| ACCURATIO | MAIARDENI
| 013-1580-60 | 280-16
| PREVIOUS WARRES | SAME NAI
| 013-1580-10 | 14.01
| MY ORGSEATHE | GPOSSAMEUNT
| 09-22-18 | 294.17
| STANLEY II, HUGH
| 114 HERITMGS PL

Utility bill mail outs

# Appendix B

QCI – Greg Willingham

### **QCI** Certificate



# Appendix C

Spring Creek Water Quality Data

Table 1 - Spring Creek Stream Survey Summary - 2018 MS4 NPDES Permit # ALR040022

A							27 3	CINI OTO	T STDE		Y   \( \pi \)	0400	2			
Analytes		N03-N	N02-N	NH3-N	CBOD	Chlora	Cond	AIK T	TKN	- 0			1			
Location	Date	l/gm	I/Bm	l/gm	l/gm	I/an	umho/cm	-	War /	1,	3		Mn	HARD	00	Н
SC- 1	4/26/2018	0.92	<0.060	0.112	<4.00	VE 00	106.00	-	1/8m	I/Sm	_		l/gm	l/gm	l/gm	ns
SC- 2	4/26/2018	0.92	<0.060	<0.100 0.100	00 %	800	190.00	83.60	<1.50	<1.00	18.00	34.6	2.35	94.10	8.90	7.50
SC-3	4/26/2018		0900	70.100	00.4.	25.00	199.00	85.80	<1.50	2.72	34.00	37.1	2.39	98.30	8.90	6.80
SC-4	1/26/2010		000.0	20.100	44.U0	<5.00	251.00	112.00	<1.50	1.19	12.00	46.6	2.29	121.0	7 80	7 10
, ,	4/20/2010		<0.060	<0.100	<4.00	<5.00	283.00	124.00	<1.50	<1.00	_	_	+	1200	3 5	01.7
SC-1	6/21/2018	2.40	<0.060	<0.100	<4.00	<5.00	383.00	<4.00	<1 50	100	_	_	_	138.0	30:	0.60
SC- 2	6/21/2018	2.36	<0.060	<0.100	<4.00	<5.00	378 00	160.00	27.7	3 5	_		-	18/.0	7.50	7.20
SC-3	6/21/2018	3.92	<0.060	<0.100	<4.00	65 00 50 00	402.00	172.00	VI.30	VI.UU	_	_	3.60	195.0	7.20	6.90
SC-4	6/21/2018	3.94	<0.060	<0.100	00 7	2000	200.00	1/3.00	<1.50	<1.00	$\rightarrow$	78.2	2.46	185.0	7.60	6.50
Equip BL	6/21/2018	<0.250	050 0/	7000	20.1	20.00	290.00	1/0.00	<1.50	<1.00	2.50	78.0	2.47	195.0	7.20	7.20
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0102/22/2	-	20.000	SU.TUU	<4.00	<5.00	1.93	21.00	<1.50	<1.00	<2.50	0.LV	7 0	25	07.3	170
3C-T	8/24/2018	<0.260	<0.060	0.176	<4.00	<5.00	196.00	91.40	2 50	5	-		+	+	0.70	2/:/
SC-2	8/24/2018	1.21	<0.060	<0.100	<4.00	√5.00	314 00	161.00	7.1.50	7T'00	_		-	101.0	4.50	6.50
SC-3	8/24/2018	3.87	<0.050	00107	00 87	200	27.00	101.00	OC.T.	VI.00	<2.50	60.4	2.91	168.0	6.40	6.50
SC-A	8/74/2010	200	000.0	00T.00	44.00	<5.00	420.00	199.00	4.30	<1.00	<2.50	83.1	2.86	217.0	+	07.9
133	0/24/2018	3.8/	<0.060	<0.100	<4.00	<5.00	425.00	203.00	<1.50	×1 00	_	-	+	+	+	54.0
SC-1	10/26/18	0.20	<0.060	<0.100	<3.00	<5.00	252.00	128.00	7	3	31 2	_	-	207.0	5.40	6.50
SC-2	10/26/18	15.10	<0.060	<0.100	<3.00	<5.00 5.500	200 000	215.00	VI.30	1.06	$\rightarrow$	-	3.58		99'5	7.10
SC-3	10/26/18	3.51	<0.060	<0.100	200,7	200	202.00	22.00	0750	1.19	<2.50	79.7	4.20		7.00	7.10
SC-4	10/26/18	3.40	<0.050	40 100	2000	20.5	203.00	224.00	<1.50	1.46	<2.50	78.6	3.70		00.9	6.50
SC-1*	11/29/18			207-02	8.5	20.00	247.00	708.00	1.87	1.50	3.75 7	77.6	3.50		6.20	6.10
SC-2*	11/29/18					25.00										
*6 73	44 /20/40					0.267							-			T
30-3	11/53/18					0.534					T	+	1	1	1	T
SC-4*	11/29/18					0.267					1	+	+		1	
													_			

\* Due to labarory challenges, the samples had to be recollected.

Latitude	87°41′31.46″W	87°41′53.01″W	87°42'38.33"W	87°42′51.61″W
Longitude	34°42′25.26″N	34°42"55.73"N	34°43′43.21″N	34°43"57.15"N
Location	SC-1	SC-2	SC-3	SC-4



2220 Beltline Road SW Decatur, AL 35601 256.350.0846 www.esclabsciences.com

May 15, 2018

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601

We appreciate the opportunity to provide our services to you on this project. Please find attached the data for the sample(s) listed below:

LabNumber	Sample Description	Date/Time Collected	Date Submitted
1805671-01	Tuscumbia City SC- 1	4/26/18 12:40	4/26/18
1805671-02	Tuscumbia City SC-2	4/26/18 12:16	4/26/18
1805671-03	Tuscumbia City SC- 3	4/26/18 12:04	4/26/18
1805671-04	Tuscumbia City SC-4	4/26/18 11:26	4/26/18

ESC-Decatur is accredited to ISO/IEC 17025:2005 by ANSI-ASQ National Accreditation Board (ANAB) and to the TNI 2003 Standard by the Florida Department of Health. Our quality system also meets relevant quality system requirements of ISO 9001:2008. Not all tests performed by ESC-Decatur are covered by these accreditations. Tests within our scope of accreditation are indicated by an asterisk (\*) in the Test Result section of this report. Tests not included in the accreditations are performed in accordance with ESC-Decatur's Standard Operating Procedures and the quality control program using, where applicable, USEPA methodology.

This cover page and the attached chain-of-custody record(s) are integral parts of your report. ESC-Decatur considers this report your official record. This information shall remain in ESC-Decatur's active database for a period of one (1) calendar year before archiving. Any replacement of this information after archiving may result in an administrative fee to cover the cost of retrieval.

If you have any questions or would like more information regarding these analyses, please call us at (256) 350-0846.

Karen Sutton Project Manager

Karen Sutten



2220 Beltline Road SW Decatur, AL 35601 256.350.0846 www.esclabsciences.com

Report Date/Time: 05/15/2018 13:21

#### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



NELAP Accredited Florida DOH #E871078

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ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ADEM Drinking Water Certification No. 40160

Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of ESC-Decatur.

	Analyte Name	Result	Units	Qual	Regulatory Limit
Sar	nple Point: Tuscumbia City SC-1	ample ID: 1805671-01	Collected: 04/26/2	2018 Sul	bmitted: 04/26/2018
	Anions by IC				
	Nitrate plus Nitrite-Nitrogen	0.918	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	0.918	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics				
	* Ammonia-Nitrogen CAS: 8013-59-0	0.112	mg/l		
	* Carbonaceous BOD	<4.00	mg/l	D	
	Chlorophyll a (corrected)	<5.00	ug/l		
	Conductance	196.0	umho/cm		
	Total Alkalinity	83.6	mg/l CaCO3		
	* Total Kjeldahl Nitrogen	<1.50	mg/l		
	* Total Phosphorus	<1.00	mg/l		
	* Total Suspended Solids	18.0	mg/l		
	On-Site Analysis				
	Dissolved Oxygen	8.90	mg/l		
	pH	7.5	su		



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#### SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

#### REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



Florida DOH

#E871078

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	Analyte Name	Result	Units	Qual	Regulatory Limit
Sar	nple Point: Tuscumbia City SC-2  Anions by IC	Sample ID: 1805671-02	Collected: 04/26/2	2018 Su	bmitted: 04/26/2018
	Nitrate plus Nitrite-Nitrogen	0.961	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	0.961	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics				
	* Ammonia-Nitrogen CAS: 8013-59-0	< 0.100	mg/l		
	* Carbonaceous BOD	<4.00	mg/l	D	
	Chlorophyll a (corrected)	< 5.00	ug/l		
	Conductance	199.0	umho/cm		
	Total Alkalinity	85.8	mg/l CaCO3		
	* Total Kjeldahl Nitrogen	<1.50	mg/l		
	* Total Phosphorus	2.72	mg/l		
	* Total Suspended Solids	34.0	mg/l		
	On-Site Analysis				
	Dissolved Oxygen	8.90	mg/l		
	рН	6.8	su		



#### SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

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I ANAB Cert. #L.2239 Testing

S ADEM

Drinking Water

Certification

No. 40160

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	Analyte Name	Result	Units	Qual	Regulatory Limit
Sar	nple Point: Tuscumbia City SC- 3	ample ID: 1805671-03	Collected: 04/26/2	2018 Su	bmitted: 04/26/2018
Anions by IC		•			
	Nitrate plus Nitrite-Nitrogen	1.84	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	1.84	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics				
	* Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
	* Carbonaceous BOD	<4.00	mg/l	D	
	Chlorophyll a (corrected)	<5.00	ug/l		
	Conductance	251.0	umho/cm		
	Total Alkalinity	112	mg/l CaCO3		
	* Total Kjeldahl Nitrogen	<1.50	mg/l		
	* Total Phosphorus	1.19	mg/l		
	* Total Suspended Solids	12.0	mg/l		
	On-Site Analysis				
	Dissolved Oxygen	7.80	mg/l		
	pH	7.1	su		



#### SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

#### REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



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ANAB Cert. #L2239 Testing

NAB Cert. #L2239 Testing
ADEM
Drinking Water
Certification
No. 40160

#E871078 Tests within the scope of accreditation are indicated by an asterisk (\*).

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	Analyte Name	Result	Units	Qual	Regulatory Limit
Sar	nple Point: Tuscumbia City SC-4	imple ID: 1805671-04	Collected: 04/26/2	2018 Su	bmitted: 04/26/2018
	Anions by IC	-			
	Nitrate plus Nitrite-Nitrogen	2.24	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	2.24	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics				
	* Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
	* Carbonaceous BOD	<4.00	mg/l	D	
	Chlorophyll a (corrected)	< 5.00	ug/l		
	Conductance	283.0	umho/cm		
	Total Alkalinity	124	mg/l CaCO3		
	* Total Kjeldahl Nitrogen	<1.50	mg/l		
	* Total Phosphorus	<1.00	mg/l		
	* Total Suspended Solids	8.00	mg/l		
	On-Site Analysis				
	Dissolved Oxygen	7.00	mg/l		
	рН	6.6	su		



# SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

#### REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



Accredited

Florida DOH

#E871078

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ESC-Decatur also maintains ISO/IEC 17025 accreditation through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ANAB Cert. #L2239 Testing ADEM Drinking Water Certification

Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the No. 40160 addressee only and may not be copied or disseminated except in full without the written consent of ESC-Decatur.

All calculations are performed prior to rounding per EPA and Standard Methods requirements.

#### Data Qualifiers:

- Estimated BOD/CBOD value sample dissolved oxygen depletion less than method required 2.0 mg/l.
- Less than reporting limit

#### **Analysis Information**

Lab Number	Analysis	SpecificMethod	Analyst	Analysis	Analysis
1805671-01	Total Alkalinity	SM 2320B-2011		Start Date/Time	End Date/Time
1805671-01	Carbonaceous BOD	SM 5210B-2011	RAC	04/27/2018 14:00	
1805671-01	Chlorophyll a (corrected)	SM 10200 H	CSS	04/27/2018 15:35	05/02/2018 11:00
1805671-01	Conductance	SM 2510B	JW	04/27/2018 09:15	
1805671-01	Ammonia-Nitrogen	SM 4500 NH3-C-2011	LLW	05/01/2018 13:45	
1805671-01	Nitrite-Nitrogen	EPA 300.0	RAC	04/27/2018 09:30	
1805671-01	Nitrate-Nitrogen	EPA 300.0	LLW	04/26/2018 19:03	
1805671-01	Nitrate plus Nitrite-Nitrogen	EPA 300.0	LLW	04/26/2018 19:03	
1805671-01	Total Phosphorus	EPA 365.3	LLW	04/26/2018 19:03	
1805671-01	Total Kjeldahl Nitrogen		JW	05/01/2018 15:15	
1805671-01	Total Suspended Solids	SM 4500-Norg C-2011	RAC	04/27/2018 06:00	
1805671-02	Total Alkalinity	USGS I-3765-85	JRL	04/29/2018 14:10	
1805671-02	Carbonaceous BOD	SM 2320B-2011	RAC	04/27/2018 14:00	
1805671-02	Chlorophyll a (corrected)	SM 5210B-2011	CSS	04/27/2018 15:35	05/02/2018 11:00
1805671-02	Conductance	SM 10200 H	JW	04/27/2018 09:15	05/02/2016 11:00
1805671-02	Ammonia-Nitrogen	SM 2510B	LLW	05/01/2018 13:45	
1805671-02	Nitrite-Nitrogen	SM 4500 NH3-C-2011	RAC	04/27/2018 09:30	
805671-02	Nitrate-Nitrogen	EPA 300.0	LLW	04/26/2018 20:51	
805671-02	Nitrate plus Nitrite-Nitrogen	EPA 300.0	LLW	04/26/2018 20:51	
805671-02	Total Phosphorus	EPA 300.0	LLW	04/26/2018 20:51	
805671-02	Total Kioldahl Nive	EPA 365.3	JW	05/01/2018 15:15	
805671-02	Total Kjeldahl Nitrogen	SM 4500-Norg C-2011	RAC	04/27/2018 06:00	
_	Total Suspended Solids	USGS I-3765-85	JRL	04/29/2018 14:10	
805671-03	Total Alkalinity	SM 2320B-2011	RAC		
805671-03	Carbonaceous BOD	SM 5210B-2011	CSS	04/27/2018 14:00	
805671-03	Chlorophyll a (corrected)	SM 10200 H		04/27/2018 15:35	05/02/2018 11:00
305671-03	Conductance	SM 2510B	JW	04/27/2018 09:15	
305671-03	Ammonia-Nitrogen	SM 4500 NH3-C-2011	LLW	05/01/2018 13:45	
305671-03	Nitrite-Nitrogen	EPA 300.0	RAC	04/27/2018 09:30	
			LLW	04/26/2018 21:09	



## SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

#### REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



ESC-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation.



NELAP Accredited Florida DOH #E871078

ESC-Decatur also maintains ISO/IEC accreditation ANAB Cert. #L2239 Testing 17025 through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ADEM Drinking Water Certification No. 40160

Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of ESC-Decatur.

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The results contained in this report are only representative of the sample(s) received.



# ANALYTICAL REPORT

May 07, 2018



#### **ESC** - Decatur Lab

Sample Delivery Group:

L989681

Samples Received:

04/28/2018

Project Number:

1805671

Description:

Report To:

Mr. Bill Hollerman

2220 Beltline Road SW

Decatur, AL 35601

Entire Report Reviewed By:

Olivia Studebaker

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures. 060302, 060303, and 060304.

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Qc: Quality Control Summary

Wet Chemistry by Method 130.1

Metals (ICP) by Method 200.7

GI: Glossary of Terms

Al: Accreditations & Locations

Sc: Sample Chain of Custody

ACCOUNT: ESC - Decatur Lab

PROJECT: 1805671

SDG: L989681



May 14, 2019

Alabama Department of Environmental Management PO Box 301463 1400 Coliseum Boulevard Montgomery, AL 36110

ATTEN:

Ms. Cammie Ashmore

Reference:

MS4 Annual Report 2018/2019 Period

Mywhote

City of Tuscumbia Separate Storm Sewer System

NPDES #ALR040022 Colbert County (33)

Dear Ms. Ashmore,

On the behalf of the *City of Tuscumbia*, please find enclosed a copy of the supporting material regarding the above reference Annual Report.

If you have any questions, please feel free to contact me by phone at 256.566.9220 or by email at <a href="mailto:rmcwhorter@enersolv.com">rmcwhorter@enersolv.com</a>

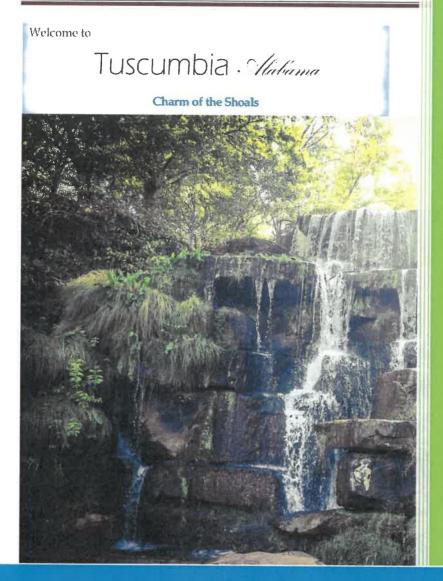
Sincerely,

Ricky McWhorter

Sr. Environmental Project Scientist

**ENERSOLV CORP** 

# City of Tuscumbia



2018/2019

# City of Tuscumbia NPDES Permit # ALR040022 Annual Report

Submitted by the Stormwater Advisory Committee

Prepared by

Prepared by: ENERSOLV CORP



2018/2019

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Welcome to

Tuscumbia : Ilabama

Charm of the Shoals

# City of Tuscumbia

Annual Report General Permit for Phase II Municipal Separate Storm Sewer Systems (MS4) NPDES Permit No. ALR 040022

May 14, 2019

Submitted by:

City of Tuscumbia:

Katherine Logan

Chairperson Pro Tempore

**Tuscumbia Stormwater Advisory Committee:** 

William Foster, Board Member

Robert Mitchell, Board Member

Ron Kirkland, Board Member\_

Prepared for the City of Tuscumbia by: ENERSOLV CORP

Ricky McWhorter, Sr. Environmental Project Scientist

I certify under penalty of law that I have reviewed this Annual Report and all attachments contained in the appendix thereto and that the same are tlue and correct. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Dated this the day May 14, 2019

City of Tuscumbia

Katherine Logan

Chairperson Pro Tempore

**Tuscumbia Stormwater Advisory Committee** 

William Foster, Board Member

Robert Mitchell, Board Member

Ron Kirkland, Board Member\_

### Introduction

This Annual Report was developed in accordance with the guidelines provided in Title 40 Code of Federal Regulations (CFR), Part 122.26(b)(16) which authorizes discharges of stormwater from small MS4s incorporated by reference in the Alabama Administrative Code 335-6 as administered by the Alabama Department of Environmental Management (ADEM) and NPDES ALR040022 Phase II General Permit effective October 1, 2016.

The City of Tuscumbia has completed this Annual Report in Compliance with Part V. C. Reporting of the NPDES Phase II Permit No. ALR040022. The purpose of this Annual Report is to describe the compliance efforts reflected in the City's Storm Water Management Plan (SWMP) and to better understand the need for additional compliance measure. It also gives the Stormwater Committee (SWC) an opportunity to evaluate compliance, and to propose additional controls, activities and documentation. The permit requires that the City of Tuscumbia to submit an annual report to ADEM each year by May 31st. The Annual Reports cover the year (April 1 - March 31) prior to the submittal date. This annual report covers the period from April 1, 2018 to March 31, 2019. In accordance with the requirements of the permit, the Annual Report includes the following:

- The status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the Maximum Extent Possible (MEP), and the measurable goals for each of the minimum control measures;
- Results of information collected and analyzed, if any, during the reporting period,
- including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;
- A summary of the stormwater activities we plan to undertake during the next reporting
- cycle (including an implementation schedule).
- Proposed changes to the SMWP, including changes to any BMPs or any identified measurable goals that apply to the program elements;
- Notice that we are relying on another government entity to satisfy some permit obligations (if applicable); and
- All monitoring results collected during the previous year in accordance with Part V, if applicable.
   The monitoring reports shall be submitted in a format acceptable to the Department.

These elements will be addressed within the Annual Report and in each section detailing the implementation of the six minimum measures:

- I. Public Education and Public Involvement
- II. Illicit Discharge Detection and Elimination
- III. Erosion and Sedimentation Controls
- IV. Post-Construction Storm Water Runoff Control
- V. Pollution Prevention and Good Housekeeping

### **MS4** Description

The City of Tuscumbia is a mixed-used community consisting of urban, residential, and light industry located Colbert County, Alabama comprised of approximately 22.8 km². Tuscumbia is located northeast of the center of Colbert County at 34°43′51″N 87°42′10″W (34.730839, -87.702854). It is bordered to the north by the city of Sheffield and to the northeast by the city of Muscle Shoals. The Tennessee River is 1 mile (1.6 km) to the northwest. The main receiving stream is Spring Creek which flows through the center of the City.

#### **Evaluation Discussion**

The Tuscumbia MS4 Program continues to make significant strides in the past few years in working toward achieving improvements regarding it's NPDES Phase II MS4 Permit. Since the permit reissuance in October 2016, a more defined program is being implemented pursuant to the Storm Water Management Plan (SWMP) related to public involvement, illicit discharges, construction stormwater, good housekeeping and stream monitoring. In July 2017, the SWC began the Spring Creek stream monitoring - 303(d) listed for agricultural impairments - and city point source monitoring programs in partnership with Enersolv Corporation - acting as an environmental consulting agency to help with compliance issues. However, significant strides have been made; there are still areas that need more focus such as public involvement, stormwater inspections and enforcement.

In the next coming reporting period, the program will focus on public participation activities and outreach, construction stormwater compliance, stream monitoring, record keeping, and a SWMP update.

The City of Tuscumbia has entered an agreement with Enersolv Corp to help manage the MS4 Program. As part of this program, Enersolv is planning to augment construction stormwater enforcement by conducting inspections, and work with file management. They also plan to update the current SWMP to be more representative of current challenges.

# City of Tuscumbia

Alabama NPDES Phase II Annual Report Permit # ALR040022 May 14, 2019

This report documents the activities related to each of the 6 Minimum Control Measures, including the BMP and rationale statement, as required by the City of Tuscumbia's NPDES Stormwater (MS4) permit.

The Appendix includes documentation of the action items and the Spring Creek monitoring plan and data information.

#### I Public Education and Outreach

# BMP No. 1- Mail out flyers to homes and businesses two times per year.

**Challenges:** The primary source of pollution addressed by public education and outreach is trash, litter, soil disturbances, chemicals, and individual oil changes.

BMP Rationale: The problems addressed by this BMP are most common to residences and businesses in this area. Correcting these problems will go a long way toward cleaning up the waters in this area. The published information reaches a large segment of the population by placing billboards and signs at strategic locations and coordinating with "Keep the Shoals Beautiful" and the Chamber of Commerce and Civic Organizations.

#### **Activities:**

Ongoing: In previous years, ordinances have been adopted which encourage the limited use of fertilizer, pesticides, and herbicides within the City. The City continues to get involved and support activities and events that educate the public on how litter and pollution control can help the environment.

#### 2018-2019 Activities:

Local News Media Exposure: Tuscumbia Public Works Administrative Assistant was interviewed on June 15, 2018, by WAFF News Channel 48 concerning the 2<sup>nd</sup> Annual Chunk the Junk Clean Up Day. She talked about the effects of stormwater runoff, steps the public can take to prevent stormwater pollution, as well as ways the public can get involved in stormwater program activities such as the Citywide Clean-up Day. (Aired on WAFF 48 June 15, 2018at 6:00 pm)

Shoals Solid Waste Authority (SSWA): This organization is supported by the City, with funding and drop off locations. Special projects include:

- Mentioned in news articles in the local newspaper (Times Daily)
  - o "City Cleanup Day" (6/14/18)

- "Council Facebook Stream" 5365 Total Followers
- Helped Sponsor Community Events
  - o "Shoals Earth Month" (April 2018)
  - "Shoals Earth Day Fest" (4/7/18) <a href="http://quadcitiesdaily.com/?p=448253">http://quadcitiesdaily.com/?p=448253</a> (See Appendix A photo)
  - o "Jazz it up with Trash" https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html

# Webpage Update: Continuous updates are ongoing. (Total views 5722)

- Home Page Focus Element Links: http://cityoftuscumbia.org/?page\_id=89
  - Stormwater Management Plan 2011-2015
  - 2014-2015 SWMP Annual Report
  - o 2015-2016 MS4 Annual Report
  - o Removal of Trash, Waste, and Debris Ordinance
  - o Sewer Do's and Dont's
  - Storm Water FAOs
  - o Basic Report FINAL 05 15 2018
  - o Basic Report FINAL 07 13 2018
  - o Basic Report FINAL 09 04 2018
  - o Spring Creek Analytical Report October 2018
  - o 2018 Annual MS4 Report
- Buildings & Permit Page Focus Elements Links: http://cityoftuscumbia.org/?page\_id=2151
  - o Ordinance for Illicit Discharge
  - Ordinance for Stormwater Operation
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  - o SWMPP Jan 8, 2017
  - o Contacts for IDDE
  - 1709973 Basic Report FINAL 07 26 2017 1048
  - 1710072 Basic Report FINAL 08 01 2017 0949
  - o 1710509 Basic Report FINAL 08 07 2017 1704
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The following events and distributed literature related to recycling:

- Helen Keller Festival
- W.C. Handy Festival

- Shoals Earth Day
- *Earth Day* 4/22/2018
- Partner with Keep the Shoals Beautiful-Platinum Leaf Sponsor of the Tennessee River Litter Tournament on 9/15/18

Citywide Cleanup Day "Chunk the Junk": Organized and implemented a City Cleanup day in which 392 lbs of trash and debris was recovered around the City. 6/16/18. See City of Tuscumbia Facebook page links below. (See Appendix A photo)

https://www.facebook.com/TuscumbiaSanitation/

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support for public education. Special projects included:

Provided sign advertising encouraging citizens to stop litter and keep the Shoals area clean.

"Annual Tennessee Litter Tournament": Event participation as a sponsor with KTSB.

### https://www.quadcities.com/?p=476247

Signs: The City continues to maintain various anti-litter signs throughout the area to remind people to keep the Shoals clean. "Do Not Dump" and "Do Not Litter" signs were replaced and installed in various places. The Street Department also continues to install tags on storm drain inlets and junction boxes to warn the public that drainage enters waterways and discourage dumping. (See Appendix A)

Brochures, Flyers, Etc.: Materials are displayed at the utility department and the building department for citizens to pick up. Information related to stormwater management is shared with civic organizations such as Kiwanis Club and Civitan Club.

*Utility Bills Notifications:* Statements asking for citizens to help prevent stormwater pollution and describing actions to take are periodically placed on utility bills before mailing -8/28/18 & 9/28/18 (See Appendix A for copy of utility bill).

## BMP No. 2: Run-Off Reduction/Permeable Pavement

Challenge: The main source of pollution addressed by this BMP is soil erosion during construction.

BMP Rationale: Most of the soil erosion and introduction of silt into the stormwater system is due to construction activities which disturb the landscape. By placing restrictions of this BMP on contractors and developers, soil erosion will be better managed and improve water quality. Requirements are outlined in the subdivision regulations, SWMP, and the new stormwater ordinances.

#### **Activities:**

Ongoing: Regulations and ordinances now dictate that contractors and developers will adhere to the rules which have been adopted to control erosion. The City requires engineers to provide monthly inspection reports for the City to review. The City's staff also provided inspection and enforcement of the rules. BMP for each project exceeding 1 acre is required and is reviewed by the City Review office. Permits are required before excavation or prior to any soil disturbance.

2019-2019 Activities: The frequency of action is continual. Every construction project is reviewed for compliance with the city regulations. See link for City Ordinances related to erosion control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

## BMP No. 4 - Storm Drain Inlet Protection and Public Awareness

Challenge: Storm drains are an easy and visible way to dump unwanted materials. However, when the public is made aware that the storm drains lead to creeks and rivers, they are less likely to dump materials in the storm drains.

BMP Rationale: To make the public aware of the harm to dumping material in the storm drain.

#### **Activities:**

Ongoing - Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city. (See Appendix A photo)

Ongoing - Increased the number of participation in specific events

Ongoing - Continuing to work with KTSB to educate the public

#### **Extra Information:**

Stormwater FAQs and Sewer Do's and Don'ts were published on the City's website for the public. See link <a href="https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf">https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf</a>

Tuscumbia Street and Sanitation Department posted a notice to public on its Facebook page to contact the Tuscumbia Street and Sanitation Department if they had a sewer problem at their home or business before calling a plumbing contractor.

# Measure specific activities planned for the next reporting period

During this next reporting period, City of Tuscumbia plans to continue to promote the MS4 Public Education and Outreach best management measures to include at a minimum:

- 1. Continue ongoing activities related to public education and outreach.
- 2. Continue to work with KTSB to help initiate public education and outreach programs.
- 3. Increase the number of participations in specific events.
- 4. Increase the efficiency of record keeping and documentation related to public education activities.
- 5. Continue working to label storm drain inlets to promote public education regarding impacts.

# II. Public Involvement and Participation

**Challenge:** The challenge addressed in this BMP is associated mainly with littering by the public and the general disregard for erosion and pollution problems.

BMP Rationale: The rationale for this BMP is to create ownership and transparency for citizens. That is, the more they are involved with the decision-making process and cleanup activities, the more they will be aware of the problems related to litter and erosion. Public involvement and participation helps to increase general awareness and concern over these issues. These activities also involve environmentally concerned individuals and help get citizens involved in reporting violations to be enforced by City officials.

#### **Activities:**

Ongoing: Citizens are encouraged to clean up their areas and to stop littering and notify City officials of littering and erosion issues. The City has also participated in the Groundwater Guardian Program which is a committee of local officials, business owners, and concerned citizens that implements educational programs for children and adults about the importance of protecting the natural groundwater resources in the area. This committee continues to distribute literature and promote education programs.

#### 2018-2019 Activities:

**Public Hearing:** Scheduled for every other year and was last held on 2/17/17, and we proposed to have one during the 2019 calendar year. Stormwater Committee presented to City Council and the public the goals of and objectives of the SWMPP and reduction of stormwater impacts.

**Shoals Solid Waste Authority (SSWA):** This organization is supported by the City with funding and to help with drop off locations. Special projects include:

• Distributed brochures and other materials to the general public on recycling at several public events in the area throughout the year. Also provided recycle bins during community events.

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special public involvement projects included:

- Organized and implemented the 2<sup>nd</sup> Annual "Chuck the Junk Citywide Cleanup" day in which 392 lbs of trash and debris was recovered around the City. 6/19/18, See City of Tuscumbia Facebook page link:
  - http://cityoftuscumbia.org/?page\_id=89 (See Appendix A)
- Sponsored an Earth Day event on 4/7/18. (Sponsor with KTSB)
- Assisted other organizations with clean-up events: Participated in the Annual Tennessee Litter Tournament for the Shoals – 8/22/18
- Collected over 15,163 pounds of debris within the City of Tuscumbia by employees in which the Shoals Solid Waste Authority collects from the City

### BMP No. 2: Stenciling at Stormwater Inlets

**Challenge:** The challenge addressed in this BMP is associated mainly with illicit dumping by the general public into stormwater system inlets. Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city.

BMP Rationale: The rationale for this BMP is to make citizens aware that whatever enters a stormwater inlet may eventually enter our rivers and streams. This awareness should reduce the amount of illicit discharges by the general public.

#### **Activities:**

2018-2019 Activities: The City of Tuscumbia Public Works Department continues to maintain and install curb tags at storm drains around the City.

# BMP No. 3 - Art Contest at Elementary Schools

Challenge: The challenge addressed in this BMP is associated mainly with littering and the general disregard for pollution problems.

BMP Rationale: the rationale for this BMP is that good habits are best learned at a young age. If our children can be involved in litter prevention and become aware of the issues related to pollution, they will be more proactive as adults.

#### **Activities:**

2018-2019 Activities:

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special projects focusing on elementary schools include:

• "Cleanup Campus Contest" for all Tuscumbia elementary students. This contest provided an opportunity to win the Steve Trash Award in which G.W. Trenholm from Tuscumbia was the winner.

# Measure specific activities planned for the next reporting period

Tuscumbia will continue to implement the Public Involvement & Participation measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to work with the Groundwater Guardian Program.
- 2. Continue to work with the Shoals Solid Waste Authority (SSWA) in partnership regarding public awareness of water quality and litter control.
- 3. Continue to work with the Keep the Shoals Beautiful (KTSB) in partnership regarding public awareness of water quality and litter control.
- 4. Work with local schools regarding public awareness of water quality and litter control.
- 5. Continue to increase the efficiency of record keeping and documentation related to public awareness activities.

# III. Illicit Discharge Detection & Elimination

# BMP No. 1: Enforcement Personnel to Re-certify QCI

**Challenge:** The problem addressed with this BMP is the lack of training regarding the effects of illicit discharges, proper BMP measures and the lack of enforcement of City ordinances.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to work toward eliminating the problem associated with illicit discharges. City officials will be informed and trained regarding the hazards associated with illicit discharges and proper BMP measures.



May 14, 2019

Alabama Department of Environmental Management PO Box 301463 1400 Coliseum Boulevard Montgomery, AL 36110

ATTEN:

Ms. Cammie Ashmore

Reference:

MS4 Annual Report 2018/2019 Period

My whoten

City of Tuscumbia Separate Storm Sewer System

NPDES #ALR040022 Colbert County (33)

Dear Ms. Ashmore,

On the behalf of the *City of Tuscumbia*, please find enclosed a copy of the supporting material regarding the above reference Annual Report.

If you have any questions, please feel free to contact me by phone at 256.566.9220 or by email at <a href="mailto:rmcwhorter@enersolv.com">rmcwhorter@enersolv.com</a>

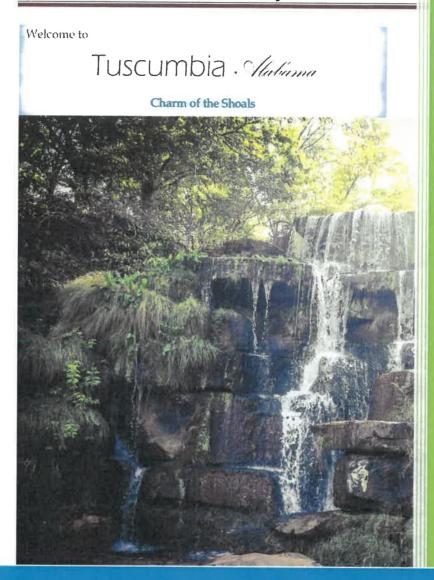
Sincerely,

Ricky McWhorter

Sr. Environmental Project Scientist

**ENERSOLV CORP** 

# City of Tuscumbia



2018/2019

# City of Tuscumbia NPDES Permit # ALR040022 Annual Report

Submitted by the Stormwater Advisory Committee

Prepared by:

Prepared by: ENERSOLV CORP



2018/2019

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# **Signatures**

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Tuscumbia : Mahama

Charm of the Shoals

# City of Tuscumbia

Annual Report General Permit for Phase II Municipal Separate Storm Sewer Systems (MS4) NPDES Permit No. ALR 040022

May 14, 2019

Submitted by:

City of Tuscumbia:

Katherine Logan

Chairperson Pro Tempore

**Tuscumbia Stormwater Advisory Committee:** 

William Foster, Board Member

Robert Mitchell, Board Member

Ron Kirkland, Board Member

Prepared for the City of Tuscumbia by: ENERSOLV CORP

Ricky McWhorter, Sr. Environmental Project Scientist

I certify under penalty of law that I have reviewed this Annual Report and all attachments contained in the appendix thereto and that the same are tlue and correct. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Dated this the day May 14, 2019

City of Tuscumbia

Katherine Logan

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William Foster, Board Member

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### Introduction

This Annual Report was developed in accordance with the guidelines provided in Title 40 Code of Federal Regulations (CFR), Part 122.26(b)(16) which authorizes discharges of stormwater from small MS4s incorporated by reference in the Alabama Administrative Code 335-6 as administered by the Alabama Department of Environmental Management (ADEM) and NPDES ALR040022 Phase II General Permit effective October 1, 2016.

The City of Tuscumbia has completed this Annual Report in Compliance with Part V. C. Reporting of the NPDES Phase II Permit No. ALR040022. The purpose of this Annual Report is to describe the compliance efforts reflected in the City's Storm Water Management Plan (SWMP) and to better understand the need for additional compliance measure. It also gives the Stormwater Committee (SWC) an opportunity to evaluate compliance, and to propose additional controls, activities and documentation. The permit requires that the City of Tuscumbia to submit an annual report to ADEM each year by May 31st. The Annual Reports cover the year (April 1 - March 31) prior to the submittal date. This annual report covers the period from April 1, 2018 to March 31, 2019. In accordance with the requirements of the permit, the Annual Report includes the following:

- The status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the Maximum Extent Possible (MEP), and the measurable goals for each of the minimum control measures;
- · Results of information collected and analyzed, if any, during the reporting period,
- including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;
- · A summary of the stormwater activities we plan to undertake during the next reporting
- cycle (including an implementation schedule).
- Proposed changes to the SMWP, including changes to any BMPs or any identified measurable goals that apply to the program elements:
- Notice that we are relying on another government entity to satisfy some permit obligations (if applicable); and
- All monitoring results collected during the previous year in accordance with Part V, if applicable. The monitoring reports shall be submitted in a format acceptable to the Department.

These elements will be addressed within the Annual Report and in each section detailing the implementation of the six minimum measures:

- I. Public Education and Public Involvement
- II. Illicit Discharge Detection and Elimination
- III. Erosion and Sedimentation Controls
- IV. Post-Construction Storm Water Runoff Control
- V. Pollution Prevention and Good Housekeeping

### **MS4** Description

The City of Tuscumbia is a mixed-used community consisting of urban, residential, and light industry located Colbert County, Alabama comprised of approximately 22.8 km². Tuscumbia is located northeast of the center of Colbert County at 34°43′51″N 87°42′10″W (34.730839, -87.702854). It is bordered to the north by the city of Sheffield and to the northeast by the city of Muscle Shoals. The Tennessee River is 1 mile (1.6 km) to the northwest. The main receiving stream is Spring Creek which flows through the center of the City.

#### **Evaluation Discussion**

The Tuscumbia MS4 Program continues to make significant strides in the past few years in working toward achieving improvements regarding it's NPDES Phase II MS4 Permit. Since the permit reissuance in October 2016, a more defined program is being implemented pursuant to the Storm Water Management Plan (SWMP) related to public involvement, illicit discharges, construction stormwater, good housekeeping and stream monitoring. In July 2017, the SWC began the Spring Creek stream monitoring - 303(d) listed for agricultural impairments - and city point source monitoring programs in partnership with Enersolv Corporation - acting as an environmental consulting agency to help with compliance issues. However, significant strides have been made; there are still areas that need more focus such as public involvement, stormwater inspections and enforcement.

In the next coming reporting period, the program will focus on public participation activities and outreach, construction stormwater compliance, stream monitoring, record keeping, and a SWMP update.

The City of Tuscumbia has entered an agreement with Enersolv Corp to help manage the MS4 Program. As part of this program, Enersolv is planning to augment construction stormwater enforcement by conducting inspections, and work with file management. They also plan to update the current SWMP to be more representative of current challenges.

# City of Tuscumbia

Alabama NPDES Phase II Annual Report Permit # ALR040022 May 14, 2019

This report documents the activities related to each of the 6 Minimum Control Measures, including the BMP and rationale statement, as required by the City of Tuscumbia's NPDES Stormwater (MS4) permit.

The Appendix includes documentation of the action items and the Spring Creek monitoring plan and data information.

## I Public Education and Outreach

# BMP No. 1- Mail out flyers to homes and businesses two times per year.

**Challenges:** The primary source of pollution addressed by public education and outreach is trash, litter, soil disturbances, chemicals, and individual oil changes.

BMP Rationale: The problems addressed by this BMP are most common to residences and businesses in this area. Correcting these problems will go a long way toward cleaning up the waters in this area. The published information reaches a large segment of the population by placing billboards and signs at strategic locations and coordinating with "Keep the Shoals Beautiful" and the Chamber of Commerce and Civic Organizations.

#### **Activities:**

Ongoing: In previous years, ordinances have been adopted which encourage the limited use of fertilizer, pesticides, and herbicides within the City. The City continues to get involved and support activities and events that educate the public on how litter and pollution control can help the environment.

#### 2018-2019 Activities:

Local News Media Exposure: Tuscumbia Public Works Administrative Assistant was interviewed on June 15, 2018, by WAFF News Channel 48 concerning the 2<sup>nd</sup> Annual Chunk the Junk Clean Up Day. She talked about the effects of stormwater runoff, steps the public can take to prevent stormwater pollution, as well as ways the public can get involved in stormwater program activities such as the Citywide Clean-up Day. (Aired on WAFF 48 June 15, 2018at 6:00 pm)

Shoals Solid Waste Authority (SSWA): This organization is supported by the City, with funding and drop off locations. Special projects include:

- Mentioned in news articles in the local newspaper (Times Daily)
  - o "City Cleanup Day" (6/14/18)

- "Council Facebook Stream" 5365 Total Followers
- o Helped Sponsor Community Events
  - o "Shoals Earth Month" (April 2018)
  - "Shoals Earth Day Fest" (4/7/18) <a href="http://quadcitiesdaily.com/?p=448253">http://quadcitiesdaily.com/?p=448253</a>
     (See Appendix A photo)
  - o "Jazz it up with Trash" https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html

# Webpage Update: Continuous updates are ongoing. (Total views 5722)

 Home Page Focus Element Links: http://cityoftuscumbia.org/?page\_id=89

- Stormwater Management Plan 2011-2015
- 2014-2015 SWMP Annual Report
- o 2015-2016 MS4 Annual Report
- o Removal of Trash, Waste, and Debris Ordinance
- o Sewer Do's and Dont's
- Storm Water FAQs
- o Basic Report FINAL 05 15 2018
- o Basic Report FINAL 07 13 2018
- o Basic Report FINAL 09 04 2018
- Spring Creek Analytical Report October 2018
- 2018 Annual MS4 Report
- Buildings & Permit Page Focus Elements Links: http://cityoftuscumbia.org/?page\_id=2151
  - Ordinance for Illicit Discharge
  - Ordinance for Stormwater Operation
  - o Ordinance for Erosion and Sediment Control
  - o SWMPP Jan 8, 2017
  - Contacts for IDDE
  - 1709973 Basic Report FINAL 07 26 2017 1048
  - 1710072 Basic Report FINAL 08 01 2017 0949
  - o 1710509 Basic Report FINAL 08 07 2017 1704
  - o 1710508 Basic Report FINAL 08 08 2017 1018
  - o 1712220 Basic Report FINAL 09 11 2017 1520
  - 1712221 Basic Report FINAL 09 07 2017 1523

The following events and distributed literature related to recycling:

- Helen Keller Festival
- W.C. Handy Festival

- Shoals Earth Day
- *Earth Day* 4/22/2018
- Partner with Keep the Shoals Beautiful-Platinum Leaf Sponsor of the Tennessee River Litter Tournament on 9/15/18

Citywide Cleanup Day "Chunk the Junk": Organized and implemented a City Cleanup day in which 392 lbs of trash and debris was recovered around the City. 6/16/18. See City of Tuscumbia Facebook page links below. (See Appendix A photo)

https://www.facebook.com/TuscumbiaSanitation/

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support for public education. Special projects included:

Provided sign advertising encouraging citizens to stop litter and keep the Shoals area clean.

"Annual Tennessee Litter Tournament": Event participation as a sponsor with KTSB.

#### https://www.quadcities.com/?p=476247

Signs: The City continues to maintain various anti-litter signs throughout the area to remind people to keep the Shoals clean. "Do Not Dump" and "Do Not Litter" signs were replaced and installed in various places. The Street Department also continues to install tags on storm drain inlets and junction boxes to warn the public that drainage enters waterways and discourage dumping. (See Appendix A)

Brochures, Flyers, Etc.: Materials are displayed at the utility department and the building department for citizens to pick up. Information related to stormwater management is shared with civic organizations such as Kiwanis Club and Civitan Club.

*Utility Bills Notifications:* Statements asking for citizens to help prevent stormwater pollution and describing actions to take are periodically placed on utility bills before mailing – 8/28/18 & 9/28/18 (See Appendix A for copy of utility bill).

## BMP No. 2: Run-Off Reduction/Permeable Pavement

Challenge: The main source of pollution addressed by this BMP is soil erosion during construction.

BMP Rationale: Most of the soil erosion and introduction of silt into the stormwater system is due to construction activities which disturb the landscape. By placing restrictions of this BMP on contractors and developers, soil erosion will be better managed and improve water quality. Requirements are outlined in the subdivision regulations, SWMP, and the new stormwater ordinances.

#### **Activities:**

Ongoing: Regulations and ordinances now dictate that contractors and developers will adhere to the rules which have been adopted to control erosion. The City requires engineers to provide monthly inspection reports for the City to review. The City's staff also provided inspection and enforcement of the rules. BMP for each project exceeding 1 acre is required and is reviewed by the City Review office. Permits are required before excavation or prior to any soil disturbance.

2019-2019 Activities: The frequency of action is continual. Every construction project is reviewed for compliance with the city regulations. See link for City Ordinances related to erosion control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

# BMP No. 4 - Storm Drain Inlet Protection and Public Awareness

**Challenge:** Storm drains are an easy and visible way to dump unwanted materials. However, when the public is made aware that the storm drains lead to creeks and rivers, they are less likely to dump materials in the storm drains.

BMP Rationale: To make the public aware of the harm to dumping material in the storm drain.

#### **Activities:**

Ongoing - Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city. (See Appendix A photo)

Ongoing - Increased the number of participation in specific events

Ongoing - Continuing to work with KTSB to educate the public

#### Extra Information:

Stormwater FAQs and Sewer Do's and Don'ts were published on the City's website for the public. See link <a href="https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf">https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf</a>

Tuscumbia Street and Sanitation Department posted a notice to public on its Facebook page to contact the Tuscumbia Street and Sanitation Department if they had a sewer problem at their home or business before calling a plumbing contractor.

# Measure specific activities planned for the next reporting period

During this next reporting period, City of Tuscumbia plans to continue to promote the MS4 Public Education and Outreach best management measures to include at a minimum:

- 1. Continue ongoing activities related to public education and outreach.
- 2. Continue to work with KTSB to help initiate public education and outreach programs.
- 3. Increase the number of participations in specific events.
- 4. Increase the efficiency of record keeping and documentation related to public education activities.
- 5. Continue working to label storm drain inlets to promote public education regarding impacts.

# II. Public Involvement and Participation

**Challenge:** The challenge addressed in this BMP is associated mainly with littering by the public and the general disregard for erosion and pollution problems.

BMP Rationale: The rationale for this BMP is to create ownership and transparency for citizens. That is, the more they are involved with the decision-making process and cleanup activities, the more they will be aware of the problems related to litter and erosion. Public involvement and participation helps to increase general awareness and concern over these issues. These activities also involve environmentally concerned individuals and help get citizens involved in reporting violations to be enforced by City officials.

#### **Activities:**

Ongoing: Citizens are encouraged to clean up their areas and to stop littering and notify City officials of littering and erosion issues. The City has also participated in the Groundwater Guardian Program which is a committee of local officials, business owners, and concerned citizens that implements educational programs for children and adults about the importance of protecting the natural groundwater resources in the area. This committee continues to distribute literature and promote education programs.

### 2018-2019 Activities:

**Public Hearing:** Scheduled for every other year and was last held on 2/17/17, and we proposed to have one during the 2019 calendar year. Stormwater Committee presented to City Council and the public the goals of and objectives of the SWMPP and reduction of stormwater impacts.

Shoals Solid Waste Authority (SSWA): This organization is supported by the City with funding and to help with drop off locations. Special projects include:

 Distributed brochures and other materials to the general public on recycling at several public events in the area throughout the year. Also provided recycle bins during community events.

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special public involvement projects included:

- Organized and implemented the 2<sup>nd</sup> Annual "Chuck the Junk Citywide Cleanup" day in which 392 lbs of trash and debris was recovered around the City. 6/19/18, See City of Tuscumbia Facebook page link:
  - http://cityoftuscumbia.org/?page\_id=89 (See Appendix A)
- Sponsored an Earth Day event on 4/7/18. (Sponsor with KTSB)
- Assisted other organizations with clean-up events: Participated in the Annual Tennessee Litter Tournament for the Shoals – 8/22/18
- Collected over 15,163 pounds of debris within the City of Tuscumbia by employees in which the Shoals Solid Waste Authority collects from the City

### BMP No. 2: Stenciling at Stormwater Inlets

**Challenge:** The challenge addressed in this BMP is associated mainly with illicit dumping by the general public into stormwater system inlets. Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city.

BMP Rationale: The rationale for this BMP is to make citizens aware that whatever enters a stormwater inlet may eventually enter our rivers and streams. This awareness should reduce the amount of illicit discharges by the general public.

#### **Activities:**

2018-2019 Activities: The City of Tuscumbia Public Works Department continues to maintain and install curb tags at storm drains around the City.

### BMP No. 3 - Art Contest at Elementary Schools

**Challenge:** The challenge addressed in this BMP is associated mainly with littering and the general disregard for pollution problems.

**BMP Rationale**: the rationale for this BMP is that good habits are best learned at a young age. If our children can be involved in litter prevention and become aware of the issues related to pollution, they will be more proactive as adults.

#### **Activities:**

2018-2019 Activities:

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special projects focusing on elementary schools include:

"Cleanup Campus Contest" for all Tuscumbia elementary students. This contest provided an
opportunity to win the Steve Trash Award in which G.W. Trenholm from Tuscumbia was the
winner.

### Measure specific activities planned for the next reporting period

Tuscumbia will continue to implement the Public Involvement & Participation measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to work with the Groundwater Guardian Program.
- 2. Continue to work with the Shoals Solid Waste Authority (SSWA) in partnership regarding public awareness of water quality and litter control.
- 3. Continue to work with the Keep the Shoals Beautiful (KTSB) in partnership regarding public awareness of water quality and litter control.
- 4. Work with local schools regarding public awareness of water quality and litter control.
- 5. Continue to increase the efficiency of record keeping and documentation related to public awareness activities.

### III. Illicit Discharge Detection & Elimination

### BMP No. 1: Enforcement Personnel to Re-certify QCI

**Challenge:** The problem addressed with this BMP is the lack of training regarding the effects of illicit discharges, proper BMP measures and the lack of enforcement of City ordinances.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to work toward eliminating the problem associated with illicit discharges. City officials will be informed and trained regarding the hazards associated with illicit discharges and proper BMP measures.

#### **Activities:**

Ongoing: All ordinance requirements related to illicit discharges were completed prior to 2010. Mr. Greg Willingham with the City of Tuscumbia is responsible for BMP review and code enforcements. See webpage link:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance\_for\_Illicit\_Discharge.pdf

2018-2019 Activities: Greg Willingham was certified as QCI on April 28, 2018 QCI#73967. (See Appendix B for certificate copy)

### BMP No. 2: Site Inspections - Industrial, Commercial, Construction Sites

**Challenge:** The problem addressed with this BMP is the illicit discharge by industrial, commercial sites, and construction sites into the City stormwater system.

**BMP Rationale:** The rationale for this BMP is that an inspection process is necessary to identify illicit discharges and enable the City to enforce the ordinances related to such discharges.

#### **Activities:**

Ongoing: Greg Willingham was recertified on April 28, 2018 QCI#73967. The City continues to conduct routine inspections of the stormwater discharge points and other sites. The records of certifications and facility inspections are kept on file at City Hall.

2018-2019 Activities: The City's QCIs conducted approximately 93 onsite construction site inspections and observations. There were no referrals based on inspections. There were no construction site complaints received during the reporting year.

# BMP No. 3: Stormwater Runoff Sampling & 303(d) Spring Creek Stream Sampling

*Challenges:* The problem addressed with this BMP is stream contamination caused by illicit discharges and stormwater runoff.

BMP Rationale: The rationale for this BMP is that sampling and testing stormwater at the known outfall of the City's stormwater system will help to identify issues so further inspection and enforcement can take place. Also, seasonal monthly stormwater sampling will be conducted on Spring Creek at specific locations identified in the SWMPP during seasonal months triggered by rainfall and dry events.

#### Activities:

Ongoing: GIS mapped has occurred on approximately 50% of the city's stormwater drain inlets and the stormwater collection system and a map was created. Locations along Spring Creek have been delineated as seasonal sampling points and they continue to be monitored for City impact.

2018-2019 Activities: According to the SWMPP, four locations along Spring Creek were chosen as required by the SWMPP related to 303(d) listing requirements. According to the data collected, it again appears that the City of Tuscumbia is not a significant contributor to the current 303(d) impairments. Monitoring is planned during the 2019 monitoring to continue to evaluate potential sources and impacts. (See Appendix C for data and 2018/2019 Sampling Plan)

### Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue the Illicit Discharge Detection and Elimination measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to promote the objectives of the measure through education and outreach activities.
- 2. Train additional City personnel to support the IDDE control measures.
- 3. Increase the quantity of training to support the IDDE control measures.
- 4. Increase the efficiency of record keeping and documentation related to IDDE activities.

### IV. Construction Site Stormwater Runoff Control

### BMP No. 1: Construction Sites Permitted by City and ADEM

**Challenge:** The challenge addressed with this BMP is the runoff of silt and other illicit discharges into the City stormwater system from construction sites.

BMP Rationale: The rationale for this BMP is that by requiring contractors to follow the permitting process for stormwater runoff, they will be given the proper BMP measures to follow to minimize erosion and illicit discharges. These permits also include regular inspections that will hold them accountable to the permit requirements.

#### **Activities:**

Ongoing: The City addresses erosion and sediment controls at construction sites through subdivision regulations and ordinances. These are enforceable by City officials and apply to non-subdivision type construction projects. Mr. Greg Willingham with the City of Tuscumbia is responsible for reviewing all inspection reports, keeping a copy on file and enforcing all related ordinances and regulations. See City Ordinance links for Stormwater Operations and Erosion Control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Stormwater Operation.pdf

http://citvoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

2018-2019 Activities: Approximately 93 onsite construction inspection/observations were recorded as being conducted during the monitoring period. There were no referrals based on inspections. There were no construction site complaints received during the reporting year. Inspection record keeping is located at the Building Department.

Storm drain inspection log was kept by city employees as storm drains were inspected and cleaned. The city recorded 47 inspections during the reporting period.

### BMP No. 2: Follow Up on Inspections If Required

**Challenge:** The challenge addressed with this BMP is the lack of concern of the holder of the stormwater permit to address deficiencies noted in the inspection reports.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to ensure compliance with the permitting requirements.



May 14, 2019

Alabama Department of Environmental Management PO Box 301463 1400 Coliseum Boulevard Montgomery, AL 36110

ATTEN:

Ms. Cammie Ashmore

Reference:

MS4 Annual Report 2018/2019 Period

My whoten

City of Tuscumbia Separate Storm Sewer System

NPDES #ALR040022 Colbert County (33)

Dear Ms. Ashmore,

On the behalf of the *City of Tuscumbia*, please find enclosed a copy of the supporting material regarding the above reference Annual Report.

If you have any questions, please feel free to contact me by phone at 256.566.9220 or by email at <a href="mailto:rmcwhorter@enersolv.com">rmcwhorter@enersolv.com</a>

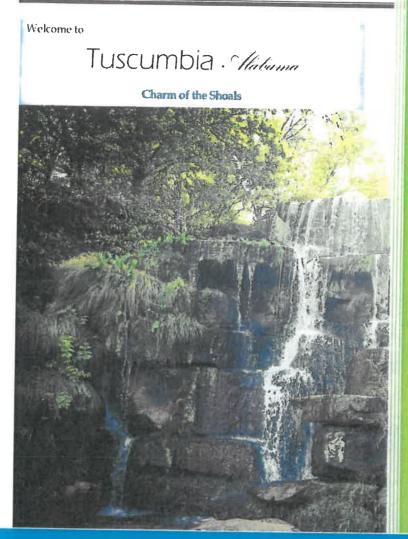
Sincerely,

Ricky McWhorter

Sr. Environmental Project Scientist

**ENERSOLV CORP** 

City of Tuscumbia



2018/2019

# City of Tuscumbia NPDES Permit # ALR040022 Annual Report

Submitted by the Stormwater Advisory Committee

Prepared by:

Prepared by: ENERSOLV CORP



2018/2019

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## Signatures

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Charm of the Shoals

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The City of Tuscumbia is a mixed-used community consisting of urban, residential, and light industry located Colbert County, Alabama comprised of approximately 22.8 km². Tuscumbia is located northeast of the center of Colbert County at 34°43′51″N 87°42′10″W (34.730839, -87.702854). It is bordered to the north by the city of Sheffield and to the northeast by the city of Muscle Shoals. The Tennessee River is 1 mile (1.6 km) to the northwest. The main receiving stream is Spring Creek which flows through the center of the City.

### **Evaluation Discussion**

The Tuscumbia MS4 Program continues to make significant strides in the past few years in working toward achieving improvements regarding it's NPDES Phase II MS4 Permit. Since the permit reissuance in October 2016, a more defined program is being implemented pursuant to the Storm Water Management Plan (SWMP) related to public involvement, illicit discharges, construction stormwater, good housekeeping and stream monitoring. In July 2017, the SWC began the Spring Creek stream monitoring - 303(d) listed for agricultural impairments - and city point source monitoring programs in partnership with Enersolv Corporation - acting as an environmental consulting agency to help with compliance issues. However, significant strides have been made; there are still areas that need more focus such as public involvement, stormwater inspections and enforcement.

In the next coming reporting period, the program will focus on public participation activities and outreach, construction stormwater compliance, stream monitoring, record keeping, and a SWMP update.

The City of Tuscumbia has entered an agreement with Enersolv Corp to help manage the MS4 Program. As part of this program, Enersolv is planning to augment construction stormwater enforcement by conducting inspections, and work with file management. They also plan to update the current SWMP to be more representative of current challenges.

### City of Tuscumbia

Alabama NPDES Phase II Annual Report Permit # ALR040022 May 14, 2019

This report documents the activities related to each of the 6 Minimum Control Measures, including the BMP and rationale statement, as required by the City of Tuscumbia's NPDES Stormwater (MS4) permit.

The Appendix includes documentation of the action items and the Spring Creek monitoring plan and data information.

### I Public Education and Outreach

# BMP No. 1- Mail out flyers to homes and businesses two times per year.

**Challenges:** The primary source of pollution addressed by public education and outreach is trash, litter, soil disturbances, chemicals, and individual oil changes.

BMP Rationale: The problems addressed by this BMP are most common to residences and businesses in this area. Correcting these problems will go a long way toward cleaning up the waters in this area. The published information reaches a large segment of the population by placing billboards and signs at strategic locations and coordinating with "Keep the Shoals Beautiful" and the Chamber of Commerce and Civic Organizations.

#### **Activities:**

Ongoing: In previous years, ordinances have been adopted which encourage the limited use of fertilizer, pesticides, and herbicides within the City. The City continues to get involved and support activities and events that educate the public on how litter and pollution control can help the environment.

### 2018-2019 Activities:

Local News Media Exposure: Tuscumbia Public Works Administrative Assistant was interviewed on June 15, 2018, by WAFF News Channel 48 concerning the 2<sup>nd</sup> Annual Chunk the Junk Clean Up Day. She talked about the effects of stormwater runoff, steps the public can take to prevent stormwater pollution, as well as ways the public can get involved in stormwater program activities such as the Citywide Clean-up Day. (Aired on WAFF 48 June 15, 2018at 6:00 pm)

Shoals Solid Waste Authority (SSWA): This organization is supported by the City, with funding and drop off locations. Special projects include:

- Mentioned in news articles in the local newspaper (Times Daily)
  - o "City Cleanup Day" (6/14/18)

- "Council Facebook Stream" 5365 Total Followers
- Helped Sponsor Community Events
  - o "Shoals Earth Month" (April 2018)
  - "Shoals Earth Day Fest" (4/7/18) <a href="http://quadcitiesdaily.com/?p=448253">http://quadcitiesdaily.com/?p=448253</a>
     (See Appendix A photo)
  - o "Jazz it up with Trash" <a href="https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html">https://www.timesdaily.com/gallery/news/jazz-it-up-with-trash/collection\_ed92491e-f561-11e2-ab7d-0019bb30f31a.html</a>

## Webpage Update: Continuous updates are ongoing. (Total views 5722)

Home Page Focus Element Links:

http://cityoftuscumbia.org/?page id=89

- Stormwater Management Plan 2011-2015
- o 2014-2015 SWMP Annual Report
- o 2015-2016 MS4 Annual Report
- o Removal of Trash, Waste, and Debris Ordinance
- o Sewer Do's and Dont's
- Storm Water FAOs
- Basic Report FINAL 05 15 2018
- o Basic Report FINAL 07 13 2018
- Basic Report FINAL 09 04 2018
- Spring Creek Analytical Report October 2018
- 2018 Annual MS4 Report
- Buildings & Permit Page Focus Elements Links:

http://cityoftuscumbia.org/?page\_id=2151

- Ordinance for Illicit Discharge
- Ordinance for Stormwater Operation
- Ordinance for Erosion and Sediment Control
- o SWMPP Jan 8, 2017
- o Contacts for IDDE
- o 1709973 Basic Report FINAL 07 26 2017 1048
- o 1710072 Basic Report FINAL 08 01 2017 0949
- o 1710509 Basic Report FINAL 08 07 2017 1704
- o 1710508 Basic Report FINAL 08 08 2017 1018
- o 1712220 Basic Report FINAL 09 11 2017 1520
- o 1712221 Basic Report FINAL 09 07 2017 1523

The following events and distributed literature related to recycling:

- Helen Keller Festival
- W.C. Handy Festival

- Shoals Earth Day
- Earth Day 4/22/2018
- Partner with Keep the Shoals Beautiful-Platinum Leaf Sponsor of the Tennessee River Litter
   Tournament on 9/15/18

Citywide Cleanup Day "Chunk the Junk": Organized and implemented a City Cleanup day in which 392 lbs of trash and debris was recovered around the City. 6/16/18. See City of Tuscumbia Facebook page links below. (See Appendix A photo)

https://www.facebook.com/TuscumbiaSanitation/

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support for public education. Special projects included:

Provided sign advertising encouraging citizens to stop litter and keep the Shoals area clean.

"Annual Tennessee Litter Tournament": Event participation as a sponsor with KTSB.

### https://www.quadcities.com/?p=476247

Signs: The City continues to maintain various anti-litter signs throughout the area to remind people to keep the Shoals clean. "Do Not Dump" and "Do Not Litter" signs were replaced and installed in various places. The Street Department also continues to install tags on storm drain inlets and junction boxes to warn the public that drainage enters waterways and discourage dumping. (See Appendix A)

Brochures, Flyers, Etc.: Materials are displayed at the utility department and the building department for citizens to pick up. Information related to stormwater management is shared with civic organizations such as Kiwanis Club and Civitan Club.

Utility Bills Notifications: Statements asking for citizens to help prevent stormwater pollution and describing actions to take are periodically placed on utility bills before mailing – 8/28/18 & 9/28/18 (See Appendix A for copy of utility bill).

# BMP No. 2: Run-Off Reduction/Permeable Pavement

Challenge: The main source of pollution addressed by this BMP is soil erosion during construction.

BMP Rationale: Most of the soil erosion and introduction of silt into the stormwater system is due to construction activities which disturb the landscape. By placing restrictions of this BMP on contractors and developers, soil erosion will be better managed and improve water quality. Requirements are outlined in the subdivision regulations, SWMP, and the new stormwater ordinances.

### **Activities:**

Ongoing: Regulations and ordinances now dictate that contractors and developers will adhere to the rules which have been adopted to control erosion. The City requires engineers to provide monthly inspection reports for the City to review. The City's staff also provided inspection and enforcement of the rules. BMP for each project exceeding 1 acre is required and is reviewed by the City Review office. Permits are required before excavation or prior to any soil disturbance.

2019-2019 Activities: The frequency of action is continual. Every construction project is reviewed for compliance with the city regulations. See link for City Ordinances related to erosion control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

# BMP No. 4 - Storm Drain Inlet Protection and Public Awareness

Challenge: Storm drains are an easy and visible way to dump unwanted materials. However, when the public is made aware that the storm drains lead to creeks and rivers, they are less likely to dump materials in the storm drains.

BMP Rationale: To make the public aware of the harm to dumping material in the storm drain.

#### **Activities:**

Ongoing - Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city. (See Appendix A photo)

Ongoing - Increased the number of participation in specific events

Ongoing - Continuing to work with KTSB to educate the public

### Extra Information:

Stormwater FAQs and Sewer Do's and Don'ts were published on the City's website for the public. See link <a href="https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf">https://www.docdroid.net/Byvx5hK/tuscumbia-sewer-dos-and-donts.pdf</a>

Tuscumbia Street and Sanitation Department posted a notice to public on its Facebook page to contact the Tuscumbia Street and Sanitation Department if they had a sewer problem at their home or business before calling a plumbing contractor.

# Measure specific activities planned for the next reporting period

During this next reporting period, City of Tuscumbia plans to continue to promote the MS4 Public Education and Outreach best management measures to include at a minimum:

- 1. Continue ongoing activities related to public education and outreach.
- 2. Continue to work with KTSB to help initiate public education and outreach programs.
- 3. Increase the number of participations in specific events.
- 4. Increase the efficiency of record keeping and documentation related to public education activities.
- 5. Continue working to label storm drain inlets to promote public education regarding impacts.

### II. Public Involvement and Participation

**Challenge:** The challenge addressed in this BMP is associated mainly with littering by the public and the general disregard for erosion and pollution problems.

BMP Rationale: The rationale for this BMP is to create ownership and transparency for citizens. That is, the more they are involved with the decision-making process and cleanup activities, the more they will be aware of the problems related to litter and erosion. Public involvement and participation helps to increase general awareness and concern over these issues. These activities also involve environmentally concerned individuals and help get citizens involved in reporting violations to be enforced by City officials.

#### **Activities:**

Ongoing: Citizens are encouraged to clean up their areas and to stop littering and notify City officials of littering and erosion issues. The City has also participated in the Groundwater Guardian Program which is a committee of local officials, business owners, and concerned citizens that implements educational programs for children and adults about the importance of protecting the natural groundwater resources in the area. This committee continues to distribute literature and promote education programs.

#### 2018-2019 Activities:

**Public Hearing:** Scheduled for every other year and was last held on 2/17/17, and we proposed to have one during the 2019 calendar year. Stormwater Committee presented to City Council and the public the goals of and objectives of the SWMPP and reduction of stormwater impacts.

Shoals Solid Waste Authority (SSWA): This organization is supported by the City with funding and to help with drop off locations. Special projects include:

 Distributed brochures and other materials to the general public on recycling at several public events in the area throughout the year. Also provided recycle bins during community events.

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special public involvement projects included:

- Organized and implemented the 2<sup>nd</sup> Annual "Chuck the Junk Citywide Cleanup" day in which 392 lbs of trash and debris was recovered around the City. 6/19/18, See City of Tuscumbia Facebook page link:
  - http://cityoftuscumbia.org/?page\_id=89 (See Appendix A)
- Sponsored an Earth Day event on 4/7/18. (Sponsor with KTSB)
- Assisted other organizations with clean-up events: Participated in the Annual Tennessee Litter Tournament for the Shoals – 8/22/18
- Collected over 15,163 pounds of debris within the City of Tuscumbia by employees in which the Shoals Solid Waste Authority collects from the City

### BMP No. 2: Stenciling at Stormwater Inlets

**Challenge:** The challenge addressed in this BMP is associated mainly with illicit dumping by the general public into stormwater system inlets. Approximately 175 Storm Drain labels have been applied at inlets to date throughout the city.

BMP Rationale: The rationale for this BMP is to make citizens aware that whatever enters a stormwater inlet may eventually enter our rivers and streams. This awareness should reduce the amount of illicit discharges by the general public.

### **Activities:**

2018-2019 Activities: The City of Tuscumbia Public Works Department continues to maintain and install curb tags at storm drains around the City.

# BMP No. 3 - Art Contest at Elementary Schools

Challenge: The challenge addressed in this BMP is associated mainly with littering and the general disregard for pollution problems.

BMP Rationale: the rationale for this BMP is that good habits are best learned at a young age. If our children can be involved in litter prevention and become aware of the issues related to pollution, they will be more proactive as adults.

#### **Activities:**

2018-2019 Activities:

"Keep the Shoals Beautiful" (KTSB): This organization is supported by the City with annual financial support. Special projects focusing on elementary schools include:

"Cleanup Campus Contest" for all Tuscumbia elementary students. This contest provided an
opportunity to win the Steve Trash Award in which G.W. Trenholm from Tuscumbia was the
winner.

# Measure specific activities planned for the next reporting period

Tuscumbia will continue to implement the Public Involvement & Participation measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- Continue to work with the Groundwater Guardian Program.
- Continue to work with the Shoals Solid Waste Authority (SSWA) in partnership regarding public awareness of water quality and litter control.
   Continue to work with the Keep the Shoals Decreased a Continue to work with the Keep the Shoals Decreased and Continue to the Sho
- Continue to work with the Keep the Shoals Beautiful (KTSB) in partnership regarding public awareness of water quality and litter control.
- 4. Work with local schools regarding public awareness of water quality and litter control.
- 5. Continue to increase the efficiency of record keeping and documentation related to public awareness activities.

# III. Illicit Discharge Detection & Elimination

# BMP No. 1: Enforcement Personnel to Re-certify QCI

Challenge: The problem addressed with this BMP is the lack of training regarding the effects of illicit discharges, proper BMP measures and the lack of enforcement of City ordinances.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to work toward eliminating the problem associated with illicit discharges. City officials will be informed and trained regarding the hazards associated with illicit discharges and proper BMP measures.

#### **Activities:**

Ongoing: All ordinance requirements related to illicit discharges were completed prior to 2010. Mr. Greg Willingham with the City of Tuscumbia is responsible for BMP review and code enforcements. See webpage link:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance\_for\_Illicit\_Discharge.pdf

2018-2019 Activities: Greg Willingham was certified as QCI on April 28, 2018 QCI#73967. (See Appendix B for certificate copy)

### BMP No. 2: Site Inspections - Industrial, Commercial, Construction Sites

Challenge: The problem addressed with this BMP is the illicit discharge by industrial, commercial sites, and construction sites into the City stormwater system.

BMP Rationale: The rationale for this BMP is that an inspection process is necessary to identify illicit discharges and enable the City to enforce the ordinances related to such discharges.

#### **Activities:**

Ongoing: Greg Willingham was recertified on April 28, 2018 QCI#73967. The City continues to conduct routine inspections of the stormwater discharge points and other sites. The records of certifications and facility inspections are kept on file at City Hall.

2018-2019 Activities: The City's QCIs conducted approximately 93 onsite construction site inspections and observations. There were no referrals based on inspections. There were no construction site complaints received during the reporting year.

# BMP No. 3: Stormwater Runoff Sampling & 303(d) Spring Creek Stream Sampling

Challenges: The problem addressed with this BMP is stream contamination caused by illicit discharges and stormwater runoff.

BMP Rationale: The rationale for this BMP is that sampling and testing stormwater at the known outfall of the City's stormwater system will help to identify issues so further inspection and enforcement can take place. Also, seasonal monthly stormwater sampling will be conducted on Spring Creek at specific locations identified in the SWMPP during seasonal months triggered by rainfall and dry events.

#### Activities:

Ongoing: GIS mapped has occurred on approximately 50% of the city's stormwater drain inlets and the stormwater collection system and a map was created. Locations along Spring Creek have been delineated as seasonal sampling points and they continue to be monitored for City impact.

2018-2019 Activities: According to the SWMPP, four locations along Spring Creek were chosen as required by the SWMPP related to 303(d) listing requirements. According to the data collected, it again appears that the City of Tuscumbia is not a significant contributor to the current 303(d) impairments. Monitoring is planned during the 2019 monitoring to continue to evaluate potential sources and impacts. (See Appendix C for data and 2018/2019 Sampling Plan)

### Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue the Illicit Discharge Detection and Elimination measures as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue to promote the objectives of the measure through education and outreach activities.
- 2. Train additional City personnel to support the IDDE control measures.
- 3. Increase the quantity of training to support the IDDE control measures.
- 4. Increase the efficiency of record keeping and documentation related to IDDE activities.

### IV. Construction Site Stormwater Runoff Control

### BMP No. 1: Construction Sites Permitted by City and ADEM

Challenge: The challenge addressed with this BMP is the runoff of silt and other illicit discharges into the City stormwater system from construction sites.

BMP Rationale: The rationale for this BMP is that by requiring contractors to follow the permitting process for stormwater runoff, they will be given the proper BMP measures to follow to minimize erosion and illicit discharges. These permits also include regular inspections that will hold them accountable to the permit requirements.

#### **Activities:**

Ongoing: The City addresses erosion and sediment controls at construction sites through subdivision regulations and ordinances. These are enforceable by City officials and apply to non-subdivision type construction projects. Mr. Greg Willingham with the City of Tuscumbia is responsible for reviewing all inspection reports, keeping a copy on file and enforcing all related ordinances and regulations. See City Ordinance links for Stormwater Operations and Erosion Control:

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Stormwater Operation.pdf

http://cityoftuscumbia.org/wp-content/uploads/2018/05/Ordinance for Erosion and Sediment Control.pdf

2018-2019 Activities: Approximately 93 onsite construction inspection/observations were recorded as being conducted during the monitoring period. There were no referrals based on inspections. There were no construction site complaints received during the reporting year. Inspection record keeping is located at the Building Department.

Storm drain inspection log was kept by city employees as storm drains were inspected and cleaned. The city recorded 47 inspections during the reporting period.

### BMP No. 2: Follow Up on Inspections If Required

Challenge: The challenge addressed with this BMP is the lack of concern of the holder of the stormwater permit to address deficiencies noted in the inspection reports.

BMP Rationale: The rationale for this BMP is that an enforcement process is necessary to ensure compliance with the permitting requirements.

#### **Activities:**

Ongoing: Follow up inspections of permitted construction sites is an ongoing activity by the City Building Department and conducted as needed. Copies of inspection reports outlining any problems or deficiencies are held at City Hall.

2018-2019 Activities: Follow-up inspections were conducted based on the extent of the conditions at the site to achieve compliance.

# BMP No. 3: Construction Stormwater Runoff Sampling and Testing

Challenge: The problem addressed with this BMP is stream contamination caused by erosion of silt and/or illicit discharges.

BMP Rationale: The rationale for this BMP is that sampling and testing stormwater runoff from construction sites should ensure the contractor's compliance with BMP measures and determine if additional measures need to be put in place.

#### **Activities:**

2017-2018 Activities: No samples were collected from discharges from construction sites during sampling period. However, monitoring was conducted on four Spring Creek sampling/monitoring points during the seasonal monitoring period to establish instream water quality baseline data and potential impacts.

## Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue implementing Construction Site Stormwater Runoff Control as defined in the City's SWMP. During the next reporting period, the following activities are planned:

- 1. Continue program implementation to ensure the requirements of the BMPs are met.
- 2. To have third-party consultant (Enersolv Corp) perform audits of programs in accordance with the environmental management system (EMS).
- To have third-party (Enersolv Corp) increase and develop training programs for personnel to better communicate the programs requirements and the responsibilities of everyone involved in the construction and enforcement process.
- 4. Increase the efficiency of record keeping and documentation related to IDDE activities.

# V. Post Construction Stormwater Management in New Development and Re-Development

# BMP No. 1: All Construction Sites Secured with Vegetation and Run-off Control

**Challenge:** The challenge addressed with this BMP is soil erosion and sedimentation due to construction sites that are completed long term soil stabilization.

BMP Rationale: The rationale for this BMP is it will ensure the continuation of sediment and erosion control measures until permanent stabilization is achieved by requiring owners to provide a bond to cover the cost of replacing or establishing such measures.

#### **Activities:**

Ongoing: The City addresses this requirement by requiring all construction and development plans to have a BMP that shows erosion control measures and final permanent stabilization. Mr. Greg Willingham (QCI) with the City of Tuscumbia is responsible for overseeing and enforcing all related ordinances and regulations.

2018-2019 Activities: No follow-ups during the reporting period.

# **BMP No. 2: Post Construction Maintenance Agreements**

Challenge: The problem addressed with this BMP is that once some developments are completed, the site is not maintained for sediment and erosion control.

BMP Rationale: The rationale for this BMP is it will ensure the long term operation and maintenance of sediment and erosion control measures by requiring owners to sign an agreement to be recorded with the property deed or plat that transfers to any new owner or operator the responsibility for post-construction management.

#### **Activities:**

Ongoing: This requirement is monitored with existing ordinances and regulations. The City continues to require a Post-Construction Maintenance Agreement to be recorded with the final plat.

2018-2019 Activities: No new activities reported for this BMP.

# Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue implementation of Post Construction Stormwater Management in new development and redevelopment as defined in the SWMP. During the next reporting period, the following activities are planned:

- 1. Work toward implementing system standards and plan review as defined in the SWMP.
- 2. Provide training on standards and requirements for new projects related to post construction maintenance.
- 3. Initiate implementing a maintenance schedule and/or observations of control measures.
- 4. Increase the efficiency of record keeping and documentation related to post-constructions maintenance activities.

# VI. Pollution Prevention / Good Housekeeping for Municipal Operations.

### BMP No. 1: Personnel Training

**Challenge:** The problem addressed with this BMP is City personnel not adequately trained and aware of BMP requirements and the effects of pollution.

BMP Rationale: The rationale for this BMP is that many of the City personnel can prevent pollution and erosion or at least observe the activities of others. By adequately training them in proper BMP requirements, it will help to ensure good housekeeping practices and pollution prevention through personal practice or notification of observed violations.

#### **Activities:**

Ongoing: The City continues to educate employees through training and conferences.

2018-2019 Activities: Greg Willingham was certified as QCI on April 28, 2018 QCI#73967. (See Appendix B for Certificate)

The Building Department maintains copies of the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas (Volumes 1 & 2) for use and reference by City officials.

### BMP No. 2: Solid Waste Collection from Streets and Drains

Challenge: The challenge addressed with this BMP is the polluted runoff that occurs when runoff from impervious areas wash litter and other floatables into the stormwater system.

BMP Rationale: The rationale for this BMP is that by collecting solid waste from streets and drains will prevent it from getting into the stormwater system and making its way into rivers and streams.

#### **Activities:**

Ongoing: The City continues to conduct regular surveys throughout the city for litter and collects it for proper disposal. Records are kept and reported each year as to the total poundage of litter retrieved and disposes of at the landfill. They also pick up leaves piled up along gutters by citizens from October through March.

2018-2019 Activities: The Public Works Department cleaned out numerous storm drains and gutters and collected litter to prevent it from reaching the storm system. This prevented debris from reaching Spring Creek. See below:

- Municipal Inspections: Monthly inspections were conducted at the seven facilities for City SOP issues. 53 inspections were conducted during the monitoring period.
- Storm Drains Monitored: 47 monitoring inspections were conducted during the reporting period.
- Routine Litter Cleanup/ Right-of-Way Maintenance: 97 bags totaling approximately 987 lbs., of litter was removed and prevented from entering waters of the State.
- Municipal Facilities and SOPs: The City has seven municipal facility locations that are
  monitored on a routine basis. The City has developed SOPs for operation at these seven facilities
  to help preclude the introduction of storm water pollutants.
- Sewer Maintenance: Contracted rot control in two locations helping to preclude the City's impact on water quality of receiving streams.

# Measure specific activities planned for the next reporting period

The City of Tuscumbia will continue to perform and promote sound pollution prevention good housekeeping management practices. During the next reporting period, the following activities are planned:

- 1. Continue to train City personnel related to pollution prevention and good housekeeping of municipal facilities.
- 2. Continue to conduct routine inspections of facilities related to SOP implementation activities.
- 3. Continue to conduct routine and special litter cleanup days and right-of-way maintenance to preclude water quality impacts.
- 4. Increase the efficiency of record keeping and documentation related to good housekeeping and pollution prevention activities.

## Appendix A

Shoals Earth Day Feast 2018 City of Tuscumbia "Chunk the Junk 2018" Storm Drain Makers Utility Bill Mail outs

# Shoals Earth Day Feast 2018



Earth Day Fest 2018

# Chunk the Junk Citywide Litter Clean Day

# The City of Tuscumbia Presents The 2nd Annual "Chunk the Junk"



BEAUTIFUL NEIGHBORHOODS HAPPEN BECAUSE OF YOU!!!!

Fe sign up please contact the Public Works Department at 258-386-5874

Supplies will be provided and refreshments will be served

Time: 8:00 - 11:00 Date: 06/16/2018

On June 16, 2018, residents, civic groups, church groups and businesses of Tuscumbia will gather to clean up their city which will

- Improve our community
- Invest & show pride in our beautiful City
- Give an opportunity for social fellowship & participation

Prize will be awarded to the one who gathers the most junk!



Chunk the Junk Cleanup Day

# Sign in List - 2018-Employees

## Sign in Sheet for 2018 Chunk the Junk **Employees**

Kin Holley ( shit)
Dorna Blurkal shit)
BADER RUSSE 11 ( String)
JOSHUA LANDERS (VOSHITT)
EARL WILLARD (VShirt)
James Smith
W.J. Clemen TV shind)
BO Stanle (Shit)
Lommy Mc Cray ( Shirt)
Luxer Echols (V shirt)

# Sign In Sheet -2018 - Volunteers

# Sign in Sheet for 2018 Chunk the Junk

# Volunteers

1. Kyr Brown 8m 356-700-1337
2. Patrice Brown Stud
3. Andrewa Mitchell Chinal (65) Shut
4. Emily chey shirt Scorts a dew Rider
5. Michael Mey Shinds kids
6. Roger Fuller Street
7. man Woodin Christopher Shirt
8. Single Road Ship
9. Kyle Rogers Lamet
10. Lee Rogers Shut By Malos
11. Michael Eleanor Ven (65)
12. Kelli & Khloe Jeffreys (GS) value
13. Jeff Austin Shut
14. Whitney marshall 3 Gabby Dean (68)
15. Mary Kimbrough (CS)

# Storm Darin Marking



North Cave Street and McIntosh Ave

### **Utility Bill Mail Outs**

		09-28-18	28 1 22	10-22-	18		
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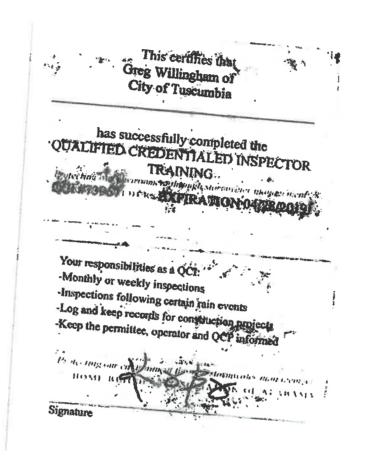
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Utility bill mail outs

### Appendix B

QCI – Greg Willingham

# QCI Certificate



# Appendix C

Spring Creek Water Quality Data

Table 1 - Spring Creek Stream Survey Summary - 2018 MS4 NPDFS Permit # A1 B040023

	-	1	201112	בכון טוו ל	20 110	vey sun	Care to obtain Scientification of the ALR040022	OTO INIS	4 NPDES	Permi	T# ALK	0400	22			
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Location	Date	l/gm	l/gm	l/gm	I/8m	l/8n	umho/cm	I/Su	mg/l	l/am	I/am	I E		1/500	1/200	E 10
SC- 1	4/26/2018	0.92	<0.060	0.112	<4.00	<5.00	196.00	83.60	<1.50	<100	18.00			1/9	1/911	2 20
SC- 2	4/26/2018	0.92	<0.060	<0.100	<4.00	<5.00	199.00	85.80	<1 50 1 50	277	37 00	27.4	2 20	04.10	0.90	00.7
SC-3	4/26/2018	1.84	<0.060	<0.100	<4.00	<5.00	251.00	112.00	7 50	1 10	12.00	1./C	2.39	38.30	8.90	08.9
SC-4	4/26/2018	2.24	<0.060	<0.100	<4.00	<5.00	283.00	124.00	2 5	71.13	90.21	0.07	27.7	121.0	7.80	7.10
SC- 1	6/21/2018	2.40	<0.060	<0.100	<4.00	<5.00	383.00	00 12	25.7	20.7	0.00	_	7,47	138.0	00.	0.60
SC- 2	6/21/2018	2 36	<0.050	70 100	20 1/	200	270.00	2000	7.T.	O.1.	0.00	- 1	5.43	18/.0	7.50	7.20
SC- 3	6/21/2010	2000	0000	0.100	74.00	3.00	3/8.00	169.00	<1.50	<1.00	7.50	78.2	3.60	195.0	7.20	06.9
5 50	0/21/2010	3.32	090.0×	<0.100	<4.00	<5.00	402.00	173.00	<1.50	<1.00	3.50	78.2	2.46	185.0	7.60	6.50
30-4	6/21/2018	3.94	<0.060	<0.100	<4.00	<5.00	396.00	170.00	<1.50	<1.00	2.50	78.0	2.47	195.0	7.20	7.20
Eduip BL	6/21/2018	<0.260	<0.060	<0.100	<4.00	<5.00	1.93	21.00	<1.50	<1.00	<2.50	<1.0	<1.0	<2.5	6.70	7.70
SC-1	8/24/2018	<0.260	<0.060	0.176	<4.00	<5.00	196.00	91.40	<1.50	<1.00	2.50	34.7	2.28	1010	4 50	6 50
SC-2	8/24/2018	1.21	<0.060	<0.100	<4.00	<5.00	314.00	161.00	<1.50	<1,00	1	-	791	168.0	6.40	2000
SC-3	8/24/2018	3.87	<0.060	<0.100	<4.00	<5.00	420.00	199.00	4.30	V 100	_		2 86	217.0	06.3	25.0
SC-4	8/24/2018	3.87	<0.060	<0.100	<4.00	<5.00	425.00	203.00	<150	200		+	276	0.712	0.30	0.40
SC-1	10/26/18	0.20	<0.050	00100	73.00	50	25.00	420.00		3		- 1	670	20/.0	3.40	0.50
6.72	10/26/10	11.40	0000	0.100	30.5	3.5	732.00	178,00	<1.50	1.06	2.50	40.3	3.58		2.66	7.10
2-26	10/20/18	15.10	<0.050	<0.100	<3.00	<5.00	288.00	216.00	<1.50	1.19	<2.50	79.7	4.20		7.00	7.10
50-3	10/26/18	3.51	<0.060	<0.100	<3.00	<5.00	303.00	224.00	<1.50	1.46	<2.50	78.6	3.70		9	6.50
SC-4	10/26/18	3.40	<0.060	<0.100	<3.00	<5.00	247.00	208.00	1.87	1.50	+		3.50		6 20	10,00
SC-1*	11/29/18					<5.00					+	_			0.20	O.TO
SC-2*	11/29/18					0.267							T	Ī		
SC-3*	11/29/18					0.534							1	Ī	T	
SC-4*	11/29/18					0.267							1	1		

\* Due to labarory challenges, the samples had to be recollected.

Location	Longitude	Latitude
SC-1	34°42′25.26″N	87°41′31.46″W
SC-2	34°42"55.73"N	87°41′53.01″W
SC-3	34°43′43.21″N	87°42′38.33″W
SC-4	34°43"57.15"N	87°42′51.61″W



May 15, 2018

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601

We appreciate the opportunity to provide our services to you on this project. Please find attached the data for the sample(s) listed below:

LabNumber	Sample Description	Date/Time Collected	Date Submitted
1805671-01	Tuscumbia City SC- 1	4/26/18 12:40	4/06/19
1805671-02	Tuscumbia City SC-2	12110	4/26/18
1805671-03	Tuscumbia City SC- 3	12.10	4/26/18
1805671-04	• •	4/26/18 12:04	4/26/18
1005071-07	Tuscumbia City SC-4	4/26/18 11:26	4/26/18

ESC-Decatur is accredited to ISO/IEC 17025:2005 by ANSI-ASQ National Accreditation Board (ANAB) and to the TNI 2003 Standard by the Florida Department of Health. Our quality system also meets relevant quality system requirements of ISO 9001:2008. Not all tests performed by ESC-Decatur are covered by these accreditations. Tests within our scope of accreditation are indicated by an asterisk (\*) in the Test Result section of this report. Tests not included in the accreditations are performed in accordance with ESC-Decatur's Standard Operating Procedures and the quality control program using, where applicable, USEPA methodology.

This cover page and the attached chain-of-custody record(s) are integral parts of your report. ESC-Decatur considers this report your official record. This information shall remain in ESC-Decatur's active database for a period of one (1) calendar year before archiving. Any replacement of this information after archiving may result in an administrative fee to cover the

If you have any questions or would like more information regarding these analyses, please call us at (256) 350-0846.

Karen Sutton

Project Manager

Karen Suttan



### SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

### REPORT TO

Darrin Miller **Enersoly Corporation** 2220 Beltline Road SW Decatur, AL 35601

1



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ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ADEM Drinking Water Certification

Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of ESC-Decatur.

	Analyte Name	Result	Units	Qual	Regulatory Limit
	nple Point: Tuscumbia City SC- 1  Anions by IC	Sample ID: 1805671-01	Collected: 04/26/2	2018 Sui	bmitted: 04/26/2018
	Nitrate plus Nitrite-Nitrogen	0.918	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	0.918	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics				
	* Ammonia-Nitrogen CAS: 8013-59-0	0.112	mg/l		
	* Carbonaceous BOD	<4.00	mg/l	D	
	Chlorophyll a (corrected)	<5.00	ug/l	D	
	Conductance	196.0	umho/cm		
	Total Alkalinity	83.6	mg/l CaCO3		
	* Total Kjeldahl Nitrogen	<1.50	mg/l		
,	* Total Phosphorus	<1.00	mg/l		
*	* Total Suspended Solids	18.0	mg/l		
(	On-Site Analysis				
	Dissolved Oxygen	8.90	mg/l		
	pH	7.5	su		



### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersoly Corporation** 2220 Beltline Road SW Decatur, AL 35601



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No. 40160

Report Date/Time: 05/15/2018 13:21

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- 1						
	Analyte Name		Result	Units	Qual	Regulatory Limit
	aple Point: Tuscumbia City SC-2  Anions by IC	San	iple ID: 1805671-02	Collected: 04/26/2	018 S	ubmitted: 04/26/201
	Nitrate plus Nitrite-Nitrogen		0.961	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8		0.961	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0		<0.0600	mg/l		
	Inorganics					
	* Ammonia-Nitrogen CAS: 8013-59-0		<0.100	mg/l		
	* Carbonaceous BOD		<4.00	/I	-	
	Chlorophyll a (corrected)		<5.00	mg/l	D	
	Conductance		199.0	ug/l umho/cm		
	Total Alkalinity		85.8			
>	Total Kjeldahl Nitrogen		<1.50	mg/l CaCO3		
	Total Phosphorus		2.72	mg/l		
	Total Suspended Solids			mg/l		
			34.0	mg/l		
(	n-Site Analysis					
	Dissolved Oxygen		8.90	mg/l		
	pH		6.8	su		



Report Date/Time: 05/15/2018 13:21

### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



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ADEM Drinking Water Certification No. 40160

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Analyte Name		Result	Units	Qual	Regulatory Limit
ample Point: Tuscumbia City SC-3  Anions by IC	Sam	ple ID: 1805671-03	Collected: 04/26/	2018 Sul	omitted: 04/26/20
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen		1.84	mg/l		
CAS: 14797-55-8		1.84	mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0		<0.0600	mg/l		
Inorganics * Ammonia-Nitrogen		<0.100			
CAS: 8013-59-0 * Carbonescour BOD		*******	mg/l		
Caroonaceous BOD		<4.00	mg/l	D	
Chlorophyll a (corrected)		<5.00	ug/l	Ъ	
Conductance Total Alkalinity		251.0	umho/cm		
-		112	mg/l CaCO3		
* Total Kjeldahl Nitrogen  * Total Phosphorus		<1.50	mg/l		
* Total Suspended Solids		1.19	mg/l		
Total Suspended Solids		12.0	mg/l		
On-Site Analysis			.5		
Dissolved Oxygen		7.80	mg/l		
pH		7.1	su		



### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



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Florida DOH

#E871078

Report Date/Time: 05/15/2018 13:21 ESC-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation.

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					:-Decatur.
Analyte Name		Result	Units	Qual	Regulatory
ample Point: Tuscumbia City SC-4					Limit
Anions by IC	Samp	ole ID: 1805671-04	Collected: 04/26/2	2018 Sul	omitted: 04/26/2
Nitrate plus Nitrite-Nitrogen				- Su	mitteu: 04/26/2
* Nitrate-Nitrogen		2.24	mg/l		
CAS: 14797-55-8		2.24	mg/l		
* Nitrite-Nitrogen			-8-		
CAS: 14797-65-0		< 0.0600	mg/l		
Inorganics					
* Ammonia-Nitrogen					
CAS: 8013-59-0		< 0.100	mg/l		
* Carbonaceous BOD					
Chlorophyll a (corrected)		<4.00	mg/l	D	
Conductance		<5.00	ug/l	2	
Total Alkalinity		283.0	umho/cm		
* Total Kjeldahl Nitrogen		124	mg/l CaCO3		
* Total Phosphorus		<1.50	mg/l		
* Total Suspended Solids		<1.00	mg/l		
		8.00	mg/l		
On-Site Analysis			111g/1		
Dissolved Oxygen					
pH		7.00	mg/l		
		6.6	su		



### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



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accreditation ANAB Cert. #L2239 Testing ADEM Drinking Water Certification

No. 40160

NELAP Accredited Florida DOH #E871078

listed in ANAB Certificate #L2239 scope of accreditation. Tests within the scope of accreditation are indicated by an asterisk (\*).

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All calculations are performed prior to rounding per EPA and Standard Methods requirements. Data Qualifiers:

- Estimated BOD/CBOD value sample dissolved oxygen depletion less than method required 2.0 mg/l.

### Analysis Information

		Analysis Inform	lation		
_ab Numbe			поп		
1805671-01 1805671-01	Total Alkalinity	SpecificMethod	A m = 1	Analysis	Am-1
1805671-01	Carbonaceous ROD	SM 2320B-2011	Anal	Time	Analysis End Data Tr
1805671-01	Chlorophyll a (corrected)	SM 5210B-2011	RA	C 04/27/2018 14:00	
1805671-01	Conductance	SM 10200 H	CSS	04/27/2018 15:24	
1805671-01	Ammonia-Nitrogen	SM 2510B	JW	04/27/2018 00:15	05/02/2018 11:00
1805671-01	Nitrite-Nitrogen	SM 4500 NH3-C-2011	LLW	05/01/2019 12.46	•
1805671-01	Nitrate-Nitrogen	EPA 300.0	RAC	04/27/2018 00:20	
1805671-01	Nitrate plus Nitrite Nitro	EPA 300.0	LLW	04/26/2018 10:02	
1805671-01	1 HOSDBOTHS	EPA 300.0	LLW	04/26/2018 19:03	
1805671-01	Total Kjeldahl Nitrogon	EPA 365.3	LLW	04/26/2018 19:03	
1805671-01	Total Suspended Solids	SM 4500-Norg C-2011	JW	05/01/2018 15:15	
1805671-02	Total Alkalinity	USGS I-3765-85	RAC	04/27/2018 06:00	
1805671-02	Carbonaceous BOD	SM 2320B-2011	JRL	04/29/2018 14:10	
1805671-02	Chlorophyll	SM 5210B-2011	RAC		
1805671-02	Chlorophyll a (corrected) Conductance	SM 10200 H	CSS	04/27/2018 14:00	
1805671-02	Ammonia-Nitrogen	SM 2510B	JW	04/27/2018 15:35	05/02/2018 11:00
1805671-02	Nitrite-Nitrogen	SM 4500 NH3-C-2011	LLW	04/27/2018 09:15	11.00
1805671-02	Nitrate-Nitrogen	EPA 300.0	RAC	05/01/2018 13:45	
1805671-02	Nitrate plus are	EPA 300.0	LLW	04/27/2018 09:30	
1805671-02	Nitrate plus Nitrite-Nitrogen Total Phosphorus	EPA 300.0	LLW	04/26/2018 20:51	
1805671-02	Total Kieldeller	EPA 365.3	LLW	04/26/2018 20:51	
1805671-02	Total Kjeldahl Nitrogen	SM 4500 N	JW	04/26/2018 20:51	
1805671-03	Total Suspended Solids	SM 4500-Norg C-2011 USGS I-3765-85	RAC	05/01/2018 15:15	
1805671-03	Total Alkalinity		JRL	04/27/2018 06:00	
1805671-03	Carbonaceous BOD	SM 2320B-2011	RAC	04/29/2018 14:10	
305671-03	Chlorophyll a (corrected)	SM 5210B-2011	CSS	04/27/2018 14:00	
1805671-03	Conductance	SM 10200 H	JW	04/27/2018 15:35	05/02/2010
100565	Ammonia-Nitrogen	SM 2510B	LLW	04/27/2018 09:15	05/02/2018 11:00
=71 05	Nitrite-Nitrogen	SM 4500 NH3-C-2011	RAC	05/01/2018 13:45	
		EPA 300.0	* * * * * * * * * * * * * * * * * * * *	04/27/2018 09:30	
			LLW	04/26/2018 21:09	



### SAMPLE RESULTS REPORT

Report Date/Time: 05/15/2018 13:21

### REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



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Drinking Water Certification No. 40160

05/02/2018 11:00

L		#E871078	L2.	239 scope of accreditation.	ecific tests ANAB Cer
1805671-03		Tests within it This report may contain informati addressee only and may not be cop EPA 300.0	he scope of accredita	239 scope of accreditation.  Ition are indicated by an asterisk (  and/or proprietary Think (	A
1905671-03	Nitrate-Nitrogen	addressee only and may not be cop  EPA 300.0  EPA 300.0	on that is confidential	and/or pro-	(*). Cert
1805671-03	Nitrate al		or disseminated e	except in full with	ion is interest No.
1805671-03	Nitrate plus Nitrite-Nitrogen Total Phosphare	EPA 300.0		without the written coi	usent of FSC D
1805671-03		EPA 300.0	LLW		- Decatur.
1805671-03	10tal Kieldahl xr.	EPA 365.3	LLW	04/20/2018 21:00	
1805671-04	Suspended Solids	SM 4500-Norg Cl 201	JW	04/26/2018 21:00	
1805671-04	10tal Alkalinity	USGS I-3765-85	RAC	03/01/2018 15:15	
1805671-04	Carbonaceous DOD	SM 2320B-2011	JRL	04/27/2018 06:00	
1805671-04	Chiorophyll a Coo-	SM 5210B-2011	RAC	04/29/2018 14:10	
1805671-04	ductance	SM 10200 H	CSS	04/27/2018 14:00	
1805671-04	Ammonia-Nitrogen	SM 2510B	JW	04/27/2018 15:25	05/05
1805671-04	NILTIte-Nitrogen	SM 4500 NH3-C-2011	LLW	04/27/2018 00:15	05/02/2018 11:0
805671-04	Nitrate-Nitrogon	EPA 300.0	RAC	V3/01/2018 13:45	
1805671-04	Nitrate plus Nitrite Ni	EPA 300.0	LLW	04/2//2018 00.30	
1805671-04		EPA 300.0	LLW	04/26/2018 21:20	
1805671 04	Total Kieldahi xr:	EPA 365.3	LLW	04/26/2018 21:29	
	Total Suspended Solids	SM 4500-Norg C 201	7777	04/26/2018 21.20	
		♥\$U\$ 1-3765-85	RAC	03/01/2018 15:15	
	The results contain	05	Tor	04/27/2018 06:00	
	contained i	in this report are only	_	04/29/2018 14:10	

The results contained in this report are only representative of the sample(s) received.



### ANALYTICAL REPORT



### **ESC** - Decatur Lab

Sample Delivery Group:

L989681

Samples Received:

04/28/2018

Project Number:

1805671

Description:

Report To:

Mr. Bill Hollerman

2220 Beltline Road SW

Decatur, AL 35601

Entire Report Reviewed By:

Olivia Studebaker

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 050302, 060303, and 060304.



Cp. Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
1805671-01 L989681-01	5
1805671-02 L989681-02	6
1805671-03 L989681-03	7
1805671-04 L989681-04	8
Qc: Quality Control Summary	9
Wet Chemistry by Method 130.1	9
Metals (ICP) by Method 200.7	10
GI: Glossary of Terms	11
Al: Accreditations & Locations	12
Sc: Sample Chain of Custody	13
	13

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

1805671-01 L989681-01 WW			Collected by R. McWhorter	Collected date/time 04/26/18 12:40	Received date/time 04/28/18 10:45
ethod	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	7 moryst
Wet Chemistry by Method 130.1	WG1106552	1	05/03/18 16:16	05/03/18 16:16	KK
Metals (ICP) by Method 200.7	WG1104655	1	05/02/18 07:48	05/03/18 14:29	ST
			Collected by	Collected date/time	Received date/time
1805671-02 L989681-02 WW			R. McWhorter	04/26/18 12:16	04/28/18 10:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	•
Wet Chemistry by Method 130.1	WG1106552	1	05/03/18 16:20	05/03/18 16:20	KK
Metals (ICP) by Method 200.7	WG1104655	1	05/02/18 07:48	05/03/18 14:32	ST
			Collected by	Collected date/time	Received date/time
1805671-03 L989681-03 WW			R. McWhorter	04/26/18 12:04	04/28/18 10:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	Anatyse
Net Chemistry by Method 130.1	WG1106552	1	05/03/18 16:20	05/03/18 16:20	KK ,
Metals (ICP) by Method 200.7	WG1104655	1	05/02/18 07:48	05/03/18 14:36	ST
			Collected by	Collected date/time	Received date/time
1805671-04 L989681-04 WW			R. McWhorter	04/26/18 11:26	04/28/18 10:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Wet Chemistry by Method 130.1	WG1106552	1	05/03/18 16:21	05/03/18 16:21	KK
tals (ICP) by Method 200.7	WG1104655	1	05/02/18 07:48	05/03/18 14:39	ST















All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker

Technical Service Representative

### 1805671-01

Collected date/time: 04/26/18 12:40

### SAMPLE RESULTS - 01

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	Dilution	Analysis	Batch
nalyte	mg/l		mg/l		date / time	501211
Hardness (colorimetric) as CaCO3	94.1		30.0	1	05/03/2018 16:16	WG1106552

### Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/f		date / time	Dateir
Calcium	34.6		1.00	1	05/03/2018 14:29	WG1104655
Magnesium	2.35		1.00	1	05/03/2018 14.29	WG1104655

ONE LAB. NATIONWIDE

ACCOUNT: ESC - Decatur Lab PROJECT: 1805671

L989681

DATE/TIME: 05/07/18 14:54

PAGE: 5 of 18 1805671-02

Collected date/time: 04/26/18 12:16

### SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 130.1

nalyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hardness (colorimetric) as CaCO3	98.3		30.0	1	05/03/2018 16:20	WG1106552

Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	Analysis	Batch		_
Analyte	mg/l		mg/l		date / time	baten		
Calcium	37.1		1.00	1	05/03/2018 14:32	WG1104655		
Magnésium	2.39		1.00	1	05/03/2018 14.32	WG1104655		

ACCOUNT: ESC - Decatur Lab

PROJECT: 1805671

SDG: L989681

DATE/TIME: 05/07/18 14:54

PAGE: 6 of 18 1805671-03

Collected date/time: 04/26/18 12:04

### SAMPLE RESULTS - 03

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	Dilution	Amabasia	
alyte	mg/l		mg/l	Diletion	Analysis	Batch
Hardness (colorimetric) as CaCO3	-		1119/1		date / time	
Horaness (colonilistiff) as CACO3	121		30.0	1	05/03/2018 16:20	WG1106552

### Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	Analysis	Dateh
Analyte	mg/l		mg/l	- 11411411	date / time	Batch
Calcium Magnesium	46.6 2.29		1.00	1 1	05/03/2018 14:36 05/03/2018 14:36	WG1104655 WG1104655



ONE LAB. NATIONWIDE.















1805671-04 Collected date/time: 04/26/18 11:26

SAMPLE RESULTS - 04

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	-		
ıa <b>lyte</b>	mg/l	addiner		Dilution	Analysis	Batch
Hardness (colorimetric) as CaCO3	_		mg/l		date / time	
services (colonillettic) as C9C03	138		30.0	1	05/03/2018 16:21	WG1106552

### Metals (ICP) by Method 200.7

Analyte Calcium	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Magnesium	54.8 2.47		1.00 1.00	1 1	05/03/2018 14:39 05/03/2018 14:39	WG1104655 WG1104655



<b>IMARY</b>	
NUS JC	2 02 04
CON.	1989681-010
QUALITY	

1989681-01,02,03,04

ONE LAB. N/ IWIDE.

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Method Blank (MB)

WG1106 2 Wet Chemistry by Method 130.1

MB) K3306893-1 05/03/	05/03/18 16:09				
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/i		mg/l	mg/l	
Hardness (colorimetric) as	3.87	ار ا	1.43	30.0	

### L989681-01 Original Sample (OS) · Duplicate (DUP)

	DUP RPD Limits	%	20
	DUP Qualifier		
5:19	DUP RPD	%	7.50
05/03/18 16:1	Difution		-
3306893-4	<b>DUP Result</b>	l/gm	87.3
1 05/03/18 16:16 • (DUP) R	Original Result DUP Result	mg/l	94.1
(OS) L989681-01 05/03/1		Analyte	Hardness (colorimetric) as CaCO3

### L989880-01 Original Sample (OS) • Duplicate (DUP)

	DUP RPD Limits	%	20
	DUP Qualifier		
16:31	DUP RPD	3%	3.89
05/03/18	Difution		<del></del>
3306893-5	DUP Result	mg/l	126
8 16:30 · (DUP)	Original Result DUP Result	l/gm	131
(OS) L989880-01 05/03/18 16:30 • (DUP) R3306893-5 05/03/18 16:31		Analyte	Hardness (colorimetric) as CaCO3

# Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

		RPD Limits	%	20
		RPD	. %	0.673
		LCSD Qualifier RPD		
		LCS Qualifier		
(1001)		Rec. Limits	%	85.0-115
(2001) Sanda - add		LCSD Rec.	%	7.86
	5:10	LCS Rec.	%	99.3
	-3 05/03/18 16	LCSD Result LCS Rec.	l/gm	148
	SD) R3306893	LCS Result	mg/l	149
	3/18 16:09 • (LC:	Spike Amount LCS Result	mg/l	150
	(LCS) R3306893-2 05/03/18 16:09 • (LCSD) R3306893-3 05/03/18 16:10		Analyte	Hardness (colorimetric) as CaCO3

# L989831-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

		r MSD Qualifier RPD RPD Limits	3°	48
		MS Qualifier		
		Dilution Rec. Limits	%	80.0-120
-		Dilution		-
	/18 16:40	MSD Rec.	Ж	81.7
2	893-7 05/03	if MS Rec.	%	82.4
	· (MSD) R3306	MSD Result	l/gm	182
	,03/18 16:39	MS Result	mg/l	183
	3306893-6 05	Spike Amount Original Result	mg/t	59.4
	: 16:24 • (MS) R:	Spike Amount	₩g/I	150
	(OS) L989831-01 05/03/18 16:24 • (MS) R3306893-6 05/03/18 16:39 • (MSD) R3306893-7 05/03/18 16:40		Analyte	Hardness (colorimetric) as CaCO3

PROJECT:

ONE LAB. N. WIDE.	TC TC SS SS SS	Sr OC G	RPD Limits  8 AI  20 20 20 20 % RPD Limits
		RPD Limits % 20	MSD Qualifier RPD 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
OL SUMMARY		LCS Qualifier LCSD Qualifier RPD % 2.14 2.14 1.93	Dilution Rec. Limits MS Qualiffer % 1 70.0-130 1 70.0-130 MS Qualiffer MS Qualiffer % % S Qualiffer % MS Qualiffer % % S Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q
QUALITY CON DL (1989681-01,02,03,04	(MB) R3306940-1 05/03/18 13:07  MB Result MB Qualifier MB MDL MB RDL  Mayle mg/l mg/l mg/l mg/l  Calcium U 0.0168 1.00  Magnesium U 0.0168 1.00  Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)	c. Limits 0-115 0-115 § (MSD)	Rec.
70	MB MDL MB RDL mg/l mg/l	05/03/18 13:13 LCSD Result LCS Rec. mg/l % 10:1 10:3 10:0 10:2 Spike (MS) * Matrix S	13:23 • (MSD) R330694    Result
	th MB Qualifier MB MI mg/l 0.100 0.0166 0.0166 (LCS) • Laboratory	3 13:10 • (LCSD) R3306940-3 05/8 Spike Amount LCS Result LCSC mg/l mg/l mg/l 10:0 10:3 10:1 0.0 10:2 10:0 0ample (OS) • Matrix Spik	Sample (OS) • Matrix Spike (MS) R3306940-5 05/03/18 13:23 Spike Amount Original Result MS Result 10.0 45.8 55.7 10.0 19.3 29.1 Sample (OS) • Matrix Spike ( S:29 • (MS) R3306940-7 05/03/18 13:33 Spike Amount Original Result MS Result mg/l mg/l mg/l mg/l
WG1104 5 Metals (ICP) by Method 200.7 Method Blank (MB)	(MB) R3306940-1 05/03/18 13:07  MB Result Analyte mg/l Calcium U Magnesium U Laboratory Control Sample	C.S. R3306940-2 05/03/18 13:10	(OS) L989117-01 05/03/18 13:30 (MS) R3306940-5 05/03/18 13:25       Spike Amount Original Result MS Result MSD Result MS Rec.       MSD Result MS Rec.       MSD Result MS Rec.       MSD Rec.       <
WG1104 Metals (ICP) b	(MB) R33068 Analyte Calcium Magnesium Laborato	Analyte Calcium Magnesium L989117-C	(OS) L989177- Analyte Calcium Magnesium Magnesium Analyte Calcium

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### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

### Abbreviations and Definitions-

Appleviations a	nd Definitions
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG,
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.

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Sample Summary (Ss)

Description

The identification of the analyte is acceptable; the reported value is an estimate.

This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

<sup>2</sup>T <sup>3</sup>S <sup>6</sup>Q <sup>6</sup>Q <sup>6</sup>A

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conductive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

### State Accreditations

Nevada New Hampshire New Jersey-NELAP New Mexico <sup>1</sup> New York North Carolina North Carolina <sup>1</sup>	NE-OS-15-05 TN-03-2002-34 2975 TN002 n/a 11742
New Jersey-NELAP New Mexico <sup>1</sup> New York North Carolina North Carolina <sup>1</sup>	2975 TN002 n/a
New Jersey-NELAP New Mexico <sup>1</sup> New York North Carolina North Carolina <sup>1</sup>	TN002 n/a
New Mexico <sup>1</sup> New York North Carolina North Carolina <sup>1</sup>	n/a
New York North Carolina North Carolina <sup>1</sup>	11742
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North Carolina 1	Env375
	DW21704
North Carolina 3	41
North Dakota	R-140
Ohio-VAP	CL0069
Okłahoma	9915
Oregon	TN200002
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•	LA000356
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	LAB0152
	TN00003
	VT2006
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*	C847
West Virginia	
West Virginia Wisconsin	233 9980939910
	Pennsylvania Rhode Island South Carolina South Dakota Tennessee 14 Texas Texas Texas 5 Utah Vermont Virginia Washington

### Third Party Federal Accreditations

451 4 150 man			
A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
1014 100 100 1		ALIO DA LEG CINEAL	100769
A2LA - ISO 17025 5	1461.02	DOD	1464.04
		200	1461.01
Canada	1461.01	USDA	8220 AF 00224
term and the second sec		UJDA	P330-15-00234
EPA-Crypto	TNOODO3		

<sup>&</sup>lt;sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

### Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



PAGE: 12 of 18

### ORDER **TOAMTHOOSUS**

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### Subconfracted Laboratory:

Phone: (615) 758-5858 Mount Juliet, TN 37122 12065 Lebanon Road

**D**503

Scuquo reporaçois:

2220 Belline Road SW FSC - Decatur

Fax: 256-350-0686 Phone: 256-350-0846 Decatur, AL 35601

WORK ORDER: 1805671

Released By

402 18 samples included in this document as of the date samples were shipped to the subcontract laboratory. The appropriate credentials and accreditations of the subcontract laboratory have been verified for the analyses to be performed on the courainers subblied: 810Z/E0/S0 **Total Calcium** CA ICP osleulated from Ca and Mg. 8102/20/50 Total Hardness. HARDNESS 8102/50/50 Total Magnesium MC ICS ho-8102/92/40 paydues snoanby:xineW Tuscumbia City SC-4 Sample ID: 1805671-04 containers subblied: 8102/20/50 Total Calcium CA ICP calculated from Ca and Mg **BTOZ/E0/SO Total Hardness** HYRDNESS 8102/50/50 muizengeM istoT MC ICS 8102/92/90 ¿0-Wednes snoonby:xineM Luscumbia City SC- 3 Sample ID: 1805671-03 pailiggue supplied: 810Z/E0/S0 muisies listoT calculated from Ca and Mg 8102/£0/S0 Total Hardness HARDNESS 8107/50/50 unisaubem jerol **MC ICb** af 8102/92/50 Matrix: Aqueous :pajdwes Tuscumbia City SC-2 Sample ID: 1805671-02 coursiners subblied: 810Z/E0/S0 Total Calcium SOI AD calculated from Ca and Mg 8T0Z/E0/S0 Total Hardness HARDNESS muisangeM listo! 02/03/5018 MC ICh 8102/92/40 perdurs snoemby xupew Tuscumbia City SC- 1 29 TO-129 1802671-01 Comments ong Analysis Description Analysis Code

**SisQ** 

Received By

Page 1 of 1

TENERS Company

### ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of 1 MS4.Area - Srping Creek

-REQUESTIED ANALYSES / // 68 SAMPLE TEMPERATURE AIR, CBOD, NO3NO2, NH3, P TKN Parameters Chlorophyll RECEIVED @ 3 IKM Cond Hard Ηđ TATOT 9 MOSMOSIC 2 EHN × ل Poly Philt H2SO4 Cool Sc. | | QHAH RECEIVED BY: (SIGNATURE) × SSI Amb Glass 1000ml Cool 6c Poly Pint HNO3 Cool 6c DO × Poly 1/2 Cool 6c COND × Type СНГОВОБНАГГ CBOD × YTK GRAB COMP ENE 13886 RMCWHORTER 8 www.enersolv.com CM × SAMPLE TRANSFERIGRAB TIME 540 Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek Analyst Temp deg G Time Oate MANSFERIGRAB 4/2/0/18 Date | H 26/18 1242 RELINGUISHED BY: (SIGNATURE) RECEIVED BY (SIGNA) URB) SM 4500-0 G OTHER INFORMATION FIELD INFORMATION DATE DUE (REDUIRED) te facility 00 00 CCIENT P.D. NUMBER Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDRESS SAMPLE DESCRIPTION SM-4500-CID 2220 Beltine Rd PHONE NUMBER Tuscumbia Spring Creek SC-1 256-568-9220 Cocks Arranyst Time TRC mg/l Date 4/20/18 SM 4500H+B Date 1.8 Analyst rmcwhorter@enefsolv.com FLOW REMODISHED BY (SECHATURE) ENERSOLV CIENT POINT OF CONTACT 15056710 COMPANY/CLIENT NAME ENERSOLV LAB NUMBER INFORMATION R. McWhorter R. McWhorter SAMPLER Comments Stop Stop Time Time Start Start

205

ECEIVED FOR LABORATORY

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Accepted with Exception

☐ Rejected

Accepted

SAMPLE STATUS

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## ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of 1 MS4 Area - Srping Greek

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R. McWhorter		2220	2220 Belline Rd			ecatur /	Decatur, Al. 35601				-	_				_	-	_			
CLENT EMAIL		PHOME	NUMBER	OTHER INFORMATION												_	-	_			
rmcwhorter@enerselv.com	v.com	256-	256-566-9220	Tuscum	Tuscumbia Spring Creek	reek	ú				11%				-	-	_	_			
R. McWharter			à	DATE DUE (REQUIRED)	URED)	Na contraction of the contractio	Ď				HdO	دخات				010		-71			
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CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 ANALYSIS REQUEST A

256) 350-0846

MS4 Area - Srping Creek

To

PAGE

0 REQUESTED AWALYSES 4881 SAMPLE TEMPERATURE AIK, CBOD, NO3NOZ, RECEIVED @ 3-7 NH3, P, TKN Parameters Chlorophyll KM1 1 Cond Hand Hd 34 JATOT 9 × SIZONSON × 5 EHN × ELINGUISHED BY (SYGNATURE) GHAH × RECEIVED BY: (SIGNATURE) Amb Glass 1000ml Cool 6c. 581 × Paly Pint H2SO4 Capi Bc Poly Pint HNO3 Cool &c ÖÜ × Paly 1/2 Cool 6c COND × ype CHLOROPHYLL × CBOD × ALK SAMPLE SAMPLE TRANSPERIORAS THANSFERIORAS CONF Off ENE 13886 RMCWHORTER Ċ www.enersolv.com ENERSOLV PROJECT NUMBER 1204 Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek Arrahyst O Bap ERTITO TIME Date 4/26/19 ELINGUISHED BY: ENGNATURE 206 ECEMED BY (SIGNATURE) SM 4500-0 G OTHER INFORMATION FIELD INFORMATION DATE BUE (RECUIRED) Date Arialyst DO mg/l CLIENT P.O. NUMBER Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDIRESS SN 4500-CI D SAMPLE DESCRIPTION 2220 Beltine Rd Tuscumbia Spring Creek SC-3 256-566-9220 COLIC Arriatyst Time Cate TRC Mg/l 4/25/18 205 SH ASSOCIATED 940 古湯 Adalysi mcwhorler@enersolv.com SAMPLE COLLECTED BY > 34 FLOW T NOW SHEET BY (SIGNATURE) CLIENT POINT OF CONTACT COMPANY/CLENT NAME 501103 LAB NUMBER INFORMATION ENERSOLV R. McMhorter R. McWhorter SAMPLER Comments: ENERSOLV LIEW MAIL Turne Stop Star Shep Date

Enersolv Form FLD 020-SOP A rav. 5

Accepted with Exception

Rejected

M Accepted

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CEIVED FOR LABORATOR

AMPLE STATUS

WENERSOLV

### ANALYSIS REQUEST ) CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE "1" of 1

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CLIENT POINT OF CONTACT	-	CLIENT PHYSICAL ADDRESS.	DENTESS:	CITYIST	CHYSTATEZIP		K	-		-	-			-	-		<u> </u>
R. McWhorter		2220 Bettine Rd			Decatur, AL 35601			_						_	_		-
CLIENT EMAIL		PHONE NUMBER	OTHER INFORMATION	ATTON			T	_		_	_				_		-
rmcwhorter@enersolv.com	lv.com	256-566-9220	Tuscumbia	Tuscumbia Spring Creek	<u></u>		-	_	רר	_				_			-
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- argineters	Alk, CBOD, NO3NO2,	Chlorophyll	Harl		O ZIN	DATE	DATE	Accepted with Exception
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Etiersolv Form PLO-020-SOP A rev. 5

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Receipt Check List	and the second	Age	
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## ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD 5W DECATUR, ALABAMA 35601 (256) 350-0846

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SAMPLE TEMPERATURE Alk, CBOD, NO3NO2, Parameters NH3, P, TKN Chlorophyll Accepted with Exception **LKN** × Cond Hard REQUESTED ANALYSES Hd RECEIVED @ JATOT 9 **NO3NOSIC EHN** S × ل Poly Pint H2SO4 Cool 6c | | | **UNAH** RECEIVED BY: (SIGNATURE) SST × Amb Glass 1000ml Cool 6c Poly Pint HNO3 Cool 6c DO Poly 1/2 Cool &c COND × Type СНГОВОРНУГГ ☐ Rejected CBOD ALK GRAB COMP ENE 13886 RMCWHORTER ð www.enersolv.com N × ENERSOLV PROJECT NUMBER Accepted SAMPLE TRANSFER/GRAB TIME SAMPLE STATUS: 240 Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek EXPEDITED REPORT DELIVERY (SURCHARGE) Analyst Temp deg C Date Time SAMPLE TRANSFER/GRAB DATE 4/5/0/18 M 16h 426/18 242 RELINQUISHED BY: (SIGNATURE) 20 SM 4500-0 G RECEIVED BY: (SIGNATURE) OTHER INFORMATION FIELD INFORMATION DATE DUE (REQUIRED) Analyst CLIENT P.O. NUMBER Date Time 0 E Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDRESS SAMPLE DESCRIPTION 2220 Beltine Rd SM 4500-CID 256-566-9220 Tuscumbia Spring Creek SC-1 PHONE NUMBER Analyst TRC mg/l Time Date SM 4500H+B Analyst rmcwhorter@enersolv.com Date Time 표정 FLOW CLIENT POINT OF CONTACT PLINOUISHED BY (SIGNATURE) 2056710 COMPANY/CLIENT NAME SAMPLE COLLECTED BY AB NUMBER RECEIVED FOR LABORATORY ENERSOLV INFORMATION R. McWhorter R. McWhorter SAMPLER RECEIVED BY (SIGNATI **ENERSOLV** Comments CLIENT EMAIL Time Date Stop Date Stop Start

Enersolv Form FLD-020-SOP A rev. 5



### ANALYSIS REQUEST A CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD 5W DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of 1 MS4 Area - Srping Creek

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SAMPLE TEMPERATURE Alk, CBOD, NO3NO2, NH3, P, TKN Parameters ☐ Accepted with Exception Chlorophyll TKN × Cond Hard REQUESTED ANALYSES Hd RECEIVED @ DATE JATOT 9 × **NO3NOSIC** EHN × 8 Poly Pint H2SO4 Cool 6c | | | **QXAH** × RECEIVED BY: (SIGNATURE) SST × Amb Glass 1000ml Cool 6c Poly Pint HNO3 Cool 6c DO Poly 1/2 Coal 6c COND Type СНГОВОРНУГГ ☐ Rejected CBOD × ALK × GRAB COMP **ENE 13886 RMCWHORTER** ö 2 × Accepted ENERSOLV PROJECT NUMBER SAMPLE TRANSFER/GRAB TIME SAMPLE STATUS: 216 Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek EXPEDITED REPORT DELIVERY (SURCHARGE) CITY/STATE/ZIP Analyst Temp deg C Date Тiпе SAMPLE TRANSFER/GRAB DATE 2//2 RELINQUISHED BY: (SIGNATURE) 29 SM 4500-0 G RECEIVED BY: (SIGNATURE) OTHER INFORMATION FIELD INFORMATION DATE DUE (REQUIRED) Analyst 8 g Date Time CLIENT P.O. NUMBER Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDRESS SAMPLE DESCRIPTION SM 4500-CI D 2220 Beltine Rd PHONE NUMBER Tuscumbia Spring Creek SC-2 256-566-9220 Analyst Date TRC Пgл Time SM 4500H+B Analyst mcwhorter@enersolv.com Date Time 표교 RECEIVED FOR LABORATORY USE BY CLIENT POINT OF CONTACT FLOW x0211.02 COMPANY/CLIENT-NAME NOTWINED BY (SIGNATUR LAB NUMBER ENERSOLV INFORMATION R. McWhorter R. McWhorter SAMPLER **ENERSOLV** Comments: CLIENT EMAIL Start Stop Date Stop Time Date

Enersolv Form FLD-020-SOP A rev. 5



## ANALYSIS REQUEST AN HAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

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	PAGE	MS4 Area - S

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Comments	COMPANY CLIEN NAME			ערופו	CLEN TO NUMBER		ENER	OCET ! POP	ENERGOEV PROJECT NOWIGEN	4					i				1	
Care   Process   Care	NERSOLV						ENE	13886 F	MICWHO	RTER				띪	LES		₹	ΓXS	S	
Complete shaded areas, as applicable  FIELD INFORMATION  Wascin-te shaded areas, as applicable  Wascin-te shade	JENT POINT OF CONTAC	-	ਰ <b>ਨ</b>	ENT PHYSICAL	ADDRESS		CITY/S	STATE/ZIP	FB04											
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256-566-9220   Tuscumbia Spring Creek   Sawne   Sawn	JENT EMAIL		E	ONE NUMBER		R INFORM	NDUN						7			_				
SAMPLE DESCRIPTION  SAMPLE DESCRIPTION  SAMPLE DESCRIPTION  TRANSFERGIORA  SAMPLE  TRANSFERGIORA  TO DO	ncwhorter@enerso	lv.com	25	6-566-9220		cumpia	Spring Cre	ž.			1		1,1	_			_			
SAMPLE DESCRIPTION   TRASFERURAR   TRANSFERURAR   SAMPLE   TRANSFERURAR   SAMPLE DESCRIPTION   TRASFERURAR   TRANSFERURAR   SAMPLE DESCRIPTION   TRASFERURAR   TRANSFERURAR   TRANSFERUR	MPLE COLLECTED BY				EXPEDITE	D REPOR	r DELIVERY (SUF	RCHARGE)					Hd			-	)IC			
SAMPLE DESCRIPTION	. McWhorter				DĂTE DUI	E (REQUIR	ED)					1	_	_			02			
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Complete shaded areas, as applicable   Complete shaded areas, as applicable   FIELD INFORMATION   Type	501103	Tuscumb	a Spring	Creek SC-	8		1/20/1	1	0	×		_		_	×	-		-		×
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TRC   Dot   Temp   1	200									à			TVD			-	-		aram's	phore
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SIM 4500H+B         SIM 4500-CI D         SIM 4500-O G         SIM 2550B         1         Poly Pirit H2SO4 Cool 6c         NH3, P, TF           PATE         Time         ReLINQUISHED BY (SIGNATURE)         DATE         Time         Received BY (SIGNATURE)         DATE           DATE         Time         Received BY (SIGNATURE)         DATE         DATE         DATE	Stop	Analyst	Sur	Analyst		Analyst	N	Analyst									-			
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## ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

	PAGE	1 of	
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COMPANYCHENT NAME		-	S IE	OI IENT DO NII	MINABED	ENE	Dec Wood	ENEBECA VED CETTINISES				1								
ENERSOLV					5		E 13886	ENE 13886 RMCWHORTER	ORTE	O.			œ		REQUESTED	ED/	ANA	ANAL YSES	SES	
CLIENT POINT OF CONTAC	b	ฉ	CLIENT PHYSICAL ADDRESS	ADDRESS		CILIA	CITY/STATE/ZIP					-	-		F	-	-			
R. McWhorter		7.	2220 Beltine Rd				Decatur, AL 35601	35601					_			_	_			
CLIENT EMAIL		Į.	HONE NUMBER		OTHER INFORMATION							-				_	_			
rmcwhorter@enersolv.com	moy/lc	72	256-566-9220		umbia	Tuscumbia Spring Creek	eek					1 1.				_	_			
SAMPLE COLLECTED BY					D REPORT	DELIVERY (SI	JRCHARGE)					λH				_	,			
R. McWhorter				DATE DUE	DATE DUE (REQUIRED)	(Q:						405	-			_	OSIC	_		
ENERSOLV LAB NUMBER		SAMPLI	SAMPLE DESCRIPTION	NO	F	SAMPLE TRANSFER/GRAB DATE		SAMPLE TRANSFER/GRAB TIME	GRAB	COMP	ALK	CHFO	COND	DO	SST	ДЯАН ЕНИ	NO3NC	TOT 9	Hq	TKN
805671.04	Tuscur	bia Spring	Tuscumbia Spring Creek SC-4	4	7	1126/19	11	1/26	×		×	×	×	×	×	×	×	×	×	×
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FLOW	W Stor to com	Seda etelo	FLOW Collector to complete shaded areas as annii	e annlic	older.											S	MPI	1 H	AN (	SAMPLE TEMPERATURE
SAMPLER			FIEL	FIELD INFO	ORMATION	NO			ð			-	Type				<u>.</u>	Pan Pan		Parameters
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Start Time	Date	4/24/19	Date		Date	4/20/2	Date		7	_ <b>~</b>	Amb Glass 1000ml Cool 6c	ass 10	W00	Cool	ွ	3	_	0	i e	Chlorophyll
Stop Date	Time	112	Time		Time	1139	Time		-		Poly	Poly Pint HNO3 Cool 6c	030	00		U			==	Hard
Stop Time	Analyst	K	Analyst		Analyst	15	Analyst													
	SM 450	9+H00	SM 4500-CI D		SM 4	SM 4500-O G		SM 2550B	-		Poly P	int H2	S04 (	000	,	0	_	Ž	NH3 P	TKN
RELIMBURHED BY (SIGNATURE	*	DATE 4/1-1	TIME	-	NQUISHED	RELINGUISHED BY: (SIGNATURE)		DATE		TIME	RELINQUISHED BY: (SIGNATURE)	REL	NQUISH	ED BY: (	SIGNAT	JRE)		DATE		
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RECEIVED FOR LABORATORY USE PY (SIGNATURE)	ISE of (SIGNA)	URE)		DATE		TIME (	¥8	SAMPLE STATUS:	iń			-								$\dashv$
J	H	510		3	11/1	1/2/	7/	Accepted	ted		□ R	☐ Rejected	g			Acce	pted	with	EX	Accepted with Exception
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Enersolv Form FLD-020-SOP A rev. 5

Enersolv Field Calibration Record – pH Measurement

For all field instruments: Calibration/Confirmation Interval - Prior to each use, but not more than daily

Calibration Environmental Conditions: Room temperature

	7.00 pH buffer Acc. Range 7.0 +/- 0.1	10.00pH buffer Acc. Range 10.0+/- 0.1	Acceptance Criteria met Slope 92 – 10
Reagent ID - Pre-calibration	EG72104	EC82609	Yes N
Value before calibration, s.u.	7.2	10.2 "	
Observed pH Buffer Temp. before calibration, .C	70.9	20.9	
Correction Factor (see chart)	-0.5	-0.5	
Final pH Buffer Temp. before calibration, ºC	70.9	20.9	
Final Calibration			
Reagent ID - Post-calibration	EG 72/04	EC8560	9
Value Final calibration, s.u.	7. (	10.1	
H Meter Post Cal. Date:	7.00 pH buffer	14 26 10.0 pH	
	7.00 pH buffer Acc. Range 7.00+/-	10.0 pH   0.2 Acc. Range 1	10.00+/-0.2
Reagent ID	7.00 pH buffer	10.0 pH   0.2 Acc. Range 1	
	7.00 pH buffer Acc. Range 7.00+/-	10.0 pH 0.2 Acc. Range 1	2605
Reagent ID Post Calibration pH value	7.00 pH buffer Acc. Range 7.00+/-	10.0 pH   Acc. Range 1	10.00+/-0.2
Post Calibration pH value  Observed Buffer Temp., °C	7.00 pH buffer Acc. Range 7.00+/- EG 72/0 7.1	10.0 pH   0.2 Acc. Range 1	2605
Reagent ID  Post Calibration pH value  Observed Buffer Temp., °C  Correction Factor	7.00 pH buffer Acc. Range 7.00+/-  EG 72/c  7.1  20.6	10.0 pH   0.2 Acc. Range 1	0.00+/-0.2 2605 1.1 
Reagent ID  Post Calibration pH value  Observed Buffer Temp., °C  Correction Factor  Final Buffer Temp., °C	7.00 pH buffer Acc. Range 7.00+/-  26 72/6  7.1  20.6  20.6  vas less than 5.0 s.u., perfe	10.0 pH o.2 Acc. Range 1	0.00+/-0.2 2605 1.1 
Reagent ID  Post Calibration pH value  Observed Buffer Temp., °C  Correction Factor  Final Buffer Temp., °C  ny client sample pH measurement value  Buffer Cal., if required Date/time:	7.00 pH buffer Acc. Range 7.00+/-  26 72/6  7.1  20.6  20.6  vas less than 5.0 s.u., perfe	10.0 pH o.2 Acc. Range 1	0.00+/-0.2 2605 0.1 0.5 0.3
Reagent ID  Post Calibration pH value  Observed Buffer Temp., °C  Correction Factor  Final Buffer Temp., °C  ny client sample pH measurement value  Buffer Cal., if required Date/time:	7.00 pH buffer Acc. Range 7.00+/- EG 72/0 7.1 20.0 20.0 was less than 5.0 s.u., perfo	10.0 pH o.2 Acc. Range 1	0.00+/-0.2 2605 0.1 0.5 0.3
Reagent ID  Post Calibration pH value  Observed Buffer Temp., °C  Correction Factor  Final Buffer Temp., °C  ny client sample pH measurement value  Buffer Cal., if required Date/time:	7.00 pH buffer Acc. Range 7.00+/- CG 72/C 7.1 ZO ZO  vas less than 5.0 s.u., perfo	10.0 pH o.2 Acc. Range 1	0.00+/-0.2 2605 0.1 0.5 0.3

Note: If equipment calibration fails to meet acceptance limits, the equipment must be taken out of service and tagged for repair. Enersolv form FLD-030-SOP A-1 rev. 7 2/14/18

Calibrat	·	instruments or to each use, but no onditions: Room temp	Time:7 ot more than daily perature
Disso	lved Oxygen Meter - Equipment Number: _	Oxygen meter	A Calibration
		reading	successful?
	Value before calibration, mg/L	8.65	yes
	% Air Saturation / Slope	97.7	1
	Value after calibration, mg/L	8.69	Yes No
rbidity M	leter – Equipment number: 150		
		1 NTU	10 NTU
	Meter Reading Before Calibration, NTU		
	Meter Reading After Calibration, NTU		

Value of Conductivity Standard, uS

Meter reading before calibration, uS

**Conductivity Standard Reagent Number** 

**Cell Constant Value** 

Note: If equipment calibration fails to meet acceptance limits, the equipment must be taken out of service and tagged for repair.

Enersolv form FLD-030-SOP A-3 rev. 7



July 13, 2018

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601

We appreciate the opportunity to provide our services to you on this project. Please find attached the data for the sample(s) listed below:

LabNumber	Sample Description	Date/Time Collected	Date Submitted
1808267-01	Tuscumbia City SC-1	6/21/18 08:51	6/21/10
1808267-02	Tuscumbia City SC-2	6/21/18 09:15	6/21/18 6/21/18
1808267-03	Tuscumbia City SC-3	6/21/18 09:38	6/21/18
1808267-04	Tuscumbia City SC-4	6/21/18 10:30	6/21/18
1808267-05	Tuscumbia City SC-Equipment Blank	6/21/18 12:44	6/21/18

Pace National-Decatur is accredited to ISO/IEC 17025:2005 by ANSI-ASQ National Accreditation Board (ANAB) and to the TNI 2003 Standard by the Florida Department of Health. Our quality system also meets relevant quality system requirements of ISO 9001:2008. Not all tests performed by ESC-Decatur are covered by these accreditations. Tests within our scope of accreditation are indicated by an asterisk (\*) in the Test Result section of this report. Tests not included in the accreditations are performed in accordance with ESC-Decatur's Standard Operating Procedures and the quality control program using, where applicable, USEPA methodology.

This cover page and the attached chain-of-custody record(s) are integral parts of your report. Pace National-Decatur considers this report your official record. This information shall remain in Pace National-Decatur's active database for a period of one (1) calendar year before archiving. Any replacement of this information after archiving may result in an administrative fee to cover the cost of retrieval.

If you have any questions or would like more information regarding these analyses, please call us at (256) 350-0846.

Lisa W. Lerry

**QA** Specialist



### SAMPLE RESULTS REPORT

Report Date/Time: 07/13/2018 14:44

### REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



NELAP listed in ANAB Certificate #L2239 scope of accreditation.

Pace National-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation. ESC-Decatur also maintains ISO/IEC 17025 accreditation through ANSI-ASQ Accreditation Board for the specific tests



ADEM Drinking Water Certification

Accredited Florida DOH #E871078

Tests within the scope of accreditation are indicated by an asterisk (\*). This report may contain information that is confidential and/or proprietary. This information is intended for the

This report may commin injurmation that is conjuential anator proprietary. This injurmation is intended addressee only and may not be copied or disseminated except in full without the written consent of Pace

Analyte Name	Result	Units	Qual	Regulatory Limit
ample Point: Tuscumbia City SC-1  Anions by IC	Sample ID: 1808267-01	Collected: 06/21/201	8 Su	bmitted: 06/21/2
Nitrate plus Nitrite-Nitrogen	2.40	mg/l		
* Nitrate-Nitrogen CAS: 14797-55-8	2.40	mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
Inorganics				
* Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
* Carbonaceous BOD	<4.00	mg/l	D	
Chlorophyll a (corrected)	<5.00	ug/l	D	
Conductance	383.0	umho/cm		
Total Alkalinity	168	mg/l CaCO3		
rotal Ajeldani Murogen	<1.50	mg/l		
Total Phosphorus	<1.00	mg/l		
Total Suspended Solids	6.00	mg/l		
On-Site Analysis		-		
Dissolved Oxygen	7.50	mg/l		
pH	7.2	su		



### SAMPLE RESULTS REPORT

Report Date/Time: 07/13/2018 14:44

### REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



National-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation. ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2229 Testing

NELAP through ANSI-ASQ Accreditation Board for the specific tests Accredited listed in ANAB Certificate #L2239 scope of accreditation. Florida DOH #E871078

- ADEM **Drinking Water** Certification No. 40160

Tests within the scope of accreditation are indicated by an asterisk (\*). This report may contain information that is confidential and/or proprietary

addressee only and may not be copied or disseminated except in full without the written consent of Pace National-Decatur.

Analyte Name	Result	Units	Qual	Regulatory Limit
Sample Point: Tuscumbia City SC-2  Anions by IC	Sample ID: 1808267-02	Collected: 06/21/2	2018 Su	bmitted: 06/21/2018
Nitrate plus Nitrite-Nitrogen	2.36	mg/l		
* Nitrate-Nitrogen CAS: 14797-55-8	2.36	mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
Inorganics  * Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
* Carbonaceous BOD	<4.00	mg/l	D	
Chlorophyll a (corrected)	<5.00	ug/l	D	
Conductance	378.0	umho/cm		
Total Alkalinity	169	mg/l CaCO3		
* Total Kjeldahl Nitrogen	<1.50	mg/l		
* Total Phosphorus	<1.00	mg/l		
* Total Suspended Solids	7.50	mg/l		
On-Site Analysis		_		
Dissolved Oxygen	7.20	mg/l		
pН	6.9	su		



### SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



Accredited

Florida DOH

#E871078

Report Date/Time: 07/13/2018 14:44 Pace National-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation.

ESC-Decatur also maintains ISO/IEC 17025 accreditation through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ANAB Cort. #L2239 Testi ADEM Drinking Water Certification

Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of Pace No. 40160

Analyte Name		Result	Units	Qual	Regulatory Limit
Sample Point: Tuscumbia City SC-3  Anions by IC	Sam	pple ID: 1808267-03	Collected: 06/21/2	2018 Su	bmitted: 06/21/201
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen		3.92 3.92	mg/l		
CAS: 14797-55-8  * Nitrite-Nitrogen CAS: 14797-65-0		<0.0600	mg/l		
* Ammonia-Nitrogen CAS: 8013-59-0		<0.100	mg/l		
* Carbonaceous BOD Chlorophyll a (corrected) Conductance		<4.00 <5.00 402.0	mg/l ug/l umho/cm	D	
Total Alkalinity  * Total Kjeldahl Nitrogen  * Total Phosphorus		173 <1.50	mg/l CaCO3 mg/l		
* Total Suspended Solids		<1.00 3.50	mg/l mg/l		
On-Site Analysis Dissolved Oxygen pH		7.60 6.5	mg/l su		



# SAMPLE RESULTS REPORT

Report Date/Time: 07/13/2018 14:44

## REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



NELAP Accredited Florida DOH #E871078

National-Decatur maintains National Environmental Pace Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). included in this report may not be covered by this accreditation. ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests

ADEM Drinking Water Certification

listed in ANAB Certificate #L2239 scope of accreditation. Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of Pace No. 40160 National-Decatur.

Analyte Name	Result	Units	Qual	Regulatory Limit
inions by IC	Sample ID: 1808267-04	Collected: 06/21/2	018 Sui	bmitted: 06/21/20
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen  CAS: 14797-55-8	3.94 3.94	mg/l mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
Inorganics * Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
* Carbonaceous BOD Chlorophyll a (corrected) Conductance Total Alkalinity  * Total Kjeldahl Nitrogen  * Total Phosphorus  * Total Suspended Solids  On-Site Analysis	<4.00 <5.00 396.0 170 <1.50 <1.00 2.50	mg/l ug/l umho/cm mg/l CaCO3 mg/l mg/l mg/l	D	
Dissolved Oxygen pH	7.20 7.2	mg/l su		



# SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



NELAP Accredited Florida DOH #E871078

Report Date/Time: 07/13/2018 14:44 National-Decatur maintains Laboratory Accreditation Program National Environmental through Florida Department of Health (#E871078). accreditation included in this report may not be covered by this accreditation.

ESC-Decatur also maintains ISO/IEC 17025 accreditation through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ANAB Cert. #L2239 Testing ADEM Drinking Water Certification

Tests within the scope of accreditation are indicated by an asterisk (\*). This report may contain information that is confidential und/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of Pace No. 40160

Analyte Name  Sample Point: Tuscumbia City SC-Equipment Blank	Result	Units	Qual	Regulatory Limit
wons by IC	Sample ID: 1808267-05	Collected: 06/21/	2018 50	
Nitrate plus Nitrite-Nitrogen			-010 Su	bmitted: 06/21/2
* Nitrate-Nitrogen	<0.260	mg/l		
CAS: 14797-55-8	< 0.200	mg/l		
* Nitrite-Nitrogen		8-		
CAS: 14797-65-0	< 0.0600	mg/l		
Inorganics		0 -		
* Ammonia-Nitrogen				
CAS: 8013-59-0	< 0.100	/I		
* Carbonaceous BOD		mg/l		
Chlorophyll a (corrected)	<4.00	mg/l	_	
Conductance	<5.00	ug/l	D	
Total Alkalinity	1.930	-		
* Total Kjeldahl Nitrogen	21.0	umho/cm		
* Total Phosphorus	<1.50	mg/l CaCO3		
* Total Suspended Solids	<1.00	mg/I		
	<2.50	mg/l		
On-Site Analysis	~2.30	mg/l		
Dissolved Oxygen				
рН	6.76	mg/l		
	7.7	su		



# SAMPLE RESULTS REPORT

# REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



Florida DOH #E871078

Report Date/Time: 07/13/2018 14:44 Pace National-Decatur Laboratory Accreditation Program National through Florida Department of Health (#E871078). included in this report may not be covered by this accreditation. ESC-Decatur also maintains ISO/IEC 17025 through ANSI-ASQ Accreditation Board for the specific tests

Environmental accreditation Some tests

accreditation ANAB Cert. #L2239 Testing ADEM Drinking Water

listed in ANAB Certificate #L2239 scope of accreditation. Tests within the scope of accreditation are indicated by an asterisk (\*).

This report may contain information that is confidential and/or proprietary. This information is intended for the Inis report may contain information that is confidential and/or proprietary. This information is intended addressee only and may not be copied or disseminated except in full without the written consent of Pace Certification National-Decatur, No. 40160

All calculations are performed prior to rounding per EPA and Standard Methods requirements. Data Qualifiers:

- Estimated BOD/CBOD value sample dissolved oxygen depletion less than method required 2.0 mg/l. D

ab Numb	er Anatori	Analysis Inform	nation
1808267-01 1808267-01 1808267-01 1808267-01 1808267-01 1808267-01 1808267-01 1808267-01 1808267-01 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02 1808267-02	Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance	SpecificMethod  SM 2320B-2011 SM 5210B-2011 SM 10200 H SM 2510B SM 4500 NH3-C-2011 EPA 300.0 EPA 300.0 EPA 365.3 SM 4500-Norg C-2011 USGS I-3765-85 SM 2320B-2011 SM 5210B-2011 SM 10200 H SM 2510B SM 4500 NH3-C-2011 EPA 300.0 EPA 300.0 EPA 300.0 EPA 300.0 EPA 300.0 EPA 365.3	Analysis Analysis Analyst Start Date/Time End Date/Time  RAC 06/22/2018 14:30 AH 06/21/2018 16:55 LLW 06/22/2018 14:30 RAC 06/22/2018 14:30 RAC 06/22/2018 23:07 LLW 06/21/2018 23:07 LLW 06/21/2018 23:07 AH 06/25/2018 13:40 RAC 06/22/2018 06:00 JRL 06/21/2018 14:35 RAC 06/22/2018 14:30 AH 06/21/2018 16:55 LLW 06/21/2018 12:30 RAC 06/22/2018 14:30 RAC 06/22/2018 12:25 LLW 06/21/2018 23:25 LLW 06/21/2018 23:25 LLW 06/21/2018 23:25 LLW 06/21/2018 23:25
808267-03 808267-03 808267-03 808267-03	Total Suspended Solids Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance Ammonia-Nitrogen Nitrite-Nitrogen	SM 4500-Norg C-2011 USGS I-3765-85 SM 2320B-2011 SM 5210B-2011 SM 10200 H SM 2510B SM 4500 NH3-C-2011 EPA 300.0	AH 06/21/2018 23:25 AH 06/25/2018 13:40 RAC 06/22/2018 06:00 JRL 06/24/2018 14:35  RAC 06/22/2018 16:00 SH 06/21/2018 16:55 LLW 06/22/2018 14:30 RAC 06/22/2018 14:30 RAC 06/22/2018 10:05  LLW 06/21/2018 23:44



# SAMPLE RESULTS REPORT

# REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



Report Date/Time: 07/13/2018 14:44 National-Decatur Laboratory Accreditation Program National through Florida Department of Health (#E871078). Environmental accreditation included in this report may not be covered by this accreditation. included in this report may not be covered by this accreditation.

ESC-Decatur also maintains ISO/IEC 17025 accreditation

Anal Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests



Accredited Florida DOH #E871078

listed in ANAB Certificate #L2239 scope of accreditation. Tests within the scope of accreditation are indicated by an asterisk (\*).

ADEM Drinking Water Certification

		#E871078	of micate #	L2239 scope of accreditation.	specific tests ANAH Cent. #L2239 7
		This report may contain is			ADEM
1808267-03	3 NTM	addressee only and may not be a	tion that is confiden	ditation are indicated by an asteris tial and/or proprietary. This information of the information.	sk (*). Certification
1808267 <sub>-03</sub>	. Villale-Nitrogen	ivational-Decatur.	opied or disseminate	ed except in full without the	nation is intended for the
1808267-03	Table plus Nitrite-Nitrogen	- 500,0			consent of Pace
1808267-03		EPA 300.0	LL	W 06/21/2018 as	
1808267-03	Middle Middle Middle	EPA 365.3	LL	W 06/21/2018 23:44	4
1808267-04	Suspended Solids	SM 4500-Norg C-2011	AF	* V6/26/2010 ***	<b>,</b>
1808267-04	Total Alkalinity	USGS I-3765-85	RA	C 06/22/2018 06:00	ł
1808267-04	Carbonaceous DOD	SM 2320B-2011	JRL	06/24/2018 14:35	
1808267-04	Chlorophyll a (correct to	SM 5210B-2011	RAC	06/20/20	
1808267-04	- onductance	SM 10200 H	AH	00/22/2018 14.30	
1808267-04	Ammonia-Nitrogon	SM 2510B	SH	06/21/2018 16:00	06/26/2018 10:05
1808267-04	Nitrogen	SM 4500 NH3-C-2011	LLW	06/21/2018 16:55	10:05
808267-04	Nitrate-Nitrogen	EPA 300.0	RAC	06/22/2018 14:30	
1808267-04	Nitrate plus Nitrite Ni	EPA 300.0	LLW	06/22/2018 09:30	
1808267-04		EPA 300.0	LLW	06/22/2018 00:02	
1808267-04	Iotal Kieldahl N:	EPA 365.3	LLW	06/22/2018 00:02	
1808267-05	Total Suspended Solids	SM 4500-Norg C 2011	AH	06/22/2018 00:02	
1808267-05	Total Alkalinity	USGS I-3765-85	RAC	06/26/2018 14:00	
1808267-05	Carbonaceone BOD	SM 2320B-2011	JRL	06/22/2018 06:00	
1808267-05	Chlorophyll a (company)	SM 5210B-2011	RAC	06/24/2018 14:35	
1808267-05	auctance	SM 10200 H	АН	06/22/2018 14:30	
1808267 07	Ammonia-Nitrogon	SM 2510B	SH	06/21/2018 16:00	06/26/2018 10:05
1808267 00	Wilfite-Nitrogen	SM 4500 NH3-C-2011	LLW	06/21/2018 16:55	10:05
1800000	Nitrate-Nitrogen	EPA 300.0	RAC	06/22/2018 14:30	
1808267 0-	Nitrate plus Nitrito Ni	EPA 300.0	LLW	06/22/2018 09:30	
		EPA 300.0	LLW	06/22/2018 00:57	
1800000	10tal Kieldahl Nia	EPA 365.3	LLW	06/22/2018 00:57	
1	Fotal Suspended Solids	SM 4500-Norg C 2011	AH	06/22/2018 00:57	
	5143	USGS I-3765-85	RAC	06/26/2018 14:00	
	The results and			06/22/2018 06:00	
	contained in	this report are only room		06/24/2018 14:35	
		this report are only representative	of the sample	(s) race: .	
			Pie	(S) ACCEIVED	

The results contained in this report are only representative of the sample(s) received.



# ANALYTICAL REPORT



## ESC - Decatur Lab

Sample Delivery Group:

L1003909

Samples Received:

06/22/2018

Project Number:

1808267

Description:

Report To:

ESC Decatur

2220 Beltline Road SW

Decatur, AL 35601

Entire Report Reviewed By:

Olivia Studebaker

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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ONE LAB. NATIONWIDE.

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ACCOUNT: ESC - Decatur Lab

PROJECT: 1808267

SDG: L1003909 DATE/TIME: 06/28/18 16:35

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# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

1808267-01 TUCUMBIA CITY SC-1 L1003909-01	WW		Collected by R. McWhorter	Collected date/time 06/21/18 08:51	Received date/tim 06/22/18 10:08
ethod	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	,
Calculated Results	WG1129573	1	06/26/18 00:27	06/26/18 13:03	TRB
Wet Chemistry by Method 130.1	WG1129709	1	06/26/18 10:47	06/26/18 10:47	KK
Metals (ICP) by Method 200.7	WG1129573	1	06/26/18 00:27	06/26/18 13:03	TRB
1808267-02 TUCUMBIA CITY SC-2 L1003909-02	2 WW		Collected by R. McWhorter	Collected date/time 06/21/18 09:51	Received date/tim 06/22/18 10:08
Method	Batch	Dilution	Preparation	Analysis	Amah sat
	2010//	Diracion	date/time	date/time	Analyst
Calculated Results	WG1129573	1	06/26/18 00:27		TDD
Wet Chemistry by Method 130.1	WG1129709	1	06/26/18 10:48	06/26/18 14:10	TRB
Metals (ICP) by Method 200.7	WG1129573	1	06/26/18 00:27	06/26/18 10:48	KK
	WG1123373	,	06/26/18 00;2/	06/26/18 14:10	TRB
			Collected by	Collected date/time	Received date/time
1808267-03 TUCUMBIA CITY SC-3 L1003909-03	WW		R. McWhorter	06/21/18 09:38	06/22/18 10:08
Method	Batch	Dilution	Preparation	Analysis	Analyst
Calculated Results			date/time	date/time	
	WG1129573	1	06/26/18 00:27	06/26/18 14:13	TRB
Wet Chemistry by Method 130.1	WG1129709	1	06/26/18 10:49	06/26/18 10:49	KK
Metals (ICP) by Method 200.7	WG1129573	1	06/26/18 00:27	06/26/18 14:13	TRB
			Collected by	Collected date/time	Received date/time
808267-04 TUCUMBIA CITY SC-4 L1003909-04	WW		R. McWhorter	06/21/18 10:30	06/22/18 10:08
rthod	Batch	Dilution	Preparation	Analysis	Analyst
alculated Results	WCM20F72		date/time	date/time	
/et Chemistry by Method 130.1	WG1129573	1	06/26/18 00:27	06/26/18 14:15	TRB
letals (ICP) by Method 200.7	WG1129709	1	06/26/18 10:52	06/26/18 10:52	KK
etas (a) f by metalog 200,7	WG1129573	1	06/26/18 00:27	06/26/18 14:15	TRB
			Collected by	Collected date/time	Received date/time
808267-05 TUCUMBIA CITY SC-5 L1003909-05	WW		R. McWhorter	06/21/18 12:44	06/22/18 10:08
lethod	Batch	Dilution	Preparation	Analysis	Analyst
alculated Results	WG1129573	4	date/time	date/time	
et Chemistry by Method 130.1	WG1129573 WG1129709	1	06/26/18 00:27	06/26/18 14:18	TRB
letals (ICP) by Method 200.7		1	06/26/18 10:53	06/26/18 10:53	KK
1 / /	WG1129573	1	06/26/18 00:27	06/26/18 14:18	TRB

ACCOUNT: ESC - Decatur Lab

PROJECT: 1808267

SDG: L1003909

DATE/TIME: 06/28/18 16:35

06/26/18 14:18

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TRB

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker

Technical Service Representative

1808267-01 TUCUMBIA CITY SC-1 Collected date/time: 06/21/18 08:51

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.

Calculated Results

	Result	Qualifier	RDL	Dilution	Analysis	Batch
nalyte	mg/l		mg/l		date / time	
Hardness,calcium	187		2.50	1	06/26/2018 13:03	WG1129573

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	186		30.0	1	06/26/2018 10:47	WG1129709

Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	Batter
Calcium	74,7	$\underline{\vee}$	1.00	1	06/26/2018 13:03	WG1129573
Magnesium	3.43		1.00	1	06/26/2018 13:03	WG1129573

ACCOUNT: ESC - Decatur Lab

1808267

SDG: L1003909

DATE/TIME: 06/28/18 16:35 Page 13 of 34

1808267-02 TUCUMBIA CITY SC-2

Collected date/time: 06/21/18 09:51

Wet Chemistry by Method 130.1

Metals (ICP) by Method 200.7

Result

mg/l

186

Result

mg/l

78.2

3.60

# SAMPLE RESULTS - 02

Dilution

Dilution

Analysis

Analysis

date / time

06/26/2018 14:10

06/26/2018 14:10

06/26/2018 10:48

Batch

Batch

WG1129573

WG1129573

WG1129709

ONE LAB. NATIONWIDE

Calculated Results

Hardness (colorimetric) as CaCO3

Analyte

Analyte

Calcium

Magnesium

	Result	Qualifier	RDL	Dilution	Analysis	Batch
ıalyte	mg/l		mg/l		date / time	
Hardness,calcium	195		2.50	1	06/26/2018 14:10	WG1129573

RDL

mg/l

30.0

RDL

mg/l

1.00

1.00

Qualifier

Qualifier



<sup>2</sup>T <sup>3</sup>S <sup>4</sup>C <sup>7</sup>A <sup>8</sup>S<sup>6</sup>



ACCOUNT: ESC - Decatur Lab

PROJECT: 1808267

SDG: L1003909

DATE/TIME: 06/28/18 16:35 Page 14 of 34

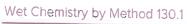
1808267-03 TUCUMBIA CITY SC-3 Collected date/time: 06/21/18 09:38

# SAMPLE RESULTS - 03 L1003909

ONE LAB. NATIONWIDE.

Calculated Results

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
.1alyte	mg/l		mg/l		date / time	Daten	
Hardness,calcium	196		2.50	1	06/26/2018 14:13	WG1129573	



	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l		date / time		
Hardness (colorimetric) as CaCO3	185		30.0	1	06/26/2018 10:49	WG1129709	

# Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilutio	n Analysis	Batch
Analyte	mg/l		mg/l	- 10170	date / time	DetCII
Calcium	78.7		1.00	1	06/26/2018 14:13	WG1129573
Magnesium	2.46		1.00	1	06/26/2018 14:13	WG1129573

ACCOUNT:

PROJECT:

SDG: L1003909 DATE/TIME:

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1808267-04 TUCUMBIA CITY SC-4 Collected date/time: 06/21/18 10:30

SAMPLE RESULTS - 04

ONE LAB. NATIONWIDE

Calculated Results

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
nalyte	mg/l		mg/l		date / time		
Hardness, calcium	195		2.50	1	06/26/2018 14:15	WG1129573	
Wet Chemistry by Metl	nod 130.1						
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l		date / time		
Hardness (colorimetric) as CaCO3	188		30.0	1	06/26/2018 10:52	WG1129709	
Metals (ICP) by Method	200.7						
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l		date / time		
Calcium	78.0		1.00	1	06/26/2018 14:15	WG1129573	
Magnesium	2.47		1.00	1	06/26/2018 14:15	WG1129573	

ACCOUNT:

PROJECT: 1808267

SDG: L1003909

DATE/TIME: 06/28/18 16:35 Page 16 of 34

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# 1808267-05 TUCUMBIA CITY SC-5 Collected date/time: 06/21/18 12:44

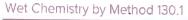
# SAMPLE RESULTS - 05

ONE LAB. NATIONWIDE.

# Calculated Results

	Result	Qualifier	RDL	Dilution	Analysis	Batch
alyte	mg/l		mg/l		date / time	
Hardness,calcium	ND		2.50	1	06/26/2018 14:18	WG1129573

# 2 T



	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	ND		30.0	1	06/26/2018 10:53	WG1129709





	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/f		mg/l		date / time	Date!!
Calcium	ND		1.00	1	06/26/2018 14:18	WG1129573
Magnesium	ND		1.00	1	06/26/2018 14:18	WG1129573





<sup>2</sup>T <sup>3</sup>S: <sup>4</sup>C <sup>5</sup>Si <sup>7</sup>A

Si

## Abbreviations and Definitions

Dilution

Result

MD Not detected at the Reporting Limit (or MDL where applicable). RDI Reported Detection Limit.

SDG Sample Delivery Group

The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes Analyte reported.

If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.

This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. Qualifier

The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.

Case Narrative (Cn)

A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.

This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. Sample Chain of Custody (Sc)

This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported. Sample Results (Sr)

This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and Sample Summary (Ss)

times of preparation and/or analysis.

Qualifier Description

The sample concentration is too high to evaluate accurate spike recoveries.

ONE LAB. NATIONWIDE

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ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

# State Accreditations

Alabama	40660		
Alaska	17-026	Nebraska	NE-OS-15-05
rizona	AZ0612	Nevada	TN-03-2002-34
rkansas	88-0469	New Hampshire	2975
alifornia	2932	New Jersey—NELAP	TN002
olorado	· · · · · · · · · · · · · · · · · · ·	New Mexico 1	n/a
onnecticut	TN00003 PH-0197	New York	11742
orida	E87487	North Carolina	Env375
eorgia		North Carolina 1	DW21704
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aho	923	North Dakota	R-140
nois	TN00003	Ohio-VAP	CL0069
diana	200008	Oklahoma	9915
wa	C-TN-01	Oregon	TN200002
nsas	364	Pennsylvania	68-02979
ntucky <sup>16</sup>	E-10277	Rhode Island	LA000356
ntucky <sup>2</sup>	90010	South Carolina	84004
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chigan	9958	Virginia	460132
nnesota	047-999-395	Washington	C847
ssissippi	TN00003	West Virginia	233
ssouri	340	Wisconsin	9980939910
ontana	CERTO086	Wyoming	A2LA

# Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AUIA LADALO SIALAR	
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EPA-Crypto	TNOOOO3	UJDA	P330-15-00234
	1461.01 TN00003	USDA	P330-15-00234

<sup>&</sup>lt;sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

# Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



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Page 2 of 2

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# O CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846 **ANALYSIS REQUEST**

MS4 Area - Srping Creek

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PAGE

160590 P SAMPLE TEMPERATURE
RECEIVED @ 314 4IR, CBOD, NG3NO2, 星 NH3 P TKN Parameters Chlorophyll LKM × Cond Hand REQUESTED ANALYSES Hq × JATOT 4 × DATE NOSNOSIC × EHN × Poly Pint H2SO4 Cool 8c DAAH × HECEWED BY (SYGNATURE) 221 × Amb Glass 1000mi Cool 6c Poly Pint HNO3 Cool Sc OC × Poly 1/2 Cool &c CNOD × ype СНГОВОРНУГГ × CBOD × × ALK GRAB COMP ENE 13886 RMCWHORTER à www.enersolv.com N × ENERSOLV PROJECT NUMBER SAMPLE SAMPLE TRANSFERIGRAS DATE: Decatur, AL 35601 0851 SM 2550B Tuscumbia Spring Creek Arrahyst Temp deg C Carte Time 0/21/18 6/24/18 RELINGUISHED BY (SIGNATURE 2851 RECEIVED BY: (SIGNATURE) SM 4500-0 G OTHER INFORMATION DATE DUE (REQUIRED) FIELD INFORMATION Aratyat Time Date 2 P CLIENT P.O. NUMBER Collector to complete shaded areas; as applicable CLIENT PHYSICAL ADDRESS SAMPLE DESCRIPTION 2220 Belline Rd 1245 SM 4500-CI D Tuscumbia Spring Creek SC-1 258-566-9220 HOME NUMBER S.S. Antilyst THE Time Cale 6/2/18 Clastic 10/21/18 N 0851 SM 4500H+B DATE Amalyst Time mcwhorter@enersolv.com 玉易 CENTED FOR LABORATORY USE BY ンなり FLOW CLIENT POINT OF CONTACT COMPANY/CLENT-NAME ISHED BY: (BAGNATURE 9083610 LAB NUMBER ENERSOLV INFORMATION R. McWhorter R. McWhorter SAMPLER ENERSOLV Comments M Start Start Times Stop Stop

Enersolv Form P Page 22 of 34

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# CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846 ANALYSIS REQUEST

MS4 Area - Srping Creek

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PAGE

C 160398 SAMPLE TEMPERATURE AIR, CBOD, NO3NO2, NH3 P TKN Parameters Chlorophyll NX1 × Cond Tard Hd REQUESTED ANALYSES RECEIVED @ D TOTAL DATE × NOSNOSIC × 40 SHN × D Poly Pint H2SO4 Cool 8c | + OHAH × RECEIVED BY: (SIGNATURE) SSI × Amb Glass 1000ml Cool 8c Poly Pint HN03 Cool Bc OG × Poly 1/2 Cool Bc COND × Type CHLOROPHYLL × CBOD × ALK × GRAB COMP ENE 13886 RMCWHORTER ô N www.enersolv.com × ENERSOLV PROJECT NUMBER MAPLE STATIJE: SAMPLE: SAMPLE
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Enersolv Form Page 23 of 34

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R. McWhorter

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R. McWhorter

# D CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 ANALYSIS REQUEST

1663969 60-MS4 Area - Srping Creek SAMPLE TEMPERATURE Alk, CBOD, NO3NO2, , o Parameters NH3 P TKN Chlorophyll LKN × Cond Hand REQUESTED ANALYSES Hd × PAGE RECEIVED @ LATOT 9 × NOSNOSIC × EHN × QAAH Poly Pint H2SO4 Cool 6c. × SSI × Amb Glass 1000ml Cool &c Poly Pint HNO3 Cool &c × 00 Poly 1/2 Cool 8c COND × 1,726 СНГОВОРНУГГ × CBOD × × ALK GRAB COMP ENE 13886 RMCWHORTER Www.enersolv.com 8 CV 256) 350-0846 ENERSOLV PROJECT NUMBER SAMPLE TRANSFERIGINAB 09.50 Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek Amelyst Temp Time Date TRANSPERIGHAB DATE: 12/18 Walk 8260 RELINGUISHED BY: (SIGNATURE) 1 2 SM 4500-0 G OTHER INFORMATION DATE DUE (REQUIRED) FIELD INFORMATION Anniyst CLIENT P.O. NUMBER Time Date OQ W Collector to complete shaded areas, as applicable CLENT PHYSICAL ADDRESS SAMPLE DESCRIPTION 2220 Beltine Rd PHONE NUMBER SM 4500-CI D Tuscumbia Spring Creek SC-3 256-568-9220 (32/ Analysi TRC Oete 08.30 9 SM 4500H+B Attelyst MicWhorler@enersolv.com SAMPLE COLLECTED BY Date Time 五名 CLIENT POINT OF CONTACT FLOW BC8767 03 MOUS ED BY (BIGNATURE) COMPANYCLENT NAME LAB NUMBER ENERSOLV

Enersolv Form F Pane 24 nf 34 Accepted with Exception

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rmcwhorter@enersolv.com sawpre coulected by

R. McWhorter

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LAB NUMBER ENERSOLV

CLIENT POINT OF CONTACT

ENERSOLV

R. McWhorter

CLIENT EMAIL

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SAMPLE TEMPERATURE AIK, CBOD, NO3NO2, Parameters Cond RECEIVED @\_ Poly 1/2 Cool Sc ype ð Temp deg C FIELD INFORMATION Collector to complete shaded areas, as applicable E P Darle E 3 Date INFORMATION SAMPLER

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Enersolv Form Page 25 of 34



# ANALYSIS REQUEST ) CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

MS4 Area - Spring Creek

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PAGE

16071 3 SAMPLE TEMPERATURE Mr. CBOD, NO3NO2, Parameters NH3 P TKN Chlorophyll Hard REQUESTED ANALYSES X RECEIVED @ LKM × DATE JATOT 9 × NOSNOSIC Poly Pint H2SO4 Cool &c. EHN × RECEIVED BY (BICHATURE) × **GRAH** Amb Glass 1600ml Cool 8c Poly Pint HING3 Cool &c HU Poly 1/2 Cool Bc COND × ype CHLOROPHYLL CBOD × HTA × COMP 뵇 ENE 13886 RMCWHORTER www.enersolv.com ð GRAB Ň × Tuscumbia, AL 35674 ENERSOLV PROJECT NUMBER TRANSFERICIAE TIME 124 SM 2550B EXPEDITED: REPORT DELIVERY (SURCHARGE) Anatyet Temp deg C Dete Time TRANSFER/GRAS DATE 0/21/18 Walle 676 1256 RELINGLASHED BY (SIGNATURE) ECENED BY (SIGNATURE) SM 4500-0 G 202 East 6th Street
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Energativ Form Page 26 of 34

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# ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of 1 MS4 Area - Srping Creek

SAMPLE TEMPERATURE Enersolv Form FLD-020-SOP A rev. 5 Alk, CBOD, NO3NO2, RECEIVED @ プイト HH. NH3, P. TKN Parameters Chlorophyll Accepted with Exception LKN × Cond Hard REQUESTED ANALYSES Hd JATOT 9 DATE DATE NO3NOSIC × EHN × Poly Pint H2SO4 Cool 6c |RELINQUISHED BY: (SIGNATURE) **ДИАН** × RECEIVED BY: (SIGNATURE) SST × Amb Glass 1000ml Cool 6c Poly Pint HNO3 Cool 6c OG × Poly 1/2 Cool 6c COND Type T CHLOROPHYLL Rejected CBOD ALK × GRAB COMP **ENE 13886 RMCWHORTER** à www.enersolv.com × Accepted ENERSOLV PROJECT NUMBER SAMPLE TRANSFER/GRAB TIME SAMPLE STATUS: E S Decatur, AL 35601 085 SM 2550B Tuscumbia Spring Creek
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# ANALYSIS REQUEST A CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of 1
MS4 Area - Srping Creek

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# ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR. ALABAMA 35601

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CLIENT EMAIL

# ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601

しても SAMPLE TEMPERATURE Enersolv Form FLD-020-SOP A rev. 5 MS4 Area - Srping Creek Alk, CBOD, NO3NO2, of EME. Parameters NH3, P, TKN Chlorophyll Accepted with Exception **TKN** × Hard Cond REQUESTED ANALYSES Hd RECEIVED @ PAGE JATOT 9 × DATE **NO3NOSIC** EHN × **ПЯАН** RELINGUISHED BY: (SIGNATURE) × RECEIVED BY: (SIGNATURE) SSI × Amb Glass 1000ml Cool 6c Poly Pint H2SO4 Cool 6c Poly Pint HNO3 Cool 6c DO × Poly 1/2 Cool 6c COND × Type CHLOROPHYLL Rejected CBOD ALK × COMP **ENE 13886 RMCWHORTER** ð GRAB www.enersolv.com -× ENERSOLV PROJECT NUMBER Accepted (256) 350-0846 SAMPLE TRANSFER/GRAB TIME MPLE STATUS 1036 PATE DE Decatur, AL 35601 SM 2550B Tuscumbia Spring Creek CITY/STATE/ZIP deg C Analyst Temp Date Ē TRANSFER/GRAB 81/12/0 6/21/8 RELINQUISHED BY: (SIGNATURE) 103 SAMPLE DATE RECEIVED BY: (SIGNATURE) SM 4500-0 G OTHER INFORMATION DATE DUE (REQUIRED) FIELD INFORMATION Analyst Dale CLIENT P O NUMBER Time Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDRESS SAMPLE DESCRIPTION 2220 Beltine Rd SM 4500-CI D Tuscumbia Spring Creek SC-4 256-566-9220 124 PHONE NUMBER Analyst TIME Ng/ Time TRC TRC Date × SM 4500H+B 0 9 Analyst rmcwhorter@enersolv.com Time Date 표교 May FLOW CLIENT POINT OF CONTACT CEIVED FOR LABORATORY US ELINGUISHED BY (SIGNATURE) 50930704 COMPANY/CLIENT NAME LAB NUMBER CEIVED BY: (SIGNA) URE ENERSOLV INFORMATION R. McWhorter R. McWhorter SAMPLER

Comments

Date Time Stop Date Stop

Page 31 of 34



# ANALYSIS REQUEST / CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

PAGE 1 of MS4 Area - Spring Creek	
PAGE Area - Si	jo
	-
	PAGE

City of Tuscumbia		CLIENTP	O NUMBER	ENERS	1289C	ECT NUMBER DATCHAULO DITED	OTTE O	_		2						
CLIENT POINT OF CONTACT		CLIENT PHYSICAL ADDRESS	RESS	CITYR	ATE/ZIP	CLASIA	NIEN NIEN		-	Ž	KEWOES IED		<u>Z</u>	4	ANALYSES	
Bo Stanley		202 East 6th Stree	et e	$\neg$	Tuscumbia, AL	35674						-			_	
ostan29@comcast	ter.	(256)386_5674	OINER INTOR	MALICIA					_	-1-		_			_	
SAMPLE COLLECTED BY		EXP	EDITED REPO	EDITED REPORT DELIVERY (SURCHARGE)	RCHARGE)			_	IAF							
		IAD	DATE DUE (REQUIRED)	RED)					100		H		SIC	יך		
ENERSOLV LAB NUMBER	SAM	SAMPLE DESCRIPTION		SAMPLE TRANSFER/GRAB DATE	SAMPLE TRANSFER/GRAB TIME	E GRAB GRAB	AB COMP	ALK	CHFOE	COND		DAAH EHM	ONEON	ATOT 9	LKN	
108401.05	SC Equipment Blank	t Blank		8/11/0	1244	×		-	-	+ +	×	+	×	+	X	
											++					
												-		+	F	1
Collect	or to complete s	Collector to complete shaded areas, as applicable	plicable										SAM	SAMPLE TEM RECEIVED @	SAMPLE TEMPERATURE	ERAT
SAMPLER		FIELD IN	NFORMATION	NOI			Ŷ		Ţ	Type		$\mathbb{H}$	П	П	Paran	Parameters
Start	Hd F. Hd	TRC	OG E	10.26	Temp		-	٥	Only 400 Cool 60	9				¥	Alk, CBOD, NO3NO2,	NO3
Start	Date   6/2/	// Date	Date	tolarla	Date		- 0		23 112			+	d		3	Cond
Stop	Time /7c/	Time	Time	175601	Time		7	AMD	Amb Glass 1000ml Cool 6c		00	1	1		Chlor	Chlorophyll
	Analyst R.	Analyst	Analyst		Analyst	+	+	Poy	Poly Pint HNO3 Cool 6c	<u>ဒ</u>	9 <u>9</u>	7	DI		Hard	5
	SM 4500 H+B	SM 4500-CI D	SMA	SM 4500-O G	SM 2550B	-	+					3	1			
PELINDINGHED BY: (SIGNATURE)	DATE	THME	RELINQUISHED	RELINQUISHED BY: (SIGNATURE)		DATE	THME	7 0 7	POIY PINT H2SO4 COOI BC	O4 CC IQUISHE	ol Sc BY: (SIG	NATURE		DATE	NH3 P.	TKN FIME
CEIVED BY: (§ GNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	(SIGNATURE)		DATE	TIME		RECE	IVED BY:	RECEIVED BY: (SIGNATURE)	RE)		DATE	ini ini	TIME
CEIVED FOR LABORATOR MUSE	TOWN TURE)		BATE OF IN	TIME 33	SAMPLE STATUS:	LE STATUS: Accepted	-		Rejected				cepte	- <u>\$</u>	Accepted with Exception	- indition

Enersolv Field Calibration Record - pH Measurement
For all field instruments: Calibration/Confirmation Interval - Prior to each use, but not more than daily
Calibration Environmental Conditions: Room temperature

Calil	prated By: K. Meuh A	Date: /z	1/18	Time:	080	5
	pH Meter Calibration - Equ	ipment number: 24	031			
		7.00 pH buffer Acc. Range 7.0 +/- 0.1	Acc.	0.00pH buffer Range 10.0+/- 0.1	Accep Criteria Slope 9	met?
Rea	gent ID - Pre-calibration	GC82604		82609	Yes	No
Valu	ue before calibration, s.u.	7.1		10.1		
Obs	erved pH Buffer Temp. before pration, °C	304		30.6		
	rection Factor (see chart)	6		0		
Fina calib	I pH Buffer Temp. before pration, °C	31.0		31.0		
Fina	l Calibration					
Rea	gent ID - Post-calibration	EC82604	F	182609		
Valu	e Final calibration, s.u.	7.0		10.0		
		7.00 pH buffer Acc. Range 7.00+/	10.0 pH bu Acc. Range 10			
	Reagent ID	E(82604		EC824	009	
	Post Calibration pH value	7.0		10.		
	Observed Buffer Temp., °C	31.6		1.6		
	Correction Factor	0	0			
	Final Buffer Temp., °C	31.6	31.6			
any. c	lient sample pH measurement v	was <u>less than 5.0 s.u.</u> , perf	orm chec	k on 4.0 pH buffer		
	fer Cal., if required Date/time: _				•	
		0 pH buffer, Acc. Rang	e 4.00+/-0	- Land	•	
		0 pH buffer, Acc. Rang	e 4.00+/-0	- Land		
	4.0	0 pH buffer, Acc. Rang t ID:	e 4.00+/-0	- Land		

Note: If equipment calibration fails to meet acceptance limits, the equipment must be taken out of service and tagged for repair. Enersolv form FLD-030-SOP A-1 rev. 7 2/14/18

Page 33 of 34

# **Enersolv Field Calibration Record**

en meter eading	Calibration successful?  Yes No
.47 76.2 10	Yes No
76.2	
2.0	
1410	10 NTU
Transpillation phone applicate	□ NA
	, uS

Note: If equipment calibration fails to meet acceptance limits, the equipment must be taken out of service and tagged for repair.

Enersolv form FLD-030-SOP A-3 rev. 7



September 04, 2018

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601

Jimmy Wilson

We appreciate the opportunity to provide our services to you on this project. Please find attached the data for the sample(s) listed below:

LabNumber	Sample Description	Date/Time Collected	Date Submitted
1811342-01	Tuscumbia City SC- 1	8/24/18 07:50	8/24/18
1811342-02	Tuscumbia City SC- 2	8/24/18 08:15	8/24/18
1811342-03	Tuscumbia City SC- 3	8/24/18 08:45	8/24/18
1811342-04	Tuscumbia City SC- 4	8/24/18 09:18	8/24/18

Pace National-Decatur is accredited to ISO/IEC 17025:2005 by ANSI-ASQ National Accreditation Board (ANAB) and to the TNI 2003 Standard by the Florida Department of Health. Our quality system also meets relevant quality system requirements of ISO 9001:2008. Not all tests performed by ESC-Decatur are covered by these accreditations. Tests within our scope of accreditation are indicated by an asterisk (\*) in the Test Result section of this report. Tests not included in the accreditations are performed in accordance with ESC-Decatur's Standard Operating Procedures and the quality control program using, where applicable, USEPA methodology.

This cover page and the attached chain-of-custody record(s) are integral parts of your report. Pace National-Decatur considers this report your official record. This information shall remain in Pace National-Decatur's active database for a period of one (1) calendar year before archiving. Any replacement of this information after archiving may result in an administrative fee to cover the cost of retrieval.

If you have any questions or would like more information regarding these analyses, please call us at (256) 350-0846.



# SAMPLE RESULTS REPORT

Report Date/Time: 09/04/2018 13:40

## REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



NELAP Accredited Florida DOH #E871078

National-Decatur maintains National Environmental Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). Some tests included in this report may not be covered by this accreditation.

ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ADEM **Drinking Water** Certification No. 40160

Tests within the scope of accreditation are indicated by an asterisk (\*). This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of Pace

National-Decatur.

Analyte Name	Result	Units	Onal	Regulatory	

Analyte Name	Result	Units	Qual	Limit
Sample Point: Tuscumbia City SC-1  Anions by IC	mple ID: 1811342-01	Collected: 08/24/2	2018 Su	bmitted: 08/24/2018
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen  CAS: 14797-55-8	<0.260 <0.200	mg/l mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
Inorganics * Ammonia-Nitrogen CAS: 8013-59-0	0.176	mg/l		
* Carbonaceous BOD Chlorophyll a (corrected)	<3.00 <5.00	mg/l ug/l	D	
Conductance Total Alkalinity	196.0 91.4	umho/cm mg/l CaCO3		
<ul> <li>* Total Kjeldahl Nitrogen</li> <li>* Total Phosphorus</li> <li>* Total Suspended Solids</li> </ul>	<1.50 <1.00	mg/l mg/l		
On-Site Analysis	2.50	mg/l		
Dissolved Oxygen pH	4.50 6.5	mg/l su		



Report Date/Time: 09/04/2018 13:40

# SAMPLE RESULTS REPORT

REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



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ADEM Drinking Water Certification

through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

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	Analyte Name	Result	Units	Qual	Regulatory Limit
	Anions by IC	mple ID: 1811342-02	Collected: 08/24/2	2018 Su	bmitted: 08/24/2018
	Nitrate plus Nitrite-Nitrogen	1.21	mg/l		
	* Nitrate-Nitrogen CAS: 14797-55-8	1.21	mg/l		
	* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
	Inorganics  * Ammonia-Nitrogen  CAS: 8013-59-0	<0.100	mg/l		
,	Carbonaceous BOD	<3.00	mg/l	D	
	Chlorophyll a (corrected)	<5.00	ug/l	D	
	Conductance	314.0	umho/cm		
	Total Alkalinity	161	mg/l CaCO3		
a)	Total Ajoldani Milogen	<1.50	mg/l		
	Total Phosphorus	<1.00	mg/l		
*	Total Suspended Solids	<2.50	mg/l		
0	n-Site Analysis				
	Dissolved Oxygen	6.40	m = /1		
	рН	6.5	mg/l su		



# SAMPLE RESULTS REPORT

Report Date/Time: 09/04/2018 13:40

## REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



Florida DOH #E871078

NELAP Accredited

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Drinking Water Certification No. 40160

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Analyte Name	Result	Units	Qual	Regulatory Limit
Anions by IC	mple ID: 1811342-03	Collected: 08/24/2	018 Sul	omitted: 08/24/2018
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen CAS: 14797-55-8	3.87 3.87	mg/l mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0	<0.0600	mg/l		
* Ammonia-Nitrogen CAS: 8013-59-0	<0.100	mg/l		
* Carbonaceous BOD Chlorophyll a (corrected) Conductance	<3.00 <5.00 420.0	mg/l ug/l umho/cm	D	
Total Alkalinity  * Total Kjeldahl Nitrogen  * Total Phosphorus  * Total Suspended Solids	199 4.30 <1.00 <2.50	mg/l CaCO3 mg/l mg/l		
On-Site Analysis Dissolved Oxygen pH	6.35 6.4	mg/l mg/l su		



# SAMPLE RESULTS REPORT

Report Date/Time: 09/04/2018 13:40

## REPORT TO

Darrin Miller **Enersolv Corporation** 2220 Beltline Road SW Decatur, AL 35601



Accredited

Florida DOH

#E871078

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ESC-Decatur also maintains ISO/IEC 17025 accreditation through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.

ANAB Cert. #L2239 Testing ADEM Drinking Water Certification

Tests within the scope of accreditation are indicated by an asterisk (\*). This report may contain information that is confidential and/or proprietary. This information is intended for the addressee only and may not be copied or disseminated except in full without the written consent of Pace

Analyte Name		Result	Units	Qual	Regulatory Limit
Anions by IC	San	nple ID: 1811342-04	Collected: 08/24/	2018 Su	bmitted: 08/24/20
Nitrate plus Nitrite-Nitrogen  * Nitrate-Nitrogen		3.87	mg/l		
CAS: 14797-55-8		3.87	mg/l		
* Nitrite-Nitrogen CAS: 14797-65-0		<0.0600	mg/l		
Inorganics					
* Ammonia-Nitrogen CAS: 8013-59-0		<0.100	mg/l		
* Carbonaceous BOD					
Chlorophyll a (corrected)		<3.00	mg/I	D	
Conductance		<5.00	ug/l		
Total Alkalinity		425.0	umho/cm		
* Total Kjeldahl Nitrogen		203	mg/l CaCO3		
* Total Phosphorus		<1.50	mg/l		
* Total Suspended Solids		<1.00	mg/l		
		16.0	mg/l		
On-Site Analysis			- D		
Dissolved Oxygen		5.40			
pH			mg/l		
		6.5	su		



# SAMPLE RESULTS REPORT

Report Date/Time: 09/04/2018 13:40

# REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



Accredited

Florida DOH #E871078

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ANAB Cert. #L2239 Test ADEM Drinking Water Certification No. 40160

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All calculations are performed prior to rounding per EPA and Standard Methods requirements.

# Data Qualifiers:

Estimated BOD/CBOD value - sample dissolved oxygen depletion less than method required 2.0 mg/l. D

		Analysis Inform	ation		
1811342-02 1811342-02 1811342-03 1811342-03 811342-03 811342-03	Analysis  Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance Ammonia-Nitrogen Nitrite-Nitrogen Nitrate-Nitrogen Nitrate plus Nitrite-Nitrogen Total Phosphorus Total Kjeldahl Nitrogen Total Suspended Solids Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance Ammonia-Nitrogen Nitrate-Nitrogen Nitrate-Nitrogen Nitrate plus Nitrite-Nitrogen Total Phosphorus Total Phosphorus Total Phosphorus Total Suspended Solids Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Cotal Suspended Solids Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance Ammonia-Nitrogen Nitrite-Nitrogen Nitrite-Nitrogen	SpecificMethod  SM 2320B-2011 SM 5210B-2011 SM 10200 H SM 2510B SM 4500 NH3-C-2011 EPA 300.0 EPA 300.0 EPA 365.3 SM 4500-Norg C-2011 USGS I-3765-85 SM 2320B-2011 SM 10200 H SM 2510B SM 4500 NH3-C-2011 EPA 300.0	Analyse RAC JB JW LLW AH LLW LLW JW AH JRL RAC JB JW LLW LLW LLW LLW LLW LLW LLW LLW LLW	Built Date/ Time	08/29/2018 09:30



2220 Beltline Road SW Decatur, AL 35601 256.350.0846 www.pacenational.com

### SAMPLE RESULTS REPORT

Report Date/Time: 09/04/2018 13:40

#### REPORT TO

Darrin Miller Enersolv Corporation 2220 Beltline Road SW Decatur, AL 35601



Accredited

Florida DOH

National-Decatur maintains National Environmental Pace Laboratory Accreditation Program (NELAP) accreditation through Florida Department of Health (#E871078). included in this report may not be covered by this accreditation.

Some tests

ESC-Decatur also maintains ISO/IEC 17025 accreditation ANAB Cert. #L2239 Testing through ANSI-ASQ Accreditation Board for the specific tests listed in ANAB Certificate #L2239 scope of accreditation.



ADEM Drinking Water Certification

08/29/2018 09:30

#E871078 Tests within the scope of accreditation are indicated by an asterisk (\*).

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		dutiessee only and may not be coming	January M.	mulor proprietary. This information
1811342-03	Nitrate-Nitrogen	National-Decatur.	or disseminated exc	cept in full without the written conser
1811342-03 1811342-03 1811342-03 1811342-04 1811342-04 1811342-04 1811342-04 1811342-04 1811342-04 1811342-04 1811342-04 811342-04 1811342-04	Nitrate-Nitrogen Nitrate plus Nitrite-Nitrogen Total Phosphorus Total Kjeldahl Nitrogen Total Suspended Solids Total Alkalinity Carbonaceous BOD Chlorophyll a (corrected) Conductance Ammonia-Nitrogen Nitrite-Nitrogen Nitrate-Nitrogen Nitrate plus Nitrite-Nitrogen Total Phosphorus Total Kjeldahl Nitrogen	EPA 300.0 EPA 365.3 SM 4500-Norg C-2011 USGS I-3765-85 SM 2320B-2011 SM 5210B-2011 SM 2510B SM 4500 NH3-C-2011 EPA 300.0 EPA 300.0 EPA 300.0 EPA 300.0 EPA 300.0 EPA 305.3	LLW LLW JW AH JRL RAC JB JW LLW AH LLW LLW LLW	08/24/2018 14:10 08/24/2018 14:10 08/30/2018 06:45 08/27/2018 09:00 08/26/2018 14:40 08/28/2018 15:00 08/24/2018 15:30 08/24/2018 09:20 08/27/2018 08:00 08/24/2018 14:29 08/24/2018 14:29 08/24/2018 14:29
1811342-04	Total Kjeldahl Nitrogen Total Suspended Solids	SM 4500-Norg C-2011 USGS I-3765-85	JW AH JRL	08/30/2018 06:45 08/27/2018 09:00
	The results contained	l i 41 ·		08/26/2018 14:40

The results contained in this report are only representative of the sample(s) received.



# ANALYTICAL REPORT

#### **ESC - Decatur Lab**

Sample Delivery Group:

L1020837

Samples Received:

08/25/2018

Project Number:

1811342

Description:

Report To:

ESC Decatur

2220 Beltline Road SW

Decatur, AL 35601

Entire Report Reviewed By:

Kelly Mercer Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
1811342-01 TUSCUMBIA CITY SC-1 L1020837-01	5
1811342-02 TUSCUMBIA CITY SC-2 L1020837-02	6
1811342-03 TUSCUMBIA CITY SC-3 L1020837-03	7
1811342-04 TUSCUMBIA CITY SC-4 L1020837-04	8
GI: Glossary of Terms	9
Al: Accreditations & Locations	10
Sc: Sample Chain of Custody	11

#### SAMPLE SUMMARY

ONE LAB. NATIONWIDE

1811342-01 TUSCUMBIA CITY SC-1 L1020837-01	WW		Collected by R. McWhorter	Collected date/time 08/24/18 07:50	Received date/time 08/25/18 08:45
athod	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	7 11017 01
Wet Chemistry by Method 130.1	WG1158603	1	08/29/18 15:48	08/29/18 15:48	JER
Metals (ICP) by Method 200.7	WG1158056	1	08/27/18 18:45	08/29/18 12:27	CCE
			Collected by	Collected date/time	Received date/time
1811342-02 TUSCUMBIA CITY SC-2 L1020837-0	2 WW		R. McWhorter	08/24/18 08:15	08/25/18 08:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	,
Wet Chemistry by Method 130.1	WG1158603	1	08/29/18 15:48	08/29/18 15:48	JER
Metals (ICP) by Method 200.7	WG1158056	1	08/27/18 18:45	08/29/18 12:30	CCE
			Collected by	Collected date/time	Received date/time
1811342-03 TUSCUMBIA CITY SC-3 L1020837-03	3 WW		R. McWhorter	08/24/18 08:45	08/25/18 08:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	rindiyat
Net Chemistry by Method 130.1	WG1158603	5	08/29/18 15:59	08/29/18 15:59	JER
Metals (ICP) by Method 200.7	WG1158056	1	08/27/18 18:45	08/29/18 11:29	CCE
			Collected by	Collected date/time	Received date/time
811342-04 TUSCUMBIA CITY SC-4 L1020837-04	1 WW		R. McWhorter	08/24/18 09:18	08/25/18 08:45
fethod .	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	•
et Chemistry by Method 130.1	WCMERCO	-	0010011011011		
tals (ICP) by Method 200.7	WG1158603	5	08/29/18 16:01	08/29/18 16:01	JER



PROJECT: 1811342

L1020837

DATE/TIME: 08/31/18 13:12 PAGE: 3 of 16 All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Kelly Mercer Project Manager 1811342-01 TUSCUMBIA CITY SC-1 Collected date/time: 08/24/18 07:50

### SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 130.1

Analyte

Calcium

Magnesium

.nalyte Hardness (colorimetric) as CaCO3	Result mg/l 101	Qualifier	RDL mg/l 30.0	Dilution	Analysis date / time 08/29/2018 15:48	Batch WG1158603
Metals (ICP) by Method	200.7					

Dilution

1

Analysis

date / time

08/29/2018 12:27

08/29/2018 12:27

Batch

WG1158056

WG1158056

Qualifier

mg/l

34.7

2.28

RDL

mg/l

1.00

1.00

ACCOUNT: ESC - Decatur Lab

PROJECT: 1811342

SDG: L1020837

DATE/TIME: 08/31/18 13:12

PAGE: 5 of 16 1811342-02 TUSCUMBIA CITY SC-2 Collected date/time: 08/24/18 08:15

### SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE

Wet Chemistry by Method 130.1

nalyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Hardness (colorimetric) as CaCO3	mg/ <b>I</b> 168		mg/l 30.0	1	date / time 08/29/2018 15:48	WG1158603

### <sup>2</sup>\_T



	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Calcium	60.4		1.00	1	08/29/2018 12:30	WG1158056
Magnesium	2.91		1.00	1	08/29/2018 12:30	WG1158056









1811342-03 TUSCUMBIA CITY SC-3 Collected date/time: 08/24/18 08:45

### SAMPLE RESULTS - 03

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	Dilution	Analysis	Batch
nalyte	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	217	8	150	5	08/29/2018 15:59	WG1158603

#### Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	2010)
Calcium	83.1		1.00	1	08/29/2018 11:29	WG1158056
Magnesium	2.86		1.00	1	08/29/2018 11:29	WG1158056









1811342-04 TUSCUMBIA CITY SC-4 Collected date/time: 08/24/18 09:18

## SAMPLE RESULTS - 04

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 130.1

	Result	Qualifier	RDL	Dilution	Analysis	Batch
alyte	mg/l		mg/l		date / time	Batcii
Hardness (colorimetric) as CaCO3	207	В	150	5	08/29/2018 16:01	WG1158603

#### Metals (ICP) by Method 200.7

	Result	Qualifier	RDL	Dilution	ALui-		
Analyte	mg/l			Dilution	Analysis	Batch	
Calcium			mg/I		date / time		
	83.6		1.00	1	08/29/2018 12:33	WG1158056	
Magnesium	2.76		1.00	1	08/29/2018 12:33	WG1158056	













#### Abbreviations and Definitions

RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the
Qualifier	reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was (Below Detectable Levels). The information in the result in this column may state "ND" (Not Detected) or "BDL" (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect
ase Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data.
ample Chain of ustody (Sc)	Inis is the document created in the field when your samples were initially collected. This is used to verify the time and chain of custody also documents all persons (excluding commercial shippers) that the laboratory is requested to perform. This samples from the time of collection until delivery to the laboratory is that have had control or possession of the
ample Results (Sr)	In this section of your report will provide the results of all testing performed on your samples. These results are provided each sample will provide the name and method number for the contract the header line of each analysis section for
ample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	
-----------	--

Description

В

The same analyte is found in the associated blank.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing semple integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

### State Accreditations

Alabama	40660		
Alaska	17-026	Nebraska	NE OC 45 OF
Arizona	AZ0612	Nevada	NE-OS-15-05
Arkansas	88-0469	New Hampshire	TN-03-2002-34
California	2932	New Jersey-NELAP	2975
Colorado	TN00003	New Mexico 1	TN002
Connecticut		New York	n/a
lorida	PH-0197	North Carolina	11742
eorgia	E87487	North Carolina 1	Env375
eorgia 1	NELAP	North Carolina 3	DW21704
laho	923	North Dakota	41
inois	TN00003	Ohio-VAP	R-140
diana	200008		CL0069
wa	C-TN-01	Oklahoma	9915
insas	364	Огедол	TN200002
ntucky 1 6	E-10277	Pennsylvania	68-02979
ntucky 2	90010	Rhode Island	LA000356
ulsiana	16	South Carolina	84004
uisiana 1	Al30792	South Dakota	n/a
ine	LA180010	Tennessee 14	2006
	TN0002	Texas	T 104704245-17-14
ryland	324	Texas ⁵	LAB0152
ssachusetts	M-TN003	Utah	TN00003
higan	9958	Vermont	VT2006
nesota	047-999-395	Virginia	
sissippi	TN00003	Washington	460132
souri .	340	West Virginia	C847
tana	CERT0086	Wisconsin	233
	5EN 10000	Wyoming	9980939910 A2LA

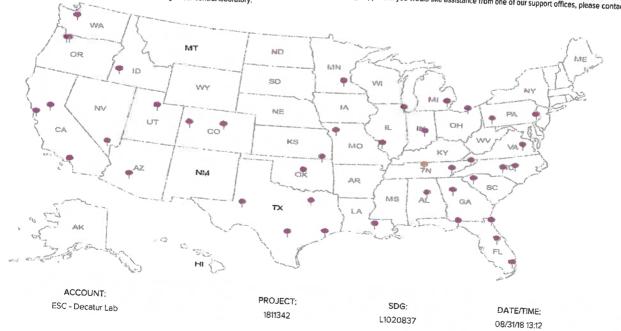
### Third Party Federal Accreditations

A2LA - ISO 17025	1461.01		
A2LA – ISO 17025 ⁵	1461.02	AIHA-LAP, LLC EMLAP	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	P330-15-00234

<sup>&</sup>lt;sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



PAGE: 10 of 16



### ORDER SUBCONTRACT

E802017

1901

Subcontracted Laboratory:

9585-852 (ST9) : Juoya

12065 Lebanon Road

Mount Juliet, TN 37122

Decatur, AL 35601 2220 Beldine Road SW ESC - Deception Sending Laboratory:

9890-05E-95Z :XEJ byous: 526-350-0846

Work Order: 1811342

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	1.4	Tuscumble City SC- 2	29/24/2018 Sample ID: 1811342-02
Please Calculate Hardness Please Calculate Hardness	810Z/1E/80	al Calcium	Containers Supplied:
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Comments	Due	Tuscumbia City SC-1	Sample 1D: 1811342-01
		Analysis Description	Analysis Code
			SPETIST LIBRIDATE

AAD SCREEN: <0.5 mP/hr

is appropriate credentials and accreditations of the subcontract laboratory have been verified for the analyses to be performed on the included in this accument as of the date samples were shipped to the subcontract isboardory.

ejeg

Please Calculate Hardness Please Calculate Hardness

Speldmes grownph willely

Please Calculate Hardness Please Calculate Hardness

Received By

08/31/5018

8102/16/80

810Z/IE/80

Total Calcium

Total Magnesium

Tuscumbia City SC-4

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:payddns siaujejuo

ample ID: 1811342-04

ICb DIS

8702/5018

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ANALYSIS REQUEST ALL CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

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Accepted with Exception

WENERSOLV.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD
2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601
(256) 350-0846

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PAGE

1/00037 MS: Area - Stping C. eek SAMPLE TEMPERATURE RECEIVED @ 3.3 Alk, CBOD, NO3NO2, Parameters X 1.1 Chlorophyll NOLL Accepted with Exception Tar REQUESTED ANALYSES NH3 P T Hd PTOTAL NOBNOSIC EHN 9 J GRAH Poly Pirt H2SOA Cool 6c | 1 RECEIVED BY (BIGNATURE) Amb Glass 1000ml Cool Sc. į, Od Poly-Pint HNO3 Cool 8c × Poly 1/2 Cool 8c GNOS × CHFOROBHAFF Lype Rejected CBOD × GRAB COMP ---× ENERGOV PROJECT NUMBER
ENE 13886 RMCWHORTER WWW.enersolv.com À, Shrile SAMPLE TRANSPERIORAS TRAE 0820 Accepted 200 Decalur AL 35501 THAPLE STATUS 815 SM 2550B PHONE NUMBER

256-566-9220 Tuscumbia Spring Craek

EXPEDITED REPORT DELVERY (SURCHARGE) Time deg G Analysi Dette SAMPLE TRANSFERGHAB DATE 90 8/2/10 820 RELINCOURHED BY: (SIGNATURE) 824 6.4 RECEIVED BY: (BICHM LIME) SM 4500-0 G DATE DUE (REQUIRED) FIELD INFORMATION CLIENT P.O. NUMBER Time 8 6 Date. Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADDRESS 2220 Beline Rd SAMPLE DESCRIPTION Tuscumbia Spring Creek SC 2 SW 4500-CI D ~ Analyst TRC F THE Date 820 1/2/8 SM 4500F+B mcWhorler@enersol/som Artenda Deter Contract 1 13 FLOW CLIENT POINT OF CONTACT CONTRACTOR BY THE STATE OF THE 50-Chelle ENERSOLV HONISHED BY. BIGNATURE RECEIVED FOR LABORATORY R. McWhorter R. Mc/Morter INFORMATION SAMPLER Comments: CLIENT FMAIL BOEIVED BY: (S. THE STATE Ster Stop Stop

WENEFEDILV

ANALYSIS REQUEST --- O. CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SWIDECATUR ALABAMA 36601

REQUESTED ANALYSES (40'0837 SAMPLETENDEDATION WS4 Area - Siping Creek ъ THO T. da Hd PAGE MATOT 9 NOSMOSIC EHN × GHAH × SST × 00 × COND CHEOROPHYLL CBOD × × CHAB COMP 69 ENE 13886 RMCWHORTER WWW energoly.com (256) 350-0846 ENERSOLV PROJECT NUMBER THANSE GREAD Decatur, AL 35501 Tuscumbia Spring Creek EXPEDITED REPORT DELIVERY (SURGHARGE) SAMPLE THANSHERICHAR DATE 81/20/18 DATE DUE (REQUIRED) CLIENT P.O. NUMBER Collector to complete shaded areas, as applicable CLIENT PHYSICAL ADORESS 2220 Beitine Rd PHONE RUNBER 256-566-9220 SAMPLE DESCRIPTION Tuscumbia Spring Creek SC-3 1 imewinditer@enersolv.com CLIENT POINT OF CONTACT FLOW ICOMPANYIGHENT NAME 11347 03 ENERSOLV LAB NUMBER R. McMhorter R. McWhorter ENERSOLV Comments CLIENT ENAM

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ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD 2220 BELTLINE ROAD SW DECATUR, ALABAMA 35601 (256) 350-0846

MS4 Area - Srping Creek

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rincwhorter@enersolv.com	DIV.com		256-568-9220 T	Tussumbia Sor	Tuscumbia Spring Creek	reek				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ירה. מרה						+		
R. McWhorter		g <sup>i</sup>		OXYE DUE (REDUI)	EXTENTED HELOH THENCENT (SURCHARGE) DATE DUE (REDUINED)	SURCHARGE			7	e e	kH40		*-	4	SIC	-á, , ,	60		31
EVERSOLV LAB NUMBER		SAMP	SAMPLE DESCRIPTION		SAMPLE TRANSFERIGRAB DATE		PRANSFERGERS TANK	GRAB COMP	VEK.	GOBO	COND CHFOR	00	SS1 ORAH	EHIN	oneon	<b>∆101</b> €	IKW :	s i Kudi	1
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