



AUBURN

UNIVERSITY

**MUNICIPAL STORM SEWER SYSTEM (MS4) ANNUAL REPORT
REPORTING PERIOD APRIL 1, 2014 – MARCH 31, 2015**

Prepared by
AUBURN UNIVERSITY

STORMWATER MANAGEMENT COMMITTEE

Submitted March 2015

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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(d) incorporated by reference in the Alabama Administrative Code 335-6 as administered by the Alabama Department of Environmental Management (ADEM) and NPDES ALR040030 Phase II General Permit effective February 1, 2011.

The purpose of this Annual Report is to describe the compliance efforts reflected in the University's Stormwater Management Plan (SWMP). The Annual Report will identify the control measure specific efforts undertaken by Auburn University from April 1, 2014 through March 31, 2015 to reduce the discharge of pollutants from Auburn University's main campus to the maximum extent practicable (MEP) to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act (CWA).

The information contained within this Annual Report has been provided by those individuals that represent both academic and operational areas of campus. The collaborative effort continues to be strengthened by its diversity and includes the following individuals and their areas of responsibility or interest:

Mr. Donny Addison, Facilities Management - Waste Reduction & Recycling

Dr. Eve Brantley, Alabama Cooperative Extension Services (ACES)

Mr. Ben Burmester, Facilities Management – Campus Planning & Space Management

Mr. Jeffrey Dumars, Facilities Management - Campus Planning & Space Management

Mr. Malcolm Dailey, Facilities Management – Utilities & Energy

Mr. Gregory Forthofer, Facilities Management - Design Services

Dr. Sam Fowler, Water Resources Center

Ms. Rita Grub, Alabama Water Watch

Mr. Steve Johnston, Facilities Management - Landscape Services

Mr. Mike Kensler, Office of Sustainability

Mr. Dan King, Facilities Management

Mr. Eric Kleypas, Athletic Department Field Management

Mr. Tom McCauley, Risk Management & Safety

Mr. Buster Reese, Facilities Management, Construction Management

Mr. Eric Reutebuch, Alabama Water Watch

Ms. Amy Strickland, Office of Sustainability

MS4 Description

Auburn University is a large teaching and research institution located in Auburn, Lee County, Alabama comprised of approximately 1800 acres of contiguous property. Auburn University is one of the major land grant/ liberal arts and science universities in the southeast. The area surrounding Auburn University consists of residential property to the east and southeast, agricultural property to the southwest and west and urban city property to the north and east.

Control Measures

Stormwater management controls or Best Management Practices (BMPs) will be implemented to prevent pollution in stormwater discharges from Auburn University's main campus. State and federal regulations require BMPs addressing six minimum control measures to be part of the SWMP. Consistent with Part V.C. of the Permit, the Annual Report will describe the University's efforts performed during this reporting period to implement the established BMPs (Public Education & Outreach, Public Involvement & Participation, Illicit Discharge Detection & Elimination, Construction Site Stormwater Runoff Control, Post Construction Stormwater Management in New and Redevelopments and Pollution Prevention / Good Housekeeping for Municipal Operations) and will include:

1. The status of AU's compliance with Permit conditions, an assessment of the appropriateness of the identified BMPs, and progress towards achieving the statutory goal for each of the minimum control measures.
2. Results of information collected and analyzed during this reporting period, including any monitoring data used to assess the success of the SWMP at reducing discharge of pollutants to the MEP.
3. A summary of stormwater activities the University plans to undertake during the next reporting cycle.
4. Proposed changes to the University's SWMP.
5. All monitoring results collected during the reporting period in accordance with Part V. of the Permit.

BMP: Public Education and Outreach on Stormwater Impacts

Stormwater pollution prevention education leads to an informed and knowledgeable campus community that is more likely to support and comply with the BMP provisions. The targeted "Public" audiences of the University's SWMP are Auburn University faculty, staff, students and visitors, which populate the campus on any given day. Within these populations, only students in residence housing live on campus. All other students, employees and visitors reside in the surrounding communities.

Throughout this reporting period, Auburn University initiated activities consistent with the Stormwater Management Plan as follow:

Presentations and Events

Multiple presentations were offered by Auburn University throughout the course of this reporting period to promote water quality and stormwater management principles. Presentations were offered by a variety of different AU entities and for diverse AU and non-AU audiences.

Innovative Erosion & Sediment Control Research & Field Days (May and November 2014)

AU's Department of Civil Engineering in partnership with The Federal Highway Administration, AL. Department of Transportation and AU Engineering Continuing Education twice offered a two day workshop to learn the engineering behind the many erosion control measures commonly used. The primary goal of this field day is to provide industry participants exposure to innovative research being performed on commonly employed erosion and sediment control practices in both horizontal and vertical construction with hands-on field demonstrations. The field instructional session was held at the Auburn University-Erosion and Sediment Control Testing Facility (AU-ESCTF) and provided attendees with a hands-on opportunity to: (1) learn proper installation techniques on various erosion and sediment controls to achieve improved performance, (2) observe full-scale, channelized flow testing demonstrations. The events were a huge success drawing over two hundred attendees.



8th Annual Tallapoosa Basin Conference (May 2014)

Sponsored by AU Water Resource Center, Alabama Water Watch, Alabama Cooperative Extension System and AU's College of Agriculture; the purpose of the conference was to bring together all interested groups and agencies to learn about the plan for a more economically and ecologically sustainable management of the Tallapoosa River Basin. Topics covered during this FREE conference included: - an update on efforts to develop state water management policy, - an update on FERC relicensing in the Tallapoosa Basin, - an overview of water quality, biodiversity and university-based outreach and research in the Tallapoosa Basin, - a presentation on the award-winning environmental education program at Radney Elementary School in Alexander City, - updates on watershed stewardship activities in the Upper, Middle and Lower Tallapoosa sub-basins, and, - how-to for basin residents who want to do their part to minimize polluting our streams, rivers and lakes.



Alabama Water Watch Annual Get Together (June 2014)



On Saturday, June 28th volunteer monitors, members of the Alabama Water Watch Association and other AWW supporters gathered in Auburn, AL at the AWW Program Office in the CASIC building (Center for Advanced Science, Innovation, and Commerce) for the AWW Annual Get-Together. Multiple breakout sessions were offered to provide volunteers opportunities to enhance their knowledge and skills as water monitors.

Alabama Water Watch Program Updates (July 2014)

Alabama Water Watch is a citizen volunteer, water quality monitoring program covering all of the major river basins of the state. The mission of AWW is to improve both water quality and water policy through citizen monitoring and action. Established in 1992, AWW is a national model for citizen involvement in watershed stewardship, largely because of its three interrelated components: citizen monitoring groups, a university-based program, and a non-profit association. AWW uses EPA-approved monitoring plans with a community-based approach to train citizens to monitor conditions and trends of their local waterbodies. With a “data-to-action” focus, AWW helps volunteers collect, analyze, and understand their data to make positive impacts.

In July 2014, the AWW staff presented the many accomplishments and initiatives. Accomplishments over the past year identified the number of water quality records (3200) collected by citizen monitors, the number of different sites (400) and water bodies tested (200), the number of certified monitors (400) and the number of training sessions provided (79). Nearly 60% of all training sessions were led by non-AWW personnel who continue to have the initiative and interest to make an impact in the local community and watershed.

Birmingham Young Water Ambassador (BYWA) Program (July 2014)

Over 100 high school juniors and seniors from the Birmingham AI area participate in the BYWA.

The objective of the program is to increase the student’s awareness of water quality, conservation and pollution. The two day event was hosted by Auburn University’s faculty, staff and students from the College of Agriculture, College of Science and Mathematics, Alabama Cooperative Extension System, the Alabama Agricultural Experiment Station and the Department of Risk Management & Safety. Educational sessions were provided on a variety of topics including water quality, wetlands, stream assessments, water harvesting, conservation, fish population sampling and aquaculture.



AU Stream Team – Center for Forest Sustainability (July 2014)

Auburn University Center for Forest Sustainability (CFS) along with collaborating departments has created the 'Auburn University Stream Team' (AUST), a group of faculty and experts interested in high school student outreach. With this program, we engage area high school students interested in possible careers in natural resources, the environment, or the outdoors to



participate in our program. We selected student teams based on their application to participate in a year-long program that will introduce them to water resource careers, student experience at Auburn University, collecting meaningful water data at a local stream, and experience presenting their results to the public and their peers. We ultimately chose six high school teams (11 students total including 4 teacher sponsors) and invited them to attend a water symposium at Auburn University in July 2014. With the help of AUST, students are currently monitoring a local stream and applying what they learned. A second symposium in 2015 is planned for students to present their stream monitoring results and efforts to disseminate information to the public (guidance will be provided). Each student of the best judged team presentation will be awarded with a \$500 college scholarship. Consistent with the Auburn University Strategic Plan, primary goals for this program are to 1) increase awareness about urban streams to high school students and the public, 2) expose students to potential careers in water and natural resources, and 3) increase recruitment of students to Auburn University and its academic programs relevant to the management of natural resources.

Rain Garden Workshop (July 2014)

During this reporting period, the Alabama Cooperative Extension Services continued to offer rain garden workshops to the public to further promote their benefit as effective stormwater management elements to the landscape. During workshops offered in Anniston AL, homeowners and property managers become more aware of the issues of stormwater management; many of them are choosing to manage the runoff from their homes and businesses with rain gardens. Rain gardens are shallow depressions and serve as landscape features that can effectively collect and treat stormwater and reduce localized flooding. Rain gardens can be integrated into the existing landscape as a retrofit or be included in the initial landscaping plan.



Educational Tour and Workshop for Clemson University (August 2014)

At the request of University individuals responsible for implementing a Phase II Stormwater Program for Clemson University, AU hosted a one day stormwater workshop. The workshop provided an excellent opportunity for representatives from both Universities and the City of Auburn to learn about the challenges and opportunities of implementing a stormwater program at a large university.



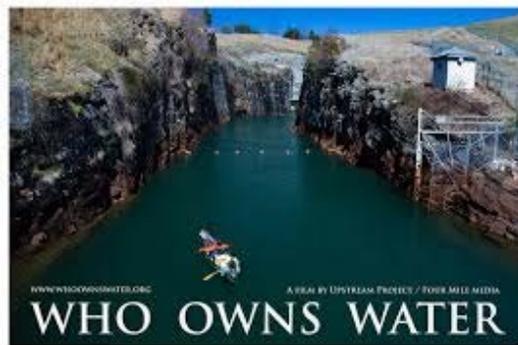
Alabama Section of American Water Resources Association Symposium (September 2014)

Auburn University representatives serve as committee members to AWRA AL Section and multiple researchers provided presentations on emerging research related to water protection. This year's conference was entitled Water and Energy Relationships and included AU presentations on water quality, water availability, wetlands and waters of the State, groundwater availability, water management and water resource education and stewardship.



Who Owns Water (October 2014)

Documentary filmmakers David and Michael Hanson presented their new release, *Who Owns Water*, in a special Auburn University screening. The School of Communication and Journalism's Media Studies program partnered with the Office of Sustainability and Auburn for Water to host the event. The public was invited and admission was free.



Three states—Alabama, Georgia, and Florida—are battling over the diminishing water of the Chattahoochee River that saw Atlanta go from a small town to one of the fastest growing cities in the United States.

Who's in control? It depends on who you talk to. In this stunningly-shot, award-winning documentary film, Michael and David Hanson paddle the river from the Appalachian Mountains to the Gulf of Mexico meeting people and listening to their water-level perspective. All along their 542 mile journey, the brothers seek to answer the question, *Who Owns Water?*

2015 Alabama Green Ribbon School (January 2015)

Auburn University is the first university to receive the 2015 Alabama Green Ribbon Schools Award. The State Department of Education selection was based upon the University's efforts to improve the environment and promote environmental and outdoor education.

The award was given in collaboration with the Alabama Commission on Higher Education and also makes Auburn a university nominee for the national Green Ribbon Awards, given out by the U.S. Department of Education.

LEED Green Associate Training (March 2015)



The LEED green building rating system -- developed and administered by the U.S. Green Building Council, is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being. Just as Buildings can be LEED certified, people in the sustainable construction industry can become LEED Professionals. The LEED Green Associate (GA) credential is the only entry level sustainability designation and shows employers and clients that you have

certified knowledge in the green building industry. Since 2010, 36% of campus square footage is LEED certified. In March 2015, AU hosted a LEED Green Associates Training.

Lee County Water Festival (May 2014 & March 2015)

Continuing the annual tradition of teaching elementary students about the protection of water, Auburn University hosted the annual Lee County Water Festival. An estimated 750 Lee County fourth graders participated in the May 2014 event. AU hosted the event on March 2015 for approximately 1000 Lee County fourth graders. The students were taught about water protection, pollution prevention and recycling.



Office of Sustainability Promotes Water Conservation through Education and Outreach.

Throughout this reporting period, Auburn University's Office of Sustainability offered multiple learning sessions and educative tools such as "This is Sustainability and This is Auburn" Prezi linked below to promote Sustainability and the many efforts already witnessed here on campus.



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[This is Sustainability and this is Auburn 2014 Story](#)

Web Resources

Information related to water quality and stormwater management continues to be provided from a wide variety of Auburn University web sites. The AU Department of Risk Management and Safety provides the central web resource specific to the SWMP and the requirements of the Phase II General Permit NPDES ALR040030 through the webpage located at auburn.edu/rms/stormwater. Other Auburn University websites which provide information relating to stormwater BMPs and research supporting BMPs include:

- Alabama Cooperative Extension System: aces.edu/main
- Alabama Water Watch Association: alabamawaterwatch.org
- College of Architecture, Design & Construction: cadc.auburn.edu/construction
- College of Science & Mathematics: auburn.edu/cosam
- College of Engineering: eng.auburn.edu
- Environmental Institute: auei.auburn.edu
- Office of Sustainability; auburn.edu/sustainability
- Facilities Management: auburn.edu/administration/facilities

Measure Specific Evaluation

Auburn University continued to be successful in providing a variety of information related to stormwater management, water quality and water conservation to AU and non-AU entities. The University strives to engage all faculty, staff and students through education to serve the community and to become more involved in making a positive impact.

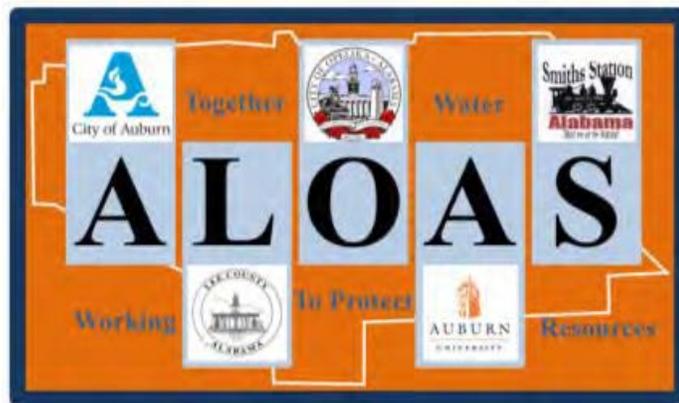
Measure specific activities planned for the next reporting period

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

1. Sponsor the Alabama Water Resource Conference set for September 2015.
2. Host the annual Lee County Water Festival (March 2016).
3. Continued promotion of Parkerson Mill Creek (PMC) and the PMC Watershed Management Plan.

BMP: Public Involvement & Participation

Consistent with the Public Education and Outreach measures previously identified, Auburn University continued to involve others within the University community to become better aware of the responsibilities and activities associated with stormwater management. In addition, Auburn University partners with other state entities to pursue research and advances in the management of stormwater.



Auburn University is an active member of **ALOAS**, a citizen's advisory committee comprised of representatives from the City of Auburn, Lee County, the City of Opelika, Auburn University and the City of Smith Station. The committee allows individuals from the community to interact with the ALOAS entities and provide and receive feedback related to stormwater activities planned. This also promotes a positive forum for the community to participate in the developments of the committee. The committee has authority and direct input into regional stormwater management efforts. The ALOAS committee met on a quarterly basis throughout this reporting period to discuss issues and coordinate community activities related to stormwater management. During this reporting period, ALOAS was responsible for the production of two publications entitled “**Low Impact Development (LID) Handbook**” and “**Stream Gages**” to further promote water quality and the importance of rethinking stormwater management when designing a development or redevelopment. Links to these publications and others created by ALOAS can be found at the Department of Risk Management and Safety’s website: auburn.edu/rms/stormwater.

Auburn University continued to be an active member in local watershed improvement and protection organizations including Save our Saugahatchee (SOS) and The Friends of the Chewacla Creek and the Uphabee Watershed. The organizations are dedicated to the restoration, preservation and enhancement of the watershed to include Parkerson Mill Creek. This involvement has proven to be beneficial as ideas and observations are commonly shared related to watershed preservation and protection.

The Parkerson Mill Creek Watershed Plan (PMCWP) is a long-term effort, with the ultimate goal of attaining the TMDL for Parkerson Mill Creek and restoring the stream to its fish and wildlife use status. During this reporting period, the PMC Watershed Implementation Project submitted its [Final Report](http://aces.edu/natural-resources/water-resources/watershed-planning/watershed-final-report)

projects/parkersonmillcreek/documents/2014PMCFinalReport.pdf). Previous reports have identified the many activities that have been accomplished to support the initiatives outlined in the PMCWP. Notably, the activities performed have yielded reduction in non-point source pollutant loadings (e.g. pathogens, nitrogen, phosphorus, and sediment). The EPA accepted model known as STEPL was used to assess pollutant load reduction quantities after BMPs were implemented.

- Total pollutant load reduction from newly installed landscaping on campus – N - 20.6 lb/yr; P – 3.4 lb/yr; BOD – 118.9 lb/yr; TSS - 1532.8 lb/yr
- Pollutant load reduction from installed practices - N – 202.4 lb/yr; P – 47.7 lb/yr; BOD – 171.2 lb/yr; TSS – 66.9 lb/yr
- Total pollutant load reductions - N – 223 lb/yr; P – 51.1 lb/yr; BOD – 290.1 lb/yr; TSS – 1599.7 lb/yr

Storm Drain Markers

Nearly 80% of all stormwater inlets on campus were previously marked with the AU/PMC storm drain marker. During this reporting period, additional markers were placed throughout campus by volunteer student, staff and faculty as a means to visually educate the community regarding the need to protect storm drains from pollution.



Alabama Water Watch

Thanks to the concerted efforts of the AWW staff, our dedicated volunteer trainers, and dozens of veteran monitors and newly-certified monitors, 2014 was a very productive year. In Lee County alone, AWW accomplishments included:

- 6 water chemistry workshops,
- 5 bacteriological workshops,
- 2 "Exploring Alabama Living Streams" Workshop
- 4 volunteer monitor recertification sessions,
- 2 Training of Trainer Workshops



The annual report for Alabama Water Watch compiles all educative efforts during the 2014 year and can be found at alabamawaterwatch.org/about/reports and in the link below.

[AWW Annual Report 2014](#)

Auburn University – Erosion Sediment Control Testing Facility (AU-ESCTF)

During this reporting period, Auburn University's Department of Civil Engineering teamed with the Alabama Department of Transportation (ALDOT) to construct the AU-ESCTF, located in Opelika, Ala, at the National Center for Asphalt Technology Test Facility. The



AU-ESCTF was designed and constructed to assist ALDOT in meeting their environmental commitments to protect state waterways from polluted stormwater runoff associated with construction activity.

The current challenge facing the construction industry includes a lack of scientific understanding of traditional best management practices for erosion and sediment control and the utility of new technologies.

Researchers at the AU-ESCTF are working to develop standardized large-scale testing methods for evaluating erosion and sediment control measures typically employed on highway construction projects. Through the primary missions of the AU-ESCTF (research and development, product evaluation, and training), the testing facility aims to provide information that can be adopted by state departments of transportation (DOTs). Adoptions of tested and improved practices to DOT Standard Specifications assist designers and contractors in minimizing the environmental impacts of sediment-laden stormwater emanating from construction sites. As research and technology progresses, researchers aim to continually improve the effectiveness of current erosion and sediment control practices used in the field, and develop new and novel treatment techniques

AU Water Resource Center

Continuing throughout this reporting period, the AU Water Resource Center provided support to research having an impact on water quality and the environment to include:

The USDA/AFRI project, titled “A systems approach to identifying and filling gaps in and between knowledge and practice in production and distribution of local and regional foods for a more secure food supply chain”



United States
Department of
Agriculture

National Institute
of Food and
Agriculture

An innovative project based at Auburn University aimed at ensuring the quality and safety of locally and regionally produced meat. The first phase of the project consists of on-farm data collection - bacterial sampling of troughs, barns and equipment as well as microbial sampling of streams located on or near each farm to evaluate water quality.

Alabama Water Resources Research Institute (AL WRRI) Bacterial Contamination Study

AU researchers and outreach specialists are partnering with citizen volunteer monitoring groups on two major lakes in Alabama to evaluate water quality at public use areas and investigate better ways to protect the public's health. The Alabama Water Resources Research Institute awarded AU researchers to sample public swimming areas at lakes Martin and Logan Martin alongside AWW-certified bacteriological monitors.

Expected project benefits and information include the following:

- Development of recommendations for swim beach/recreation area monitoring protocols that are most protective of human health;



Lake Martin added to swim guide site

Extensive Auburn University study affords 100 percent rating for Wind Creek State Park Beach

STORY BY NITELY LEE
PHOTOS & GRAPH COURTESY OF AU WATER RESOURCE CENTER

Lake Martin's Wind Creek State Park beach has recently earned a 100 percent rating as one of a handful of clean beaches throughout the state of Alabama. The past year's annual water quality monitoring program conducted through the Auburn University Alabama Water Watch (AWW) office in the AU Water Resources Center and local Lake Water Volunteers, and local Lake AWW partners, has demonstrated the number of the area's beach water quality monitoring stations in the Wind Creek State Park area. "It was a pleasure to see the results of the study and we will continue to monitor the water quality in the future," said Dr. Lee. "The study was funded by the U.S. Environmental Protection Agency through the Water Resources Research Institute. Research was conducted by Auburn University researchers at the Lake Martin State Park and Wind Creek State Park. The study was conducted in conjunction with the Lake Martin Volunteer Water Quality Initiative. Samples were taken from 100 monitoring stations per 100 miles of lake water." The samples taken from Lake Martin were some of the best in the state, with 100 percent of the samples meeting the 100 percent rating.

The study was funded by the U.S. Environmental Protection Agency through the Water Resources Research Institute. Research was conducted by Auburn University researchers at the Lake Martin State Park and Wind Creek State Park. The study was conducted in conjunction with the Lake Martin Volunteer Water Quality Initiative. Samples were taken from 100 monitoring stations per 100 miles of lake water.

20 LAKE
JANUARY 2015

- Dissemination of project results, conclusions and recommendations to AWW volunteer monitors throughout the state and to state agencies involved in monitoring public waters, and;
- Improved monitoring of public swimming and recreational-use areas in inland waters based on the results and recommendations of this project.

[Lake Martin Study - Preliminary Findings:](#)

aaes.auburn.edu/water/projects/documents/WRRlarticle-LakeMag-1-2015.pdf



Watershed Clean-Up Efforts

Auburn University performed a variety of community events including stream clean-ups, invasive floral species removal projects and live staking within the watershed to further promote awareness and measures that can be taken to better protect our watershed. The following table provides a summary of the events that took place during this reporting period.

Location	Date	Participation	Participants
Wire Road to Intramural Field House	3-24-15	4	AU Faculty & Staff
Magnolia Ave to Thach Ave	2-21-15	24	AU Faculty, Students & Visitors
Live staking along PMC	12-2-2014	14	AU Students, Staff, Faculty & Visitors
Campus Wide	Fall 2014 – Spring 2015	34 Groups/Individuals Adopt-A-Spot	AU Students, Staff & Faculty

No Impact Week (March 2015)

Each year, Auburn University students, faculty, and staff are invited to conserve and reduce their impact on the environment as they participate in No Impact Week from March 8 - 15. No Impact Week is an international initiative designed to promote sustainability by challenging people to live lifestyles that are better for them and for the environment. This week-long challenge is hosted by the College of Liberal Arts' Community and Civic Engagement Initiative, co-sponsored by International Paper, and in collaboration with the AU Academic Sustainability Programs.

The themes for each day were Trash, Transportation, Consumption, Food, Water, Energy, Giving Back and Eco Sabbath



Auburn Student Government Association's Big Event
(March 2015)

The BIG Event gives thousands of Auburn students the opportunity to give back to the Auburn & Opelika community on March 14th, 2015. As students go into the community to serve its homeowners through yard work or housework, the student body was able to make a positive impact.

Measure Specific Evaluation

Throughout this reporting period, Auburn University continued to foster an open and collaborative relationship with the many different groups on and off campus through innovative research, the development of the AU-ESCTF, the continued and exhaustive efforts of the Water Resource Center and AWW, SGA, and Office of Sustainability and many more. Through these continued efforts, our connectivity with the environment and the importance of stormwater management is better understood by all involved.

Measure specific activities planned for the next reporting period

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

1. Continue on-going effort to install storm-drain markers throughout campus.
2. Continue partnership with ALOAS to address local stormwater challenges and community concerns.
3. Improve upon the Game Day Recycling success
4. Continue to promote sustainability initiatives to include stormwater management best management practices.

BMP: Illicit Discharge Detection & Elimination

During this reporting period, Auburn University continued to utilize the stormwater infrastructure engineering assessment that was completed in 2012 to prioritize areas requiring further assessment and/or repair along with field observations by AU Facilities Management – Utilities and Energy, Mechanical Shops, Water Resources and Risk Management & Safety to investigate sources of potential illicit discharges. An updated map is attached to this report and identifies the stormwater conveyance system maintained by the University.



Upon discovery, any potential illicit discharge was further investigated. AU successfully repaired two illicit discharges associated with sanitary and storm sewer cross connections that were identified during this reporting period.

During this reporting period, Auburn University continued to monitor the stormwater conveyance system to locate potential sources of contamination with an emphasis on the pathogen impairment. Results of this investigation can be found in Appendix A. Investigations included routine E-coli and water quality monitoring in priority areas followed by in-pipe camera and dye testing to further investigate potential sources of illicit discharges. When necessary, the investigation involved personnel from the City of Auburn.

The proper management of waste and the prohibition of illicit discharges on campus continued to be promoted by Auburn University through a variety of guidance documents, job aids design standards and contractual specifications:

- Chemical Waste Management Guide
- Medical Waste Guide
- Pharmaceutical Waste Job Aid
- Used Battery Job Aid
- Used Fluorescent Bulbs Job Aid
- Aerosol Container Management
- Used Oil Management
- Universal Waste Management

Measure Specific Evaluation

Throughout this reporting period, Auburn University was successful in meeting the objectives of the Illicit Discharge Detection Elimination measure as defined in the University's SWMP.

Accomplishments and ongoing actions supporting this BMP included:

- The continued efforts by multiple AU entities to locate illicit discharges have been successful in locating and ceasing two illicit discharges that were introducing bacteria into the PMC watershed.
- The continued evaluation of the infrastructure engineering assessment has given direction to Facilities Management to enable a prioritized approach to infrastructure management
- The promotion of multiple job aids to the campus community aided in educating the MS4 community of the appropriate means to manage potential environmental harmful materials.

Measure specific activities planned for the next reporting period

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

1. Provide annual IDDE training to University employee, students and visitors to increase community's level of awareness to pollution prevention.
2. Continue to utilize the engineering assessment to prioritize projects to further strengthen the University's infrastructure.
3. Continue to safeguard R/R funds so that they are available if needed.

BMP: Construction Site Stormwater Runoff Control

In accordance with Part III (B) (4) of NPDES Permit No ALR040030, Auburn University developed the Construction Site Stormwater Runoff Control Best Management Practice. Auburn University's Facilities Management is responsible for all construction projects on campus and implementation of this measure.

During this reporting period, Auburn University Design and Construction Standards revisions were approved to strengthen the stormwater management efforts on all University construction sites.

Section G10 – Site Preparation

[AU Design Standard G10-Site Preparation](#)

<http://www.auburn.edu/administration/facilities/contractor-documents/>

Section G10 steps the AU Project Manager, Design Engineer and AU Contractor through the process from a project's beginning to end. Most notably elements include:

Design Engineers responsibilities include:

- Designing the project following the Erosion and Sedimentation Control Standards into all projects greater than .25 acres.
- Design must include three phase (pre-construction, construction and post construction) Erosion Sedimentation Control Plan.

AU Contractor responsibilities include:

- Providing AU proof of ADEM Registration for qualifying site
- Request Land Disturbing Authorization for Approval by AU
- Performing QCI/QCP inspections per ADEM Registration
- Perform turbidity monitoring at all site outfalls at least monthly and within 24 hours of a 0.5" rain event. (Storm water outfall from any construction site on campus shall not have a turbidity of more than 50 NTUs (Nephelometric Turbidity Units) for any 25 year, 24-hour event and smaller.)

AU responsibilities include:

- Assign Project Manager for all sites.
- Review and approve Land Disturbing Authorization request.

- Contract with Engineer of Record to perform QCP inspections at least monthly, before forecasted rain events and within 48 hours of a Rain Wave flagged 0.5" or greater event.
- Contract with Engineer of Record to perform turbidity monitoring at all site outfalls at least monthly and within 24 hours of a 0.5" rain event. (Storm water outfall from any construction site on campus shall not have a turbidity of more than 50 NTUs (Nephelometric Turbidity Units) for any 25 year, 24-hour event and smaller.)

Measure Specific Evaluation

Based on the requirements identified in Part III (B) (4) of NPDES Permit No ALR040030, Auburn University revised its design and construction standards. The revisions establish a measurable performance standard to qualify the effectiveness of on-site controls. The utilization of Rain Wave a precipitation monitoring service has enabled the AU Project Manager, AU Engineer of Record to have real-time precipitation data. The inclusion of turbidity monitoring into all new projects has been an excellent measure to evaluate the implementation of the site specific ESC Plan.

Measure specific activities planned for the next reporting period

Auburn University will continue implementing Construction Site Stormwater Runoff Control as defined in the University's Stormwater Management Plan. During the next reporting period, the following activities are planned:

1. Provide G10 Design Standard training event to AU Project Managers, Design Engineers and Contractors.
2. Perform audit of program in accordance with the University's environmental management system.
3. Continually look towards improving upon the processes to monitor sites.

BMP: Post Construction Stormwater Runoff Control

The Auburn University Design and Construction Standards, revised December 31, 2014, include the now completed Post Construction Stormwater Manual to be followed on all University projects. The Design and Construction Standards performance requirements state a project is to not increase peak stormwater flows for the 2, 5, 10, and 25 year storm events as well as provide water quality treatment for the first 1.2 inches of rainfall with an 80 percent Total Suspended Solids (TSS) reduction goal. Projects are also encouraged to reduce overall stormwater runoff volume by reducing impervious cover campus wide and promotion of infiltration.

In keeping with the University's first Landscape Master Plan and the incorporated Post Construction Stormwater Manual, Auburn University had multiple on-campus projects within the reporting year utilize stormwater best management practices as a part of the project.

Samford Park at Toomer's Corner Redevelopment Phase I utilized pervious pavers to reduce impervious cover and provide stormwater volume control with approximately three feet of stone beneath the new plaza area acting as reservoir storing runoff that can be infiltrated or slowly entered into the storm drain system through an underdrain.



The Parkerson Mill Creek restoration project adjacent to the Wellness Kitchen included restoration of over 300 linear feet of impaired stream by establishing a stream floodplain, installing in-stream cross vane structures, and planting deeply rooted native plantings all to stabilize the creek from erosion and improve the water quality.

Woodfield Drive Extension project includes a half mile roadway extension that calls for outlet control sediment basins during construction that are being retrofitted to permanent water quality basins to reduce stormwater runoff rates and provide water quality treatment prior to being released to the watershed. Facilities Building 8 infrastructure project constructed a grass swale with permanent check dams to meet the performance requirements as dictated in the Post Construction Stormwater Manual.



Along with the stormwater performance requirements, the Post Construction Stormwater Manual also establishes a plan review process for post-construction stormwater design elements. This process was initiated during this reporting period. If a project meets the criteria of a major project increasing impervious area, the design engineer of record submits a Storm Report to Facilities Management through the University Project Lead to be reviewed during various stages of the design project. For this reporting period, both Woodfield Drive Extension and Facilities Building 8 Infrastructure project went through this new review process.

The goals of the post construction element of the stormwater management plan were also evident with the completion of the redevelopment of the Corley Hall courtyard. The **Corley Courtyard Stormwater Education**

Plaza was completed in August 2014. Two- 6 ft. deep, 1,500 ft² bio-retention cells were constructed and educational signs were installed in fall 2014. The plaza will serve as an outdoor teaching classroom for Biosystems Engineering faculty, students, campus visitors, Extension workshops, and campus Sustainability Academic Program tours.





An Honors College Biosystems Engineering student was responsible for the original design and concept as part of the honors college requirements and curriculum. Post-storm event sampling will be analyzed and described by Biosystems faculty and students to evaluate pollutant removal.

Measure Specific Evaluation

During this reporting period, Auburn University continued efforts to strengthen this measure. Strengthened by the Campus Master Plan, the Post Construction Stormwater Manual has established new approaches to stormwater management. Already in its early stages, the projects listed above are evidence of an effective system.

Measure specific activities planned for the next reporting period

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

1. Better document the project review process which evaluates each project for conformance with stormwater objectives
2. Provide training to University Design Leads on updated Design Standards required for future University projects.
3. Begin implementing and documenting a maintenance schedule for current stormwater BMPs.

BMP: Pollution Prevention / Good Housekeeping

Parking Lot, Parking Deck Cleaning Program

Facility Management's Landscape Services utilizes street sweepers on a daily basis to address the removal of accumulated debris from parking lots, parking decks, streets, pedestrian walkways and sidewalks. Landscape Services provides daily inspections of streets, street drains and curbs. During fall and winter months, Landscape Services removes leaves and other debris on a daily basis throughout campus. Landscape Services also incorporates the use of a large vacuum that allows the landscape debris, which is harvested on campus grounds, to be removed before it is introduced into a storm drain system. Mowers with mulching equipment on pulverize leaves, limbs and debris on site which reduces possible storm drain blockage. This process is reduced during the spring and summer months unless storms or high winds cause leaves, limbs and debris to cover our campus grounds and streets; at that point we use the same procedures as the fall and winter removal. This system not only reduces the problem of storm drain blockage, but allows AU to compost the harvested material and eventually incorporate it back into campus landscape.

Stormwater Conveyance System Cleaning Program

Auburn University Landscape Services inspects all stormwater conveyance outfalls routinely throughout the year. This is done after each heavy rain or storm activity. If any large limbs, trees, or debris are blocking the area, the blockage is removed as quickly as possible. Streamside maintenance to include invasive plant removal continues and allows better accessibility to Parkerson Mill Creek. On-going efforts to remove invasive vegetative species and replace with native species have further enhanced Parkerson Mill Creek. Throughout this reporting period, Landscape Services calculated the removal of approximately 609 cubic yards of landscape debris.

Integrated Pest Management

All areas maintained on campus have a four-tiered management system, however all areas are not equal in tolerance and /or action thresholds. These thresholds are based on pedestrian traffic, tolerance thresholds set down by building occupants and historic importance of an area.

Understanding that over application of chemicals to control pests on campus landscapes can have a detrimental effect to the environment, Facility Management's Landscape Services objective is to survey/monitor selected areas on campus and determine if the thresholds of a pest warrants chemical applications. Incorporation of best management practices such as aeration, fertilization and proper irrigation promote healthy trees, shrubs and turf while reducing the unnecessary level of chemicals applied to the environment.

An estimated 235 acres of AU main campus's premium areas (turf, trees, shrubs and hardscapes) receives targeted IPM application. Leaves on turf and turf clippings are mulched and/or recycled to reuse on campus. It is estimated that 6,722 cubic yards of grass clippings are beneficially reused on campus each year.

Waste Management & Recycling

The Waste Reduction and Recycling Department (WRRD) manages all waste contracts on campus and works with faculty, staff, and students on a daily basis to provide easy and convenient recycling to Auburn University.

WRRD manages the Campus Building Recycling program, Game day Recycling, office clean-outs, toner and ink cartridge recycling, indoor/outdoor event trash and recycling bins, secure document shredding services, and electronics recycling.

Waste reduction and recycling initiatives are also promoted through education and outreach on campus and in the surrounding community. Outreach initiatives encompass events, including America Recycles Day, and community partnerships, such as the East Alabama Recycling Partnership.

WRRD transitioned to a new solid waste vendor, Waste Management (WM), in August of 2014. WRRD and WM operational staffs attended an annual training on litter prevention, spill clean-up and storm water management. WRRD will continue to conduct this annual training each year for all university and contracted waste and recycling operational staff. This training outlines the steps that both University and contracted staff use to prevent and clean-up hydraulic oil spills.

Sustainable Public Space Recycling

During the reporting period, AU WRRD was awarded a \$25,000 grant from the Alabama Department of Environmental Management (ADEM) to purchase recycling bins and other equipment to create a more convenient recycling environment for the university community. As a result, nine solar trash compactors and recycling bins were installed on campus.



The BigBelly units use solar power and advanced communications technologies to maximize operational efficiencies. These stations provide more capacity for material due to on-site compaction. Each compactor replaces four existing trash containers.

Electronic Recycling

During the previous reporting period on March 22, 2014, Auburn University, in conjunction with the East Alabama Recycling Partnership (EARP) and Keep Opelika Beautiful, hosted their eleventh community-wide electronics recycling and confidential document destruction event

In July 2014, results of the event became public and EARP was pleased to announce that more than 44,500 pounds of material were diverted from local landfills and recycled. Over 11 tons of electronics and 9 tons of paper were collected. In addition, ferrous metal, electrical wire, and cardboard were recycled

In March 2015, Auburn University again in partnership with EARP hosted the annual Electronic Recycling & Document Shedding event.



Spill Prevention Control & Countermeasure (SPCC) Program

Auburn University maintains compliance efforts consistent with 40 CFR 112 and the University's SPCC Plan. The SPCC Plan addresses the University's program to manage oil and other petroleum products defined by 40 CFR 112.7(2) and 40 CFR 112.7(4). This includes the management of fuel oils, gasoline, jet fuel, lubricating oils, hydraulic and dielectric fluids as they are utilized and stored on Auburn University's main campus. The University inspects all applicable containers (fuel tanks, generators, elevators and drums) monthly and all transformers annually. These routine inspections evaluate the condition of the containers to ensure proper functionality and management to prevent releases to the environment.

Applicable SPCC containers	Number of Inspections	Volume of SPCC applicable oil (gallons)
Tanks, Generators, Drums	696	99173
Elevators	1596	19445
Pad Mount Transformers	237	110574
Satellite Equipment	21	3847

Annual training is provided to oil handling personnel employed by Auburn University to promote the objectives of the SPCC Plan, the regulatory responsibility associated with these regulated materials and to address in-house procedures necessary to respond to spills or releases from them. During this reporting period, 242 employees were trained.

Used Oil Recycling Program

Auburn University's Department of Risk Management & Safety routinely collects and recycles used oil from campus operations. Currently, the Department of Risk Management & Safety uses Metro Environmental based out of Sylacauga AL for removal and recycling of campus generated used oil. Throughout this reporting period, the Department of Risk Management & Safety collected 650 gallons of used oil from campus operations.

Used Cooking Oil Recycling Program

Auburn University's Dining Services collects and recycles all used cooking oil generated from the University's dining facilities. During this reporting period, 3903 gallons of used cooking oil was collected under contract with GEO Biofuel, LLC.

Measure Specific Evaluation

Throughout this reporting period, the on-going preventative measures taken by multiple groups on campus have removed items that could have been ultimately destined to our local landfill, groundwater and or surface waters. The University promotes e-waste minimization through reuse and recycling. The University has developed sound practices to manage equipment and operations to minimize releases to the environment and provides training to University and contractual employees on these best management practices.

Measure specific activities planned for the next reporting period

Auburn University will continue to perform and promote sound pollution prevention good housekeeping management practices. Despite program delays, during this next reporting period AU will continue researching the possibility of establishing a University composting facility to receive landscape debris, bedding waste generated from the College of Agricultural operations, the College of Veterinary Medicine (CVM) and AU Dining.

Monitoring Plan for Pathogen Impairment

The Parkerson Mill Creek Watershed is located in Lee County; the watershed is part of the Chewacla Watershed, in the lower Tallapoosa River Basin. The 9.3 square mile (5,981 acres) watershed contains 21,000 meters (68,500 ft.) of main stem perennial stream and approximately 86,000 meters (282,152 ft.) of tributary stream length. The stream network empties into Chewacla Creek, just south of the H.C. Morgan Water Pollution Control Facility

The watershed includes the City of Auburn, Auburn University and the surrounding areas. The headwaters of Parkerson Mill Creek are approximately 3,000 meters (9,845.5 ft.) in length and are located on the campus of Auburn University.

In 2007, ADEM listed Parkerson Mill Creek as impaired on Alabama's 303(d) List of Impaired Waters for pathogens from point source and non-point sources, primarily urban runoff and storm sewer connections. As such, Auburn University monitors Parkerson Mill Creek by performing bacteriological analysis through the AU Water Resource Center's Alabama Water Watch (AWW) program. The results of the monitoring effort for this reporting period are contained in Appendix A of this Annual Report.

Appendix A

Parkerson Mill Creek

Water Quality Monitoring

April 1, 2014 through March 31, 2015

Appendix B

Updated Stormwater Management Plan

April 1, 2014 through March 31, 2015