

The University of Alabama NPDES Phase II Stormwater Management Plan



Prepared By:
The Office of Environmental Health and Safety
(205) 348-5905
bama.ua.edu/~ehs/

Introduction

The University of Alabama has been issued a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from regulated small municipal separate storm sewer systems (MS4). The permit number is ALR040031. The effective date is February 1, 2011. The Office of Environmental Health and Safety (EHS) is The University of Alabama department which is responsible for management of the Stormwater Management Plan (SWMP).

The University of Alabama originally submitted a Notice of Intent in July 2003. The initial NPDES permit was issued on March 10, 2003.



The Stormwater Management Plan

The SWMP has been developed and designed to manage the discharge of pollutants from The University of Alabama small MS4 to the maximum extent practical. The purpose is to protect the water quality of the Black Warrior River and to satisfy requirements of the Clean Water Act. The University of Alabama SWMP includes various management practices, control techniques, engineering methods, and other provisions which will be described in detail in the body of this document.

Minimum Control Measures

There are six minimum control measures outlined in the permit requirements. These are:

1. Public Education and Outreach.
2. Public Involvement and Participation.
3. Illicit Discharge Detection and Elimination (IDDE).
4. Construction Site Stormwater Runoff Control.
5. Post-Construction Stormwater Management in new Development and Redevelopment.
6. Pollution Prevention and Good Housekeeping.
7. Each minimum control measure will be addressed and detailed separately as part of the SWMP.



I. Public Education and Outreach

A. Introduction

Environmental Health and Safety is implementing a public education and outreach program which will distribute educational materials and information to the campus community. This education and outreach measure will address the impact of stormwater discharges on the Black Warrior River and steps that can be taken to reduce pollutants in stormwater runoff to the maximum extent practical. These efforts are also designed to encourage individuals and groups to take active steps to reduce pollutants in stormwater runoff.

B. Rationale

Each best management practice (BMP) within the public education and outreach measure was selected by examining BMP databases and examples, analyzing the effectiveness of previously utilized BMP's, and the evaluation of educational methodologies that are already in place at The University of Alabama.



C. Summary

The public education and outreach measure is organized to identify how the campus community will be informed about ways to reduce stormwater pollution; to identify how the campus community will be informed regarding how they can become involved in The University of Alabama's stormwater management program; to identify ways to reach the target audience and to identify the audience for the specified educational programs.

The target audience is The University of Alabama's campus community which includes faculty, staff, students, and visitors. Segments of this audience may be targeted based upon specific goals or regulatory requirements. The goal of the public education and outreach measure is to reach all employees and students of The University of Alabama within the life of the permitting cycle and to expose a significant segment of the visitor population to information regarding the impact of contaminated stormwater discharges on local bodies of water and watersheds.

Targeted pollutant sources include sediment from construction sites, illicit discharges of hazardous materials, litter, and runoff related to grounds maintenance. Other pollutants may be added as conditions on campus change or other parameters are added.

Evaluations of success of specific management practices will be determined by analysis of the goals for each BMP within the public education and outreach measure. Each BMP will have a measurable goal that is established by attainable goals for the BMP implementation steps and the ability of The University of Alabama within the contract of financial and physical resources to meet stated goals.

D. BMP Summary

Environmental Health and Safety will utilize a variety of BMP's to educate and inform the campus community regarding stormwater quality issues. Among these are printed materials for direct distribution, a stormwater management website, electronic and printed public service advertisements, educating the campus community regarding impacts of illegal disposal and littering, public education concerning construction activities, education on the importance of water quality and education of The University of Alabama and contractor personnel on sediment control on construction sites.

Printed Materials

Environmental Health and Safety will develop and distribute brochures, fliers, and posters for the purpose of educating the campus community on stormwater quality issues. Environmental Health and Safety will edit, update, and modify as needed to ensure that messages conveyed are in concert with the public education and outreach program. Environmental Health and Safety will provide materials at public meetings, and training related to stormwater quality and selected locations. Environmental Health and Safety will include the number of printed materials provided in the annual report.

Stormwater Quality Website

Environmental Health and Safety will maintain a section of the bama.ua.edu/~ehs/ website to educate the public and the campus community on water quality issues and to provide a mechanism for feedback on stormwater or water quality issues. Environmental Health and Safety will edit, update, and modify the information provided to ensure consistency with the public education and outreach program. Environmental Health and Safety will report website traffic in the annual report.



Public Service Advertisements

Environmental Health and Safety utilizes electronic and printed public service type advertisements. Electronic media is utilized on The University of Alabama's Crimson Ride bus service. Printed ads appear periodically in The University of Alabama's newspaper, The Crimson White. The material will focus on the impact of stormwater runoff on local bodies of water and steps that can be taken to reduce stormwater pollution. Environmental Health and safety will review, edit, update, and modify the advertisements to ensure relevancy to current water quality issues. Environmental Health and Safety will maintain records regarding the advertisements and will report the type and frequency in the annual report.

Impacts of Illegal Dumping and Littering

Educating the campus community on the impacts of illegal dumping and littering is vital to the cleanliness and beauty of The University of Alabama campus. Environmental Health and Safety has developed educational materials and programs that discuss the harmful impact of illegal dumping and littering, and will provide mechanisms for reporting incidents. EHS will review, edit, and modify information to ensure relevancy to current issues. EHS will distribute

public education materials that describe the harmful impacts of dumping and littering on local water bodies. EHS will provide information regarding these educational materials as part of its annual report.



Education Concerning Construction Activities

The University of Alabama has a very aggressive construction and new development schedule, which results in almost continuous activity. Because of this activity it is important that there is a mechanism in place to inform the campus community on steps that can be taken to report potential construction site runoff problems. Environmental Health and Safety will review, edit, and modify information to ensure relevancy to current construction related issues. Environmental Health and Safety will provide information regarding construction activity related materials as part of the annual report.

Education on Importance of Water Quality

The education of the campus community on the importance of water quality is a vital priority for Environmental Health and Safety. Among the campus community students are a major focus group. This group is likely to have a significant future impact on national, state, and local attitudes toward water quality issues. Environmental Health and Safety will review, edit, and modify materials and programs to ensure relevancy to The University of Alabama student population and current issues. Environmental Health and Safety will provide information regarding education of the importance of water quality as part of the annual report.



Education of The University of Alabama and Contractor Personnel

In order to ensure that The University of Alabama construction project supervisors and contractor supervisors are informed on the most current policies and procedures related to sediment and erosion control on construction sites, Environmental Health and Safety has developed educational programs to communicate principals of sediment and erosion control. Environmental Health and Safety will review, edit, and modify educational and training programs regarding the proper design, selection, implementation, and maintenance of erosion and sediment control on construction sites. Environmental Health and Safety will provide information regarding education of construction supervisors as part of the annual report.

II. Public Involvement

A. Introduction

Environmental Health and Safety is implementing a public involvement program which will create opportunities for the campus community to get involved in the SWMP. Opportunities for involvement in activities that directly benefit the environment and lead to improvements in overall water quality will be available. Environmental Health and Safety will notify the campus community of opportunities to participate in water quality improvement activities and SWMP implementation by public notice of SWMP meetings. These public notice announcements of meetings will be published in The Crimson White campus newspaper and in The University of Alabama electronic media.



B. Rationale

Each BMP within the public involvement measure was selected by analyzing techniques utilized by other permitted areas, analyzing the effectiveness of previously utilized BMP's and consideration of selected BMP's applicability to permit provisions.

C. Summary

Environmental Health and Safety will utilize a variety of BMP's to encourage public involvement in the SWMP. The goals are to identify ways to notify individuals of opportunities to participate in activities related to the SWMP, to provide opportunities for the campus community to participate in activities leading to water quality improvement and identify activities that have relevance to the SWMP and improved water quality.

Targeted participants were selected based on permit requirements and the goal of creating opportunities for personal involvement in the SWMP and impact on water quality at the local level. The public involvement program, in conjunction with other best management practices, is expected to reach most members of The University of Alabama campus community during the life of the permit cycle.

The success of public involvement BMP's will be evaluated through analysis of each BMP goal within the public involvement measure. Each BMP will have a measurable goal that is established by attainable goals for the BMP implementation steps and the ability of The University of Alabama within the context of financial and physical resources to meet stated goals.



D. BMP Summary

Environmental Health and Safety will utilize BMP's to provide and encourage public involvement in the SWMP. These are the Stormwater Management Committee and the Storm Sewer Marking Campaign.

Stormwater Management Committee

To oversee the implementation of the SWMP and provide advice and consultation, Environmental Health and Safety created the Stormwater Management Committee. The SWMP Committee is made up of various members of the campus community who have a stake in SWMP; individuals with an expertise which would be of benefit to the program and other representatives of the campus community. The SWMP Committee will meet on an as need basis but at least once per year.

During this permit cycle Environmental Health and Safety will request committee review of the education materials, inspection procedures, guidance information, and investigation methods detailed in the BMP's specified in the six minimum control measures. Environmental Health and Safety will provide notifications of committee meetings to the campus community through regular notice procedures. Public notices will be published in The Crimson White and will appear on The University of Alabama electronic signage system. Environmental Health and Safety will maintain records for committee meetings including attendance, minutes, and agenda. The annual report shall include information concerning SWMP committee meetings including the number of meetings and a summary of discussions.

Storm Sewer Marking

The storm sewer marking campaign provides a way for civic organizations and individuals to make a positive, hands on, impact on local water quality. Environmental Health and Safety will provide storm sewer inlet discs which state "No Dumping Drains to River" and adhesive to attach discs. To ensure continued success through the permit cycle Environmental Health and Safety will seek to identify groups that may be interested in program participation, provide support to individuals or groups who volunteer for storm sewer marking and update procedures as needed. Environmental Health and Safety will include information regarding the Storm Sewer Marking Campaign as part of the annual report.

III. Illicit Discharge Detection and Elimination

A. Introduction

The illicit discharge detection and elimination (IDDE) measure consists of BMP's that focus on the detection and elimination of illicit discharges into the MS4. An illicit discharge is defined as any discharge to an MS4 that is not composed entirely of stormwater except those specified in the NPDES permit and exempt non-stormwater discharges.

B. Rationale

Each BMP within the IDDE measure was selected by evaluating techniques utilized by other permitted entities, analyzing the effectiveness of previously utilized BMP's, consideration of the economic impact of new practices, and consideration of selected BMP's applicability to permit provisions.



C. Summary

The IDDE measure is designed to identify methods for conducting and documenting dry weather screening inspections, develop methods for identifying and mitigating illegal dumping and ways of educating personnel on the proper methods for successful BMP implementation.

The success of illicit discharge detection and elimination BMP's will be evaluated through analysis of each BMP goal within the IDDE measure. Each BMP will have a measurable goal that is established by attainable goals in the BMP implementation steps and the ability of The University of Alabama within the context of financial and physical resources to meet stated goals.

D. BMP Summary

Environmental Health and Safety will utilize a number of BMP's to detect and eliminate illicit discharges. Among these are maintenance of The University of Alabama stormwater map, dry weather screening inspections, employee training, and illegal dumping detection and exporting.

Stormwater System Map

The University of Alabama maintains a storm sewer system map which details inlets, outlets, and lines on The University of Alabama campus. To continue this process, The University of Alabama will develop a consistent method for updating the storm sewer map. Outfalls will be identified and new data will be included as available. New outfall locations identified through this process will be included in the Environmental Health and Safety annual report.

Dry Weather Inspections

Environmental Health and Safety will develop and implement a dry weather screening process. Each outfall will be inspected annually. Environmental Health and Safety will create and conduct a training program which will target construction administration and facility personnel. Training will specifically address the identification, reporting, documentation, and mitigation of illicit discharges. Environmental Health and Safety will develop a system for tracking and reporting non-stormwater discharges. This system shall include incident specific activities including identification, reporting, and mitigation actions.



Environmental Health and Safety will document the number of outfalls screened and the number of non-stormwater discharges identified and reported as part of the annual report.

Employee Training

Environmental Health and Safety will conduct annual dry weather screening. The successful implementation of the dry weather screening BMP will rely on properly trained personnel. Environmental Health and Safety will develop a training program that focuses specifically on the dry weather screening process, identification, and reporting of illicit discharges. Environmental Health and Safety will report the number of personnel trained in the annual report.

Illegal Dumping Detection and Reporting

One of the major goals of the SWMP is to minimize incidents of illegal dumping and maximizing the ability of The University of Alabama to respond to and mitigate incidents of illegal dumping. Toward this end, Environmental Health and Safety will include illegal dumping in the dry weather screening process, implement a system to track illegal dumping occurrences, include illegal dumping identification and reporting in the training for illicit discharges and dry weather screening, and include the number of illegal dumping incidents in the annual report.



IV. Construction Site Runoff Control

A. Introduction

The construction site runoff control measure consists of BMP's that focus on the reduction of pollutants in stormwater runoff that originates from construction activities that involve land disturbances of one acre or greater. The pollutant of greatest concern is sediments from land disturbance activities. The selected BMP's are designed to minimize erosion and the transfer of sediments from construction to adjacent areas and outfalls.

B. Rationale

Each BMP within the construction site runoff control measure was selected by analyzing techniques utilized by other permitted entities, analyzing the effectiveness of previously utilized BMP's, and consideration of selected BMP's applicability to permit provisions.

C. Summary

The construction site runoff control measure is designed to identify mechanisms which will be used to require sediment and erosion controls on construction sites, to establish enforcement procedures, to establish requirements for construction site supervisors to implement erosion and sediment control BMP's, to establish requirements for waste control on construction sites, to establish procedures for site plan reviews that consider water quality impacts, to establish procedures for site inspection and enforcement, and to develop education and training for construction site supervisors and The University of Alabama personnel overseeing construction projects.

The success of the construction site runoff control measure BMP's will be evaluated through analysis of each BMP goal. Each BMP will have a measurable goal that is established by attainable goals for the BMP implementation steps and the ability of The University of Alabama within the context of financial and physical resources to meet stated goals.

D. BMP Summary

The University of Alabama will utilize a number of BMP's to control runoff from construction sites. Among these are education of The University of Alabama project supervisors, construction plan review, inspection procedures, and reporting of problems related to construction projects.

Education

Training must be developed and provided to The University of Alabama project supervisors and construction site operators. This training must include proper site management procedures as well as protocols for reporting discharges and inspection results. To make sure personnel and contractors are properly trained Environmental Health and Safety will ensure that training materials take advantage of new technologies for managing stormwater runoff on construction sites. Educational programs will be updated and modified as needed. Environmental Health and Safety will include the number of individuals trained as part of the annual report.

Construction Plan Review

In order to effectively minimize occurrences of erosion and sediment transfer at construction sites the construction process must begin with the development of plans that incorporate BMP's for construction sites that are relevant to site conditions. To accomplish this The University of Alabama will detail requirements for written project sediment and erosion control plans; implement plan review procedures to address conformance to stormwater guidelines and the use of erosion controls; provide an opportunity for the SWMP Committee to review procedures to evaluate effectiveness; maintain records of plan reviews; and report the number of plans reviewed, modified, approved or rejected under the plan review program as part of the annual report.

Construction Site Inspections

The University of Alabama will develop standardized procedures for conducting construction site inspections to ensure compliance with stormwater management requirements. The University of Alabama will review existing procedures for tracking construction activities and revise as needed. The University of Alabama project supervisors will utilize appropriate inspection procedures and forms to ensure compliance with stormwater guidelines. The University of Alabama will require contractors to conduct self inspections on construction sites. The University of Alabama will require contractors to take immediate corrective actions when conditions are discovered that are not in compliance with

construction site stormwater guidelines. The University of Alabama will maintain records of inspections and corrective actions and report the number in the annual report.



Construction Site Problem Reporting

The University of Alabama will provide a mechanism for the campus community to report stormwater and water quality concerns related to construction projects. To this end The University of Alabama will provide a phone number and webpage for reporting concerns. Internal systems for accepting reported information will be reviewed and modified as necessary. Those sites reported by the campus community will be investigated. Records regarding the number of public reports received and responded to shall be maintained and included in the annual report.

V. Post Construction Site Runoff

A. Introduction

The post construction stormwater runoff measure consists of BMP's that are designed to minimize water quality impact from new and redevelopments once construction activities are complete. BMP's selected are designed to ensure that appropriate reviews are conducted and pre-construction conditions are taken into consideration during the design, construction, and post-construction phases.

B. Rationale

Each BMP within the post construction site runoff measure was selected by analyzing techniques utilized by other permitted entities, analyzing the effectiveness of previously utilized BMP's, and consideration of selected BMP's applicability to permit provisions.

C. Summary

The post construction site runoff measure will be used to identify procedures that will be used to address post construction runoff from new and redevelopment projects. Procedures for long term inspections and maintenance of post-construction BMP's will also be developed.

The success of the BMP's will be evaluated through analysis of each BMP goal. Each BMP will have a measurable goal that is established by attainable goals for the BMP implementation steps and the ability of The University of Alabama within the context of financial and physical resources to meet stated goals.



D. BMP Summary

The University of Alabama will utilize BMP's to minimize the water quality impact of post-construction site runoff. These BMP's will consider plan review, protection of sensitive and/or impaired water bodies, and interaction with the City of Tuscaloosa to ensure coordination with their stormwater runoff efforts.

Plan Review

In order to mitigate post construction site runoff issues construction plans will be reviewed to determine if post construction runoff from new and/or redevelopment will adversely affect water quality. If negative effects occur, the plans, procedures, or methods will be revised or modified to ensure compliance with stormwater guidelines.

Protection of Sensitive Waters

To facilitate the effective review of post construction BMP's to be implemented on new and/or redevelopment projects a review of the potential impact to sensitive or impaired water bodies with approved TMDL's will be conducted during the plan review process for all new and/or redevelopment projects on The University of Alabama campus. To ensure an accurate review The University of Alabama will examine the most current 303 (d) listing of impaired waters to determine if any are potentially affected. The approved TMDL's will also be examined for applicability.



Local Interaction

The University of Alabama will continue to interact with the stormwater quality personnel of the City of Tuscaloosa which is a permitted MS4. The purpose of this interaction is to make them aware of The University of Alabama efforts and to potentially coordinate some stormwater quality issues.

VI. Pollution Prevention and Good Housekeeping

A. Introduction

The Pollution Prevention and Good Housekeeping measure is made up of BMP's that focus on the reduction of pollutants in the stormwater runoff that originates from The University of Alabama operation and maintenance activities. The operations and maintenance activities include vehicle and equipment maintenance, materials handling and storage, and facility operations. The BMP's selected will focus on the prevention of circumstances that have the potential to create polluted runoff.

B. Rationale

Each BMP within the pollution prevention and good housekeeping measure was selected by analyzing techniques utilized by other permitted entities, analyzing the effectiveness of previously utilized BMP's, and consideration of selected BMP's applicability to permit provisions.



C. Summary

The pollution prevention and good housekeeping measure is designed to identify procedures for transportation system maintenance, develop procedures for vehicle and equipment maintenance, review storage and handling of hazardous materials and develop employee training on proper good housekeeping and pollution prevention procedures.

The success of the pollution prevention and good housekeeping will be evaluated by analysis of each BMP goal. Each BMP will have a measurable goal that is established by attainable goals for the BMP implementation steps and the ability of The University of Alabama within the context of financial and physical resources to meet stated goals.

D. BMP Summary

The University of Alabama will utilize a number of BMP's which are designed to minimize pollution related to operations and maintenance. Among these are street operations and management, litter control, herbicide application, vehicle maintenance, hazardous material management, and employee training.

Roadway Maintenance

Routine street maintenance has significant potential to contribute to pollution runoff. In order to minimize potential impact from street maintenance The University of Alabama will evaluate existing activities to determine if modifications would benefit stormwater quality. The



University of Alabama will seek to identify alternative procedures or materials that would reduce the potential of maintenance activities to contribute to polluted runoff. Specifications and SOP's will be revised according to identified alternative practices. The University of Alabama will maintain records of road maintenance activities, alternative practices, and include this information as a part of the annual report.

Street Sweeping

Street sweeping is an effective method of reducing sediment and pollutants from roadways. To ensure these activities are conducted in an effective manner The University of Alabama will identify roadways that are to be swept. The University of Alabama will further establish schedules for sweeping of identified roadways. The University of Alabama will maintain records of street sweeping including man hours involved and roadways, and will include information in the annual report.



Litter Collection

The University of Alabama will continue to promote anti-litter on campus. Several procedures will be utilized in an effort to reduce the discharge of floatable materials into local bodies of water. The University of Alabama will periodically evaluate the location of litter and trash receptacles, collect litter on an established schedule, and adjust locations of receptacles and collection schedules as necessary. The University of Alabama will include information regarding litter collection on campus as part of the annual report.

Herbicide Application

The use of herbicides is a very effective tool on controlling the growth of unwanted vegetation. Improper or indiscriminate use can have potentially harmful effects on water quality. To ensure that herbicide application does not contribute to negative water quality The University of Alabama will review all areas where herbicides are used and utilize alternatives where possible. The University of Alabama will ensure compliance with herbicide application regulations. The amount of herbicide applied and locations will be included as part of the stormwater annual report.

Vehicle Maintenance

The University of Alabama owns and operates a variety of vehicles and equipment used in the operation and maintenance of the facilities and services on campus. These vehicles range from passenger cars, trucks, and vans to heavy equipment all of which require regular maintenance. Improperly maintained vehicles have a greater potential to contribute to water quality impairment. To ensure that vehicles do not contribute to impaired water quality The University of Alabama will review and update the inventory of The University of Alabama owned vehicles and equipment. The University of Alabama will conduct routine maintenance of owned vehicles and shall inspect vehicles for the presence of fluid leaks during routine maintenance. The University of Alabama will schedule repairs for vehicles determined to have leaks. Maintenance records shall be available for review as requested.

Hazardous Material Management

Environmental Health and Safety has operated for many years a hazardous material management program. This program along with campus facilities are periodically inspected by regulatory agencies for compliance with standards. Environmental Health and Safety has an active material inventory system that tracks and accounts for hazardous materials and chemicals on campus. Environmental Health and Safety will continue to operate the hazardous material program and will continue to perform environmental audits in laboratories and facilities on campus.



Employee Training

Environmental Health and Safety will prepare training that focuses on pollution prevention and good housekeeping measures. Environmental Health and Safety will identify The University of Alabama personnel who will be required to attend training and will maintain records related to this training. Training materials will focus on vehicle and building maintenance, herbicides, and hazardous material management. Training information including employee attendance shall be part of the annual report.

VII. Enforcement

The University of Alabama will utilize a variety of enforcement strategies depending upon the nature of the incident and the individuals involved. Enforcement could include monetary penalties, civil action, institutional restrictions police response and other actions. Students involved in activities requiring enforcement face academic actions including suspension up to expulsion. Faculty and staff are subject to supervisory discipline including possible termination. Contractors are subject to financial penalties, termination of contracts and expulsion from work on campus. Any individuals exercising willful violation of stormwater management guidelines may be subject to police involvement and civil actions.