

**THE UNIVERSITY OF MICHIGAN  
MUNICIPAL STORM WATER NPDES PERMIT MI0053902  
MID-YEAR REPORT, APRIL 2006**

In accordance with Part I, Section C.1.c of NPDES Permit MI0053902, the University of Michigan (University) is required to submit a mid-year report describing the status of compliance with permit conditions associated with the storm water management program. This program is a requirement of the NPDES permit reissued by the Michigan Department of Environmental Quality (MDEQ) Surface Water Quality Division on October 1, 2001. This report covers the period July 1, 2005 through December 31, 2005 and follows the format identified in the permit.

*1. Describe the status of compliance with the permit conditions*

The University of Michigan is in compliance with the permit conditions. In accordance with Part I, Section B, the University is continuing to implement the storm water management program plan (SWMPP) revised June 2005.

*2. Provide a report of illicit discharges and illicit connections removed.*

Dry weather screening is performed in 4 distinct areas based on geographical separation - South Campus, Central Campus, Medical Campus, and North/East Campus. During this period, the South Campus area was selected for dry weather screening to determine the existence, location, and extent of possible illicit discharges into the UM storm water drainage system. Non-storm water flow will be backtracked and investigated to identify the source of the discharge and to determine if it is an authorized flow as described in Part I.A.1 of the permit. In the event that the flow is not authorized, repairs will be made to redirect the flow to the sanitary sewer. For the 2006 reporting year, the Central Campus area will be targeted for dry weather screening.

The following potential illicit discharges were identified during this reporting period:

- **South Campus Areas:** Dry weather screening 2005 identified flow in the following screening location manholes: #4 (Buhr), #5 (Swimming & Diving), #6 (Yost), #10 (Sports Service), #13 (Practice Fields) and #14 (Tennis Center.) Further backtracking investigation of these areas is underway to identify potential source(s) of the flow. The additional investigation is anticipated to be completed in Spring 2006 weather permitting.
- **West Hall:** OSEH staff identified clear water flow in the north-west storm manhole in the West Hall courtyard during this reporting period. Additional investigation is planned for Spring 2006.

The following illicit connections are under further investigation.

- **North Campus Areas:** Dry weather screening 2004-5 identified flow in the following screening location manholes: #4 (Northwood III), #8 (Northwood II)

and #9 (Electrical Engineering & Computer Science.) Further backtracking investigation of these areas to identify potential source(s) of the flow is underway and expected to continue through Spring 2006 weather permitting.

- Burton Tower: Floor drains in the basement level were identified for further investigation to confirm whether they discharge to storm or to sanitary. Dye testing is planned for Spring 2006.
- Chemistry Building: Floor drains in room 408-B were identified for further investigation to confirm whether they discharge to storm or to sanitary. Dye testing is planned for Spring 2006.
- Kraus Natural Science Building: Floor drains in the basement level of room 1015-B were identified for further investigation to confirm whether they discharge to storm or to sanitary. Dye testing is planned for Spring 2006.
- Shapiro Library (UGLI): Floor drains in room B006 were identified for further investigation to confirm whether they discharge to storm or to sanitary. Dye testing is planned for Spring 2006.

Remediation is underway for the following illicit connections:

- Mary Markley Hall: Dry weather screening identified flow in this area. The source of the flow was identified as non-contact cooling water discharging into floor drains. Potable water, such as this non-contact cooling water (untreated) is an approved discharge under the NPDES permit. An additional source has been identified from a hand washing sink. This project was included in the *Draft* Plumbing Cross-Connection Correction Study by UM Architecture and Engineering which was completed December 16, 2005. Additional dye testing investigations will begin in 2006 to confirm proposed work and tie-ins identified by this study. Correction work to redirect the sink discharge and the floor drains to the sanitary sewer system has progressed to the design phase with repairs estimated to be completed by Fall 2006.
- Natural History Museum: Dry weather screening identified flow in this area. The source of the flow was identified as non-contact cooling water discharging into a floor drain. Potable water, such as this non-contact cooling water (untreated) is an approved discharge under the NPDES permit. This project was included in the *Draft* Plumbing Cross-Connection Correction Study by UM Architecture and Engineering which was completed December 16, 2005. Additional dye testing investigations will begin in 2006 to confirm proposed work and tie-ins identified by this study. Repairs are anticipated to be completed by Fall 2007.
- Kresge Medical Research III Building: Dry weather screening identified flow in this area. The source of the flow was identified as non-contact cooling water discharging into floor drains. Potable water, such as this non-contact cooling water (untreated), is

an approved discharge under the NPDES permit. This project was included in the *Draft* Plumbing Cross-Connection Correction Study by UM Architecture and Engineering which was completed December 16, 2005. Additional work on this building is on hold until a determination has been made on the proposal to demolish the building, in its entirety.

- Central Campus Recreation Building: Dry weather screening identified flow in this area. The source of flow was identified as coming from CCRB pool. The University is permitted to discharge de-chlorinated water from the CCRB pool to the storm water drainage system. An additional source has been identified from pool deck drains and overflow. The design work for correction has been completed, and work is scheduled to commence Summer 2006.
- Unit for Laboratory Animal Medicine: Dry weather screening identified flow in this area. The source of the flow was tracked back to the Medical Science II building, mechanical room where a backflow preventer was leaking potable water which was discharging into a floor drain. UM AES has been contracted for correction or elimination of the floor drain. Work is estimated to be completed in 2007.
- Cooling Towers – Past dry weather screenings identified flow from cooling towers when overflow valves are tripped resulting in overflow to the storm system via existing roof drains. Daily maintenance inspections of cooling towers are performed to identify and correct any overflow conditions. Currently, repairs are scheduled to be completed at the following locations:
  - Kraus – Repairs are anticipated to be completed by Summer 2006.
  - Mason Hall – Repairs are anticipated to be completed by Summer 2006.
  - School of Education - Piping leaks which are the source of the overflow issues identified are currently being addressed. Efforts to coat the piping have not been successful. A piping replacement project has been requested and is anticipated to be completed in 2007.

The following illicit connections have been addressed:

- Bursley Hall: An illicit discharge investigation revealed that a new grease interceptor had been incorrectly connected to the storm water drainage system. Repairs to connect the kitchen piping to the sanitary sewer were completed in October 2005.
- Reflecting Pool – Flow was observed in the storm sewer system on the east side of the reflecting pool, near the Industrial Operations Engineering building. The Plumbing Shop was contacted and conducted several rounds of investigation including dye testing restrooms and floor drains in the IOE building. Potential sanitary sources in the area were eliminated through this process. Additional investigations, drawing reviews and dye testing operations were conducted jointly by UM-Occupational Safety and Environmental Health (OSEH) Environmental Management and the Plumbing Shop which identified the source of the flow as the

- reflecting pool. Repairs were completed in September 2005 to install a valve to discharge pool drains to the sanitary sewer system during the pool's seasonal operation while allowing discharge of rainwater to the storm water system only during periods when the pool is closed.
- Randall Laboratory - The first source of water, steam condensate from the ejector tank, has been confirmed as disconnected, as of October 2005. A second source was also suspected at this location. Potable water is an approved discharge under the NPDES permit. Additional investigation found a source of water in the nearby CC Little Building where a fire pump was leaking into a floor drain. This repair has been completed and the floor drains have been confirmed (dye tested) to sanitary.
  - Couzens Hall: Dry weather screening identified flow in this area. No flow was observed during three follow up events in early 2005. Further investigation was performed, but no flow was observed during an additional three events in Fall 2005. No further action is warranted at this time.
  - Cooling Towers – Past dry weather screenings identified flow from cooling towers when overflow valves are tripped resulting in overflow to the storm system via existing roof drains. Daily maintenance inspections of cooling towers are performed to identify and correct any overflow conditions. Repairs to the Taubman Library cooling tower system were completed in Fall 2005.
3. *Assess BMP appropriateness and progress toward goals identified in the SWMP.*  
*Note: (Excerpts from the SWMPP are shown in italics.)*

### **Education & Outreach on Storm Water Impacts – Public Education Program (PEP)**

*Recognizing the need for public involvement in the effort to reduce storm water pollutants, the U-M has developed a broad and aggressive storm water education and outreach program. This multi-faceted program is closely connected to the U-M's pollution prevention (P2) program and its many initiatives. Specifically, the storm water education curriculum is designed to promote, publicize, and facilitate watershed education while encouraging the P2 practices developed under the U-M's environmental stewardship agenda. The intended audience for the program is all persons associated with the University who could potentially affect the quality of storm water discharges, including, but not limited to, campus residents; University faculty, staff, and students; visitors to the campus; contractors and vendors working on the campus; and commercial and industrial operations on campus. Below is a description of each of the program's components.*

*The overall PEP program accomplishes the following goals:*

- *Educate the public of hazards associated with illicit discharges and improper discharges. Part of this education is to encourage public reporting of the presence of illicit discharges or improper disposal of materials into the U-M drainage system.*
- *Educate the public regarding acceptable application and disposal of pesticides, herbicides, and fertilizers.*
- *Educate the public concerning the ultimate discharge point and potential impacts of pollutants from the drainage system serving their places of residence.*
- *Educate the public about their responsibilities and stewardship of their watershed.*
- *Educate commercial and institutional entities likely to have significant storm water impacts.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit* for the Public Education Program (PEP):

**PEP -1. Storm Water Education Brochures**

In cooperation with the U-M School of Natural Resources and Environment (SNRE), the U-M Department of Occupational Safety and Environmental Health (OSEH) developed a series of brochures to assist various members of the University community in preventing storm water pollution on campus. The brochures have been designed to meet the overall program objectives for specific audiences. OSEH produces and distributes storm water pollution prevention brochures specifically for Students; Faculty and Staff; and Contractors, to provide each group with appropriate information on user responsibilities, best management practices and procedures for reporting spills and illicit discharges to the storm water system.

Measurable Goal: A minimum of 1,800 brochures will be distributed annually during presentations, training courses and new employee orientation sessions. The quantity of brochures distributed throughout the year will be tracked for subsequent reporting. Additional brochures will be created/revised as new needs are identified. The number of new brochures, flyers or other educational media created will be tracked on an annual basis for subsequent reporting.

Actions during the reporting period:

An estimated 1,824 brochures were distributed during at over 60 training, orientation or workshop sessions throughout the reporting period.

**PEP -2. OSEH/SNRE Storm Water Education WebSite**

*Developed in cooperation with the U-M SNRE and maintained by OSEH, the Storm Water Education Web site builds upon the information contained in the brochures and disseminates it to the general University community and the public at large. This web site is intended to help students, employees, and visitors in the U-M community understand how the University's storm water system operates, various legal*

*requirements, and what individuals can do to reduce contamination in the storm water system from surface runoff. As viewers move through the site they learn about storm water, what they can do to help protect it, how regulations impact the University's operation, and various safe practices.*

The website is updated on a regular basis to include pertinent information related to storm water management and pollution prevention. Current material on the web site can be viewed by visiting [www.oseh.umich.edu/stormwater/](http://www.oseh.umich.edu/stormwater/).

Measurable Goal: OSEH/SNRE Storm Water Education Web Site ([www.oseh.umich.edu/stormwater/](http://www.oseh.umich.edu/stormwater/)): The number of visitors to the website will be tracked semi-annually for subsequent reporting. The goal is to have at least 2,000 website hits annually. This website is intended to help students, employees, and visitors in the U-M community understand how the University's storm water system operates, various legal requirements, and what individuals can do to reduce contamination in the storm water system from surface runoff. This website tally may also serve as an indication of the community seeking additional storm water information from the link provided in the brochures, as detailed above.

Actions during the reporting period:

3,544 website hits were registered as of this report. The website is currently being redesigned to create a more user-friendly environment. These website renovations are anticipated to be completed during the next 18 months. Use of the website is expected to increase in response to this website enhancement project.

The June 2005 revision to the Storm Water Management Program Plan has been added to the website. Topics currently under construction for addition to the website include: North Campus Woods Conservation, Invasive Plant Species, Volunteer Programs, Locations for Invasive Species Removal, and the Soil Erosion and Sedimentation Control – Program updated information and forms.

**PEP -3. Storm Water Management at UM Video**

*The video Storm Water Management at the University of Michigan provides viewers with an overview of storm water issues as they pertain to University operations and activities. The video begins with an overview of the University's storm water drainage system and its receiving bodies followed by a synopsis of the legal requirements that mandate the NPDES permit and the development of a storm water management program. The remainder of the video focuses on how storm water can become polluted because of human activities. It proceeds to inform viewers of the University's actions to protect storm water quality in the following areas: salt use and deicing activities, waste management and spill response, campus planning and expansion, cleaning outdoor equipment and vehicles, chemical disposal practices, and food vendor training.*

*This video is shown every semester on the cable system. In addition, separately offered video viewings, on an as needed basis, are provided in faculty and staff presentations.*

Measurable Goal: The video will be aired a minimum of 50 times annually for viewing on the U-M local cable TV station. The number of offerings of the video will be tracked semi-annually for subsequent reporting. Additional viewing of the video during presentations, classes, workshops, etc. will also be tracked.

Actions during the reporting period:

The video Storm Water Management at the University of Michigan was aired a total of 23 times during this semi-annual reporting period.

**PEP -4. Storm Water Public Service Announcements (PSAs)**

Measurable Goal: Storm water, waste disposal, and recycling related Public Service Announcements will be distributed annually for use during the six or seven football season home games. These short educational messages will provide storm water information to visitors, students, staff and contractors attending the U-M football games. The total anticipated audience for these messages is over 107,000 per game.

Actions during the reporting period:

Public Service Announcements were made at the UM football home games during the 2005 season, potentially reaching an audience of 776,405 people.

Examples of the announcements made include:

Protect our environment! Dump no drinks on the pavement or down the storm drains. They drain directly to the river without any treatment. Help keep our Michigan waters BLUE!

Stop trash, food, and drink wastes from going down the storm drain and to the Huron River! Please recycle and properly dispose of your trash, food, and drink wastes. Help keep our Michigan waters BLUE!

What happens to water when it runs into a storm drain? Nothing. No filtering, no treatment. The storm drains empty directly into our creeks and rivers. And so does anything you dump on the ground - pop, food waste, cigarette butts, litter. So keep them out of our water! Help keep our Michigan waters BLUE!

Would you pour your beverage in your fish tank? Of course not, which is why you should never pour pop, juice, coffee, or alcohol down a storm drain or on the pavement. It goes straight to the river untreated. So do your part and help keep our Michigan waters BLUE!

While the Wolverines score today, you too can score points for the environment. Anything that enters a storm drain goes straight to the river untreated. Pop, juice,

coffee, alcohol and tobacco should be disposed of properly. So do your part and help keep our Michigan waters BLUE!

Dumping pop, juice, coffee, alcohol and cigarette butts into the storm drain or on the pavement might seem like the easiest way to get rid of your trash, but it's also the easiest way to pollute the river. Anything that enters a storm drain goes straight to the river untreated. Dispose your trash in the proper receptacles to help keep our Michigan waters BLUE!

Did you know that 70% of Washtenaw County's drinking water comes from the Huron River? Caffeine, sugar, acids, alcohol and tobacco end up in the river when beverages and cigarettes are not disposed of properly. Never dump anything down a storm drain because it goes straight to the river untreated! So do your part and help keep our Michigan waters BLUE!

**PEP -5. Presentations, Training Sessions, Workshops, etc.**

Measurable Goals: Storm water topics will be included in a minimum of 50 classes, workshops or presentations sponsored annually by OSEH. The number of sessions including training on storm water issues will be tracked for subsequent reporting.

Actions during the reporting period:

Storm water topics were included in approximately 61 classes, workshops or presentations during the reporting period. Examples of classes include: OSEH New Hire Training for Laboratory Personnel, Foundations of Supervision, Safety Supervisor's Workshop and Plant Academy-Law and Policy.

Measurable Goals: A minimum of 500 laboratories will be inspected annually. The inspections will include a review of issues impacting storm water quality, chemical storage, waste management and disposal. These inspections may also serve as an indicator of the effectiveness of storm water education received, or the need for additional education. The number of inspections performed annually will be tracked for subsequent reporting.

Actions during the reporting period:

A total of 301 laboratory rooms were inspected by OSEH personnel during the reporting period.

Measurable Goals: All outdoor food vendors will receive training/education including related storm water issues annually. Food establishment inspections will include items to ensure storm water BMPs are being followed. These inspections may also serve as an indicator of the effectiveness of storm water education received, or the need for additional education. The number of inspections performed will be tracked for subsequent reporting.

Actions during the reporting period:

All outdoor food vendors are required to attend training / orientation sessions prior to seasonal work at the UM. A total of 138 inspections were performed by OSEH sanitarians on Temporary food establishments during the reporting period.

Additional measures taken to achieve goals:

- OSEH continues to work with UM football stadium vendors/concession stands to prevent potential discharges into the storm water system. Concession stands were posted with signage detailing procedures for proper grease and wastewater management for these operations during the 2005 football season to reinforce proper waste management for these temporary operations.
- OSEH provided information at the UM-Department of Public Safety (DPS) game day briefings for officers working the home football games. Officers were informed of the need to prohibit discharges into the storm water system and procedures to assist in the prevention, identification, and reporting for spill response of any spills which could impact the storm water system.
- OSEH provided two training sessions to staff of the Athletics department during their annual OSEH refresher. The refresher included storm water pollution prevention, best management practices and soil erosion and sedimentation control, among other environmental, health, and safety topics
- Presentations are provided to students and staff by OSEH personnel to inform, educate and increase awareness of storm water quality issues. Responses from attendees in the campus community include requests for brochures, consultations and additional presentations on related storm water pollution prevention issues.
- The University of Michigan has a 24-hour Emergency Response Team to quickly and efficiently respond to and mitigate releases of polluting materials on campus. The campus community is encouraged, through presentations and pollution prevention brochures, to report illicit discharges and spills to OSEH and the Department of Public Safety so appropriate measures can be taken to correct issues which may impact storm water quality.

**Public Involvement and Participation (PIP):**

*The University encourages public input in all aspects of its storm water management program. In order to facilitate public participation, this plan and information related to the storm water management program are made available on the storm water web site. By viewing the Annual Reports that are placed on the web site, the general public and members of local stream and watershed protection organizations can make themselves aware of activities the University carries out under its storm water management program. In addition, when new storm water management program plans are developed and finalized, the City, County, Ann Arbor Public Schools and interested local stream*

*and watershed protection organizations are allowed to review and comment on them. A website feedback link will be provided to facilitate feedback on the SWMPP from the community.*

*The overall PIP program accomplishes the following goals:*

- *Provide information to the public on the Storm Water Management Plan and related information.*
- *Provide public access to make themselves aware of activities the University carries out under its storm water management program by viewing Annual Reports.*
- *Encourage local stream and watershed protection organizations to review and comment on new storm water management program plans.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit* for Public Involvement and Participation (PIP):

**PIP -1. Storm Water Annual and Semi-Annual Reports**

Measurable Goal: The SWMPP and NPDES annual and semi-annual reports will be made available on the U-M storm water web site. The date of addition to the website will be tracked for subsequent reporting.

Actions during the reporting period:

The SWMPP annual report for fiscal year 2004-2005 was added to the UM-OSEH storm water website in November, 2005. The SWMPP June 2005 revision was also added to the website during this reporting period.

**PIP -2. Community Meeting Participation**

Measurable Goal: The U-M will attend a minimum of ten (10) meetings annually with the Huron River Watershed Council (HRWC), Washtenaw County Drain Commission, City of Ann Arbor (A2), the Millers Creek Action Team (MCAT) or other local stream protection organizations for collaboration on storm water issues in the community. U-M's participation in meetings, community events, etc. with these groups will be tracked for subsequent reporting.

Actions during the reporting period:

Seven meetings were attended during the reporting period including MCAT meetings and a community information meeting on phosphorus loading issues presented by Professor John Lehman.

**PIP -3. Storm Water Management Program Plan - Community Feedback**

Measurable Goal: The U-M SWMPP (and subsequent revisions) will be provided to the City, County, Ann Arbor Public Schools and other interested parties for review and comment on the same frequency the information is provided to the MDEQ. The SWMPP will be accessible on the U-M website for review and suggestions. Any comments

received will be reviewed and evaluated for inclusion in the SWMPP by U-M OSEH. A reply to the comments submitted will be provided documenting the outcome.

Actions during the reporting period:

The revised SWMPP was provided to interested parties above. The SWMPP is also available for review on the OSEH website. No community feedback on the SWMPP was received during this reporting period.

**PIP -4. Middle Huron Initiative Participation / Phosphorus TMDL Participation**

Measurable Goal: The U-M will participate in semi-annual meetings of the Middle Huron Initiative to address the Ford & Belleville Lake TMDL on phosphorus reduction throughout the permit cycle. Attendance at these meetings will be tracked for subsequent reporting.

Actions during the reporting period:

The semi-annual Middle Huron Initiative meeting was attended during this reporting period.

**PIP -5. E. coli TMDL Participation**

Measurable Goal: The U-M will participate in the Geddes Pond – E. coli TMDL efforts throughout the permit cycle. Management activities addressing E. coli include dry weather screening and illicit discharge elimination, semi-annual catch basin cleaning, pollution prevention, and public education. These efforts as well as attendance at meetings/events on this issue will be documented for subsequent reporting.

Actions during the reporting period:

No meetings were held during this reporting period. The draft E. coli implementation plan was sent to a limited number of reviewers for comment and is anticipated to be distributed with resolution language to the concerned entities before the Spring MHI in late April 2006.

**PIP -6. Environmental Stewardship / Volunteer Opportunities**

Measurable Goal: The U-M will sponsor/offer a semi-annual volunteer opportunity for participants to get involved with storm water improvement and education programs. Examples of opportunities include storm drain stenciling/marketing and invasive species removal projects. The number of volunteer events offered will be tracked annually for subsequent reporting. The number of participants in volunteer stewardship events will be tracked for subsequent reporting.

Actions during the reporting period:

Volunteer invasive species removal events were held on October 15, 22, 27 and November 18, 2005.

OSEH is working with Boss Consulting Group, a consortium of business students providing free consulting services to local businesses, to strengthen the invasive species removal stewardship opportunities through education, recruiting, and website enhancement projects. This partnership began in December 2005 when a volunteer from an invasive species removal event approached OSEH and offered their services to assist in expanding and sustaining the stewardship opportunities offered by UM. The partnership is anticipated to continue throughout 2006.

Additional measures taken to achieve goals:

- OSEH staff members continue to create, improve, and revise project/contract specifications for inclusion of Best Management Practices (BMPs) during construction and renovation projects on campus.
- The University of Michigan continues to work with the City of Ann Arbor on improving storm water quality. This is accomplished through sharing information and resources.

**Illicit Discharge Elimination Program (IDEP)**

*The removal of illicit discharges is an ongoing program being conducted by the U-M. As illicit discharges are identified, they are discontinued or otherwise corrected. The program described in this section will be used to determine the existence, location, and extent of possible illicit connections and discharges to the storm water drainage system. At a minimum, It will address the elements presented in Part I, Section B.3 of the Permit.*

*The U-M will continue to encourage reporting of water quality problems and possible illicit connections and discharges to the storm water system. OSEH and /or Plant Operations will receive reports of water quality problems and possible illicit connections and perform follow-up investigations, leading to elimination where appropriate.*

*The overall IDEP program accomplishes the following goals:*

- *Identification and removal of Illicit Discharges on campus.*
- *Encourage reporting of water quality problems and possible illicit connections and discharges.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit* for the Illicit Discharge Elimination Program (IDEP):

**IDEP -1. Dry Weather Screening**

Measurable Goal: The U-M will perform dry weather screening on the entire campus over the 5-year permit cycle to determine the existence, location, and extent of possible illicit discharges into the U-M storm water drainage system. This is typically done

during four to five rounds of screening. Any issues identified for further investigation or correction will be tracked for subsequent reporting. The number of illicit discharges and connections identified and subsequently corrected or removed will be tracked annually for subsequent reporting.

Actions during the reporting period:

Dry weather screening for 2005 was completed during this reporting period. The results of the screening will be available in 2006 and will be provided as an attachment to the annual report. Additional information is provided in Section 1.b of this report.

**IDEP -2. Public Reporting of Illicit Discharges**

Measurable Goal: The emergency response system on campus will be maintained by DPS (24/7) for use by the public to report illegal dumping, spills or suspicious discharges at the University throughout the permit term. The number of calls received by the DPS/OSEH emergency response call system on potential discharges to the storm water system will be tracked for subsequent reporting. The number of incidents remedied as a result of these calls will also be tracked and reported annually.

Actions during the reporting period:

A total of 32 calls of outdoor incidents were reported via the DPS/OSEH emergency response system. A majority (25) of these outdoor incidents were remedied, while 7 spills resulted in discharges to surface waters. Two of the 7 discharges reported were the result of weather (rain, snowmelt) adversely impacting emergency response activities.

Additional measures taken to achieve goals:

- Additional campus programs which assist in maintaining or improving the quality of storm water discharges include: recycling, training and education of staff and students, designing to minimize seepage and erosion control. In fiscal year 2005 the University of Michigan recycled 36.4% of its waste, which includes mixed paper, mixed containers, scrap metal, scrap wood and secondary recyclables (e.g. Styrofoam, transparencies, hardcover books, etc.).
- OSEH sanitarians continue to work with kitchen and food vendors on campus to ensure proper waste management and disposal methods are used. In addition, OSEH continues to work with UM football stadium vendors/concession stands to prevent potential discharges into the storm water system. Concession stands were posted with signage detailing procedures for proper grease and wastewater management for these operations during the 2005 football season to reinforce proper waste management for these temporary operations.
- The Department of Occupational Safety and Environmental Health (OSEH) continues to review University owned/managed facilities in an effort to identify discharges into

the storm and sanitary systems. As part of this survey, any areas that contain suspect flows are noted for potential dye testing.

### **Post Construction Storm Water Management Program for New Development and Redevelopment Projects (PCSW)**

*The U-M has a program to address storm water runoff from new development and redevelopment projects. As part of this program, the U-M manages, reviews, and continually updates campus-wide planning to address storm water runoff from each new development and redevelopment project. This program helps to ensure that controls are in place that will minimize and in some cases prevent impacts on water quality from new development and redevelopment projects that disturb areas greater than one acre or disturb areas less than one acre but which are part of a larger common plan of development.*

*The overall PCSW program accomplishes the following goal:*

- *Provide and implement controls to minimize or prevent impacts on water quality from new development and redevelopment projects.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit for Post Construction Storm Water (PCSW)*:

#### **PCSW -1. Formal SESC Plans**

Measurable Goal: Formal SESC plans are required for sites with earth disturbance (greater than 24 hours) of 1 acre or greater and projects (of any size) within 500 feet of "Waters of the State." The number of SESC site plan reviews will be tracked annually for subsequent reporting. This review process allows OSEH to require projects to include storm water management controls in the design of all projects. The SESC plan also required final site stabilization and the maintenance program for permanent SESC's.

##### Actions during the reporting period:

Seven UM sites required formal SESC plans which were reviewed and approved by OSEH-EM during the reporting period.

#### **PCSW -2. SESC Plan Review for Permanent Storm Water BMPs**

Measurable Goal: OSEH and the University Planner's Office department will review all construction and renovation plans for use of structural and non-structural BMPs to prevent receiving water quality from the impacts of development and limit the rate at which surface water runoff discharges from any specific site to not exceed the pre-development hydrologic regime. The number of sites implementing various non-structural and structural BMPs will be tracked annually for subsequent reporting. Examples of BMPs to be tracked for reporting may include but are not limited to those identified above.

Actions during the reporting period:

Approximately 7 UM projects during this reporting period used a variety of BMPs. Examples of BMPs included the use of hydrodynamic separators, in-ground detention systems, storm water basins (detention and retention), bioretention islands, and connection to regional storm water management systems (detention or retention.)

**PCSW -3. Operation & Maintenance of BMPs**

Measurable Goal: Storm water management basins on campus will be inspected annually, at a minimum. The number and frequency of inspection of storm water basins will be tracked for subsequent reporting. Maintenance issues identified during these inspections will be tracked until corrected.

Actions during the reporting period:

The storm water management basin reviews were completed by a consultant as part of the system evaluation for potential retrofit opportunities to increase water quality and reduce or hold additional storm water volumes. The final report on this project is anticipated in early 2006.

In conjunction with preliminary recommendations from this project, the larger north campus grounds basin was retrofit during this reporting period to address volume and slope issues. The UM Golf Course basin maintenance project to dredge and remove the sediment deposit at the basin inlet was also completed. A project to retrofit the Golf Course basin has completed the design phase, applied for the necessary Joint Permit from MDEQ, and once the permit is received, is expected to begin construction in November 2006. The remaining UM basins will be prioritized for maintenance and retrofit based on the final retrofit report findings, funding, and acquisition of any necessary permits.

**PCSW -4. SESC Plan Review for PCSW Controls**

Measurable Goal: OSEH and the University Planner's Office review all plans to ensure projects have adequate post construction storm water management controls. The number of plan reviews will be tracked for subsequent reporting.

Actions during the reporting period:

Over 25 UM projects were reviewed during this reporting period.

Additional measures taken to achieve goals:

- Construction sites are stabilized with the addition of permanent controls and vegetation to reduce the amount of sedimentation that could impact receiving waters.
- Flood control and soil erosion and sedimentation control projects continue to be researched and implemented. Bioretention traffic islands, porous pavement and a

- parking lot storm water treatment system to remove sediments, oil, grease and trash have been installed at various locations on campus and are being evaluated for viability in future construction projects. Additional low impact development options such as green roofs are also under consideration for construction projects at the Ross School of Business and other construction/renovation locations on campus.
- OSEH is working with Construction Management to implement standard protocols to dye test the internal piping in new building construction to confirm proper connection to the sanitary sewer system. A program for confirmation of taps to exterior pipes is already in place.

### **Construction Storm Water Runoff Control (CSW)**

*In 1982, the U-M received approval from the Michigan Department of Natural Resources to operate as an Authorized Public Agency (APA) under the authority of Part 91, Soil Erosion and Sedimentation Control (SESC) of the Natural Resource & Environmental Protection Act, 1994 PA 451, as amended (Part 91). Reauthorization of U-M's APA status was received in 2004 from the Michigan Department of Environmental Quality. APA status allows the U-M to establish and manage the Soil Erosion and Sedimentation Control procedures on its properties. Construction activity at U-M may involve contractor or in-house construction activities performed by Plant Operations.*

*The overall CSW program accomplishes the following goal:*

- *Provide and implement controls to minimize or prevent impacts on water quality from construction activity.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit for Construction Storm Water (CSW)*:

#### **CSW -1. Formal SESC Plans**

**Measurable Goal:** Formal SESC plans are required for sites with earth disturbance (greater than 24 hours) of 1 acre or greater and projects (of any size) within 500 feet of "Waters of the State." The number of SESC site plan reviews will be tracked annually for subsequent reporting. This review process allows OSEH to require projects to insert storm water management controls into the front end of all projects.

#### **Actions during the reporting period:**

Seven UM sites required formal SESC plans which were reviewed and approved by OSEH-EM during the reporting period. All of these sites were less than 5 acres or in size, therefore, no construction NPDES Notices of Coverage were needed for these sites.

**CSW -2. SESC Plan Review for BMPs**

Measurable Goal: The use of BMPs is required on all projects under the approved SESC Procedures for the University. The number of projects using the Best Management Practices identified above for SESC will be tracked annually for subsequent reporting. BMPs will be selected as appropriate for site conditions.

Actions during the reporting period:

A total of 67 UM projects during this reporting period used a variety of BMPs on their sites. Examples of BMPs included the use of vegetative buffers, silt fence, catch basin filters, water diversions, and anti-tracking pads.

**CSW -3. SESC Inspections**

Measurable Goal: Sites will be inspected weekly and after rain events until final stabilization of the project site. The number of SESC inspections performed annually on U-M sites will be tracked for subsequent reporting.

Actions during the reporting period:

Approximately 1,204 weekly and after storm SESC inspections were performed during this reporting period.

**CSW -4. SESC Training by MDEQ**

Measurable Goal: Select staff from OSEH and the University Planner's Office will be SESC trained by MDEQ. The number of U-M staff who have received MDEQ SESC training will be tracked annually for subsequent reporting.

Actions during the reporting period:

To date, twelve UM staff have received SESC training from MDEQ and the associated Certificate of Training.

**CSW -5. Storm Water Operator Certification for Construction Sites**

Measurable Goal: Select U-M staff from OSEH University Planner's Office and Construction Management will be certified in Storm Water Management for Construction Sites. The number of U-M staff who have received MDEQ certification will be tracked annually for subsequent reporting.

Actions during the reporting period:

To date, 29 UM staff are Certified Storm Water Operators in the State of Michigan for Construction sites.

Additional measures taken to achieve goals:

- A street sweeper is in operation at construction sites to reduce the amount of sediment that could potentially reach receiving waters.

- The storm water drainage system is vacuumed semi-annually to remove sediment buildup within the system and to lessen potential sediment impacts to receiving waters.

### **Pollution Prevention/Good Housekeeping for University Operations**

*The University's storm water pollution prevention and good housekeeping initiatives are divided into the following six areas:*

- *Structural Controls - permanent physical features that control and prevent storm water pollution. Each structural control has routine scheduled maintenance and long-term inspection procedures to ensure that they remove storm water pollutants to the maximum extent practicable.*
- *Roadways - The University maintains numerous parking structures and surface parking lots throughout the Ann Arbor campus. Maintenance of the U-M roadways and parking structures incorporates sediment control activities. Street sweeping removes potential storm water pollutants before they are carried into receiving waters in runoff from a storm event. Maintenance activities on these structures and surfaces include street sweeping, leaf pick-up, litter and pollution controls, snow and ice removal, and roadside vegetative maintenance.*
- *Fleet Maintenance - The U-M owns and operates a large fleet of vehicles, including buses and cars, that is maintained by the Transportation Department. The U-M also owns and operates a fleet of equipment, including lawn mowers and rototillers that is maintained by G&WM. All vehicles and equipment are regularly maintained to ensure proper and effective operation as well as prevent impacts on storm water quality.*
- *Storm Sewer Labeling - As of March 10, 2004, any outfall structure that the U-M constructs or installs that discharges storm water to waters of the State will provide permanent identification (e.g. label, color coding, or other identifying characteristic).*

*The storm drains placed on campus come with the message "Dump No Waste - Drains to Waterways" engraved on it. Storm drain grates already in place have 4 inch plastic circle curb markers with the message "Keep our Michigan Waters Blue: Dump No Waste - Flows to River."*

- *Flood Control Projects - As construction, renovation or utility improvement projects are undertaken, the buildings identified as candidates for improvements are reviewed for potential flood control projects. Modeling is performed prior to new construction projects in areas identified with flooding issues or concerns to*

*ensure opportunities to alleviate or prevent new flooding issues are appropriately addressed.*

*Whenever the U-M conducts new flood management projects, the impacts on water quality of the receiving water are taken into consideration. As appropriate, new flood management project include a storm water modeling component to understand the potential impacts to regional detention needs prior to decision-making on design.*

*In addition, as appropriate, the U-M incorporates flood management considerations into its existing projects to assess the potential for incorporation of additional water quality protection opportunities, as well as regional detention opportunities.*

- *Pesticides and Fertilizers - The application of pesticides and fertilizers is controlled by several departments including G&WM, Athletics, Matthaei Botanical Gardens, Radrick Farms and Nichols Arboretum, depending on the location. The University employs Integrated Pest Management (IPM) methodology, an ecological approach to pest management, in University buildings. All available techniques are used to reduce pest populations to acceptable levels while minimizing the potential impact of pesticides upon humans and the environment.*

*Each area has operation and maintenance BMPs with the ultimate goal of reducing and in some cases preventing pollutant runoff from University operations to the maximum extent practicable.*

*The overall P2/GH program accomplishes the following goal:*

- *Develop and implement a program of operational and maintenance Best Management Practices to prevent or reduce pollutant runoff from University operations.*

The following BMPs are used to meet the requirements of *Part I, Section B.1 of the University of Michigan's NPDES Permit for Pollution Prevention & Good Housekeeping (P2/GH)*:

**P2/GH -1. Storm Water Management Basin Inspections**

Measurable Goal: Storm water management basins will be inspected annually during the permit term. The number and frequency of inspections on the U-M retention basins and detention basins will be tracked for subsequent reporting.

Actions during the reporting period:

The storm water management basin reviews were completed by a consultant as part of the system evaluation for potential retrofit opportunities to increase water

quality and reduce or hold additional storm water volumes. The final report on this project is anticipated in early 2006.

**P2/GH -2. Storm Water Catch Basin Maintenance**

Measurable Goal: Maintenance cleaning of the catch basins and storm sewer system piping will be performed semi-annually. The number of catch basins maintained will be tracked for subsequent reporting.

Actions during the reporting period:

Storm sewer cleaning activities occur on a semi-annual (seasonal) basis. Catch basins across the campus are cleaned and the sewer lines rodded out. Approximately 500 catch basins were cleaned during this reporting period. The liquid waste is drained to approved sanitary locations and the remaining non-hazardous sediment and debris is transported for disposal off-site. To more effectively handle the storm and sanitary cleaning solids, the University of Michigan constructed a storage pad for drying the solids. The solids are then loaded onto a dump truck or a roll-off container and transported to a sanitary landfill for proper disposal as non-hazardous, non-regulated waste. A project is underway to renovate and completely enclose the storage pad. Work is anticipated to be completed in early 2006.

**P2/GH -3. Street Sweeping, Leaf, and Litter Collection**

Measurable Goal: Street sweeping, leaf and litter collection will be performed continually throughout the permit term. The cost for disposal and estimated quantity of debris, trash, dirt, etc. disposed from the maintenance and cleaning/sweeping of numerous parking structures, surface lots and roadways throughout the Ann Arbor campus will be tracked annually for subsequent reporting.

Actions during the reporting period:

This information will be provided in the annual report.

**P2/GH -4. Snow and Ice Removal – Reduction in Salt Use**

Measurable Goal: Incremental annual reduction in the use of salt for de-icing to reach 50% reduction based on an average annual use of 2600 tons per year from 1989 to 1999. The quantity of salt used for deicing will be tracked on an annual basis.

Actions during the reporting period:

This information will be provided in the annual report.

**P2/GH -5. Snow and Ice Removal – Use of Alternative De-icers**

Measurable Goal: Increase the use of alternative de-icers annually to replace/supplement salt use. The quantity of alternative de-icers will be tracked on an annual basis.

Actions during the reporting period:

This information will be provided in the annual report.

**P2/GH -6. Pesticide and Fertilizer Technician Training**

Measurable Goal: All applicators (technicians) will be trained in pesticide and fertilizer use. The number of trained pesticide and fertilizer technicians will be tracked on an annual basis.

Actions during the reporting period:

This information will be provided in the annual report.

**P2/GH -7. Roadside Vegetative Replacement**

Measurable Goal: Eliminate the need for vegetative replacement due to salt damage. Annual tracking of the need for replacement vegetation will tracked for subsequent reporting.

Actions during the reporting period:

This information will be provided in the annual report.

**P2/GH -8. Storm Sewer Labeling**

Measurable Goal: All U-M storm drains will be marked with the message "Dump No Waste - Drains to Waterways", "Keep our Michigan Waters Blue: Dump No Waste - Flows to River" (or similar message) during the permit cycle. The number of storm drains marked will be tracked annually for subsequent reporting.

Actions during the reporting period:

This information will be provided in the annual report.