

**THE UNIVERSITY OF MICHIGAN  
MUNICIPAL STORM WATER NPDES PERMIT MI0053902  
MID-YEAR REPORT, APRIL 2005**

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, 2004 through December 31, 2004 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 plan (SWMP) revised March 2003.

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

The following illicit discharges were identified during this reporting period:

- Printing Services Building: Cross connections were discovered at Printing Services as a result of an investigation of a report by two UM employees on November 23, 2004 of a 'bluish' coloring in Millers Creek. Initial response, containment, and cleanup efforts are documented in the Incident Report dated December 2, 2004. Discharge to the creek from usage of any cross connected equipment or fixtures was immediately ceased. Since that date, efforts to identify cross-connections included camera review of exterior storm lines, plan/diagram reviews of all available information, as well as extensive dye testing of the building fixtures and discharge points. Dye testing of the building has shown that all bathrooms are properly connected to the sanitary sewer system. Three sinks, the computer-to-press equipment (CTP), and a few floor drains were found to be connected to the storm water drainage system. Discharges to the storm water system were stopped upon identification. These systems have been evaluated by UM Architecture & Engineering Services (AES) and a design has been completed for their correction and/or removal. Repairs to these systems are anticipated to be completed in Spring 2005.

The following illicit connections are under further investigation.

- Couzens Hall: Dry weather screening identified flow in this area. No flow was observed during three follow up events. Further investigation will be performed in Spring 2005, as weather permits.

Remediation is underway for the following illicit connections:

- 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 source of the flow was confirmed to be the reflecting pool. The reflecting pool has been drained for the season, thus eliminating the discharge. The request for correction work has been submitted and UM AES has been contracted for design and oversight of this project.
- 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. Non-contact

cooling water is an approved discharge under the NPDES permit. An additional source has been identified from a hand washing sink. The request for correction work to redirect the sink discharge and the floor drains to the sanitary sewer system has been submitted and UM AES has been contracted for design and oversight of this project. Repairs are estimated to be completed Fall 2005.

- 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.

Discharge events from overflow conditions, although infrequent, have been identified for correction using the following criteria:

- **New Construction:** All newly constructed cooling towers are designed so that overflow will drain to the sanitary sewer.
- **Existing Cooling Towers with Overflow Discharges to Storm Drains:** The U-M will continue to manage these cooling towers and prioritize corrections based on the frequency of overflow. The schedule for re-routing to sanitary will be prepared based on that prioritization. In addition, U-M will continue to document the status of any illicit discharges in the annual and semi-annual reports.
- **Renovations:** As renovations of the cooling towers occur, the overflow drain shall be redirected to the sanitary sewer.

Currently, repairs are scheduled to be completed at the following locations: Naval Architecture & Marine Engineering (NAME), May 2005; Lorch Hall, Spring 2005; Taubman Library, Summer 2005; Kraus, Summer 2005. Piping leaks which are the source of the overflow issues identified at the School of Education are currently being addressed. Chemistry and Medical Science II repairs were made in 2004.

- 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. Non-contact cooling water is an approved discharge under the NPDES permit. The request for correction work to redirect the floor drains to the sanitary sewer system has been submitted and UM AES has been contracted for design and oversight of this project.
- 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. Non-contact cooling water is an approved discharge under the NPDES permit. The request for correction work to redirect the floor drains to the sanitary sewer system has been submitted and UM AES has been contracted for design and oversight of this project.
- 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 dechlorinated water from the CCRB pool to the storm water drainage system. An additional source has been identified from pool deck drains and overflow. The request for correction work has been submitted and UM AES has been contracted for design and oversight of this project.

- Randall Laboratory - One source of water is a condensate receiver connected to an ejector tank that is connected to the storm water drainage system. The steam condensate from the ejector tank was disconnected. This repair was confirmed as completed in October when the manhole was rechecked. After the removal of the steam condensate, there was still flow. A potable water source was then suspected at this location. Potable water is an approved discharge under the NPDES permit. Additional investigation confirmed the source of water was the nearby CC Little Building where a fire pump was found leaking into a floor drain. This issue will be referred to maintenance and the repair of the pump was confirmed in December 2004. UM AES will be contracted for correction or elimination of the floor drain.
- 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 will be contracted for correction or elimination of the floor drain.

The following illicit connections have been addressed:

- Medical Science Research Building I/II: Dry weather screening identified flow in this area. The manhole identified was confirmed as a sanitary sewer via dye testing. No flow was identified during two follow up investigations of the original storm manhole.
- Simpson Memorial Institute Buildings: Dry weather screening identified flow in this area. No flow was identified during three follow up events. A broken water main was identified and corrected in this area during this timeframe, and is the suspected source.
- Central Power Plant: The CPP discovered some sampling and blow down drains were cross connected to the storm sewer while performing maintenance on boiler no. 4. These drains were infrequently used. The CPP took action immediately to correct the problem by replumbing the drains to the neutralization tank system which is connected to the sanitary sewer. The project was completed in September, 2004.

Dry Weather Screening – Dry weather screening for 2004 started in the fall due to high precipitation patterns experienced during the spring/summer. The 2004 screening event includes North and East Campuses and is scheduled for completion in Spring 2005, weather permitting. Any items identified and their subsequent corrective action will be prioritized based on the type of discharge. Information on these items will be provided in subsequent semi-annual and annual reports.

### *3. Assess BMP appropriateness and progress toward goals identified in the SWMP.*

#### A. Education and Outreach on Storm Water Impacts – Public Education Program

Goals:

- 1) Educate the public of hazards associated with illicit discharges and improper discharges. Encourage public reporting of the presence of illicit discharges or improper disposal of materials into the UM drainage system.
- 2) Educate the public regarding acceptable application and disposal of pesticides, herbicides and fertilizers.

- 3) Educate the public concerning the ultimate discharge point and potential impacts of pollutants from the drainage system serving their places of residence.
- 4) Educate the public about their responsibilities and stewardship of their watershed.
- 5) Educate commercial and institutional entities likely to have significant storm water impacts.

Measures taken to achieve goals:

- Drain markers saying “Dump No Waste – Drains to River, Keep our Michigan Waters BLUE” continue to be installed over storm drains throughout campus. These markers have raised the awareness of employees, students and visitors to the University that storm drains are directly connected to the river. Additional markers are installed, as needed, to repair or replace existing marker locations. New storm drain catch basins are permanently cast with a fish and the words “Dump No Waste.” Approximately 250 storm drain markers were installed during this period.

Education programs previously reported are continuing:

- 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. During this reporting period, over 1,600 brochures were provided during New Employee Orientation, Foundation of Supervision courses, Plant Academy-Law & Policy course and the OSEH New Hire Training for Laboratory Personnel. Storm water issues were also addressed during twelve pre-construction meetings for new projects on campus.
- OSEH sanitarians continue to work with kitchen and food vendors on campus to ensure proper waste management and disposal methods are used.
- OSEH provided training to ~40 staff on proper waste management, recycling and the prohibition of discharges into storm water systems during Plant Operations New Hire Orientation Training sessions.
- OSEH continues to work with Building Services to improve their cleaning procedures to include specific instructions for handling waste generated from each different operation. Currently, waste handling procedures are being reviewed by OSEH for newly purchased floor scrubber equipment.
- Presentations were provided to over 600 students and staff by OSEH personnel to inform, educate and increase awareness of storm water quality issues during this reporting period. Responses from attendees in the campus community include requests for brochures, consultations and additional presentations on related storm water pollution prevention issues. Storm water management for new and existing buildings has been a priority topic during this reporting period. Several student courses have been incorporating green roof design projects for storm water management to review feasibility, design, cost, longevity and maintenance issues.
- Soil Erosion and Sedimentation Control Operator certification is currently held by ten (10) University personnel through the MDEQ’s two-day training workshops and examination.
- Twenty-eight University of Michigan personnel, including construction inspectors, managers, plant and OSEH personnel have obtained Michigan Department of Environmental Quality certification as construction site storm water operators.

- Storm water educational announcements were made at the University of Michigan home football games during the 2004 season.
- Thirty-six showings of the OSEH department and the School of Natural Resources (SNRE) storm water educational video have been televised on UM cable TV during this reporting period.
- The OSEH/SNRE Web page at [www.oseh.umich.edu/stormwater/](http://www.oseh.umich.edu/stormwater/) provides a wealth of storm water information which can be accessed by the general public, as well as the campus community. The website has been visited over 2,800 times since November 2003. This site is continually updated and contains links to a variety of articles on storm water quality management and pollution prevention, improving storm water quality and wetlands protection, as well as copies of past years NPDES storm water reports. Many questions are received by OSEH staff regarding specific application of storm water principles identified on the web site. The following information may be obtained through the OSEH/SNRE web site:
  - Exterior Cleaning – procedures and alternatives to chemicals
  - Household Hazardous Waste Disposal
  - Spills – management and response
  - Sanitary and Storm Water Drainage Systems
  - Storm Water Regulations

#### B. Public Involvement/Participation

##### Goals:

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

##### Measures taken to achieve goals:

- An invasive species removal event was successfully completed in October, 2004 using volunteers from student groups on campus and University staff for oversight. This was the third workday for the North Campus Woods. This project is anticipated to continue semi-annually. Additional information on this project is provided as an attachment to this report.
- In addition to storm water information provided in brochures and on the website, the University of Michigan actively participates in meetings with the city, county and Huron River Watershed Council addressing concerns such as the *E. coli* TMDL, the phosphorus TMDL, and Millers Creek.
- Local stream and river protection organizations are encouraged to provide feedback on the University's Storm Water Management Program and associated activities.

- The OSEH web page contains the UM Storm Water Management Plan as well as information for use by students, faculty, staff and the surrounding community. The site also contains contact information for community input.
- 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.
- The University posts its annual and semi-annual NPDES reports on the UM-OSEH website to heighten community awareness of storm water management activities on campus.

### C. Illicit Discharge Elimination Program

#### Goals:

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

#### Measures taken to achieve goals:

- The campus community is encouraged to report illicit discharges and spills to OSEH and the Department of Public Safety so appropriate measures can be taken by the 24-hour Emergency Response Team to correct issues that may impact storm water quality.
- 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. A total of 86 calls were received during this period, of which, 18 (~20%) were outdoors. Outdoor incident response calls included responding to leaks or spills of gas, hydraulic fluid, diesel fuel, coolant, salt brine solution and bodily fluids. Of the 18 incidents, only two spills impacted the storm water drainage system.
- The Department of Occupational Safety and Environmental Health (OSEH) is conducting an on-going survey of 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.
- The University of Michigan has an ongoing program to identify illicit discharges on campus. Dry Weather screening is performed in 4 distinct areas based on geographical separation - South Campus, Central Campus, Medical Campus, and North/East Campuses. One campus area is selected each year to conduct the dry weather-screening program to determine the existence, location, and extent of possible illicit discharges into the UM storm water drainage system. As illicit discharges are identified, they are discontinued or otherwise corrected. IDEP activities on campus are detailed in item 1.b of this report.

### D. Post Construction Storm Water Management Program for New Development and Redevelopment Project

Goal:

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

Measures taken to achieve goal:

- Construction sites are stabilized with the addition of permanent controls and vegetation to reduce the amount of sedimentation that could impact receiving waters.
- Various storm water management technologies 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 are also under consideration.
- 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.
- Storm water management systems on campus are currently under review for potential increases in detention capacity, retention/infiltration, additional BMP usage, etc. The basin system study is anticipated to be completed in Winter 2006. Opportunities for enhancement of the basins will be reviewed and prioritized.

E. Construction Storm Water Runoff Control

Goal:

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

Measures taken to achieve goal:

- Soil erosion and sedimentation control measures are required for construction activities on campus which have the potential to impact storm water quality. Practices to reduce erosion include the use of vegetative buffers and covering spoil piles. The use of silt fence and inlet filters, at a minimum, are required for sedimentation control. These efforts help reduce the quantity of sediment that may reach the Huron River.
- Staff in various departments have received, or are in training to receive certification from MDEQ in Part 91 – Soil Erosion & Sedimentation Control; Part 31 – Water Resources Protection, Storm Water Management – Construction Site or Storm Water Management – Industrial Site.
- A street sweeper is in operation at construction sites to remove sediment that could be tracked off site and potentially reach receiving waters.
- Members of OSEH review site plans and make recommendations to improve runoff water quality in and around construction projects. Twenty-eight plan reviews were performed during this period.
- The University of Michigan received final authorization as an Authorized Public Agency from MDEQ to administer the SESC Procedures/programs on UM sites. The approved procedures have been distributed to Construction Management, Plant Operations, Planner's

Office, Architect's Office and other departments, as appropriate. This program institutes procedures for review, planning, execution and inspection of soil erosion and sedimentation control measures for projects that could potentially impact storm water quality.

#### F. Pollution Prevention/Good Housekeeping for University Operation

Goal:

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

Measures taken to achieve goal:

- Best management practices continue to be developed and successfully implemented. For example, Grounds & Waste Management has an established salt reduction program in place which encourages appropriate salt application and the use of alternative de-icing agents. In 2003 salt reduction of 42% was achieved, compared to the average usage of 2,600 tons from 1989 to 1999.
- Pesticide and fertilizer applicators on campus are trained and certified in appropriate application amounts and techniques.
- Storm sewer cleaning activities occur on a semi-annual basis. Catch basins across the campus are cleaned and the sewer lines rodded out. 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.
- Structural controls including retention basins, ponds and detention basins are used throughout campus to reduce potential impacts from runoff into the storm water system. Periodic maintenance is performed on these structures to optimize performance. A storm water management basin system has been completed in the north campus area. The system is comprised of four basins designed to improve the quality and reduce the quantity of storm water discharge. Additional planting is planned for 2005.
- The University Parking Services and Grounds and Waste Management Department (G&WM) conduct street and parking lot cleaning programs to collect sediment and litter send it off site for proper disposal. This is done to improve customer service, decrease the damage to structures from use of salt, prevent clogging of drains due to sand, litter and debris, and to improve the environment.