THE UNIVERSITY OF MICHIGAN
MUNICIPAL STORM WATER NPDES PERMIT MI0053902
FISCAL YEAR 1998-99 ANNUAL REPORT

In accordance with Part III, paragraph C-1 of NPDES Permit MI0053902, the University of Michigan (University) is required to submit an annual report of activities associated with the storm water system program. This program is a requirement of the NPDES permit issued by the Michigan Department of Environmental Quality Surface Water Quality Division on December 19, 1995. This report covers the period July 1, 1998 through June 30, 1999 and follows the format identified in the permit.

1. *Provide a brief summary of the implementation status of the plans for the elimination of illicit discharges, public education, and storm water pollution prevention.*

   The University has undertaken several items in the management of storm water runoff and pollution prevention.

   - An on-going survey of University owned/managed facilities is being conducted by the Department of Occupational Safety and Environmental Health (OSEH) in an effort to identify discharge points into the storm and sanitary systems. The work has concentrated on the sanitary system sampling. The initial phase of this sampling should be complete by September 1999. Follow up sampling will be planned based on the initial findings.
   - According to the Storm Water Program plan submitted to MDEQ, the University is divided into 4 distinct areas based on geographical separation - South Campus, Central Campus, Medical Campus, and North Campus. One campus area will be selected each year for 4 years to conduct a dry weather-screening program. Last summer the screening of Central Campus identified an illicit connection at the Mosher Jordan Dormitory. Refer to Paragraph 2 below for a description of that concern. This summer the North Campus has been selected for the screening, bid specifications prepared, and a consultant selected to perform the work. We anticipate the work being performed during August and September, with any required follow-up activity during the ensuing months. A report of this activity will be provided in the 1999 Mid-Year Report.
   - Three swimming pools (CCRB, NCRB, and IM pools) were inspected to determine their discharge patterns. While CCRB and IM pools discharge their pool water to sanitary, NCRB pool discharges to the storm drainage system. NCRB re-connection of the pool discharge from the storm system to the sanitary sewer is being planned and work is scheduled to be completed this fall.
   - Education programs reported in the mid-year report are continuing. The OSEH department project with the School of Natural Resources (SNRE) is finalizing a storm water educational video script. Filming is scheduled for completion by the end of Fall. The draft script is attached.

     Additionally, as opportunities arise for education, training is being provided to staff. As an example, vendors during the Ann Arbor Art Festival and at University sporting events are being educated on proper disposal of gray water from the food vending operations. Staff from the Blue Golf Course also attended the Michigan Turfgrass Environmental Stewardship Program workshop. Building Services and Grounds are receiving storm water education specifically directed at their department's different activities.

- OSEH plans to staff a booth at the Dormitory Student Resident Assistants Resource Fair in August. Information will be provided on storm-drain stenciling as a community service project they can complete with dormitory residents.
- The OSEH Web page at www.umich.edu/~oseh is being maintained. This site contains a variety of articles on storm water quality management.
- Pollution prevention efforts continue through catch basin cleaning, street/parking lot sweeping, and litter collection programs. Soil erosion control efforts were implemented at a variety of construction projects during this past year. These efforts all reduce the quantity of sediment that may reach the Huron River.
- A *Salt Use Quality Improvement Team* has made considerable progress in identifying and employing a variety of liquid and solid materials on campus. The goal of the team is to promote *Best Management Practices* for de-icing that minimize deterioration to buildings, infrastructures, and the environment without compromising the safety of the University's students, faculty, staff, and guests. Team members are from Public Safety, OSEH, General Counsel, Risk Management, Grounds Management, Parking Services, Building Services, and Plant Construction. A pilot test program was initiated in 1995 using potassium acetate (CF7) de-icer, and calcium magnesium acetate (CMA) to replace the sand/salt mixture. Various applications were tried, including mixtures of the materials with sodium chloride. A strategy of "anti-icing" was also tried where the application was made prior to the snow/ice precipitation. Based on the success of the pilot test, the program has expanded each year. These studies indicate there are feasible alternatives for using salt in some applications. This program will expand further in the upcoming years and additional studies will look at the effect of alternative deicers on vegetation, cost benefit on infrastructure maintenance, and safety issues. There is difficulty in judging the success of alternative de-icers due to the variable winters conditions that we have experienced year to year. Attached are summary tables and a chart of precipitation information and de-icing material usage.
- A major initiative started last November to evaluate the storm water system of the University should be completed later this summer. The study, being conducted by CH2M Hill under contract to OSEH is accomplishing several tasks including: 1) an aerial survey and digitized topographic maps to a one foot contour interval, 2) verification of invert elevations on catch basins and manholes, 3) modeling of runoff patterns across campus and through the storm drain system to evaluate capacity, and 4) preparation of a report. The report will provide recommendations for both short term and long term solutions to controlling storm water runoff and flooding of campus buildings.

2. *Provide a report of illicit discharges and illicit connections removed, and schedule for illicit connections and their associated discharges yet to be removed.*

The following "illicit discharges" were identified and eliminated during this reporting period:

- As in the previous year, a field survey was performed of food vendors from Ann Arbor Art Fair during site preparation for the events to determine how gray water was handled and disposed. As a result, a central location was established for vendors on University property for disposal into the sanitary system. Vendors were educated on transporting gray water to the proper disposal point. Proper disposal methods of gray water have been incorporated as a condition of issuance for the temporary food permits issued to them by the University to set up their booths at the festivals.
- U-M OSEH sanitarians are working on a continual basis with kitchen and food vendor personnel in facilities across campus to ensure proper waste handling and disposal methods are used.

- Two "illicit connections" were identified during this reporting period that could not be corrected immediately.
  - ◊ During the sewer system survey discussed in Item 1 above, a potential cross connection was identified at the Mosher Jordan Dormitory on Central Campus. The dry weather screening indicated the presence of copper and detergents in a sewer water sample, taken downstream of the flow from the building. Upon investigation, it was found that discharges from some of the bathrooms, and possibly a laundry room inside the building are routed to the storm system. Appropriate funding has been identified for the project and the plumbing personnel are scheduled to fix the cross connections this year.
  - ◊ The second illicit connection from the North Campus Recreation Building pool was discussed in the mid-year report. Procedures noted in the mid-year report are being followed and appropriate funding and resources have been identified for the project which is scheduled for completion this year.
- The procedures for water discharge from the other campus pools was reviewed. These pools now use sodium thiosulfate to dechlorinated the water below detectable concentrations prior to discharge.

3. *Provide an evaluation and summary of the effectiveness of the Storm Water Management Program. The report shall include an assessment of the pollution reduction and probable receiving water impacts associated with program implementation. When applicable, a statement shall be included regarding any negative water quality impacts that may have occurred as a result of any illicit discharges or accidental spills during the year.*

In accordance with Part III-A, methods to evaluate effectiveness of the program can vary, depending on the type of activity undertaken. The following factors are being reported during this period; however, this may change as the program becomes more formalized.

- Item 2 above discusses the effectiveness of "illicit discharge" identification and reduction.
- During this reporting period OSEH Hazardous Material personnel responded to approximately 118 incidents, involving spills and leaks of hazardous materials. Of these, 17 potentially related to storm water issues. The majority of the spills were small, a few milliliters to a few gallons. At most locations, no discharge to the storm system was noted and materials were well below reportable quantities. The materials were contained with spill kits; cleaned up using absorbent materials, and removed for appropriate disposal by OSEH's on-call emergency response team. Response activities involved leaks and spills of sulfuric acid, diesel, gasoline, hydraulic oil, and body fluids in parking areas, driveways, and other outdoor places. A few examples of such releases and the corresponding response actions are given below.

  - ◊ Approximately six gallons of sulfuric acid was released from a tanker truck outside the Central Heating Plant. Due to worker safety concerns, the truck driver, truck and pavement were flushed with copious amounts of water until the pH of the water on those surfaces was neutral. Run off was discharged to the storm drain system.
  - ◊ Approximately a six square inch area of blood was spilled from a bicycle accident on the sidewalk by Zewit House. Water and bleach were used to clean up the spill. No discharge to the storm drain was noted.
  - ◊ Approximately 20 gallons of hydraulic oil was released from a waste collection truck in the Northwood housing parking lot #10. The spill was cleaned up using oil dry absorbent. A small amount of oil entered a nearby storm drain catchbasin. No oil was

noted in catchbasins down stream of the spill. The material was pumped out of the one catchbasin and the storm drain system in the area was cleaned.

- ◊ Approximately one gallon of diesel fuel was released from a school bus visiting the Ruthven Museum. The spill was cleaned up using oil dry absorbent. No discharge to the storm drain was noted.

- A catch basin cleaning program has been underway during the last year. A change of contractor, to Young's Environmental, disrupted the catch basins cleaning schedule of approximately twice per year. During this past year catch basins across the campus were cleaned and the lines rodded out, resulting in approximately 3,022 gallons of sediment and debris removed from the storm water system transported for solidification and disposal off-site at Waste Management – Venice Park in Lennon, Michgan.
- The University Parking Services and Grounds and Waste Management Department (G&WM) conduct street and parking lot-cleaning programs. During this period approximately 200 cubic yards of sediment was collected and sent off site for disposal. In addition to sweeping and vacuuming of surface lots and parking structures, Parking Services Department has involved itself in using alternate de-icers during the winter. This was done to improve customer service, decrease the damage to structures from use of salt, prevent clogging of drains due to sand, and to become environmentally friendly. The G&WM performs a litter collection program, where approximately 180 cu. yards of litter was collected and sent for off-site disposal as normal municipal waste.

4. *Provide proposed modifications and updates to the Storm Water Management Program, including an update on areas added to the University's municipal separate storm water drainage system due to annexation or other statutory processes. Proposed modifications and updates shall include schedules for implementation when appropriate.*

   No changes to the program are proposed at this time.

5. *Provide revisions, if necessary to the assessments of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) & (v).*

   No revisions are proposed at this time.

6. *Provide a summary of any data, including water testing or screening data, that has been developed since the previous annual report and which is not reported elsewhere in the annual report.*

   Monitoring data on the storm water system dry weather screening for Central Campus was provided in the 1999 Mid-Year Report. No other data has been developed during this period.

7. *Provide the previous year's annual expenditures and proposed budget for the fiscal year following the report.*

The expenditures and budget are shown in the following table.

ACTIVITY	98-99 UNIVERSITY LABOR AND MATERIALS[1]	98-99 CONTRACTOR COST OR DIRECT PAYMENTS	99-00 BUDGET ESTIMATE
Permit administration	$20,620		$20,000
OSEH Survey of building connections to storm system	$43,000	$11,000	$60,000
Campus wide storm water runoff and flooding study		$120,000	$280,000
Storm water education program	$10,000		$30,000
Catch basin maintenance and cleaning program	$287,788	$147,408	$200,000
Street sweeping program	$39,956		$45,000
Parking structure cleaning program	$350,000		$350,000
Storm water utility charges paid to Ann Arbor		$174,535	$450,000
OSEH spill response activity	Footnote 2		
Plant Extension Division	Footnote 2		
Waste Management Department	Footnote 2		
TOTALS	$751,364	$452,943	$1,435,000

Footnotes: 1 - University labor costs include estimated base salary, 28% for benefits, and 52% for indirect cost recovery charges.

2 - These departments and divisions have moderate storm water costs and are not tracked separately by the University budget system.

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