MUNICIPAL SEPARATE STORM SEWER SYSTEM
2010 ANNUAL REPORT

Permit Number 85-03-0-04
March 2011

Prepared by
Department of Environmental Health and Safety
and Facilities Planning and Management
2809 Daley Drive
Ames, Iowa 50011-3660
INTRODUCTION

The following is the 2010 Stormwater Annual Report for Iowa State University, prepared in accordance to Part III of the facility’s Municipal Separate Stormwater System (MS4) permit, number 85-03-0-04. This report summarizes stormwater compliance activities within the boundaries of Iowa State University and outlying farm properties, including: Central Campus, North Campus, South Campus, the Applied Science Complex, the Arboretum, the Southwest Athletic Complex, the Veterinary Medicine College, the Iowa State University Dairy Teaching Farm, and the Iowa State University, BioCentury Research Farm.

STATUS OF IMPLEMENTING THE COMPONENTS OF THE STORMWATER POLLUTION PREVENTION AND MANAGEMENT PROGRAM

Iowa State University was issued a National Pollutant Discharge Elimination System (NPDES) permit on February 6, 2004 and was renewed for an additional 5 years on February 6, 2009.

Iowa State University fulfilled all scheduled requirements for 2010 as stated in Part II of the MS4 permit.

STATUS OF COMPLIANCE WITH ANY COMPLIANCE SCHEDULE ESTABLISHED BY THIS PERMIT OR BY ANY MODIFICATIONS TO THIS PERMIT

During the 2010 calendar year, the following nine (9) construction sites operated under NPDES General Permit No. 2 authorizations:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Permit</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISU Hach Chemistry Building</td>
<td>IA-15828-15609</td>
<td>Discontinued 09/09/2010</td>
</tr>
<tr>
<td>ISU BioCentury Research Facility Hoop Struc</td>
<td>IA-16408-16151</td>
<td>Discontinued 11/29/2010</td>
</tr>
<tr>
<td>ISU BSL 3 Facilities</td>
<td>IA-17878-17647</td>
<td>Discontinued 09/09/2010</td>
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<td>ISU BioRenewables Research Lab</td>
<td>IA-16408-16151</td>
<td>Discontinued 09/09/2010</td>
</tr>
<tr>
<td>ISU Morill Road Reconstruction</td>
<td>IA-18227-18022</td>
<td>Discontinued 11/05/2010</td>
</tr>
<tr>
<td>ISU West Recreation Expansion</td>
<td>IA-17879-17648</td>
<td>Active 11/01/2009</td>
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<tr>
<td>ISU Vet Med Phase 2</td>
<td>IA-18226-18016</td>
<td>Active 04/01/2010</td>
</tr>
<tr>
<td>ISU Horticulture Greenhouse Replacement</td>
<td>IA-18451-18222</td>
<td>Active 05/10/2010</td>
</tr>
<tr>
<td>Ames Intermodal Facility</td>
<td>IA-199220-18994</td>
<td>Active 12/08/2010</td>
</tr>
</tbody>
</table>

Four (4) sites reached final stabilization as defined in the permits and Notices of Discontinuation were submitted to IDNR. Iowa State University had four (4) active permitted sites as of December 31, 2010 (Attachments A and B).
Below is a summary of the data, including monitoring data, which is generated within the reporting period, including narrative description of stormwater quality improvements or degradation.

**Stormwater Web Page**
The Environmental Health and Safety (EH&S) stormwater web page, consisting of stormwater facts and information, the stormwater hotline telephone number, and a stormwater survey, was viewed 93 times in 2010. The stormwater web page is being evaluated for improvements and modifications for 2011.

**Stormwater Hotline**
The stormwater hotline received six (6) calls related to stormwater construction activities on campus. Five of the calls pertained to off-site tracking of disturbed soil onto local roads. One additional call pertained to a discoloration of College Creek which is explained in detail latter in this report.

**Flood of 2010**
On August 10th Iowa State University and other communities along Squaw Creek and its tributaries, experienced a significant rain event that led to extensive flooding. The flooding was not limited to waterways, storm sewer systems were filled and basements flooded. The University responded rapidly with flood control activities; however, the overall impact was greater than expected and some facilities were inundated.

The University, contractors, FEMA and Homeland Security continue to work through clean up, restoration, mitigation and plans for future protection.

Overall, the University estimates the flood impact to fall between $30M and $40M. A total of 54 buildings were impacted to varying degrees. Six buildings received substantial damage: Hilton Coliseum, Scheman Building, Lied Recreation, Family Resource Center, University Village Apartments, and Veenker Golf Course Maintenance Building. Flood protection for Hilton and Scheman will be accomplished with activities currently underway. Ongoing flood protection discussions are underway for Lied Recreation, University Village Apartments, the Family Resource Center, Veenker Maintenance Building, and the Power Plant Cooling Towers.

**New Capital Improvement**

Iowa State University continues to implement BMPs on capitol projects. (Attachment C)

- EH&S woods landscape – low grow, native grass and wildflower planting
- Biorenewables Research Laboratory – bioretention, green roof, native plantings, rain gardens, gray water system
- West Recreational Facility and Expansion – bioswales, gray water system, and native plantings
- Parking Lot 63 – bioretention
- Alumni Center – bioswales, native plantings, rain gardens
- Horticulture Greenhouses – bioretention, native gardens
- College of Veterinary Medicine Small Animal Hospital – bioswales, native plantings, bioretention
- Oak Elm Residence Hall – green roof
- Morrill Road – permeable pavers
- Intermodal Facility – bioswales and detention
- Cyclone Sports Complex – bioswales, detention and native plantings
- Troxel Hall – green roof
**Stormwater Management Committee**

Iowa State University’s Stormwater Management Committee is required to meet periodically to discuss university stormwater activities. The Iowa State University Stormwater Committee held two meetings in 2010. For 2011, the Stormwater Management Committee will meet quarterly with additional subcommittee meetings.

**Campus Engagement and Volunteer Participation**

Iowa State University has a significant level of student, faculty and staff involved in a variety of activities that directly or indirectly support water quality. In the past year ISU has begun to identify those activities and requested information regarding the levels of participation. Examples of the activities include: Skunk River Navy (water way clean up), Keep Iowa State Beautiful (Adopt a Campus area program), VEISHEA Service Day (Stash the Trash), Frederiksen Court Community Council (Clean-up Day) and Live Green Initiative (College Creek Clean Up activity). There were likely many other activities held, but it is difficult to collect information in a self-reporting environment. With that in mind ISU has asked for information that would begin to quantify the service hours that were part of these activities reported. ISU can account for at least 420 students, faculty and staff as reported through two of these initiatives. The Skunk River Navy, sponsored by a faculty member, cleaned another 3 mile stretch of the Skunk River last year, generating 3.4 tons of trash. Over 13 years they removed 60.2 tons.

**Highlighted Projects**

The EH&S north native seeding was installed in 2010 and expands upon the existing Extension 4-H native area to create more than 2 acres of native grasses and wildflowers along 13th Street. The existing bluegrass/fescue turf was converted to fifty species of native grasses and forbs to increase stormwater infiltration and reduce mowing, fertilization, and herbicide application.

The EH&S low grow grass and wildflower planting was established in 2010. The mixture is comprised of approximately 50% low growing grass mixture (including several Fescues, Little Bluestem, Side oats and Blue Grama) and 50% native wildflower mixture (including over 29 different annuals and perennial Wildflowers). When fully established this combination of grasses and wildflowers which will provide the beauty of wildflowers and the aesthetics of low growing prairie grasses. The planting will improve filtration, increase infiltration and significantly reduce the need to mow the area.

The Biorenewables Research Lab building has been awarded a LEED Gold rating. Site improvements include a gray water system allowing rainwater to be collected and reused on-site; a bioretention area to reduce runoff, remove contaminants and sedimentation from stormwater runoff and increase infiltration of stormwater on-site. A green roof was also constructed to help to increase stormwater absorption, provide building insulation and reduce the heat island effect.
TRAINING AND DEVELOPMENT

As part of the continued training and professional development of University staff responsible for stormwater management, members of the Iowa State University Stormwater Committee, EH&S staff, and FP&M Design and Operations staff participated in programs to improve knowledge of stormwater management. Programs included EH&S training of the Stormwater Management Committee, FP&M Utility’s staff and managers, Iowa State University Golf Course and Athletic Department grounds crews, and other EH&S staff members. EH&S and FP&M staff attended workshops presented by the Iowa Association of Municipalities (IAMU) regarding construction site SWPPPs and site inspections. EH&S staff attended the Annual Stormwater Conference in Ames. Training opportunities are continuously reviewed and will be utilized as time and budgets allow.
**Pesticide and Fertilizer Management Program**

Iowa State University departments that apply pesticides and fertilizers continue to operate according to defined management programs. The university follows proper storage procedures, and meets guidelines for training certified applicators, minimizing application rates, and maintaining record keeping databases. Annual reviews determine best management and minimization of pesticides and fertilizer application amounts. Upon review of annual application rates, when lower application rates are effective, lower rates are applied in subsequent applications.

**AN ESTIMATE OF THE PREVIOUS FISCAL YEAR EXPENDITURES FOR IMPLEMENTATION OF THE MANAGEMENT PROGRAM AND THE BUDGET FOR THE CURRENT FISCAL YEAR**

The stormwater management budget for calendar year 2010 was funded, “as needed” by several campus entities.

EH&S dedicated ½ full time equivalent (FTE) of staff time to stormwater activities. Salary and benefit expenses are estimated to be approximately $40,000.

EH&S conducted inspections of all permitted construction sites. EH&S staff conducted 456 weekly site inspections, and 177 post rain event inspections, totaling 279 stormwater site inspections for 2010.

EH&S staff maintained and evaluated upgrades of the stormwater website, maintained a quarterly stormwater hotline advertisement in the student newspaper, attended stormwater training conferences, and developed Iowa State University staff training programs. EH&S staff presented a graduate seminar to approximately 40 graduate students and professors in Civil Construction and Environmental Engineering.

FP&M stormwater program expenditures associated with stormwater project design/BMP, support, implementation and maintenance were approximately $842,279

Total estimated expenditures for fiscal year 2010 were $1,202,000. No annual amounts are appropriated for ISU stormwater management. Stormwater expenses are funded on an as-needed basis.
SUMMARY DESCRIBING THE NUMBER AND NATURE OF INSPECTIONS, ENFORCEMENT ACTIONS AND PUBLIC EDUCATION PROGRAMS CONDUCTED DURING THE REPORTING PERIOD

Inspections
EH&S conducted 456 site inspections in 2010. 279 were weekly inspections and 177 were post rain event inspections. Inspections were conducted by EH&S on all Iowa State University construction sites requiring an NPDES General Permit No. 2. The inspections verified contractors were following specified BMP’s as provided on the site-specific Stormwater Pollution Prevention Plan.

Iowa State University conducted its annual November dry flow inspection of all campus stormwater outfalls. EH&S employees visually inspected all stormwater outfalls to public waterways listed in the university database. The visual inspection involved walking streams on campus verifying no illicit discharges. All dry land outfalls were visually inspected. No illicit discharges were detected. A review of the annual outfall inspection process was conducted; no changes were administered to the inspection program.

Iowa State University FP&M continued to inspect the stormwater system (MS4) and conducts repairs as needed. Data is maintained in the FP&M computerized work management system FAMIS.

Notices of Discontinuation
Five (5) construction projects reached final stabilization as defined in the permits and Notices of Discontinuation were submitted to IDNR. Iowa State University had four (4) active permitted sites at the end of 2010. Iowa State University was not subject to any stormwater enforcement actions during the 2010 reporting period.

IDNR Inspections
No MS4 permit compliance inspections were conducted during 2010.

The Iowa Department of Natural Resources conducted an investigation of an oil sheen on College Creek. The source of the oil sheen was identified as run on from property not owned by ISU. ISU EH&S staff assisted with the investigation along with City of Ames staff.

On the morning of September 13th, ISU received a call on the dedicated Stormwater Hotline that College Creek was a blue-green hue. EH&S staff responded to the location identified by the caller and verified the creek was discolored. EH&S staff walked upstream in an attempt to locate the source. The source was determined to be near Mortensen Road which is City of Ames jurisdiction. It was later identified by IDNR that the source of the discoloration was a plumber’s non-toxic dye and had been removed by City officials the day before.

The same day, upon arriving back at the EH&S Building, EH&S staff were met by an IDNR Field Inspector Kate Basin. An oil sheen was reported to IDNR Field Office 5 on College Creek coincidently at the same location. The discoloration of the creek had dissipated and a petroleum sheen was now visible on the creek surface.
EH&S staff accompanied Kate Basin, IDNR Field Office 5 Investigator to the location of the reported sheen. The sheen was visible as the flow came down current out of a box culvert. The group walked upstream to the other end of the box culvert and saw no sheen. Concluding the source must be an outfall within the box culvert. Ms Basin requested we breakup into small groups and walk the area of campus town looking for surface sources. None were located. EH&S staked oil absorbent booms across the creek and returned the next morning replacing booms. EH&S staff entered the box culvert after placing the booms in the creek and identified the specific outfall causing the petroleum sheen. The outfall was connected to a storm drain pipe on City of Ames property. Upon concluding the source was on City of Ames property, Ms Basin dealt with City of Ames officials pertaining to this matter.

The Stormwater Hotline received 5 additional calls pertaining to mud tracked on University streets from construction site. These calls were during the timeframe of the August 2010 flooding event of the City of Ames and ISU resulting in over 30 million dollars in property damage to the University. All calls were verified with a site visit and remediation of the issue.

**Stormwater Education Program**

EH&S developed training for Iowa State University employees who could potentially impact stormwater quality functioning during normal work activities. During the 2009 calendar year, 24 ISU employees received education on stormwater and what each employee can do to improve stormwater quality. Calendar year 2010 was an off year for stormwater employee training.

Training cycles for employees is on a two year rotation; 2011 will realize a larger number of employees training pertaining to stormwater.

**SUMMARY**

All permit required activities for the 2010 reporting period were completed on or before specified deadlines. It is estimated that the cost of compliance activities completed during calendar year 2010 exceeded $1,202,000. Iowa State University will continue to evaluate opportunities to improve stormwater quality. Individuals with questions, comments or concerns about stormwater quality issues at Iowa State University should contact Steve Mayberry, Environmental Specialist III, Iowa State University, Department of Environmental Health and Safety, 2809 Daley Drive, Ames, Iowa 50011-3660.
Attachment A

Main Campus

ISU Permitted Construction Sites as of December 31, 2010

- ISU Horticulture Green House
  IA-18451-18223

- ISU West Recreation Expansion
  IA-17879-17648

- Ames Intermodal Facility
  IA-19220-18994
Attachment B

South of Main Campus

ISU Permitted Construction Sites as of December 31, 2010