ANNUAL REPORT

General Permit for the Discharger of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit)

(See Small MS4 Annual Report Guidance for additional guidance on completing this Annual Report Form)

Check box if this is a new name, address, etc.

A. Permittee Information

1. Permittee (Agency Name): University of California Santa Cruz ☐
2. Contact Person: Courtney Trask, Storm Water Programs Manager ☐
3. Mailing Address: 1156 High Street, PP&C ☐
4. City, State and Zip Code: Santa Cruz, CA 95064 ☐
5. Contact Phone Number: (831) 459-4520 ☐
6. WDID # 3 44MS05079
7. Have any areas been added to the MS4 due to annexation or other legal means? ☐ YES ☒ NO

If YES

Outfall	Has map been updated?		Has SWMP been updated?		Receiving Water Name
	YES	NO	YES	NO	

8. Are you subject to the Design Standards contained in Attachment 4 of the General Permit? ☒ YES ☐ NO

If yes, report on the implementation of the Design Standards in section D.5 of this Annual Report Form.

B. Reporting Period (check one):

(Report is due by September 15 each year)

- ☐ Coverage Commencement (April 3, 2009) to June 30, 2010 (Year 1)
- ☒ July 1, 2010 to June 30, 2011 (Year 2)
- ☐ July 1, 2011 to June 30, 2012 (Year 3)
- ☐ July 1, 2012 to June 30, 2013 (Year 4)
- ☐ July 1, 2013 to June 30, 2014 (Year 5)

C. Executive Summary

The University of California at Santa Cruz's Storm Water Management Program (SWMP) was prepared in response to State Water Resources Control Board Water quality Order 2003-005-DWQ for National Pollutant Discharge Elimination System (NPDES) Phase II General Permit No. CAS000004 (State General Permit). The University's SWMP is a comprehensive 5-year plan to reduce the discharge of constituents of concern to the Maximum Extent Practicable (MEP), and to identify activities or structural improvements that help improve the quality of the storm water runoff. These activities and structural improvements are referred to as Best Management Practices (BMPs). BMPs will be updated as appropriate to increase their effectiveness.

The University's SWMP was approved by the Central Coast Regional Water Quality Control Board (RWQCB) in April 2009. In December 2009 the University signed a Declaration Form to participate in the Central Coast RWQCB joint effort for developing hydromodification control criteria. Revisions were made to the SWMP to include the University's participation in the joint effort. The plan revisions were approved by the Central Coast RWQCB in March 2010. Modifications were made to the SWMP in response to requests made by UCSC in the Annual Report 2009 and approved by the RWQCB in February 2011. The complete SWMP Appendix A, showing all revisions in strikeout and redline format, is provided as Attachment A to the Annual Report 2010.

The Annual Report 2010 is organized by Minimum Control Measures and provides a discussion of status, proposed modifications, if any, and proposed year 3 activities for each measurable goal. For each BMP, the report provides an assessment of appropriateness and effectiveness, based on the effectiveness measurement specified in the SWMP for that BMP.

Requests for Modifications of the SWMP

UCSC is proposing the following modifications of the SWMP:

1) ***BMP 1, task 1.2*:** UCSC primarily relies on electronic communications to reduce the cost of printing. Therefore, UCSC is requesting a modification to BMP 1, task 1.2, to replace the measurable goal to distribute 100 hard copies of the brochure annually with the following measurable goal:

> Posters will be placed in employee break rooms or community spaces. Location of posters will be announced to employees during training/safety meetings. Signatures of employees attending meetings will be collected.

UCSC requested this modification in our letter to the RWQCB of April 29, 2011 (Attachment B), but has not received a response to this request.

2) ***BMP 25, task 25.3*:** In completing BMP 25.1 UCSC determined that additional investigation was needed to confirm the location of the elevator sump drain outfall and develop a retrofit plan, as necessary, based on the results of the investigation. UCSC is proposing to modify the SWMP by adding BMP 25.3, to investigate and develop a retrofit plan, if necessary, for the elevator sump:

Implementation Plan

> During Permit Year 3 investigate elevator sump at 2300 Delaware Building C to confirm outfall location. A retrofit plan will be developed, if necessary, for final destination of elevator sump drain.

Measurable Goal

> By the end of Permit Year 3, retrofit plan will be developed if necessary

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☑	☐

Primary Implementers: EH&S: Storm Water Manager

3) ***BMP 45, task 45.2*:** In response to a request by the RWQCB in its letter of 2/15/11, UCSC is including a summary of the reports to the illicit discharge system as Attachment C to Annual Report 2010. However, BMP 45 does not currently require a summary of the reports or how UCSC followed up. Therefore, UCSC is requesting a modification of BMP 45, Task 45.2 measurable goal. UCSC proposes to revise the measurable goal to state:

> All components of the system are in place. 100% of reports are investigated. Annual Report to include a summary and follow-up report.

UCSC requested this modification in its letter to the RWQCB of 4/29/11 but has not yet received a response to this request.

4) ***BMP 101, task 101.1*:** A summary of the information collected and the results of the analysis, from the annual monitoring report, is included in the Annual Report 2010 as Attachment D. UCSC is including a summary of the information collected and the results of analysis in the SWMP Annual Report in response to a request for this information by the RWQCB in its letter of 2/15/11. BMP 101 does not currently require a summary of a summary of the information collected or the results of the analysis. UCSC is requesting a modification of BMP 101, task 101.1, starting in year 2. Change measurable goal to state:

> On an annual basis, the monitoring plan is implemented. A summary of the Annual Water Quality Monitoring Results will be provided.

UCSC requested this modification in its letter to the RWQCB of 4/29/11 but has not yet received a response to this request.

Attachments

This Annual Report includes the following attachments:

Attachment A: Appendix A of the UCSC SWMP, incorporating all RWQCB comments on the 2009 Annual Report that require a revision to the SWMP. Proposed deletions are presented in strike-through text and proposed additions are in red underlined text.

Attachment B: Copy of UCSC letter to the Central Coast RWQCB dated April 29, 2011, in response to the RWQCB Staff Review of UC Santa Cruz Storm Water Management Program 2009 Annual Report. This letter includes additional information requested by the RWQCB in its letter of February 15, 2011, as well as responses to each of the RWQCB comments on the 2009 Annual Report.

Attachment C: UCSC Illicit Discharge Reporting System, Year 2 Report Summary.

Attachment D: Annual Water Quality Monitoring Results, 2009-10

Attachment E: Annual Water Quality Monitoring Results, 2010-11

Attachment F: Food Facility Brochure

Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

John Barnes — September 13, 2011

Signature of Permittee (legally responsible person) — Date Signed

JOHN BARNES — AVC Physical Planning + Const.

Name (printed) — Title

D. Minimum Control Measures
1. Public Education and Outreach

1	**Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics**

a. General Summary: To increase awareness of storm water issues and promote pollution prevention, UCSC will develop and distribute electronic brochures. Brochure topics will include: general storm water information and awareness; storm water management at construction sites; storm water management for contractors, outside service providers and lessees; storm water management for Food Service Facilities; and storm water management for Custodial Services.

b. Status of Measurable Goals

1.1: A general information brochure is available by end of Permit Year 1. This goal was met in the Fall of 2006. A second brochure was added in Spring 2007.
A brochure for Construction Site Controls is available by the end of Permit Year 1.
A brochure for Outside Services, Contractors and Lessees is available by the end of Permit Year 2.
A brochure for Food Service Facilities is available by the end of Permit Year 1.
A brochure for Custodial Services is available by the end of Permit Year 1.

Status for Year Two

A brochure for outside services, contractors and lessees is available on the web at cleanwater.ucsc.edu. The general informational brochure was updated in 2010.

Supporting Documents/Location

Brochure on website / cleanwater.ucsc.edu

1.2: By the end of Year 1 the 4 specified brochures are available on web page. (The general information brochure was posted in the Fall of 2006. A second general information brochure on erosion from informal paths was added in 2007.)
By the end of Year 2 the fifth specified brochure is available on the web page.
At least one time per year each of the 5 required brochures is emailed to targeted audiences.
By the end of Permit Year 2, the custodial services brochure will be distributed to 100% of current employees.
At least 100 hard copies of the brochures will be distributed annually. The 100 hard copies may be a mix of any of the 5 specified brochures.

Status for Year Two

The fifth specified brochure, for outside services, contractors and lessees, is posted on the clean water website. The general information and unofficial pathway brochures were emailed to College Administrative Officers for distribution to students. The brochure for outside services, contractors and lessees was emailed to units that administer leases and will be handed out with each contract or lease. Posters were created from the brochures for custodial services and dining services; the locations of the posters were announced to employees during training/safety meetings.
UCSC distributed printed copies of the brochures at campus events but did not track the exact number of brochures handed out. UCSC will continue to have printed brochures available; however, UCSC primarily relies on electronic communications to reduce the cost of printing. UCSC is requesting the following modification to BMP 1, task 1.2: Replace the measurable goal to distribute 100 hard copies of the brochure annually with the following measurable goal: Posters will be placed in employee break rooms or community spaces. Location of posters will be announced to employees during training/safety meetings. Signatures of employees attending meetings will be collected.

UCSC requested this modification in our letter to the RWQCB of April 29, 2011, but has not received a response to this request.

Supporting Documents/Location

Brochures posted on the clean water website. Emails to targeted audiences. Sign-in sheets for custodial and dining services employees. / Cleanwater.ucsc.edu and Storm Water Program files in PP&C.

1.3: By end of each permit year, the 5 specified brochures have been reviewed and updated as needed.

Status for Year Two

Storm Water Intern Joanne Yee reviewed all five existing brochures and revised as necessary to address changes in Campus storm water issues Review determined that four of five existing brochures needed revisions. They have been updated and posted on cleanwater website

Supporting Documents/Location

Revised brochures on website / cleanwater.ucsc.edu

1.4: Translation need determined by the end of Permit Year 1. If translation needed, translated brochure available by October of Permit Year 2.

Status for Year Two

We have translated the training for both the dining services and custodial employees for the past two years. Both the dining services and custodial brochures have been developed into a poster form for placement in common areas (break rooms). The posters for dining and custodial services have been translated.

Supporting Documents/Location

Translated Posters; sign in sheets for training. / Storm Water Programs files in PP&C office.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: Questions 5,6,7 of the survey ask for responses that can be found in the informational brochures. Most participants were able to answer these questions correctly even though responses to Question 8 indicate that most people have not heard of the Storm Water Management Program. The results of the survey suggest that the Campus could do more to publicize the program, including finding additional ways to distribute the brochures.

e. Summary of Next Year's Activity: Review and revise brochures as necessary and disseminate them to targeted audiences.

8	**Storm Water Survey**

a. General Summary: Utilize surveys to determine baseline knowledge and attitudes regarding storm water within the campus community with periodic resurveys to assist in measuring and improving the effectiveness of various storm water BMPs.

Survey(s) to be developed, designed, administered and analyzed by student interns.

This BMP is intended to be one of several means of public education, outreach, participation and involvement. This BMP may be utilized to target specific audiences. This BMP may be used to address any or all storm water quality concerns.

b. Status of Measurable Goals

8.1: Survey development plan complete by December of Permit Year 2

Status for Year Two

Survey draft was completed by intern Robert Amy on 10/25/10 and circulated for comments.

Supporting Documents/Location

First draft of survey and mark-up comments completed by intern Robert Amy dated 12/14/10 / Kept in Storm Water Programs file, PP&C office

8.2: Survey beta tested by March 31 of Permit Year 2

Status for Year Two

Beta Test sent to PP&C department on March 17, 2011. Survey results were analyzed by March 31, 2011.

Supporting Documents/Location

1. Email sent to PP&C department requesting their participation in the survey; 2. Survey results / Storm Water Programs files in PP&C office

8.3: Survey administered by April 20 of Permit Year 2. Results analyzed by June 30 of Permit Year 2.

Status for Year Two

Request to participate in survey was emailed to campus community on 4/15/11. Results were analyzed by two interns by 6/7/11

Supporting Documents/Location

Email from Public Affairs to campus community requesting participation in survey; results analysis conducted by interns Robert Amy and Joanne Yee / Storm Water Programs files in PP&C office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: 1,133 surveys were started, 982 were completed. The summary performed by student intern, Joanne Yee, indicates that an increase in public education and outreach regarding the Storm Water Program is needed. UCSC has not included any changes to the Storm Water Management Plan related to this in the Annual Report. However, the Storm Water Programs Manager will be working with future interns to decide additional locations to place informational brochures which are more noticeable to Campus Community.

e. Summary of Next Year's Activity: Develop and administer a survey following the guidelines established in year 2

12	**Web Page**

a. General Summary: The previous UCSC storm water web page was moved to its own domain, http://cleanwater.ucsc.edu/, and substantially revamped in the summer of 2006. Since then, periodic updates have occurred. As of September 2008, the website includes pages on storm water concern reporting, the SWMP, an interactive map of storm drains on Science Hill, 2 general awareness brochures, internship and volunteer opportunities and other features. As of June 2010 all year 1 brochures have been posted on the website. The intent is for the web pages to serve as the major portal for information dissemination regarding the SWMP. The web page updates are made quarterly during the permit term.

b. Status of Measurable Goals

12.1: Web page updated at least quarterly with current SWMP activities (copies of brochures/flyers, annual reports, notices for upcoming activities, etc.).

Status for Year Two
Web page was updated quarterly with revised brochures, annual report, and survey.
Supporting Documents/Location
Emails to and from Information and Technology Services Department requesting uploads of revised brochures, annual report, and survey. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were 5,397 visits to the clean water web page in Yr. 2.

e. Summary of Next Year's Activity: On a quarterly basis, update web page with current SWMP information. Maintain and track the number of hits.

13	Mark Storm Drains

a. General Summary: Storm drain marking involves labeling storm drain inlets with plaques, tiles, painted or pre-cast messages warning citizens not to dump pollutants into the drain. In 2007, a Storm Drain Marking Team was convened. The team included representatives from Physical Plant, Colleges and University Housing Services, Transportation and Parking Services, EH&S, and PP&C-Campus Architect. The team selected markers and designated locations to be marked. Markers were installed at several locations in the summer of 2007. Markers will be installed at additional locations during the permit term.
Volunteers will be sought to identify locations where markers are missing or damaged.

b. Status of Measurable Goals

13.2: By the end of Permit Year 3, mark 100% of storm drains located on Primary and Secondary roads.
Status for Year Two
Marking has been completed on 66% of primary and secondary roads. A list and work order have been established to complete 100% by the end of Permit Year 3.
Supporting Documents/Location
Map of campus storm drains showing which have been marked. / Grounds Services / Physical Plant network server

13.3: By the end of Year 3, mark 80% of storm drains on CUHS service roads.
By the end of Year 4, mark 100% of storm drains on CUHS service roads.
Status for Year Two
Physical Plant has marked 100% of storm drains on Housing service roads.
Supporting Documents/Location
Marked storm drain map and lists of marked drains. / Physical Plant electronic files.

13.4: By the end of Year 3, mark 80% of storm drains in main campus parking lots.
By the end of Year 4, mark 100% of all parking lots.
Status for Year Two
This BMP, which was set to be completed in Year 3, has been removed from the SWMP because it was completed in Year 1. This modification was approved by the RWQCB in its letter of 2/15/11.
Supporting Documents/Location

NA / NA

13.5: By the end of Permit Year 3, mark 100% of storm drains located on Primary and Secondary roads.
By the end of Year 3, mark 80% of storm drains on CUHS service roads.
By the end of Year 4, mark 100% of storm drains on CUHS service roads.
By the end of Year 3, mark 80% of storm drains in main campus parking lots.
By the end of Year 4, mark 100% of all parking lots.

Status for Year Two

In accordance with the Implementation Plan for this BMP, interns Joanne Yee and Robert Amy split up maps of Campus and marked locations that had not been marked. Those maps have been provided to responsible departments. As reported under measurable goals 13.2, 13.3 and 13.4, marking has been completed on 66% of primary and secondary roads, 100% of storm drains in CUHS areas, and 100% of parking lots on the main campus.

Supporting Documents/Location

Campus drainage maps with locations marked / Storm Water Programs files, PP&C office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: 66% of storm drains have been marked on primary and secondary roads. 100% of storm drains in parking lots and on service roads in CUHS areas have been marked.

e. Summary of Next Year's Activity: Complete marking of 100% of storm drains located on primary and secondary roads; mark 80% of storm drains on CUHS service roads. Utilize volunteers/interns to identify locations where the markers are missing or damaged. Reconvene the marking team and develop an action plan for any additional marking.

14	Access to SWMP

a. General Summary: Engage campus community in implementing SWMP. Make SWMP and annual reports available at EH&S Office, McHenry Library and on web page.

b. Status of Measurable Goals

14.2: Annual reports available at designated locations within 30 days of completion. At same time, verify SWMP still available at all locations.

Status for Year Two

Annual Report was made available at EH&S Office, McHenry Library and on web page within 30 days of completion. It was also confirmed that the SWMP was available at each of the above locations.

Supporting Documents/Location

Email sent to Jan Becking, Mc Henry Library, requesting annual report be attached to SWMP and confirm it is accessible to public. Memo of phone call with Jim Burns, Director of Public Information, reporting that his office has not received any complaints regarding availability of the SWMP. / Storm Water Program files, PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: No complaints from people who could not access the SWMP were received by the

Director of Public Information or the Storm Water Manager.

e. Summary of Next Year's Activity: Make annual report available at designated locations within 30 days of completion. Verify that the SWMP is still available at all locations.

2. Public Involvement and Participation

23	BMP Development Team: Management Controls to Prevent Illicit Discharges

a. General Summary: Prevent illicit discharges from outside small contractors, outside services and lessees. For UCSC, this population is equivalent to independent businesses operating within a traditional MS4. Because this population is under contract at UCSC, it is appropriate to prohibit illicit discharges from this population by contract rather than by ordinance.
During Permit Years 1 and 2, EH&S to communicate with Purchasing and PP-Work Management and other affected departments to develop boilerplate contract language prohibiting illicit discharges to storm water (as described in BMP #43).

b. Status of Measurable Goals

23.1: Boilerplate contract language adopted by the end of Permit Year 2.

Status for Year Two

As of July 1, 2011, the Storm Water Management Boiler plate contract language required by BMP 23 has been added to the University's standard terms and conditions.

Supporting Documents/Location

The University's standard terms and conditions for purchase orders and standard language for leases and licenses. / http://purchasing.ucsc.edu/suppliers/TermsAndConditions.html;
http://purchasing.ucsc.edu/forms/TCAppendixSC.pdf;
http://reo.ucsc.edu/sites/reo.ucsc.edu/files/docs/Wastewater%20disposal%20-%20leases.pdf;
http://reo.ucsc.edu/sites/reo.ucsc.edu/files/docs/Wastewater%20disposal%20-%20licenses.pdf

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: Team members included Rachel Sievert, Business Contracts Administrator in the Procurement & Business Contracts Office; Ryan Harms, Real Estate Analyst in the Real Estate Office.

e. Summary of Next Year's Activity: BMP was completed in year 2, there is no scheduled activity for next year.

25	BMP Development Team: Investigation of Non-Storm Water Discharges

a. General Summary: As described in BMP #47 (Review of Non-Storm Water Discharges), during the development of the SWMP, 17 categories of non-storm water flows were examined to determine if UCSC has these flows at the facilities covered by the SWMP and if so, whether these flows might impact storm water quality. That review identified 7 flows requiring additional investigation. During Permit Years 2 and 3, teams will investigate these 7 flows. The team will determine if the flows occur, and if so, how they should be addressed.

b. Status of Measurable Goals

25.1: By the end of Permit Year 2, investigation and an action plan are complete for water line flushing and for potential flows at 2300 Delaware.

Status for Year Two

A team was assembled to investigate the potential flows at Delaware and an investigation and action plan was developed. The investigation established that no non-storm water flows are caused from air conditioning units at Delaware. The Campus has determined that there is a sump in the elevator pit at Delaware Building C elevator, but has not yet established whether it discharges to the sewer or the storm drain. The investigation and action plan also addressed water line flushing for the main campus, the Marine Science Campus, and Delaware. Preventative maintenance procedures for water line flushing were previously developed and updated as of 3/15/11. Procedures were updated again as of 6/27/11 to specify that water line flushing will be diverted to landscape to the maximum extent practicable.

UCSC is proposing to modify the SWMP by adding BMP 25.3, to investigate and develop a retrofit plan, if necessary, for the elevator sump at Delaware. The complete text of the proposed BMP is presented in Section C, above.

Supporting Documents/Location

See investigation and action plan dated 6/27/11 / Storm Water Program files, PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: All potential non-storm water flows were characterized in Appendix D of the SWMP. UCSC is proposing to add a new BMP, 25.3, to confirm the location of the elevator sump outfall and, if necessary, develop a retrofit plan to address non-storm water flows from this sump.

e. Summary of Next Year's Activity: Complete investigation and action plan for residential car washing flows at Marine Science Campus, Family Student Housing, and Faculty/Staff Housing. Implement New BMP 25.3, to confirm the location of the elevator sump outfall at Delaware and, if necessary, develop a retrofit plan to address and non-storm water flows from this sump.

35	**Storm Water Advisory Committee**

a. General Summary: CLUMAC (Campus Land Use Management Advisory Committee) will be informed of SWMP-related activities and may offer guidance and assistance in implementing the SWMP. EH&S will make semi-annual presentations to CLUMAC on the SWMP. Interested parties may bring issues to CLUMAC for recognition and guidance.

The CLUMAC advises the Senior Superintendent of Grounds Services in the management of campus lands; reviews proposals for changes in campus resource lands and protected landscapes; reviews current management practices and provides recommendations for grounds and land management; and works closely with the UCSC Natural Reserves Advisory Committee and is advised as to the status of the environmental reserve lands. The committee reviews management procedures dealing with sensitive land management issues, such as vegetation management for fire protection, storm water management, wildlife protection and control, pesticide use, grassland and forest management, off-road bicycle use, etc.

Membership includes representative(s) from staff, faculty, graduate students, and undergraduate students. Ex-officio members include: Senior Superintendent Grounds Services, Natural Reserves Director, Environmental Programs Manager and representatives from Campus Police and Campus Fire.

b. Status of Measurable Goals

35.1: At least twice a year, SWMP issues will be included in the CLUMAC agenda, when the CLUMAC is active.

Status for Year Two

CLUMAC did not meet during Year 2; therefore SWMP issues were not brought to the committee.

Supporting Documents/Location

NA / NA

c. Appropriateness (Scale 0-9 high):

d. Effectiveness: CLUMAC was not active during the reporting year; therefore, storm water issues were not brought to the committee.

e. Summary of Next Year's Activity: At least twice during the year, if the CLUMAC is active, storm water management issues will be included in the committee's agenda.

37	**University Neighbors**

a. General Summary: As suggested for non-traditional MS4s, UCSC has developed a public participation program primarily aimed at the employee and user population within its boundaries. In addition, UCSC regularly engages with University neighbors and the wider community. Much of that effort is led by the Office of Government Relations. To facilitate community participation in the management of campus storm water, the Office Of Government Relations will record and relay storm water issues raised at public meetings to appropriate campus departments. Additionally, the Office Of Government Relations will provide annual SWMP report information to interested parties.

b. Status of Measurable Goals

37.1: The Office of Government Relations will track storm water issues raised and annually report on the number of issues and to whom they were referred.

Office of Government Relations will report on how many persons were sent the annual report summary and notice.

Status for Year Two

Staff from UCSC's Government Relations office meets monthly with City administrators and with Santa Cruz Neighbors. In addition, Chancellor Blumenthal has an annual town hall-type meeting with Santa Cruz Neighbors. This organization has a membership of several hundred, with representation from all of the smaller neighborhood organizations in the city. These meetings provide ample opportunity for any issues related to storm water to be raised. No storm water issues were raised at any of the meetings. The Director of Government Relations emailed the Year 1 Annual Report summary and notice to the principal contact for Santa Cruz Neighbors, who forwarded it to her distribution list of several hundred.

Supporting Documents/Location

Schedule of monthly meetings; email to Santa Cruz Neighbors with summary of 2009-10 Annual Report/ Government Relations Office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Track storm water issues raised and annually report on the number of issues and to whom they were referred. Report on how many persons were sent the annual report summary and notice.

38	Site Stewardship Program

a. General Summary: The UCSC Site Stewardship Program is an ongoing program within the PP-Grounds department. The Site Stewardship Program organizes a team of interns and volunteers to take on ecological restoration and guardianship for sensitive natural areas within the UCSC campus. A summary of program activities will be included in the annual report.

b. Status of Measurable Goals

38.1: A minimum of 2 work days will be held each year with at least 8 participants per work day.

Status for Year Two

There were a total of 14 Site Stewardship volunteer days in 2010-2011, eight of them with at least eight participants

Supporting Documents/Location

2010-11 Volunteer Day Summary spreadsheet / Grounds Services electronic files and Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Hold a minimum of two work days each year with at least 8 participants per work day.

39	Volunteers and Internships

a. General Summary: Involve students and possibly others in developing and implementing the SWMP with a focus on unique solutions due to their areas of interest/expertise. Recruit volunteers and student interns to assist in developing and implementing BMPs. Volunteers and interns will be sought on an as-needed basis, but at least twice per year.

b. Status of Measurable Goals

39.1: Interns perform at least 200 hours per year of service for the storm water program.

Status for Year Two

Two interns completed a total of 265.5 hours of service for the storm water program. They completed the following projects: marked on campus maps all storm drains that had not been marked under BMP #13; developed, distributed, and analyzed the results of the survey that was completed under BMP #8; converted the clean water web page to Drupal; researched, collected and posted information required for the RWQCB Joint Hydromodification Effort; researched how UCSC is addressing ad-hoc paths and cigarette butts; tabled at the Book Store Plaza and the Employee Appreciation Picnic.

Supporting Documents/Location

Employee Labor Entry Reports for the two interns. / PP&C files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Recruit volunteers and student interns; complete at least two definable projects implementing the SWMP; interns perform at least 200 hours of service.

3. Illicit Discharge Detection and Elimination

40	Water Protection Policy

a. General Summary: UCSC will develop and adopt a water protection policy. This policy will apply to both storm water and waste water discharges. The storm water provisions of the policy will include the discharge prohibitions described in the MS4 general permit as well as procedures for enforcement of policy provisions including penalty provisions.

b. Status of Measurable Goals

40.2: A publicity mechanism such as campus wide email will be used to inform all members of the campus community of the new policy.

Status for Year Two

An announcement of the completed Campus Water Protection Policy was posted on the campus website and in the campus news publications. An email announcement was disseminated to the campus community.

Supporting Documents/Location

Copies of announcements and postings. / Env Programs Mgr files

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There have been no Campus Water Protection Policy violations to date.

e. Summary of Next Year's Activity: Continue to implement the Water Protection Policy; publicize the policy to all members of the campus community.

42	Management Controls to Prevent Cross Connections

a. General Summary: Prevent cross connections between the sanitary sewer and storm drain systems. UCSC utilizes a rigorous planning, design, construction management and commissioning process to ensure cross connections do not occur. This existing process ensures that proper connections are made for the sanitary sewer and storm drains. It is effective and comprehensive because UCSC either performs all plumbing connections or contracts for the plumbing work. MBEST lessees may undertake minor plumbing connections only after approval by UCSC.

b. Status of Measurable Goals

42.1: All new plumbing work is verified either through the building commissioning process or by the PP&C Construction Inspectors

Status for Year Two

All new plumbing work was verified either through the building commissioning process or by the PP&C Construction Inspectors.

Supporting Documents/Location

Inspection reports are filed for each new construction project. / Individual project files in PP&C office.

42.2: All plumbing work associated with new construction will be permitted through the City of Marina.

Status for Year Two

There was no new construction at MBEST during Year 2.

Supporting Documents/Location

NA / NA

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA. Dry Weather Outfall Screening Program will not be developed until Year 3.

e. Summary of Next Year's Activity: All new plumbing work is verified either through the building commissioning process or by the PP&C construction inspectors, except at MBEST, where all plumbing work associated with new construction is permitted through the City of Marina Building Department.

43	Management Controls to Prevent Illicit Discharges

a. General Summary: In order to prevent the occurrence of unpermitted discharges from small projects, outside contractors/service personnel and at MBEST from lessees: boilerplate language will be adopted to be included in work/service contracts and leases prohibiting improper, outside or storm drain disposal of wastes, wastewaters etc. This language will be used in affected documents beginning in Permit Year 3. This language will be supported by an electronic brochure developed under BMP #1, Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics.

b. Status of Measurable Goals

43.1: During Permit Year 2, applicable situations identified and boilerplate contract language adopted.

Status for Year Two

The Storm Water Manager worked with Purchasing and the Real Estate Office to develop boilerplate language for leases and for purchase orders for work/service contracts. The brochure for contractors and lessees developed as for BMP #1 refers to the contract language. The adoption of the contract language accomplishes the goals of former BMPs 69.2, 69.4 and 69.7, which have been deleted from the SWMP with the approval of the RWQCB.

Supporting Documents/Location

Language is posted on the websites of the Purchasing and Real Estate Offices. Contractor brochure. / Purchasing language is at http://purchasing.ucsc.edu/forms/TCAppendixSC.pdf
Language for leases is at http://reo.ucsc.edu/content/formsdocsdirectory
Brochure is posted on the clean water website http://cleanwater.ucsc.edu.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were two reports of potential illicit discharge by vendors and outside contractors in Year 2, before the new contract language was in use. The reports and follow-up actions are summarized in Attachment C (Reports 10.01 and 11.04).

e. Summary of Next Year's Activity: Use boilerplate storm water language in affected documents.

44	Storm Drain System Maps

a. General Summary: Storm drain system maps are intended to aid in identifying illicit discharges and targeting system maintenance and monitoring. The UCSC Main Campus, MSC, 2300 Delaware and MBEST storm drain outfall maps will be reviewed and updated to show all existing storm drain outfalls. Receiving waters shall also be identified and located.

b. Status of Measurable Goals

44.3: During Permit Year 2, storm drain maps for 2300 Delaware and MSC are completed.
Status for Year Two
Maps completed
Supporting Documents/Location
Storm drain maps for 2300 Delaware and the MSC. / Grounds Services electronic files.

44.4: During Permit Year 2, storm drain maps for 2300 Delaware and MSC are completed.
Status for Year Two
Storm drain maps for 2300 and MSC were completed and provided to Grounds Services for verification.
Supporting Documents/Location
Completed maps. / Grounds Services.

44.6: Affected departments verify that maps are complete.
Status for Year Two
Current utility base map is updated and reviewed on an annual basis through the Grounds Services storm drain Inspection preventive maintenance process, any changes noted in the field are reflected on maps and submitted to PPC.
Supporting Documents/Location
Updated utility base map. / Grounds Services electronic files.

44.7: Affected departments verify that maps are complete.
Status for Year Two
Map for main campus has been updated and provided to Grounds Services.
Supporting Documents/Location
Updated maps. / Grounds Services.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: Maps for main campus were reviewed and updated. Maps for MSC and 2300 Delaware were provided to Grounds Services, which verified locations of outfalls.

e. Summary of Next Year's Activity: Review and update maps for main campus, 2300 Delaware, and MSC.

45	Illicit Discharge Reporting System

a. General Summary: EH&S will establish a storm water illicit discharge reporting system with the following components: a telephone number staffed during regular working hours by a trained attendant; 24-hour emergency reporting to 9-1-1; web-based reporting monitored during regular working hours by a trained attendant; written procedures for collecting reports and conducting follow-up investigations and/or corrective actions; a system for tracking all reports made and their disposition; publicizing the reporting system in outreach materials/activities. The reporting system will additionally provide for public input/complaints regarding construction site storm water.

The system will be established during Permit Year 1. In addition to directing timely and effective responses to concerns about storm water management and providing an ongoing connection to the public, the reporting system will assist in measuring the effectiveness for many of the BMPs in the SWMP and may identify areas requiring additional BMPs.

b. Status of Measurable Goals

45.2: All components of the system are in place.
100% of reports are investigated.

Status for Year Two

All components of system are in place. 100% of reports were investigated. A summary of the reports and how UCSC followed up is included as Attachment C to the Annual Report.
UCSC is including this summary of the reports to the illicit discharge system in the Annual Report in response to a request by the RWQCB in its letter of 2/15/11. However, BMP 45 does not currently require a summary of the reports or how UCSC followed up. Therefore, UCSC is requesting a modification of BMP 45, Task 45.2 measurable goal. The modified measurable goal would state: All components of the system are in place. 100% of reports are investigated. Annual Report to include a summary and follow-up report.
UCSC requested this modification in its letter to the RWQCB of 4/29/11 but has not yet received a response to this request.

Supporting Documents/Location

Investigation reports. / Storm Water Program files in PP&C.

45.3: A storm water concerns reporting notice is included in the signage at all applicable construction sites.

Status for Year Two

Campus standards detail 01.5-01, for construction project signs, includes information on how to report a storm water concern. All new applicable project signs were checked for conformity with PP&C requirements, including the illicit discharge reporting information.

Supporting Documents/Location

Standard detail for construction site sign on PP&C website. /
http://ppc.ucsc.edu/standards/details/01000/01.5-01/

45.4: Publicity mechanisms are employed annually.

Status for Year Two

The illicit discharge reporting system is publicized on the clean water website at http://cleanwater.ucsc.edu/ as well as at employee training sessions.

Supporting Documents/Location

Page on clean water website. Powerpoint presentations used in employee training. / Storm Water Program files in PP&C.

45.5: Annual review is completed and documented.

Status for Year Two

Storm Water Programs Manager reviewed reports to illicit discharge system and determined that all reports were handled in a timely manner and there were no repeat reports.

Supporting Documents/Location

UCSC Illicit Discharge Reporting System, Year 2 Report Summary, included in Annual Report. / Storm Water Program files, in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: Four reports of illicit discharge or threat of illicit discharge were received; one of these was received through the illicit discharge reporting system established in Permit Year 1; the other reports were made to EH&S using other reporting mechanisms. A summary of the reports, including their closure dates, is provided in Attachment C.

e. Summary of Next Year's Activity: Operate the illicit discharge reporting system; include notice about how to report storm water concerns on all construction site signs; publicize the illicit discharge reporting system.

4. Construction Site Storm Water Control

48	**Campus Standards Handbook and Construction Contracts for Storm Water Management**

a. General Summary: The Campus Standards Handbook, which serves many of the same purposes as municipal building codes and ordinances, incorporates significant language to ensure erosion and sediment controls, as well as construction site waste controls. Because all applicable construction is performed under contract with the University of California, provisions for appropriate sanctions and penalties are included in the standard construction contract documents provided by the UCOP (University of California Office of the President).

b. Status of Measurable Goals

48.1: Erosion Control Standards and related requirements incorporated into all applicable new construction contracts.

Status for Year Two

All new applicable construction contracts contained requirements for Erosion Control Standards and related requirements as part of Division 1 Specifications. Division 1 Specifications are required for all construction projects.

Supporting Documents/Location

Project-specific Division 1 Specifications. / PP&C Contracts Office.

48.2: All SWPPP and related documents are reviewed for completeness before the NOI is submitted.

Status for Year Two

All SWPPPs and related documents were reviewed before the NOIs were submitted, as part of the construction submittal process.

Supporting Documents/Location

Project submittals, including the SWPPPs and related correspondence. / PP&C Contracts Office.

48.3: All new construction contracts contain standard provisions for penalties and breach of contract.

Status for Year Two

All construction contracts contained provisions for penalties and breach of contract provisions.

Supporting Documents/Location

All construction contracts. / PP&C Contracts Office.

48.4: Complete list of modifications and/or additions to Campus Standards and/or specifications by end of joint effort quarter 2.

Status for Year Two

Because LID techniques are an important part of the design strategy at UCSC, the Campus Standards Handbook was updated in June 2010 to ensure that the Standards did not hinder LID implementation. The June 2010 update also included revisions to the requirements for runoff rate control and treatment of runoff. The Standards were updated again in April 2011 to include volume control.

Supporting Documents/Location

UCSC Interim LID Guidelines; LID Checklist 04_12_11; LID Checklist for Small Projects 04_12_11. / Stormwater Programs files in PP&C office. The documents were emailed to RWQCB on April 28, 2011.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system and no notices of violation were issued related to construction sites.

e. Summary of Next Year's Activity: Erosion Control Standards and related requirements are are incorporated into all applicable new construction contracts. All SWPPP and related documents are reviewed for completeness before the NOI is submitted. All new construction contracts contain standard provisions for penalties and breach of contract.

51	Construction Site Inspection Procedures

a. General Summary: The University Representative has the authority to stop work on construction projects that are not implementing Erosion Control or SWPPP requirements. To improve the inspection and enforcement process, PP&C will develop and implement inspection procedures and checklists for storm water management. The inspection procedure will apply to all sites that disturb more than 50 cubic yards of dirt and projects over one acre The procedures and checklist will be developed during Permit Year 1 and implementation will begin no later than the beginning of Permit Year 2.

b. Status of Measurable Goals

51.2: Procedures and checklists implemented.

Status for Year Two

Projects meeting or exceeding the size specified in BMP 51.2 were inspected by appropriately trained individuals on at least the minimum frequency specified in BMP 51.2, using the inspection form developed in year one.

Supporting Documents/Location

Completed inspection forms / Project Inspection Archive File-PP&C Archives

51.3: Procedures and checklists implemented.

Status for Year Two
There were no applicable projects under PP-Work Management.
Supporting Documents/Location
NA / NA

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge system related to construction site and no formal or informal NOVs were received related to this item.

e. Summary of Next Year's Activity: Implement procedures and checklists.

52	**Plan Review for Storm Water Quality Impacts**

a. General Summary: UCSC follows the procedures and initial study checklist adopted by the University of California for the implementation of CEQA. During Permit Year 2, UCSC will review its procedures for preparing CEQA documents and, if necessary, revise these procedures to ensure that impacts on storm water runoff quality and quantity are considered and that BMPs and mitigations proposed for each project meet performance standards consistent with the SWMP.

b. Status of Measurable Goals

52.1: By the end of Permit Year 2, CEQA documents have been reviewed and revised if necessary.
After Permit Year 2, Storm water runoff quality and quantity are considered in all CEQA documents.
Status for Year Two
All Initial Studies and EIRs completed during the reporting year consider impacts on storm water runoff quality and quantity, assess the effectiveness of the proposed stormwater management systems in relation to the performance standards identified in the SWMP. Mitigation measures are identified where needed to ensure that the standards are met.
Supporting Documents/Location
Marine Science Campus Public Access Overlooks and Overlooks Improvements Initial Study;Marine Science Campus Projects EIR
/ UC Santa Cruz Physical Planning and Construction.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: All Initial Studies and EIRs are consistent with the requirements of the BMP.

e. Summary of Next Year's Activity: UCSC will continue to follow the current procedures and initial study checklist.

54	**Construction Site Storm Water BMP Training**

a. General Summary: On an annual basis, PP&C will train/retrain affected staff on the construction site storm water management BMPs. Training will utilize electronic brochures and flyers and other BMP documents such as construction site inspection procedures. Training will be conducted prior to October 1 of each year.

b. Status of Measurable Goals

54.1: 100% of affected PP&C and PP-Work Management staff have participated in training before October 1 of Permit Year 1.
Not less than 70% of affected PP&C and PP-Work Management staff participate in annual retraining.
Status for Year Two
More than 70% (29 of 32) of affected PP&C and PP-Work management staff participated in annual retraining.
Supporting Documents/Location
Agenda and training presentation. Sign-in sheet. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to construction sites.

e. Summary of Next Year's Activity: At least 70% of affected PP&C and PP-Work Management staff participate in annual retraining.

5. NEW DEVELOPMENT DESIGN REQUIREMENTS FOR STORM WATER MANAGEMENT

55	**Main Campus Planning and Design Requirements for Storm Water Management and Watershed Protection**

a. General Summary: SWMP sections 4.2.5.1 to 4.2.5.4 describe the context and approach for planning and development at the main campus. This BMP details the implementation tasks that UCSC will take to realize the described approach.

b. Status of Measurable Goals

55.1: PP&C and PP-Work Management shall each document that applicable measures are included in all completed construction projects.
Status for Year Two
Campus Standards are reviewed for each new project and all applicable measures are included in project design.
Supporting Documents/Location
Design review comments are complied by the Project Manager. / PP&C project files.

55.11: On an annual basis, PP&C will report on the number of Area Plans that were initiated or developed during the permit year.
Status for Year Two
The Northeast Campus Area Plan was completed in May 2011. The site analysis included a study by a geologist/hydrogelogist that identifed all affected watersheds in the planning area, potential impacts on water quality, and opportunities for storm water infiltration; and an analysis by UCSC staff of the storm water system design considerations at each site.
Supporting Documents/Location
Final Northeast Campus Area Plan and technical studies. / PP&C files.

55.2: For all projects funded for design after July 2009, PP&C and Work Management shall each document that Civil and Site Design Guidelines Supplement have been included in the completed projects.

Status for Year Two

This BMP has been modified by changing the frequency to one-time, with completion in Year 1. The requirements of this BMP are now covered by BMP 48. This modification was approved by the RWQCB in its letter of 2/15/11.

Supporting Documents/Location

NA / NA

55.3: PP&C and PP-Work Management shall document that all capital projects creating new impervious surfaces include an evaluation of LID practices and incorporate feasible LID practices by end of joint effort quarter 9.

Status for Year Two

This BMP is to be implemented beginning after joint effort quarter 4 and therefore was not required in Year 2.

Supporting Documents/Location

NA / NA

55.4: Applicable RFPs state that incorporating LID practices is an important campus goal by end of joint effort quarter 4.

Status for Year Two

This BMP is to be implemented by the end of joint effort quarter 4, and therefore was not required in Year 2.

Supporting Documents/Location

NA / NA

55.5: University-specific criteria developed by end of joint effort quarter 8. Developed criteria will be included in projects proposed for funding starting in quarter 9

Status for Year Two

This BMP is to be implemented by the end of joint effort quarter 8, and therefore was not required in Year 2.

Supporting Documents/Location

NA / NA

55.6: Applicability thresholds developed simultaneously with development of University-specific control criteria by end of joint effort quarter 8

Status for Year Two

This BMP is to be implemented by the end of joint effort quarter 8, and therefore is not required in Year 2.

Supporting Documents/Location

NA / NA

55.8: Projects funded after campus standards are updated shall include all applicable requirements.

Status for Year Two

The internal Campus project design review process includes review by qualified staff in PP&C. During this process, the Campus civil engineer confirms that projects are designed to meet the latest standards in place. If there is insufficient supporting documentation to demonstrate projects are meeting the current standards, the design consultant is required to provide additional supporting documentation.

Supporting Documents/Location

Project design review comments generated by PP&C engineering, located in project file, or PP&C database depending on project size and recency. Additional supporting documents such as hydrologic calculations are kept with individual project records. / PP&C project files; PP&C database

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: All projects funded after revised standards were implemented, were designed to those standards.

e. Summary of Next Year's Activity: Applicable measures are included in all construction projects; capital projects creating new impervious surfaces include an evaluation of LID practices and incorporate feasible LID; develop University-specific hydromodification methodology, and identify project type, size and location to which the criteria will apply; review and evaluate 2005 LRDP and other planning documents and revise as appropriate.

57	**MSC Planning and Design Requirements for Storm Water Management and Watershed Protection**

a. General Summary: The CLRDP is the land use plan for the physical development of the 98-acre Marine Science Campus (formerly Long Marine Lab), including Younger Lagoon Reserve. The CLRDP contains comprehensive provisions for storm water management and watershed protection as the Marine Science Campus is developed. Included in the CLRDP are policies, policy implementation measures, a Resource Management Plan and a Drainage Concept Plan that taken together will ensure that development will protect and in some areas enhance the watershed.

b. Status of Measurable Goals

57.1: Implement the storm water components of the CLRDP. Annually provide a summary of implementation.

Status for Year Two

No new development under the CLRDP has been approved, so planning and design requirements have not been implemented. The Campus is implementing source control measures for existing development as specified in the Drainage Concept Plan. The Younger Lagoon Reserve began implementation of the first phase of the Resource Management Plan.

Supporting Documents/Location

CLRDP Annual Report for 2010, including the Water Quality Report and the Annual Report for the Younger Lagoon Reserve. / CLRDP Annual Report files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: For all four monitoring periods of 2010 the Long Marine Lab discharge was in full compliance in all aspects of the applicable waste discharge permit (General Permit for Discharges from Aquaculture and Aquariums [NPDES Permit No. CAG993003]). The Campus is implementing source control measures for existing development as specified in the Drainage Concept Plan.

e. Summary of Next Year's Activity: Implement the storm water components of the CLRDP and provide an annual summary of implementation.

58	MBEST Planning and Design Requirements for Storm Water Management and Watershed Protection

a. General Summary: The Master plan for the MBEST Center requires that all surface runoff from new development to be directed to 10-year retention basins for infiltration with any overflow directed to a 100-year retention basin. Ten-year retention basins are owned and operated by MBEST. Hundred-year retention basins are maintained by the City of Marina. Ten-year retention basins are inspected monthly and maintained as needed.

b. Status of Measurable Goals

58.1: Infiltration basins are included in all new development.

Status for Year Two

There was no new development at the MBEST Center during Year 2.

Supporting Documents/Location

NA / NA

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA, no new development during Year 2.

e. Summary of Next Year's Activity: Include infiltration basins in all new development at the MBEST Center.

59	Staff Training on Hydromodification and Low Impact Development

a. General Summary: All Project Managers in PP&C and in PP-Work Management, as well as PP&C inspectors shall be trained in LID and Hydromodification. As of Fall 2007 all current affected staff had participated in some training related to LID. As the LID checklist and other measures are phased in the training will be updated to reflect evolving wisdom and requirements. Efforts will be made to retrain all affected staff annually, at a minimum 50% of affected staff shall participate in annual retraining.

b. Status of Measurable Goals

59.1: At a minimum 50% of affected staff participate in annual retraining by end of joint effort quarter 8.

Status for Year Two

Although implementation of this BMP was not required in Year 2, the annual storm water re-training that was conducted under BMP 54.1 covered hydromodification and LID.

Supporting Documents/Location

Agenda, training presentation, and sign-in sheets. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: BMPs 55, and 57 were implemented as described. BMP 56 is not scheduled for implementation until Year 3; BMP 58 is required for new development at the MBEST Center, which did not occur in Year 2.

e. Summary of Next Year's Activity: At least 50% of affected staff participate in annual retraining.

60	Operation and Maintenance of New Development BMPs

a. General Summary: As a non traditional MS4 UCSC is the final owner of nearly all structural BMPs. To ensure long term maintenance of BMPs installed in new construction, UCSC will add new structural BMPs to BMP #78: Storm Drain Systems Inspection and Preventative Maintenance. If Grounds Services is not identified as the responsible department, the identified department will adopt an appropriate inspection and maintenance schedule. Or for BMPs installed in areas which will be leased by others, long term maintenance will be assured by including an operation and maintenance requirement in the governing documents, such as the Covenants, Conditions and Restrictions (CC&R) or other appropriate documents.

b. Status of Measurable Goals

60.1: Prior to final completion of project, responsibility for long term maintenance of all new structural BMPs has been assigned and accepted.

Status for Year Two

Three projects were completed during year 2 with structural BMPs requiring long term maintenance, McHenry Library Renovation, Porter College Renovation, and Infrastructure Improvements Phase 1 Stormwater. Grounds Services participated in the final site walks for each project, along with the Project Manager and the Contractor, to discuss all new site development. During these walks both the Project Manager and Contractor provide Grounds Services with any necessary information including maintenance manuals to assist in long term maintenance.

Supporting Documents/Location

Maintenance log books kept by Grounds Services, which include the areas associated with newly completed projects. / Grounds Services office.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system or other communications related to maintenance of structural BMPs.

e. Summary of Next Year's Activity: Responsibility for long-term maintenance of all new structural BMPs has been assigned and accepted prior to final completion of project.

6. POLLUTION PREVENTION FOR OPERATIONS AND MAINTENANCE

62	Storm Water BMP Training

a. General Summary: On an annual basis, key employees receive training on general storm water awareness and on applicable BMPs to protect storm water quality. All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.

Training may utilize the Electronic Brochures and Flyers described in BMP #1.

b. Status of Measurable Goals

62.1: At least 90% of applicable PP-Grounds employees will participate in initial training. At least 90% of applicable PP-Grounds employees will be retrained annually.

Status for Year Two

Annual training was conducted by Courtney Trask, UCSC, Stormwater Manager, on 4/20/2011. More than 90% of Grounds Services Employees attended.

Supporting Documents/Location

Sign-in sheet / Grounds Services files.

62.2: At least 90% of applicable CUHS-Facilities employees will participate in initial training. At least 90% of applicable CUHS-Facilities employees will be retrained annually.Training conducted annually by responsible department.

Status for Year Two

Retraining of over 90% of key employees was completed.

Supporting Documents/Location

Lists of trained employees are kept by managers of the three campus zones and the Dining Facilities Coordinator. / Documents are kept in the offices of Dan Monko (East Zone), Oscar Guillen (Central Zone), Paul Bianchini (West Zone) and John Nugent (Dining Facilities Office).

62.3: At least 90% of applicable LML-Facilities employees will participate in initial training. At least 90% of applicable LML-Facilities employees will be retrained annually.

Status for Year Two

At least 90% of Grounds Services staff, including those who work at LML, were trained at the training session for Grounds Services staff on April 20, 2011. Three LML Facilities staff did not receive training. Training is scheduled for these staff in September 2011.

Supporting Documents/Location

see BMP 62.1 / See BMP 62.1

62.4: Participation by 100% of applicable MBEST staff in Year 1. Participation by at least 50% of applicable MBEST staff in Years 2-5.

Status for Year Two

100% of MBEST staff participated in training.

Supporting Documents/Location

Sign-in sheet / Storm Water Program files in PP&C.

62.5: At least 90% of applicable TAPS Maintenance employees will participate in initial training. At least 90 % of applicable TAPS Maintenance employees will be retrained annually.

Status for Year Two

TAPS maintenance staff attend Grounds Services safety meetings, where stormwater BMPS are addressed throughout the year as issues came up. However, three TAPS staff were not present at the stormwater training on April 20, 2011. A training for these staff is scheduled for October 4, 2011.

Supporting Documents/Location

Grounds employee safety meeting attendance sheets / Grounds department files

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There was one report to the illicit discharge system related to TAPS maintenance (see Attachment C, UCSC Illicit Discharge Reporting System, Year 2 Report Summary).

e. Summary of Next Year's Activity: At least 90% of applicable employees in PP-Grounds, CUHS-Facilities, and TAPS-Maintenance, and 50% of applicable MBEST staff participate in retraining.

63	Equipment and Materials Storage Areas

a. General Summary: This BMP applies to equipment and material storage areas for UCSC facilities operations.

b. Status of Measurable Goals

63.1: Equipment and material storage requirements are included in all training required by BMP #62.
100% of noted CUPA inspection deficiencies corrected within 30 days.

Status for Year Two

Equipment and materials storage requirements were included in all training sessions. According to EH&S, 100% of inspection deficiencies noted by the Santa Cruz County Environmental Health Services (the Certified Unified Program Agency [CUPA] for Santa Cruz County) were corrected within 30 days.

Supporting Documents/Location

Powerpoint presentations and sign-in sheets for all training sessions. / Storm Water Program files in PP&C and Environmental Programs files in EH&S.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to facilities equipment and materials storage areas.

e. Summary of Next Year's Activity: Include equipment and material storage requirements in all training required by BMP #62; correct 100% of noted CUPA inspection deficiencies within 30 days.

64	Washing University Owned Vehicles

a. General Summary: Most University vehicles are washed at the Fleet Services wash station, which discharges to the sanitary sewer. Grounds Services also maintains a wash station connected to the sanitary sewer; however, this station is primarily intended for cleaning Grounds Services equipment. OPERS (Office of Physical Education, Recreation, Sports, and Wellness) has been using a dry cleaning method with good success for more than a year to clean the exteriors of nine vehicles.
Private vehicles are not routinely washed at UCSC. Student residents generally do not have access to washing equipment. In BMP # 25, UCSC has made commitments to reviewing the limited instances where private vehicles might be washed.

b. Status of Measurable Goals

64.1: Vehicle washing requirements are included in all training required by BMP #62.

Status for Year Two

Vehicle washing requirements were included in all training sessions.

Supporting Documents/Location

Powerpoint presentations and sign-in sheets for all training sessions. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to vehicle washing.

e. Summary of Next Year's Activity: Vehicle washing requirements are included in all training required by BMP #62.

68	Street and Parking Lot Maintenance in Faculty/Staff Housing

a. General Summary: Prevent storm water contamination from roads and parking lots. Streets and parking lots associated with Faculty/Staff Housing shall be cleaned not less than once annually. One cleaning shall occur prior to the wet season.

b. Status of Measurable Goals

68.1: Cleaning is performed according to established schedule.

Status for Year Two

Cleaning was performed 10 times during Year 2, including three times before the rainy season (July 1, Aug. 1, and Oct. 2).

Supporting Documents/Location

Copies of work orders, Physical Plant recharge records for services performed, and Employee Housing recharges to the respective homeowner associations for services performed. / Employee Housing Office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system or to the Faculty/Staff Housing Office related to this item.

e. Summary of Next Year's Activity: Clean streets and parking lots according to the established schedule.

69	Food Service BMPs

a. General Summary: To ensure storm water quality is not negatively affected by food service activities, BMPs were selected by the BMP Development Team for Food Service Facilities (refer to BMP #18). The practices selected cover the following activities: washing of equipment, cleaning loading docks, cleaning outdoor dining areas, handling and disposal for fats, oil and grease (FOG), and handling of solid wastes and recyclable materials. These practices are to be implemented starting in Year 1. Where current facilities are inadequate to fully implement these BMPs a plan for future improvements (such as capital projects) will be developed and implemented.

b. Status of Measurable Goals

69.1: Operating procedures developed and implemented at each facility. Where current facilities are inadequate to fully implement these BMPs, a plan for future improvements (such as capital projects) was developed and is being implemented.

Status for Year Two

BMPs documented and distributed to Dining Managers and Supervisor for training of staff.

Supporting Documents/Location

Storm Water Related Best Management Practices (BMP) for Dining Services / Dining Administration and all Dining facilities managers

69.2: Operating procedures developed and implemented. Where current facilities are inadequate to fully implement these BMPs, a plan for future improvements (such as capital projects) was developed and is being implemented.

Status for Year Two

This BMP has been eliminated, and the measurable goal is now included in the contract language as part of BMP 43. This modification was approved by the RWQCB in its letter of 2/15/11.

Supporting Documents/Location

NA / NA

69.3: Training conducted annually by responsible department.

Status for Year Two

Storm water training for all staff was conducted on June 14, 2011.

Supporting Documents/Location

Sign-in sheet and curriculum. / Dining training records are kept in the Dining Admin office.

69.4: Training conducted annually by food service contractor.

Status for Year Two

This BMP has been eliminated, and the measurable goal is now included in the contract language as part of BMP 43. This modification was approved by the RWQCB in its letter of 2/15/11.

Supporting Documents/Location

NA / NA

69.5: Training conducted annually by responsible department.

Status for Year Two

Trainings were conducted by the three zone coordinators and the trades shop coordinator between June 5, 2011 and June 15, 2011.

Supporting Documents/Location

Curriculum summary. / Facilities Admin. Office

69.6: Training conducted by responsible department.

Status for Year Two

Training was conducted by the Storm Water Programs Manager on June 14, 2011

Supporting Documents/Location

Sign-in sheet / UCSC Dining Admin Office

69.7: Training conducted by responsible department.

Status for Year Two

This BMP has been eliminated, and the measurable goal is now included in the contract language as part of BMP 43. This modification was approved by the RWQCB in its letter of 2/15/11.

Supporting Documents/Location

NA / NA

69.8: Training conducted by responsible department.

Status for Year Two

New student employees were given an orientation to Stormwater BMPs as part of their safety training. No new staff employees were added during this reporting year.

Supporting Documents/Location

Stormwater BMP document and training sign-in sheets. / Housing Facilities Admin. Office

69.9: 100% of observations corrected within 30 days of notification by EH&S.

Status for Year Two

Food facility inspection reports are provided to the unit manager and assistant director. There was one food facility inspection report related to storm water issues, that was referred to the Storm Water Programs Manager for follow-up.

Supporting Documents/Location

Food facility inspection reports and follow-up correspondence. / Food Facility Managers files and Storm Water Manager's files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge system related to Food Service BMPs.

e. Summary of Next Year's Activity: Implement operating procedures at each facility; conduct training for applicable CUHS-Dining and CUHS-Facilities employees, and include storm water training to applicable new employees in these units.

75	**Fleet Services BMPs from SWPPP**

a. General Summary: The Central Garage is covered under the General Permit for Industrial Facilities. Therefore, the Central Garage shall continue the BMPs described in the SWPPP developed for compliance with the Industrial General Permit. As required by the State General Permit for Storm Water Associated with Industrial Activities, an annual assessment of the Fleet Services monitoring plan, data and BMP effectiveness is conducted and included in the Annual Report submitted to the Regional Board in compliance with WDID#344I001727.

b. Status of Measurable Goals

75.1: The effectiveness of BMPs and their implementation to be reviewed during annual compliance review inspection as required by the State General Permit for Storm Water Associated with Industrial Activities, WDID#344I001727.

Status for Year Two

Fleet Services continues to implement its Industrial Activity SWPPP and the effectiveness of BMPs and implementation were reviewed during an annual compliance inspection.

Supporting Documents/Location

Annual Inspection Reports / On file with the RWQCB

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Continue to implement the SWPPP developed for the Industrial General Permit. Conduct annual compliance review.

76	**Integrated Pest Management Program**

a. General Summary: UCSC practices an Integrated Pest Management Program (IPM) led by the Physical Plant Grounds Department. The Physical Plant Pest Management Office identifies which alternative pest control strategies can be used effectively, and is continually researching safer alternative pest control methods and products. The IPM program requires the least toxic and effective means for use are utilized.

Any use of a pesticide by UCSC and/or contracted private firms must obtain prior approval from the Environmental Health & Safety Office.

b. Status of Measurable Goals

76.1: Campus pesticide use complies with campus IPM program.

Status for Year Two

All pest management operations carried out by Grounds Services were made using least toxic methods possible and were consistent with IMP practices. Any pesticides used were approved by EH&S.

Supporting Documents/Location

UCSC Campus Grounds Department, Integrated Pest Management Practices, Alternative Pest Control Strategies / http://ehs.ucsc.edu/environmental_programs/pubs/grounds.htms

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Campus pesticide use consistent with campus IPM program.

77	**Cleaning Streets and Parking Lots**

a. General Summary: Streets and parking lots are cleaned to remove vehicle contaminants, leaf litter, sediment, and litter in order to prevent them from being carried into drainage channels during the rainy season.

UCSC has an existing Street Sweeping Program. This service is provided by Physical Plant-Grounds Services on all Main Campus roads. Primary roads are swept monthly. Secondary roads are swept on a bimonthly basis. During the fall and spring seasons, street sweeping may be conducted more frequently to respond to seasonal requirements. At the Marine Science Campus, street sweeping is provided by Physical Plant-Grounds Services for the one road. There are no streets at 2300 Delaware. Streets at MBEST are maintained by the City of Marina.

TAPS will continue to maintain parking lots and bus stops on the Main Campus. PP-Grounds or TAPS will maintain MSC and 2300 Delaware parking lots. MBEST will maintain the two parking lots at MBEST.

b. Status of Measurable Goals

77.1: Main Campus streets: Primary roads are swept monthly. Secondary roads are swept on a bimonthly basis.

Status for Year Two

Grounds Services performed sweeping on the primary roads during ten months of the year and on the

secondary roads five times during the year. The unit are in the process of recruitment and of training staff on the use of the equipment, to ensure staff are available for monthly sweeping.

Supporting Documents/Location

2010 and 2011 sweeper logs. / Grounds Services files.

77.2: MSC: Street sweeping is conducted 4 times per year.

Status for Year Two

Grounds Services Equipment Crew performed street sweeping of the roads at MSC on a quarterly basis.

Supporting Documents/Location

2010 and 2011 sweeper logs / Grounds Services files.

77.3: All parking lots shall be cleaned at least 10 times per year.

Status for Year Two

The parking lots were cleaned 10 times during the year.

Supporting Documents/Location

Log sheets that track parking lot cleaning / I a binder in the TAPS Annex

77.4: Evaluate new equipment in Permit Year 2.

Status for Year Two

An evaluation of the need for new equipment was completed, and resulted in the purchase of new backpack blower. The new blower is of the reduced noise volume design so that it is much quieter.

Supporting Documents/Location

Receipt for purchase of the equipment. / TAPS business office.

77.5: Establish and maintain a schedule for servicing parking lots.

Status for Year Two

Grounds Services performs storm drain maintenance and street sweeping of parking lots on a work order basis.

Supporting Documents/Location

various work orders / FAMIS (software system used by Physical Plant to manage its work processes)

77.6: MBEST will clean parking lots once per year. Catch basins will be maintained once per year.

Status for Year Two

The two parking lots were both cleaned once during the year. The catch basins in one parking lot were also cleaned

Supporting Documents/Location

Invoice for cleaning of one parking lot, and correspondence from City of Marina, which cleaned one parking lot in return for using it for an event. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item. There were 15 work order requests related to storm drain issues.

e. Summary of Next Year's Activity: Streets, parking lots ant catch basins maintained according to schedule specified in the BMP.

78	**Storm Drain Systems Inspection and Preventative Maintenance**

a. General Summary: UCSC will continue to inspect and maintain engineered storm drain systems in developed areas to address infiltration, sediment, oil and grease. A three-faceted approach is utilized for the storm drain inspection and preventative maintenance:
1) Grounds equipment operators make annual PM inspections encompassing over 400 storm drain systems, change oil absorbent socks, and check flow as needed. Deficiencies are logged and prioritized. An annual inspection is also performed for engineered detention tanks/vaults/oil separators, drainage swales, and detention basins. Engineered detention facilities are cleaned as needed by contract with private vendors.
2) The groundskeepers perform weekly inspections of the systems from October through March and monthly or as needed the remainder of the year. The groundskeepers clean the catch basin grates and outfalls as needed, sign-off that the inspections were completed and contact their supervisor if they have any problems.
3) During a storm event, the groundskeepers check their area storm drains several times a day and the equipment operators respond to area concerns as needed with specialized storm drain clearing equipment. Natural drainages are included in the storm event inspections whenever possible.

b. Status of Measurable Goals

78.1: Inspection and maintenance is implemented according to schedule.

Status for Year Two

Grounds performs annual inspection and ongoing maintenance of UCSC Storm Drain systems according to the schedule. Campus Gardeners perform maintenance on a daily basis.

Supporting Documents/Location

Storm Drain Maintenance Folder 2010-2011, Gardeners preventive maintenance checklists / Grounds Services office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item. There were 15 work order requests related to storm drain maintenance.

e. Summary of Next Year's Activity: Continue to inspect and maintain engineered storm drain systems in developed areas.

79	Campus Recycling Program

a. General Summary: The Refuse / Recycling Program currently collects material throughout all areas of campus. Members of the UCSC community can easily discard their materials in readily available containers, thus reducing the amount of litter otherwise carried into drainage channels during the rainy season. The campus waste management program works to preserve natural resources by encouraging recycling and reuse of materials. Additionally, Grounds personnel patrol campus roads, paths and landscapes collecting litter. This program will continue throughout Permit Years 1-5.

b. Status of Measurable Goals

79.1: The Grounds Services waste management program continues to provide recycling services for the Main Campus and MSC.

Status for Year Two

The Grounds Services waste management program continues to provide recycling services for the Main Campus and MSC.

Supporting Documents/Location

A description of the recycling program and maps showing locations of recycling bins on on the Physical Plant website. Grounds Services keeps records of the percentage of waste that is recycled. / Grounds Services files. Physical Plant website http://ucscplant.ucsc.edu/ucscplant/Grounds/index.jsp?page=Recycling_Refuse

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Continue to collect and re-direct discarded material. Make refuse/recycling containers readily available and service them regularly.

81	Grounds Services: Landscape Maintenance and Turf Management

a. General Summary: PP-Grounds Services will continue its Landscape Maintenance and Turf Management Program throughout Permit Years 1-5.

b. Status of Measurable Goals

81.1: Grounds Maintenance continues existing practices including hazardous materials use minimization, mulching, and litter control.

Status for Year Two

Area gardeners complied with the BMP restrictions.

Supporting Documents/Location

Groundskeeper checklists / Grounds Services files.

81.2: Turf management program continues existing practices for water management, fertility management, soil aeration, sanitation and mowing to maximize turf utility with minimal off-turf impacts.

Status for Year Two

Grounds continues to operate RainMaster Evolution controllers where installed and adjusts irrigation schedules for stand alone clocks based on local et. Lawns are aerated and fertilized twice a year. Mowing equipment is cleaned frequently to reduce weed importation.

Supporting Documents/Location

Records of turf crew maintenance activities. / Grounds Services files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Continue to provide landscape maintenance and continue existing turf management program.

82	Maintenance of Fountains and Decorative Water Bodies

a. General Summary: CUHS and PP-Grounds will collaborate to develop and implement fountain and decorative pool maintenance processes and procedures that ensure discharges will not negatively impact storm water quality. CUHS Facilities and PP-Grounds will collaborate by the end of Permit Year 2.

b. Status of Measurable Goals

82.1: CUHS and PP-Grounds to develop maintenance BMPs for all water features by the end of Permit Year 2.

Status for Year Two

Working group consisting of representatives of CUHS, PP-Grounds, and the Storm Water Programs Manager met to establish BMP's for all campus water features.

Supporting Documents/Location

Minutes of meeting, including list of BMPs. / Storm Water Program files in PP&C

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Implement the BMPs that were established during Year 2.

83	Household Hazardous Waste Minimization

a. General Summary: For the primary purpose of minimizing abandoned and hard-to-handle household hazardous waste, CUHS will continue distribution of selected cleaning products to applicable student living areas; accept return of unused products at the end of the academic year; and as needed, provide for proper disposal of any unusable products. This is a combined effort from Student Residents and CUHS-Facilities to minimize waste and toxics normally produced by residential facilities.

b. Status of Measurable Goals

83.1: CUHS Facilities will report annually on the quantity of household hazardous waste collected.

Status for Year Two

Housing Facilities disposed of the following quantities of various household hazardous waste in the reporting year: 102 lbs; 62 gallons in 1 or 5 gallon containers; 74 quart or smaller containers

Supporting Documents/Location

EH&S Waste Tag Tracking System. / Records of disposal kept by EH&S.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to household hazardous waste.

e. Summary of Next Year's Activity: Continue distribution of selected cleaning products; accept return for unused products at the end of the academic year; and provide residents with information about proper use and disposal.

85	Custodial Services BMPs

a. General Summary: On an annual basis, PP-Custodial Services employees receive training on general storm water awareness and on applicable BMPs to reduce storm water contamination.
Training may utilize Electronic Brochures and Flyers for General Storm Water Awareness and Targeted Topics (BMP #1).
Training will begin Permit Year 1.

b. Status of Measurable Goals

85.1: Custodial BMPs are integrated into the work routine.

Status for Year Two

All staff have been trained on appropriate BMPs. Custodial poster has been developed in English and Spanish. Posters will be placed in employee break rooms or community spaces and employees notified of their locations.

Supporting Documents/Location

Posters, brochures, training sign-in sheets. / Storm Water Programs files in PP&C.

85.2: At least 90% of applicable PP-Custodial employees will participate in initial training. At least 90 % of applicable PP-Custodial employees will be retrained annually.

Status for Year Two

All Staff attended the training meeeting.

Supporting Documents/Location

Safety meeting sign in sheet / Custodial Supervisor's office

85.3: At least 90% of applicable PP-Custodial new employees receive storm water training during new employee orientation.

Status for Year Two

No new staff hired

Supporting Documents/Location

Staffing sheets with hire dates / Custodial Supervisor's office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge system related to custodial services.

e. Summary of Next Year's Activity: Custodial BMPs are integrated into the work routine; at least 90% of applicable PP-Custodial employees will be retrained; at least 90% of new employees receive storm water training during new employee orientation.

86	Building Exterior Maintenance BMPs

a. General Summary: The BMPs affecting building exterior maintenance operations will be developed by the Building Exterior Maintenance BMP Development Team (BMP #34) during Permit Year 1 and will include an implementation schedule.

b. Status of Measurable Goals

86.1: BMPs implemented according to schedule.

Status for Year Two

The exterior building maintenance BMPs were implemented for all exterior building maintenance projects starting July 1st 2010, consistent with the schedule developed in Year 1.

Supporting Documents/Location

Training records, including sign-in sheets and presentation files. / Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There was one report to the illegal discharge reporting system related to building maintenance by a contractor (see Attachment C, UCSC illicit Discharge Reporting System, Year 2 Annual Report Summary). However, the University Representative corrected the problem because he had received stormwater training.

e. Summary of Next Year's Activity: Implement BMPS affecting building exterior maintenance operations.

90	**Water Line Flushing**

a. General Summary: Water line flushing is performed by PP-Plumbing and by the UCSC Fire Department to maintain potable water supply and to verify hydrant flows. During water line flushing, diverters or other means will be used to avoid erosion or damage to landscaping (plantings, mulches, etc.). Water line flushing by PP-Plumbing and the campus Fire Department will continue through Permit Years 1-5 in a manner that prevents erosion and damage to landscaping.

b. Status of Measurable Goals

90.1: Erosion or other landscape damage does not occur during water line flushing.

Status for Year Two

The Fire Department did not conduct flow testing of any hydrants, so no erosion or landscape damage occurred. The Department is developing a hydrant testing program that will comply with with the BMPs.

Supporting Documents/Location

NA / NA

90.2: Erosion or other landscape damage does not occur during water line flushing.

Status for Year Two

Plumbing Department has a preventative maintenance procedure (#752) for the annual water line flushing, which is done in July. This procedure includes the requirement that the flushing be done in manner that does not result in erosion or damage to landscaping. Water line flushing was skipped in July 2010 as part of the campus' water conservation efforts. The procedure was revised in June 2011 to require that water line flushing is diverted to landscape to the maximum extent practicable.

Supporting Documents/Location

Planned maintenance procedures (#752). / Physical Plant files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to water line flushing.

e. Summary of Next Year's Activity: During water line flushing, diverters or other means will be used to avoid erosion or damage to landscaping.

91	Vehicle Maintenance Prohibitions

a. General Summary: TAPS parking policies and residential rental agreements prohibit vehicle maintenance on campus, except at the campus Central Garage facility (covered by a SWPPP, see BMP #75). This policy and the rental agreements prevent oil, grease, heavy metals, and chemicals from being carried into storm water runoff.

b. Status of Measurable Goals

91.1: Vehicle maintenance prohibitions remain in place in parking policies.

Status for Year Two

UC Code 13 states that no repairs, other than emergency repairs of a minor nature, shall be made on privately owned motor vehicles on campus. This regulation is enforced by Parking Enforcement, a unit with the University Police.

Supporting Documents/Location

UCSC Traffic and Parking Regulations. / http://www2.ucsc.edu/police/parkreg.html

91.2: Vehicle maintenance prohibitions remain in place for residential rental agreements.

CUHS will provide information about vehicle maintenance prohibition (and other storm water related policies) to residents in either electronic or paper format on an ongoing basis.

Status for Year Two

It was discovered that specific reference is not made to vehicle maintenance in the Housing Terms & Conditions. UCSC Traffic and Parking Regulations prohibit vehicle repairs other than emergency repairs of a minor nature, on privately owned motor vehicles on campus. The vehicle maintenance prohibition is enforced by TAPS. This restriction applies to residents of campus housing. However, reference to the vehicle maintenance prohibition will be included in the next revision of college and housing unit residential handbooks.

Supporting Documents/Location

UCSC Traffic and Parking Regulations / http://ww2.ucsc.edu/police/parkreg.html

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Continue TAPS parking policy that prohibits vehicle maintenance on campus, except at the Central Garage facility. Vehicle maintenance prohibitions remain in place for residents of Campus housing.

93	Pet Prohibitions

a. General Summary: UCSC has a policy of prohibiting most pets on the Main Campus, the developed areas of the Marine Science Campus and at 2300 Delaware. See: http://www.ucsc.edu/ppmanual/html/sps0005.htm. This policy reduces the occurrence pathogen/coliform contamination in storm water from domestic animals.

b. Status of Measurable Goals

93.1: UCSC continues to have a policy that restricts domestic animals on campus.

Status for Year Two

UCSC continues to have a policy that restricts domestic animals on campus.

Supporting Documents/Location

Records of citations and owner warnings. / UCSC Police Department RiMS system.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: UCSC continues to have a policy that restricts domestic animals on campus.

94	**Homeless Encampments**

a. General Summary: The Main Campus, 2300 Delaware and the Marine Science Campus are all controlled access facilities. These three facilities are closed at night and access is restricted to those individuals with a stated purpose for being at the facility. Homeless encampments have not been an issue at MBEST. This BMP addresses pathogen contamination of storm water, in addition to other potential constituents of concern, associated with homeless encampments.

b. Status of Measurable Goals

94.1: University Police enforce night access policies.
If homeless encampments are found, summary of control activities reported.

Status for Year Two

Night ingress is monitored. Guards call police if unauthorized people attempt to enter campus. Police officers deal with illegal camps when located and remove in cooperation with campus facilities. Five citations related to illegal camping on campus property were issued during the year.

Supporting Documents/Location

Statistics on kiosk entry denials; case records for illegal campsites. / UCSC Police Department files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: Homeless encampments are an ongoing issue at UCSC. Police officers deal with illegal camps when located and remove them in cooperation with Physical Plant, and make contact with all campers when they are located.

e. Summary of Next Year's Activity: University Police enforce night access policies. If homeless encampments are found, summary of control activities is reported.

95	**Hazardous Waste Management Program**

a. General Summary: EH&S operates a program for hazardous waste collection and disposal for all UCSC hazardous waste generators. This program includes electronic container tracking; collection of

materials from generators; and disposal of materials in accordance with federal and state requirements. Several times per year, EH&S offers to the UCSC community training for hazardous waste generators on proper classification and handling techniques for hazardous wastes.

b. Status of Measurable Goals

95.1: On an annual basis, Hazardous Waste Manager summarizes program effectiveness and any changes made.

Status for Year Two

All generators of waste are required to use the electronic container tracking system, the "Online Tag program" (OTP), to request a pickup of hazardous waste. Once a generator EH&S requests a pickup, EH&S collects the waste within one week.

Supporting Documents/Location

Online Tag Program records / Electronic data on the web based application or in an Access database.

95.2: On an annual basis, Hazardous Waste Manager will provide the number of campus community members that have successfully completed the hazardous waste training course.

Status for Year Two

155 members of the campus community were trained. The training focused on regulations for labeling, storage and disposal and walked through the Online Tag Program web site.

Supporting Documents/Location

Sign in sheets / Hazardous Waste Program files in EH&S.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Continue existing hazardous waste management practices and continue to offer training for hazardous waste generators.

96	Hazardous Materials Emergency Response Organization

a. General Summary: UCSC operates an emergency response team for hazardous materials that are in or may enter the storm drain system, as described in the UCSC Hazardous Materials Management Plan. EH&S is an integral component of this team. EH&S staff oversees the proper stabilization, clean-up and disposal of spilled hazardous materials and initiates corrective actions to prevent recurrences. This BMP applies to Main Campus, Marine Science Campus and 2300 Delaware.

b. Status of Measurable Goals

96.1: Hazardous Materials Emergency Response Organization continues to provide response to hazardous materials releases.

Status for Year Two

UCSC's emergency response team continues to respond to spills.

Supporting Documents/Location

Campus Dispatch emergency response records. / Campus Dispatch files and Env Mgrs record of emergency responses.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: There were no reports to the illicit discharge reporting system related to this item.

e. Summary of Next Year's Activity: Continue to respond to reports of spilled hazardous materials.

7. UCSC Specific Measures to Reduce Storm Water Impacts

100	Stormwater Infrastructure Improvements

a. General Summary: This project includes infrastructure improvements, for issues identified in the Stormwater and Drainage Master Plan at locations along campus stream channels and drainages. Design and construction of the improvements are anticipated to take place in multiple phases over a multi-year period. Phase I will focus on erosion problems at the top of the drainage channels and some repairs in severely eroded areas. Phase II will focus on erosion problems within the drainage channels.

b. Status of Measurable Goals

100.1: Phases I and II are completed in 5 years.
Progress to be reported in annual SWMP report.
Status for Year Two
Construction of Phase 1 is substantially complete,as of August 2011, and Phase 2 design will be completed in year 3.
Supporting Documents/Location
Phase 1 contract documents; Phase 2 design documents / PP&C Office

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Complete Phase 1 and continue to progress toward completion of Phase 2.

101	Water Quality Monitoring

a. General Summary: The campus has been conducting surface and groundwater quality monitoring for eighteen years. Samples have been collected annually at nine campus locations and analyzed for 40 water quality parameters. An annual assessment of the monitoring program will include an evaluation of the appropriateness of sample locations, monitoring frequencies and water quality parameters in terms of maintaining continuity with the historic data and providing meaningful data to inform the SWMP. The annual assessment may dictate monitoring plan amendments to be implemented in subsequent years. Subsequent monitoring requirements may be reduced based upon analytical results collected.

b. Status of Measurable Goals

101.1: On an annual basis, the monitoring plan is implemented
Status for Year Two
Annual surface and ground water monitoring was continued. The annual water quality monitoring plan was implemented. The annual monitoring reports for 2009-10 and 2010-11 are included in the SWMP

Annual Report as Attachments D and E, respectively.
In 2010-11, seven water samples were collected from locations that represent specific land use areas around the campus. Water quality samples from the seven storm water discharge locations are collected during the first significant precipitation event of the wet season (i.e. October through May). In addition to grab samples at storm water discharge locations, groundwater samples were collected from the Upper Quarry Well and well WSW #1. Samples were collected from these wells once following the first significant precipitation event (October 27, 2010) and once during the spring, after winter wet season aquifer recharge had occurred (April 29, 2011). Based on the first flush storm water discharge analytical results, there does not appear to be any significant identifiable water quality impacts from university activities at this time. Water quality samples collected from well WSW#1 and the Upper Quarry Well indicate that the well water from the karst aquifer at UCSC is good to excellent quality water.
UCSC is including the Annual Water Quality Monitoring Results report, and the summary above, in the SWMP Annual Report in response to a request for this information by the RWQCB in its letter of 2/15/11. BMP 101 does not currently require that the report be submitted. UCSC is requesting a modification of BMP 101, task 101.1 measurable goal starting in year 2. The revised measurable goal would state: On an annual basis, the monitoring plan is implemented. A summary of the Annual Water Quality Monitoring Results will be provided.
UCSC requested this modification in its letter to the RWQCB of 4/29/11 but has not yet received a response to this request.

Supporting Documents/Location

Annual Water Quality Monitoring Report / Env Programs Mgr files

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Continue to conduct surface and groundwater quality monitoring, and evaluate the appropriateness of the monitoring program.

104	Encourage Alternative Transportation

a. General Summary: Reduce the use of personal automobile and associated impacts. UCSC will continue its existing and integrated approach to reduce the use of the personal automobile (and its associated impacts) by offering no-cost and low-cost commuting alternatives such as bus passes and vanpools, charging parking fees that reflect the costs of providing parking services, providing bike paths, providing showers for bike riders, frequent on-campus shuttle service (including bike shuttles), etc.

b. Status of Measurable Goals

104.1: Commuting alternatives continue to be supported by UCSC.

Status for Year Two

TAPS continues to provide all the programs mentioned above, expanding and enhancing each when appropriate and feasible. More than 60% of all person-trips to and from the UCSC campus were made using a commute alternative.

Supporting Documents/Location

All programs are described on the TAPS website. TAPS mode-split study, May 2011. / TAPS website http://www2.ucsc.edu/taps/;TAPS mode-split study is in TAPS files

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Continue to support commuting alternatives.

107	Existing Storm Water System Review

a. General Summary: UCSC will formalize the program to characterize and evaluate the potential for contaminants to enter sinkholes and develop a plan to institute controls where the evaluation indicates potential for significant contaminant transport to a sinkhole.

b. Status of Measurable Goals

107.2: Potential contaminant transport scenarios evaluated for identified sinkholes; where applicable, BMPs and implementation schedule developed.

Status for Year Two

Potential contaminant transport scenarios for individual sinkholes have been evaluated. Storm water infrastructure projects were identified and assigned to four phases based on risk level and projects cost / benefit ratio. Improvements related specifically to sinkholes were assigned to Phase 4, which is in UCSC's 10-Year Capital, Plan, with planning to begin in 2013-14.

Supporting Documents/Location

Physical Planning and Construction Storm Water Infrastructure Improvement Projects Phases 1 through 4 project files. / PP&C project files.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Continue to develop and implement storm water infrastructure improvements as part of the Campus' phase infrastructure improvements projects.

108	Annual Program Review

a. General Summary: In accordance with the general permit requirements, UCSC will prepare an annual report. The annual report will include:

1. Status of compliance with permit conditions;
2. Status of the identified measurable goals;
3. An assessment of the appropriateness and effectiveness of the identified BMPs;
4. Evaluation of information collected and analyzed, including applicable monitoring data;
5. A summary of the storm water activities planned for the next permit year;
6. Recommended amendments to the SWMP along with a justification for such changes; and
7. Changes in responsibilities for implementing portions of the SWMP.

b. Status of Measurable Goals

108.1: Annual SWMP review is completed as described above.

Status for Year Two

The Annual SWMP review has been completed and is detailed in the SWMP Annual Report.

Supporting Documents/Location

SWMP Annual Report. / Report submitted to RWQCB and kept in Storm Water Program files in PP&C.

c. Appropriateness (Scale 0-9 high): 9

d. Effectiveness: NA

e. Summary of Next Year's Activity: Complete the annual review and the revised appropriateness and effectiveness plan.

Attachment A

UCSC Storm Water Management Program, Appendix A

Appendix A: BMP Details

Part 1: Public Education and Outreach on Storm Water Impacts

BMP Number	BMP Name
1	Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics
2	Reserved
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Reserved
8	Storm Water Survey
9	Reserved
10	Reserved
11	Reserved
12	Web Page
13	Mark Storm Drains
14	Access to SWMP

Part 2: Public Involvement / Participation

BMP Number	BMP Name
15	BMP Development Team: Illicit Discharge Detection and Elimination
16	BMP Development Team: Construction Sites
17	BMP Development Team: New Development
18	BMP Development Team: Food Service Facilities
19	BMP Development Team: Parking Services
20	BMP Development Team: Grounds Services
21	Reserved
22	Reserved
23	BMP Development Team: Management Controls to Prevent Illicit Discharges
24	Reserved
25	BMP Development Team: Investigation of Non-Storm Water Discharges
26	Reserved
27	Reserved
28	Reserved
29	Reserved
30	Reserved
31	Reserved
32	Reserved
33	Reserved
34	BMP Development Team: Building Exterior Maintenance
35	Storm Water Advisory Committee
36	Reserved
37	University Neighbors
38	Site Stewardship Program
39	Volunteers and Internships

Part 3: Illicit Discharge Detection and Elimination

BMP Number	BMP Name
40	Water Protection Policy
41	Dry Weather Outfall Screening Program
42	Management Controls to Prevent Cross Connections
43	Management Controls to Prevent Illicit Discharges
44	Storm Drain System Maps
45	Illicit Discharge Reporting System
46	Illicit Discharge Brochures and Flyers
47	Review of Non-storm Water Discharges

Part 4: Construction Site Storm Water Runoff Control

BMP Number	BMP Name
48*	Campus Standards Handbook and Construction Contracts for Storm Water Management
49	Reserved
50	Reserved
51	Construction Site Inspection Procedures
52	Plan Review for Storm Water Quality Impacts
53	Reserved
54	Construction Site Storm Water BMP Training

Part 5: New Development Design Requirements for Storm Water Management

BMP Number	BMP Name
55*	Main Campus Planning and Design Requirements for Storm Water Management and Watershed Protection
56	Pervious Paving Pilot Project
57	MSC Planning and Design Requirements for Storm Water Management and Watershed Protection
58	MBEST Planning and Design Requirements for Storm Water Management and Watershed Protection
59*	Staff Training on Hydromodification and Low Impact Development
60	Operation and Maintenance of New Development BMPs
61	Reserved

Part 6: Pollution Prevention for Operations and Maintenance

BMP Number	BMP Name
62	BMP Training
63	Equipment and Materials Storage Areas
64	Washing University Owned Vehicles
65	Reserved
66	Reserved
67	Reserved
68	Street and Parking Lot Maintenance in Faculty/Staff Housing
69	Food Service BMPs
70	Reserved
71	Reserved
72	Reserved
73	Reserved
74	Reserved

BMP Number	BMP Name
75	Fleet Services BMPs from SWPPP
76	Integrated Pest Management Program
77	Cleaning Streets and Parking Lots
78	Storm Drain Systems Inspection and Preventative Maintenance
79	Campus Refuse/Recycling Program
80	Reserved
81	Grounds Services: Landscape Maintenance and Turf Management
82	Maintenance of Fountains and Decorative Water Bodies
83	Household Hazardous Waste Minimization
84	Reserved
85	Custodial Services BMPs
86	Building Exterior Maintenance BMPs
87	Reserved
88	Reserved
89	Reserved
90	Water Line Flushing
91	Vehicle Maintenance Prohibitions
92	Reserved
93	Pet Prohibitions
94	Homeless Encampments
95	Hazardous Waste Management Program
96	Hazardous Materials Emergency Response Organization
97	Reserved
98	Reserved
99	Reserved

Part 7: UCSC Specific Measures to Reduce Storm Water Impacts

BMP Number	BMP Name
100	Stormwater Infrastructure Improvements
101	Water Quality Monitoring
102	Reserved
103	Reserved
104	Encourage Alternative Transportation
105	Reserved
106	Reserved
107	Existing Storm Water System Review
108	Annual Program Review

Part 8: BMP Task Table, Effectiveness Measurements and Measurable Goals

*The schedule for BMP implementation refers to the eight three month quarters (e.g., Q2, Q4, etc.) of the two-year Joint Effort and the first quarter following (Q9). For purposes of implementing and tracking Joint Effort BMPs, Quarter 1 will begin upon notification from the Central Coast Water Board. Water Board staff will notify the University by electronic mail of the date that will serve as the start date for Quarter 1
The University will achieve Joint Effort Measurable Goals by the end ofQ2, Q4, Q8, and Q9. The University must report to the Water Board on completion of Measurable Goals within 30 days of the end of the quarter in which the Measurable Goal is scheduled for completion. Reporting must include evidence of adequate detail and substance for Water Board staff to determine whether the Measurable Goal is complete.

BMP # 1 Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics

Permit Section: D.2.a; D.2.d.2; D.2.d.3; D.2.c.5; D.2.f.1; D.2.f.2
Hyperlink: http://cleanwater.ucsc.edu/documents.html
Description

To increase awareness of storm water issues and promote pollution prevention, UCSC will develop and distribute electronic brochures. Brochure topics will include: general storm water information and awareness; storm water management at construction sites; storm water management for contractors, outside service providers and lessees; storm water management for Food Service Facilities; and storm water management for Custodial Services.

Develop basic storm water electronic brochure/flyer. In Year 1 materials will primarily focus on Main Campus storm water conditions. As needed, publications will be added/modified to address other sites and emerging storm water issues. Brochure/flyer(s) delivered to campus community segments primarily via email and web page. As needed, live presentations, tabling events and other distribution measures may be used.

A second brochure will be developed for storm water management at construction sites. The brochure shall emphasize the importance of and methods for reducing impacts from construction activities. Content shall be coordinated with PP&C Civil Engineering Project Manager. As needed, publications will be added/modified to address emerging construction related storm water issues. This brochure targets a specific community: construction project managers, construction inspectors and construction contractors. Brochure/flyer(s) delivered to construction community primarily via email and web page. As needed, this brochure may also be distributed at training sessions. This brochure will be targeted at construction site storm water quality concerns including erosion, sediment, non-visible contaminant management and litter.

A third brochure will be developed to be used in conjunction with contractual language for certain small projects contractors, service providers and lessees. This brochure is intended to document and support the management controls developed under BMP#43 and will describe discharge prohibitions and proper waste and waste water management. This brochure targets a specific community: companies and persons who lease space from UCSC and companies and persons who perform services for UCSC under purchase orders. The Storm Water Manager is responsible for brochure/flyer design and content coordination with BMP Development Team: Management Controls to Prevent Illicit Discharges (BMP #23). Initially expect that distribution will be via web page and that contract language includes web address.

A fourth brochure will be used to communicate BMPs for Food Service facilities. This brochure to incorporate food service BMP #69 requirements as well as basic storm water information regarding the importance of clean storm water, basic storm water protection practices and reporting of storm water concerns. The brochure will be available to CUHS-Dining and other food service-related operations via email, department newsletter, live presentations, web page, etc. EH&S to post flyer on web page and to notify food facility managers of its availability. CUHS-Dining Services and Food Service Contractors are responsible for posting / dissemination to affected employees. This brochure can be utilized when providing training as required by BMP #69. The Main Campus is the only facility with food service operations. This brochure targets a specific community: persons involved in food service operations at UCSC. The storm water quality concerns addressed include litter, organic materials (food wastes) and fats, oil and grease. Storm Water Manager is responsible for brochure design. Content shall be coordinated with Food Service BMP Development Team.

A fifth brochure will be used to communicate BMPs for custodial activities. This brochure to incorporate custodial services BMP #85 requirements as well as basic storm water information regarding the importance of clean storm water, basic storm water protection practices and reporting of storm water concerns. The brochure will be available via email, department newsletter, employee meetings, web page, etc. This brochure can be utilized when providing

training, as required by BMP # 85. This BMP targets a specific community: persons providing custodial services at UCSC. The storm water quality concerns addressed include toxic and organic materials (from cleaning solutions). Storm Water Manager is responsible for brochure design. Content shall be coordinated with PP-Custodial. Distribute brochure for custodial operations. Flyer available via email, department newsletter, live presentations, web page, etc. EH&S to post flyer on web page and to notify Custodial Services of its availability. Custodial Services is responsible for dissemination among affected employees.

In an effort to reduce offsite storm water impacts associated with paper production, UCSC will rely primarily on electronic brochures and flyers. The unique UCSC public generally has ready access to the internet. EH&S has email access to much of the UCSC public. And all materials will be printable, as needed.

Whenever useful, the brochures and flyers will rely on existing material developed for other storm water management programs.

This BMP was selected because implementation of a public education program is specifically required by the General Permit; because EPA guidance documents state that the public education program should inform the public about the steps they can take to reduce storm water contamination; and because UCSC believes that brochures are one of a combination of effective means for achieving compliance with the Public Education Minimum Control Measure as well as providing support for various other control measures and their BMPs including illicit discharge detection and elimination, construction site storm water runoff control and pollution prevention for operations and maintenance. EPA recommends that the public education program be tailored to target specific audiences and communities, using a mix of locally appropriate strategies. Examples of strategies include distributing brochures or fact sheets.

At UCSC, the “public” for Public Education and Outreach overlaps significantly with other control measures such as pollution prevention and construction site controls. This is because the entire public for potentially polluting activities such as construction, landscape maintenance, building maintenance, and food facility operation is a relatively small number of organizations and/or people all under employment or contract to the university.

This BMP is intended to be one of several means of public education and outreach and can be expected to address a variety of storm water quality concerns including litter, illicit discharges, erosion, etc.

The written communications will primarily be provided only in English because most segments of the UCSC public are comfortable with communications in English. However, two departments (Dining Services and Custodial Services) have a number of employees who may prefer to receive communications in Spanish. For these two departments, the written materials will be translated into Spanish.

Pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.

Effectiveness Measurement

Determine awareness of brochures and of brochure content when conducting the survey described in BMP #8.

1.1

Implementation Plan

Storm Water Manager will be responsible for the development of the 5 specified storm water electronic brochures/flyers.

Measurable Goals

A general information brochure is available by end of Permit Year 1. This goal was met in the Fall of 2006. A second brochure was added in Spring 2007.

A brochure for Construction Site Controls is available by the end of Permit Year 1.

A brochure for Outside Services, Contractors and Lessees is available by the end of Permit Year 2.

A brochure for Food Service Facilities is available by the end of Permit Year 1.

A brochure for Custodial Services is available by the end of Permit Year 1.

Frequency: several one time actions

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☐	☐	☐

Targeted audience: Varies

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

1.2

Implementation Plan

Distribute brochures.

Brochure/flyer(s) delivered to campus community segments via web page and email.

Depending upon need and opportunity, also distribute via presentations or tabling events.

Track all distribution methods used.

Measurable Goal

By the end of Year 1 the 4 specified brochures are available on web page. (The general information brochure was posted in the Fall of 2006. A second general information brochure on erosion from informal paths was added in 2007.)

By the end of Year 2 the fifth specified brochure is available on the web page.

At least one time per year each of the 5 required brochures is emailed to targeted audiences.

By the end of Permit Year 2, the custodial services brochure will be distributed to 100% of current employees.

At least 100 hard copies of the brochures will be distributed annually. The 100 hard copies may be a mix of any of the 5 specified brochures.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, and staff.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

1.3

Implementation Plan

Review the 5 specified brochures annually and revise as needed to address emerging campus storm water issues.

Measurable Goal

By end of each permit year, the 5 specified brochures have been reviewed and updated as needed.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, and staff.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

1.4

Implementation Plan

CUHS-Dining Services and Custodial Services to determine if brochures targeted to their audiences should be translated into additional languages. If yes, the affected departments or the Storm Water Manager will provide the translation. The Storm Water Manager will web post and provide initial email distribution of the translated brochures.

Measurable Goal

Translation need determined by the end of Permit Year 1. If translation needed, translated brochure available by October of Permit Year 2.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: Non-English speaking employees in food service or custodial services.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 2 Reserved

BMP # 3 Reserved

BMP # 4 Reserved

BMP # 5 Reserved

BMP # 6 Reserved

BMP # 7 Reserved

BMP # 8 Storm Water Survey

Permit Section: F.1.b
Hyperlink:
Description

Utilize surveys to determine baseline knowledge and attitudes regarding storm water within the campus community with periodic resurveys to assist in measuring and improving the effectiveness of various storm water BMPs.

In its web page discussion of attitude surveys, EPA says: ...surveys of how the public perceives storm water management can foster better planning and management programs. The results of these attitude surveys can enlighten both storm water managers and the public on pollution sources, storm water effects, and control options. Public attitude surveys can also reveal issues important to stakeholders. Program planners can use this information to determine how best to incorporate the public's needs and desires into the overall goals of a storm water management program. Attitudes toward storm water and the best management practices (BMPs) can influence the effectiveness of control measures and clean-up efforts. Determining public perceptions, expectations, and desires is an important place to start. Attitude surveys of interested parties can enlighten storm water managers about appropriate steps to take and misconceptions to dispel.

Survey(s) to be developed, designed, administered and analyzed by student interns.This BMP was selected because implementation of a public participation program is specifically required by the General Permit and because EPA guidance documents recommend attitude surveys.
This BMP is intended to be one of several means of public education, outreach, participation and involvement. This BMP may be utilized to target specific audiences. This BMP may be used to address any or all storm water quality concerns.

Effectiveness Measurement

Track the number of surveys completed, the number of targeted surveys conducted, the number of targeted surveys completed, and the number of findings that result in changes to the SWMP.

8.1

Implementation Plan

Develop survey development plan: student intern(s) determine options such as availability and applicability of existing surveys, etc. Survey must include content related to awareness of brochure content.

Measurable Goal

Survey development plan complete by December of Permit Year 2

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Storm Water Manager

8.2

Implementation Plan

Student intern to develop and beta test survey. Survey must include content related to awareness of brochure content.

Measurable Goal

Survey beta tested by March 31 of Permit Year 2

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Storm Water Manager

8.3

Implementation Plan

Student intern to administer survey and analyze results. Survey must include content related to awareness of brochure content.

Measurable Goal

Survey administered by April 20 of Permit Year 2. Results analyzed by June 30 of Permit Year 2.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: Entire campus community

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Storm Water Manager

8.4

Implementation Plan

During Permit Years 3, 4 and 5, develop and administer either a broad-based or targeted survey (as determined by the Storm Water Manager and student intern) following the guidelines established for surveys during Permit Year 2. Survey must include content related to awareness of brochure content.

Measurable Goal

Survey administered and results analyzed by June 30 of Permit Years 3, 4 and 5.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: will vary

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 9 Reserved

BMP # 10 Reserved

BMP # 11 Reserved

BMP # 12 Web Page

Permit Section: D.2.a.
Hyperlink: http://cleanwater.ucsc.edu/
Description

The previous UCSC storm water web page was moved to its own domain, http://cleanwater.ucsc.edu/, and substantially revamped in the summer of 2006. Since then, periodic updates have occurred. As of September 2008, the website includes pages on storm water concern reporting, the SWMP, an interactive map of storm drains on Scince Hill, 2 general awareness brochures, internship and volunteer opportunities and other features.The intent is for the web pages to serve as the major portal for information dissemination regarding the SWMP. Once the SWMP is approved, web page updates will be made quarterly during the permit term. This BMP was selected because EPA recommends that the Public Education Outreach strategy should make materials and activities relevant to local situations and issues, and incorporate a variety of strategies to ensure maximum coverage. A web page is a listed example of a locally appropriate strategy.

For UCSC a web site is particularly important to connect with this very "wired" community and to make materials available on a 24/7 basis, not just at single moments in time such as a mailing or participation in a single community event.

While this BMP primarily informs the public about storm water quality concerns, it can ultimately be expected to influence all aspects of storm water quality.

Effectiveness Measurement

Track number of web page visits.

12.1

Implementation Plan

On a quarterly basis, update web page with current SWMP information: SWMP, brochures/flyer, annual reports, notices for upcoming activities, etc.
Maintain and track the number of hits to the existing storm water web page.

Measurable Goal

Web page updated at least quarterly with current SWMP activities (copies of brochures/flyers, annual reports, notices for upcoming activities, etc.).

Frequency: quarterly

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 13 Mark Storm Drains

Permit Section: D.2.a.; D.2.b.
Hyperlink: http://cleanwater.ucsc.edu/stencil.html
Description

Increase storm drain visibility to help prevent contamination of storm water.

EPA's web page discussion of storm drain stenciling includes the following:
Storm drain marking involves labeling storm drain inlets with plaques, tiles, painted or pre-cast messages warning citizens not to dump pollutants into the drain. The messages are generally a simple phrase or graphic to remind those passing by that the storm drains connect to local water bodies and that dumping will pollute those waters. Some storm drain markers specify which water body the inlet drains to or name the particular river, lake, or bay. Common messages include: "No Dumping. Drains to Water Source," "Drains to River," and "You Dump It, You Drink It. No Waste Here." In addition, storm drain markers often have pictures to convey the message, including common aquatic fauna or a graphic depiction of the path from drain to water body. Communities with a large Spanish-speaking population might wish to develop markers in both English and Spanish, or use a graphic alone.
Municipalities can undertake storm drain marking projects throughout the entire community, especially in areas with sensitive waters or where trash, nutrients, or biological oxygen demand (BOD) have been identified as high priority pollutants. However, regardless of the condition of the water body, these signs can raise awareness about the connection between storm drains and receiving waters and can help to deter littering, excess fertilizer use, dumping, and other practices that contribute to storm water pollution. Municipalities should prioritize drains for marking because marking all drains within a municipality would be prohibitively expensive. The drains should be carefully selected to send the message to the maximum number of citizens (for example, in areas of high pedestrian traffic) and to target drains leading to water bodies where illegal dumping has been identified as a source of pollution.

In 2007, a Storm Drain Marking Team was convened. The team included representatives from Physical Plant, Colleges and University Housing Services, Transportation and Parking Services, EH&S, and PP&C-Campus Architect. The team selected markers and designated locations to be marked. Markers were installed at several locations in the summer of 2007. Markers will be installed at additional locations during the permit term.

Volunteers will be sought to identify locations where markers are missing or damaged.

This BMP was selected because implementation of a public education program is specifically required by the General Permit; because EPA fact sheets suggest that MS4s should strive to make their materials and activities relevant to local situations and issues; and because EPA recommends incorporating a variety of strategies including storm drain stenciling.
This BMP is one of several selected strategies for public education, outreach, involvement and participation. The intent of this BMP is primarily to educate and to help avert illegal discharges.

Effectiveness Measurement

Track % of drains marked.

13.1

Implementation Plan

Establish storm drain marking team with members from PP&C, PP-Grounds, CUHS, TAPS, and EH&S. During Permit Year 1, storm drain marking team to meet and select markers and designate locations to be marked.

Measurable Goal

Markers selected and marker purchase made prior to end of Permit Year 1. This goal was met in September 2007

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

13.2

Implementation Plan

Implement the marking schedule during Permit Years 1-3.

Measurable Goal

By the end of Permit Year 3, mark 100% of storm drains located on Primary and Secondary roads.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☐	☐

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: PP-Grounds

13.3

Implementation Plan

Implement the marking schedule during Permit Years 1-4.

Measurable Goal

By the end of Year 3, mark 80% of storm drains on CUHS service roads.
By the end of Year 4, mark 100% of storm drains on CUHS service roads.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☐

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Facilities

13.4

Implementation Plan

Implement the marking schedule during Permit Years 1-4.

Measurable Goal

By the end of Year 3, mark 80% of storm drains in main campus parking lots.
By the end of Year 4, mark 100% of all parking lots.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐☑	☐☑	☐☑	☐

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: TAPS

13.5

Implementation Plan

Utilize volunteers/interns to identify locations where the markers are missing or damaged.

Measurable Goal

By the end of Permit Year 3, mark 100% of storm drains located on Primary and Secondary roads.
By the end of Year 3, mark 80% of storm drains on CUHS service roads.
By the end of Year 4, mark 100% of storm drains on CUHS service roads.
By the end of Year 3, mark 80% of storm drains in main campus parking lots.
By the end of Year 4, mark 100% of all parking lots.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

13.6

Implementation Plan

Storm drain marking team to determine additional locations for storm drain marker installation and schedule for installation. Storm Water Manager to seek a student representative to join the team.

Measurable Goal

By the end of year 3, marking team has reconvened and developed an action plan for any additional marking.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 14 Access to SWMP

Permit Section: D.2.a.; D.2.b.
Hyperlink:
Description

Engage campus community in implementing SWMP. Make SWMP and annual reports available at EH&S Office, McHenry Library and on web page.

This BMP was selected because implementation of a public education program is specifically required by the General Permit; because EPA fact sheets suggest that MS4s should strive to make their materials and activities relevant to local situations and issues; and EPA recommends incorporating a variety of strategies to ensure maximum coverage.

The intent of this BMP is to inform the public about the Storm Water Management Program.

Effectiveness Measurement

Track # of complaints to Public Information Office and Storm Water Manager from people who cannot access the SWMP.

14.1

Implementation Plan

Make SWMP available at EH&S Office, McHenry Library and on web page.

Measurable Goal

SWMP available at designated locations within 30 days of RWQCB approval.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: All members of campus community: students, faculty, staff and neighbors.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

14.2

Implementation Plan

Make annual reports available at EH&S Office, McHenry Library and on web page.

Measurable Goal

Annual reports available at designated locations within 30 days of completion. At same time, verify SWMP still available at all locations.

Frequency: annually
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 15 BMP Development Team: Illicit Discharge Detection and Elimination

Permit Section: D.2.b.; D.2.c.1; D.2.c.2; D.2.c.3; D.2.c.4; D.2.c.5; D.2.c.6
Hyperlink:
Description

Increase BMP buy-in by having affected groups develop their own BMPs.
During the development of the SWMP, EH&S communicated with many groups (via email and meetings) to develop the illicit discharge and elimination program element (BMPs: #41, 42, 43, 44, 45, 46, and 47).
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; and because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP directly involved the affected UCSC public in the development of BMPs.
BMPs developed by this team are selected to address storm water quality concerns from potential illicit discharges such as organic and toxic materials.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on Illicit Discharge Detection and Elimination. Team has developed BMPs that meet MEP.

15.1

Implementation Plan

During the development of the SWMP, EH&S communicated with many groups (via email and meetings) to develop the illicit discharge and elimination program element.

Measurable Goal

BMPs selected prior to Permit Year 1. BMP selection completed as of March 2006.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 16 BMP Development Team: Construction Sites

Permit Section: D.2.b.; D.2.d.1; D.2.d.2; D.2.d.3; D.2.d.4; D.2.d.5; D.2.d.6
Hyperlink:
Description

Increase BMP buy-in by having affected groups develop their own BMPs.
During the development of the SWMP, EH&S communicated with PP&C and PP-Work Management (via email and meetings) to develop BMPs for construction sites. The team developed the following BMPs: #48, 51, 52 and 54.
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP directly involved the affected UCSC public in the development of BMPs.
BMPs developed by this team are selected to address storm water quality concerns from construction sites such as erosion, sediment, litter and toxic materials.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on construction sites. Team has developed BMPs that meet MEP.

16.1

Implementation Plan

During the development of the SWMP, EH&S communicated with PP&C and PP-Work Management (via email and meetings) to develop BMPs for construction sites.

Measurable Goal

BMPs selected prior to Permit Year 1. BMP selection completed as of March 2006.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 17 BMP Development Team: New Development

Permit Section: D.2.b.; D.2.e.1; D.2.e.2; D.2.e.3; D.2.e.4
Hyperlink:
Description

Increase BMP buy-in by having affected groups develop their own BMPs.
During the development of the SWMP, EH&S communicated with PP&C and PP-Grounds (via email and meetings) to develop the New Development Design Requirement for Storm Water Management. The team developed the following BMPs: #55, 56, 57, 58, 59 and 60.
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP directly involved the affected UCSC public in the development of BMPs.
BMPs developed by this team are selected to address storm water quality concerns from new developments including increased flow rates and volume.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on new development standards. Team has developed BMPs that meet MEP.

17.1

Implementation Plan

During the development of the SWMP, EH&S communicated with PP&C and PP-Grounds (via email and meetings) to develop the New Development Design Requirement for Storm Water Management.

Measurable Goal

BMPs selected prior to Permit Year 1. Initial BMP selection completed December 2006.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: PP&C, PP-Grounds
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 18 BMP Development Team: Food Service Facilities

Permit Section: D.2.b.; D.2.f.1
Hyperlink:
Description

In order to increase BMP buy-in and to ensure the selection of appropriate and effective BMPs, a food service facilities BMP Development Team was formed. The team consisted of representatives from: EH&S, CUHS-Dining Services, CUHS-Facilities, PP-Custodial and PP-Grounds. The team had an initial meeting and follow-up email discussions. The team developed BMP #69.

This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.

This BMP directly involved the affected UCSC public in the development of BMPs.

BMPs developed by this team are selected to address storm water quality concerns from fats, oil and grease (FOG), litter and toxic materials.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on food service facilities.

18.1

Implementation Plan

Team members identified.
Team meeting held.
Draft BMPs discussed.
BMPs selected.

Measurable Goal

BMPs selected prior to Permit Year 1. BMP selection completed August 2005.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: CUHS-Dining Services, CUHS-Facilities, PP-Custodial, PP-Grounds, PP-Plumbing
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 19 BMP Development Team: Parking Services

Permit Section: D.2.b.; D.2.f.1
Hyperlink:
Description

Increase BMP buy-in by having affected groups develop their own BMPs.
During the development of the SWMP, EH&S communicated with TAPS-Parking Services (via email and meetings) to develop BMPs for parking lots and bus stops.
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; and because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP directly involved the affected UCSC public in the development of BMPs.
BMPs developed by this team are selected to address storm water quality concerns associated with discharges from parking lots and bus stops such as oil and grease, litter and toxic materials.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on parking services.
Team has developed BMPs that meet MEP.

19.1

Implementation Plan

Team members identified.
Team meeting held.
Draft BMPs discussed.
BMPs selected.

Measurable Goal

BMPs selected prior to Permit Year 1. BMP selection completed August 2005.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: TAPS-Parking Services
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 20 BMP Development Team: Grounds Services

Permit Section: D.2.b.; D.2.f.1
Hyperlink:
Description

Increase BMP buy-in by having affected groups develop their own BMPs.
During the development of the SWMP, EH&S communicated with PP-Grounds Services (via email and meetings) to document existing practices and, where needed, to develop BMPs for Integrated Pest Management, Turf Management, Landscape Management, Street Sweeping and Recycling. The team developed the following BMPs: #76, 77, 79 and 81.
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit, because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP directly involved the affected UCSC public in the development of BMPs.
BMPs developed by this team are selected to address storm water quality concerns from litter, toxic materials, organic materials and erosion.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on Grounds Services. Team has developed BMPs that meet MEP.

20.1

Implementation Plan

Team members identified.
Team meeting held.
Draft BMPs discussed.
BMPs selected.

Measurable Goal

BMPs selected prior to Permit Year 1. Initial BMP selection completed December 2006.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: PP-Grounds
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 21 Reserved

BMP # 22 Reserved

BMP # 23 BMP Development Team: Management Controls to Prevent Illicit Discharges

Permit Section: D.2.b.; D.2.c.1; D.2.c.3; D.2.c.4; D.2.c.5
Hyperlink:
Description

Prevent illicit discharges from outside small contractors, outside services and lessees.
For UCSC, this population is equivalent to independent businesses operating within a traditional MS4. Because this population is under contract at UCSC, it is appropriate to prohibit illicit discharges from this population by contract rather than by ordinance.
During Permit Years 1 and 2, EH&S to communicate with Purchasing and PP-Work Management and other affected departments to develop boilerplate contract language prohibiting illicit discharges to storm water (as described in BMP #43).
This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP will directly involve the affected UCSC public in the development of BMPs.
BMPs developed by this team will be selected to address storm water quality concerns associated with illicit discharges such as organic and toxic materials.

Effectiveness Measurement

Team members include departments and/or persons with significant impact on contractual controls to prevent illicit discharges. Team develops BMPs that meet MEP.

23.1

Implementation Plan

During Permit Years 1 and 2, EH&S to communicate with Purchasing, PP-Work Management and other affected departments to develop boilerplate contract language prohibiting illicit discharges to storm water (as described in BMP #43).

Measurable Goal

Boilerplate contract language adopted by the end of Permit Year 2.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 24 Reserved

BMP # 25 BMP Development Team: Investigation of Non-Storm Water Discharges

Permit Section: D.2.b.; D.2.c.6
Hyperlink:
Description

As described in BMP #47 (Review of Non-Storm Water Discharges), during the development of the SWMP, 17 categories of non-storm water flows were examined to determine if UCSC has these flows at the facilities covered by the SWMP and if so, whether these flows might impact storm water quality. That review identified 7 flows requiring additional investigation.
During Permit Years 2 and 3, teams will investigate these 7 flows. The team will determine if the flows occur, and if so, how they should be addressed.This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.
This BMP will directly involve the affected UCSC public in the development of BMPs.
This investigation will be designed to ensure that non-storm water discharges do not lead to storm water quality concerns such as erosion and organic or toxic material discharges.

Effectiveness Measurement

All potential non-storm water flows characterized and where needed a BMP is in place.

25.1

Implementation Plan

During Permit Year 2, the 3 water line flushing flows (Main Campus, MSC and 2300 Delaware) and 2 potential flows from 2300 Delaware (uncontaminated ground water infiltration, and air conditioning condensation) will be investigated. The team will determine if the flows occur, and if so, how they should be addressed. If an action plan is needed to abate or to treat flows, it shall be implemented as soon as possible and shall include interim control measures for any actions which will require more than 6 months to implement.

Measurable Goal

By the end of Permit Year 2, investigation and an action plan are complete for water line flushing and for potential flows at 2300 Delaware.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S: Storm Water Manager

25.2

Implementation Plan

During Permit Year 3, the potential non-storm water flows from residential car washing at MSC, Family Student Housing and Faculty/Staff Housing will be investigated. The team will determine if the flows occur, and if so, how they should be addressed. If an action plan is needed to abate or to treat flows, it shall be implemented as soon as possible and shall include interim control measures for any actions which will require more than 6 months to implement.

Measurable Goal

By the end of Permit Year 3, investigation and an action plan are complete for residential car washing flows.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: Campus residents

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 26 Reserved

BMP # 27 Reserved

BMP # 28 Reserved

BMP # 29 Reserved

BMP # 30 Reserved

BMP # 31 Reserved

BMP # 32 Reserved

BMP # 33 Reserved

BMP # 34 BMP Development Team: Building Exterior Maintenance

Permit Section: D.2.b.; D.2.f.1
Hyperlink:
Description

During Permit Year 1, EH&S will communicate with PP-Paint Shop, CUHS-Facilities, PP-Custodial and other affected departments to develop BMPs for exterior building maintenance. This is an effort to increase BMP buy-in by having affected groups develop their own BMPs. Generally recognized applicable BMPs will be reviewed. BMPs will be selected and an implementation plan developed by the end of Permit Year 1. This will apply to the main campus, MSC and 2300 Delaware.

This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.

This BMP will directly involve the affected UCSC public in the development of BMPs.

The BMPs selected by this team will be intended to address storm water quality concerns associated with building exterior maintenance such as organic and toxic material discharges.

Effectiveness Measurement

Team members included departments and/or persons with significant impact on building exterior maintenance. Team has developed an implementation plan to meet MEP.

34.1

Implementation Plan

During Permit Year 1, EH&S to communicate with PP-Paint Shop, CUHS-Facilities, PP-Custodial and other affected departments to develop BMPs for exterior building maintenance.

Measurable Goal

Generally recognized applicable BMPs reviewed. BMPs selected and implementation plan developed by the end of Permit Year 1.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: All staff who maintain building exteriors

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 35 Storm Water Advisory Committee

Permit Section: D.2.b.
Hyperlink:
Description

CLUMAC (Campus Land Use Management Advisory Committee) will be informed of SWMP-related activities and may offer guidance and assistance in implementing the SWMP. EH&S will make semi-annual presentations to CLUMAC on the SWMP. Interested parties may bring issues to CLUMAC for recognition and guidance.

Campus Land Use Management Advisory Committee

Charge: The Campus Land Use Management Advisory Committee (CLUMAC) advises the Senior Superintendent of Grounds Services in the management of campus lands within the context of the current Long Range Development Plan, LRDP-EIR and the campus's Long Range Development Plan Implementation Program (LRDPIP); reviews and advises on the direction set forth and the implementation of the Landscape Management Program; and recommends the use of campus natural resources. The committee reviews proposals for land uses and management issues or other changes in campus resource lands and protected landscapes. The committee reviews current management practices in the developed campus, undeveloped campus land and transition areas and provides recommendations for grounds and land management . The committee works closely with the UCSC Natural Reserves Advisory Committee and is advised as to the status of the environmental reserve lands. The committee reviews management procedures dealing with sensitive land management issues, such as vegetation management for fire protection, storm water management, wildlife protection and control, pesticide use, grassland and forest management, off-road bicycle use, etc.

Membership includes representative(s) from staff, faculty, graduate students, and undergraduate students. Ex-officio members include: Senior Superintendent Grounds Services, Natural Reserves Director, Environmental Programs Manager and representatives from Campus Police and Campus Fire. Graduate student representative(s) and undergraduate student representative(s) are normally designated by the Graduate Student Union Assembly and Student Union Assembly, respectively.

Meeting Frequency: Quarterly.

This BMP was selected because implementation of a public participation and involvement program is specifically required by the General Permit; because EPA guidance suggests partnering with stakeholders for both the development and implementation of BMPs to maximize effectiveness.

This BMP will directly involve the affected UCSC public in the implementation of BMPs.

Effectiveness Measurement

Tally the number of issues brought to CLUMAC for consideration and recommendation.

35.1

Implementation Plan

CLUMAC will be informed of SWMP-related activities and may offer guidance and assistance in implementing the SWMP. EH&S will make at least semi-annual presentations to CLUMAC on the SWMP. Interested parties may bring issues to CLUMAC for recognition and guidance.

Measurable Goal

At least twice a year, SWMP issues will be included in the CLUMAC agenda, when the CLUMAC is active.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CLUMAC Committee Chair

BMP # 36 Reserved

BMP # 37 University Neighbors

Permit Section:
Hyperlink:
Description

As suggested for non-traditional MS4s , UCSC has developed a public participation program primarily aimed at the employee and user population within its boundaries. This guidance can be found in the general permit at section D.2.a and in the Federal Register at 68755.

In order to reach this employee and user population, the UCSC public particpation program includes the following:

- Employee BMP development teams, see BMPs #15-20, #23, #25 and #34;
- A storm water advisory committee see BMP #35;
- A site stewardship program see BMP #38;
- Storm water internships, see BMP #39;
- An informational web site, see BMP #12;
- Marking of storm drains, see BMP #13;
- Access to the Storm Water Management Plan, see BMP #14;
- Mechanisms for reporting illicit discharges, see BMP #45;
- Training for targeted employees in the following specific areas: construction BMPs, hydromodification, pollution prevention for food service activities, pollution prevention for outdoor maintenance activities, and pollution prevention for custodial activities, see BMPs #54, #59, #62, #69, and #85.

Some of the above measures, primarily BMPs #12, #14 and #45, are also open to the public beyond the facility fence line.

In addition, UCSC regularly engages with University neighbors and the wider community. Much of that effort is led by the Office of Government and Community Relations, http://www.ucsc.edu/administration/gcr/. To facilitate community particpation in the management of campus storm water, the Office Of Governement and Community Relations will record and relay storm water issues raised at public meetings to appropriate campus departments. Additionally, the Office Of Governement and Community Relations will provide annual SWMP report information to interested parties.

This BMP was selected because implementation of a public participation program is specifically required by the General Permit and because EPA guidance suggests a mix of locally appropriate strategies be used. This BMP extends beyond the requirements of the General Permit for public participation to provide additional avenues for neighbors to become stakeholders in the Storm Water Management Plan.

Effectiveness Measurement

NA

37.1

Implementation Plan

The UCSC ~~Community~~ Government Relations Office will continue to solicit participation and facilitate discussion in public meetings between the university and local individuals, local community groups and local government.

Storm water concerns raised during a public meeting will be recorded. Concerns may be addressed either by ~~the Office of~~ Government ~~and Community~~ Relations, or by referral to the appropriate program, such as the EH&S Storm Water Program or, for CEQA issues, to the Environmental Planning Program. A brief summary of the annual storm water management plan report and the availability of the full annual report will be distributed to the Community Relations list of interested parties in the community. The Storm Water Manager shall prepare the summary and notice for distibution by ~~the Office of~~ Government ~~and Community~~ Relations.

Measurable Goal

The ~~Office of~~ Government ~~and Community~~ Relations office will track storm water issues raised and annually report on the number of issues and to whom they were referred.

~~Office of~~ Government ~~and Community~~ Relations will report on how many persons were sent the annual report summary and notice.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Neighbors

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: ~~Office of~~ Government ~~and Community~~ Relations

BMP # 38 Site Stewardship Program

Permit Section: D.2.a.; D.2.b.
Hyperlink: http://ucscplant.ucsc.edu/ucscplant/Grounds/index.jsp?page=Stewardship_Program
Description

The UCSC Site Stewardship Program is an ongoing program within the PP-Grounds department. The Site Stewardship Program organizes a team of interns and volunteers to take on ecological restoration and guardianship for sensitive natural areas within the UCSC campus. More details can be found on the web site (see hyperlink).

A summary of program activities will be included in the annual report.This BMP was selected because implementation of a public participation program is specifically required by the General Permit and because EPA guidance suggests a mix of locally appropriate strategies be used. Site restoration work days are one example of a locally appropriate participation event.

This BMP addresses storm water quality concerns such as erosion and sediment and improves the ecological services of the local environment.

Effectiveness Measurement

NA

38.1

Implementation Plan

Continue the UCSC Site Stewardship Program.

Measurable Goal

A minimum of 2 work days will be held each year with at least 8 participants per work day.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: PP-Grounds

BMP # 39 Volunteers and Internships

Permit Section: D.2.a.; D.2.b.
Hyperlink:
Description

Involve students and possibly others in developing and implementing the SWMP with a focus on unique solutions due to their areas of interest/expertise.
Recruit volunteers and student interns to assist in developing and implementing BMPs.
Potential projects: creating electronic documents; web page design; inspecting storm drain markings; clean-up events; landscape restoration; survey design, administration and analysis; and creative projects (visual or performance-based) to increase storm water awareness.
Volunteers and interns will be sought on an as-needed basis, but at least twice per year. Sources that may be used to locate volunteers and interns include: the Environmental Studies Major Internship Program, Student Career Center Internship Program, ARC Center Volunteer Connection, Student Environmental Center, and targeted classroom announcements.This BMP was selected as a key component of the public participation program to fulfill the General Permit requirement for public involvement in a locally appropriate way that builds upon the interests and special knowledge of a University community to spread the storm water message in both typical and unique ways. As of Fall 2006, volunteers and interns have already made significant contributions. Completed student projects include an information brochure, a survey of litter in campus drainages, designing new web pages for the storm water program, and a student attitude survey of environmental impacts of ad hoc paths. The potential for this program is limited only by the interests of the volunteers and interns who participate in the program.

Effectiveness Measurement

At least 2 definable projects implementing the SWMP are completed per year.

39.1

Implementation Plan

Recruit volunteers and student interns to assist in developing and implementing BMPs.

Measurable Goal

Interns perform at least 200 hours per year of service for the storm water program.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Faculty and students
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S: Storm Water Manager

BMP # 40 Water Protection Policy

Permit Section: B.1; B.2; B.3; D.2.c.1; D.2.c.3; D.2.c.6
Hyperlink:
Description

UCSC will develop and adopt a water protection policy. This policy will apply to both storm water and wastewater discharges. The storm water provisions of the policy will include the discharge prohibitions described in the MS4 general permit as well as procedures for enforcement of policy provisions including penalty provisions.
Appendix E: University Authority, describes the legal authority of UCSC to adopt policies and procedures regulating environmental health and safety on campus.
The policy will be developed in accordance with guidelines established by the UCSC Policy Coordination Office.
The policy will be drafted to include the following storm water elements:

1. Definitions
2. Applicability
3. Responsibilities
4. Prohibitions for Illicit Discharges, Illicit Connections, and Non-Storm Water Discharges
5. Requirements to Implement SWMP BMPs
6. Requirement to Eliminate Illegal Discharges
7. Enforcement

Effectiveness Measurement

Track the number of policy violations. Track the enforcement mechanisms used to resolve policy violations.

40.1

Implementation Plan

Storm Water Manager will work with the Policy Coordination Office to develop a draft policy for campus review and adoption by Chancellor.

Measurable Goal

Water Protection Policy adopted during permit Year 1.

Frequency: **Permit Year(s):**

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: All persons on campus.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Chancellor

40.2

Implementation Plan

Once the policy is adopted, the Water Protection Policy shall be implemented in accordance with campus guidelines.

Measurable Goal

A publicity mechanism such as campus wide email will be used to inform all members of the campus community of the new policy.

Frequency: one time for publicity; ongoing for implementation
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: All persons on campus.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Environmental Programs Manager

BMP # 41 Dry Weather Outfall Screening Program

Permit Section: D.2.c.4
Hyperlink: http://www.epa.gov/npdes/pubs/idde_manualwithappendices.pdf
Description

After outfall maps are completed, a field screening program will be developed to monitor all outfalls for non-storm water discharges.
The outfall screening program will be based upon the EPA Guidance Manual Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments by the Center for Watershed Protection(hyperlink: http://www.epa.gov/npdes/pubs/idde_manualwithappendices.pdf.)
An outfall screening team in conjunction with PP-Plumbing and EH&S will investigate the source of all dry weather flows and follow-up to eliminate any discovered illicit discharges. Elimination of detected discharges is anticipated to generally be simpler than for a typical municipal program due to several factors:

- UCSC primarily relies on small discrete storm water piping systems. Therefore, most outfalls are served by a small number of inlets. The short piping runs and small number of inlets facilitiate tracking. UCSC staff will have access to inlets; UCSC staff will not need to enter private property to access inlets.
- Due to climate and site conditions, the majority of outfalls will be dry during dry weather. Therefore, any flow not expected to be groundwater or spring flow should be investigated.
- A high level of institutional cooperation exists for correction of problem conditions.

Field test kits may be utilized for sources not identified by visual investigation.
This BMP was selected because it is part of an illicit discharge detection program and is recommended by the EPA in Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments by the Center for Watershed Protection.
The storm water quality concerns addressed by this BMP are related to illicit and improper discharges such as organic and toxic materials.

Effectiveness Measurement

Screening identifies and eliminates discharges or provides verification that non-storm water discharges are not occurring. This shall be measured by comparing the number of outfalls screened with the number of discharges found, the number of illicit discharges found, and the number of illicit discharges eliminated.

41.1

Implementation Plan

Outfall screening team is developed and trained.
Storm Water Manager shall coordinate the team. EHS, PP-Grounds, PP-Plumbing, LML-Facilities and MBEST shall participate.

Measurable Goal

Team developed and trained during Permit Year 3.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

41.2

Implementation Plan

Main Campus outfalls screened during Permit Years 4 and 5 by outfall screening team. Actual responsibilities shall be determined.

Measurable Goal

100% of outfalls screened by the end of Permit Year 5. Detected non-storm water discharges are investigated.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☐	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP-Grounds

41.3

Implementation Plan

MBEST outfalls screened.

Measurable Goal

All outfalls screened in Permit Years 3, 4 and 5. Detected non-storm water discharges are investigated.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience:

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

41.4

Implementation Plan

MSC and Delaware outfalls screened by outfall screening team. Responsibilities to be determined.

Measurable Goal

All outfalls screened in Permit Years 3, 4 and 5. Detected non-storm water discharges are investigated.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience:

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☑	☐

Primary Implementers: PP-Grounds

BMP # 42 Management Controls to Prevent Cross Connections

Permit Section: D.2.c.1
Hyperlink: http://ucscplant.ucsc.edu/ucscplant/Building_Utility/index.jsp?page=Commissioning
Description

Prevent cross connections between the sanitary sewer and storm drain systems.

UCSC utilizes a rigorous planning, design, construction management and commissioning process to ensure cross connections do not occur. This existing process ensures that proper connections are made for the sanitary sewer and storm drains. It is effective and comprehensive because UCSC either performs all plumbing connections or contracts for the plumbing work. MBEST lessees may undertake minor plumbing connections only after approval by UCSC. during the design process, Physical Plant staff reviews construction plans. During construction, PP&C or PP-Work Management has oversight for all construction. See process flow chart on SWMP page 39. Additionally, new construction is subject to commissioning prior to use, as described in the hyperlink above.
This BMP was drafted because it explains the activities routinely utilized by UCSC to ensure that cross connections do not occur.
The storm water quality concerns addressed by this BMP is the prevention of sewage discharges containing organic and toxic materials.

Effectiveness Measurement

Cross connections are not detected by BMP #41 Dry Weather Outfall Screening Program.

42.1

Implementation Plan

Continue the existing rigorous planning, design, construction management and commissioning process for new construction to ensure cross connections or other illicit connections do not occur.

Measurable Goal

All new plumbing work is verified either through the building commissioning process or by the PP&C ~~Construction Inspectors~~~~Plumbing Department~~.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP&C ~~Work Management~~

42.2

Implementation Plan

For new construction, the City of Marina will provide planning, design, permitting and construction inspections to ensure cross connections or other illicit connections do not occur.

Measurable Goal

All plumbing work associated with new construction will be permitted through the City of Marina.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

BMP # 43 Management Controls to Prevent Illicit Discharges

Permit Section: D.2.c.1; D.2.c.3; D.2.c.4; D.2.c.5
Hyperlink:
Description

In order to prevent the occurrence of unpermitted discharges from small projects, outside contractors/service personnel and at MBEST from lessees: boilerplate language will be adopted to be included in work/service contracts and leases prohibiting improper, outside or storm drain disposal of wastes, wastewaters etc. The outside contractors and personnel are typically retained through either Purchasing or Physical Plant Work Management. Purchasing also participates in the development of the MBEST leases. During Permit Year 2, EH&S will work with these two groups to select appropriate language to prevent illicit storm water discharges. This language will be used in affected documents beginning in Permit Year 3. This language will be supported by an electronic brochure developed under BMP #1, Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics.

Management controls to prevent illicit discharges from various campus operations and student activities, are addressed as Pollution Prevention for Operations and Maintenance BMPs. Discharges from construction projects are controlled by the requirements of BMPs #48, #51, and #52.This BMP was selected because as a non-traditional MS4, outside contractors and service personnel are one of the more likely potential sources for illicit discharges. Contract language prohibiting such discharges is an effective mechanism for prohibiting and eliminating such discharges.

The storm water quality concerns addressed by this BMP are related to illicit and improper discharges such as organic and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

43.1

Implementation Plan

The Storm Water Manager shall work with Purchasing, PP-Work Management, and MBEST to develop boilerplate language for leases and work/service contracts prohibiting improper, outside or storm drain disposal of wastes. The group shall determine applicable situations and develop language during Permit Year 2. The contractor brochure developed for BMP #1, Electronic Brochures and Flyers: General Storm Water Awareness and Targeted Topics, will be referred to in the contract language.

Measurable Goal

During Permit Year 2, applicable situations identified and boilerplate contract language adopted.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: Service providers, contractors, lessees
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Purchasing

43.2

Implementation Plan

Boilerplate storm water language used in affected documents beginning in Permit Year 3.

Measurable Goal

During Permit Years 3-5, boilerplate contract language used.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: Service providers, contractors, lessees

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Purchasing

BMP # 44 Storm Drain System Maps

Permit Section: D.2.c.2
Hyperlink:
Description

Storm drain system maps are intended to aid in identifying illicit discharges and targeting system maintenance and monitoring. The UCSC Main Campus, MSC, 2300 Delaware and MBEST storm drain outfall maps will be reviewed and updated to show all existing storm drain outfalls. Receiving waters shall also be identified and located.
This BMP was selected to comply with General Permit Requirement D.2.c.2.
This BMP is not intended to address any specific storm water quality concern. It does serve as an important tool for describing the storm water conveyance systems and implementing other BMPs.

Effectiveness Measurement

Once initial maps are completed, annual review verifies 100% of changes have been incorporated.

44.1

Implementation Plan

The UCSC Main Campus storm drain infrastructure map will be reviewed by PP-Grounds to indicate all existing outfalls; receiving waters shall be identified and located.

Measurable Goal

During Permit Year 1, the storm drain map for Main Campus is completed.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP-Grounds

44.2

Implementation Plan

The UCSC Main Campus storm drain infrastructure map will be updated by PP&C to reflect changes indicated by PP-Grounds.

Measurable Goal

During Permit Year 1, the storm drain map for Main Campus is completed.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP&C

44.3

Implementation Plan

The MSC and 2300 Delaware storm drain infrastructure maps will be reviewed by PP-Grounds to show existing outfalls; receiving waters shall be identified and located.

Measurable Goal

During Permit Year 2, storm drain maps for 2300 Delaware and MSC are completed.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☑	☐

Primary Implementers: PP-Grounds

44.4

Implementation Plan

The MSC and 2300 Delaware storm drain infrastructure maps will be updated by PP&C to reflect changes indicated by PP-Grounds.

Measurable Goal

During Permit Year 2, storm drain maps for 2300 Delaware and MSC are completed.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☑	☐

Primary Implementers: PP&C

44.5

Implementation Plan

The MBEST storm drain infrastructure maps will be reviewed and updated by MBEST to show existing outfalls; receiving waters shall be identified and located.

Measurable Goal

During Permit Year 3, storm drain map for MBEST is completed.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

44.6

Implementation Plan

During May or June of each year, storm drain maps for the Main campus, 2300 Delaware and MSC will be reviewed by PP-Grounds to ensure 100% of changes have been incorporated. Main Campus review to begin in Year 2. MSC and 2300 Delaware review to begin in Year 3.

Measurable Goal

Affected departments verify that maps are complete.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

44.7

Implementation Plan

PP&C will update the storm drain maps for the Main campus, 2300 Delaware and MSC to incorporate changes due to completion of capital projects and as indicated by PP-Grounds review.

Measurable Goal

Affected departments verify that maps are complete.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP&C

44.8

Implementation Plan

During May or June of each year, storm drain maps for MBEST will be reviewed by MBEST to ensure 100% of changes have been incorporated. MBEST will update the storm drain maps to incorporate changes due to completion of capital projects and as indicated by facility review. MBEST review to begin in Year 4.

Measurable Goal

Affected departments verify that maps are complete.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☐	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

BMP # 45 Illicit Discharge Reporting System

Permit Section: D.2.a.; D.2.c.1; D.2.c.4; D.2.d.5
Hyperlink:
Description

In the fact sheet for Illicit Discharge Detection and Elimination Program Development EPA states: Sources of illicit discharges in urban areas are numerous and seemingly ever-present. All urban municipalities can benefit from establishing a comprehensive program to address these non-storm water discharges, including reporting hotlines and response procedures. Establishing a strong municipal program with clear policies and procedures will ensure that individual incidents are addressed consistently.

EH&S will establish a storm water illicit discharge reporting system with the following components: a telephone number staffed during regular working hours by a trained attendant; 24-hour emergency reporting to 9-1-1; web-based reporting monitored during regular working hours by a trained attendant; written procedures for collecting reports and conducting follow-up investigations and/or corrective actions; a system for tracking all reports made and their disposition; publicizing the reporting system in outreach materials/activities. The reporting system will additionally provide for public input/complaints regarding construction site storm water.

The system will be established during Permit Year 1. In addition to directing timely and effective responses to concerns about storm water management and providing an ongoing connection to the public, the reporting system will assist in measuring the effectiveness for many of the BMPs in the SWMP and may identify areas requiring additional BMPs.
This BMP was selected as one of the measures to comply with General Permit requirement to establish an illicit discharge detection system.
The storm water quality concerns addressed by this BMP are related to improper and illicit discharges such as sediment from construction sites, as well as spills and illegal dumping of organic and toxic materials.

Effectiveness Measurement

Track number of reports received. Track % of reports that represent an illicit discharge or threat of illicit discharge. Track % of reports closed and number of days to closure. Track types of publicity used.

45.1

Implementation Plan

Establish an illicit discharge reporting system with the following components: telephone number with trained attendant; emergency reporting to 9-1-1; web-based reporting; written reporting, investigation and corrective action procedures; and report tracking.
The system will include provisions for input/complaints regarding construction site storm water runoff concerns.

Measurable Goal

The system will be established during Permit Year 1.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: All members of the campus community.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

45.2

Implementation Plan

Operate the illicit discharge reporting system

Measurable Goal

All components of the system are in place.
100% of reports are investigated.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of the campus community.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

45.3

Implementation Plan

All new construction sites with a construction site sign, as specified in the Campus Standards Division II, Section 02800 (http://ppc.ucsc.edu/standards/specifications/02000.pdf), shall include a notice about how to report storm water concerns, which includes the illicit discharge reporting phone number.

Measurable Goal

A storm water concerns reporting notice is included in the signage at all applicable construction sites.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of the campus community.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

45.4

Implementation Plan

Publicize the illicit discharge reporting system. Publicity mechanisms may include: web information, employee training sessions, PSAs (Public Service Announcements), tabling events, dining hall table tent-type brochures and other postings, etc.

Measurable Goal

Publicity mechanisms are employed annually.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of the campus community.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

45.5

Implementation Plan

Annually review reports to the system to determine system effectiveness and opportunities for improvements.

Measurable Goal

Annual review is completed and documented.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of the campus community.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 46 Illicit Discharge Brochures and Flyers

Permit Section: D.2.a.; D.2.c.1; D.2.c.4; D.2.c.5
Hyperlink:
Description

As described in Control Measure 1: Public Education and Outreach, electronic brochures and flyers will be produced for a number of storm water topics.

During Permit Year 4, brochures specifically for illicit discharge may be produced where a need has been identified. Otherwise, during Permit Year 4 review all brochures/flyers and where applicable add illicit discharge identification and reporting component to existing brochures/flyers.This BMP was selected to ensure that illicit discharge detection and elimination is adequately addressed in public education and outreach efforts.

Effectiveness Measurement

NA

46.1

Implementation Plan

During Permit Year 4, an additional brochure addressing illicit discharge will be produced if a specific need has been identified. Otherwise, a review will be made of all other brochures and where applicable an illicit discharge component will be added.

Measurable Goal

New brochure produced or other brochures updated to include illicit discharge by the end of Permit Year 4.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☐	☑	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 47 Review of Non-Storm Water Discharges

Permit Section: D.2.c.6
Hyperlink:
Description

During the development of the SWMP, EH&S worked with various staff to ensure that for all facilities covered by this SWMP, the 17 categories of potential non-storm water discharges identified in General Permit section D.2.c.6. were reviewed and existing conditions were characterized. For each of the potential flows, a classification was applied: the flow is not a source of constituents of concern or detrimental to beneficial uses of water; or effective BMPs are in place to ensure such flows are not a source of constituents of concern or detrimental to beneficial uses of water; or a potential flow requiring further investigation; or UCSC does not have these flows. The classifications applied to each type of potential flow at each facility is found in Appendix D.

Seven potential flows were identified for further investigation. These flows will be investigated and follow-up actions taken, as described in BMP #25, BMP Development Team: Investigation of Non-Storm Water Discharges.

This BMP was selected to implement the Central Coast Regional Water Quality Control Board directive for all permittees to review the 17 categories of non-storm water discharges and determine if they are a significant source of contaminants to the storm drain system.

This BMP addresses storm water quality concerns associated with improper discharges containing toxic or organic constituents.

Effectiveness Measurement

All applicable flows identified and classified.

47.1

Implementation Plan

During the development of the SWMP, 17 categories of potential non-storm water discharges were reviewed and existing conditions classified as either: a flow covered by a BMP, a flow that is not a significant source of constituents of concern, a potential flow requiring further investigation, or no flow.

Measurable Goal

All applicable flows identified and classified. Appendix D is the completed work product for this BMP.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: EH&S: Storm Water Manager

BMP # 48 Campus Standards Handbook and Construction Contracts for Storm Water Management

Permit Section: D.2.d.1; D.2.d.2; D.2.d.3
Hyperlink: http://ppc.ucsc.edu/standards
Description

Because UCSC serves as both the public agency and project proponent for construction sites on University properties, a successful Construction Site Storm Water Runoff Control Program will vary from a program established by entities serving as only the public agency.

The Campus Standards Handbook serves many of the same purposes as municipal building codes and ordinances. The Campus Standards Handbook incorporates significant language to ensure erosion and sediment controls, as well as construction site waste controls. See current versions of Section 2 Building Requirements, Section 3 Site Requirements, Appendix D Erosion and Sediment Control Standards for Projects Under 1 Acre and Appendix E Best Management Practices for Projects Less Than One Acre in Area Involving Soil Disturbance Greater Than 50 Cubic Yards. The Campus Standards Handbook is supplemented by the UCSC Division 1 Specifications which become a part of every large (currently set to include all projects over $100,000) construction contract. Division 1, Section 01560 requires compliance with the SWRCB General Permit for Discharges of Storm Water Runoff Associated with Construction Activity for construction sites that result in land disturbance of an acre or more or requires compliance with UCSC Campus Standards Handbook Appendix D and E for construction activities that disturb less than an acre of land.

Because all applicable construction is performed under contract with the University of California, provisions for appropriate sanctions and penalties are included in the standard construction contract documents provided by the UCOP (University of California Office of the President). http://www.ucop.edu/facil/fmc/facilman/volume4/part2/long/gc.pdf. Sanctions include the ability for the University representative to stop work as provided in General Conditions Article 2.3, and the University's ability to complete any work not completed by the Contractor and to deduct costs from Contractor's payments per General Conditions Article 2.4.

UCSC requires its contractor to comply with the law and with the SWRCB General Permit for Discharges of Storm Water Runoff Associated with Construction Activity in its contract with the contractor. UCSC does not contract directly with subcontractors, but does require in the contract with the contractor that the subcontractors comply with all requirements imposed upon the contractor. If there is a violation, UCSC can hold its contractor in breach of contract, requiring the contractor to remedy the violation either through the action of the contractor itself, or by the contractor declaring its subcontractor to be in violation of the subcontract.

As the landowner, UCSC applies for coverage under the SWRCB General Permit for Discharges of Storm Water Runoff Associated with Construction Activity for all applicable sites. Prior to applying for coverage, UCSC reviews all SWPPPs for completeness using the SWPPP monitoring program checklist provided by SWRCB.
This BMP was selected because it implements the Municipal General Permit requirements for erosion and sediment controls as well as construction site waste controls with enforceable consequences for non-compliance by utilizing existing mechanisms. This follows the EPA and SWRCB directive that selected BMPs should be locally appropriate.
The primary storm water quality concerns addressed by this BMP are sediment, litter and toxic materials.

Effectiveness Measurement

Track number of reports to illicit discharge reporting system, BMP #45, related to construction sites. Track number of formal and informal NOVs received related to this item.

48.1

Implementation Plan

Continue existing Erosion and Sediment Control program elements.

Measurable Goal

Erosion Control Standards and related requirements incorporated into all applicable new construction contracts.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

48.2

Implementation Plan

For all construction projects subject to the Construction General Permit, PP&C reviews the contractor prepared SWPPP and related documents. All SWPPP and related documents are reviewed for completeness before endorsing the NOI.

Measurable Goal

All SWPPP and related documents are reviewed for completeness before the NOI is submitted.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP&C, contractors

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

48.3

Implementation Plan

Continue to include in all construction contracts provisions for penalties and breach of contract provisions.

Measurable Goal

All new construction contracts contain standard provisions for penalties and breach of contract.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP&C, PP-Work Management, contractors

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

48.4

Implementation Plan

Conduct an analysis of Campus Standards and/or specifications and identify modifications and/or additions necessary to effectively implement hydromodification controls and LID.

Measurable Goal

Complete list of modifications and/or additions to Campus Standards and/or specifications by end of joint effort quarter 2.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: PP&C, PP-Work Management, contractors, consultants

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C

48.5

Implementation Plan

Modify Campus Standards and/or specifications as identified during task 48.4 in order to implement hydromodification controls and LID in new and redevelopment projects.

Measurable Goal

Campus Standards and/or specifications are modified after final completion of University specific criteria by end of joint effort quarter 8**.**

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☐	☐

Targeted audience: PP&C, PP-Work Management, contractors, consultants

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C

48.6

Implementation Plan

Following the timely development of Water Board approved hydromodification methodology developed through the Joint Effort or equivalent, apply new and/or modified Campus Standards and/or specifications to implement hydromodification controls and LID to all applicable new and redevelopment projects

Measurable Goal

All applicable capital projects proposed for design fundingafter completion of University-spcecific criteria will incorporate modified Campus Standards and specifications by end of joint effort quarter 9

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: PP&C, PP-Work Management, contractors, consultants

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☑

Primary Implementers: PP&C

BMP # 49 Reserved

BMP # 50 Reserved

BMP # 51 Construction Site Inspection Procedures

Permit Section: D.2.d.6
Hyperlink:
Description

The University Representative has the authority to stop work on construction projects that are not implementing Erosion Control or SWPPP requirements. To improve the inspection and enforcement process, PP&C will develop and implement inspection procedures and checklists for storm water management. The inspection procedure will apply to all sites that disturb more than 50 cubic yards of dirt and projects over one acre The procedures and checklist will be developed during Permit Year 1 and implementation will begin no later than the beginning of Permit Year 2. This BMP was selected because it implements the Municipal General Permit requirements for construction site inspections.

The primary storm water quality concerns addressed by this BMP are sediment, litter and toxic materials.

Effectiveness Measurement

Track number of reports to illicit discharge reporting system, BMP #45, related to construction sites. Track number of formal and informal NOVs received related to this item.

51.1

Implementation Plan

During Permit Year 1, PP&C will develop inspection procedures and checklists for storm water management. The inspection procedure will apply to all sites that disturb more than 50 cubic yards of dirt and projects over one acre.

Measurable Goal

Procedures and checklists developed during Permit Year 1.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: PP&C staff, PP-Work Management and construction contractors
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

51.2

Implementation Plan

PP&C will implement inspection procedures and checklists no later than the beginning of Permit Year 2. Inspections during the non rainy seanson will be, at a minimum, once for projects disturbing more than 50 cy of dirt and once every two months for projects over an acre. Inspections during the rainy season will be once a month for all projects disturbing over 50 cy of dirt or over an acre.

Measurable Goal

Procedures and checklists implemented.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: PP&C staff and construction contractors
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

51.3

Implementation Plan

PP-Work Management will implement inspection procedures and checklists no later than the beginning of Permit Year 2. Inspections during the non rainy seanson will be, at a minimum, once for projects disturbing more than 50 cy of dirt and once every two months for projects over an acre. Inspections during the rainy season will be once a month for all projects disturbing over 50 cy of dirt or over an acre.

Measurable Goal

Procedures and checklists implemented.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: PP-Work Management and construction contractors

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP-Work Management

BMP # 52 Plan Review for Storm Water Quality Impacts

Permit Section: D.2.d.4
Hyperlink: http://www.ucop.edu/facil/pd/CEQA-Handbook/uc_ceqaw.doc
Description

UCSC follows the procedures and initial study checklist adopted by the University of California for the implementation of CEQA. During Permit Year 2, UCSC will review its procedures for preparing CEQA documents and, if necessary, revise these procedures to ensure that impacts on storm water runoff quality and quantity are considered and that BMPs and mitigations proposed for each project meet performance standards consistent with the SWMP.

This BMP was drafted to ensure that the environmental analysis required for those projects that fall under CEQA review consider runoff quality and quantity.

Effectiveness Measurement

All Initial Studies and EIRs consider impacts on storm water runoff quality and quantity, assess the effectiveness of proposed BMPs, and, if necessary, identify mitigation measures to ensure that project BMPs meet the campus' performance standards.

52.1

Implementation Plan

Review and, if necessary, revise, all CEQA documents to ensure that storm water runoff quality and quantity are considered.

Measurable Goal

By the end of Permit Year 2, CEQA documents have been reviewed and revised if necessary. After Permit Year 2, Storm water runoff quality and quantity are considered in all CEQA documents.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

BMP # 53 Reserved

BMP # 54 Construction Site Storm Water BMP Training

Permit Section: D.2.d.2; D.2.d.3; D.2.d.4; D.2.d.5; D.2.d.6
Hyperlink:
Description

On an annual basis, PP&C will train/retrain affected staff on the construction site storm water management BMPs. Training will utilize electronic brochures and flyers and other BMP documents such as construction site inspection procedures. Training will be conducted prior to October 1 of each year.This BMP was selected because it aids in the implementation of the construction BMPs.

The primary storm water quality concerns addressed by this BMP are sediment, litter and toxic materials.

Effectiveness Measurement

Track number of reports to illicit discharge reporting system, BMP #45, related to construction sites.

54.1

Implementation Plan

Annual training for impacted PP&C staff on construction site storm water management BMPs, including construction site inspection procedures. Provide training to impacted PP&C staff annually prior to October 1 of each year.

Measurable Goal

100% of affected PP&C and PP-Work Management staff have participated in training before October 1 of Permit Year 1.

Not less than 70% of affected PP&C and PP-Work Management staff participate in annual retraining.

Frequency: annually
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP&C staff, PP-Work Management
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

BMP # 55 Main Campus Planning and Design Requirements for Storm Water Management and Watershed Protection

Permit Section: D.2.e.1; D.2.e.2; D.2.e.3
Hyperlink: http://ppc.ucsc.edu/standards
Description

SWMP sections 4.2.5.1 to 4.2.5.4 describe the context and approach for planning and development at the main campus. This BMP details the implementation tasks that UCSC will take to realize the described approach.

This BMP was selected to describe tasks being implemented as part of the LRDP mitigation measures and as part of the recommendations found in the Stormwater & Drainage Master Plan (other BMPs, such as BMP# 100, implement other recommendations) and are primarily intended to provide locally appropriate hydromodification and source controls on new development, in order to respond to erosion and sedimentation concerns. The Campus Standards Handbook contains additional design guidelines for all development and redevelopment project designs. All campus projects must follow the Campus Standards.

Effectiveness Measurement

Evaluate percent of completed projects that meet design requirements.

55.1

Implementation Plan

For applicable new construction, continue to: provide for runoff rate control from new development; require various measures for erosion control, drainage, and landscaping to protect post-development storm water quality; limit the number of parking spaces constructed; and equip applicable new landscaping with computer-controlled irrigation system linked to a weather station as currently included in the Campus Standards Handbook. See current version of Section 2 Building Requirements and Section 3 Site Requirements.

Measurable Goal

PP&C and PP-Work Management shall each document that applicable measures are included in all completed construction projects.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C, PP-Work Management

55.2

Implementation Plan

Implement Civil and Site Design Guidelines Supplement. The October 2007 Civil and Site Design Guidelines Supplement drafted by PP&C shall be added to the campus standards. These requirements shall apply for all projects receiving design funding afterJuly 2009. A working copy of the Civil and Site Design Guidelines Supplement is included as Appendix F.

Measurable Goal

For all projects funded for design after July 2009, PP&C and Work Management shall each document that Civil and Site Design Guidelines Supplement have been included in the completed projects.

Frequency: ~~ongoing~~one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐~~☑~~	☐~~☑~~	☐~~☑~~	☐~~☑~~

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C, PP-Work Management

55.3

Implementation Plan

Main campus projects funded for design after joint effort quarter 4 that increase impervious surface will be required to provide volume control to the maximum extent practicable.
The campus has set the applicability level for this task to capital projects that increase impervious surface. In order to ensure maximum extent practicable is achieved the campus plans to have design professionals utilize a narrative checklist of LID practices. This checklist will become part of the project file. The draft checklist is attached as Appendix G. The evaluation is tiered to require a less extensive evaluation for smaller projects. Projects creating less than 5000 square feet of impervious surface may use the LID checklist for small projects, attached as Appendix H.

Measurable Goal

PP&C and Work Management shall document that all capital projects creating new impervious surfaces include an evaluation of LID practices and incorporate feasible LID practices by end of joint effort quarter 9.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C, PP-Work Management

55.4

Implementation Plan

All RFPs for design professionals for applicable capital projects shall state that incorporating LID practices is an important campus goal.

Measurable Goal

Applicable RFPs state that incorporating LID practices is an important campus goal by end of joint effort quarter 4.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Design professionals

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

55.5

Implementation Plan

The University shall use Water Board approved hydromodification methodology developed through the Joint Effort, or equivalent, to derive University-specific criteria for controlling hydromodification in applicable new and redevelopment projects.

Measurable Goal

University-specific criteria developed by end of joint effort quarter 8. Developed criteria will be included in projects proposed for funding starting in quarter 9.

Frequency: One time and ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C

55.6

Implementation Plan

Identify the projects, including project type, size and location, to which the University will apply the University-specific hydromodification control criteria.

Measurable Goal

Applicability thresholds developed simultaniously with development of University-specific control criteria. By end of joint effort quarter 8.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP&C

55.7

Implementation Plan

In accordance with recommendations contained in the Stormwater & Drainage Master Plan, adopt additional source control requirements for erosion and sediment control with an emphasis on potential pollutants from vehicles and from food service facilities.

PP&C shall adopt the following design requirements to provide source control:

1. Design loading docks to minimize storm water run-on and run-off through the use of grading design and berms or their equivalent.
2. Culverts are a minimum 8" diameter and designed for a 10-year storm to minimize system overcapacity events to prevent overflow erosion.
3. Where new development drains to existing outfalls, the existing outfalls shall be upgraded as necessary to extend to toe of slope and provide energy dissipation.
4. Drainage plans shall be approved, signed and stamped by a licensed Civil Engineer or an Approved Erosion Control Specialist (as defined in the UCSC Erosion Control Standards), certifying that the design is adequate to prevent erosion.
5. Label storm drain inlets and catch basins to indicate prohibition of illegal discharge.
6. Outdoor materials storage areas shall be designed to prevent storm water contamination from loose, particulate or dissolved materials. Design features will include covering or enclosing storage areas and preventing run-on and run-off through the use of berms or grading design or their equivalent.
7. To prevent wind-blown trash, provide trash container areas screened or walled on 3 sides and require container lids or equivalent.
8. Dumpster areas designed with storm water run-on diversion.
9. Vehicle wash racks to include closed-loop, recycled water system.
10. Food facilities designed with the following:
    a. Oil and grease interceptor design approved by jurisdiction overseeing sanitary waste water discharge.
    b. Wash area for cleaning of equipment and accessories. Wash area connected to the oil and grease interceptor and the sanitary sewer.
    c. If the wash area is outdoors, it must be covered and designed to prevent storm water run-on and run-off.
11. Liquid vehicle fuel dispensing areas covered with an overhanging roof structure. The fuel dispensing pad designed to prevent storm water run-on and run-off and to contain the worst-case, reasonably anticipated fuel spill.
12. Maintenance procedures and maintenance schedules will be provided to the University Representative for all pre-engineered storm water treatment structures.
13. Minimize the size of parking lots and minimize the impervious land coverage of parking lots.
14. To encourage storm water infiltration in small parking lots eliminate curbs or provide curb openings and slope parking lots to encourage storm water infiltration into vegetation islands and strips where the potential for erosion or a hazardous material spill is not expected.

15. Encourage on-site absorption, including porous pavers, vegetative strips, grassy swales, detention ponds and infiltration strips. Feasibility may be limited by constraints such as topography, vegetative detritus, accessibility compliance under ADA, provisions for emergency vehicle access, soil permeability as well as sufficient sunlight to permit plant growth.
16. Vegetate slopes disturbed by construction with native or drought-tolerant plants, as appropriate where environmental conditions allow plant growth and mulch or other control measures where vegetation is not viable.
17. Whenever armoring is needed in drainages, soft (rather than hard) armoring shall be used if environmental conditions and engineering analysis determine soft armoring to be appropriate.
18. Oil/water/sediment catch basins at loading docks and all parking lots not equipped with a pre-engineered oil/water/sediment separator.
19. Runoff from parking lots > 5,000 sq. ft. will be treated for oil, grease and sediment before being released. Volume based treatment will be calculated using either the 85th percentile, 24-hour storm event or 80 percent of the annual runoff volume. Flow based treatment will be calculated using either the 85th percentile hourly rainfall intensity, multiplied by a factor of two or 10 percent of the 50 year peak flow.
20. Storm water discharge from new roads will be treated for oil, grease and sediment before being released. Volume based treatment will be calculated using either the 85th percentile, 24-hour storm event or 80 percent of the annual runoff volume. Flow based treatment will be calculated using either the 85th percentile hourly rainfall intensity, multiplied by a factor of two or 10 percent of the 50 year peak flow.
21. Provide 12" deep sediment trap in bottom of all drain inlets and catch basins. Special access provisions will be required where the invert exceeds 36". Catch basins to be minimum 24" wide to allow cleanout.
22. Runoff from roads and parking lots; operation centers and municipal yards; vehicle fueling and maintenance facilities and food facility loading docks that include at least 5000sf of new or replacement impervious surfaces will be subject to treatment. Appropriate treatment could consist of discharge to a permeable area, as long as subject to appropriate sizing criteria and treatment design. Volume based treatment will be calculated using either the 85th percentile, 24-hour storm event or 80 percent of the annual runoff volume. Flow based treatment will be calculated using either the 85th percentile hourly rainfall intensity, multiplied by a factor of two or 10 percent of the 50 year peak flow.
23. Runoff from outdoor dining areas that include at least 5000sf of new or replacement impervious surfaces will be subject to treatment. This could consist of discharge to a permeable area, as long as subject to appropriate sizing criteria and treatment design. Outdoor dining areas may be treated by flowing to an appropriately sized pervious area. Volume based treatment will be calculated using either the 85th percentile, 24-hour storm event or 80 percent of the annual runoff volume. Flow based treatment will be calculated using either the 85th percentile hourly rainfall intensity, multiplied by a factor of two or 10 percent of the 50 year peak flow.

For any of the above proposals that are modified or not adopted, UCSC will provide justification in the annual report.

Measurable Goal

Design requirements added to Campus Standards during Permit Year 1.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

55.8

Implementation Plan

Once the Campus Standards Handbook has been amended to include the source control requirements established in Task 55.7, all newly-funded capital projects shall include these requirements to the extent applicable.

Measurable Goal

Projects funded after campus standards are updated shall include all applicable requirements.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C, PP-Work Management

55.9

Implementation Plan

In accordance with the LRDP study the feasibility of reclaimed water use, including rainwater and other sources. The study shall include a plan to utilize reclaimed water in new development as feasible and effective in water conservation and shall include an implementation schedule.

Measurable Goal

Implement LRDP UTIL-9G and summarize findings and planned implementation schedule.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C

55.10

Implementation Plan

PP&C shall adopt the following design requirements: for new development and redevelopment a 30-foot buffer from water bodies will be included in the project. Where a 30-foot buffer is not feasible and for buffers less than 30 feet, written documentation from a qualified professional must be provided prior to design approval to show that the proposed buffer is adequate to prevent adverse effects on the watershed.

Measurable Goal

Design requirements added to Campus Standards in Year 1

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☑	☐

Primary Implementers: PP&C

55.11

Implementation Plan

The University will review and evaluate its 2005 Long Range Development Plan (LRDP), area planning process and other documents to verify that long-term watershed protection planning efforts are being addressed. The 2005 LRDP and other documents will be revised as appropriate.

In addition, the University will evaluate the existing watershed protection planning efforts, such as land use policies and development review procedures. Based on the results of this review, revisions or adaptations will be made as appropriate.

In conjunction with the review of the Plans and documents mentioned above, the University will also develop, where feasible, quantifiable measures that indicate how the University's watershed protection efforts related to storm water management achieve desired watershed conditions.

Measurable Goal

100% of the 2005 LRDP, area plans, policies, standards, guidance manuals, and BMPs that are initiated or reviewed in any given year will be listed in the annual report along with the scheduled revision date. All documents will be assessed and modified to provide long-term watershed protection.

Frequency: yearly

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP&C

BMP # 56 Pervious Paving Pilot Project

Permit Section: D.2.e.2
Hyperlink:
Description

It is in the ongoing interest of UCSC to maximize storm water infiltration and to continue to experiment with pervious paving/surfaces. UCSC will continue to evaluate new products and new applications. During Permit Years 3 and 4, UCSC will identify a pilot project for pervious paving. A thorough post-construction evaluation of the pilot project will determine if the following or its equivalent shall be added to the Campus Standards Handbook: Pervious pavement should be used in parking lots or in walkways except where limited by constraints such as vegetative detritus, accessibility compliance under ADA, emergency vehicle access, soil permeability or other constraints.

This BMP was drafted to document UCSC's continued interest in exploring lower impact options for new development.

The storm water quality concerns addressed by this BMP is minimization in increases of runoff volume and biological mitigation of contaminants associated with automobiles.

Effectiveness Measurement

NA

56.1

Implementation Plan

During Permit Years 3 and 4, UCSC will identify a pilot project for pervious paving. A thorough post-construction evaluation of the pilot project will determine if requirements for pervious paving shall be added to the Campus Standards Handbook.

Measurable Goal

Pervious paving pilot project(s) completed and evaluated. Changes made to Campus Standards or justification for rejection included in annual report.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

BMP # 57 MSC Planning and Design Requirements for Storm Water Management and Watershed Protection

Permit Section: D.2.e.1; D.2.e.2; D.2.e.3; D.2.e.4
Hyperlink: http://ppc.ucsc.edu/cp/projects/11407/planning/CLRDP%20July%202007
Description

The CLRDP is the land use plan for the physical development of the 98-acre Marine Science Campus (formerly Long Marine Lab), including Younger Lagoon Reserve. The CLRDP contains comprehensive provisions for storm water management and watershed protection as the Marine Science Campus is developed. Included in the CLRDP are policies, policy implementation measures, a Resource Management Plan and a Drainage Concept Plan that taken together will ensure that development will protect and in some areas enhance the watershed.
This BMP was selected to describe tasks being implemented as part of the CLRDP and is primarily intended to provide locally appropriate hydromodification and source controls on new development in order to protect and enhance the local watershed.

Effectiveness Measurement

The CLRDP Drainage Concept Plan requires an Annual Water Quality report. UCSC shall annually assess the effectiveness of this BMP in accordance with the Annual Water Quality Report requirements.

57.1

Implementation Plan

Implement the storm water components of the CLRDP, including policies, policy implementation measures, a Resource Management Plan and a Drainage Concept Plan. Annually summarize all related activities. The annual summary may follow a reporting year established by the CLRDP rather than the reporting year of the SWMP.

Measurable Goal

Implement the storm water components of the CLRDP. Annually provide a summary of implementation.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☐	☑	☐	☐

Primary Implementers: PP&C

BMP # 58 MBEST Planning and Design Requirements for Storm Water Management and Watershed Protection

Permit Section: D.2.e.1; D.2.e.2; D.2.e.3
Hyperlink:
Description

The Master plan for the MBEST Center requires that all surface runoff from new development to be directed to 10-year retention basins for infiltration with any overflow directed to a 100-year retention basin. Ten-year retention basins are owned and operated by MBEST. Hundred-year retention basins are maintained by the City of Marina. Ten-year retention basins are inspected monthly and maintained as needed.

This BMP was selected to describe tasks being implemented as part of the MBEST Center Master Plan and is primarily intended to provide locally appropriate hydromodification controls on new development in order to protect the local watershed.

Effectiveness Measurement

All new development includes design provisions to ensure runoff from the 10 year storm is retained on site.

58.1

Implementation Plan

Include infiltration basins in all new development at the MBEST Center.

Measurable Goal

Infiltration basins are included in all new development.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

BMP # 59 Staff Training on Hydromodification and Low Impact Development

Permit Section: D.2.e.1; D.2.e.2; D.2.e.3; D.2.e.4
Hyperlink:
Description

All Project Managers in PP&C and in PP-Work Management, as well as PP&C inspectors shall be trained in LID and Hydromodification. As of Fall 2007 all current affected staff had participated in some training related to LID. As the LID checklist and other measures are phased in the training will be updated to reflect evolving wisdom and requirements. Efforts will be made to retrain all affected staff annually, at a minimum 50% of affected staff shall participate in annual retraining. This BMP was selected to provide staff training on LID and hydromodification to staff involved in design, construction and structural control operation to enable the full implementation of BMPs for new development.

Effectiveness Measurement

BMPs 55, 56, 57 and 58 are implemented as described.

59.1

Implementation Plan

On an annual basis, PP&C qualified staff shall coordinate training for affected staff on hydromodification and Low Impact Development. The training shall be updated as needed to cover UCSC specific requirements as well evolving practices in hydromodification and LID. This training may be held in conjunction the training required by BMP #54.

Measurable Goal

At a minimum 50% of affected staff participate in annual retraining by end of joint effort quarter 8

Frequency: annually
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP&C, PP-Work Management
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

BMP # 60 Operation and Maintenance of New Development BMPs

Permit Section: D.2.e.4
Hyperlink:
Description

As a non traditional MS4 UCSC is the final owner of nearly all structural BMPs.
To ensure long term maintenance of BMPs installed in new construction, UCSC will add new structural BMPs to BMP #78: Storm Drain Systems Inspection and Preventative Maintenance. If Grounds Services is not identified as the responsible department, the identified department will adopt an appropriate inspection and maintenance schedule. Or for BMPs installed in areas which will be leased by others, long term maintenance will be assured by including an operation and maintenance requirement in the governing documents, such as the Covenants, Conditions and Restrictions (CC&R) or other appropriate documents.
This BMP was selected to comply with the General Permit requirement to ensure adequate long term operation and maintenance of BMPs installed under the New Development Minimum Control Measure (UCSC BMPs #55, 56, 57, 58 and 59) using a strategy similar to that employed by other non-traditional MS4s.
The storm water concerns primarily addressed by this BMP are volume and rate control, sediment, erosion, litter, organic materials and toxic materials.

Effectiveness Measurement

Track number and type of reports to the illicit discharge reporting system or other communications regarding maintenance of structural BMPs.

60.1

Implementation Plan

During construction, PP&C identifies all structural BMPs included in each project. For each structural BMP a responsible party is identified and agrees to assume long term maintenance of structural BMPs prior to final completion of project.

Measurable Goal

Prior to final completion of project, responsibility for long term maintenance of all new structural BMPs has been assigned and accepted.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Grounds, MSC, MBEST, CUHS, Student Affairs, TAPS, Arboretum and CASFS
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: PP&C

BMP # 61 Reserved

BMP # 62 Storm Water BMP Training

Permit Section: D.2.a.; D.2.f.1; D.2.f.2
Hyperlink:
Description

On an annual basis, key employees receive training on general storm water awareness and on applicable BMPs to protect storm water quality. All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.
Training may utilize the Electronic Brochures and Flyers described in BMP #1.
This BMP was selected because the General Permit requires employee training to prevent and reduce storm water contamination. Training for employees will reinforce their key role in preventing storm water concerns such as erosion, litter, discharge of toxic materials, discharge of organic materials, storm drain system malfunctions, etc.

Effectiveness Measurement

The effectiveness of training will be assessed either by reviewing participant post-training evaluations or by reviewing participant responses to post-training quizzes.
BMP effectiveness may also be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

62.1

Implementation Plan

On an annual basis, PP-Grounds Services shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochures General Storm Water Awareness (BMP #1).

Measurable Goal

At least 90% of applicable PP-Grounds employees will participate in initial training. At least 90% of applicable PP-Grounds employees will be retrained annually.

Frequency: annually
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP-Grounds
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

62.2

Implementation Plan

On an annual basis, CUHS-Facilities shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochures General Storm Water Awareness (BMP #1).

Measurable Goal

At least 90% of applicable CUHS-Facilities employees will participate in initial training. At least 90% of applicable CUHS-Facilities employees will be retrained annually.Training conducted annually by responsible department.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: CUHS-Facilities

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Facilities

62.3

Implementation Plan

On an annual basis, LML Facilities staff shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize the electronic brochure for General Storm Water Awareness (BMP #1).

Measurable Goal

At least 90% of applicable LML-Facilities employees will participate in initial training. At least 90 % of applicable LML-Facilities employees will be retrained annually.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: LML-Facilities

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☐	☐

Primary Implementers: LML-Facilities

62.4

Implementation Plan

On an annual basis, MBEST staff shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochure for General Storm Water Awareness (BMP #1).

Measurable Goal

Participation by 100% of applicable MBEST staff in Year1. Participation by at least 50% of applicable MBEST staff in Years 2-5.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: MBEST

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

62.5

Implementation Plan

On an annual basis, TAPS-Maintenance employees shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize the electronic brochure for General Storm Water Awareness (BMP #1).

Measurable Goal

At least 90% of applicable TAPS Maintenance employees will participate in initial training. At least 90 % of applicable TAPS Maintenance employees will be retrained annually.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: TAPS Maintenance

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: TAPS Maintenance

BMP # 63 Equipment and Materials Storage Areas

Permit Section: D.2.f.1; D.2.f.2
Hyperlink:
Description

This BMP applies to equipment and material storage areas for UCSC facilities operations.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to facilities equipment and materials storage areas and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to facilities equipment and materials storage areas.

63.1

Implementation Plan

- Facilities equipment and material storage areas shall be maintained in a clean and orderly manner.
- Containers shall have legible labels indicating contents.
- Hazardous materials will be stored in covered areas and be provided with secondary containment to prevent releases of hazardous materials to storm drains.
- Spills and leaks will be cleaned up in an expedient manner for disposal in accordance with State and Federal regulations.
- Lidded outdoor waste and recycling receptacles will be stored shut to shed storm water and prevent animals from scattering trash.
- Hazardous materials and hazardous wastes will be handled in accordance with State and Federal regulations.
- Hazardous materials storage areas (such as the Central Garage, Plant Paint Shop, Mower Shop and other municipal type facilities) are inspected by the local CUPA (Certified Unified Program Agency). Departments shall promptly correct any CUPA inspection deficiencies.

Measurable Goal

Equipment and material storage requirements are included in all training required by BMP #62. 100% of noted CUPA inspection deficiencies corrected within 30 days.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: staff
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: various staff

BMP # 64 Washing University Owned Vehicles

Permit Section: D.2.f.1; D.2.f.2
Hyperlink:
Description

Most University vehicles are washed at the Fleet Services wash station, which discharges to the sanitary sewer. Grounds Services also maintains a wash station connected to the sanitary sewer; however, this station is primarily intended for cleaning Grounds Services equipment. OPERS (Office of Physical Education, Recreation, Sports, and Wellness) has been using a dry cleaning method with good success for more than a year to clean the exteriors of nine vehicles.
Private vehicles are not routinely washed at UCSC. Student residents generally do not have access to washing equipment. In BMP # 25, UCSC has made commitments to reviewing the limited instances where private vehicles might be washed.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to vehicle washing and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to vehicle washing.

64.1

Implementation Plan

University Vehicle washing shall be limited to one of the following methods:

1. Vehicle exteriors may be washed at the Fleet Services wash station in conformance with current procedures at that location;
2. Vehicle exteriors may be washed at the Grounds Services wash station with prior approval from Grounds Services Superintendent and in conformance with current procedures at that location;
3. With prior approval from the Storm Water Manager, vehicle exteriors may be washed with water only-- no soaps, detergents or other cleaners may be used and engines and undercarriages may not be cleaned --provided the wash water drains to the landscape without causing erosion or damage to vegetation;
4. At the Marine Science Campus, marine vehicles may be washed with water only-- no soaps, detergents or other cleaners may be used; or
5. Vehicles may be washed using dry cleaning methods.

Measurable Goal

Vehicle washing requirements are included in all training required by BMP #62.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: staff
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: various staff

BMP # 65 Reserved

BMP # 66 Reserved

BMP # 67 Reserved

BMP # 68 Street and Parking Lot Maintenance in Faculty/Staff Housing

Permit Section: D.2.f.1
Hyperlink:
Description

Prevent storm water contamination from roads and parking lots. Streets and parking lots associated with Faculty/Staff Housing shall be cleaned not less than once annually. One cleaning shall occur prior to the wet season.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, oil and grease, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item and by tracking the number of concerns reported to the applicable work order system related to cleaning of streets and parking lots.

.

68.1

Implementation Plan

Streets and parking lots associated with Faculty/Staff Housing shall be cleaned not less than once annually. One cleaning shall occur prior to the wet season.

Measurable Goal

Cleaning is performed according to established schedule.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS

BMP # 69 Food Service BMPs

Permit Section: D.2.f.1
Hyperlink:
Description

To ensure storm water quality is not negatively affected by food service activities, BMPs were selected by the BMP Development Team for Food Service Facilities (refer to BMP #18). The practices selected cover the following activities: washing of equipment, cleaning loading docks, cleaning outdoor dining areas, handling and disposal for fats, oil and grease (FOG), and handling of solid wastes and recyclable materials. These practices are to be implemented starting in Year 1. Where current facilities are inadequate to fully implement these BMPs a plan for future improvements (such as capital projects) will be developed and implemented.
This BMP was selected to prevent storm water contamination from food service operations. Campus dining halls, cafes and other eateries have operations similar to commercial restaurants. Areas of concern for food service facilities include organic materials (food wastes), oil and grease, and wash waters containing either cleaning chemicals or organic materials. A significant difference is that these operations are either owned and operated by UCSC or they are tenants of UCSC. This difference allows for a simpler structure to ensure entities are informed of and implement their obligations. BMP #1 requires that a brochure be developed for Food Service Facilities.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

69.1

Implementation Plan

By the end of Permit Year 1, CUHS-Dining Services will implement the Best Management Practices described in Appendix I: Storm Water Related Best Management Practices for Food Service Facilities. The selected BMPs cover the following activities: equipment washing, loading dock cleaning, outdoor dining area cleaning, handling and disposal of fats, oil and grease (FOG), and handling of solid wastes and recyclable materials.
Where the above procedures cannot be fully implemented by the end of Permit Year 1, a plan for future improvements, such as capital projects, will be developed and implemented.

Measurable Goal

Operating procedures developed and implemented at each facility. Where current facilities are inadequate to fully implement these BMPs, a plan for future improvements (such as capital projects) was developed and is being implemented.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: CUHS-Dining
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Dining

~~69.2~~

~~**Implementation Plan**~~

~~By the end of Permit Year 1, Food Service Contractors will implement the Best Management Practices described in Appendix I: Storm Water Related Best Management Practices for Food Service Facilities. The BMPs cover the following activities: equipment washing, loading dock cleaning, outdoor dining area cleaning, handling and disposal of fats, oil and grease (FOG), and handling of solid wastes and recyclable materials.~~

~~Where the above procedures cannot be fully implemented by the end of Permit Year 1, a plan for future improvements, such as capital projects, will be developed and implemented.~~

~~**Measurable Goal**~~

~~Operating procedures developed and implemented. Where current facilities are inadequate to fully implement these BMPs, a plan for future improvements (such as capital projects) was developed and is being implemented.~~

~~**Frequency:** ongoing~~

~~**Permit Year(s):**~~

~~Yr1~~	~~Yr2~~	~~Yr3~~	~~Yr4~~	~~Yr5~~
~~☑~~	~~☑~~	~~☑~~	~~☑~~	~~☑~~

~~**Targeted audience:** Food Service Contractors~~

~~**Sites:**~~

~~Main~~	~~MSC~~	~~Delaware~~	~~MBEST~~
~~☑~~	~~☐~~	~~☐~~	~~☐~~

~~**Primary Implementers:** Food Service Contractors~~

69.3

Implementation Plan

On an annual basis, applicable CUHS-Dining employees receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochures for General Storm Water Awareness (BMP #1). All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.

Training shall be documented.

Measurable Goal

Training conducted annually by responsible department.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: CUHS-Dining and any food service contractor

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Dining

~~69.4~~

~~**Implementation Plan**~~

~~On an annual basis, applicable food service contractor employees receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochures for General Storm Water Awareness (BMP #1). All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.~~

~~Training shall be documented.~~

~~**Measurable Goal**~~

~~Training conducted annually by food service contractor.~~

~~**Frequency:** annually~~

~~**Permit Year(s):**~~

~~Yr1~~	~~Yr2~~	~~Yr3~~	~~Yr4~~	~~Yr5~~
~~☑~~	~~☑~~	~~☑~~	~~☑~~	~~☑~~

~~**Targeted audience:** Food Service Contractors~~

~~**Sites:**~~

~~Main~~	~~MSC~~	~~Delaware~~	~~MBEST~~
~~☑~~	~~☐~~	~~☐~~	~~☐~~

~~**Primary Implementers:** Food Service Contractors~~

69.5

Implementation Plan

On an annual basis, applicable CUHS-Facilities staff receive training on BMPs to reduce storm water constituents of concern. Training may utilize electronic brochures for General Storm water Awareness (BMP #1). All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.

Training shall be documented.

Measurable Goal

Training conducted annually by responsible department.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: CUHS-Facilities

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Facilities

69.6

Implementation Plan

Add storm water training to applicable CUHS-Dining food service new employee orientation.

Measurable Goal

Training conducted by responsible department.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: CUHS-Dining

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Dining

~~69.7~~

~~**Implementation Plan**~~

~~Add storm water training to applicable food service contractor new employee orientation.~~

~~**Measurable Goal**~~

~~Training conducted by responsible department.~~

~~**Frequency:** ongoing~~

~~**Permit Year(s):**~~

~~Yr1~~	~~Yr2~~	~~Yr3~~	~~Yr4~~	~~Yr5~~
~~☑~~	~~☑~~	~~☑~~	~~☑~~	~~☑~~

~~**Targeted audience:** Food Service Contractors~~

~~**Sites:**~~

~~Main~~	~~MSC~~	~~Delaware~~	~~MBEST~~
~~☑~~	~~☐~~	~~☐~~	~~☐~~

~~**Primary Implementers:** Food Service Contractors~~

69.8

Implementation Plan

Add storm water training to applicable CUHS-Facilities new employee orientation.

Measurable Goal

Training conducted by responsible department.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: CUHS-Facilities

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Facilities

69.9

Implementation Plan

Food facilities are inspected by EH&S quarterly, when in operation. The existing program will be amended to include observations regarding implementation of storm water management BMPs. Findings will be provided to both the Unit Manager and Assistant Director for Dining. Food facilities shall promptly correct any storm water related inspection observations reported by the EH&S inspector.

Measurable Goal

100% of observations corrected within 30 days of notification by EH&S.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Food Facilities

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S

BMP # 70 Reserved

BMP # 71 Reserved

BMP # 72 Reserved

BMP # 73 Reserved

BMP # 74 Reserved

BMP # 75 Fleet Services BMPs from SWPPP

Permit Section: D.2.f.1
Hyperlink:
Description

The Central Garage is covered under the General Permit for Industrial Facilities. Therefore, the Central Garage shall continue the BMPs described in the SWPPP developed for compliance with the Industrial General Permit. These BMPs include: good housekeeping measures, protection of storm drain inlets during working hours, spill response preparations, performing most vehicle maintenance work inside, precautionary fueling operations, proper material handling and storage, employee training, proper waste handling and storage, inspections by trained personnel, proper recordkeeping and internal reporting, and use of secondary containment structures. As required by the State General Permit for Storm Water Associated with Industrial Activities, an annual assesment of the Fleet Services monitoring plan, data and BMP effectiveness is conducted and included in the Annual Report submitted to the Regional Board in compliance with WDID#344I001727.

This BMP was selected to document that the Central Garage has an existing comprehensive program in place to protect storm water quality.

Effectiveness Measurement

NA

75.1

Implementation Plan

Fleet Services shall continue to implement their SWPPP developed for the Industrial General Permit. EHS shall conduct annual compliance review.

Measurable Goal

The effectiveness of BMPs and their implementation to be reviewed during annual compliance review inspection as required by the State General Permit for Storm Water Associated with Industrial Activities, WDID#344I001727.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Environmental Programs Manager

BMP # 76 Integrated Pest Management Program

Permit Section: D.2.f.1
Hyperlink:
Description

UCSC practices an Integrated Pest Management Program (IPM) led by the Physical Plant Grounds Department. The Physical Plant Pest Management Office identifies which alternative pest control strategies can be used effectively, and is continually researching safer alternative pest control methods and products. The IPM program requires the least toxic and effective means for use are utilized.

Any use of a pesticide by UCSC and/or contracted private firms must obtain prior approval from the Environmental Health & Safety Office. This approval is specific to the pesticide, the application method and the application situation. The EH&S Environmental Programs Manager reviews the request and either approves (with usage and safety recommendations) or denies the request.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

76.1

Implementation Plan

Continue Integrated Pest Management Program (IPM). Research effective alternative pest control strategies, methods and products; utilize the least toxic and effective means. Any use of a pesticide by UCSC and/or contracted private firms must obtain prior approval from EH&S.

Measurable Goal

Campus pesticide use complies with campus IPM program.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP Grounds, Arboretum, Farm, CUHS-Facilities
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

BMP # 77 Cleaning Streets and Parking Lots

Permit Section: D.2.f.1
Hyperlink:
Description

Streets and parking lots are cleaned to remove vehicle contaminants, leaf litter, sediment, and litter in order to prevent them from being carried into drainage channels during the rainy season.

STREETS

Main Campus: UCSC has an existing Street Sweeping Program. This service is provided by Physical Plant-Grounds Services on all Main Campus roads. Primary roads are swept monthly. Secondary roads are swept on a bimonthly basis. During the fall and spring seasons, street sweeping may be conducted more frequently to respond to seasonal requirements.

Marine Science Campus: This service is provided by Physical Plant-Grounds Services for the one road.

2300 Delaware: There are no streets at 2300 Delaware.

MBEST: Streets at MBEST are maintained by the City of Marina.

PARKING LOTS

Main Campus: TAPS will continue to maintain parking lots and bus stops on the Main Campus.

Marine Science Campus: PP-Grounds or TAPS will maintain MSC parking lots.

2300 Delaware: PP-Grounds or TAPS will maintain 2300 Delaware parking lots.

MBEST: MBEST has two parking lots. Both parking lots have low-usage. MBEST will maintain both parking lots.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, oil and grease, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item and by tracking the number of concerns reported to the applicable work order system related to cleaning of streets and parking lots.

77.1

Implementation Plan

Main Campus streets: Primary roads are swept monthly. Secondary roads are swept on a bimonthly basis. During the fall and spring seasons, street sweeping may be conducted more often to respond to seasonal requirements. This will continue Permit Years 1-5.

Measurable Goal

Main Campus streets: Primary roads are swept monthly. Secondary roads are swept on a bimonthly basis.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP-Grounds

77.2

Implementation Plan

MSC: Street sweeping is conducted 4 times per year.

Measurable Goal

MSC: Street sweeping is conducted 4 times per year.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☐	☐

Primary Implementers: PP-Grounds

77.3

Implementation Plan

Main Campus Parking Lots: All lots are scheduled to be maintained and cleaned on a monthly basis, done in lot numerical order, or as needed.

Measurable Goal

All parking lots shall be cleaned at least 10 times per year.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: TAPS Maintenance

77.4

Implementation Plan

In Permit Year 2, TAPS will evaluate new equipment potentially providing higher performance cleaning.

Measurable Goal

Evaluate new equipment in Permit Year 2.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: TAPS Maintenance

77.5

Implementation Plan

PP-Grounds or TAPS will maintain MSC and 2300 Delaware parking lots.

Measurable Goal

Establish and maintain a schedule for servicing parking lots.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☑	☑	☐

Primary Implementers: PP-Grounds

77.6

Implementation Plan

MBEST will clean parking lots once per year. Catch basins will be maintained once per year.

Measurable Goal

MBEST will clean parking lots once per year. Catch basins will be maintained once per year.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☐	☐	☐	☑

Primary Implementers: MBEST

BMP # 78 Storm Drain Systems Inspection and Preventative Maintenance

Permit Section: D.2.f.1; D.2.f.2
Hyperlink:
Description

UCSC Storm Drain Preventative Maintenance (PM) Program's purpose is to address infiltration, sediment, oil and grease. UCSC will continue to inspect and maintain engineered storm drain systems in developed areas. A three-faceted approach is utilized for the storm drain inspection and preventative maintenance:

Grounds Equipment Operators: The equipment operators' annual PM inspections encompass over 400 storm drain systems. The process includes reviewing maps and logs, a visual inspection, changing oil absorbent socks, and checking flow as needed. Deficiencies are logged and prioritized from 1 to 3. 1's are considered DINs (do it now) and the 2&3s are performed as follow-up PMs scheduled by supervision. An annual inspection is also performed for engineered detention tanks/vaults/oil separators, drainage swales, and detention basins. Engineered detention facilities are cleaned as needed by contract with private vendors.

Groundskeepers: A second level of inspections is performed by area-assigned groundskeepers. Each year, groundskeepers receive updated maps and logs of their area assigned storm drain systems and an orientation of their area if needed. The groundskeepers perform weekly inspections of the systems from October through March and monthly or as needed the remainder of the year. The groundskeepers clean the catch basin grates and outfalls as needed, sign-off that the inspections were completed and contact their supervisor if they have any problems.

Storm Event: During a storm event, the groundskeepers check their area storm drains several times a day and the equipment operators respond to area concerns as needed with specialized storm drain clearing equipment. Natural drainages are included in the storm event inspections whenever possible.
This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, oil and grease, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item and by tracking the number of concerns reported to the work order system related to cleaning of the storm drain system.
.

78.1

Implementation Plan

Continue to inspect and maintain engineered storm drain systems in developed areas.

Measurable Goal

Inspection and maintenance is implemented according to schedule.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP-Grounds
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

BMP # 79 Campus Refuse / Recycling Program

Permit Section: D.2.f.1
Hyperlink: http://ucscplant.ucsc.edu/ucscplant/Grounds/index.jsp?page=Recycling_Refuse
Description

The Refuse / Recycling Program currently collects material throughout all areas of campus. Members of the UCSC community can easily discard their materials in readily available containers, thus reducing the amount of litter otherwise carried into drainage channels during the rainy season. The campus waste management program works to preserve natural resources by encouraging recycling and reuse of materials. Currently, Grounds' Refuse / Recycling operations utilizes 9 different trucks, with a team of 9 FTE staff (and 5 student employees in recycling) to collect materials from conveniently located bins all over campus. Additionally, Grounds personnel patrol campus roads, paths and landscapes collecting litter. This program will continue throughout Permit Years 1-5.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

79.1

Implementation Plan

The Waste Management Program will continue to collect and re-direct discarded material. Refuse / Recycling containers will be readily available and regularly serviced.

Measurable Goal

The Grounds Services waste management program continues to provide recycling services for the Main Campus and MSC.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: PP-Grounds

BMP # 80 Reserved

BMP # 81 Grounds Services: Landscape Maintenance and Turf Management

Permit Section: D.2.f.1; D.2.f.2
Hyperlink:
Description

Grounds Maintenance provides a variety of outdoor maintenance services. Primary duties include litter collection, hard surface blowing/sweeping and general garden maintenance.
In addition to these tasks, staff practices integrated pest management, irrigation repairs, turf maintenance, as well as landscape design, construction and planting projects.
The Tree Crew currently performs tree evaluation and corrective trimming, seasonal pruning, hazardous tree evaluation, tree removal, tree planting, and tree protection consultation.
Grounds Services also provides trash and recycling containers and clean-up services for special events.

Grounds Maintenance seeks to control the storm water impacts of lawn care practices at UCSC's Main Campus, MSC and 2300 Delaware. The key procedures include:

- Water management (including computerized controllers linked to a weather station and equipped with leak detection) for turf health, reduction of excess water-related diseases and soil compaction.
- Fertility management for turf health, reduction of nutritional or poor growth-related diseases, and to increase turf competition with weedy species.
- Soil compaction reduction to improve water, nutrient, and gas exchange to turf root system for increased vigor.
- Sanitation.
- Mowing height, frequency, and orientation.

PP-Grounds Services will continue its Landscape Maintenance and Turf Management Program throughout Permit Years 1-5.This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, oil and grease, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

81.1

Implementation Plan

Groundskeepers and Tree Maintenance Crew provide landscape maintenance.
Hard surfaces will routinely be cleaned using dry methods. In situations where hard surfaces are cleaned with water, water shall be discharged to the either the sanitary sewer or the landscape in a manner which does not cause erosion. If cleaning agents are used outdoors, the area will be rinsed and the wash water collected and discarded into the sanitary sewer or other applicable disposal site. Storm drains adjacent to the wet cleaning locations will be protected while activities are performed.

Measurable Goal

Grounds Maintenance continues existing practices including hazardous materials use minimization, mulching, and litter control.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

81.2

Implementation Plan

Continue existing turf program for water management (including computerized controllers linked to a weather station and equipped with leak detection), fertility management, soil compaction reduction, sanitation, and mowing practices to minimize storm water impacts.

Measurable Goal

Turf management program continues existing practices for water management, fertility management, soil aeration, sanitation and mowing to maximize turf utility with minimal off-turf impacts.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Grounds

BMP # 82 Maintenance of Fountains and Decorative Water Bodies

Permit Section: D.2.f.1
Hyperlink:
Description

CUHS and PP-Grounds will collaborate to develop and implement fountain and decorative pool maintenance processes and procedures that ensure discharges will not negatively impact storm water quality. CUHS Facilities and PP-Grounds will collaborate by the end of Permit Year 2.
This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

82.1

Implementation Plan

CUHS and PP-Grounds will collaborate to develop fountain and decorative pool maintenance processes and procedures that ensure discharges will not negatively impact storm water quality. The following requirements for fountain and decorative pool cleaning shall be implemented in the interim (Permit Years 1-2):
Water shall be discharged to the either the sanitary sewer or the landscape in a manner which does not cause erosion. If cleaning agents are used the wash water shall collected and discarded into the sanitary sewer

Measurable Goal

CUHS and PP-Grounds to develop maintenance BMPs for all water features by the end of Permit Year 2.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP-Grounds

82.2

Implementation Plan

Maintenance BMPs are implemented for all water features.

Measurable Goal

Maintenance BMPs are implemented for all water features beginning in Permit Year 3.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP-Grounds

BMP # 83 Household Hazardous Waste Minimization

Permit Section: D.2.c.1; D.2.c.4; D.2.c.5; D.2.f.1
Hyperlink:
Description

For the primary purpose of minimizing abandoned and hard-to-handle household hazardous waste, CUHS will continue distribution of selected cleaning products to applicable student living areas; accept return of unused products at the end of the academic year; and as needed, provide for proper disposal of any unusable products. This is a combined effort from Student Residents and CUHS-Facilities to minimize waste and toxics normally produced by residential facilities. This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

83.1

Implementation Plan

CUHS will continue distribution of selected cleaning products to applicable student living areas; accept return of unused products at the end of the academic year; and as needed, provide for proper disposal of any waste materials. CUHS will provide residents with information (brochures or electronic information) about proper use and disposal of household cleaning products as well as information about other hazardous and universal waste materials.

Measurable Goal

CUHS Facilities will report annually on the quantity of household hazardous waste collected.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Student Residents and CUHS-Facilities
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS-Facilities

BMP # 84 Reserved

BMP # 85 Custodial Services BMPs

Permit Section: D.2.f.1
Hyperlink:
Description

Custodial Services has adopted the following BMPs:
-If carpet and upholstery cleaning is contracted outside of the university, the cleaning water tanks must be emptied into a sink, custodial sink or toilet, and not a storm drain.
-Keep lids on cleaning barrels and containers, and store them indoors or under a cover to reduce exposure to rain.
-Keep storage areas dry and clean. Conduct regular inspections in conformance with hazardous materials storage requirements so that leaks and spills are detected as soon as possible.
-All waste products of custodial services, including mop bucket water, cleaning solutions and other water mixtures must be disposed of in campus indoor drains (custodial sinks, floor drains, sinks, etc.). These drains connect to the sanitary sewer, which connects to the City wastewater treatment plant.
On an annual basis, PP-Custodial Services employees receive training on general storm water awareness and on applicable BMPs to reduce storm water contamination.
Training may utilize Electronic Brochures and Flyers for General Storm Water Awareness and Targeted Topics (BMP #1).
Training will begin Permit Year 1.
This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

85.1

Implementation Plan

Custodial Services implements BMPs for storage of materials indoors in closed containers; inspection and maintenance of storage areas; sanitary sewer disposal of custodial waste waters, including those waste waters generated by outside service providers.

Measurable Goal

Custodial BMPs are integrated into the work routine.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: custodial staff
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Custodial

85.2

Implementation Plan

On an annual basis, applicable staff in PP-Custodial shall receive training on BMPs to reduce storm water constituents of concern. Training may utilize the electronic brochures for General Storm Water Awareness and Targeted Topics (BMP #1). All pollution prevention training / public education and outreach documents will discuss permissible and impermissible activities as well as how to report concerns.

Training conducted annually by responsible department.

Measurable Goal

At least 90% of applicable PP-Custodial employees will participate in initial training. At least 90 % of applicable PP-Custodial employees will be retrained annually.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP-Custodial

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Custodial

85.3

Implementation Plan

Add storm water training to applicable custodial services new employee orientation.

Measurable Goal

At least 90% of applicable PP-Custodial new employees receive storm water training during new employee orientation.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: PP-Custodial

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Custodial

BMP # 86 Building Exterior Maintenance BMPs

Permit Section: D.2.f.1
Hyperlink:
Description

The BMPs affecting building exterior maintenance operations will be developed by the Building Exterior Maintenance BMP Development Team (BMP #34) during Permit Year 1 and will include an implementation schedule.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: litter, organic materials and toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

86.1

Implementation Plan

The BMPs affecting building exterior maintenance operations and procedures will be developed by the Building Exterior Maintenance BMP Development Team. BMP will be implemented starting in Permit Year 2.

Measurable Goal

BMPs implemented according to schedule.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Paint Shop

BMP # 87 Reserved

BMP # 88 Reserved

BMP # 89 Reserved

BMP # 90 Water Line Flushing

Permit Section: D.2.f.1
Hyperlink:
Description

Water line flushing is performed by PP-Plumbing and by the UCSC Fire Department to maintain potable water supply and to verify hydrant flows. During water line flushing, diverters or other means will be used to avoid erosion or damage to landscaping (plantings, mulches, etc.). Water line flushing by PP-Plumbing and the campus Fire Department will continue through Permit Years 1-5 in a manner that prevents erosion and damage to landscaping.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. This BMP is intended to address the following storm water quality concerns: erosion and sediment.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

90.1

Implementation Plan

During water line flushing diverters or other means will be used to avoid erosion or damage to landscaping (plantings, mulches, etc.)

Measurable Goal

Erosion or other landscape damage does not occur during water line flushing.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: Fire Department

90.2

Implementation Plan

During water line flushing diverters or other means will be used to avoid erosion or damage to landscaping (plantings, mulches, etc.)

Measurable Goal

Erosion or other landscape damage does not occur during water line flushing.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: PP-Plumbing

BMP # 91 Vehicle Maintenance Prohibitions

Permit Section: D.2.c.1; D.2.c.3
Hyperlink:
Description

TAPS parking policies and residential rental agreements prohibit vehicle maintenance on campus, except at the campus Central Garage facility (covered by a SWPPP, see BMP #75). This policy and the rental agreements prevent oil, grease, heavy metals, and chemicals from being carried into storm water runoff.

This BMP was selected to document an existing UCSC program that prevents storm water contamination from vehicle repair.

Effectiveness Measurement

NA

91.1

Implementation Plan

Continue TAPS parking policy that prohibits vehicle maintenance on campus, except at the Central Garage facility.

Measurable Goal

Vehicle maintenance prohibitions remain in place in parking policies.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: TAPS

91.2

Implementation Plan

Continue University Residential Rental agreement requirements that prohibit vehicle maintenance on campus.

Measurable Goal

Vehicle maintenance prohibitions remain in place for residential rental agreements.

CUHS will provide information about vehicle maintenance prohibition (and other storm water related policies) to residents in either electronic or paper format on an ongoing basis.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: student residents
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: CUHS

BMP # 92 Reserved

BMP # 93 Pet Prohibitions

Permit Section: D.2.c.3
Hyperlink: http://www2.ucsc.edu/police/awodut.html
Description

UCSC has a policy of prohibiting most pets on the Main Campus, the developed areas of the Marine Science Campus[1] and at 2300 Delaware. See: http://www.ucsc.edu/ppmanual/html/sps0005.htm. This policy reduces the occurrence pathogen/coliform contamination in storm water from domestic animals.
This BMP was selected to document an existing UCSC program that prevents storm water contamination from pets.

Effectiveness Measurement

NA

93.1

Implementation Plan

Continue to implement UCSC Policy SPS0005: Non-Research Animals on Campus.

Measurable Goal

UCSC continues to have a policy that restricts domestic animals on campus.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: University Police

[1] Terrace Point field (undeveloped areas) is open to dogs on leash. Feces must be collected immediately.

BMP # 94 Homeless Encampments

Permit Section: D.2.c.1; D.2.c.3
Hyperlink:
Description

The Main Campus, 2300 Delaware and the Marine Science Campus are all controlled access facilities. These three facilities are closed at night and access is restricted to those individuals with a stated purpose for being at the facility.
Homeless encampments have not been an issue at MBEST. Should encampments be found at any UCSC sites, a plan will be developed and implemented to control the activity.
This BMP addresses pathogen contamination of storm water, in addition to other potential constituents of concern, associated with homeless encampments.
This BMP was selected to document an existing program that demonstrates that UCSC has processes that prevent storm water contamination from homeless encampments.

Effectiveness Measurement

Is there evidence of homeless encampments at UCSC sites?

94.1

Implementation Plan

Continue night access practices.
Should homeless encampments be found at any UCSC sites, a plan will be developed and implemented to control the activity.

Measurable Goal

University Police enforce night access policies.
If homeless encampments are found, summary of control activities reported.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: University Police

BMP # 95 Hazardous Waste Management Program

Permit Section: D.2.c.1; D.2.c.4; D.2.c.5; D.2.f.1
Hyperlink: http://ehs.ucsc.edu/waste_management/
Description

EH&S operates a program for hazardous waste collection and disposal for all UCSC hazardous waste generators. This program does not apply to hazardous wastes generated by tenants. This program includes electronic container tracking to ensure timely labeling and disposal of materials generated. Materials are typically collected from generators within one week of receiving electronic notification of a full container or a container that is approaching the maximum accumulation time. All materials are disposed of in accordance with federal and state requirements. The simplicity and timeliness of this system helps to avert illegal disposal and related incidents.

This BMP applies to Main Campus, Marine Science Campus, 2300 Delaware and MBEST. At sites other than the Main Campus, collection may operate on a less frequent schedule; collection will be by personnel based at that facility; and collected materials are held at a central accumulation area at that facility.

Several times per year, EH&S offers to the UCSC community training for hazardous waste generators on proper classification and handling techniques for hazardous wastes. The training includes prohibitions on storm drain disposal of wastes and guidance on restrictions regarding sanitary sewer disposal of selected liquid wastes. This training ensures generators are aware of and know how to use safe and proper techniques for hazardous waste disposal. At sites other than the Main Campus, training is offered on an as-needed basis. Generators may also travel to the Main Campus for training.

This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations. This BMP is one of many that is designed to implement this requirement. The hazardous waste program also ensures that hazardous wastes generated in lab settings are properly handled. This BMP is intended to address the following storm water quality concerns: toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

95.1

Implementation Plan

Continue existing hazardous waste management practices including electronic container tracking for all facilities and weekly hazardous waste pickup for the Main Campus.

Measurable Goal

On an annual basis, Hazardous Waste Manager summarizes program effectiveness and any changes made.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All UCSC departments
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: EH&S: Hazardous Waste Manager

95.2

Implementation Plan

Several times per year, usually on a quarterly basis, EH&S offers the UCSC community training for hazardous waste generators on proper classification and generator handling techniques for hazardous waste.

Measurable Goal

On an annual basis, Hazardous Waste Manager will provide the number of campus community members that have successfully completed the hazardous waste training course.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Generators of hazardous waste

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☐	☐

Primary Implementers: EH&S: Hazardous Waste Manager

BMP # 96 Hazardous Materials Emergency Response Organization

Permit Section: D.2.c.1; D.2.c.4; D.2.c.5; D.2.f.1
Hyperlink:
Description

UCSC operates an emergency response team for hazardous materials that are in or may enter the storm drain system, as described in the UCSC Hazardous Materials Management Plan. EH&S is an integral component of this team. EH&S staff oversees the proper stabilization, clean-up and disposal of spilled hazardous materials and initiates corrective actions to prevent recurrences. This BMP applies to Main Campus, Marine Science Campus and 2300 Delaware. This BMP was selected because the General Permit requires the development and implementation of an operation and maintenance program that has the ultimate goal of preventing or reducing contaminated runoff from municipal operations as well as requiring a plan to address illicit discharges. This BMP is one of many that is designed to implement these requirements. This BMP is intended to address the following storm water quality concerns: toxic materials.

Effectiveness Measurement

BMP effectiveness shall be measured by tracking the number of reports to the illicit discharge reporting system (BMP #45) related to this item and the number of illicit discharges detected during the dry weather outfall screening program (BMP #41) related to this item.

96.1

Implementation Plan

UCSC will continue to respond to reports of spilled hazardous materials that already are in or may enter the storm drain system. UCSC operates an emergency response team, as described in the Hazardous Materials Management Plan.

Measurable Goal

Hazardous Materials Emergency Response Organization continues to provide response to hazardous materials releases.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☐

Primary Implementers: EH&S

BMP # 97 Reserved

BMP # 98 Reserved

BMP # 99 Reserved

BMP # 100 Stormwater Infrastructure Improvements

Permit Section:
Hyperlink: http://lrdp.ucsc.edu/final-eir.shtml
Description

This project includes infrastructure improvements, for issues identified in the Stormwater and Drainage Master Plan at locations along campus stream channels and drainages. Design and construction of the improvements are anticipated to take place in multiple phases over a multi-year period. Phase I will focus on erosion problems at the top of the drainage channels and some repairs in severely eroded areas. Phase II will focus on erosion problems within the drainage channels. Phases I and II of the Infrastructure Improvements Project storm water drainage components have a combined estimated construction cost of approximately $5,400,000. This project is a state-funded project and Phase 1 is scheduled to start construction in 2008. Phase II has been funded for design and will need approval for construction in 2009. The 2004 Stormwater and Drainage Master Plan is available for review at http://ppc.ucsc.edu/cp/projects/9065/. A project description can be found in Volume III, Chapter 2 of: http://lrdp.ucsc.edu/final-eir.shtml.

Effectiveness Measurement

NA

100.1

Implementation Plan

Construction of Phase I improvements starting in 2008 with completion in summer 2009. Construction of Phase II improvements targeted to start summer 2009 for completion in summer 2010.

Measurable Goal

Phases I and II are completed in 5 years.
Progress to be reported in annual SWMP report.

Frequency: ongoing
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP&C

BMP # 101 Water Quality Monitoring

Permit Section:
Hyperlink:
Description

The campus has been conducting surface and groundwater quality monitoring for eighteen years. Samples have been collected annually at nine campus locations and analyzed for 40 water quality parameters. Sample locations represent a variety of environments:

- campus spring water
- surface water from undeveloped campus areas
- storm water from developed portions of campus
- campus ground water.

The Monitoring Plan is currently being revised to ensure results allow for assessment of subsurface water quality. The revised monitoring plan will be described in an Annual Report.

Each year, the monitoring program will include an evaluation of the appropriateness of sample locations, monitoring frequencies and water quality parameters in terms of maintaining continuity with the historic data and providing meaningful surface and subsurface water quality data to inform the SWMP. The annual evaluation may dictate monitoring plan amendments to be implemented in subsequent years. Potential required monitoring plan modifications would not exceed the addition of one more groundwater-monitoring site and the addition of one more annual groundwater monitoring event to the existing annual suite unless directed under a separate order. Subsequent monitoring requirements may be reduced based upon analytical results collected.

Effectiveness Measurement

NA

101.1

Implementation Plan

The campus will continue to conduct surface and groundwater quality monitoring.
The monitoring program will receive an annual evaluation of the appropriateness of sample locations, monitoring frequencies and water quality parameters in terms of maintaining continuity with the historic data and providing meaningful surface and subsurface water quality data to inform the SWMP. The annual evaluation may dictate monitoring plan amendments to be implemented in subsequent years.

Measurable Goal

On an annual basis, the monitoring plan is implemented.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Environmental Programs Manager

BMP # 102 Reserved

BMP # 103 Reserved

BMP # 104 Encourage Alternative Transportation

Permit Section:
Hyperlink:
Description

Reduce the use of personal automobile and associated impacts. UCSC will continue its existing and integrated approach to reduce the use of the personal automobile (and its associated impacts) by offering no-cost and low-cost commuting alternatives such as bus passes and vanpools, charging parking fees that reflect the costs of providing parking services, providing bike paths, providing showers for bike riders, frequent on-campus shuttle service (including bike shuttles), etc.

Effectiveness Measurement

NA

104.1

Implementation Plan

UCSC will continue its existing and integrated approach to reduce the use of the personal automobile (and its associated impacts) by offering no-cost and low-cost commuting alternatives such as bus passes and vanpools, charging parking fees that reflect the costs of providing parking services, providing bike paths, providing showers for bike riders, frequent on-campus shuttle service (including bike shuttles), etc.

Measurable Goal

Commuting alternatives continue to be supported by UCSC.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: Entire UCSC community

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: TAPS

BMP # 105 Reserved

BMP # 106 Reserved

BMP # 107 Existing Storm Water System Review

Permit Section:
Hyperlink:
Description

UCSC will formalize the program to characterize and evaluate the potential for contaminants to enter sinkholes and develop a plan to institute controls where the evaluation indicates potential for significant contaminant transport to a sinkhole.This UCSC-specific BMP was selected to protect water quality by identifying and where needed correcting any potential contaminant transport to sinkholes.

Effectiveness Measurement

NA

107.1

Implementation Plan

During Permit Year 1: define proximity; identify all sinkholes in proximity to a potential contaminant source; and formalize a program to characterize and evaluate the potential for contaminants to enter sinkholes.

Measurable Goal

Proximity defined; sinkholes identified and program to characterize and evaluate formalized.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☐	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Environmental Programs Manager

107.2

Implementation Plan

During Permit Year 2, evaluate potential contaminant transport scenarios for individual sinkholes identified during Permit Year 1. For all significant, reasonably-anticipated, potential contaminant-transport scenarios, develop one or more BMP(s) and an implementation schedule.

Measurable Goal

Potential contaminant transport scenarios evaluated for identified sinkholes; where applicable, BMPs and implementation schedule developed.

Frequency: one time
Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☑	☐	☐	☐

Targeted audience: NA
Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: EH&S: Environmental Programs Manager

107.3

Implementation Plan

In Permit Year 3, begin implementation of BMPs according to the schedule developed in Permit Year 2. In Permit Years 4-5, continue implementation of BMPs according to the schedule developed in Permit Year 2.

Measurable Goal

BMP Implementation Schedule is being met.

Frequency: ongoing

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: NA

Sites:

Main	MSC	Delaware	MBEST
☑	☐	☐	☐

Primary Implementers: PP&C

BMP #108 Annual Program Review

Permit Section: F.1.a; F.1.b; F.1.c; F.1.d; F.1.e; F.1.f; F.1.g
Hyperlink:
Description

In accordance with the general permit requirements, UCSC will prepare an annual report. The annual report will include:

1. Status of compliance with permit conditions;
2. Status of the identified measurable goals;
3. An assessment of the appropriateness and effectiveness of the identified BMPs;
4. Evaluation of information collected and analyzed, including applicable monitoring data;
5. A summary of the storm water activities planned for the next permit year;
6. Recommended amendments to the SWMP along with a justification for such changes; and
7. Changes in responsibilities for implementing portions of the SWMP.

This BMP describes the process UCSC will use for reviewing program activities in order to generate the annual report.

Annual Review Process

The status of compliance with permit conditions and the status of the identified measurable goals shall be examined by reviewing the implementation of each BMP during the previous permit year. This effort shall occur near the end of each permit year. The Storm Water Manager (SWM) will facilitate this effort. The SWM shall generate a questionnaire and send it to each BMP task implementer. The implementer will complete and return the questionnaire and required documentation for each BMP task for which they are responsible. The SWM shall assemble these responses for inclusion in the annual report.

The annual report questionnaire shall include inquiries related to BMP effectiveness. BMP effectiveness shall be assessed as described below and as described in each BMP. Suggestions for improving BMP effectiveness or the effectiveness measure will be solicited. It is expected that some assessments will initially be qualitative. Qualitative responses can be very useful for directing future efforts.

The following factors, where appropriate, will be used in the overall effectiveness assessment by the SWM:

- each control measure as a whole
- data collection and management
- suggestions from BMP implementers
- monitoring data
- correlations between data and focus of SWMP
- integration of new storm water management issues or techniques

Results of the effectiveness assessment will be presented in the annual report.

If during the annual review it is found that certain desired behaviors are not occurring, the applicability of community-based social marketing shall be considered as an approach to prompt the desired behaviors.

Appropriateness and Effectiveness Assessments

The assessment of the appropriateness and effectiveness of the identified BMPs is a significant component of the annual report. This assessment is necessary to ensure appropriate and effective use of resources to achieve the Plan's desired outcomes. These outcomes include achieving and then maintaining permit compliance and protecting storm water quality to the maximum extent practicable.

It is expected that the appropriateness and effectiveness assessment procedures and parameters will evolve over time. In the early years of program implementation, a determination that the

proposed activity was indeed completed or implemented may be appropriate. However as the program becomes established, effectiveness measurements should more closely reflect desired Plan outcomes in order to fully meet the general permit requirement of maximum extent practicable. A hierarchy of effectiveness measurements appropriate for storm water management from most basic to most significant is identified in CASQA's Municipal Stormwater Program Effectiveness Assessment Guide, May 2007 as:

1. documenting activities
2. raising awareness
3. changing behavior
4. reducing loads from sources
5. improving runoff quality
6. protecting receiving water quality

The efforts to measure effectiveness need to be judiciously chosen. Inappropriate effectiveness measurements can waste precious program resources while generating misleading data. Selection of effectiveness measurements must involve careful evaluation of proposed data collection and interpretation processes, to include an analysis of external variables that could significantly affect the results.

Three BMPs have been designed to provide substantial data for measuring the effectiveness of many Plan BMPs. These three BMPs are BMP #8 Storm Water Survey, BMP #41 Dry Weather Outfall Screening Program and BMP # 45 Illicit Discharge Reporting System. The exact components of the survey will be determined after the plan has been implemented for a year. The plan calls for surveys of both the general population and targeted audiences to better understand awareness and behaviors. The survey results will aid in assessing the effectiveness and appropriateness of BMPs and control measures aimed at raising awareness and changing behavior. The findings of the outfall-screening program may also be used to indicate if there are unaddressed areas in raising awareness and changing behavior. The illicit discharge reporting system will provide key information to indicate needs at all assessment levels. The information generated from these BMPs will be used in Permit Years 1-5 to quantitatively measure the effectiveness of most BMPs. The text of individual Plan BMPs indicates where these three BMPs will be used to measure effectiveness.

Those individuals selecting and implementing BMPs are critical to evaluating the appropriateness and effectiveness of the measures. BMP development teams will be reconvened to review incremental progress and recommend creating quantitative measures of assessment for reducing loads from sources, improving runoff quality, and/or protecting receiving water quality.

Effectiveness Measurement

NA

108.1

Implementation Plan

UCSC shall implement the annual SWMP review as described in the BMP description. During Permit Years 1, 2 and 3 UCSC will utilize the effectiveness measurements currently identified in text of the BMPs.

Measurable Goal

Annual SWMP review is completed as described above.

Frequency: annually

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☑	☑	☑	☑	☑

Targeted audience: All members of campus community: students, faculty, staff and neighbors.

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Storm Water Manager

108.2

Implementation Plan

In Permit Year 3[1], UCSC will reconvene the appropriate BMP development teams to identify assessment tools reflective of reducing loads from sources, improving runoff quality, and/or protecting receiving water quality as they relate to the UCSC SWMP.

Collection of the data needed to assess reducing loads from sources, improving runoff quality, and/or protecting receiving water quality will start no later than Permit Year 4. Data generated shall be included in each annual assessment.

The revised appropriateness and effectiveness plan will be documented.

Measurable Goal

The revised appropriateness and effectiveness plan is included in the Year 3 annual report.

Frequency: one time

Permit Year(s):

Yr1	Yr2	Yr3	Yr4	Yr5
☐	☐	☑	☑	☑

Targeted audience: BMP implementers and BMP development team members

Sites:

Main	MSC	Delaware	MBEST
☑	☑	☑	☑

Primary Implementers: Storm Water Manager

[1] Permit Year 3 has been chosen for two primary reasons. First, Year 1 is expected to be especially busy and is already anticipated to require additional human resource allocations. Second, UCSC feels that at least two years of implementation knowledge, including CC RWQCB feedback on at least one annual report, is essential to a valid review and design for potentially costly tools to measure outcome levels 4 to 6.

Attachment B

Copy of UCSC letter to RWQCB, April 29, 2011

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

PHYSICAL PLANNING AND CONSTRUCTION SANTA CRUZ, CALIFORNIA 95064

VIA EMAIL and USPS mail

April 29, 2011

Julia Dyer
Environmental Scientist
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

Re: Central Coast Regional Water Quality Control Board Staff Review of UC Santa Cruz Storm Water Management Program 2009 Annual Report, WDID #3 44MS05079

Julia:

Thank you for meeting with us to discuss the Water Board Staff comments dated February 15, 2011. UCSC is very interested in resolving all open issues and therefore has prepared a response to the comment letter based on our March 22, 2011 meeting.

Responses to comments below are numbered according to the comment reference number.

II MCM#1

A.BMP 1 – Electronic Brochures & Flyers – Violation

2. UCSC distributed printed copies of the brochures at campus events but did not track the exact number of brochures handed out. UCSC will continue to have printed brochures available for such events however; UCSC primarily relies on electronic communications and to reduce costs of printing. UCSC does want to make available and to display the information in the brochures and as such: BMP 1, task 1.2:

- Measureable Goal: By the end of year 1 the 4 specified brochures are available on web page: measureable goal completed.
- Measureable Goal: By the end of Year 2 the fifth specified brochure is available on the web page: Will be completed during Year 2.
- Measureable Goal: At least one time per year each of the 5 required brochures is emailed to targeted audiences. At the end of year 1 the 4 required brochures had been developed, unknown as to whether or not they were emailed but brochures were posted on the web page.

BMP 1, task 1.2 - UCSC is requesting a modification:

- Replace the measureable goal to distribute 100 hard copies of brochures annually with the following measureable goal: Posters will be placed in employee break rooms or community spaces. Location of posters will be announced to employees during training/safety meetings. Signatures of employees attending meetings will be collected.

BMP 1, task 1.4:

- We have translated the training for both the dining services and custodial employees for the past two years. Both the dining services and custodial brochures have been developed into a poster form for placement in common areas (break rooms). The

posters for dining and custodial services will be translated. We do not intend to translate the brochure for placement on the website.

3. BMP 1 – Improvement

Board Staff requested UCSC create a BMP and measureable goal to address litter created by cigarette butts and erosion from unofficial pathways.

- UCSC Grounds Services Staff, Volunteers, and Interns are currently responsible for performing trail restoration on ad-hoc paths. There are many tasks that can be done during restoration but typically restoration is done by either closing areas, as appropriate, providing mulch to minimize or eliminate erosion, adding water bars, narrowing trails by using fabric, fiber rolls or fencing, establishing planting, blocking trails with brush or fencing, and outreach to students. Grounds Services attempts to educate students about trails and ad-hoc paths via student resident orientation meetings and they are currently in the process of developing handouts for orientation packets. UCSC's site stewardship program, BMP 38, includes ad-hoc paths in it's restoration efforts.
- UCSC Grounds Services currently tasks removal of cigarette butts to Campus Gardeners assigned to specific areas. Gardeners currently pick up cigarette butts daily, Monday through Friday, during their safety inspections.

4. BMP 1 – Violation

Food Services brochure inadequate

- Revised brochure was completed mid November 2010 and posted on the website first week of December 2010. http://cleanwater.ucsc.edu/Food.pdf

B. BMP 12 Web Page

5. BMP 12 – Web Page: Violation

Annual Report does not provide information on the number of web page visits (effectiveness measurement)

The number of web page visits in Year 1 were 36,585

- UCSC was unclear a description was required of how the effectiveness measurement was completed. UCSC used the California Storm Water Quality Association Municipal Storm Water Program Effectiveness Assessment Guide to rate BMP effectiveness. We will provide a status of the effectiveness measurement in subsequent Annual Reports.

III MCM#3

A. BMP 45 Discharge Reporting

6. BMP 45 – Illicit Discharge Reporting System: Violation

Annual Report does not provide any additional detail regarding the nature of each report and how UCSC followed-up on these reports

- BMP 45 does not currently require a summary of the reports or how UCSC followed up, therefore; we are unclear why a violation has been assigned to this BMP. However, we are agreeable to provide the information, see attachment 1, for information as requested. In order to follow up on the request for remaining years, UCSC is requesting a modification of BMP 45, Task 45.2 measurable goal. Change measureable goal to state: All components of the system are in place. 100% of reports are investigated. Annual Report to include a summary and follow-up report.

7. BMP 48 – Campus Standards Handbook and Construction Storm Water Management: Improvement

- UCSC requires that all SWPPPs are reviewed for completeness as part of the construction submittal process. The SWPPP submittal process is completed before a Notice of Intent is submitted.

8. BMP 51 – Construction Site Inspection Procedures: Violation
   Action: Number of reports related to construction sites and formal/informal NOVs
   - The Illicit Discharge Reporting System received 1 call related to construction sites. See Attachment 1, report number 09.02. There were no formal or informal NOV's.
   - Number of reports is an effectiveness measurement. UCSC was unclear a description was required of how the effectiveness measurement was completed. UCSC used the California Storm Water Quality Association Municipal Storm Water Program Effectiveness Assessment Guide to rate BMP effectiveness. We will provide a status of the effectiveness measurement in subsequent Annual Reports.

9. BMP 101 – Water Quality Monitoring: Violation
   Action: provide Annual Water Quality Monitoring Results in Annual Report

   Water Board staff received a copy of the annual monitoring report on September 30, 2010, January 27, 2011, and is also attached.
   - BMP 101 does not currently require a summary of the information collected or the results of analysis. In order to follow up on the request, UCSC is requesting a modification of BMP 101, Task 101.1 measureable goal starting in year 2. Change measureable goal to state: On an annual basis, the monitoring plan is implemented. A summary of the Annual Water Quality Monitoring Results will be provided.

Thank you again for meeting with us and clarifying the Water Board staff's position on many of these items.
Sincerely,

Courtney Trask
Storm Water Programs Manager
University of California Santa Cruz
1156 High Street, PP&C
Santa Cruz, CA 95064
831.459.4520

Attachment 1 – summary of report
Attachment 2 – water quality report

Cc: Dean Fitch, UCSC
Phil Hammer, RWQCB

Attachment C

UCSC Illicit Discharge Reporting System, Year 2 Report Summary

Attachment c
UCSC Illicit Discharge Reporting System
Year 2 Report Summary

1. Report Number: 10.01
   a. Location description: Redwood Building
   b. Description of condition or discharge observed: Soapy water observed on service road adjacent to redwood building. Vendor was cleaning blinds and had discharged some Dawn soap solution.
   c. Date and time observed: 12.14.10 10 am
   d. Follow-up: At time of response, vendor had already changed the cleaning process to avoid additional discharge and said he understood the previous discharge was not allowed. Talked with Unit that requested blind-cleaning service. Reminded them that no cleaning service can discharge any material into the environment.

2. Report Number: 11.01
   a. Location description: Circle drive in front of Communications Building
   b. Description of condition or discharge observed: Runoff was carrying toward the storm drain latex paint that had been applied by TAPS in the parking lot that morning.
   c. Date and time observed: 1.13.11, 1:30 pm
   d. Follow-up: Physical Plant used wattles and pigs to block the storm drain and pads to absorb the paint. A plastic tarp was used to cover the fresh paint. Storm Water Manager advised Physical Plant Grounds and Plumbing to cover the storm drain inlet with sand bags and spray the lot with water, collecting the runoff in the plugged drain. The collected wash water was then pumped into landscaping. Once it dries, it will be collected and disposed of in accordance with state and federal regulations.

3. Report Number: 11.02
   a. Location description: Parking lot behind OPERS admin building
   b. Description of condition or discharge observed: Wetsuit cleaning in area that discharges to storm drain.
   c. Date and time observed: 5.12.11 3:30 pm
   d. Follow-up:
      - OPERS determined discharge was from cleaning of surfing wetsuits
      - Wetsuit cleaning procedure amended to emphasize cleaning agents must be rinsed to an indoor sanitary sewer drain
      - Responded to Marc with findings and correction
      - OPERS folks reminded to consult product MSDS and consult with SW Mgr. / EH&S regarding disposal questions
      - Appropriate personnel will be trained on wetsuit cleaning procedures.
      - The procedures will be posted in the area where wetsuits are rinsed or cleaned.

4. Report Number: 11.04
   a. Location description: Kresge Administration building
   b. A cleaning agent not approved by the Campus (M1 House Wash cleaning solution, which contains sodium hydroxide, and household bleach) were applied by contractor to exterior walls in preparation for power washing.
   c. Date and time observed: 6/27/11, morning

d. Follow-up: Physical Plant's Work Management staff instructed both the general contractor and sub-contractor that the use of any unapproved cleaning products on campus was prohibited. The contractor stated that all drain inlets in the area were completely covered with heavy, weighted mats before the power washing, but that the runoff infiltrated into adjacent landscaping and none actually made it to the inlets.

Attachment D

Annual Water Quality Monitoring Results, 2009-10

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 Fax (831) 722-1159
www.weber-hayes.com

2009-2010
Annual Water Quality Monitoring Results
UCSC Campus Storm Water Management Plan, BMP #101
University of California Santa Cruz Campus, 1156 High Street, Santa Cruz, California

August 6, 2010

Prepared For:

University of California Santa Cruz
c/o: Dan Blunk - Environmental Programs Manager
Environmental Health and Safety
University of California Santa Cruz
Santa Cruz, California 95064

Prepared By:
Weber, Hayes and Associates
Job #H2031

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 WATER QUALITY MONITORING - 2009-2010

The following report presents the results of the 2009-2010 annual sampling of storm water discharge and groundwater quality at the University of California Santa Cruz (UCSC) campus in order to satisfy Best Management Practice #101 - Water Quality Monitoring, of the revised Storm Water Management Program (SWMP) for the University Campus, dated June 22, 2009. The purpose of this sampling program is to collect data on water quality at several locations around campus including groundwater, parking lot runoff, and other storm water discharge locations intended to address potential impacts from specific campus land uses.

Historically, water quality data was collected to monitor groundwater and spring water, surface water, and parking lot runoff at specific UCSC campus locations pursuant to the UCSC Long Range Development Plan (LRDP) mitigation measures 4.1 - 9. This specific mitigation measure has been satisfied and water quality monitoring at the majority of these locations is no longer being conducted (see Figure 1 for historic, discontinued sample locations). Water quality sampling was conducted at these locations from 1989 through 2008. A tabular summary of historical water quality analytical data collected at these discontinued sample locations is presented as Appendix A for reference.

2.0 STORM WATER DISCHARGE SAMPLE LOCATIONS

Seven water quality sample locations were identified in coordination with UCSC Environmental Health and Safety Staff (Dan Blunk – Environmental Programs Manager) that address storm water discharge from specific land use areas around the campus. Specifically, the following table summarizes seven locations targeted for sampling during the first significant precipitation event of the wet season (i.e., October through May) to satisfy the BMP outlined in the SWMP:

Table 1: Discharge Sample Locations, Land Use Targeted for Discharge Storm Water Analysis, & Storm Water Runoff

Discharge Sample Location	Land Use Targeted	Runoff
Outfall at Jordan Gulch Middle Fork beneath McLaughlin Drive bridge	**College Nine/Ten** - Food services facility - Paved roads, paths and parking areas	Sinkhole – Karst Aquifer
Outfall at North V-ditch at Stevenson College east parking lot	**Stevenson College & Merrill College** - Paved roads, paths and parking areas	Surface water discharge to San Lorenzo Watershed

Discharge Sample Location	Land Use Targeted	Runoff
Outfall at piped discharge to open field south of recent Porter College development	**Porter College** - Recent urban development	open field
Outfall at Moore Creek East Fork along pedestrian path west of University House	**Theater and Visual Arts Centers** - Paved roads, paths and parking lots	Moore Creek Watershed
Outfall at More Creek West Fork at intersection of Heller Drive and Entrance to West Remote Parking Lot	**College Eight, Family Student Housing, & West Remote Parking Lot** - Paved roads, paths and parking lots	Moore Creek Watershed
Out fall from detention pond at east end of East Remote Parking Lot	**East Remote Parking Lot** - Parking Lot	Sinkhole – Karst Aquifer
Storm sewer vault along Hagar Court	**Faculty Housing** - Paved roads, paths and parking areas	Surface Water discharge to Kalkar Quarry Pond

The sampling locations are shown on Figure 1.

Vicinity Maps showing storm water capture area, flow path and water quality sample collection location for each of the above campus land use areas are shown on Figures 2 through 8. Photo sheets showing discharge sample locations are presented in Appendix B.

3.0 POLLUTION PREVENTION STRUCTURES AND BEST MANAGEMENT PRACTICES

The UCSC campus storm water capture and discharge infrastructure includes the application of various pollution prevention structures designed to reduce potential pollutants in storm water prior to discharge to the environment. This section includes a brief description of pollution prevention structures that are specific to the locations assessed for water quality as they discharge to various receiving waters around the campus. Best Management Practices (BMPs) designed to further reduce potential street and parking lot contaminants that may become entrained in storm water runoff are also briefly discussed in this section.

The following is a brief description of pollution prevention structures specific to storm water effluent that is assessed during the annual water quality monitoring program:

- **Faculty Housing:** Storm water derived from the vicinity of faculty housing is diverted to a baffled stilling basin along Hagar Court. The stilling basin is designed to separate oils and sediment from storm water runoff prior to discharge to Kalkar Quarry Pond. The stilling basin is periodically cleaned out. Storm water derived from Coolidge Drive is diverted to detention pond prior to discharging to Kalkar Quarry Pond. See Figure 2 for the locations of the stilling basin and detention pond, and Figure 9 for stilling basin construction details.
- **East Remote Parking Lot:** Storm water derived from the East Remote Parking Lot is diverted to a Retention Pond at the east end of the parking lot and is subsequently discharged to a vegetated swale that flows to a sinkhole (see Figure 3). The Retention Pond is designed to remove sediment loads and can reduce metal concentrations.
- **College 8/Family Student Housing:** Storm water derived from a portion of College 8 and a portion of Family Student Housing is diverted to a detention basin. The detention basin is designed to remove sediment loads and can reduce metal concentrations.
- **College 9/10:** Storm water derived from the western portion of College 9/10 is diverted through a series of Oil/Water Separators and Sediment Filters designed to remove sediment load, oils, and reduce metal concentrations prior to discharge to Jordan Gulch Middle Fork. See Figure 8 for the locations of the Oil/Water Separators and Sediment Filters, and Figure 11 for construction details.

Other storm water pollution prevention measures include an existing campus street sweeping program that is detailed in BMP #77 of the UCSC SWMP. Primary roads are swept monthly and secondary roads are swept bi-monthly. Street sweeping may be conducted more frequently during the fall and spring seasons to respond to seasonal requirements. This BMP will significantly reduce potential sediment loads during storm water runoff events.

4.0 CAMPUS STORM WATER QUALITY SAMPLING

Water quality samples from the seven storm water discharge locations are collected during the first significant precipitation event of the wet season (i.e. October through May). For the purpose of this water quality sampling program, a significant storm is defined as a storm event preceded by at least 72 hours of no rain, with total rainfall of at least 0.1 inches, and creating visible parking lot runoff for a duration of at least one hour.

On October 13, 2009 the first significant storm event of the 2009-2010 wet season occurred. Storm water grab sampling at each of the aforementioned discharge locations was conducted by Weber, Hayes and Associates field staff after approximately 1 hour of precipitation occurred, specifically between 3:30 AM and 4:15 AM on October 13, 2009.

A Precipitation Hydrograph for the 2009-2010 wet season is presented as Figure 12 for reference.

Storm water grab samples were collected according to our *Surface Water Grab Sample Collection Field Methodology* (included in Appendix B), which is in general accord with methodology presented in the United Stated Environmental Protection Agency National Pollutant Discharge Elimination System's *Storm Water Sampling Guidance Document* (July 1992). Field notes from the first flush sampling event and a brief review of water quality monitoring parameters obtained during the sampling event are included in Appendix B.

5.0 CAMPUS GROUNDWATER QUALITY SAMPLING

In addition to collecting grab samples at the seven aforementioned storm water discharge locations, representative groundwater samples were collected from the Upper Quarry Well and well WSW #1 (see Figure 1 for well locations). Samples were collected from these wells once following the first significant precipitation event (October 16, 2009) and once during the spring, after winter wet season aquifer recharge has occurred (May 7, 2010). It is our understanding that the semi-annual groundwater sampling schedule is being required by the Central Coast Regional Water Quality Control Board and may be reduced following one year of semi-annual sampling.

The following sections (4.1 & 4.2) provide a brief description of well location, hydrogeologic setting, and completion details.

5.1 WSW#1

WSW#1 is located in lower Jordan Gulch, between the bicycle path and the Agroecology program farm. This well was drilled and completed under City of Santa Cruz permit in December 1988. Drilling to a total depth of 226 feet encountered limestone/marble, with evidence of karst solution channels and zones of hard intact marble interspersed with abundant open to rubble-filled fractures and void spaces. Problems with hole collapse and loss of circulation were frequent. A completed well was installed to 157 feet, with 5-inch diameter well casing, and screens from 77-157 feet deep.

Well WSW#1 was intended to develop water from the UCSC karst aquifer at the intersection of a major north-south fracture lineation (Jordan Gulch) and a roughly east-west fracture lineation across the lower UCSC campus marked by a line of sinkholes. A detailed evaluation of the karst aquifer, associated spring discharge points, and a history of the well drilling, well completion and initial aquifer testing, including a 7-day aquifer pumping test and recovery test with extensive spring flow monitoring is presented in *Evaluation of the Groundwater Resources at the University of California, Santa Cruz (*Weber, Hayes, and Associates and consulting Hydrogeologist, Nicholas Johnson, March 1989).

Currently, this well is equipped with a 7.5 horsepower (HP) submersible pump capable of discharging approximately 90 gallons per minute (gpm). The exiting well pump is the means of purging and sampling groundwater at this location.

5.2 Upper Quarry Well

The Upper Quarry well was drilled at the intersection of two prominent fracture zones just west of the Upper Quarry. The well was drilled in 1988 to a total depth of 303 feet, with well screen from 115 to 303 feet[1]. During drilling, multiple fractures and cavernous zones were encountered, separated by hard limestone/marble. The upper 104 feet was cemented to stabilize the hole and provide a surface seal. No long-term pumping test has been conducted to evaluate the yield of this well.

Because this well is not equipped with a submersible pump we contracted with a local well pump contractor (Capitola Pump) to install a temporary 1.5 horsepower submersible pump and power capable of producing approximately 10-15 gpm for purging and sampling the Upper Quarry Well. The temporary pump equipment was removed immediately following well purging and sample collection.

5.3 Well Sampling

Well purging and sampling protocols generally followed the guidelines presented in the Department of Water Resources Bulletins 74-81, Appendix D; Collection of Water Quality Samples. Specifically, during well purging the physical parameters of dissolved oxygen, pH, temperature, and conductivity are continuously monitored with a water quality meter. The groundwater is considered to be representative once the physical parameters have stabilized to within approximately 10% and at least one casing volume of water has been removed from the well. Representative groundwater samples are then collected from the well discharge directly into laboratory provided sample bottles.

Field notes and Groundwater *Well Sampling Information Sheets* produced during both the fall and spring groundwater sampling events are included in Appendix B for reference.

6.0 LABORATORY ANALYSIS AND WATER QUALITY RESULTS

All collected samples were immediately placed in an insulated cooler chilled with blue ice and submitted to a State-certified laboratory under proper Chain-of-Custody documentation within 24 hours of sample collection and analyzed for general *Indicator* Storm Water parameters. These parameters include pH, Total Suspended Solids, Specific Conductance and Oil & Grease. These parameters are non-specific and are general enough to provide indication of whether pollutants are present in storm water discharge.

[1] Weber, Hayes & Associates and Nicholas Johnson, Consulting Hydrogeologist: *Evaluation of Groundwater Resources at the University of California Santa Cruz Part I and Part II, Appendix A-1: Well Histories, Logs, and Water Quality Analysis*, dated March 1989

Additionally, three of the collected storm water runoff samples (East Remote Parking Lot, Baskin Arts, and Stevenson College) were analyzed for Title 22 general mineral, general physical, and inorganic compounds. These locations were selected to provide additional water quality data on the various campus discharge areas (i.e., karst aquifer via sink holes, Moore Creek Watershed, and the San Lorenzo Watershed, respectively). Groundwater samples collected from the Upper Quarry Well and WSW #1 were also analyzed for the Title 22 suite of analysis.

Laboratory Reports and Chain-of-Custody documentation are included as Appendix C. The results are tabulated on Tables 1 through 6. Water quality analysis for storm water runoff has been compared with industrial storm water Parameter Benchmark Values and groundwater quality analysis has been compared with drinking water standards established in the Title 22 California Code of Regulations.

We note that water quality sampling at the Faculty Housing and East Remote Parking Lot discharge points and groundwater quality sampling at well WSW#1 has been conducted for nearly two decades according to the UCSC Long Range Development Plan (LRDP) mitigation measures 4.1 - 9.

6.1 First Flush Storm Water Quality Analytical Results

6.1.1 Indicator Parameters (see Table 1):

There were only a few indicator parameters that marginally exceeded Parameter Benchmark Values. Specifically;

- Concentrations of Total Suspended Solids (TSS) were detected at 250 and 170 mg/L at the Faculty Housing and East Remote Parking Lot sample locations, respectively. The Parameter Benchmark Value for TSS is set at 100 mg/L. All other sample locations were detected at concentrations below the Parameter Benchmark Value.
- Concentrations of pH were relatively consistent at all sample locations ranging from 6.0 to 6.7, with the exception of the sample collected at the West Remote Parking Lot location, which had a detection of 5.5. The Parameter Benchmark Value for pH is recommended to be between a concentration of 6.0 to 9.0.
- We note that there is no Parameter Benchmark Value for Specific Conductance, however concentrations less than 200 uS/cm are considered to be low, while concentrations between 200 and 500 are considered to be moderate. The samples collected at Faculty Housing and West Remote Parking Lot marginally exceeded 200 uS/cm, while concentrations at all other sample locations fell below this relative value.

The slightly elevated concentrations of TSS marginally exceed the Benchmark value do not indicate a significant water quality impact. We do note that the concentrations measured at East

Remote Parking Lot and Faculty Housing during the first flush sampling event of the 2009-2010 wet season are among the higher concentrations measured at these locations.

There were no detections of Oil and Grease at any of the sample locations.

These results indicate good management practices are occurring on roads and parking lots.

6.1.2 Title 22 General Mineral, General Physical, and Inorganic Analysis (see Tables 2, 3, and 4):

As noted above, three of the collected storm water runoff samples (East Remote Parking Lot, Baskin Arts, and Stevenson College) were additionally analyzed for Title 22 general mineral, general physical, and inorganic compounds. Where available, these additional water quality parameters were compared with Parameter Benchmark Values.

Analytical results reveled the following metals to be in slight to moderate excess of Parameter Benchmark Values. Specifically;

- Magnesium concentrations ranged from 2.3 to 3.2 mg/L. The Benchmark value is set at 0.0636 mg/L.
- Total Iron concentrations ranged from 1.1 to 5.1 mg/L. The Benchmark value is set at 1.0 mg/L.
- Aluminum concentrations ranged from 0.83 to 4.9 mg/L. The Benchmark value is set at 0.75 mg/L.
- Zinc concentrations ranged from 0.20 to 0.46 mg/L. The Benchmark value is set at 0.117 mg/L.

These slight to moderately elevated concentrations of metals may in part be attributed to vehicle traffic on campus (i.e., vehicle emissions and tire and engine ware) and other sources. Pavement and roofing material may also contribute metals to runoff. These concentrations do not indicate a significant water quality impact.

We note that metal concentrations measured in the East Remote Parking Lot runoff are fairly consistent with historical concentrations with the exception of Total Iron and Aluminum which are slightly elevated compared with historic concentrations (see Table 2). The Retention Pond at East Remote serves to reduce metal and suspended sediment concentrations prior to final discharge to the nearby sinkhole. It should be noted that the first flush sample collected from East Remote during the 2009-2010 wet season was collected prior to entering the Retention Pond as discharge from the pond outlet was not occurring at the time of sampling.

No other Title 22 constituents exceeded Parameter Benchmark Values for these three sample locations, with the exception of Nitrate/Nitrate detected at Stevenson College at a concentration of 2.1 mg/L, slightly above the Benchmark value et at 0.68 mg/L.

6.2 Groundwater Quality Analytical Results (see Tables 5 & 6)

The results of two seasonal groundwater quality monitoring events for both the Upper Quarry Well and WSW#1 indicate that the overall groundwater quality at these locations is good to excellent. Only a few constituents exceeded drinking water standards established in the Title 22 California Code of Regulations. Specifically;

- Concentration of arsenic detected in both the Upper Quarry Well and WSW#1 exceeded the drinking water standard set at 0.01 mg/L during both the fall and spring sampling events. We note that the arsenic concentration detected in WSW#1 only marginally exceeded the threshold (detected at 0.011 and 0.012 mg/L) and are consistent with historic concentrations detected in this well. The concentration of arsenic detected in the Upper Quarry well was slightly more excessive at concentrations of 0.072 and 0.021 mg/L, detected in the fall and spring, respectively. The concentrations of arsenic are likely naturally occurring in the karst aquifer.
- Concentrations of total iron and aluminum detected in the Upper Quarry well slightly exceeded drinking water standards during both the fall and spring sampling events. These concentrations are relatively low level and are likely naturally occurring.

There were no detections of Oil and Grease in these wells during either sampling event.

6.2.1 Observed Seasonal Variation in Groundwater Quality

The results of WSW#1 remain fairly consistent through time, and do not appear to vary with seasonal groundwater fluctuations (see Table 5). This appears to be in contrast with seasonal water quality observed the Upper Quarry Well (currently based on only one seasonal cycle, however; see Table 6). Concentrations of TSS, total iron, arsenic, and aluminum appear to be double to triple the concentration in the Upper Quarry Well following the first flush when compared with the results of the Spring sampling event (i.e., early May following winter aquifer recharge). However, regardless of this observed seasonal variation in water quality parameters, the observed concentrations following the first flush do not indicate any significant groundwater quality impacts at the Upper Quarry Well location from storm water runoff.

6.2.2 Observed Differences in Water Quality Between WSW#1 and The Upper Quarry Well

The concentrations of TSS, total iron, arsenic, and aluminum appear to be higher in the Upper Quarry Well compared with WSW#1. This contrast in observed TSS concentrations may perhaps be due in part to a more rapid groundwater recharge occurring in the vicinity of the upper quarry during the first flush runoff event. High resolution water level data collected from this well reveals that a single precipitation event has a dramatic effect in influencing immediate groundwater recharge at this location, likely through direct linkage of surface runoff to the

subsurface through sinkholes and similar karst surface features[2]. Water levels in the Upper Quarry Well rose approximately 35 feet in only 29 hours during the most significant precipitation event of the 2007-2008 water year, which occurred in early January 2008. This rapid and direct connection to surface water is a common feature of karst groundwater systems, and is clearly occurring in the Upper Quarry area. This instantaneous recharge observed in water level data collected from the Upper Quarry Well could indicate that natural subsurface filtration is occurring to a lesser degree as compared to surface runoff and the less dramatic groundwater recharge observed in the area of WSW#1, and may account for the observed difference in TSS. This relative difference in TSS may also be a function of differing well construction (i.e., differing screen slot size and filter pack).

The relatively higher concentrations of metal constituents (i.e., total iron, arsenic, and aluminum) observed for the Upper Quarry Well could simply be a function of localized variations in the geologic composition of formation materials that interact with groundwater in the vicinity of the upper quarry, where trace metals could possibly be naturally occurring at higher concentrations. The observed seasonal variation in metal concentrations may be a result of aquifer dilution (i.e., higher concentrations during water table lows, and relatively lower concentrations during water table highs).

7.0 CONCLUSIONS

Based on the first flush storm water discharge analytical results, there does not appear to be any significant identifiable water quality impacts from university activities at this time. In general, the lack of significant pollutants detected in the storm water discharge samples can likely be attributed to the various storm water pollution prevention structures that are applied to the UCSC campus storm water capture and discharge infrastructure coupled with other implemented BMP's as briefly described in this report.

Water quality samples collected from well WSW#1 and the Upper Quarry Well indicate that the well water from the karst aquifer at UCSC is good to excellent quality water. Although there is some relative difference in water quality observed for these UCSC campus wells, and in the case of the Upper Quarry well some relative seasonal variation in water quality parameters, there appears to be no significant identifiable groundwater quality impacts from university activities at this time.

[2] Weber, Hayes and Associates: *UCSC Jordan Gulch Wells - Continuous Water Level Monitoring, August 2007-January 2010 Data - Water Supply Well WSW#1, Monitoring Wells MW-1A, MW-1B, and Upper Quarry Well*, dated March 9, 2010

8.0 RECOMMENDATIONS

Based on the results of current and historic water quality sampling conducted at the UCSC campus we recommend the following:

- Discontinue sampling at Porter Infill. Results of first flush sampling at this location demonstrate that there are no water quality impacts from this recent urban development.
- Continue annual first flush water quality sampling at Faculty Housing, East Remote Parking Lot, Stevenson College, West Remote Parking Lot, Baskin Arts, and College 9/10. Sampling should be continued at these locations in order to confirm that no significant impacts are occurring as a result of campus activities, and to confirm that pollution prevention structures and other campus BMPs continue to remain effective in reducing potential storm water runoff pollution.
- Reduce the sampling frequency of WSW#1 to annual during the first significant precipitation event of the wet season. Nearly twenty years of annual water quality monitoring in this well indicates that groundwater quality has been consistently good to excellent with no apparent impacts from storm water runoff.
- Continue semi-annual sampling of the Upper Quarry Well in order to confirm continuity in results observed during the current 2009-2010 wet season. If results remain relatively consistent and continue to indicate no water quality impacts from campus activities then we will recommend reducing the sampling frequency to annual during the first significant precipitation event of the wet season.
- If both the Upper Quarry Well and WSW#1 continue to reveal no detections of Oil & Grease during the 2010-2011 wet season, then we will recommend that this analysis be discontinued.

9.0 LIMITATIONS

Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all others, either express or implied. The analysis and conclusions in this report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modification of the opinions expressed herein.

If you have any questions or comments regarding this project, please contact us at our office (722-3580).

Respectfully submitted,

WEBER, HAYES AND ASSOCIATES

A California Corporation

By _____

Jered Chaney, PG# 8452
Project Geologist

cc: Courtney Trask
Storm Water Programs Manager
1156 High Street, Barn G
Santa Cruz, CA 95064

Attachment E

Annual Water Quality Monitoring Results, 2010-11

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 Fax (831) 722-1159
www.weber-hayes.com

2010-2011
Annual Water Quality Monitoring Results
UCSC Campus Storm Water Management Plan, BMP #101
University of California Santa Cruz Campus, 1156 High Street, Santa Cruz, California

June 2011

Prepared For:

University of California Santa Cruz
c/o: Dan Blunk - Environmental Programs Manager
Environmental Health and Safety
University of California Santa Cruz
Santa Cruz, California 95064

Prepared By:
Weber, Hayes and Associates
Job #H2031

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 WATER QUALITY MONITORING - 2010-2011

The following report presents the results of the 2010-2011 annual sampling of storm water discharge and groundwater quality at the University of California Santa Cruz (UCSC) campus in order to satisfy Best Management Practice #101 - Water Quality Monitoring, of the revised Storm Water Management Program (SWMP) for the University Campus, dated June 22, 2009. The purpose of this sampling program is to collect data on water quality at several locations around campus including groundwater, parking lot runoff, and other storm water discharge locations intended to address potential impacts from specific campus land uses.

Historically, water quality data was collected to monitor groundwater and spring water, surface water, and parking lot runoff at specific UCSC campus locations pursuant to the UCSC Long Range Development Plan (LRDP) mitigation measures 4.1 - 9. This specific mitigation measure has been satisfied and water quality monitoring at the majority of these locations is no longer being conducted (see Figure 1 for historic, discontinued sample locations). Water quality sampling was conducted at these locations from 1989 through 2008. A tabular summary of historical water quality analytical data collected at these discontinued sample locations is presented as Appendix A for reference.

2.0 STORM WATER DISCHARGE SAMPLE LOCATIONS

In August 2009, seven water quality sample locations were identified in coordination with UCSC Environmental Health and Safety Staff (Dan Blunk – Environmental Programs Manager) that address storm water discharge from specific land use areas around the campus. Specifically, the following table summarizes locations targeted for sampling during the first significant precipitation event of the wet season (i.e., October through May) to satisfy the BMP outlined in the SWMP:

Table 1: Discharge Sample Locations, Land Use Targeted for Discharge Storm Water Analysis, & Storm Water Runoff

Discharge Sample Location	Land Use Targeted	Runoff
Outfall at Jordan Gulch Middle Fork beneath McLaughlin Drive bridge	**College Nine/Ten** - Food services facility - Paved roads, paths and parking areas	Sinkhole – Karst Aquifer
Outfall at North V-ditch at Stevenson College east parking lot	**Stevenson College & Merrill College** - Paved roads, paths and parking areas	Surface water discharge to San Lorenzo Watershed

Discharge Sample Location	Land Use Targeted	Runoff
Outfall at piped discharge to open field south of recent Porter College development	**Porter College** - Recent urban development	open field
Outfall at Moore Creek East Fork along pedestrian path west of University House	**Theater and Visual Arts Centers** - Paved roads, paths and parking lots	Moore Creek Watershed
Outfall at More Creek West Fork at intersection of Heller Drive and Entrance to West Remote Parking Lot	**College Eight, Family Student Housing, & West Remote Parking Lot** - Paved roads, paths and parking lots	Moore Creek Watershed
Out fall from detention pond at east end of East Remote Parking Lot	**East Remote Parking Lot** - Parking Lot	Sinkhole – Karst Aquifer
Storm sewer vault along Hagar Court	**Faculty Housing** - Paved roads, paths and parking areas	Surface Water discharge to Kalkar Quarry Pond

The sampling locations are shown on Figure 1.

We note that the discharge sample location at Porter College was discontinued following initial sampling during the 2009-2010 annual sampling event as the results of first flush sampling at this location demonstrated that there were no water quality impacts from this recent urban development

Vicinity Maps showing storm water capture area, flow path and current water quality sample collection locations for each of the campus land use areas are shown on Figures 2 through 7. Photo sheets showing the discharge sample locations are presented in Appendix B.

3.0 POLLUTION PREVENTION STRUCTURES AND BEST MANAGEMENT PRACTICES

The UCSC campus storm water capture and discharge infrastructure includes the application of various pollution prevention structures designed to reduce potential pollutants in storm water prior to discharge to the environment. This section includes a brief description of pollution prevention structures that are specific to the locations assessed for water quality as they discharge to various receiving waters around the campus. Best Management Practices (BMPs)

designed to further reduce potential street and parking lot contaminants that may become entrained in storm water runoff are also briefly discussed in this section.

The following is a brief description of pollution prevention structures specific to storm water effluent that is assessed during the annual water quality monitoring program:

- **Faculty Housing:** Storm water derived from the vicinity of faculty housing is diverted to a baffled stilling basin along Hagar Court. The stilling basin is designed to separate oils and sediment from storm water runoff prior to discharge to Kalkar Quarry Pond. The stilling basin is periodically cleaned out. Storm water derived from Coolidge Drive is diverted to detention pond prior to discharging to Kalkar Quarry Pond. See Figure 2 for the locations of the stilling basin and detention pond, and Figure 8 for stilling basin construction details.
- **East Remote Parking Lot:** Storm water derived from the East Remote Parking Lot is diverted to a Retention Pond at the east end of the parking lot and is subsequently discharged to a vegetated swale that flows to a sinkhole (see Figure 3). The Retention Pond is designed to remove sediment loads and can reduce metal concentrations.
- **College 8/Family Student Housing:** Storm water derived from a portion of College 8 and a portion of Family Student Housing is diverted to a detention basin. The detention basin is designed to remove sediment loads and can reduce metal concentrations.
- **College 9/10:** Storm water derived from the western portion of College 9/10 is diverted through a series of Oil/Water Separators and Sediment Filters designed to remove sediment load, oils, and reduce metal concentrations prior to discharge to Jordan Gulch Middle Fork. See Figure 7 for the locations of the Oil/Water Separators and Sediment Filters, and Figure 9 for construction details.

Other storm water pollution prevention measures include an existing campus street sweeping program that is detailed in BMP #77 of the UCSC SWMP. Primary roads are swept monthly and secondary roads are swept bi-monthly. Street sweeping may be conducted more frequently during the fall and spring seasons to respond to seasonal requirements. This BMP will significantly reduce potential sediment loads during storm water runoff events.

4.0 CAMPUS STORM WATER QUALITY SAMPLING

Water quality samples from the seven storm water discharge locations are collected during the first significant precipitation event of the wet season (i.e. October through May). For the purpose of this water quality sampling program, a significant storm is defined as a storm event with total rainfall of at least 0.1 inches, and creating visible parking lot runoff for a duration of at least one hour.

On October 23, 2010 the first significant storm event of the 2010-2011 wet season occurred. Storm water grab sampling at each of the aforementioned discharge locations was conducted by Weber, Hayes and Associates field staff after approximately 1 hour of precipitation occurred, specifically between 4:45 PM and 5:25 PM on October 23, 2010.

A Precipitation Hydrograph for the 2010-2011 wet season is presented as Figure 10 for reference.

Storm water grab samples were collected according to our *Surface Water Grab Sample Collection Field Methodology* (included in Appendix B), which is in general accord with methodology presented in the United Stated Environmental Protection Agency National Pollutant Discharge Elimination System's *Storm Water Sampling Guidance Document* (July 1992). Field notes from the first flush sampling event and a brief review of water quality monitoring parameters obtained during the sampling event are also included in Appendix B.

5.0 CAMPUS GROUNDWATER QUALITY SAMPLING

In addition to collecting grab samples at the six aforementioned storm water discharge locations, representative groundwater samples were collected from the Upper Quarry Well and well WSW #1 (see Figure 1 for well locations). Samples were collected from these wells once following the first significant precipitation event (October 27, 2010) and once during the spring, after winter wet season aquifer recharge had occurred (April 29, 2011). It is our understanding that the semi-annual groundwater sampling schedule may be reduced following the collection of additional semi-annual sampling data.

The following sections (4.1 & 4.2) provide a brief description of well location, hydrogeologic setting, and completion details.

5.1 WSW#1

WSW#1 is located in lower Jordan Gulch, between the bicycle path and the Agroecology program farm. This well was drilled and completed under City of Santa Cruz permit in December 1988. Drilling to a total depth of 226 feet encountered limestone/marble, with evidence of karst solution channels and zones of hard intact marble interspersed with abundant open to rubble-filled fractures and void spaces. Problems with borehole collapse and loss of circulation were frequent. A completed well was installed to 157 feet, with 5-inch diameter well casing, and screens from 77-157 feet deep.

Well WSW#1 was intended to develop water from the UCSC karst aquifer at the intersection of a major north-south fracture lineation (Jordan Gulch) and a roughly east-west fracture lineation across the lower UCSC campus marked by a line of sinkholes. A detailed evaluation of the karst aquifer, associated spring discharge points, and a history of the well drilling, well completion and initial aquifer testing, including a 7-day constant rate aquifer pumping and recovery test with

extensive spring flow monitoring is presented in *Evaluation of the Groundwater Resources at the University of California, Santa Cruz (*Weber, Hayes, and Associates and consulting Hydrogeologist, Nicholas Johnson, March 1989).

Currently, this well is equipped with a 7.5 horsepower (HP) submersible pump capable of discharging approximately 90 gallons per minute (gpm). The exiting well pump is the means of purging and sampling groundwater at this location.

5.2 Upper Quarry Well

The Upper Quarry well was drilled at the intersection of two prominent fracture zones just west of the Upper Quarry. The well was drilled in 1988 to a total depth of 303 feet, with well screens from 115 to 303 feet[1]. During drilling, multiple fractures and cavernous zones were encountered, separated by hard limestone/marble to depths of approximately 180 feet, underlain with fractured schist and schist with granitic dikes to the total borehole depth. The upper 104 feet was cemented to stabilize the hole and provide a surface seal. No long-term pumping test has been conducted to evaluate the yield of this well.

Because this well is not equipped with a submersible pump we contracted with a local well pump contractor (Capitola Pump) to install a temporary one (1) horsepower submersible pump and power capable of producing approximately 10-15 gpm for purging and sampling the Upper Quarry Well. The temporary pump equipment was removed immediately following well purging and sample collection.

5.3 Well Sampling

Well purging and sampling protocols generally followed the guidelines presented in the Department of Water Resources Bulletins 74-81, Appendix D; Collection of Water Quality Samples. Specifically, during well purging the physical parameters of dissolved oxygen, pH, temperature, and conductivity are repeatedly monitored with a water quality meter. The groundwater is considered to be representative once the physical parameters have stabilized to within approximately 10% and at least one casing volume of water has been removed from the well. Representative groundwater samples are then collected from the well discharge directly into laboratory provided sample bottles.

Field notes and Groundwater *Well Sampling Information Sheets* produced during both the fall and spring groundwater sampling events are included in Appendix B for reference.

[1] Weber, Hayes & Associates and Nicholas Johnson, Consulting Hydrogeologist: *Evaluation of Groundwater Resources at the University of California Santa Cruz Part I and Part II, Appendix A-1: Well Histories, Logs, and Water Quality Analysis*, dated March 1989

6.0 LABORATORY ANALYSIS AND WATER QUALITY RESULTS

All collected samples were immediately placed in an insulated cooler chilled with blue ice and submitted to a State-certified laboratory under proper Chain-of-Custody documentation within 24 hours of sample collection and analyzed for general *Indicator* Storm Water parameters. These parameters include pH, Total Suspended Solids, Specific Conductance and Oil & Grease. These parameters are non-specific and are general enough to provide indication of whether pollutants are present in storm water discharge.

Additionally, three of the collected storm water runoff samples (East Remote Parking Lot, Baskin Arts, and Stevenson College) were analyzed for Title 22 general mineral, general physical and inorganic compounds. These locations were selected to provide additional water quality data on the various campus discharge areas (i.e., karst aquifer via sink holes, Moore Creek Watershed, and the San Lorenzo Watershed, respectively). Groundwater samples collected from the Upper Quarry Well and WSW #1 were also analyzed for the Title 22 suite of analysis.

Laboratory Reports and Chain-of-Custody documentation are included as Appendix C. The results are tabulated on Tables 1 through 6. Water quality analysis for storm water runoff has been compared with industrial storm water Parameter Benchmark Values and groundwater quality analysis has been compared with drinking water standards established in the Title 22 California Code of Regulations.

We note that water quality sampling at the Faculty Housing and East Remote Parking Lot discharge points and groundwater quality sampling at well WSW#1 has been previously conducted for nearly two decades in accordance with the UCSC Long Range Development Plan (LRDP) mitigation measures 4.1 - 9.

6.1 First Flush Storm Water Quality Analytical Results

6.1.1 Indicator Parameters (see Table 1):

Storm water runoff samples collected during the first flush sampling event of the 2010-2011 wet seasons revealed all parameters to be within or below the acceptable range of Parameter Benchmark Values, and are all generally lower than concentrations measured during the previous 2009-2010 first flush sampling event. Specifically;

- Concentrations of Total Suspended Solids (TSS) ranged from 9.1 to 34 mg/L at all sample locations. The Parameter Benchmark Value for TSS is set at 100 mg/L. We note that slightly elevated concentrations detected at Faculty Housing and East Remote have decreased as compared with the previous years concentrations detected at 250 and 170 mg/L, respectively.

- Concentrations of pH were relatively consistent at all sample locations ranging from 6.6 to 7.7. The Parameter Benchmark Value for pH is recommended to be between a concentration of 6.0 to 9.0.
- We note that there is no Parameter Benchmark Value for Specific Conductance, however concentrations less than 200 uS/cm are considered to be low, while concentrations between 200 and 500 are considered to be moderate. All of the collected samples fell below the low relative value of 200 uS/cm with concentrations ranging from 40 to 150 uS/cm.

There were no detections of Oil and Grease at any of the sample locations.

These results indicate good management practices are occurring on roads and parking lots.

6.1.2 Title 22 General Mineral, General Physical, and Inorganic Analysis (see Tables 2, 3, and 4):

As noted above, three of the collected storm water runoff samples (East Remote Parking Lot, Baskin Arts, and Stevenson College) were additionally analyzed for Title 22 general mineral, general physical and inorganic compounds. Where applicable, these additional water quality parameters were compared with Industrial Activity Parameter Benchmark Values.

Analytical results revealed the following metals to be in significant to moderate excess of Industrial Activity Parameter Benchmark Values:

- **Magnesium** concentrations detected at each of the three sample locations ranged from 0.93 to 1.4 mg/L. The Benchmark value is set at 0.0636 mg/L. We note that these concentrations have slightly decreased as compared with the 2009-2010 first flush sampling event concentrations which ranged from 2.3 to 3.2 mg/L. We note that Magnesium concentrations fall within the range of historic concentrations found in spring water emanating from undeveloped areas of campus (see historical data included in Appendix A).
- **Aluminum** concentrations were detected at 0.79 and 0.92 mg/L at the East Remote and Baskin Arts sampling locations, respectively. The Benchmark value is set at 0.75 mg/L. We note that these concentrations have decreased as compared with the 2009-2010 first flush sampling event concentrations which ranged from 4.9 and 2.6 mg/L, respectively. The concentrations of Aluminum detected at Stevenson College also decreased as compared with the previous sampling event from 0.83 to 0.36 mg/L, and are now below the Benchmark value. We note that Aluminum concentrations fall within the range of historic concentrations found in spring water emanating from undeveloped areas of campus (see historical data included in Appendix A).
- **Zinc** was detected at a concentration of 0.21 mg/L at the Baskin Arts sampling location, and has decreased as compared with the 2009-2010 first flush sampling events when Zinc was detected at concentrations of 0.46 mg/L. The Benchmark value is set at 0.117 mg/L.

Concentrations of Zinc also decreased at the East Remote Parking Lot and Stevenson College sampling locations from 0.20 and 0.23 mg/L to 0.038 and 0.110, respectively, and are below the Benchmark value.

We note that **Total Iron** concentrations detected at each of these three discharge locations during the 2009-2010 fist flush sampling event ranged from 1.1 to 5.1 mg/L, which exceeded the Benchmark value of 1.0 mg/L. During the current sampling event, concentrations of Total Iron all fell below the Benchmark value at concentrations ranging from 0.39 to 0.97.

These elevated concentrations of metals may in part be attributed to vehicle traffic on campus (i.e., vehicle emissions, and tire and engine ware) and other sources. Pavement and roofing material may also contribute metals to runoff. These concentrations do not indicate a significant water quality impact.

Overall, metal concentrations measured at each of these three discharge sampling locations are lower than the previous 2009-2010 first flush sampling event. The long term record of water quality results at East Remote Parking Lot runoff indicate that current concentrations are fairly consistent with historical concentrations and are among the lower end of concentrations measured at this location (see Table 8, Appendix A). The Retention Pond at East Remote serves to reduce metal and suspended sediment concentrations prior to final discharge to a vegetated swale that flows to a sinkhole. It should be noted that the first flush sample collected from East Remote during the 2010-2011 wet season was collected prior to entering the Retention Pond, as discharge from the pond outlet was not occurring at the time of sampling.

No other Title 22 water quality constituents exceeded Parameter Benchmark Values for these three sample locations.

6.2 Groundwater Quality Analytical Results (see Tables 5 & 6)

The results of two seasonal groundwater quality monitoring events for both the Upper Quarry Well and WSW#1 indicate that the overall groundwater quality at these locations is good to excellent. Only a few constituents exceeded drinking water standards established in the Title 22 California Code of Regulations. Specifically;

- Concentration of arsenic detected in both the Upper Quarry Well and WSW#1 exceeded the drinking water standard set at 0.01 mg/L during both the fall and spring sampling events. We note that the arsenic concentration detected in WSW#1 only marginally exceeded the threshold (detected at 0.011 and 0.012 mg/L) and are consistent with historic concentrations detected in this well. The concentration of arsenic detected in the Upper Quarry well was slightly more excessive at concentrations of 0.072 and 0.038 mg/L, detected in the fall and spring, respectively, and are fairly consistent with concentrations measured during the previous year's semi-annual sampling events (see Table 6). The

concentrations of arsenic are likely naturally occurring background concentrations in the karst aquifer.

- Concentrations of total iron, aluminum, and manganese detected in the Upper Quarry well slightly exceeded drinking water standards during both the fall and spring sampling events. The concentrations measured during the 2010-2011 sampling period are slightly higher than detected during the previous year. These concentrations are relatively low level and are likely naturally occurring.

There were no detections of Oil and Grease in these wells during either sampling event.

6.2.1 Observed Seasonal Variation in Groundwater Quality

The results of WSW#1 remain fairly consistent through time, and do not appear to vary with seasonal groundwater fluctuations (see Table 5, and Appendix A, Table 9). This appears to be in contrast with seasonal water quality observed the Upper Quarry Well (currently based on only two seasonal cycles, however; see Table 6). Based on these two semi-annual sampling events the concentrations of TSS, total iron, arsenic, manganese and aluminum appear to be nearly double to triple the concentration in the Upper Quarry Well following the first flush when compared with the results of the Spring sampling event (i.e., late April/early May following winter aquifer recharge). However, regardless of this observed seasonal variation in water quality parameters, the observed concentrations following the first flush do not indicate any significant groundwater quality impacts at the Upper Quarry Well location from storm water runoff.

6.2.2 Observed Differences in Water Quality Between WSW#1 and The Upper Quarry Well

The concentrations of TDS, TSS, total iron, manganese, arsenic, and aluminum appear to be higher in the Upper Quarry Well compared with WSW#1. This contrast in observed TSS concentrations may perhaps be due in part to a more rapid groundwater recharge occurring in the vicinity of the upper quarry during the first flush runoff event. High resolution water level data collected from this well reveals that a single precipitation event has a dramatic effect in influencing immediate groundwater recharge at this location, likely through direct linkage of surface runoff to the subsurface through sinkholes and similar karst surface features[2]. Water levels in the Upper Quarry Well rose approximately 35 feet in only 29 hours during the most significant precipitation event of the 2007-2008 water year, which occurred in early January 2008. This rapid and direct connection to surface water is a common feature of karst groundwater systems, and is clearly occurring in the Upper Quarry area. This instantaneous recharge observed in water level data collected from the Upper Quarry Well could indicate that

[2] Weber, Hayes and Associates: *UCSC Jordan Gulch Wells - Continuous Water Level Monitoring, August 2007-January 2010 Data - Water Supply Well WSW#1, Monitoring Wells MW-1A, MW-1B, and Upper Quarry Well*, dated March 9, 2010

natural subsurface filtration is occurring to a lesser degree as compared to surface runoff and the less dramatic groundwater recharge observed in the area of WSW#1, and may account for the observed difference in TSS. This relative difference in TSS may also be a function of differing well construction (i.e., differing screen slot size and filter pack).

The relatively higher concentrations of metal constituents (i.e., total iron, arsenic, manganese, and aluminum) observed for the Upper Quarry Well could simply be a function of localized variations in the geologic composition of formation materials that interact with groundwater in the vicinity of the upper quarry, where trace metals could possibly be naturally occurring at higher concentrations. The observed seasonal variation in metal concentrations may be a result of aquifer dilution (i.e., higher concentrations during water table lows, and relatively lower concentrations during water table highs).

7.0 CONCLUSIONS

Based on the first flush storm water discharge analytical results, there does not appear to be any significant identifiable water quality impacts from university activities at this time. We note that the current concentrations are generally lower than concentrations measured during the previous 2009-2010 first flush sampling event. In general, the lack of significant pollutants detected in the storm water discharge samples can likely be attributed to the various storm water pollution prevention structures that are applied to the UCSC campus storm water capture and discharge infrastructure coupled with other implemented BMP's as briefly described in this report.

Water quality samples collected from well WSW#1 and the Upper Quarry Well indicate that the well water from the karst aquifer at UCSC is good to excellent quality water. Although there is some relative difference in water quality observed for these UCSC campus wells, and in the case of the Upper Quarry well some relative seasonal variation in water quality parameters, there appears to be no significant identifiable groundwater quality impacts from university activities at this time.

8.0 RECOMMENDATIONS

Based on the results of current and historic water quality sampling conducted at the UCSC campus we recommend the following:

- Continue annual first flush water quality sampling at Faculty Housing, East Remote Parking Lot, Stevenson College, West Remote Parking Lot, Baskin Arts, and College 9/10. Sampling should be continued at these locations in order to confirm that no significant impacts are occurring as a result of campus activities, and to confirm that pollution prevention structures and other campus BMPs continue to remain effective in reducing potential storm water runoff pollution.

- Reduce the sampling frequency of WSW#1 to annual during the first significant precipitation event of the wet season. Nearly twenty years of annual water quality monitoring in this well indicates that groundwater quality has been consistently good to excellent with no apparent impacts from storm water runoff.
- Continue semi-annual sampling of the Upper Quarry Well in order to confirm continuity in results observed during the previous two semi-annual sampling events. If results remain relatively consistent and continue to indicate no water quality impacts from campus activities then we will recommend reducing the sampling frequency to annual during the first significant precipitation event of the wet season.
- We recommend discontinuing analysis for Oil & Grease at the Upper Quarry Well and WSW#1 as two consecutive semi-annual sampling events reveal no detections and indicate no impacts. We note that Petroleum hydrocarbons were previously monitored for in WSW#1 (beginning in 1989/1990), then discontinued in 2004/2005 due to lack of detection (see Historical data for this well in Appendix A, Table 9).

9.0 LIMITATIONS

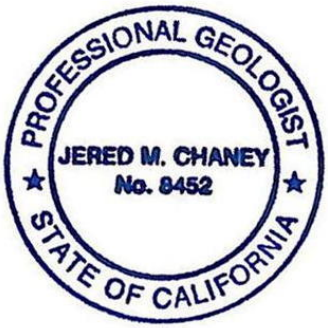
Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all others, either express or implied. The analysis and conclusions in this report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modification of the opinions expressed herein.

If you have any questions or comments regarding this project, please contact us at our office (722-3580).

Respectfully submitted,

WEBER, HAYES AND ASSOCIATES

A California Corporation



By _____

Jered Chaney, PG# 8452
Project Geologist

cc: Courtney Trask
Storm Water Programs Manager
1156 High Street, Barn G
Santa Cruz, CA 95064

Attachment F

Food Facility Brochure

UC Santa Cruz Storm Water

Fall 2010 Volume 5, Number 1

In This Issue

Report Concerns

Report activities that can potentially cause environmental harm and illegal dumping into storm drains to our Storm Water Concerns Number: (831) 459-2553 or email us at cleanwater@ucsc.edu

What should I do about the accidentally spills outside?

-Preventing spills should be first priority, however, in an event a spill does occur, it must be cleaned up as soon as possible.

-Use dry cleanup methods (such as scrapers or absorbent pads)

-Do not wash the spill or spill residues into a storm drain.

Report the spill to Environmental Health & Safety (459-2553) during business hours or to dispatch 9-1-1 if the spill

1) Causes a film, sheen, or discolors the water
2) Causes a sludge or emulsion in the water or upon the shoreline
3) 25 gallons or more is released into the environment

Food Facility: Outdoor Areas

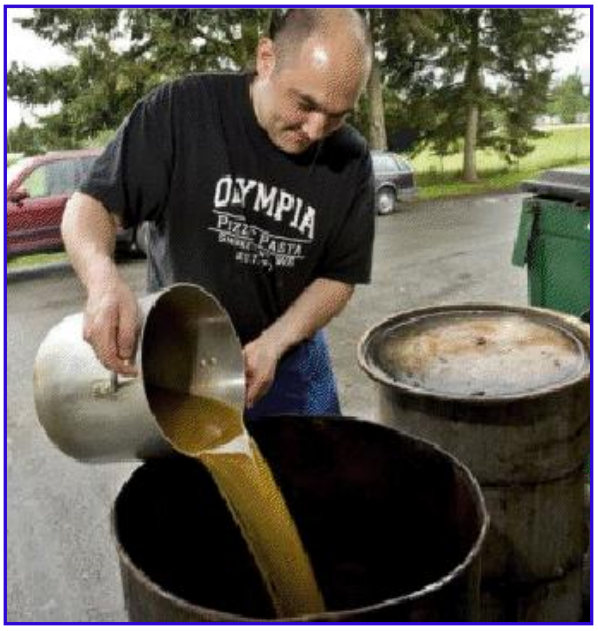
Several storm drains are located in outdoor areas near food facilities. Only storm water should go down these drains. Polluted water must go down designated sanitary sewer systems in order to protect the water quality.

The following sources are pollutants classified by CASQA (California Storm Water Quality Association – California BMP Handbook)

- cleaning of equipment, grease handling and disposal, spills, surface cleaning, cooling and refrigeration equipment maintenance, landscaping and grounds maintenance, dumpster and loading dock area, parking lots, illicit connections to storm drain system.
- the pollutants can include organic materials (food wastes), oil and grease, toxic chemicals in cleaning products, and disinfectants.

Practices to protect storm drains:

- Keep food and liquids out of storm drains. Make sure food and liquids are not around storm drains as they can be washed into the waterways. This can cause contamination in the water quality and damage to the natural ecosystem.



(Photo / UCSC Vehicle Maintenance and Storm Water)

Fats, oil, and grease shall be stored and transferred in watertight covered containers.

- Clean outdoor areas with a broom – not a hose. A hose will wash potential contaminants into the storm drains. Also, do not use cleansers outdoors because the chemicals can contaminate waterways.

Clean floor mats, equipment and exhaust filters in an area where wash water drains to the sanitary sewer.

(Photo/ UCSC Vehicle Maintenance and Storm Water)

This brochure is created by Joanne Yee, Storm Water Management Program intern

for the

UCSC Storm Water Management Program

http://cleanwater.ucsc.edu

Contact us at: cleanwater@ucsc.edu or (831) 459-4520

- Keep cooking oil waste containers clean and covered – clean up spills. Do not dump cooking oils or grease down the drain. Keep these in designated containers for proper disposal or recycling.
- Keep food and trash in proper containers – clean up spills! Make sure dumpsters are not open and exposed to rainwater. This can lead to discharges from the dumpsters that carry contaminants into the storm drain system. Dumpsters and trashcans should be not washed outside unless the water will be drained into sanitary sewers.
- Liquids spilled outside should be cleaned immediately – Tell your Supervisor if there is a large spill. Never dump dirty water or chemicals outside. It should be disposed of in drains designed to go into the sanitary sewer systems.

(Photo/University of Virginia: Environmental Health & Safety) Never dump dirty water outdoors into the storm water drains.

- To clean loading docks and other food service area outside hard surfaces:
  1) Clean up spills using dry absorbent materials.
  2) Sweep up debris, trash, cigarette butts, dirt, leaves, and other particles.
  3) Mop with minimal amounts of water only—no soap or cleansers.

(Photo/UCSC Vehicle Maintenance and Storm Water) Exceptions: Outside sanitary sewer inlets – Pressure washing, steam cleaning, and hand scrubbing may be conducted if the wastewater is collected and disposed of into the sanitary sewer.