

UL Lafayette - Lafayette Consolidated Government Flood Study

Status Report

Paul A. Richards, Ph.D., P.E.
Civil Engineering Department, CLIWS

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

1

Flood Study - Phase I 2000 - 2002

- Concentrated on Vermilion River
 - Installed 18 gages
 - Measured River surface elevations from Carencro to Intracoastal Waterway
 - Determined locations where flow reversals were initiated
 - Rotary Point (Coulee Mine watershed outlets)
 - Downstream from HWY 733 (Issac Verot Coulee and Coulee Ile des Cannes watershed outlets)

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

2

Flood Study - Phase I 2000 - 2002

- Developed hydraulic model of Issac Verot Coulee watershed
 - Determined flow conditions in Issac Verot Coulee
 - Obtained detailed watershed characteristics
 - Model serves as the initial component of a comprehensive model for the entire Vermilion watershed

Flood Study - Phase II 2001 - 2003

- Continued data acquisition on Vermilion River
 - Data required to support model expansion
 - Data confirms locations of flow reversal initiation
- Began data acquisition for Coulee Ile des Cannes and Coulee Mine watersheds
- Investigated NPDES Storm Water Quality Requirements

Flood Study - Phase II 2001 - 2003

- Need to continue gathering data to support comprehensive modeling effort
 - River surface elevations
 - Watershed characteristics
 - Coulee geometric data
- Need 1-foot elevation contour model to support comprehensive hydraulic model

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Program

Phase II

Clean Water Act Section 402(p)

NPDES Storm Water Program Definitions

- MS4 – **M**unicipal **S**eparate **S**torm **S**ewer **S**ystem
- MS4(s) – The operator(s) of a MS4

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that includes:
 - **pipes in the ground,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that includes:
 - pipes in the ground,
 - **roads with drainage systems,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that includes:
 - pipes in the ground,
 - roads with drainage systems,
 - **streets, catch basins, curbs and gutters,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that includes:
 - pipes in the ground,
 - roads with drainage systems,
 - streets, catch basins, curbs and gutters
 - **ditches, man-made channels, and**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that includes:
 - pipes in the ground,
 - roads with drainage systems,
 - streets, catch basins, curbs and gutters
 - ditches, man-made channels, and
 - **storm drains that are NOT part of a combined sewer system or part of a publicly owned treatment works**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that further includes:
 - **local jurisdictions,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that further includes:
 - local jurisdictions,
 - **State departments of transportation,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that further includes:
 - local jurisdictions,
 - State departments of transportation
 - **universities, local sewer districts,**

NPDES Storm Water Program Definitions

- MS4 – Municipal Separate Storm Sewer System
 - *Term of art* that further includes:
 - local jurisdictions,
 - State departments of transportation
 - universities, local sewer districts,
 - **hospitals, military bases, and, prisons**

NPDES Storm Water Program Introduction

- In 1987, Congress amended the Clean Water Act to require implementation, in two phases, of a comprehensive national program for addressing storm water discharges.

NPDES Storm Water Program Introduction

- In 1987, Congress amended the Clean Water Act to require implementation, in two phases, of a comprehensive national program for addressing storm water discharges.
 - **Phase I was implemented in 1990 (55 FR 47990) and required NPDES permits for storm water discharge from large and medium municipalities, industrial activities, and construction disturbing 5 or more acres.**

NPDES Storm Water Program Introduction

- In 1987, Congress amended the Clean Water Act to require implementation, in two phases, of a comprehensive national program for addressing storm water discharges.
 - **Phase II requires permits for storm water discharges from small municipalities and construction disturbing between 1 and 5 acres. The Phase II Final Rule was published in the Federal Register on December 8, 1999 (64 FR 68722).**

NPDES Storm Water Program Introduction

- Phase II Implementation/Compliance Timelines
 - **March 10, 2003: MS4 operators and small construction activity designated by La DEQ must obtain permit coverage**

NPDES Storm Water Program Introduction

- Phase II Implementation/Compliance Timelines
 - **March 2008: (By end of first permit period-typically a 5-year period) Regulated small MS4s must fully implement their storm water management programs (plans)**

NPDES Storm Water Program Introduction

- Phase II Implementation/Compliance Timelines
 - **December 2012: Re-evaluation of the Phase II small MS4 regulations by EPA**

NPDES Storm Water Program Phase II Rule Entities Included

- Small MS4 “Regulated” Status Determination
 - **Automatic Nationwide Designation by the Rule**

NPDES Storm Water Program Phase II Rule Entities Included

- Small MS4 “Regulated” Status Determination
 - Automatic Nationwide Designation by the Rule
 - **All MS4s located within the boundaries of a Bureau of the Census delineated “urbanized area” (UA) based on the latest decennial Census of 1990 with a re-evaluation to be based on the 2000 Census.**

NPDES Storm Water Program Phase II Rule Entities Included

- Small MS4 “Regulated” Status Determination
 - Automatic Nationwide Designation by the Rule
 - All MS4s located within the boundaries of a Bureau of the Census delineated “urbanized area” (UA).
 - **Based on 1990 Census, included: Lafayette Parish, Lafayette City, Broussard, Carencro, and Scott (Appendix 6, Phase II Final Rule)**

NPDES Storm Water Program Phase II Rule Entities Included

- Small MS4 “Regulated” Status Determination
 - Automatic Nationwide Designation by the Rule
 - All MS4s located within the boundaries of a Bureau of the Census delineated “urbanized area” (UA).
 - Based on 1990 Census, included: Lafayette Parish, Lafayette City, Broussard, Carencro, and Scott (Appendix 6, Phase II Final Rule)
 - **Based on 2000 Census, also includes: Youngsville and Duson.**

NPDES Storm Water Program Phase II Rule

Permits

- General Permits – Notice of Intent (NOI) to include:
 - Best management practices (BMPs) for each of six required minimum control measures (MCMs);
 - Measurable goals for each MCM (narrative or numeric standards used to gauge program effectiveness);
 - Estimated months and years in which actions to implement each measure will be undertaken, including interim milestones and frequency; and
 - The person or persons responsible for implementing or coordinating the storm water program

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - **Public education and outreach**

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - Public education and outreach
 - **Public participation/involvement**

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - Public education and outreach
 - Public participation/involvement
 - **Illicit discharge detection and elimination**

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - Public education and outreach
 - Public participation/involvement
 - Illicit discharge detection and elimination
 - **Construction site runoff control**

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - Public education and outreach
 - Public participation/involvement
 - Illicit discharge detection and elimination
 - Construction site runoff control
 - **Post-construction runoff control**

Storm Water Management Plan

- Development and implementation of BMPs and measurable goals for six minimum control measures (MCMs)
 - Public education and outreach
 - Public participation/involvement
 - Illicit discharge detection and elimination
 - Construction site runoff control
 - Post-construction runoff control
 - **Pollution prevention/good housekeeping for municipal operators**

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

33

EPA Estimated Annual Phase II Implementation Cost

¹U.S. Census Bureau, Census 2000 DP-1 Profile

²Federal Register, Vol. 64, No. 235, p. 68791, 12/8/1999

| City | Census 2000 Population ¹ | Households ¹ | EPA Estimated Cost per Household ² | Calculated Cost per City/Parish |
|------------------|-------------------------------------|-------------------------|---|---------------------------------|
| Broussard | 5,874 | 2,197 | \$9.16 | \$20,125 |
| Carencro | 6,120 | 2,237 | \$9.16 | \$20,491 |
| Duson | 1,672 | 644 | \$9.16 | \$5,899 |
| Lafayette | 110,257 | 43,506 | \$9.16 | \$398,515 |
| Scott | 7,870 | 2,920 | \$9.16 | \$26,747 |
| Youngsville | 3,992 | 1,386 | \$9.16 | \$12,696 |
| Lafayette Parish | 190,503 | 72,372 | \$9.16 | \$662,928 |

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

34

NPDES Storm Water Program

Potential Funding Sources

Federal Grants and Loans

- CWA Section 319(h) (nonpoint source)
- CWA Section 604(b) (planning)
- CWA Section 106 (implementation and TMDLs)
- CWA Section 104(b)(3) (implementation and research)
- CWA Section 314 (clean lakes)
- SDWA SWP (source water protection)
- CDBG (block grants)

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

35

NPDES Storm Water Program

Potential Funding Sources

Local and Municipal

- Bonds – General Obligation and Revenue for capital items
- Utility and Improvement Districts
- General Fund
- City Service fees (inspections, permits, development)
- Utility (User) Fees – Stormwater System as a Utility
 - Drainage has been the forgotten utility

12/17/02

UL Lafayette, Center for Louisiana
Inland Water Studies

36