

Engineering Report

PENNSYLVANIA COASTAL ZONE MANAGEMENT PROGRAM

**WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

SEPTEMBER 1996

Project: 2758-001

CZM Project No.: CZ1:94.06PE

**A REPORT OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
TO THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PURSUANT TO NOAA AWARD NO. - NA47OZ0248**



This project was financed through a Federal Coastal Zone Management Grant from the Pennsylvania Department of Environmental Protection with funds provided by the National Oceanic and Atmospheric Administration (NOAA). The views expressed herein are those of the author(s) and do not necessarily reflect the view of NOAA or any of its subagencies.

**MALCOLM
PIRNIE**

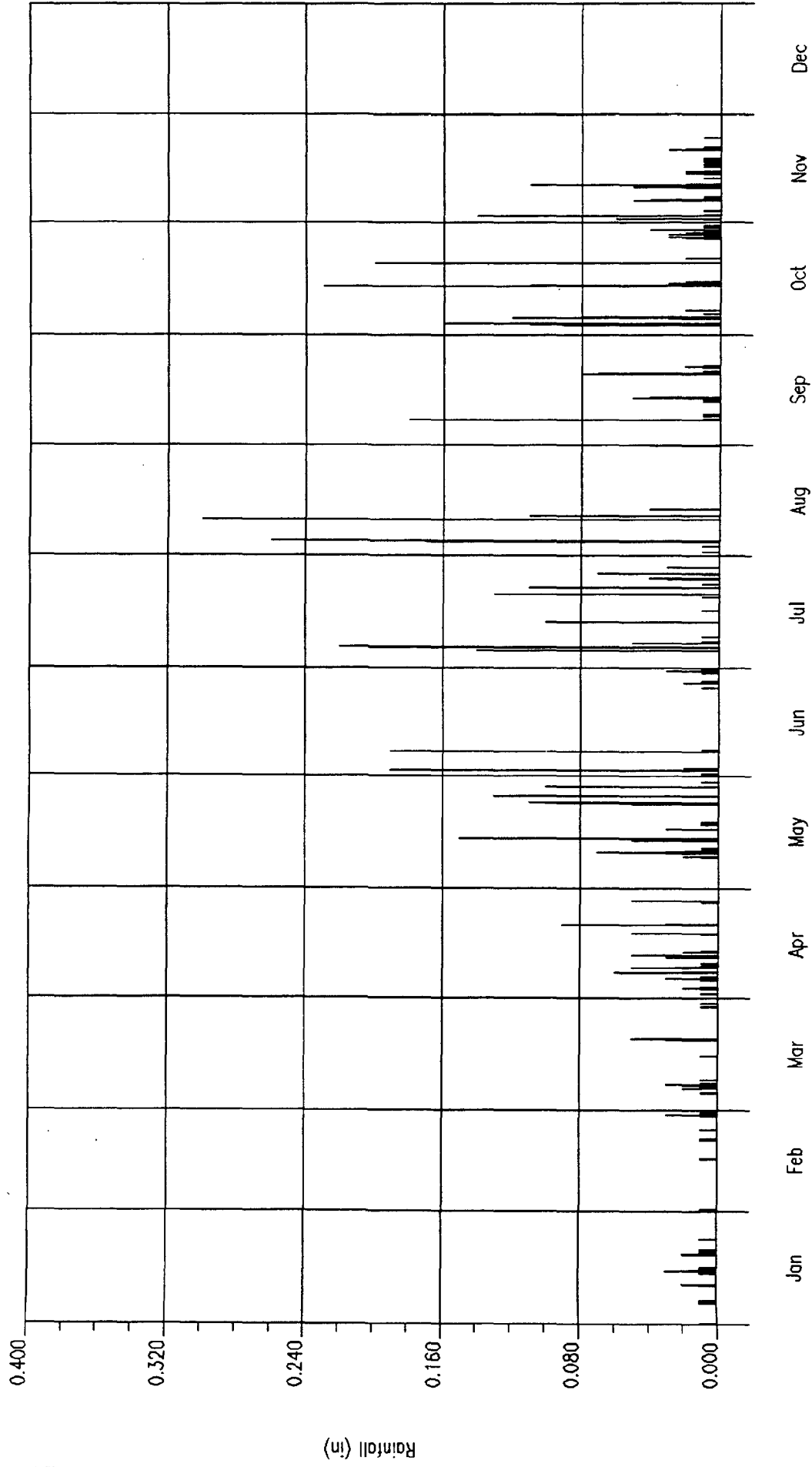
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

**APPENDIX A
PRECIPITATION DATA**

TD 225' .E7 435' 1996 4.3 6.2

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG1

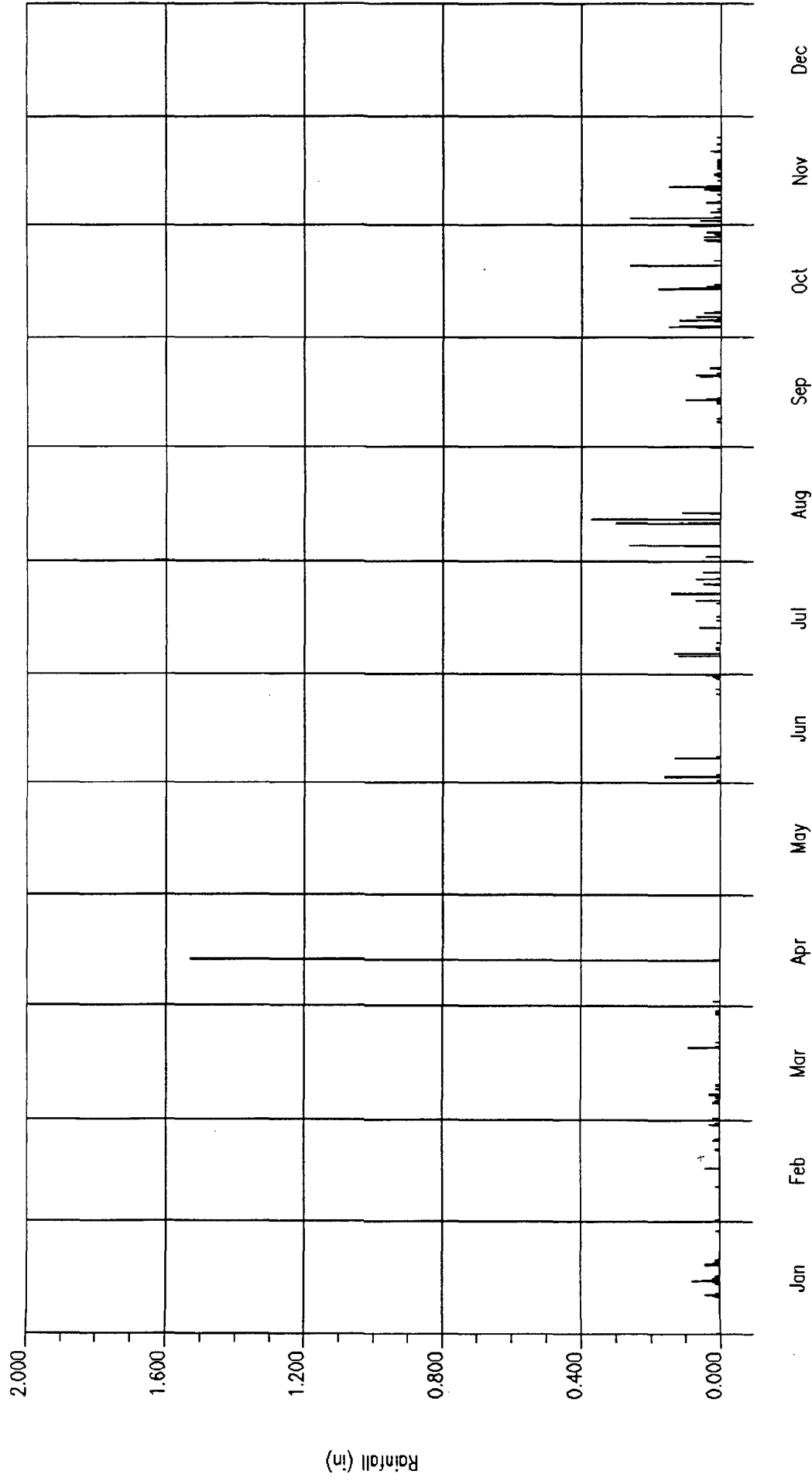


1995

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG2



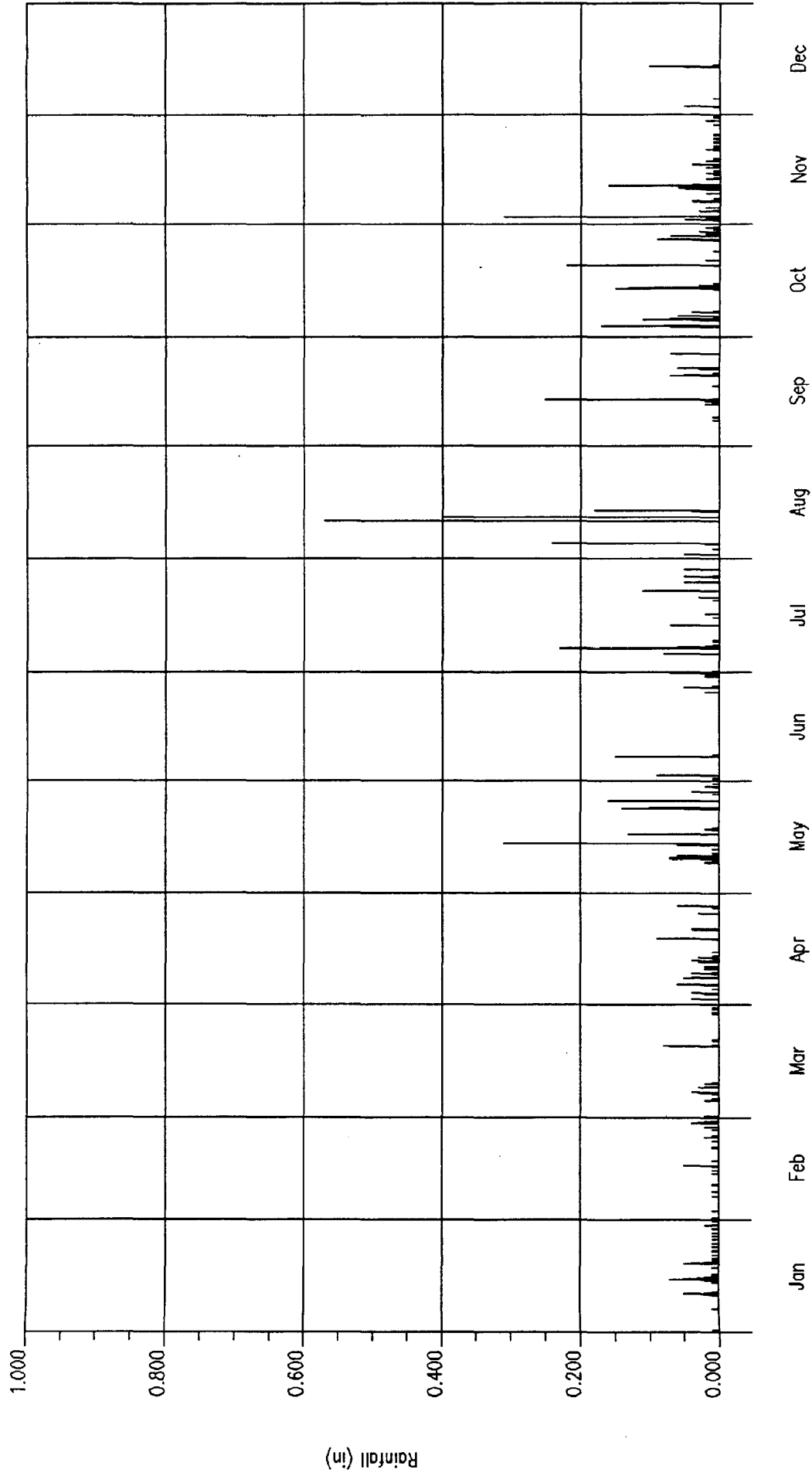
1995

12/18/95
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RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG3

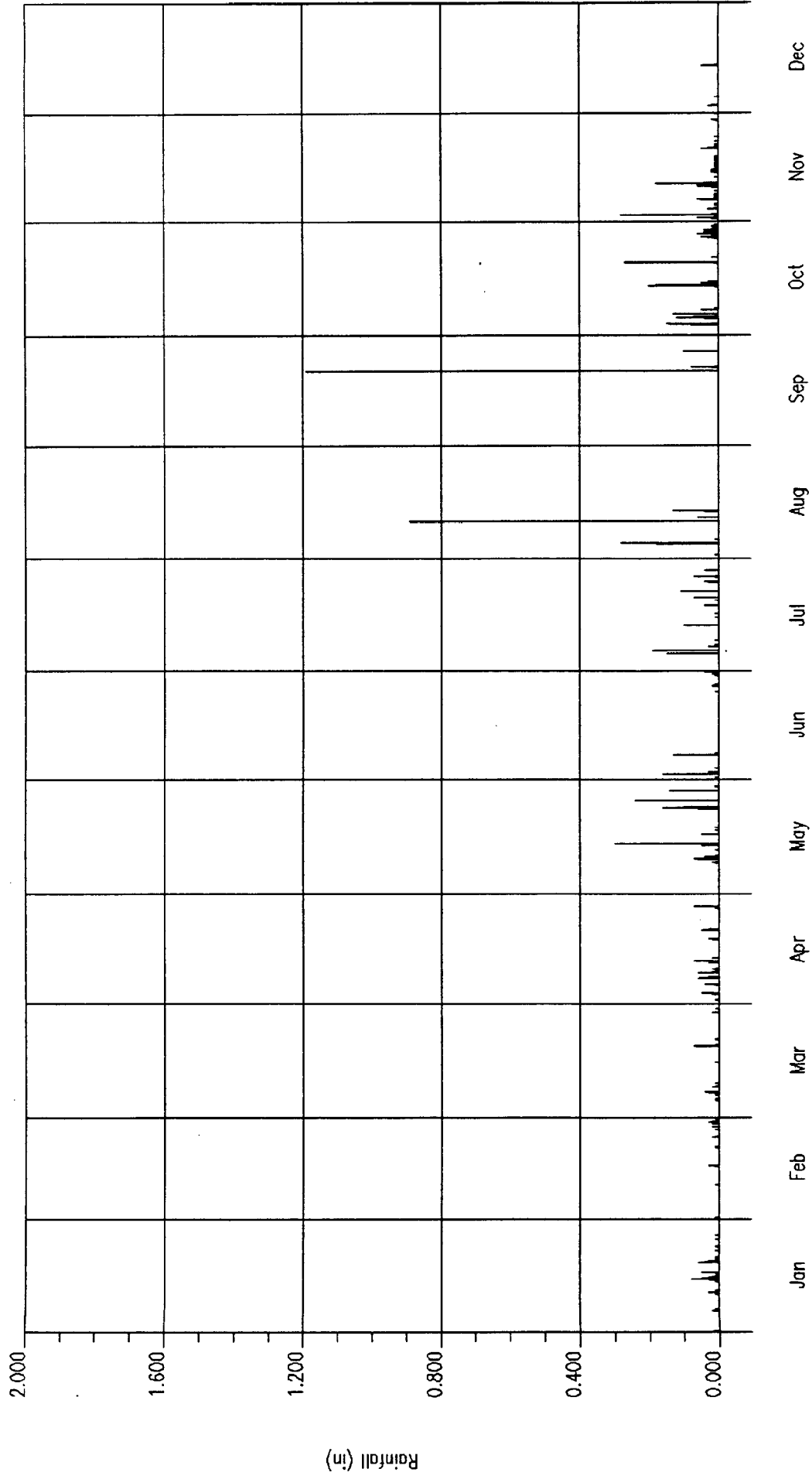


1995

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG4



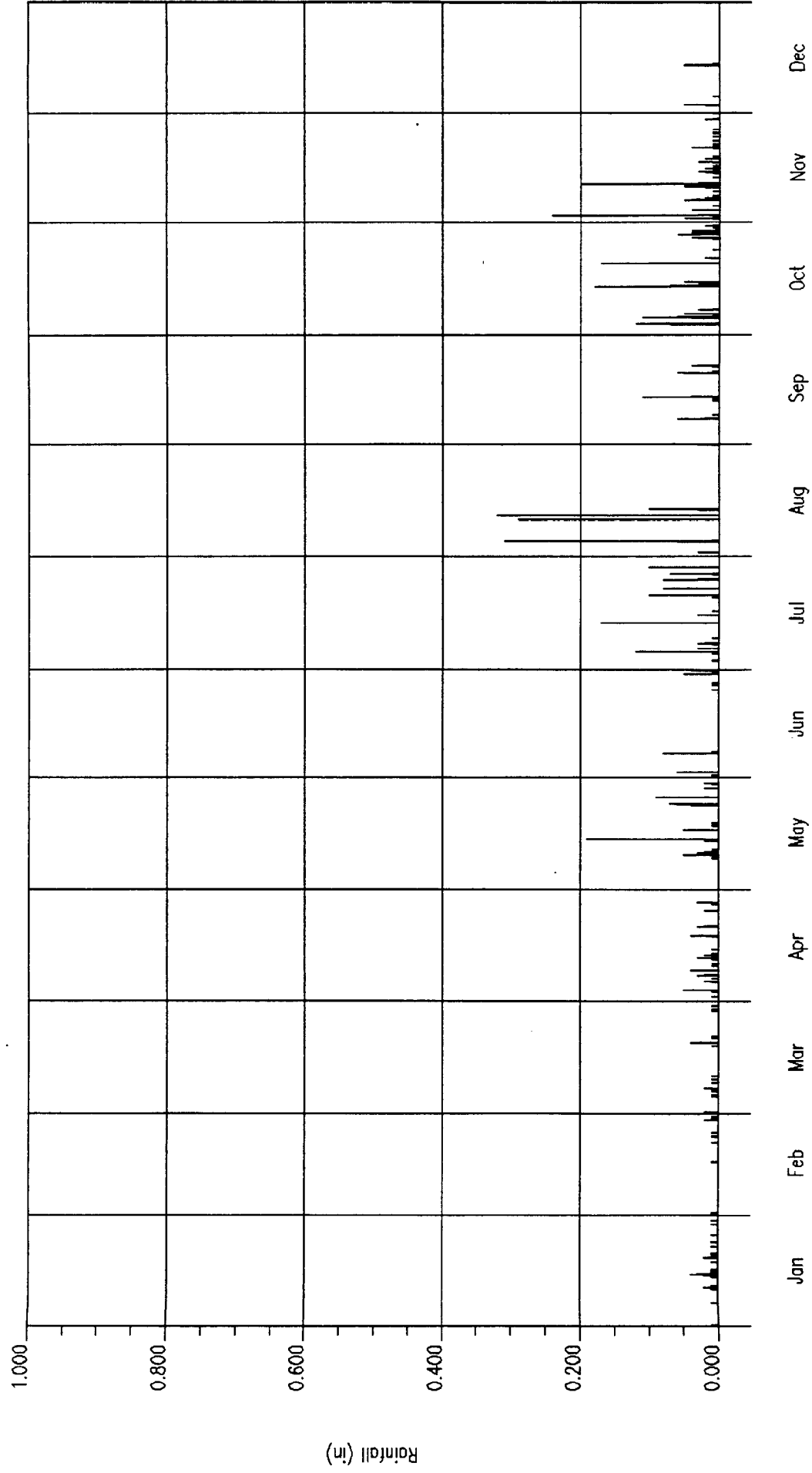
1995

12/15/95
15:11:22

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RGS

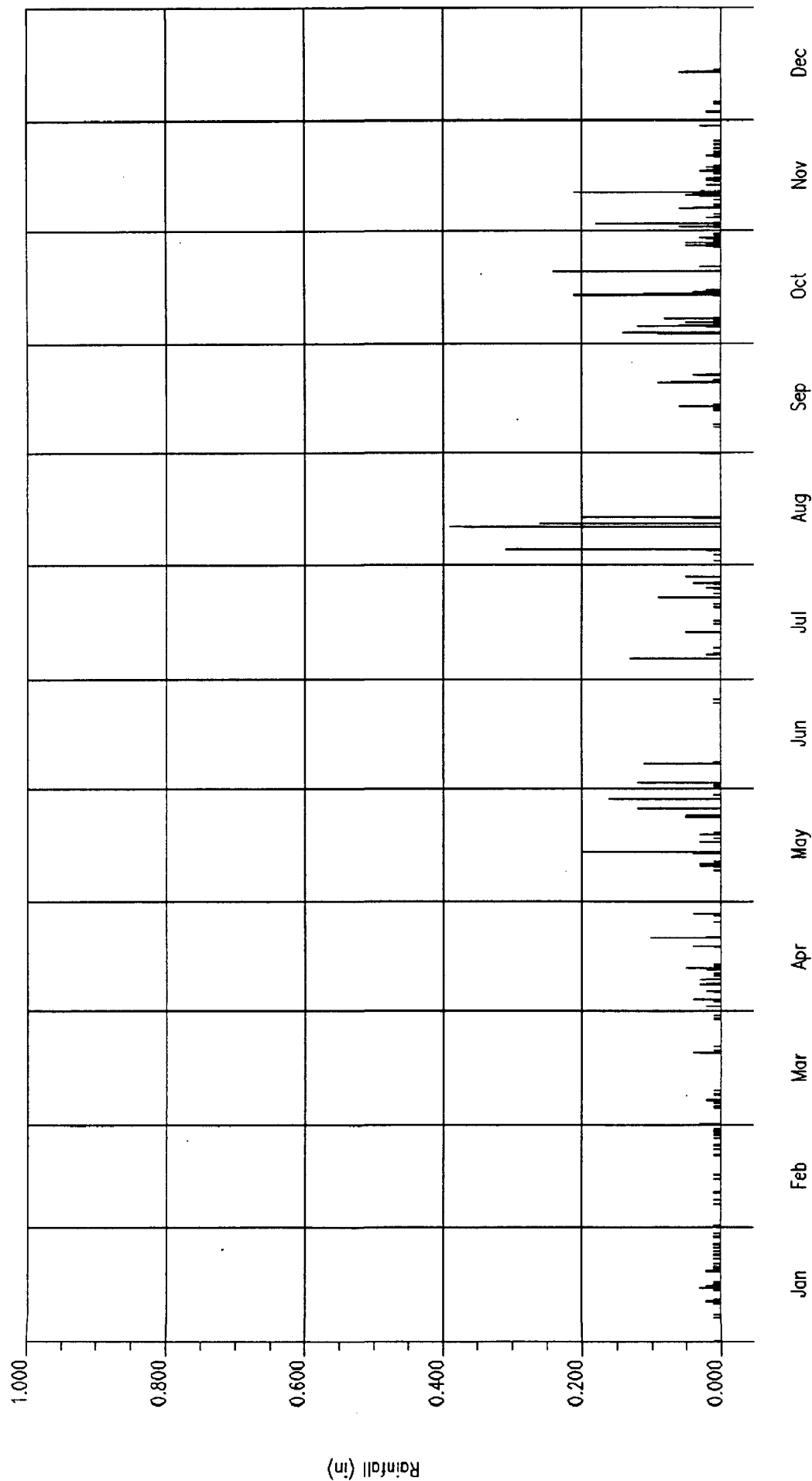


1995

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG6



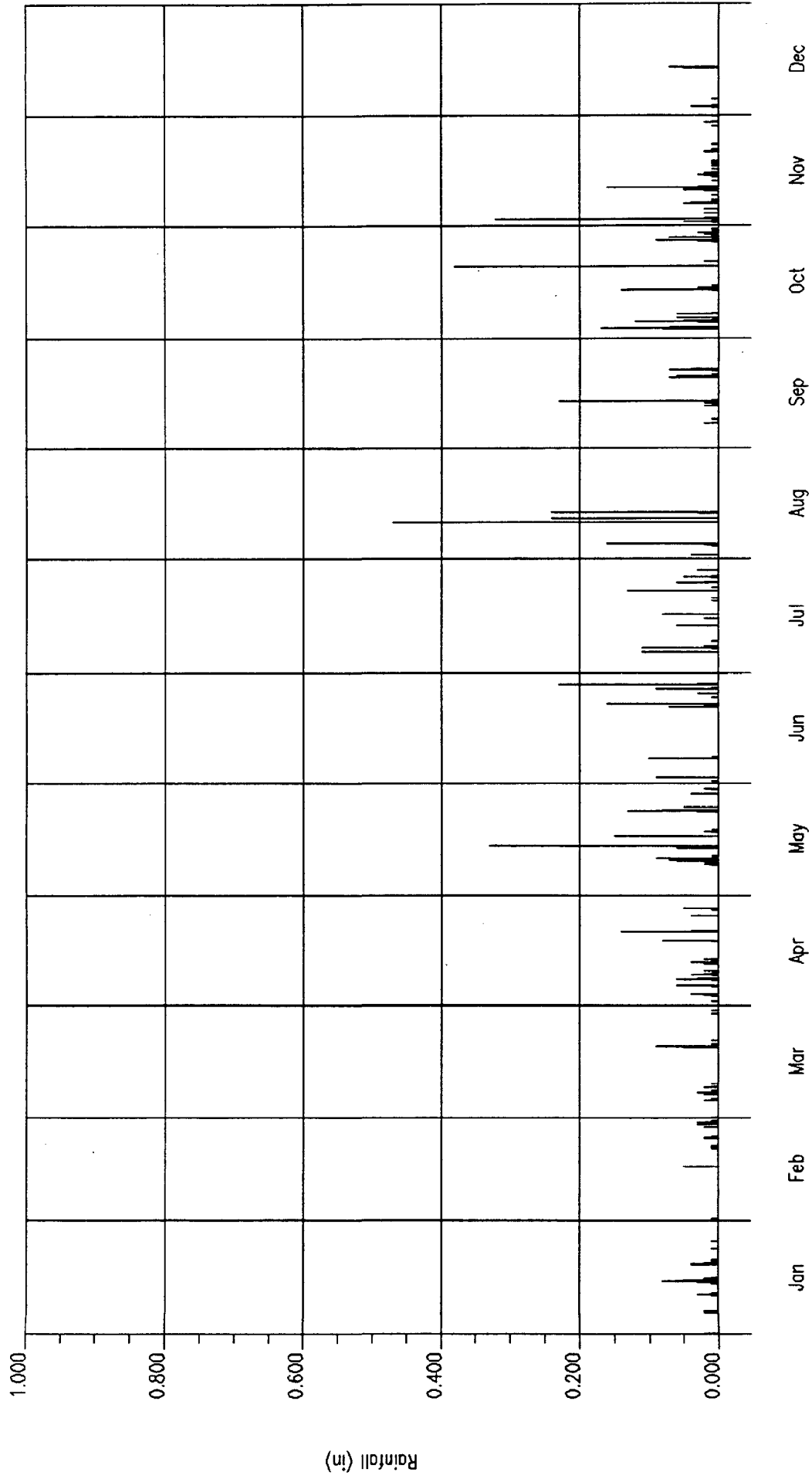
1995

12/11/95
10:13:28

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_RG7



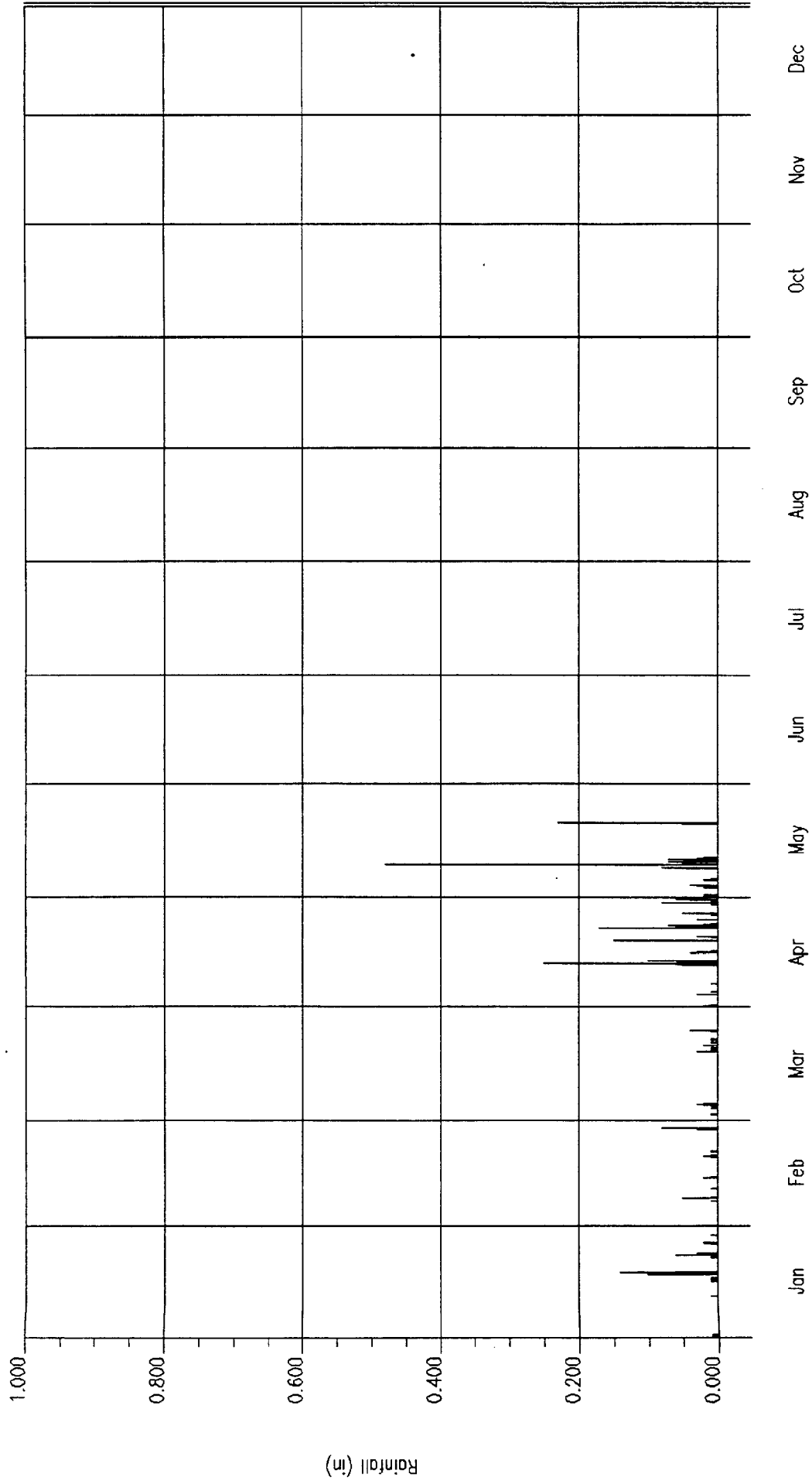
1995

12/14/95
15:13

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_01

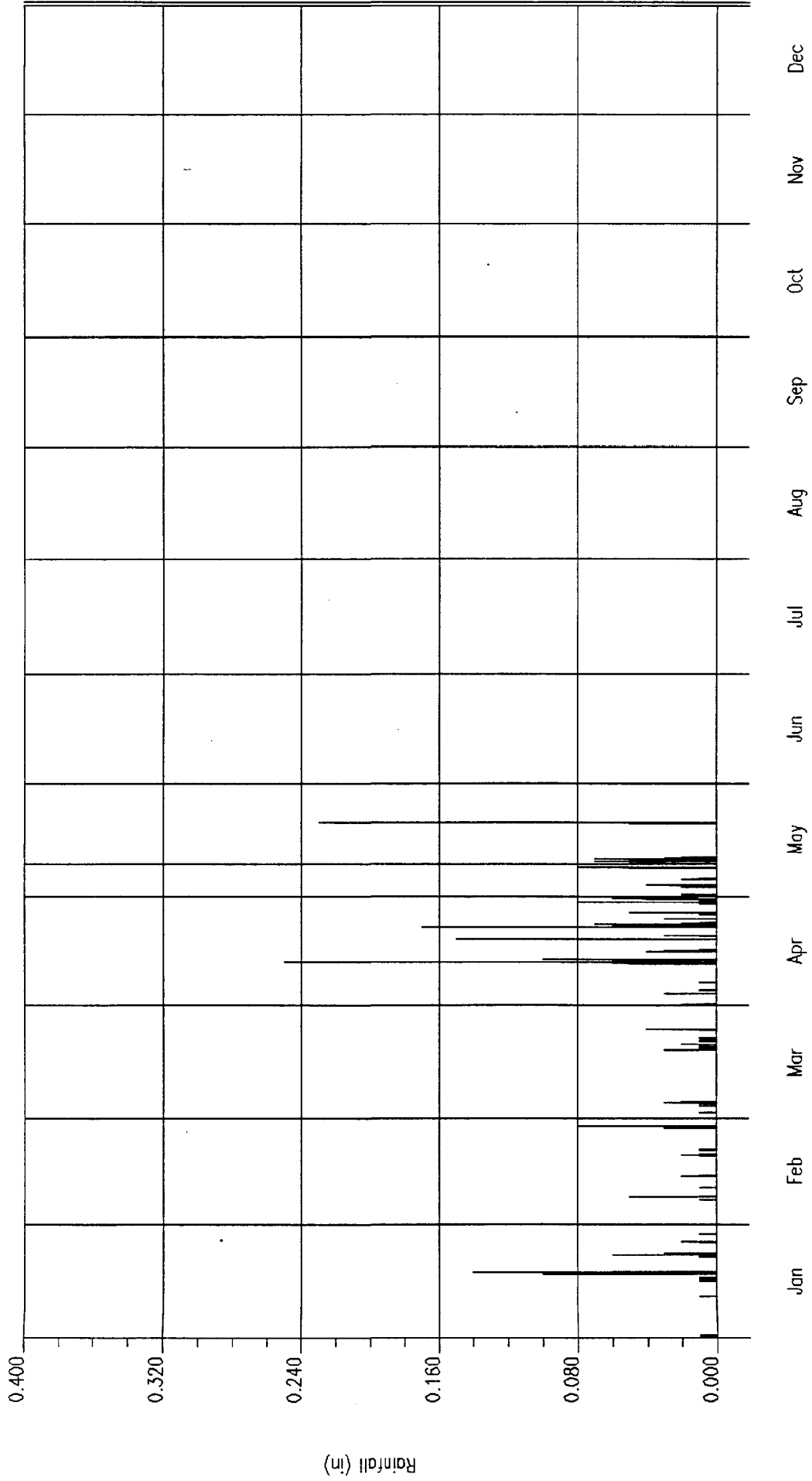


1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_01

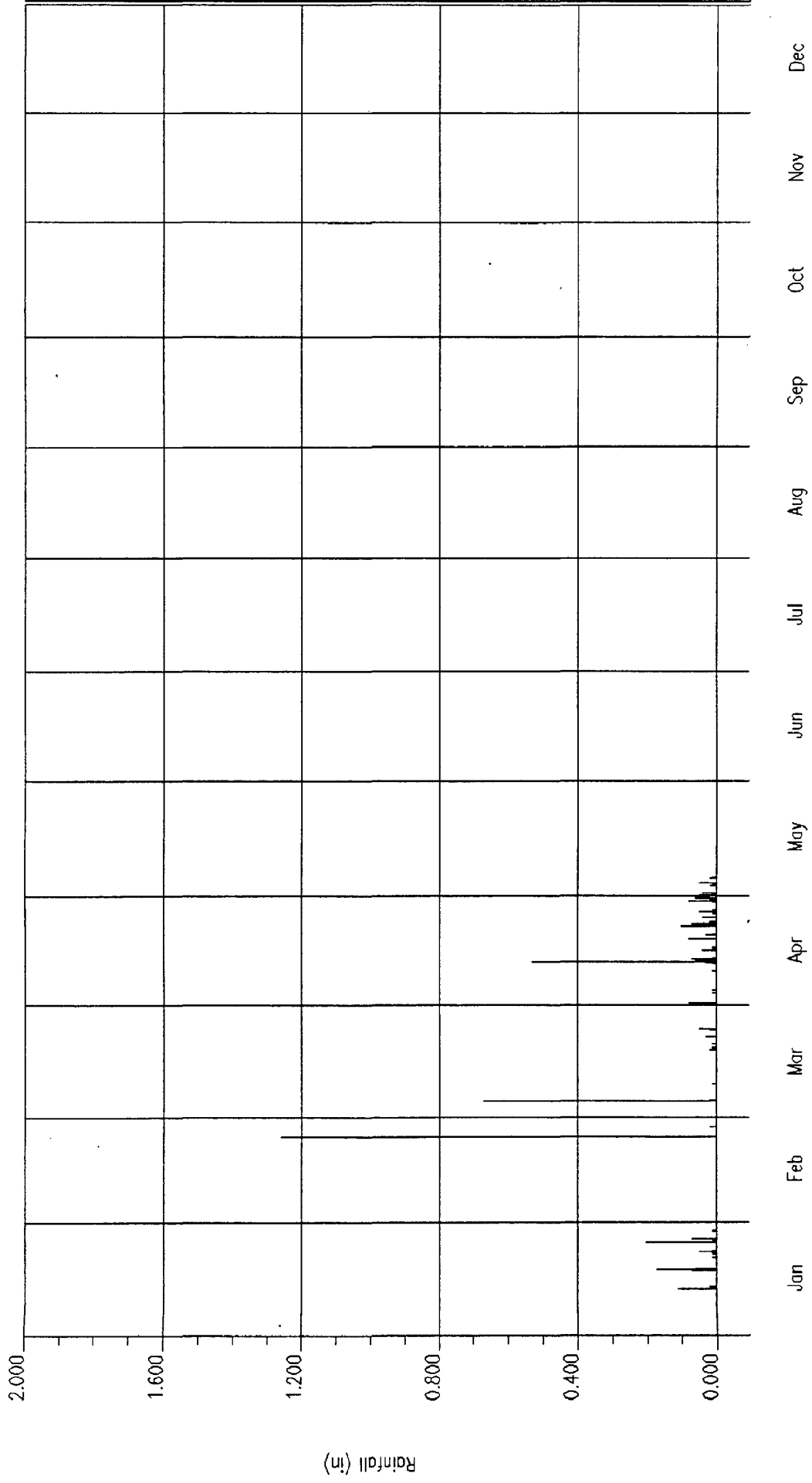


1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_02

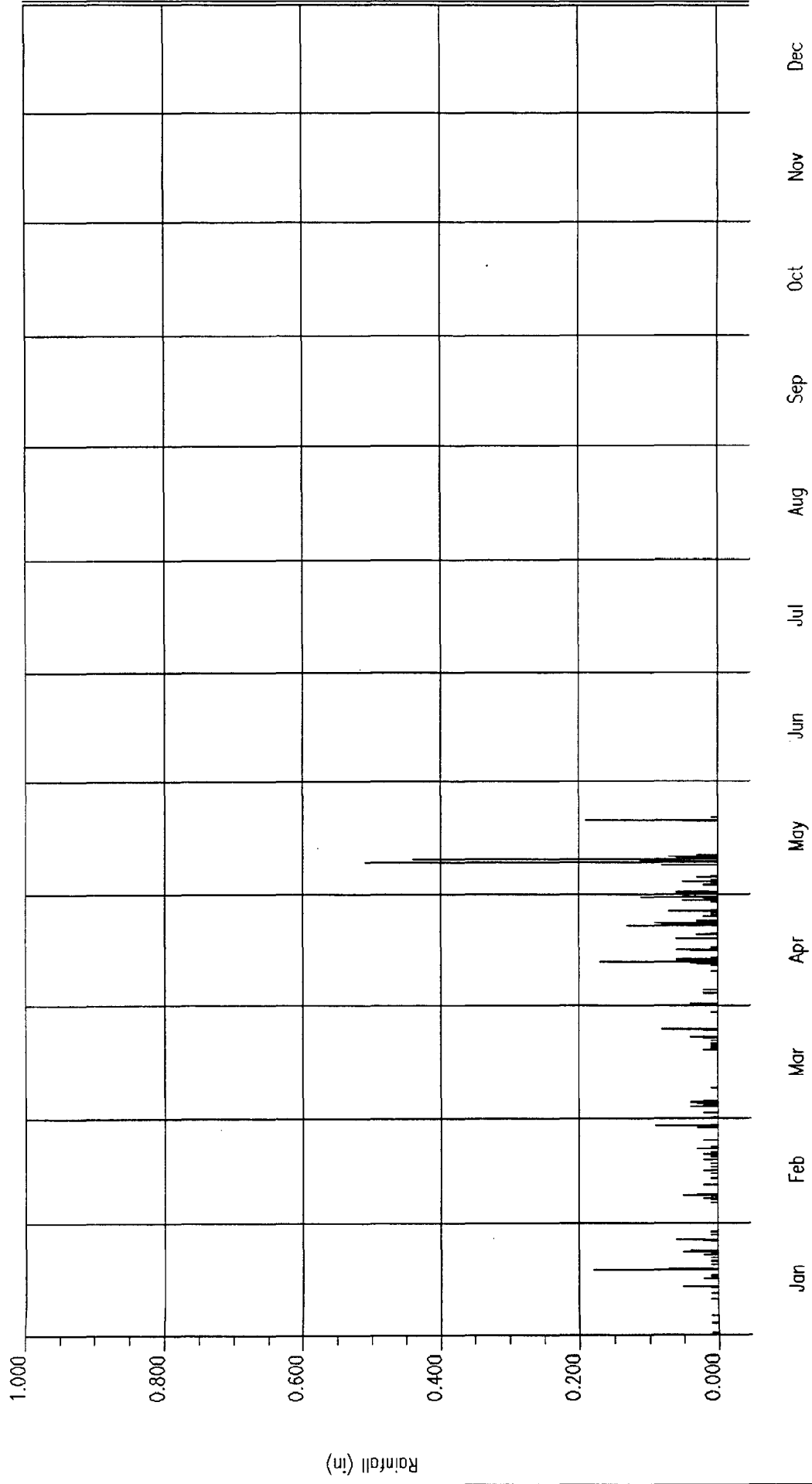


1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_03

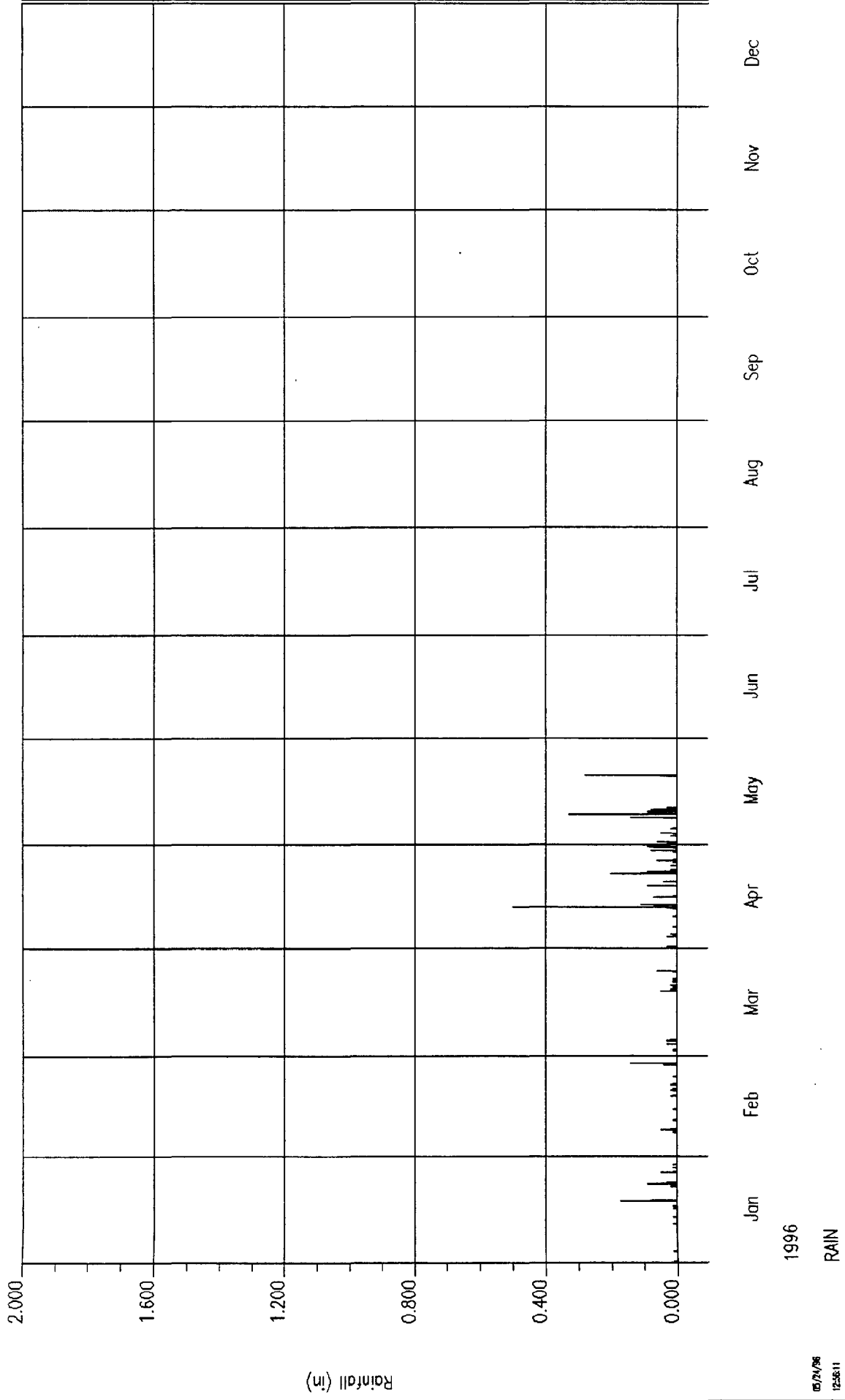


1996

RAIN

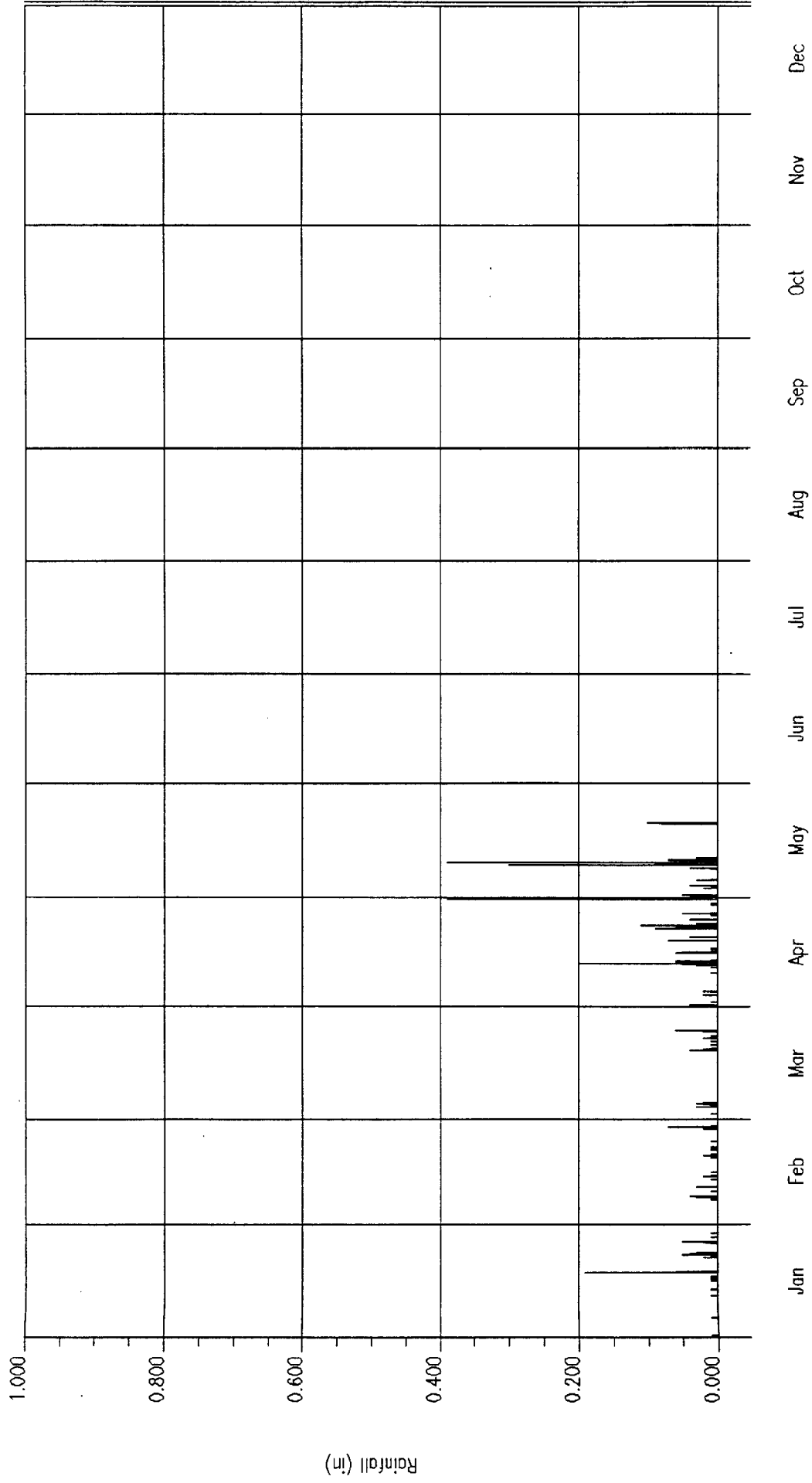
ADS ENVIRONMENTAL SERVICES, INC.

ERIE_04



ADS ENVIRONMENTAL SERVICES, INC.

ERIE_05

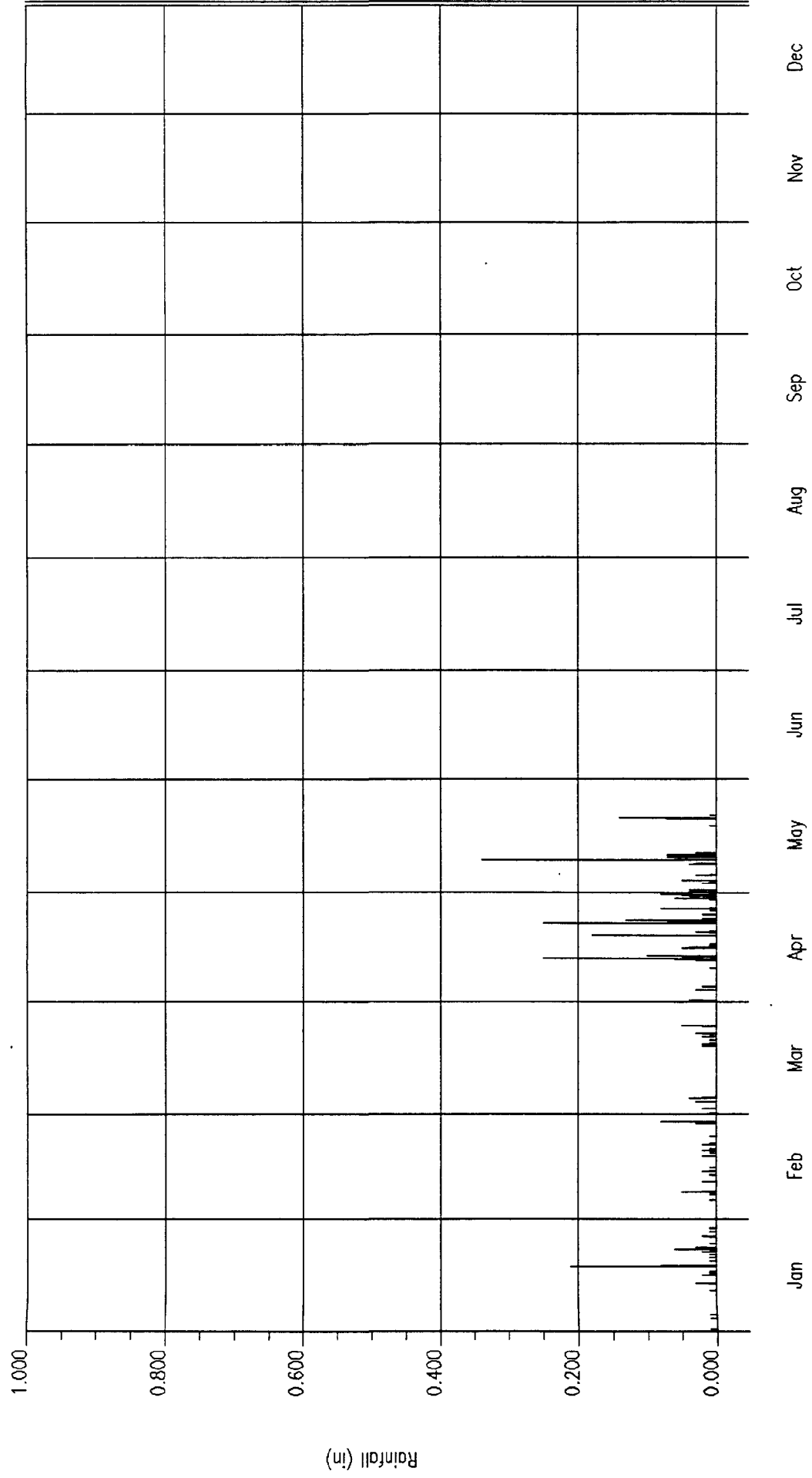


1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_06

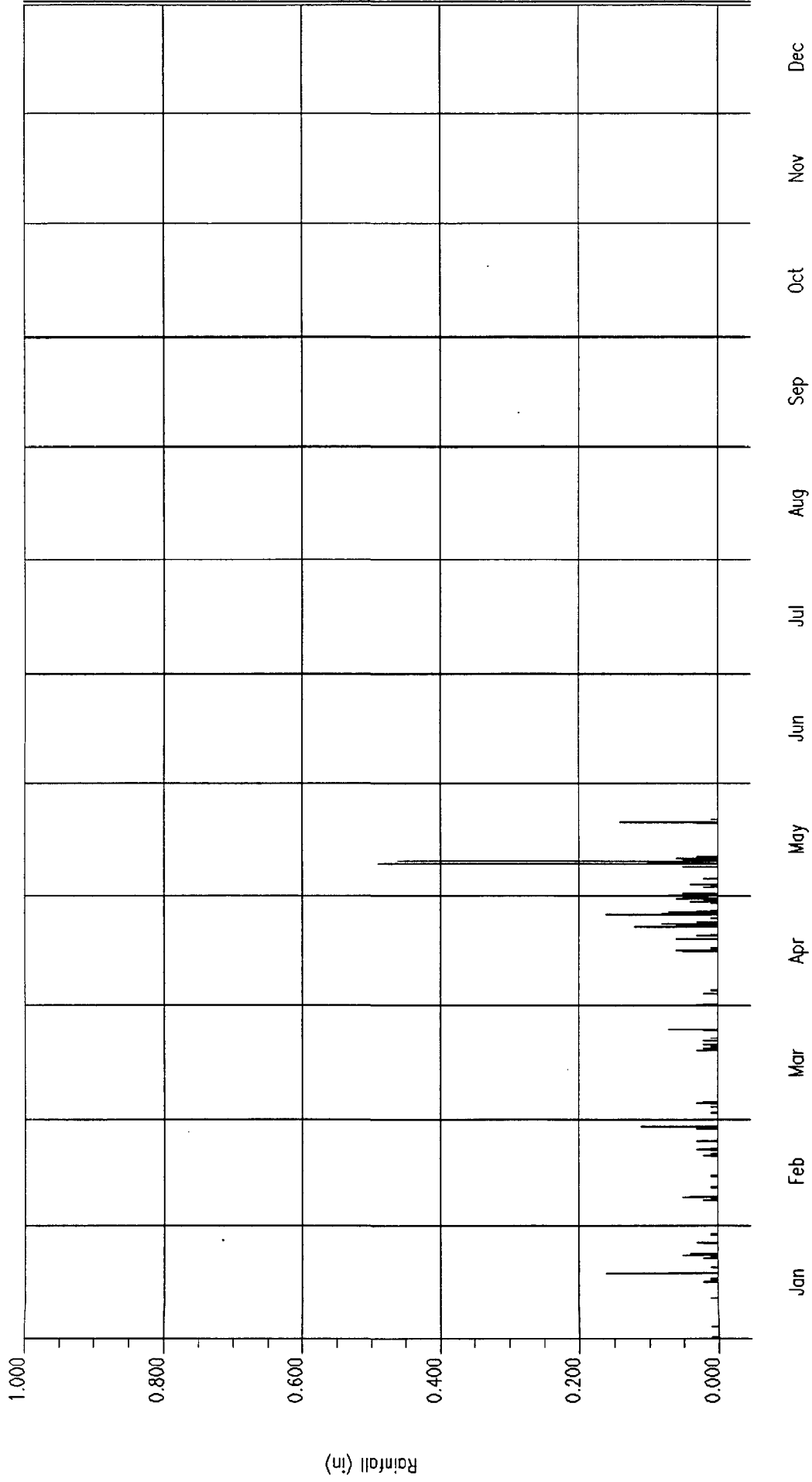


1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

ERIE_07



1996

RAIN

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in) =====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.11
05/10/95	0.23
05/11/95	0.23
05/12/95	0.02
05/13/95	
05/14/95	0.20
05/15/95	
05/16/95	
05/17/95	0.15
05/18/95	0.01
05/19/95	0.02
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.72
05/25/95	
05/26/95	0.13
05/27/95	
05/28/95	
05/29/95	0.24
05/30/95	0.03
05/31/95	

TIME OF REPORT: 07/11/95 12:32:24 TOTAL RAIN FOR MONTH: 2.09

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

TOTAL RAIN
(in)

=====

05/01/95
05/02/95
05/03/95
05/04/95
05/05/95
05/06/95
05/07/95
05/08/95
05/09/95
05/10/95
05/11/95
05/12/95
05/13/95
05/14/95
05/15/95
05/16/95
05/17/95
05/18/95
05/19/95
05/20/95
05/21/95
05/22/95
05/23/95
05/24/95
05/25/95
05/26/95
05/27/95
05/28/95
05/29/95
05/30/95
05/31/95

TIME OF REPORT: 07/11/95 12:58:59 TOTAL RAIN FOR MONTH: 0.00

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in)
	=====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.13
05/10/95	0.42
05/11/95	0.50
05/12/95	0.01
05/13/95	0.01
05/14/95	0.37
05/15/95	
05/16/95	
05/17/95	0.35
05/18/95	0.04
05/19/95	0.02
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.75
05/25/95	
05/26/95	0.16
05/27/95	
05/28/95	0.01
05/29/95	0.19
05/30/95	0.11
05/31/95	0.01

TIME OF REPORT: 07/12/95 12:01:52 TOTAL RAIN FOR MONTH: 3.08

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.11
05/10/95	0.36
05/11/95	0.29
05/12/95	
05/13/95	0.01
05/14/95	0.35
05/15/95	
05/16/95	
05/17/95	0.21
05/18/95	0.01
05/19/95	0.02
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.77
05/25/95	
05/26/95	0.24
05/27/95	
05/28/95	
05/29/95	0.33
05/30/95	0.07
05/31/95	

TIME OF REPORT: 07/11/95 12:59:02 TOTAL RAIN FOR MONTH: 2.77

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in) =====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.08
05/10/95	0.40
05/11/95	0.45
05/12/95	0.03
05/13/95	
05/14/95	0.27
05/15/95	
05/16/95	
05/17/95	0.35
05/18/95	0.02
05/19/95	0.03
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.73
05/25/95	
05/26/95	0.10
05/27/95	
05/28/95	
05/29/95	0.17
05/30/95	0.16
05/31/95	

TIME OF REPORT: 07/12/95 12:07:26 TOTAL RAIN FOR MONTH: 2.79

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.11
05/10/95	0.25
05/11/95	0.41
05/12/95	0.01
05/13/95	
05/14/95	0.29
05/15/95	
05/16/95	
05/17/95	0.20
05/18/95	0.01
05/19/95	0.04
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.77
05/25/95	
05/26/95	0.18
05/27/95	
05/28/95	
05/29/95	0.32
05/30/95	0.07
05/31/95	

TIME OF REPORT: 07/12/95 12:01:54 TOTAL RAIN FOR MONTH: 2.66

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
05/01/95	
05/02/95	
05/03/95	
05/04/95	
05/05/95	
05/06/95	
05/07/95	
05/08/95	
05/09/95	0.10
05/10/95	0.38
05/11/95	0.43
05/12/95	0.01
05/13/95	
05/14/95	0.40
05/15/95	
05/16/95	
05/17/95	0.39
05/18/95	0.04
05/19/95	0.02
05/20/95	
05/21/95	
05/22/95	
05/23/95	
05/24/95	0.67
05/25/95	0.09
05/26/95	
05/27/95	
05/28/95	
05/29/95	0.20
05/30/95	0.09
05/31/95	

TIME OF REPORT: 07/12/95 12:01:56 TOTAL RAIN FOR MONTH: 2.82

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in)
	=====
06/01/95	0.02
06/02/95	0.40
06/03/95	0.02
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.23
06/08/95	0.01
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	
06/25/95	0.03
06/26/95	0.04
06/27/95	0.02
06/28/95	
06/29/95	0.04
06/30/95	0.08

TIME OF REPORT: 07/12/95 12:01:58 TOTAL RAIN FOR MONTH: 0.89

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in)
	=====
06/01/95	0.02
06/02/95	0.37
06/03/95	0.01
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.21
06/08/95	0.01
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	
06/25/95	0.02
06/26/95	0.05
06/27/95	
06/28/95	
06/29/95	0.04
06/30/95	0.10

TIME OF REPORT: 07/12/95 12:02:01 TOTAL RAIN FOR MONTH: 0.83

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in)
	=====
06/01/95	0.04
06/02/95	0.18
06/03/95	
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.24
06/08/95	0.01
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	
06/25/95	0.05
06/26/95	0.17
06/27/95	0.02
06/28/95	
06/29/95	0.06
06/30/95	0.18

TIME OF REPORT: 07/12/95 12:02:03 TOTAL RAIN FOR MONTH: 0.95

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
06/01/95	0.02
06/02/95	0.45
06/03/95	0.04
06/04/95	0.01
06/05/95	
06/06/95	
06/07/95	0.17
06/08/95	0.02
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	
06/25/95	0.02
06/26/95	0.02
06/27/95	0.02
06/28/95	
06/29/95	0.04
06/30/95	0.08

TIME OF REPORT: 07/12/95 12:02:04 TOTAL RAIN FOR MONTH: 0.89

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in)
	=====
06/01/95	0.02
06/02/95	0.18
06/03/95	
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.22
06/08/95	0.03
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	
06/25/95	0.03
06/26/95	0.03
06/27/95	0.01
06/28/95	
06/29/95	0.09
06/30/95	0.12

TIME OF REPORT: 07/12/95 12:02:06 TOTAL RAIN FOR MONTH: 0.73

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
06/01/95	0.03
06/02/95	0.33
06/03/95	
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.22
06/08/95	0.01
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	
06/22/95	
06/23/95	
06/24/95	0.02
06/25/95	0.06
06/26/95	
06/27/95	
06/28/95	
06/29/95	
06/30/95	

TIME OF REPORT: 07/12/95 08:04:54 TOTAL RAIN FOR MONTH: 0.67

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in)
	=====
06/01/95	0.03
06/02/95	0.23
06/03/95	
06/04/95	
06/05/95	
06/06/95	
06/07/95	0.18
06/08/95	0.01
06/09/95	
06/10/95	
06/11/95	
06/12/95	
06/13/95	
06/14/95	
06/15/95	
06/16/95	
06/17/95	
06/18/95	
06/19/95	
06/20/95	
06/21/95	0.14
06/22/95	0.24
06/23/95	
06/24/95	0.01
06/25/95	0.06
06/26/95	0.18
06/27/95	0.01
06/28/95	0.43
06/29/95	
06/30/95	

TIME OF REPORT: 07/12/95 08:04:51 TOTAL RAIN FOR MONTH: 1.52

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.73
07/07/95	0.05
07/08/95	0.03
07/09/95	0.01
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.24
07/14/95	
07/15/95	
07/16/95	0.01
07/17/95	0.01
07/18/95	
07/19/95	
07/20/95	0.01
07/21/95	0.14
07/22/95	
07/23/95	0.22
07/24/95	0.01
07/25/95	0.12
07/26/95	
07/27/95	0.22
07/28/95	0.01
07/29/95	0.04
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:25 TOTAL RAIN FOR MONTH: 1.85

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.56
07/07/95	0.01
07/08/95	0.04
07/09/95	0.01
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.20
07/14/95	
07/15/95	0.01
07/16/95	0.01
07/17/95	
07/18/95	
07/19/95	
07/20/95	0.01
07/21/95	0.09
07/22/95	
07/23/95	0.22
07/24/95	
07/25/95	0.14
07/26/95	
07/27/95	0.22
07/28/95	
07/29/95	0.06
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 10:38:38 TOTAL RAIN FOR MONTH: 1.58

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in)
	=====
07/01/95	0.01
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.30
07/07/95	0.32
07/08/95	0.09
07/09/95	0.02
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.18
07/14/95	
07/15/95	0.02
07/16/95	0.05
07/17/95	
07/18/95	
07/19/95	
07/20/95	0.02
07/21/95	0.07
07/22/95	
07/23/95	0.22
07/24/95	
07/25/95	0.13
07/26/95	
07/27/95	0.20
07/28/95	
07/29/95	0.07
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:27 TOTAL RAIN FOR MONTH: 1.70

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.67
07/07/95	0.03
07/08/95	0.06
07/09/95	0.02
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.22
07/14/95	
07/15/95	0.01
07/16/95	0.02
07/17/95	
07/18/95	
07/19/95	0.05
07/20/95	0.03
07/21/95	0.17
07/22/95	
07/23/95	0.27
07/24/95	
07/25/95	0.13
07/26/95	
07/27/95	0.28
07/28/95	0.01
07/29/95	0.05
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:29 TOTAL RAIN FOR MONTH: 2.02

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	0.28
07/04/95	
07/05/95	0.25
07/06/95	0.50
07/07/95	0.02
07/08/95	0.12
07/09/95	0.02
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.28
07/14/95	
07/15/95	0.04
07/16/95	0.02
07/17/95	0.01
07/18/95	
07/19/95	
07/20/95	0.02
07/21/95	0.14
07/22/95	
07/23/95	0.17
07/24/95	
07/25/95	0.17
07/26/95	
07/27/95	0.32
07/28/95	
07/29/95	0.10
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:31 TOTAL RAIN FOR MONTH: 2.46

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.44
07/07/95	0.03
07/08/95	0.03
07/09/95	0.01
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.26
07/14/95	
07/15/95	
07/16/95	0.04
07/17/95	
07/18/95	
07/19/95	
07/20/95	0.02
07/21/95	0.07
07/22/95	
07/23/95	0.31
07/24/95	0.01
07/25/95	0.13
07/26/95	
07/27/95	0.25
07/28/95	
07/29/95	0.11
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:33 TOTAL RAIN FOR MONTH: 1.71

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
07/01/95	
07/02/95	
07/03/95	
07/04/95	
07/05/95	
07/06/95	0.24
07/07/95	0.15
07/08/95	0.11
07/09/95	0.01
07/10/95	
07/11/95	
07/12/95	
07/13/95	0.19
07/14/95	
07/15/95	0.03
07/16/95	0.11
07/17/95	
07/18/95	
07/19/95	
07/20/95	0.03
07/21/95	0.05
07/22/95	
07/23/95	0.21
07/24/95	0.01
07/25/95	0.15
07/26/95	
07/27/95	0.20
07/28/95	
07/29/95	0.04
07/30/95	
07/31/95	

TIME OF REPORT: 08/14/95 13:32:35 TOTAL RAIN FOR MONTH: 1.53

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in)
	=====
08/01/95	
08/02/95	0.01
08/03/95	0.02
08/04/95	
08/05/95	1.40
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	0.93
08/12/95	0.23
08/13/95	0.08
08/14/95	0.11
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	0.04

TIME OF REPORT: 12/16/95 17:35:45 TOTAL RAIN FOR MONTH: 2.82

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in) =====
08/01/95	
08/02/95	0.05
08/03/95	
08/04/95	
08/05/95	1.21
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	0.98
08/12/95	0.38
08/13/95	0.07
08/14/95	0.21
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	0.03

TIME OF REPORT: 12/16/95 17:58:00 TOTAL RAIN FOR MONTH: 2.93

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in)
	=====
08/01/95	
08/02/95	0.07
08/03/95	0.01
08/04/95	
08/05/95	1.00
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	1.25
08/12/95	0.47
08/13/95	0.08
08/14/95	0.27
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	

TIME OF REPORT: 12/16/95 17:58:02 TOTAL RAIN FOR MONTH: 3.15

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
08/01/95	
08/02/95	0.01
08/03/95	
08/04/95	
08/05/95	1.74
08/06/95	0.01
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	0.94
08/12/95	0.09
08/13/95	0.14
08/14/95	0.23
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	

TIME OF REPORT: 12/16/95 17:58:04 TOTAL RAIN FOR MONTH: 3.16

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in) *****
08/01/95	
08/02/95	0.07
08/03/95	
08/04/95	
08/05/95	1.29
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	0.92
08/12/95	0.36
08/13/95	0.11
08/14/95	0.19
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	0.03

TIME OF REPORT: 12/16/95 17:58:06 TOTAL RAIN FOR MONTH: 2.97

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
08/01/95	
08/02/95	0.03
08/03/95	0.04
08/04/95	
08/05/95	1.23
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	1.13
08/12/95	0.38
08/13/95	0.11
08/14/95	0.32
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	0.03

TIME OF REPORT: 12/16/95 17:58:08 TOTAL RAIN FOR MONTH: 3.27

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
08/01/95	
08/02/95	0.06
08/03/95	
08/04/95	0.01
08/05/95	0.80
08/06/95	
08/07/95	
08/08/95	
08/09/95	
08/10/95	
08/11/95	1.27
08/12/95	0.31
08/13/95	0.08
08/14/95	0.51
08/15/95	
08/16/95	
08/17/95	
08/18/95	
08/19/95	
08/20/95	
08/21/95	
08/22/95	
08/23/95	
08/24/95	
08/25/95	
08/26/95	
08/27/95	
08/28/95	
08/29/95	
08/30/95	
08/31/95	

TIME OF REPORT: 12/16/95 17:58:10 TOTAL RAIN FOR MONTH: 3.04

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.21
09/08/95	0.06
09/09/95	0.01
09/10/95	
09/11/95	
09/12/95	0.01
09/13/95	0.10
09/14/95	0.05
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	0.47
09/21/95	0.02
09/22/95	0.20
09/23/95	
09/24/95	
09/25/95	
09/26/95	
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:12 TOTAL RAIN FOR MONTH: 1.13

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.03
09/08/95	0.05
09/09/95	
09/10/95	
09/11/95	
09/12/95	0.01
09/13/95	0.19
09/14/95	0.06
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	0.43
09/21/95	0.03
09/22/95	0.34
09/23/95	
09/24/95	
09/25/95	
09/26/95	
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:14 TOTAL RAIN FOR MONTH: 1.14

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_R63

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.04
09/08/95	0.06
09/09/95	0.01
09/10/95	
09/11/95	
09/12/95	0.03
09/13/95	0.37
09/14/95	
09/15/95	
09/16/95	
09/17/95	0.01
09/18/95	
09/19/95	
09/20/95	0.44
09/21/95	0.04
09/22/95	0.46
09/23/95	
09/24/95	
09/25/95	
09/26/95	0.11
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:16 TOTAL RAIN FOR MONTH: 1.57

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	
09/08/95	
09/09/95	
09/10/95	
09/11/95	
09/12/95	
09/13/95	
09/14/95	
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	
09/21/95	1.19
09/22/95	0.35
09/23/95	
09/24/95	
09/25/95	
09/26/95	0.10
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:17 TOTAL RAIN FOR MONTH: 1.64

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.15
09/08/95	0.06
09/09/95	0.02
09/10/95	
09/11/95	
09/12/95	0.02
09/13/95	0.30
09/14/95	0.04
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	0.37
09/21/95	0.05
09/22/95	0.43
09/23/95	
09/24/95	
09/25/95	
09/26/95	
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:19 TOTAL RAIN FOR MONTH: 1.44

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.02
09/08/95	0.06
09/09/95	
09/10/95	
09/11/95	
09/12/95	0.02
09/13/95	0.17
09/14/95	0.03
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	0.49
09/21/95	0.02
09/22/95	0.36
09/23/95	
09/24/95	
09/25/95	
09/26/95	
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:21 TOTAL RAIN FOR MONTH: 1.17

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
09/01/95	
09/02/95	
09/03/95	
09/04/95	
09/05/95	
09/06/95	
09/07/95	0.04
09/08/95	0.06
09/09/95	0.02
09/10/95	
09/11/95	
09/12/95	0.02
09/13/95	0.38
09/14/95	
09/15/95	
09/16/95	
09/17/95	
09/18/95	
09/19/95	
09/20/95	0.43
09/21/95	0.04
09/22/95	0.46
09/23/95	
09/24/95	
09/25/95	
09/26/95	
09/27/95	
09/28/95	
09/29/95	
09/30/95	

TIME OF REPORT: 12/16/95 17:58:23 TOTAL RAIN FOR MONTH: 1.45

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.62
10/04/95	0.35
10/05/95	1.67
10/06/95	0.03
10/07/95	0.02
10/08/95	
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.69
10/15/95	0.32
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.69
10/21/95	
10/22/95	0.04
10/23/95	
10/24/95	
10/25/95	
10/26/95	
10/27/95	0.09
10/28/95	0.19
10/29/95	0.15
10/30/95	0.05
10/31/95	0.07

TIME OF REPORT: 12/16/95 17:58:25 TOTAL RAIN FOR MONTH: 4.98

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.58
10/04/95	0.30
10/05/95	1.44
10/06/95	0.15
10/07/95	0.14
10/08/95	0.04
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.73
10/15/95	0.38
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.85
10/21/95	
10/22/95	0.06
10/23/95	
10/24/95	
10/25/95	
10/26/95	
10/27/95	0.12
10/28/95	0.33
10/29/95	0.10
10/30/95	0.08
10/31/95	0.09

TIME OF REPORT: 12/16/95 17:58:26 TOTAL RAIN FOR MONTH: 5.39

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.64
10/04/95	0.31
10/05/95	1.76
10/06/95	0.16
10/07/95	0.18
10/08/95	0.02
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.79
10/15/95	0.38
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.90
10/21/95	
10/22/95	0.09
10/23/95	
10/24/95	0.01
10/25/95	
10/26/95	
10/27/95	0.17
10/28/95	0.41
10/29/95	0.17
10/30/95	0.05
10/31/95	0.09

TIME OF REPORT: 12/16/95 17:58:28 TOTAL RAIN FOR MONTH: 6.13

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.63
10/04/95	0.38
10/05/95	1.76
10/06/95	0.23
10/07/95	0.17
10/08/95	0.06
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.92
10/15/95	0.51
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	1.18
10/21/95	
10/22/95	0.07
10/23/95	
10/24/95	
10/25/95	
10/26/95	
10/27/95	0.12
10/28/95	0.30
10/29/95	0.28
10/30/95	0.08
10/31/95	0.09

TIME OF REPORT: 12/16/95 17:58:30 TOTAL RAIN FOR MONTH: 6.78

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RGS

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.57
10/04/95	0.32
10/05/95	1.64
10/06/95	0.17
10/07/95	0.12
10/08/95	0.04
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.80
10/15/95	0.38
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.91
10/21/95	
10/22/95	0.09
10/23/95	
10/24/95	0.01
10/25/95	
10/26/95	
10/27/95	0.16
10/28/95	0.34
10/29/95	0.25
10/30/95	0.07
10/31/95	0.08

TIME OF REPORT: 12/16/95 17:58:32 TOTAL RAIN FOR MONTH: 5.95

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.61
10/04/95	0.38
10/05/95	1.75
10/06/95	0.20
10/07/95	0.21
10/08/95	0.04
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.84
10/15/95	0.43
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.80
10/21/95	
10/22/95	0.06
10/23/95	
10/24/95	
10/25/95	
10/26/95	
10/27/95	0.09
10/28/95	0.33
10/29/95	0.12
10/30/95	0.06
10/31/95	0.08

TIME OF REPORT: 12/16/95 17:58:34 TOTAL RAIN FOR MONTH: 6.00

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
10/01/95	
10/02/95	
10/03/95	0.67
10/04/95	0.31
10/05/95	1.67
10/06/95	0.15
10/07/95	0.20
10/08/95	0.03
10/09/95	
10/10/95	
10/11/95	
10/12/95	
10/13/95	
10/14/95	0.80
10/15/95	0.34
10/16/95	
10/17/95	
10/18/95	
10/19/95	
10/20/95	0.76
10/21/95	
10/22/95	0.09
10/23/95	
10/24/95	
10/25/95	
10/26/95	
10/27/95	0.15
10/28/95	0.40
10/29/95	0.12
10/30/95	0.03
10/31/95	0.09

TIME OF REPORT: 12/16/95 17:58:35 TOTAL RAIN FOR MONTH: 5.81

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG1

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.52
11/03/95	0.01
11/04/95	0.05
11/05/95	
11/06/95	
11/07/95	0.51
11/08/95	0.01
11/09/95	
11/10/95	0.65
11/11/95	0.96
11/12/95	
11/13/95	0.02
11/14/95	0.27
11/15/95	0.31
11/16/95	0.02
11/17/95	0.06
11/18/95	0.12
11/19/95	
11/20/95	
11/21/95	0.32
11/22/95	
11/23/95	
11/24/95	0.01
11/25/95	
11/26/95	
11/27/95	
11/28/95	
11/29/95	
11/30/95	

TIME OF REPORT: 12/16/95 17:58:37 TOTAL RAIN FOR MONTH: 3.84

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG2

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.64
11/03/95	0.05
11/04/95	0.14
11/05/95	0.01
11/06/95	
11/07/95	0.49
11/08/95	
11/09/95	0.02
11/10/95	0.64
11/11/95	1.16
11/12/95	
11/13/95	0.02
11/14/95	0.26
11/15/95	0.31
11/16/95	0.03
11/17/95	0.07
11/18/95	0.17
11/19/95	0.01
11/20/95	
11/21/95	0.24
11/22/95	
11/23/95	0.02
11/24/95	
11/25/95	0.01
11/26/95	
11/27/95	
11/28/95	
11/29/95	
11/30/95	

TIME OF REPORT: 12/16/95 17:58:39 TOTAL RAIN FOR MONTH: 4.29

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG3

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.71
11/03/95	0.06
11/04/95	0.21
11/05/95	0.09
11/06/95	
11/07/95	0.50
11/08/95	0.03
11/09/95	0.05
11/10/95	0.69
11/11/95	1.43
11/12/95	
11/13/95	0.04
11/14/95	0.34
11/15/95	0.14
11/16/95	0.16
11/17/95	0.47
11/18/95	0.26
11/19/95	0.01
11/20/95	
11/21/95	0.22
11/22/95	0.10
11/23/95	0.07
11/24/95	0.04
11/25/95	0.13
11/26/95	
11/27/95	
11/28/95	0.01
11/29/95	0.07
11/30/95	0.02

TIME OF REPORT: 12/16/95 17:58:41 TOTAL RAIN FOR MONTH: 5.85

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG4

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.69
11/03/95	0.03
11/04/95	0.18
11/05/95	0.01
11/06/95	0.01
11/07/95	0.59
11/08/95	0.05
11/09/95	0.01
11/10/95	0.79
11/11/95	1.35
11/12/95	
11/13/95	0.04
11/14/95	0.33
11/15/95	0.62
11/16/95	0.12
11/17/95	0.07
11/18/95	0.18
11/19/95	0.02
11/20/95	
11/21/95	0.45
11/22/95	0.01
11/23/95	0.03
11/24/95	0.03
11/25/95	
11/26/95	
11/27/95	
11/28/95	
11/29/95	0.06
11/30/95	0.01

TIME OF REPORT: 12/16/95 17:58:43 TOTAL RAIN FOR MONTH: 5.68

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG5

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.59
11/03/95	0.07
11/04/95	0.20
11/05/95	0.03
11/06/95	
11/07/95	0.52
11/08/95	0.03
11/09/95	0.01
11/10/95	0.64
11/11/95	1.39
11/12/95	
11/13/95	0.02
11/14/95	0.40
11/15/95	0.21
11/16/95	0.04
11/17/95	0.34
11/18/95	0.26
11/19/95	0.02
11/20/95	
11/21/95	0.21
11/22/95	0.13
11/23/95	0.06
11/24/95	0.02
11/25/95	0.07
11/26/95	0.04
11/27/95	
11/28/95	
11/29/95	0.05
11/30/95	0.01

TIME OF REPORT: 12/16/95 17:58:45 TOTAL RAIN FOR MONTH: 5.36

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG6

RAIN

	TOTAL RAIN (in)
	=====
11/01/95	
11/02/95	0.64
11/03/95	0.02
11/04/95	0.16
11/05/95	0.02
11/06/95	
11/07/95	0.54
11/08/95	0.02
11/09/95	0.02
11/10/95	0.71
11/11/95	1.16
11/12/95	
11/13/95	0.05
11/14/95	0.33
11/15/95	0.34
11/16/95	0.07
11/17/95	0.24
11/18/95	0.24
11/19/95	0.01
11/20/95	
11/21/95	0.23
11/22/95	0.08
11/23/95	0.06
11/24/95	0.03
11/25/95	0.12
11/26/95	
11/27/95	
11/28/95	
11/29/95	0.07
11/30/95	

TIME OF REPORT: 12/16/95 17:58:46 TOTAL RAIN FOR MONTH: 5.16

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_RG7

RAIN

	TOTAL RAIN (in) =====
11/01/95	
11/02/95	0.68
11/03/95	0.05
11/04/95	0.08
11/05/95	0.03
11/06/95	
11/07/95	0.49
11/08/95	0.02
11/09/95	0.01
11/10/95	0.63
11/11/95	1.26
11/12/95	
11/13/95	0.02
11/14/95	0.37
11/15/95	0.45
11/16/95	0.04
11/17/95	0.03
11/18/95	0.16
11/19/95	0.01
11/20/95	
11/21/95	0.31
11/22/95	0.03
11/23/95	0.02
11/24/95	
11/25/95	
11/26/95	
11/27/95	
11/28/95	0.01
11/29/95	0.07
11/30/95	0.01

TIME OF REPORT: 12/16/95 17:58:48 TOTAL RAIN FOR MONTH: 4.78

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

TOTAL RAIN
(in)

=====

12/01/95
12/02/95
12/03/95
12/04/95
12/05/95
12/06/95
12/07/95
12/08/95
12/09/95
12/10/95
12/11/95
12/12/95
12/13/95
12/14/95
12/15/95
12/16/95
12/17/95
12/18/95
12/19/95
12/20/95
12/21/95
12/22/95
12/23/95
12/24/95
12/25/95
12/26/95
12/27/95
12/28/95
12/29/95
12/30/95
12/31/95

TIME OF REPORT: 05/13/96 15:07:23 TOTAL RAIN FOR MONTH: 0.00

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)

12/01/95	0.02
12/02/95	
12/03/95	0.07
12/04/95	
12/05/95	
12/06/95	
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	
12/15/95	
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	
12/22/95	
12/23/95	
12/24/95	
12/25/95	
12/26/95	
12/27/95	
12/28/95	
12/29/95	
12/30/95	
12/31/95	

TIME OF REPORT: 05/13/96 15:18:38 TOTAL RAIN FOR MONTH: 0.09

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)

12/01/95	0.04
12/02/95	
12/03/95	0.15
12/04/95	
12/05/95	0.02
12/06/95	
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	1.10
12/15/95	
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	
12/22/95	
12/23/95	
12/24/95	
12/25/95	
12/26/95	
12/27/95	
12/28/95	
12/29/95	
12/30/95	0.17
12/31/95	0.21

TIME OF REPORT: 05/13/96 15:19:04 TOTAL RAIN FOR MONTH: 1.69

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)
	=====
12/01/95	0.05
12/02/95	
12/03/95	0.12
12/04/95	
12/05/95	0.01
12/06/95	
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	0.81
12/15/95	
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	
12/22/95	0.02
12/23/95	
12/24/95	
12/25/95	0.06
12/26/95	
12/27/95	
12/28/95	
12/29/95	
12/30/95	
12/31/95	

TIME OF REPORT: 05/13/96 15:22:20 TOTAL RAIN FOR MONTH: 1.07

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)
	=====
12/01/95	0.04
12/02/95	
12/03/95	0.16
12/04/95	
12/05/95	0.02
12/06/95	
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	0.71
12/15/95	0.01
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	
12/22/95	
12/23/95	
12/24/95	
12/25/95	
12/26/95	
12/27/95	
12/28/95	
12/29/95	0.01
12/30/95	0.15
12/31/95	0.16

TIME OF REPORT: 05/13/96 15:24:27 TOTAL RAIN FOR MONTH: 1.26

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)
	=====
12/01/95	0.03
12/02/95	
12/03/95	0.11
12/04/95	
12/05/95	0.01
12/06/95	0.01
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	0.35
12/15/95	0.01
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	0.03
12/22/95	
12/23/95	
12/24/95	
12/25/95	0.01
12/26/95	
12/27/95	
12/28/95	0.06
12/29/95	0.03
12/30/95	0.13
12/31/95	0.14

TIME OF REPORT: 05/13/96 15:20:04 TOTAL RAIN FOR MONTH: 0.92

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)

12/01/95	0.03
12/02/95	
12/03/95	0.12
12/04/95	
12/05/95	0.01
12/06/95	
12/07/95	
12/08/95	
12/09/95	
12/10/95	
12/11/95	
12/12/95	
12/13/95	
12/14/95	0.67
12/15/95	
12/16/95	
12/17/95	
12/18/95	
12/19/95	
12/20/95	
12/21/95	0.03
12/22/95	0.04
12/23/95	
12/24/95	
12/25/95	
12/26/95	
12/27/95	0.01
12/28/95	0.07
12/29/95	
12/30/95	0.02
12/31/95	0.08

TIME OF REPORT: 05/13/96 15:20:13 TOTAL RAIN FOR MONTH: 1.08

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

	TOTAL RAIN (in)
	=====
01/01/96	0.02
01/02/96	
01/03/96	
01/04/96	
01/05/96	
01/06/96	
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	0.01
01/13/96	
01/14/96	
01/15/96	
01/16/96	0.01
01/17/96	0.05
01/18/96	0.11
01/19/96	0.66
01/20/96	
01/21/96	
01/22/96	
01/23/96	0.36
01/24/96	0.32
01/25/96	
01/26/96	
01/27/96	0.08
01/28/96	
01/29/96	0.01
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:06:43 TOTAL RAIN FOR MONTH: 1.63

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)
	=====
01/01/96	
01/02/96	
01/03/96	
01/04/96	
01/05/96	
01/06/96	
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	
01/13/96	0.11
01/14/96	0.09
01/15/96	
01/16/96	
01/17/96	
01/18/96	0.08
01/19/96	0.79
01/20/96	
01/21/96	
01/22/96	0.02
01/23/96	0.36
01/24/96	0.21
01/25/96	
01/26/96	0.20
01/27/96	0.15
01/28/96	
01/29/96	0.02
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:25:36 TOTAL RAIN FOR MONTH: 2.03

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)

01/01/96	0.15
01/02/96	
01/03/96	
01/04/96	0.03
01/05/96	
01/06/96	0.03
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	0.01
01/12/96	0.02
01/13/96	
01/14/96	0.26
01/15/96	
01/16/96	0.02
01/17/96	0.11
01/18/96	0.01
01/19/96	0.90
01/20/96	0.02
01/21/96	0.08
01/22/96	0.01
01/23/96	0.40
01/24/96	0.44
01/25/96	
01/26/96	0.01
01/27/96	0.19
01/28/96	0.02
01/29/96	0.08
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:26:24 TOTAL RAIN FOR MONTH: 2.79

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)

01/01/96	0.03
01/02/96	
01/03/96	
01/04/96	0.01
01/05/96	
01/06/96	
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	0.03
01/13/96	
01/14/96	0.02
01/15/96	
01/16/96	0.01
01/17/96	0.07
01/18/96	
01/19/96	0.98
01/20/96	
01/21/96	
01/22/96	
01/23/96	0.48
01/24/96	0.41
01/25/96	
01/26/96	
01/27/96	0.19
01/28/96	0.01
01/29/96	0.07
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:27:04 TOTAL RAIN FOR MONTH: 2.31

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)
	=====
01/01/96	0.04
01/02/96	
01/03/96	
01/04/96	
01/05/96	
01/06/96	0.01
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	0.01
01/13/96	
01/14/96	0.04
01/15/96	
01/16/96	0.02
01/17/96	0.08
01/18/96	
01/19/96	0.91
01/20/96	
01/21/96	
01/22/96	
01/23/96	0.37
01/24/96	0.38
01/25/96	
01/26/96	0.01
01/27/96	0.15
01/28/96	0.01
01/29/96	0.04
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:27:59 TOTAL RAIN FOR MONTH: 2.07

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)

01/01/96	0.02
01/02/96	
01/03/96	
01/04/96	0.01
01/05/96	0.01
01/06/96	
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	0.03
01/13/96	
01/14/96	0.13
01/15/96	
01/16/96	0.02
01/17/96	0.08
01/18/96	0.01
01/19/96	0.84
01/20/96	0.01
01/21/96	0.01
01/22/96	0.01
01/23/96	0.43
01/24/96	0.36
01/25/96	0.01
01/26/96	
01/27/96	0.08
01/28/96	0.02
01/29/96	0.09
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:28:39 TOTAL RAIN FOR MONTH: 2.17

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)

01/01/96	0.02
01/02/96	
01/03/96	
01/04/96	0.01
01/05/96	
01/06/96	
01/07/96	
01/08/96	
01/09/96	
01/10/96	
01/11/96	
01/12/96	0.03
01/13/96	
01/14/96	
01/15/96	
01/16/96	0.02
01/17/96	0.08
01/18/96	0.02
01/19/96	0.84
01/20/96	0.01
01/21/96	
01/22/96	
01/23/96	0.38
01/24/96	0.41
01/25/96	
01/26/96	
01/27/96	0.12
01/28/96	
01/29/96	0.06
01/30/96	
01/31/96	

TIME OF REPORT: 05/13/96 15:29:07 TOTAL RAIN FOR MONTH: 2.00

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	
02/07/96	0.05
02/08/96	0.36
02/09/96	
02/10/96	
02/11/96	0.02
02/12/96	
02/13/96	
02/14/96	0.06
02/15/96	
02/16/96	
02/17/96	
02/18/96	
02/19/96	0.02
02/20/96	0.31
02/21/96	0.12
02/22/96	
02/23/96	
02/24/96	
02/25/96	
02/26/96	
02/27/96	0.45
02/28/96	0.03
02/29/96	

TIME OF REPORT: 05/13/96 15:08:01 TOTAL RAIN FOR MONTH: 1.42

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	
02/07/96	
02/08/96	
02/09/96	
02/10/96	
02/11/96	
02/12/96	
02/13/96	
02/14/96	
02/15/96	
02/16/96	
02/17/96	
02/18/96	
02/19/96	
02/20/96	
02/21/96	
02/22/96	
02/23/96	
02/24/96	1.26
02/25/96	
02/26/96	
02/27/96	0.05
02/28/96	
02/29/96	

TIME OF REPORT: 05/13/96 15:31:22 TOTAL RAIN FOR MONTH: 1.31

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	0.10
02/07/96	0.24
02/08/96	0.63
02/09/96	
02/10/96	
02/11/96	0.12
02/12/96	
02/13/96	0.06
02/14/96	0.05
02/15/96	0.12
02/16/96	0.02
02/17/96	0.01
02/18/96	0.03
02/19/96	0.06
02/20/96	0.38
02/21/96	0.13
02/22/96	0.01
02/23/96	
02/24/96	0.05
02/25/96	
02/26/96	
02/27/96	0.49
02/28/96	0.08
02/29/96	

TIME OF REPORT: 05/13/96 15:32:01 TOTAL RAIN FOR MONTH: 2.58

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)
	=====
02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	
02/07/96	0.07
02/08/96	0.55
02/09/96	
02/10/96	
02/11/96	0.11
02/12/96	
02/13/96	
02/14/96	0.10
02/15/96	
02/16/96	
02/17/96	
02/18/96	0.03
02/19/96	0.04
02/20/96	0.28
02/21/96	0.09
02/22/96	0.01
02/23/96	
02/24/96	0.01
02/25/96	
02/26/96	
02/27/96	0.56
02/28/96	0.05
02/29/96	

TIME OF REPORT: 05/13/96 15:33:53 TOTAL RAIN FOR MONTH: 1.90

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	
02/07/96	0.07
02/08/96	0.53
02/09/96	
02/10/96	0.01
02/11/96	0.08
02/12/96	
02/13/96	0.01
02/14/96	0.06
02/15/96	0.03
02/16/96	
02/17/96	
02/18/96	
02/19/96	0.08
02/20/96	0.33
02/21/96	0.06
02/22/96	0.02
02/23/96	
02/24/96	0.01
02/25/96	
02/26/96	
02/27/96	0.43
02/28/96	0.07
02/29/96	

TIME OF REPORT: 05/13/96 17:01:33 TOTAL RAIN FOR MONTH: 1.79

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	0.03
02/07/96	0.08
02/08/96	0.48
02/09/96	
02/10/96	
02/11/96	0.11
02/12/96	
02/13/96	0.02
02/14/96	0.11
02/15/96	0.01
02/16/96	
02/17/96	
02/18/96	0.03
02/19/96	0.08
02/20/96	0.28
02/21/96	0.20
02/22/96	0.01
02/23/96	
02/24/96	0.01
02/25/96	
02/26/96	
02/27/96	0.51
02/28/96	0.04
02/29/96	

TIME OF REPORT: 05/13/96 15:32:48 TOTAL RAIN FOR MONTH: 2.00

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)

02/01/96	
02/02/96	
02/03/96	
02/04/96	
02/05/96	
02/06/96	
02/07/96	0.08
02/08/96	0.56
02/09/96	
02/10/96	
02/11/96	0.06
02/12/96	
02/13/96	
02/14/96	0.03
02/15/96	
02/16/96	
02/17/96	
02/18/96	
02/19/96	0.02
02/20/96	0.30
02/21/96	0.17
02/22/96	0.01
02/23/96	
02/24/96	0.04
02/25/96	
02/26/96	
02/27/96	0.51
02/28/96	0.06
02/29/96	

TIME OF REPORT: 05/13/96 17:02:05 TOTAL RAIN FOR MONTH: 1.84

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

	TOTAL RAIN (in)

03/01/96	
03/02/96	0.03
03/03/96	
03/04/96	0.03
03/05/96	0.60
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.12
03/20/96	0.23
03/21/96	0.05
03/22/96	0.02
03/23/96	0.03
03/24/96	
03/25/96	0.07
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 15:08:23 TOTAL RAIN FOR MONTH: 1.18

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)
	=====
03/01/96	
03/02/96	
03/03/96	
03/04/96	
03/05/96	1.07
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	0.01
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.10
03/20/96	0.18
03/21/96	0.01
03/22/96	
03/23/96	0.13
03/24/96	
03/25/96	0.10
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 17:03:48 TOTAL RAIN FOR MONTH: 1.60

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)
03/01/96	0.02
03/02/96	0.03
03/03/96	
03/04/96	0.36
03/05/96	0.73
03/06/96	
03/07/96	
03/08/96	
03/09/96	0.01
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.13
03/20/96	0.10
03/21/96	0.07
03/22/96	0.13
03/23/96	0.45
03/24/96	
03/25/96	0.14
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	0.01
03/31/96	

TIME OF REPORT: 05/13/96 17:04:38 TOTAL RAIN FOR MONTH: 2.18

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)

03/01/96	
03/02/96	0.06
03/03/96	
03/04/96	0.23
03/05/96	0.73
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.20
03/20/96	0.49
03/21/96	0.10
03/22/96	0.10
03/23/96	0.05
03/24/96	
03/25/96	0.12
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 17:05:13 TOTAL RAIN FOR MONTH: 2.08

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)

03/01/96	
03/02/96	0.03
03/03/96	
03/04/96	0.14
03/05/96	0.44
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.20
03/20/96	0.09
03/21/96	0.01
03/22/96	0.10
03/23/96	0.29
03/24/96	0.01
03/25/96	0.11
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 17:05:41 TOTAL RAIN FOR MONTH: 1.42

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)

03/01/96	0.01
03/02/96	0.05
03/03/96	
03/04/96	0.24
03/05/96	0.50
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.13
03/20/96	0.20
03/21/96	0.08
03/22/96	0.20
03/23/96	0.22
03/24/96	
03/25/96	0.10
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 17:07:22 TOTAL RAIN FOR MONTH: 1.73

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)

03/01/96	
03/02/96	0.03
03/03/96	
03/04/96	0.01
03/05/96	0.57
03/06/96	
03/07/96	
03/08/96	
03/09/96	
03/10/96	
03/11/96	
03/12/96	
03/13/96	
03/14/96	
03/15/96	
03/16/96	
03/17/96	
03/18/96	
03/19/96	0.14
03/20/96	0.34
03/21/96	0.11
03/22/96	0.06
03/23/96	0.01
03/24/96	
03/25/96	0.13
03/26/96	
03/27/96	
03/28/96	
03/29/96	
03/30/96	
03/31/96	

TIME OF REPORT: 05/13/96 17:06:12 TOTAL RAIN FOR MONTH: 1.40

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

	TOTAL RAIN (in)
	=====
04/01/96	0.22
04/02/96	
04/03/96	
04/04/96	0.11
04/05/96	0.02
04/06/96	
04/07/96	0.01
04/08/96	
04/09/96	
04/10/96	
04/11/96	
04/12/96	0.65
04/13/96	0.64
04/14/96	
04/15/96	0.36
04/16/96	0.14
04/17/96	
04/18/96	
04/19/96	0.35
04/20/96	0.18
04/21/96	
04/22/96	0.51
04/23/96	1.33
04/24/96	0.04
04/25/96	
04/26/96	0.13
04/27/96	
04/28/96	
04/29/96	0.39
04/30/96	0.51

TIME OF REPORT: 05/13/96 15:08:49 TOTAL RAIN FOR MONTH: 5.59

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)
	=====
04/01/96	0.27
04/02/96	
04/03/96	
04/04/96	0.05
04/05/96	0.07
04/06/96	
04/07/96	
04/08/96	
04/09/96	
04/10/96	0.01
04/11/96	
04/12/96	0.87
04/13/96	0.59
04/14/96	
04/15/96	0.36
04/16/96	0.23
04/17/96	
04/18/96	
04/19/96	0.26
04/20/96	0.17
04/21/96	
04/22/96	0.58
04/23/96	1.39
04/24/96	0.05
04/25/96	
04/26/96	0.15
04/27/96	
04/28/96	
04/29/96	0.33
04/30/96	0.67

TIME OF REPORT: 05/13/96 17:08:24 TOTAL RAIN FOR MONTH: 6.05

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)

04/01/96	0.32
04/02/96	
04/03/96	
04/04/96	0.09
04/05/96	0.06
04/06/96	
04/07/96	
04/08/96	
04/09/96	
04/10/96	0.02
04/11/96	0.01
04/12/96	0.59
04/13/96	0.66
04/14/96	
04/15/96	0.42
04/16/96	0.32
04/17/96	
04/18/96	
04/19/96	0.25
04/20/96	0.24
04/21/96	
04/22/96	0.55
04/23/96	1.66
04/24/96	0.04
04/25/96	0.01
04/26/96	0.20
04/27/96	
04/28/96	
04/29/96	0.34
04/30/96	0.77

TIME OF REPORT: 05/13/96 17:09:26 TOTAL RAIN FOR MONTH: 6.55

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)

04/01/96	0.31
04/02/96	
04/03/96	
04/04/96	0.16
04/05/96	0.03
04/06/96	
04/07/96	0.02
04/08/96	
04/09/96	
04/10/96	0.01
04/11/96	
04/12/96	0.86
04/13/96	0.79
04/14/96	
04/15/96	0.39
04/16/96	0.21
04/17/96	
04/18/96	
04/19/96	0.33
04/20/96	0.21
04/21/96	
04/22/96	0.72
04/23/96	1.49
04/24/96	0.03
04/25/96	
04/26/96	0.16
04/27/96	
04/28/96	0.01
04/29/96	0.49
04/30/96	0.73

TIME OF REPORT: 05/13/96 17:09:57 TOTAL RAIN FOR MONTH: 6.95

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)

04/01/96	0.29
04/02/96	0.03
04/03/96	
04/04/96	0.09
04/05/96	0.03
04/06/96	
04/07/96	
04/08/96	
04/09/96	
04/10/96	0.02
04/11/96	0.01
04/12/96	0.59
04/13/96	0.62
04/14/96	
04/15/96	0.39
04/16/96	0.27
04/17/96	0.01
04/18/96	
04/19/96	0.24
04/20/96	0.21
04/21/96	
04/22/96	0.49
04/23/96	1.79
04/24/96	0.05
04/25/96	
04/26/96	0.15
04/27/96	
04/28/96	
04/29/96	0.07
04/30/96	0.92

TIME OF REPORT: 05/13/96 17:11:05 TOTAL RAIN FOR MONTH: 6.27

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)

04/01/96	0.26
04/02/96	
04/03/96	
04/04/96	0.13
04/05/96	0.07
04/06/96	
04/07/96	
04/08/96	
04/09/96	
04/10/96	0.03
04/11/96	
04/12/96	0.63
04/13/96	0.67
04/14/96	
04/15/96	0.38
04/16/96	0.23
04/17/96	
04/18/96	
04/19/96	0.36
04/20/96	0.21
04/21/96	
04/22/96	0.64
04/23/96	1.63
04/24/96	0.03
04/25/96	
04/26/96	0.22
04/27/96	
04/28/96	0.01
04/29/96	0.36
04/30/96	0.68

TIME OF REPORT: 05/13/96 17:11:30 TOTAL RAIN FOR MONTH: 6.54

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)

04/01/96	0.29
04/02/96	
04/03/96	
04/04/96	0.10
04/05/96	0.04
04/06/96	
04/07/96	
04/08/96	
04/09/96	
04/10/96	
04/11/96	
04/12/96	
04/13/96	
04/14/96	
04/15/96	0.38
04/16/96	0.31
04/17/96	
04/18/96	
04/19/96	0.25
04/20/96	0.19
04/21/96	
04/22/96	0.52
04/23/96	1.55
04/24/96	0.01
04/25/96	0.53
04/26/96	0.83
04/27/96	
04/28/96	0.01
04/29/96	0.29
04/30/96	0.69

TIME OF REPORT: 05/13/96 17:12:02 TOTAL RAIN FOR MONTH: 5.99

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_01

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.10
05/02/96	
05/03/96	0.08
05/04/96	0.23
05/05/96	0.12
05/06/96	
05/07/96	
05/08/96	0.14
05/09/96	0.87
05/10/96	0.45
05/11/96	0.99
05/12/96	0.01
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	0.40
05/22/96	
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:39:11 TOTAL RAIN FOR MONTH: 3.39

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_02

RAIN

	TOTAL RAIN (in)

05/01/96	0.17
05/02/96	
05/03/96	0.08
05/04/96	0.20
05/05/96	0.10
05/06/96	
05/07/96	
05/08/96	
05/09/96	
05/10/96	
05/11/96	
05/12/96	
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	
05/22/96	
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/14/96 10:45:07 TOTAL RAIN FOR MONTH: 0.55

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_03

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.26
05/02/96	
05/03/96	0.11
05/04/96	0.22
05/05/96	0.12
05/06/96	0.01
05/07/96	
05/08/96	0.09
05/09/96	0.81
05/10/96	1.03
05/11/96	1.19
05/12/96	0.01
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	0.42
05/22/96	0.01
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:40:21 TOTAL RAIN FOR MONTH: 4.28

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_04

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.17
05/02/96	
05/03/96	0.09
05/04/96	0.23
05/05/96	0.14
05/06/96	0.01
05/07/96	
05/08/96	0.23
05/09/96	0.64
05/10/96	0.57
05/11/96	1.21
05/12/96	0.02
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	0.52
05/22/96	
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:41:10 TOTAL RAIN FOR MONTH: 3.83

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_05

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.20
05/02/96	
05/03/96	0.11
05/04/96	0.23
05/05/96	0.13
05/06/96	0.01
05/07/96	
05/08/96	0.08
05/09/96	0.62
05/10/96	0.86
05/11/96	1.32
05/12/96	0.03
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	0.44
05/22/96	
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:42:07 TOTAL RAIN FOR MONTH: 4.03

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_06

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.17
05/02/96	
05/03/96	0.09
05/04/96	0.23
05/05/96	0.12
05/06/96	0.01
05/07/96	
05/08/96	0.09
05/09/96	0.81
05/10/96	0.57
05/11/96	1.11
05/12/96	0.01
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	0.01
05/20/96	
05/21/96	0.36
05/22/96	0.01
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:42:54 TOTAL RAIN FOR MONTH: 3.59

ADS ENVIRONMENTAL SERVICES, INC.

LOCATION: ERIE_07

RAIN

	TOTAL RAIN (in)
	=====
05/01/96	0.23
05/02/96	
05/03/96	0.10
05/04/96	0.20
05/05/96	0.10
05/06/96	0.02
05/07/96	
05/08/96	0.07
05/09/96	0.85
05/10/96	1.03
05/11/96	1.10
05/12/96	0.01
05/13/96	
05/14/96	
05/15/96	
05/16/96	
05/17/96	
05/18/96	
05/19/96	
05/20/96	
05/21/96	0.33
05/22/96	0.01
05/23/96	
05/24/96	
05/25/96	
05/26/96	
05/27/96	
05/28/96	
05/29/96	
05/30/96	
05/31/96	

TIME OF REPORT: 05/24/96 12:44:01 TOTAL RAIN FOR MONTH: 4.05

APPENDIX B
ANALYTICAL RESULTS

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **01D**

PESTICIDES/PCBs

Date Event Units	June 14, 1995 01D (µg/L)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC	<0.02	<0.0004	n/a	n/a	
beta-BHC	<0.02	<0.0004	n/a	n/a	
delta-BHC	<0.02	<0.0004	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0004			0.001 (X)
Heptachlor	<0.04	<0.0008			0.001 (X)
Aldrin	<0.4	<0.008			0.001 (X)
Heptachlor epoxide	<0.02	<0.0004	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0002	0.056	0.22	
Dieldrin	<0.5	<0.010			0.001 (X)
4,4'-DDE	<0.01	<0.0002	0.001	1.1	
Endrin	<0.01	<0.0002			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0002	0.056	0.22	
4,4'-DDD	<0.01	<0.0002	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0002	n/a	n/a	
4,4'-DDT	<0.01	<0.0002	0.001	1.1	
alpha-Chlordane	<0.2	<0.004			** (X)
gamma-Chlordane	<0.2	<0.004			** (X)
Toxaphene	<1.0	<0.020			0.008 (X)
Endrin Aldehyde	<0.01	<0.0002	n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 3.72 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **01D**

INORGANICS

Date Event Units	June 14, 1995 01D (µg/L)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<2.01			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<0.060	219	1,095		
Arsenic [total]	<0.001	<0.0201	190(As3+)	360(As3+)		
Beryllium [total]	<0.005	<0.100	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0201			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<1.00	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.00020	11	16		
Copper \$ [total]	<0.001	<0.0201	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.62	0.00			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.0201	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	<0.01	<0.00020			1 mg/l	2
Mercury [total]	<0.0002	<0.0040			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<0.00020	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<0.040			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.0040	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.0201	0.018	0.09		
Zinc \$ [total]	<0.012	<0.241	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 3.72 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **01D**

ADDITIONAL PARAMETERS

Date Event Units	June 14, 1995 01D (mg/l)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	81	n/a			minimum of 20	1
Chloride (mg/l)	38	0			250	2
Cyanide, free (µg/l)	<0.005	<0.100	5	22		
Grease & Oil Grab (mg/l)	1.2	0			2	2
Ammonia-Nitrogen	0.05	0.00			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<0.200			NO ₂ + NO ₃ -10	2
Nitrate-Nitrogen (mg/l)	2.45	0.0			(as nitrogen)	
CBOD ₅	3	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	141	n/a			BAC1 (X)	3
Phosphorus, total	<0.01	<0.200			(P) (X)	
Total Suspended Solids	2	0				
Hardness (mg/L CaCO ₃)	157	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.4	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	18.0	n/a				1
Conductivity (mv/cm) ** [field]	413	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	5.37	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 3.72 cfs

**[field] - average of the 3 grab samples measured in the field

(P) - Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **01D**

PESTICIDES/PCBs

Date Event Units	June 14, 1995 01D (µg/L)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC	<0.02	<0.0056	n/a	n/a	
beta-BHC	<0.02	<0.0056	n/a	n/a	
delta-BHC	<0.02	<0.0056	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0056			0.001 (X)
Heptachlor	<0.04	<0.0111			0.001 (X)
Aldrin	<0.4	<0.111			0.001 (X)
Heptachlor epoxide	<0.02	<0.0056	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0028	0.056	0.22	
Dieldrin	<0.5	<0.140			0.001 (X)
4,4'-DDE	<0.01	<0.0028	0.001	1.1	
Endrin	<0.01	<0.0028			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0028	0.056	0.22	
4,4'-DDD	<0.01	<0.0028	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0028	n/a	n/a	
4,4'-DDT	<0.01	<0.0028	0.001	1.1	
alpha-Chlordane	<0.2	<0.056			** (X)
gamma-Chlordane	<0.2	<0.056			** (X)
Toxaphene	<1.0	<0.280			0.008 (X)
Endrin Aldehyde	<0.01	<0.0028	n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 51.82 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **01D**

INORGANICS

Date Event Units	June 14, 1995 01D (µg/L)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<27.95			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<0.839	219	1,095		
Arsenic [total]	<0.001	<0.280	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]	<0.005	<1.40			0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	<0.0001	<0.0280				
Chromium Total \$	<0.05	<14.0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<2.80	11	16		
Copper \$ [total]	<0.001	<0.280	EXP(1.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.38	0.00			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.280	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.01	0.00			1 mg/l	2
Mercury [total]	<0.0002	<0.0560			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<2.80	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<0.560			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.0560	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.280	0.018	0.09		
Zinc \$ [total]	0.048	0.00	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 51.82 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **01D**

ADDITIONAL PARAMETERS

Date Event Units	June 14, 1995 01D (mg/l)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	140	n/a			minimum of 20	1
Chloride (mg/l)	59	0			250	2
Cyanide, free (µg/l)	<0.005	<1.40	5	22		
Grease & Oil Grab (mg/l)	1.33	0			2	2
Ammonia-Nitrogen	0.04	0.0			(NH ₃ -N) × (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<2.80			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.41	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	80	n/a			BAC1 (X)	3
Phosphorus, total	<0.01	<2.80			(P) (X)	
Total Suspended Solids	2	0				
Hardness (mg/L CaCO ₃)	209	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	8.7	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	21.5	n/a				1
Conductivity (mv/cm) ** [field]	553	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	5.4	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 51.82 cfs

** - [field] - average of the 3 grab samples measured in the field

(P) - Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **01D**

PESTICIDES/PCBs

Date	June 14, 1995	June 14, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	01D	01D	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC	<0.02	<0.0020	n/a	n/a	
beta-BHC	<0.02	<0.0020	n/a	n/a	
delta-BHC	<0.02	<0.0020	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0020			0.001 (X)
Heptachlor	<0.04	<0.0040			0.001 (X)
Aldrin	<0.4	<0.040			0.001 (X)
Heptachlor epoxide	<0.02	<0.0020	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0010	0.056	0.22	
Dieldrin	<0.5	<0.050			0.001 (X)
4,4'-DDE	<0.01	<0.0010	0.001	1.1	
Endrin	<0.01	<0.0010			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0010	0.056	0.22	
4,4'-DDD	<0.01	<0.0010	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0010	n/a	n/a	
4,4'-DDT	<0.01	<0.0010	0.001	1.1	
alpha-Chlordane	<0.2	<0.020			** (X)
gamma-Chlordane	<0.2	<0.020			** (X)
Toxaphene	<1	<0.100			0.008 (X)
Endrin Aldehyde	<0.01	<0.0010	n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 18.47 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **01D**

INORGANICS

Date	June 14, 1995	June 14, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	01D	01D	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*	(µg/L)	(µg/L)		
Aluminum [total]	<0.1	<9.96			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<0.299	219	1,095		
Arsenic [total]	<0.001	<0.0966	190(As ₃ +)	360(As ₃ +)		
Beryllium [total]	<0.005	<0.498	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0100			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<4.98	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.0010	11	16		
Copper \$ [total]	<0.001	<0.0966	EXP(8.545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.47	0.0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.0966	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	<0.01	<0.0010			1 mg/l	2
Mercury [total]	0.0002	<0.0199			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<0.0010	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	0.002	0.000			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.0199	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.0966	0.018	0.09		
Zinc \$ [total]	0.011	0.000	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chtp 16 Water Quality Criteria for Toxic Substances and Chtp 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 18.47 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **01D**

ADDITIONAL PARAMETERS

Date Event Units	June 14, 1995 01D (mg/L)	June 14, 1995 01D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	100	n/a			minimum of 20	1
Chloride (mg/l)	35	0			250	2
Cyanide, free (µg/l)	<0.005	<0.498	5	22		
Grease & Oil Grab (mg/l)	1.6	0			2	2
Ammonia-Nitrogen	0.09	0.00			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<1.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.97	0.0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	10	n/a				
Fecal Coliform (#/100mL)	28	n/a			BAC1 (X)	3
Phosphorus, total	0.01	0.00			(P) (X)	
Total Suspended Solids	2	0				
Hardness (mg/L CaCO ₃)	154	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	9.0	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	23.3	n/a				1
Conductivity (mv/cm) ** [field]	405	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	5.44	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 18.47 cfs

** - [field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **02W**

PESTICIDES/PCBs

Date	Aug. 11, 1995	Aug. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	02W	02W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC	<0.02	<0.0137	n/a	n/a	
beta-BHC	<0.02	<0.0137	n/a	n/a	
delta-BHC	<0.02	<0.0137	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0137			0.001 (X)
Heptachlor	<0.04	<0.0275			0.001 (X)
Aldrin	<0.4	<0.275			0.001 (X)
Heptachlor epoxide	<0.02	<0.0137	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0069	0.056	0.22	
Dieldrin	<0.5	<0.343			0.001 (X)
4,4'-DDE	<0.01	<0.0069	0.001	1.1	
Endrin	<0.01	<0.0069			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0069	0.056	0.22	
4,4'-DDD	<0.01	<0.0069	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0069	n/a	n/a	
4,4'-DDT	<0.01	<0.0069	0.001	1.1	
alpha-Chlordane	<0.2	<0.137			** (X)
gamma-Chlordane	<0.2	<0.137			** (X)
Toxaphene	<1.0	<0.687			0.008 (X)
Endrin Aldehyde	<0.01	<0.0069	n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 127.29 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **02W**

INORGANICS

Date Event Units	Aug. 11, 1995	Aug. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
	02W (mg/L)	02W (lb/day)*	CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	13.8	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<2.060	219	1,095		
Arsenic [total]	0.011	0.00	190(As ³⁺)	360(As ³⁺)		
Beryllium [total]	<0.005	<3.433	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	0.0004	0.000			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	0.13	0.0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.0069	11	16		
Copper \$ [total]	0.021	0.0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	19.5	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.018	0.0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	1.34	0			1 mg/l	2
Mercury [total]	<0.0002	<0.1373			0.2 µg/l*** (X)	
Nickel \$ [total]	0.04	0.0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<1.373			10 µg/l (X)	
Silver \$ [total]	0.0003	0.000	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.687	0.018	0.09		
Zinc \$ [total]	0.2	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 127.29 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **02W**

ADDITIONAL PARAMETERS

Date	Aug. 11, 1995	Aug. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	02W	02W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*				
Alkalinity (mg/L CaCO ₃)	44	n/a	5	22	minimum of 20	1
Chloride (mg/l)	35	0			250	2
Cyanide, free (µg/l)	<0.005	<3.43				
Grease & Oil Grab (mg/l)	0.5	0			2	2
Ammonia-Nitrogen	0.19	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.06	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	3.28	0			(as nitrogeN)	
CBOD ₅	10	n/a				
Chemical Oxygen Demand	115	n/a				
Fecal Coliform (#/100mL)	13,100	n/a			BAC1 (X)	3
Phosphorus, total	0.89	0			(P) (X)	
Total Suspended Solids	680	0				
Hardness (mg/L CaCO ₃)	112	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.1	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	20.8	n/a				1
Conductivity (mv/cm) ** [field]	309	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	4.58	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 127.29 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **02W**

PESTICIDES/PCBs

Date Event Units	Aug. 11, 1995 02W (µg/L)	Aug. 11, 1995 02W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC	<0.02	<0.0237	n/a	n/a	
beta-BHC	<0.02	<0.0237	n/a	n/a	
delta-BHC	<0.02	<0.0237	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0237			0.001 (X)
Heptachlor	<0.04	<0.0474			0.001 (X)
Aldrin	<0.4	<0.474			0.001 (X)
Heptachlor epoxide	<0.02	<0.0237	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0118	0.056	0.22	
Dieldrin	<0.5	<0.592			0.001 (X)
4,4'-DDE	<0.01	<0.0118	0.001	1.1	
Endrin	<0.01	<0.0118			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0118	0.056	0.22	
4,4'-DDD	<0.01	<0.0118	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0118	n/a	n/a	
4,4'-DDT	<0.01	<0.0118	0.001	1.1	
alpha-Chlordane	<0.2	<0.237			** (X)
gamma-Chlordane	<0.2	<0.237			** (X)
Toxaphene	<1.0	<1.18			0.008 (X)
Endrin Aldehyde	<0.01	<0.0118	n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 219.53cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **02W**

INORGANICS

Date	Aug. 11, 1995	Aug. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	02W	02W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*	(µg/L)	(µg/L)		
Aluminum [total]	38.5	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<3.55	219	1,095		
Arsenic [total]	0.010	0.0	190(As ₃ +)	360(As ₃ +)		
Beryllium [total]	<0.005	<5.92	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	0.0005	0.000			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	0.29	0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.01	11	16		
Copper \$ [total]	0.033	0.0	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	35.5	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.049	0.0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	2.44	0			1 mg/l	2
Mercury [total]	<0.0002	<0.236			0.2 µg/l*** (X)	
Nickel \$ [total]	0.10	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<2.36			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.236	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<1.18	0.018	0.09		
Zinc \$ [total]	0.67	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life, 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 219.53cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: WALNUT CREEK

EVENT: 02W

ADDITIONAL PARAMETERS

Date Event Units	Aug. 11, 1995 02W (mg/L)	Aug. 11, 1995 02W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	165	n/a			minimum of 20	1
Chloride (mg/l)	29	0			250	2
Cyanide, free (µg/l)	<0.005	<5.92	5	22		
Grease & Oil Grab (mg/l)	2.0	0			2	2
Ammonia-Nitrogen	0.33	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.10	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.59	0			(as nitrogen)	
CBOD ₅	15	n/a				
Chemical Oxygen Demand	125	n/a				
Fecal Coliform (#/100mL)	11,500	n/a			BAC1 (X)	3
Phosphorus, total	1.74	0			(P) (X)	
Total Suspended Solids	1,508	0				
Hardness (mg/L CaCO ₃)	144	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.9	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	21.7	n/a				1
Conductivity (mv/cm) ** [field]	332	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	7.8	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 219.53 cfs

**[field] - average of the 3 grab samples measured in the field

(P) - Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **02W**

PESTICIDES/PCBs

Date Event Units	Aug. 11, 1995 02W (µg/L)	Aug. 11, 1995 02W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC	<0.02	<0.0107	n/a	n/a	
beta-BHC	<0.02	<0.0107	n/a	n/a	
delta-BHC	<0.02	<0.0107	n/a	n/a	
gamma-BHC (Lindane)	<0.02	<0.0107			0.001 (X)
Heptachlor	<0.04	<0.0215			0.001 (X)
Aldrin	<0.4	<0.215			0.001 (X)
Heptachlor epoxide	<0.02	<0.0107	0.1	0.8	
alpha-Endosulfan (I)	<0.01	<0.0054	0.056	0.22	
Dieldrin	<0.5	<0.269			0.001 (X)
4,4'-DDE	<0.01	<0.0054	0.001	1.1	
Endrin	<0.01	<0.0054			0.002 (X)
beta-Endosulfan (II)	<0.01	<0.0054	0.056	0.22	
4,4'-DDD	<0.01	<0.0054	0.001	1.1	
Endosulfan sulfate	<0.01	<0.0054	n/a	n/a	
4,4'-DDT	<0.01	<0.0054	0.001	1.1	
alpha-Chlordane	<0.2	<0.107			** (X)
gamma-Chlordane	<0.2	<0.107			** (X)
Toxaphene	<1.0	<0.537			0.008 (X)
Endrin Aldehyde	<0.01	<0.0054	n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 99.62 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **02W**

INORGANICS

Date Event Units	Aug. 11, 1995 02W (mg/L)	Aug. 11, 1995 02W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	1.28	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<1.61	219	1,095		
Arsenic [total]	0.003	0.00	190(As3+)	360(As3+)		
Beryllium [total]	<0.005	<2.69	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0537			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<26.9	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819*(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.0054	11	16		
Copper \$ [total]	0.0002	0.000	EXP(0.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.82	0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.537	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.06	0.0			1 mg/l	2
Mercury [total]	<0.0002	<0.107			0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0.0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<1.07			10 µg/l (X)	
Silver \$ [total]	0.0008	0.000	0.2	EXP(1.72(lnH)-5.52)		
Thallium [total]	<0.001	<0.537	0.018	0.09		
Zinc \$ [total]	<0.005	<2.69	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 99.62 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **02W**

ADDITIONAL PARAMETERS

Date Event Units	Aug. 11, 1995 02W (mg/L)	Aug. 11, 1995 02W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	105	n/a			minimum of 20	1
Chloride (mg/l)	37	0			250	2
Cyanide, free (µg/l)	<0.005	0	5	22		
Grease & Oil Grab (mg/l)	0.4	0			2	2
Ammonia-Nitrogen	0.10	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.03	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.27	0			(as nitrogen)	
CBOD ₅	6	n/a				
Chemical Oxygen Demand	10	n/a				
Fecal Coliform (#/100mL)	1,940	n/a			BAC1 (X)	3
Phosphorus, total	0.04	0.0			(P) (X)	
Total Suspended Solids	24	0				
Hardness (mg/L CaCO ₃)	184	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	8.0	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	24.5	n/a				1
Conductivity (mv/cm) ** [field]	468	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	8.86	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 99.62 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **03W**

PESTICIDES/PCBs

Date	Sept. 20, 1995	Sept. 20, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	03W	03W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 4.96 cfs

** - limit for Chlordane = 0.06 µg/L (X)

- analyte eliminated from sampling program

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **03W**

INORGANICS

Date Event Units	Sept. 20, 1995 03W (mg/L)	Sept. 20, 1995 03W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	0.31	0.00			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<0.0803	219	1,095		
Arsenic [total]	<0.001	<0.0268	190(As ³⁺)	360(As ³⁺)		
Beryllium [total]	<0.005	<0.134	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0027			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<1.34	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<0.268	11	16		
Copper \$ [total]	<0.001	<0.0268	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.15	0.0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.0268	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.04	0.0			1 mg/l	2
Mercury [total]	<0.0002	<0.0054			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<0.268	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<0.054			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.0054	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.0268	0.018	0.09		
Zinc \$ [total]	<0.005	<0.134	179.3	198.0		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of 186 mg/L

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 4.96 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **03W**

ADDITIONAL PARAMETERS

Date Event Units	Sept. 20, 1995 03W (mg/L)	Sept. 20, 1995 03W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	79	n/a			minimum of 20	1
Chloride (mg/l)	34	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	<0.01	<0.268			(NH ₃ -N) × (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.01	0.000			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	2.85	0.0			(as nitrogen)	
CBOD ₅	7	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	1,150	n/a			BAC1 (X)	3
Phosphorus, total	0.01	0.000			(P) (X)	
Total Suspended Solids	4	0				
Hardness (mg/L CaCO ₃)	186	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	8.2	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	15.8	n/a				1
Conductivity (mv/cm) ** [field]	426	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	4.57	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances

effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards

effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 4.96 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **03W**

PESTICIDES/PCBs

Date	Sept. 20, 1995	Sept. 20, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	03W	03W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 29.75 cfs

** - limit for Chlordane = 0.06 µg/L (X)

- analyte eliminated from sampling program

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **03W**

INORGANICS

Date Event Units	Sept. 20, 1995 03W (mg/L)	Sept. 20, 1995 03W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<16.0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	<0.481	219	1,095		
Arsenic [total]	<0.001	<0.160	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]	<0.005	<0.802			0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	<0.0001	<0.016				
Chromium Total \$	<0.05	<8.02	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	<1.60	11	16		
Copper \$ [total]	<0.001	<0.160	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.13	0.0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.160	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.03	0.00			1 mg/l	2
Mercury [total]	<0.0002	<0.032			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<1.60	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	<0.32			10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.032	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	<0.160	0.018	0.09		
Zinc \$ [total]	<0.005	<0.802	12.7	14.0		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 29.75 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **03W**

ADDITIONAL PARAMETERS

Date Event Units	Sept. 20, 1995 03W (mg/L)	Sept. 20, 1995 03W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	104	n/a			minimum of 20	1
Chloride (mg/l)	42	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.05	0.00			(NH ₃ -N)x(log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.02	0.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.70	0			(as nitrogen)	
CBOD ₅	5	n/a				
Chemical Oxygen Demand	10	n/a				
Fecal Coliform (#/100mL)	2,140	n/a			BAC1 (X)	3
Phosphorus, total	<0.014	<2.25			(P) (X)	
Total Suspended Solids	4	0				
Hardness (mg/L CaCO ₃)	144	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	8.19	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	16.0	n/a				1
Conductivity (mv/cm) ** [field]	487	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	11.3	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 29.75 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **03W**

PESTICIDES/PCBs

Date	Sept. 20, 1995	Sept. 20, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	03W	03W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of - n/a

** - limit for Chlordane = 0.06 µg/L (X)

- analyte eliminated from sampling program

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **03W**

INORGANICS

Date	Sept. 20, 1995	Sept. 20, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	03W	03W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*	(µg/L)	(µg/L)		
Aluminum [total]	<0.1	-			0.1(96hrLC ₅₀) (X)	1
Antimony [total]	<0.003	-	219	1,095		
Arsenic [total]	<0.001	-	190(As ₃ +)	360(As ₃ +)		
Beryllium [total]	<0.005	-	0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	-			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	-	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)	<0.01	-	11	16		
Copper \$ [total]	<0.001	-	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.09	-			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	-	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.03	-			1 mg/l	2
Mercury [total]	<0.0002	-			0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	-	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]	<0.002	-			10 µg/l (X)	
Silver \$ [total]	<0.0002	-	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]	<0.001	-	0.018	0.09		
Zinc \$ [total]	<0.005	-	12.6	14.0		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - flow information not available

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **03W**

ADDITIONAL PARAMETERS

Date Event Units	Sept. 20, 1995 03W (mg/L)	Sept. 20, 1995 03W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	98	-			minimum of 20	1
Chloride (mg/l)	46	-			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.07	-			(NH ₃ -N)x(log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.03	-			NO ₂ + NO ₃ -10	2
Nitrate-Nitrogen (mg/l)	1.87	-			(as nitrogen)	
CBOD ₅	6	-				
Chemical Oxygen Demand	10	-				
Fecal Coliform (#/100mL)	290	-			BAC1 (X)	3
Phosphorus, total	0.06	-			(P) (X)	
Total Suspended Solids	2	-				
Hardness (mg/L CaCO ₃)	222	-			max. monthly mean of 150	
pH (s.u.) ** [field]	8.1	-			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	17.2	-				1
Conductivity (mv/cm) ** [field]	544	-				
Dissolved Oxygen (mg/L O ₂) ** [field]	12.4	-			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - flow information not available

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **04D**

PESTICIDES/PCBs

Date	Oct. 3, 1995	Oct. 3, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	04D	04D	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable - analyte eliminated from sampling program

* - loading based on a flow of 0.55 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **04D**

INORGANICS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<0.297			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.00297	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]						
Cadmium \$ [total]	<0.0001	<0.000297			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<0.148	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.001	0.00000	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	<0.03	<0.089			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<0.00297	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.01	0.0000			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0.000	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.00059	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<0.0148	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 0.55 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **04D**

ADDITIONAL PARAMETERS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	88	n/a			minimum of 20	1
Chloride (mg/l)	40	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	<0.01	<0.0297			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<0.0297			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.95	0.00			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	29	n/a			BAC1 (X)	3
Phosphorus, total	<0.01	<0.0297			(P) (X)	
Total Suspended Solids	2	0				
Hardness (mg/L CaCO ₃)	198	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.2	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	13.7	n/a				1
Conductivity (mv/cm) ** [field]	486	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	6.71	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances

effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards

effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 0.55 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **04D**

PESTICIDES/PCBs

Date	Oct. 3, 1995	Oct. 3, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	04D	04D	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 17.61 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **04D**

INORGANICS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<9.50			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.095	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0095			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<4.75	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.001	<0.095	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	<0.03	<2.85			0.3 mg/l**(X)	1
Lead \$ [total]	<0.001	<0.095	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.02	0.00			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.019	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<0.475	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 17.61 cfs

** -This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **04D**

ADDITIONAL PARAMETERS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	122	n/a			minimum of 20	1
Chloride (mg/l)	51	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.02	0.00			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<0.95			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.10	0.00			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	45	n/a			BAC1 (X)	3
Phosphorus, total	<0.01	<0.95			(P) (X)	
Total Suspended Solids	4	0				
Hardness (mg/L CaCO ₃)	220	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.3	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	13.5	n/a				1
Conductivity (mv/cm) ** [field]	559	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.1	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 17.61 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **04D**

PESTICIDES/PCBs

Date Event Units	Oct. 3, 1995 04D (µg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 29.46 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **04D**

INORGANICS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<15.9			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.159	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0159			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<7.95	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.001	<0.159	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.06	0.00			0.3 mg/l**(X)	1
Lead \$ [total]	<0.001	<0.159	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.03	0.00			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.0318	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<0.795	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 29.46 cfs

** -This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **04D**

ADDITIONAL PARAMETERS

Date Event Units	Oct. 3, 1995 04D (mg/L)	Oct. 3, 1995 04D (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	108	n/a	5	22	minimum of 20	1
Chloride (mg/l)	51	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.11	0.0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.01	0.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	2.40	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	12	n/a			BAC1 (X)	3
Phosphorus, total	0.08	0.0			(P) (X)	
Total Suspended Solids	2	0				
Hardness (mg/L CaCO ₃)	226	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.2	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	14.8	n/a				1
Conductivity (mv/cm) ** [field]	598	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.1	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 29.46 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **05W**

PESTICIDES/PCBs

Date	Oct. 5, 1995	Oct. 5, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	05W	05W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 55.58 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **05W**

INORGANICS

Date Event Units	Oct. 5, 1995 05W (mg/L)	Oct. 5, 1995 05W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	0.59	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.300	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	<0.0001	<0.030				
Chromium Total \$	<0.05	<15.0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper [total]	0.002	0.000	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	3.14	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.001	0.000	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.49	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<3.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.060	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<1.50	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 55.58 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: TWELVEMILE CREEK

EVENT: 05W

ADDITIONAL PARAMETERS

Date Event Units	Oct. 5, 1995	Oct. 5, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
	05W (mg/L)	05W (lb/day)*	CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	53	n/a			minimum of 20	1
Chloride (mg/l)	37	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.02	0.00			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<3.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.37	0			(as nitrogen)	
CBOD ₅	11	n/a				
Chemical Oxygen Demand	30	n/a				
Fecal Coliform (#/100mL)	940	n/a			BAC1 (X)	3
Phosphorus, total	0.34	0			(P) (X)	
Total Suspended Solids	198	0				
Hardness (mg/L CaCO ₃)	164	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.7	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	15.2	n/a				1
Conductivity (mv/cm) ** [field]	319	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	7.38	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 55.58 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **05W**

PESTICIDES/PCBs

Date	Oct. 5, 1995	Oct. 5, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	05W	05W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 212.99 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **05W**

INORGANICS

Date Event Units	Oct. 5, 1995 05W (mg/L)	Oct. 5, 1995 05W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	<0.1	<115			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.00	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.115			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<5.74	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.008	0.00	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	14.40	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.014	0.0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.80	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<11.5	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.230	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<5.74	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 212.99 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **05W**

ADDITIONAL PARAMETERS

Date Event Units	Oct. 5, 1995 05W (mg/L)	Oct. 5, 1995 05W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	122	n/a	5	22	minimum of 20	1
Chloride (mg/l)	37	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.02	0.0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.05	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.56	0			(as nitrogen)	
CBOD ₅	10	n/a				
Chemical Oxygen Demand	50	n/a				
Fecal Coliform (#/100mL)	2,940	n/a			BAC1 (X)	3
Phosphorus, total	1.08	0			(P) (X)	
Total Suspended Solids	892	0				
Hardness (mg/L CaCO ₃)	144	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	7.4	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	15.2	n/a				1
Conductivity (mv/cm) ** [field]	315	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	9.7	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 212.99 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **05W**

PESTICIDES/PCBs

Date	Oct. 5, 1995	Oct. 5, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	05W	05W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldchyde			n/a	n/a	

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable - analyte eliminated from sampling program

* - loading based on a flow of 162.19 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **05W**

INORGANICS

Date Event Units	Oct. 5, 1995 05W (mg/L)	Oct. 5, 1995 05W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	0.56	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.875	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0875			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<43.7	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.001	0.000	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	2.23	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.003	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.26	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<8.75	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.175	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<4.37	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 162.19 cfs

** -This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **05W**

ADDITIONAL PARAMETERS

Date Event Units	Oct. 5, 1995 05W (mg/L)	Oct. 5, 1995 05W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	75	n/a			minimum of 20	1
Chloride (mg/l)	33	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.08	0.0			$(\text{NH}_3\text{-N}) \times (\log-1[\text{pKT-pH}]+1)$	
Nitrite-Nitrogen (mg/l)	0.01	0.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.88	0			(as nitrogen)	
CBOD ₅	5	n/a				
Chemical Oxygen Demand	20	n/a				
Fecal Coliform (#/100mL)	1,410	n/a			BAC1 (X)	3
Phosphorus, total	0.17	0			(P) (X)	
Total Suspended Solids	142	0				
Hardness (mg/L CaCO ₃)	200	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.8	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	15.4	n/a				1
Conductivity (mv/cm) ** [field]	499	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.0	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 162.19 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **06W**

PESTICIDES/PCBs

Date	Nov. 7, 1995	Nov. 7, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	06W	06W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 146.88cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **06W**

INORGANICS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	0.76	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.00	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	<0.0001	<0.080	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium Total \$	<0.05	<39.1	11	16		
Chromium VI (ug/l)			EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Copper \$ [total]	0.004	0.00			0.3 mg/l** (X)	1
Iron [total]	1.63	0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Lead \$ [total]	0.004	0.00			1 mg/l	2
Manganese [total]	0.20	0			0.2 µg/l*** (X)	
Mercury [total]			EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Nickel \$ [total]	<0.01	<7.92			10 µg/l (X)	
Selenium [total]			0.2	EXP(1.72(lnH)-6.52)		
Silver \$ [total]	<0.0002	<0.158	0.018	0.09		
Thallium [total]			EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		
Zinc \$ [total]	0.008	0.00				

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
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CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 146.88 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **06W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	30	n/a	5	22	minimum of 20	1
Chloride (mg/l)	38	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.01	0.00			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.01	0.00			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.97	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	35	n/a				
Fecal Coliform (#/100mL)	1,200	n/a			BAC1 (X)	3
Phosphorus, total	0.28	0			(P) (X)	
Total Suspended Solids	134	0				
Hardness (mg/L CaCO ₃)	106	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.9	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	7.1	n/a				1
Conductivity (mv/cm) ** [field]	291	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.65	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 146.88 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **06W**

PESTICIDES/PCBs

Date	Nov. 7, 1995	Nov. 7, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	06W	06W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 146.96 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **06W**

INORGANICS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	1.51	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.00	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]						
Cadmium \$ [total]	<0.0001	<0.0973			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<39.6	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.004	0.00	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	2.54	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.005	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.21	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<7.93	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.159	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.022	0.0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 146.96 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

3 - analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **06W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	75	n/a			minimum of 20	1
Chloride (mg/l)	62	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.05	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.04	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.95	0			(as nitrogen)	
CBOD ₅	3	n/a				
Chemical Oxygen Demand	20	n/a				
Fecal Coliform (#/100mL)	330	n/a			BAC1 (X)	3
Phosphorus, total	0.31	0			(P) (X)	
Total Suspended Solids	212	0				
Hardness (mg/L CaCO ₃)	176	n/a				
pH (s.u.) **[field]	7.73	n/a			max. monthly mean of 150	1
Temperature (°C) ** [field]	5.0	n/a			6.5 - 9.0 (X)	1
Conductivity (mv/cm) ** [field]	516	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	11.4	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 146.96 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **06W**

PESTICIDES/PCBs

Date	Nov. 7, 1995	Nov. 7, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	06W	06W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 222.02 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **06W**

INORGANICS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	0.21	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.00	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.120			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<59.9	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.001	<1.20	EXP(8.545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	0.23	0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<1.20	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.05	0.0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<12.0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.240	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<5.99	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 222.02 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **06W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 7, 1995 06W (mg/L)	Nov. 7, 1995 06W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	55	n/a	5	22	minimum of 20	1
Chloride (mg/l)	41	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.02	0			(NH ₃ -N) x (log-1[pK _T -pH]+1)	
Nitrite-Nitrogen (mg/l)	<0.01	<12.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.22	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	15	n/a				
Fecal Coliform (#/100mL)	300	n/a			BAC1 (X)	3
Phosphorus, total	0.10	0			(P) (X)	
Total Suspended Solids	24	0				
Hardness (mg/L CaCO ₃)	156	n/a			max. monthly mean of 150	
pH (s.u.) ** [field]	7.5	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	4.9	n/a				1
Conductivity (mv/cm) ** [field]	413	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	11.3	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 222.02 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **07W**

PESTICIDES/PCBs

Date	Nov. 11, 1995	Nov. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	07W	07W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 830.28 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **07W**

INORGANICS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	8.59	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.004	0.0	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	0.0004	0.00				
Chromium Total \$	<0.05	<224	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.015	0.0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	6.92	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.015	0.0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.65	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.896	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.050	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 830.28 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **07W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	14	n/a			minimum of 20	1
Chloride (mg/l)	21	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.08	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.07	0			NO ₂ + NO ₃ -10	2
Nitrate-Nitrogen (mg/l)	1.16	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	60	n/a				
Fecal Coliform (#/100mL)	10,400	n/a			BAC1 (X)	3
Phosphorus, total	0.84	0			(P) (X)	
Total Suspended Solids	828	0				
Hardness (mg/L CaCO ₃)	72	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	9.1	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	7.5	n/a				1
Conductivity (mv/cm) ** [field]	182	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	12.45	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 830.28 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **07W**

PESTICIDES/PCBs

Date	Nov. 11, 1995	Nov. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	07W	07W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 1,107.59 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **07W**

INORGANICS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	13.10	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.006	0.0	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	0.0004	0.00				
Chromium Total \$	<0.05	<299	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.016	<95.6	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	10.22	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.025	0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.79	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<1.19	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.089	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 1,107.59 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **07W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	40	n/a	5	22	minimum of 20	1
Chloride (mg/l)	37	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.06	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.09	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.17	0			(as nitrogen)	
CBOD ₅	3	n/a				
Chemical Oxygen Demand	60	n/a				
Fecal Coliform (#/100mL)	5,200	n/a			BAC1 (X)	3
Phosphorus, total	0.95	0			(P) (X)	
Total Suspended Solids	892	0				
Hardness (mg/L CaCO ₃)	104	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.19	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	7.5	n/a				1
Conductivity (mv/cm) ** [field]	310	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	11.0	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 1,107.59 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **07W**

PESTICIDES/PCBs

Date	Nov. 11, 1995	Nov. 11, 1995	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	07W	07W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 2,152.29 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **07W**

INORGANICS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	8.20	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.004	0.0	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	0.0001	0.00				
Chromium Total \$	<0.05	<580	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.010	0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	7.49	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.013	0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.50	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<2.32	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.045	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test wat - analyte eliminated from sampling program

H = Hardness

* - loading based on a flow of 2,152.29 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **07W**

ADDITIONAL PARAMETERS

Date Event Units	Nov. 11, 1995 07W (mg/L)	Nov. 11, 1995 07W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	31	n/a			minimum of 20	1
Chloride (mg/l)	24	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.06	0			(NH ₃ -N) x (log -1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.07	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.36	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	50	n/a				
Fecal Coliform (#/100mL)	4,700	n/a			BAC1 (X)	3
Phosphorus, total	0.79	0			(P) (X)	
Total Suspended Solids	768	0				
Hardness (mg/L CaCO ₃)	102	n/a				
pH (s.u.) **[field]	7.1	n/a			max. monthly mean of 150	1
Temperature (°C) ** [field]	7.3	n/a			6.5 - 9.0 (X)	1
Conductivity (mv/cm) ** [field]	252	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.9	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 2,152.29 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **08W**

PESTICIDES/PCBs

Date	April 12, 1996	April 12, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	08W	08W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 136.67 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **08W**

INORGANICS

Date Event Units	April 12, 1996 08W (mg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	5.28	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.001	0.000	190(As3+)	350(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0737			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<36.9	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.004	0.000	EXP(8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	6.95	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.008	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.15	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.147	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.028	0.0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 136.67 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **08W**

ADDITIONAL PARAMETERS

Date Event Units	April 12, 1996 08W (mg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	44	n/a	5	22	minimum of 20	1
Chloride (mg/l)	42	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.2	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.05	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	2.05	0			(as nitrogen)	
CBOD ₅	3	n/a				
Chemical Oxygen Demand	20	n/a				
Fecal Coliform (#/100mL)	198	n/a			BAC1 (X)	3
Phosphorus, total	0.36	0			(P) (X)	
Total Suspended Solids	180	0				
Hardness (mg/L CaCO ₃)	116	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.8	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	7.7	n/a				1
Conductivity (mv/cm) ** [field]	331	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	12.75	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 136.67 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **08W**

PESTICIDES/PCBs

Date Event Units	April 12, 1996 08W (µg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 121.78 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **08W**

INORGANICS

Date Event Units	April 12, 1996 08W (mg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	1.67	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.657	190(As ₃ +) 0.01(96hrLC ₅₀)	360(As ₃ +) 0.05(96hrLC ₅₀)		
Beryllium [total]					0.01(96hrLC ₅₀) (X)	
Cadmium \$ [total]	<0.0001	<0.0657				
Chromium Total \$	<0.05	<32.8	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.003	0.00	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	2.16	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.003	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.07	0.0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.131	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.032	0.0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 121.78 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **08W**

ADDITIONAL PARAMETERS

Date	April 12, 1996	April 12, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	08W	08W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*				
Alkalinity (mg/L CaCO ₃)	97	n/a	5	22	minimum of 20	1
Chloride (mg/l)	65	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.12	0.0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.02	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.71	0			(as nitrogen)	
CBOD ₅	3	n/a				
Chemical Oxygen Demand	10	n/a				
Fecal Coliform (#/100mL)	143	n/a			BAC1 (X)	3
Phosphorus, total	0.15	0.0			(P) (X)	
Total Suspended Solids	68	0				
Hardness (mg/L CaCO ₃)	158	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.03	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	8.0	n/a				1
Conductivity (mv/cm) ** [field]	539	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.6	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 121.78 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **08W**

PESTICIDES/PCBs

Date Event Units	April 12, 1996 08W (mg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 160.06 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **08W**

INORGANICS

Date Event Units	April 12, 1996 08W (µg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	1.35	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	<0.001	<0.863	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.0863			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<43.2	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.001	<0.863	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	1.95	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.002	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.05	0.0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.01	0.00	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.173	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	<0.005	<4.32	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 160.06 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **08W**

ADDITIONAL PARAMETERS

Date Event Units	April 12, 1996 08W (mg/L)	April 12, 1996 08W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	70	n/a	5	22	minimum of 20	1
Chloride (mg/l)	30	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.11	0.0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.02	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.16	0			(as nitrogen)	
CBOD ₅	4	n/a				
Chemical Oxygen Demand	<10	n/a				
Fecal Coliform (#/100mL)	9	n/a			BAC1 (X)	3
Phosphorus, total	0.14	0			(P) (X)	
Total Suspended Solids	62	0				
Hardness (mg/L CaCO ₃)	132	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.9	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	9.2	n/a				1
Conductivity (mv/cm) ** [field]	347	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.2	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 160.06 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **09W**

PESTICIDES/PCBs

Date	April 30, 1996	April 30, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	09W	09W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 387.22 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **09W**

INORGANICS

Date Event Units	April 30, 1996 09W (mg/L)	April 30, 1996 09W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	5.07	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.007	0.0	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.209			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<104	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.002	0.00	EXP(0.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	7.12	0			0.3 mg/l** (X)	1
Lead \$ [total]	<0.001	<2.09	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.13	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.05	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.418	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.023	0.0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 387.22 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **09W**

ADDITIONAL PARAMETERS

Date Event Units	April 30, 1996 09W (mg/L)	April 30, 1996 09W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	33	n/a	5	22	minimum of 20	1
Chloride (mg/l)	24	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.04	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.01	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	1.02	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	25	n/a				
Fecal Coliform (#/100mL)	504	n/a			BAC1 (X)	3
Phosphorus, total	0.32	0			(P) (X)	
Total Suspended Solids	180	0				
Hardness (mg/L CaCO ₃)	70	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.1	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	9.7	n/a				1
Conductivity (mv/cm) ** [field]	210	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	10.80	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 387.22 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **09W**

PESTICIDES/PCBs

Date	April 30, 1996	April 30, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS
Event	09W	09W	CCC	CMC	TABLE 3
Units	(µg/L)	(lb/day)*	(µg/L)	(µg/L)	(µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 875.19 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **09W**

INORGANICS

Date Event Units	April 30, 1996 09W (mg/L)	April 30, 1996 09W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	17.48	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.003	0.0	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<0.472			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<236	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.001	0.00	EXP(0.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	25.87	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.002	0.00	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.45	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.07	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.944	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.084	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life, 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 875.19 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **09W**

ADDITIONAL PARAMETERS

Date	April 30, 1996	April 30, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	09W	09W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*				
Alkalinity (mg/L CaCO ₃)	62	n/a	5	22	minimum of 20	1
Chloride (mg/l)	43	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.12	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.02	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.47	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	40	n/a				
Fecal Coliform (#/100mL)	792	n/a			BAC1 (X)	3
Phosphorus, total	0.78	0			(P) (X)	
Total Suspended Solids	784	0				
Hardness (mg/L CaCO ₃)	100	n/a				
pH (s.u.) **[field]	7.53	n/a			max. monthly mean of 150	1
Temperature (°C) ** [field]	9.4	n/a			6.5 - 9.0 (X)	1
Conductivity (mv/cm) ** [field]	338	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	9.1	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 875.19 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **09W**

PESTICIDES/PCBs

Date Event Units	April 30, 1996 09W (µg/L)	April 30, 1996 09W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 1,910.87 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **09W**

INORGANICS

Date Event Units	April 30, 1996 09W (mg/L)	April 30, 1996 09W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	17.95	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.0	190(As ³⁺)	360(As ³⁺)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<1.03			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<515	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.003	0.0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	35.64	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.001	0.0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.42	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.09	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<2.06	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.079	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period

lH = Hardness

* - loading based on a flow of 1,910.87 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **09W**

ADDITIONAL PARAMETERS

Date	April 30, 1996	April 30, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	09W	09W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*				
Alkalinity (mg/L CaCO ₃)	40	n/a	5	22	minimum of 20	1
Chloride (mg/l)	15	0			250	2
Cyanide, free (ug/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.16	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.03	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.54	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	30	n/a				
Fecal Coliform (#/100mL)	1,116	n/a			BAC1 (X)	3
Phosphorus, total	0.95	0			(P) (X)	
Total Suspended Solids	836	0				
Hardness (mg/L CaCO ₃)	80	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.4	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	9.6	n/a				1
Conductivity (mv/cm) ** [field]	194	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	8.9	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 1,910.87 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **10W**

PESTICIDES/PCBs

Date Event Units	May 9, 1996 10W (µg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 202.07 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **10W**

INORGANICS

Date Event Units	May 9, 1996 10W (mg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	1.09	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.001	0.00	190(As ₃₊)	360(As ₃₊)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	0.0001	0.000			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	<0.05	<54.5	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	<0.001	<1.09	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	1.29	0			0.3 mg/l**(X)	1
Lead \$ [total]	0.002	0.00	EXP(1.256(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.05	0.0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	<0.01	<10.9	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<0.218	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.006	0.00	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

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Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 202.07 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **TWELVEMILE CREEK**

EVENT: **10W**

ADDITIONAL PARAMETERS

Date Event Units	May 9, 1996 10W (mg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	43	n/a			minimum of 20	1
Chloride (mg/l)	31	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.42	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.02	0.0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	2.98	0			(as nitrogen)	
CBOD ₅	2	n/a				
Chemical Oxygen Demand	20	n/a				
Fecal Coliform (#/100mL)	700	n/a			BAC1 (X)	3
Phosphorus, total	0.01	0.0			(P) (X)	
Total Suspended Solids	50	0				
Hardness (mg/L CaCO ₃)	90	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	8.8	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	14.7	n/a				1
Conductivity (mw/cm) ** [field]	266	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	7.56	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
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CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 202.07 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **10W**

PESTICIDES/PCBs

Date Event (Units)	May 9, 1996 10W (µg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 1,745.92 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **10W**

INORGANICS

Date Event Units	May 9, 1996 10W (mg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	19.03	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.002	0.0	190(As ³⁺)	360(As ³⁺)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	0.0002	0.00			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	0.05	0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.007	0.0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	20.22	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.014	0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.30	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<1.88	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.076	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
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DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 1,745.92 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **WALNUT CREEK**

EVENT: **10W**

ADDITIONAL PARAMETERS

Date Event Units	May 9, 1996 10W (mg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC	CMC	TABLE 3	CU
Alkalinity (mg/L CaCO ₃)	45	n/a			minimum of 20	1
Chloride (mg/l)	22	0			250	2
Cyanide, free (µg/l)			5	22		
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.09	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.14	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.44	0			(as nitrogen)	
CBOD ₅	8	n/a				
Chemical Oxygen Demand	20	n/a				
Fecal Coliform (#/100mL)	10,100	n/a			BAC1 (X)	3
Phosphorus, total	2.08	0			(P) (X)	
Total Suspended Solids	2,504	0				
Hardness (mg/L CaCO ₃)	74	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	7.43	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	14.6	n/a				1
Conductivity (mv/cm) ** [field]	202	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	8.2	n/a			minimum of 5.0	1

NOTES:

n/a - not applicable

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CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

BAC1 - MAX = geometric mean of 200/100ml based on not less than 5 samples taken over not more than a thirty-day period

* - loading based on a flow of 1,745.92 cfs

**[field] - average of the 3 grab samples measured in the field

(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **10W**

PESTICIDES/PCBs

Date Event Units	May 9, 1996 10W (µg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS
			CCC (µg/L)	CMC (µg/L)	TABLE 3 (µg/L)
alpha-BHC			n/a	n/a	
beta-BHC			n/a	n/a	
delta-BHC			n/a	n/a	
gamma-BHC (Lindane)					0.001 (X)
Heptachlor					0.001 (X)
Aldrin					0.001 (X)
Heptachlor epoxide			0.1	0.8	
alpha-Endosulfan (I)			0.056	0.22	
Dieldrin					0.001 (X)
4,4'-DDE			0.001	1.1	
Endrin					0.002 (X)
beta-Endosulfan (II)			0.056	0.22	
4,4'-DDD			0.001	1.1	
Endosulfan sulfate			n/a	n/a	
4,4'-DDT			0.001	1.1	
alpha-Chlordane					** (X)
gamma-Chlordane					** (X)
Toxaphene					0.008 (X)
Endrin Aldehyde			n/a	n/a	

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chapter 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

n/a - not applicable

* - loading based on a flow of 2,812.07 cfs

** - limit for Chlordane = 0.06 µg/L (X)

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: **2758-001**

SAMPLE LOCATION: **ELK CREEK**

EVENT: **10W**

INORGANICS

Date Event Units	May 9, 1996 10W (mg/L)	May 9, 1996 10W (lb/day)*	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
			CCC (µg/L)	CMC (µg/L)	TABLE 3	CU
Aluminum [total]	18.18	0			0.1(96hrLC ₅₀) (X)	1
Antimony [total]			219	1,095		
Arsenic [total]	0.003	0.0	190(As3+)	360(As3+)		
Beryllium [total]			0.01(96hrLC ₅₀)	0.05(96hrLC ₅₀)		
Cadmium \$ [total]	<0.0001	<1.52			0.01(96hrLC ₅₀) (X)	
Chromium Total \$	0.06	0	11+EXP(0.819*(lnH)+1.561)	16+EXP(0.819(lnH)+3.688)		
Chromium VI (ug/l)			11	16		
Copper \$ [total]	0.003	0.0	EXP(.8545(lnH)-1.465)	EXP(0.9422(lnH)-1.464)		
Iron [total]	19.87	0			0.3 mg/l** (X)	1
Lead \$ [total]	0.009	0	EXP(1.266(lnH)-4.661)	EXP(1.266(lnH)-1.416)		
Manganese [total]	0.25	0			1 mg/l	2
Mercury [total]					0.2 µg/l*** (X)	
Nickel \$ [total]	0.02	0	EXP(0.846(lnH)+1.1645)	EXP(0.846(lnH)+3.3612)		
Selenium [total]					10 µg/l (X)	
Silver \$ [total]	<0.0002	<3.03	0.2	EXP(1.72(lnH)-6.52)		
Thallium [total]			0.018	0.09		
Zinc \$ [total]	0.079	0	EXP(0.8473(lnH)+0.7614)	EXP(0.8473(lnH)+0.8604)		

NOTES:

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection

Chpt 16 Water Quality Criteria for Toxic Substances and Chpt 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection

Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

CMC - criterion maximum concentration (for short-term protection)

Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply

LC₅₀ = The concentration of pollutant in test waters that is lethal to 50% of test organisms over a specified time period.

H = Hardness

* - loading based on a flow of 2,812.07 cfs

** - This value or natural levels, whichever is greater

*** - in an unfiltered water sample

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

PROJECT NAME: **WATER QUALITY MONITORING STUDY
FOR THE LAKE ERIE WATERSHED**

JOB NUMBER: 2758-001

SAMPLE LOCATION: **ELK CREEK**

EVENT: **10W**

ADDITIONAL PARAMETERS

Date	May 9, 1996	May 9, 1996	DEP CHPT 16 WQC		DEP CHPT 93 WQS	
Event	10W	10W	CCC	CMC	TABLE 3	CU
Units	(mg/L)	(lb/day)*				
Alkalinity (mg/L CaCO ₃)	30	n/a	5	22	minimum of 20	1
Chloride (mg/l)	8.4	0			250	2
Cyanide, free (µg/l)						
Grease & Oil Grab (mg/l)					2	2
Ammonia-Nitrogen	0.07	0			(NH ₃ -N) x (log-1[pKT-pH]+1)	
Nitrite-Nitrogen (mg/l)	0.2	0			NO ₂ + NO ₃ =10	2
Nitrate-Nitrogen (mg/l)	0.47	0			(as nitrogen)	
CBOD ₅	6	n/a				
Chemical Oxygen Demand	30	n/a				
Fecal Coliform (#/100mL)	6,400	n/a			BAC1 (X)	3
Phosphorus, total	2.30	0			(P) (X)	
Total Suspended Solids	3,428	0				
Hardness (mg/L CaCO ₃)	55	n/a			max. monthly mean of 150	
pH (s.u.) **[field]	6.9	n/a			6.5 - 9.0 (X)	1
Temperature (°C) ** [field]	14.6	n/a				1
Conductivity (mv/cm) ** [field]	125	n/a				
Dissolved Oxygen (mg/L O ₂) ** [field]	8.6	n/a			minimum of 5.0	1.

NOTES:

n/a - not applicable

DEP CHPT 16 WQC = Pennsylvania Department of Environmental Protection
Chpt 16 Water Quality Criteria for Toxic Substances
effective March 11, 1989, 19 Pa. B. 1059

DEP CHPT 93 WQS = Pennsylvania Department of Environmental Protection
Chapter 93 Water Quality Standards
effective March 11, 1989, 19 Pa. B. 1059

CCC - criterion continuous concentration (for long-term protection)

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Table 3 - located on pages 93.7 through 93.15 of Chapter 93 Water Quality Standards

CU = Critical Use: 1) Aquatic Life; 2) Water Supply; 3) Recreation

- colonies

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* - loading based on a flow of 2,812.07 cfs

**[field] - average of the 3 grab samples measured in the field

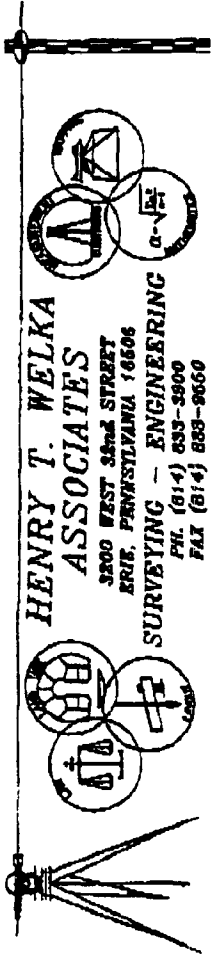
(P)-Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that are or may become injurious to any beneficial water use.

(X) - Chapter 93 Water Quality Criteria Designated Water Use Drainage List - Lake Erie

- analyte eliminated from sampling program

**MALCOLM
PIRNIE**

APPENDIX C
CREEK CROSS-SECTION
SURVEY DATA

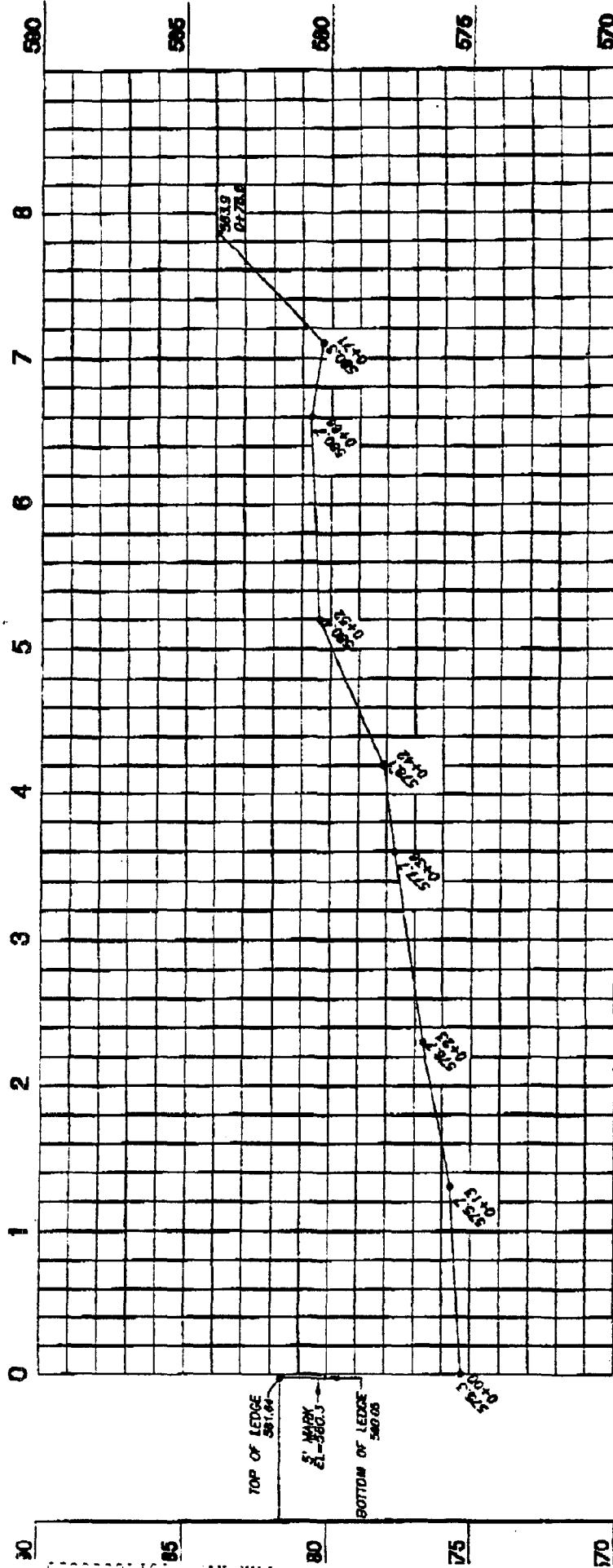


**HENRY T. WELKA
ASSOCIATES**

3200 WEST 32nd STREET
ERIE, PENNSYLVANIA 16506

SURVEYING - ENGINEERING

PH. (814) 833-3800
FAX (814) 833-9660



12 MILE CREEK CROSS SECTION

LOOKING EAST

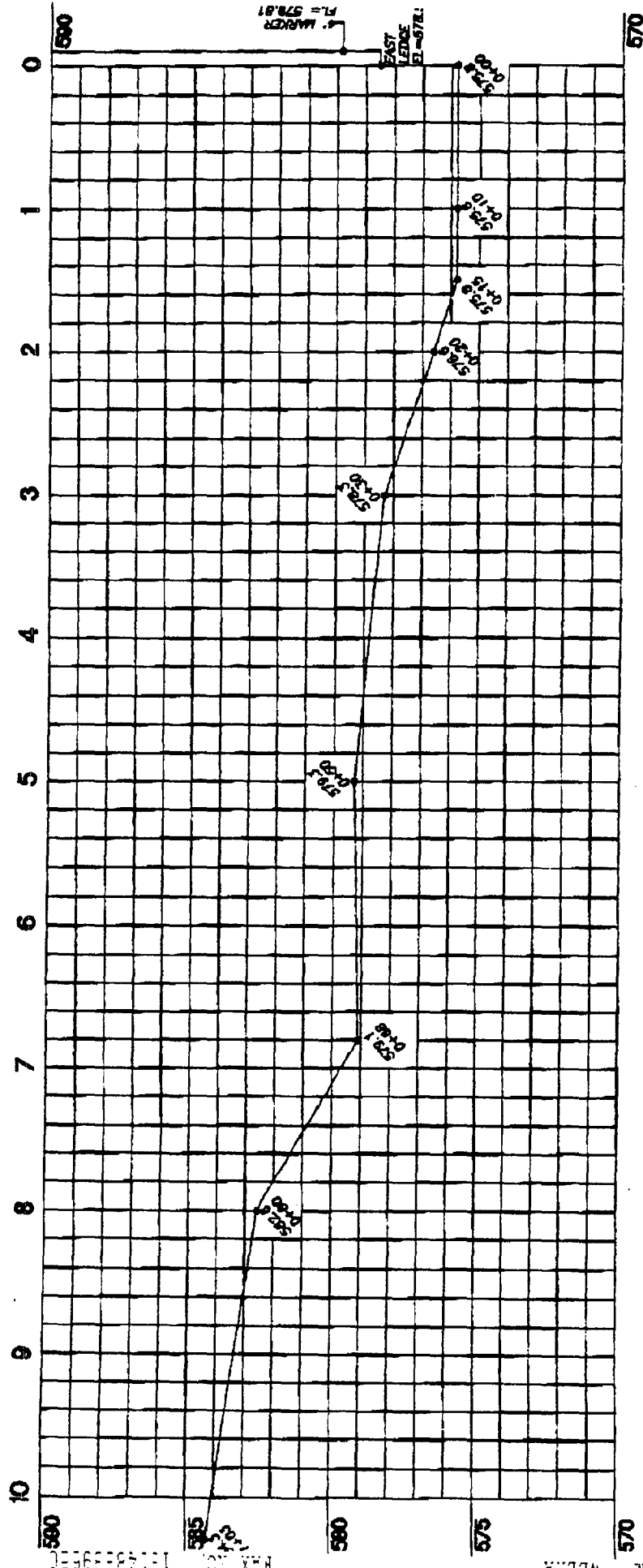
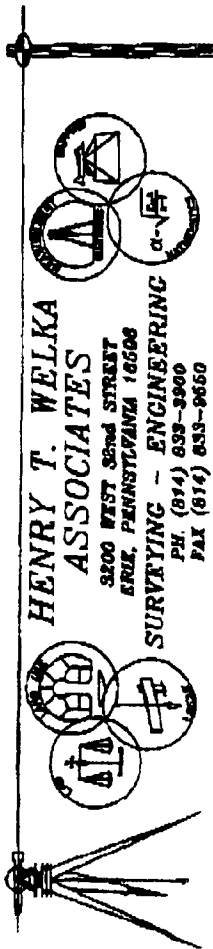
SCALE: 1" = 10' HORIZ

1" = 5' VERT

BENCHMARK:

State Route 5 Bridge over Twanmille Creek. Square cut in Northeast corner of Arch Parapet. - Elev. = 600.70

U.S.G.S. Disk stamped TT18E8B 1956, 25' Right of Sta. 557+14. Southwest corner of intersection of L.R. 495 (S.R. 5) and L.R. 25070 (S.R. 1006) - Elev. = 613.89



ELK CREEK CROSS SECTION

LOOKING NORTH

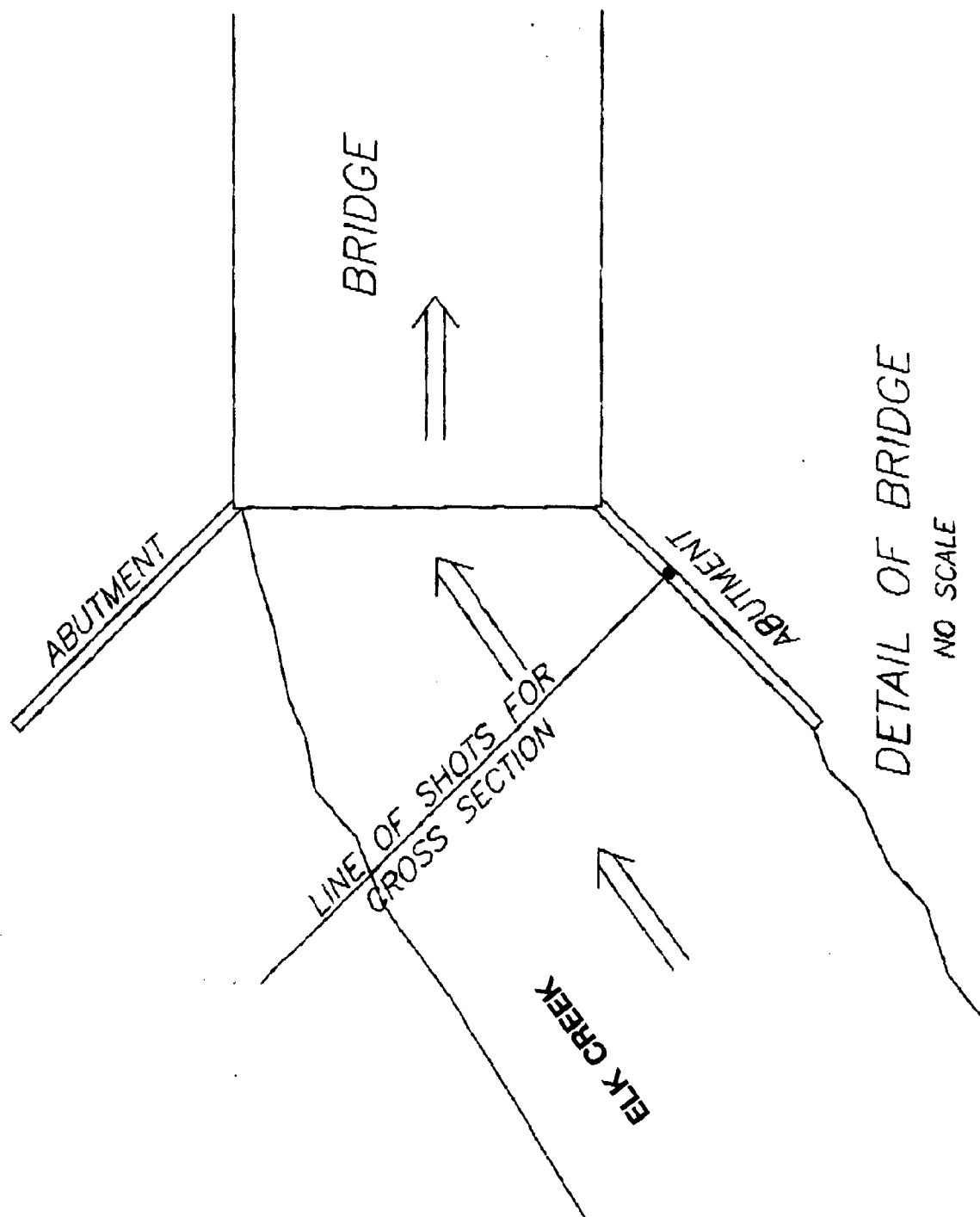
SHOTS TAKEN FROM EAST TO WEST

SCALE: 1" = 10' HORIZ

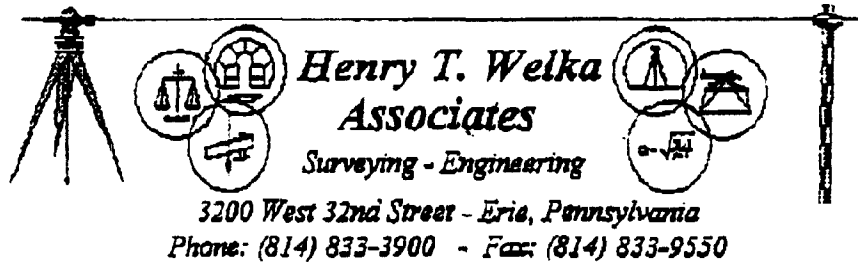
1" = 5' VERT

BENCHMARK:

Top of Pennsylvania Department of Highways
 Disk Q13, set at the northeast corner of
 bridge on North Creek Road - Elev = 702.68



FAX TRANSMITTAL COVER SHEET



Date: MAY 30, 1996
FAX No: 1-716-828-0431
To: JOHN D. McMAHON
G/O MALCOLM DIERKE INC.
From: HENRY T. WELKA & ASSOCIATES
Subject: CROSS SECTIONS FOR CREEKS

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