Acc # 20021202-0272

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November 27, 2002

Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Way Dam Hydroelectric Project and Michigamme Reservoir- FERC No. 1759-036 058
Hemlock Falls Hydroelectric Project - FERC No. 2074-007 021
Peavy Falls Hydroelectric Project - FERC No. 11830-000 010
Lower Paint Hydroelectric Project - FERC No. 2072-008 020
Michigamme Falls Hydroelectric Project - FERC No. 2073-008 026
Twin Falls Hydroelectric Project - FERC No. 11831-000 015
Kingsford Hydroelectric Project - FERC No. 2131-020 039
Big Quinnesec Falls Hydroelectric Project- FERC No. 1980-009 030

Articles 407 (Project Nos. 2072, 11830); 408 (Project Nos. 2073, 2074, 2131, 11831); and 409 (Project Nos. 1759, 1980) -Year 2001 - Water Quality Monitoring Report

We-Energies is hereby filing one original and eight additional copies of the results of water quality monitoring for the above identified Projects performed during 2002 in partial fulfillment of the monitoring plans approved and incorporated in the articles identified above for each of the projects.

The Commission issued new licenses for the above Projects on January 12, 2001 and by Order issued March 9, 2001 clarified certain Water Quality Monitoring requirements. The approved monitoring plan assures that the discharges from the above Projects meet the state's water quality standards for temperature and dissolved oxygen (DO). The applicable mean temperature standards for the months during which continuous monitoring takes place are shown in the table below:

Month	June	July	August	September
°F	80	83	81	74
°C	26.7	28.3	27.2	23.3

The applicable D.O. standard is 5.0 mg/l at all times.

The Plan as approved by FERC order dated January 12, 2001 includes the following three components:

1) **Continuous Water Quality Monitoring of temperature and Dissolved Oxygen (D.O.)**
   - From June 1, to September 30 of each year
   - For two years starting within one year of license issuance (by choice, the licensee commenced water quality monitoring in 2001);
   - Nine monitoring locations :
     - Six stations for temperature and dissolved oxygen; three stations for temperature only.
   - Monitoring results are to be filed no later than November 30th, of each year.

2) **Flowage Monitoring Plan**

- Measurements to be made at 0.5 meter intervals in the deepest part of each flowage;
- Measurements to be taken during February, April, May, September and October (one vertical profile measurement during each month) as well as during the months of June, July and August (Two measurements per month spaced at approximate two-week intervals) during each of the first two years of the monitoring program;
- Vertical profile measurements are to be filed no later than November 30th of each year.

3) **Water Chemistry Monitoring**

- Samples to be collected in the tailraces of the above Projects
- Samples are collected quarterly (May, July, October, December)
- Results are to be filed no later than March 31st of the following year

The results of our 2002 monitoring for each component is as follows:

I. Continuous water quality monitoring

Appendix A contains summary tables for the continuous monitoring data. All nine stations were in compliance with the state's temperature standards. However, discharges from the Peavy Falls, and Way Dam Projects failed to meet the dissolved oxygen standard for periods ranging from a few hours to 24-hours during selected days. License articles for compliance with water quality standards became effective in January 2002, along with the attendant requirements for notification. The licensee did share the monitoring results for the Peavy Falls Project with the MDEQ as soon as deviations from the D.O. standard were discovered. Low DO conditions encountered at Way Dam this past year were not communicated to the MDEQ as the agency is well aware of this continuing condition. Permanent corrective measures for the Way Dam situation are to be addressed by a special study specified by Article 418 of the new license for Way Dam.

While we were not required to act on the occurrences of low DO conditions at Way Dam during 2002, it is important to note we have been maintaining a continuous monitoring instrument at this Plant since 1997 and have been carrying out voluntary corrective measures over the past four years. Specifically, we voluntarily installed a continuous monitor for temperature and DO in the plant's turbine bearing cooling water line in 1997. The purpose of this installation was to provide the plant with an "early warning system" for detecting low DO conditions in the reservoir. The intake for the Way Dam Plant is situated near the bottom of the flowage upstream of the dam. The bearing cooling water is extracted from the intake water. When the reservoir stratifies, low DO is inevitably entrained. However, if and when stratification occurs has been shown to vary significantly among years. Current turbine operations require a minimum of 300 cfs, while the license requires minimum flows ranging between 250 and 450 cfs to be released from the Michigamme Reservoir, depending on the month. Current voluntary "mitigation" practices at Way Dam call for blending generation and spillway flows to maintain the 5.0 mg/l DO standard downstream of the Way Dam project, when sufficient water is available. If sufficient water is not available to generate and spill, all water passed through the project will be spilled. This is what was again done in 2002. Therefore, it should be noted that, while low DO conditions were detected this past year, most of the low DO water was not passed downstream of Way Dam during 2002.

It is also important to note that while the current DO monitoring location is an appropriate "early warning system", it cannot, by its very nature, constitute a compliance monitoring location since it does not represent real tailrace conditions. The study planned in response to Article 418 will determine a location for best measuring compliance with the DO standard.

Appendix A also contains the monitoring data recovery statistics, by location for each of the multi-function data sondes as well as for the temperature-only monitoring devices. Due to

thunderstorm-related power failures at the Way Dam Project during June, July and August, approximately 10 days of data were lost. However, during this period, the water destined for generation was instead spilled. In spite of warning signs attached to each of the monitoring devices, approximately two-days of data were lost at one site due to tampering by the curious public (equipment is secured to steel grating, which is attached to shoreline structure by heavy chains; once pulled from the water, they cannot be repositioned by untrained persons). No data was lost at the temperature-only monitoring sites.

As part of this filing, a diskette containing all the raw data and accompanying explanatory sheets are being submitted to the agencies for their use.

II. Flowage measurements

Appendix B contains the results of the vertical profile measurements for each of the projects. Low DO levels were observed high in the water column of the Peavy Falls flowage during much of the summer. The extent of low DO in the water column was not observed during 1993, when the company initially conducted continuous monitoring and vertical profile measurements at this project. The intensity of low DO conditions during 2001 and again during 2002 may have been due to higher than normal ambient air temperatures as depicted on graphs contained in Appendix C. However, in contrast to 2001, precipitation during the summer of 2002 tended to be higher than what occurred during 2001. Higher precipitation had the potential to disrupt the intense stratification in the flowage; however, this apparently did not occur.

III Water Chemistry

The initial Water chemistry samples were collected during 2001 and the results were filed with the Commission in correspondence dated January 31, 2002. The next round of water chemistry sampling is scheduled for 2006.

Consideration of Corrective Measures

The work conducted in 2001and 2002 represent the initial two-year commitment specified in the Water Quality Monitoring Plan for these Projects which is primarily aimed at identifying problems. The low DO problems at Way Dam were expected, while those encountered at Michigamme Falls during 2001 and at Peavy Falls during 2001 and 2002 were suspected, due to the nature of operations and the location of the intake relative to historic flowage thermocline depths. In the case of Michigamme Falls, during 2001, the problems were mostly confined to periods when the plant was offline and the discharge from the plant was leakage flow. The source of the leakage flow was believed to be poorly oxygenated hypolimnetic water in the flowage. The change to the new license operating conditions in 2002 coupled with the installation of a new adjustable Kaplan turbine on one of the existing units corrected this problem, as evidenced by the 2002 monitoring data.

With respect to Peavy Falls, we have analyzed some operational and environmental conditions that may have contributed to low DO problems. The environmental analyses (monthly temperatures and monthly precipitation records) are included as Appendix C, Table C-1, Figures C-1 and C-2. These analyses documented the fact that the summer of 2001 was very dry and quite warm, while the summer of 2002 was warm but wetter than previous years. Spring runoff was variable among years; in 2001, it was quite limited, while in 2002 it was higher than what was observed during the initial sampling year, 1993. The environmental conditions (warmer air temperatures, lower rainfall in the basin) probably combined to cause the number of hourly low DO measurements to increase dramatically over what was observed in 1993. However, it now appears that 1993 may have been an "outlier" year while 2001 and 2002 may represent more "expected " conditions.

From an operational perspective, peaking activities during 2002 appeared to be more intense (greater differences between on and off-peak generation periods) than during 1993, perhaps

owing to the fact that there was more water available for operation during 1993 (Appendix Figure C-3). In addition, DO appeared to respond more in sequence with periods of on and off-peak generation (e.g., DO was lowest during off-peak operation when the plant was passing leakage flow, while DO rose substantially during periods of on-peak generation) during 2002 (Figure C-5) than during 1993 (Figure C-4)

With this filing, we will initiate consultations with the MDEQ as to what monitoring or corrective measures may be appropriate for the Peavy Project.

Enclosed is a proof of service to the agencies listed on the copy list.

Please call me at (906) 779-2547, if you have questions on this matter.

Sincerely,

William Rauscher

William Rauscher

Manager, Hydroelectric Operations

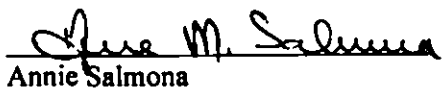
Enclosures

cc: Mr. Thomas Meronek, WDNR w/diskette
Mr. Kurt Newman, MDNR w/ diskette
Ms. Janet Smith, USFWS
Mr. James Grant, MDEQ

Certificate of Service

I hereby certify that I have this day served the foregoing document upon all entities specified in the order to issue license to be consulted on matters related to the Commission filing. Service was done pursuant to Rule 2010 of FERC's Rules of Practice and Procedure 18 CFR, Section 385.2010

Dated this day Wednesday, November 27, 2002



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Appendix A

Results of Continuous Monitoring For Temperature and Dissolved Oxygen

Way Dam and Michigamme Reservoir- FERC No. 1759-036
Hemlock Falls Hydroelectric Project – FERC No. 2074-007
Peavy Falls Hydroelectric Project – FERC No. 1130-000
Lower Paint Hydroelectric Project – FERC No. 2072-008
Michigamme Falls Hydroelectric Project – FERC No. 2073-008
Twin Falls Hydroelectric Project – FERC No. 11831-000
Kingsford Hydroelectric Project – FERC No. 2131-020
Big Quinnesec Falls Hydroelectric Project – FERC No. 1980-009

November 27, 2002

Table of Contents - Appendix A

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Dissolved Oxygen Limit 5.0 mg/l

Monthly Average Temperature Limits:	Degree F	Degree C
June	80	26.7
July	83	28.3
August	81	27.2
Sept	74	23.3

Big Quinnesec Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)			DO % Saturation			Dissolved Oxygen		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Jun	720	18.7	24.1	15.5	96.4	105.3	84.3	8.9	10.0	7.2
Jul	744	24.7	25.8	23.2	82.7	94.2	68.4	6.9	7.9	5.7
Aug	744	22.5	24.9	20.6	84.7	99.1	72.6	7.4	8.9	6.4
Sep	720	19.3	22.1	13.9	84.3	94.2	66.7	7.8	9.4	6.8

100% Data Recovery

Kingsford Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)			DO % Saturation			Dissolved Oxygen		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Jun	720	18.7	23.8	15.0	92.6	99.4	86.8	8.5	9.3	7.4
Jul	744	24.6	26.1	22.9	86.5	95.4	77.7	7.2	8.0	6.4
Aug	744	22.4	24.8	20.3	86.5	94.4	78.0	7.6	8.4	6.8
Sep	720	19.1	22.5	13.8	88.6	103.3	83.6	8.3	10.2	7.6

100% Data Recovery

Michigamme Falls Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)			DO % Saturation			Dissolved Oxygen		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Jun	720	17.7	21.0	14.1	84.1	102.9	75.0	8.0	9.8	6.7
Jul	744	22.8	24.5	20.8	73.4	91.6	56.4	6.3	7.9	4.8
Aug	719	22.2	23.9	20.9	73.9	82.0	59.4	6.5	7.2	5.1
Sep	607	19.2	22.4	15.3	81.5	101.3	72.2	7.6	9.8	6.5

95.3% Data Recovery
Missing Data:
083002 @ 2300 - 090502 @ 1600 Based on dissolved oxygen readings, this data was determined to be invalid as a plug of root like detritus was found wedged in the D.O. probe. A D.O. reading taken at sonde switchout was 7.2 mg/l. The sonde calibrated fine once the plug was removed.
USGS conducted flow tests July 30-31, which is the time period when the low D.O. occurred (4.8 mg/l @ 0700).
See below for daily average, maximum and minimum D.O. for months in which the D.O. reading fell below 5.0 mg/l.

Prepared by R. Rick 10/29/02

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Peavy Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)			DO % Saturation			Dissolved Oxygen		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Jun	720	16.7	21.2	12.4	85.5	101.8	72.5	8.2	9.7	6.7
Jul	744	22.2	25.4	18.8	67.0	100.6	36.7	5.8	8.3	3.2
Aug	744	21.8	23.9	20.3	62.4	79.6	33.7	5.0	7.1	3.0
Sep	720	19.1	22.2	14.7	64.5	98.8	36.2	6.0	9.6	3.3
Oct	84	14.1	15.1	14.0	68.7	85.3	55.6	6.9	8.4	5.6

100% Data Recovery
Summary for data collected from 10/1- 10/4 @ 1100 is included in the above table.

See below for daily average, maximum and minimum D.O. for months in which the D.O. reading fell below 5.0 mg/l.

Twin Falls Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)			DO % Saturation			Dissolved Oxygen		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Jun	720	18.4	23.7	14.9	83.1	98.6	68.7	7.7	9.3	6.3
Jul	559	24.4	25.7	22.8	48.9	94.4	60.1	6.6	7.9	5.0
Aug	564	22.1	24.0	20.6	77.2	85.1	62.3	6.8	7.5	5.6
Sep	693	19.3	22.8	14.3	83.6	100.2	70.8	7.8	9.9	6.4

86.6% Data Recovery
072402 @ 0700 - 072502 @ 1100 - Deleted data. A pinprick hole was found in the D.O. probe during post calibration. A rapid deteriation of D.O. data at 0700 on 072402, leads us to believe that's when the damage occured.
080202 @ 0400 - 080802 @ 1200. Sonde batteries became drained. We believe grit may have jammed the stirrer impeller, resulting in additional drain on the batteries.
091702 0800-1100 Stirrer cable had disconnected, causing the battery to drain.
092202 0300-0800 & 2200-2300, 092302 0000-1000, and 092402 0300-0600 Someone pulled the sonde closer to shore, causing it to dewater under lower flow conditions. Problem found and sonde repositioned on 092402

Way Dam Powerhouse 2002 Summary Data

Month	OBS	Temperature (Degrees C)			Meter does not measure for	Dissolved Oxygen		
		Mean	Max	Min	% saturation	Mean	Max	Min
Jun	583	13.5	16.6	8.9		6.5	8.4	4.8
Jul	677	18.0	21.8	15.5		2.1	4.5	0.1
Aug	404	21.0	22.0	19.3		2.9	6.3	1.4
Sep	480	18.9	21.8	13.8		6.4	8.0	3.6

73.2% Data Recovery
060102 0000 & 0600-2000, 060502 0000, 060602 @ 0000 - 060702 @ 2300, 062802 @ 0000 - 070202 @ 2300 070602 @ 0000 - 07062300 , 080202 @ 0000 - 080402 @ 1200 Storm related power outages to plant.
081702 @ 1900 - 082902 @ 1000 and 090302 @ 0000 - 091102 @ 2300 No data due to loss of water flow to meter, while maintenance to generating unit occurred. Plant spilling during this time period. 093002 @ 0000-2300 Unit offline.
See below for daily average, maximum and minimum D.O. for months in which the D.O. reading fell below 5.0 mg/l.

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Michigamme Falls 2002 Tailrace Data
Month=July Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	6.7	6.9	6.6	0
2	6.5	6.7	6.1	0
3	6.3	6.5	6.0	0
4	6.3	6.4	6.0	0
5	6.0	6.2	5.6	0
6	5.8	6.0	5.6	0
7	5.8	6.2	5.5	0
8	5.8	6.0	5.5	0
9	5.9	6.4	5.5	0
10	5.7	5.9	5.5	0
11	5.9	7.0	5.4	0
12	7.0	7.4	6.6	0
13	7.1	7.6	6.6	0
14	7.2	7.9	6.7	0
15	6.8	7.4	6.4	0
16	6.8	7.5	6.3	0
17	6.6	7.0	6.1	0
18	6.6	6.9	6.1	0
19	6.3	6.7	5.8	0
20	6.2	6.4	5.7	0
21	6.4	7.0	5.9	0
22	6.7	7.5	6.0	0
23	6.9	7.3	6.8	0
24	6.8	7.1	6.6	0
25	6.3	6.6	5.9	0
26	6.1	6.5	5.7	0
27	5.8	6.1	5.5	0
28	6.1	6.5	5.5	0
29	5.9	6.4	5.5	0
30	5.9	6.4	5.3	0
31	5.6	6.8	4.8	1

Peavy 2002 Tailrace Data
Month=July Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	6.7	6.9	6.4	0
2	6.4	6.8	6.0	0
3	6.3	6.7	5.9	0
4	6.2	6.6	5.7	0
5	6.0	6.3	5.7	0
6	5.9	6.3	5.5	0
7	5.8	6.8	5.2	0
8	6.1	6.4	5.7	0
9	6.3	6.8	5.9	0
10	6.2	6.6	5.9	0
11	6.1	6.7	4.9	1
12	6.4	6.8	6.1	0
13	6.5	6.9	6.3	0
14	6.5	7.0	6.2	0
15	6.3	7.5	5.8	0
16	6.3	7.9	5.3	0
17	6.3	8.3	5.1	0
18	6.2	6.8	5.8	0
19	5.9	6.4	5.3	5
20	5.3	5.7	4.8	5
21	5.4	6.5	4.3	8
22	5.9	6.9	4.9	3
23	6.2	6.6	5.6	0
24	5.5	6.0	4.9	2
25	4.9	5.3	4.2	16
26	4.9	5.9	3.2	10
27	5.0	5.8	3.6	11
28	5.1	6.2	3.6	8
29	4.9	6.2	3.6	12
30	5.1	6.0	3.8	8
31	4.6	5.6	3.4	13

Prepared by R. Rick 10/29/02

Paint Tailrace 2002 Temperature Only Data

Date	Time	Temperature F	Temperature C
7/2/2002	0:00	80.6	27.0
7/2/2002	1:00	80.6	27.0
7/2/2002	2:00	80.6	27.0
7/2/2002	3:00	80.6	27.0
7/2/2002	4:00	80.3	26.8
7/2/2002	5:00	80.6	27.0
7/2/2002	6:00	80.6	27.0
7/2/2002	7:00	80.6	27.0
7/2/2002	8:00	80.6	27.0
7/2/2002	9:00	80.9	27.2
7/2/2002	10:00	80.9	27.2
7/2/2002	11:00	81.6	27.5
7/2/2002	12:00	82.2	27.9
7/2/2002	**13:00**	**83.2**	**28.4**
7/2/2002	**14:00**	**83.5**	**28.6**
7/2/2002	15:00	82.6	28.1
7/2/2002	16:00	81.9	27.7
7/2/2002	17:00	81.6	27.5
7/2/2002	18:00	81.6	27.5
7/2/2002	19:00	81.6	27.5
7/2/2002	20:00	81.6	27.5
7/2/2002	21:00	81.3	27.4
7/2/2002	22:00	81.3	27.4
7/2/2002	23:00	81.6	27.5
7/3/2002	0:00	81.3	27.4
7/3/2002	1:00	81.3	27.4
7/3/2002	2:00	81.3	27.4
7/3/2002	3:00	81.3	27.4
7/3/2002	4:00	81.3	27.4
7/3/2002	5:00	81.3	27.4
7/3/2002	6:00	81.3	27.4
7/3/2002	7:00	80.9	27.2
7/3/2002	8:00	80.9	27.2
7/3/2002	9:00	81.3	27.4
7/3/2002	10:00	81.6	27.5
7/3/2002	11:00	81.6	27.5
7/3/2002	12:00	81.9	27.7
7/3/2002	13:00	82.6	28.1
7/3/2002	**14:00**	**83.2**	**28.4**
7/3/2002	**15:00**	**83.9**	**28.8**
7/3/2002	**16:00**	**83.9**	**28.8**
7/3/2002	**17:00**	**84.2**	**29.0**
7/3/2002	**18:00**	**83.9**	**28.8**
7/3/2002	**19:00**	**83.5**	**28.6**
7/3/2002	20:00	82.9	28.3
7/3/2002	21:00	82.6	28.1
7/3/2002	22:00	82.2	27.9
7/3/2002	23:00	81.9	27.7

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Peavy 2002 Tailrace Data

Month=August Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	5.4	6.7	3.4	7
2	5.8	6.2	5.2	0
3	5.5	5.7	5.3	0
4	6.0	6.5	5.3	0
5	6.2	6.6	5.8	0
6	6.0	6.4	5.6	0
7	5.0	6.0	3.2	9
8	4.7	6.0	3.0	10
9	5.7	6.0	5.0	0
10	5.5	5.8	4.9	1
11	5.5	6.2	4.7	5
12	5.6	5.8	5.2	0
13	5.5	6.0	4.8	1
14	5.2	5.9	4.3	10
15	4.7	5.1	4.0	19
16	5.4	6.1	4.2	5
17	5.3	6.1	4.0	3
18	5.9	6.5	5.0	0
19	6.1	6.7	5.3	0
20	5.8	6.4	5.4	0
21	5.5	6.0	4.9	3
22	5.8	6.7	4.9	3
23	6.6	6.9	5.5	0
24	6.1	7.1	4.7	3
25	6.0	6.8	4.7	5
26	5.6	6.7	4.4	9
27	5.3	6.7	4.6	13
28	5.3	6.4	4.5	12
29	4.8	5.9	3.9	16
30	4.7	5.6	3.8	13
31	4.8	5.9	3.9	13

Peavy 2002 Tailrace Data

Month=September Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	4.5	5.7	3.6	14
2	4.5	6.1	3.3	15
3	5.7	7.5	3.7	10
4	6.0	7.2	4.5	7
5	5.9	6.8	4.5	6
6	5.6	6.4	4.2	6
7	5.4	6.3	3.9	7
8	5.7	6.4	4.4	4
9	5.5	6.4	4.1	8
10	6.1	7.2	4.5	4
11	5.9	6.9	4.4	6
12	5.4	6.5	3.7	8
13	5.3	6.3	3.8	11
14	5.0	6.3	3.7	14
15	5.3	6.7	4.4	14
16	5.4	6.5	4.3	12
17	5.7	6.8	4.5	10
18	5.7	6.7	4.2	6
19	5.6	6.4	4.7	2
20	5.7	6.8	4.6	9
21	6.2	7.2	4.6	7
22	6.3	7.4	5.0	0
23	6.5	8.0	5.2	0
24	8.4	9.3	6.9	0
25	9.3	9.6	8.8	0
26	8.2	9.6	5.7	0
27	6.5	7.4	5.4	0
28	6.3	7.2	5.4	0
29	6.5	7.2	5.2	0
30	6.5	7.4	5.1	0

Prepared by R. Rick 10/29/02

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Way Dam Powerhouse 2002 Data

Month=June Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	8.2	8.4	8.0	0
2	7.9	8.2	7.7	0
3	7.8	8.0	7.6	0
4	7.5	8.0	7.3	0
5	6.7	7.3	4.8	3
6	No data	Storm related power loss		
7	No data	Storm related power loss		
8	7.0	7.6	4.8	2
9	6.5	7.3	4.8	2
10	6.5	7.3	4.8	2
11	6.5	7.3	4.8	2
12	6.5	7.3	4.8	2
13	6.6	7.3	4.8	2
14	6.6	7.3	4.8	1
15	6.1	6.5	5.9	0
16	6.0	6.1	5.9	0
17	6.2	6.8	5.8	0
18	6.5	7.3	6.0	0
19	6.4	6.9	6.0	0
20	6.7	7.1	6.1	0
21	6.1	6.5	5.3	0
22	6.1	6.5	5.3	0
23	6.1	6.5	5.3	0
24	6.1	6.5	5.3	0
25	6.3	6.7	6.0	0
26	6.2	6.4	6.0	0
27	6.0	6.3	5.6	0
28	No data	Storm related power loss		
29	No data	Storm related power loss		
30	No data	Storm related power loss		

Way Dam Powerhouse 2002 Data

Month=July Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	No data	Storm related power loss		
2	4.3	4.4	4.2	24
3	4.2	4.5	3.8	24
4	4.1	4.4	3.8	24
5	3.5	3.9	2.4	24
6	No Data	Storm related power loss		
7	3.5	3.9	3.1	24
8	3.4	3.6	3.2	24
9	3.3	3.5	2.9	24
10	3.0	3.2	2.7	24
11	2.6	2.8	2.5	24
12	2.5	2.7	2.3	24
13	2.3	2.5	1.9	24
14	2.2	2.4	1.9	24
15	2.0	2.3	1.7	24
16	1.9	2.1	1.6	24
17	1.8	2.1	1.5	24
18	1.6	1.8	1.3	24
19	1.4	1.5	1.2	24
20	1.3	1.6	0.9	24
21	1.4	1.9	1.0	24
22	1.2	1.7	1.0	24
23	1.3	1.4	1.2	24
24	1.0	1.2	0.7	24
25	0.9	1.1	0.8	24
26	1.0	1.2	0.1	24
27	1.0	2.4	0.1	24
28	1.1	1.5	0.7	24
29	1.6	1.9	1.2	24
30	1.8	2.4	1.3	24
31	1.9	2.2	1.4	24

Prepared by R. Rick 10/29/02

Table A-1
We Energies 2002 Hydro Monitoring Summary Data
Temperature and Dissolved Oxygen (D.O.) Stations

Daily Average, Maximum and Minimum values are included for those months when the D.O. fell below 5.0 mg/l

Way Dam Powerhouse 2002 Data

Month=**August** Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	1.9	2.2	1.4	24
2	No Data	Storm related power loss		
3	No Data	Storm related power loss		
4	3.2	3.6	2.7	24
5	4.1	6.3	3.6	24
6	3.0	4.5	2.0	24
7	2.6	3.2	1.6	24
8	3.0	3.2	2.8	24
9	2.9	3.1	2.7	24
10	2.6	2.9	2.4	24
11	2.5	2.8	2.3	24
12	2.7	3.4	2.0	24
13	2.8	3.2	2.5	24
14	2.1	2.5	1.7	24
15	2.1	2.5	1.4	24
16	2.4	3.0	1.9	24
17	2.7	3.2	2.1	24
18	No Data	Plant offline for maintanance		
19	No Data	Spilling water during this time.		
20	No Data	"	"	"
21	No Data	"	"	"
22	No Data	"	"	"
23	No Data	"	"	"
24	No Data	"	"	"
25	No Data	"	"	"
26	No Data	"	"	"
27	No Data	"	"	"
28	No Data	"	"	"
29	3.6	4.2	3.3	24
30	3.9	4.6	3.4	24
31	4.3	4.6	4.1	24

Way Dam Powerhouse 2002 Data

Month=**September** Dissolved Oxygen Data

Day	Average	Maximum	Minimum	Hours <5.0
1	4.1	4.3	3.8	24
2	3.9	4.2	3.6	24
3	No Data	Plant offline for maintanance		
4	No Data	Spilling water during this time.		
5	No Data	"	"	"
6	No Data	"	"	"
7	No Data	"	"	"
8	No Data	"	"	"
9	No Data	"	"	"
10	No Data	"	"	"
11	No Data	"	"	"
12	5.6	6.1	5.2	0
13	5.8	7.2	4.3	2
14	6.4	6.7	6.0	0
15	7.0	7.2	6.8	0
16	7.0	7.3	6.7	0
17	6.9	7.3	6.7	0
18	6.7	7.1	6.3	0
19	6.2	6.4	5.8	0
20	6.2	6.6	5.9	0
21	6.1	6.8	5.8	0
22	6.9	7.4	6.6	0
23	6.9	7.0	6.7	0
24	7.1	7.6	6.7	0
25	7.4	7.6	7.3	0
26	7.4	8.0	7.2	0
27	7.3	7.8	7.0	0
28	7.0	7.6	6.7	0
29	6.7	7.0	6.4	0
30	No Data	Storm related power outage		

Prepared by R. Rick 10/29/02

Table A-2
We Energies 2002 Hydro Monitoring Summary Data
Temperature Only Station's - Data Summary

Monthly Average Temperature Limits

	Degree F	Degree C
June	80	26.7
July	83	28.3
August	81	27.2
Sept	74	23.3

Michigamme River Upstream - 2002 Summary Data

Month	OBS	Temperature (Degrees C)		
		Mean	Max	Min
Jun	720	18.8	25.6	12.8
Jul	744	23.6	27.7	19.4
Aug	744	20.2	23.5	17.0
Sep	720	16.7	22.9	10.8

100% Data Recovery

Hemlock Tailrace 2002 Summary Data

Month	OBS	Temperature (Degrees C)		
		Mean	Max	Min
Jun	720	15.5	20.3	11.8
Jul	744	21.1	24.0	18.2
Aug	744	21.3	23.1	19.6
Sep	720	18.7	22.1	14.0

100 % Recovery

It appears that the logger may have become de-watered on 6/10/02 @ 1900 but the data has been included.

The temperature logger was found pulled closer to shore, and returned to deeper water on 071102 @ 1715. On reviewing the data, it does not appear that the logger became de-watered during it's time in shallower water.

Michigamme-Brule Confluence 2002 Summary Data

Month	OBS	Temperature (Degrees C)		
		Mean	Max	Min
Jun	720	18.5	24.3	15.5
Jul	744	24.0	26.4	21.9
Aug	744	21.0	23.6	19.0
Sep	720	17.9	21.8	12.1

100% Data Recovery

Lower Paint Tailrace - 2002 Data Summary

Month	OBS	Temperature (Degrees C)		
		Mean	Max	Min
Jun	720	19.8	26.1	14.7
Jul	744	24.8	29.0	21.2
Aug	744	21.3	24.9	18.5
Sep	720	17.8	22.5	10.7

100% Data Recovery

Figure A-1
2002 Hemlock Tailrace -Temperature Only Station Trendline Plot

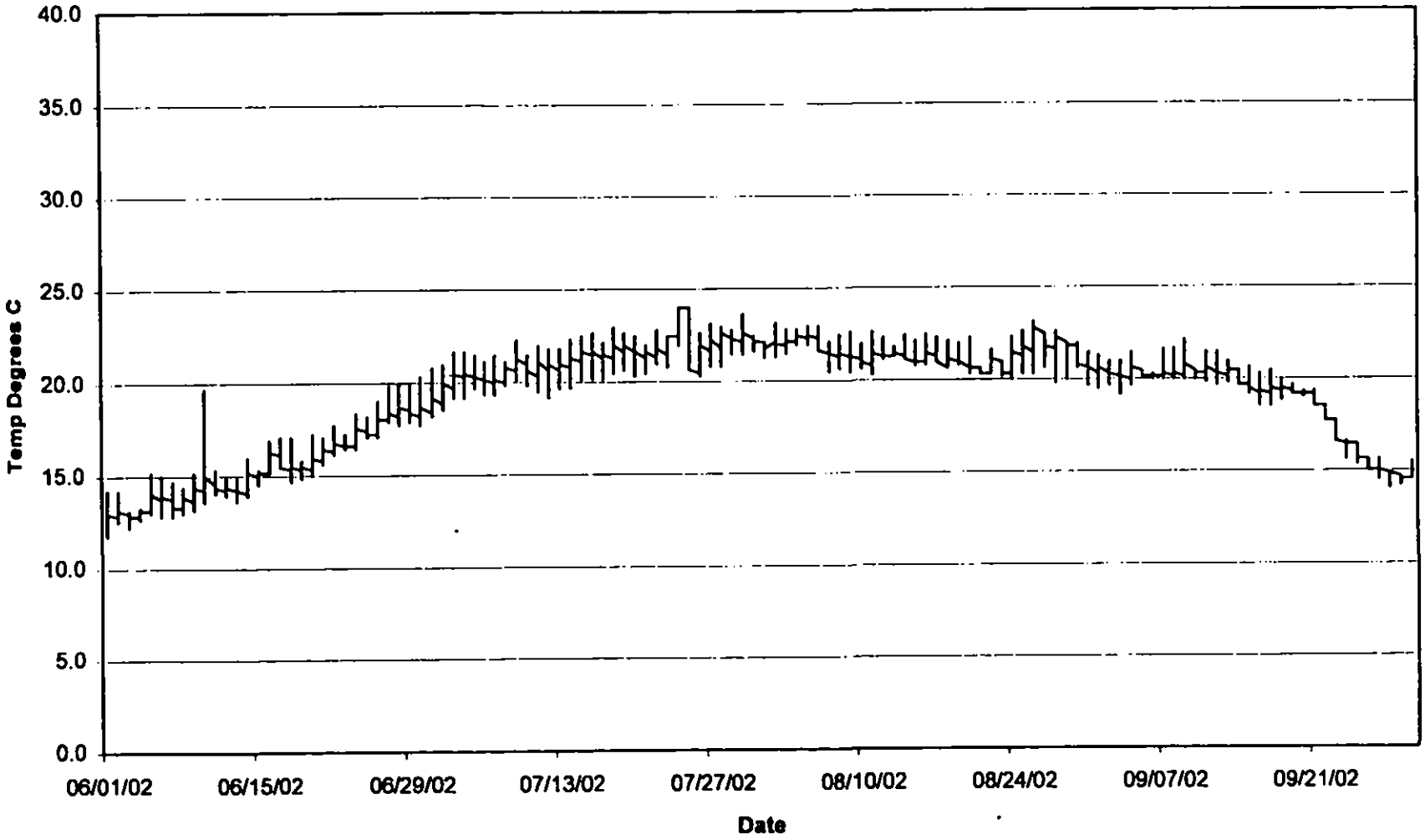


Figure A-2
2002 Paint Tailrace - Temperature Only Station Trend Line Plot

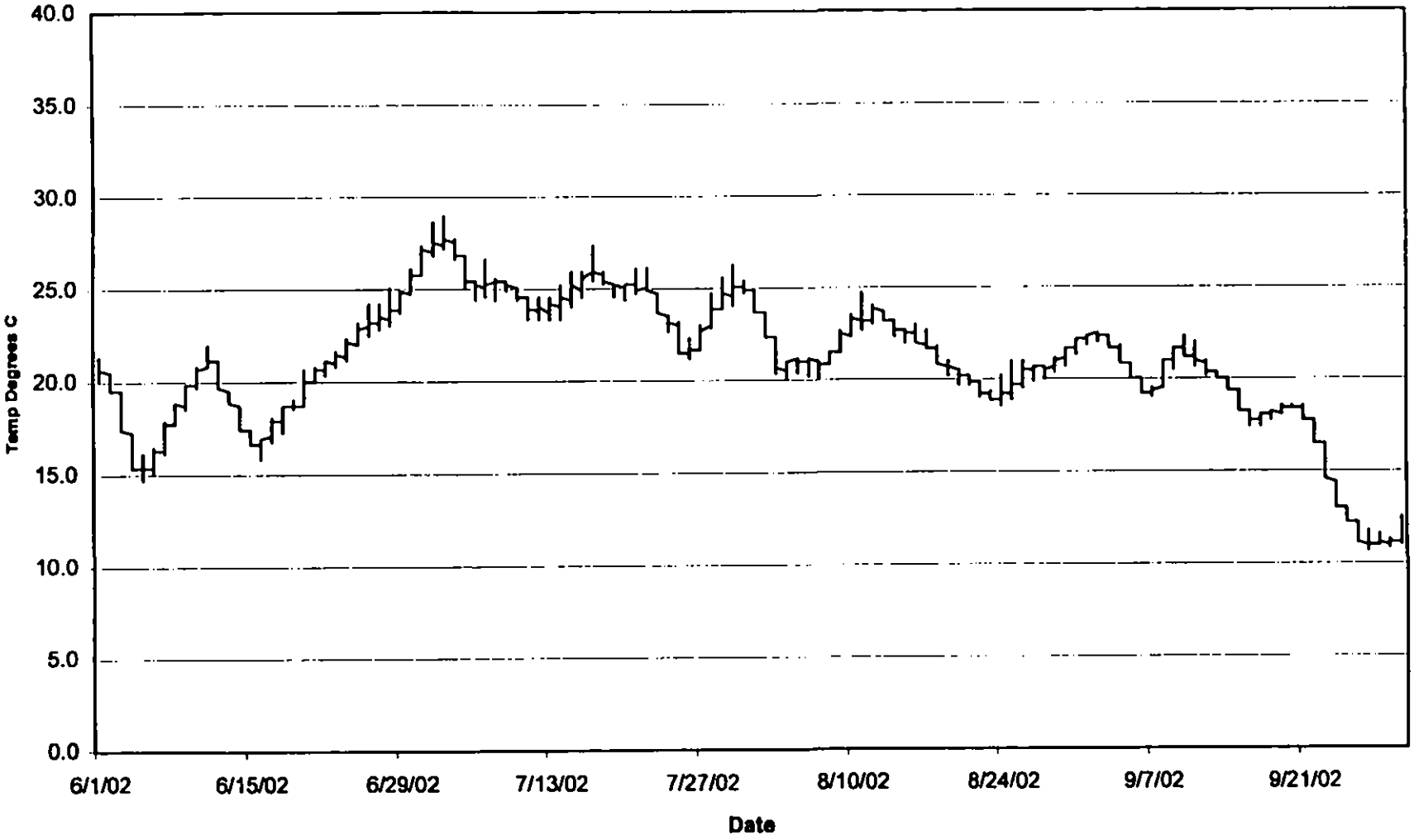


Figure A-3
2002 Michigamme / Brule Confluence - Temperature Only Station Trend Line Plot

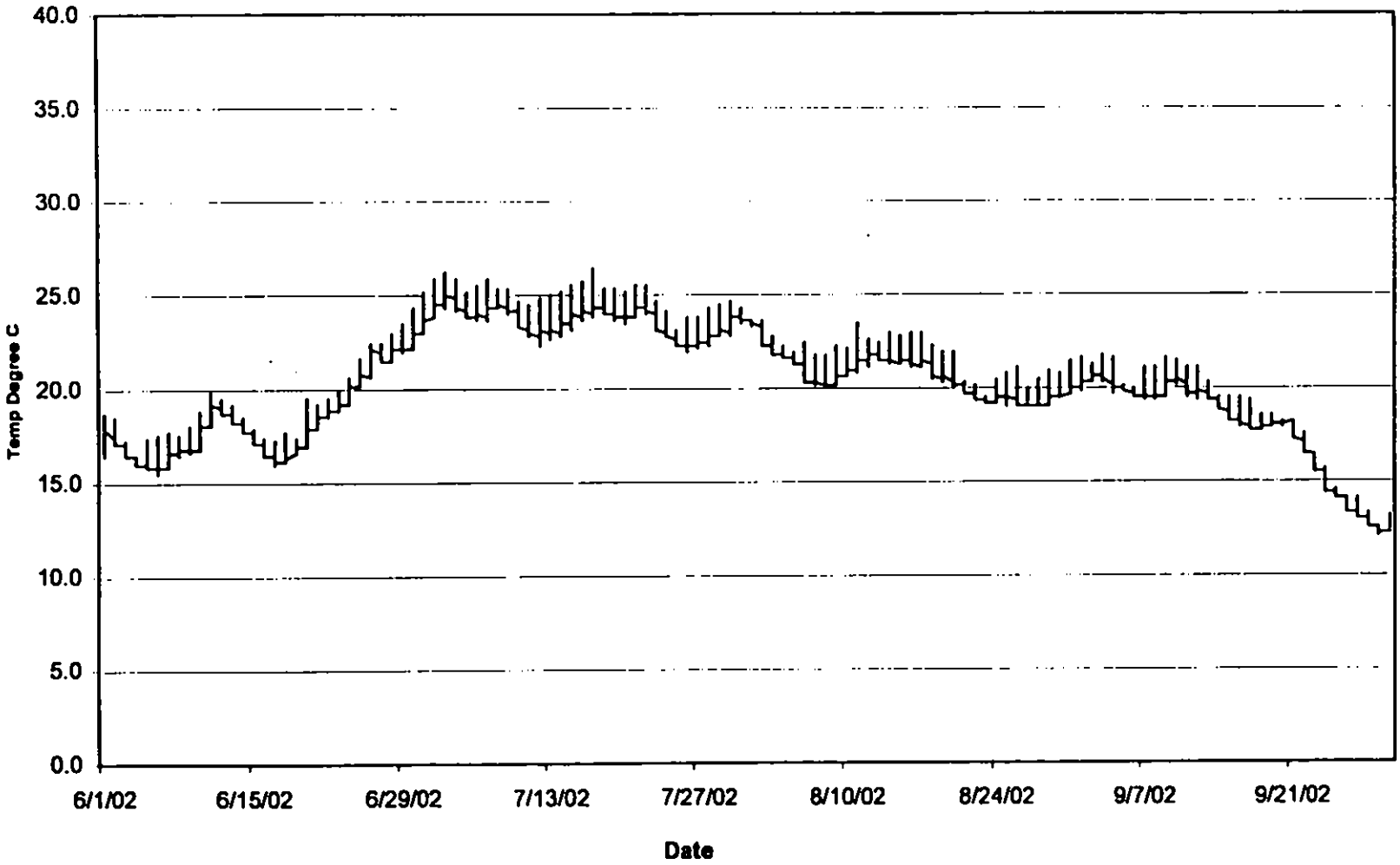
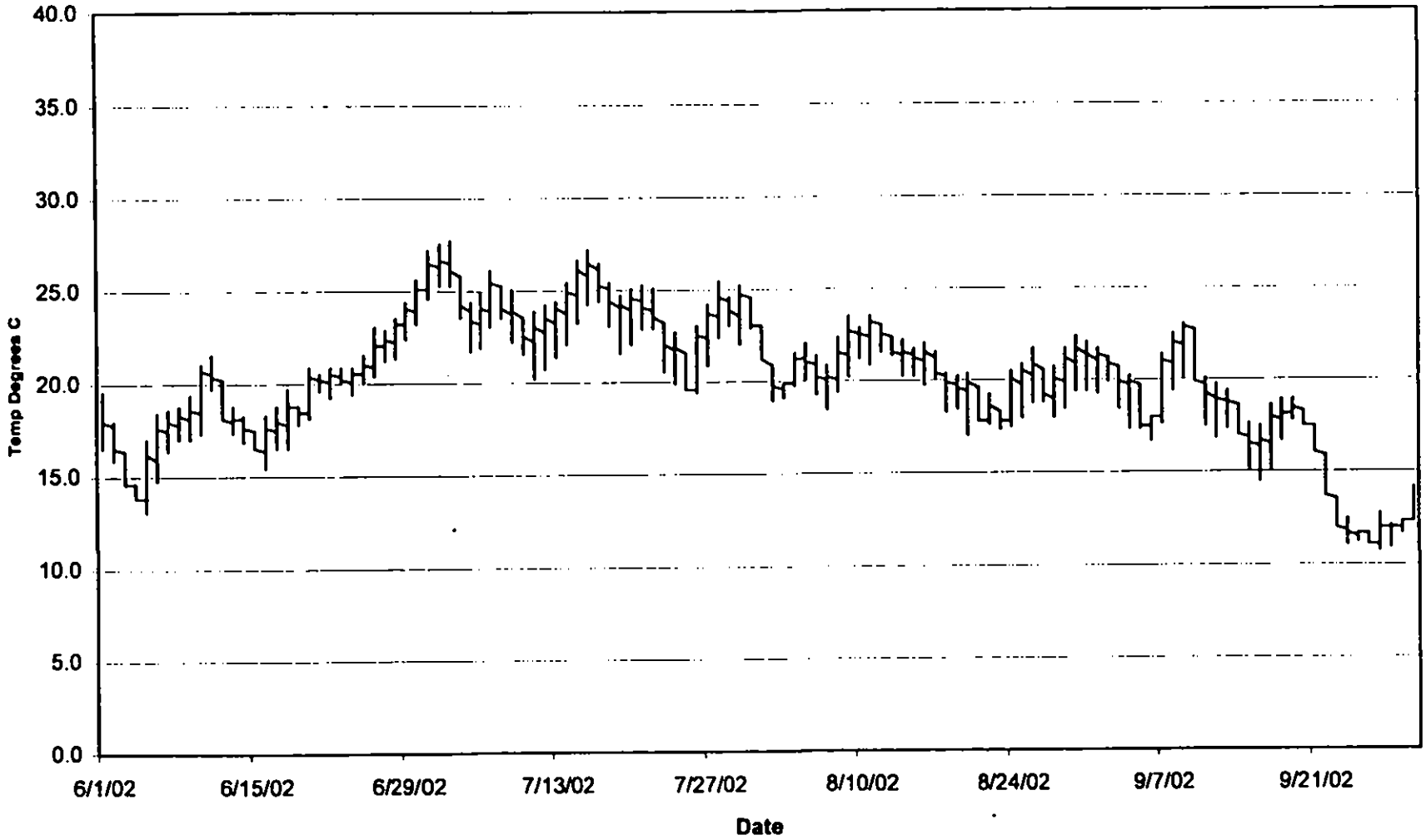


Figure A-4
2002 Michigamme River Upstream - Temperature Only Station Trend Line Plot



We Energies

Appendix B

Results of Vertical Profile Measurements By Flowage

Way Dam and Michigamme Reservoir- FERC No. 1759-036
Hemlock Falls Hydroelectric Project – FERC No. 2074-007
Peavy Falls Hydroelectric Project – FERC No. 1130-000
Lower Paint Hydroelectric Project – FERC No. 2072-008
Michigamme Falls Hydroelectric Project – FERC No. 2073-008
Twin Falls Hydroelectric Project – FERC No. 11831-000
Kingsford Hydroelectric Project – FERC No. 2131-020
Big Quinnesec Falls Hydroelectric Project – FERC No. 1980-009

November 27, 2002

Appendix B-1

Way Dam Hydroelectric Project
Vertical Profile Data -

14-Feb-02

Approximate air temp: 1.6 C

Secci Depth: 4.0 ft. 38' deep *Time:0802*

partly cloudy

Ice thickness: 15" approximately

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	0.1	12.6	88.1	113	6.4
0.5	0.2	12.5	88.2	112	6.4
1.0	0.5	12.3	87.6	110	6.4
1.5	0.8	12.2	87.3	111	6.4
2.0	1.0	12.2	88.0	114	6.4
2.5	1.1	12.2	88.3	117	6.4
3.0	1.3	12.5	90.6	119	6.4
3.5	1.4	12.9	93.7	119	6.4
4.0	1.4	12.9	94.0	119	6.4
4.5	1.6	12.8	93.4	120	6.4
5.0	1.9	12.6	89.8	121	6.4
5.5	2.4	11.5	86.2	121	6.5
6.0	3.2	7.1	54.6	134	6.5
6.5	3.2	7.2	55.0	142	6.5
7.0	3	7.6	57.8	154	6.5
7.5	3	7.6	57.9	157	6.5
8.0	3.1	7.4	55.8	160	6.6
8.5	3.1	7.3	55.6	160	6.6
9.0	3.1	7.2	55.0	163	6.6
9.5	3.2	6.6	50.1	170	6.6
10.0	3.2	6.5	49.4	171	6.6
10.5	3.2	6.4	49.1	171	6.6
11.0	3.2	6.4	41.0	171	6.6
11.4	3.4	1.0	7.9	202	6.4

30-Apr-02

Approximate air temp:?

Secci Depth: 5.5 ft. *Time:0900*

NW 12-19 mph with gusts *20% clouds*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	4.6	11.6	97.0	56	7.3
0.5	4.6	11.6	92.2	56	7.3
1.0	4.6	11.6	91.9	56	7.3
1.5	4.6	11.6	91.6	56	7.3
2.0	4.6	11.5	91.3	56	7.3
2.5	4.6	11.5	91.3	56	7.3
3.0	4.6	11.5	91.4	56	7.3
3.5	4.6	11.5	91.0	55	7.3
4.0	4.6	11.5	90.9	55	7.3
4.5	4.6	11.5	90.7	55	7.3
5.0	4.6	11.4	90.5	55	7.3
5.5	4.6	11.4	90.4	55	7.3
6.0	4.6	11.4	90.0	55	7.2
6.5	4.6	11.4	90.3	54	7.2
7.0	4.6	11.4	90.4	55	7.2
7.5	4.6	11.4	90.3	55	7.2
8.0	4.6	11.4	90.3	55	7.2
8.5	4.6	11.4	90.2	55	7.2
9.0	4.6	11.4	89.9	55	7.2
9.5	4.6	11.4	90.0	54.0	7.2
10.0	4.6	11.4	89.9	54.0	7.2
10.5	4.6	11.4	89.9	55.0	7.2
11.0	4.6	11.4	89.9	56.0	7.2
11.5	4.6	11.3	89.8	52.0	7.2
12.0	4.6	11.3	89.4	54.0	7.2
13.0	4.6	11.3	89.5	53.0	7.2
13.1	bottom				

15-May-02

Approximate air temp: 10 C

Secci Depth: 5.5 ft. *Time:0900*

Winds Var 4-7 mph *90% clouds*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	8.2	11.1	96.3	61	7.4
0.5	7.9	11.1	95.5	61	7.3
1.0	7.9	11.0	94.4	61	7.4
1.5	7.9	10.9	94.0	61	7.4
2.0	7.9	10.9	94.0	61	7.4
2.5	7.8	10.9	93.9	60	7.3
3.0	7.8	10.9	94.0	60	7.3
3.5	7.8	10.9	93.0	60	7.3
4.0	7.8	10.9	93.9	60	7.3
4.5	7.8	10.8	92.8	59	7.3
5.0	7.8	10.8	92.4	60	7.4
5.5	7.8	10.8	93.3	60	7.3
6.0	7.8	10.8	92.2	60	7.3
6.5	7.8	10.8	92.6	59	7.3
7.0	7.8	10.8	93.2	60	7.3
7.5	7.8	10.8	92.8	60	7.3
8.0	7.8	10.8	92.4	60	7.3
8.5	7.8	10.7	92.1	60	7.3
9.0	7.8	10.7	92.1	59	7.3
9.5	7.8	10.7	92.2	59	7.3
10.0	7.8	10.7	92.1	59	7.3
10.5	7.7	10.7	91.3	63	7.3
11.0	7.7	10.6	90.9	63	7.3
11.5	7.7	10.6	91.1	66	7.3
12.0	7.6	10.6	91.0	67	7.3
12.5	7.6	10.5	90.1	67	7.3
13.0	7.6	10.5	89.4	66	7.3
13.5	7.6	10.4	88.5	69	7.3
13.8	Bottom				

Indicates opening of intake forebay (10-15.5m)

Appendix B-1

Way Dam Hydroelectric Project
Vertical Profile Data -

6-Jun-02						20-Jun-02						2-Jul-02					
Approximate air temp:12 C						*Approximate air temp:22 C*						*Approximate air temp: 23.8 C*					
Secci Depth: 7.5 ft. - 43 ft.						*Secci Depth:6.0 ft.*				*Time:1850*		*Secci Depth: 7.0' 42-44'*				*Time:0830*	
Westerly winds 4-7 mph			*70% cloudy*			*light variable wind*			*100% overcast*			*westerly 8-12 mph*				*10% clouds*	
						clam to sw 4-7 mph			*light drizzle*							*hot and humid*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	16.4	9.2	95.4	70	7.4	0.0	18.1	8.3	89.3	74	7.6	0.0	24.4	7.6	92.5	84	7.8
0.5	16.5	9.0	94.2	70	7.4	0.5	18.1	8.4	90.5	74	7.6	0.5	24.4	7.6	93.1	84	7.8
1.0	15.9	9.0	93.1	70	7.4	1.0	18.0	8.3	88.7	75	7.6	1.0	24.4	7.7	93.7	84	7.7
1.5	15.8	9.0	92.7	70	7.4	1.5	18.0	8.1	88.1	75	7.5	1.5	24.4	7.7	93.5	84	7.7
2.0	15.0	9.0	91.2	69	7.4	2.0	17.9	8.1	87.5	75	7.5	2.0	24.4	7.6	93.1	84	7.7
2.5	14.6	9.0	91.9	69	7.4	2.5	17.9	8.0	86.0	76	7.5	2.5	24.1	7.6	92.4	83	7.7
3.0	14.6	9.0	90.8	69	7.4	3.0	17.7	8.0	85.2	76	7.5	3.0	23.5	7.3	87.9	84	7.6
3.5	14.6	9.0	91.0	69	7.4	3.5	17.7	7.9	84.4	76	7.5	3.5	22.0	7.0	81.6	84	7.5
4.0	14.4	9.1	90.2	70	7.4	4.0	17.5	7.7	82.4	77	7.4	4.0	21.4	6.9	79.7	84	7.5
4.5	14.3	8.9	89.3	69	7.4	4.5	17.4	7.7	81.8	77	7.4	4.5	20.8	6.6	74.7	84	7.4
5.0	14.3	8.9	88.8	69	7.4	5.0	16.9	7.5	78.6	79	7.4	5.0	20.3	6.3	70.2	84	7.4
5.5	14.3	8.9	88.3	69	7.3	5.5	16.7	7.2	75.3	79	7.3	5.5	19.5	5.8	64.6	86	7.3
6.0	14.3	8.9	88.2	69	7.3	6.0	16.6	7.2	75.0	78	7.3	6.0	19.2	5.6	61.5	87	7.3
6.5	14.2	8.8	87.6	69	7.3	6.5	16.5	7.1	74.3	78	7.3	6.5	18.9	5.5	59.8	88	7.3
7.0	14.2	8.7	86.9	69	7.3	7.0	15.5	6.5	68.1	84	7.3	7.0	18.6	5.3	58.1	87	7.2
7.5	14.1	8.7	85.6	68	7.2	7.5	15.5	6.4	65.3	86	7.2	7.5	17.8	5.1	53.0	86	7.2
8.0	13.6	8.5	83.0	69	7.3	8.0	15.4	6.3	64.9	85	7.2	8.0	17.4	4.7	49.9	85	7.2
8.5	13.2	8.4	81.5	70	7.2	8.5	14.5	5.9	59.5	85	7.2	8.5	17.1	4.2	44.3	82	7.1
9.0	11.9	8.2	77.3	77	7.2	9.0	14.0	5.9	58.6	84	7.2	9.0	17.0	3.9	40.6	81	7.0
9.5	11.8	8.1	76.0	77	7.2	9.5	13.8	5.9	57.6	82	7.2	9.5	16.9	3.9	41.9	82	7.0
10.0	11.8	8.0	75.8	77	7.2	10.0	13.5	5.9	57.8	81	7.1	10.0	16.6	4.0	41.7	83	7.0
10.5	11.8	8.0	75.6	80	7.2	10.5	13.4	5.8	57.0	81	7.1	10.5	16.0	4.3	44.7	86	7.0
11.0	11.8	8.0	75.3	80	7.2	11.0	13.3	5.9	57.4	81	7.1	11.0	15.8	4.4	45.0	86	7.0
11.5	11.7	8.0	75.2	78	7.1	11.5	13.3	5.8	57.1	81	7.1	11.5	15.3	4.4	43.5	87	7.0
12.0	11.7	8.0	75.3	80	7.1	12.0	13.3	5.8	56.8	81	7.1	12.0	15.1	4.2	42.3	86	7.0
12.5	11.7	8.0	75.2	80	7.2	12.2	13.3	5.7	56.1	81	7.1	12.5	14.7	4.1	40.7	86	7.0
13.0	11.7	8.0	75.2	79	7.2	12.2	bottom					13.0	14.3	4.0	39.8	85	7.0
												13.2	bottom				

[ ] Indicates opening of intake forebay (10-15.5m)

Appendix B-1

Way Dam Hydroelectric Project
Vertical Profile Data -

18-Jul-02						31-Jul-02						15-Aug-02					
Approximate air temp: 21 C						*Approximate air temp: 26.6 C*						*Approximate air temp: 18 C*					
Secci Depth:6.0 38-40'				*Time:0845*		*Secci Depth: 6.0 40-42'*				*Time: 1030*		*Secci 5.0 ft in 40-42'*				*Time: 0830*	
Winds NNE 12-18 mph				*95% clouds drizzle*		*waited out thunderstorm*						*ssw 4-7 mph*				*10 % clouds*	
						mostly calm						*variable wth gusts 8-12 mph*					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	25.7	7.6	94.0	97	7.9	0.0	24.9	7.5	92.0	99	7.8	0.0	22.6	7.4	85.5	104	7.7
0.5	25.7	7.6	94.0	91	7.9	0.5	24.9	7.5	92.3	99	7.7	0.5	22.6	7.5	86.5	104	7.7
1.0	25.7	7.5	94.0	91	7.9	1.0	24.9	7.6	93.8	98	7.7	1.0	22.6	7.4	86.1	104	7.7
1.5	25.7	7.5	94.3	91	7.9	1.5	24.9	7.6	92.6	98	7.7	1.5	22.5	7.4	85.4	104	7.6
2.0	25.7	7.5	93.5	91	7.9	2.0	24.9	7.4	91.1	98	7.7	2.0	22.5	7.4	85.4	104	7.6
2.5	25.7	7.5	93.0	90	7.9	2.5	24.8	7.4	91.6	98	7.7	2.5	22.5	7.2	84.7	104	7.6
3.0	25.7	7.4	92.1	90	7.9	3.0	24.7	7.3	89.1	97	7.6	3.0	22.5	7.0	80.8	104	7.6
3.5	25.7	7.5	92.5	90	7.9	3.5	24.2	6.5	79.2	97	7.4	3.5	22.5	6.8	78.3	104	7.5
4.0	25.6	7.4	91.7	90	7.8	4.0	23.8	6.0	72.2	98	7.3	4.0	22.5	6.8	79.4	104	7.5
4.5	25.5	7.3	89.8	91	7.8	4.5	23.3	5.4	64.7	99	7.3	4.5	22.4	6.6	77.2	104	7.4
5.0	25.5	7.3	89.9	90	7.8	5.0	23.1	5.3	63.1	99	7.2	5.0	22.2	5.8	66.3	104	7.3
5.5	24.3	5.1	61.9	91	7.4	5.5	22.6	4.5	54.1	102	7.0	5.5	22.0	5.2	60.4	104	7.2
6.0	22.6	4.4	53.3	97	7.2	6.0	22.3	4.1	48.5	103	7.0	6.0	21.8	4.8	54.4	104	7.2
6.5	21.7	3.6	41.9	100	7.1	6.5	22.1	3.9	45.7	108	7.0	6.5	21.5	4.2	48.4	104	7.1
7.0	20.7	3.0	35.8	100	7.0	7.0	21.8	3.6	43.1	110	6.9	7.0	21.3	3.7	42.1	103	7.1
7.5	20.3	2.6	28.6	99	7.0	7.5	21.4	3.3	38.3	114	6.9	7.5	21.2	3.1	35.7	102	7.0
8.0	19.8	2.3	25.8	96	6.9	8.0	21.2	3.1	36.5	115	6.9	8.0	21.0	3.0	34.9	101	7.0
8.5	19.4	2.0	22.6	97	6.9	8.5	21.0	2.8	33.1	116	6.9	8.5	20.8	2.8	31.3	102	7.0
9.0	19.0	1.8	16.5	93	6.9	9.0	20.6	2.0	21.0	113	6.9	9.0	20.2	2.4	26.5	104	6.9
9.5	18.1	1.4	15.1	92	6.9	9.5	20.0	1.7	17.4	112	6.9	9.5	20.1	2.1	23.2	104	6.9
10.0	18.1	1.7	17.9	93	6.9	10.0	19.7	1.6	16.3	113	6.9	10.0	19.8	1.6	16.3	105	6.9
10.5	17.7	1.8	18.6	93	6.9	10.5	19.2	1.4	15.7	110	6.8	10.5	19.7	1.4	14.5	106	6.9
11.0	17.4	1.9	19.5	92	6.9	11.0	19.1	1.3	14.1	109	6.8	11.0	19.7	1.4	15.6	106	6.9
11.5	17.2	1.9	20.0	92	7.0	11.5	18.9	1.0	11.4	108	6.8	11.5	19.5	1.3	14.2	106	6.9
12.0	16.0	2.0	20.3	90	7.0	12.0	17.7	0.9	10.0	102	6.8	12.0	18.8	0.7	7.2	106	6.9
12.5	15.9	2.1	21.1	90	7.0	12.5	17.4	1.0	10.6	101	6.9	12.5	18.4	0.5	5.8	106	6.9
12.8	bottom											13.0	18.5	0.5	5.5	107	6.9

Indicates opening of intake forebay (10-15.5m)

Appendix B-1

Way Dam Hydroelectric Project

Vertical Profile Data -

15-Aug-02						12-Sep-02						17-Oct-02					
Approximate air temp: 15.5 C						*Approximate air temp: 16.2 C*						*Approximate air temp: -4.2 C*					
Secci: 5.5 in 40-43'				*Time: 0845*		*Secci: 5.5 in 38-40'*				*Time 0930*		*Secci Depth:6.5ft. water depth40-42'*				*Time: 0920*	
calm				*Fog*		*Wind Westerly 8-12 mph*				*Clear Blue Sky*		*near calm or very slight winds*				*60 % clouds*	
				Water level us down slightly 1-2 '		*Reservoir down a couple of feet*				*Nice day*							
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	21.0	8.1	91.4	109	7.7	0.0	20.9	8.1	90.1	119	7.6	0.0	9.4	10.1	87.2	112	7.8
0.5	21.0	8.1	91.2	109	7.7	0.5	20.9	8.0	89.5	119	7.6	0.5	9.4	70.0	86.1	112	7.7
1.0	21.0	7.9	89.7	110	7.7	1.0	20.8	7.9	87.0	119	7.6	1.0	9.4	9.9	85.9	112	7.7
1.5	21.0	7.9	89.1	108	7.7	1.5	20.8	7.8	86.0	119	7.6	1.5	9.4	9.9	85.4	112	7.7
2.0	20.9	7.5	84.2	108	7.6	2.0	20.8	7.9	88.0	119	7.5	2.0	9.4	9.8	85.1	112	7.7
2.5	20.9	7.4	83.2	108	7.5	2.5	20.8	7.8	86.0	119	7.5	2.5	9.4	9.8	85.1	112	7.7
3.0	20.8	7.3	82.0	108	7.5	3.0	20.8	7.8	87.0	119	7.5	3.0	9.4	9.7	84.9	112	7.7
3.5	20.8	7.0	79.0	108	7.5	3.5	20.8	7.9	87.3	119	7.5	3.5	9.4	9.8	84.6	112	7.7
4.0	20.8	6.9	77.7	108	7.4	4.0	20.8	7.8	85.9	119	7.5	4.0	9.3	9.7	84.5	112	7.7
4.5	20.8	6.8	75.8	108	7.4	4.5	20.8	7.8	85.5	119	7.5	4.5	9.3	9.7	84.2	112	7.7
5.0	20.6	6.4	71.4	108	7.3	5.0	20.7	7.2	80.3	118	7.4	5.0	9.3	9.7	83.9	112	7.7
5.5	20.4	5.5	60.9	109	7.2	5.5	20.6	7.0	76.5	118	7.4	5.5	9.3	9.7	84.0	112	7.7
6.0	20.2	5.5	61.4	111	7.2	6.0	20.4	6.8	75.5	118	7.3	6.0	9.3	9.7	84.5	112	7.7
6.5	20.1	5.6	62.4	116	7.2	6.5	20.5	6.7	74.7	119	7.3	6.5	9.3	9.7	84.0	112	7.7
7.0	20.0	5.8	64.0	118	7.2	7.0	20.4	6.7	73.2	122	7.3	7.0	9.3	9.6	83.7	112	7.7
7.5	19.8	5.6	61.8	121	7.2	7.5	20.3	6.4	69.8	123	7.3	7.5	9.3	9.6	83.5	112	7.7
8.0	19.7	5.4	59.2	123	7.1	8.0	20.3	6.2	68.8	123	7.2	8.0	9.3	9.6	83.1	112	7.7
8.5	19.6	5.0	54.2	121	7.1	8.5	20.3	6.2	68.3	124	7.2	8.5	9.3	9.6	83.1	112	7.7
9.0	19.0	4.5	48.6	133	7.1	9.0	20.2	5.8	64.1	120	7.3	9.0	9.3	9.6	83.1	112	7.7
9.5	18.7	4.6	50.2	135	7.1	9.5	20.2	5.7	62.0	128	7.2	9.5	9.3	9.6	83.1	112	7.7
10.0	18.6	4.5	48.2	136	7.1	10.0	19.7	4.7	52.2	139	7.1	10.0	9.3	9.6	83.1	112	7.7
10.5	18.5	4.4	47.6	136	7.1	10.5	19.7	4.7	50.0	139	7.1	10.5	9.3	9.6	83.2	112	7.7
11.0	18.5	4.3	46.4	137	7.1	11.0	19.4	4.3	46.9	147	7.1	11.0	9.3	9.6	83.0	112	7.7
11.5	18.4	4.4	46.4	137	7.1	11.5	19.3	4.3	45.3	147	7.1	11.5	9.3	9.6	83.0	112	7.7
12.0	18.3	4.2	45.9	138	7.1	12.0	19.3	4.1	44.7	149	7.1	12.0	9.3	9.6	82.8	112	7.7
12.5	18.0	2.4	25.2	144	7.0	12.5	19.3	4.1	44.3	148	7.1	12.5	9.3	9.6	83.2	112	7.7
13.0	18.0	2.1	22.6	145	7.0							13.0	9.3	9.6	83.5	112	7.7
												13.1	bottom				

Appendix B- 2
Hemlock Hydroelectric Project
Vertical Profile Data

14-Feb-02

Approximate air temp: 1.6 C
Secci Depth: no data *Time:0910*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	1.4	11.8	85.5	131	7.0
0.5	1.4	12.2	88.8	131	7.0
1.0	1.4	12.3	89.4	132	6.9
1.5	1.4	12.3	89.7	131	6.9
2.0	1.4	12.4	90.0	131	6.9
2.5	1.4	12.4	90.2	131	6.9
2.7	1.4	12.5	90.7	131	6.9

Opening of intake forebay: Greater than 9 m

30-Apr-02

no secci depth taken *Time:1015* *Sunny*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	4.9	11.8	94.1	50	7.3
0.5	4.9	11.8	94.5	50	7.3
1.0	4.9	11.8	94.7	56	7.4
1.5	4.9	11.8	94.6	56	7.3
2.0	4.9	11.9	94.5	56	7.4
2.5	4.9	11.9	95.2	57	7.4
3.0	4.9	12.0	95.4	56	7.4
3.4	4.9	12.0	96.0	57	7.4

15-May-02

Approximate air temp: 10 C
No Secci Depth *Time:1015*
winds var 4-7 mph *100 % clouds*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	7.9	11.1	95.7	61	7.4
0.5	7.9	11.2	96.1	61	7.4
1.0	7.9	11.2	95.9	61	7.4
1.5	7.8	11.2	96.4	61	7.4
2.0	7.9	11.2	96.7	61	7.4
2.5	7.9	11.3	96.8	62	7.4
3.0	7.9	11.4	97.6	62	7.4
3.5	7.9	11.6	99.7	62	7.5

Appendix B- 2
Hemlock Hydroelectric Project
Vertical Profile Data

6-Jun-01						20-Jun-02						2-Jul-02					
Approximate air temp: 26 C						*Approximate air temp: 24 C*						*Approximate air temp: 26.6 C*					
No Secci Depth taken			*Time:0945*			*No Secci Depth taken*			*Time:1020*			*No Secci Depth taken*			*Time:0930*		
Light variable winds			*20 % Cloudy/sunny*			*Westerly 8-12 mph*			*30 % clouds and bright sun*			*stron 8-12 mph westerly*			*30 % clear*		
						warm and humid											
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	13.2	8.5	82.6	74	7.2	0.0	15.8	7.9	80.2	87	7.2	0.0	19.1	6.0	66.5	88	7.1
0.5	13.2	8.5	82.8	74	7.2	0.5	15.6	7.8	79.9	87	7.2	0.5	19.1	6.0	66.1	88	7.1
1.0	13.2	8.5	82.2	74	7.1	1.0	15.5	7.9	80.4	87	7.2	1.0	19.1	6.0	66.1	88	7.1
1.5	13.2	8.4	82.4	74	7.1	1.5	15.5	7.9	80.9	87	7.2	1.5	19.0	6.0	66.4	88	7.1
2.0	13.2	8.5	83.3	74	7.1	2.0	15.5	7.8	79.8	87	7.2	2.0	19.1	6.1	66.9	88	7.2
2.5	13.2	8.6	83.4	74	7.1	2.5	15.5	8.0	80.2	87	7.2	2.5	19.1	6.2	67.9	88	7.1
3.0	13.2	8.7	84.1	74	7.1	3.0	15.5	8.0	80.6	87	7.2	3.0	19.0	6.2	68.1	88	7.2
3.5	13.2	8.7	84.3	74	7.2	3.4	15.4	8.0	85.7	87	7.2	3.4	19.0	6.4	69.8	88	7.2
3.9	13.2	8.9	86.3	74	7.1												

Opening of intake forebay: Greater than 9 m

Appendix B- 2
Hemlock Hydroelectric Project
Vertical Profile Data

18-Jul-02						30-Jul-02						15-Aug-02					
Approximate air temp: 21 C *No Secci Depth taken* *NNE winds* *8-12 mph*			*Time:1000*			*Approximate air temp: 30 C* *Secci depth 7.0 ft*			*Time:1315*			*Approximate air temp: 21 C* *No Secci Depth taken* *Northerly 8-12 mph*			*Time:1000* *Clear Breezy*		
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	20.8	5.5	61.8	98	7.1	0.0	23.1	6.6	77.9	110	7.4	0.0	21.3	6.1	69.0	105	7.2
0.5	20.7	5.4	61.3	98	7.1	0.5	23.0	6.4	75.4	109	7.3	0.5	21.3	6.1	69.0	106	7.2
1.0	20.8	5.4	61.3	98	7.1	1.0	22.9	6.3	75.4	109	7.2	1.0	21.3	6.1	69.5	105	7.2
1.5	20.8	5.5	61.8	98	7.1	1.5	22.4	6.2	72.7	108	7.2	1.5	21.2	6.2	69.7	105	7.2
2.0	20.8	5.5	62.5	98	7.1	2.0	22.4	6.2	72.2	108	7.2	2.0	21.2	6.2	70.2	106	7.2
2.5	20.8	5.5	62.3	98	7.1	2.5	22.4	6.1	71.8	108	7.2	2.5	21.2	6.3	70.3	106	7.2
3.0	20.7	5.5	62.4	98	7.2	3.0	22.4	6.1	71.6	108	7.2	3.0	21.2	6.2	70.1	106	7.2
3.5	20.8	5.6	63.2	97	8.2							3.5	21.2	6.4	72.7	107	7.3

Opening of intake forebay: Greater than 9 m

Appendix B- 2
Hemlock Hydroelectric Project
Vertical Profile Data

28-Aug-02

Approximate air temp: 24 C
No Secci Depth taken
light variable winds
Time:1510
10 % clouds
very nice

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	21.3	8.4	95.8	117	7.8
0.5	21.3	8.4	95.2	117	7.8
1.0	21.4	8.4	95.5	117	7.8
1.5	21.4	8.4	95.5	118	7.8
2.0	21.3	8.5	96.1	118	7.8
2.6	21.4	8.5	97.3	121	7.9

11-Sep-02

Approximate air temp: 19.2
No Secci Depth taken
NW winds 8-12 mph
Time:1615
Less than 10% clouds
Beautiful sunny day

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	21.5	7.4	82.5	124	7.7
0.5	21.5	7.4	82.4	124	7.7
1.0	21.5	7.3	82.5	124	7.7
1.5	21.5	7.3	82.9	124	7.7
2.0	21.6	7.4	82.4	124	7.7
2.5	21.6	7.4	83.0	125	7.7
3.0	21.6	7.5	83.9	125	7.7
3.5	21.6	7.6	85.5	125	7.7

17-Oct-02

Approximate air temp: 5.2
No Secci Depth taken
Time:1630
water high

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	9.8	9.8	86.6	114	7.9
0.5	9.8	9.9	86.1	114	7.9
1.0	9.8	9.8	86.9	113	7.8
1.5	9.9	9.9	86.9	114	7.8
2.0	9.9	10.0	88.0	114	7.8
2.5	9.9	10.1	88.9	114	7.8
3.0	9.8	10.2	90.0	114	7.8
3.4	9.9	10.5	91.8	115	7.8

Opening of intake forebay: Greater than 9 m

Appendix B-3

Paint Diversion Canal Hydroelectric Project

Vertical Profile Data -

14-Feb-02						30-Apr-02						15-May-02					
Approximate air temp:1.6 C						*no secci depth taken*						*Approximate air temp: 10 C*					
Secci Depth: 8.5 ft.				*Time:1000*						*Time:1100*		*no secci depth taken*				*Time:1050*	
												Winds Var 4-7 mph				*100 % clouds*	
												Took readings from shore downstream of dam gate					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth(m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	0.0	12.8	89.3	179	7.1	0.0	4.7	11.8	93.6	84	7.4	0.0	8.6	10.8	94.5	94	7.4
0.5	0.0	12.7	88.8	179	7.1	0.5	4.7	11.6	92.2	83	7.4	0.5	8.6	10.7	93.6	84	7.4
1.0	0.0	12.5	88.3	179	7.1	1.0	4.7	11.6	92.0	84	7.4	1.0	8.6	10.7	89.9	83	7.4
1.5	0.0	12.6	87.9	175	7.1	1.5	4.7	11.6	92.0	83	7.4	1.5	8.6	10.7	92.4	83	7.4
2.0	0.0	12.5	87.9	179	7.1	2.0	4.7	11.6	91.5	83	7.4	2.0	8.6	10.5	91.9	83	7.3
2.5	0.1	12.5	87.4	179	7.1	2.5	4.7	11.5	90.7		7.4	2.5	8.6	10.5	91.0	83	7.4
3.0	0.1	12.3	86.5	183	7.2	3.0	4.7	11.4	90.6	83	7.4	2.8	8.6	10.4	90.6	83	7.4

Appendix B-3

Paint Diversion Canal Hydroelectric Project

Vertical Profile Data -

6-Jun-02						20-Jun-02						2-Jul-02					
Approximate air temp: 18 C						*Approximate air temp: 26.6 C*						*Approximate air temp: 26.6 C*					
no secci depth taken			*Time:1030*			*no secci depth taken*			*Time:1130*			*no secci depth taken*			*Time:1030*		
Westerly winds 8-17 mph			*blue sky*			*westerly 8-12 mph*			*20% clouds with blue sky*			*strong 12-18 mph westerly*			*50 % clouds*		
Took readings from shore downstream of dam gate																	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	16.0	9.1	94.9	154	7.5	0.0	19.8	8.2	90.5	104	7.5	0.0	27.9	7.3	94.7	143	7.7
0.5	15.6	9.2	94.2	154	7.6	0.5	19.8	8.0	89.0	108	7.5	0.5	27.8	7.2	93.2	143	7.6
1.0	15.3	8.9	90.4	155	7.6	1.0	19.7	7.9	88.3	109	7.5	1.0	27.8	7.1	91.9	142	7.6
1.5	15.2	8.8	90.2	153	7.6	1.5	19.1	7.7	84.8	109	7.4	1.5	27.6	7.0	90.1	142	7.6
2.0	15.1	8.6	88.2	149	7.6	2.0	19.1	7.7	84.6	108	7.4	2.0	27.6	6.8	87.2	142	7.5
2.5	15.0	8.4	85.8	148	7.6	2.5	19.1	7.7	84.6	109	7.4	2.5	27.4	6.5	84.3	141	7.5
2.8	15.0	8.4	84.7	148	7.6	2.8	19.3	7.6	84.4	109	7.3						

Appendix B-3

Paint Diversion Canal Hydroelectric Project

Vertical Profile Data -

18-Jul-02						30-Jul-02						15-Aug-02					
Approximate air temp: 23 C						*Approximate air temp: 22.7 C*						*Approximate air temp: 24 C*					
no secci depth taken				*Time:1100*		*Secci 5.0 ft*				*Time:0830*		*no secci depth taken*				*Time:1100*	
NNE winds				*50% overcast*		*clam*				*mostly clear*		*clear breezy*					
8-12 mph										*high thin clouds*		*northern breeze 8-12 mph*					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	26.0	7.3	91.5	172	7.9	0.0	24.9	6.6	79.5	147	7.6	0.0	22.5	7.0	81.3	146	7.5
0.5	26.0	7.2	89.5	172	7.9	0.5	24.4	6.5	78.5	148	7.6	0.5	22.5	7.0	81.3	147	7.5
1.0	25.9	7.0	86.8	171	7.9	1.0	24.3	6.6	80.5	148	7.5	1.0	22.7	6.9	79.8	146	7.5
1.5	25.7	7.0	87.7	171	7.9	1.5	24.3	6.6	80.0	145	7.5	1.5	22.6	6.8	79.9	146	7.5
2.0	25.6	6.8	86.4	171	7.9	2.0	24.3	6.6	79.6	145	7.5	2.0	22.7	6.9	80.0	146	7.5
2.5	25.5	6.8	84.9	176	7.8	2.5	24.3	6.5	79.3	145	7.5	2.5	22.6	6.7	77.5	146	7.5
3.0	25.4	6.6	80.6	169	7.8	3.5	24.3	6.5	78.6	145	7.5	3.0	22.4	6.7	77.9	147	7.5
3.5	25.3	6.5	79.4	176	7.8	4.0	24.3	6.4	78.6	145	7.5	3.5	22.5	6.7	78.1	147	7.5
3.9	25.3	6.3	77.5	176	7.8	4.5	24.3	6.5	78.6	145	7.5	4.0	22.4	6.7	78.1	147	7.5
						4.9	23.9	6.0	72.6	145	7.4	4.2	bottom				

Appendix B-3

Paint Diversion Canal Hydroelectric Project

Vertical Profile Data -

28-Aug-02						11-Sep-02						16-Oct-02					
Approximate air temp: 24 C						*Approximate air temp: 17.2 C*						*Approximate air temp:5.2 C*					
no secci depth taken				*Time:1555*		*no secci depth taken*				*Time:1715*		*no secci depth taken*				*Time:1720*	
southerly winds 12-18 mph				*10 % clouds*		*5% clouds*				*pleasant sunny day*		*5% clouds*				*pleasant sunny day*	
				very nice		*North West winds 8-12 mph*						*North West winds 8-12 mph*					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	21.0	8.3	94.0	151	7.8	0.0	22.2	8.3	95.0	184	7.9	0.0	6.2	10.5	85.6	94	7.5
0.5	20.6	8.0	89.6	150	7.8	0.5	22.2	8.2	93.7	184	7.9	0.5	6.2	10.4	83.9	94	7.3
1.0	20.6	7.9	89.3	149	7.7	1.0	22.1	7.9	89.0	184	7.8	1.0	6.7	10.4	83.4	94	7.3
1.5	20.2	8.0	88.3	149	7.7	1.5	21.9	7.8	88.4	185	7.8	1.5	6.2	10.3	82.9	94	7.5
2.0	20.1	7.8	87.1	148	7.7	2.0	21.8	7.8	88.3	184	7.8	2.0	6.2	10.3	82.3	94	7.5
2.5	20.0	7.8	86.6	148	7.7	2.5	21.7	7.7	87.3	184	7.8	2.5	6.2	10.2	82.0	94	7.5
3.0	20.0	7.7	85.5	149	7.7	2.9	21.4	7.6	85.9	184	7.8						

Appendix B- 4

Peavy Hydroelectric Project
Vertical Profile Data -

14-Feb-02						30-Apr-02						15-May-02					
Approximate air temp:1.6 C												*Approximate air temp: 10 C*					
Secci Depth:5.5 ft.				*Time:1130*		*Secci Depth: 6.0 ft.*						*Secci Depth: 5.5 ft.*				*Time:1215*	
						strong NW winds 18-24 mph				*sunny 10% clouds*		*Winds Var 4-7 mph*				*Overcast and sprinkles*	
Ice thickness: 12"																	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	0.2	13.2	92.7	133	7.2	0.0	5.3	11.7	94.1	61	7.2	0.0	8.9	11.0	96.7	69	7.4
0.5	0.3	13.2	92.5	132	7.2	0.5	5.2	11.6	93.3	60	7.2	0.5	8.9	10.9	95.8	68	7.4
1.0	0.7	12.9	91.8	133	7.1	1.0	5.3	11.5	92.5	61	7.2	1.0	8.4	10.9	94.9	70	7.4
1.5	0.7	12.8	91.1	133	7.1	1.5	5.3	11.4	92.2	61	7.2	1.5	8.3	10.9	94.7	69	7.4
2.0	0.8	12.7	90.8	133	7.1	2.0	5.3	11.4	92.1	61	7.2	2.0	8.2	10.8	93.8	68	7.3
2.5	0.8	12.7	90.4	132	7.1	2.5	5.3	11.4	91.5	61	7.2	2.5	8.2	10.7	93.8	68	7.3
3.0	0.8	12.6	90.3	132	7.1	3.0	5.2	11.4	91.5	61	7.2	3.0	8.3	10.4	90.3	68	7.3
3.5	0.8	12.6	90.3	133	7.1	3.5	5.2	11.4	91.4	61	7.2	3.5	8.3	10.3	89.1	68	7.3
4.0	0.8	12.6	90.2	133	7.1	4.0	5.2	11.3	90.9	61	7.2	4.0	8.3	10.3	89.0	68	7.3
4.5	0.9	12.6	90.0	134	7.1	4.5	5.2	11.2	90.7	60	7.2	4.5	8.3	10.3	89.3	68	7.3
5.0	0.9	12.6	90.0	134	7.1	5.0	5.2	11.2	90.7	60	7.2	5.0	8.3	10.2	88.8	68	7.3
5.5	1	12.5	89.7	134	7.1	5.5	5.1	11.2	90.3	58	7.2	5.5	8.3	10.3	89.2	68	7.3
6.0	1.1	12.2	89.3	133	7.1	6.0	5.1	11.3	90.2	59	7.2	6.0	8.3	10.3	89.6	67	7.3
6.5	1.2	12.4	88.7	133	7.2	6.5	5.1	11.2	90.1	60	7.2	6.5	8.3	10.3	89.7	68	7.3
7.0	1.3	12.2	88.6	139	7.1	7.0	5.1	11.2	90.3	59	7.2	7.0	8.3	10.3	89.2	68	7.3
7.5	1.3	11.9	86.6	142	7.1	7.5	5.1	11.2	89.9	59	7.2	7.5	8.3	10.2	88.3	67	7.3
8.0	1.3	11.8	85.8	143	7.2	8.0	5.2	11.1	89.3	58	7.2	8.0	8.2	10.1	88.1	68	7.3
8.5	1.4	11.6	84.2	146	7.2	8.5	5.2	11.1	89.5	58	7.2	8.5	8.1	10.2	88.0	67	7.3
9.0	1.4	11.6	83.9	145	7.2	9.0	5.3	11.1	89.2	58	7.2	9.0	8.1	10.1	87.7	67	7.3
9.5	1.4	11.5	83.8	145	7.2	9.5	5.3	11.1	89.4	58	7.2	9.5	8.1	10.1	81.3	66	7.3
10.0	1.5	11.5	83.4	145	7.2	10.0	5.3	11.1	89.4	60	7.2	10.0	8.0	10.1	87.8	67	7.3
10.5	1.5	11.5	84.2	145	7.2	10.5	5.3	11.1	89.3	59	7.2	10.5	8.0	10.1	87.7	66	7.3
11.0	1.6	11.2	79.3	147	7.2	11.0	5.3	11.1	89.5	60	7.2	11.0	8.0	10.2	87.6	66	7.3
11.5	1.7	11.1	81.2	146	7.2	11.5	5.3	11.1	89.3	62	7.2	11.5	8.0	10.1	86.9	67	7.3
12.0	1.8	11.1	80.7	146	7.2	12.0	5.3	11.0	89.2	58	7.2	12.0	8.0	10.2	88.3	65	7.3
12.5	2.1	10.7	78.5	146	7.2	12.5	5.3	11.0	89.3	60	7.2	12.5	8.0	10.2	88.0	66	7.3
13.0	2.3	10.1	75.4	146	7.2	13.0	5.3	11.0	89.3	61	7.2	13.0	8.0	10.2	88.4	66	7.3
13.5	2.4	10.1	75.0	145	7.2	13.5	5.3	11.1	89.0	61	7.2	13.5	8.0	10.2	88.3	68	7.3
	2.5	9.8	75.0	145	7.2	14.0	5.2	11.1	89.2	61	7.2	14.0	8.0	10.2	88.0	67	7.3
14.5	2.7	9.5	71.6	144	7.2	14.5	5.2	11.1	89.6	60	7.2	14.5	8.0	10.2	87.8	67	7.3
15.0	2.8	9.1	69.0	144	7.2	15.0	5.2	11.1	89.5	59	7.1	15.0	8.0	10.2	87.7	66	7.3
15.5	2.9	9.0	68.4	143	7.1	15.5	5.2	11.1	89.5	60	7.2	15.5	8.0	10.2	87.9	65	7.3
16.0	2.9	8.8	67.0	143	7.2	16.0	5.2	11.1	89.5	58	7.2	16.0	8.0	10.2	87.9	67	7.3
16.5	3	8.7	66.3	143	7.1	16.5	5.2	11.1	89.5	61	7.2	16.5	8.0	10.2	87.9	65	7.3
17.0	3	8.7	65.8	143	7.1	17.0	5.1	11.1	89.6	60	7.2	17.0	8.0	10.2	87.9	65	7.3
17.5	3	8.6	65.2	143	7.1	17.5	5.1	11.1	89.5	59	7.2	17.5	8.0	10.2	88.0	66	7.3
18.0	3.1	8.5	64.7	143	7.1	18.0	5.1	11.1	89.1	57	7.2	18.0	8.0	10.2	87.7	67	7.3
18.5	3.1	8.3	63.8	142	7.1	18.5	5.1	11.1	88.8	59	7.2	18.5	8.0	10.2	87.9	64	7.3
19.0	3.1	8.4	63.6	143	7.1	18.9	5.1	11.1	89.1	58	7.2	19.0	8.0	10.2	88.0	64	7.3
19.5	3.1	4.6	34.5	150	7.1	19.1						19.5	8.0	10.2	87.3	65	7.3
												19.6	bottom				

Highlighted Depth: Opening of the intake forebay (2 to 10 m)

Appendix B- 4

Peavy Hydroelectric Project
Vertical Profile Data -

6-Jun-02						20-Jun-02						2-Jul-02					
Approximate air temp: 21 C						*Approximate air temp: 29 C*						*Approximate air temp: 26.6 C*					
Secci Depth:6.0 ft. water depth 65 to 66'				*Time:1130*		*Secci Depth: 5.0 ft. water depth 62to 67'*				*Time: 1230*		*Secci Depth:6.0 ft. water depth 62to 66'*				*Time: 1130*	
WSW winds 8-12 mph				*blue sky*		*westerly 8-12 mph*				*10% clouds blue sky*		*strong 12-18 mph westerly*				*60% clouds*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	18.8	8.5	93.9	88	7.3	0.0	19.2	8.1	89.4	98	7.4	0.0	26.2	7.5	94.8	104	7.7
0.5	18.3	8.6	92.8	88	7.3	0.5	19.1	8.1	90.2	98	7.4	0.5	26.2	7.6	95.9	104	7.6
1.0	18.0	8.7	90.5	86	7.3	1.0	18.8	8.2	89.9	98	7.4	1.0	26.0	7.6	96.1	104	7.6
1.5	15.9	8.6	88.9	87	7.3	1.5	18.7	8.1	89.2	98	7.4	1.5	25.9	7.6	94.0	104	7.6
2.0	15.6	8.6	88.7	86	7.3	2.0	18.4	8.1	88.8	97	7.4	2.0	25.4	7.5	92.8	103	7.6
2.5	15.5	8.6	88.6	87	7.3	2.5	18.3	8.2	88.6	97	7.4	2.5	25.1	7.4	91.2	102	7.5
3.0	15.4	8.6	87.8	87	7.3	3.0	18.3	8.2	88.9	97	7.4	3.0	25.0	7.4	90.6	102	7.5
3.5	15.2	8.5	86.7	86	7.3	3.5	18.2	8.2	88.2	97	7.4	3.5	24.7	7.1	87.3	101	7.4
4.0	14.5	8.5	84.6	82	7.3	4.0	17.9	8.1	87.1	97	7.4	4.0	22.5	6.6	77.4	96	7.3
4.5	13.9	8.3	81.9	82	7.3	4.5	17.7	8.0	85.4	96	7.4	4.5	21.9	6.2	72.0	96	7.3
5.0	13.4	8.3	81.7	79	7.2	5.0	17.7	7.9	84.9	95	7.3	5.0	21.2	6.2	70.7	95	7.2
5.5	12.8	8.3	80.3	78	7.2	5.5	17.3	7.8	87.7	95	7.3	5.5	20.6	6.0	67.6	94	7.2
6.0	11.9	8.5	80.7	75	7.2	6.0	16.9	7.4	78.3	94	7.3	6.0	19.0	5.8	63.9	91	7.2
6.5	11.7	8.5	79.9	75	7.2	6.5	16.8	7.2	75.0	96	7.3	6.5	18.8	5.8	63.8	90	7.2
7.0	11.6	8.5	79.3	74	7.1	7.0	16.3	7.0	71.9	95	7.2	7.0	18.3	5.8	62.6	89	7.1
7.5	11.5	8.5	79.0	74	7.1	7.5	16.0	6.8	70.3	94	7.2	7.5	17.6	5.5	59.4	89	7.1
8.0	11.4	8.4	78.6	73	7.1	8.0	15.8	6.8	70.1	91	7.2	8.0	17.2	5.3	55.9	89	7.1
8.5	11.4	8.4	78.6	73	7.1	8.5	15.3	6.9	70.3	87	7.1	8.5	16.6	5.2	53.9	88	7.2
9.0	11.1	8.5	79.0	74	7.2	9.0	15.5	6.8	69.9	89	7.2	9.0	16.1	5.1	52.6	86	7.2
9.5	11.0	8.4	77.3	73	7.2	9.5	14.7	6.7	67.1	85	7.2	9.5	15.0	5.1	51.5	83	7.2
10.0	10.9	8.3	76.7	73	7.2	10.0	14.1	6.4	63.6	82	7.3	10.0	13.3	4.8	47.6	80	7.1
10.5	10.8	8.2	76.3	73	7.1	10.5	12.3	6.2	60.0	77	7.1	10.5	12.3	4.8	45.7	76	7.1
11.0	10.8	8.2	75.9	74	7.1	11.0	12.0	6.3	59.7	75	7.1	11.0	11.9	4.8	45.0	76	7.1
11.5	10.6	8.2	75.5	74	7.1	11.5	11.6	6.3	59.0	73	7.0	11.5	11.6	4.8	44.6	75	7.0
12.0	10.5	8.1	74.2	73	7.1	12.0	11.3	6.2	58.3	75	7.0	12.0	11.2	4.7	43.2	75	7.0
12.5	10.4	8.0	73.4	73	7.1	12.5	11.1	6.1	57.1	74	7.0	12.5	11.0	4.6	42.6	75	7.0
13.0	10.3	8.0	72.7	72	7.0	13.0	10.8	6.0	55.8	74	7.0	13.0	10.9	4.6	42.1	75	7.0
13.5	10.3	7.9	72.2	72	7.0	13.5	10.7	6.0	55.3	73	6.9	13.5	10.8	4.6	41.7	74	7.0
14.0	10.2	7.9	71.6	73	7.1	14.0	10.6	6.0	55.0	72	6.9	14.0	10.7	4.5	41.7	74	6.9
14.5	10.1	7.9	71.4	72	7.0	14.5	10.5	6.0	54.6	74	6.9	14.5	10.6	4.5	41.3	74	6.9
15.0	10.1	7.8	71.2	74	7.0	15.0	10.4	5.9	54.3	75	6.9	15.0	10.5	4.5	41.3	74	6.9
15.5	9.9	7.8	70.6	73	7.0	15.5	10.3	5.9	54.0	75	6.9	15.5	10.5	4.5	40.9	75	6.9
16.0	9.8	7.7	69.2	72	7.0	16.0	10.2	5.9	53.8	75	6.9	16.0	10.4	4.4	40.3	75	6.9
16.5	9.7	7.4	66.3	72	7.0	16.5	10.0	5.7	52.4	75	6.9	16.5	10.3	4.4	39.9	75	6.9
17.0	9.6	7.3	65.3	74	7.0	17.0	9.8	5.2	48.1	74	6.9	17.0	10.1	4.2	37.9	75	6.8
17.5	9.5	7.2	64.3	74	7.0	17.5	9.6	5.1	46.4	78	6.9	17.5	10.1	4.0	35.9	75	6.8
18.0	9.4	6.8	60.8	74	7.0	18.0	9.3	4.2	38.2	76	6.9	18.0	9.9	3.5	32.4	75	6.8
18.5	9.3	6.1	54.5	76	6.9	18.5	9.3	4.1	37.0	80	6.9	18.5	9.9	3.2	30.0	76	6.8
19.0	9.2	5.9	52.4	75	6.9	19.0	9.2	3.8	35.2	78	6.9	19.0	9.8	2.9	26.9	78	6.8
19.5	9.1	5.7	50.2	76	6.9	19.5	9.2	3.6	31.6	83	7.0	19.5	9.5	2.8	24.8	80	6.8
19.8												19.8	9.6	2.8	25.5	80	6.8

Highlighted Depth: Opening of the intake forebay (2 to 10 m)

Appendix B- 4

Peavy Hydroelectric Project
Vertical Profile Data -

18-Jul-02						29-Jul-02						15-Aug-02					
Approximate air temp. 23 C						*Approximate air temp. 26.6 C*						*Approximate air temp. 24 C*					
Secci Depth:6.0 ft. water depth 64 to 67'				*Time: 1200*		*Secci Depth 5.0 ft. water depth 65' to 66'*				*Time: 1400*		*ci Depth:7.0 ft. water depth 65' to*				*Time: 1230*	
NNE winds				*general overcast*		*NNW winds*				*20 % clouds*		*southerly 8-12 mph*				*20% clouds*	
8-12 mph				*60 % clouds*		*4-7 mph*						*gusty and variable*				*mostly clear*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	26.1	7.3	91.8	104	8.0	0.0	25.7	7.9	99.0	116	8.0	0.0	23.6	7.2	87.4	111	7.5
0.5	26.1	7.3	91.0	103	8.0	0.5	25.7	7.9	98.1	115	7.9	0.5	23.7	7.2	84.8	111	7.5
1.0	25.9	7.4	92.5	103	8.0	1.0	25.6	7.8	97.2	115	7.9	1.0	22.9	7.3	84.9	111	7.5
1.5	25.9	7.4	92.4	103	8.0	1.5	25.5	7.7	95.1	115	7.9	1.5	22.8	7.3	84.4	111	7.4
2.0	25.8	7.2	90.7	103	7.9	2.0	25.2	7.6	94.0	115	7.9	2.0	22.6	6.9	80.0	111	7.4
2.5	25.6	7.1	89.3	103	7.9	2.5	25.2	7.6	93.7	115	7.8	2.5	22.5	6.5	76.4	111	7.4
3.0	25.6	7.2	89.3	103	7.9	3.0	24.8	7.4	90.2	115	7.7	3.0	22.5	6.5	75.8	111	7.3
3.5	25.6	7.0	88.4	103	7.8	3.5	24.8	7.3	87.8	114	7.7	3.5	22.4	6.6	75.7	111	7.3
4.0	25.5	7.0	87.0	103	7.7	4.0	24.1	7.0	84.6	113	7.6	4.0	22.1	5.4	62.5	109	7.2
4.5	25.1	6.4	74.4	101	7.5	4.5	23.8	6.9	81.8	113	7.6	4.5	21.9	4.6	53.3	108	7.1
5.0	22.5	5.2	60.9	96	7.1	5.0	23.1	6.2	73.1	112	7.5	5.0	21.8	4.6	52.5	108	7.1
5.5	22.2	5.1	59.5	96	7.0	5.5	23.0	6.1	72.1	111	7.4	5.5	21.7	4.5	51.7	108	7.1
6.0	21.7	4.8	54.7	95	7.0	6.0	22.8	5.8	67.6	111	7.4	6.0	21.6	4.1	48.1	108	7.1
6.5	21.4	4.7	53.5	94	6.9	6.5	22.6	5.4	62.5	111	7.3	6.5	21.5	4.0	45.2	108	7.0
7.0	21.0	4.4	50.7	94	6.9	7.0	22.2	4.8	54.0	111	7.2	7.0	21.5	3.8	42.7	108	7.1
7.5	20.8	4.2	48.6	94	6.9	7.5	21.9	4.3	50.2	110	7.2	7.5	21.4	3.5	40.4	108	7.0
8.0	20.4	3.8	42.9	93	6.9	8.0	21.3	3.7	40.2	107	7.1	8.0	21.3	3.5	38.8	108	7.0
8.5	19.9	3.2	36.3	93	6.9	8.5	20.9	2.9	31.3	104	7.1	8.5	21.0	3.2	35.7	108	7.0
9.0	19.0	2.7	29.7	92	6.9	9.0	20.4	2.3	25.1	102	7.0	9.0	20.8	3.1	34.3	107	6.9
9.5	18.2	2.5	26.5	91	6.9	9.5	19.0	1.8	19.4	97	7.0	9.5	20.6	2.7	30.3	107	6.9
10.0	16.9	2.5	26.6	89	6.9	10.0	17.4	1.7	17.4	93	7.0	10.0	19.3	2.2	20.8	103	6.9
10.5	14.7	2.7	27.8	83	6.9	10.5	15.7	1.6	16.1	89	7.0	10.5	15.9	0.4	3.6	94	6.7
11.0	13.1	2.9	28.4	78	6.8	11.0	14.7	1.6	16.0	87	7.0	11.0	14.0	0.4	4.0	89	6.7
11.5	12.4	3.0	28.6	77	6.8	11.5	13.9	1.8	18.5	83	7.0	11.5	13.2	0.6	5.2	86	6.7
12.0	11.9	3.1	28.9	75	6.8	12.0	12.9	1.8	17.2	81	6.8	12.0	12.5	0.6	5.9	83	6.7
12.5	11.5	3.1	28.9	75	6.8	12.5	12.5	1.9	18.0	80	6.8	12.5	12.1	0.7	5.9	83	6.8
13.0	11.2	3.1	28.0	75	6.8	13.0	12.0	2.0	19.0	79	6.8	13.0	11.8	0.7	6.3	82	6.8
13.5	10.9	3.1	28.3	74	6.8	13.5	11.8	1.9	18.4	78	6.8	13.5	11.5	0.7	6.4	82	6.8
14.0	10.8	3.1	28.3	74	6.8	14.0	11.4	2.0	18.2	79	6.8	14.0	11.4	0.7	6.4	82	6.8
14.5	10.5	2.8	25.7	75	6.9	14.5	11.3	2.1	19.1	78	6.7	14.5	11.0	0.6	5.4	82	6.8
15.0	10.5	2.5	23.2	76	6.8	15.0	11.1	2.0	18.8	78	6.8	15.0	10.8	0.5	4.6	82	6.9
15.5	10.4	2.5	22.0	78	6.9	15.5	11.0	2.0	18.4	78	6.8	15.5	10.6	0.4	4.1	83	6.9
16.0	10.3	2.3	21.6	77	6.9	16.0	10.7	1.8	16.7	79	6.8	16.0	10.4	0.4	3.9	88	6.9
16.5	10.2	2.2	19.8	78	6.9	16.5	10.4	1.5	13.2	81	6.8	16.5	10.3	0.5	4.0	88	7.0
17.0	10.1	2.2	20.2	78	6.9	17.0	10.4	1.5	13.6	81	6.8	17.0	10.2	0.5	4.1	91	7.0
17.5	10.0	2.1	17.4	80	7.0	17.5	10.1	1.5	13.8	81	6.7	17.5	10.0	0.5	4.4	92	7.1
18.0	9.8	1.5	14.0	82	7.1	18.0	10.2	1.3	11.6	84	6.8	18.0	10.0	0.6	4.9	94	7.1
18.5	9.7	1.4	12.9	84	7.2	18.5	10.0	1.0	9.3	85	6.9	18.5	10.0	0.6	5.4	95	7.1
19.0	9.7	1.4	12.4	86	7.2	19.0	9.9	0.8	8.0	85	6.9	18.6	bottom				
19.5	9.5	1.3	12.1	86	7.2	19.5	9.8	0.8	7.4	82	6.9						
						20.0	9.7	0.8	8.2	91	6.9						

Highlighted Depth: Opening of the intake forebay (2 to 10 m)

Appendix B- 4

Peavy Hydroelectric Project
Vertical Profile Data -

29-Aug-02						12-Sep-02						17-Oct-02					
Approximate air temp: 21 C						*Approximate air temp. 18.3 C*						*Approximate air temp: .92 C*					
Secci Depth:6.5 ft. water depth 65' to 67'				*Time: 1100*		*Secci Depth:5.5ft. water depth 65' to 66'*				*Time: 1130*		*Secci Depth:6.0 ft. water depth 60' to 67'*				*Time: 1100*	
easterly 4-7 mph				*no clouds*		*North West Winds 12-18 mph*				*clear blue sky*		*North West Winds 4-7 mph*				*30 % clouds*	
				100 % clear												*slight breeze*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	21.9	7.3	84.8	114	7.4	0.0	21.3	7.8	87.7	123	7.6	0.0	9.5	9.7	84.7	112	7.7
0.5	21.9	7.3	84.0	114	7.4	0.5	21.4	7.8	88.3	123	7.5	0.5	9.5	9.7	84.5	112	7.7
1.0	21.4	7.4	83.6	114	7.4	1.0	21.3	7.8	87.5	122	7.6	1.0	9.5	9.7	85.1	112	7.6
1.5	21.2	7.3	83.0	114	7.4	1.5	21.3	7.8	87.7	122	7.6	1.5	9.5	9.7	84.6	112	7.6
2.0	21.2	7.3	82.8	114	7.4	2.0	21.2	7.8	86.7	122	7.5	2.0	9.5	9.7	83.7	112	7.6
2.5	21.2	7.4	83.9	113	7.4	2.5	21.2	7.7	86.3	122	7.5	2.5	9.4	9.7	84.3	112	7.6
3.0	21.1	7.4	83.4	113	7.4	3.0	21.0	7.5	81.3	123	7.5	3.0	9.4	9.7	84.2	112	7.6
3.5	21.1	7.2	82.0	113	7.4	3.5	20.8	7.0	81.0	123	7.4	3.5	9.4	9.6	83.6	112	7.6
4.0	21.1	7.2	82.1	113	7.4	4.0	20.7	6.7	73.9	123	7.3	4.0	9.4	9.6	84.0	112	7.6
4.5	21.0	6.7	75.6	113	7.4	4.5	20.7	6.7	74.9	124	7.3	4.5	9.4	9.7	83.9	112	7.6
5.0	20.9	6.2	69.9	114	7.3	5.0	20.7	6.6	73.0	124	7.3	5.0	9.4	9.6	83.9	112	7.6
5.5	20.8	6.2	69.6	114	7.3	5.5	20.7	6.5	71.5	123	7.4	5.5	9.4	9.6	83.8	112	7.6
6.0	20.7	6.0	67.4	115	7.2	6.0	20.6	6.2	69.0	124	7.3	6.0	9.4	9.6	83.5	112	7.6
6.5	20.6	5.9	66.2	115	7.2	6.5	20.5	6.0	66.7	124	7.3	6.5	9.4	9.6	83.3	112	7.6
7.0	20.6	5.8	64.8	116	7.2	7.0	20.3	5.7	62.5	124	7.3	7.0	9.4	9.6	83.3	112	7.6
7.5	20.6	5.7	64.2	117	7.2	7.5	20.2	5.4	59.0	124	7.2	7.5	9.4	9.5	82.6	112	7.6
8.0	20.4	5.7	64.2	119	7.2	8.0	20.2	5.3	57.6	124	7.2	8.0	9.4	9.5	82.9	112	7.6
8.5	20.2	5.7	63.4	125	7.2	8.5	20.2	5.1	54.2	124	7.1	8.5	9.4	9.5	82.7	112	7.6
9.0	20.1	5.7	63.1	128	7.2	9.0	19.9	4.6	49.0	124	7.1	9.0	9.4	9.5	83.0	112	7.6
9.5	20.0	5.7	63.0	129	7.2	9.5	19.8	4.3	46.2	123	7.1	9.5	9.4	9.6	83.3	111	7.5
10.0	19.7	5.6	61.5	133	7.2	10.0	19.6	4.1	44.3	123	7.1	10.0	9.4	9.6	83.2	111	7.5
10.5	19.2	5.1	56.0	133	7.2	10.5	19.4	4.0	41.6	123	7.0	10.5	9.4	9.6	82.8	111	7.5
11.0	18.4	3.6	38.0	125	7.0	11.0	19.0	3.0	33.0	121	6.9	11.0	9.2	9.6	82.6	109	7.5
11.5	16.7	0.9	8.6	102	6.8	11.5	18.2	2.6	25.6	119	6.9	11.5	9.2	9.4	81.3	110	7.5
12.0	14.6	0.9	8.6	92	6.8	12.0	15.2	0.8	6.8	106	6.8	12.0	9.0	9.4	80.8	106	7.5
12.5	13.3	0.9	8.5	89	6.8	12.5	14.7	0.6	5.7	99	6.8	12.5	8.7	9.5	81.0	104	7.5
13.0	12.5	0.9	8.4	86	6.8	13.0	13.3	0.5	5.3	94	6.8	13.0	8.8	9.6	82.2	106	7.5
13.5	11.9	0.9	8.2	86	6.8	13.5	12.6	0.6	5.3	92	6.8	13.5	8.8	9.6	82.2	105	7.5
14.0	11.6	0.9	8.0	86	6.8	14.0	12.5	0.6	5.2	93	6.8	14.0	8.6	9.6	82.3	103	7.5
14.5	11.4	0.9	8.0	86	6.8	14.5	12.1	0.6	5.1	93	6.8	14.5	8.5	9.7	82.2	102	7.5
15.0	11.1	0.9	7.8	84	6.8	15.0	11.7	0.5	4.6	91	6.7	15.0	8.4	9.6	81.5	101	7.5
15.5	10.8	0.8	7.7	85	6.7	15.5	11.1	0.5	4.6	90	6.8	15.5	8.4	9.6	81.7	101	7.4
16.0	10.5	0.9	7.8	90	6.7	16.0	10.8	0.5	4.7	96	6.8	16.0	8.4	9.6	81.4	101	7.4
16.5	10.2	0.9	7.7	94	6.7	16.5	10.7	0.5	4.8	96	6.8	16.5	8.3	9.6	81.5	100	7.4
17.0	10.0	0.9	7.6	99	6.7	17.0	10.4	0.5	4.8	101	6.8	17.0	8.3	9.6	81.4	100	7.5
17.5	10.0	0.9	7.7	103	6.8	17.5	10.2	0.5	4.8	103	6.8	17.5	8.3	9.6	81.2	100	7.5
18.0	9.8	0.9	7.5	102	6.8	18.0	9.9	0.6	4.9	107	6.8	18.0	8.2	9.6	81.0	100	7.5
18.5	9.6	0.9	7.5	108	6.8	18.5	9.8	0.6	4.8	112	6.8	18.5	8.2	9.7	81.7	100	7.4
19.0	9.5	0.9	7.5	110	6.8	19.0	9.7	0.6	5.1	115	6.8	19.0	8.2	9.6	81.3	100	7.5
						19.3	9.6	0.6	5.2	121	6.8	19.3	8.2	9.5	80.3	100	7.5

Highlighted Depth: Opening of the Intake forebay (2 to 10 m)

Appendix B- 5

Michigamme Falls Hydroelectric Project

Vertical Profile Data -

14-Feb-02						30-Apr-02						15-May-02					
Approximate air temp: -1.6 C				*Time:*						*Time: 1315*		*Approximate air temp : 10 C*				*Time: 1330*	
Secci Depth 5.5 ft						*Secci Depth 4.5 ft*				*Sunny 130% clouds*		*Secci Depth: 4.5'*				*overcast*	
Ice Thickness 15"						*Strong NW winds 18-24 mph*						*Winds Var 4-7 mph*					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	0.3	12.8	90.1	139	7.2	0.0	5.5	11.8	95.2	64	7.4	0.0	8.5	11.1	97.1	66	7.4
0.5	0.6	12.5	88.7	138	7.2	0.5	5.5	11.7	94.8	64	7.3	0.5	8.5	11.1	96.0	67	7.4
1.0	0.7	12.4	88.1	138	7.2	1.0	5.5	11.7	94.7	63	7.3	1.0	8.5	11.0	95.8	67	7.4
1.5	0.8	12.3	87.8	138	7.2	1.5	5.5	11.7	94.3	63	7.3	1.5	8.5	10.8	94.5	67	7.4
2.0	1.0	12.2	87.5	137	7.2	2.0	5.5	11.6	94.1	63	7.3	2.0	8.4	10.8	93.8	67	7.3
2.5	1.0	12.1	87.2	137	7.2	2.5	5.4	11.6	93.6	63	7.3	2.5	8.4	10.8	93.7	67	7.3
3.0	1.0	12.1	87.0	137	7.2	3.0	5.5	11.1	90.3	62	7.2	3.0	8.5	10.7	93.5	66	7.3
3.5	1.0	12.1	86.8	137	7.2	3.5	5.5	11.1	90.1	62	7.2	3.5	8.4	10.5	91.0	65	7.3
4.0	1.0	12.0	86.7	137	7.2	4.0	5.4	11.1	90.1	62	7.2	4.0	8.3	10.5	91.3	65	7.3
4.5	1.0	12.3	86.5	137	7.2	4.5	5.4	11.1	90.1	62	7.2	4.5	8.3	10.3	89.9	65	7.4
5.0	1.0	12.0	86.3	137	7.2	5.0	5.4	11.1	90.0	62	7.2	5.0	8.3	10.5	91.6	65	7.3
5.5	1.0	11.9	86.0	137	7.2	5.5	5.4	11.1	90.0	62	7.2	5.5	8.3	10.5	91.1	65	7.3
6.0	1.0	11.9	86.0	137	7.2	6.0	5.3	11.2	90.2	62	7.2	6.0	8.3	10.4	89.7	65	7.4
6.5	1.0	11.9	86.0	137	7.2	6.5	5.3	11.2	90.1	63	7.2	6.5	8.3	10.5	91.3	66	7.3
7.0	1.0	11.9	86.0	137	7.2	7.0	5.3	11.2	90.0	63	7.2	7.0	8.2	10.5	90.9	65	7.3
7.5	1.0	11.9	85.8	138	7.2	7.5	5.3	11.2	90.0	63	7.2	7.5	8.2	10.5	90.3	66	7.3
8.0	1.0	11.9	85.8	137	7.2	8.0	5.3	11.2	90.0	63	7.2	8.0	8.2	10.5	90.8	65	7.3
8.5	1.0	11.9	85.7	137	7.2	8.5	5.4	11.2	90.0	63	7.2	8.5	8.2	10.4	90.5	65	7.3
9.0	1.0	11.9	85.6	136	7.2	9.0	5.3	11.2	90.1	62	7.2	9.0	8.2	10.4	90.3	65	7.3
9.5	1.1	11.8	85.4	136	7.2	9.5	5.3	11.2	90.2	63	7.2	9.5	8.1	10.4	89.4	65	7.3
10.0	1.1	11.8	85.3	136	7.2	10.0	5.3	11.2	90.2	63	7.2	10.0	8.1	10.3	89.2	66	7.3
10.5	1.1	11.8	85.3	136	7.2	10.5	5.3	11.2	89.9	63	7.2	10.5	8.1	10.3	90.0	65	7.3
11.0	1.2	11.8	85.4	136	7.2	11.0	5.3	11.2	90.1	67	7.2	11.0	8.2	10.4	90.2	64	7.3
11.5	1.3	11.8	85.2	136	7.2	11.5	5.3	11.2	90.1	62	7.2	11.5	8.2	10.4	89.9	65	7.3
12.0	1.4	11.3	82.6	137	7.2	12.0	5.3	11.2	90.4	64	7.2	12.0	8.2	10.3	89.1	65	7.3
12.5	2.4	9.2	68.9	140	7.2	12.5	5.3	11.2	90.2	61	7.3	12.2	Bottom				
13.0	3.2	1.3	9.7	184	7.0	12.7	Bottom										

Highlighted depths- Opening to intake forebay (1.5 to 9.4m)

Appendix B- 5

Michigamme Falls Hydroelectric Project

Vertical Profile Data -

6-Jun-02						20-Jun-02						2-Jul-02					
Approximate air temp. : 22 C				*Time: 1300*		*Approximate air temp. : 26.6 C*				*Time: 1400*		*Approximate air temp. : 29.4 C*				*Time: 1300*	
Secci Depth: 6.0 ft water depth. 40-43'				*90% clouds*		*Secci Depth: 5.0 ft water depth: 40-42'*				*30 % overcast*		*Secci Depth: 4.5 ft water depth: 40-42'*				*50% clouds*	
SSW Winds						*westerly 8-12 mph*				*thin high clouds*		*strong 12-19 mph westerly*					
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	17.5	9.0	96.0	85	7.2	0.0	20.4	8.1	92.1	96	7.3	0.0	25.8	7.4	92.5	96	7.4
0.5	17.4	8.9	95.9	85	7.2	0.5	20.3	8.0	89.5	96	7.3	0.5	25.9	7.5	93.9	96	7.4
1.0	15.3	8.9	90.6	84	7.2	1.0	20.0	7.9	88.7	96	7.4	1.0	25.6	7.4	92.3	96	7.4
1.5	15.2	8.8	89.9	84	7.2	1.5	19.9	7.9	88.5	96	7.3	1.5	25.2	7.2	89.4	96	7.4
2.0	15.1	8.7	88.7	84	7.2	2.0	19.6	7.9	88.5	96	7.3	2.0	24.3	7.0	85.4	96	7.3
2.5	15.0	8.7	88.3	83	7.2	2.5	19.4	7.9	88.0	96	7.3	2.5	23.9	6.8	81.9	96	7.3
3.0	14.9	8.6	88.7	83	7.2	3.0	18.6	7.8	85.8	96	7.3	3.0	22.9	6.3	74.9	95	7.2
3.5	14.7	8.5	85.9	83	7.2	3.5	18.0	7.7	83.0	95	7.3	3.5	21.8	6.3	72.0	94	7.2
4.0	14.6	8.5	84.7	83	7.2	4.0	17.8	7.7	82.0	95	7.2	4.0	21.7	6.0	69.6	94	7.2
4.5	14.6	8.4	84.8	82	7.2	4.5	17.5	7.1	75.9	94	7.2	4.5	21.5	6.1	70.6	94	7.1
5.0	14.5	8.4	84.7	83	7.2	5.0	16.5	7.1	73.7	94	7.1	5.0	21.3	6.1	70.4	94	7.1
5.5	14.5	8.4	84.9	83	7.2	5.5	16.5	7.1	74.1	92	7.1	5.5	21.3	6.1	70.2	94	7.1
6.0	14.4	8.4	84.0	82	7.2	6.0	16.5	7.1	74.4	93	7.1	6.0	21.0	5.9	67.9	94	7.1
6.5	14.4	8.4	84.1	83	7.2	6.5	16.5	7.1	74.4	93	7.1	6.5	21.0	6.1	69.6	94	7.1
7.0	14.4	8.4	83.7	82	7.2	7.0	16.5	7.2	74.4	92	7.1	7.0	20.8	6.0	68.3	93	7.1
7.5	14.4	8.3	83.0	72	7.2	7.5	16.4	7.2	74.7	93	7.1	7.5	20.7	5.9	67.2	93	7.1
8.0	14.3	8.2	81.7	83	7.2	8.0	16.4	7.1	74.7	92	7.1	8.0	20.6	5.9	67.2	93	7.1
8.5	14.3	8.2	82.1	83	7.2	8.5	16.4	7.2	74.7	91	7.1	8.5	20.3	5.9	66.0	93	7.1
9.0	14.3	8.2	81.7	82	7.2	9.0	16.4	7.2	74.7	92	7.1	9.0	20.2	5.8	65.1	92	7.1
9.5	14.3	8.2	81.6	83	7.2	9.5	16.4	7.2	74.7	91	7.1	9.5	20.1	5.7	64.2	92	7.1
10.0	14.3	8.0	80.1	82	7.2	10.0	16.4	7.2	74.8	91	7.1	10.0	20.0	5.7	63.5	92	7.0
10.5	14.2	8.0	79.7	83	7.2	10.5	16.4	7.2	74.9	91	7.1	10.5	19.9	5.6	62.6	91	7.1
11.0	14.2	8.0	79.8	82	7.1	11.0	16.4	7.2	74.9	91	7.1	11.0	19.8	5.6	62.0	92	7.1
11.5	14.2	8.0	79.8	81	7.2	11.5	16.4	7.2	74.9	91	7.1	11.5	19.7	5.5	91.0	92	7.0
12.0	14.0	7.7	76.1	82	7.1	12.0	16.4	7.2	75.1	92	7.1	12.0	19.4	5.1	56.6	92	7.0
12.5	13.0	6.7	64.8	81	7.1	12.5	16.4	7.2	75.6	92	7.2	12.5	18.7	4.7	50.0	93	7.0
12.8	12.1	5.9	56.2	80	7.0	13.0	16.4	7.7	75.6	93	7.2	12.7	bottom				

Appendix B- 5

Michigamme Falls Hydroelectric Project

Vertical Profile Data -

18-Jul-02

Approximate air temp : 24 C — *Time: 750*

Secci Depth: 5.0 ft water depth: 40-42' — *30 % clouds*

NNE winds — *very pleasant*

4-7 mph

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	26.1	7.7	96.7	99	7.8
0.5	25.7	7.7	96.1	100	7.8
1.0	25.5	7.7	95.4	99	7.7
1.5	25.3	7.6	93.6	99	7.7
2.0	25.2	7.5	92.6	99	7.7
2.5	25.1	7.3	90.0	99	7.6
3.0	25.0	7.1	86.5	100	7.6
3.5	24.9	6.7	82.0	99	7.5
4.0	24.8	6.6	81.5	99	7.5
4.5	24.2	5.9	71.0	99	7.3
5.0	23.6	5.5	65.9	100	7.3
5.5	23.4	5.2	62.1	100	7.2
6.0	23.2	5.0	58.4	100	7.1
6.5	23.1	5.1	60.3	100	7.1
7.0	23.0	5.0	59.7	100	7.1
7.5	22.9	4.9	57.6	99	7.1
8.0	22.8	4.8	56.4	99	7.1
8.5	22.7	4.6	54.4	99	7.1
9.0	22.5	4.5	52.4	99	7.0
9.5	22.3	4.2	49.5	99	7.0
10.0	22.3	4.2	48.2	100	7.0
10.5	22.0	3.8	43.9	100	7.0
11.0	21.9	3.7	43.0	100	6.9
11.5	21.5	2.9	33.6	101	6.9
12.0	20.8	2.4	27.6	103	6.9
12.5	19.4	1.2	15.6	110	6.9

29-Jul-02

Approximate air temp. : 29 C — *Time: 1530*

Secci Depth. 8.0 ft water depth: 40-42' — *20 % clouds*

winds 10-13 mph — *warm*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	25.8	7.9	97.2	110	7.9
0.5	25.7	7.7	95.6	110	7.9
1.0	25.6	7.6	93.7	110	7.8
1.5	25.3	7.5	91.5	108	7.8
2.0	25.1	7.4	91.4	108	7.8
2.5	25.1	7.3	89.2	108	7.8
3.0	23.9	6.9	76.4	108	7.5
3.5	23.7	6.0	71.9	110	7.5
4.0	23.4	5.8	69.2	109	7.4
4.5	23.4	5.8	68.9	109	7.4
5.0	23.3	5.7	68.3	109	7.4
5.5	23.2	5.6	67.5	109	7.4
6.0	23.0	5.3	63.0	109	7.3
6.5	23.0	5.2	62.3	108	7.3
7.0	22.9	5.2	61.5	109	7.3
7.5	22.7	5.1	60.7	109	7.3
8.0	22.7	5.0	59.4	109	7.3
8.5	22.5	4.8	56.2	108	7.2
9.0	22.4	4.7	55.0	108	7.2
9.5	22.4	4.6	54.2	109	7.2
10.0	22.3	4.5	53.3	108	7.2
10.5	22.3	4.4	51.4	108	2.2
11.0	22.2	4.3	49.4	109	7.2
11.5	21.9	4.0	45.9	109	7.2
12.0	21.9	3.7	43.4	110	7.2

15-Aug-02

Approximate air temp. : 26.6 C — *Time: 1400*

Secci Depth: 5.5 ft water depth: 38-40' — *50 % clouds*

southerly gusty winds 8-12 mph — *threats of storm to north*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	23.0	6.3	74.9	112	7.4
0.5	22.9	6.2	72.3	112	7.4
1.0	22.9	6.1	71.4	111	7.3
1.5	22.8	5.9	69.7	111	7.3
2.0	22.7	5.9	67.4	112	7.3
2.5	22.6	5.8	65.4	111	7.3
3.0	22.6	5.6	65.1	111	7.2
3.5	22.6	5.5	64.1	111	7.2
4.0	22.6	5.4	63.4	111	7.2
4.5	22.6	5.2	61.7	111	7.2
5.0	22.6	5.2	60.9	110	7.2
5.5	22.5	5.1	59.6	111	7.2
6.0	22.6	5.1	59.2	110	7.2
6.5	22.5	5.1	59.0	111	7.1
7.0	22.5	5.0	58.4	110	7.1
7.5	22.5	5.0	57.7	110	7.1
8.0	22.5	5.0	57.6	110	7.1
8.5	22.5	5.0	57.9	110	7.1
9.0	22.5	4.9	56.3	110	7.1
9.5	22.5	4.7	54.4	110	7.1
10.0	22.4	4.8	55.1	110	7.1
10.5	22.4	4.6	54.1	110	7.1
11.0	22.3	4.4	50.8	111	7.1
11.5	22.3	4.4	49.9	110	7.1
12.0	22.0	3.6	40.9	111	7.0

Appendix B- 5

Michigamme Falls Hydroelectric Project
Vertical Profile Data -

29-Aug-02						12-Sep-02					
Approximate air temp. : 26.6 C				*Time: 1230*		*Approximate air temp. : 19 C*				*Time: 1610*	
Secci Depth: 5.5 ft water depth: 39-42 '				*20 % clouds*		*Secci Depth:7.5 ft water depth: 40-42'*				*Clear Blue Sky*	
calm				*Sunny pleasant*		*Westerly 12-18*				*Very nice*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	22.4	7.4	85.5	116	7.4	0.0	21.9	7.6	86.8	124	7.6
0.5	22.0	7.4	85.5	115	7.4	0.5	21.9	7.6	86.1	123	7.6
1.0	21.8	7.3	83.5	115	7.4	1.0	21.8	7.6	85.7	123	7.5
1.5	21.6	7.2	82.9	115	7.4	1.5	21.8	7.5	85.2	122	7.5
2.0	21.6	7.2	82.3	114	7.4	2.0	21.7	7.5	85.7	123	7.5
2.5	21.5	7.0	79.6	114	7.4	2.5	21.7	7.4	84.3	122	7.5
3.0	21.4	6.9	78.4	114	7.3	3.0	21.7	7.4	82.7	122	7.4
3.5	21.3	6.9	77.9	114	7.3	3.5	21.5	7.2	81.1	122	7.4
4.0	21.2	6.7	76.1	114	7.3	4.0	21.3	7.1	78.3	122	7.4
4.5	21.2	6.8	76.8	114	7.3	4.5	21.2	6.9	77.5	122	7.4
5.0	21.1	6.5	73.0	114	7.3	5.0	21.2	6.6	73.2	122	7.4
5.5	21.1	6.4	72.8	114	7.3	5.5	21.2	6.6	73.4	122	7.3
6.0	21.0	6.0	68.4	114	7.2	6.0	21.2	6.5	72.2	122	7.3
6.5	21.0	6.0	67.9	114	7.2	6.5	21.1	6.4	71.6	122	7.3
7.0	21.0	6.0	67.5	114	7.2	7.0	21.1	6.4	71.3	122	7.3
7.5	21.0	5.9	66.7	113	7.1	7.5	21.1	6.2	68.7	121	7.3
8.0	21.0	5.7	63.8	114	7.1	8.0	21.0	6.0	66.3	121	7.2
8.5	21.0	5.8	67.2	113	7.1	8.5	21.0	6.0	66.7	121	7.2
9.0	20.9	6.2	70.6	113	7.2	9.0	20.9	5.9	67.0	121	7.1
9.5	20.9	5.9	66.7	113	7.2	9.5	20.9	5.6	64.0	121	7.1
10.0	20.8	5.2	58.9	113	7.1	10.0	20.8	5.6	64.0	121	7.1
10.5	20.7	5.2	58.1	113	7.1	10.5	20.8	5.2	59.0	121	7.1
11.0	20.7	5.0	56.4	113	7.0	11.0	20.7	5.2	57.0	121	7.1
11.5	20.6	4.8	53.6	114	7.0	11.5	20.6	5.0	56.0	121	7.1
12.0	20.4	4.3	48.1	114	7.0	12.0	20.6	5.1	55.0	121	7.2
12.5	20.2	3.6	39.3	117	7.0	12.2	bottom				
12.9	19.7	2.4	26.5	125	7.0						

14-Feb-02

Approximate air temp: 1.6 C

Secci Depth:8.5 ft. *Time: 1330*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	0.2	13.3	93.8	171	7.4
0.5	0.2	13.1	92.3	170	7.4
1.0	0.2	13.1	92.3	170	7.4
1.5	0.2	13.1	92.3	170	7.4
2.0	0.2	13.1	92.1	170	7.4
2.5	0.2	13.1	92.1	171	7.4
3.0	0.3	13.0	88.9	170	7.4
3.5	0.3	13.0	91.5	171	7.4
4.0	0.3	13.0	91.5	171	7.4
4.5	0.8	12.8	90.1	170	7.4
5.0	0.8	12.1	86.9	171	7.4
5.5	0.8	12.1	86.4	173	7.4
5.9	0.8	12.0	85.9	173	7.4

30-Apr-02

Secci Depth:5.0 ft. *Time: 1430*

NNW Winds 18-24 mph

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	5.7	11.6	94.7	85	7.5
0.5	5.7	11.6	94.3	85	7.4
1.0	5.7	11.5	94.0	84	7.4
1.5	5.7	11.5	93.8	84	7.4
2.0	5.7	11.5	93.5	84	7.4
2.5	5.7	11.5	93.2	84	7.4
3.0	5.7	11.4	93.0	84	7.4
3.5	5.7	11.4	92.6	84	7.4
4.0	5.7	11.3	92.4	84	7.4
4.5	5.7	11.3	91.9	83	7.4
5.0	5.7	11.2	91.6	83	7.4
5.5	5.7	11.2	91.4	85	7.4
6.0	5.7	11.2	91.3	85	7.4
6.5	5.6	11.0	89.7	82	7.4
7.0	5.6	11.0	89.6	82	7.4
7.5	5.7	11.0	89.7	82	7.4
8.0	5.7	11.0	89.7	82	7.4
8.5	5.7	11.0	89.9	82	7.4
9.0	5.7	11.0	89.7	82	7.4
9.5	5.7	11.0	89.7	83	7.4
10.0	5.7	11.0	89.7	82	7.4
10.5	5.7	11.0	89.6	83	7.4
11.0	5.6	11.0	89.5	83	7.4
11.5	5.6	11.0	89.1	82	7.4
12.0	5.6	11.0	89.1	83	7.4
12.5	5.6	11.0	89.1	83	7.4
13.0	5.6	11.0	89.2	83	7.4
13.5	5.6	11.0	89.4	82	7.4
14.0	5.7	11.0	89.4	82	7.4
14.5	5.7	11.0	89.5	83	7.4
15.0	5.7	11.0	89.7	84	7.4
15.5	5.7	11.0	89.6	83	7.4
16.0	5.6	10.9	88.9	82	7.4
16.5	5.6	10.9	88.8	81	7.4
17.0	5.6	10.9	88.3	83	7.4
17.2	Bottom				

15-May-02

Approximate air temp: 10 C

Secci Depth:4 5 ft. *Time: 1500*

Southerly winds 12-18 mph *90 % clouds*

Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	8.8	10.9	95.9	88	7.5
0.5	8.8	10.9	95.3	88	7.4
1.0	8.7	10.8	94.6	88	7.4
1.5	8.8	10.7	94.4	88	7.4
2.0	8.8	10.6	93.7	88	7.4
2.5	8.7	10.6	93.0	87	7.4
3.0	8.7	10.5	92.3	88	7.4
3.5	8.7	10.5	91.8	87	7.4
4.0	8.7	10.5	92.0	88	7.4
4.5	8.7	10.5	92.0	87	7.4
5.0	8.7	10.5	91.8	87	7.4
5.5	8.7	10.5	91.7	87	7.4
6.0	8.7	10.4	91.6	86	7.4
6.5	8.7	10.4	91.4	87	7.4
7.0	8.7	10.4	91.4	87	7.4
7.5	8.7	10.4	91.4	87	7.4
8.0	8.7	10.4	91.1	88	7.4
8.5	8.7	10.4	91.1	85	7.4
9.0	8.8	10.3	90.9	87	7.4
9.5	8.8	10.3	90.5	85	7.4
10.0	8.8	10.3	90.5	88	7.4
10.5	8.8	10.3	90.3	85	7.4
11.0	8.8	10.3	90.3	86	7.4
11.5	8.8	10.3	90.4	87	7.4
12.0	8.8	10.3	90.4	85	7.4
12.5	8.7	10.3	90.1	87	7.4
13.0	8.7	10.2	90.1	84	7.4
13.5	8.7	10.2	90.0	86	7.4
14.0	8.7	10.3	90.1	87	7.4
14.5	8.7	10.3	90.1	86	7.4
15.0	8.7	10.3	90.1	86	7.4
15.5	8.7	10.2	90.0	87	7.4
16.0	8.7	10.2	90.0	86	7.3
16.5	8.8	10.2	90.1	87	7.4
17.0	8.8	10.2	90.1	85	7.4
7.2	Bottom				

6-Jun-02						20-Jun-02						2-Jul-02					
Approximate air temp: 22 C						*Approximate air temp: 29 C*						*Approximate air temp: 29 C*					
Secci Depth:5.5 ft. water depth 52-56'				*Time: 1445*		*Secci Depth:6.0 ft. water depth 54-57'*				*Time: 1600*		*Secci Depth:4.5 ft. water depth 55-57'*				*Time: 1430*	
Southerly 12-18 mph				*100% overcast- spinkles sprinkles*		*westerly 8-12 mph*				*clear sky humid breezy*		*SW winds. nearly calm 4-7 mph*				*40% clouds hot*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	17.2	8.9	94.2	131	7.5	0.0	19.1	8.3	91.5	123	7.6	0.0	26.9	6.8	88.3	126	7.4
0.5	17.2	8.8	92.7	130	7.5	0.5	19.0	8.3	91.0	123	7.6	0.5	24.9	6.7	82.2	126	7.4
1.0	17.0	8.6	91.8	130	7.5	1.0	18.8	8.2	90.7	123	7.5	1.0	24.5	6.6	80.0	125	7.4
1.5	16.7	8.7	91.8	130	7.5	1.5	18.6	8.2	89.7	123	7.5	1.5	24.3	6.5	79.3	125	7.4
2.0	16.4	8.7	89.9	130	7.5	2.0	18.5	8.2	89.5	123	7.5	2.0	24.2	6.5	78.6	125	7.3
2.5	16.2	8.5	88.1	129	7.5	2.5	18.4	8.2	88.9	122	7.5	2.5	24.0	6.5	77.5	125	7.3
3.0	16.0	8.4	86.5	129	7.4	3.0	18.4	8.1	88.6	123	7.5	3.0	23.9	6.4	77.8	125	7.3
3.5	16.0	8.3	85.8	128	7.5	3.5	18.4	8.1	88.0	122	7.5	3.5	23.8	6.4	77.2	125	7.3
4.0	15.9	8.2	85.0	129	7.4	4.0	18.4	8.1	88.1	122	7.4	4.0	23.7	6.4	76.6	124	7.3
4.5	15.8	8.2	84.0	128	7.4	4.5	18.4	8.1	87.8	122	7.4	4.5	23.6	6.4	76.4	124	7.3
5.0	15.7	8.1	83.4	128	7.4	5.0	18.4	8.1	87.7	122	7.4	5.0	23.5	6.4	76.3	124	7.3
5.5	15.7	8.1	83.3	128	7.4	5.5	18.4	8.1	87.7	123	7.4	5.5	23.5	6.4	76.2	124	7.3
6.0	15.6	8.1	82.8	128	7.4	6.0	18.3	8.1	87.6	122	7.4	6.0	23.5	6.4	76.1	124	7.3
6.5	15.6	8.0	82.6	128	7.4	6.5	18.3	8.0	87.6	122	7.4	6.5	23.4	6.4	76.7	124	7.2
7.0	15.6	8.0	82.4	129	7.4	7.0	18.1	8.0	87.1	123	7.4	7.0	23.4	6.4	76.0	124	7.2
7.5	15.6	8.0	82.4	128	7.4	7.5	18.1	8.0	86.8	122	7.4	7.5	23.3	6.4	76.5	124	7.2
8.0	15.6	8.0	82.0	129	7.4	8.0	18.1	8.0	87.9	120	7.4	8.0	23.3	6.3	75.0	124	7.2
8.5	15.5	8.0	82.4	128	7.4	8.5	18.0	8.0	86.5	122	7.4	8.5	23.2	6.2	73.9	124	7.2
9.0	15.5	8.0	82.2	128	7.4	9.0	18.0	8.0	86.1	122	7.4	9.0	23.1	6.2	72.6	123	7.2
9.5	15.5	8.0	82.3	129	7.4	9.5	17.9	7.9	85.3	123	7.4	9.5	23.0	6.2	73.8	123	7.2
10.0	15.4	8.0	81.9	129	7.4	10.0	18.0	7.9	85.3	122	7.4	10.0	22.9	6.1	73.1	123	7.2
10.5	15.4	8.0	81.7	128	7.4	10.5	18.0	8.0	86.0	122	7.4	10.5	22.7	6.0	70.9	122	7.2
11.0	15.4	8.0	81.3	129	7.4	11.0	18.0	8.0	86.2	122	7.4	11.0	22.6	5.9	69.5	122	7.2
11.5	15.3	7.9	81.0	128	7.4	11.5	18.1	8.0	86.8	123	7.4	11.5	22.4	5.8	68.4	122	7.2
12.0	15.2	7.8	79.6	129	7.4	12.0	18.0	8.0	86.7	122	7.4	12.0	22.4	5.9	68.4	122	7.2
12.5	15.1	7.7	78.8	130	7.4	12.5	17.9	8.0	86.3	122	7.4	12.5	22.4	5.9	68.9	122	7.2
13.0	15.0	7.8	80.0	131	7.4	13.0	17.9	7.9	85.5	123	7.5	13.0	22.4	5.9	68.7	122	7.2
13.5	14.9	7.9	80.0	129	7.4	13.5	17.9	7.9	85.3	122	7.5	13.5	22.3	5.8	68.4	122	7.2
14.0	14.9	7.9	80.2	129	7.4	14.0	17.9	8.0	85.1	122	7.5	14.0	22.3	5.8	68.4	122	7.2
14.5	14.9	7.9	79.5	127	7.4	14.5	17.9	7.9	85.7	121	7.4	14.5	22.3	5.8	68.4	123	7.2
15.0	14.9	7.8	78.5	130	7.4	15.0	17.9	7.9	85.3	123	7.4	15.0	22.3	5.8	68.0	123	7.1
15.5	14.8	7.7	77.3	129	7.4	15.5	17.9	7.9	84.7	123	7.5	15.5	22.3	5.7	67.2	123	7.1
16.0	14.7	7.5	73.8	131	7.4	16.0	17.9	7.9	84.7	123	7.5	16.0	22.2	5.5	65.0	123	7.1
16.5	14.6	7.0	69.7	133	7.3	16.5	17.9	7.9	84.7	122	7.5	16.5	21.9	4.9	55.8	128	7.1
16.7	14.6	6.9	69.4	131	7.2	17.0	17.9	7.9	84.7	122	7.5	17.0	21.9	4.6	53.9	128	7.1

18-Jul-02						3-Aug-02						15-Aug-02					
Approximate air temp: 26.6 C						*Approximate air temp: 24 C*						*Approximate air temp: 24 C*					
Secci Depth:5.5 ft. water depth 53-57'				*Time: 1530*		*Secci Depth:*				*Time: 1100*		*Secci Depth:4.5 ft. water depth 55-57'*				*Time: 1545*	
NE winds calm				*light clouds 30%*		*Light variable winds*				*40 % clouds*		*southerly 12-18 mph*				*100 % overcast*	
0-3 mph												*gusty*				*threat of rain*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	25.9	7.0	87.4	156	7.8	0.0	23.6	6.7	81.1	151	7.5	0.0	23.0	6.8	81.2	143	7.5
0.5	25.7	6.9	86.2	156	7.8	0.5	23.6	6.7	80.2	150	7.5	0.5	23.0	6.7	78.5	142	7.5
1.0	25.6	6.9	85.7	156	7.7	1.0	23.7	6.7	79.8	151	7.5	1.0	22.8	6.7	78.4	142	7.5
1.5	25.6	6.9	85.7	156	7.7	1.5	23.7	6.6	79.3	150	7.5	1.5	22.9	6.6	76.4	142	7.5
2.0	25.5	6.5	79.8	156	7.7	2.0	23.7	6.6	79.3	149	7.5	2.0	22.8	6.5	76.5	141	7.4
2.5	25.2	6.3	78.4	157	7.6	2.5	23.6	6.5	78.3	150	7.5	2.5	22.8	6.5	76.6	141	7.4
3.0	25.2	6.4	78.2	157	7.6	3.0	23.6	6.5	77.8	151	7.5	3.0	22.7	6.4	74.1	141	7.4
3.5	25.1	6.2	75.5	157	7.6	3.5	23.6	6.6	78.9	151	7.5	3.5	22.7	6.4	74.2	140	7.4
4.0	25.1	6.1	75.4	155	7.6	4.0	23.6	6.5	78.6	150	7.5	4.0	22.7	6.4	73.8	140	7.4
4.5	24.8	5.8	71.0	156	7.6	4.5	23.6	6.5	78.6	150	7.5	4.5	22.7	6.3	74.0	140	7.4
5.0	24.7	5.7	70.4	157	7.5	5.0	23.6	6.5	78.5	150	7.5	5.0	22.6	6.3	73.5	140	7.4
5.5	24.6	5.5	67.3	156	7.5	5.5	23.6	6.5	78.3	149	7.4	5.5	22.6	6.3	73.0	140	7.4
6.0	24.7	5.7	69.8	157	7.5	6.0	23.6	6.5	78.6	150	7.4	6.0	22.6	6.2	72.6	140	7.4
6.5	24.6	5.5	67.2	156	7.5	6.5	23.6	6.5	78.1	149	7.4	6.5	22.6	6.2	72.7	140	7.4
7.0	24.5	5.5	67.9	157	7.4	7.0	23.6	6.5	78.1	149	7.4	7.0	22.6	6.2	72.4	140	7.4
7.5	24.5	5.4	66.0	157	7.4	7.5	23.6	6.5	77.8	149	7.4	7.5	22.7	6.2	72.9	140	7.4
8.0	24.4	5.2	62.9	157	7.4	8.0	23.6	6.5	77.6	149	7.4	8.0	22.5	6.1	70.4	140	7.4
8.5	24.3	5.1	61.8	157	7.3	8.5	23.5	6.5	77.6	151	7.4	8.5	22.5	6.0	69.3	139	7.4
9.0	24.2	4.8	57.9	157	7.3	9.0	23.5	6.5	77.6	150	7.4	9.0	22.5	6.1	70.7	139	7.3
9.5	24.0	4.7	56.8	155	7.3	9.5	23.6	6.5	77.6	150	7.4	9.5	22.5	6.0	70.1	139	7.3
10.0	24.0	4.6	55.3	155	7.3	10.0	23.6	6.4	76.4	150	7.4	10.0	22.5	6.0	69.6	139	7.4
10.5	23.8	4.4	52.8	154	7.2	10.5	23.6	6.3	76.2	149	7.4	10.5	22.5	6.0	69.5	139	7.4
11.0	23.3	3.8	45.3	154	7.2	11.0	23.6	6.3	75.7	149	7.5	11.0	22.5	5.9	68.6	139	7.4
11.5	23.1	3.7	43.5	155	7.2	11.5	23.6	6.3	75.9	149	7.4	11.5	22.5	5.9	69.1	139	7.3
12.0	22.9	3.6	42.2	156	7.2	12.0	23.5	6.4	76.7	149	7.4	12.0	22.5	6.0	68.5	139	7.4
12.5	22.8	3.4	40.5	157	7.1	12.5	23.5	6.4	77.0	149	7.4	12.5	22.5	6.0	69.4	138	7.3
13.0	22.5	2.4	33.6	158	7.1	13.0	23.5	6.4	76.7	150	7.4	13.0	22.5	6.0	69.2	138	7.3
13.5	22.4	2.5	29.5	157	7.1	13.5	23.5	6.3	75.9	150	7.4	13.5	22.5	6.0	69.3	138	7.3
14.0	22.3	2.1	27.0	156	7.0	14.0	23.5	6.4	77.3	149	7.4	14.0	22.4	6.0	68.9	139	7.3
14.5	21.5	0.3	4.4	152	6.9	14.5	23.5	6.5	77.5	149	7.4	14.5	22.4	5.9	68.7	138	7.3
15.0	20.2	0.3	3.2	154	6.9	15.0	23.5	6.5	77.5	149	7.4	15.0	22.4	5.9	68.7	138	7.3
15.5	20.2	0.3	3.4	163	6.9	15.5	23.5	6.5	77.6	149	7.4	15.5	22.4	5.9	68.9	138	7.3
16.0	19.8	0.3	3.5	171	6.9	16.0	23.5	6.4	77.0	149	7.4	16.0	22.4	6.0	69.2	139	7.3
16.5	19.5	0.3	3.6	175	6.9	16.5	23.5	6.4	76.7	150	7.4	16.5	22.4	6.0	69.3	138	7.3
17.0	19.4	0.4	4.4	176	6.9	17.0	23.5	6.4	76.4	149	7.4	17.0	22.4	5.9	68.3	139	7.3

Appendix B-6
Twin Falls Hydroelectric Project
Vertical Profile Data

29-Aug-02						12-Sep-02						17-Oct-02					
Approximate air temp: 29.4 C						*Approximate air temp: 21.4 C*						*Approximate air temp: 10.1 C*					
Secci Depth:5.5ft. water depth 55-57'				*Time: 1430*		*Secci Depth:6.5ft. water depth 52-56'*				*Time: 1430*		*Secci Depth:5.0ft. water depth 52-56'*				*Time: 1440*	
Easterly winds				*20 % clouds*		*Westerly 12-18 mph*				*Clear blue sky*		*very little wind 0=3 mph*				*30 % clouds*	
4-7 mph				*lovely day*								*variable*				*fresh day- great fall day*	
Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)	Depth (m)	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH (S.U.)
0.0	24.3	7.8	93.2	157	7.8	0.0	21.3	7.7	86.6	166	7.7	0.0	8.9	9.9	85.5	124	7.7
0.5	22.6	8.0	93.5	157	7.8	0.5	21.1	7.7	85.6	166	7.7	0.5	8.9	9.9	85.3	124	7.7
1.0	21.6	7.9	89.5	157	7.7	1.0	21.1	7.6	85.7	166	7.7	1.0	8.9	9.9	84.9	124	7.7
1.5	21.2	7.8	88.0	157	7.7	1.5	21.1	7.6	84.5	166	7.6	1.5	8.9	9.9	84.7	124	7.7
2.0	21.1	7.6	85.7	157	7.7	2.0	20.9	7.5	82.6	166	7.6	2.0	8.9	9.8	84.4	124	7.7
2.5	21.0	7.4	84.2	157	7.6	2.5	20.7	7.2	79.4	165	7.6	2.5	8.9	9.8	84.4	124	7.7
3.0	21.0	7.4	83.3	157	7.6	3.0	20.7	7.2	79.8	165	7.6	3.0	8.9	9.8	84.3	124	7.7
3.5	21.0	7.3	81.7	157	7.6	3.5	20.7	7.2	79.7	166	7.6	3.5	8.9	9.8	84.1	124	7.7
4.0	20.9	7.2	81.4	156	7.6	4.0	20.7	7.1	79.2	166	7.6	4.0	8.9	9.8	84.3	124	7.7
4.5	20.9	7.1	79.9	156	7.6	4.5	20.7	7.1	79.3	165	7.6	4.5	8.9	9.8	84.1	124	7.7
5.0	20.8	7.0	78.3	156	7.6	5.0	20.7	7.0	78.2	166	7.6	5.0	8.9	9.7	83.5	124	7.7
5.5	20.8	6.9	78.0	157	7.6	5.5	20.8	7.2	79.0	165	7.6	5.5	8.9	9.7	82.1	124	7.6
6.0	20.8	6.9	77.4	156	7.5	6.0	20.7	7.0	78.5	165	7.6	6.0	8.9	9.7	83.0	124	7.6
6.5	20.8	7.0	78.7	157	7.5	6.5	20.7	7.0	78.1	164	7.6	6.5	8.9	9.6	82.7	124	7.6
7.0	20.7	6.9	77.5	157	7.5	7.0	20.7	7.0	77.2	165	7.6	7.0	8.9	9.6	82.1	124	7.6
7.5	20.7	6.8	75.7	157	7.5	7.5	20.7	6.9	76.7	165	7.6	7.5	8.9	9.6	81.9	124	7.6
8.0	20.7	6.7	74.9	158	7.5	8.0	20.6	6.9	77.0	165	7.6	8.0	8.9	9.5	81.7	124	7.6
8.5	20.6	6.6	74.1	157	7.5	8.5	20.6	6.9	77.2	164	7.6	8.5	8.9	9.5	81.7	124	7.6
9.0	20.6	6.6	73.9	158	7.5	9.0	20.6	6.9	77.1	164	7.6	9.0	8.9	9.5	81.7	124	7.6
9.5	20.6	6.6	73.9	158	7.5	9.5	20.6	6.9	77.0	165	7.5	9.5	8.9	9.5	81.1	124	7.6
10.0	20.6	6.7	74.7	158	7.5	10.0	20.6	6.9	77.0	165	7.6	10.0	8.9	9.4	81.2	124	7.6
10.5	20.6	6.7	74.7	158	7.4	10.5	20.6	6.9	77.0	165	7.6	10.5	8.9	9.4	80.8	124	7.6
11.0	20.6	6.7	74.7	158	7.4	11.0	20.6	6.9	76.7	165	7.6	11.0	8.9	9.4	80.6	124	7.6
11.5	20.6	6.7	75.1	159	7.5	11.5	20.6	6.9	76.6	165	7.6	11.5	8.9	9.4	80.4	124	7.6
12.0	20.6	6.6	73.9	157	7.5	12.0	20.5	6.9	75.0	165	7.6	12.0	8.9	9.3	80.1	124	7.6
12.5	20.6	6.6	74.2	158	7.4	12.5	20.5	6.8	75.0	164	7.6	12.5	8.9	9.3	79.9	124	7.6
13.0	20.6	6.7	74.4	158	7.4	13.0	20.5	6.8	75.1	165	7.6	13.0	8.9	9.3	80.0	124	7.6
13.5	20.6	6.6	73.6	157	7.5	13.5	20.5	6.8	75.1	165	7.6	13.5	8.9	9.3	80.2	124	7.6
14.0	20.6	6.6	73.2	158	7.5	14.0	20.5	6.7	75.1	165	7.6	14.0	8.9	9.4	80.3	124	7.6
14.5	20.5	6.5	72.7	158	7.5	14.5	20.5	6.9	76.0	164	7.5	14.5	8.9	9.4	80.5	124	7.6
15.0	20.5	6.5	72.5	158	7.4	15.0	20.5	6.9	76.0	165	7.5	15.0	8.9	9.4	80.6	124	7.6
15.5	20.5	6.5	72.1	159	7.4	15.5	20.5	6.8	75.0	164	7.5	15.5	8.9	9.4	80.5	124	7.6
16.0	20.5	6.5	72.0	159	7.4	16.0	20.5	6.8	74.3	165	7.5	16.0	8.9	9.5	83.6	125	7.6
16.5	20.5	6.5	72.4	158	7.4	16.5	20.5	6.8	75.7	165	7.5	16.5	8.9	9.6	82.7	124	7.6
16.8	20.5	6.4	71.4	160	7.4	17.0	20.5	6.8	75.0	165	7.6	17.0	8.9	9.6	82.5	126	7.6
												17.5	8.9	9.5	81.7	125	7.6

Appendix B-7

Kingsford Hydroelectric Project

Vertical Profile Data -

14-Feb-02

Approximate air temp: -1.6 C

Secci Depth: 9.0 ft *Time:1415*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	0.2	12.9	90.8	178	7.4
0.5	0.2	12.9	90.4	178	7.4
1.0	0.2	12.8	89.7	179	7.4
1.5	0.2	12.7	89.1	178	7.4
2.0	0.2	12.7	89.1	178	7.4
2.5	0.2	12.7	88.9	179	7.4
3.0	0.2	12.6	88.6	179	7.4
3.5	0.2	12.6	88.3	178	7.4
4.0	0.2	12.6	88.2	178	7.4
4.5	0.2	12.5	88.1	178	7.4
5.0	0.2	12.6	88.1	179	7.4
5.5	0.2	12.5	87.7	178	7.4
6.0	0.2	12.5	87.8	179	7.4
6.5	0.2	12.5	87.7	179	7.4
7.0	0.2	12.5	87.7	178	7.5
7.5	0.2	12.5	87.7	178	7.5
8.0	0.2	12.5	87.7	178	7.5
8.5	0.2	12.5	87.4	179	7.5
9.0	0.2	12.5	87.6	179	7.5
9.5	0.2	12.5	87.6	178	7.5
9.8	0.2	12.4	87.5	179	7.5

30-Apr-02

No secci taken *Time:1715*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	5.7	12.0	97.5	88	7.6
0.5	5.7	11.9	97.2	87	7.6
1.0	5.7	11.8	96.8	88	7.6
1.5	5.7	11.8	96.2	87	7.6
2.0	5.7	11.8	95.6	88	7.6
2.5	5.7	11.7	95.0	87	7.5
3.0	5.7	11.6	94.5	87	7.5
3.5	5.7	11.6	64.2	86	7.6
4.0	5.7	11.5	93.9	87	7.5
4.5	5.7	11.5	93.6	87	7.5
5.0	5.7	11.5	93.5	87	7.5
5.5	5.7	11.5	93.6	87	7.5
6.0	5.7	11.5	96.5	86	7.5
6.5	5.7	11.4	93.4	86	7.5
7.0	5.7	11.4	93.3	86	7.5
7.5	5.7	11.4	93.4	86	7.5
8.0	5.7	11.4	93.3	86	7.5
8.5	5.7	11.4	92.9	86	7.5
9.0	5.7	11.4	92.8	85	7.5
9.5	5.7	11.4	92.7	88	7.5
10.0	5.7	11.3	92.4	86	7.5
10.1	bottom				
10.9					

16-May-02

Approximate air temp:10C

No Secci taken *Time:1800*

Winds var 4-7 mph *overcast*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	9.2	11.2	99.9	87	7.5
0.5	9.0	11.0	97.2	86	7.5
1.0	9.1	10.8	95.6	86	7.5
1.5	9.0	10.7	94.6	86	7.5
2.0	9.0	10.7	94.7	86	7.5
2.5	9.0	10.7	94.0	85	7.5
3.0	9.0	10.6	93.8	85	7.5
3.5	9.1	10.6	93.9	86	7.5
4.0	9.2	10.5	92.9	85	7.5
4.5	9.1	10.6	93.3	85	7.5
5.0	9.1	10.6	93.0	85	7.4
5.5	9.0	10.5	93.0	84	7.5
6.0	9.0	10.5	93.4	86	7.5
6.5	9.1	10.5	94.1	85	7.5
7.0	9.1	10.7	94.0	84	7.5
7.5	9.1	10.6	94.0	85	7.5
8.0	9.1	10.5	93.0	85	7.5
8.5	9.1	10.5	92.7	85	7.5
9.0	9.1	10.5	93.2	86	7.5
9.5	9.1	10.5	93.0	84	7.5
bottom					

Highlighted depths- opening to intake forebay (0-10m)

Appendix B-7

Kingsford Hydroelectric Project

Vertical Profile Data -

6-Jun-02

Approximate air temp. 24 C

No secci taken *Time:1700*

Variable southerly winds *Sunny 20% clouds*

8-12 mph

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	15.7	8.6	88.2	143	7.4
0.5	15.6	8.5	87.1	143	7.4
1.0	15.6	8.4	86.5	142	7.4
1.5	15.6	8.4	85.8	142	7.4
2.0	15.6	8.4	85.4	142	7.5
2.5	15.5	8.2	84.5	141	7.4
3.0	15.5	8.2	83.6	142	7.5
3.5	15.5	8.0	82.2	141	7.5
4.0	15.5	8.0	82.4	140	7.5
4.5	15.5	8.0	82.1	141	7.5
5.0	15.4	8.0	81.5	141	7.5
5.5	15.5	7.9	81.0	141	7.5
6.0	15.5	7.9	81.1	140	7.5
6.5	15.5	7.9	81.1	141	7.5
7.0	15.5	7.9	80.9	141	7.5
7.5	15.5	7.9	81.2	141	7.5
8.0	15.5	7.9	80.4	141	7.5
8.5	15.4	7.8	80.4	141	7.5
9.0	15.4	7.9	80.9	141	7.5
9.5	15.5	7.9	80.9	141	7.5
9.8	15.4	7.9	80.4	141	7.5

20-Jun-02

Approximate air temp 29.4 C

Time:1840

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	21.1	8.6	98.8	129	7.5
0.5	21.1	8.5	97.6	128	7.5
1.0	21.0	8.5	96.7	128	7.6
1.5	21.0	8.3	94.3	127	7.5
2.0	20.9	8.2	94.0	127	7.6
2.5	20.5	8.3	93.8	127	7.6
3.0	20.5	8.3	94.7	127	7.5
3.5	18.4	7.9	86.1	128	7.5
4.0	18.2	7.8	85.0	128	7.5
4.5	18.3	7.8	85.0	126	7.5
5.0	18.2	7.8	84.9	125	7.5
5.5	18.3	7.8	84.4	126	7.4
6.0	18.2	7.8	84.5	125	7.4
6.5	18.3	7.8	84.6	125	7.4
7.0	18.2	7.8	84.3	125	7.5
7.5	18.2	7.8	84.4	126	7.4
8.0	18.2	7.8	84.4	126	7.4
8.5	18.2	7.8	84.5	126	7.5
9.0	18.2	7.8	84.5	126	7.4
9.5	18.2	7.8	84.9	126	7.4
9.6	bottom				

2-Jul-02

Approximate air temp: 32 C

Time:1720

westerly winds 4-7 mph *60-70 % clouds*

hot and humid

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	29.4	7.8	102.5	143	7.9
0.5	25.9	7.1	89.6	140	7.8
1.0	26.2	7.1	90.4	140	7.7
1.5	25.7	6.8	85.6	138	7.6
2.0	25.6	6.8	83.7	137	7.6
2.5	25.0	6.4	79.0	135	7.5
3.0	24.9	6.5	79.4	134	7.5
3.5	24.9	6.4	79.2	134	7.5
4.0	24.9	6.4	79.0	134	7.4
4.5	24.9	6.4	78.0	134	7.5
5.0	24.9	6.4	79.3	134	7.4
5.5	24.9	6.4	78.6	134	7.4
6.0	24.9	6.4	78.5	134	7.4
6.5	24.8	6.4	78.0	134	7.4
7.0	24.8	6.3	77.2	133	7.4
7.5	24.8	6.3	77.3	134	7.4
8.0	24.8	6.3	77.1	134	7.4
8.5	24.8	6.3	76.8	134	7.4
9.0	24.8	6.3	76.5	134	7.4
9.5	24.8	6.1	74.5	131	7.4
9.6	bottom				
10.3					

Highlighted depths- opening to intake forebay (0-10m)

Appendix B-7

Kingsford Hydroelectric Project

Vertical Profile Data -

18-Jul-08						30-Jul-02						15-Aug-02					
Approximate air temp: 26 6 C						*Approximate air temp: 29 C*						*Approximate air temp: 23 8 C*					
Secci Depth:				*Time:1840*		*Secci Depth:*				*Time:1800*		*Secci Depth:*				*Time:1815*	
Easterly				*light clouds 30%*		*mostly calm*				*sunny and hot*						*100 % overcast*	
4 to 7 mph																*rain*	
Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	26.8	7.7	97.6	172	8.0	0.0	27.9	7.5	96.7	170	7.9	0.0	23.6	7.5	88.9	148	7.8
0.5	26.7	7.3	92.3	169	8.0	0.5	27.4	7.3	94.0	169	7.9	0.5	23.7	7.4	87.1	147	7.8
1.0	26.4	6.8	86.0	169	8.0	1.0	25.5	7.5	92.5	168	7.8	1.0	23.6	7.2	83.1	146	7.7
1.5	25.7	6.6	80.8	166	7.8	1.5	25 3	7.4	91.6	168	7.8	1.5	23.6	7.0	83.4	146	7.6
2.0	25.7	6.4	79.4	166	7.8	2.0	25.1	7.3	88.4	167	7.8	2.0	23.5	6.8	79.7	145	7.6
2.5	25.8	6.5	80.7	166	7.8	2.5	24.9	7.1	88.1	168	7.8	2.5	23.4	6.7	77.9	147	7.6
3.0	25.7	6.4	78.3	165	7.7	3.0	24.9	7.0	85.1	167	7.7	3.0	23.4	6.6	78.1	148	7.6
3.5	25.6	6.3	78.7	164	7.7	3.5	24.7	7.0	85.2	167	7.7	3.5	23.2	6.6	76.5	151	7.5
4.0	25.6	6.3	77.9	164	7.7	4.0	24.7	6.9	83.9	167	7.7	4.0	23.2	6.5	75.9	151	7.5
4.5	25.5	6.3	78.7	164	7.7	4.5	24.6	6.8	82.1	168	7.7	4.5	23.2	6.5	75.9	149	7.5
5.0	25.6	6.3	77.3	164	7.7	5.0	24.6	6.7	82.5	168	7.7	5.0	23.2	6.5	76.2	151	7.5
5.5	25.6	6.2	76.7	163	7.7	5.5	24.7	6.7	82.2	167	7.7	5.5	23.2	6.5	75.9	151	7.5
6.0	25.5	6.2	76.1	162	7.7	6.0	24.6	6.7	80.7	167	7.7	6.0	23.2	6.4	75.6	153	7.5
6.5	25.5	6.2	76.6	164	7.7	6.5	24.5	6.6	79.6	168	7.6	6.5	23.1	6.4	75.5	153	7.5
7.0	25.5	6.2	77.0	164	7.7	7.0	24.5	6.5	80.4	168	7.6	7.0	23.1	6.4	75.1	152	7.5
7.5	25.5	6.2	75.7	164	7.7	7.5	24.5	6.6	79.5	168	7.6	7.5	23.1	6.5	75.6	152	7.5
8.0	25.5	6.1	75.9	164	7.7	8.0	24.5	6.4	78.5	168	7.6	8.0	23.1	6.4	74.4	152	7.5
8.5	25.5	6.2	75.9	164	7.7	8.5	24.5	6.4	78.3	168	7.6	8.5	23.1	6.4	74.8	153	7.5
9.0	25.5	6.1	75.4	163	7.6	9.0	24.5	6.4	78.5	168	7.6	9.0	23.1	6.4	74.5	153	7.5
9.5	25.4	6.1	75.4	164	7.6	9.5	24.5	6.4	77.9	168	7.7	9.5	23.0	6.4	74.3	156	7.5
10.0	25.4	6.0	74.3	164	7.6	10.0	24.5	6.4	77.6	168	7.7	10.0	22.9	6.3	73.0	152	7.6

Highlighted depths- opening to intake forebay (0-10m)

Appendix B-7

Kingsford Hydroelectric Project
Vertical Profile Data -

29-Aug-02

Approximate air temp: 29.4 C
no secci *Time:1715*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	23.6	8.9	105.5	165	8.2
0.5	23.0	8.3	97.0	165	8.0
1.0	22.0	8.3	95.3	165	7.9
1.5	22.0	8.2	94.9	165	7.9
2.0	21.9	8.2	94.2	164	7.9
2.5	21.8	8.0	91.0	164	7.8
3.0	21.6	8.0	90.9	164	7.8
3.5	21.5	7.8	88.4	163	7.8
4.0	21.3	7.4	83.1	164	7.8
4.5	21.1	7.1	80.0	165	7.7
5.0	21.1	7.0	79.1	165	7.7
5.5	21.1	7.0	78.8	165	7.7
6.0	21.0	6.9	78.4	165	7.7
6.5	20.9	6.8	76.2	165	7.6
7.0	20.9	6.8	75.9	168	7.6
7.5	20.8	6.7	75.6	168	7.6
8.0	20.8	6.7	75.7	167	7.6
8.5	20.7	6.7	75.8	170	7.6
9.0	20.7	6.7	75.5	172	7.6
9.5	20.7	6.8	75.2	173	7.6
9.8	20.4	6.7	74.5	178	7.7

12-Sep-02

Approximate air temp: 20 2 C
not taken *Time:1800*
Westerly winds 8-12 mph *Blue Sky Clear*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	22.5	7.8	88.9	172	7.9
0.5	22.5	7.6	87.6	172	7.8
1.0	22.5	7.5	86.4	173	7.8
1.5	22.4	7.4	84.2	173	7.8
2.0	22.4	7.4	85.4	172	7.8
2.5	20.8	6.8	76.0	174	7.7
3.0	20.8	6.8	75.4	173	7.7
3.5	20.8	6.8	75.5	174	7.7
4.0	20.8	6.8	74.9	174	7.7
4.5	20.8	6.8	76.2	174	7.7
5.0	20.8	6.8	76.6	173	7.7
5.5	20.8	6.8	75.0	173	7.7
6.0	20.8	6.7	74.6	174	7.7
6.5	20.8	6.8	75.5	174	7.7
7.0	20.8	6.7	74.9	174	7.7
7.5	20.8	6.7	74.6	174	7.7
8.0	20.7	6.7	75.1	172	7.6
8.5	20.8	6.7	74.7	171	7.6
9.0	20.7	6.7	74.5	173	7.6
9.5	20.7	6.7	74.8	174	7.6
9.8	20.7	6.7	74.5	174	7.6

17-Oct-02

Approximate air temp: 5.9 C
not taken *Time:1700*
Westerly winds 8-12 mph

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	8.2	10.4	87.1	131	7.8
0.5	8.2	10.2	86.2	130	7.8
1.0	8.2	10.2	85.8	130	7.8
1.5	8.2	10.1	86.6	130	7.7
2.0	8.2	10.2	85.8	130	7.8
2.5	8.2	10.2	86.1	130	7.7
3.0	8.2	10.1	85.3	129	7.7
3.5	8.2	10.1	85.1	129	7.7
4.0	8.2	10.1	85.3	129	7.7
4.5	8.2	10.1	84.9	129	7.7
5.0	8.2	10.1	84.7	129	7.7
5.5	8.2	10.0	84.3	129	7.7
6.0	8.2	10.0	84.4	129	7.7
6.5	8.2	10.0	84.5	129	7.7
7.0	8.2	10.0	84.3	129	7.7
7.5	8.2	10.0	84.3	129	7.7
8.0	8.2	10.0	83.7	129	7.7
8.5	8.2	10.0	83.7	129	7.7
9.0	8.2	9.9	83.5	129	7.7
9.5	8.2	9.9	83.9	129	7.7

Highlighted depths- opening to intake forebay (0-10m)

Appendix B-8

Big Quinnesec Falls Hydroelectric Project

Vertical Profile Data

14-Feb-02						30-Apr-02						5/15/2002					
Approximate air temp: 1.6 C						*Secci Depth: 5.5 ft.*					*Time:1600*	*Secci Depth:4.0'*					*Time:1630*
Secci Depth: 7.0 ft.					*Time:1515*	*NNW Winds 12-18 mph*						*Winds 8-12 mph SW*					*100% overcast Rain*
Ice thickness: 1" approximately																	
Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH	Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
	0.0	12.8	89.6	183	7.5	0.0	5.7	11.7	95.7	88	7.5	0.0	9.0	11.0	98.1	89	7.5
0.5	0	12.8	89.6	184	7.5	0.5	5.7	11.7	95.7	88	7.5	0.5	9.0	11.1	98.3	89	7.5
1.0	0	12.7	89.6	183	7.5	1.0	5.6	11.7	95.6	88	7.5	1.0	9.0	11.0	97.2	89	7.5
1.5	0.0	12.7	88.8	183	7.5	1.5	5.6	11.7	95.6	88	7.5	1.5	9.1	10.9	97.5	88	7.5
2.0	0.0	12.3	86.6	184	7.5	2.0	5.7	11.7	95.6	88	7.5	2.0	9.1	10.7	94.6	86	7.5
2.5	0	12.6	88.3	183	7.5	2.5	5.6	11.7	95.5	88	7.5	2.5	9.0	10.7	94.6	86	7.4
3.0	0.0	12.7	88.6	183	7.5	3.0	5.6	11.6	95.1	88	7.5	3.0	9.1	10.7	91.6	87	7.5
3.5	0	12.6	88.4	183	7.5	3.5	5.6	11.7	94.8	87	7.5	3.5	9.0	10.7	94.7	87	7.5
4.0	0	12.6	88.4	183	7.5	4.0	5.6	11.7	94.8	88	7.5	4.0	9.1	10.7	94.5	86	7.5
4.5	0.1	12.6	88.5	183	7.5	4.5	5.6	11.7	95.3	87	7.5	4.5	9.1	10.6	94.3	86	7.5
5.0	0.1	12.6	88.6	183	7.5	5.0	5.6	11.7	95.1	88	7.5	5.0	9.1	10.6	94.4	87	7.5
5.5	0.1	12.6	88.2	183	7.5	5.5	5.6	11.7	95.0	87	7.5	5.5	9.0	10.6	94.3	87	7.5
6.0	0.1	12.6	88.4	183	7.5	6.0	5.6	11.7	95.1	88	7.5	6.0	9.0	10.6	94.2	86	7.5
6.5	0.1	12.6	88.1	183	7.5	6.5	5.6	11.6	95.0	88	7.5	6.5	9.0	10.6	94.0	86	7.5
7.0	0.1	12.6	87.9	183	7.5	7.0	5.6	11.7	94.9	87	7.5	7.0	9.0	10.7	94.4	86	7.5
7.5	0.1	12.5	87.8	183	7.5	7.5	5.6	11.7	95.2	88	7.4	7.5	9.0	10.7	94.3	87	7.4
8.0	0.1	12.6	87.8	183	7.5	8.0	5.6	11.8	95.6	87	7.4	8.0	9.0	10.7	94.4	87	7.5
8.5	0.1	12.5	87.6	183	7.5	8.5	5.6	11.7	95.7	88	7.4	8.5	9.0	10.7	94.4	87	7.5
9.0	0.1	12.3	87.8	184	7.5	9.0	5.6	11.7	95.5	88	7.4	9.0	9.0	10.7	94.2	86	7.5
9.5	0.1	12.6	88.2	183	7.5	9.5	5.6	11.7	95.6	89	7.5	9.5	9.0	10.7	94.2	86	7.4
10.0	0.1	12.9	87.6	184	7.6	10.0	5.6	11.7	95.5	89	7.4	10.0	9.0	10.7	94.3	86	7.5
10.5	0.1	12.9	87.6	184	7.6	10.5	5.6	11.7	95.5	88	7.4	10.5	9.0	10.6	94.1	86	7.4
11.0	0.1	12.6	88.0	183	7.6	11.0	5.6	11.7	95.6	88	7.4	11.0	9.0	10.7	94.6	86	7.4
11.5	0.1	12.5	87.8	183	7.6	11.5	5.6	11.7	95.6	88	7.4	11.5	9.0	10.7	94.6	86	7.4
12.0	0.1	12.6	88.2	183	7.6	12.0	5.6	11.7	95.6	88	7.4	12.0	9.0	10.7	94.9	86	7.4
12.5	0.1	12.5	87.8	183	7.6	12.5	5.6	11.7	95.5	88	7.4	12.5	9.0	10.7	94.8	87	7.4
13.0	0.1	12.5	87.6	183	7.6	13.0	5.6	11.8	95.7	88	7.4	13.0	9.0	10.8	95.1	86	7.4
13.5	0.1	12.5	87.4	183	7.6	13.5	5.6	11.8	95.8	89	7.4	13.5	9.0	10.8	95.2	88	7.4
14.0	0.1	12.5	87.3	183	7.6	14.0	5.6	11.8	96.0	87	7.4	14.0	9.0	10.8	95.3	87	7.4
14.5	0.1	12.5	87.5	183	7.6	14.5	5.6	11.8	96.0	88	7.4	14.5	9.0	10.8	95.1	85	7.4
15.0	0.1	12.4	87.2	183	7.6	15.0	5.6	11.8	96.0	90	7.4	15.0	9.0	10.8	95.1	87	7.4
15.5	0.1	12.4	87.1	183	7.6	15.5	5.6	11.8	96.0	87	7.4	15.5	9.0	10.8	95.0	86	7.4
16.0	0.1	12.4	87.2	183	7.6	16.0	5.6	11.8	96.0	87	7.4	16.0	9.0	10.7	95.1	85	7.4
16.5	0.1	12.5	87.5	183	7.6	16.5	5.6	11.8	95.7	87	7.4	16.5	9.0	10.7	94.9	87	7.4
17.0	0.1	12.4	87.9	183	7.6	17.0	5.6	11.7	95.5	87	7.4	17.0	9.0	10.7	95.0	86	7.4
17.5	0.1	12.5	87.3	183	7.6	17.5	5.6	11.8	95.5	89	7.4	17.5	9.0	10.7	94.8	87	7.4
18.0	0.1	12.5	87.5	183	7.6	18.0	5.6	11.8	95.8	90	7.4	18.0	8.9	10.6	93.7	85	7.4
18.5	0.1	11.8	83.0	183	7.5	18.5	5.6	11.8	95.8	90	7.4	18.5	8.9	10.6	93.7	85	7.4
18.7	bottom- sand / muck					19.0	5.6	11.8	95.6	90	7.4	19.0	9.0	10.6	93.4	88	7.4
												19.5	9.0	10.7	94.5	88	7.4
												19.9	bottom				

Highlighted depths- Opening to intake penstocks on headworks (2.5-10 m)

Appendix B-8

Big Quinnesec Falls Hydroelectric Project

Vertical Profile Data

6-Jun-02

Approximate air temp:22 C
Secci Depth: 6.5 ft depth 60-65' Time:1600
string west wind 8-12 mph overcast drizzle

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	19.0	8.9	98.9	149	7.6
0.5	19.0	8.9	97.6	149	7.6
1.0	18.7	8.8	96.7	148	7.6
1.5	17.6	8.8	93.7	148	7.6
2.0	16.6	8.5	89.6	147	7.6
2.5	16.2	8.5	87.2	147	7.6
3.0	16.0	8.3	85.5	146	7.6
3.5	16.0	8.2	84.6	146	7.5
4.0	15.9	8.2	84.9	146	7.5
4.5	15.8	8.2	84.6	147	7.5
5.0	15.8	8.2	84.0	146	7.5
5.5	15.8	8.1	83.5	146	7.5
6.0	15.8	8.1	83.7	146	7.5
6.5	15.8	8.0	82.5	146	7.5
7.0	15.8	8.0	82.0	145	7.5
7.5	15.8	7.9	81.8	146	7.5
8.0	15.7	7.9	81.7	145	7.5
8.5	15.7	7.9	81.7	146	7.5
9.0	15.7	8.0	82.2	145	7.5
9.5	15.7	8.0	82.1	145	7.5
10.0	15.7	8.0	82.5	145	7.5
10.5	15.7	8.0	82.8	146	7.5
11.0	15.7	8.0	82.5	144	7.5
11.5	15.7	8.0	82.4	147	7.5
12.0	15.7	8.0	82.3	144	7.5
12.5	15.7	8.0	82.2	145	7.5
13.0	15.7	8.0	82.1	145	7.5
13.5	15.6	8.0	81.6	144	7.4
14.0	15.6	7.9	81.6	144	7.4
14.5	15.6	7.9	81.6	143	7.4
15.0	15.6	7.9	81.6	145	7.4
15.5	15.6	7.9	81.4	146	7.4
16.0	15.6	7.9	81.6	146	7.4
16.5	15.6	7.9	81.6	146	7.4
17.0	15.6	7.9	81.6	144	7.4
17.5	15.6	7.9	81.3	144	7.4
18.0	15.6	7.9	80.8	145	7.4
18.5	15.6	7.9	80.9	146	7.4
18.8	15.6	7.9	80.9	145	7.5

20-Jun-02

Approximate air temp:18 C
Secci Depth: 4.0 ft depth 60-67' Time:1730
calm 100% clouds Drizzle

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	19.4	8.1	90.4	152	7.5
0.5	19.5	8.2	91.9	154	7.5
1.0	19.5	8.1	90.2	153	7.5
1.5	19.5	8.1	90.7	157	7.5
2.0	19.5	8.0	89.3	154	7.5
2.5	19.4	8.1	90.3	155	7.5
3.0	19.4	8.0	89.1	153	7.5
3.5	19.4	8.0	88.7	152	7.5
4.0	19.4	8.0	90.2	150	7.5
4.5	19.4	8.1	89.8	160	7.5
5.0	19.4	8.0	89.0	155	7.5
5.5	19.4	8.0	89.6	149	7.5
6.0	19.4	8.0	89.1	155	7.5
6.5	19.4	8.0	88.8	150	7.5
7.0	19.4	8.0	89.2	156	7.5
7.5	19.4	8.0	88.5	155	7.5
8.0	19.4	8.0	88.9	149	7.5
8.5	19.3	7.9	88.3	153	7.4
9.0	19.3	7.9	88.4	155	7.4
9.5	19.3	7.9	88.2	153	7.5
10.0	19.3	8.0	89.1	156	7.4
10.5	19.3	7.9	87.7	149	7.4
11.0	19.3	7.8	87.0	146	7.4
11.5	19.3	7.8	87.5	144	7.4
12.0	19.4	7.8	87.3	153	7.4
12.5	19.4	7.8	87.3	154	7.4
13.0	19.4	7.8	87.3	153	7.4
13.5	19.4	7.8	86.7	139	7.4
14.0	19.4	7.8	87.5	161	7.4
14.5	19.3	7.8	87.4	154	7.4
15.0	19.3	7.8	86.2	171	7.4
15.5	19.3	7.7	86.2	184	7.4
16.0	19.3	7.7	84.3	154	7.4
16.5	19.3	7.7	86.9	154	7.4
17.0	19.3	7.8	86.9	148	7.4
17.5	19.3	7.8	86.5	151	7.4
18.0	19.3	7.4	84.2	161	7.4
18.5	19.3	7.7	86.2	166	7.4
19.0	19.3	7.7	86.1	142	7.4
19.1	bottom				

2-Jul-02

Approximate air temp:32 C
Secci Depth: 4.5 ft depth 60-66' Time:1600
westerly 4-7 mph 60% clouds

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	28.4	7.1	91.5	144	7.6
0.5	28.6	7.1	92.9	143	7.5
1.0	27.2	6.6	84.2	142	7.4
1.5	25.7	6.5	80.4	141	7.4
2.0	25.3	6.4	79.2	141	7.4
2.5	25.1	6.3	78.1	141	7.4
3.0	25.0	6.3	77.6	141	7.4
3.5	24.9	6.3	77.5	141	7.4
4.0	24.9	6.3	77.5	141	7.3
4.5	24.9	6.3	77.1	141	7.3
5.0	24.9	6.3	77.4	141	7.3
5.5	24.8	6.3	76.9	141	7.3
6.0	24.8	6.3	77.2	141	7.3
6.5	24.8	6.3	77.1	141	7.3
7.0	24.8	6.3	77.0	141	7.3
7.5	24.8	6.3	76.8	141	7.3
8.0	24.7	6.2	76.5	141	7.3
8.5	24.6	6.2	75.7	140	7.3
9.0	24.5	6.2	75.4	140	7.3
9.5	24.5	6.2	75.3	140	7.3
10.0	24.4	6.1	74.9	140	7.3
10.5	24.4	6.1	73.9	140	7.3
11.0	24.3	6.1	74.3	140	7.3
11.5	24.3	6.2	75.1	140	7.3
12.0	24.2	6.1	74.1	140	7.3
12.5	24.1	6.1	73.7	140	7.3
13.0	24.1	6.0	73.1	140	7.3
13.5	24.0	5.9	71.9	140	7.3
14.0	24.0	5.9	70.7	140	7.3
14.5	23.8	5.7	69.1	141	7.3
15.0	23.7	5.4	64.3	142	7.2
15.5	23.5	4.7	55.9	147	7.2
16.0	22.5	3.7	44.0	149	7.2
16.5	21.6	2.3	27.5	152	7.1
17.0	20.2	0.5	5.5	160	7.1
17.5	19.4	0.5	4.8	169	7.1
18.0	19.1	0.3	3.4	174	7.0
18.5	18.8	0.3	3.7	181	7.0
19.0	18.7	0.4	3.8	187	7.0
19.5	18.7	0.4	4.2	193	7.0
19.8	18.6	0.5	4.9	196	7.0

Highlighted depths- Opening to intake penstocks on headworks (2.5-10 m)

Appendix B-8

Big Quinnesec Falls Hydroelectric Project

Vertical Profile Data

18-Jul-02

Approximate air temp: 28 6 C
Secci Depth: *Time:1730*
Easterly *light clouds 30%*
4 to 7 mph

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	26.7	6.4	80.5	171	7.7
0.5	26.6	6.4	80.7	171	7.7
1.0	26.3	6.3	78.4	170	7.7
1.5	26.1	6.4	80.0	170	7.6
2.0	25.9	6.3	78.1	171	7.6
2.5	25.7	6.4	80.0	168	7.6
3.0	25.6	6.2	76.4	170	7.6
3.5	25.5	6.1	75.1	169	7.6
4.0	25.5	6.1	75.6	169	7.6
4.5	25.5	6.0	74.4	168	7.6
5.0	25.3	5.9	73.0	169	7.5
5.5	25.3	5.9	72.6	170	7.5
6.0	25.3	5.9	72.0	170	7.5
6.5	25.3	5.9	72.3	169	7.5
7.0	25.3	5.8	72.3	170	7.5
7.5	25.2	5.8	71.2	170	7.5
8.0	25.2	5.8	71.5	170	7.5
8.5	25.2	5.6	68.6	171	7.5
9.0	25.2	5.6	71.2	170	7.5
9.5	25.2	5.7	70.2	170	7.5
10.0	25.1	5.6	70.1	169	7.5
10.5	25.1	5.8	71.1	171	7.5
11.0	25.1	5.6	70.6	170	7.5
11.5	25.1	5.7	71.1	171	7.5
12.0	25.0	5.5	68.0	171	7.5
12.5	24.9	5.4	66.6	170	7.5
13.0	24.7	5.1	62.8	171	7.4
13.5	24.6	5.2	63.4	172	7.4
14.0	24.4	4.0	50.4	173	7.3
14.5	23.8	3.0	36.0	177	7.3
15.0	23.3	2.2	26.2	179	7.2
15.5	23.2	1.6	19.6	181	7.2
16.0	23.1	1.2	14.9	185	7.2
16.5	23.0	0.7	8.9	189	7.2
17.0	22.9	0.4	4.9	190	7.2
17.5	22.7	0.3	3.6	195	7.1
18.0	22.6	0.3	3.8	196	7.1
18.2	bottom				

30-Jul-02

Approximate air temp:30C
Secci Depth 5.5ft depth 60-67' *Time:1630*
westerly breeze *sunny hot and humit*
less than 5% clouds

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	26.9	7.6	96.9	174	8.1
0.5	26.8	7.4	94.1	171	8.1
1.0	26.1	6.9	86.0	170	8.0
1.5	25.5	6.7	83.5	170	7.9
2.0	25.1	6.7	82.2	170	7.9
2.5	25.0	6.7	82.4	171	7.9
3.0	25.0	6.7	82.4	170	7.9
3.5	25.0	6.7	82.3	170	7.9
4.0	25.0	6.6	81.6	170	7.9
4.5	24.9	6.6	81.2	170	7.9
5.0	24.9	6.6	80.4	170	7.8
5.5	24.8	6.6	87.4	169	7.8
6.0	24.9	6.7	81.4	170	7.8
6.5	24.9	6.6	81.3	169	7.8
7.0	24.6	6.3	76.0	169	7.8
7.5	24.6	6.4	78.6	168	7.8
8.0	24.5	6.5	79.7	168	7.7
8.5	24.5	6.5	80.0	169	7.7
9.0	24.5	6.5	79.9	169	7.6
9.5	24.5	6.4	78.5	168	7.6
10.0	24.4	6.4	78.9	169	7.6
10.5	24.4	6.5	78.9	168	7.6
11.0	24.4	6.4	77.6	168	7.6
11.5	24.3	6.4	77.4	169	7.6
12.0	24.2	6.3	76.9	169	7.6
12.5	24.2	6.3	76.7	168	7.6
13.0	24.2	6.3	75.9	169	7.6
13.5	23.7	4.8	57.9	170	7.5
14.0	23.3	4.3	51.6	173	7.4
14.5	23.2	4.2	50.1	172	7.4
15.0	23.2	3.9	47.6	171	7.3
15.5	23.1	3.5	41.5	175	7.3
16.0	23.1	3.3	39.2	170	7.3
16.5	23.0	3.1	37.0	176	7.3
17.0	23.0	3.0	29.4	173	7.3
17.5	22.9	2.2	26.9	180	7.3
18.0	22.9	1.7	20.8	182	7.2
18.5	22.8	1.3	16.2	184	7.2
19.0	22.7	0.7	10.4	187	7.1
19.5	22.5	0.4	4.5	204	7.1
19.7	bottom				

15-Aug-02

Approximate air temp:23.8 C
Secci Depth: 6.5ft depth 60-67' *Time:1700*
WSW 8-12 mph *100 % clouds*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	23.8	7.1	84.4	152	7.7
0.5	23.8	7.1	84.8	152	7.6
1.0	23.9	7.1	85.1	152	7.6
1.5	23.9	7.0	83.4	149	7.6
2.0	23.8	6.9	81.7	150	7.5
2.5	23.7	6.8	81.0	150	7.5
3.0	23.7	6.7	79.6	150	7.5
3.5	23.7	6.7	79.3	151	7.5
4.0	23.6	6.6	78.4	151	7.5
4.5	23.6	6.6	77.9	151	7.5
5.0	23.4	6.4	75.5	152	7.5
5.5	23.3	6.4	75.6	151	7.5
6.0	23.2	6.3	74.4	150	7.5
6.5	23.2	6.3	74.2	150	7.5
7.0	23.1	6.3	74.6	151	7.4
7.5	23.1	6.4	75.0	149	7.4
8.0	23.2	6.3	73.8	151	7.4
8.5	23.2	6.3	74.1	150	7.4
9.0	23.2	6.3	74.3	150	7.4
9.5	23.1	6.3	75.9	152	7.4
10.0	22.9	6.3	73.6	152	7.4
10.5	23.0	6.2	71.7	152	7.4
11.0	22.8	6.1	70.5	151	7.4
11.5	22.7	6.1	70.9	151	7.4
12.0	22.7	5.9	68.9	151	7.4
12.5	22.8	6.1	71.1	152	7.4
13.0	22.7	6.0	70.6	150	7.4
13.5	22.7	6.0	69.8	151	7.4
14.0	22.7	6.0	69.6	152	7.4
14.5	22.7	5.9	69.1	151	7.4
15.0	22.7	6.0	69.3	152	7.4
15.5	22.7	5.9	68.2	152	7.4
16.0	22.7	5.9	69.1	151	7.4
16.5	22.7	5.9	69.2	151	7.4
17.0	22.6	5.9	69.0	151	7.4
17.5	22.7	6.0	67.8	151	7.4
18.0	22.6	5.9	68.6	151	7.4
18.5	22.6	5.9	68.4	152	7.4
19.0	22.6	5.9	68.6	151	7.4

Highlighted depths- Opening to intake penstocks on headworks (2.5-10 m)

Appendix B-8
Big Quinnesec Falls Hydroelectric Project
Vertical Profile Data

28-Aug-02

Approximate air temp:29 C
Secci Depth: 5.5 ft depth 60-64' *Time:1545*
Light ESE winds *30 % clouds*
4-7 mph *Beautiful day*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	24.4	7.8	97.1	184	7.8
0.5	25.3	7.8	98.6	182	7.8
1.0	22.2	8.1	93.1	180	7.8
1.5	21.5	7.8	88.7	180	7.8
2.0	21.4	7.7	87.5	181	7.7
2.5	21.4	7.6	85.8	180	7.7
3.0	21.2	7.1	81.0	179	7.6
3.5	21.1	7.2	81.4	178	7.6
4.0	21.0	7.0	79.1	187	7.6
4.5	20.9	7.0	78.8	178	7.6
5.0	20.8	7.1	80.0	177	7.6
5.5	20.8	7.1	79.4	176	7.6
6.0	20.8	7.1	79.7	177	7.6
6.5	20.8	7.1	79.7	177	7.6
7.0	70.8	7.0	78.7	177	7.6
7.5	20.8	7.0	78.8	177	7.6
8.0	20.8	7.0	78.5	177	7.6
8.5	20.8	7.0	78.5	177	7.6
9.0	20.8	7.0	78.3	177	7.6
9.5	20.6	7.0	78.6	176	7.6
10.0	20.6	7.0	78.5	176	7.6
10.5	20.6	7.0	78.2	176	7.6
11.0	20.6	7.0	77.9	176	7.6
11.5	20.6	7.0	78.0	176	7.6
12.0	20.6	7.0	78.2	176	7.6
12.5	20.6	7.0	78.0	176	7.6
13.0	20.6	6.9	77.9	176	7.6
13.5	20.6	6.9	77.9	176	7.6
14.0	20.6	6.8	76.6	176	7.6
14.5	20.6	6.8	76.0	176	7.6
15.0	20.6	6.8	76.2	176	7.6
15.5	20.6	6.8	76.2	176	7.6
16.0	20.6	6.7	75.8	175	7.6
16.5	20.6	6.7	75.0	176	7.6
17.0	20.6	6.7	75.2	175	7.6
17.5	20.6	6.7	75.3	175	7.6
18.0	20.6	6.7	75.2	176	7.6
18.5	20.6	6.6	73.6	175	7.6
19.0	20.6	6.6	74.8	176	7.5
19.5	20.6	6.6	74.0	176	7.5
19.8	bottom				

12-Sep-02

Approximate air temp:21.4
Secci Depth: 5 ft depth 60-67 *Time:1630*
Westerly 12-18 mph *Blue Sky*

Depth	Temp. (C)	D.O. (mg/l)	D.O. % Saturation	Cond. (uS/cm)	pH
0.0	21.9	7.5	85.4	182	7.7
0.5	21.9	7.4	84.4	182	7.4
1.0	22.0	7.9	83.7	182	7.7
1.5	22.0	7.3	82.8	183	7.7
2.0	22.0	7.3	82.7	181	7.7
2.5	22.0	7.2	82.5	182	7.7
3.0	22.0	7.2	82.3	181	7.7
3.5	22.0	7.2	82.3	182	7.7
4.0	22.0	7.2	82.0	183	7.7
4.5	22.0	7.2	82.1	182	7.7
5.0	22.0	7.2	82.3	183	7.7
5.5	22.0	7.3	83.4	183	7.7
6.0	21.2	6.7	75.4	181	7.6
6.5	21.1	6.7	75.3	182	7.6
7.0	21.1	6.7	75.2	182	7.6
7.5	21.0	6.7	75.2	181	7.6
8.0	21.0	6.7	75.2	181	7.6
8.5	21.0	6.7	75.1	180	7.6
9.0	20.9	6.7	74.0	181	7.6
9.5	20.8	6.7	74.0	181	7.6
10.0	20.7	6.7	74.5	181	7.6
10.5	20.8	6.7	75.0	181	7.6
11.0	20.9	6.7	75.1	181	7.6
11.5	20.8	6.8	75.7	180	7.6
12.0	20.7	6.8	75.1	181	7.6
12.5	20.7	6.7	75.1	181	7.6
13.0	20.7	6.7	74.5	181	7.6
13.5	20.7	6.7	74.2	181	7.6
14.0	20.7	6.7	74.2	181	7.6
14.5	20.7	6.7	74.0	181	7.6
15.0	20.7	6.7	74.2	179	7.6
15.5	20.7	6.7	74.2	179	7.6
16.0	20.7	6.6	72.6	180	7.6
16.5	20.7	6.6	73.9	180	7.6
17.0	20.7	6.6	73.2	181	7.6
17.5	20.7	6.6	74.4	180	7.6
18.0	20.7	6.7	74.4	181	7.6
18.5	20.7	6.6	72.9	179	7.6
19.0	20.7	6.7	74.3	180	7.6
bottom					

17-Oct-02

Approximate air temp:6.6 C
Secci Depth: 4.5 in 60' *Time:1600*
near calm *40% clouds*

Depth	Temp. (C)	D.O. (mg/l)		Cond. (uS/cm)	pH
0.0	8.4	10.0	84.1	131	7.6
0.5	8.4	10.0	84.1	133	7.7
1.0	8.4	9.9	84.1	133	7.7
1.5	8.4	9.8	83.3	132	7.7
2.0	8.4	9.8	83.3	132	7.7
2.5	8.4	9.7	82.8	132	7.7
3.0	8.4	9.8	82.9	132	7.7
3.5	8.4	9.7	82.6	132	7.7
4.0	8.4	9.7	84.6	132	7.7
4.5	8.4	10.0	84.7	132	7.7
5.0	8.4	9.9	84.4	132	7.7
5.5	8.4	10.0	84.8	132	7.7
6.0	8.4	9.9	84.4	132	7.7
6.5	8.4	9.9	84.4	132	7.7
7.0	8.4	9.9	84.3	132	7.7
7.5	8.3	10.0	84.5	131	7.7
8.0	8.3	9.9	83.8	131	7.7
8.5	8.3	9.9	84.1	131	7.7
9.0	8.3	9.9	83.9	131	7.7
9.5	8.3	9.9	83.9	131	7.7
10.0	8.3	9.8	83.2	131	7.7
10.5	8.3	9.8	83.3	131	7.7
11.0	8.3	9.8	83.2	131	7.6
11.5	8.3	9.8	83.1	131	7.6
12.0	8.3	9.9	83.4	131	7.6
12.5	8.3	9.9	83.4	131	7.6
13.0	8.3	9.9	83.3	131	7.7
13.5	8.3	9.8	83.1	131	7.7
14.0	8.3	9.8	83.1	131	7.6
14.5	8.3	9.8	82.7	131	7.6
15.0	8.3	9.8	82.6	131	7.6
15.5	8.3	9.8	83.1	131	7.6
16.0	8.3	9.8	83.1	131	7.6
16.5	8.4	10.0	84.9	132	7.6
17.0	8.4	10.0	84.9	132	7.6
17.5	8.4	10.0	84.8	132	7.6
18.0	8.4	9.9	84.1	131	7.6
18.1	bottom				

Highlighted depths- Opening to intake penstocks on headworks (2.5-10 m)

We Energies

Appendix C

Results of Ambient Air, Precipitation, and Flow Analyses; Possible Factors Contributing to Low Dissolved Oxygen Discharges at Peavy Falls Project

Peavy Falls Hydroelectric Project – FERC No. 1130-000

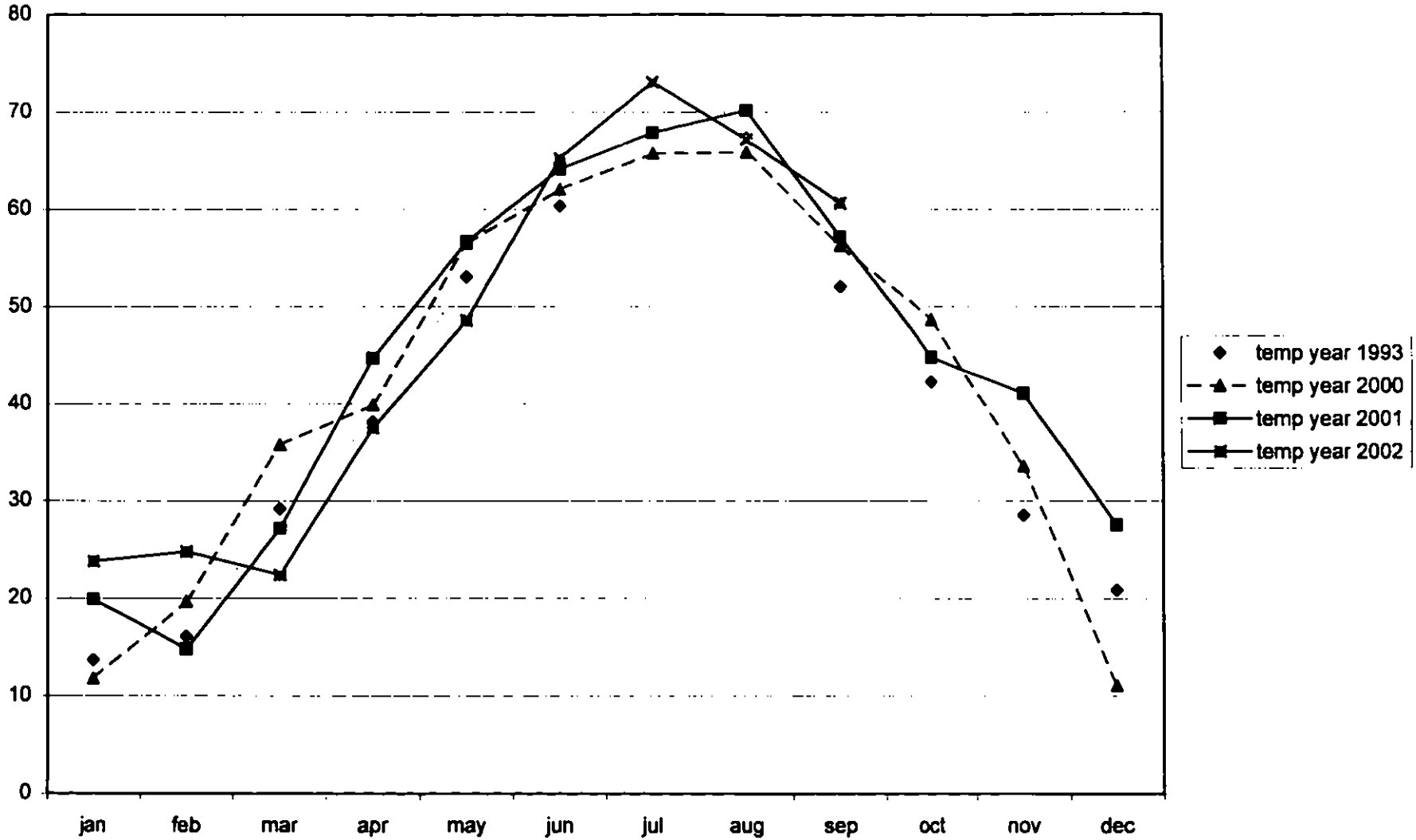
November 27, 2002

	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Year 1993												
Monthly Precipitation	1.43	0.05	0.38	2.93	5.45	5.46	2.21	3.75	3.26	1.97	1.7	0.56
Monthly Mean Temperature	13.7	16.1	29.2	38.2	53.1	60.4	67.9	67.4	52.1	42.3	28.6	20.9
Year 2000												
Monthly Precipitation	1.85	1.48	2.18	2.6	2.17	4.47	6.07	4.26	6.12	0.76	2.31	1.2
Monthly Mean Temperature	11.8	19.7	35.8	39.9	56.5	62.1	65.8	65.9	56.3	48.7	33.6	11.1
Year 2001												
Monthly Precipitation	1.3	1.46	0.63	2.73	3.41	3.64	1.97	1.59	3.39	2.45	2.17	1.22
Monthly Mean Temperature	19.9	14.8	27.2	44.7	56.7	64.2	67.9	70.2	57.2	44.8	41.1	27.6

Year 2002												
Monthly Precipitation	0.24	1.78	3.09	4.23	3.85	3.53	3.86	3.91	3.55			
Monthly Mean Temperature	23.8	24.8	22.4	37.5	48.6	65.3	73.1	67.2	60.7			

Figure C- 1

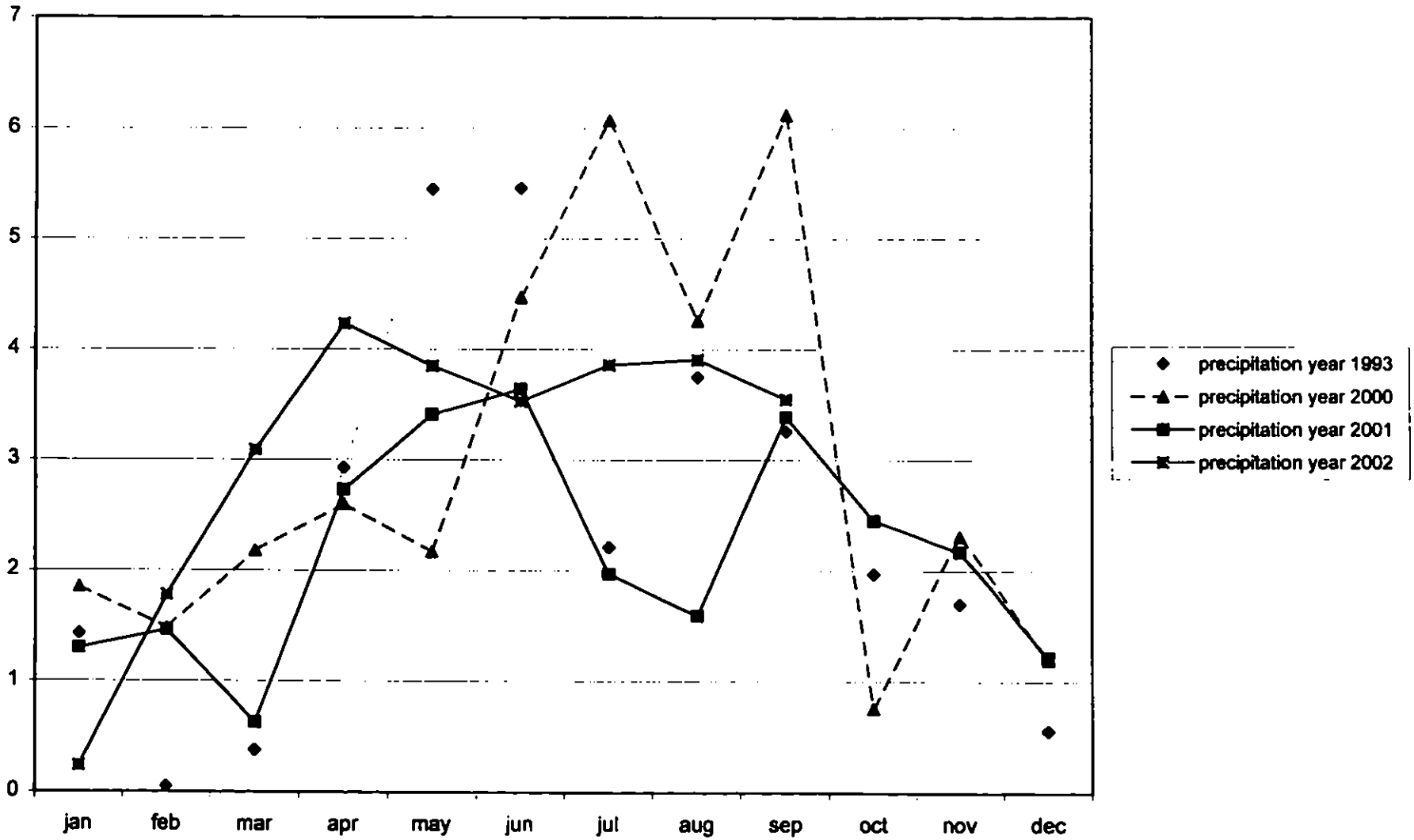
Monthly Mean Temperature- Iron Mountain, MI



peavy 93 and 2001.xls Temperature

Figure C- 2

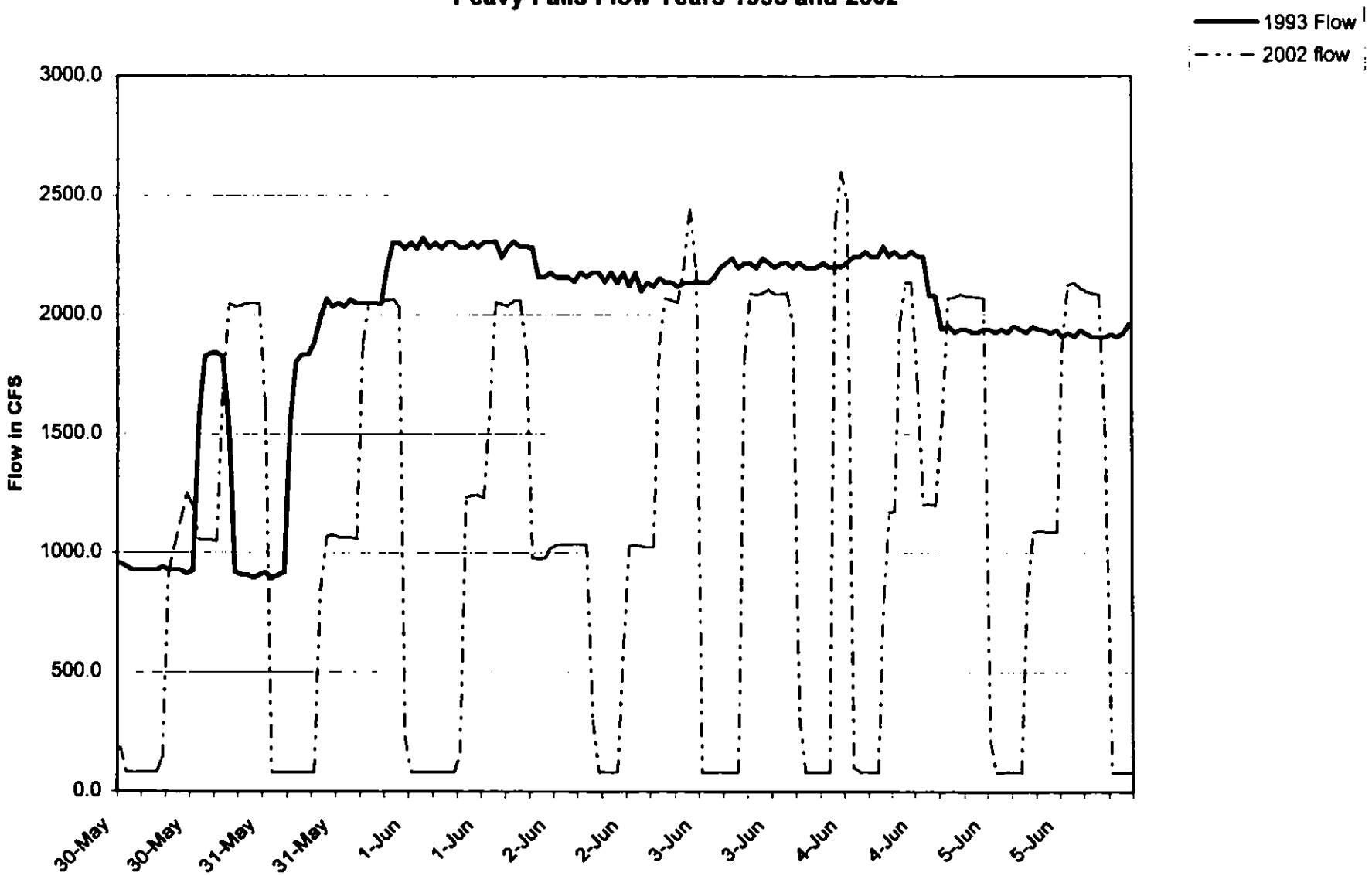
Monthly Precipitation- Iron Mountain, MI



peavy 93 and 2001.xls Precipitation

Figure C- 3

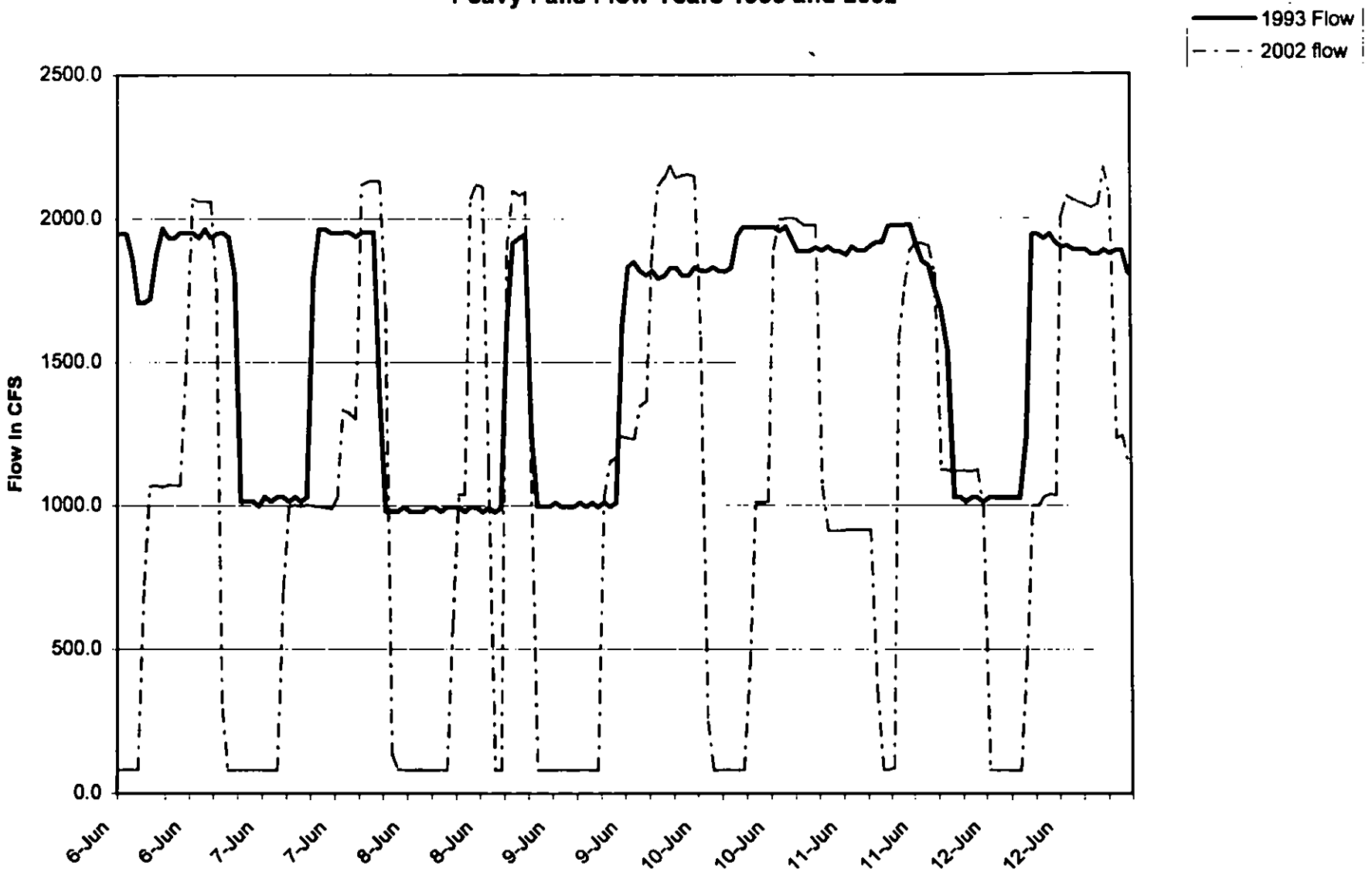
Peavy Falls Flow Years 1993 and 2002



May 30- June 5 2002

Figure C- 3

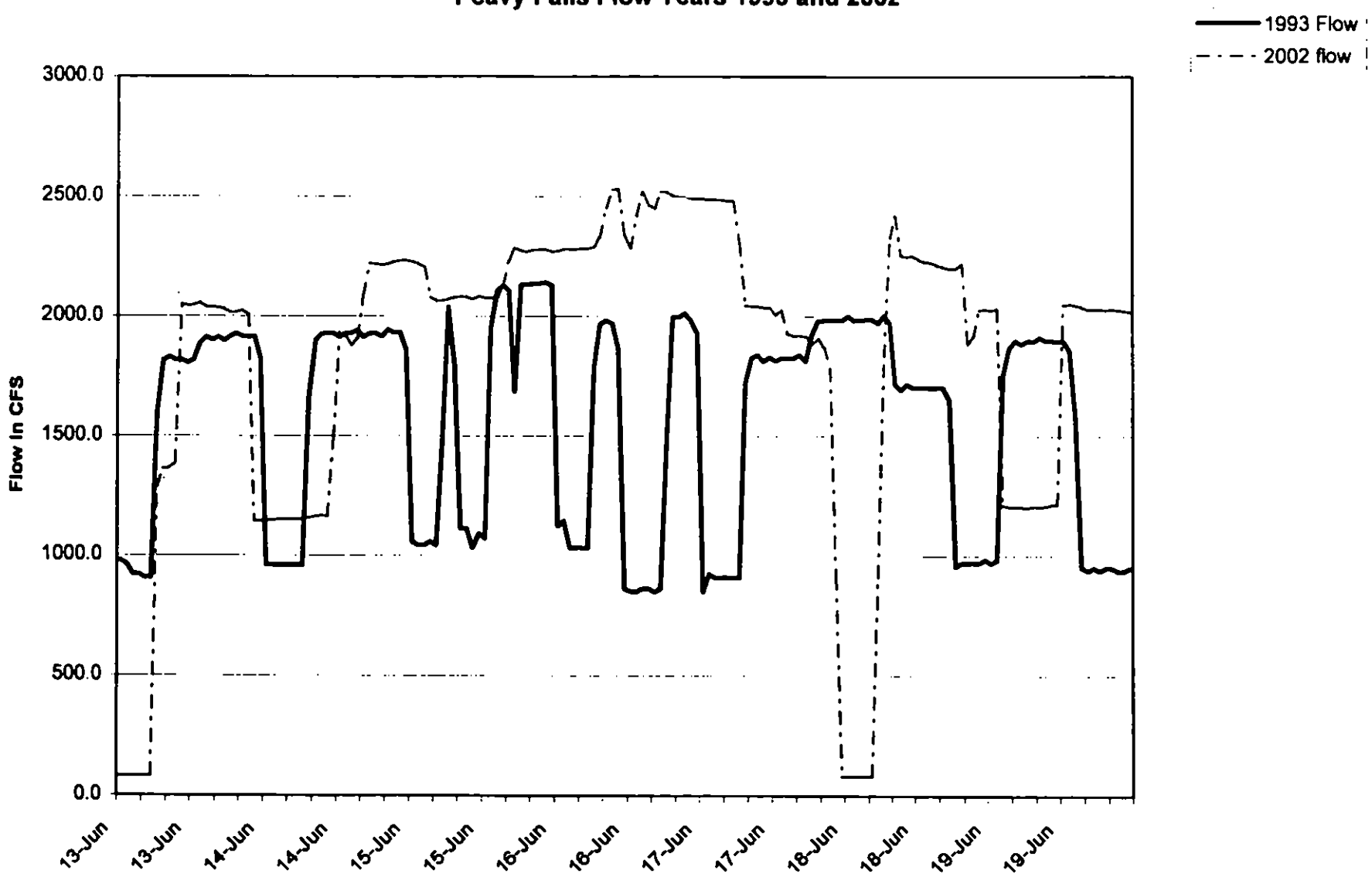
Peavy Falls Flow Years 1993 and 2002



June 6-12 2002

Figure C- 3

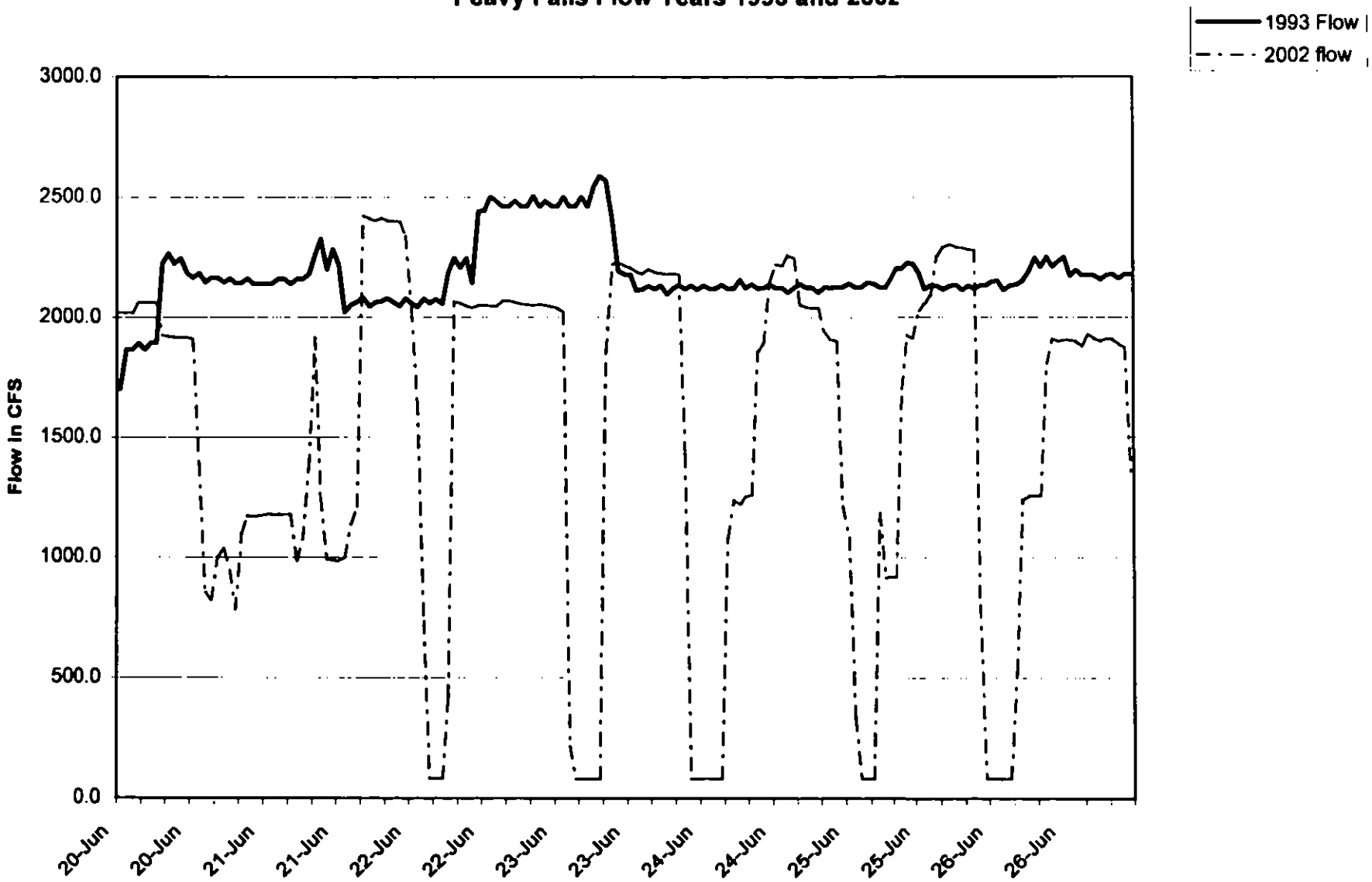
Peavy Falls Flow Years 1993 and 2002



June 13-19 2002

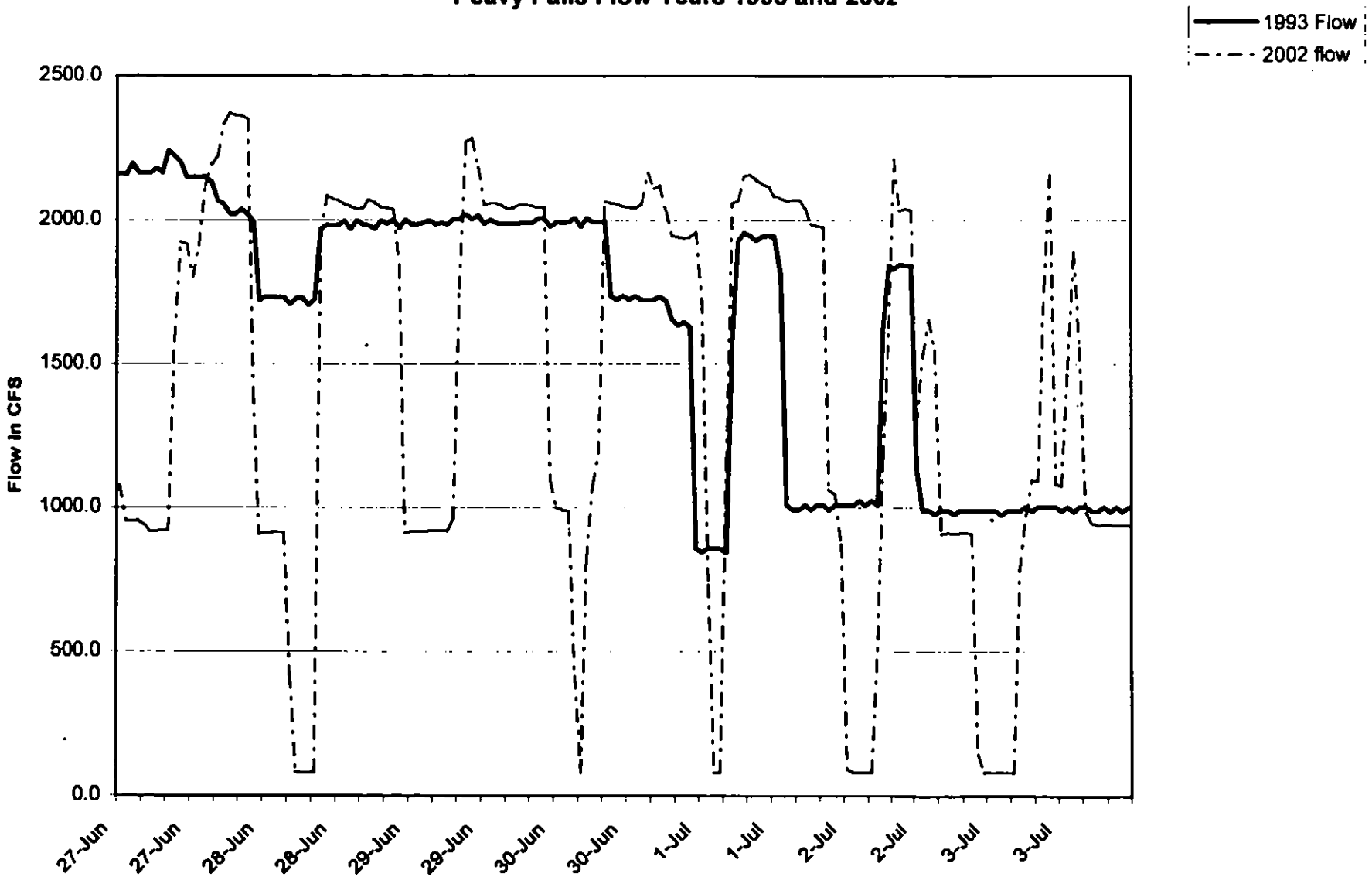
Figure C- 3

Peavy Falls Flow Years 1993 and 2002



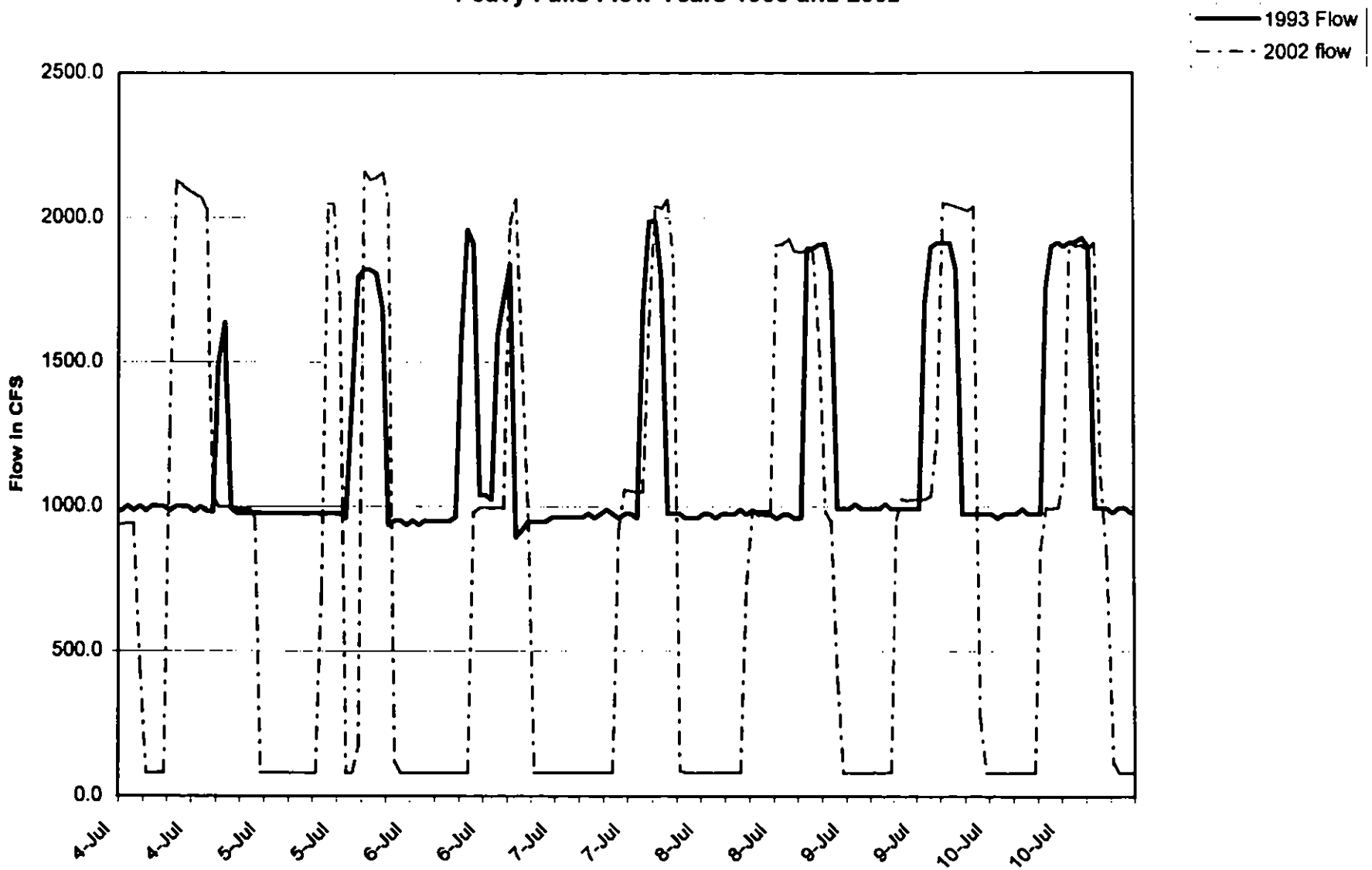
June 20-26 2002

Peavy Falls Flow Years 1993 and 2002



June 27- July 3 2002

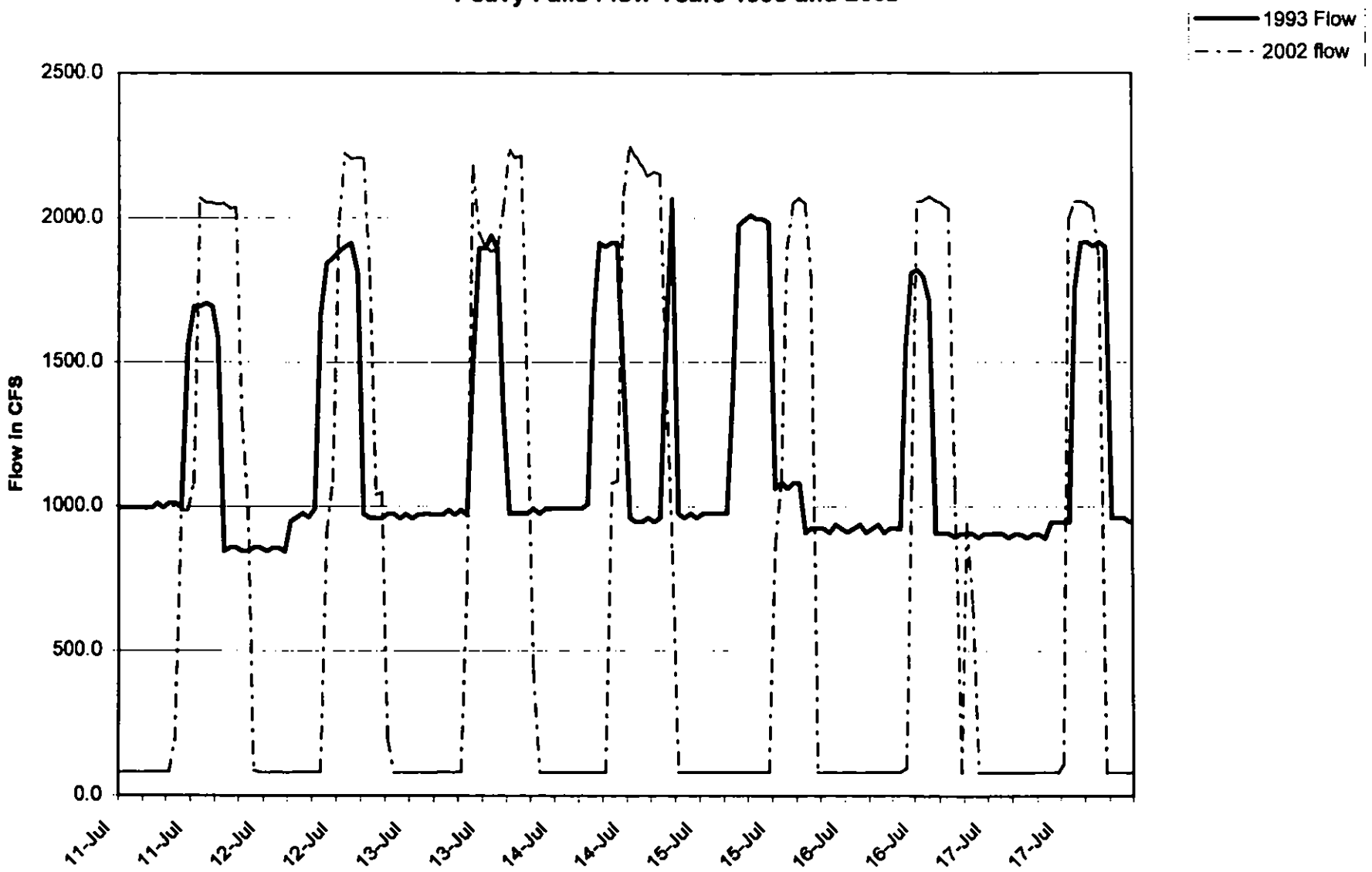
Peavy Falls Flow Years 1993 and 2002



July 4-10 2002

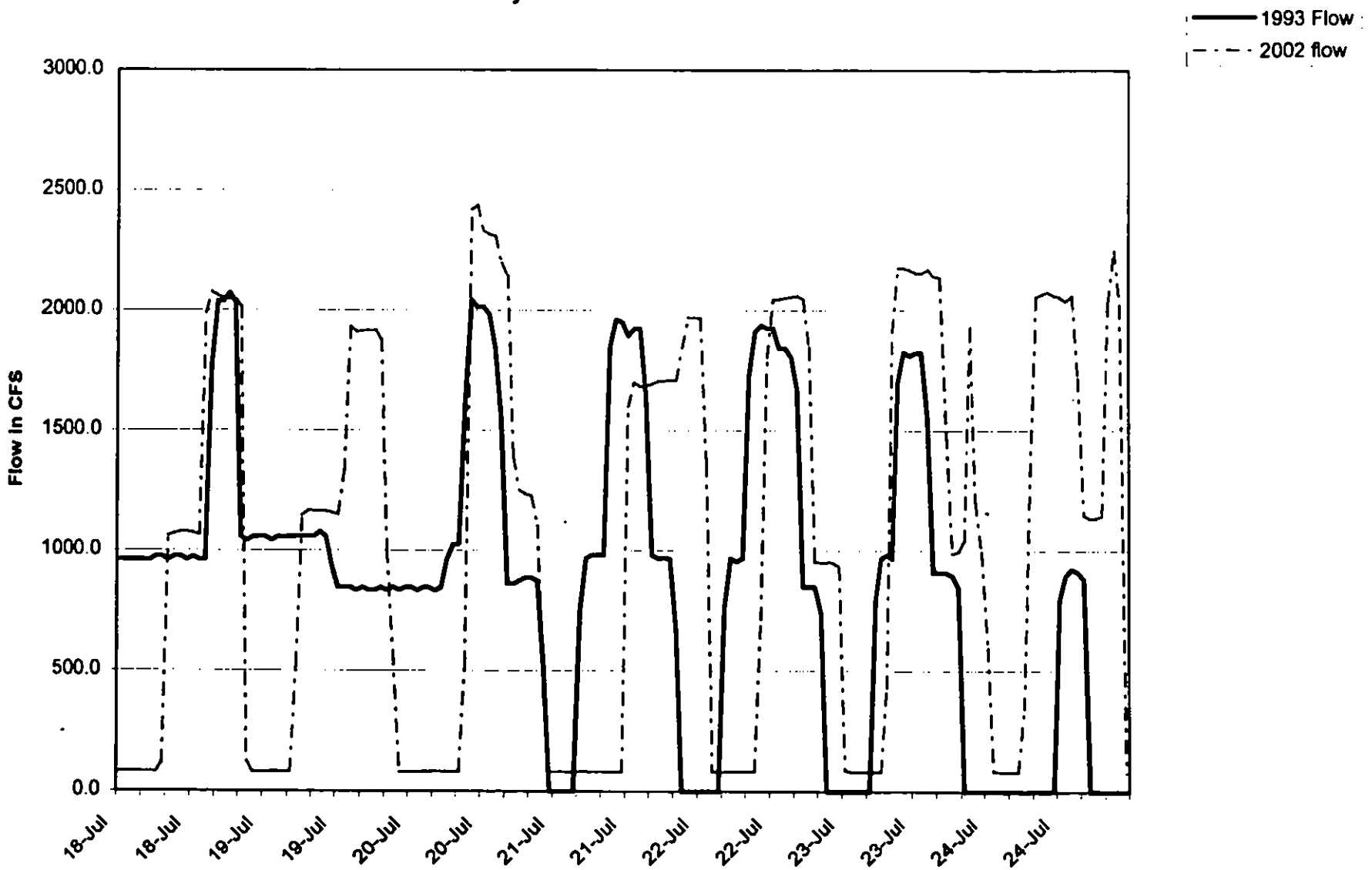
Figure C- 3

Peavy Falls Flow Years 1993 and 2002



July 11-17 2002

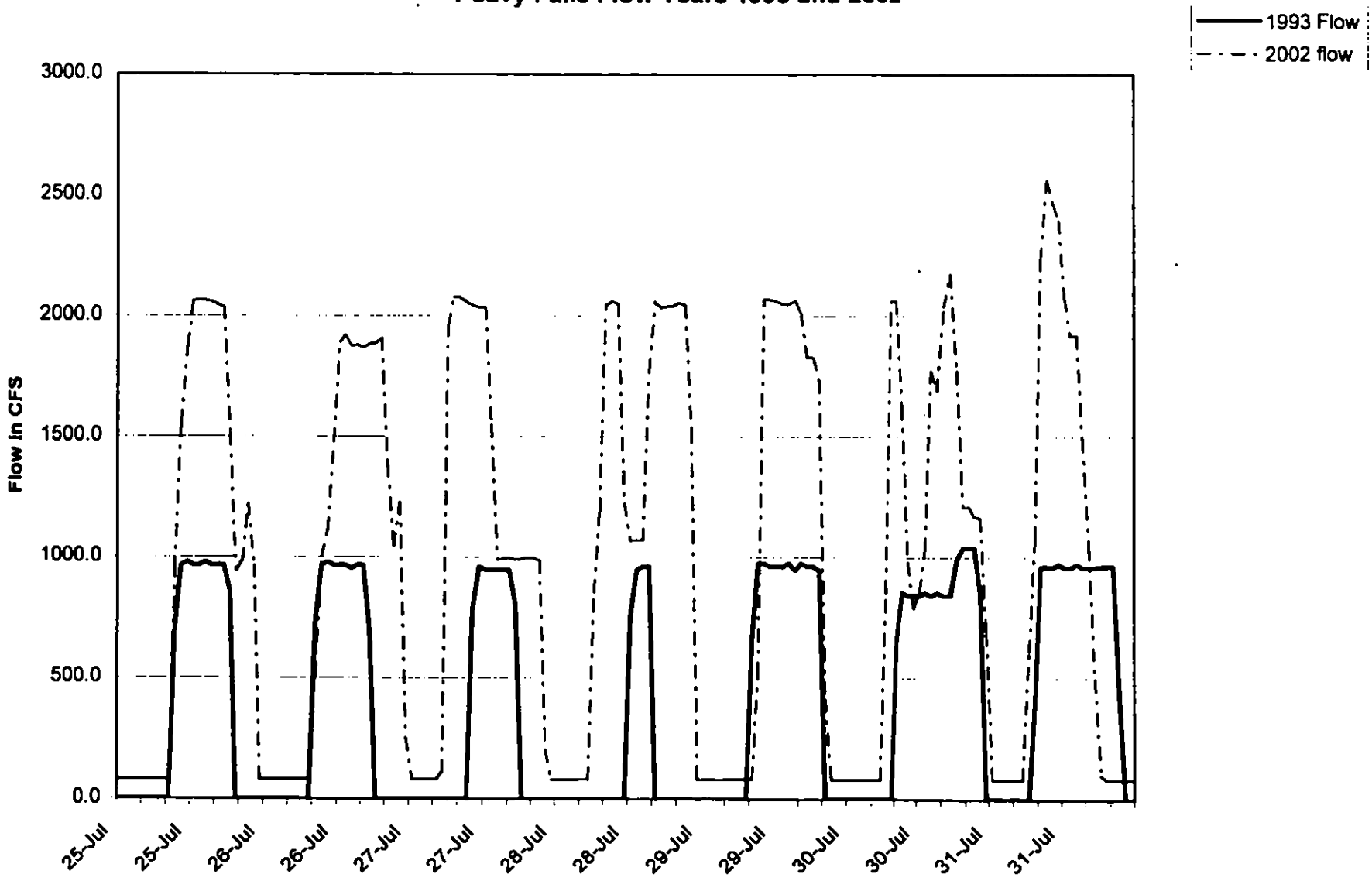
Peavy Falls Flow Years 1993 and 2002



July 18-24 2002

Figure C- 3

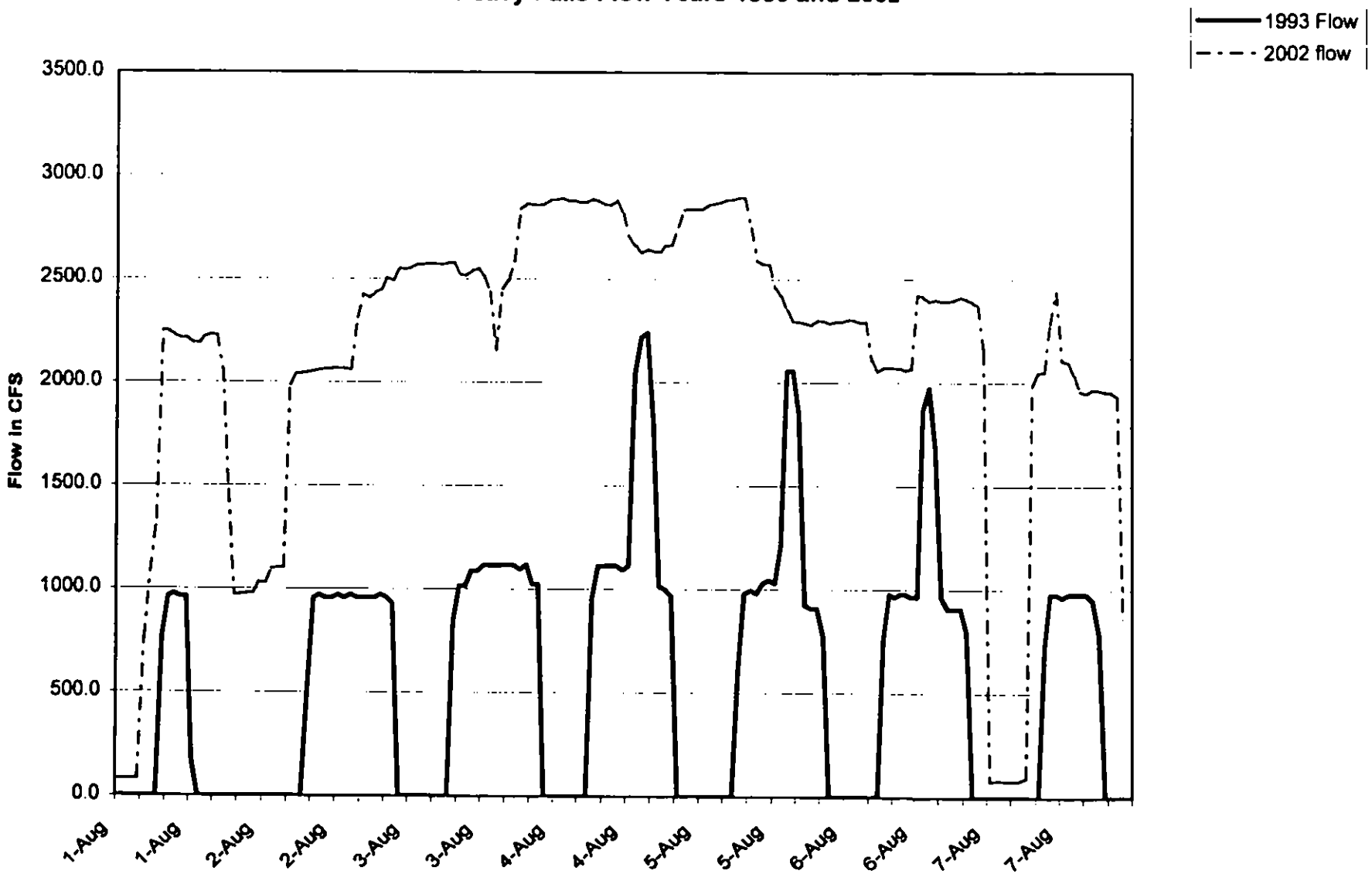
Peavy Falls Flow Years 1993 and 2002



July 25-31 2002

Figure C- 3

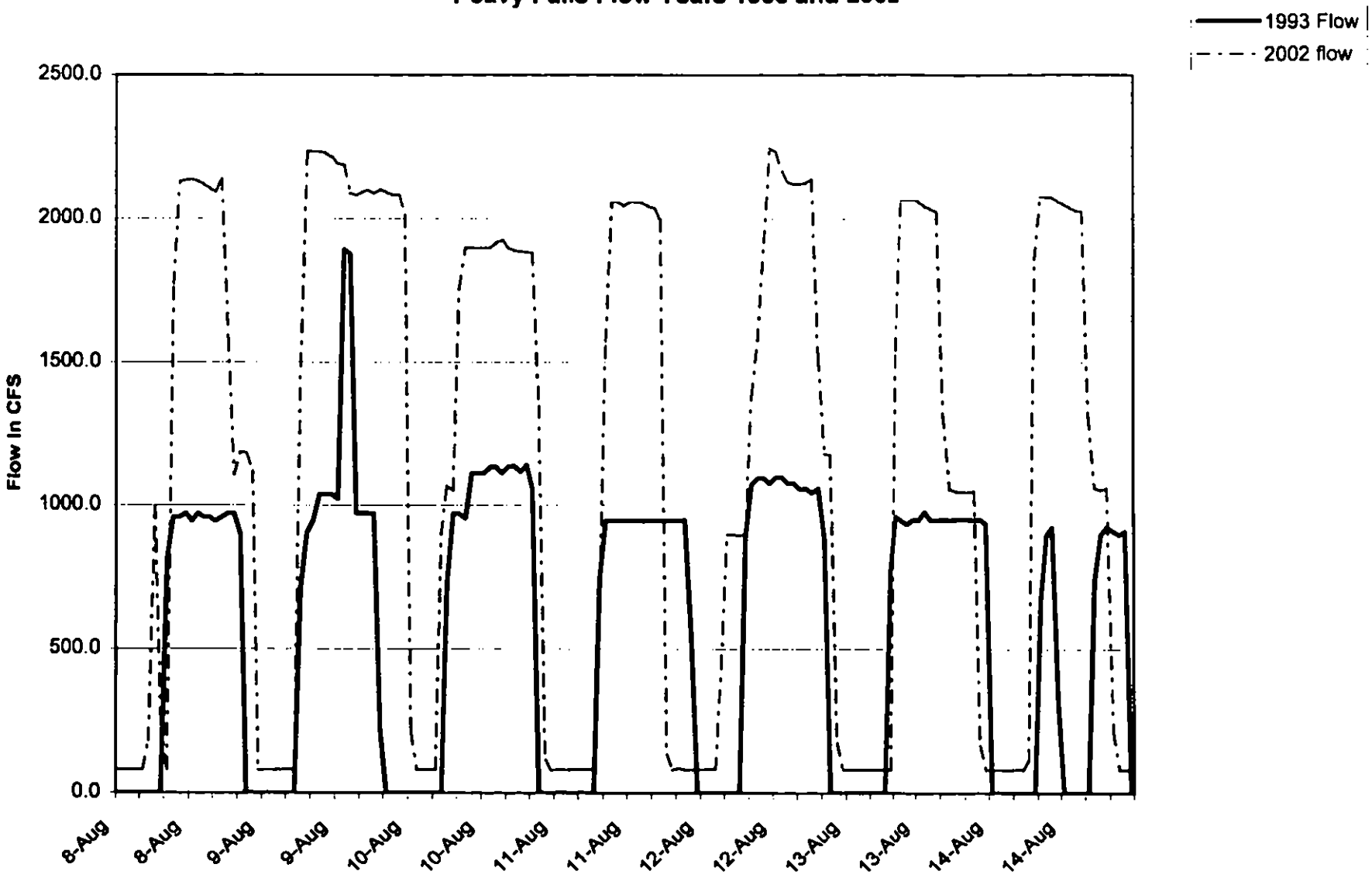
Peavy Falls Flow Years 1993 and 2002



August 1-7 2002

Figure C- 3

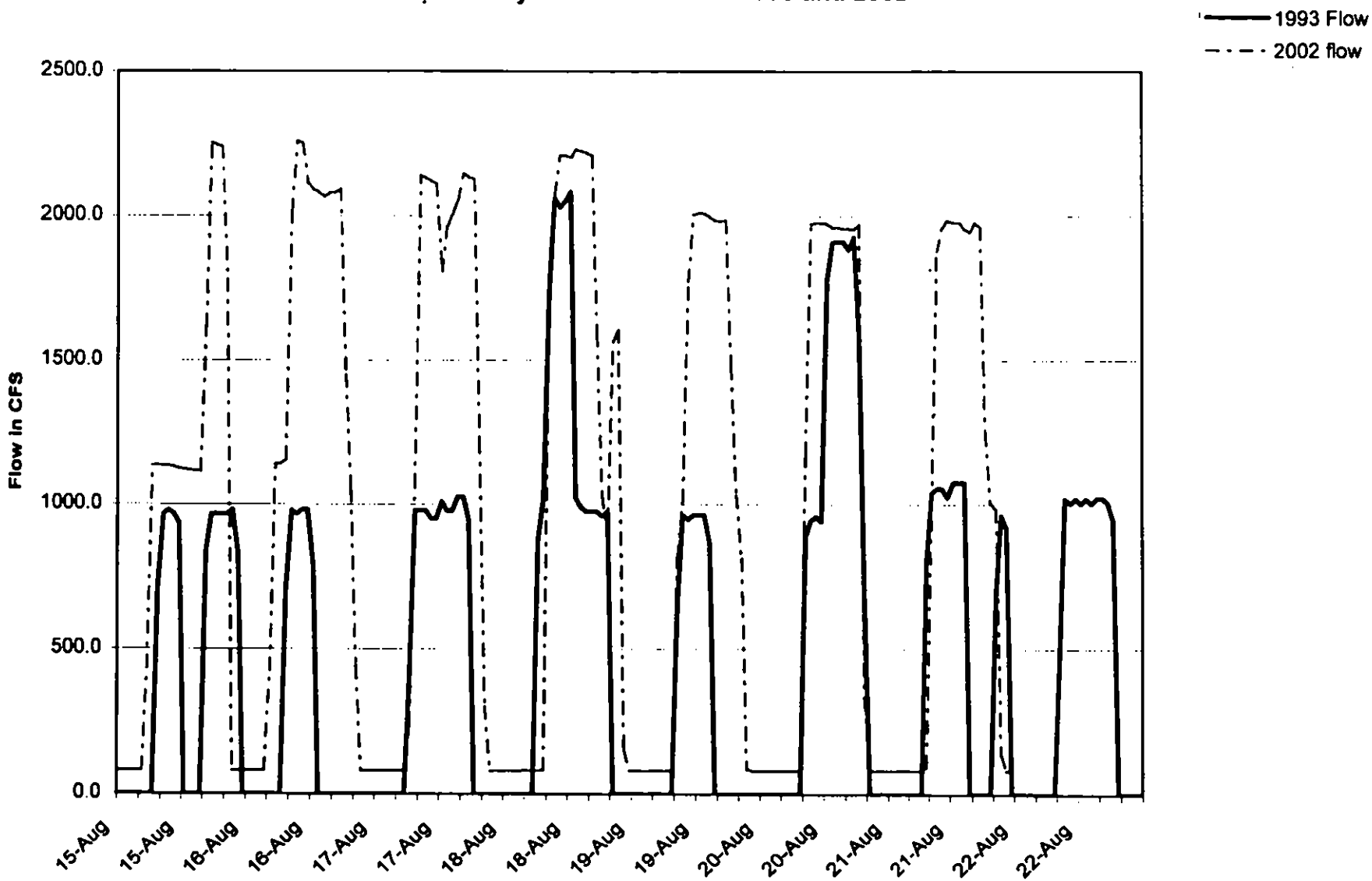
Peavy Falls Flow Years 1993 and 2002



August 8- 14 2002

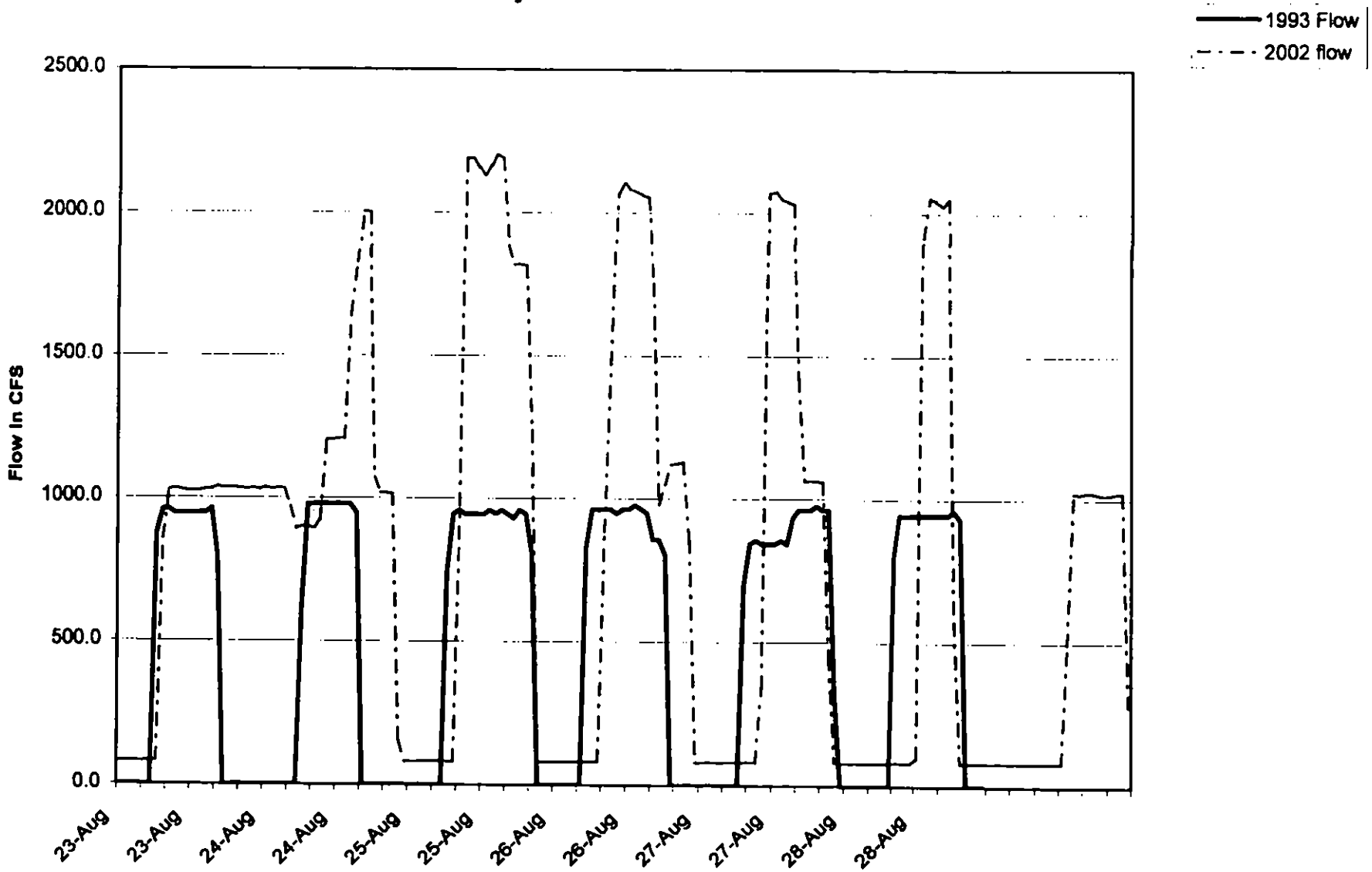
Figure C- 3

Peavy Falls Flow Years 1993 and 2002



August 15-22 2002

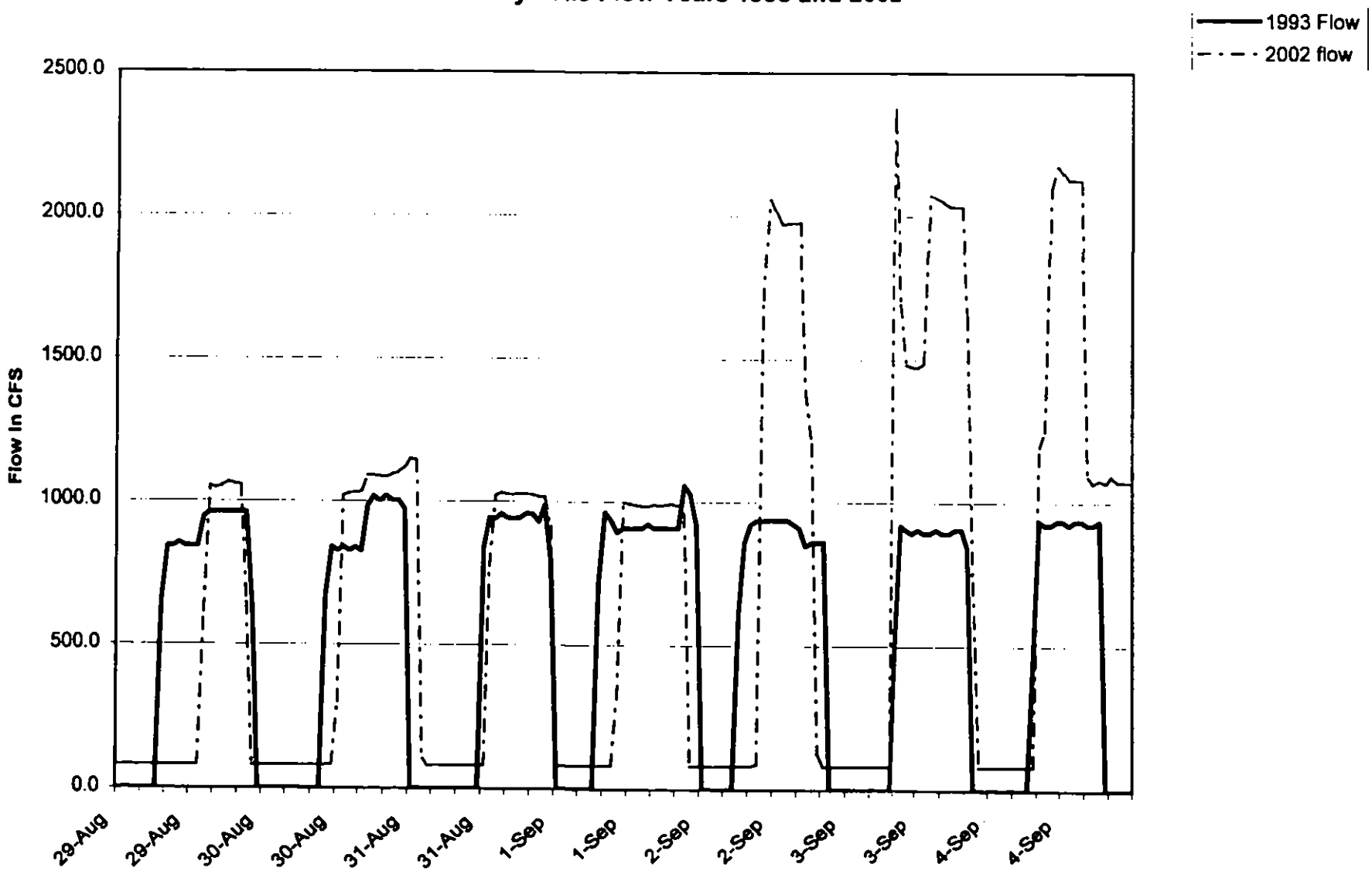
Peavy Falls Flow Years 1993 and 2002



August 22 - 28 2002

Figure C- 3

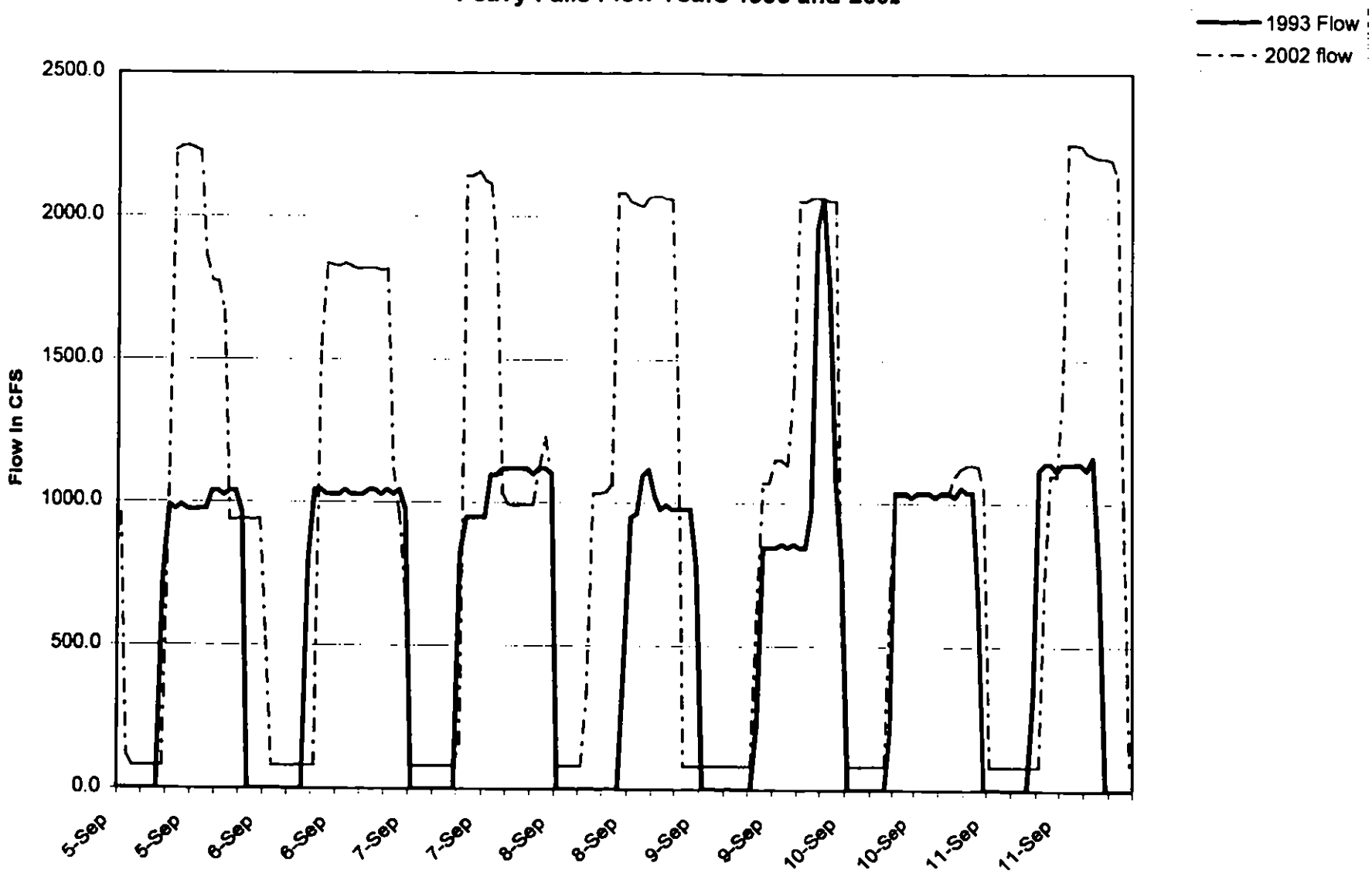
Peavy Falls Flow Years 1993 and 2002



August 29- September 4 2002

Figure C- 3

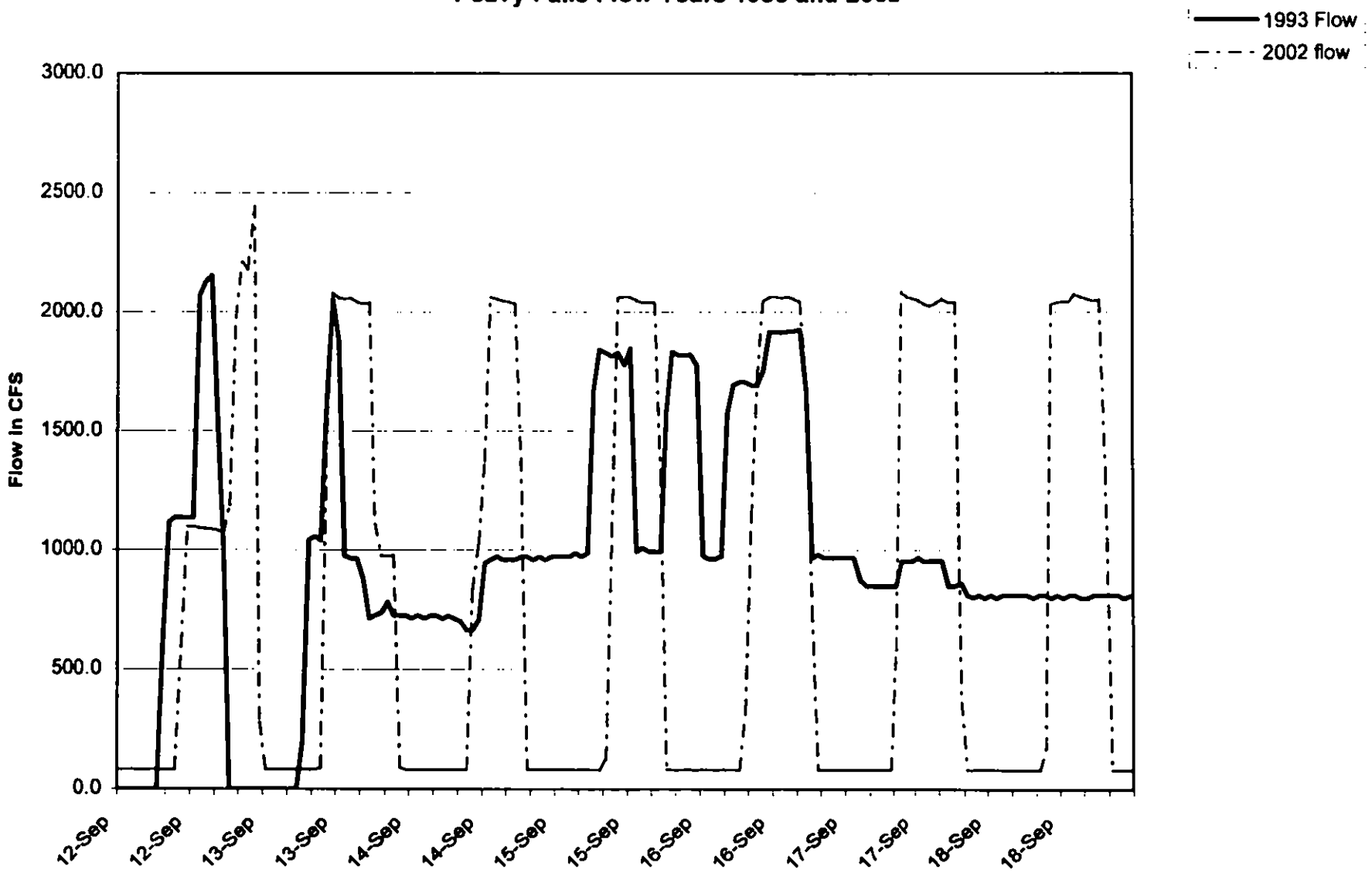
Peavy Falls Flow Years 1993 and 2002



September 5-11 2002

Figure C- 3

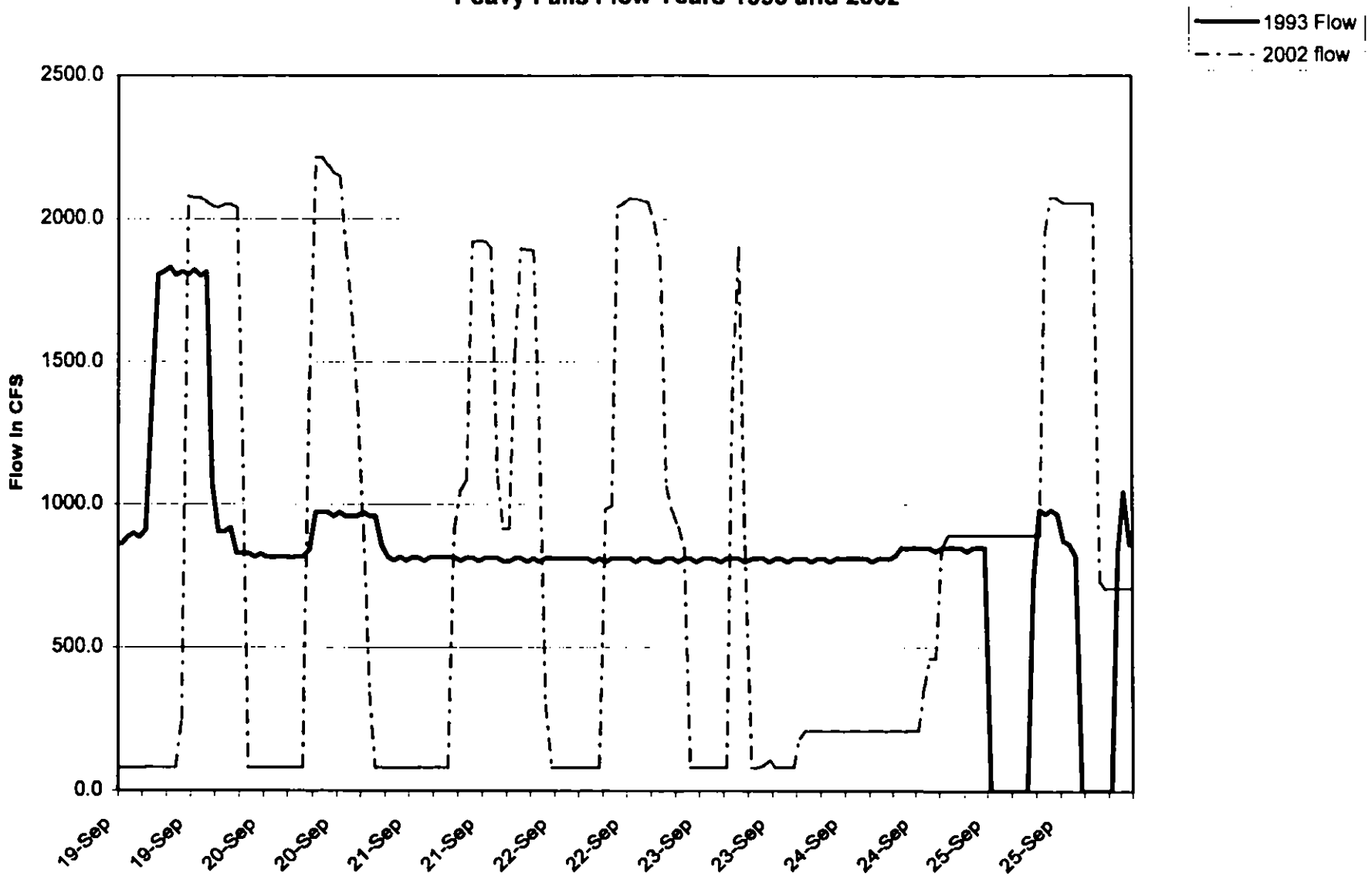
Peavy Falls Flow Years 1993 and 2002



September 12-18 2002

Figure C- 3

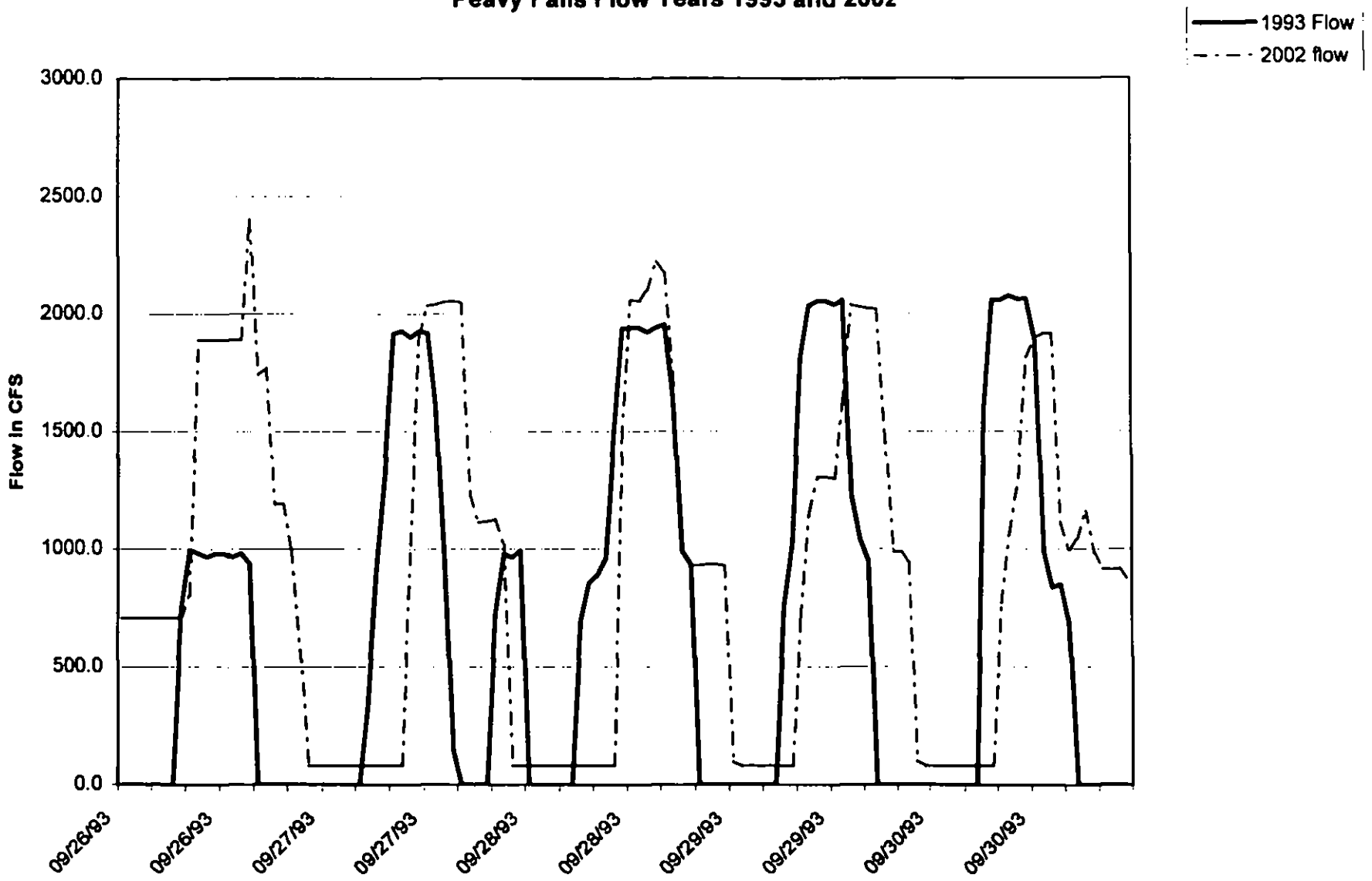
Peavy Falls Flow Years 1993 and 2002



September 19-25 2002

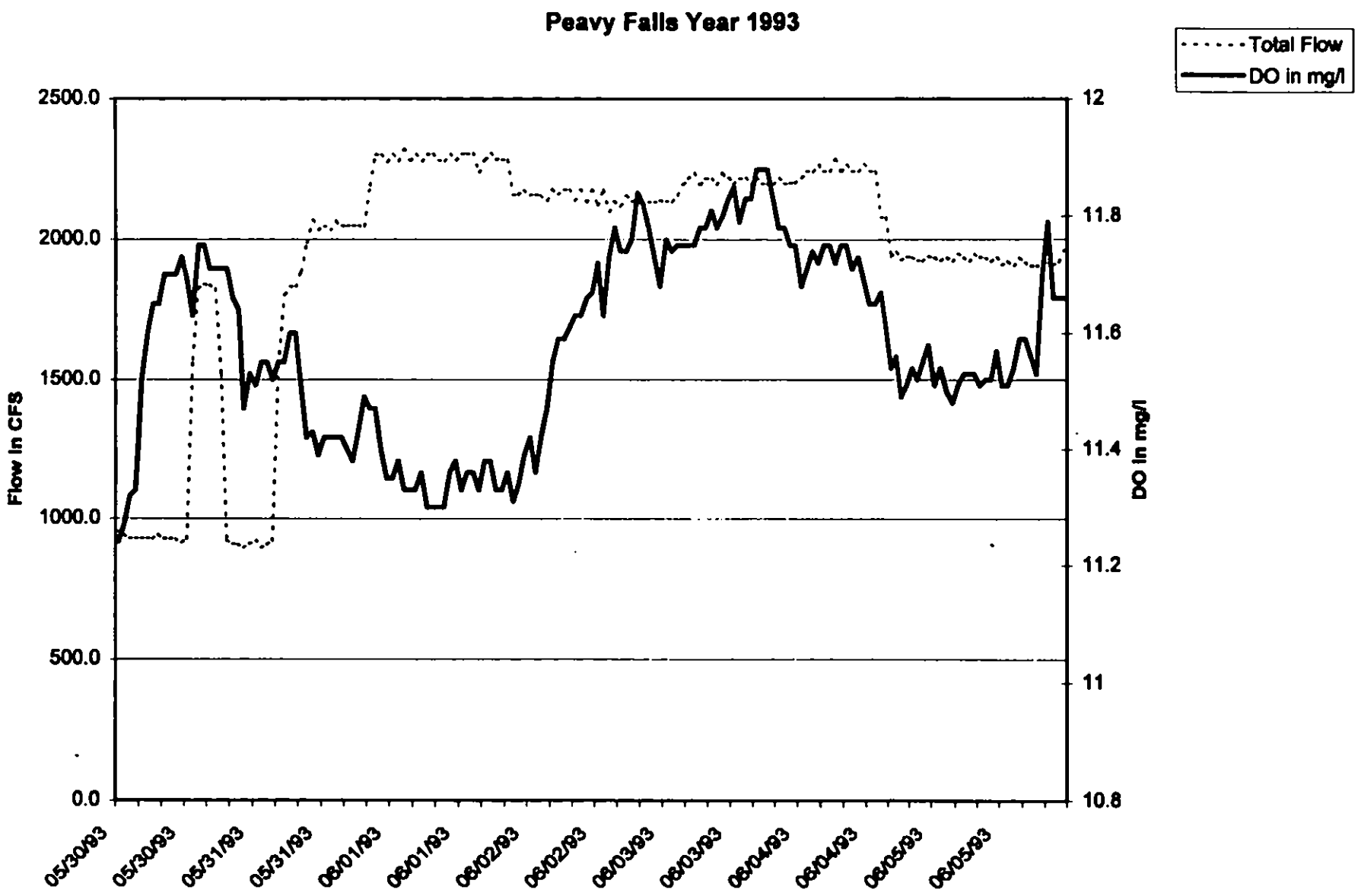
Figure C- 3

Peavy Falls Flow Years 1993 and 2002



September 26 - 30 2002

Figure C-4



Peavy Falls year 1993 flow analysis.xls May 30 -June 5, 1993

Figure C-4

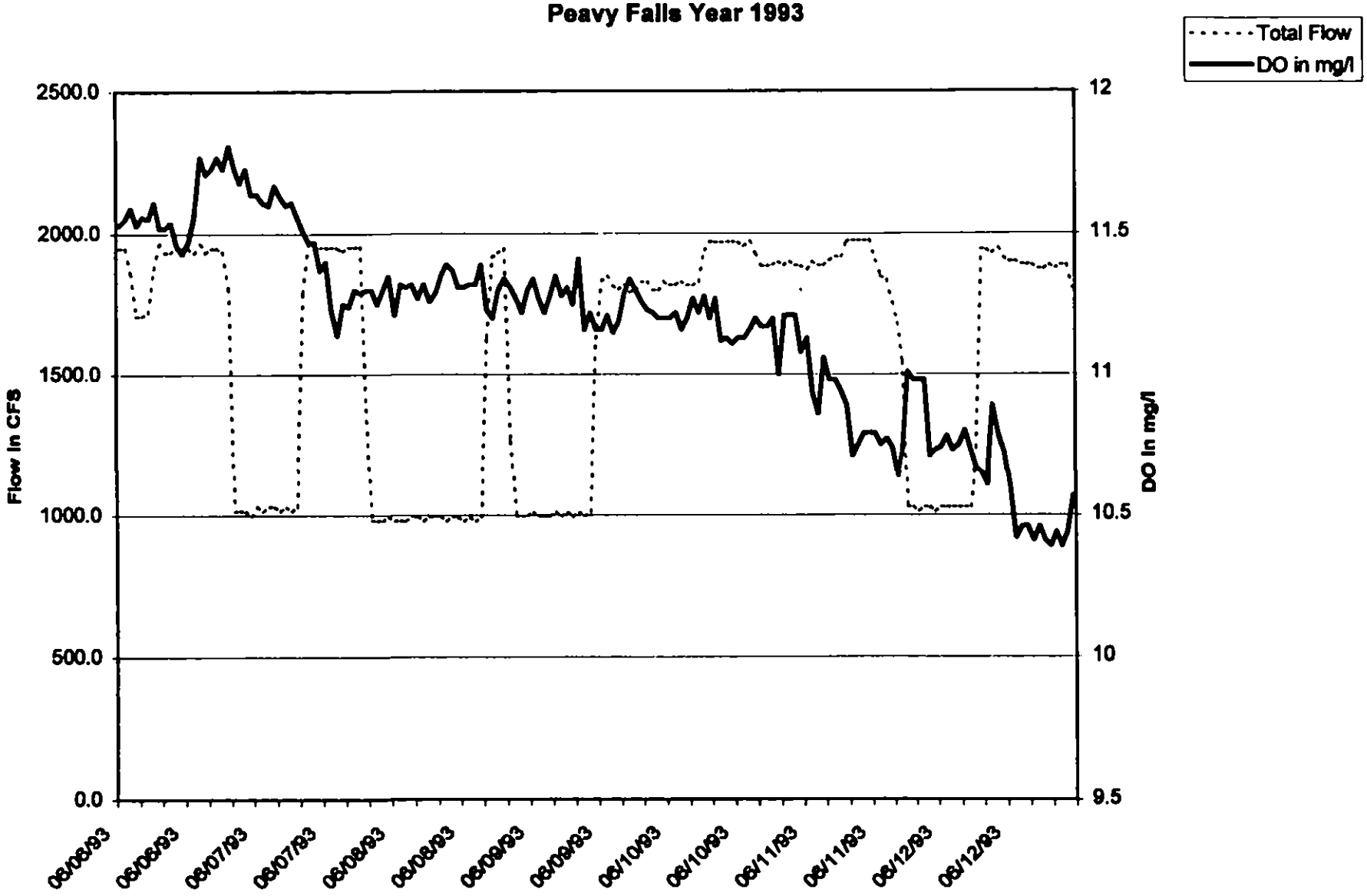


Figure C-4

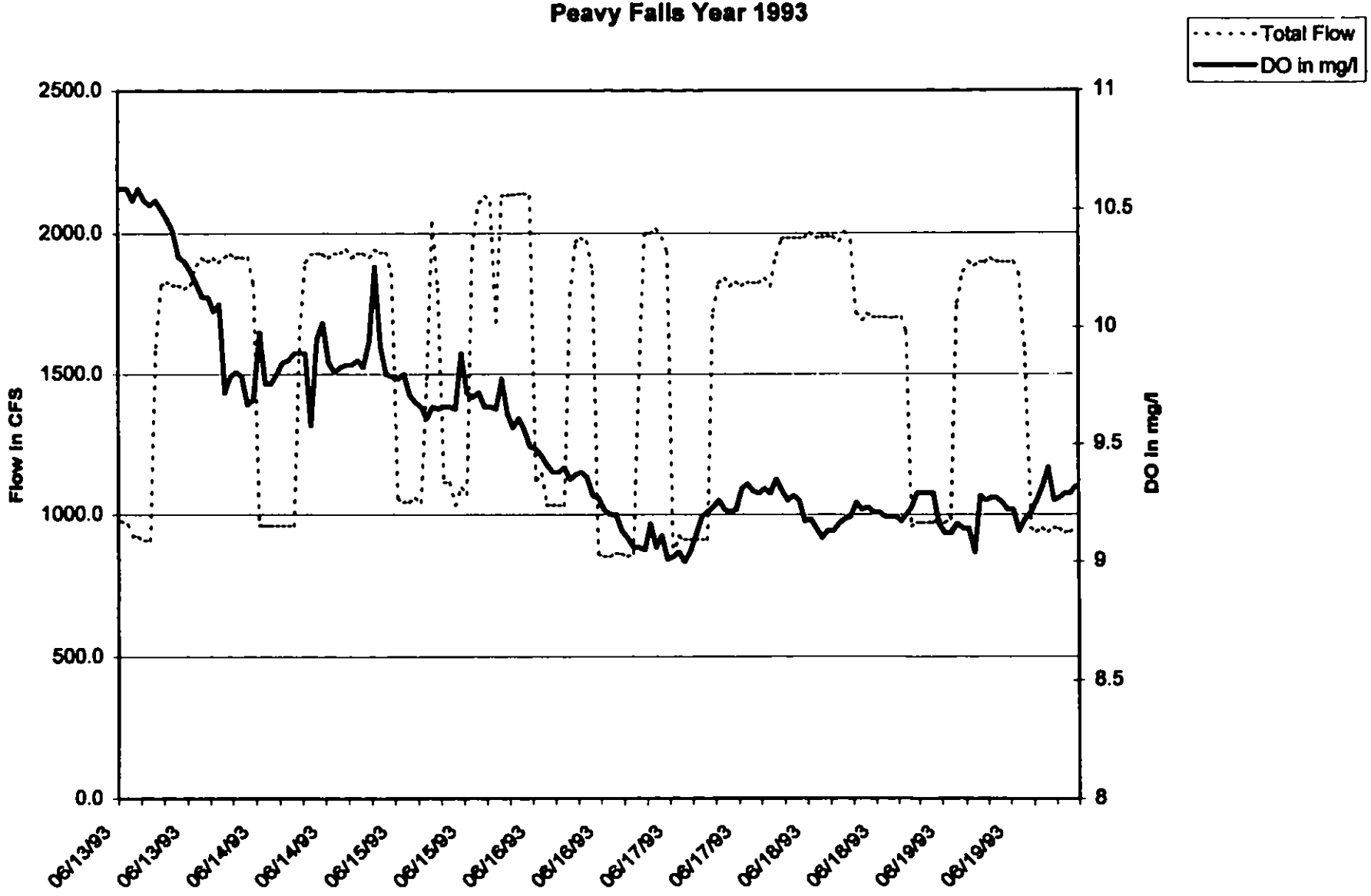


Figure C-4

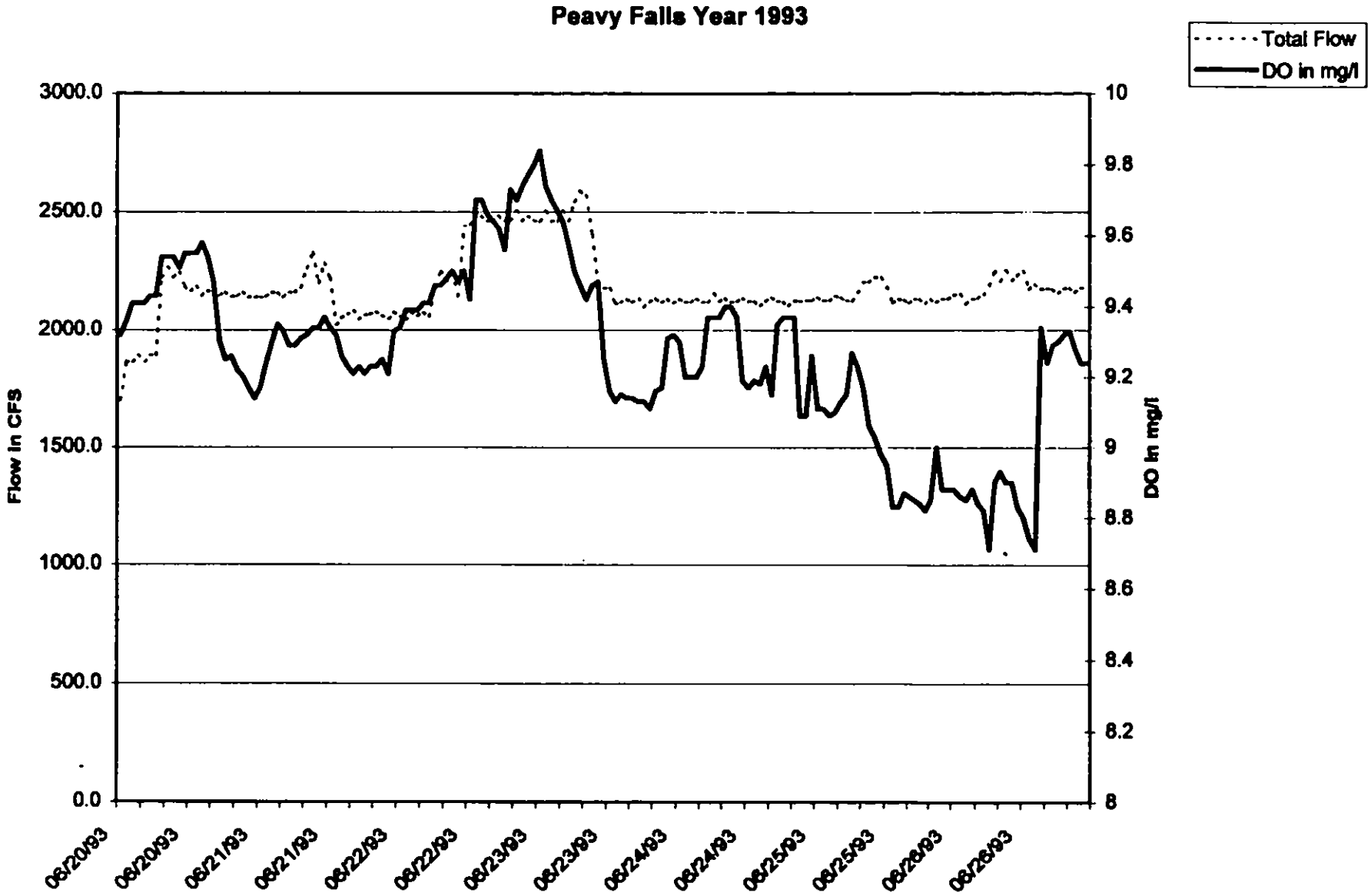
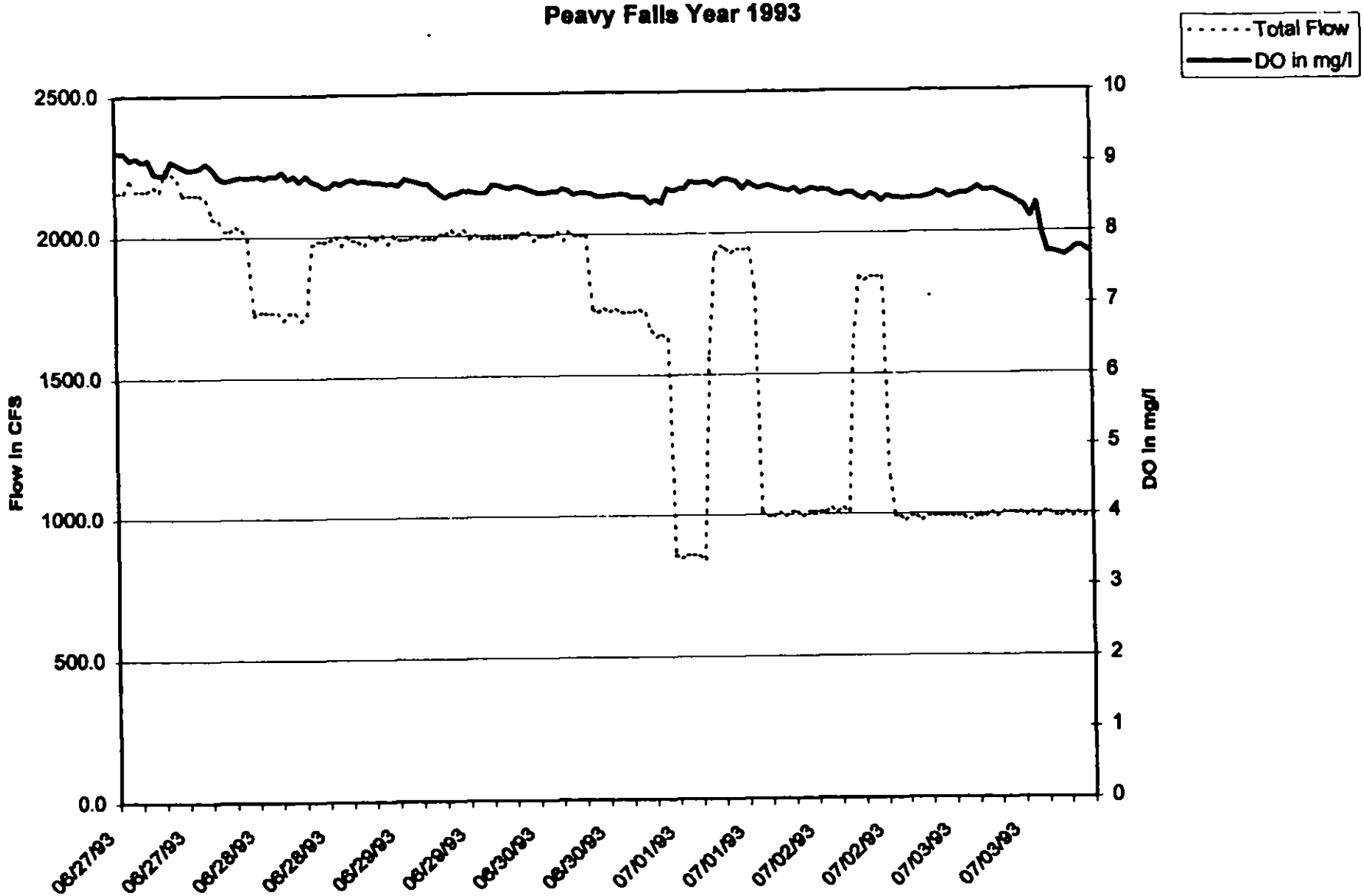


Figure C-4



Peavy Falls year 1993 flow analysis.xls June 27- July 3, 1993

Figure C-4

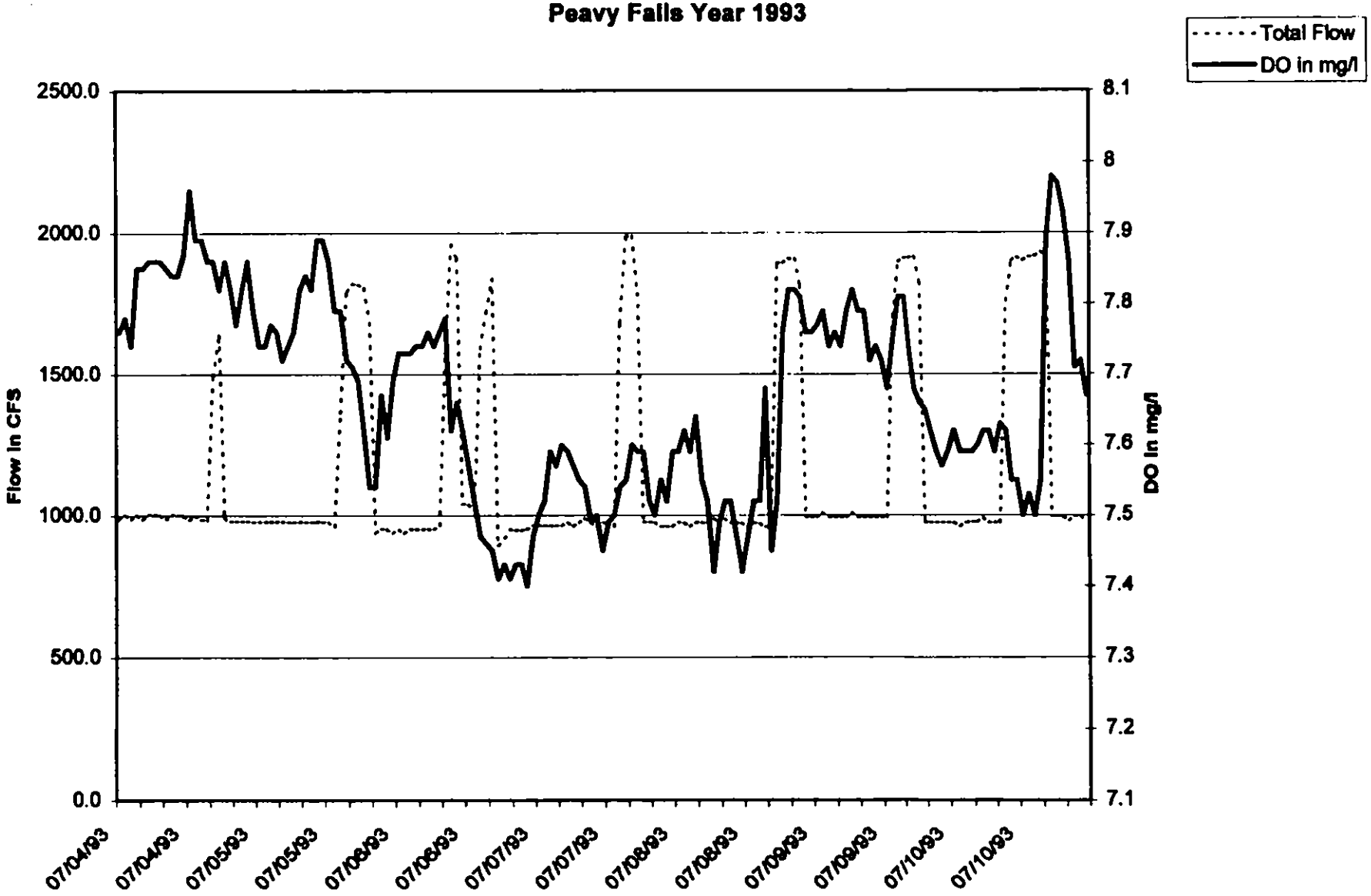


Figure C-4

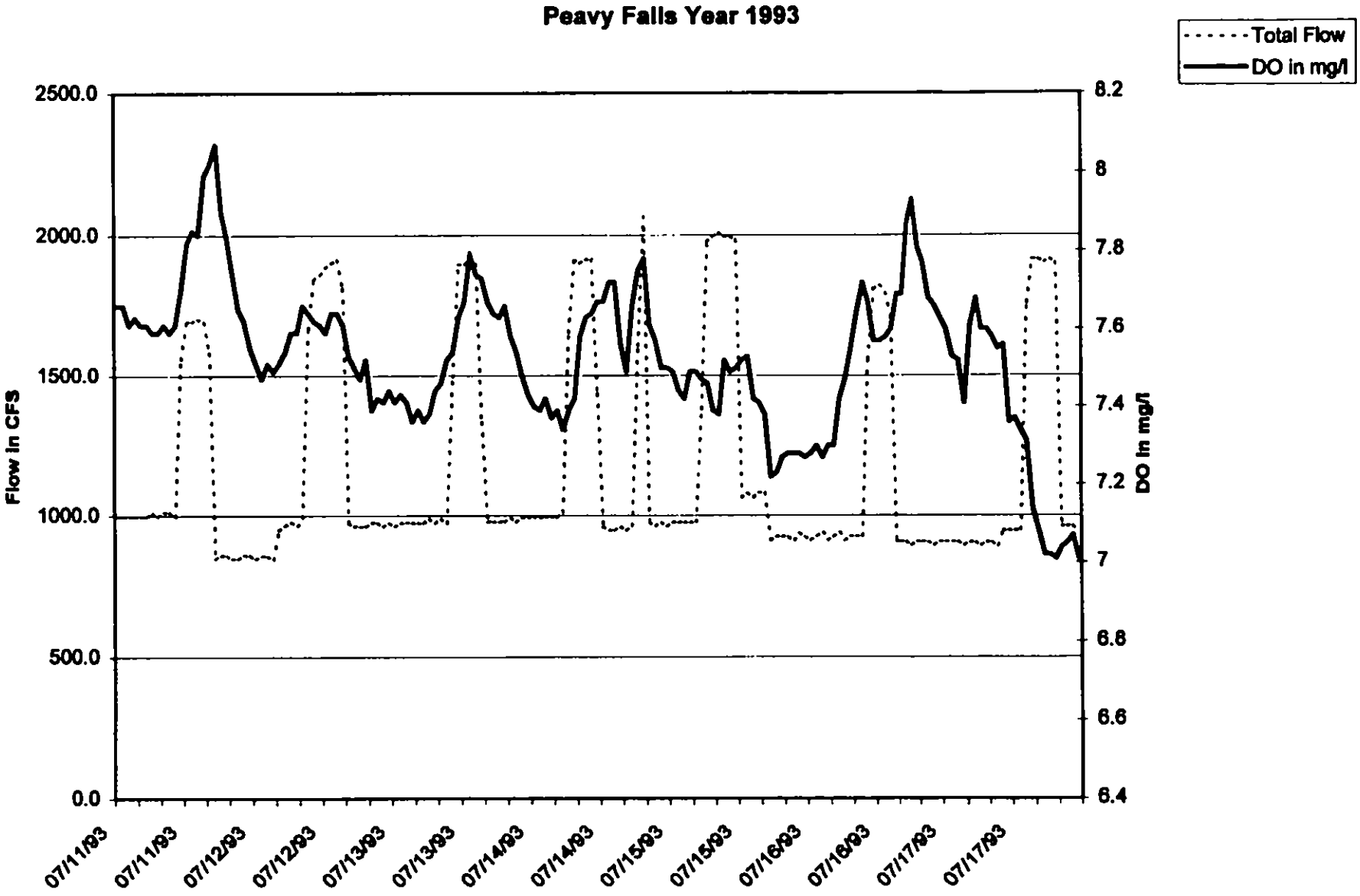


Figure C-4

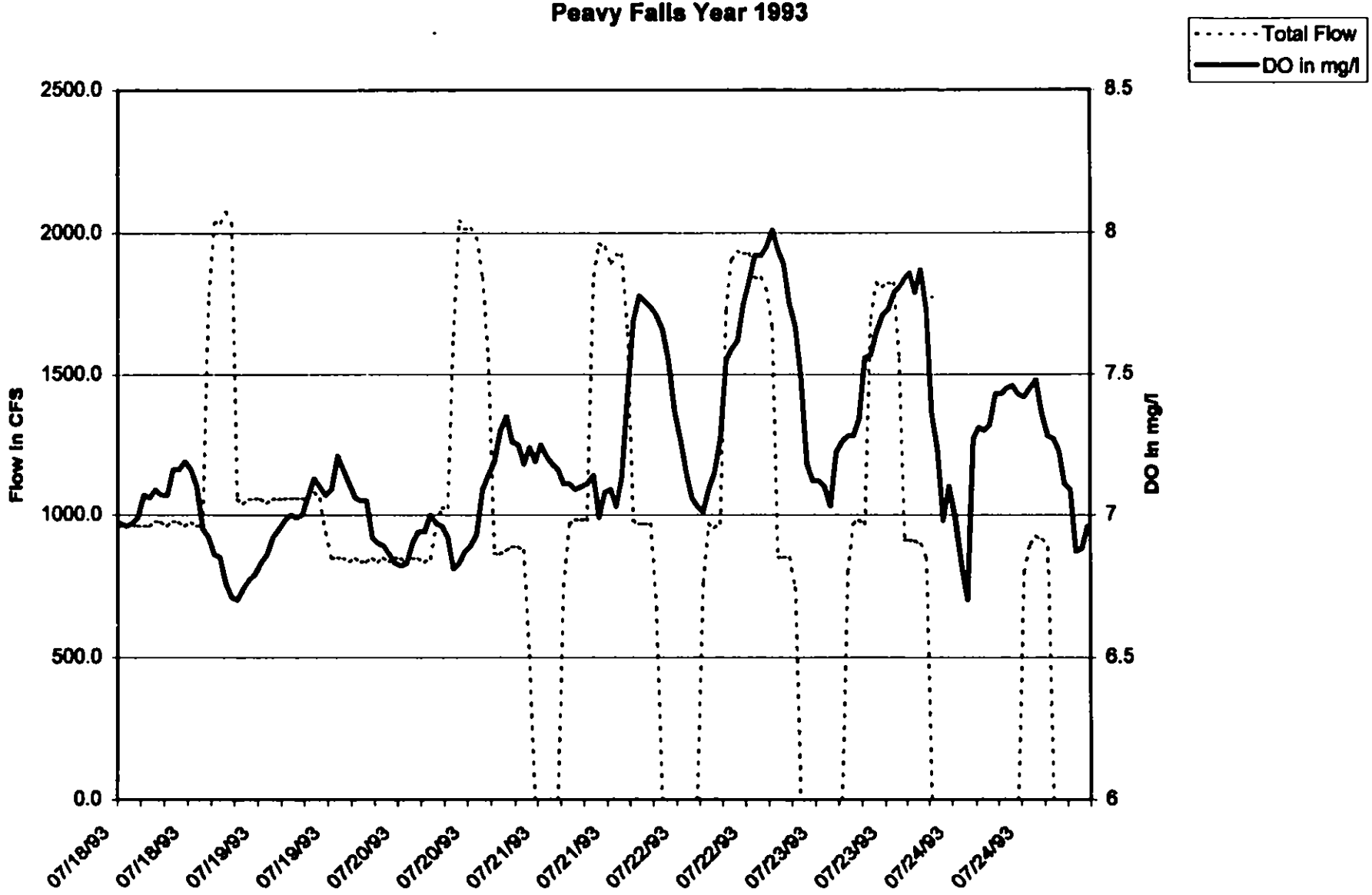
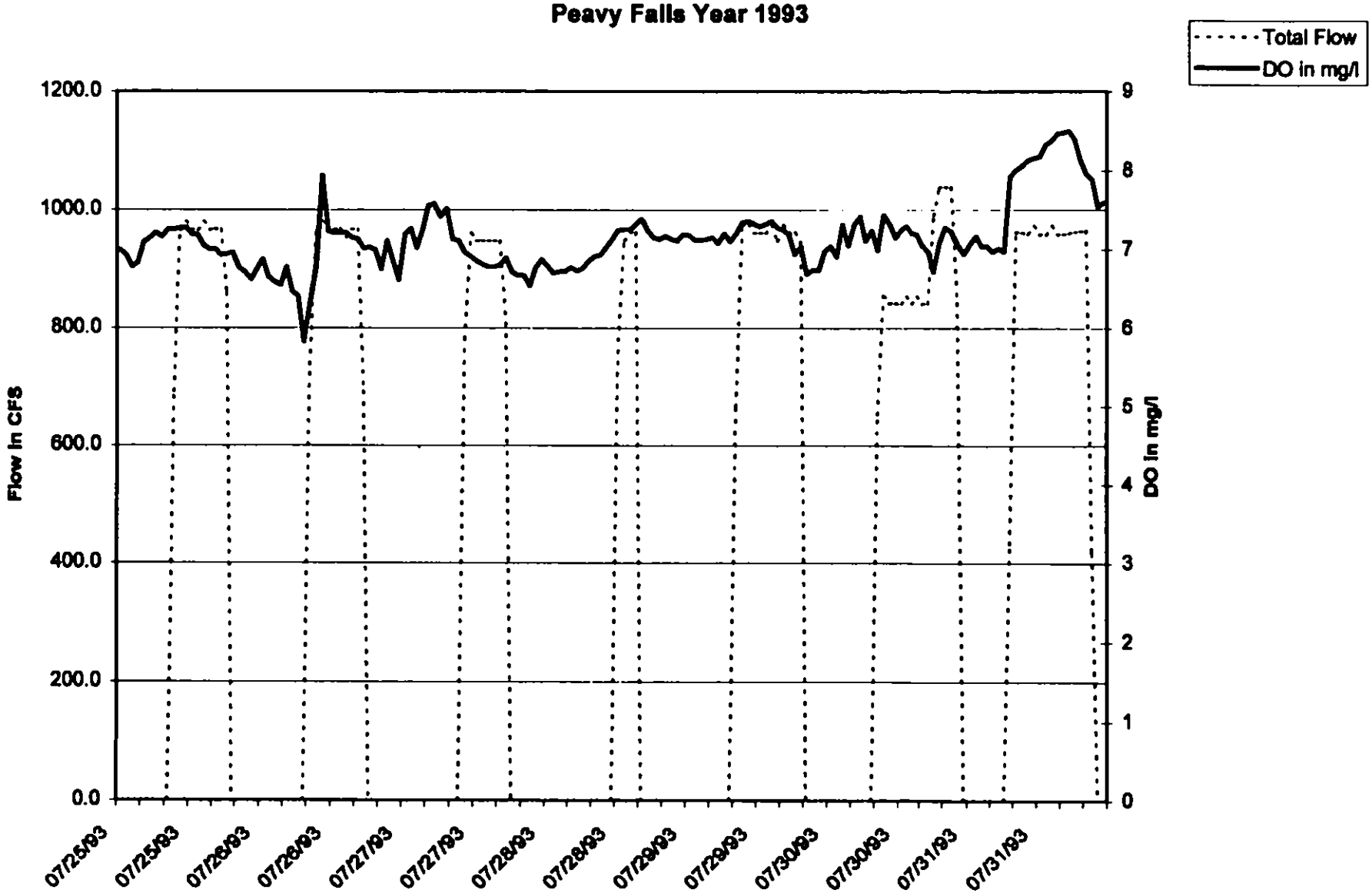


Figure C-4



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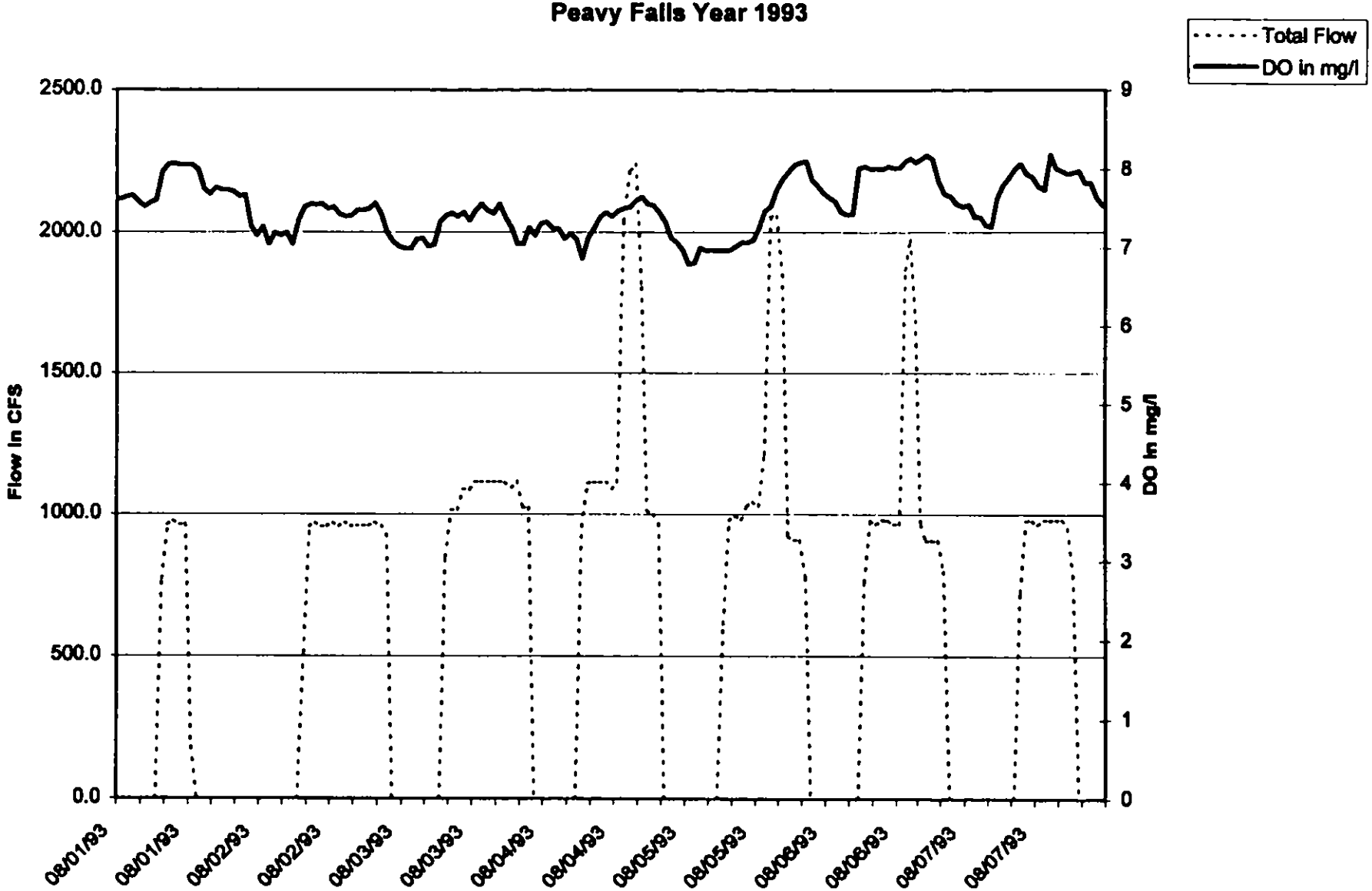
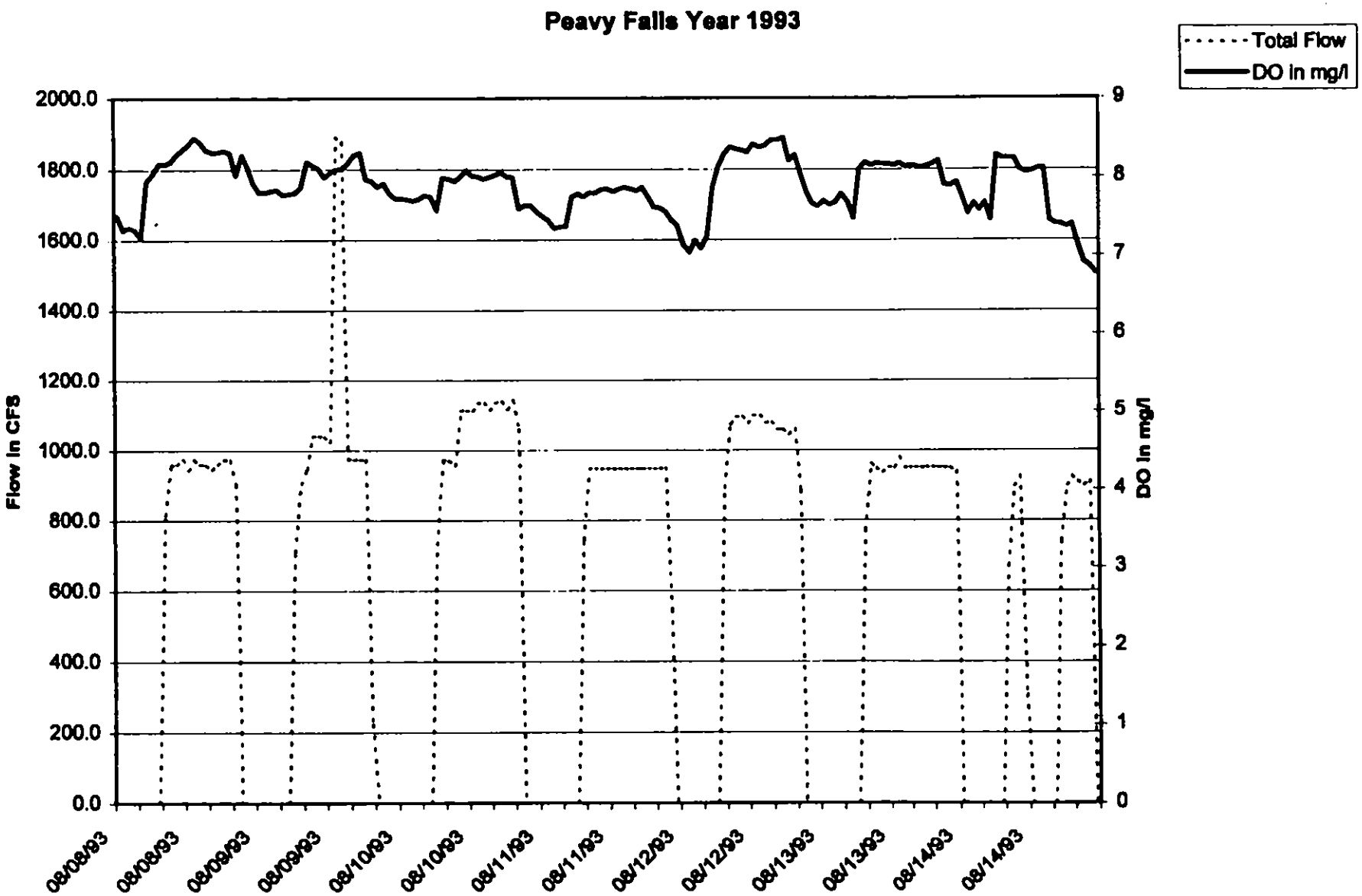


Figure C-4



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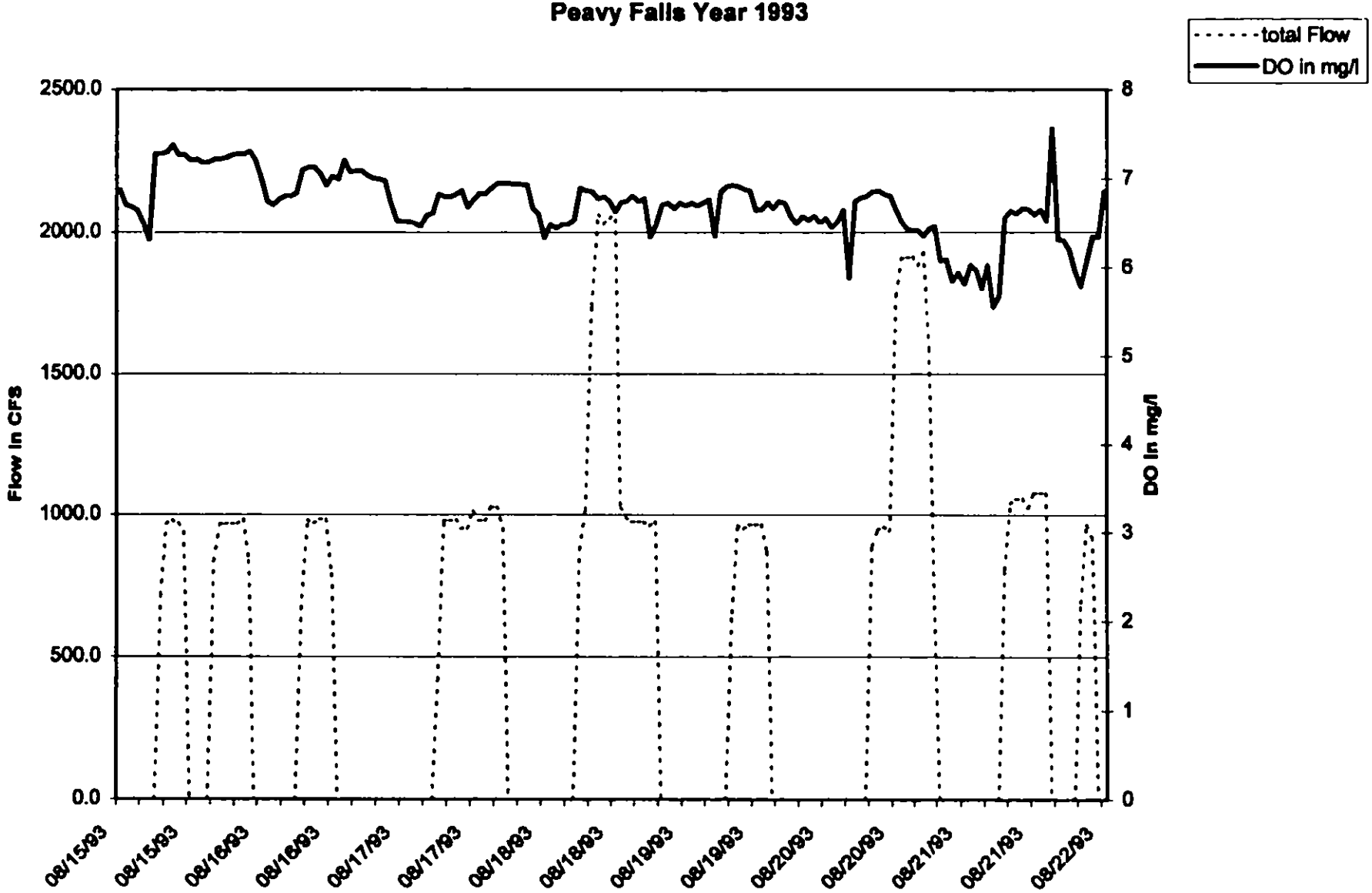

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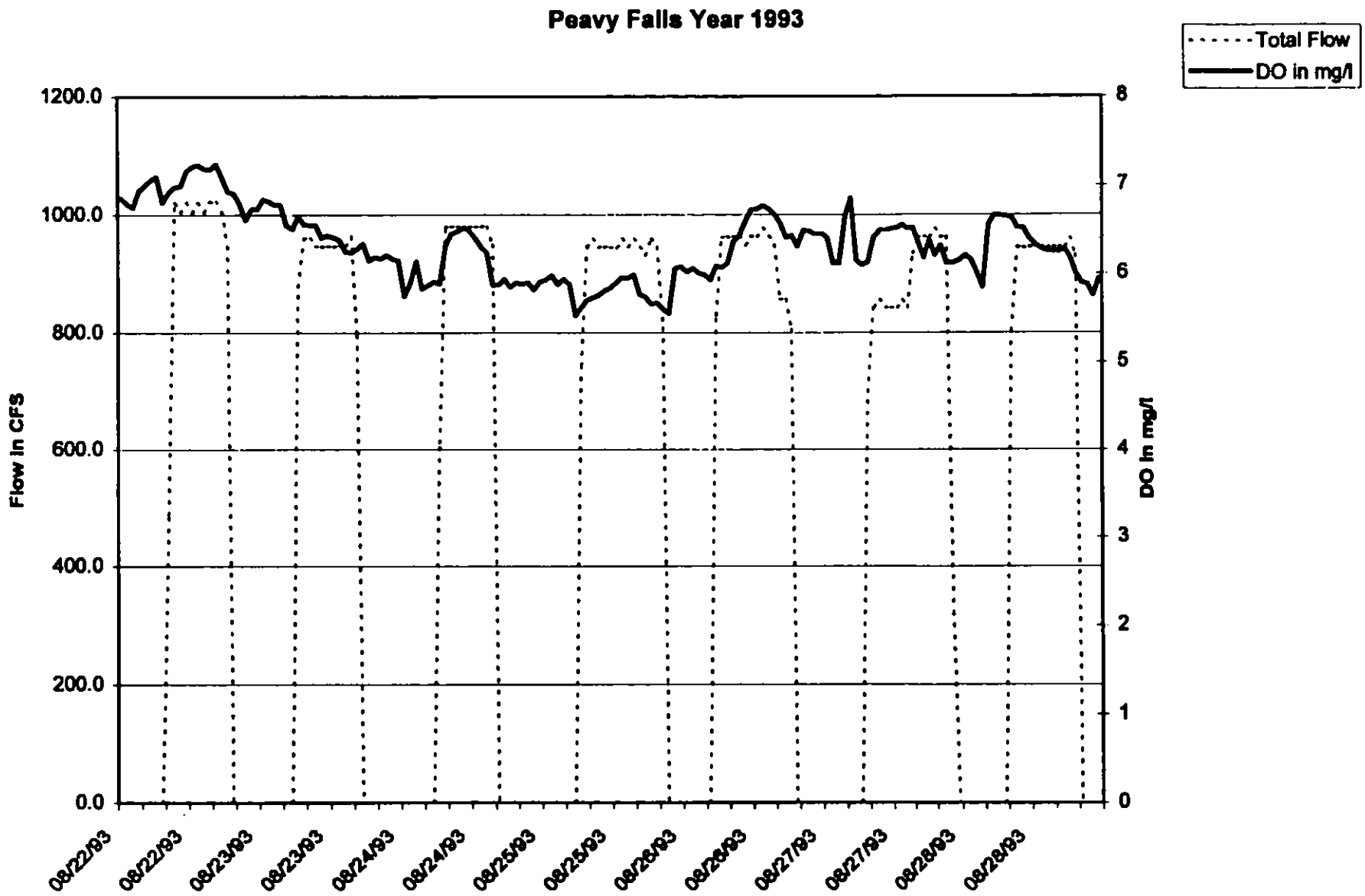

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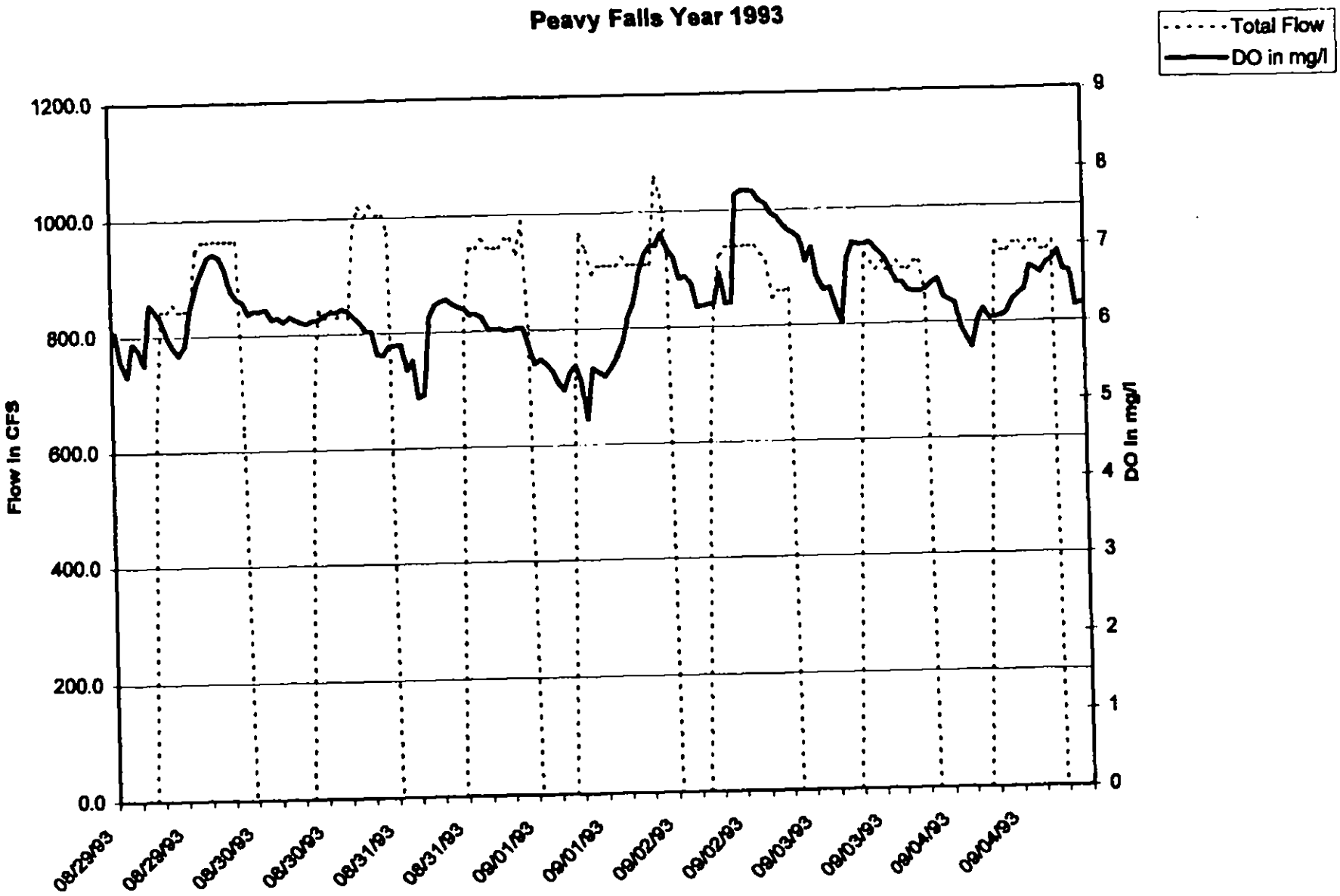


Peavy Falls year 1993 flow analysis.xls August 26- September 2, 1993

Figure C-4

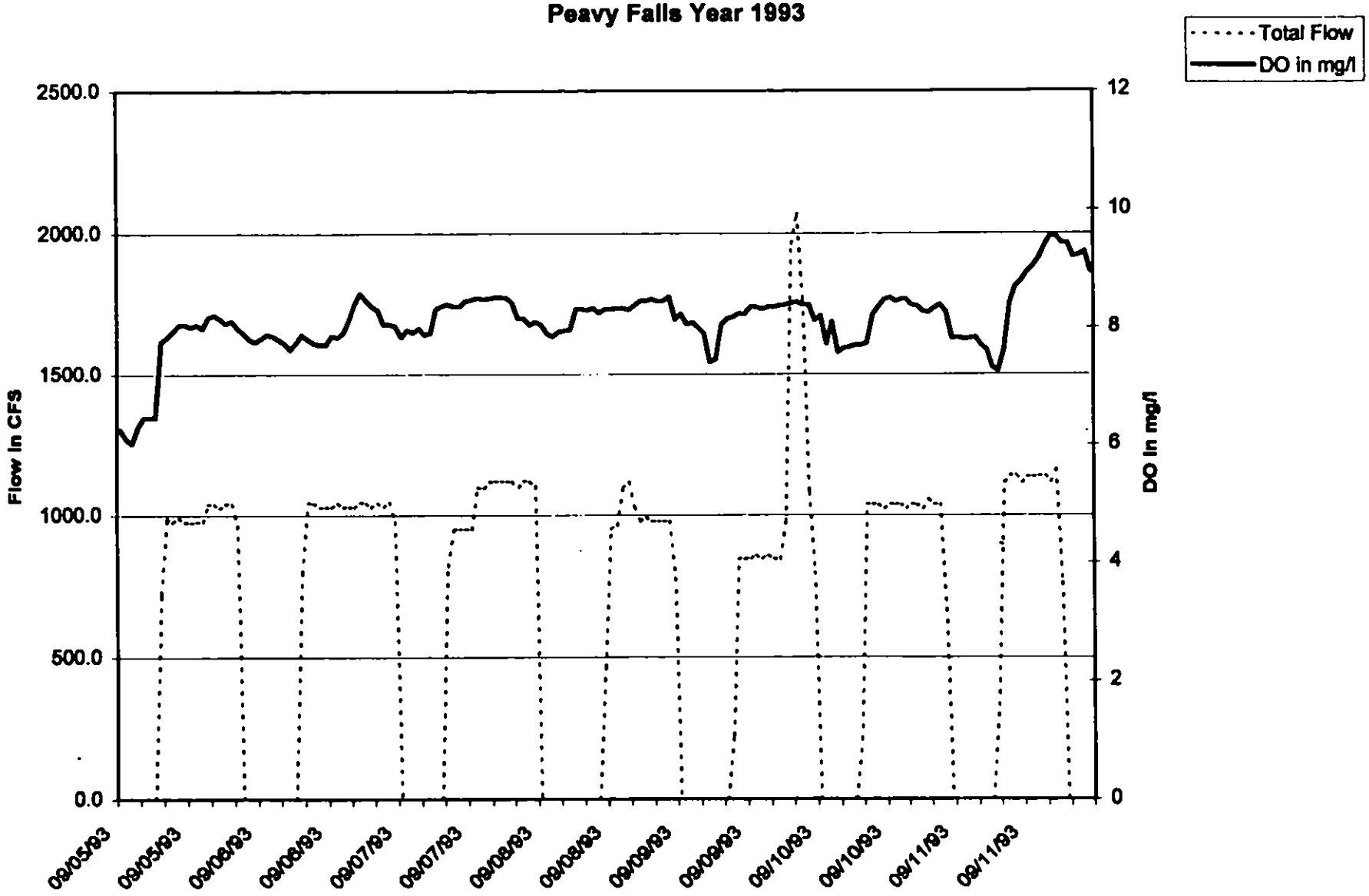


Figure C-4

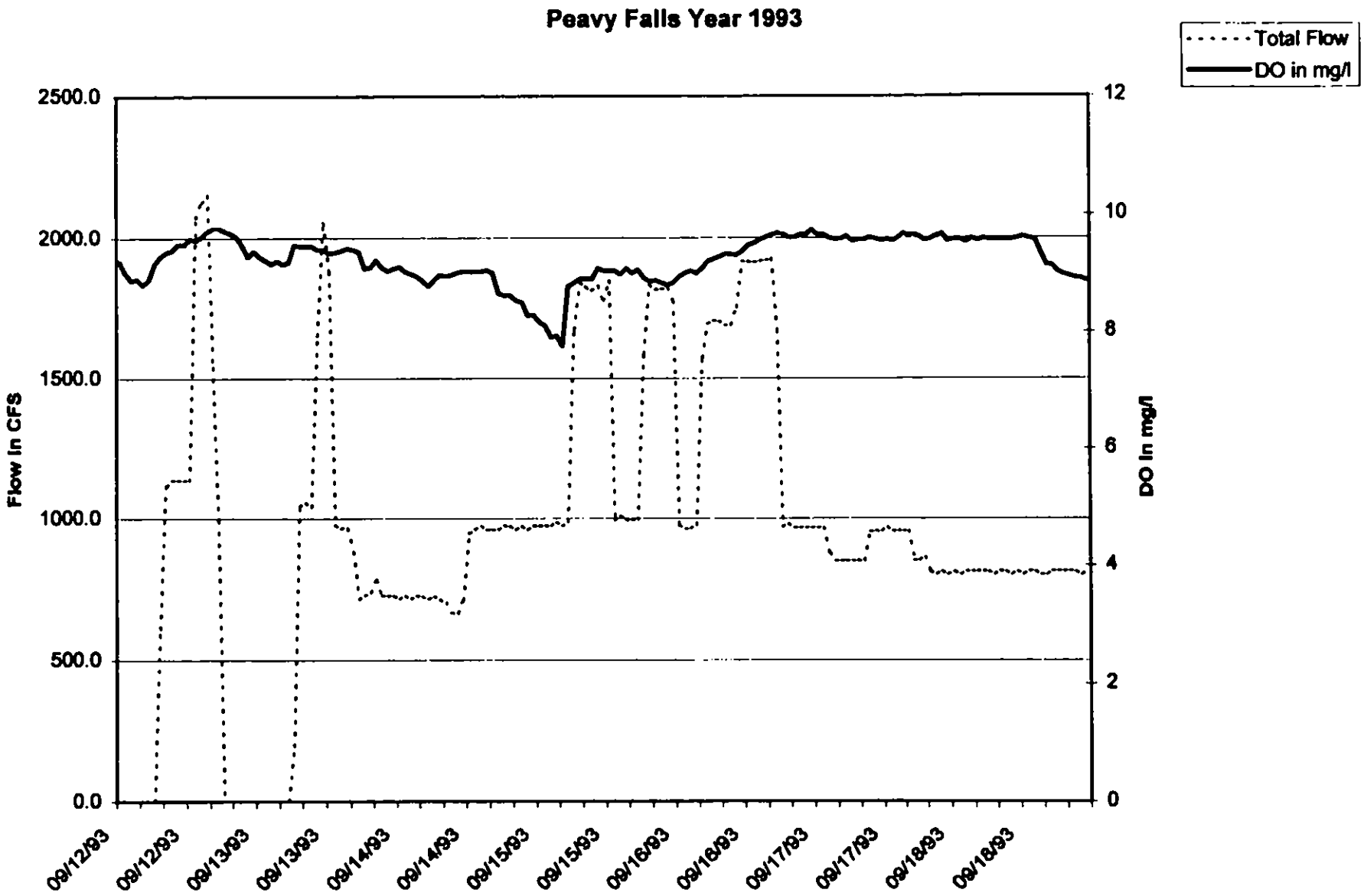
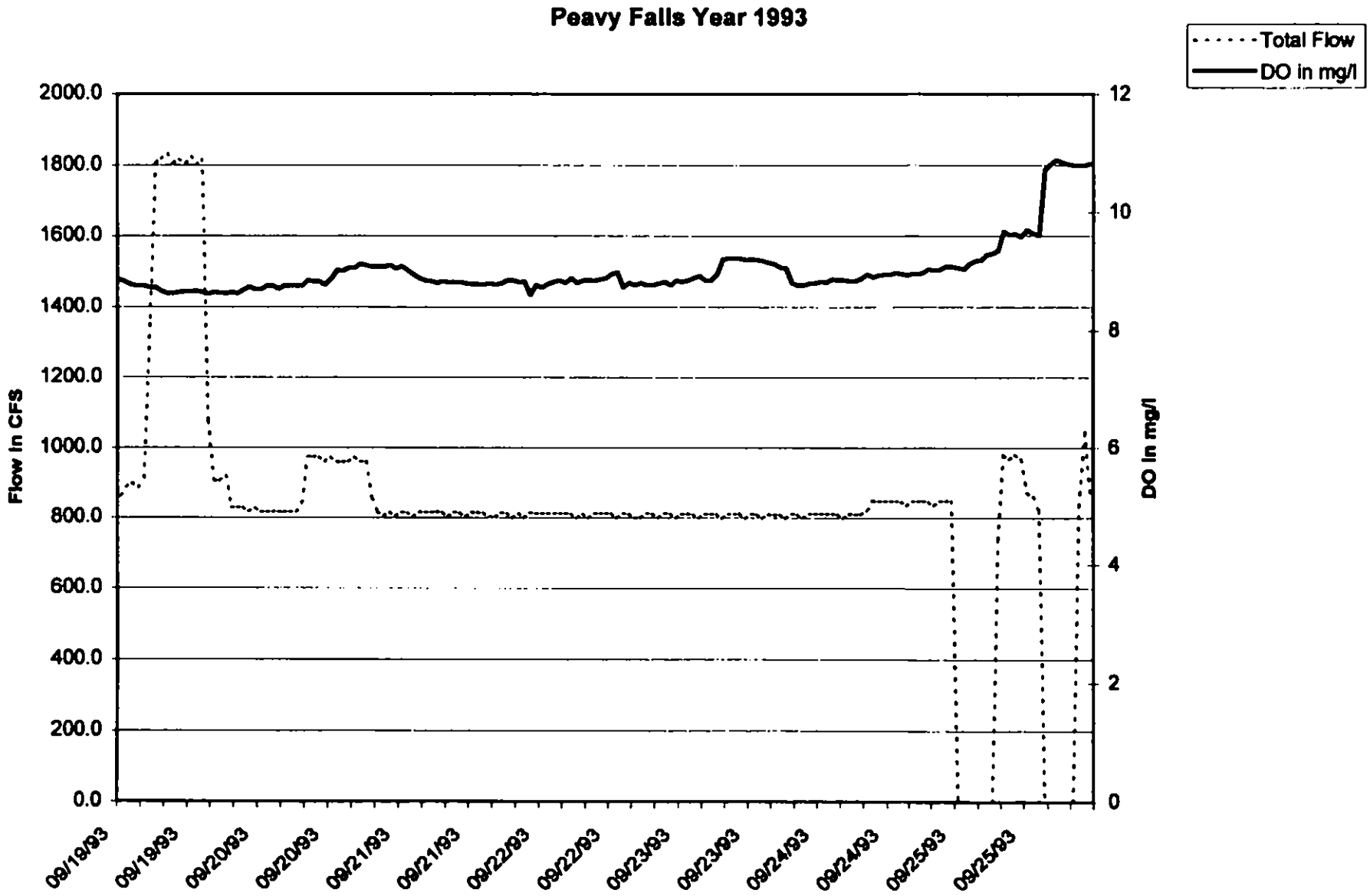


Figure C-4



Peavy Falls year 1993 flow analysis.xls September 19 - 25, 1993

Figure C-4

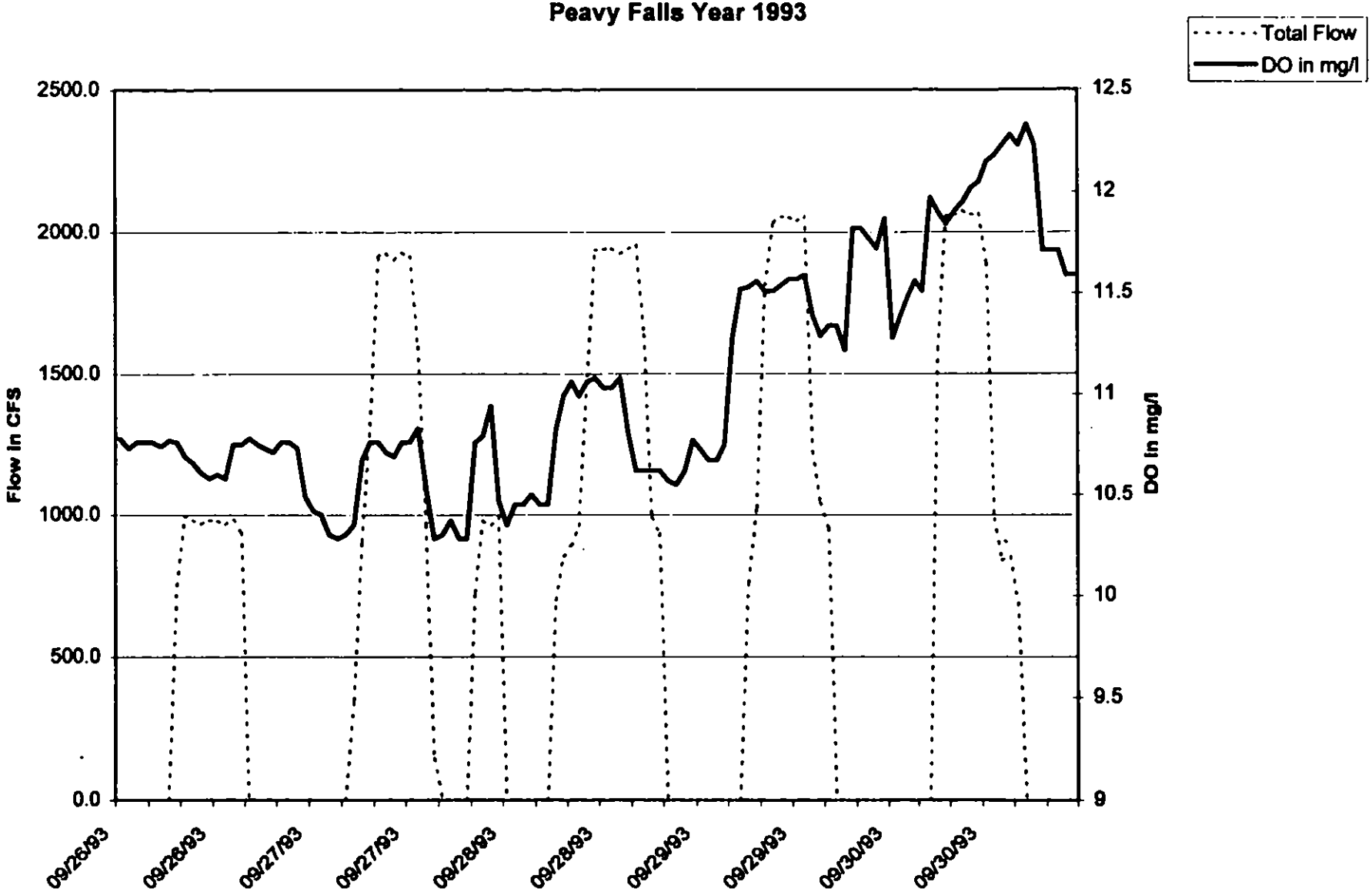
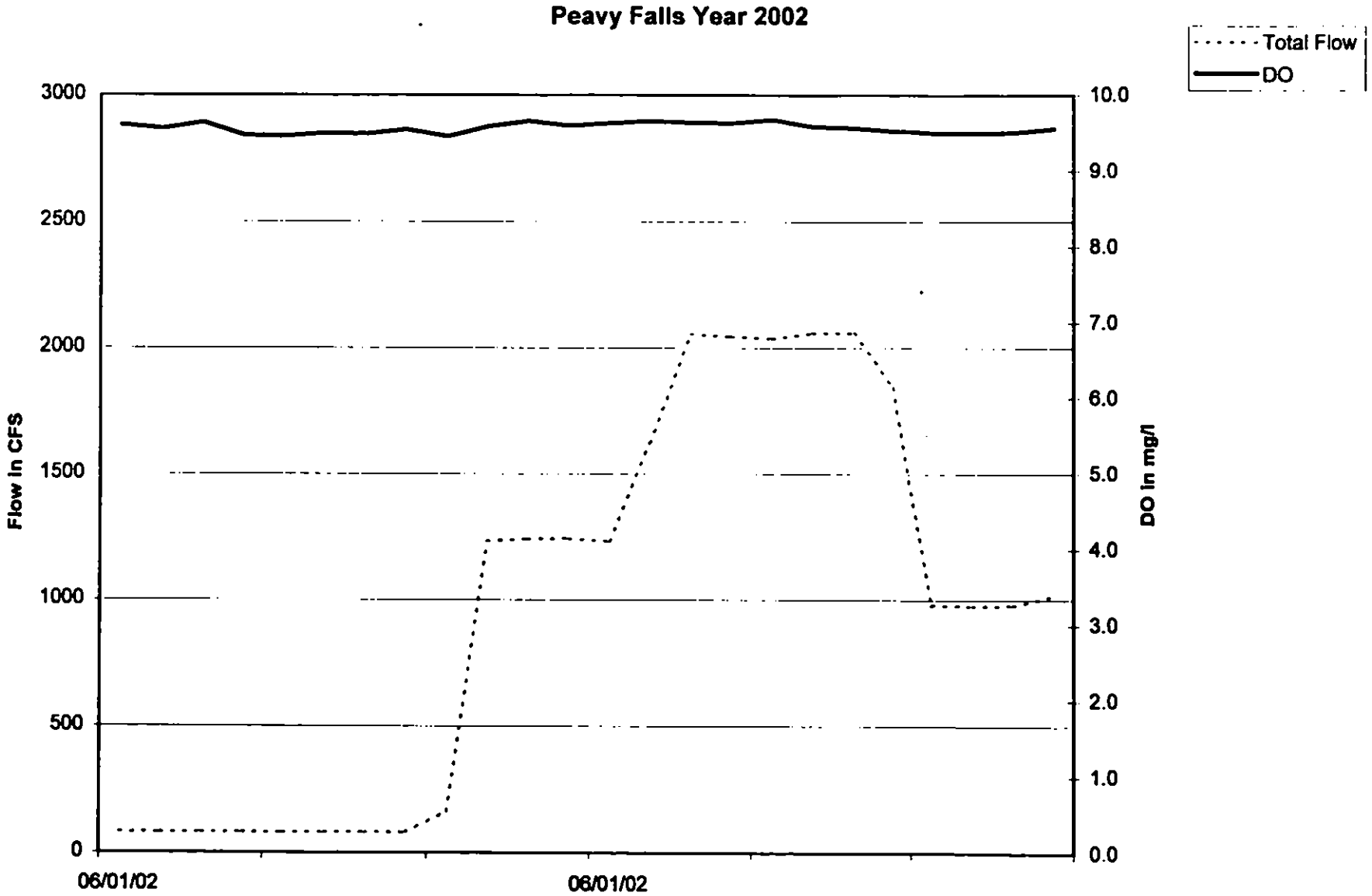


Figure C-5



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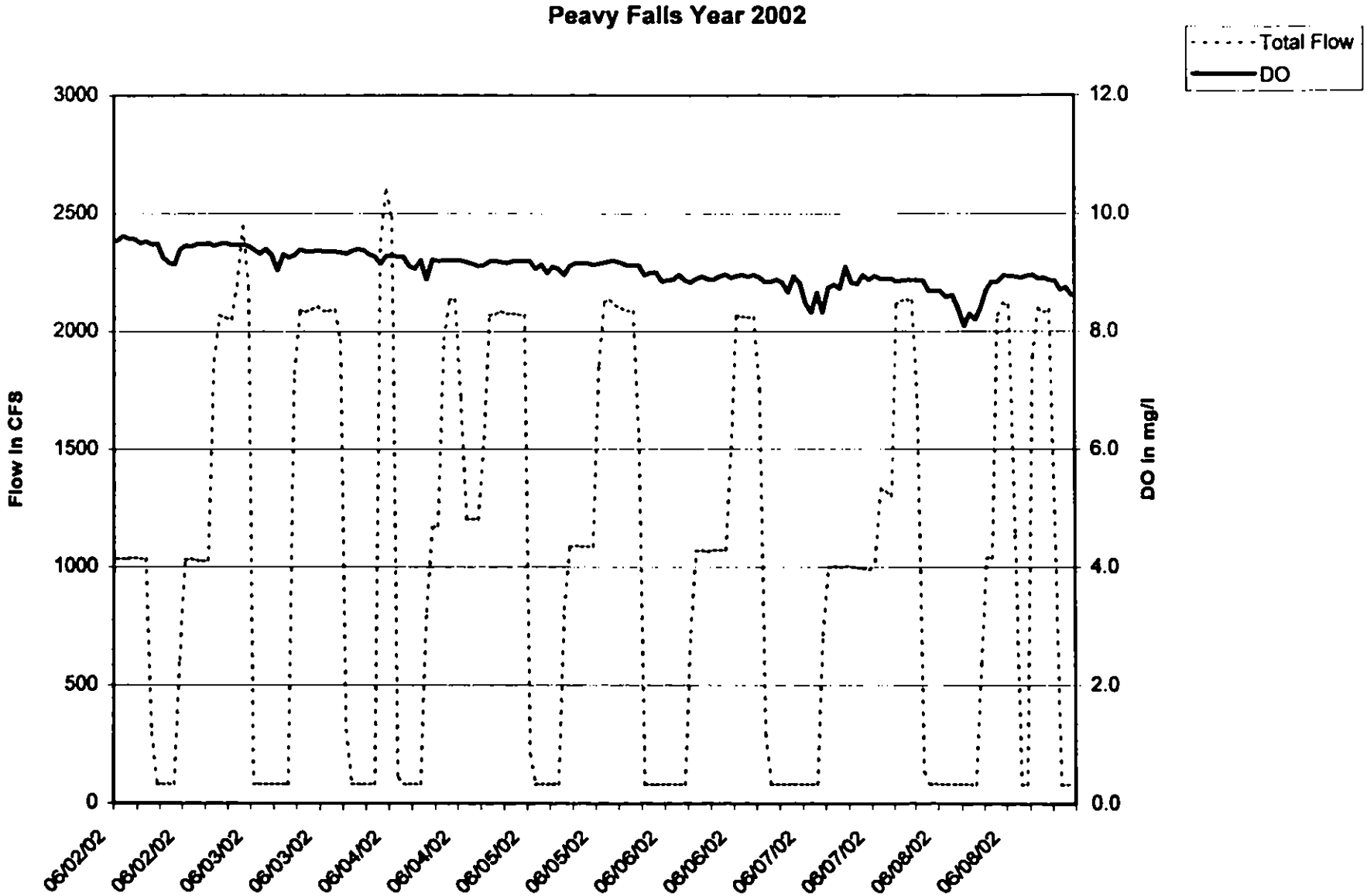
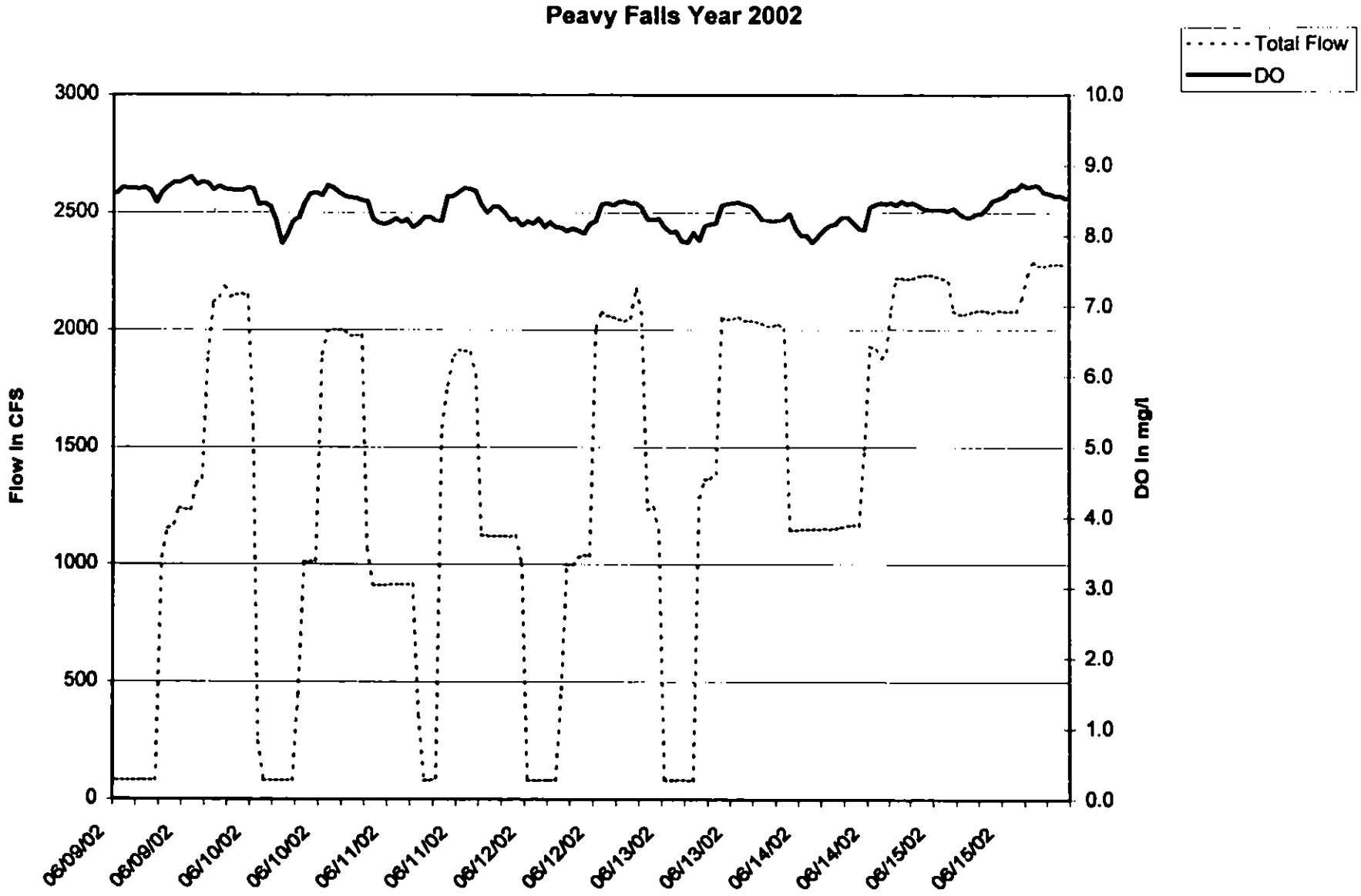


Figure C-5



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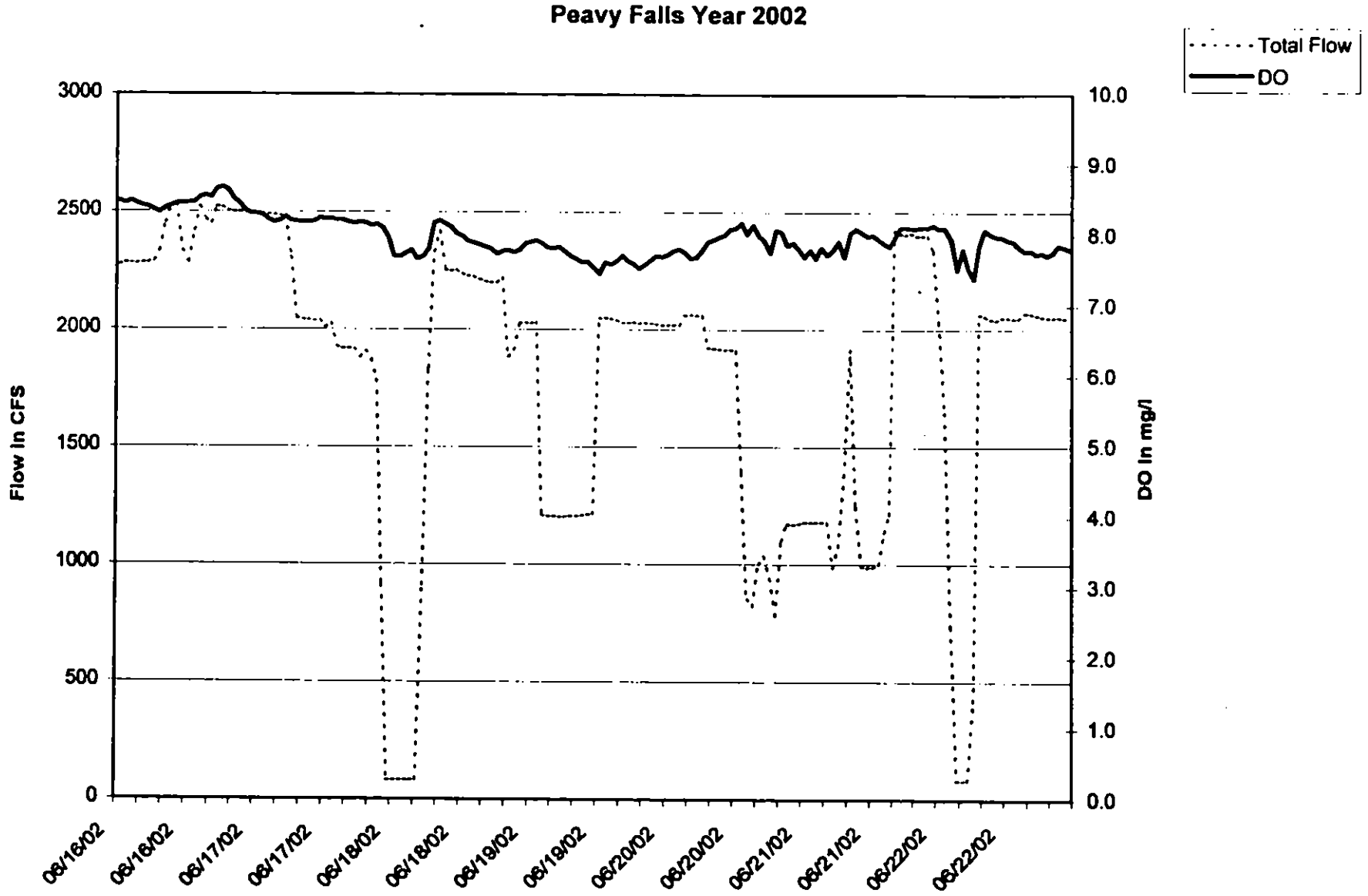

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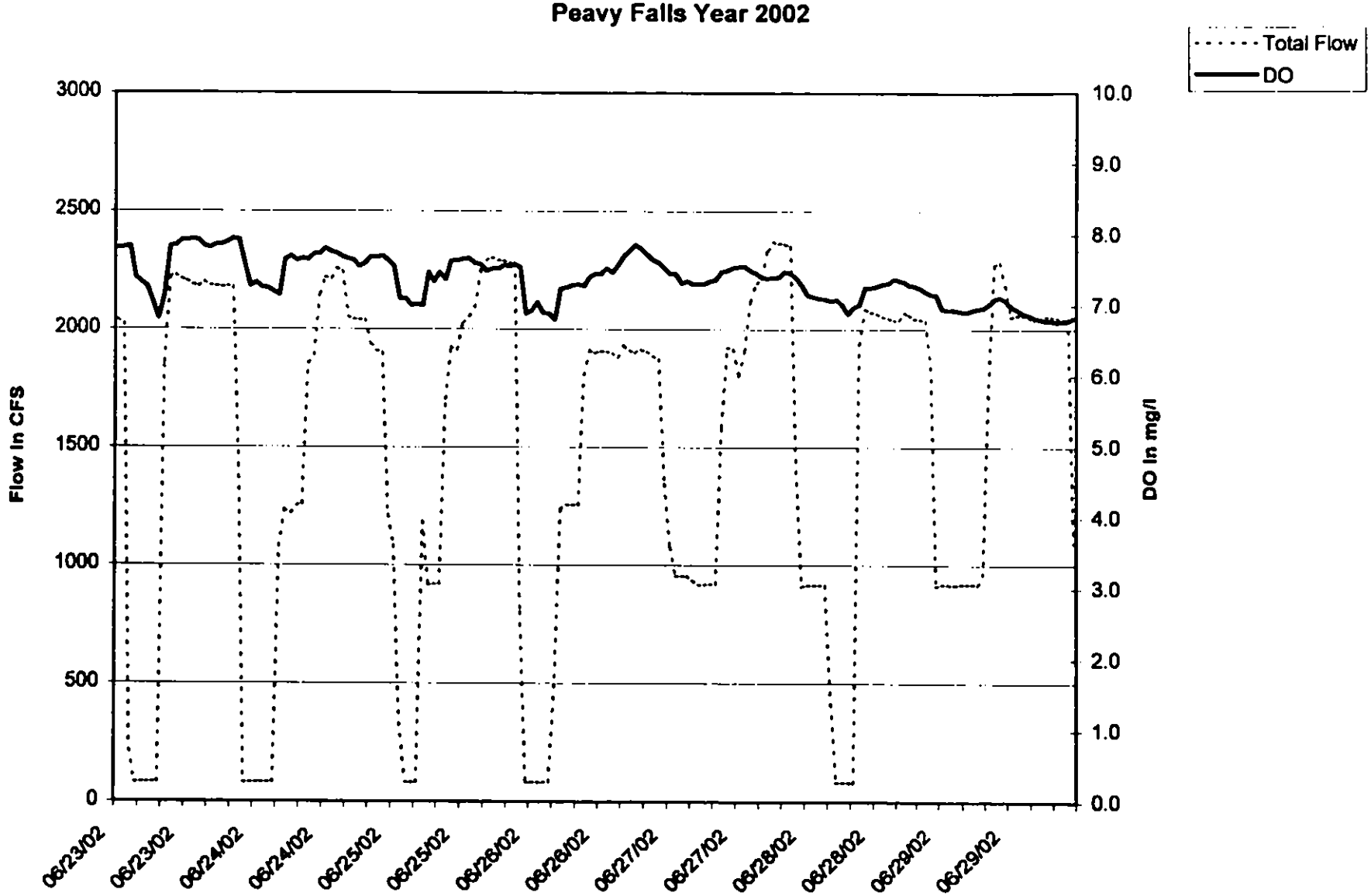


Figure C-5

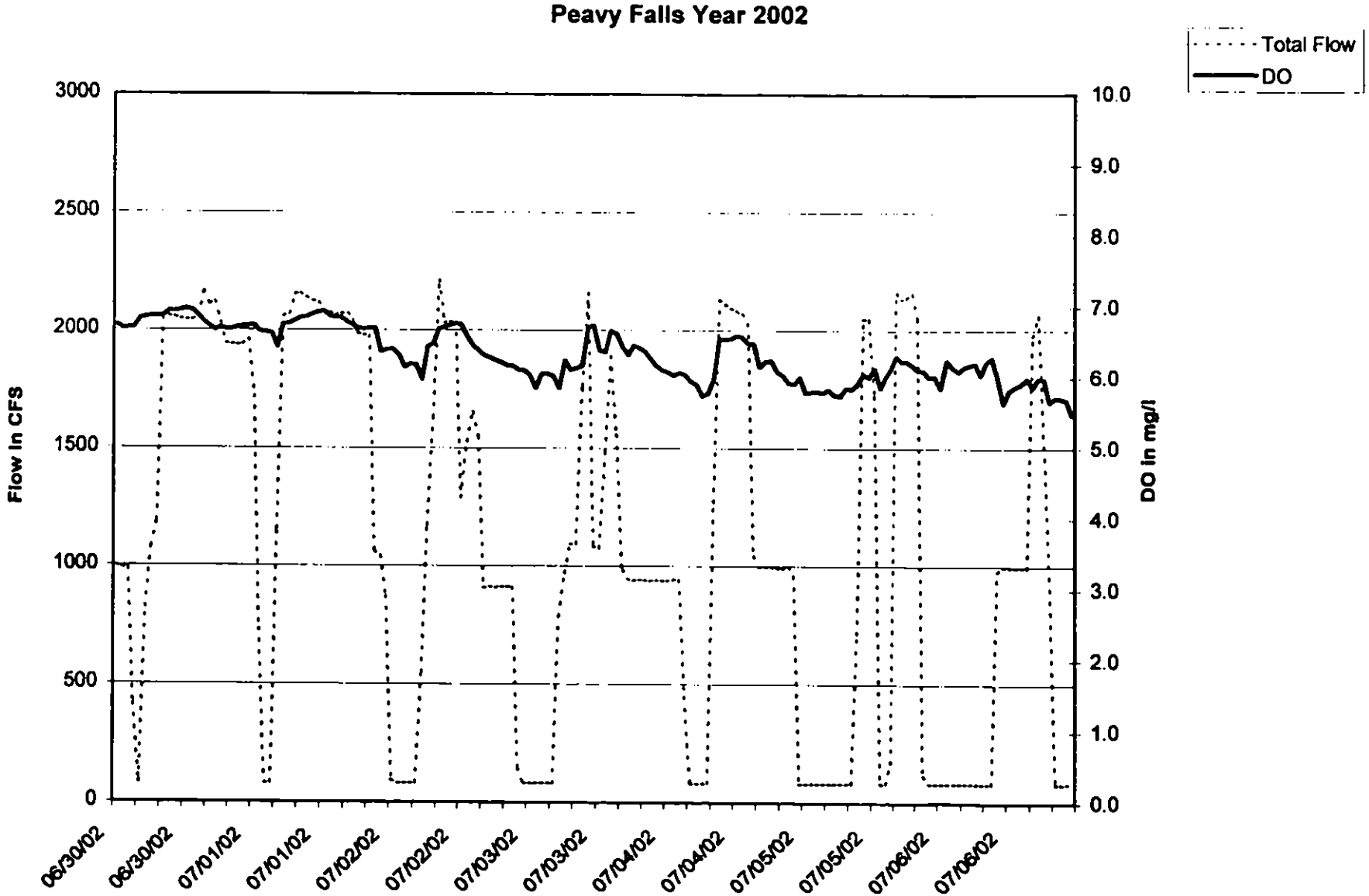
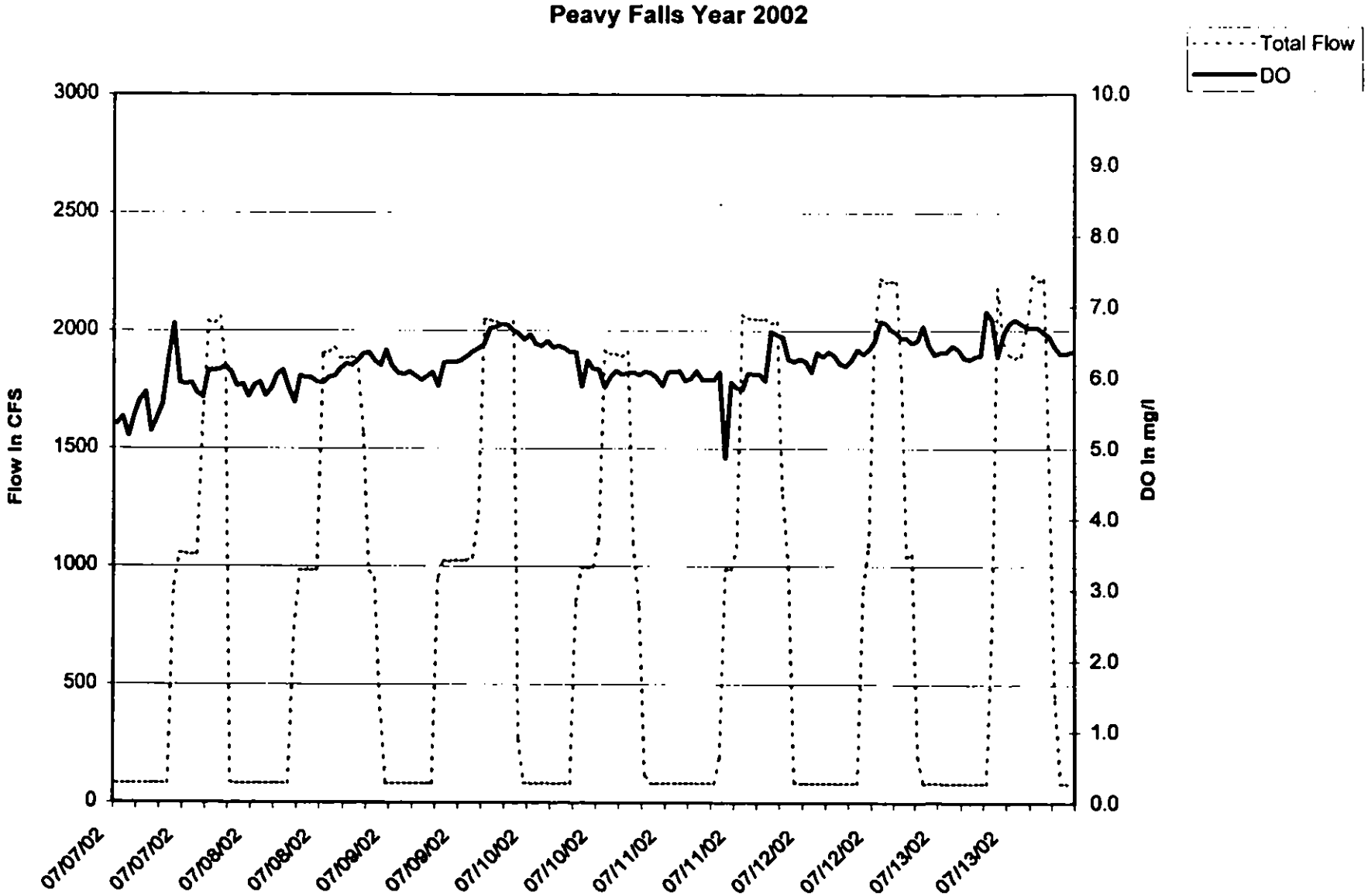


Figure C-5



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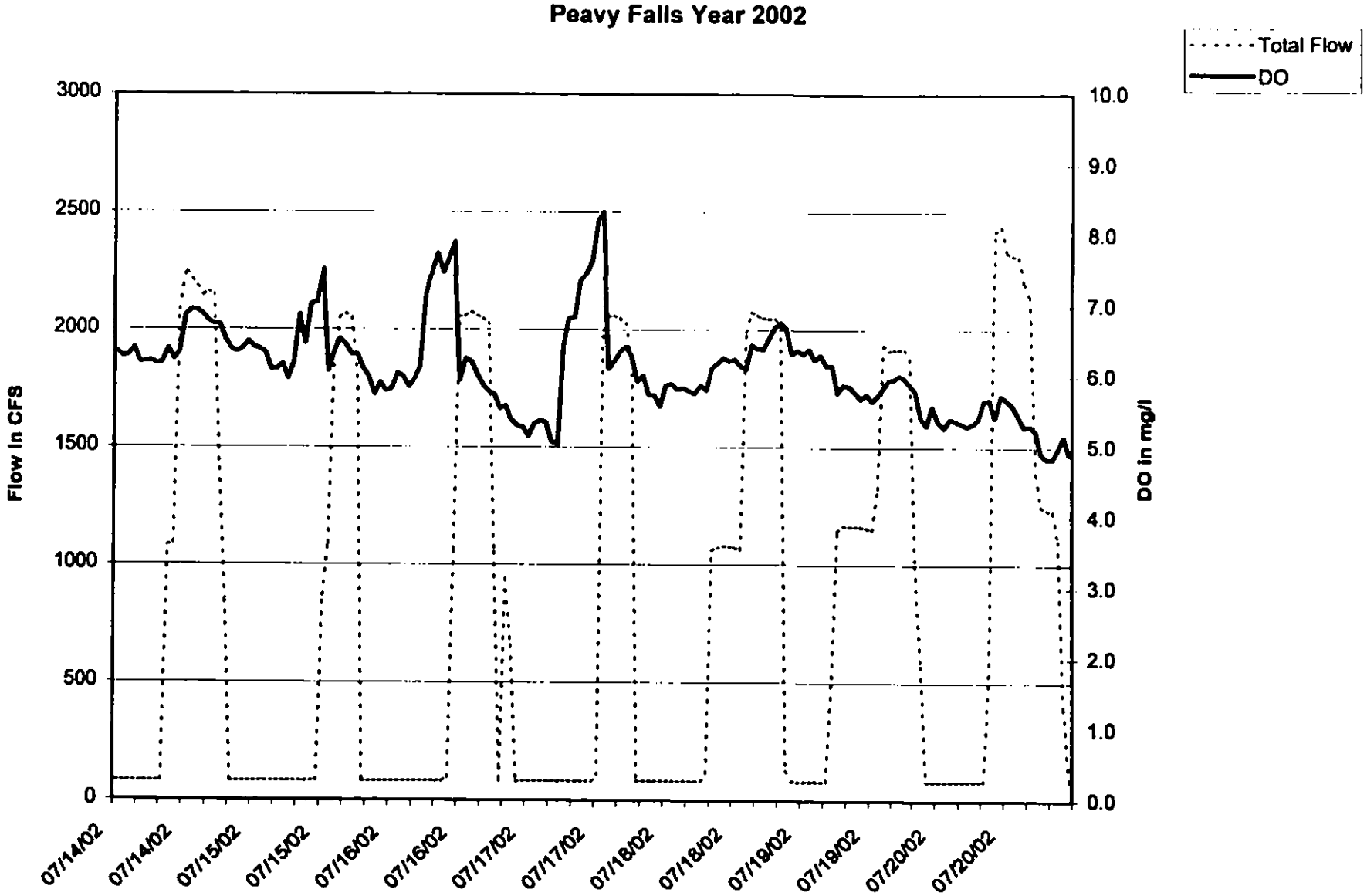

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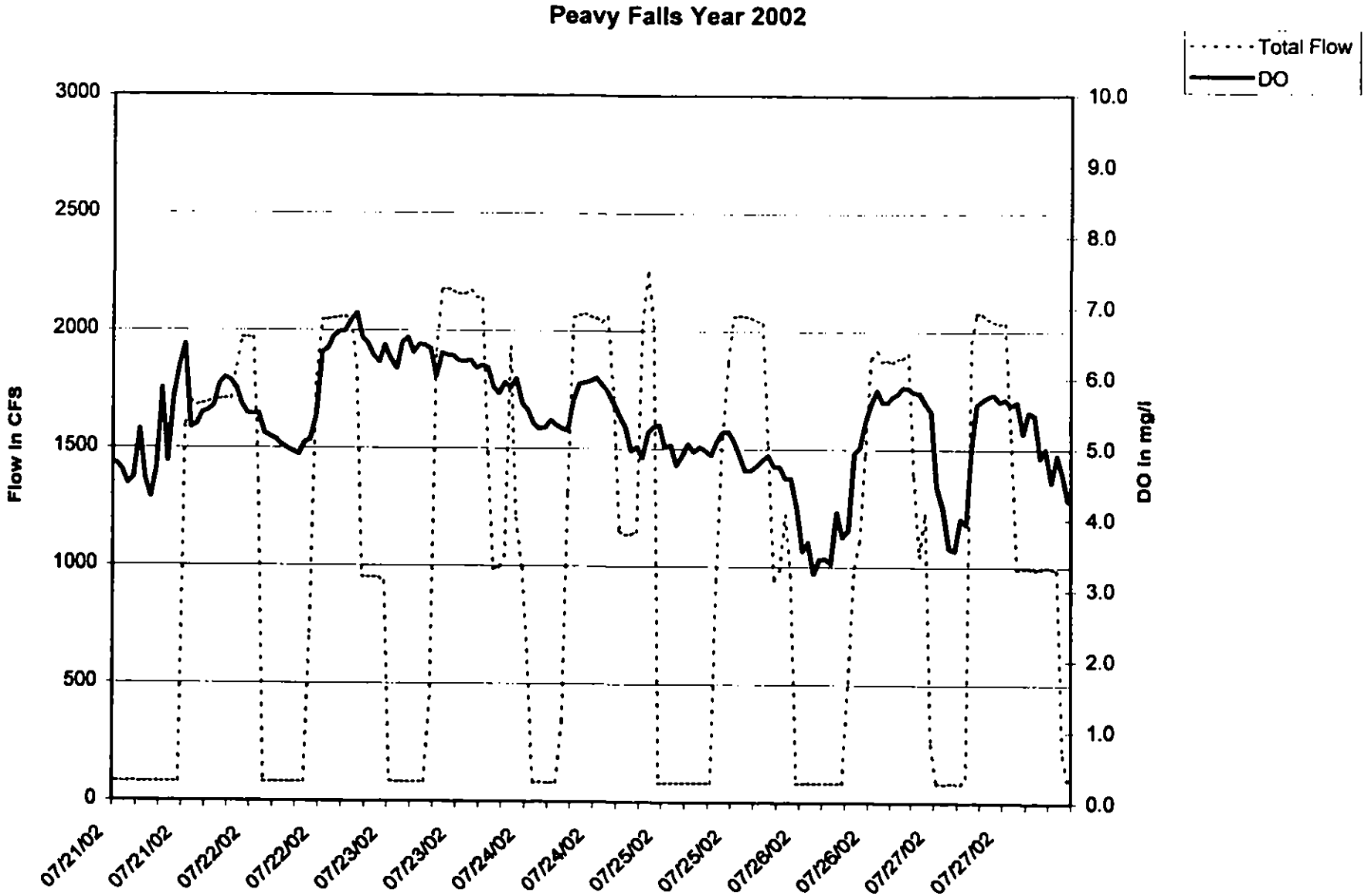


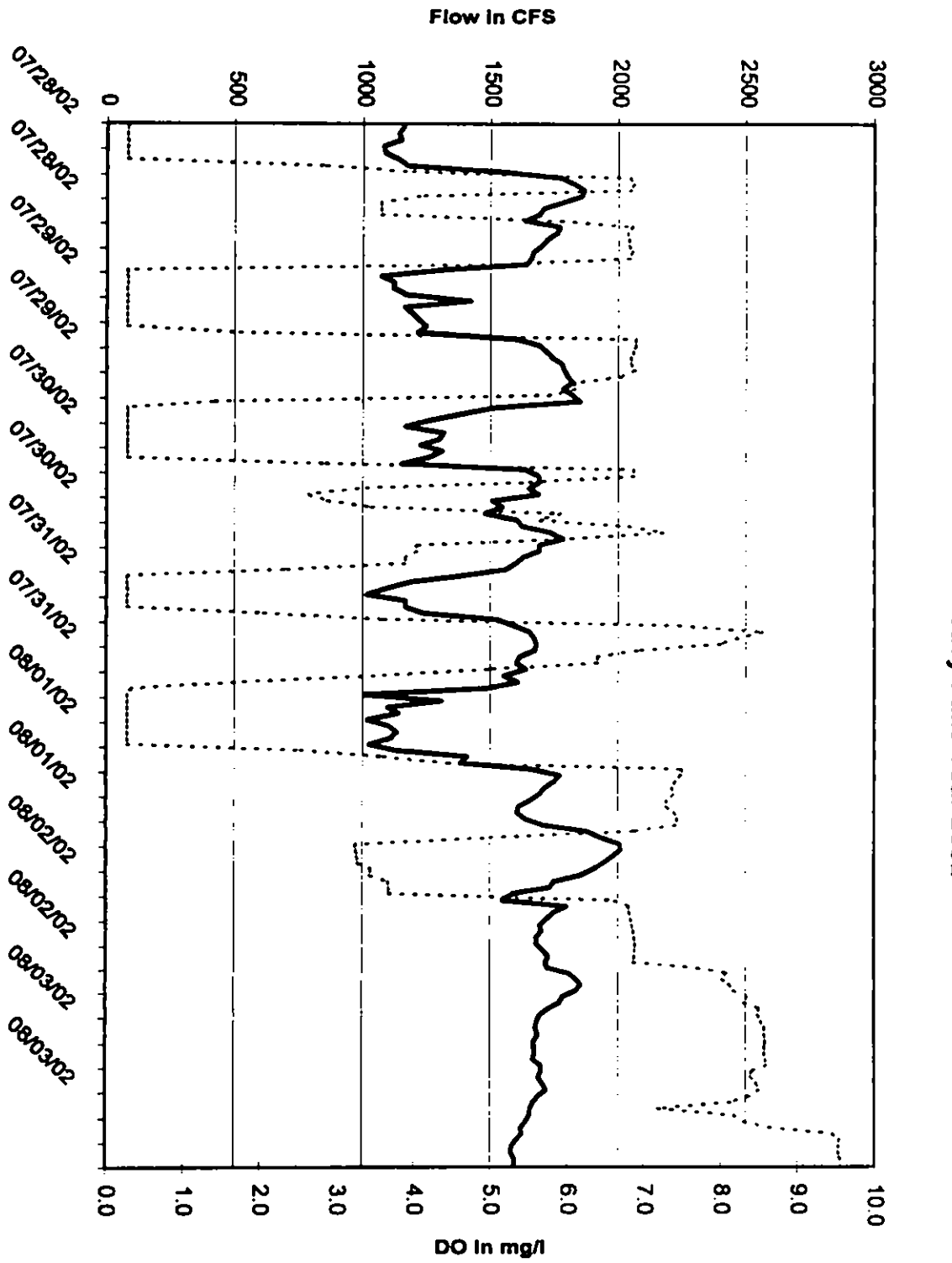


Figure C-5

Peavy Falls Year 2002

peavy analysis 2002.xls July 28- August 3

Figure C-5

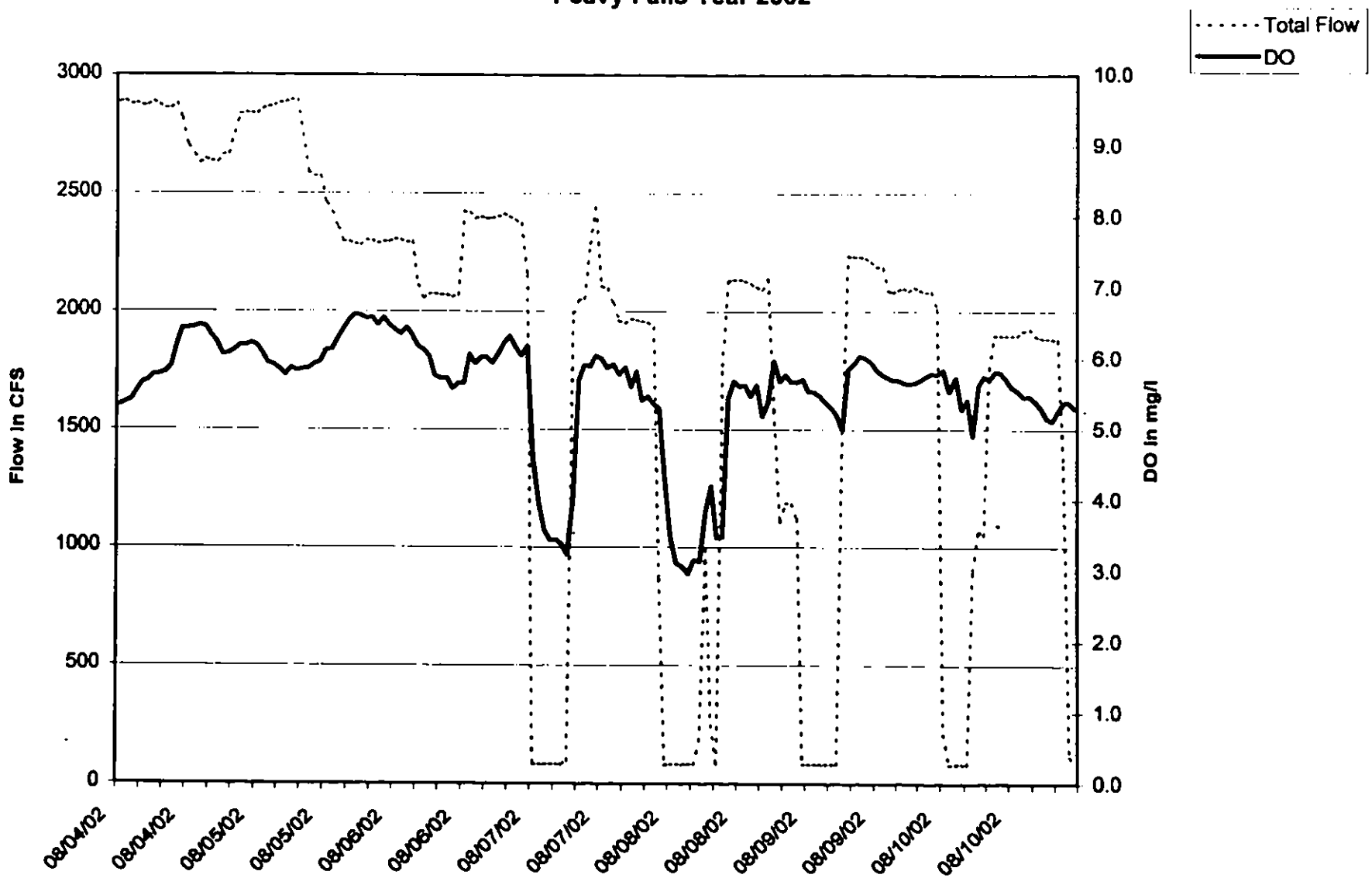


Figure C-5

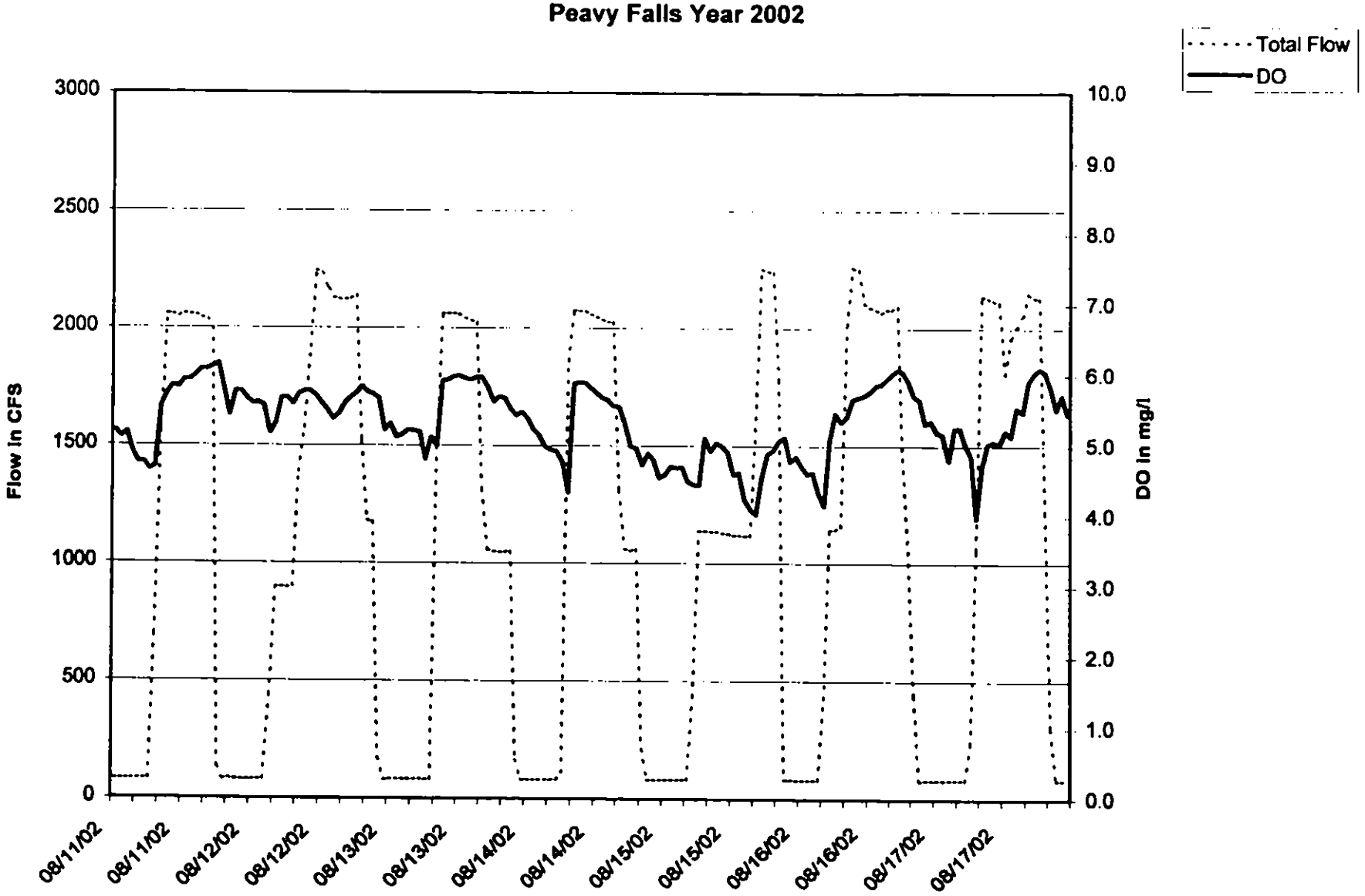


Figure C-5

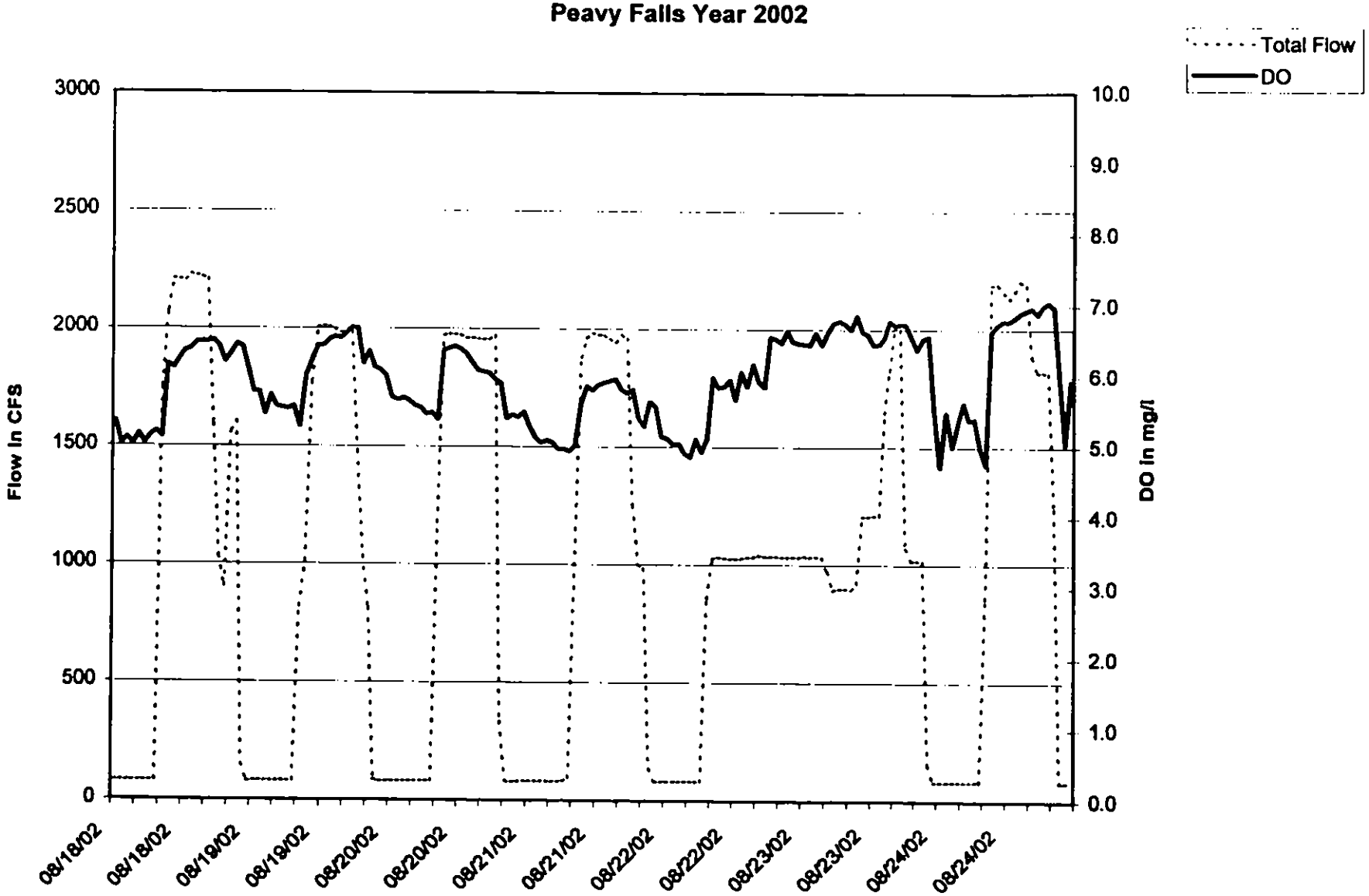


Figure C-5

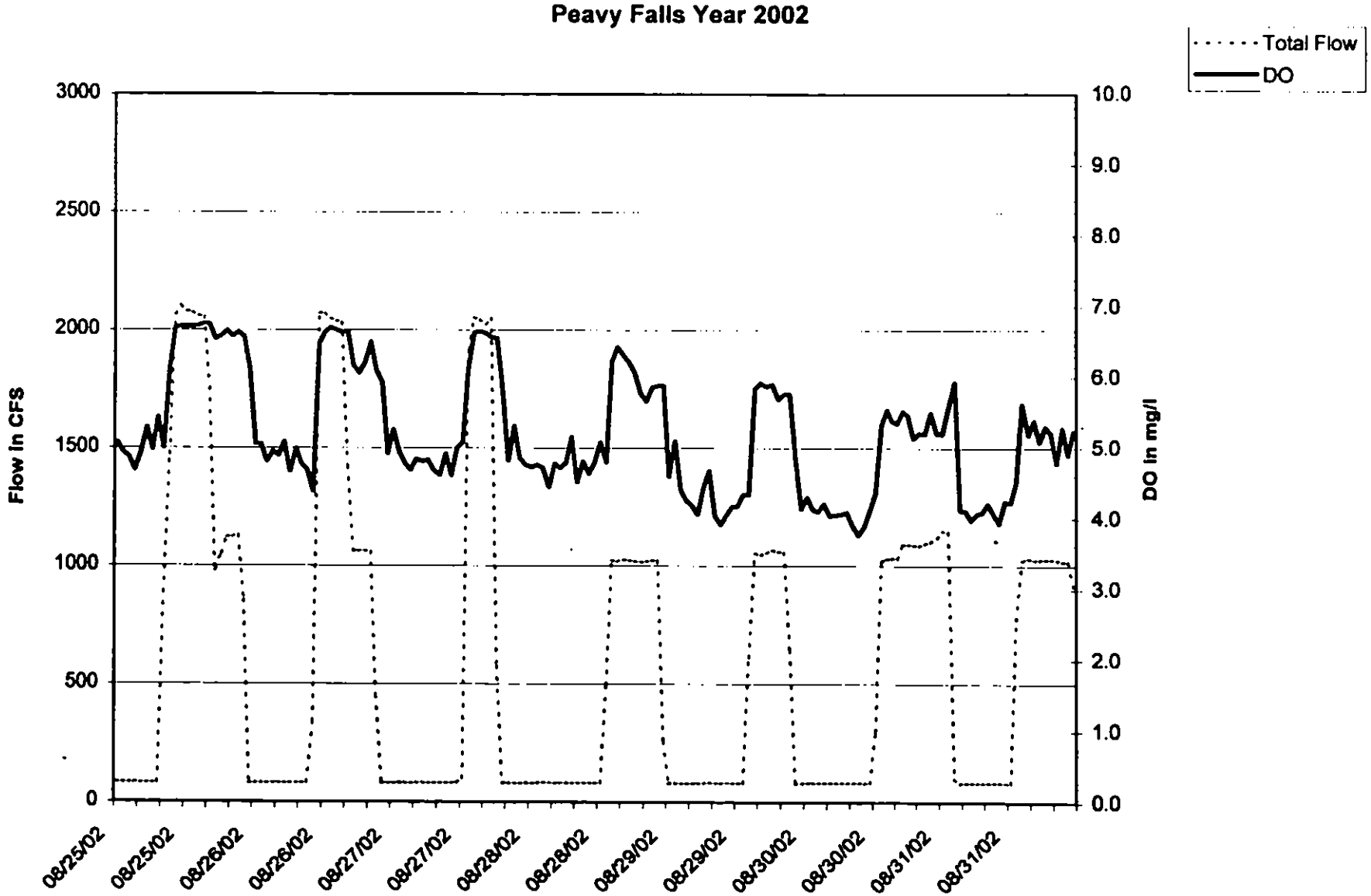


Figure C-5

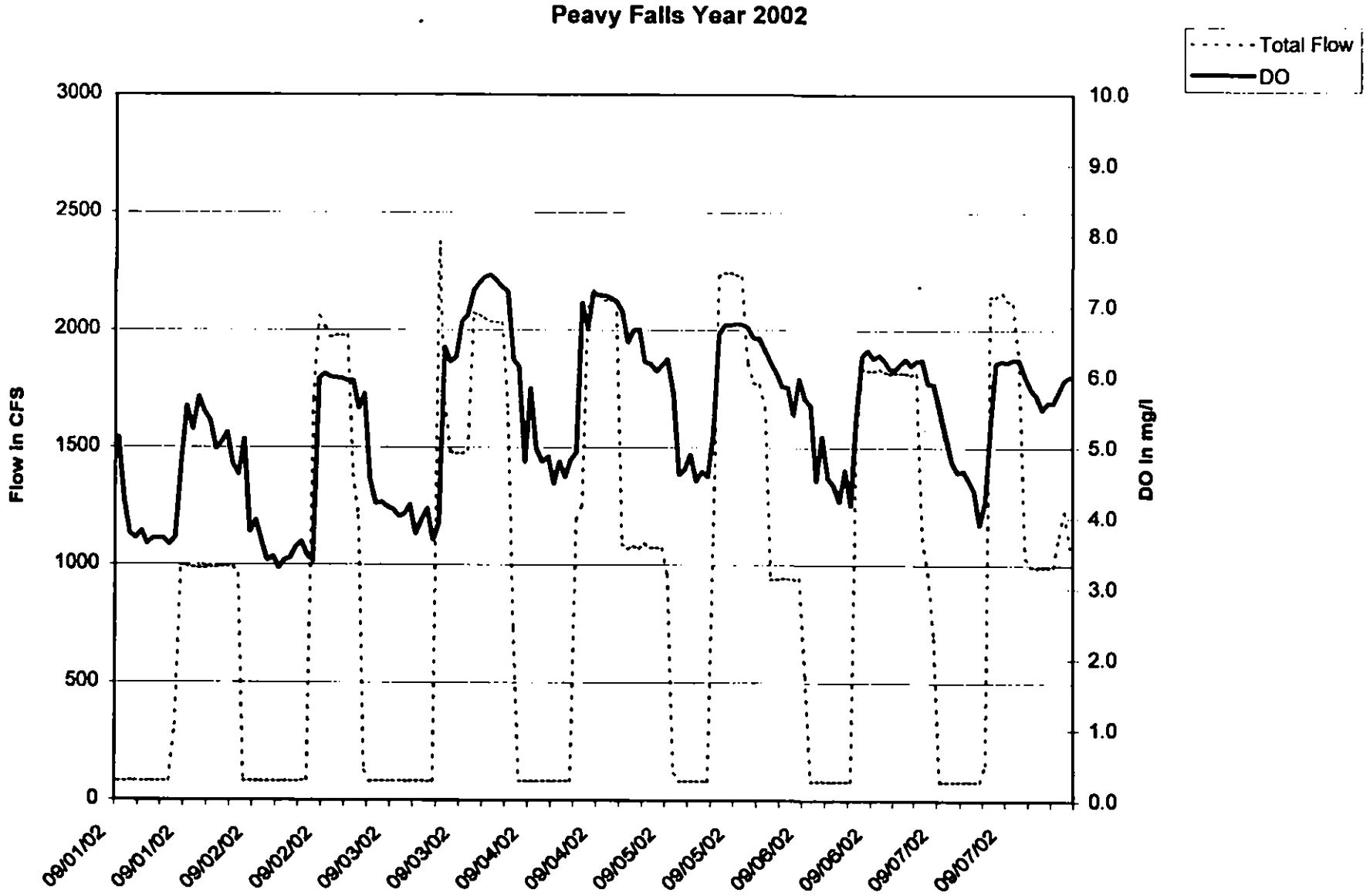
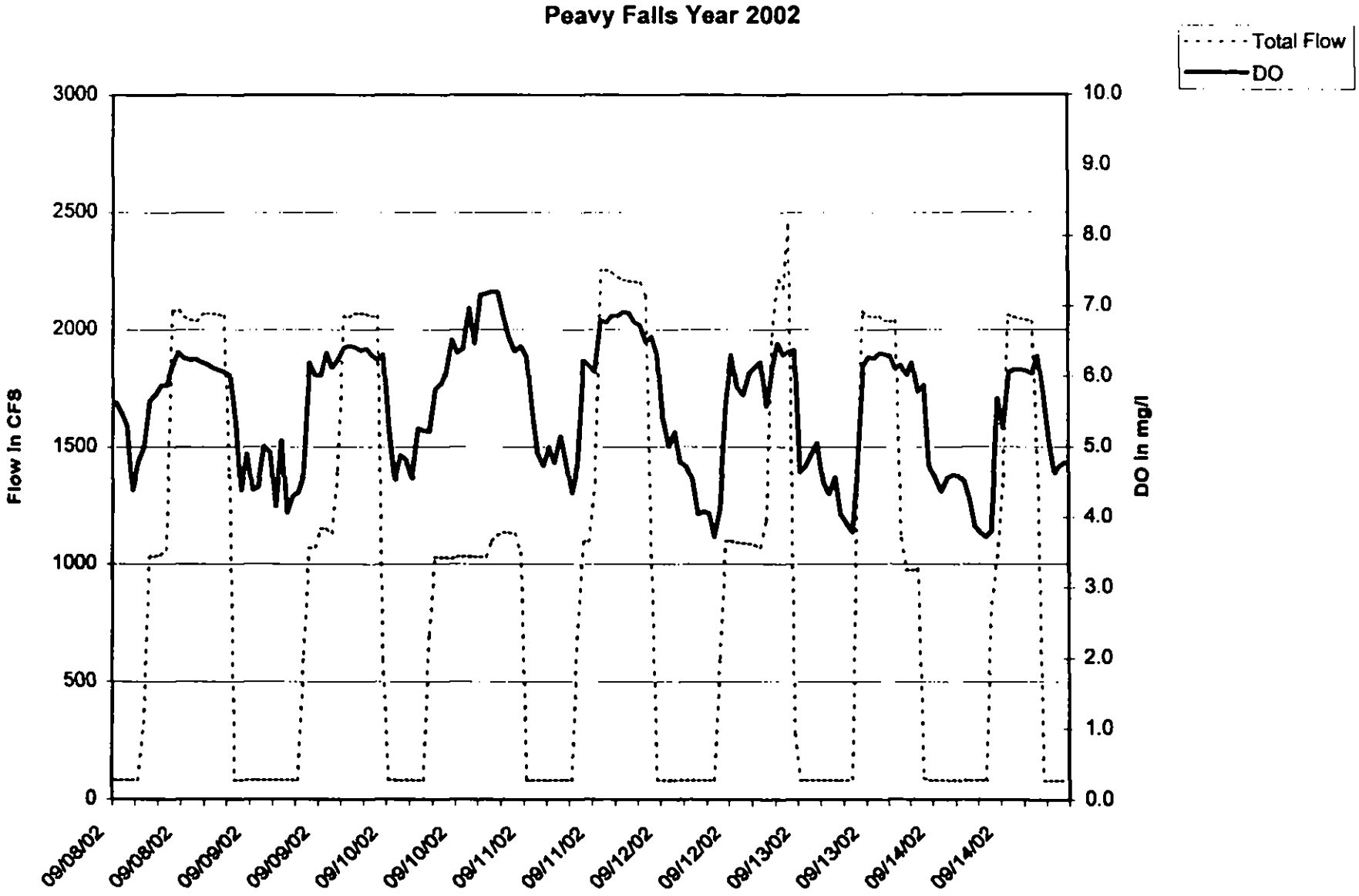


Figure C-5



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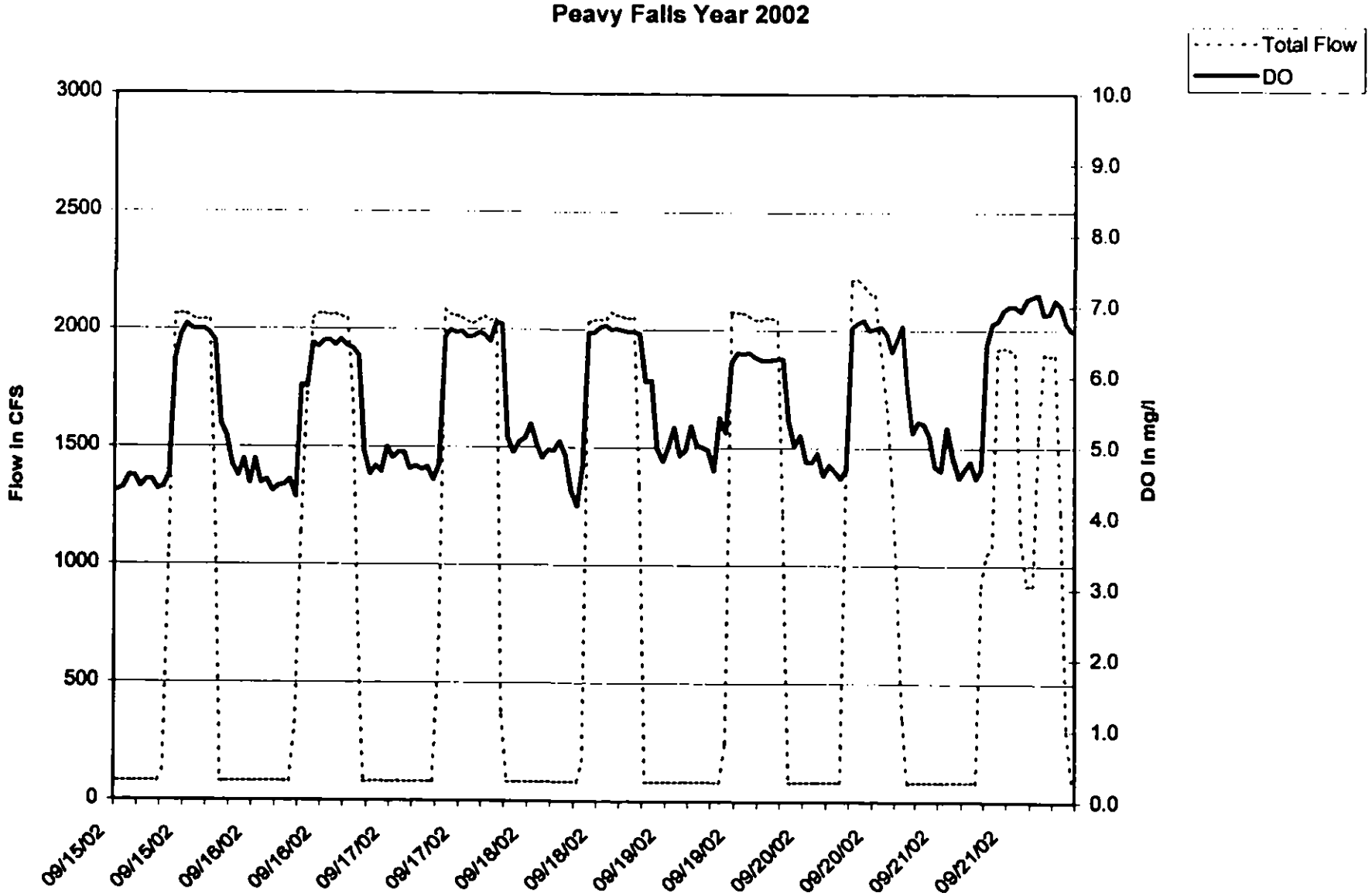

Figure C-5

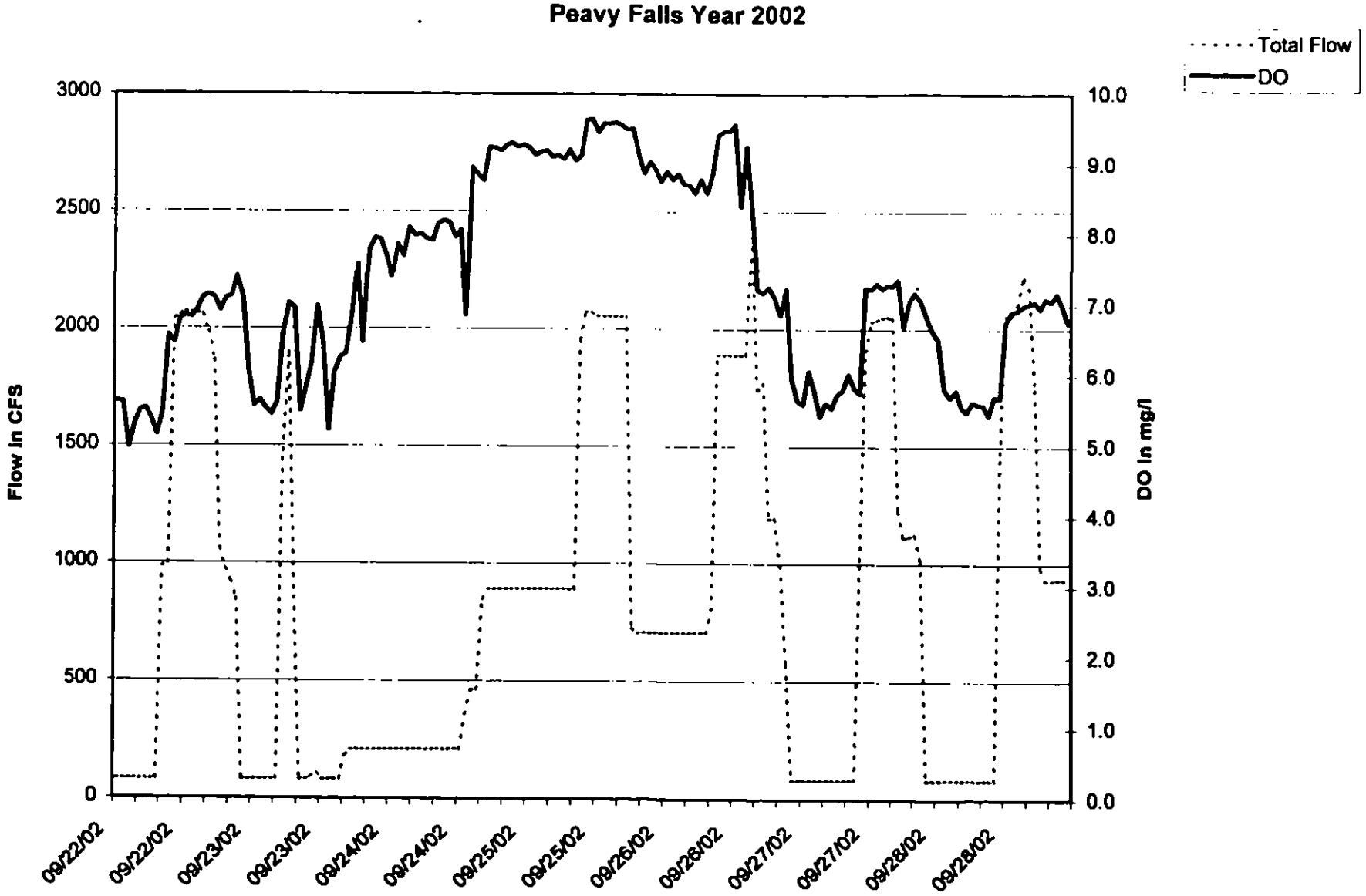

Figure C-5