WATER QUALITY STATUS REPORT ● REPORT NO. 55

WEST FORK OF LITTLE BEAR CREEK
Latah County, Idaho
1985

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West Fork of Little Bear Creek
Effluent Limitation Study

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West Fork of Little Bear Creek
Effluent Limitation Study

Introduction

Big Bear Creek is a tributary of the Potlatch River, entering at Kendrick, Idaho, approximately 9-1/2 miles above the Potlatch River confluence with the Clearwater River. The mainstem of Little Bear Creek and its tributary, the West Fork, converge and enter Big Bear Creek one mile upstream of Kendrick. The City of Troy is located in the small West Fork of Little Bear Creek watershed, in Latah County (Figure 1).

Little Bear Creek is identified in Idaho Water Quality Standards and Wastewater Treatment Requirements (1985) as stream segment CB 1541. Its designated uses are for agricultural water supply and secondary contact recreation. General water quality standards also apply. They indicate that waters of the State must not contain hazardous, deleterious, and radioactive materials; floating, suspended, and submerged matter; excess nutrient; BOD or COD; and suspended sediment.

Little Bear Creek is also designated for future use by cold water biota and for salmonid spawning. Cold water biota require dissolved oxygen concentrations to exceed 6 mg/l, pH to range within 6.5 to 9.0 S.U., water temperatures of 22°C or less (daily average not to exceed 19°). Salmonid spawning uses are similar except that water temperatures are not to exceed 13°C (daily average of 9°C). Future use designation denotes a possible use if a present pollution source is removed. An intent of this study was to determine if designated current and future uses are appropriate.

The City of Troy discharges to the West Fork of Little Bear Creek. An NPDES permit was issued on February 1, 1976; it expired on January 31, 1981. The City applied for a new permit on March 27, 1984.

The discharge permit under which the City is operating has standard effluent limitations (Table 1). The City has shown repeated violations of its discharge permit as evidenced by compliance inspections conducted by the Division of Environment on May 12, 1983 and February 22, 1984, and by EPA/100 on August 27, 1985 (cover letters attached as Appendix A).

Other violations have been noted (Appendix B).

Discharge Monitoring Reports from the months of this study (June-August 1985) also indicate numerous violations (Appendix C). They include high coliform concentrations (June and July), no pH monitoring (each month), no chlorine residual data (each month).

Excess flow was noted in April during spring runoff. A facilities plan which was prepared in 1979, noted 24 flow violations between 1977 and 1979 (Appendix D).

Methods

The historically low-flow period of June through August was selected for a limited study of Little Bear Creek. The study was designed only to ascertain the effect of the City of Troy wastewater effluent on instream water quality. The potential for any significant impact was considered to be greatest during such low flows.

Samples were collected approximately every two weeks between June 12, and August 27, 1985 for a total of six sample sets. Five sample sites were selected (Table 2). Stream stations immediately above (#2) and below (#4) the outfall were selected, as was the outfall itself (#3). Additionally, a station above the entire town (#1) was selected in order to isolate any potential influences of a cedar mill which borders the stream. Finally, a station was selected approximately one-half mile below the outfall (#5) to determine impacts following mixing (Figure 2).

The facility discharges approximately 15% of the time, and Station 4B reflects the immediate impact of the outfall on the stream. Similarly, Station 4A reflects the 85% of the time during which the facility does not discharge, as samples were only collected during those periods of non-discharge.

All collection procedures conformed to Standard Methods, or EPA Methods for Chemical Analysis of Water and Wastes (EPA, 1979). Parameters which were determined on-site and by laboratory analysis are listed in Table 3. Dissolved oxygen was determined with a YSI Model 54 meter; electrical conductivity with a YSI Model 33 S.C.T. meter; pH with a Corning Model M-103 meter; flow with a Marsh McBirney Model 201 meter.

A fish census was determined with an electro-shocker and with the cooperation of Idaho Department of Fish and Game. Fish were collected on Little Bear Creek, approximately 1/4 mile above its confluence with Big Bear Creek (Figure 3), and at Station #5.

Results and Discussion

Little Bear Creek exhibited a flow regime typical of low-order North Idaho streams (Figure 4). Discharge at Station 1, upstream of Troy, declined 83% during the two weeks in June between sample collections. Similarly, discharge decreased 70% at Station 2, and 77% at Station 5. Flows remained below 0.1 cfs for the remainder of the study period.

As expected, effluent flow remained nearly constant over the course of this study, averaging 0.9± 0.09 cfs (mean ± std. deviation). During the last four sample periods in July and August, the effluent contributed nearly all instream flow during the times of discharge. It must be remembered, however, that the facility only discharged about 15% of each hour.

Stations 2 and 4A were expected to, and did, show close correlations of water chemistry and physical parameters (Table 4). Station 2 is directly above the discharge point and Station 4A is directly below.

Since Station 4B represents the 15% of time during which the facility does discharge, it would be expected to show radical differences from 4A, reflecting the strong influence of Station 3 (effluent). High concentrations and loadings of an effluent nutrient would most certainly have been reflected at Station 4B, since the effluent flow comprised an average of 50% of instream flow. Comparison between Stations 2 and 4B provides a measurement of instantaneous changes in stream quality, but it fails to show long-range effects.

A better reflection of the effects of the City's wastewater on West Fork of Little Bear Creek water quality is thru comparison of Stations 2 and 5. Station 5 is approximately 1/2 mile downstream of the effluent discharge point, and any differences can be almost totally attributed to effects of the wastewater since no other sources of organic material have been identified.

Relatively small differences in BOD and suspended solids concentrations were seen between Stations 2 & 5 (Figure 5A). Loading rates at Station 5 were approximately double those of Station 2 (Figure 5B). Permit limitations were exceeded, on the average, for BOD, and suspended solids approached the permit limit.

Mean concentrations of dissolved oxygen sagged by nearly 2 mg/l, to less than the 6 mg/l standard for waters with designated uses of cold water biota (Figure 5C). Dissolved oxygen at Station 5 showed no recovery toward concentrations equivalent to those upstream of the outfall. Given the extremely low volumes of water, high water temperatures, and slack water, it is unlikely that dissolved oxygen concentrations will quickly recover downstream.

Phosphorus is an important nutrient of water quality concern. Phosphorus is essential to organism growth, and may be of particular concern where phosphate is a growth-limiting nutrient. The ortho-phosphate form is essentially equivalent to dissolved phosphate. For this study, it was decided that little additional information would be gained by breaking total phosphate phosphorus down into its various components.

The 1866% increase in phosphorus between Stations 2 & 5, to a mean concentration of 2.35 mg/l, is 23 times higher than the recommended concentration of 0.1 mg/l (Mackenthun, 1973) for waters not directly entering reservoirs and lakes (Figure 6A). This increase is all the more significant when it is recalled that the wastewater facility only discharges 9 or 10 minutes out of each hour (15%). By comparison, instream total phosphate phosphorus concentrations directly below the outfall increased over 2700% during facility discharge.

Total phosphorus loadings at Station 5 were over 1075% greater than at Station 2 (Figure 6B). Similarly, mean phosphorus loading at Station 4B was nearly 60 times that at Station 2. Based upon mean concentrations and stream flow derived during this low-flow study and conservatively extrapolated to an annual estimate, over 7800 pounds are discharged by the wastewater facility, and over 1750 pounds of phosphorus are exported through the study reach.

Nitrogen is another important nutrient which is present in large concentrations in the Troy wastewater. All forms of nitrogen are biochemically interconvertible, and therefore, are of interest in effluent limitation studies.

Nitrite and nitrate are oxidized forms of nitrogen which are available for uptake by aquatic and terrestrial plants. Concentrations of these inorganic forms of nitrogen in excess of 0.3 mg/l are considered likely to contribute to acceleration of lake eutrophication. Organic forms of nitrogen include proteins, urea, nucleic acids, and numerous synthetic organic materials. Analysis of total Kjeldahl nitrogen (TKN) includes organic forms as well as the ammonia fraction. Since there are no apparent discharges of synthetic organic materials and no feedlots or other animal waste facilities within the study area, it was decided that TKN would best reflect the influences of the municipal wastewater facility on instream water quality.

The TKN concentration increase of 233% between Stations 2 and 5 represented significant effects of the effluent (Figure 6A). However, 5.4 mg/l TKN was determined to be the mean immediately downstream of the outfall, and only 1.5 mg/l remained at Station 5. Apparently, the flora took up large amounts of organic and ammonia nitrogen in a relatively short stretch of stream. TKN loadings increased by 290% between Station 2 and 5, also reflecting the obvious impact of effluent on water quality (Figure 6B). Based upon mean concentrations and stream flow derived from this low-flow study and conservatively extrapolated to an annual estimate, over 14,000 pounds of organic and ammonia nitrogen were discharged by the wastewater facility, and over 2400 pounds were exported through the study reach.

A couple of sample dates, out of the six, serve to demonstrate the effect of municipal effluent upon instream water quality. On June 12, 1985, effluent BOD concentration was 49.5 mg/l; instream BOD increased from 1.3 mg/l to 12.5 mg/l directly below the outfall, and then decreased to 2.8 mg/l at Station 5 (Figure 7A). Suspended solids concentrations were an acceptable 8 mg/l immediately above the effluent (Figure 7B); while the effluent doubled those concentrations at Station 5, those levels are unlikely to create nuisance conditions.

Similarly, instream loadings of suspended solids showed dramatic increases between Station 2 and 5, while much of the increased BOD load had been reduced by Station 5 (Figure 8).

Another date showed the effects of effluent oxygen and nutrient in the West Fork. Dissolved oxygen decreased from 7.1 to 6.1 mg/l between Stations 2 and 4B on July 10, as a result of low D.O. effluent, and further decreased to 4.6 mg/l at Station 5 (Figure 9). The extent of this obvious oxygen sag is unknown.

Very large increases in concentrations of total phosphorus (Figure 10A) and total Kjeldahl nitrogen (Figure 10B) were seen on July 10, as well, between Stations 2 and 4B. However, significant portions of these increases had been reduced before reaching Station 5. The same pattern was seen in nutrient loadings (Figures 11A and 11B).

Little Bear Creek's classification for secondary contact recreation stipulates that fecal coliform are not to exceed 800/100 ml at any time, and a geometric mean of 200/ml taken from five or more samples over a thirty day period. Only one sample date showed effluent fecal coliform concentration in excess of secondary contact recreation standards. Although chlorine residual concentrations were not determined in this study, it is reasonable to conclude that the chlorinator was not operating properly on July 10. Downstream water quality was higher than upstream with regard to fecal coliform concentrations, apparently as a result of the effects of effluent chlorination (Figure 12A). This is readily apparent from a representation of geometric means for each station. (Figure 12B).

The potential status of Little Bear Creek for salmonid habitat has been questioned. Fish were collected with the assistance of electro-shocking equipment on October 28, 1985 on Little Bear Creek. The sampling area is approximately 9-10 miles downstream of Troy.

Eleven age-o rainbow-steelhead, along with dace, red-side shiners and chiselmouth were collected. Since no age-1 or older rainbow-steelhead were observed it cannot be concluded that Little Bear Creek is a primary trout producing stream. It is the opinion of the Idaho Department of Fish and Game that the collected smolts were likely from a spring 1985 outplanting of adult steelhead into the Potlatch River. Station 5 was also sampled by electro-shocking methods. No salmonids were found (Appendix E).

Conclusions

1) The Troy wastewater facility has shown repeated permit violations. BOD and coliform limitations have been frequently violated. Restrictions on suspended solids were narrowly met during the time of this study.

2) Flow limitations of the Troy wastewater facility were frequently violated.

3) The great majority of summer flow in West Fork of Little Bear Creek emanated from the municipal discharge. Instream discharge was usually less than 0.1 cfs.

4) Phosphorus and nitrogen loadings in West Fork of Little Bear Creek were greatly impacted by municipal effluent.

5) No salmonids were observed at the lower-most station of this study, although age-o rainbow-steelhead were observed at the confluence of Little Bear and Big Bear Creeks.

6) A significant oxygen sag was noted in the West Fork of Little Bear Creek; there was apparently no recovery in D.O. concentrations at the lower-most station.

7) Instream bacterial quality was improved by the discharge of chlorinated effluent. One sample date showed effluent bacterial densities greater than those allowed for secondary contact recreation.

8) The unspecified designation of West Fork of Little Bear Creek in the Idaho Water Quality Standards is appropriate given the low stream volumes and high temperatures.

9) Salmonids were documented near the mouth of Little Bear Creek, but it is doubtful that low stream flows, high temperature, and gradient in excess of 2% will sustain either salmonid spawning or cold-water biota in Little Bear Creek.

Recommendations

1) Based upon minimal or zero instream dilution, the Troy municipal wastewater facility should treat equivalent to secondary, in order to prevent aesthetic and public health concerns in West Fork of Little Bear Creek.

2) Chlorination should be required.

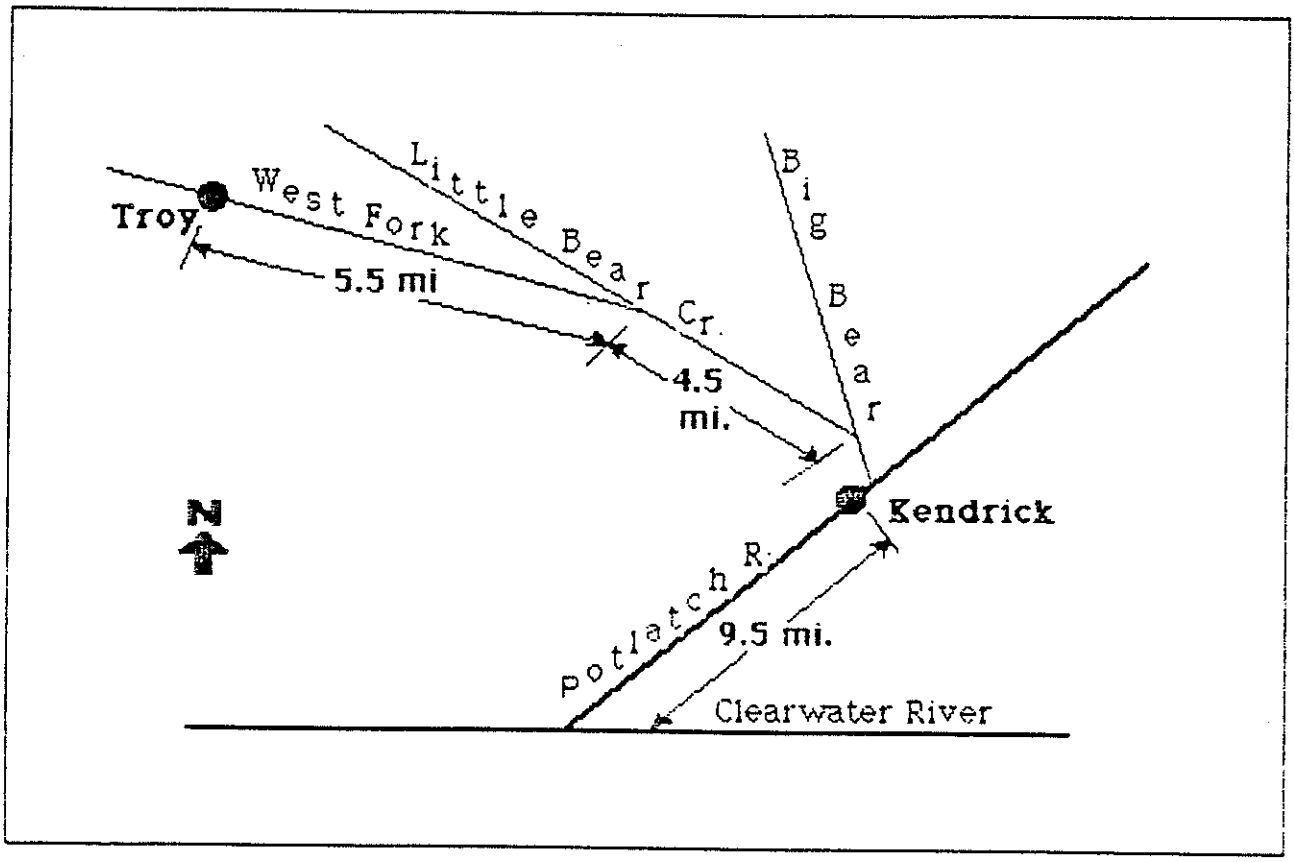
References

EPA, 1979. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020.

Mackenthun, K. M. 1973. Toward A Cleaner Aquatic Environment. U. S. Environmental Protection Agency, Washington, D.C.

Standard Methods for The Examination of Water & Wastewater, 16th Edition, 1985. APHA, Washington, D. C.

Figure 1: Schematic of Little Bear Creek



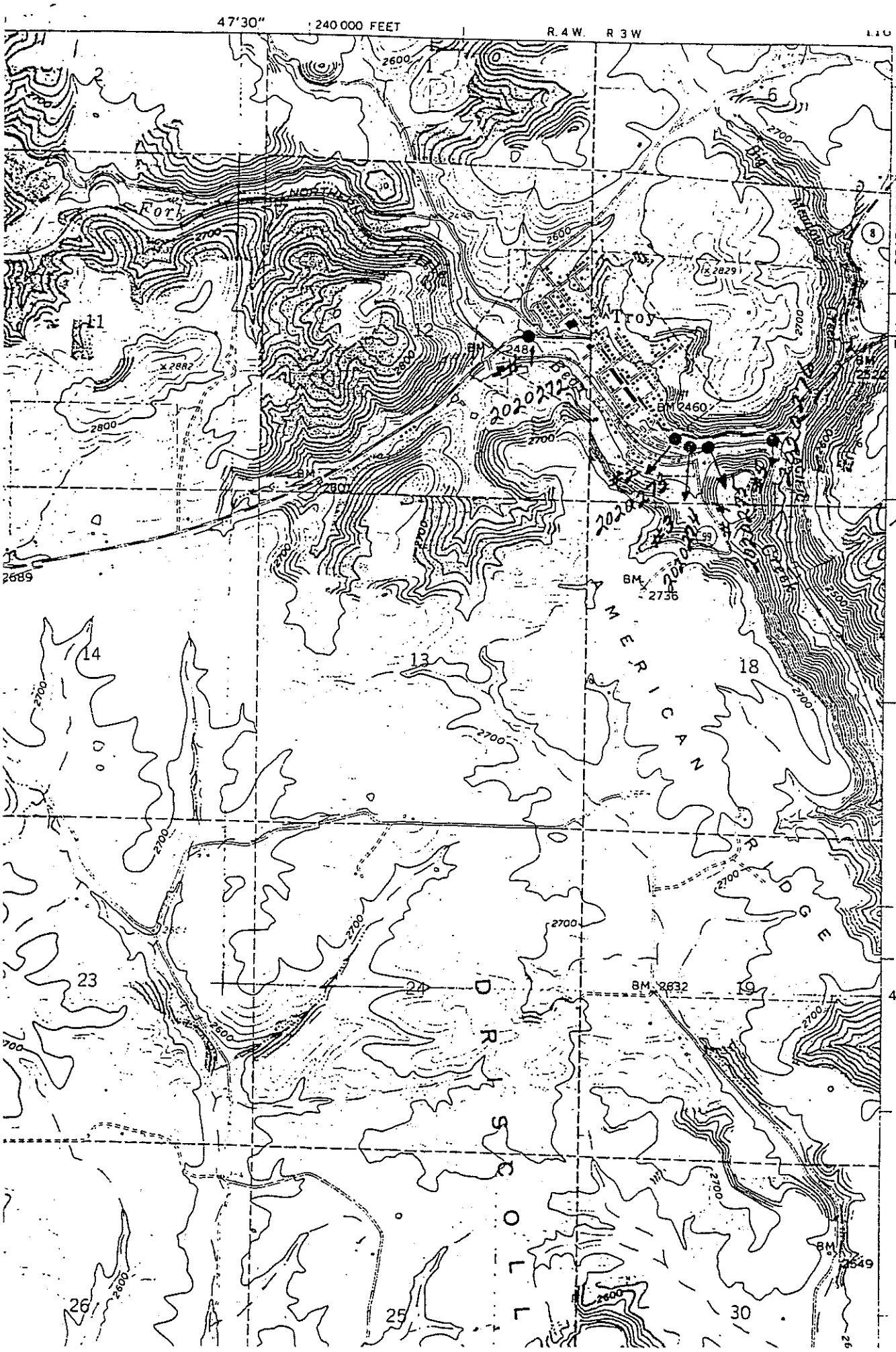

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Figure 3 Little Bear Creek, Electroshocking Location on October 28, 1985.

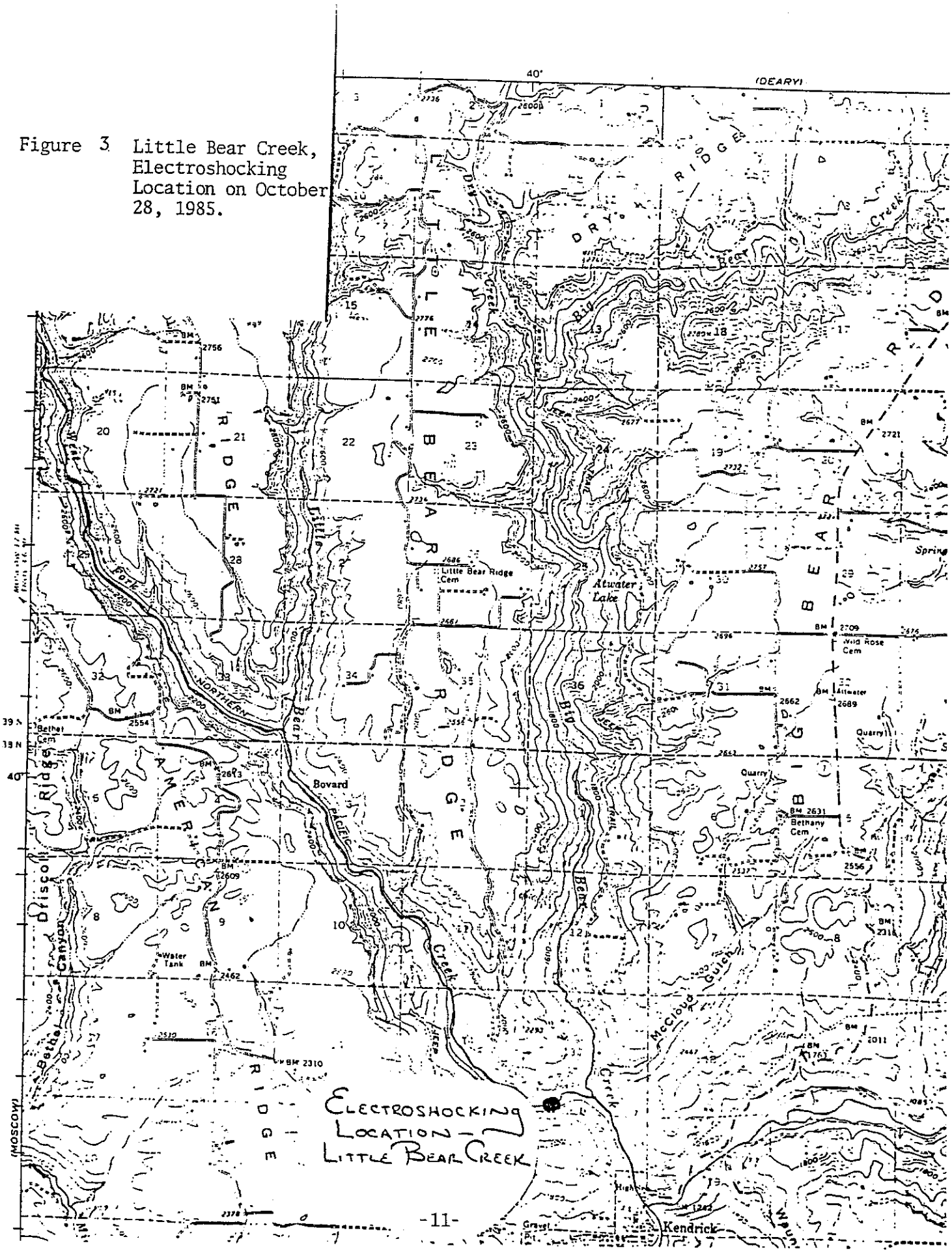
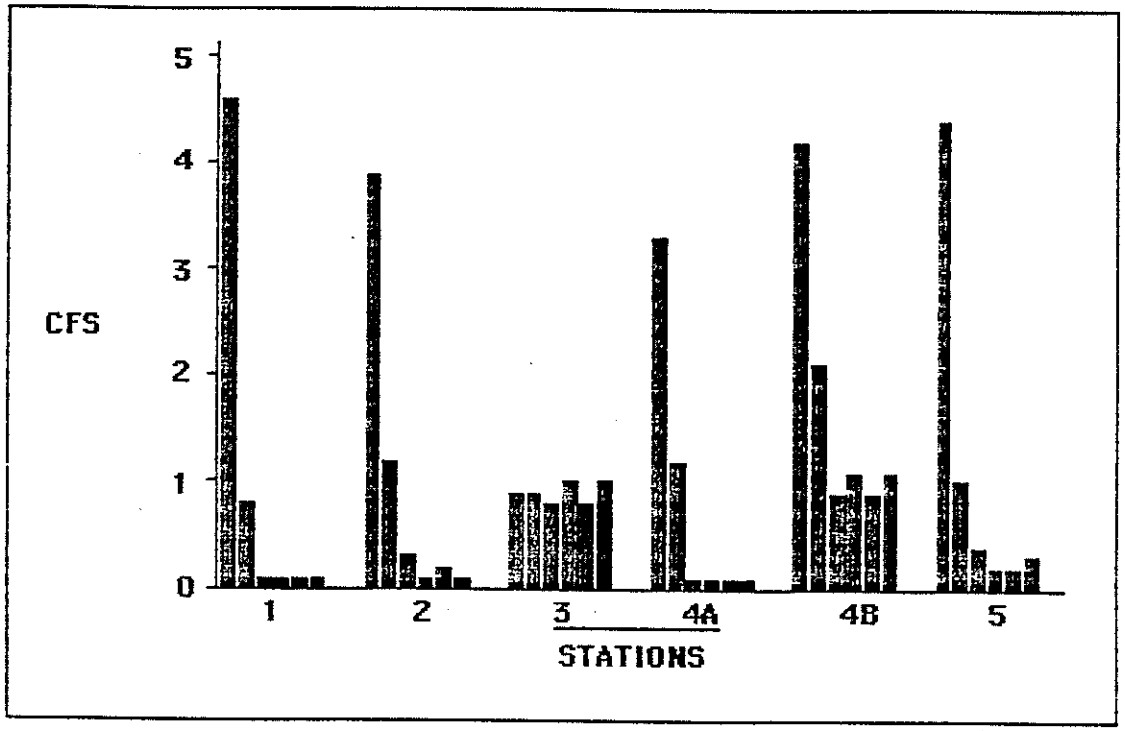


Figure 4. Discharge regime at each station on the West Fork of Little Bear Creek for six sample collections in the summer of 1985.



STATION	STORET #	LOCATION
1	2020272	1/2 mile above effluent outfall.
2	2020273	50 feet above effluent outfall.
3	2020274	Troy sewage treatment facility discharge.
4A	2020275	50 ft. downstream of discharge during the period when sewage treatment facility is not discharging.
4B	2020275	50 ft. downstream of discharge during the period when sewage treatment facility is discharging.
5	2020276	1/4 mile downstream of effluent outfall.

Figure 5A. Mean concentrations of BOD and S.S. on the West Fork of Little Bear Creek. (Station descriptions are the same as on Figure 4.)

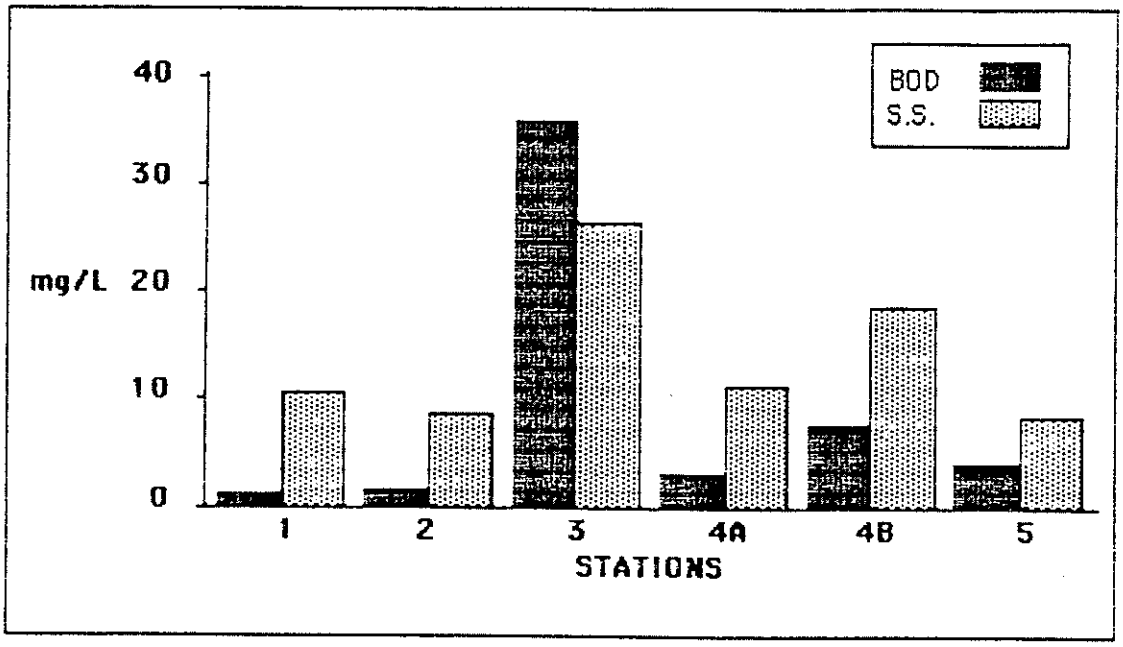


Figure 5B. Mean loading~~concentrations~~ for BOD and suspended sediment on the West Fork of Little Bear Creek.

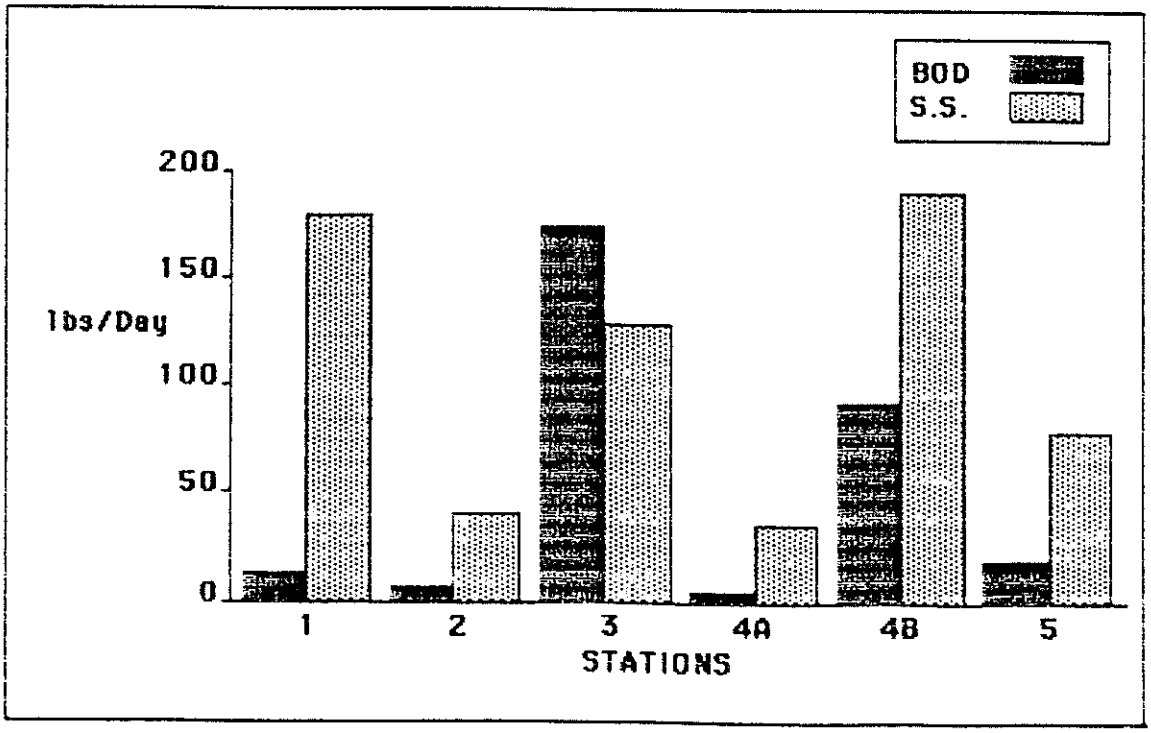


Figure 5C. Mean concentrations of dissolved oxygen for 5 stations on the West Fork of Little Bear Creek. (Station descriptions are the same as on Fig. 4.)

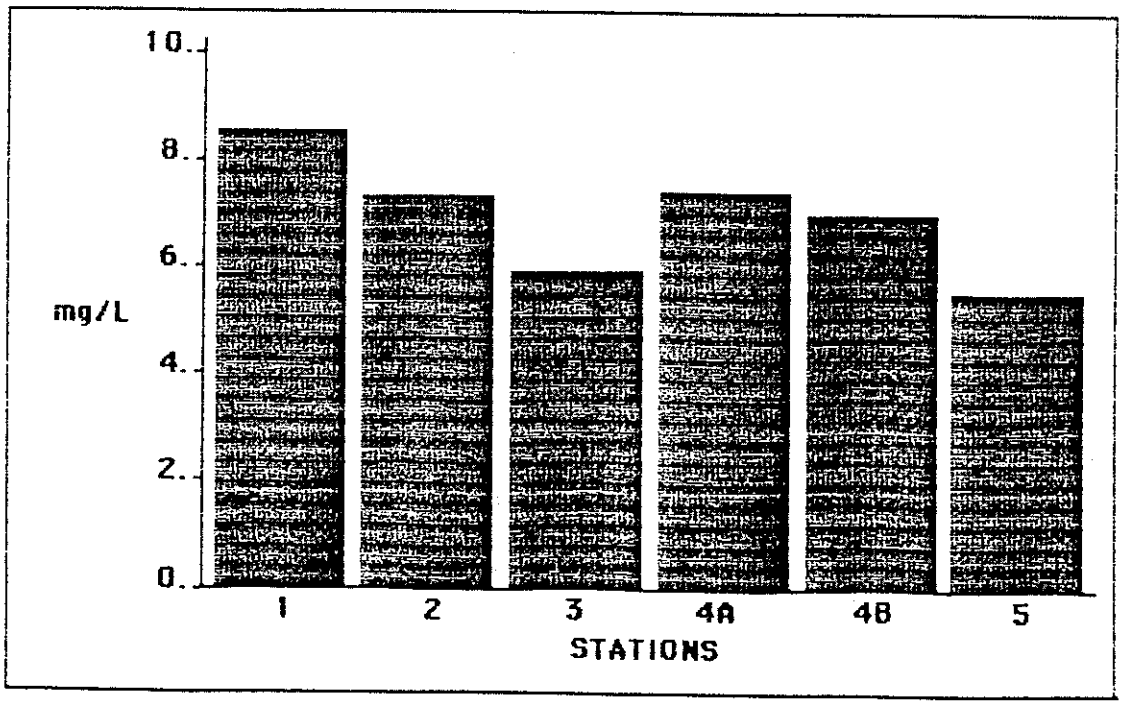


Figure 6A. Mean nutrient concentrations for 5 stations on the West Fork of Little Bear Creek. (Station descriptions are the same as for Figure 4.)

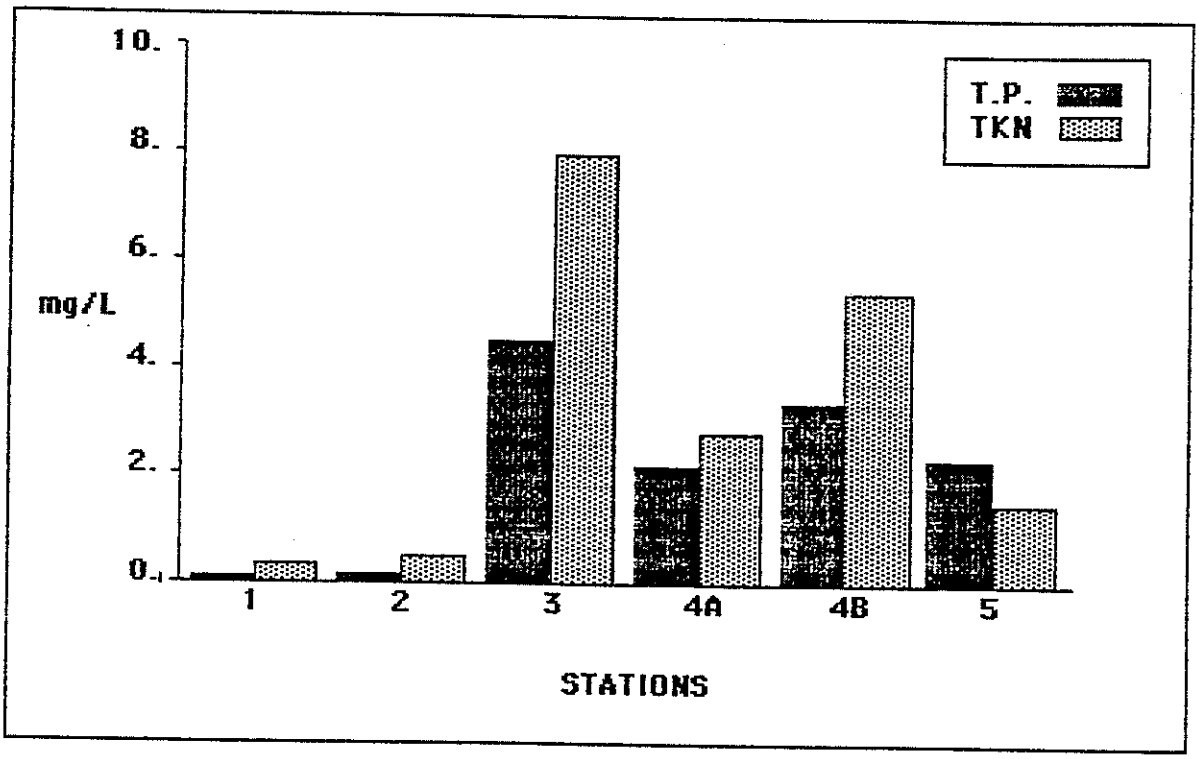


Figure 6B. Mean nutrient loadings for the West Fork of Little Bear Creek.

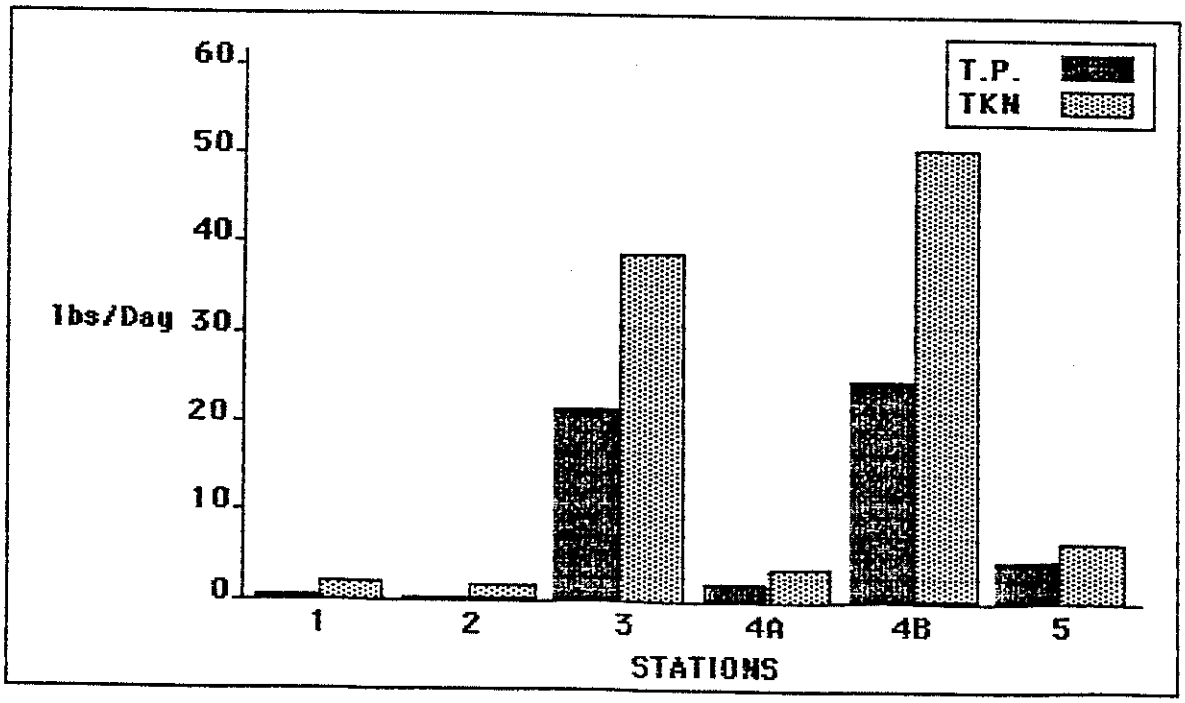


Figure 7A. Biochemical oxygen demand concentrations for the West Fork of Little Bear Creek on June 12, 1985. (Station descriptions are the same as for Figure 4.)

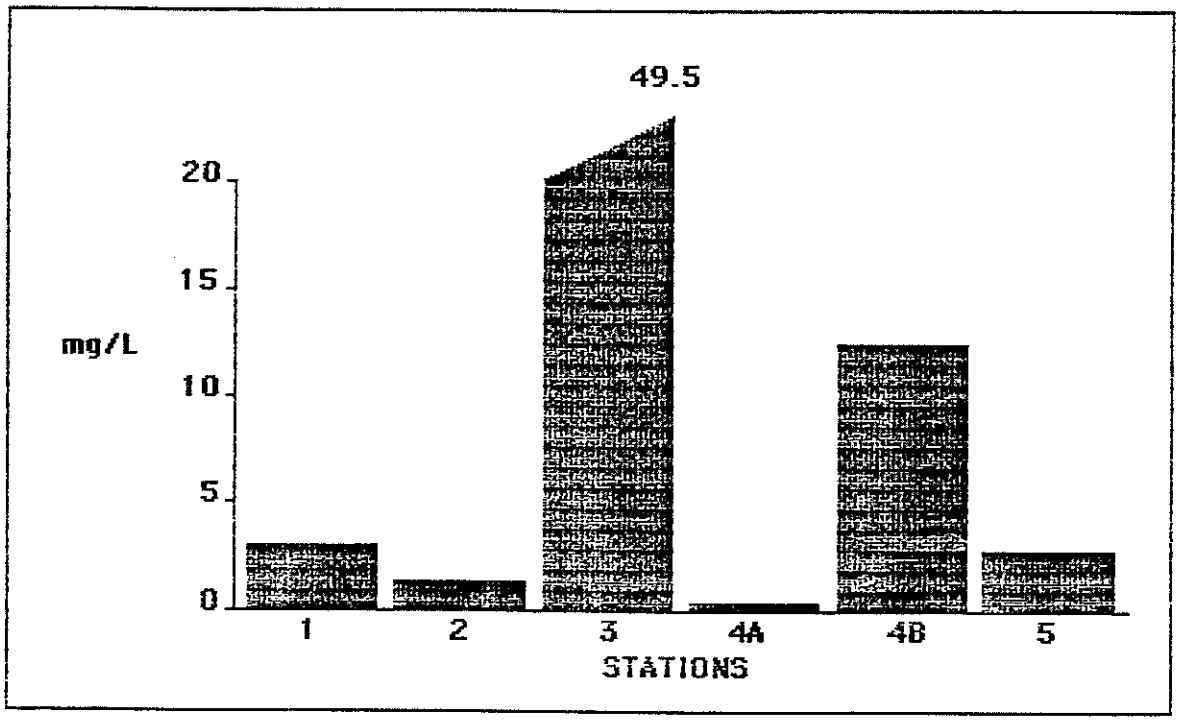


Figure 7B. Suspended sediment concentrations for the West Fork of Little Bear Creek on June 12, 1985.

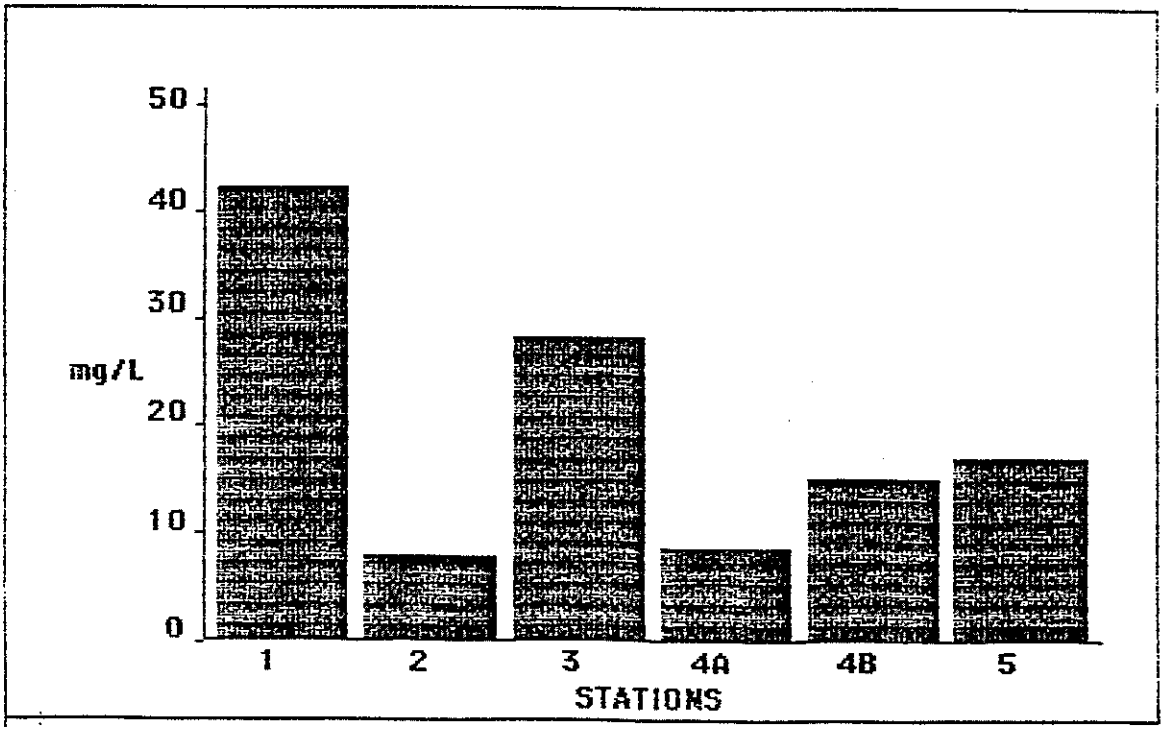


Figure 8. BOD and suspended sediment loadings on the West Fork of Little Bear Creek on June 12, 1985. (Station descriptions are the same as for Figure 4.)

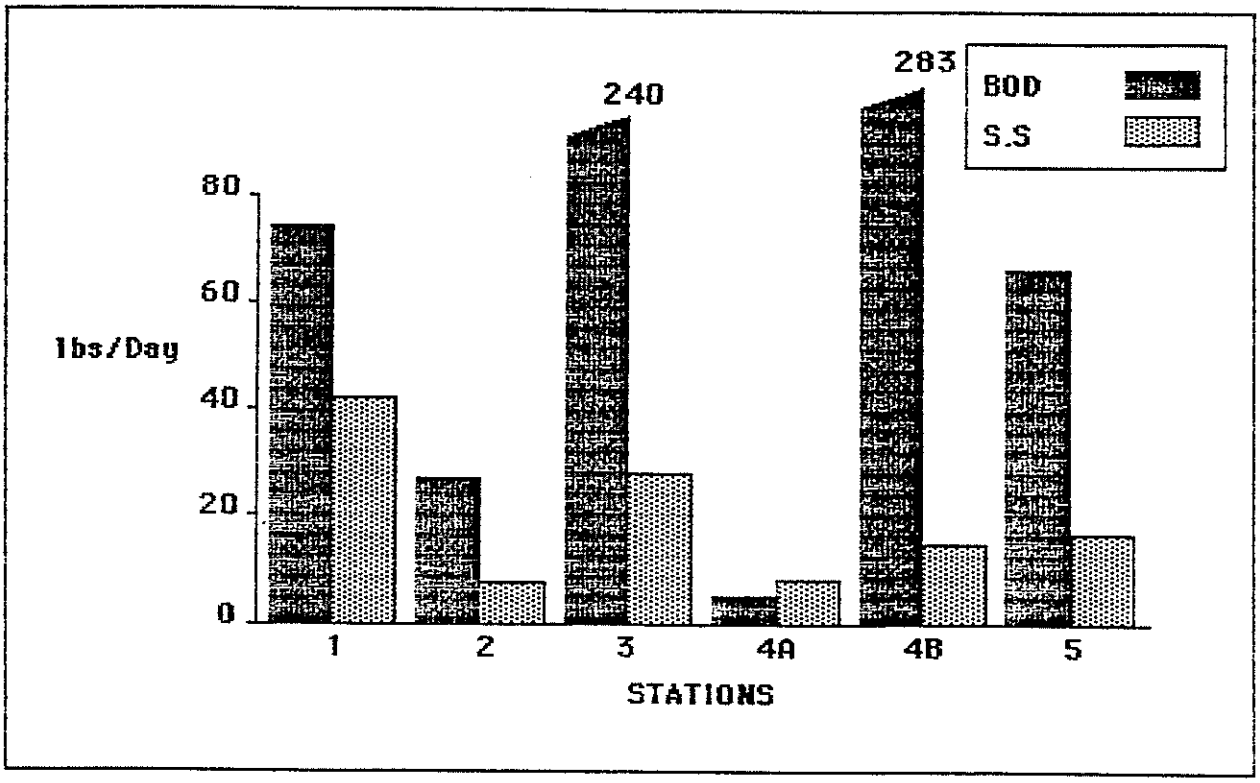


Figure 9. Dissolved oxygen concentrations of the West Fork of Little Bear Creek on July 10, 1985. (Station descriptions are the same as for Fig. 4.)

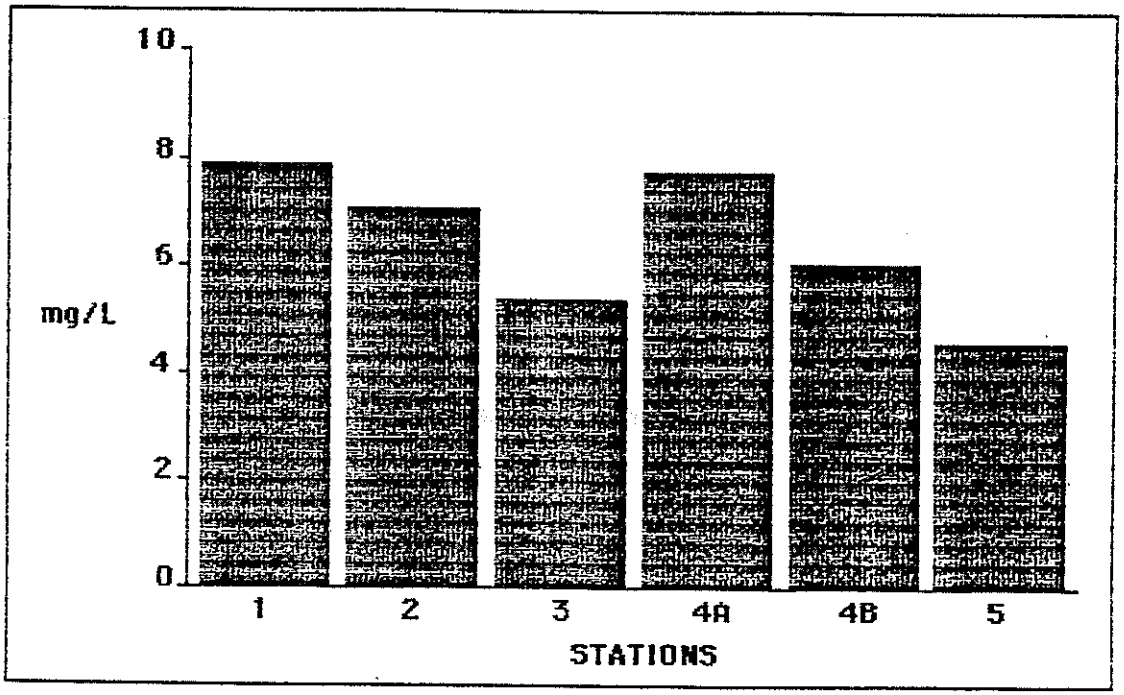


Figure 10A. Total phosphorous concentrations in the West Fork of Little Bear Creek on July 10, 1985. (Station descriptions are the same as on Fig. 4.)

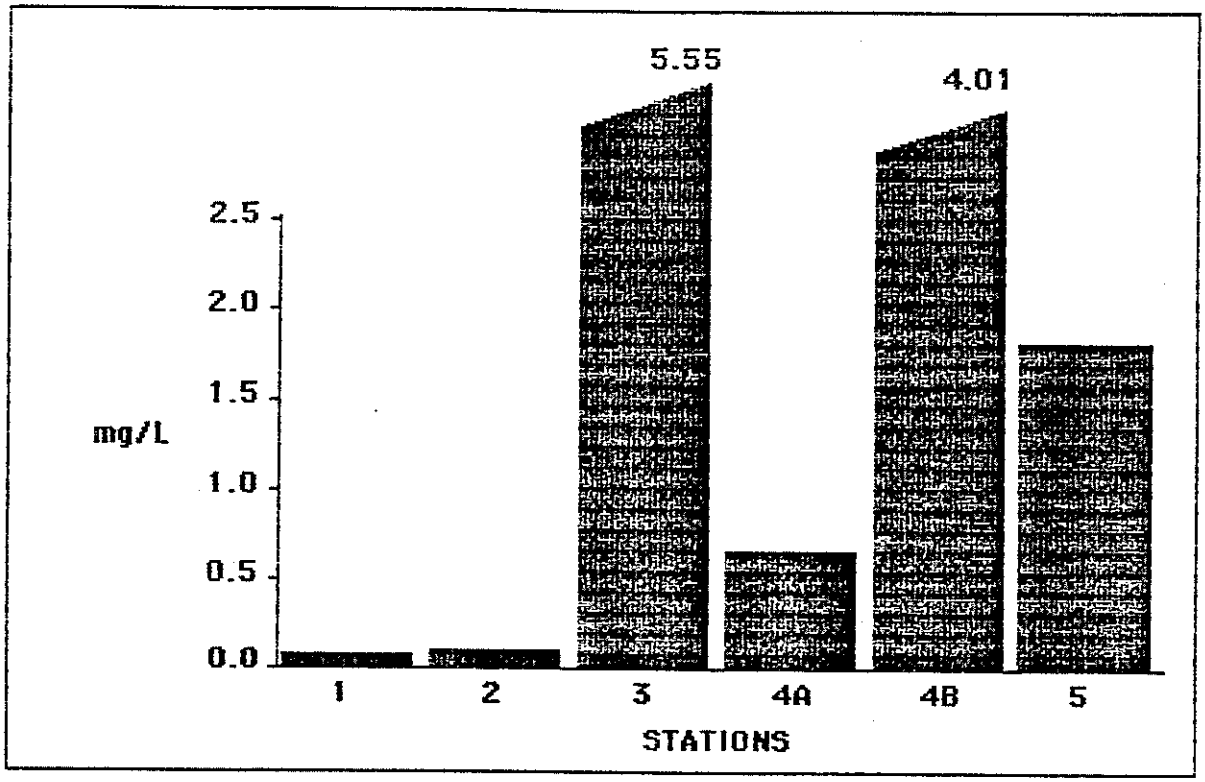


Figure 10B. Total Kjeldahl nitrogen concentrations for the West Fork of Little Bear Creek on July 10, 1985.

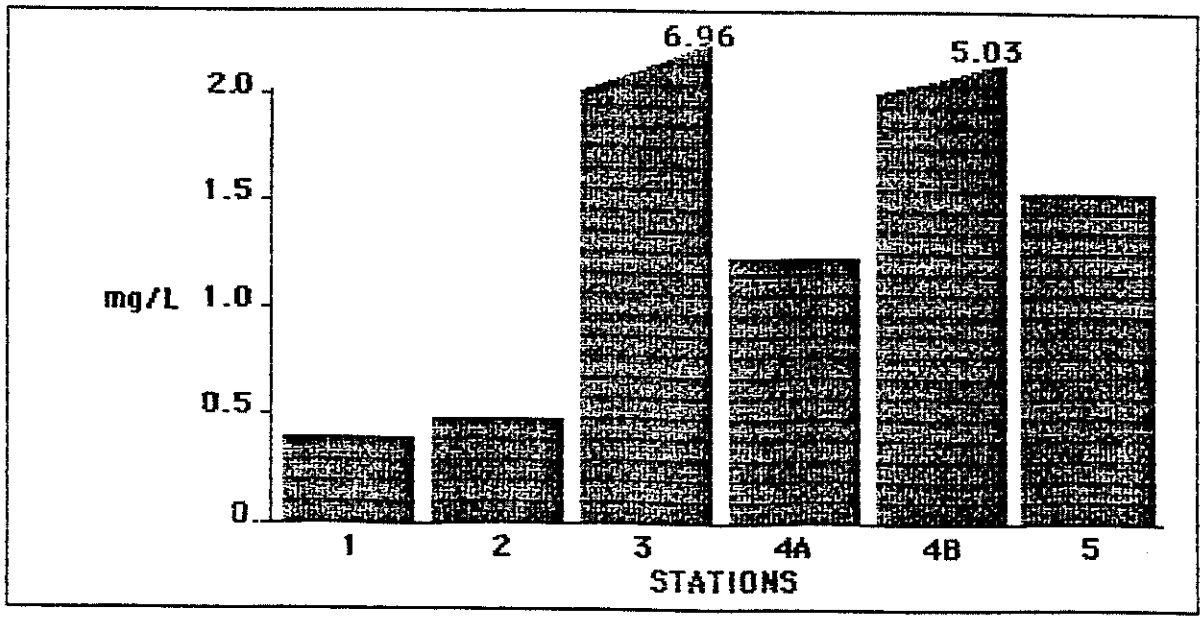


Figure 11A. Total Phosphorous Loadings for the West Fork of Little Bear Creek On July 10, 1985. (Station descriptions are the same as for Fig. 4.)

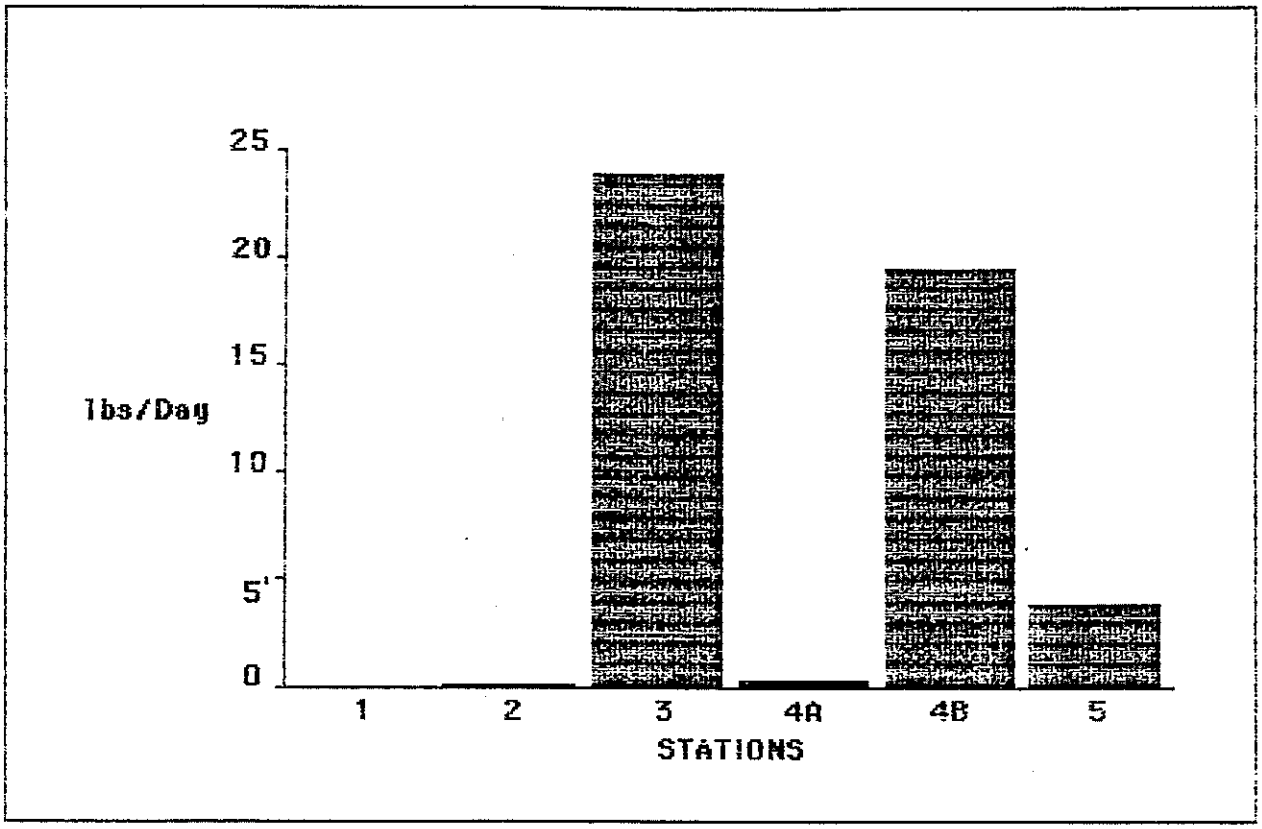


Figure 11B. Total Kjeldahl nitrogen loadings for the West Fork of Little Bear Creek on July 10, 1985.

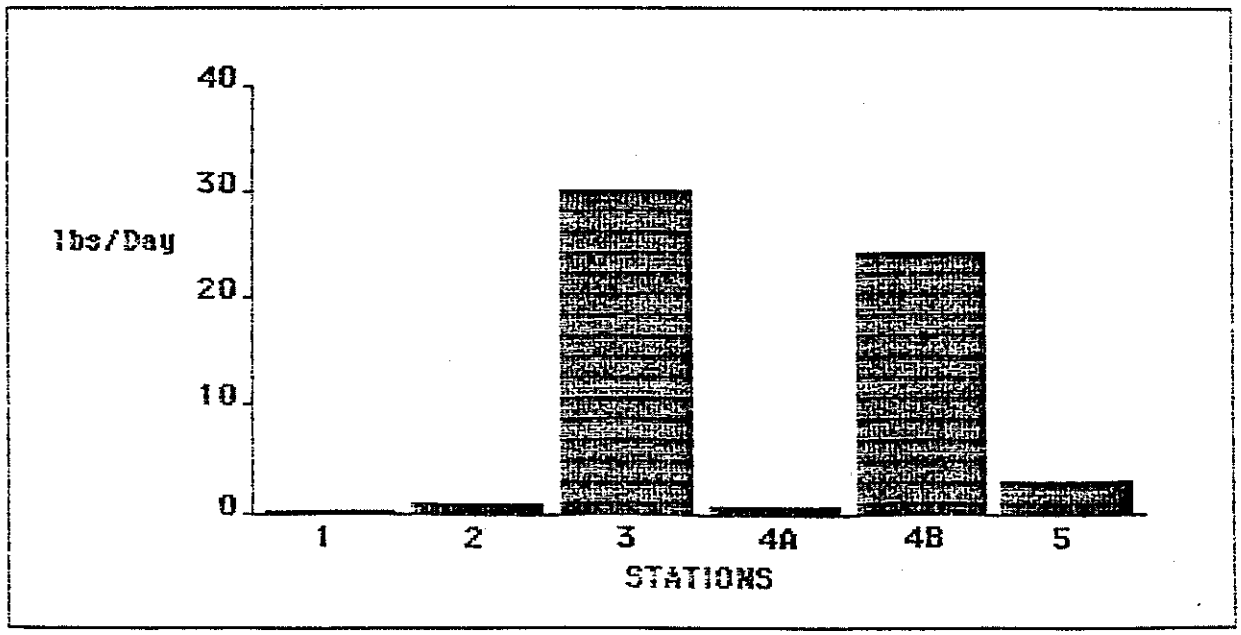


Figure 12A. Fecal coliform density for 5 stations on the West Fork of Little Bear Creek for six days in the summer of 1985.

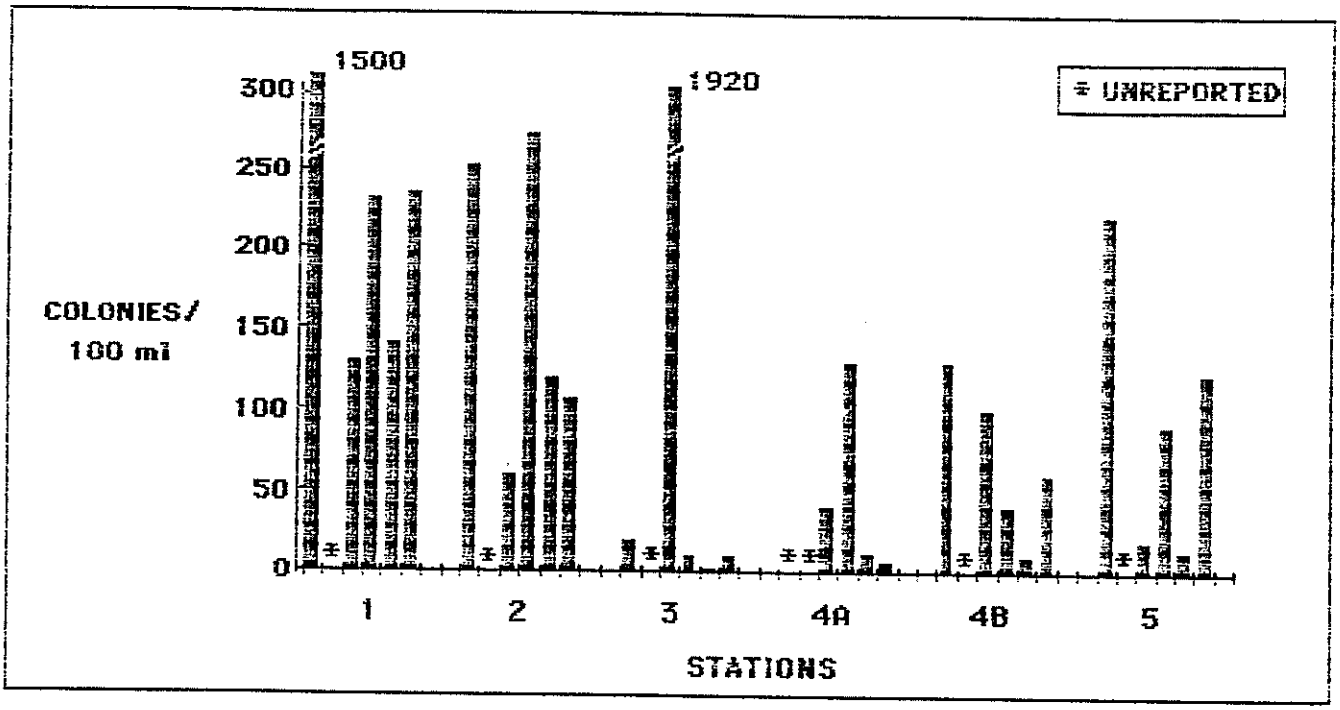


Figure 12B. Geometric means of fecal coliform density for the West Fork of Little Bear Creek.

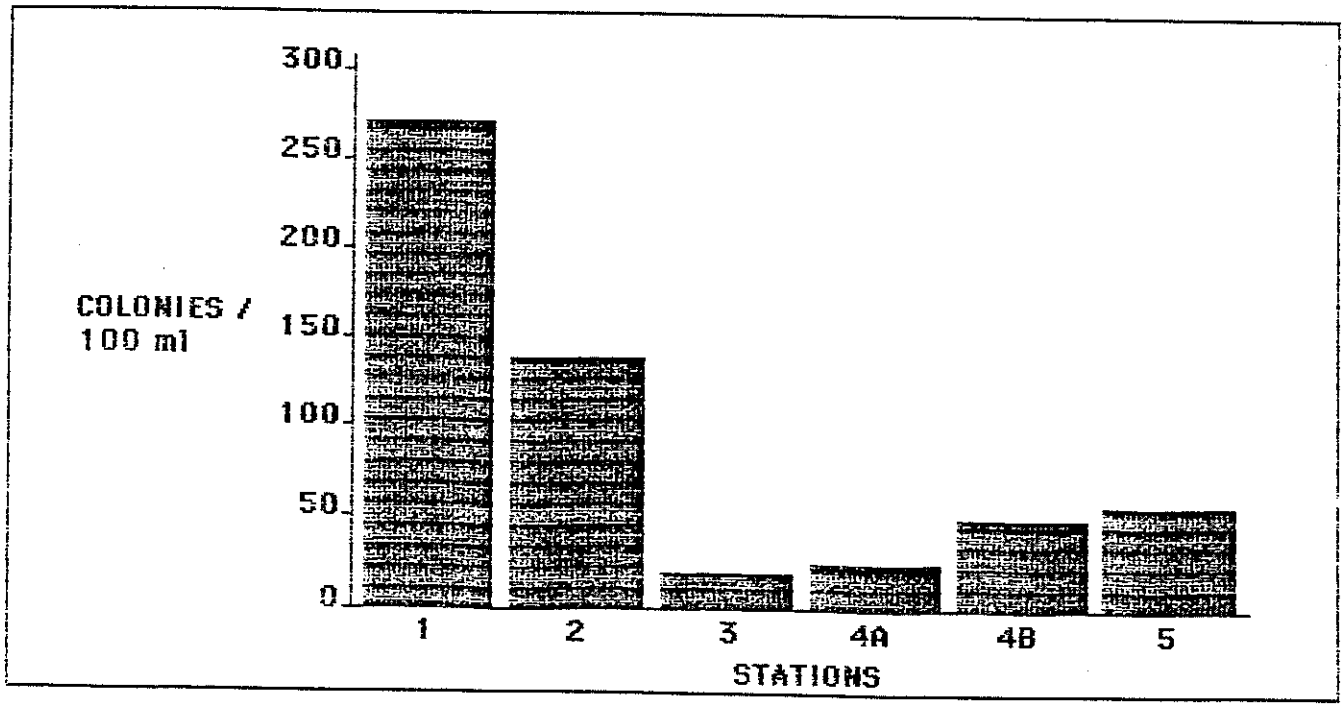


Table 1. City of Troy NPDES Permit Effluent Limitations

Parameter	Units	Monthly Ave.	Weekly Ave.
BOD	mg/l	30	45
BOD	lb/day	20	30
Susp. Solids	mg/l	30	45
Fecal Coliform	#100/ml	200	400
pH	S.U.	6.0 - 9.0	
Flow	mgd	<0.08	

Table 2. Sample Stations,
West Fork Little Bear Creek

WEST FORK LITTLE BEAR CREEK

116 = 851613

Station #	Description	Latitude/Longitude	River Mile	Elevation	STORET #
1	WF Little Bear Cr bl Br on Hwy 8 NW of Troy	46°44'14"/116°46'23"	324.3/139.3/15.1/14.2/ 1.0/4.6/6.5	2,500'	2020272
2	WF Little Bear Cr approx. 50' ab STP SE of Troy	46°43'58"/116°45'50"	324.3/139.3/15.1/14.2/ 1.0/4.6/5.9	2,600'	2020273
3	WF Little Bear Cr at STP discharge-Culvert	46°43'56"/116°45'45"	324.3/139.3/15.1/14.2/ 1.0/4.6/5.8	2,600'	2020274
4 (A & B)	WF Little Bear Cr 50' downstream from discharge	46°43'56"/116°45'40"	324.3/139.3/15.1/14.2/ 1.0/4.6/5.7	2,600'	2020275
5	WF Little Bear Cr 20' upstrm from Big Meadow Cr	46°43'57"/116°45'25"	324.3/139.3/15.1/14.2/ 1.0/4.6/5.5	2,600'	2020276

Note: 4A designates time period when wastewater facility was not discharging.

4B designates time period when wastewater facility was discharging.

WEST FORK OF LITTLE BEAR CREEK
EFFLUENT LIMITATION STUDY

Table 3. Parameter list, West Fork of Little Bear Creek, effluent limitation study.

Parameter	Unit	STORET
Flow	cfs	00061
Water Temperature	°C	00010
Dissolved Oxygen	mg/l	00300
pH	S.U.	00400
Electrical Conductivity	µmhos/cm	00094
Fecal Coliform	#/100ml	31616
Biochemical oxygen demand(BOD)	mg/l	00310
Suspended Solids	mg/l	80154
Total Phosphorus (T-P)	mg/l	00665
Total Kjeldahl nitrogen (TKN)	mg/l	00625

Table 4. The West Fork of Little Bear Creek water quality results.

ST#	DATE	TEMP. (°C)	FLOW (CFS)	COND. @ 25° (µmhos/cm)	D.O. (mg/L)	pH (S.U.)	BOD (mg/L)	BOD LOAD (lb/D)	TKN (mg/L)	TKN LOAD (lb/D)	T.P. (mg/L)	T.P. LOAD (lb/D)	S.S. (mg/L)	S.S. LOAD (lb/D)	FECAL COLI. (#/100ml)
1	06/12/85	24.2	4.6	54.833	10.2	7.9	3.0	74.38	0.43	10.66	0.11	2.72	42.0	1041.3	1500
1	06/26/85	13.6	0.8	70.305	9.8	7.0	1.2	5.17	0.37	1.59	0.12	0.51	6.4	27.59	~~AAA~~
1	07/10/85	19.2	0.1	110.19	7.9	6.8	1.0	0.53	0.40	0.21	0.07	0.03	<1.0	0.00	130
1	07/24/85	15.0	0.1	234.85	8.0	7.2	0.3	0.16	0.36	0.19	0.14	0.07	1.6	0.86	230
1	08/13/85	14.0	0.1	169.64	8.2	6.8	1.2	0.64	0.04	0.02	0.11	0.05	8.0	4.31	140
1	08/27/85	14.0	0.1	268.38	7.3	7.0	0.9	0.48	0.41	0.22	0.07	0.03	5.6	3.01	232
1	MINIMUM	13.6	0.1	54.833	7.3	6.8	0.3	0.16	0.04	0.02	0.07	0.03	0.0	0.00	130
1	MAXIMUM	24.2	4.6	268.38	10.2	7.9	3.0	74.38	0.43	10.66	0.14	2.72	42.0	1041.3	1500
1	MEAN	16.66	0.96	151.37	8.56	7.11	1.26	13.6	0.33	2.1	0.10	0.6	10.60	179.5	270
2	06/12/85	17.8	3.9	76.521	10.6	7.7	1.3	27.32	0.30	6.30	0.07	1.47	7.8	163.96	250
2	06/26/85	14.8	1.2	91.902	10.8	7.2	1.4	9.05	0.33	2.13	0.07	0.45	6.6	42.63	~~AAA~~
2	07/10/85	20.8	0.3	150.03	7.1	6.7	1.4	2.26	0.49	0.79	0.10	0.16	2.6	4.20	60
2	07/24/85	18.0	0.1	267.80	4.2	7.1	2.6	1.40	0.59	0.31	0.14	0.07	2.8	1.50	270
2	08/13/85	13.6	0.2	278.66	5.8	6.6	3.0	3.23	0.63	0.67	0.23	0.24	30.0	32.34	120
2	08/27/85	15.6	0.1	294.94	5.3	6.9	1.3	0.70	0.39	0.21	0.14	0.07	2.6	1.40	106
2	MINIMUM	13.6	0.1	76.521	4.2	6.6	1.3	0.70	0.30	0.21	0.07	0.07	2.6	1.40	60
2	MAXIMUM	20.8	3.9	294.94	10.8	7.7	3.0	27.32	0.63	6.30	0.23	1.47	30.0	163.96	270
2	MEAN	16.76	0.96	193.31	7.30	7.03	1.83	7.3	0.45	1.7	0.12	0.4	8.73	41.0	138

Footnote: ~~AAA~~ designation under fecal coliform heading indicates unreported data.

Fecal coliform and pH averages figured as logarithmic means.

Table 4. The West Fork of Little Bear Creek water quality results.

ST#	DATE	TEMP. (°C)	FLOW (CFS)	COND. @ 25° (µmhos/cm)	D.O. (mg/L)	pH (S.U.)	BOD (mg/L)	BOD LOAD (lb/D)	TKN (mg/L)	TKN LOAD (lb/D)	T.P. (mg/L)	T.P. LOAD (lb/D)	S.S. (mg/L)	S.S. LOAD (lb/D)	FECAL COLI. (#/100ml)
3	06/12/85	15.2	0.9	322.30	6.9	6.8	49.5	240.12	1.48	7.17	4.42	21.44	28.0	135.82	20
3	06/26/85	18.2	0.9	422.89	6.1	6.8	83.0	402.63	23.70	114.96	4.74	22.99	41.0	198.89	AAA
3	07/10/85	19.6	0.8	370.16	5.4	6.3	26.0	112.11	6.96	30.01	5.55	23.93	25.0	107.80	1920
3	07/24/85	19.2	1.0	348.58	5.9	6.5	18.0	97.02	5.00	26.95	5.67	30.56	19.0	102.41	<10
3	08/13/85	18.8	0.8	306.26	5.8	6.4	10.0	43.12	3.74	16.12	5.87	25.31	18.0	77.61	<1
3	08/27/85	19.4	1.0	380.69	5.5	6.8	28.0	150.92	7.02	37.83	0.75	4.04	28.6	154.15	<10
3	MINIMUM	15.2	0.8	306.26	5.4	6.3	10.0	43.12	1.48	7.17	0.75	4.04	18.0	77.61	<1
3	MAXIMUM	19.6	1.0	422.89	6.9	6.8	83.0	402.63	23.70	114.96	5.87	30.56	41.0	220.99	1920
3	MEAN	18.40	0.90	358.5	5.93	6.60	35.8	174.3	7.98	38.8	4.50	21.4	26.60	129.4	20
4A	06/12/85	18.8	3.3	77.132	10.2	7.7	0.3	5.33	0.57	10.13	0.14	2.49	8.4	149.41	AAA
4A	06/26/85	16.6	1.2	100.04	10.4	7.3	1.4	9.05	0.85	5.49	0.20	1.29	6.4	41.39	AAA
4A	07/10/85	21.2	0.1	163.88	7.8	6.8	3.0	1.61	1.24	0.66	0.66	0.35	2.8	1.50	40
4A	07/24/85	19.2	0.1	346.33	5.2	6.6	5.1	2.74	3.10	1.67	5.08	2.73	8.0	4.31	130
4A	08/13/85	16.0	0.1	277.74	6.0	6.6	1.5	0.80	2.10	1.13	2.81	1.51	26.0	14.01	12
4A	08/27/85	19.0	0.1	372.71	4.9	7.0	6.6	3.55	9.27	4.99	4.07	2.19	16.4	8.83	6
4A	MINIMUM	16.0	0.1	77.132	4.9	6.6	0.3	0.80	0.57	0.66	0.14	0.35	2.8	1.50	6
4A	MAXIMUM	21.2	3.3	372.71	10.4	7.7	6.6	9.05	9.27	10.13	5.08	2.73	26.0	462.46	130
4A	MEAN	18.46	0.81	223.0	7.41	7.00	2.98	3.8	2.65	4.0	2.16	1.8	11.33	36.6	25

Footnote: AAA designation under fecal coliform heading indicates unreported data.

Fecal coliform and pH averages figured as logarithmic means.

Table 4. The West Fork of Little Bear Creek water quality results.

ST#	DATE	TEMP. (°C)	FLOW (CFS)	COND. @ 25° (µmhos/cm)	D.O. (mg/L)	pH (S.U.)	BOD (mg/L)	BOD LOAD (lb/D)	TKN (mg/L)	TKN LOAD (lb/D)	T.P. (mg/L)	T.P. LOAD (lb/D)	S.S. (mg/L)	S.S. LOAD (lb/D)	FECAL COLI. (#/100ml)
4B	06/12/85	18.8	4.2	145.19	9.5	6.9	12.5	282.97	3.81	86.25	1.52	34.40	15.0	339.57	130
4B	06/26/85	16.5	2.1	265.01	8.4	7.0	6.3	71.30	10.60	119.98	2.21	25.01	17.0	192.42	AAA
4B	07/10/85	19.6	0.9	334.48	6.1	6.7	999	999	5.03	24.40	4.01	19.45	22.0	106.72	100
4B	07/24/85	19.0	1.1	332.05	6.2	6.7	6.4	37.94	3.30	19.56	4.89	28.99	8.8	52.17	40
4B	08/13/85	18.0	0.9	302.43	6.2	6.6	5.8	28.13	3.94	19.11	4.71	22.84	28.0	135.82	10
4B	08/27/85	18.8	1.1	374.31	5.5	6.8	7.0	41.50	5.95	35.27	3.10	18.37	22.4	132.80	60
4B	MINIMUM	16.5	0.9	145.19	5.5	6.6	5.8	28.13	3.30	19.11	1.52	18.37	8.8	42.68	10
4B	MAXIMUM	19.6	4.2	374.31	9.5	7.0	12.5	282.97	10.60	119.98	4.89	34.40	22.0	633.86	130
4B	MEAN	18.45	1.71	292.2	6.98	6.78	7.6	92.4	5.43	50.8	3.40	24.8	18.86	189.9	50
5	06/12/85	19.2	4.4	91.082	8.6	7.2	2.8	66.40	0.80	18.97	0.29	6.87	17.0	403.17	220
5	06/26/85	18.2	1.0	142.49	7.2	7.0	4.7	25.33	2.30	12.39	0.65	3.50	7.2	38.80	AAA
5	07/10/85	24.0	0.4	242.63	4.6	6.8	4.0	8.62	1.54	3.32	1.84	3.96	4.6	9.91	20
5	07/24/85	21.0	0.2	313.98	4.4	6.6	4.1	4.41	1.24	1.33	3.87	4.17	12.0	12.93	90
5	08/13/85	17.2	0.2	279.63	4.8	6.7	3.0	3.23	1.21	1.30	3.24	3.49	6.0	6.46	13
5	08/27/85	17.6	0.3	356.35	3.6	6.9	6.6	10.67	1.95	3.15	4.32	6.98	3.4	5.49	123
5	MINIMUM	17.2	0.2	91.082	3.6	6.6	2.8	3.23	0.80	1.30	0.29	3.49	3.4	3.66	13
5	MAXIMUM	24.0	4.4	356.35	8.6	7.2	6.6	66.40	2.30	18.97	4.32	6.98	17.0	403.17	220
5	MEAN	19.53	1.08	237.7	5.53	6.86	4.20	19.8	1.50	6.7	2.36	4.8	8.36	79.5	57

Footnote: AAA designation under fecal coliform heading indicates unreported data.

Fecal coliform and pH averages figured as logarithmic means.

STATE OF IDAHO

-v-

DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENT - 1118 F. Street - P O Drawer B - Lewiston, Idaho 8350

July 7, 198

Honorable Alvin Zeller
Mayor, CITY OF TROY
P O Box 314
Troy, Idaho 83871

Re: NPDES Inspection
ID-002360-4

Dear Mayor Zeller:

Enclosed you will find an NPDES Compliance Inspection Checklist completed on a recent inspection of the wastewater treatment plant. Three problem areas were noted.

1. Earlier, Interwest Engineering Inc. sent our agency Troy's NPDES wastewater discharge monitoring reports for the second, third, and fourth quarters of 1983. Besides these reports being late much of the analysis had not been performed. Specifically there was no analysis for BOD's, suspended solids, or fecal coliform bacteria in June, July, October, November or December. Furthermore pH data was not supplied for eight of the nine months.

2. The skimmer was found to have been broken down for several months which resulted in an eighteen inch scum blanket floating in the clarifier.

3. Both self monitoring data and the samples we collected during this inspection demonstrated concentrations of BOD and suspended solids exceeding permit limits.

We are requesting a letter by July 22, 1983 explaining what has been done or will be done to correct each of the above three problem areas.

We wish to thank Gary Smith for his help during this inspection. If you have any questions please feel free to contact us.

Sincerely,

DIVISION OF ENVIRONMENT

George M. Dekan

George M. Dekan
Sr. Environmental Specialist

GMD/cmd
xc: Larry Koenig-IDHW/DOE, Boise
Grover Partee-EPA/IOO, Boise

EQUAL OPPORTUNITY EMPLOYER

STATE OF IDAHO

DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENT - 1118 F. Street - Lewiston, Idaho 83501

799-3430

March 20, 1984

Honorable Stanley Workman
Mayor, CITY OF TROY
P O Box 314
Troy, Idaho 83871

Re: NPDES Inspection
ID-002360-4

Dear Mayor Workman:

On February 22, 1984 we inspected Troy's wastewater treatment plant. Enclosed is an NPDES Compliance Inspection Checklist.

Since our last inspection on May 12, 1983 self-monitoring reports indicate:

1) Again much of the self monitoring analysis is not being made.
   BOD - No June or August 1983
   SS - No June or August 1983
   Fecal Coliform - No June, July, August, October or November, 1983.
   pH - No measurements in any of the seven months.

These measurements are specifically required by Section A.1.d. of Troy's NPDES Permit # ID-002360-4. Please respond in writing by April 13, 1984 with a permanent correction to this reocurring problem.

2) Again of the limited self monitoring data received, Flows, BOD, and SS all at times exceeded quantity limits as outlined in Section A.1.d. of Troy's NPDES permit #ID-002360-4.

Please include a compliance schedule in Troy's April 13, 1984 response.

Other problems noted included:

3) An overall operation and maintenance manual has not been obtained or created.

4) The chlorine contact basin is filling with grit and should be pumped. Exactly when will this be pumped?

5) For the 2nd time in two years lift station failures created the need for bypassing. Spare parts or a backup pumping system is needed. When will such equipment be on hand?

U.S. ENVIRONMENTAL PROTECTION AGENCY

APPENDIX A-3

REGION X

IDAHO OPERATIONS OFFICE
422 WEST WASHINGTON STREET
BOISE, IDAHO 83702

RECEIVED
OCT 25 1985
DIVISION OF ENVIRONMENT
LEWISTON OFFICE

October 17, 1985

IOO

Honorable Stan Workman
Mayor, City of Troy
P. O. Box 314
Troy, Idaho 83871

RE: NPDES Compliance Inspection
Permit No. ID-002360-4

Dear Mayor Workman:

Attached for your information are the results of an NPDES compliance inspection conducted at the Troy wastewater treatment facility on August 27, 1985. Sample results show that the City was not in compliance with current permit requirements for Total Suspended Solids (TSS), and fecal coliform bacteria. Corrective actions should be implemented to insure compliance with the permit requirements.

EPA will be reissuing the Troy permit in the near future, based on a Staff Evaluation prepared by the Idaho Department of Health and Welfare, Division of Environment, in January 1985. This permit will contain effluent limitations similar to the previously issued permit. You will be provided 30 days to comment on the draft permit before final issuance. Please contact me if you should have any questions following review of the permit conditions.

The assistance of Mr. Olson, and Mr. Halvorson during the inspection was appreciated.

Sincerely,

Wally Scarburgh

Wally Scarburgh,
NPDES Permits Coordinator

Enclosure

cc: Larry Koenig, IDHW-DOE, Boise
Jamie Sikorski, M/S 513

APPENDIX B

STATE OF IDAHO

DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENT - 1118 F. Street - Lewiston, Idaho 83501
799-3430

April 3, 1985

M E M O R A N D U M

TO: John Stawski

FROM: George M. Dekan

RE: Troy STP Bypass

This memo is to confirm my recent telephone conversation with you, as well as with Wally Scarburgh of EPA.

On March 12, 1985 I observed the City of Troy bypassing their sewer treatment plant and discharging roughly 30 gallons per minute to the East Fork of Little Bear Creek. I drew a fecal coliform sample that was later analyzed by the Lewiston Branch Laboratory at 67,000 fecal coliform per 100 ml of sample.

I could hear the lift station cover pop as it does when it is working hard. The bypass was just before the lift station into the plant.

Less than an hour earlier I was with both operators and the city clerk checking water supply test procedures. They had indicated no problems. During recent years the City has been prompt in reporting treatment plant bypasses.

GMD/cmd
xc: John Moeller-IDHW/DOE, Lewiston
Wally Scarburgh-EPA/IOO

EQUAL OPPORTUNITY EMPLOYER

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NAME: CITY OF TROY
ADDRESS: CITY HALL
TROY, IDAHO 83871

FACILITY: Municipal Treatment Plant
LOCATION: Troy, Idaho

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2000-0015

(2-16) PERMIT NUMBER: ID-002360-4

(17-19) DISCHARGE NUMBER: 01

APPENDIX C-1

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	85	04	01	TO	85	04	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	0.1024 (4)		MGD				N/A		12/31	Test
	PERMIT REQUIREMENT	0.080								31/31	Test
BOD5	SAMPLE MEASUREMENT	17.9		lbs/day		21		mg/l.		1/31	Comp
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp.
S.S.	SAMPLE MEASUREMENT	29		lbs/day		34		mg/l.		1/31	Comp
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp
pH	SAMPLE MEASUREMENT			N/A		No Data (1)		pH Units			
	PERMIT REQUIREMENT				6.0		9.0			4/31	Grab
Fecal Coliform	SAMPLE MEASUREMENT			N/A		256		No./100ml.		1/31	Grab
	PERMIT REQUIREMENT					200	400			1/31	Grab
Cl2	SAMPLE MEASUREMENT	No Data (3)		lbs/day		No Data (2)		mg/l.			
	PERMIT REQUIREMENT									31/31	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: Jack S. Hammond, P.E. Authorized Agent (TYPED OR PRINTED)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

Jack S. Hammond
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 208, NUMBER 835-9143

DATE: YEAR 85, MO 11, DAY 8

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

(1) pH meter not operational
(2) No measurements taken
(3) Chlorine Scales not operational
(4) Spring Runoff 1st 2 weeks of month

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NAME: CITY OF TROY

ADDRESS: CITY HALL
TROY, IDAHO 83871

FACILITY: Municipal Treatment Plant

LOCATION: Troy, Idaho

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2000-0015

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER
ID-002360-4	01

APPENDIX C-2

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	95	06	01	TO	95	06	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	0.0533		MGD				N/A		15/31	Inst
	PERMIT REQUIREMENT	0.080								31/31	Inst
BOD_5	SAMPLE MEASUREMENT	2.2		lbs/day		5		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp.
SS	SAMPLE MEASUREMENT	3.6		lbs/day		8		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp
pH	SAMPLE MEASUREMENT			N/A		No Data		pH Units			
	PERMIT REQUIREMENT				6.0		9.0			4/31	Grab
Fecal Coliform	SAMPLE MEASUREMENT			N/A		TNTC		No. /100ml.		1/31	Grab
	PERMIT REQUIREMENT					200	400			1/31	Grab
Cl_2	SAMPLE MEASUREMENT	No Data		lbs/day		No Data		mg/l.			
	PERMIT REQUIREMENT									31/31	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: Jack S. Hammond, P.E. Authorized Agent (TYPED OR PRINTED)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: Jack S. Hammond

TELEPHONE AREA CODE	NUMBER	DATE YEAR	MO	DAY
208	835-8945	95	11	9

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA Form 3320-1 (Rev. 10-79) PREVIOUS EDITION TO BE USED (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.) PAGE OF

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NAME: CITY OF TROY

ADDRESS: CITY HALL
TROY, IDAHO 83871

FACILITY: Municipal Treatment Plant

LOCATION: Troy, Idaho

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2000-0015

(2-16) PERMIT NUMBER: 10-002360-4

(17-19) DISCHARGE NUMBER: 01

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	95	07	01	TO	95	07	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

APPENDIX C-3

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	0.0477		MGD				N/A		15/31	Inst.
	PERMIT REQUIREMENT	0.090								31/31	Inst.
BOD_5	SAMPLE MEASUREMENT	2.4		lbs/day		6		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp.
SS	SAMPLE MEASUREMENT	2		lbs/day		5		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp.
pH	SAMPLE MEASUREMENT			N/A		No Data (1)		pH Units			
	PERMIT REQUIREMENT				6.0		9.0			4/31	Grab
Fecal Coliform	SAMPLE MEASUREMENT			N/A		TNTC		No./100ml.		1/31	Grab
	PERMIT REQUIREMENT					200	400			1/31	Grab
Cl_2	SAMPLE MEASUREMENT	No Data (3)		lbs/day		No Data (2)		mg/l.			
	PERMIT REQUIREMENT									31/31	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: Jack S. Hammond, P.E. Authorized Agent (TYPED OR PRINTED)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319 (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

Jack S Hammond
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 208, NUMBER 235-8445

DATE: YEAR 95, MO 11, DAY 3

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

(1) pH meter not operational
(2) No measurements taken
(3) Chlorine Scales not operational

EPA Form 3320-1 (Rev. 10-79) PREVIOUS EDITION TO BE USED (REPLACES EPA FORM 7 40 WHICH MAY NOT BE USED)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NAME: CITY OF TROY

ADDRESS: CITY HALL
TROY, IDAHO 83871

FACILITY: Municipal Treatment Plant

LOCATION: Troy, Idaho

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2000-0015

(2-16) PERMIT NUMBER: ID-0023604

(17-19) DISCHARGE NUMBER: 01

APPENDIX C-4

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	85	09	01	TO	85	09	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	0.0466		MGD				N/A		10/31	Inst.
	PERMIT REQUIREMENT	0.090								31/31	Inst
BOD5	SAMPLE MEASUREMENT	6.2		lbs/day		16		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp
SS	SAMPLE MEASUREMENT	9.3		lbs/day		24		mg/l.		1/31	Comp.
	PERMIT REQUIREMENT	20	30			30	45			1/31	Comp.
pH	SAMPLE MEASUREMENT			N/A		No Data		pH Units			
	PERMIT REQUIREMENT				6.0		9.0			9/31	Grab
Fecal Coliform	SAMPLE MEASUREMENT			N/A		33		No. 100ml.		1/31	Grab
	PERMIT REQUIREMENT					200	400			1/31	Grab
Cl_2	SAMPLE MEASUREMENT	No Data		lbs/day		No Data		mg/l.			
	PERMIT REQUIREMENT									31/31	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: Jack S. Hammond, P.E. Authorized Agent (TYPED OR PRINTED)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: Jack S. Hammond

TELEPHONE: AREA CODE 208, NUMBER 835-9113

DATE: YEAR 85, MO 11, DAY 8

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

TABLE 3-3

EFFLUENT QUALITY

PARAMETER	Year	Maximum	Minimum	Average	No. Violation
Flow (.08MGD)	1977	.167		.055	8
	1978	.163	.026	.062	39
	1979**	.116	.040	.073	25
AVERAGE		.149	.033	.064	24
BOD (30MG/L)	1975	38	7	18	1
	1976	78	4	47	3
	1977	37	2	20	4
	1978	*730	15	115	9
AVERAGE		221	7	50	4
SS (30MG/L)	1975	84	9	52	4
	1976	194	6	60	3
	1977	66	5	24	4
	1978	*980	20	178	10
AVERAGE		331	10	79	5
Fecal Coliform (200 No/100 ml)	1976	24000	90	6000	6
	1977	3700	0	555	4
	1978	24000	3	2586	7
		17,223	31	3047	6

Average removal of BOD in 1978

1 - [50 (MG/L) x 8.34 (lb/MGD - MG/L) x .064 (MGD) ÷ 850 (people) x .17 (lb/person-day)]

= 82%

Average removal S.S. in 1978

1 - [79 (MG/L) x 8.34 (lb/MGD-MG/L) x .064 (MGD) ÷ 850 (people) x .17 (lb/person-day)]

= 71%

*Process upsets possibly caused by gasoline leaking into the sewage collection system. Leaking tank has been repaired.

**Jan-May 1979

APPENDIX E.

Region 2
1540 Warner Avenue
Lewiston, Idaho 83501
Telephone: (208) 743-6502

November 19, 1985

NOV 20 1985

Mr. Ray Latham
Division of Environment
Department of Health & Welfare
P. O. Drawer B
Lewiston, ID 83501

Dear Ray:

Here is the information you requested on Little Bear Creek.

On 28 October, we electrofished an area of approximately 1,800 ft^2 near the confluence of Little Bear Creek and Big Bear Creek. We collected 11 age-0 rainbow-steelhead ranging from 80-128 mm (3.1-5.0 inches), dace, red-side shiners and chiselmouth. Dace were by far the most abundant. No age-1 or older rainbow-steelhead were observed. Therefore, we cannot conclude that Little Bear Creek is a primary trout producing stream. These fish were probably a result of the spring 1985 outplanting of adult steelhead into the Potlatch River.

Most of the substrate appeared to be covered with a thick layer of algae. Sedimentation did not seem to be significant in the area we sampled. We also observed signs of cattle grazing near the creek.

Sincerely,

Richard L. Lowell

Richard L. Lowell
Fish & Wildlife Technician

RLL/cf

EQUAL OPPORTUNITY EMPLOYER