CUB RIVER STUDY

Franklin County

Data Collected 1979

Final Summary October 1980

Department of Health and Welfare
Division of Environment
Statehouse
Boise, Idaho 83720

Water Quality Summary
No. 1

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SUMMARY OF CUB RIVER STUDY

In Water Year 1979 a water quality study was conducted on the Cub River in Franklin County to determine the present condition of the stream and to assess the impact of the Del Monte Corporation vegetable processing discharge. The study involved approximately monthly sampling of the Del Monte discharge and the Cub River at the county road bridge below the Del Monte discharge. The parameter categories which were monitored included the following:

Temperature	Solids
Dissolved Oxygen	Select Ions
pH	Nutrients
Bacteria	Trace Inorganic Toxins
Oxygen Demand	

The data collected from the study indicates that the lower Cub River has water quality problems associated with depressed dissolved oxygen, bacteria standard violations, excessive turbidity and suspended sediment, trophic nutrient concentrations, and toxic ammonia concentrations. Extremely low dissolved oxygen concentrations were recorded in February, August, and September. Bacteria violations for secondary contact recreation standards occurred in May, June, and July, and the excessive turbidity and suspended sediment levels were observed during spring runoff in May. Nutrient concentrations were above recommended criteria during most months. The toxic ammonia level was reported in September.

The Del Monte Corporation has a seasonal discharge which can begin in July and continue into December. From comparing Cub River data in July prior to the Del Monte discharge to data collected in August and September from the discharge period, the data indicates that Del Monte has a severe impact on dissolved oxygen, nutrient and ammonia concentrations in the lower Cub River. In July the dissolved oxygen in the lower Cub River was 8.4 mg/l, but dropped to 2.8 and 2.1 mg/l in August and September, respectively. The total phosphorus and total inorganic nitrogen concentrations were 0.11 mg/l and 0.68 mg/l in July but increased to a high of 1.15 mg/l and 1.26 mg/l in September. The instream ammonia concentration was 0.46 mg/l in July but jumped to 0.96 mg/l in August and 1.26 mg/l in September.

Under the 1980 water quality standards the lower Cub River is only protected for aesthetics, agricultural water supply, and secondary contact recreation. Although there are nonpoint source impacts on the lower Cub River, if Del Monte increases production they may still have to provide additional treatment in order to protect the aesthetic qualities of the river.

DATA INVENTORY

CONCRETE BRIDGE ON COUNTY ROAD
16041 IDAHO FRANKLIN
GREAT BASIN 150700
GREAT SALT LAKE
211DSURV 760303
0000 CLASS 00

/TYPA/AMBNT/STREAM

INDEX 1507001 010000
MILES 0077.70 0002.00

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00001	HSAMPLOC	FT FROM	RT BANK	1	.000000					.000000	.000000	79/01/30	79/01/30
00010	WATER	TEMP	CENT	12	11.3333	51.0152	7.14249	.630220	2.06186	21.0000	1.00000	75/07/08	79/09/03
00042	ALTITUDE	FEET	AB MSL	1	4470.00					4470.00	4470.00	01/01/01	01/01/01
00061	STREAM	FLOW,	INST-CFS	3	8.00000	48.0000	6.92820	.866025	4.00000	16.0000	4.00000	78/11/17	79/08/16
00070	TURB	JKSN	JTU	6	33.1667	172.568	13.1365	.396076	5.36296	50.0000	11.0000	75/07/08	75/12/09
00076	TURB	TRBIDMTR	HACH FTU	7	11.3000	94.2967	9.71065	.859350	3.67028	30.0000	2.30000	78/11/17	79/09/03
00095	CNDUCTVY	AT 25C	MICROMHO	9	542.444	93045.8	305.034	.562333	101.678	1164.00	267.000	75/12/09	79/09/03
00116	INTNSVE	SURVEY	IDENT	11	791611	.000000	.000000		.000000	791611	791611	01/01/01	79/09/03
00212	INVALID	PAR	NUMBER	1	900.000					900.000	900.000	75/09/16	75/09/16
00300	DO		MG/L	10	7.06999	17.5312	4.18703	.592226	1.32406	11.4000	1.20000	75/08/28	79/09/03
00310	BOD	5 DAY	MG/L	5	12.6200	225.882	15.0294	1.19092	6.72134	39.0000	2.60000	75/09/16	79/09/03
00335	COD	LOWLEVEL	MG/L	10	22.7730	476.896	21.8379	.958940	6.90576	68.0000	.400000	75/09/16	79/09/03
00400	PH		SU	7	8.01428	.074829	.273549	.034133	.103392	8.30000	7.70000	78/11/17	79/09/03
00403	LAB	PH	SU	2	7.80000	.000000	.000000		.000000	7.80000	7.80000	79/03/15	79/07/12
00410	T ALK	CACO3	MG/L	12	206.750	3160.75	56.2205	.271925	16.2295	333.000	145.000	75/07/08	79/09/03
00425	HCO3 ALK	CACO3	MG/L	4	227.750	6367.58	79.7971	.350372	39.8986	333.000	145.000	78/11/17	79/05/08
00430	CO3 ALK	CACO3	MG/L	4	12.5000	529.000	23.0000	1.84000	11.5000	47.0000	1.00000	78/11/17	79/05/08
00500	RESIDUE	TOTAL	MG/L	14	358.357	28663.4	169.303	.472441	45.2480	734.000	193.000	75/08/28	79/09/03
00530	RESIDUE	TOT NFLT	MG/L	13	41.1538	1180.31	34.3556	.834810	9.52853	104.000	2.00000	75/07/08	79/09/03
00545	RESIDUE	SETTLBLE	ML/L	4	.825000	2.10250	1.45000	1.75758	.725000	3.00000	.100000	75/07/08	75/11/18
00610	NH3+NH4-	N TOTAL	MG/L	9	.443889	.205081	.452859	1.02021	.150953	1.26000	.048000	78/11/17	79/09/03
00615	NO2-N	TOTAL	MG/L	8	.016750	.000450	.021218	1.26676	.007502	.059000	.001000	78/11/17	79/08/16
00620	NO3-N	TOTAL	MG/L	9	.373888	.045022	.212184	.567506	.070728	.630000	.001000	78/11/17	79/09/03
00625	TOT KJEL	N	MG/L	15	2.16600	2.90607	1.70472	.787037	.440157	7.10000	.750000	75/07/08	79/09/03
00650	T PO4	PO4	MG/L	6	1.19000	2.52364	1.58860	1.33495	.648541	4.30000	.160000	75/07/08	75/12/09
00660	ORTHOPO4	PO4	MG/L	6	.931666	2.69557	1.64182	1.76224	.670270	4.25000	.080000	75/07/08	75/12/09
00665	PHOS-TOT		MG/L P	15	.367533	.227404	.476869	1.29748	.123127	1.69000	.060000	75/07/08	79/09/03
00669	PHOS-TOT	HYDRO	MG/L P	1	.320000					.320000	.320000	79/09/03	79/09/03
00900	TOT HARD	CACO3	MG/L	12	199.167	4386.52	66.2308	.332540	19.1192	384.000	148.000	75/07/08	79/09/03
00916	CALCIUM	CA-TOT	MG/L	8	53.7500	233.071	15.2667	.284031	5.39758	88.0000	42.0000	78/11/17	79/09/03
00927	MGNSIUM	MG,TOT	MG/L	12	17.7583	62.2208	7.88802	.444187	2.27707	40.0000	8.50000	75/07/08	79/09/03
00929	SODIUM	NA,TOT	MG/L	11	32.9182	2048.67	45.2623	1.37499	13.6471	137.000	2.60000	75/07/08	79/09/03
00937	PTSSIUM	K,TOT	MG/L	10	4.90000	17.7600	4.21426	.860054	1.33267	14.0000	1.00000	75/07/08	79/09/03
00940	CHLORIDE	CL	MG/L	14	42.0785	4739.61	68.8448	1.63610	18.3995	228.000	2.00000	75/07/08	79/09/03
00945	SULFATE	SO4-TOT	MG/L	13	13.3077	7.77248	2.78792	.209497	.773229	19.0000	10.0000	75/07/08	79/09/03
00950	FLUORIDE	F,DISS	MG/L	1	.130000					.130000	.130000	75/12/09	75/12/09
00951	FLUORIDE	F,TOTAL	MG/L	7	.291428	.002581	.050805	.174330	.019202	.360000	.230000	78/11/17	79/09/03
00956	SILICA	TOTAL	MG/L	2	11.2250	12.2513	3.50018	.311820	2.47500	13.7000	8.75000	79/02/26	79/05/08
01000	ARSENIC	AS,DISS	UG/L	4	10.0000	.000000	.000000		.000000	10.0000	10.0000	79/03/15	79/09/03

CONCRETE BRIDGE ON COUNTY ROAD
16041 IDAHO FRANKLIN
GREAT BASIN 150700
GREAT SALT LAKE
21IDSURV 760303
0000 CLASS 00

/TYPA/AMBNT/STREAM

INDEX 1507001 010000
MILES 0077.70 0002.00

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
01002	ARSENIC	AS,TOT	UG/L	10	10.0000	.000000	.000000		.000000	10.0000	10.0000	75/07/08	79/09/03
01007	BARIUM	BA,TOT	UG/L	2	100.000	.000000	.000000		.000000	100.000	100.000	75/07/08	75/12/09
01020	BORON	B,DISS	UG/L	1	200.000					200.000	200.000	79/03/15	79/03/15
01022	BORON	B,TOT	UG/L	6	213.333	42906.7	207.139	.970965	84.5643	630.000	100.000	78/11/17	79/07/12
01025	CADMIUM	CD,DISS	UG/L	4	1.00000	.000000	.000000		.000000	1.00000	1.00000	79/03/15	79/09/03
01027	CADMIUM	CD,TOT	UG/L	10	1.00000	.000000	.000000		.000000	1.00000	1.00000	75/07/08	79/09/03
01030	CHROMIUM	CR,DISS	UG/L	4	50.0000	.000000	.000000		.000000	50.0000	50.0000	79/03/15	79/09/03
01032	CHROMIUM	HEX-VAL	UG/L	2	50.0000	.000000	.000000		.000000	50.0000	50.0000	79/03/15	79/05/08
01034	CHROMIUM	CR,TOT	UG/L	10	42.0000	284.444	16.8655	.401559	5.33333	50.0000	10.0000	75/07/08	79/09/03
01040	COPPER	CU,DISS	UG/L	4	10.0000	.000000	.000000		.000000	10.0000	10.0000	79/03/15	79/09/03
01042	COPPER	CU,TOT	UG/L	10	8.30000	12.9000	3.59166	.432730	1.13578	10.0000	1.00000	75/07/08	79/09/03
01045	IRON	FE,TOT	UG/L	9	317.778	75744.5	275.217	.866069	91.7391	990.000	60.0000	75/12/09	79/09/03
01046	IRON	FE,DISS	UG/L	4	55.0000	1166.67	34.1565	.621027	17.0782	90.0000	10.0000	79/03/15	79/09/03
01049	LEAD	PB,DISS	UG/L	4	50.0000	.000000	.000000		.000000	50.0000	50.0000	79/03/15	79/09/03
01051	LEAD	PB,TOT	UG/L	10	42.0000	284.444	16.8655	.401559	5.33333	50.0000	10.0000	75/07/08	79/09/03
01055	MANGNESE	MN	UG/L	13	63.8461	2658.98	51.5653	.807649	14.3016	160.000	10.0000	75/07/08	79/09/03
01056	MANGNESE	MN,DISS	UG/L	4	50.0000	333.333	18.2574	.365148	9.12871	70.0000	30.0000	79/03/15	79/09/03
01065	NICKEL	NI,DISS	UG/L	1	50.0000					50.0000	50.0000	79/09/03	79/09/03
01067	NICKEL	NI,TOTAL	UG/L	1	50.0000					50.0000	50.0000	79/09/03	79/09/03
01077	SILVER	AG,TOT	UG/L	2	1.00000	.000000	.000000		.000000	1.00000	1.00000	75/07/08	75/12/09
01090	ZINC	ZN,DISS	UG/L	4	10.0000	13.3333	3.65148	.365148	1.82574	14.0000	6.00000	79/03/15	79/09/03
01092	ZINC	ZN,TOT	UG/L	10	16.2000	939.733	30.6551	1.89229	9.69398	102.000	1.00000	75/07/08	79/09/03
01147	SELENIUM	SE,TOT	UG/L	2	10.0000	.000000	.000000		.000000	10.0000	10.0000	75/07/08	75/12/09
31501	TOT COLI	MFIMENDO	/100ML	9	4781.78	.174E+09	13209.8	2.76252	4403.26	40000.0	10.0000	75/09/16	79/08/16
31616	FEC COLI	MFM-FCBR	/100ML	10	339.000	261811	511.675	1.50936	161.806	1600.00	2.00000	75/09/16	79/08/16
31679	FECSTREP	MF M-ENT	/100ML	10	86.1000	6547.21	80.9149	.939778	25.5875	220.000	2.00000	75/09/16	79/08/16
70300	RESIDUE	DISS-180 C	MG/L	4	405.250	33462.9	182.929	.451397	91.4644	612.000	233.000	79/03/15	79/09/03
70507	PHOS-T	ORTHO	MG/L P	9	.154889	.060114	.245182	1.58296	.081727	.673000	.010000	78/11/17	79/09/03
71845	AMMONIA	TOT-NH4	MG/L	6	.316666	.105746	.325187	1.02691	.132757	.820000	.010000	75/07/08	75/12/09
71850	NITRATE	TOT-NO3	MG/L	6	.665000	.182110	.426743	.641720	.174217	1.25000	.060000	75/07/08	75/12/09
71855	NITRITE	TOT-NO2	MG/L	3	.017333	.000005	.002309	.133233	.001333	.020000	.016000	75/08/28	75/12/09
71890	MERCURY	HG,DISS	UG/L	4	.950000	.436666	.660807	.695587	.330404	1.90000	.500000	79/03/15	79/09/03
71900	MERCURY	HG,TOTAL	UG/L	9	1.51111	3.91361	1.97828	1.30916	.659428	5.00000	.500000	75/07/08	79/09/03
74010	IRON	FE	MG/L	4	.160000	.026400	.162481	1.01550	.081240	.400000	.040000	75/07/08	75/11/18

DELMONTE EFFLUENT
16041 IDAHO
GREAT BASIN 150700
BEAR LAKE
211DSURV 790721
0000 CLASS 00

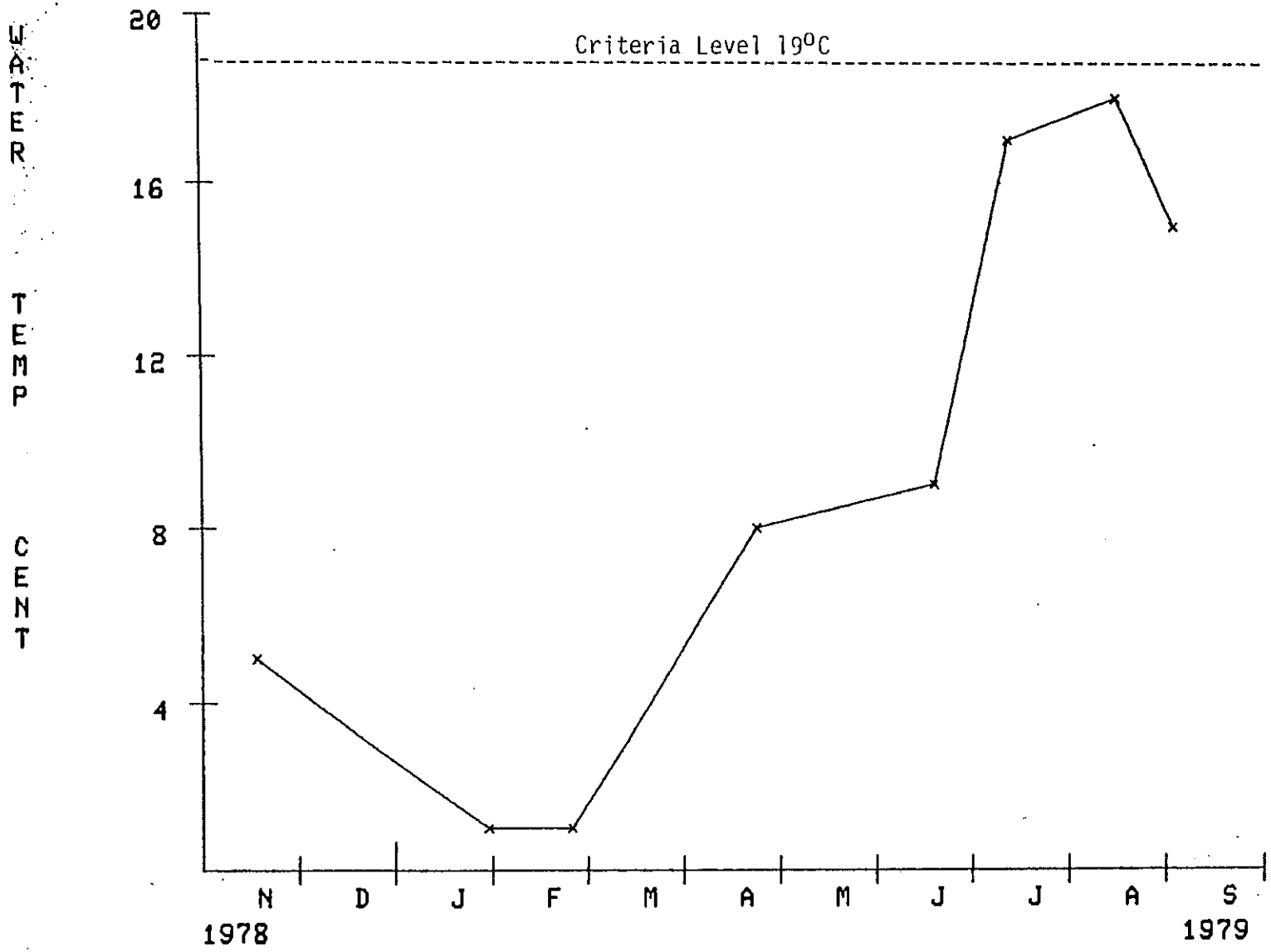
/TYPA/AMBNT/STREAM

INDEX 1507001 010000
MILES 0094.30 0019.80

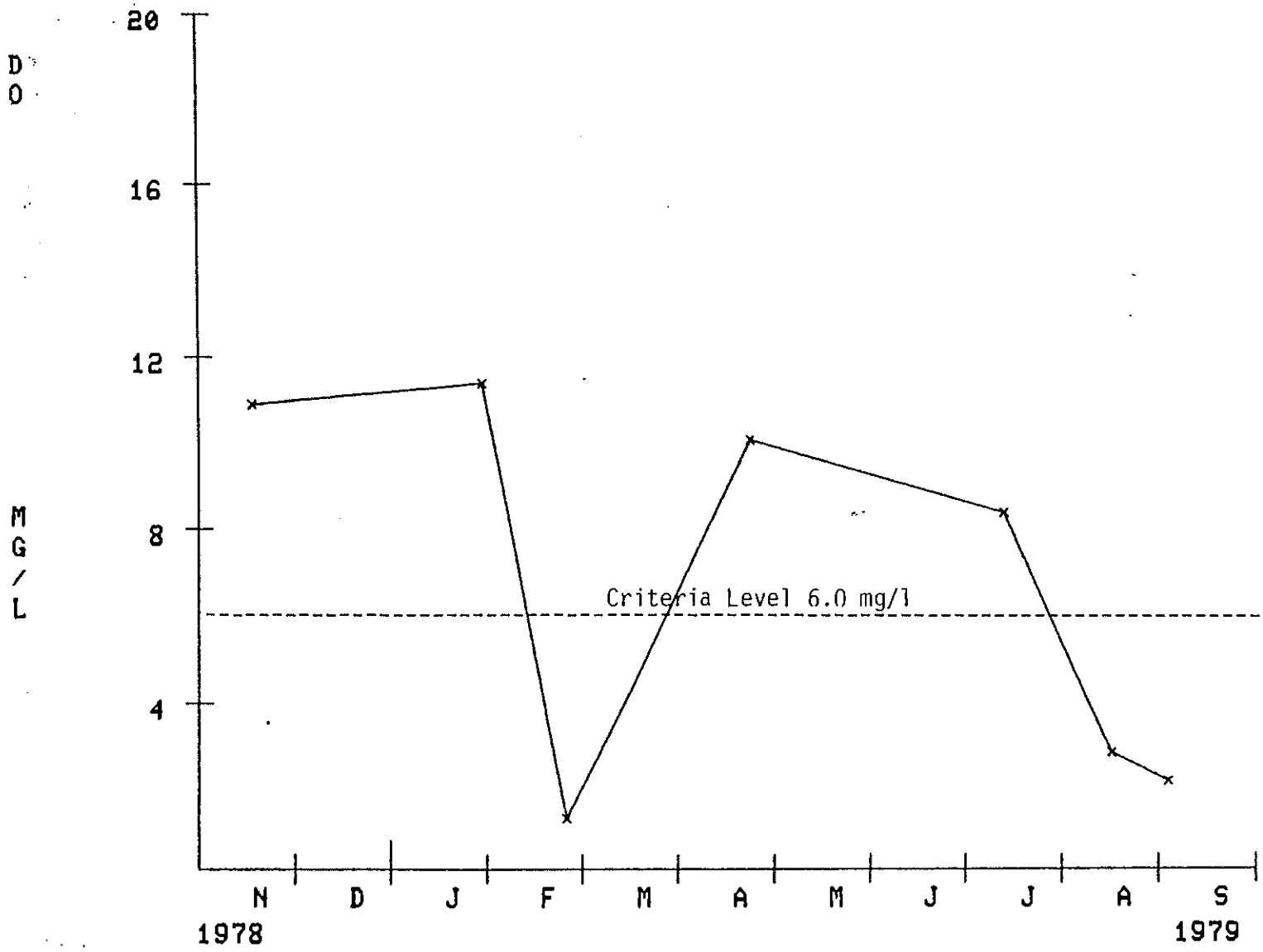
PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	1	6.50000					6.50000	6.50000	78/11/17	78/11/17
00042	ALTITUDE	FEET	AB MSL	1	4470.00					4470.00	4470.00	01/01/01	01/01/01
00076	TURB	TRBIDMTR	HACH FTU	2	16.5000	4.50000	2.12132	.128565	1.50000	18.0000	15.0000	78/11/17	79/08/20
00095	CNDUCTVY	AT 25C	MICROMHO	1	1381.00					1381.00	1381.00	78/11/17	78/11/17
00116	INTNSVE	SURVEY	IDENT	3	791611	.000000	.000000		.000000	791611	791611	01/01/01	79/08/20
00300	DO		MG/L	1	4.80000					4.80000	4.80000	78/11/17	78/11/17
00310	BOD	5 DAY	MG/L	1	92.0000					92.0000	92.0000	79/08/20	79/08/20
00335	COD	LOWLEVEL	MG/L	1	251.000					251.000	251.000	78/11/17	78/11/17
00400	PH		SU	1	7.40000					7.40000	7.40000	78/11/17	78/11/17
00500	RESIDUE	TOTAL	MG/L	1	821.000					821.000	821.000	78/11/17	78/11/17
00530	RESIDUE	TOT NFLT	MG/L	1	72.0000					72.0000	72.0000	78/11/17	78/11/17
00610	NH3+NH4-	N TOTAL	MG/L	2	3.52000	3.02580	1.73948	.494172	1.23000	4.75000	2.29000	78/11/17	79/08/20
00615	NO2-N	TOTAL	MG/L	1	.027000					.027000	.027000	78/11/17	78/11/17
00620	NO3-N	TOTAL	MG/L	1	.090000					.090000	.090000	78/11/17	78/11/17
00625	TOT KJEL	N	MG/L	2	13.7000	24.5000	4.94975	.361295	3.50000	17.2000	10.2000	78/11/17	79/08/20
00665	PHOS-TOT		MG/L P	2	2.80000	2.88001	1.69706	.606092	1.20000	4.00000	1.60000	78/11/17	79/08/20
01027	CADMIUM	CD,TOT	UG/L	1	5.00000					5.00000	5.00000	78/11/17	78/11/17
01034	CHROMIUM	CR,TOT	UG/L	1	50.0000					50.0000	50.0000	78/11/17	78/11/17
01042	COPPER	CU,TOT	UG/L	1	50.0000					50.0000	50.0000	78/11/17	78/11/17
01051	LEAD	PB,TOT	UG/L	1	50.0000					50.0000	50.0000	78/11/17	78/11/17
01092	ZINC	ZN,TOT	UG/L	1	16.0000					16.0000	16.0000	78/11/17	78/11/17
31501	TOT COLI	MFIMENDO	/100ML	1	2.00000					2.00000	2.00000	78/11/17	78/11/17
31616	FEC COLI	MFM-FCBR	/100ML	1	2.00000					2.00000	2.00000	78/11/17	78/11/17
31679	FECSTREP	MF M-ENT	/100ML	1	2.00000					2.00000	2.00000	78/11/17	78/11/17
50064	CHLORINE	FREE AVL	MG/L	1	2.50000					2.50000	2.50000	78/11/17	78/11/17
70507	PHOS-T	ORTHO	MG/L P	2	2.14500	2.80845	1.67584	.781279	1.18500	3.33000	.960000	78/11/17	79/08/20
71900	MERCURY	HG,TOTAL	UG/L	1	.500000					.500000	.500000	78/11/17	78/11/17

GRAPHICS

STORET STATION 2080026
CUB RIVER BELOW DEL MONTE



STORET STATION 2000026
CUB RIVER BELOW DEL MONTE



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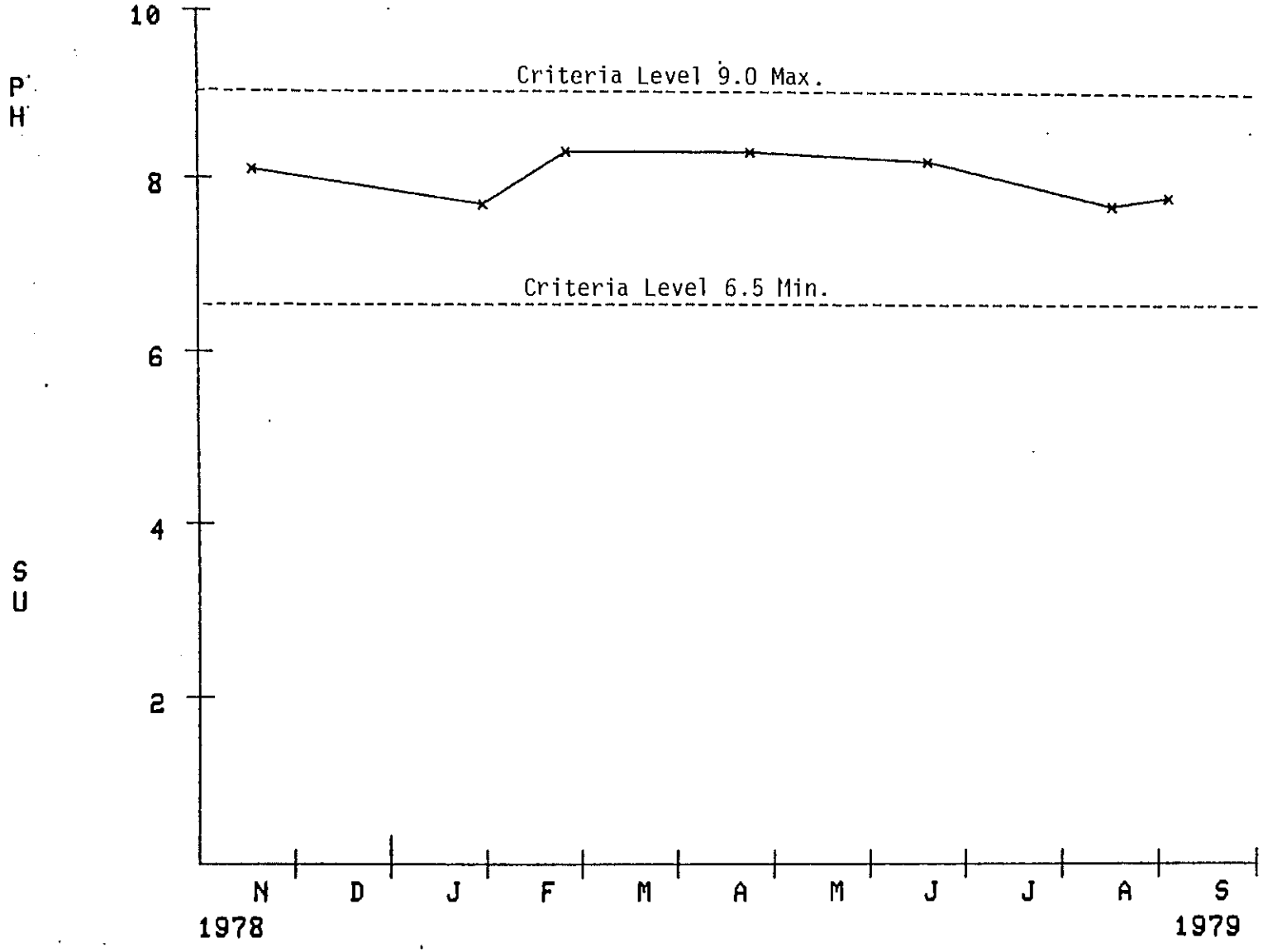
CUB RIVER BELOW DEL MONTE



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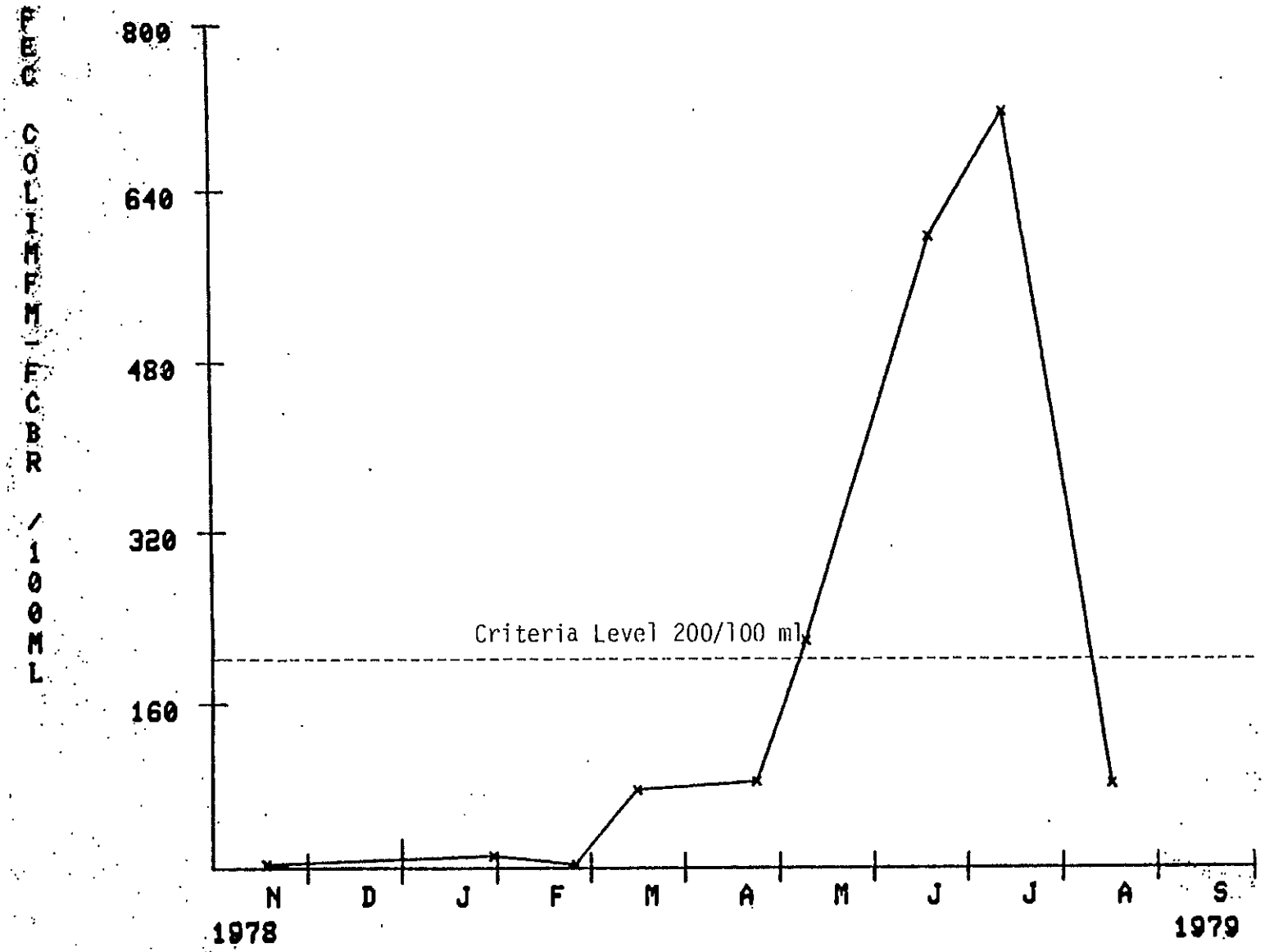
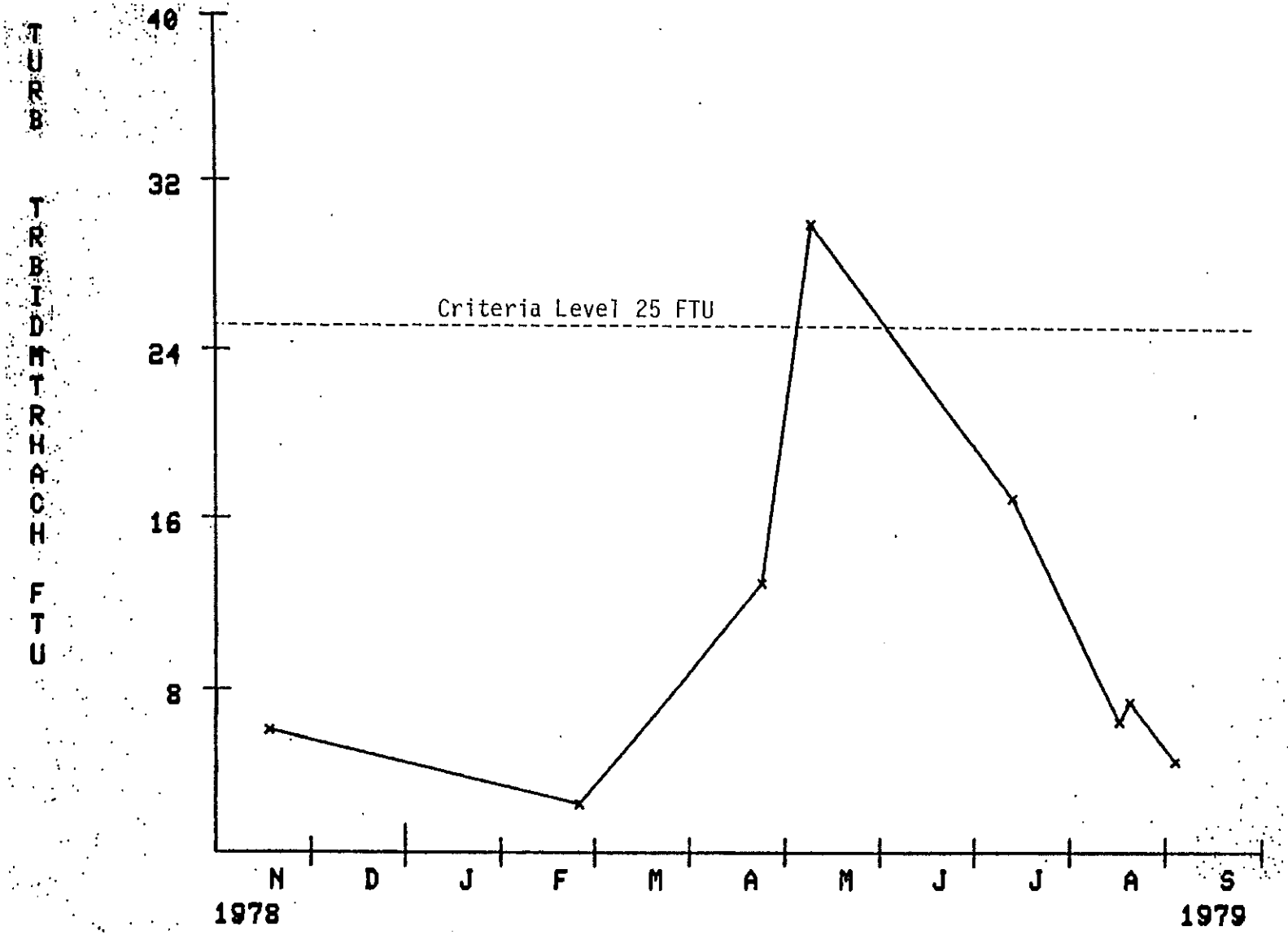
CUB RIVER BELOW DEL MONTE



CUB RIVER BELOW DEL MONTE



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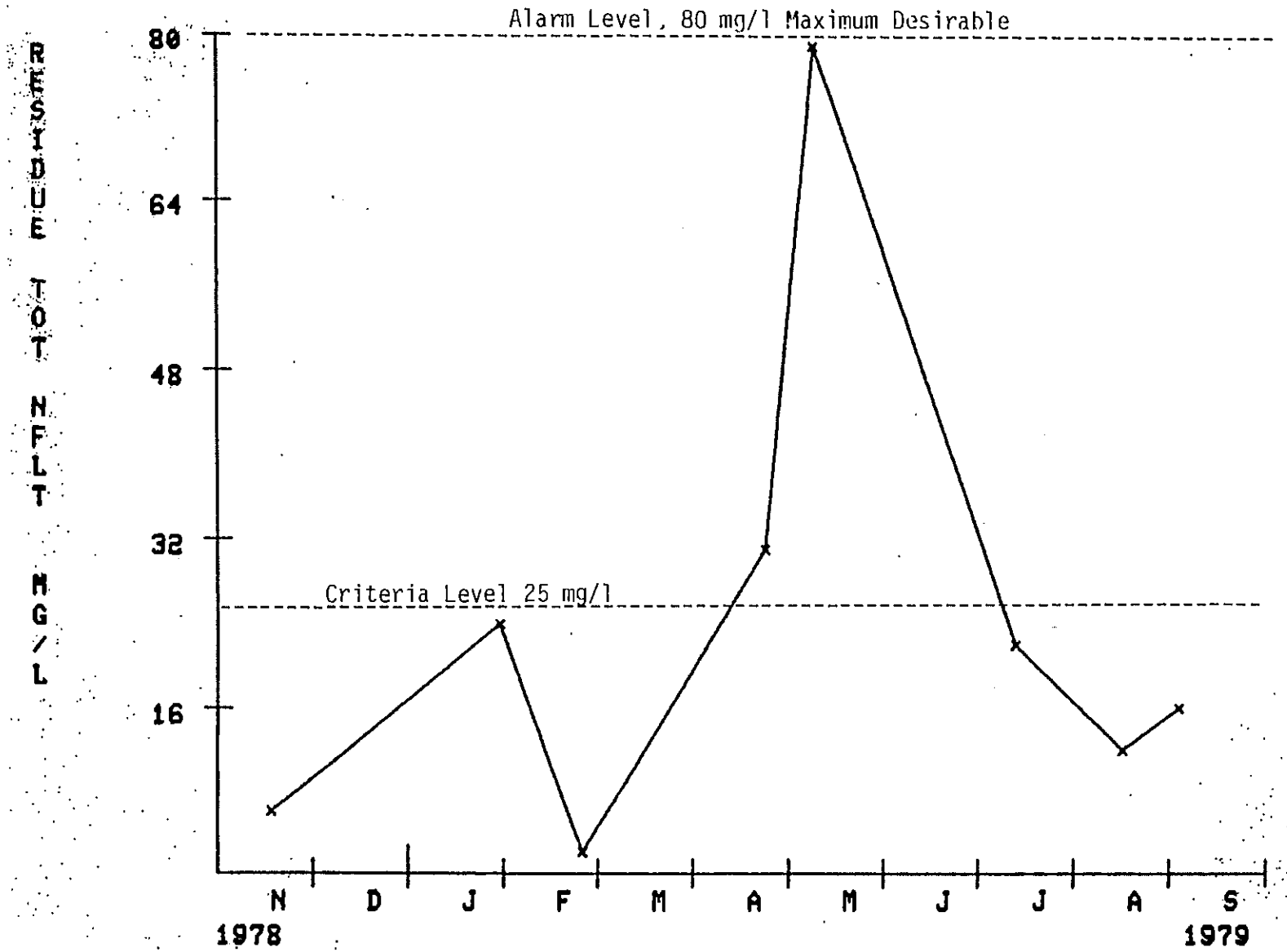
CUB RIVER BELOW DEL MONTE



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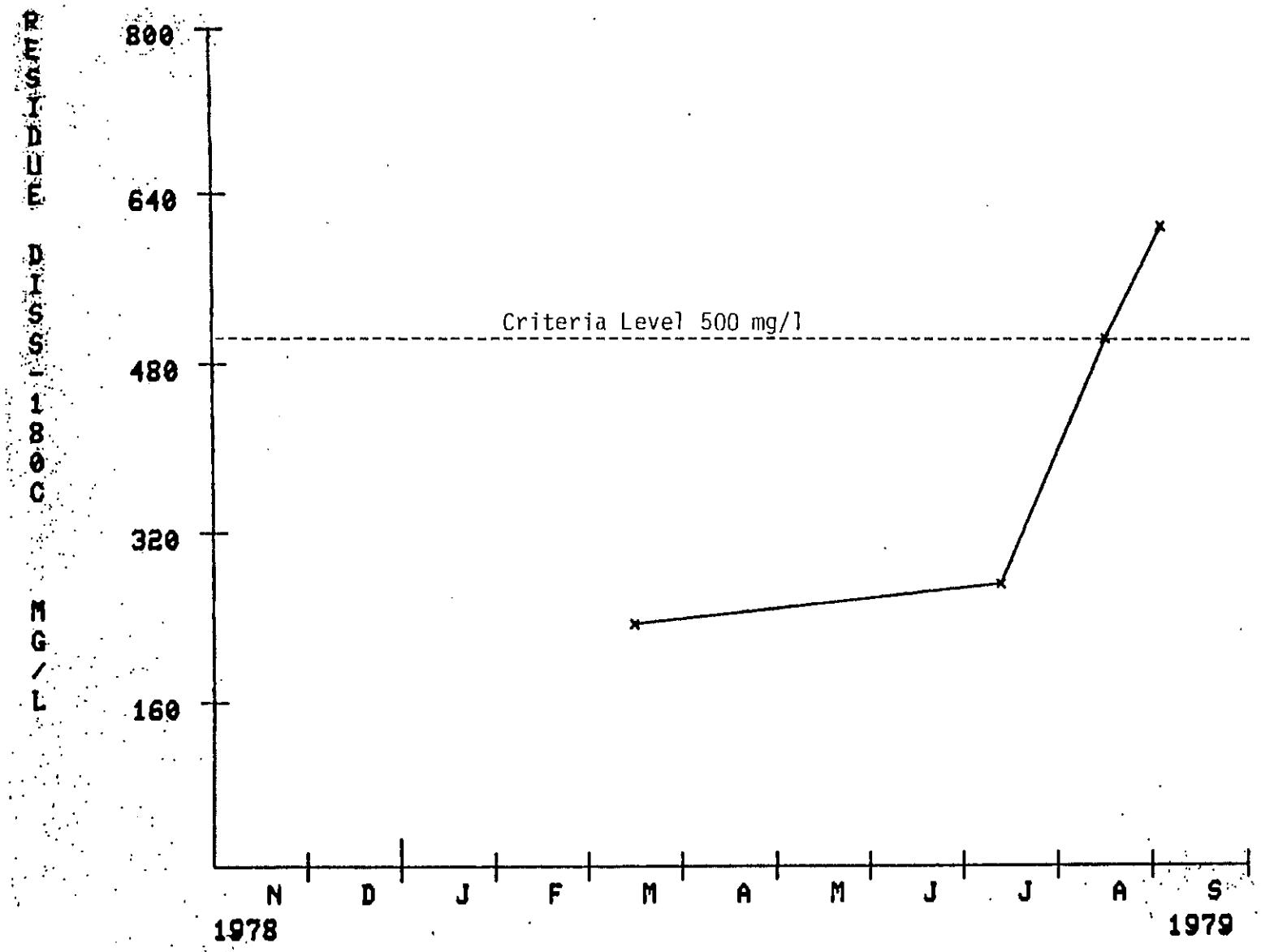
CUB RIVER BELOW DEL MONTE



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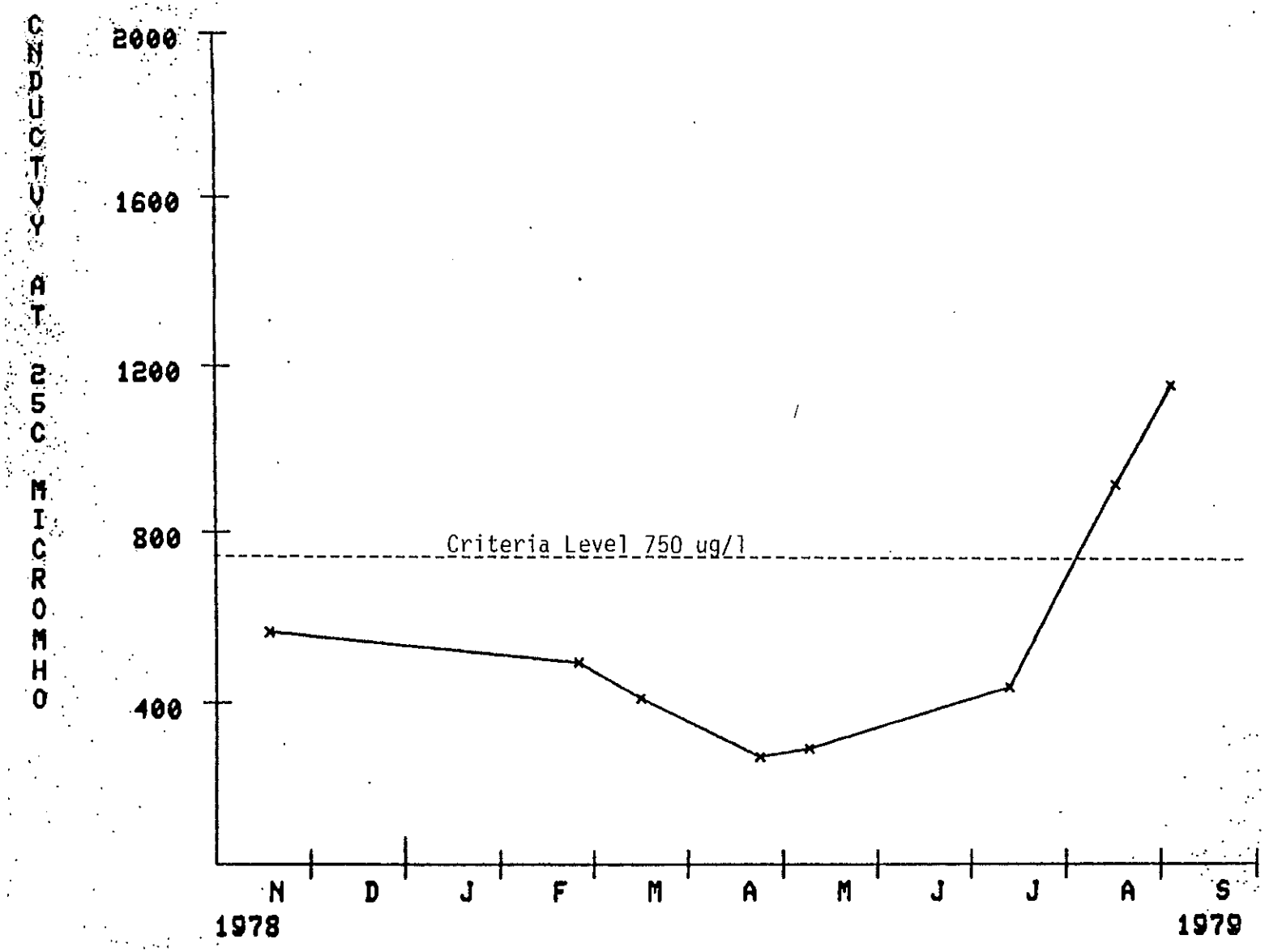
CUB RIVER BELOW DEL MONTE



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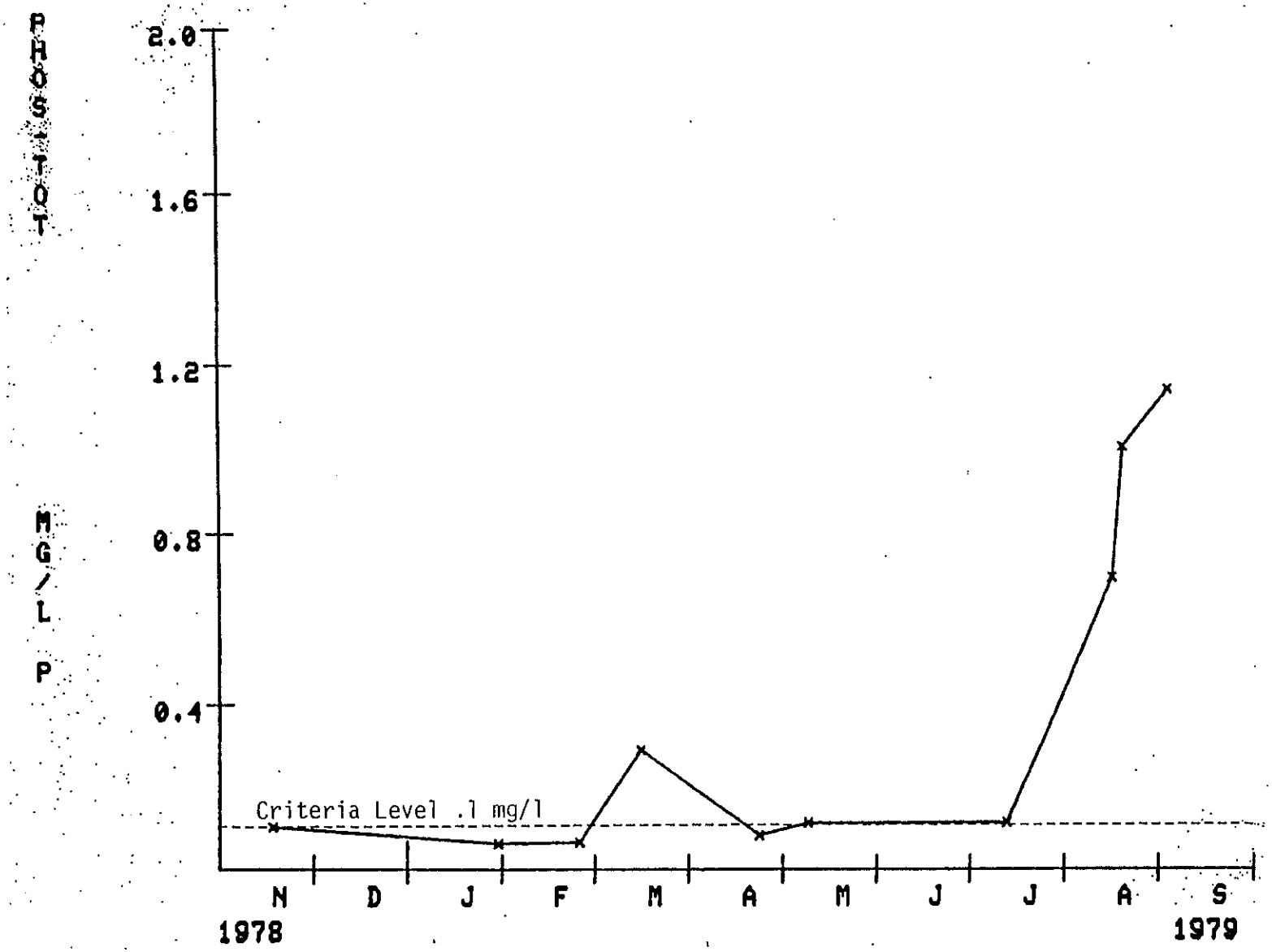
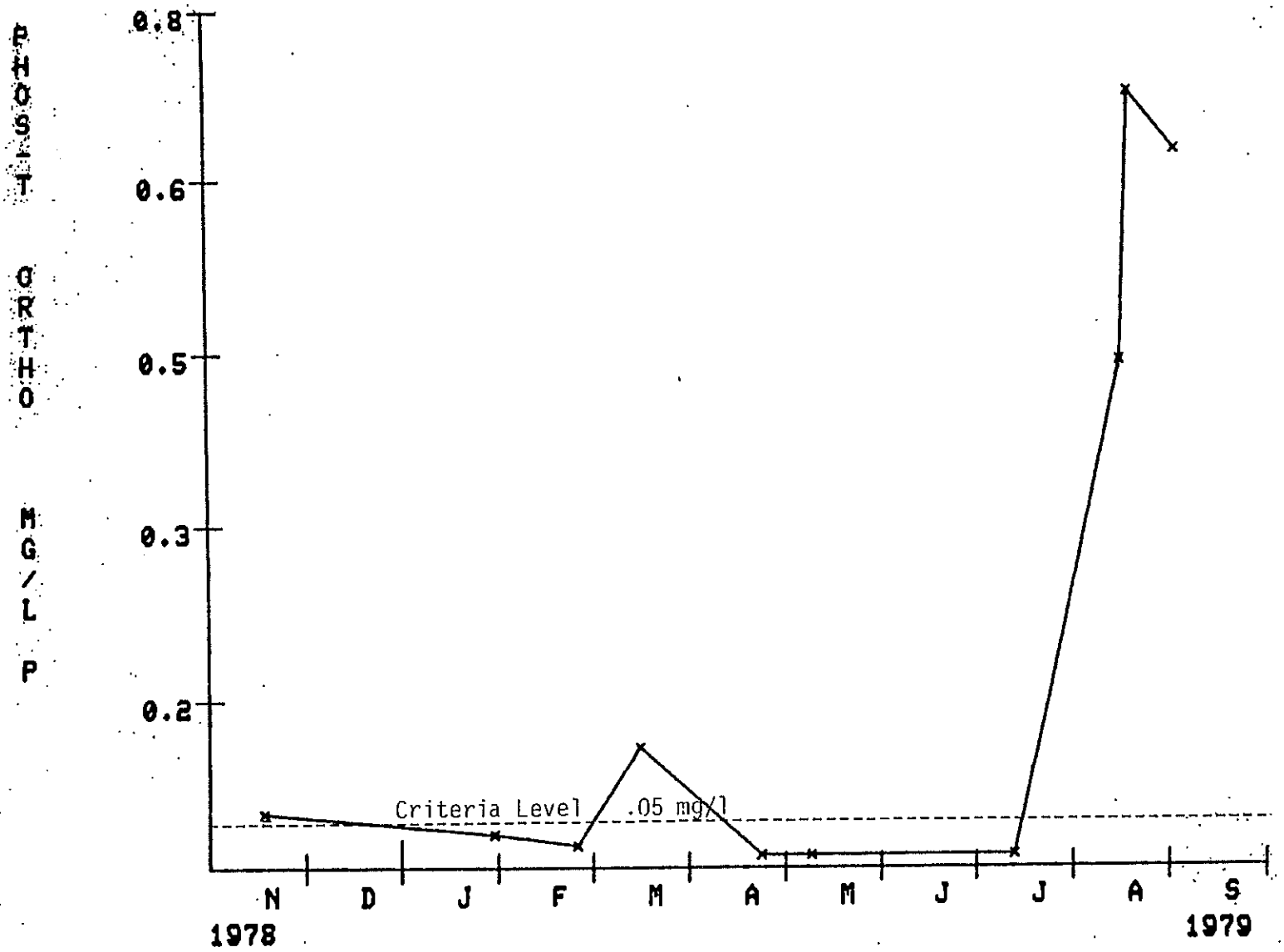
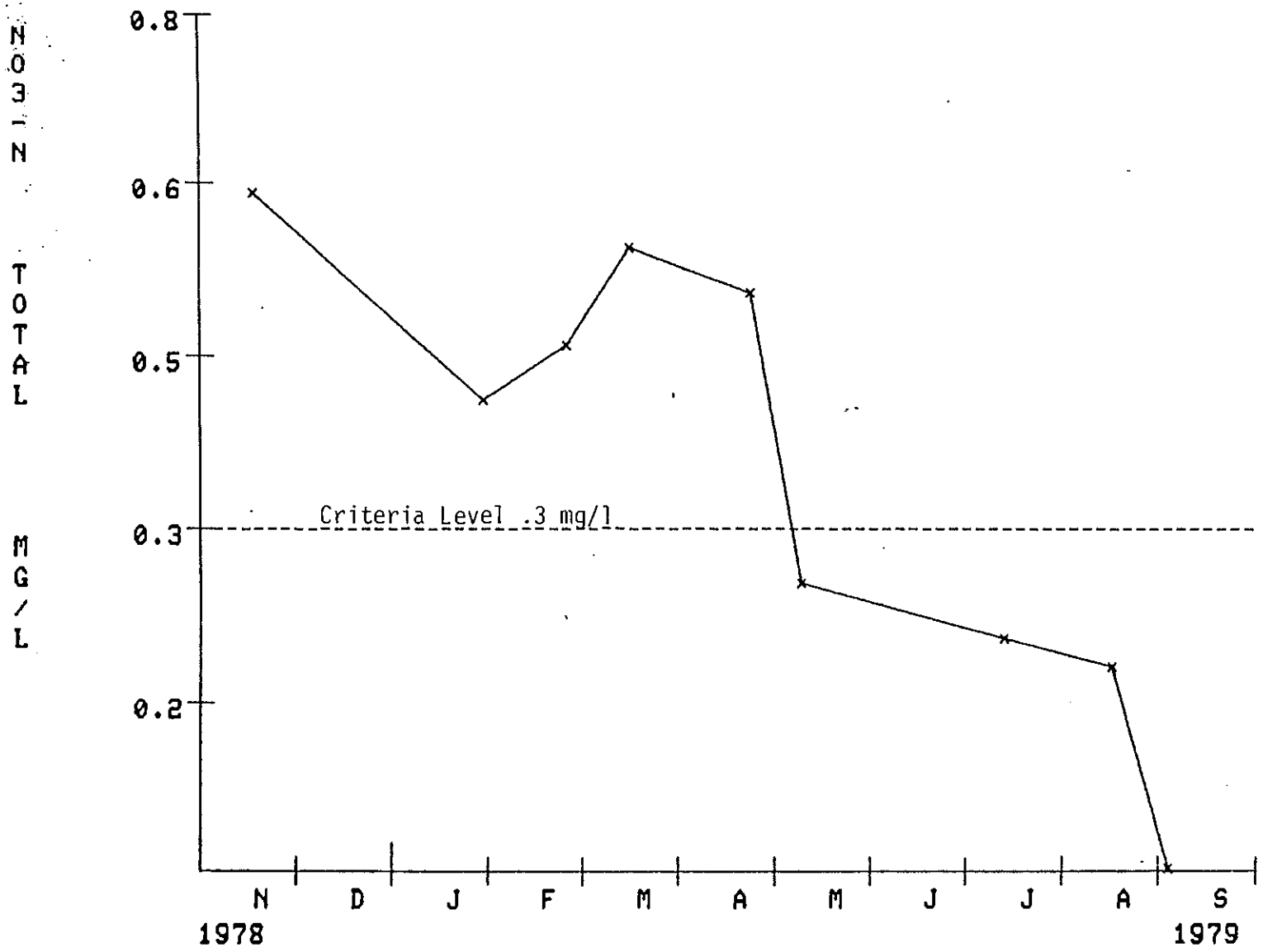
CUB RIVER BELOW DEL MONTE



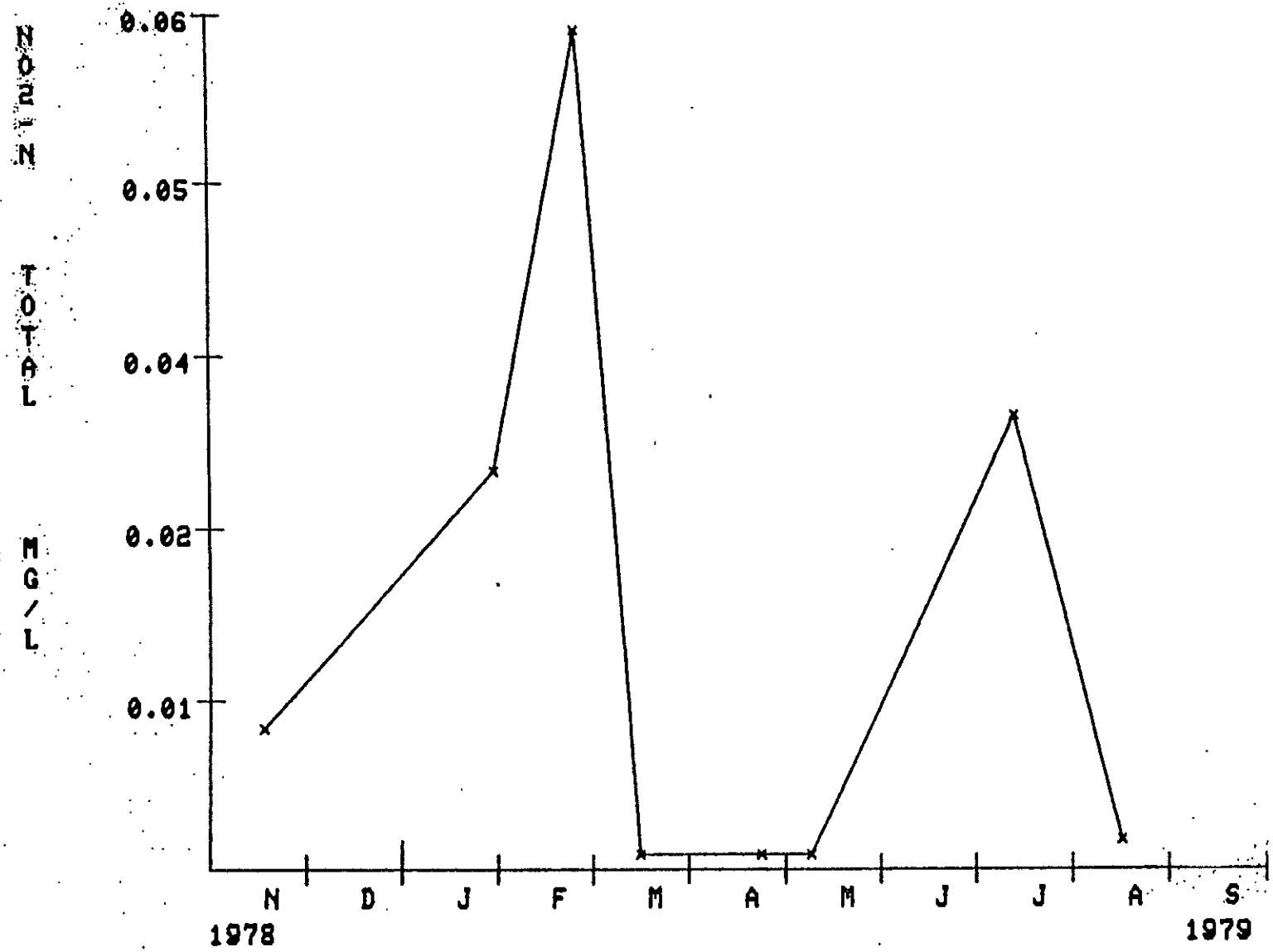
STORET STATION 2000026
CUB RIVER BELOW DEL MONTE



STORET STATION 2080026
CUB RIVER BELOW DEL MONTE



STORET STATION 2080026
CUB RIVER BELOW DEL MONTE



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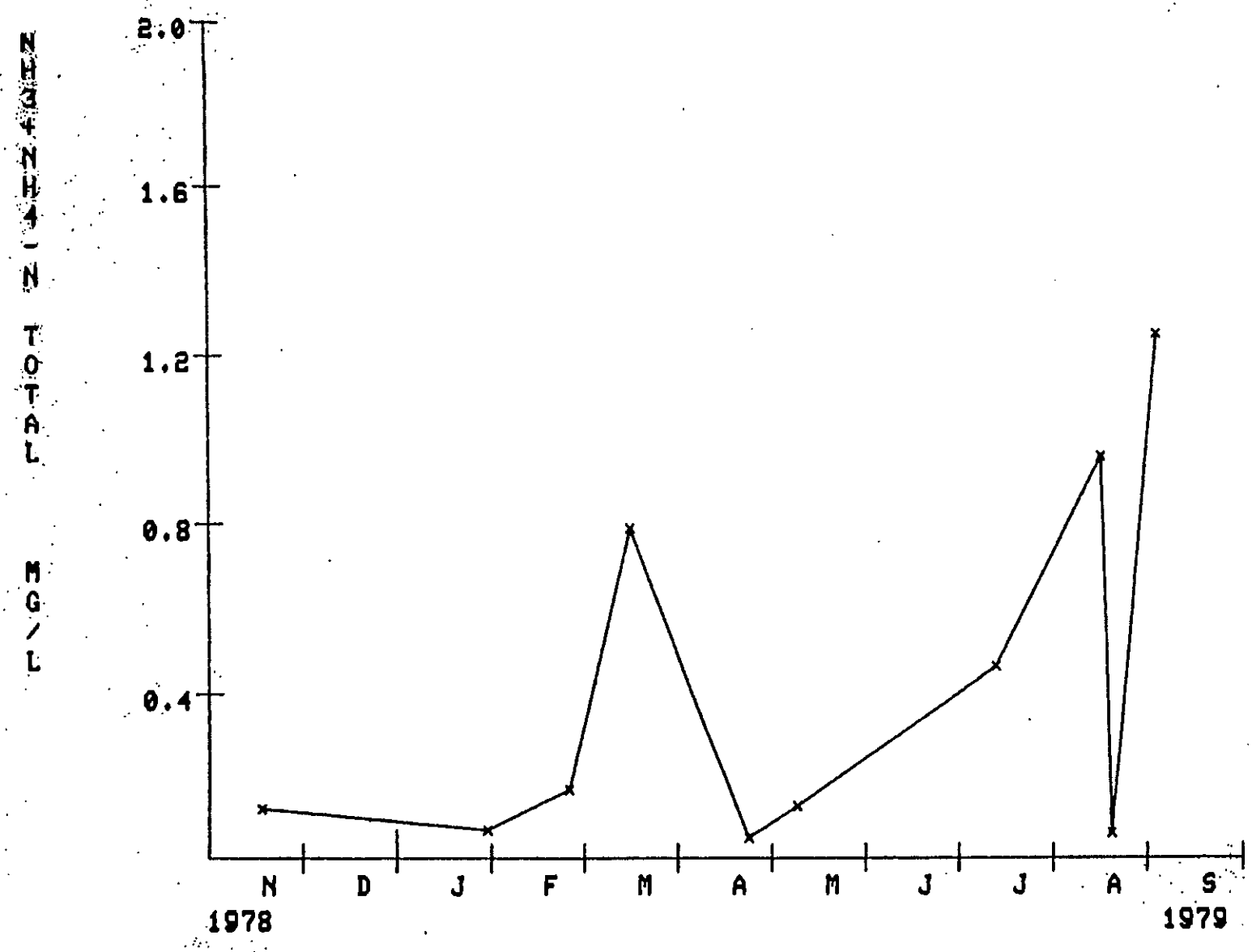
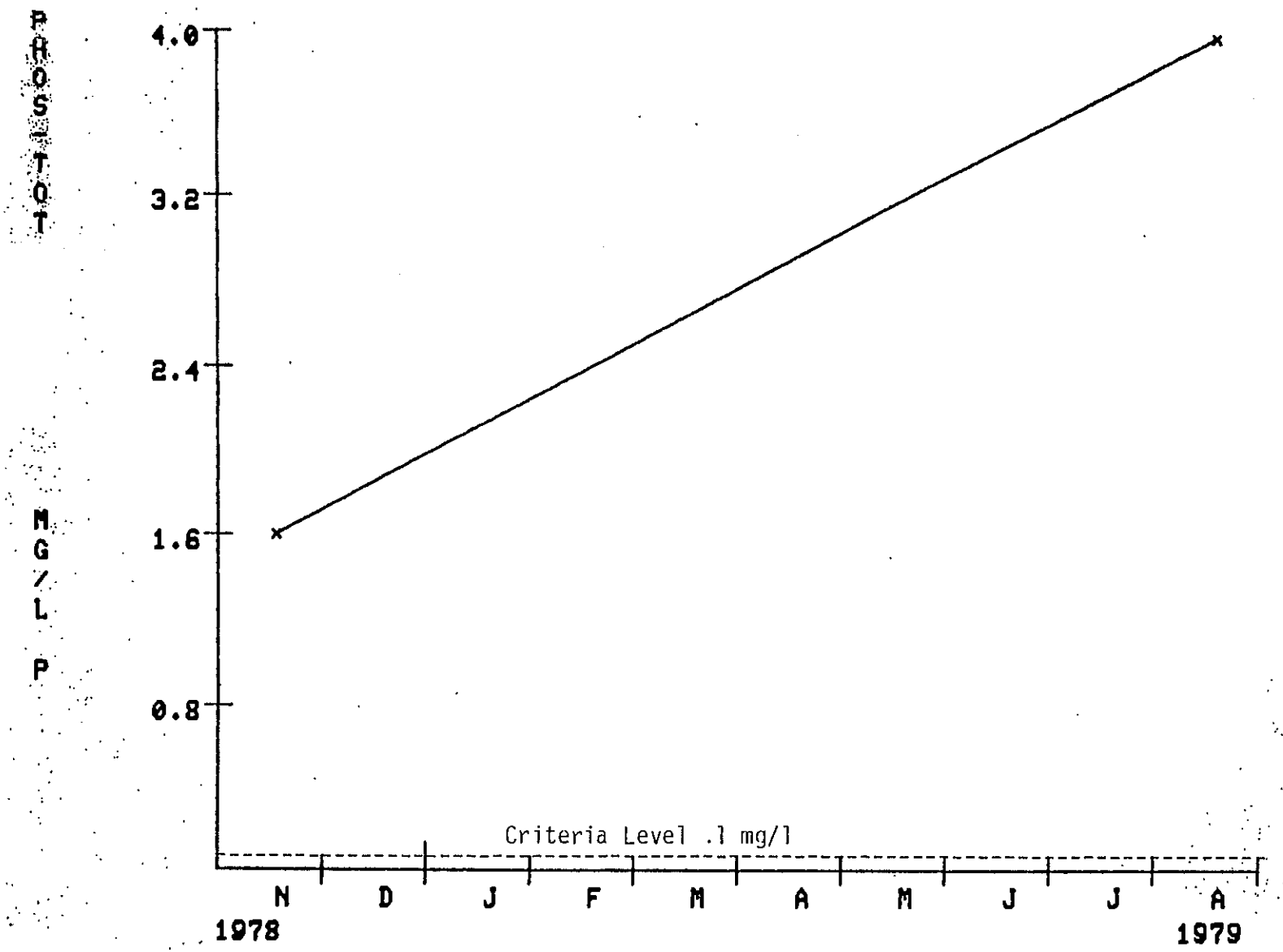
CUB RIVER BELOW DEL MONTE



STORET STATION 2080240
DELMONTE EFFLUENT



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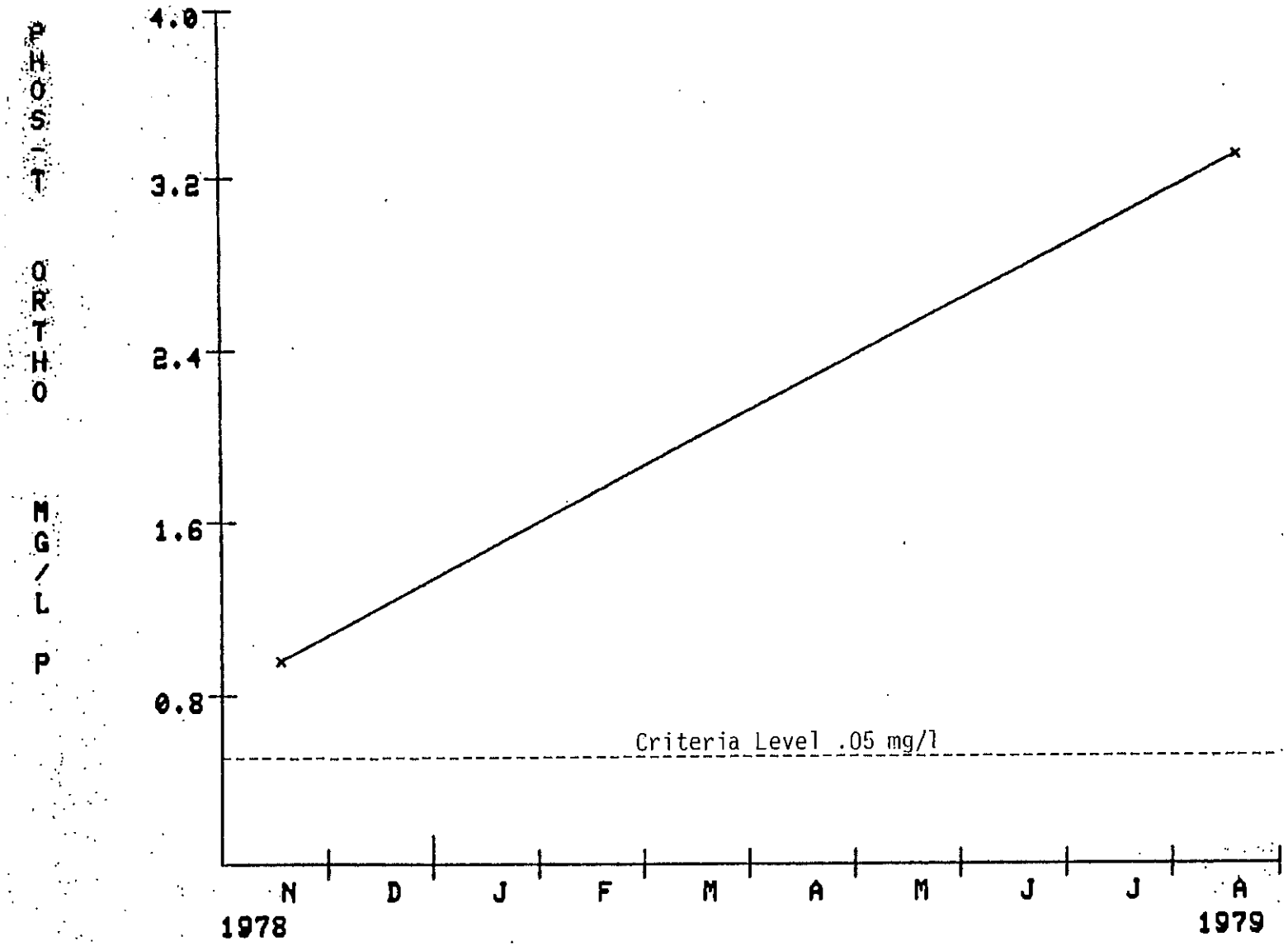
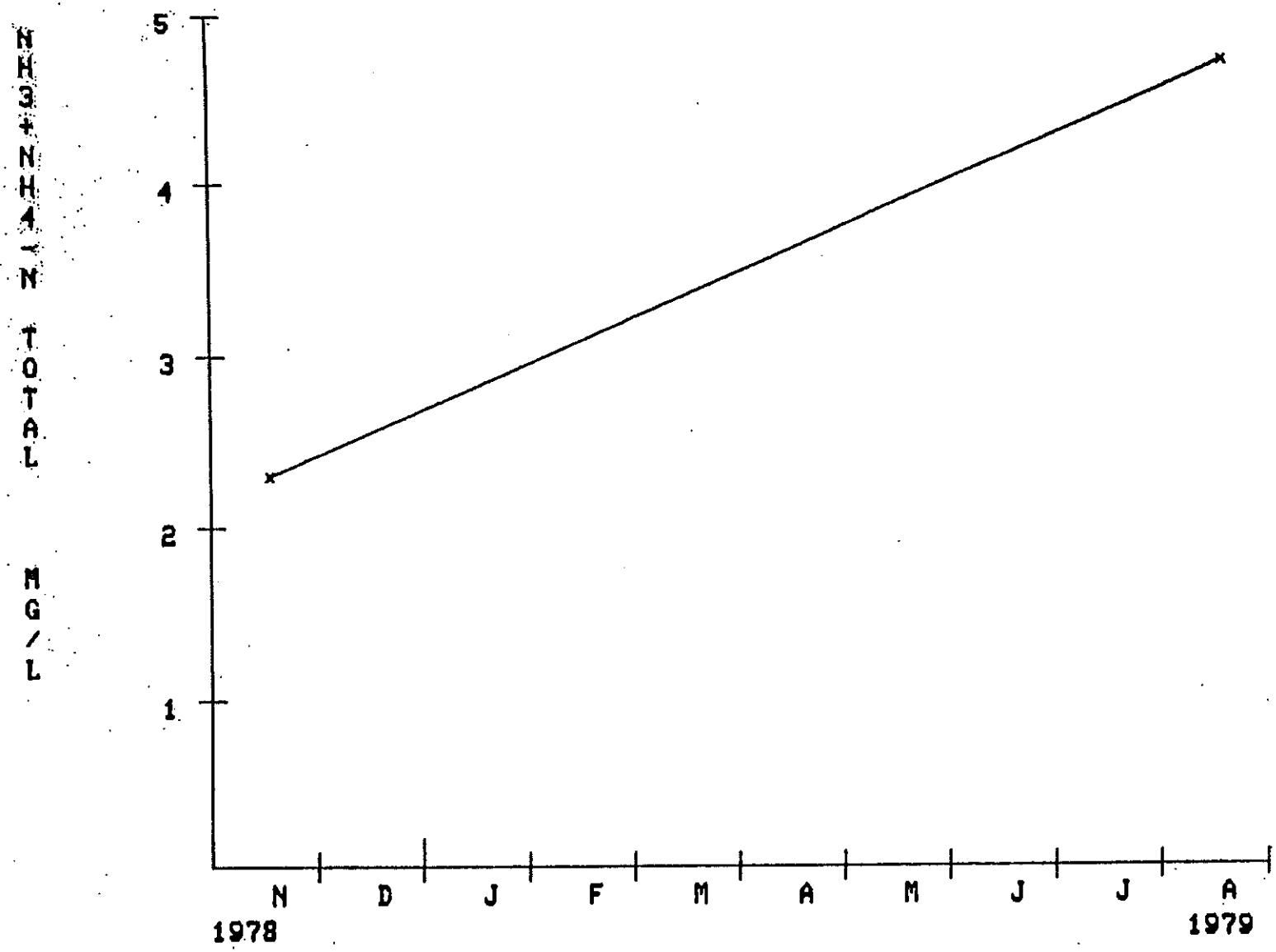
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