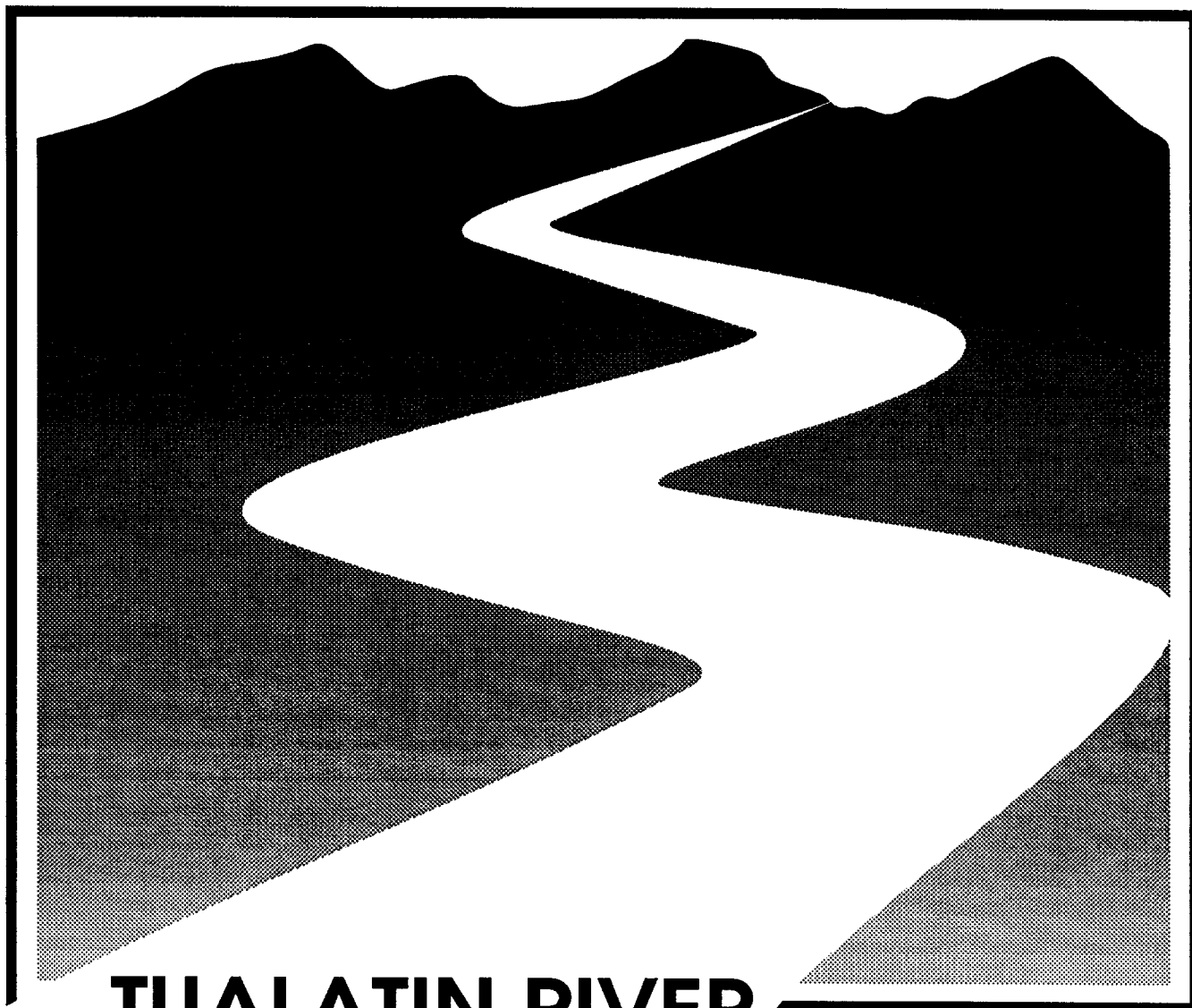


1 9 9 2 A N N U A L R E P O R T



TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

prepared by



NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
05-OCT-92									
06-OCT-92	10.13200	102.0	91.86800	8.40	50	22	2	3	0
12-OCT-92									
13-OCT-92	5.87000	85.0	79.13000	16.00	45	10	0	0	0
19-OCT-92									
20-OCT-92	25.68850	94.3	68.61150	16.00	35	9	0	0	0
26-OCT-92									
27-OCT-92	24.29400	71.0	46.70600	8.00	35	6	0	0	0
03-NOV-92	85.28000	93.0	7.72000	8.00	0	0	0	0	0

SRBV LOSS (3.5%)

05-OCT-92		
06-OCT-92	12	3.33200
12-OCT-92		
13-OCT-92	12	2.87000
19-OCT-92		
20-OCT-92	12	2.48850
26-OCT-92		
27-OCT-92	0	1.69400
03-NOV-92	0	0.28000

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			5.71872	0	37	0	0.20128
08-JUN-92							
09-JUN-92			30.48696	25	41	0	1.07304
15-JUN-92							
16-JUN-92	70.15760	86.0	15.84240	10	40	0	0.55760
22-JUN-92							
23-JUN-92	13.87152	75.0	61.12848	50	83	0	2.15152
30-JUN-92	64.21928	125.0	60.78072	50	62	3	2.13928
06-JUL-92							
07-JUL-92	70.31032	81.4	11.08968	0	53	3	0.39032
13-JUL-92							
14-JUL-92	38.35528	103.0	64.64472	50	87	3	2.27528
20-JUL-92							
21-JUL-92	26.97704	101.9	74.92296	60	91	3	2.63704
27-JUL-92							
28-JUL-92	9.88968	95.4	85.51032	70	97	3	3.00968
03-AUG-92							
04-AUG-92	34.02760	103.0	68.97240	50	115	3	2.42760
10-AUG-92							
11-AUG-92	14.15160	69.6	55.44840	40	90	3	1.95160
17-AUG-92							
18-AUG-92	29.96688	92.1	62.13312	45	102	3	2.18688
24-AUG-92							
25-AUG-92	26.55176	80.3	53.74824	40	79	3	1.89176
31-AUG-92							
01-SEP-92	33.75824	91.1	57.34176	45	71	3	2.01824
08-SEP-92	43.30120	103.0	59.69880	50	55	3	2.10120
09-SEP-92							
14-SEP-92							
15-SEP-92	54.95488	99.7	44.74512	35	52	3	1.57488
21-SEP-92							
22-SEP-92	34.35952	78.1	43.74048	40	33	0	1.53952
28-SEP-92							
29-SEP-92	45.59168	85.7	40.10832	38	22	0	1.41168

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
05-OCT-92							
06-OCT-92	39.39968	91.1	51.70032	50	22	0	1.81968
12-OCT-92							
13-OCT-92	33.08440	78.1	45.01560	45	10	0	1.58440
19-OCT-92							
20-OCT-92	55.89896	91.1	35.20104	35	9	0	1.23896
26-OCT-92							
27-OCT-92	31.66264	66.4	34.73736	35	6	0	1.22264
03-NOV-92	151.00000	151.0	0.00000	0	0	0	0.00000

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			3.85836	0	37	0	0.21164
08-JUN-92							
09-JUN-92			27.97548	25	41	0	1.53452
15-JUN-92							
16-JUN-92			13.65120	10	40	0	0.74880
22-JUN-92							
23-JUN-92	21.28476	77.34	56.05524	50	83	0	3.07476
30-JUN-92	141.29064	198.00	56.70936	50	62	3	3.11064
06-JUL-92							
07-JUL-92	99.62916	108.00	8.37084	0	53	3	0.45916
13-JUL-92							
14-JUL-92	89.18364	148.50	59.31636	50	87	3	3.25364
20-JUL-92							
21-JUL-92	19.58652	88.80	69.21348	60	91	3	3.79652
27-JUL-92							
28-JUL-92	28.68084	108.00	79.31916	70	97	3	4.35084
03-AUG-92							
04-AUG-92	86.26380	148.50	62.23620	50	115	3	3.41380
10-AUG-92							
11-AUG-92	54.85080	105.00	50.14920	40	90	3	2.75080
17-AUG-92							
18-AUG-92	56.85944	113.00	56.14056	45	102	3	3.07944
24-AUG-92							
25-AUG-92	48.49788	97.50	49.00212	40	79	3	2.68788
31-AUG-92							
01-SEP-92	36.46212	89.37	52.90788	45	71	3	2.90212
08-SEP-92	32.82060	88.80	55.97940	50	55	3	3.07060
09-SEP-92							
14-SEP-92							
15-SEP-92	56.75344	98.20	41.44656	35	52	3	2.27344
21-SEP-92							
22-SEP-92	41.40876	82.77	41.36124	40	33	0	2.26876
28-SEP-92							
29-SEP-92	57.58184	95.90	38.31816	38	22	0	2.10184

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
05-OCT-92							
06-OCT-92	42.00584	91.70	49.69416	50	22	0	2.72584
12-OCT-92							
13-OCT-92	45.09720	88.80	43.70280	45	10	0	2.39720
19-OCT-92							
20-OCT-92	53.68148	87.80	34.11852	35	9	0	1.87148
26-OCT-92							
27-OCT-92	56.19432	90.00	33.80568	35	6	0	1.85432
03-NOV-92			0.00000	0	0	0	0.00000

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
07-APR-92	410.60000	410.6	0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92	509.80000	509.8	0.00000	0	0	0	0.00000
21-APR-92	291.70000	291.7	0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92	516.80000	516.8	0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92	599.40000	599.4	0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92	348.30000	348.3	0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92	195.70000	195.7	0.00000	0	0	0	0.00000
26-MAY-92	106.00000	106.0	0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92	96.83536	99.6	2.76464	0	0	37	0.19536
08-JUN-92							
09-JUN-92	77.38648	103.8	26.41352	25	0	41	1.86648
15-JUN-92							
16-JUN-92	182.17120	194.5	12.32880	10	0	40	0.87120
22-JUN-92							
23-JUN-92	0.09824	53.0	52.90176	50	0	83	3.73824
30-JUN-92	124.86536	179.0	54.13464	50	3	62	3.82536
06-JUL-92							
07-JUL-92	154.23784	161.0	6.76216	0	3	53	0.47784
13-JUL-92							
14-JUL-92	94.29736	150.3	56.00264	50	3	87	3.95736
20-JUL-92							
21-JUL-92	16.65848	82.3	65.64152	60	3	91	4.63848
27-JUL-92							
28-JUL-92	40.57016	116.0	75.42984	70	3	97	5.33016
03-AUG-92							
04-AUG-92	85.30520	143.4	58.09480	50	3	115	4.10520
10-AUG-92							
11-AUG-92	74.11320	121.0	46.88680	40	3	90	3.31320
17-AUG-92							
18-AUG-92	119.54656	172.0	52.45344	45	3	102	3.70656
24-AUG-92							
25-AUG-92	59.13512	105.2	46.06488	40	3	79	3.25512
31-AUG-92							
01-SEP-92	39.66288	89.8	50.13712	45	3	71	3.54288
08-SEP-92	41.78840	95.4	53.61160	50	3	55	3.78840
09-SEP-92							
14-SEP-92							
15-SEP-92	65.62256	105.0	39.37744	35	3	52	2.78256
21-SEP-92							
22-SEP-92	33.17424	73.0	39.82576	40	0	33	2.81424
28-SEP-92							
29-SEP-92	77.86416	115.0	37.13584	38	0	22	2.62416

NFROOD = ROOD - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
05-OCT-92							
06-OCT-92	68.45616	116.8	48.34384	50	0	22	3.41616
12-OCT-92							
13-OCT-92	52.62280	95.4	42.77720	45	0	10	3.02280
19-OCT-92							
20-OCT-92	57.83752	91.2	33.36248	35	0	9	2.35752
26-OCT-92							
27-OCT-92	69.86168	103.0	33.13832	35	0	6	2.34168
03-NOV-92			0.00000	0	0	0	0.00000

NFROOD = ROOD - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
07-APR-92	500.0000	500.0	0.0000	0	0	0	0.0000
08-APR-92							
14-APR-92	724.0000	724.0	0.0000	0	0	0	0.0000
21-APR-92	1658.0000	1658.0	0.0000	0	0	0	0.0000
22-APR-92							
28-APR-92	703.0000	703.0	0.0000	0	0	0	0.0000
29-APR-92							
04-MAY-92							
05-MAY-92	655.0000	655.0	0.0000	0	0	0	0.0000
11-MAY-92							
12-MAY-92	434.0000	434.0	0.0000	0	0	0	0.0000
18-MAY-92							
19-MAY-92	262.0000	262.0	0.0000	0	0	0	0.0000
26-MAY-92	180.0000	180.0	0.0000	0	0	0	0.0000
27-MAY-92							
01-JUN-92							
02-JUN-92	134.6172	137.0	2.3828	0	0	37	0.2072
08-JUN-92							
09-JUN-92	124.3596	150.0	25.6404	25	0	41	2.2296
15-JUN-92							
16-JUN-92	220.2240	232.0	11.7760	10	0	40	1.0240
22-JUN-92							
23-JUN-92	24.6548	76.0	51.3452	50	0	83	4.4648
30-JUN-92	232.2472	285.0	52.7528	50	3	62	4.5872
06-JUL-92							
07-JUL-92	208.8268	215.0	6.1732	0	3	53	0.5368
13-JUL-92							
14-JUL-92	140.6372	195.0	54.3628	50	3	87	4.7272
20-JUL-92							
21-JUL-92	66.1796	130.0	63.8204	60	3	91	5.5496
27-JUL-92							
28-JUL-92	87.5932	161.0	73.4068	70	3	97	6.3832
03-AUG-92							
04-AUG-92	128.8340	185.0	56.1660	50	3	115	4.8840
10-AUG-92							
11-AUG-92	82.6440	128.0	45.3560	40	3	90	3.9440
17-AUG-92							
18-AUG-92	96.2712	147.0	50.7288	45	3	102	4.4112
24-AUG-92							
25-AUG-92	87.9524	132.6	44.6476	40	3	79	3.8824
31-AUG-92							
01-SEP-92	76.7676	125.5	48.7324	45	3	71	4.2376
08-SEP-92	89.5980	141.9	52.3020	50	3	55	4.5480
09-SEP-92							
14-SEP-92							
15-SEP-92	114.3912	152.7	38.3088	35	3	52	3.3312
21-SEP-92							
22-SEP-92	79.6748	118.6	38.9252	40	0	33	3.3848
28-SEP-92							
29-SEP-92	117.6232	154.0	36.3768	38	0	22	3.1632

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
05-OCT-92							
06-OCT-92	119.5832	167.0	47.4168	50	0	22	4.1232
12-OCT-92							
13-OCT-92	118.9560	161.0	42.0440	45	0	10	3.6560
19-OCT-92							
20-OCT-92	165.9204	198.7	32.7796	35	0	9	2.8504
26-OCT-92							
27-OCT-92	98.4136	131.0	32.5864	35	0	6	2.8336
03-NOV-92	389.0000	389.0	0.0000	0	0	0	0.0000

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
07-APR-92	543.00	543.0	0.00	0	0.00
08-APR-92					
14-APR-92	736.00	736.0	0.00	0	0.00
21-APR-92	1971.00	1971.0	0.00	0	0.00
22-APR-92					
28-APR-92	694.00	694.0	0.00	0	0.00
29-APR-92					
04-MAY-92					
05-MAY-92	720.00	720.0	0.00	0	0.00
11-MAY-92					
12-MAY-92	416.00	416.0	0.00	0	0.00
18-MAY-92					
19-MAY-92	276.00	276.0	0.00	0	0.00
26-MAY-92	203.00	203.0	0.00	0	0.00
27-MAY-92					
01-JUN-92					
02-JUN-92	179.00	179.0	0.00	0	0.00
08-JUN-92					
09-JUN-92	89.00	110.0	21.00	25	4.00
15-JUN-92					
16-JUN-92	206.60	215.0	8.40	10	1.60
22-JUN-92					
23-JUN-92	84.00	126.0	42.00	50	8.00
30-JUN-92	161.00	203.0	42.00	50	8.00
06-JUL-92					
07-JUL-92	182.00	182.0	0.00	0	0.00
13-JUL-92					
14-JUL-92	97.00	139.0	42.00	50	8.00
20-JUL-92					
21-JUL-92	42.60	93.0	50.40	60	9.60
27-JUL-92					
28-JUL-92	93.20	152.0	58.80	70	11.20
03-AUG-92					
04-AUG-92	84.00	126.0	42.00	50	8.00
10-AUG-92					
11-AUG-92	103.40	137.0	33.60	40	6.40
17-AUG-92					
18-AUG-92	65.20	103.0	37.80	45	7.20
24-AUG-92					
25-AUG-92	55.80	89.4	33.60	40	6.40
31-AUG-92					
01-SEP-92	58.40	96.2	37.80	45	7.20
08-SEP-92	54.00	96.0	42.00	50	8.00
09-SEP-92					
14-SEP-92					
15-SEP-92	139.60	169.0	29.40	35	5.60
21-SEP-92					
22-SEP-92	64.40	98.0	33.60	40	6.40
28-SEP-92					
29-SEP-92	94.08	126.0	31.92	38	6.08

NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
05-OCT-92					
06-OCT-92	135.00	177.0	42.00	50	8.00
12-OCT-92					
13-OCT-92	84.20	122.0	37.80	45	7.20
19-OCT-92					
20-OCT-92	76.60	106.0	29.40	35	5.60
26-OCT-92					
27-OCT-92	100.60	130.0	29.40	35	5.60
03-NOV-92	523.00	523.0	0.00	0	0.00

NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16

APPENDIX C

SCOGGINS DAM - RESERVOIR OPERATIONS MONTHLY REPORTS

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of January 1992

File: 192

MEASURED INFLOW					HENRY HAGG LAKE					TUALATIN RIVER			WEATHER			WATER DELIVERIES					
SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	COMP	DLLO	PRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HLSBO	PG	BVRTN	
INPLO				ELEV	CONT	STOR	STOR	REL	INFLO				MAX	MIN							
CFS	CFS	CFS	CFS	FT	AF	AF	CFS	CFS	CFS	CFS	CFS	INCH	F	F	CFS	CFS	CFS	CFS	CFS	CFS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
						23959															
1	34	26	60	273.38	24026	67	34	11	45	131	131	741	0.01	49	31	0	0	0	0	0	0
2	34	69	103	273.55	24169	143	72	11	83	145	145	812	0.50	53	32						
3	34	50	84	273.69	24288	119	60	12	72	181	181	834	0.13	44	39						
4	52	103	155	274.03	24575	287	145	12	157	258	1116	1168	0.77	44	38						
5	52	90	142	274.44	24922	347	175	12	187	352	1652	1359	0.09	44	37						
6	48	82	130	274.77	25206	284	143	12	155	314	1787	1595	0.12	40	33						
7	45	72	117	275.05	25446	240	121	12	133	264	1538	1677	0.00	40	30						
8	39	62	101	275.21	25583	137	69	12	81	230	1380	1555	0.00	40	30						
9	37	48	85	275.49	25824	241	122	12	134	207	1211	1359	0.00	44	33						
10	36	47	83	275.65	25962	138	70	12	82	189	1078	1190	0.20	44	35						
11	41	72	113	275.97	26239	277	140	12	152	246	1074	1140	0.30	47	35						
12	37	67	104	276.17	26413	174	88	12	100	248	1182	1154	0.02	42	30						
13	35	64	99	276.38	26596	183	92	12	104	222	1171	1211	0.11	36	32						
14	34	59	93	276.58	26770	174	88	12	100	207	1105	1183	0.05	42	35						
15	33	54	87	276.80	26962	192	97	12	109	189	1076	1119	0.01	45	41						
16	33	63	96	277.02	27146	184	93	12	105	182	982	1050	0.38	50	42						
17	48	80	128	277.34	27436	290	146	12	158	323	1242	1359	0.29	48	30						
18	49	56	105	277.63	27692	256	129	12	141	293	1524	1612	0.00	49	28						
19	42	52	94	277.85	27886	194	98	12	110	259	1424	1628	0.00	47	27						
20	36	49	85	278.08	28090	204	103	12	115	229	1277	1452	0.00	50	26						
21	36	48	84	278.28	28267	177	89	12	101	212	1167	1299	0.14	44	28						
22	35	50	85	278.48	28445	178	90	12	102	198	1066	1197	0.01	51	36						
23	35	53	88	278.65	28597	152	77	12	89	185	973	1071	0.04	51	31						
24	47	106	153	278.94	28856	259	131	12	143	306	959	1030	0.09	54	49						
25	48	104	152	279.30	29179	323	163	12	175	307	1260	1140	0.16	55	45						
26	49	116	165	279.64	29485	306	154	12	166	330	1517	1579	0.14	54	38						
27	78	136	214	279.95	29765	280	141	12	153	335	1540	1677	1.03	50	40						
28	207	635	842	281.85	31492	1727	871	13	884	857	2040	2171	1.74	53	36						
29	147	555	702	283.63	33158	1666	840	13	853	2124	3052	3531	0.65	50	42						
30	117	349	466	284.99	34445	1287	649	13	662	1876	3385	3915	0.18	55	46						
31	107	278	385	286.12	35523	1078	543	13	556	1524	3460	4585	0.56	56	46						
TOTAL													7.72								
CFS	1705	3695	0	5400			5830	374	6204	12923	42695	48393	MAX	56		0	0	0	0	0	0
AC-P	3382	7329	0	10711			11564	11564	742	12306	25633	84686	95988	MIN	26	0	0	0	0	0	0

File: 292

MEASURED INFLOW					HENRY HAGG LAKE						TUALATIN RIVER			WEATHER			WATER DELIVERIES							
SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	COMP	DLLO	FRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HLSEO	FG	SVRTN				
DAY	CFS	CFS	CFS	FT	AF	AF	CFS	CFS	CFS	CFS	CFS	INCH	P	P	CFS	CFS	CFS	CFS	CFS	CFS				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)		
						35523																		
1	95	218		313	286.94	36312	789	398	13	411	1054	4328	4759	0.12	56	45								
2	88	175		263	287.61	36961	649	327	13	340	742	4597	5039	0.06	51	39								
3	77	148		225	288.16	37497	536	270	13	283	593	4590	5078	0.00	52	38								
4	73	126		199	288.62	37948	451	227	13	240	506	4468	5014	0.00	60	37								
5	65	104		169	288.98	38302	354	178	13	191	428	4158	4772	0.00	61	31								
6	58	90		148	289.32	38637	335	169	10	179	368	3683	4413	0.00	57	31								
7	48	78		126	289.56	38875	238	120	10	130	320	3292	3915	0.00	55	32								
8	45	71		116	289.83	39142	267	135	10	145	285	2693	3260	0.00	56	32								
9	40	67		107	290.07	39381	239	120	10	130	267	2117	2638	0.18	46	44								
10	37	59		96	290.27	39580	199	100	10	110	246	1761	1944	0.00	51	43								
11	33	53		86	290.46	39776	190	96	10	106	225	1489	1762	0.00	58	42								
12	31	49		80	290.65	39960	190	96	10	106	211	1288	1467	0.06	58	41								
13	33	57		90	290.82	40130	170	86	10	96	207	1160	1277	0.35	61	42								
14	31	48		79	290.98	40290	160	81	10	91	201	1153	1211	0.03	55	43								
15	31	45		76	291.13	40441	151	76	10	86	198	1050	1140	0.03	49	40								
16	31	43		74	291.25	40562	121	61	10	71	187	966	1027	0.00	52	36								
17	30	42		72	291.40	40713	151	76	10	86	171	884	951	0.04	53	38								
18	54	104		158	291.66	40975	262	132	11	143	247	887	1030	1.16	45	42								
19	53	112		165	292.15	41471	496	250	10	260	487	2193	2598	0.47	50	41								
20	101	124		225	292.68	42010	539	272	11	283	559	2973	4054	0.99	50	41								
21	124	288		412	293.46	42808	798	402	11	413	876	3344	4449	0.71	54	44								
22	102	252		354	294.37	43746	938	473	11	484	1263	3542	4425	0.23	59	42								
23	99	192		291	295.09	44493	747	377	10	387	1098	3548	4647	0.02	57	40								
24	72	157		229	295.67	45099	606	306	10	316	729	3557	4316	0.19	53	43								
25	68	130		198	296.13	45582	483	244	10	254	580	3511	4220	0.02	58	42								
26	64	108		172	296.54	46014	432	218	10	228	489	3489	4101	0.00	67	45								
27	52	101		153	296.82	46310	296	149	10	159	426	3302	3938	0.00	64	40								
28	48	87		135	297.12	46632	322	162	10	172	357	2999	3642	0.00	62	39								
29	46	78		124	297.35	46877	245	124	10	134	319	2589	3122	0.00	61	43								
30																								
31																								
TOTAL														4.66										
CFS	1729	3206	0	4935							5724	309	6033	13639	79611	94209	MAX	67	0	0	0	0	0	
AC-F	3429	6358	0	9789							11354	11354	613	11967	27053	157908	186864	MIN	31	0	0	0	0	0

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of March 1992

File: 392

DAY	MEASURED INFLOW				HENRY HAGG LAKE						TUALATIN RIVER			WEATHER			WATER DELIVERIES					
	SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	REL	COMP	DLLO	PRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HLSBO	PC	BVRTN
	CFS	CFS	CFS	CFS	ELEV	CONT	STOR	STOR	CFS	CFS	CFS	CFS	CFS	INCH	F	F	CFS	CFS	CFS	CFS	CFS	CFS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	43	72		115	297.58	47123	246	124	10	134	269	2139	2628	0.00	57	43						
2	40	64		104	297.77	47326	203	102	10	112	255	1828	2144	0.00	53	40	0	0	0	0	0	0
3	39	60		99	297.95	47519	193	97	10	107	237	1622	1874	0.01	58	40						
4	40	57		97	298.13	47712	193	97	10	107	221	1370	1563	0.31	61	43						
5	40	63		103	298.37	47970	258	130	10	140	255	1386	1555	0.34	65	45						
6	37	57		94	298.55	48165	195	98	10	108	243	1505	1595	0.17	60	40						
7	35	53		88	298.71	48337	172	87	11	98	232	1441	1595	0.00	56	39						
8	34	49		83	298.84	48474	137	69	11	80	217	1281	1452	0.00	57	37						
9	32	45		77	298.97	48619	145	73	11	84	207	1171	1329	0.00	63	39						
10	30	44		74	299.07	48727	108	54	19	73	202	1072	1183	0.00	66	38						
11	29	42		71	299.17	48836	109	55	15	70	180	982	1071	0.00	65	38						
12	28	42		70	299.26	48933	97	49	17	66	171	916	997	0.00	68	40						
13	27	37		64	299.35	49031	98	49	11	60	163	861	931	0.00	68	40						
14	26	37		63	299.45	49140	109	55	11	66	160	805	851	0.00	64	44						
15	27	39		66	299.57	49271	131	66	11	77	164	765	845	0.32	67	50						
16	25	34		59	299.67	49380	109	55	11	66	150	781	817	0.00	62	46						
17	23	33		56	299.74	49456	76	38	10	48	142	749	828	0.00	59	44						
18	22	31		53	299.82	49544	88	44	10	54	135	745	779	0.00	61	33						
19	22	30		52	299.89	49620	76	38	10	48	129	658	757	0.00	61	33						
20	19	29		48	299.97	49708	88	44	10	54	125	632	710	0.00	65	35						
21	19	28		47	300.02	49762	54	27	10	37	126	603	673	0.00	68	35						
22	18	27		45	300.08	49828	66	33	10	43	123	577	643	0.00	70	37						
23	16	26		42	300.15	49905	77	39	10	49	113	546	623	0.00	66	38						
24	16	25		41	300.20	49960	55	28	10	38	110	525	573	0.00	67	40						
25	16	25		41	300.26	50025	65	33	10	43	107	501	563	0.00	65	41						
26	15	24		39	300.31	50080	55	28	10	38	110	477	523	0.00	70	44						
27	14	23		37	300.37	50146	66	33	10	43	102	470	523	0.01	58	45						
28	14	21		35	300.41	50190	44	22	10	32	103	449	495	0.00	60	37						
29	13	21		34	300.44	50223	33	17	10	27	101	420	468	0.00	64	42						
30	13	20		33	300.49	50278	55	28	10	38	94	416	454	0.00	67	46						
31	12	20		32	300.54	50333	55	28	10	38	91	400	441	0.00	70	42						
TOTAL														1.16								
CFS	784	1178	0	1962				1742	338	2080	5057	28093	31483	MAX	70		0	0	0	0	0	0
AC-F	1555	2337	0	3892			3456	3456	670	4126	10031	55722	62447	MIN	33		0	0	0	0	0	0

SCOGGINS DAM - RESERVOIR OPERATIONS

For the Month of April 1992

File: 492

MEASURED INFLOW					HENRY HAGG LAKE							TUALATIN RIVER			WEATHER			WATER DELIVERIES					
	SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE		COMP	DLLO	PRMO	WSLO		TEMP	TEMP		TVID	USA	LO	HLSBO	FG	BVRTN
DAY	CFS	CFS	CFS	CFS	FT	AF	AF	CFS	CFS	CFS	CFS	CFS	CFS	INCH	F	F		CFS	CFS	CFS	CFS	CFS	CFS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		(17)	(18)	(19)	(20)	(21)	(22)
						50333																	
1	12	20		32	300.58	50377	44	22	10	32	88	383	424	0.00	74	45		0	0	0	0	0	0
2	12	19		31	300.62	50421	44	22	10	32	90	363	403	0.00	80	48							
3	12	19		31	300.66	50465	44	22	10	32	83	352	395	0.01	72	49							
4	12	19		31	300.68	50487	22	11	10	21	86	337	375	0.00	52	40							
5	18	23		41	300.77	50587	100	50	10	60	105	378	433	0.55	50	37							
6	21	24		45	300.89	50719	132	67	10	77	124	473	504	0.52	63	34							
7	17	21		38	300.96	50796	77	39	10	49	111	504	543	0.13	52	35							
8	14	20		34	301.00	50841	45	23	10	33	98	466	533	0.00	56	36							
9	88	53		141	301.15	51006	165	83	11	94	116	455	583	1.11	56	41							
10	27	32		59	301.25	51117	111	56	10	66	151	760	725	0.02	60	47							
11	21	27		48	301.33	51206	89	45	10	55	136	724	823	0.02	59	47							
12	24	28		52	301.42	51306	100	50	10	60	136	621	768	0.20	61	49							
13	30	44		74	301.52	51417	111	56	10	66	148	606	694	0.52	62	41							
14	31	43		74	301.68	51595	178	90	10	100	176	711	736	0.06	61	48							
15	28	39		67	301.80	51728	133	67	10	77	161	737	779	0.10	67	48							
16	39	40		79	301.90	51840	112	56	10	66	173	699	790	0.23	63	51							
17	97	142		239	302.39	52387	547	276	11	287	397	916	990	0.69	61	48							
18	74	162		236	303.01	53084	697	351	10	361	528	1713	1299	0.09	62	44							
19	55	116		171	303.06	53141	57	29	180	209	547	1917	1953	0.00	62	40							
20	44	94		138	302.92	52983	-158	-80	201	121	473	1918	2116	0.01	64	39							
21	38	75		113	302.97	53039	56	28	102	130	336	1719	1971	0.00	66	40							
22	37	67		104	303.01	53084	45	23	103	126	300	1445	1711	0.02	57	38							
23	34	59		93	302.94	53005	-79	-40	103	63	272	1220	1374	0.06	57	33							
24	30	50		80	303.05	53129	124	63	38	101	198	1084	1211	0.00	64	39							
25	28	45		73	303.18	53276	147	74	10	84	169	881	990	0.00	72	49							
26	24	43		67	203.24	53344	68	34	10	44	158	767	832	0.00	71	50							
27	28	46		74	303.37	53491	147	74	12	86	145	704	752	0.23	68	55							
28	26	42		68	303.42	53547	56	28	44	72	171	679	694	0.10	68	55							
29	37	49		86	303.49	53626	79	40	50	90	181	753	694	0.73	54	55							
30	27	50		77	303.47	53604	-22	-11	101	90	248	963	964	0.21	61	45							
31																							
TOTAL														5.61									
CFS	985	1511	0	2496				1649	1136	2785	6105	25248	27059	MAX	80			0	0	0	0	0	0
AC-F	1954	2997	0	4951			3271	3271	2253	5524	12109	50079	53672	MIN		33		0	0	0	0	0	0

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of May 1992

File: 592

MEASURED INFLOW				HENRY HAGG LAKE						TUALATIN RIVER			WEATHER			WATER DELIVERIES						
	SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	REL	COMP	DLLO	PRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HLSBO	PG	BVRTN
				INFLO	ELEV	CONT	STOR	STOR		INFLO				INCH	MAX	MIN						
DAY	CFS	CFS	CFS	CFS	FT	AF	AF	CFS	CFS	CFS	CFS	CFS	CFS	CFS	F	F	CFS	CFS	CFS	CFS	CFS	CFS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
						53604																
1	28	42		70	303.51	53649	45	23	41	64	186	1205	1154	0.01	60	36	0	0	0	0	0	0
2	25	38		63	303.54	53684	35	18	55	73	185	944	1140	0.00	64	42						
3	22	33		55	303.54	53684	0	0	55	55	176	821	926	0.00	75	49						
4	20	32		52	303.54	53684	0	0	55	55	166	735	834	0.00	88	54						
5	18	30		48	303.51	53649	-35	-18	39	21	144	672	741	0.00	91	55						
6	16	28		44	303.55	53694	45	23	30	53	127	600	653	0.00	92	57						
7	14	24		38	303.55	53684	-10	-5	31	26	123	521	573	0.00	90	53						
8	14	23		37	303.54	53684	0	0	31	31	115	473	514	0.00	81	41						
9	14	23		37	303.53	53672	-12	-6	31	25	111	434	454	0.00	60	49						
10	14	23		37	303.53	53672	0	0	31	31	111	431	424	0.00	59	49						
11	13	22		35	303.51	53649	-23	-12	31	19	112	441	420	0.00	64	47						
12	13	22		35	303.52	53660	11	6	31	37	110	430	416	0.08	58	37						
13	12	20		32	303.52	53660	0	0	31	31	99	421	407	0.00	67	44						
14	11	19		30	303.50	53640	-20	-10	30	20	89	382	395	0.00	78	47						
15	11	19		30	303.50	53640	0	0	16	16	81	334	349	0.00	79	43						
16	10	18		28	303.51	53649	9	5	17	22	78	305	316	0.00	71	45						
17	9	17		26	303.53	53672	23	12	17	29	78	282	289	0.00	81	52						
18	9	15		24	303.53	53672	0	0	17	17	76	276	282	0.00	79	48						
19	9	15		24	303.55	53694	22	11	24	35	76	258	263	0.00	74	49						
20	9	15		24	303.53	53674	-20	-10	25	15	77	254	276	0.00	73	40						
21	8	14		22	303.50	53640	-34	-17	24	7	75	254	263	0.00	64	38						
22	8	14		22	303.49	53626	-14	-7	13	6	66	236	257	0.00	69	44						
23	7	13		20	303.49	53626	0	0	12	12	61	216	233	0.00	79	51						
24	7	12		19	303.49	53626	0	0	12	12	59	211	221	0.00	85	55						
25	6	12		18	303.50	53640	14	7	12	19	57	205	198	0.00	91	59						
26	6	10		16	303.51	53649	9	5	12	17	50	204	203	0.00	76	54						
27	6	10		16	303.54	53684	35	18	12	30	51	203	198	0.00	74	45						
28	6	10	3	19	303.50	53640	-44	-22	34	12	78	160	190	0.00	73	49	15					
29	6	10	3	19	303.43	53558	-82	-41	53	12	86	158	198	0.00	73	49	34					
30	5	10	3	18	303.40	53525	-33	-17	53	36	85	185	201	0.00	76	53	35					
31	4	10	3	17	303.34	53457	-68	-34	53	19	83	174	206	0.00	83	55	36					
TOTAL														0.09								
CFS	360	603	12	975				-74	928	854	3071	12425	13194	MAX	92		120	0	0	0	0	0
AC-F	714	1196	24	1934				-147	-146	1841	1694	6091	24645	26170	MIN	36	238	0	0	0	0	0

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of June 1992

File: 692

--- MEASURED INFLOW ---					--- HENRY HAGG LAKE ---						--- TUALATIN RIVER ---			--- WEATHER ---			--- WATER DELIVERIES ---						
	SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	COMP		DLLO	PRMO	WSLO		TEMP	TEMP		TVID	USA	LO	HLSBO	PG	BVRTN
				INFLO	ELEV	CONT	STOR	STOR	REL	INFLO					PREC	MAX	MIN						
DAY	CFS	CFS	CFS	CFS	FT	AF	AP	CFS	CFS	CFS	CFS	CFS	CFS	INCH	F	F		CFS	CFS	CFS	CFS	CFS	CFS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		(17)	(18)	(19)	(20)	(21)	(22)
						53457																	
1	4	9	3	16	303.25	53355	-102	-51	53	2	82	162	198	0.00	89	56		37	0	0	0	0	0
2	4	9	3	16	303.18	53276	-79	-40	53	13	84	162	179	0.00	77	45		37	0	0	0	0	0
3	4	8	3	15	303.09	53174	-102	-51	52	1	97	154	172	0.00	79	51		37	0	0	0	0	0
4	3	7	3	13	302.97	53039	-135	-68	52	-16	92	126	63	0.00	85	44		39	0	0	0	0	0
5	3	7	3	13	302.81	52859	-180	-91	92	1	123	116	93	0.00	75	45		40	10	0	9	4	16
6	3	7	3	13	302.61	52634	-225	-113	106	-7	121	134	134	0.00	79	48		39	25	0	9	4	16
7	3	6	3	12	302.46	52466	-168	-85	107	22	121	153	130	0.00	80	47		41	25	0	9	4	16
8	3	6	3	12	302.24	52220	-246	-124	107	-17	117	143	122	0.00	75	49		41	25	0	9	4	16
9	3	6	3	12	302.06	52018	-202	-102	107	5	123	147	110	0.00	75	50		41	25	0	9	4	16
10	4	7	3	14	301.87	51806	-212	-107	107	0	123	164	134	0.00	70	48		39	25	0	9	4	16
11	4	7	3	14	301.67	51561	-245	-124	111	-13	127	165	143	0.00	74	54		38	25	0	15	4	15
12	4	7	3	14	301.46	51350	-211	-106	112	6	129	169	184	0.00	64	50		39	25	0	15	4	15
13	3	8	3	14	301.29	51162	-188	-95	112	17	127	200	177	0.05	67	50		39	25	0	15	4	15
14	4	9	3	16	301.11	50962	-200	-101	112	11	131	227	201	0.20	64	49		37	25	0	15	4	15
15	3	8	3	14	300.91	50741	-221	-111	112	1	131	257	203	0.01	70	46		39	25	0	15	4	15
16	3	7	3	13	300.76	50576	-165	-83	97	14	118	245	215	0.00	70	49		40	10	0	15	4	15
17	3	7	3	13	300.61	50410	-166	-84	98	14	119	179	226	0.00	64	43		41	10	0	15	4	15
18	3	7	3	13	300.46	50245	-165	-83	86	3	105	171	203	0.00	72	50		38	10	0	10	3	12
19	3	6	3	12	300.28	50047	-198	-100	97	-3	111	123	201	0.00	85	52		50	10	0	10	3	12
20	2	5	2	9	300.11	49861	-186	-94	97	3	110	102	190	0.00	84	54		53	10	0	10	3	12
21	2	5	2	9	299.94	49675	-186	-94	97	3	104	103	167	0.00	84	67		53	10	0	10	3	12
22	2	4	2	8	299.74	49456	-219	-110	97	-13	107	78	148	0.00	97	64		54	10	0	10	3	12
23	2	4	2	8	299.43	49118	-338	-170	174	4	165	78	126	0.00	103	63		83	50	0	14	4	15
24	1	3	1	5	299.07	48727	-391	-197	200	3	183	104	96	0.00	102	61		109	50	3	14	4	15
25	1	3	1	5	298.67	48294	-433	-218	220	2	200	123	86	0.00	99	55		109	70	3	14	4	15
26	1	3	1	5	298.20	47787	-507	-256	241	-15	215	147	96	0.00	81	59		110	90	3	14	4	15
27	1	3	1	5	297.78	47377	-410	-207	230	23	203	181	118	0.00	85	58		99	90	3	14	4	15
28	1	3	1	5	297.35	46877	-500	-252	230	-22	207	185	134	0.00	86	58		99	90	3	14	4	15
29	3	8	1	12	296.96	46458	-419	-211	299	88	216	219	152	0.34	66	56		91	90	3	14	4	15
30	3	7	1	11	296.68	46162	-296	-149	159	10	170	232	203	0.11	71	50		62	50	3	14	4	15
31																							
TOTAL															0.71								
CFS	83	186	72	341				-3678	3817	139	4061	4749	4604	MAX	103			1674	910	21	321	99	381
AC-P	165	369	143	676				-7295	-7295	7571	276	8055	9420	9132	MIN	43		3320	1805	42	637	196	756

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of July 1992

File: 792

DAY	MEASURED INFLOW				HENRY HAGG LAKE						TUALATIN RIVER			WEATHER			WATER DELIVERIES					
	SCHO	SCLO	TAMO	TOTAL	W.S.	STOR	CHANGE	CHANGE	COMP		DLLO	FRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HLSBO	PG	BVRTN
	CPS	CPS	CPS	CPS	ELEV	CONT	STOR	STOR	REL	INFLO	CPS	CPS	CPS	INCH	F	F	CPS	CPS	CPS	CPS	CPS	CPS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	2	6	1	9	296.43	45898	-264	-133	131	-2	143	251	260	0.00	70	51	56	30	3	14	4	15
2	2	6	1	9	296.20	45656	-242	-122	131	9	142	192	233	0.00	73	54	53	30	3	15	5	16
3	2	5	1	8	296.02	45466	-190	-96	100	4	116	154	179	0.00	76	57	53	0	3	15	5	16
4	2	4	1	7	295.81	45246	-220	-111	100	-11	114	121	152	0.07	82	59	54	0	3	15	5	16
5	2	6	1	9	295.65	45078	-168	-85	100	15	119	157	159	0.10	67	55	52	0	3	15	5	16
6	2	6	1	9	295.48	44900	-178	-90	100	10	121	215	167	0.22	70	56	52	0	3	15	5	16
7	2	5	1	8	295.28	44692	-208	-105	100	-5	117	227	182	0.00	75	51	53	0	3	15	5	16
8	2	5	1	8	295.11	44514	-178	-90	86	-4	103	174	182	0.01	70	52	52	0	3	9	3	11
9	2	4	1	7	294.94	44337	-177	-89	86	-3	101	130	157	0.00	74	50	53	0	3	9	3	11
10	1	4	1	6	294.68	44067	-270	-136	137	1	154	98	134	0.00	81	55	61	44	3	9	3	11
11	1	3	1	5	294.32	43694	-373	-188	184	-4	182	127	106	0.00	76	55	73	80	3	9	3	11
12	1	3	1	5	293.93	43291	-403	-203	195	-8	178	188	106	0.00	77	56	74	90	3	9	3	11
13	1	3	1	5	293.55	42900	-391	-197	195	-2	184	201	130	0.00	84	56	74	90	3	9	3	11
14	1	3	1	5	293.21	42551	-349	-176	168	-8	167	208	139	0.00	81	53	86	50	3	9	3	11
15	1	3	1	5	292.86	42193	-358	-180	186	6	173	165	145	0.00	77	52	104	50	3	9	3	12
16	1	3	1	5	292.47	41796	-397	-200	186	-14	173	151	134	0.00	87	52	104	50	3	9	3	12
17	1	3	1	5	292.14	41461	-335	-169	166	-3	157	112	118	0.00	98	64	104	30	3	9	3	12
18	1	2	1	4	291.18	41116	-345	-174	166	-8	153	105	103	0.00	101	66	95	40	3	9	3	12
19	1	2	1	4	291.47	40783	-333	-168	166	-2	153	88	93	0.00	82	58	95	40	3	9	3	12
20	1	3	1	5	291.13	40441	-342	-172	166	-6	155	111	89	0.01	86	58	94	40	3	9	3	12
21	2	3	1	6	290.76	40070	-371	-187	184	-3	174	130	93	0.01	80	58	91	60	3	9	3	12
22	2	3	1	6	290.40	39710	-360	-182	176	-6	169	151	86	0.00	72	57	83	60	3	9	3	12
23	2	3	1	6	290.08	39391	-319	-161	162	1	146	143	96	0.00	70	54	83	45	3	7	4	14
24	2	3	1	6	289.73	39043	-348	-175	161	-14	142	137	103	0.00	69	53	82	45	3	7	4	14
25	1	3	1	5	289.36	38677	-366	-185	183	-2	160	123	103	0.00	75	54	90	60	3	7	4	14
26	1	2	1	4	288.99	38312	-365	-184	185	1	160	146	100	0.00	90	54	93	60	3	7	4	14
27	1	2	1	4	288.59	37918	-394	-199	184	-15	163	164	100	0.00	85	53	92	60	3	7	4	14
28	1	2	1	4	288.20	37546	-372	-188	199	11	171	105	152	0.00	89	52	97	70	3	7	4	14
29	1	1	1	3	287.76	37107	-439	-221	216	-5	182	128	105	0.00	90	54	105	80	3	7	4	14
30	1	1	1	3	287.29	36650	-457	-230	221	-9	186	131	100	0.00	92	61	106	80	3	8	4	17
31	1	1	1	3	286.81	36186	-464	-234	230	-4	193	131	96	0.00	100	57	115	80	3	8	4	17
TOTAL														0.42								
CPS	44	103	31	178				-5030	4950	-80	4751	4664	4102	MAX	101		2479	1364	93	304	115	416
AC-F	87	204	61	353				-9976	-9976	9818	-158	9424	9251	8136	MIN	50	4917	2705	184	603	228	825

Col.4 = Col.1 + Col.2 + Col.3

Col.7 = Col.6(Current Day) - Col.6(Previous Day)

Col.8 = Col.7 / 1.98347

Col.10 = Col.8 + Col.9

NOTE: 7/10-10 additional cfs at 12 pm for TVID

7/10-40 additional cfs at 3 pm for USA

7/13-20 additional cfs at 4:30 for TVID

SCOGGINS DAM - RESERVOIR OPERATIONS
For the Month of August 1992

File: 892

MEASURED INFLOW					HENRY HAGO LAKE						TUALATIN RIVER			WEATHER			WATER DELIVERIES							
	SCHO	SCLO	TANO	TOTAL	W.S.	STOR	CHANGE	CHANGE	COMP		DLLO	PRMO	WSLO		TEMP	TEMP		TVID	USA	LO	HLSBO	PG	BVRTN	
DAY	CPS	CPS	CPS	INFLO	ELEV	CONT	STOR	STOR	RSL	INFLO	CPS	CPS	CPS	PREC	MAX	MIN	INCH	CPS	CPS	CPS	CPS	CPS	CPS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)		
						36186																		
1	1	1	1	3	286.37	35762	-424	-214	230	16	193	173	93	0.00	88	55		120	75	3	8	4	17	
2	1	1	1	3	285.90	35312	-450	-227	230	3	195	158	103	0.00	76	56		120	75	3	8	4	17	
3	1	1	1	3	285.40	34835	-477	-240	230	-10	197	188	115	0.00	82	54		120	75	3	8	4	17	
4	1	1	1	3	284.98	34435	-400	-202	200	-2	171	185	126	0.00	86	51		115	50	3	8	4	17	
5	1	2	1	4	284.57	34046	-389	-196	199	3	171	135	126	0.00	71	51		117	50	3	6	4	15	
6	1	2	1	4	284.15	33648	-398	-201	199	-2	171	131	115	0.00	83	54		117	50	3	6	4	15	
7	1	2	2	5	283.78	33299	-349	-176	194	18	178	183	118	0.34	67	56		116	45	3	6	4	15	
8	1	2	1	4	283.42	32961	-338	-170	157	-13	146	208	134	0.00	74	50		100	25	3	6	4	15	
9	1	2	1	4	283.10	32662	-299	-151	157	6	144	188	139	0.00	74	51		100	25	3	6	4	15	
10	1	1	1	3	282.74	32326	-336	-169	157	-12	144	171	172	0.00	84	57		99	25	3	6	4	15	
11	1	1	1	3	282.37	31982	-344	-173	161	-12	146	135	137	0.00	96	60		90	40	3	6	4	15	
12	1	1	1	3	281.97	31612	-370	-187	204	17	174	93	128	0.00	101	66		113	60	3	6	4	15	
13	1	1	1	3	281.51	31188	-424	-214	203	-11	171	109	103	0.00	95	64		108	60	3	6	4	15	
14	1	1	1	3	281.09	30802	-386	-195	203	8	171	127	96	0.00	98	57		108	60	3	6	4	15	
15	1	1	1	3	280.63	30382	-420	-212	203	-9	168	116	93	0.00	94	55		108	60	3	10	4	15	
16	1	1	1	3	280.18	29973	-409	-206	202	-4	169	139	93	0.00	89	53		107	60	3	10	4	15	
17	1	1	1	3	279.72	29552	-421	-212	202	-10	171	160	96	0.00	90	60		107	60	3	10	4	15	
18	1	1	1	3	279.32	29197	-355	-179	182	3	157	154	103	0.00	96	54		102	45	3	10	4	15	
19	1	1	1	3	278.89	28811	-386	-195	190	-5	161	126	114	0.00	94	51		110	45	3	10	4	15	
20	1	1	1	3	278.47	28436	-375	-189	187	-2	161	116	93	0.00	89	47		105	45	3	10	5	16	
21	1	1	1	3	278.05	28063	-373	-188	182	-6	157	117	93	0.00	84	47		105	40	3	10	5	16	
22	1	1	0	2	277.64	27700	-363	-183	169	-14	147	116	89	0.01	69	52		103	30	3	10	5	16	
23	1	1	0	2	277.27	27374	-326	-164	168	4	148	112	89	0.00	67	54		102	30	3	10	5	16	
24	1	1	0	2	276.89	27041	-333	-168	168	0	152	147	89	0.00	76	51		102	30	3	10	5	16	
25	1	1	0	2	276.52	26718	-323	-163	155	-8	138	145	89	0.00	82	52		79	40	3	10	5	16	
26	1	1	0	2	276.12	26370	-348	-175	174	-1	152	104	93	0.00	88	53		98	40	3	10	5	16	
27	1	1	0	2	275.71	26014	-356	-179	174	-5	150	103	93	0.00	92	56		100	40	3	11	4	14	
28	1	1	0	2	275.31	25669	-345	-174	174	0	150	108	89	0.00	89	46		95	45	3	11	4	14	
29	1	1	0	2	274.92	25334	-335	-169	165	-4	140	98	86	0.00	82	49		86	45	3	11	4	14	
30	1	1	0	2	274.54	25009	-325	-164	165	1	142	103	86	0.00	86	56		86	45	3	11	4	14	
31	1	1	0	2	274.17	24692	-317	-160	165	5	144	128	83	0.00	79	59		86	45	3	11	4	14	
TOTAL														0.35										
CPS	31	36	22	89			-5795	5749	-46		4979	4276	3276	MAX	101			3224	1460	93	267	131	475	
AC-F	61	71	44	177			-11494	-11494	11403	-91		9876	8481	6498	MIN	46			6395	2896	184	530	260	942

SCOGGINS DAM - RIVER OPERATIONS

For the Month of Sept. 1992

File: 992

--- MEASURED INFLOW ---				--- HENRY HAGG LAKE ---				--- TULALATIN RIVER ---				--- WEATHER ---				--- WATER DELIVERIES ---								
DAY	CFS	CFS	TANO	INFO	W.S. ELEV	STOR	CHANGE	STOR	CHANGE	REL	COMP	DILLO	GOLF	FRMO	WSLO	PREC	TEMP	TEMP	TVID	USA	LO	HL580	F6	BURTN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	
1	1	1	0	2	273.83	24692	-286	-144	150	6	136	107	123	96	0.00	71	53	71	45	3	11	4	14	
2	1	1	0	2	273.47	24102	-304	-153	148	-5	134	73	123	96	0.00	83	51	69	45	3	11	4	14	
3	1	1	0	2	273.11	23799	-303	-153	148	-5	135	89	99	96	0.00	86	49	69	38	3	15	5	16	
4	1	1	0	2	272.77	23514	-285	-144	148	-4	131	81	108	93	0.00	80	51	69	38	3	15	5	16	
5	1	1	0	2	272.40	23205	-309	-156	147	-9	133	122	99	89	0.00	67	49	56	50	3	15	5	16	
6	1	1	0	2	272.08	22939	-266	-134	147	13	134	111	135	89	0.00	70	45	56	50	3	15	5	16	
7	1	1	0	2	271.71	22623	-316	-159	146	-13	134	122	134	93	0.23	71	44	55	50	3	15	5	16	
8	1	1	0	2	271.37	22352	-271	-137	146	-9	134	116	137	96	0.00	69	56	55	50	3	15	5	16	
9	1	1	0	2	271.07	22106	-246	-124	115	-9	115	70	141	103	0.01	69	43	39	35	3	15	5	16	
10	1	1	0	2	270.81	21896	-210	-106	119	13	111	56	116	106	0.00	82	45	50	35	3	11	4	14	
11	1	1	0	2	270.77	21618	-278	-140	135	-5	121	74	87	100	0.00	90	59	51	50	3	11	4	14	
12	1	1	0	2	270.12	21333	-285	-144	146	-2	129	112	102	89	0.00	74	49	67	45	3	11	4	14	
13	1	1	0	2	269.76	21042	-291	-147	145	-2	132	122	134	86	0.04	66	44	66	45	3	11	4	14	
14	1	1	0	2	269.40	20752	-290	-146	145	-1	134	130	147	88	0.00	64	44	66	45	3	11	4	14	
15	1	1	0	2	269.12	20520	-232	-117	121	4	118	97	169	169	0.38	62	44	52	35	3	11	4	14	
16	1	1	0	2	268.91	20360	-160	-81	104	23	110	108	185	192	0.12	59	47	48	25	0	11	4	14	
17	1	1	0	2	268.68	20177	-183	-92	80	-12	88	69	183	159	0.00	73	45	43	10	0	8	4	13	
18	1	1	0	2	268.42	19971	-206	-104	100	-4	102	85	142	157	0.00	73	46	43	30	0	8	4	13	
19	1	1	0	2	268.17	19773	-198	-100	100	0	99	76	131	134	0.00	80	53	33	40	0	8	4	13	
20	1	1	0	2	267.91	19568	-205	-103	100	-3	96	61	120	126	0.00	77	50	33	40	0	8	4	13	
21	1	1	0	2	267.70	19403	-165	-83	100	17	99	85	115	122	0.00	77	54	33	40	0	8	4	13	
22	1	1	0	2	267.47	19146	-257	-130	100	-30	100	67	120	98	0.00	83	56	33	40	0	8	4	13	
23	1	1	0	2	267.15	18974	-172	-87	106	19	105	82	109	103	0.00	84	58	36	45	0	8	3	12	
24	7	7	1	15	266.96	18826	-148	-75	106	31	125	104	155	143	0.60	67	50	23	45	0	8	3	12	
25	6	6	1	13	266.80	18702	-124	-63	88	25	122	183	228	206	0.09	64	49	32	20	0	8	3	12	
26	3	3	1	7	266.58	18532	-170	-86	88	2	107	128	254	203	0.00	63	52	30	28	0	8	3	12	
27	2	2	1	5	266.36	18363	-169	-85	88	3	101	100	200	201	0.00	69	36	32	28	0	8	3	12	
28	2	2	1	5	266.13	18187	-176	-89	88	-1	100	100	170	182	0.00	74	43	32	28	0	8	3	12	
29	2	2	1	5	265.91	18018	-169	-85	88	3	97	74	160	126	0.00	78	47	22	38	0	8	3	12	
30	2	2	1	5	265.69	17851	-167	-84	88	4	96	77	138	134	0.00	80	49	21	38	0	8	3	12	
31																								
TOTAL															1.47									
CFS	47	47	7	101			-3449	3530	81	3478	2881	4264	3775		MAX	90		1385	1151	45	316	119	412	
AC-FT	93	93	14	200			-6841	7002	161	6899	5714	8458	7488		MIN		36	12747	2283	89	627	236	817	

TVID 17,615 Ac. Ft.
 USA 9,689 76% 2929
 LO 499 100% 2603
 HL580 2397 47% 2603
 FG 920 20% 3580
 BUTN 3,340 83% 660

SCUDDERS DAM - RES. 1P OPERATIONS

For the Month of October, 1992

File: 1092

MEASURED INFLOW										HENRY HAGO LAKE					TULALIN RIVER					WEATHER				WATER DELIVERIES												
SCHO SOLO TRINO TOTAL				W.S.	STOR		CHARGE		REL		COMP		OLLO		GOLF		FRMO		WELD		TEMP		TEMP		TVID		USA		LO		HLSO		FG		BUTIN	
CFS	CFS	CFS	CFS	FT	AF	HF	STOR	CHG	STOR	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	INCHES	MAX	MIN	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	
1	1	1	3	265.48	17691	-160	-81	80	-1	91	64	145	122	0.00	79	55	22	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	2	1	5	265.19	17471	-220	-111	119	8	135	114	126	134	0.19	64	53	18	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	1	2	4	264.96	17321	-150	-76	99	23	112	105	187	148	0.11	57	53	19	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	1	2	3	264.71	17110	-211	-106	99	-7	111	134	201	167	0.00	67	44	19	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1	2	0	264.45	16915	-195	-98	99	1	111	92	196	162	0.00	65	47	20	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	1	1	0	264.21	16736	-179	-90	91	1	102	93	174	177	0.00	69	42	22	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	1	1	0	264.01	16588	-148	-75	81	6	94	85	162	145	0.00	72	43	22	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	1	1	0	263.81	16440	-133	-67	69	-6	83	72	143	134	0.00	72	47	15	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	1	1	0	263.63	16307	-133	-67	69	2	82	67	133	124	0.00	69	41	16	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	1	1	0	263.41	16141	-166	-84	88	-4	97	78	134	122	0.00	68	46	18	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	1	2	0	263.15	15954	-187	-94	88	-6	103	92	128	126	0.00	77	47	18	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	1	2	0	262.93	15793	-161	-81	88	7	105	92	170	103	0.00	77	49	18	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	1	2	0	262.75	15662	-131	-66	70	4	89	79	164	122	0.00	71	44	10	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	1	1	3	262.57	15531	-131	-66	61	-5	83	73	146	120	0.00	65	32	11	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	1	2	0	262.43	15429	-102	-51	61	10	84	60	142	114	0.00	58	32	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	1	2	0	262.24	15292	-137	-69	64	-5	89	56	138	106	0.00	58	34	14	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	1	3	0	262.08	15176	-116	-58	64	6	88	73	151	103	0.00	53	41	13	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	1	3	0	261.89	15040	-136	-69	64	-5	88	72	157	106	0.00	63	49	13	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	2	6	1	261.75	14939	-101	-51	64	13	94	75	164	106	0.13	59	54	8	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	2	6	1	261.61	14839	-100	-50	64	14	94	82	179	106	0.01	68	49	8	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	3	9	1	261.00	14769	-70	-35	58	23	95	77	282	233	0.40	57	49	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	2	4	1	261.45	14725	-44	-22	21	-1	48	46	255	269	0.02	62	48	2	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	1	4	1	261.38	14675	-50	-25	41	16	63	31	178	192	0.00	65	50	2	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	1	4	1	261.19	14540	-135	-68	72	4	88	84	83	152	0.00	74	51	6	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	1	3	1	260.99	14398	-142	-72	72	0	90	85	126	112	0.00	72	50	7	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	1	3	1	260.79	14257	-141	-71	72	1	92	73	139	110	0.00	69	49	7	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	1	3	1	260.66	14165	-92	-46	51	5	71	65	134	130	0.00	65	39	6	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	1	4	0	260.53	14074	-91	-46	51	5	71	62	120	122	0.03	64	40	6	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	3	9	1	260.39	13975	-99	-50	64	14	92	73	116	122	0.51	54	46	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	14	21	2	260.32	13926	-49	-25	71	46	114	121	278	239	0.73	56	47	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31	25	37	2	260.47	14031	105	53	21	74	131	146	420	251	0.71	51	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL										2.84					79				351		1058		0		20		30		250							
CFS	76	145	18	239	-1926	2176	250	2890	2521	5272	4479	351	1058	0	20	30	250																			
AC-F1	151	268	36	474	-3820	4316	496	5732	5000	10457	8884	696	2099	0	40	60	496																			

1992 Totals (Oct 31)

TVID-18,291 Ac

USA-11,810

LO-499

HLSO-2437

FG-980

BUTN-3836

MEASURED INFLOW				HENRY HAGG LAKE				TURLATIN RIVER				WEATHER			WATER DELIVERIES							
SCHOLCLO TANO		TOTAL INFLOW		W.S. ELEV	STOR CONT	CHANGE STOR	REL CFS	COMP CFS	DLLO CFS	GOLF CFS	FRMO CFS	WSLO CFS	PREC INCHES	TEMP MAX F	TEMP MIN F	TVJD CFS	USA CFS	L0 CFS	HLS80 CFS	F6 CFS	BVRTN CFS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	14	29	1	44	260.65	14031	127	64	85	158	272	596	523	0.75	58	48	0	0	0	0	0	0
2	14	30	1	45	260.72	14158	49	25	21	132	169	578	668	0.16	54	43	0	0	0	0	0	0
3	6	15	1	22	260.76	14236	29	15	21	93	158	419	509	0.01	57	42	0	0	0	0	0	0
4	5	11	1	17	260.77	14243	7	4	21	25	105	291	424	0.21	56	45	0	0	0	0	0	0
5	5	8	1	14	260.72	14207	-36	-18	21	3	95	235	352	0.01	55	37	0	0	0	0	0	0
6	4	6	1	11	260.71	14200	-7	-4	21	17	80	184	282	0.00	54	41	0	0	0	0	0	0
7	4	10	1	15	260.58	14109	-91	-46	66	20	114	146	245	0.10	55	45	0	65	0	0	0	0
8	6	13	1	20	260.45	14017	-92	-46	66	20	183	226	226	0.30	56	42	0	65	0	0	0	0
9	9	24	1	34	260.37	13961	-56	-28	66	38	187	224	239	0.16	52	35	0	65	0	0	0	0
10	7	15	1	23	260.38	13968	7	4	22	26	141	292	209	0.01	51	33	0	0	0	0	0	0
11	5	10	1	16	260.38	13968	0	0	21	21	112	242	218	0.00	42	35	0	0	0	0	0	0
12	5	10	1	16	260.37	13961	-7	-4	21	17	99	188	212	0.14	48	37	0	0	0	0	0	0
13	4	9	1	14	260.36	13954	-7	-4	21	17	93	173	198	0.00	51	43	0	0	0	0	0	0
14	4	7	1	12	260.28	13898	-56	-28	50	22	106	147	174	0.00	60	38	0	50	0	0	0	0
15	4	7	1	12	260.15	13807	-91	-46	50	4	100	157	164	0.00	58	35	0	50	0	0	0	0
16	4	6	1	11	260.05	13738	-69	-35	50	15	99	147	162	0.00	43	35	0	50	0	0	0	0
17	4	6	1	11	259.92	13648	-90	-45	50	5	97	141	152	0.02	47	41	0	42	0	0	0	0
18	4	6	1	11	259.78	13550	-98	-49	60	11	102	165	148	0.01	51	39	0	39	0	0	0	0
19	18	27	1	46	259.68	13480	-70	-35	70	35	112	183	152	0.41	49	41	0	49	0	0	0	0
20	16	20	1	37	259.71	13501	21	11	22	33	138	307	279	0.10	42	37	0	0	0	0	0	0
21	75	175	N/A	250	259.88	13620	119	60	22	82	135	338	356	1.20	46	41	0	0	0	0	0	0
22	49	142	N/A	191	260.94	14363	743	375	22	397	1028	1093	997	1.37	51	42	0	0	0	0	0	0
23	27	78	N/A	105	261.37	14668	305	154	22	176	823	1703	1183	0.00	53	28	0	0	0	0	0	0
24	16	57	N/A	73	261.54	14789	121	61	22	83	593	1363	1190	0.00	46	30	0	0	0	0	0	0
25	12	38	4	54	261.67	14882	93	47	21	68	342	897	1190	0.00	47	31	0	0	0	0	0	0
26	8	29	N/A	37	261.73	14925	43	22	21	43	128	255	623	0.00	48	34	0	0	0	0	0	0
27	12	38	4	54	261.80	14975	50	25	21	46	123	202	633	0.38	47	36	0	0	0	0	0	0
28	12	40	N/A	52	261.94	15076	101	51	21	72	313	596	20	0.22	49	39	0	0	0	0	0	0
29	10	34	N/A	44	262.06	15162	86	43	21	64	130	612	23	0.00	52	30	0	0	0	0	0	0
30	18	54	5	77	262.15	15227	65	33	21	54	236	545	23	0.38	46	36	0	0	0	0	0	0
31																						
TOTAL														5.94								
CFS	381	954	33	1368			603	975	1578	3713	6716	13269	11946	MRX	60		0	475	0	0	0	0
AC-FT	756	1892	65	2713		1196	1196	1934	3130	7365	13321	26319	23695	MIN		28	0	942	0	0	0	0

SCOGGINS DAM - RESERVOIR OPERATIONS

For the Month of September, 1992

File # 2292

MEASURED INFLOW										HENRY HARRIS LAKE					TURLAITIN RIVER					WEATHER			WATER DELIVERIES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
ISOCH			SCLO TANO		TOTAL		W.S. ELEV		STOR		CHANGE		REL		COMP		DLLO		GOLF		FRMO		WSLO		PREC		TEMP		TEMP		TVIO		USA		LO		HL580		FG		BVRTN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
CFS	CFS	CFS	CFS	CFS	CFS	FT	AF	CONT	STOR	AF	STOR	AF	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	INCHES	F	F	F	F	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS</

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NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
07-APR-92	50.4000	50.40	0.0000	0.00	0.0000
08-APR-92					
14-APR-92	118.8900	118.89	0.0000	0.00	0.0000
21-APR-92	204.1000	204.10	0.0000	0.00	0.0000
22-APR-92					
28-APR-92	112.3600	112.36	0.0000	0.00	0.0000
29-APR-92					
04-MAY-92					
05-MAY-92	72.3300	72.33	0.0000	0.00	0.0000
11-MAY-92					
12-MAY-92	63.3400	63.34	0.0000	0.00	0.0000
18-MAY-92					
19-MAY-92	66.5000	66.50	0.0000	0.00	0.0000
26-MAY-92	35.8000	35.80	0.0000	0.00	0.0000
27-MAY-92					
01-JUN-92					
02-JUN-92	6.4700	30.97	24.5000	25.00	0.5000
08-JUN-92					
09-JUN-92	40.2100	40.21	0.0000	0.00	0.0000
15-JUN-92					
16-JUN-92	25.3450	26.08	0.7350	0.75	0.0150
22-JUN-92					
23-JUN-92	15.9810	17.50	1.5190	1.55	0.0310
30-JUN-92	75.9040	77.08	1.1760	1.20	0.0240
06-JUL-92					
07-JUL-92	17.2732	18.41	1.1368	1.16	0.0232
13-JUL-92					
14-JUL-92	8.7650	9.50	0.7350	0.75	0.0150
20-JUL-92					
21-JUL-92	9.7000	14.60	4.9000	5.00	0.1000
27-JUL-92					
28-JUL-92	9.7680	18.00	8.2320	8.40	0.1680
03-AUG-92					
04-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
10-AUG-92					
11-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
17-AUG-92					
18-AUG-92	5.6680	13.90	8.2320	8.40	0.1680
24-AUG-92					
25-AUG-92	5.2680	13.50	8.2320	8.40	0.1680
31-AUG-92					
01-SEP-92	5.2680	13.50	8.2320	8.40	0.1680
08-SEP-92	5.2780	13.51	8.2320	8.40	0.1680
09-SEP-92					
14-SEP-92					
15-SEP-92	4.1680	12.40	8.2320	8.40	0.1680
21-SEP-92					
22-SEP-92	5.6680	13.90	8.2320	8.40	0.1680
28-SEP-92					
29-SEP-92	7.9680	16.20	8.2320	8.40	0.1680

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
05-OCT-92					
06-OCT-92	10.1680	18.40	8.2320	8.40	0.1680
12-OCT-92					
13-OCT-92	7.6200	23.30	15.6800	16.00	0.3200
19-OCT-92					
20-OCT-92	10.9200	26.60	15.6800	16.00	0.3200
26-OCT-92					
27-OCT-92	18.2600	26.10	7.8400	8.00	0.1600
03-NOV-92	29.3600	37.20	7.8400	8.00	0.1600

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
07-APR-92	78.6000	78.6	0.0000	0.00	0.0000	0
08-APR-92						
14-APR-92	171.8000	171.8	0.0000	0.00	0.0000	0
21-APR-92	226.9000	226.9	0.0000	0.00	0.0000	0
22-APR-92						
28-APR-92	117.4000	117.4	0.0000	0.00	0.0000	0
29-APR-92						
04-MAY-92						
05-MAY-92	91.3000	91.3	0.0000	0.00	0.0000	0
11-MAY-92						
12-MAY-92	68.0000	68.0	0.0000	0.00	0.0000	0
18-MAY-92						
19-MAY-92	47.0000	47.0	0.0000	0.00	0.0000	0
26-MAY-92	35.6000	35.6	0.0000	0.00	0.0000	0
27-MAY-92						
01-JUN-92						
02-JUN-92	32.1500	56.4	24.2500	25.00	0.7500	0
08-JUN-92						
09-JUN-92	25.0000	25.0	0.0000	0.00	0.0000	0
15-JUN-92						
16-JUN-92	23.2725	24.0	0.7275	0.75	0.0225	0
22-JUN-92						
23-JUN-92	12.4965	14.0	1.5035	1.55	0.0465	0
30-JUN-92	16.8360	18.0	1.1640	1.20	0.0360	0
06-JUL-92						
07-JUL-92	14.8748	16.0	1.1252	1.16	0.0348	0
13-JUL-92						
14-JUL-92	9.8725	10.6	0.7275	0.75	0.0225	0
20-JUL-92						
21-JUL-92	8.9500	13.8	4.8500	5.00	0.1500	0
27-JUL-92						
28-JUL-92	6.8520	15.0	8.1480	8.40	0.2520	0
03-AUG-92						
04-AUG-92	4.4520	12.6	8.1480	8.40	0.2520	0
10-AUG-92						
11-AUG-92	6.3520	14.5	8.1480	8.40	0.2520	0
17-AUG-92						
18-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
24-AUG-92						
25-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
31-AUG-92						
01-SEP-92		15.0		8.40	0.2520	
08-SEP-92		13.0		8.40	0.2520	
09-SEP-92						
14-SEP-92						
15-SEP-92	9.5520	17.7	8.1480	8.40	0.2520	0
21-SEP-92						
22-SEP-92	7.0520	15.2	8.1480	8.40	0.2520	0
28-SEP-92						
29-SEP-92	9.9520	18.1	8.1480	8.40	0.2520	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
05-OCT-92						
06-OCT-92	8.7520	16.9	8.1480	8.40	0.2520	0
12-OCT-92						
13-OCT-92	8.5800	24.1	15.5200	16.00	0.4800	0
19-OCT-92						
20-OCT-92	14.7800	30.3	15.5200	16.00	0.4800	0
26-OCT-92						
27-OCT-92	8.8400	16.6	7.7600	8.00	0.2400	0
03-NOV-92	42.8400	50.6	7.7600	8.00	0.2400	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
07-APR-92	98.00000	98.0	0.00000	0.00	0	0	0	0	0
08-APR-92									
14-APR-92	161.00000	161.0	0.00000	0.00	0	0	0	0	0
21-APR-92	316.00000	316.0	0.00000	0.00	0	0	0	0	0
22-APR-92									
28-APR-92	157.00000	157.0	0.00000	0.00	0	0	0	0	0
29-APR-92									
04-MAY-92									
05-MAY-92	131.00000	131.0	0.00000	0.00	0	0	0	0	0
11-MAY-92									
12-MAY-92	96.80000	96.8	0.00000	0.00	0	0	0	0	0
18-MAY-92									
19-MAY-92	64.60000	64.6	0.00000	0.00	0	0	0	0	0
26-MAY-92	40.00000	40.0	0.00000	0.00	0	0	0	0	0
27-MAY-92									
01-JUN-92									
02-JUN-92	22.14050	78.4	56.25950	25.00	0	37	0	0	0
08-JUN-92									
09-JUN-92	24.24650	111.0	86.75350	0.00	25	41	15	4	0
15-JUN-92									
16-JUN-92	28.07625	106.0	77.92375	0.75	10	40	15	4	0
22-JUN-92									
23-JUN-92	-3.67625	150.0	153.67625	1.55	50	83	14	4	0
30-JUN-92	17.00500	155.0	137.99500	1.20	50	62	14	4	3
06-JUL-92									
07-JUL-92	19.21510	104.0	84.78490	1.16	0	53	15	5	3
13-JUL-92									
14-JUL-92	3.37675	153.0	149.62325	0.75	50	87	9	3	3
20-JUL-92									
21-JUL-92	-11.81350	156.0	167.81350	5.00	60	91	9	3	3
27-JUL-92									
28-JUL-92	-15.92050	171.0	186.92050	8.40	70	97	7	4	3
03-AUG-92									
04-AUG-92	-16.11350	171.0	187.11350	8.40	50	115	8	4	3
10-AUG-92									
11-AUG-92	-5.89100	146.0	151.89100	8.40	40	90	6	4	3
17-AUG-92									
18-AUG-92	-13.99800	157.0	170.99800	8.40	45	102	10	4	3
24-AUG-92									
25-AUG-92	-10.12750	138.0	148.12750	8.40	40	79	10	5	3
31-AUG-92									
01-SEP-92	-8.07450	136.0	144.07450	8.40	45	71	11	4	3
08-SEP-92	-7.75850	134.0	141.75850	8.40	50	55	15	5	3
09-SEP-92									
14-SEP-92									
15-SEP-92	0.07700	118.0	117.92300	8.40	35	52	11	4	3
21-SEP-92									
22-SEP-92	0.50850	100.0	99.49150	8.40	40	33	8	4	0
28-SEP-92									
29-SEP-92	11.32200	97.4	86.07800	8.40	38	22	8	3	0

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

SRBV LOSS (3.5%)

07-APR-92	0	0.00000
08-APR-92		
14-APR-92	0	0.00000
21-APR-92	0	0.00000
22-APR-92		
28-APR-92	0	0.00000
29-APR-92		
04-MAY-92		
05-MAY-92	0	0.00000
11-MAY-92		
12-MAY-92	0	0.00000
18-MAY-92		
19-MAY-92	0	0.00000
26-MAY-92	0	0.00000
27-MAY-92		
01-JUN-92		
02-JUN-92	0	2.04050
08-JUN-92		
09-JUN-92	9	3.14650
15-JUN-92		
16-JUN-92	15	2.82625
22-JUN-92		
23-JUN-92	15	5.57375
30-JUN-92	15	5.00500
06-JUL-92		
07-JUL-92	16	3.07510
13-JUL-92		
14-JUL-92	11	5.42675
20-JUL-92		
21-JUL-92	12	6.08650
27-JUL-92		
28-JUL-92	14	6.77950
03-AUG-92		
04-AUG-92	17	6.78650
10-AUG-92		
11-AUG-92	15	5.50900
17-AUG-92		
18-AUG-92	15	6.20200
24-AUG-92		
25-AUG-92	16	5.37250
31-AUG-92		
01-SEP-92	14	5.22550
08-SEP-92	16	5.14150
09-SEP-92		
14-SEP-92		
15-SEP-92	14	4.27700
21-SEP-92		
22-SEP-92	13	3.60850
28-SEP-92		
29-SEP-92	12	3.12200

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
05-OCT-92									
06-OCT-92	10.13200	102.0	91.86800	8.40	50	22	2	3	0
12-OCT-92									
13-OCT-92	5.87000	85.0	79.13000	16.00	45	10	0	0	0
19-OCT-92									
20-OCT-92	25.68850	94.3	68.61150	16.00	35	9	0	0	0
26-OCT-92									
27-OCT-92	24.29400	71.0	46.70600	8.00	35	6	0	0	0
03-NOV-92	85.28000	93.0	7.72000	8.00	0	0	0	0	0

SRBV LOSS (3.5%)

05-OCT-92		
06-OCT-92	12	3.33200
12-OCT-92		
13-OCT-92	12	2.87000
19-OCT-92		
20-OCT-92	12	2.48850
26-OCT-92		
27-OCT-92	0	1.69400
03-NOV-92	0	0.28000

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			5.71872	0	37	0	0.20128
08-JUN-92							
09-JUN-92			30.48696	25	41	0	1.07304
15-JUN-92							
16-JUN-92	70.15760	86.0	15.84240	10	40	0	0.55760
22-JUN-92							
23-JUN-92	13.87152	75.0	61.12848	50	83	0	2.15152
30-JUN-92	64.21928	125.0	60.78072	50	62	3	2.13928
06-JUL-92							
07-JUL-92	70.31032	81.4	11.08968	0	53	3	0.39032
13-JUL-92							
14-JUL-92	38.35528	103.0	64.64472	50	87	3	2.27528
20-JUL-92							
21-JUL-92	26.97704	101.9	74.92296	60	91	3	2.63704
27-JUL-92							
28-JUL-92	9.88968	95.4	85.51032	70	97	3	3.00968
03-AUG-92							
04-AUG-92	34.02760	103.0	68.97240	50	115	3	2.42760
10-AUG-92							
11-AUG-92	14.15160	69.6	55.44840	40	90	3	1.95160
17-AUG-92							
18-AUG-92	29.96688	92.1	62.13312	45	102	3	2.18688
24-AUG-92							
25-AUG-92	26.55176	80.3	53.74824	40	79	3	1.89176
31-AUG-92							
01-SEP-92	33.75824	91.1	57.34176	45	71	3	2.01824
08-SEP-92	43.30120	103.0	59.69880	50	55	3	2.10120
09-SEP-92							
14-SEP-92							
15-SEP-92	54.95488	99.7	44.74512	35	52	3	1.57488
21-SEP-92							
22-SEP-92	34.35952	78.1	43.74048	40	33	0	1.53952
28-SEP-92							
29-SEP-92	45.59168	85.7	40.10832	38	22	0	1.41168

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
05-OCT-92							
06-OCT-92	39.39968	91.1	51.70032	50	22	0	1.81968
12-OCT-92							
13-OCT-92	33.08440	78.1	45.01560	45	10	0	1.58440
19-OCT-92							
20-OCT-92	55.89896	91.1	35.20104	35	9	0	1.23896
26-OCT-92							
27-OCT-92	31.66264	66.4	34.73736	35	6	0	1.22264
03-NOV-92	151.00000	151.0	0.00000	0	0	0	0.00000

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			3.85836	0	37	0	0.21164
08-JUN-92							
09-JUN-92			27.97548	25	41	0	1.53452
15-JUN-92							
16-JUN-92			13.65120	10	40	0	0.74880
22-JUN-92							
23-JUN-92	21.28476	77.34	56.05524	50	83	0	3.07476
30-JUN-92	141.29064	198.00	56.70936	50	62	3	3.11064
06-JUL-92							
07-JUL-92	99.62916	108.00	8.37084	0	53	3	0.45916
13-JUL-92							
14-JUL-92	89.18364	148.50	59.31636	50	87	3	3.25364
20-JUL-92							
21-JUL-92	19.58652	88.80	69.21348	60	91	3	3.79652
27-JUL-92							
28-JUL-92	28.68084	108.00	79.31916	70	97	3	4.35084
03-AUG-92							
04-AUG-92	86.26380	148.50	62.23620	50	115	3	3.41380
10-AUG-92							
11-AUG-92	54.85080	105.00	50.14920	40	90	3	2.75080
17-AUG-92							
18-AUG-92	56.85944	113.00	56.14056	45	102	3	3.07944
24-AUG-92							
25-AUG-92	48.49788	97.50	49.00212	40	79	3	2.68788
31-AUG-92							
01-SEP-92	36.46212	89.37	52.90788	45	71	3	2.90212
08-SEP-92	32.82060	88.80	55.97940	50	55	3	3.07060
09-SEP-92							
14-SEP-92							
15-SEP-92	56.75344	98.20	41.44656	35	52	3	2.27344
21-SEP-92							
22-SEP-92	41.40876	82.77	41.36124	40	33	0	2.26876
28-SEP-92							
29-SEP-92	57.58184	95.90	38.31816	38	22	0	2.10184

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
05-OCT-92							
06-OCT-92	42.00584	91.70	49.69416	50	22	0	2.72584
12-OCT-92							
13-OCT-92	45.09720	88.80	43.70280	45	10	0	2.39720
19-OCT-92							
20-OCT-92	53.68148	87.80	34.11852	35	9	0	1.87148
26-OCT-92							
27-OCT-92	56.19432	90.00	33.80568	35	6	0	1.85432
03-NOV-92			0.00000	0	0	0	0.00000

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
07-APR-92	410.60000	410.6	0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92	509.80000	509.8	0.00000	0	0	0	0.00000
21-APR-92	291.70000	291.7	0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92	516.80000	516.8	0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92	599.40000	599.4	0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92	348.30000	348.3	0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92	195.70000	195.7	0.00000	0	0	0	0.00000
26-MAY-92	106.00000	106.0	0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92	96.83536	99.6	2.76464	0	0	37	0.19536
08-JUN-92							
09-JUN-92	77.38648	103.8	26.41352	25	0	41	1.86648
15-JUN-92							
16-JUN-92	182.17120	194.5	12.32880	10	0	40	0.87120
22-JUN-92							
23-JUN-92	0.09824	53.0	52.90176	50	0	83	3.73824
30-JUN-92	124.86536	179.0	54.13464	50	3	62	3.82536
06-JUL-92							
07-JUL-92	154.23784	161.0	6.76216	0	3	53	0.47784
13-JUL-92							
14-JUL-92	94.29736	150.3	56.00264	50	3	87	3.95736
20-JUL-92							
21-JUL-92	16.65848	82.3	65.64152	60	3	91	4.63848
27-JUL-92							
28-JUL-92	40.57016	116.0	75.42984	70	3	97	5.33016
03-AUG-92							
04-AUG-92	85.30520	143.4	58.09480	50	3	115	4.10520
10-AUG-92							
11-AUG-92	74.11320	121.0	46.88680	40	3	90	3.31320
17-AUG-92							
18-AUG-92	119.54656	172.0	52.45344	45	3	102	3.70656
24-AUG-92							
25-AUG-92	59.13512	105.2	46.06488	40	3	79	3.25512
31-AUG-92							
01-SEP-92	39.66288	89.8	50.13712	45	3	71	3.54288
08-SEP-92	41.78840	95.4	53.61160	50	3	55	3.78840
09-SEP-92							
14-SEP-92							
15-SEP-92	65.62256	105.0	39.37744	35	3	52	2.78256
21-SEP-92							
22-SEP-92	33.17424	73.0	39.82576	40	0	33	2.81424
28-SEP-92							
29-SEP-92	77.86416	115.0	37.13584	38	0	22	2.62416

NFROOD = ROOD - STORAGE

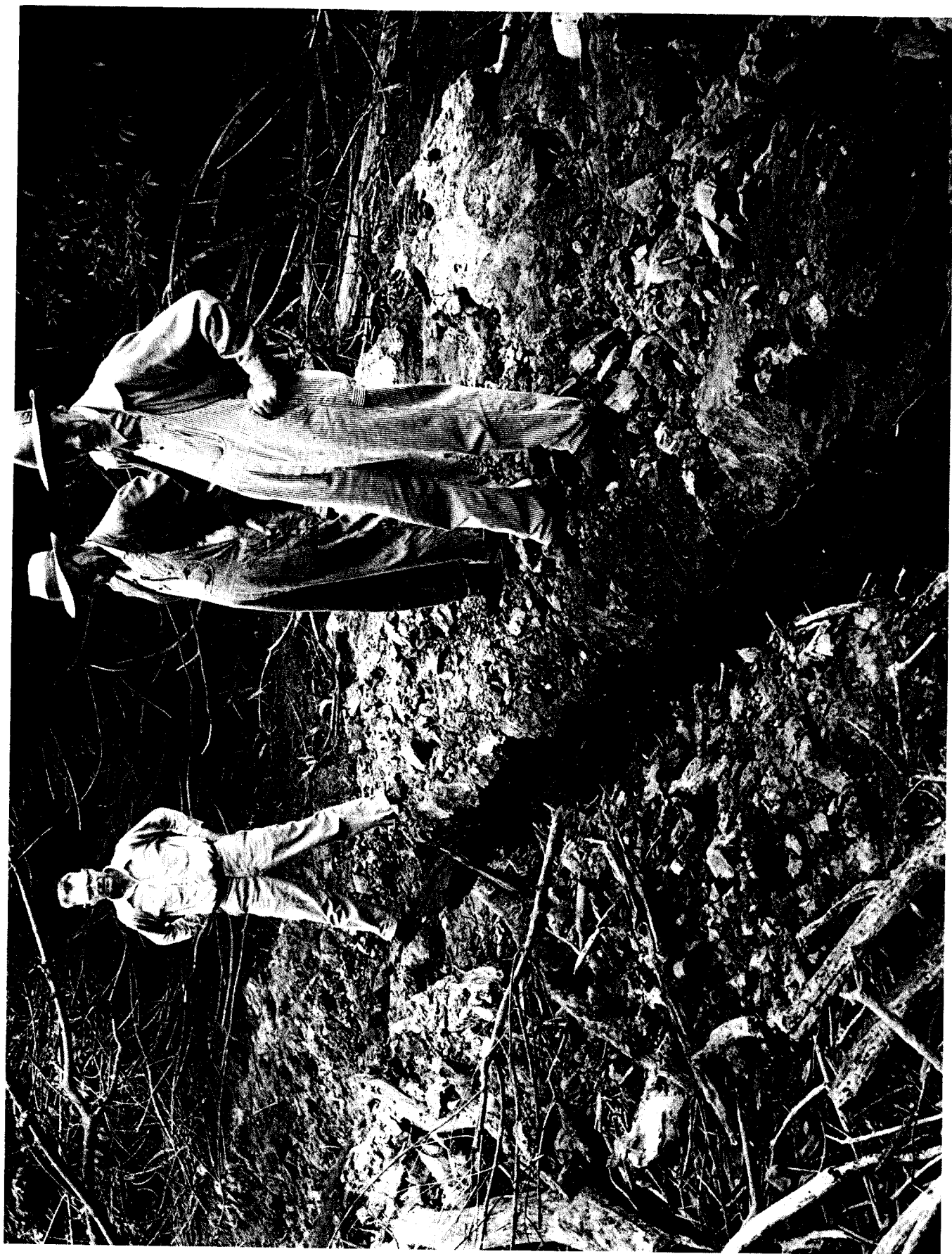
WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

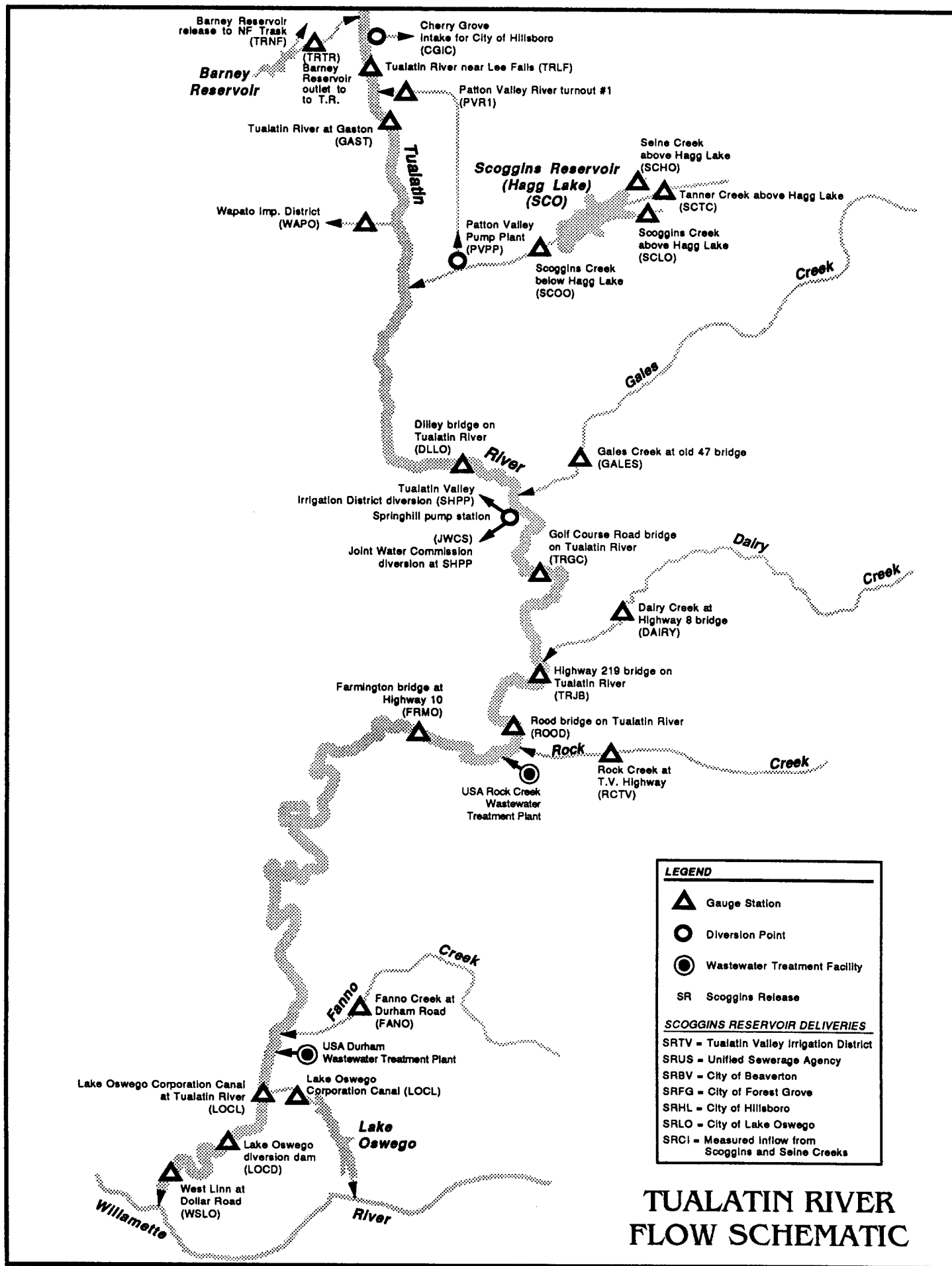
TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

1992 ANNUAL REPORT

**Prepared By:
Unified Sewerage Agency
Planning Division**



This is the total stream flow of the Tualatin River just below the Farmington Bridge in August, 1959—the total annual run-off exceeds one million acre feet.



Source: Unified Sewerage Agency

TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

1992 ANNUAL REPORT

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TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

COMMITTEE MEMBERS:

Jan Miller, Chair	Unified Sewerage Agency
Carlo Spani	Unified Sewerage Agency
Tom VanderPlaat	Unified Sewerage Agency
Wally Otto	Tualatin Valley Irrigation District
Dan Wilson	Tualatin Valley Irrigation District
Van Burrus	Joint Water Commission
Chuck Schaeffer	Lake Oswego Corporation
Jerry Rodgers	Oregon Water Resources Department

EXECUTIVE SUMMARY

In 1987, a committee was established of the major water users in the Tualatin River Basin. The committee was named the Tualatin River Flow Management Technical Committee. The members include Unified Sewerage Agency, Tualatin Valley Irrigation District, Joint Water Commission, Lake Oswego Corporation and the Oregon Water Resources Department. This report is to give a review of the accomplishments of the committees activities. During this past year, other representatives have joined in to discuss issues related to the flow management of the Tualatin.

The committee provides a mechanism for the coordination and management of the Tualatin River. The members of the committee are technical staff that have detailed knowledge of the specific characteristics of the flow in the Tualatin River. An expanding on-going flow monitoring system has provided valuable information for management of stored and natural flows in the basin. Since the issue of water quality has come to the fore-front of the basin, the monitoring system has been a excellent example of inter-agency coordination. This coordination has saved many dollars for the agencies in the basin. The information has been used by various federal, state, and local agencies.

The committee meets monthly from March through November to review the flow and reservoirs. The attached hydrographs show the differences between 1991 and 1992. The 1992 water year was identified as a drought year. The precipitation levels were below normal. Due to the driest May on record (total precipitation of 0.09 inches) the streamflows for the main Tualatin and tributaries dropped much sooner than in 1991. Most of the entities having contracts for stored water from Scoggins Reservoir started releases much earlier in the year than normal. The earlier starting dates caused USA to adjust their goals and monitor flows on a daily basis to protect against shortages in the fall of the year.

In 1992, major accomplishments included, a telemetry system installation on the Tualatin River at Golf Course Rd. gaging station (RM. 52.8). It proved to be an important site, because of its location below the Springhill Pump Plant. The Oregon Water Resources Department implemented a regulation system for water rights holders on the mainstem of the Tualatin River. The City of Hillsboro constructed a new sand filtration system at the Cherry Grove Intake on the upper reaches of the Tualatin River. Unified Sewerage Agency requested and received approval to purchase an additional 3000 acre-feet of Scoggins Reservoir storage water from the Bureau of Reclamation. This water was to be released in November if necessary to maintain river flow.

BACKGROUND

The Tualatin River Basin is 712 square miles situated in the Northwest corner of Oregon and is a subbasin of the Willamette River. The basin lies almost entirely in Washington County. The Tualatin is 83 miles in length and has a very flat gradient for most of its length.

The mountain reach (RM. 85 - 58) is steep with an average gradient of 80 feet per mile. At RM. 80 water is released from Barney Reservoir which is on the Middle Fork of the North Fork of the Trask River. The reservoir has a capacity of 4,040 acre-feet. The water is released during the summer low flow season. The Trask water is partially diverted at the Cherry Grove Intake at RM. 76 for the City of Hillsboro for municipal and industrial purposes. The City has natural flow water rights that are used during most of the summer.

RM. 60 is the confluence of the Tualatin and Scoggins Creek. In the early 1970's the Bureau of Reclamation built an earthen dam on Scoggins Creek. The reservoir has a active storage capacity of 53,640 acre-feet. The Scoggins Reservoir (Henry Hagg Lake) is a multipurpose facility with contracted water for irrigation, municipal and industrial, and water quality uses. Recreation is a major activity during the summer months on the reservoir. During the winter it serves as a flood control structure. On Scoggins Creek near RM. 5, TVID operates the Patton Valley Pump Station. This pump station can divert via a low pressure pipeline into the Tualatin River above the city of Gaston. The water is released at two outlets, one at RM. 63.2 and the other at RM. 64. This water is used to serve the patrons in the Wapato Improvement District (Onion Lake) and those upstream of the Scoggins confluence.

The meander reach (RM. 58 - 33) has an average gradient of 2.8 feet per mile. The Tualatin has another major diversion facility at RM. 56.3, the Springhill Pumping Plant. This pump plant is jointly operated by the Tualatin Valley Irrigation District (TVID) and the Joint Water Commission (JWC). TVID is the agricultural water service agency, which serves 17,000 acres of irrigated cropland. It has a pumping capacity of approximately 140 cubic feet per second (CFS)(90 MGD). TVID pumps the river water to a pressure pipeline irrigation system that serves about 10,000 acres of irrigated cropland. The remaining 7000 acres is served directly from the Tualatin River. Both TVID and JWC have natural flow water rights that are used in the early part of the season and release contracted stored water from Scoggins Reservoir when the natural flow drops in the summer.

The JWC serves as the municipal water purveyor for the cities of Hillsboro, (parts of) Beaverton and Forest Grove. It has a pumping capacity of approximately 45 cfs (30 MGD).

The Unified Sewerage Agency (USA) provides sanitary and stormwater services to the urban areas of Washington County. USA has two major wastewater treatment plants that have permits to discharge water during the summer into the Tualatin River. During the months of May to October, the Rock Creek facility discharges at RM. 38.1 and the second facility, Durham, discharges at RM. 9.6 and both have an average flow of 23 cfs (15 mgd). USA releases storage water for flow augmentation during the seasonal low flow periods. The goal is to maintain 150 cfs (100 MGD) at the Tualatin River at Farmington (RM. 33.3).

The reservoir reach (RM. 33 - 3.4) has an estimated gradient of 0.05 feet per mile. This reach winds through the basin with a very slow travel time. The reach has several deep pools and is very different in appearance than the upper reaches. A portion of the Tualatin flow is diverted at RM. 6.7 by the Lake Oswego Corporation at the Lake Oswego Canal. A headwork structure regulates the flow into a mile long canal that feeds into Lake Oswego. The water is used to generate power at the dam at the east end of Lake Oswego. The Lake Oswego Corporation has a natural flow water right with a priority date of 1906 for 57.5 cfs and 500 acre-feet of contracted stored water from Hagg Lake. At RM. 3.4 a diversion dam and fish ladder is used to elevate the Tualatin River enough to divert the flow at the canal. During most of year the river elevation is adequate to allow diversion of LOC. water rights. However in the summer, flash boards are installed to increase the water level. This dam raises the Tualatin about 2 - 3 feet and effects the water surface elevation for about 25 river miles. The slow movement of the water causes this reach to act much like a lake.

The riffle reach (RM. 3.4 - 0) has an average gradient of 10 feet per mile. The Tualatin flows through a small reservoir section and drops through a narrow gorge to the Willamette River. The mouth of the Tualatin is just upstream from the Willamette River Falls at Oregon City.

Rainfall in the Tualatin Basin ranges from 110 inches on the eastern slopes of the Coast Range to 37 inches in the southeastern area of the drainage basin. The amount of stream flow from snow is very minimal. The peak months for rainfall are November through February, while June through October are normally driest.

INFORMATION AND DATA COLLECTION SYSTEM

A coordinated information system was developed to provide flow information to all members of the committee. Because any one of the entities use or release of water can impact the other users, coordination of flow information is an important aspect of the committee's work. The data is collected by field staffs of the cooperating entities or from the Corp. of Engineers via telemetry. A system of gaging stations, precipitation and other flow monitoring equipment has been developed during the past five years to monitor the flows in the Tualatin and the major tributaries. Other significant releases and diversions are also monitored. A total of 48 sites are monitored in the basin. The data collected is relayed to the local Watermaster office on a weekly basis where it is downloaded to USA's mainframe computer. Hydrographs which show the previous year and current years data, were developed to identify and address problems related to the flow. Rainfall is shown as total weekly accumulation and three stations are currently being graphed.

A second set of hydrographs were developed that show the available natural flow at various points on the mainstream Tualatin. These graphs calculate the amount of natural flow by taking the measured flow and subtracting the storage flow. The storage flow is calculated on the releases from Scoggins and Trask Reservoirs. A evaporation loss factor reduces the storage flow and is based on an estimated loss of 0.25% of the flow per river mile. The main purpose for calculation of the natural flow is to regulate natural flow water right holders and identify specific reaches of the Tualatin that need regulation. The key point in the analysis of the graphs is at the point when the available natural flow is below zero. When the natural flow graphs show flows less than zero, the reach does not have adequate water to serve all users and regulation is needed. The regulation is handled by the local Watermaster office and is done on a priority basis as required by Oregon Water Law.

The Tualatin River Flow Management Technical Committee meets monthly during the months of March through November. The meetings focus mainly on the review of the hydrographs and current status of the reservoirs. A variety of other issues and problems are discussed. Each member is usually asked to update the committee on any changes that could impact the flow management of the Tualatin. Minutes are recorded and reviewed at the next meeting.

1992 ENTITIES REPORTS

UNIFIED SEWERAGE AGENCY

(Written by Carlo Spani)

1992 was an eventful year for Unified Sewerage Agency's (USA) flow management program. The drought conditions led to a number of first time events such as the earliest beginning of the pollution abatement release, lowering of the Tualatin River flow target, and the purchase of additional stored water by USA.

In April, USA again requested permission from the Bureau of Reclamation (BOR) to deviate from the stipulated release schedule and instead, release water based on maintaining a target river flow at the Farmington gage. USA also applied to the BOR for the option to purchase 3,000 to 6,000 acre-ft. of additional storage water. Within the month, the BOR approved the deviation from the prescribed release schedule and said it would investigate the possibility of a sale of additional water to USA.

Due to an unusually dry winter and spring, the Tualatin River flows were approaching 150 CFS by late May. USA's water release for water quality began on June 4th. The river flow target was changed from maintaining 150 CFS on a seven day moving average basis (7-DMA) to maintaining 150 CFS on a monthly average basis with no single day to be less than 100 CFS. This change was necessitated due to the early start of the release season.

By the first week of August, it became apparent that maintaining a river flow of 150 CFS, even on a monthly basis, would not be possible if drought conditions extended into November. Therefore, the river flow target was again lowered to maintaining 120 CFS as a monthly average and preventing flows of less than 100 CFS on a daily basis.

Fortunately, remote telemetry was provided to the Golf Course gage station by August of 1992. This telemetry provided a 12 hour advance notice of the anticipated flows at the Farmington gage instead of the previous 24 hour to 30 hour lead time. This allowed for more expeditious changes in the release from Scoggins Reservoir relative to maintaining a given Tualatin River flow at the Farmington gage.

In the first week of October, the BOR informed USA that up to 3,000 acre-ft. would be available for purchase in 600 acre-ft. blocks. At the same time, the BOR confirmed that USA would receive a natural flow credit but it would be limited to an amount provided by a strict interpretation of the repayment contract. On October 27, 1992, USA purchased one 600 acre-ft. block of water from the BOR. Due to significant rainfall near the first week of November, USA temporarily halted its release. USA's release was intermittent from that time on until the final stoppage on November 19, 1992.

The following is a tabular summary of USA's water release for 1992 and a summary of Tualatin River flow on a monthly basis.

Table A.

Water Released from Scoggins Reservoir
for Water Quality (Acre-ft.)

	Max. Available	1992 Available	Consumption
Storage	12,618	12,618	12,618
Natural Flow Credit	4,282	644	644
Purchased Water	3,000	600	134
			----- 13,396

Table B.

1992 River Flow Data Summary (CFS)

Month	Farmington Daily Min./Max.	Farmington 7-DMA Min./Max.	Farmington Mon. Avg.	USA Release Mon. Avg.
June (4th-30th)	73/288	100/206	158	30
July	93/235	120/209	151	44
August	88/204	111/174	138	46
Sept.	88/249	110/189	143	38
Oct.	93/437	125/200	172	43
Nov. (1st-19th)	140/592	162/400	247	28
Season				
Minimum	73	100	138	
Maximum	592	400	247	
Average	163			40

As can be seen in table A., USA released all of its stored water allocation as well as 134 acre-ft. of its purchased water. Due to the drought conditions, USA also received a total of 644 acre-ft. of natural flow credit. The total water released was 13,396 acre-ft., for an average release rate of 40 CFS over the 168 day release season.

The monthly goal was met 100% of the time. The seven day moving average goal was met 89% of the time and the daily flow goal was met 94% of the time. The Seasonal compliance with all of the goals was 88%.

Considering the unusually dry conditions of 1992 as well as the inherent limitations involved in managing the Tualatin River flow, the 1992 season must be considered a success.

TUALATIN VALLEY IRRIGATION DISTRICT

(Written By Wally Otto)

The 1992 water year for the Tualatin Basin was unique. Rather than having excess water in April as happened in 1991, the Basin began to experience the statewide drought. March precipitation as collected at the Scoggins Station was only 1.16 inches or 21% of normal. April provided a "shot in the arm" with 5.63 inches or 167% of normal at the Scoggins station, but May turned exceedingly dry again with only 0.09 inches or 4% of normal monthly precipitation recorded. In addition, the two Snotel sites located in the drainage above Scoggins Dam recorded a snowpack for only a short 10 day period in the middle of January, which did not add a significant amount of the basin recharge. The mild winter with the above average temperatures and low rainfall totals brought on early plantings. Generally, the agricultural crops were 3 - 5 weeks ahead of schedule in 1992.

This year, the Tualatin River Water Rights Information Program (WRIP) was developed for the main stem of the Tualatin by Jerry Rodgers, the local Watermaster and reviewed by the Flow Management Committee. Priority dates by reach and use were then used by the Watermaster to regulate water diversion on the main stem of the Tualatin. With the exception of domestic and livestock consumption, all users with priority dates of Jan. 1, 1953 and later were shut off from their natural flow water rights. Above the confluence of Dairy Creek, natural flow right holders were cut off back to Jan. 1 1945 and above Gales Creek, right holders were cut back to Jan. 1. 1930.

All irrigation water along the mainstem Tualatin and from the Springhill Pump Plant came from storage water out of Scoggins Dam, once the regulation process started. Numerous inquiries came to TVID for storage water as a result and most were accommodated.

The Tualatin River at Golf Course Road gaging station (TRGC) located south of the city of Cornelius was put into operation this year. It is located several miles downstream of the Springhill Pump Plant where both the Joint Water Commission and TVID divert water from the Tualatin. This station is accessible via telephone lines and contains a data logger that stores the gage height data. It proved very helpful monitoring flows past the Springhill Plant and forecasting the flows at other downstream gaging stations.

The flowmeter at the Springhill Plant broke down this summer. After much effort and help from USA and United States Geological Survey, the district installed a new flowmeter. During the period the flowmeter was broken the flows were manually calculated from the hour meters on each pump.

JOINT WATER COMMISSION

(Written by Van Burrus)

The Hillsboro-Forest Grove-Beaverton Joint Water Treatment Plant started releasing stored water from Scoggins Dam for the summer season on June 5th. We continued to release water from Scoggins Dam until October 22.

The flow to the Tualatin River was also supplemented with releases from Barney Reservoir from July 19 through October 28. This was an unusual year for Barney Reservoir. We had engineers working on the feasibility of increasing the impoundment from the 4,000 acre-feet to 20,000 acre-feet. We also completed corrective maintenance to the weir below Barney Reservoir that required the release to be cut to a minimum for a day.

We released more water from storage than normal this season for two primary reasons. The first reason was the low rainfall. Jerry Rodgers, the Watermaster (district 18) cut Hillsboro natural flow water rights on the Tualatin from 9.0 cubic feet per second(cfs) to 5.0 cfs on August 11, and to 4.0 cfs on August 25. The second reason was Tualatin Valley Water District supplemented their Portland source with water from the city of Hillsboro. TVWD started using Hillsboro water on June 8th and continued until October 8th. TVWD's peak day usage was on June 21, of 4.1 million gallons. However the average daily usage was closer to 1.5 million gallons.

Table C.
1992 Scoggins Dam releases for Joint Water Commission

Month	Beaverton	Hillsboro	Forest Grove	Total
June	756 AF	637 AF	196 AF	1,589 AF
July	825 AF	603 AF	228 AF	1,656 AF
August	942 AF	530 AF	260 AF	1,732 AF
September	817 AF	627 AF	236 AF	1,680 AF
October	496 AF	40 AF	60 AF	596 AF
Totals	3,836 AF	2,437 AF	980 AF	7,253 AF

LAKE OSWEGO CORPORATION

(Written by Chuck Schaeffer)

The 1992 Water Management and Water Quality program for Oswego Lake each year continues to be a challenge and on drought years even more so.

Prior to 1942, Oswego Lake has conducted an annual top surface drawdown. Typically this drain is scheduled during the winter months of January through March. Since about 1975, the Lake Oswego Corporation (LOC.) has gone to a drawdown every other year. The purpose of these surface drains are multiple.

- Water Quality benefits can be gained especially if during the lake drain the weather reaches freezing temperatures. Water weeds are targeted by the natural freezing phenomenon.
- Water Quality benefits are accomplished by releasing nutrient loaded stored water and the refilling with colder spring freshet surface water and river oxygenated natural flows.
- Some flushing of phosphorus, nitrates and suspended solids may occur.
- Other needs and benefits to a lake drain. Visual inspections must be conducted by City of Lake Oswego on their several miles of sanitary sewer line, manhole junctions, and residential laterals that have been laid throughout the lake bed of the main lake, its canals and

its embayments over the past three-quarters of this century. These visual inspections are only one of many tools for surveillance on this underwater system.

- All underwater constructions, repairs, dredging projects, removal of boating hazards. Silt or lakebed sampling and photography must be accomplished at drain down.
- Lakebed walks reveal possible plant infestations, erosion, streambed delta changes, and/or identify any new water safety hazards.
- Continuing seawall construction does occur with new development, where as our dam structures, water gates, inner gates and related facilities are surveyed.
- Over water structures such as boat houses, cabana residential housing with their underwater footings, support pilings, beams and cross members must be inspected and maintained.
- Flumeline, hydroelectric plant machinery, flood gates, and turbine wheels are inspected and routine repairs completed.

1992 was a NO drain year. As a result, more natural flow water was retained in the lower Tualatin River during the spring of this statewide drought year.

LOC. has been working very closely with the State Watermaster (district 18) in accomplishing a much lower river pool level above rivermile 3.4 on our flashboard diversion dam during the low critical river flows. This new lower pool permits only LOC's water rights as grandfathered from 1909, and thus allows more flow and flushing to occur through out the last 33 mile stretch of the Tualatin River.

In the 1992 LOC. Water Management Plan the corporation set out these objectives:

Achieve the challenge of greater water safety, and protection of water rights.

Work as a community for better land use planning and protection of the beneficial uses of the lake.

Our board supports the Tualatin River Cleanup order of the Environmental Quality Commission and continues to work in cooperation with Unified Sewerage Agency and the City of Lake Oswego to achieve improvement in water quality and water quantity. We still realize any appreciable cleanup of the lake is not possible without substantial improvement of the

Tualatin River water quality and surface water runoff in the lake drainage basin. Oswego Lake is challenged by its uniqueness and by its status as a lake.

We continue to rely on USA and the City of Lake Oswego to work diligently toward their respective total maximum daily load (TMDL) goals in the Tualatin River and the Oswego Lake watershed.

Phosphorus (TP, PO4-P) samples are taken monthly at the Tualatin River canal entrance. Then during the months of March through May, the flow is restricted based on the phosphorus levels to reduce the amount of loading entering Oswego Lake. Again in 1992, LOC. restricted the flows during March through May due to the high phosphorus levels, which reduced the flow to less than 50% percent of the 57.5 cubic feet per second allowed under their natural flow water right.

LOC. took delivery of Bureau of Reclamation contracted stored water commencing on June 24th and ceasing on September 16th , which resulted in full delivery of 500 acre-feet.

We finished 1992 drought year by closing down all irrigation after September 30 as per mandate from Watermaster District 18. Moving into the fall period the weather pattern became more normal. Notice was sent out to the LOC. lake front owners that 1993 would be a drain down year.

OREGON WATER RESOURCES DEPARTMENT

(Written by Jerry Rodgers)

The Tualatin Basin Watermaster office continued with their contribution to flow management in two areas. First by monitoring and calibrating various gages and secondly by regulating withdrawals throughout the basin.

The gaging network provides information on the flow levels throughout the basin and provides the frame work for decisions on the releases from Scoggins Reservoir. Staffing to accomplish the necessary stream gaging to calibrate the various gages is a cooperative effort by the agencies with contracted water from Scoggins Reservoir.

Although, the gaging station network has been in use for a number of years, information on the actual withdrawals has been limited. To address the withdrawal question the Tualatin Water Right Information Program (WRIP) came on line this year. The natural flow water rights to the mainstem Tualatin are now entered into a relational database. This information is the main tie between actual water withdrawals related to water availability. Important information includes water rights by owner, by priority date, and diversion per river mile. The database allows the generation

of water rights holders for each reach of the river by priority date. For example, all current water rights holders above the confluence of Gales Creek with water rights after July 1, 1976 can now be identified. These users can be targeted for regulatory actions or informational releases related to this area.

By knowing both the flow and the demand the watermaster could make decisions on who was entitled to natural flow. Information cards were sent out to all regulated users to notify them of when they were on alternate supplies (i.e. TVID stored water) and that they were shut off natural flow. This system provides a clear cut picture of who is entitled to the available water. The table below shows the regulation that occurred the summer of 1992.

Work continues on the adding tributaries to the WRIP database during the off season. The Gales Creek subbasin should be added by the summer of 1993.

The upgrading of information access to field stations continued with telemetry being added to the Tualatin River at Golf Course gage. A modem and telephone line were installed and became operational in July. This is the first river gage below the Springhill Pumping plant and provides instantaneous and recent historically data of river levels. By knowing flow changes earlier, reservoir releases can be adjusted sooner to limit severe flow changes and maintain flows at a relatively steady level downstream.

Although the summer season started with a full reservoir, summer releases from Scoggins reservoir started much earlier than normal. Due to the drought, many streams were at 50% of normal levels. By coordinating with the TVID and USA, releases were kept as low as possible while still meeting minimum flow targets at the Farmington Gaging Station on the Tualatin River. This conserved stored water for later use.

1992 Flow Management Summary Regulation Table

DATE	STREAM REGULATED	WATER RIGHTS WITH LATER PRIORITY DATES
6/5	Tualatin River	1/1/1963
6/12	Gales Creek	2/20/1963
6/22	Tualatin River	1/1/1953
7/15	Entire Basin	10/8/1976
7/16	East Fork Dairy Creek	5/25/1966
7/23	Tualatin R. above Dairy Creek	1/1/1949
8/5	Tualatin R. above Dairy Creek	1/1/1945
8/11	Tualatin R. above Gales Creek	1/1/1930
8/21	Gales Creek	1/1/1945

9/10 Gales Creek, turn on rights prior to 1/1/1953
9/25 Gales Creek, turn on rights prior to 1/1/1962
9/25 Tualatin Basin, turn on rights prior to 2/1/1962

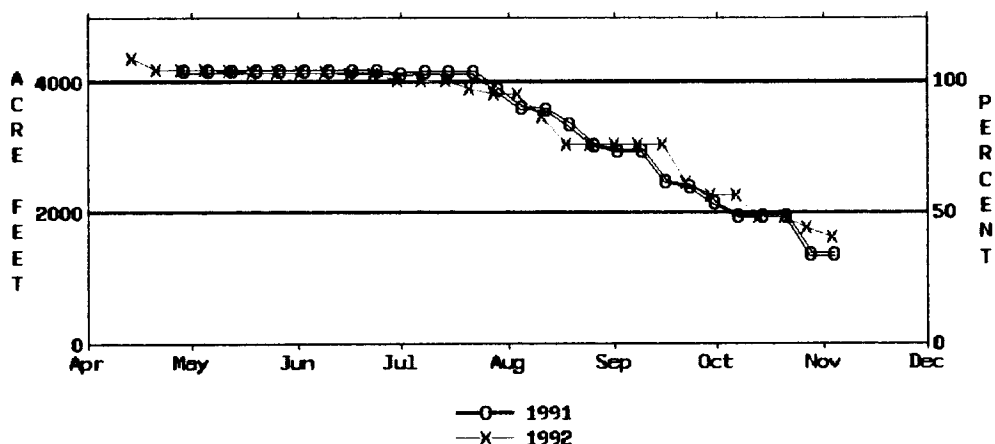
9/30 Notices to all irrigators of end of irrigation season.

SUMMARY

The Tualatin River Flow Management Technical Committee has been and will continue to be a important part of the water resources management in the Tualatin Basin. The information system and monitoring network will need to be expanded to allow current information to be collect and used for real time decisions. This committee has provided the vehicle for coordination and awareness of impacts caused by each entities operations. In 1992 due to the drought conditions, the committee gained a great deal of experience, in coordinating flow information and providing maximum utilization of the limited storage water.

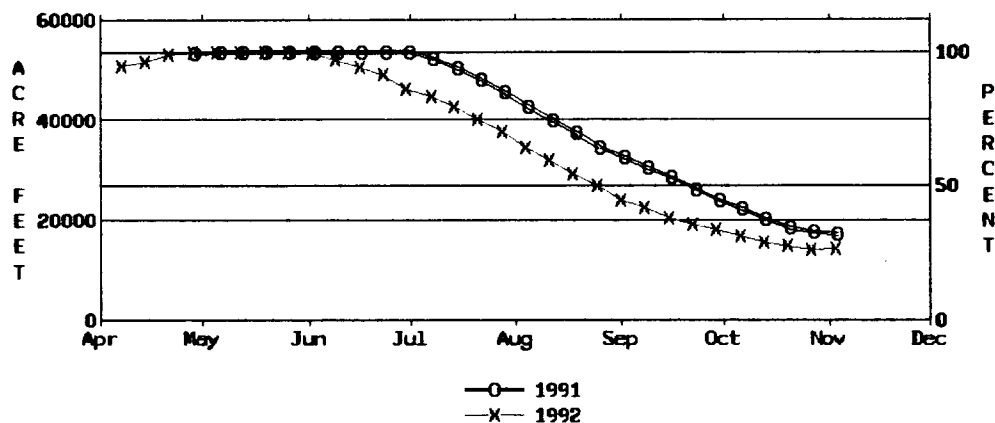
APPENDIX A
HYDROGRAPHS FOR FLOW MONITORING SITES

TRASK (BARNEY RESERVOIR CONTENT) (TBRC)



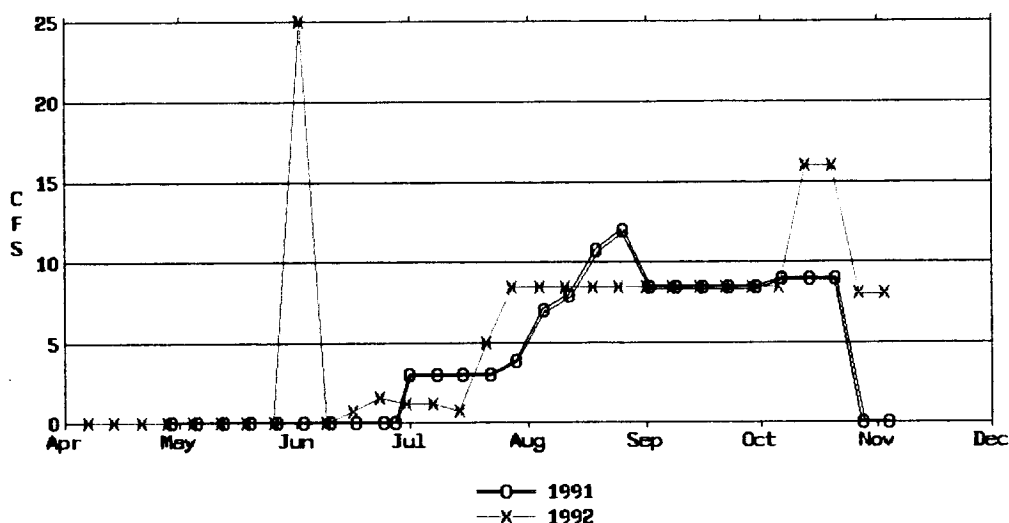
MAXIMUM POOL = 4040.8 AF AT 1590.8 FEET
 MINIMUM POOL = 0.0 AF AT 1530 FEET

SCOGGIN RESERVOIR STORAGE CONTENT (SCO)

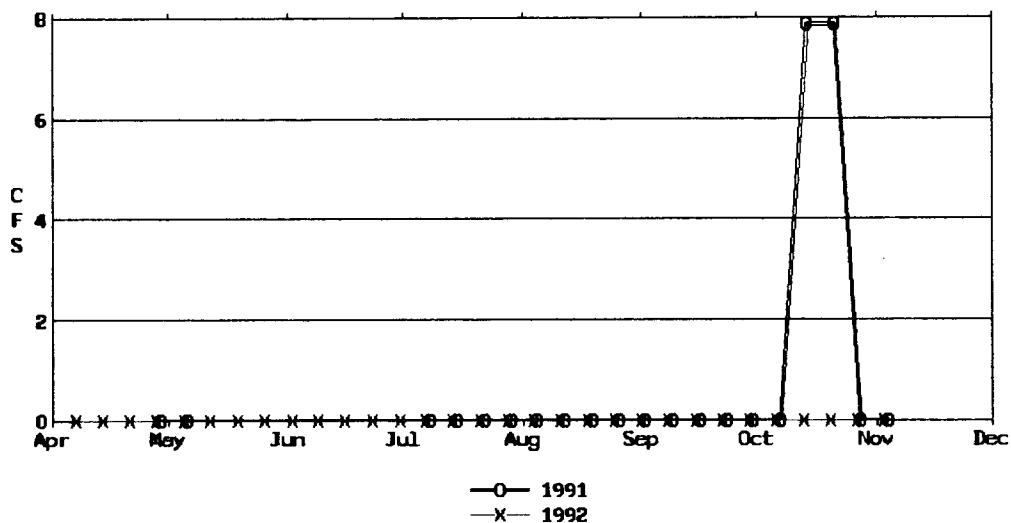


MAXIMUM POOL = 53638 AF AT 303.50 FEET (MAY 1)
 MINIMUM POOL = 33040 AF AT 283.50 FEET (NOV 1)
 ACTIVE CAPACITY = 0 AF AT 235.3 FEET

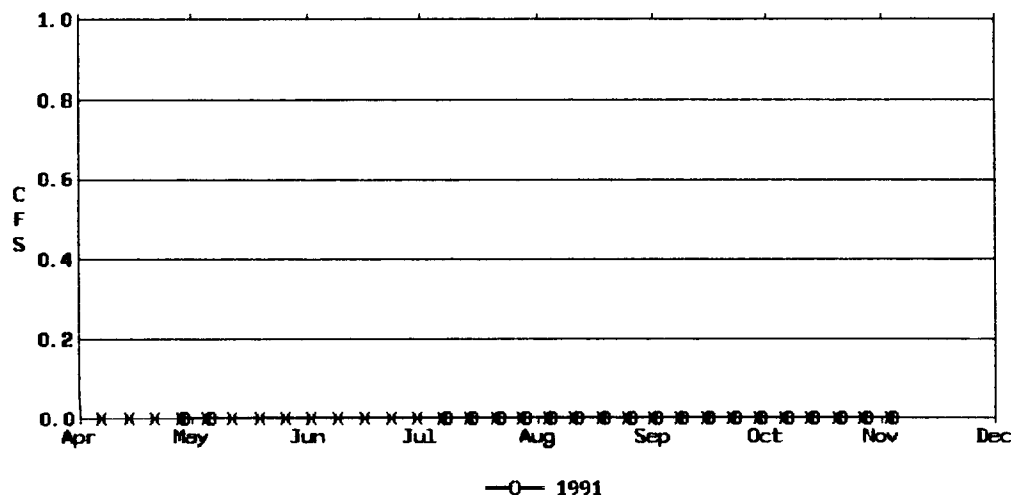
TRASK RELEASE TO TUALATIN RIVER (TRTR)



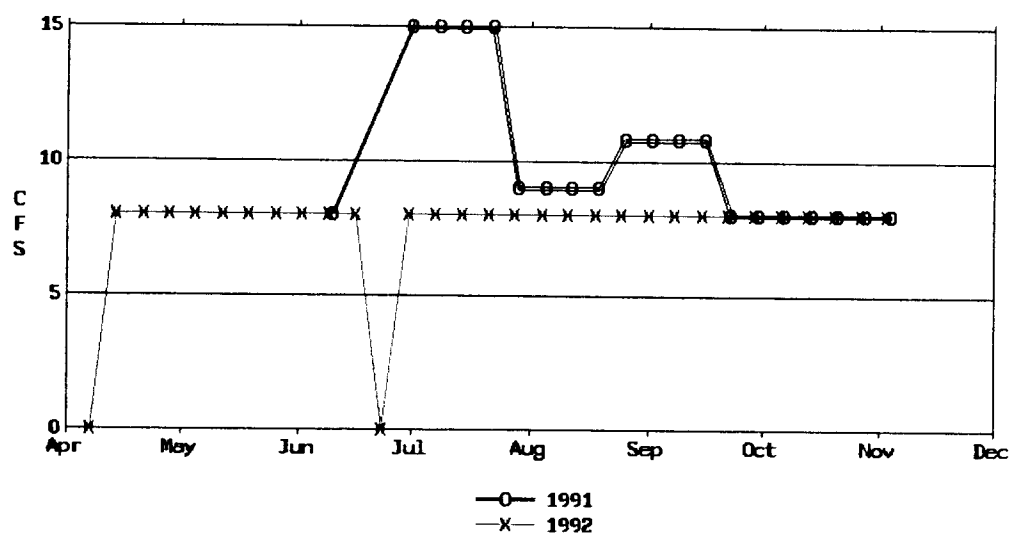
TRASK RELEASE FOR WATER QUALITY (TRWQ)



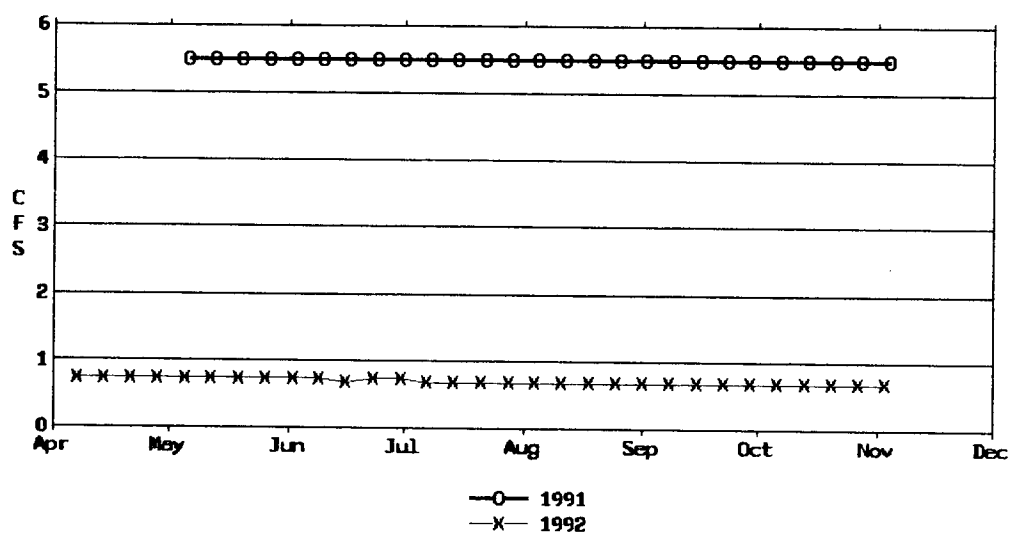
TRASK RELEASE FOR EXCHANGE (TREX)



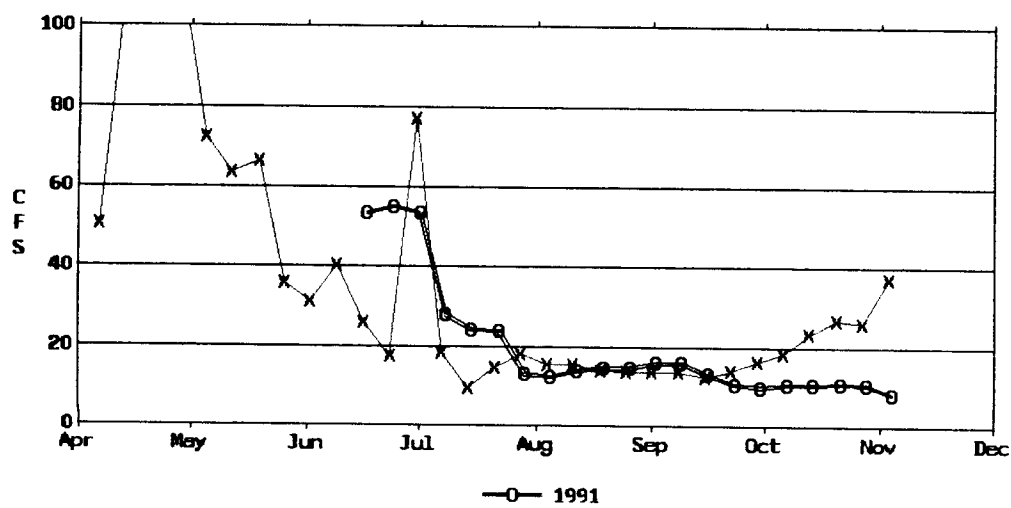
TRASK RELEASE TO NF TRASK RIVER (TRNF)



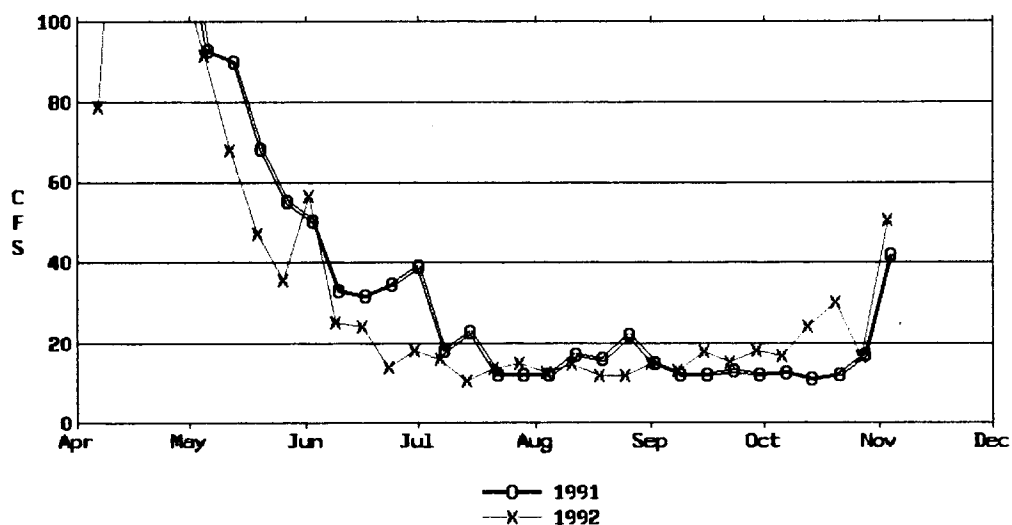
CHERRY GROVE INTAKE - HILLSBORO (CGIC)



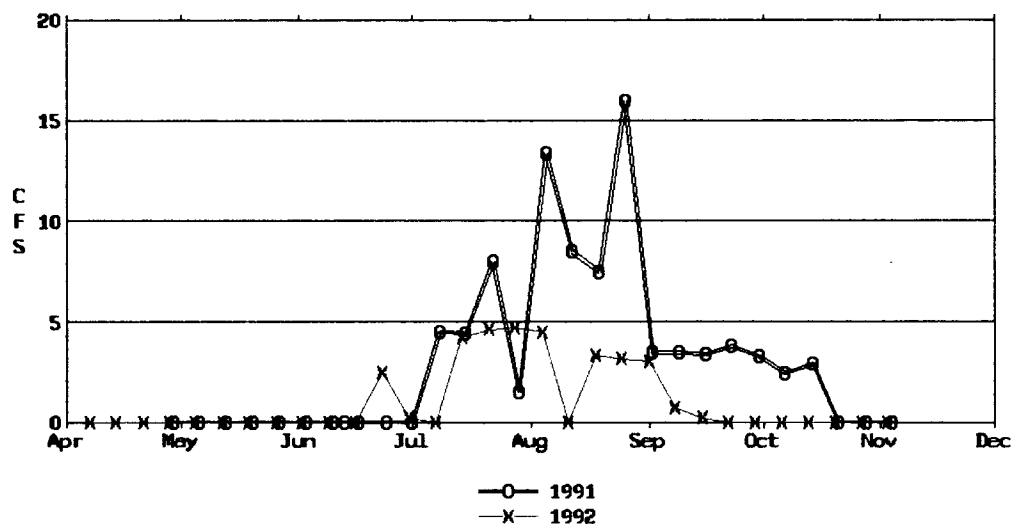
TUALATIN RIVER BELOW LEE FALLS (TRLF)



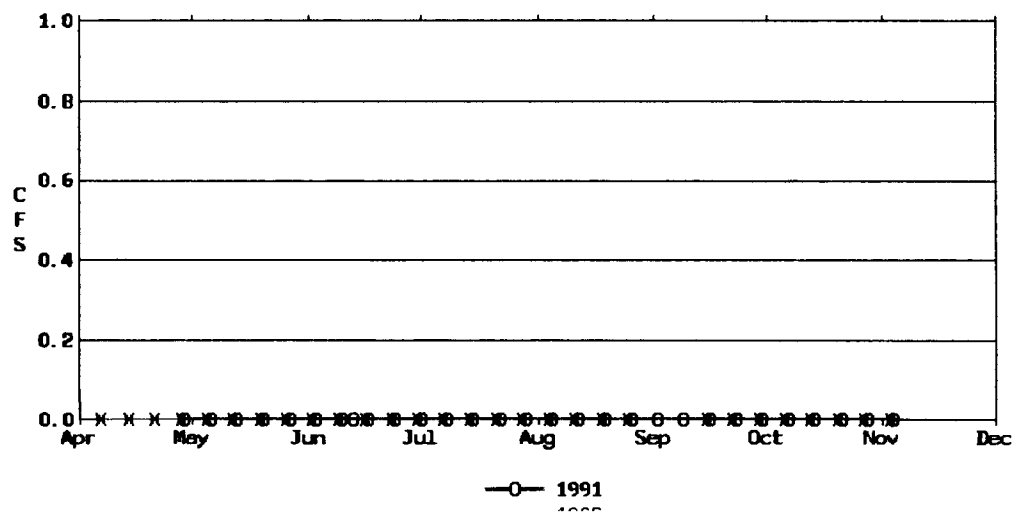
TUALATIN RIVER ABOVE GASTON (GAST)



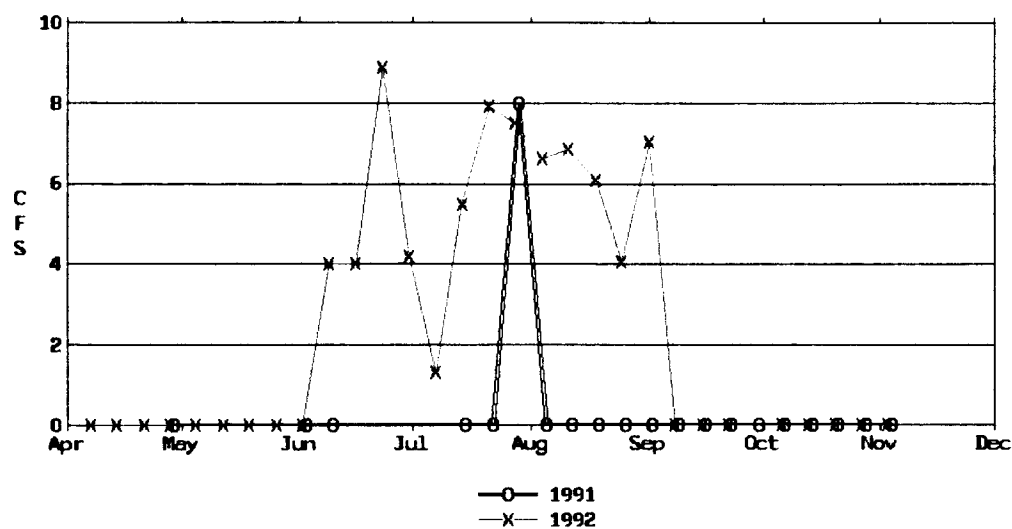
TVID - PATTON VALLEY RIV. TURNOUT #1 (PVR1)



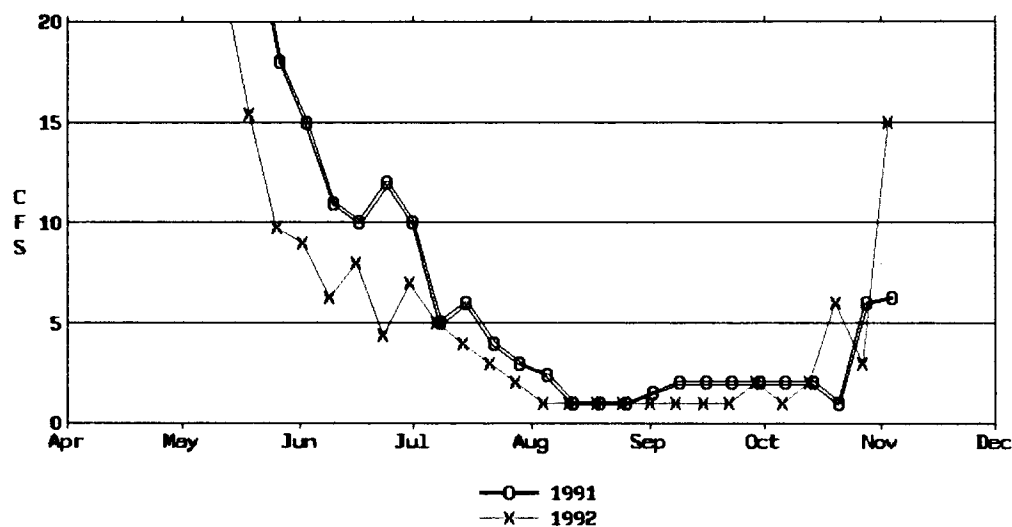
TVID - PATTON VALLEY RIV. TURNOUT #2 (PVR2)



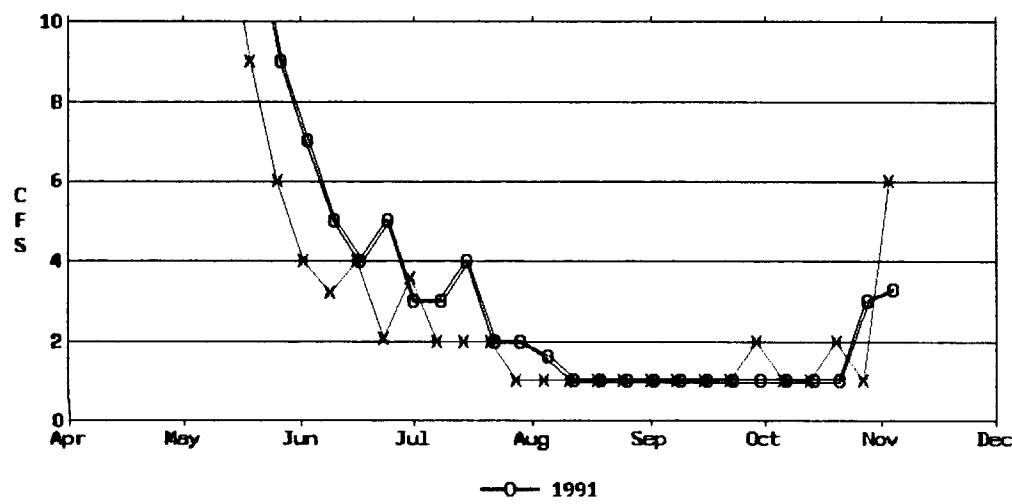
WAPATO CANAL DIVERSION (WAP0)



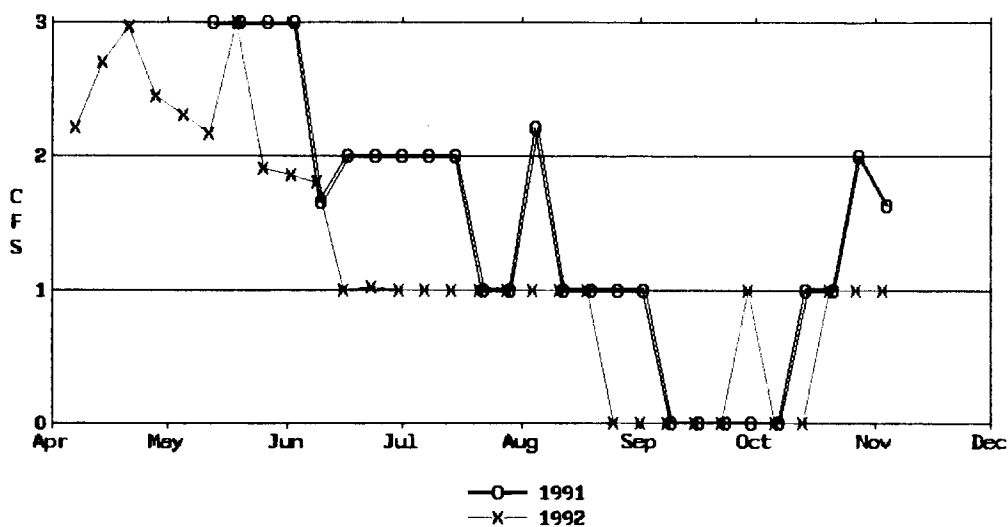
SCOGGIN CREEK ABOVE HAGG LAKE (SCLO)



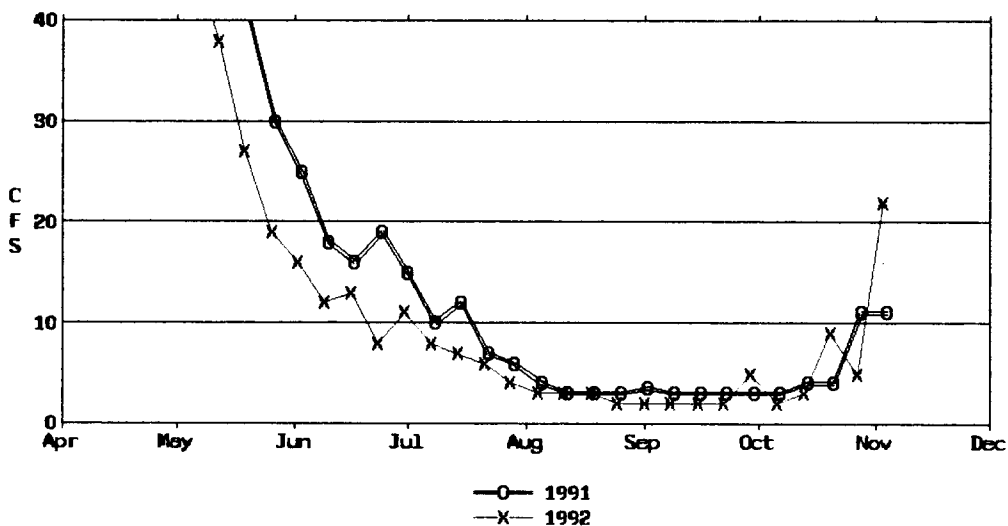
SAIN CREEK ABOVE HAGG LAKE (SCH0)



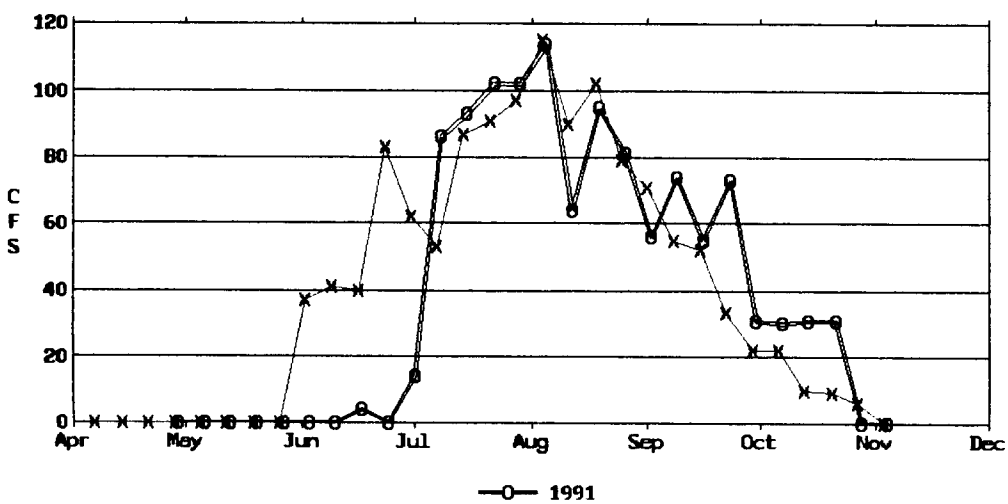
TANNER CREEK ABOVE HAGG LAKE (TANO)



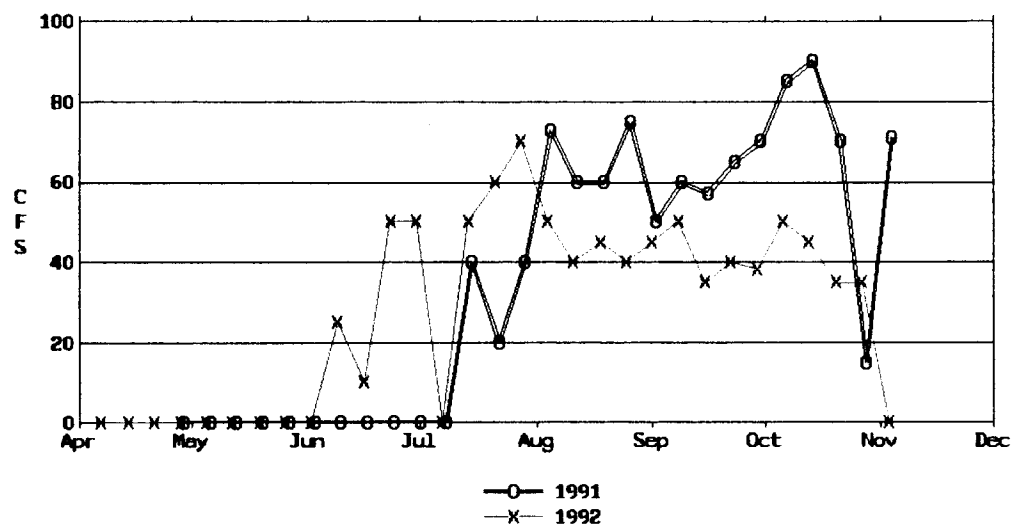
SCOGGINS RESERVOIR COMP. INFLOW (SRCI)



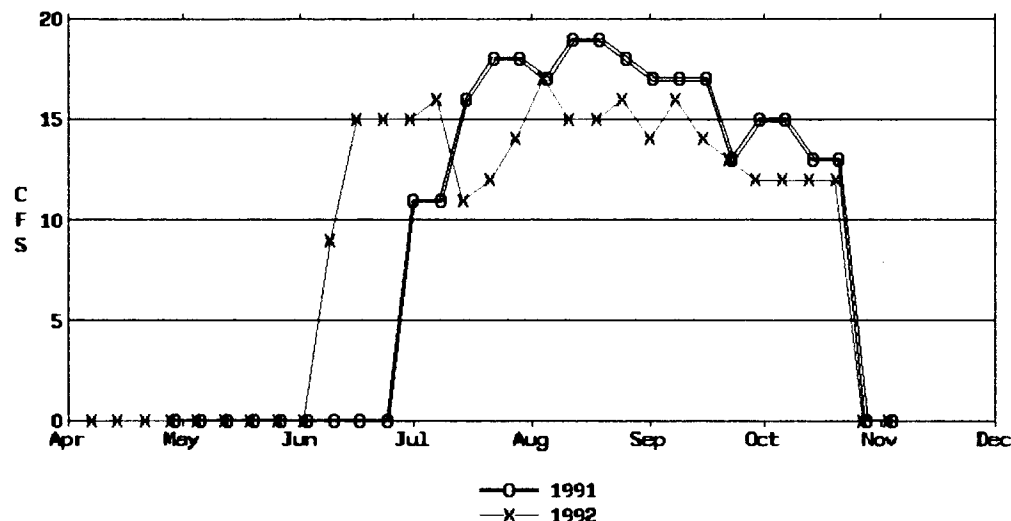
TVID RELEASE FROM SCOGGIN RES. (SRTV)



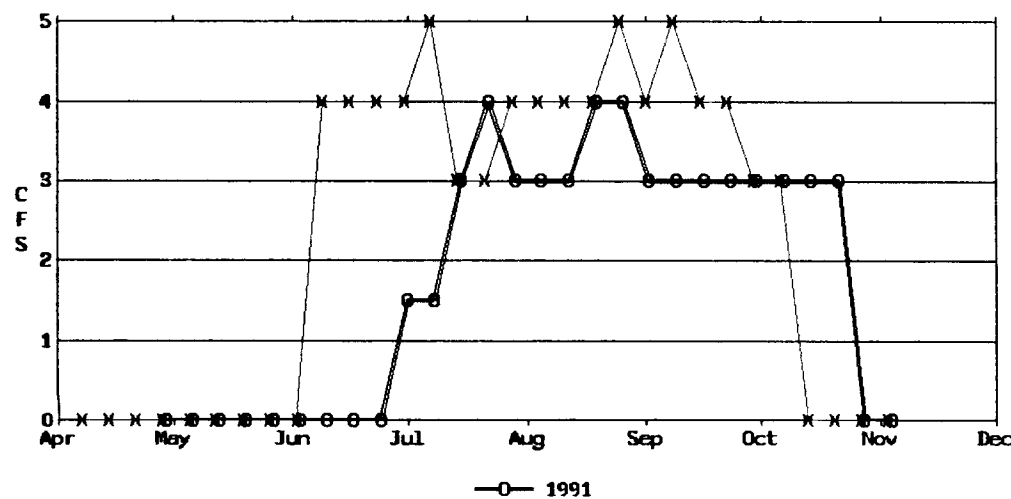
USA RELEASE FROM SCOGGIN RES. (SRUS)



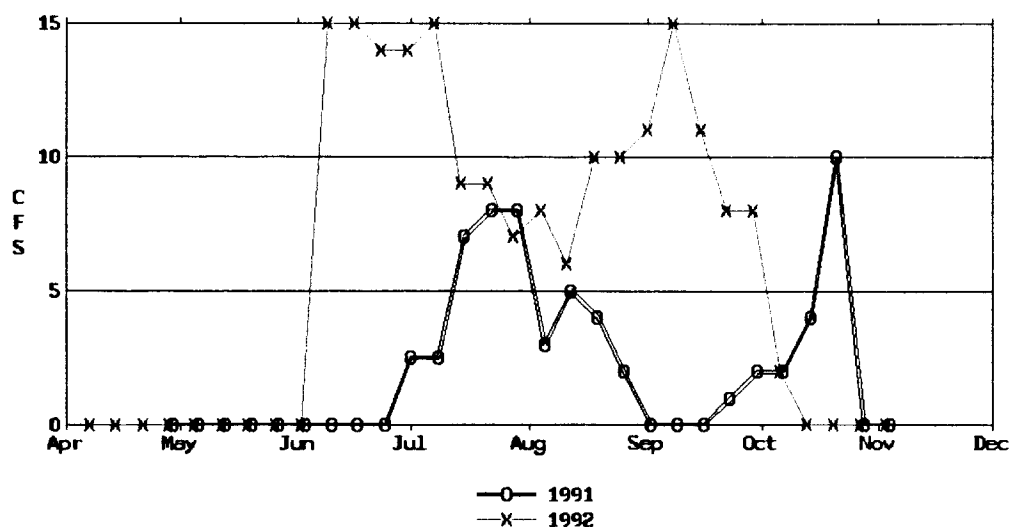
BEAVERTON RELEASE FROM SCOGGIN RES. (SRBV)



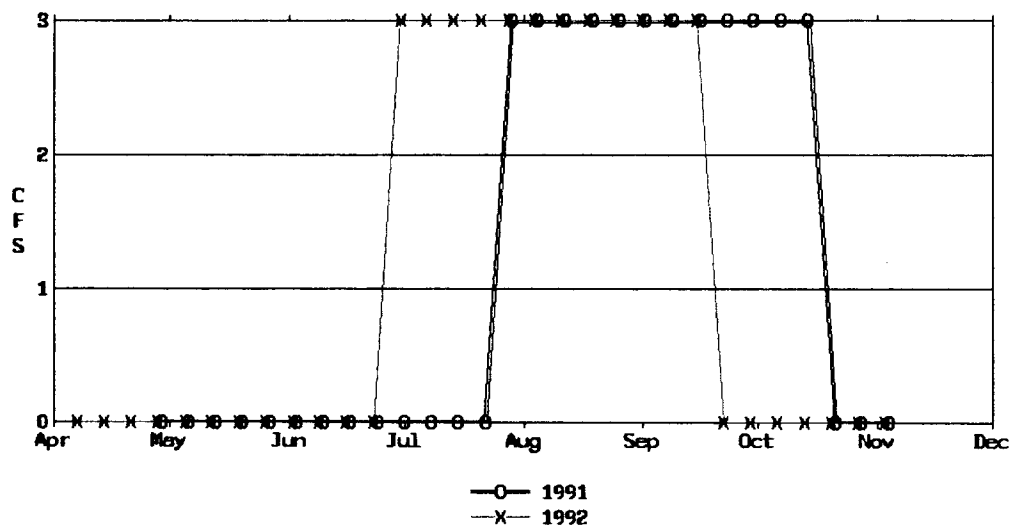
FOREST GROVE RELEASE FROM SCOG. RES. (SRFG)



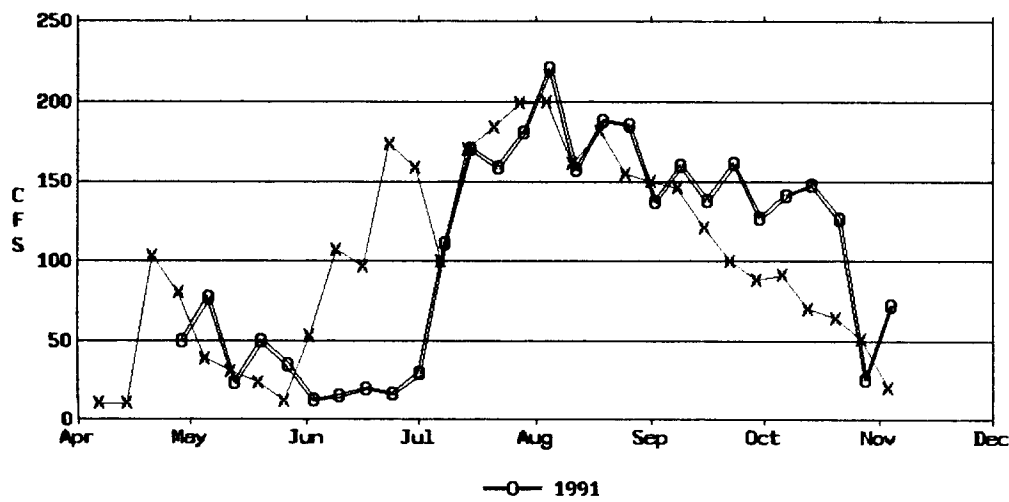
HILLSBORO RELEASE FROM SCOGGIN RES. (SRHL)



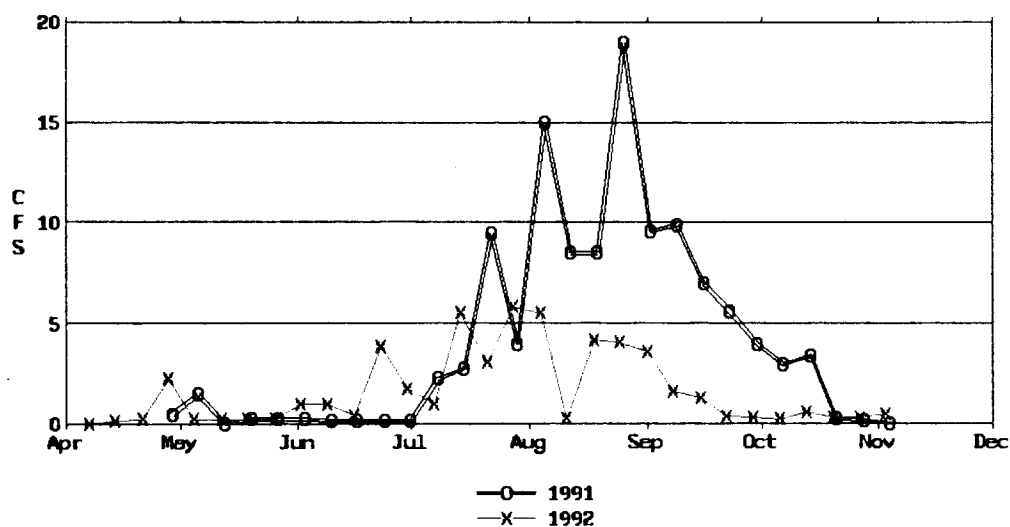
LOC RELEASE FROM SCOGGIN RES. (SRLO)



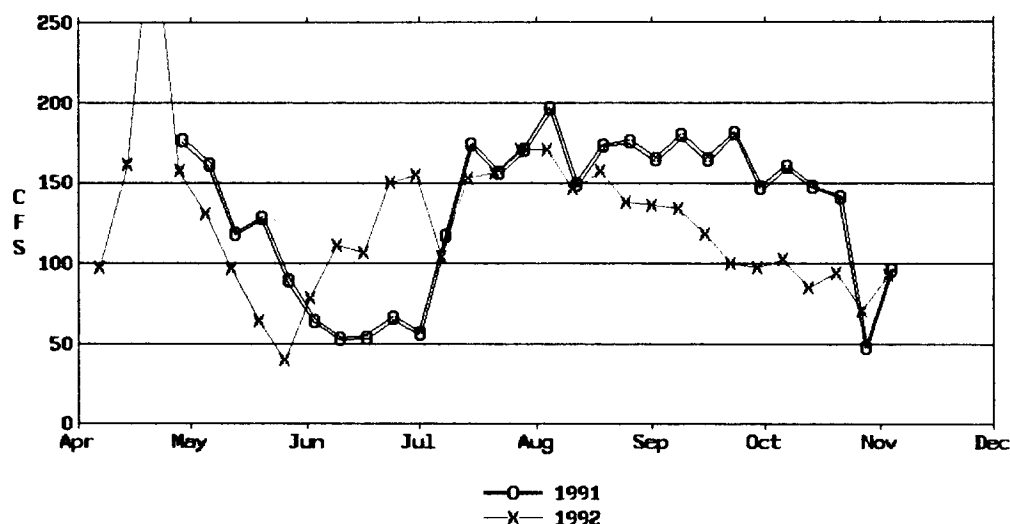
SCOGGIN CR. BELOW HAGG LAKE (RELEASE) (SC00)



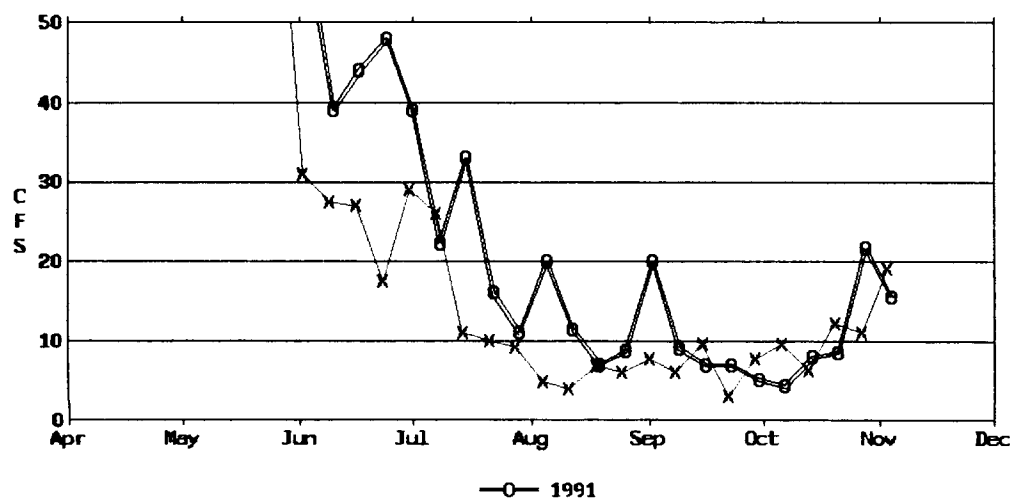
TVID - PATT. VALLEY PUMP PLANT DIV. (PVPP)



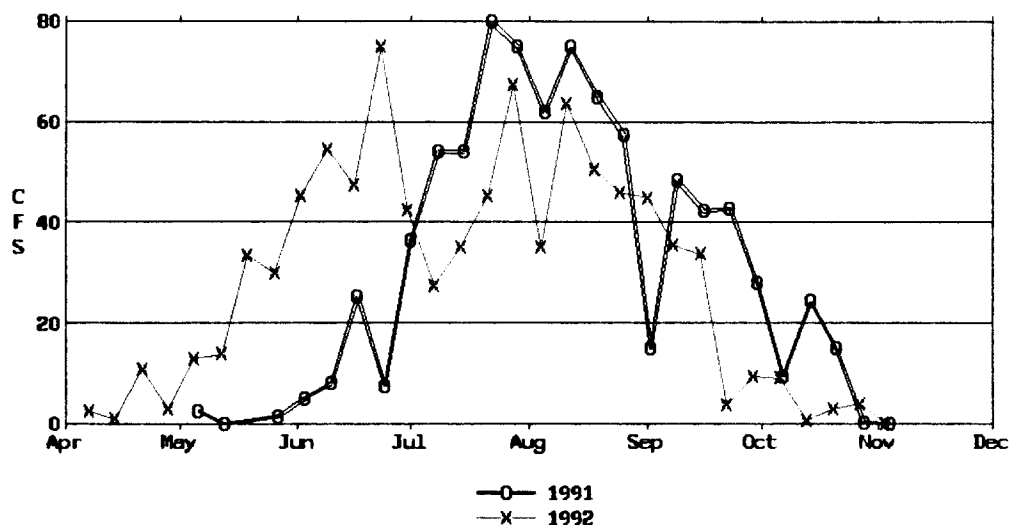
TUALATIN RIV. AT DILLEY BR. (DLLO)



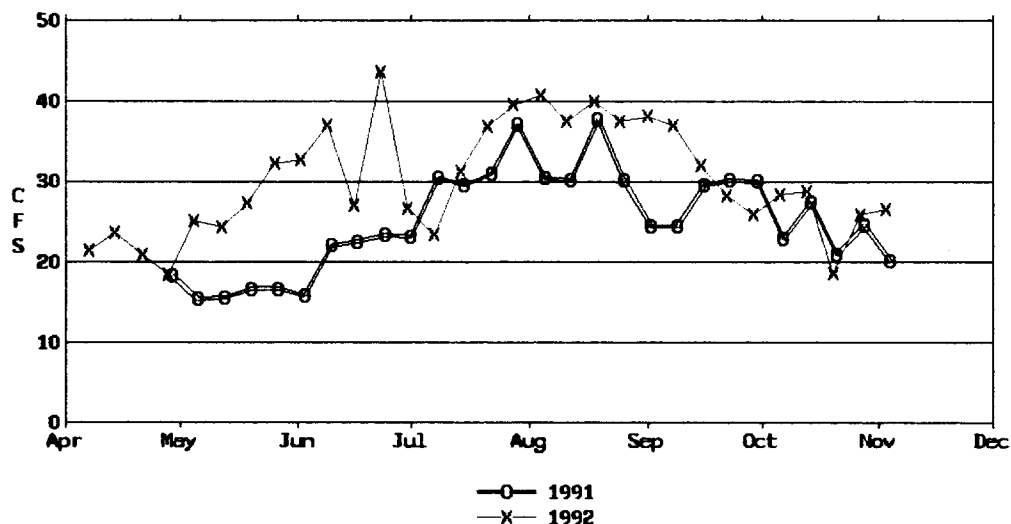
GALES CR. ON OLD HWY 47 BRIDGE (GALES)



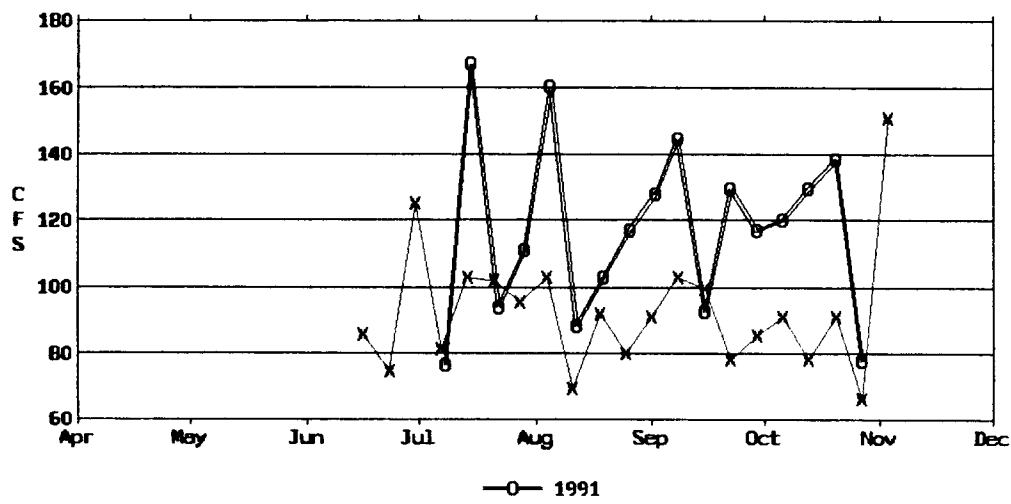
TVID - SPRINGHILL PUMP PLANT DIV. (SHPP)



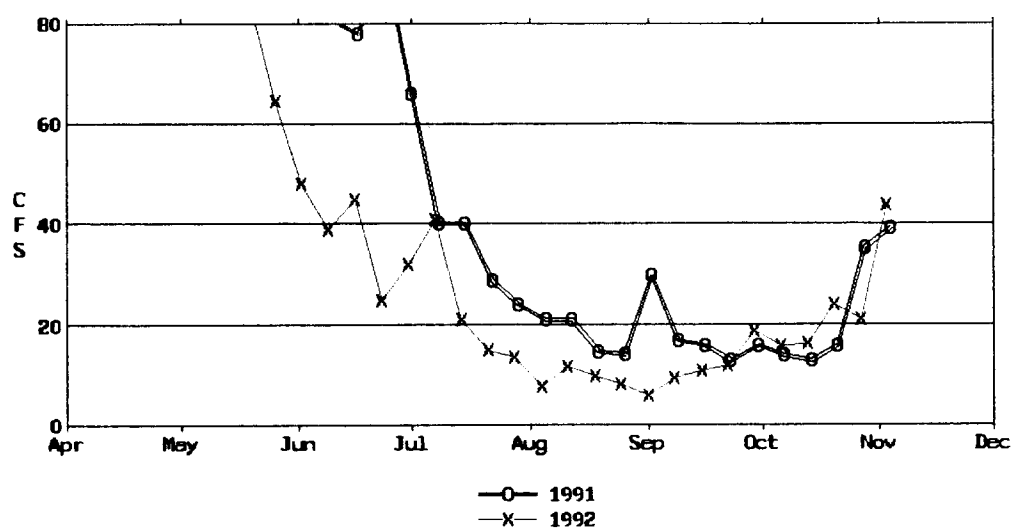
JOINT WATER DIVERSION AT SHPP PLANT (JWCS)



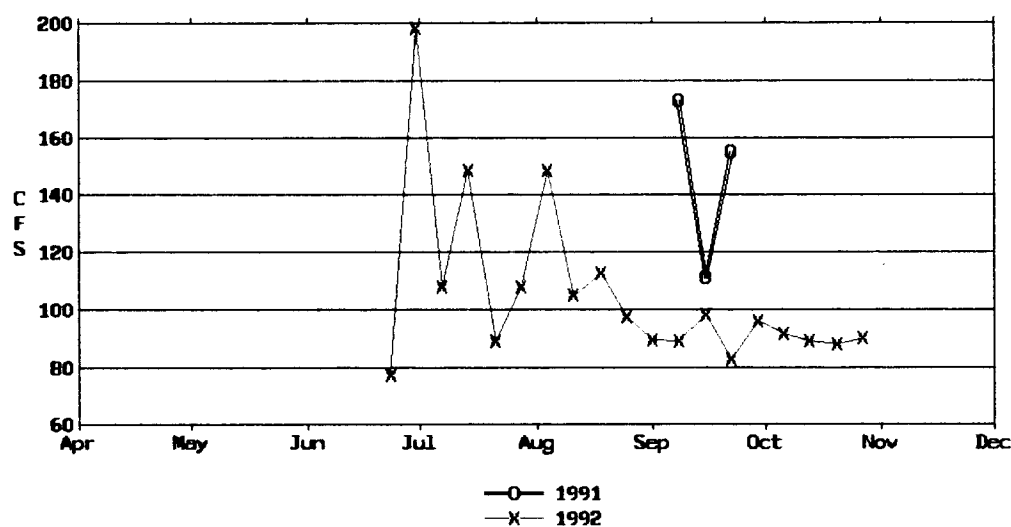
TUALATIN RIV. AT GOLF COURSE RD. (TRGC)



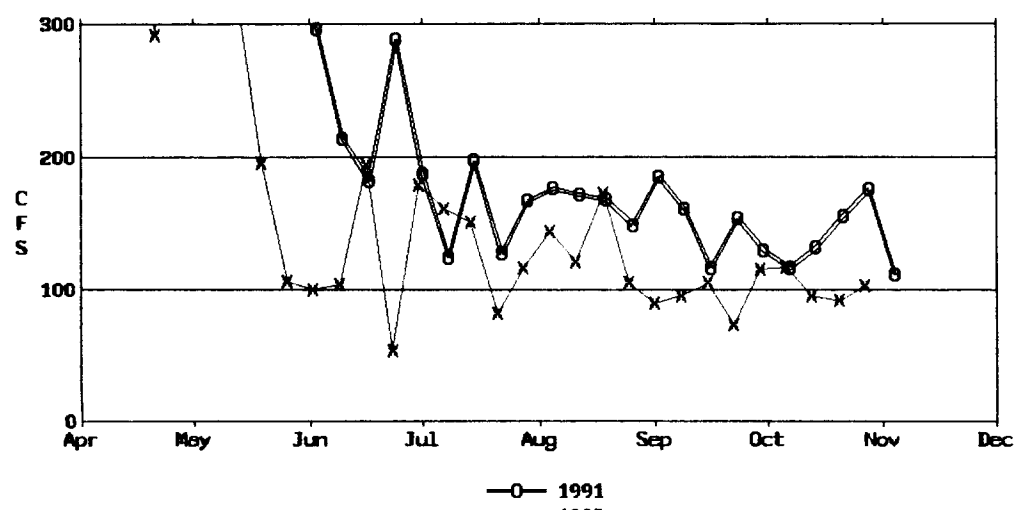
DAIRY CREEK AT HWY 8 BRIDGE (DAIRY)



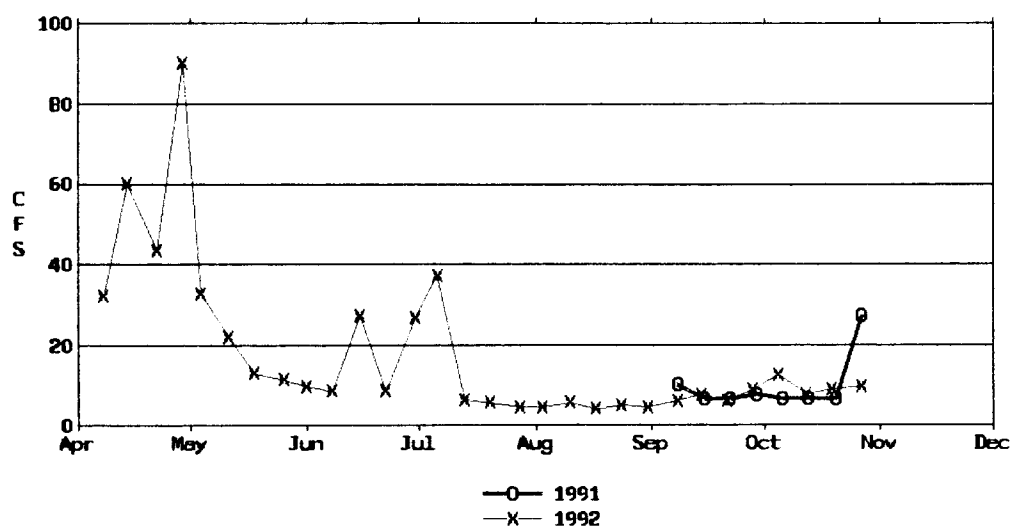
TUALATIN RIV. AT HWY 219 BRIDGE (TRJB)



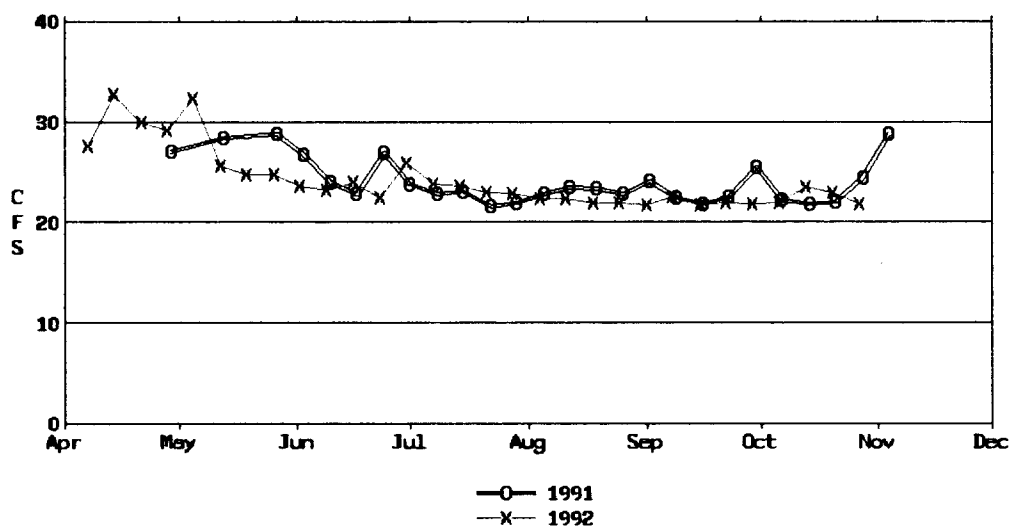
TUALATIN RIV. AT ROOD RD. BRIDGE (ROOD)



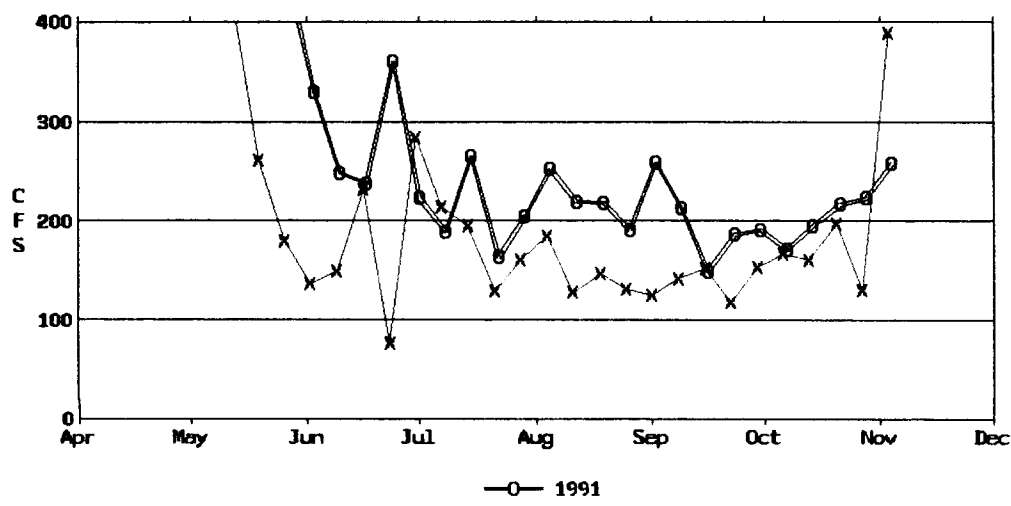
ROCK CREEK AT TV HWY (RCTV)



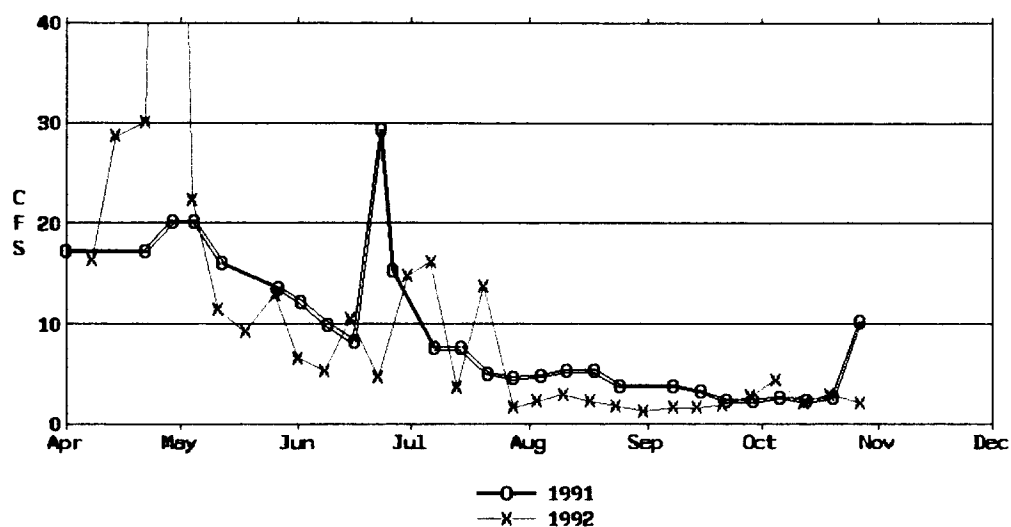
USA ROCK CREEK WWTP DISCHARGE (USARC)



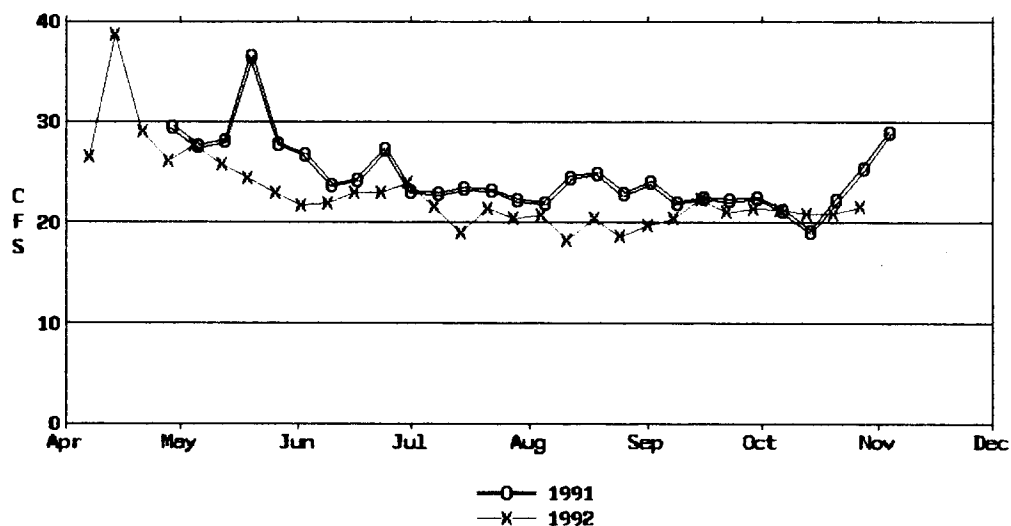
TUALATIN R. AT FARMINGTON RD. BRIDGE (FRMO)



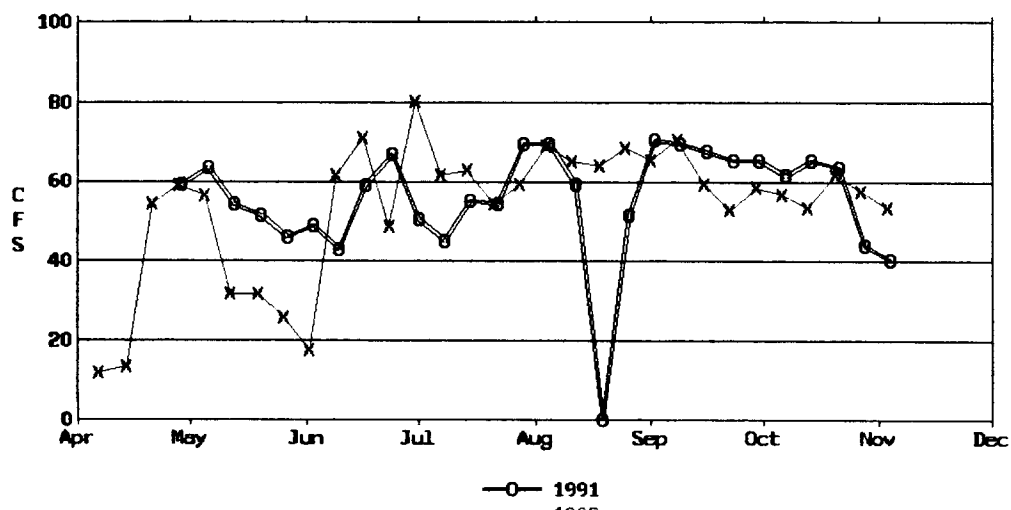
FANNO CREEK AT DURHAM RD. BRIDGE (FANO)



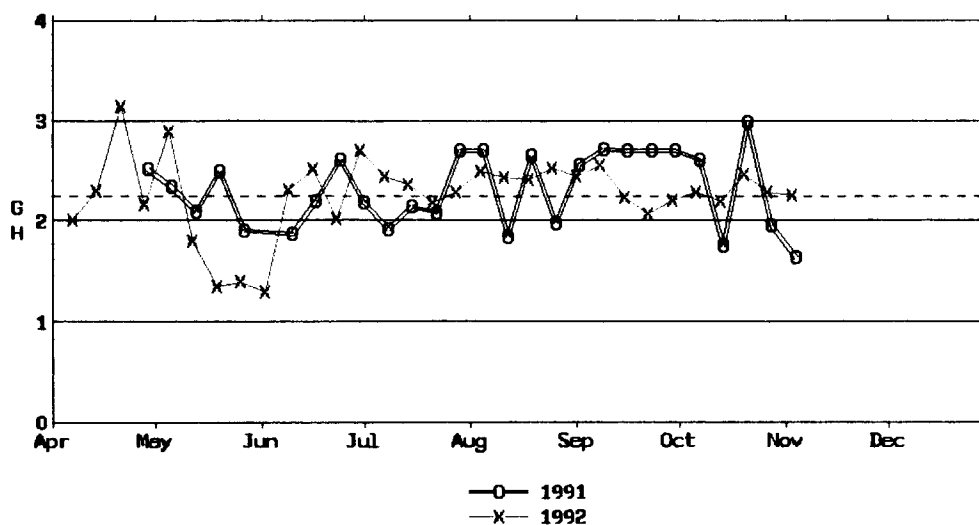
USA DURHAM WWTP DISCHARGE (USADH)



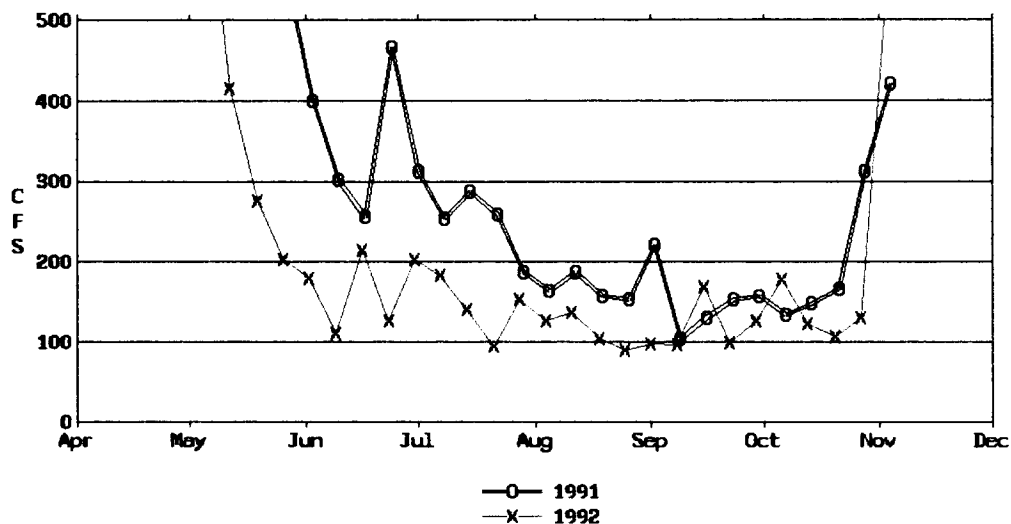
LAKE OSWEGO CORP. CANAL DIVERSION (LOCL)



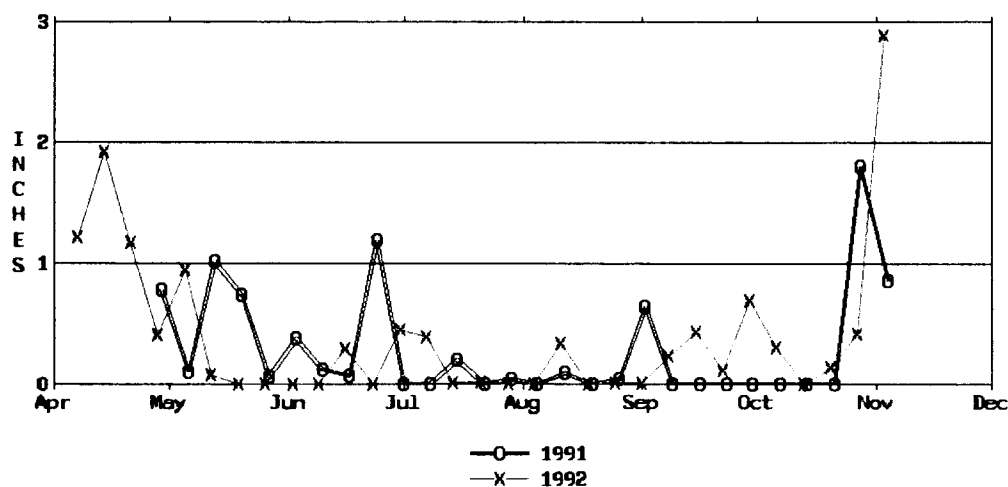
TUALATIN RIV. AT LOC CANAL (LOCS)



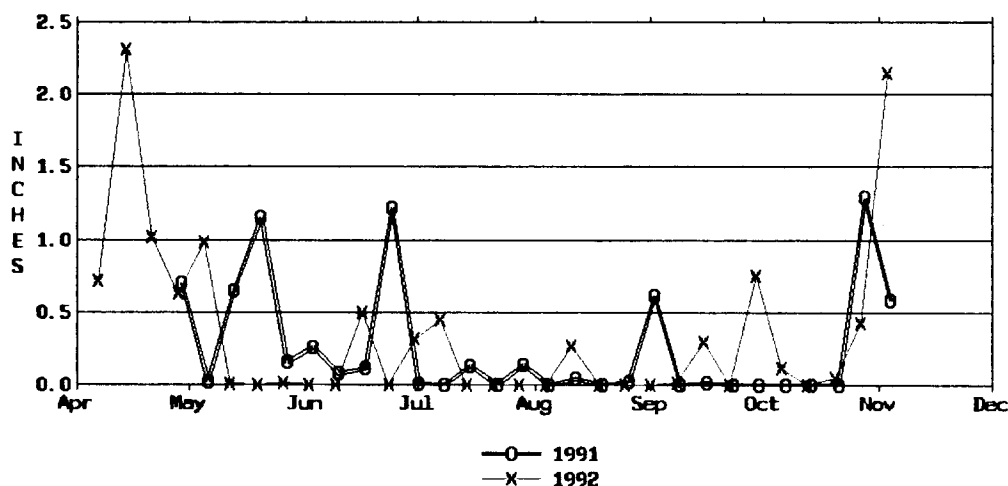
TUALATIN RIV. AT WEST LINN (WSLO)



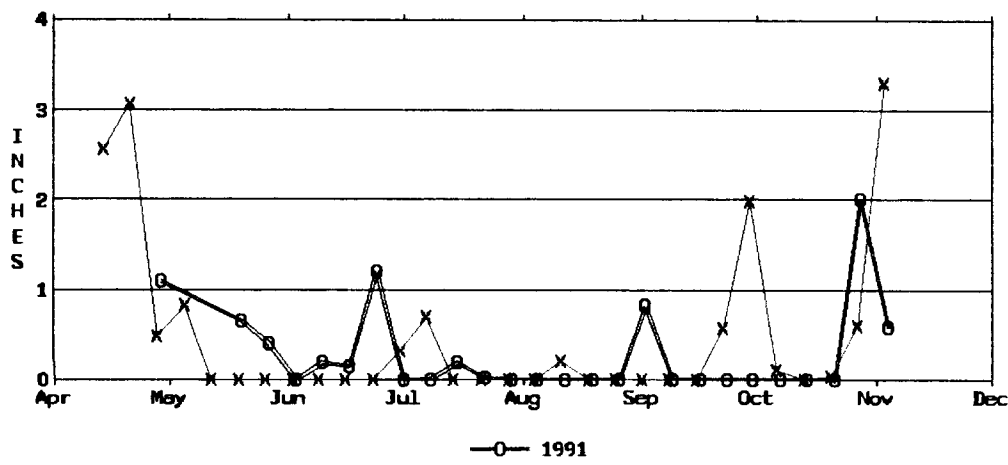
SCOGGIN RESERVOIR STATION (SCOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



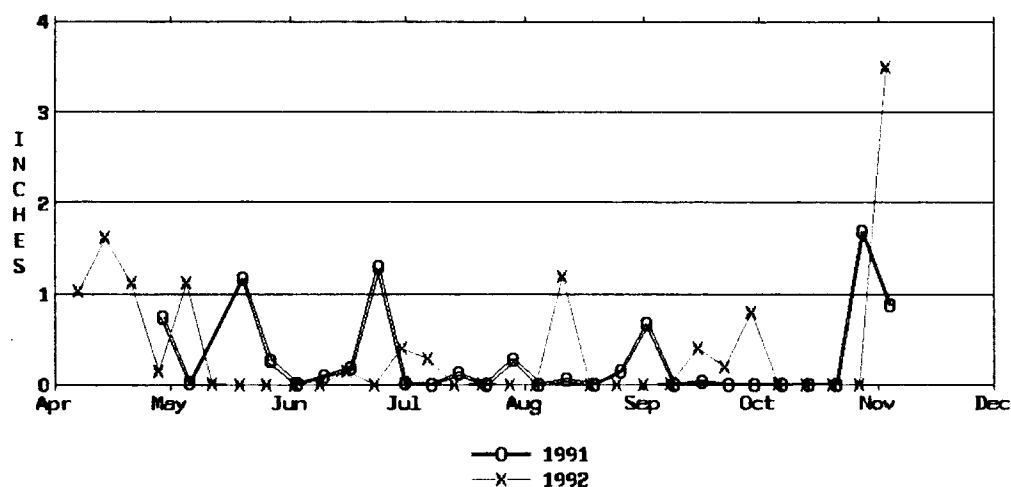
FOREST GROVE STATION (FGOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



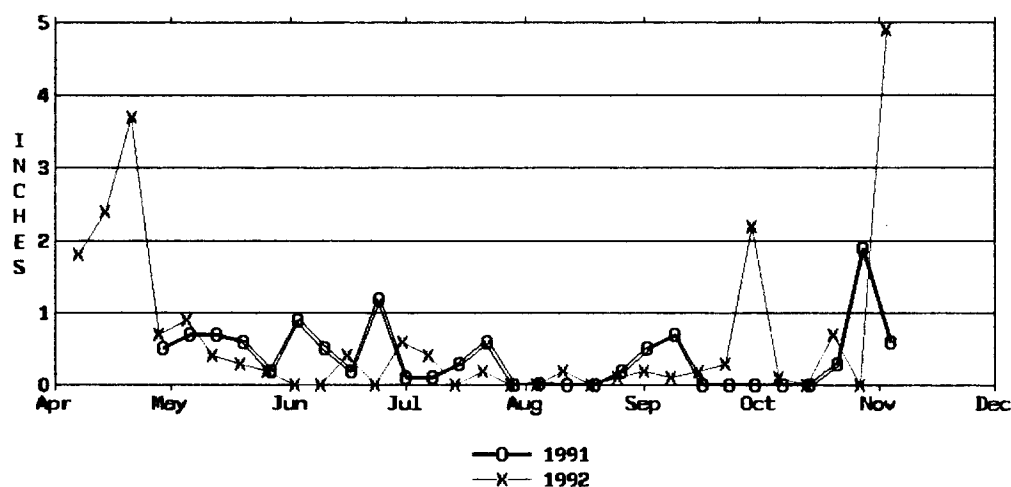
HAINES FALLS STATION (HFOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



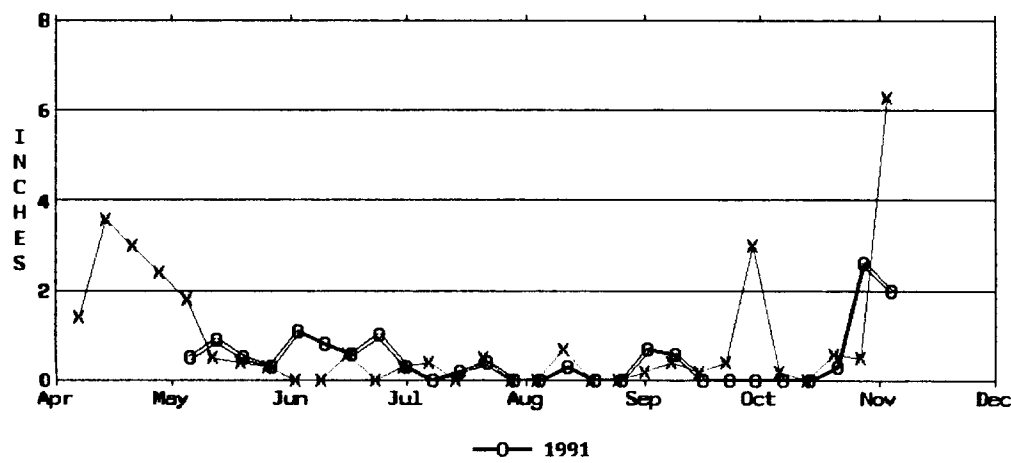
JOINT WATER PLANT STATION (JWOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



SAIN CREEK STATION (SECO) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



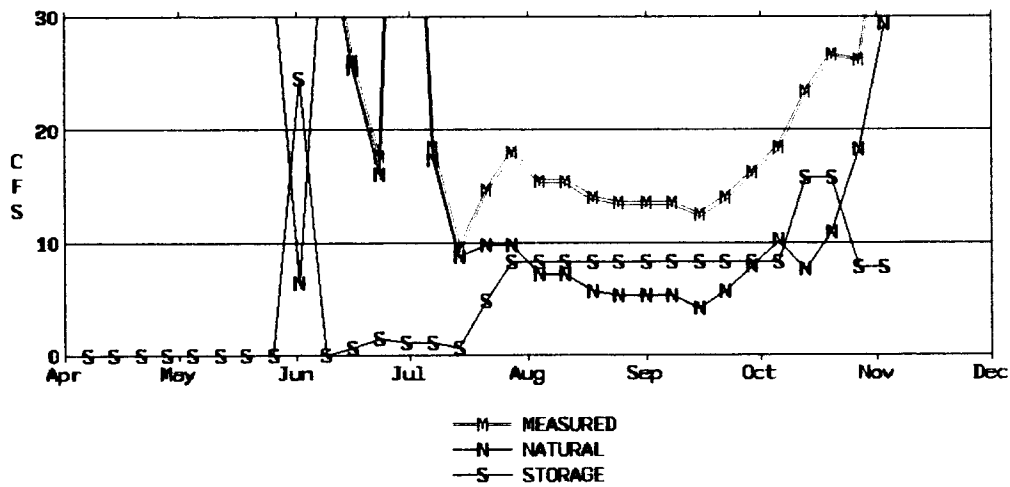
SADDLE MOUNTAIN STATION (SDMO) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



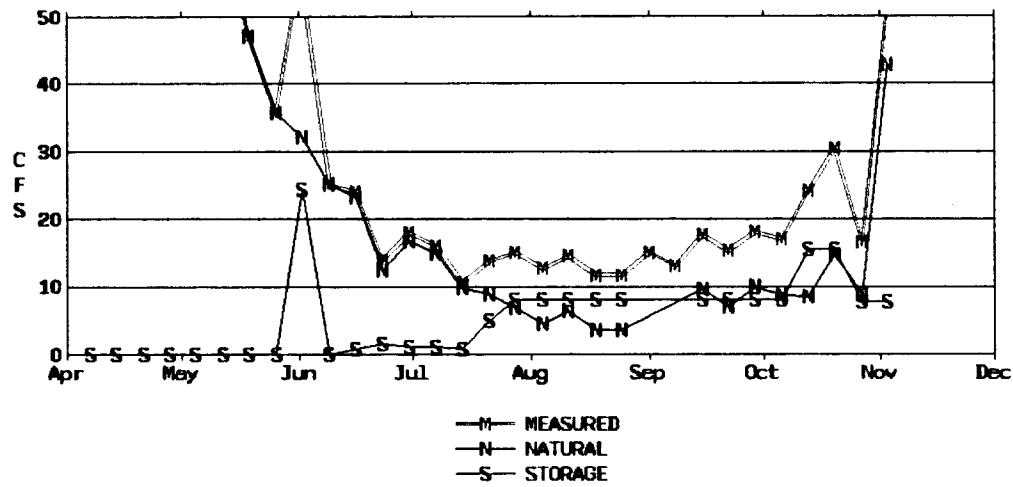
APPENDIX B

HYDROGRAPHS FOR NATURAL FLOW DETERMINATION AND DATA TABLES

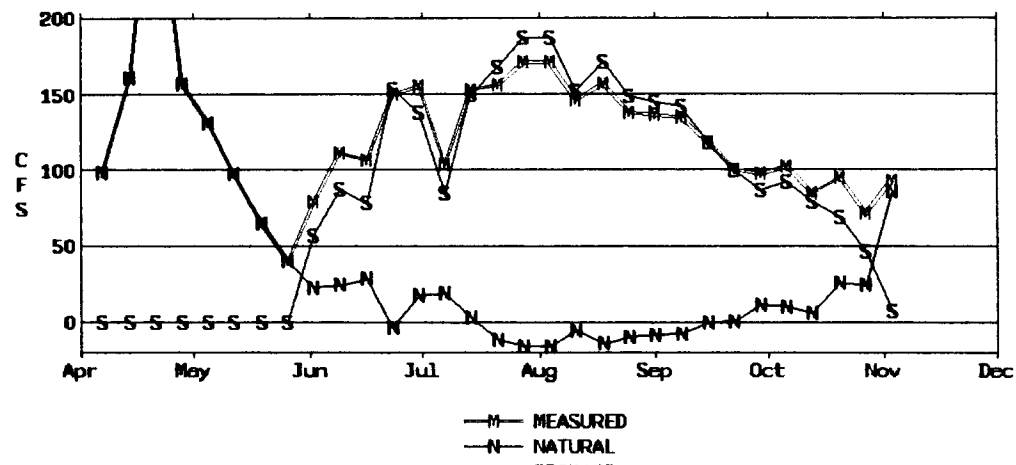
NATURAL FLOW AT LEE FALLS ON TUALATIN RIVER (NFTRLF)



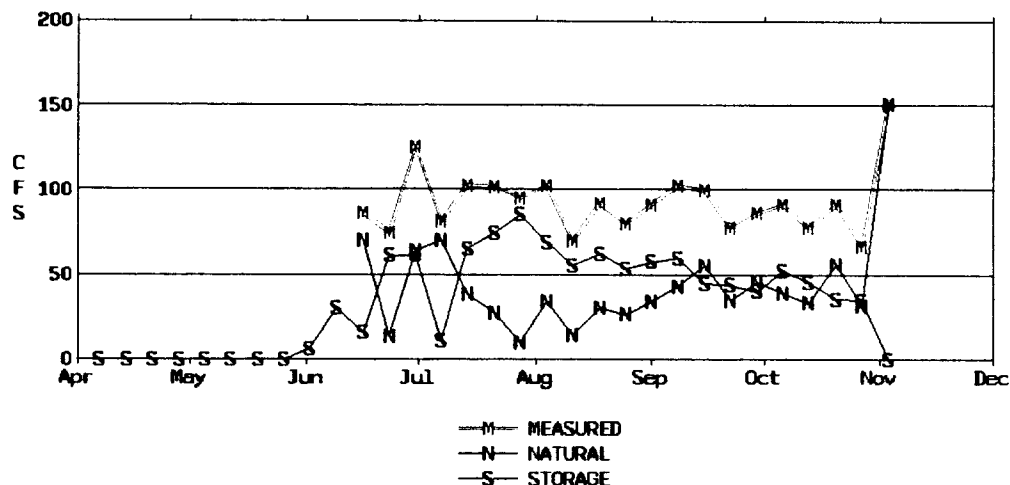
NATURAL FLOW AT GASTON GAUGE ON TUALATIN RIVER (NFGAST)



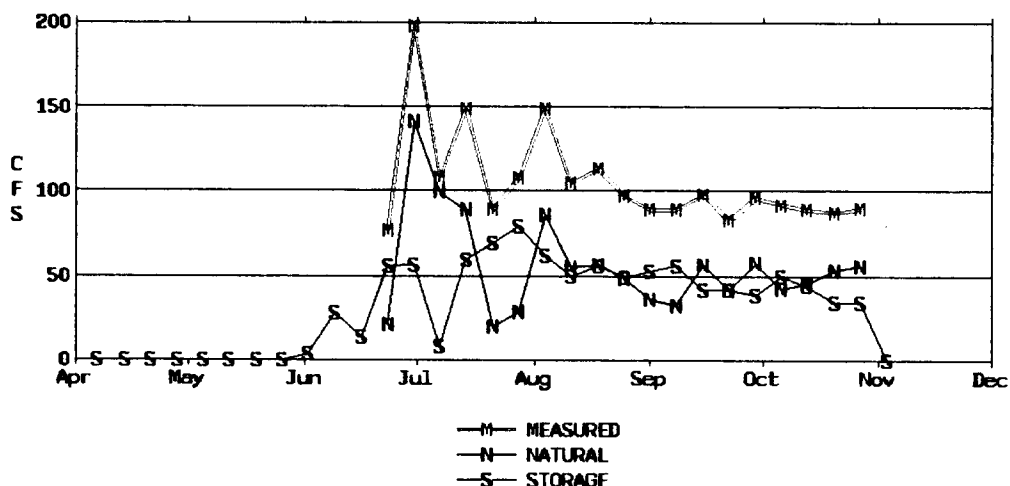
NATURAL FLOW AT DILLEY GAUGE ON TUALATIN RIVER (NFDLLO)



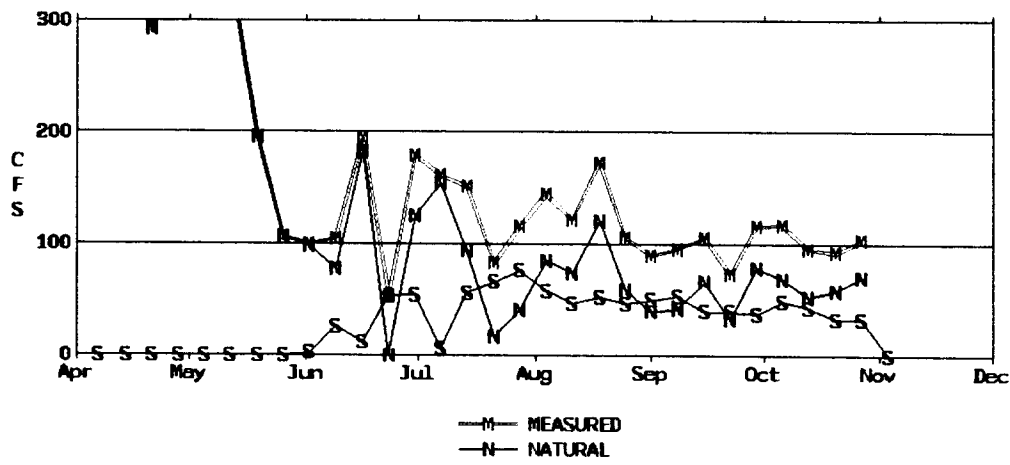
NATURAL FLOW AT GOLF COURSE BRIDGE GAUGE ON T.R. (NFTRGC)



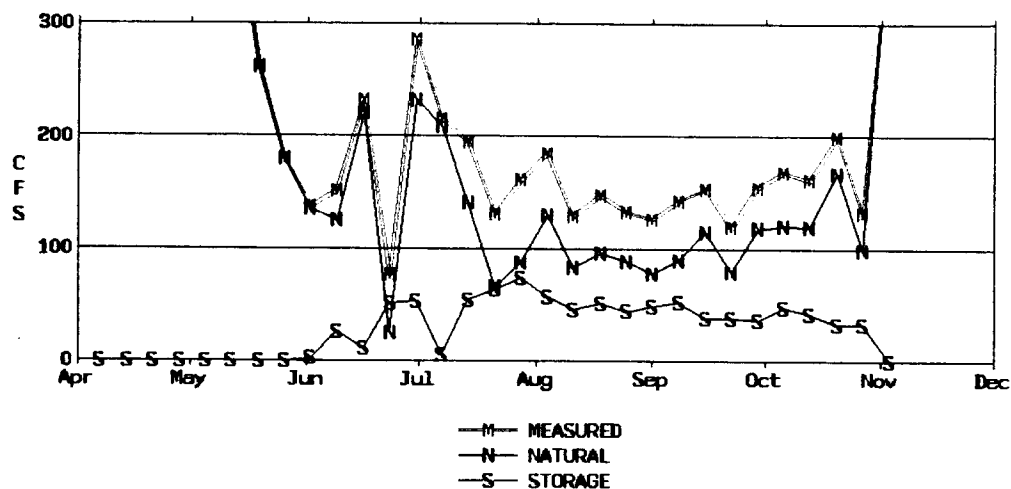
NATURAL FLOW AT HWY 219 BRIDGE GAUGE ON T.R. (NFTRJB)



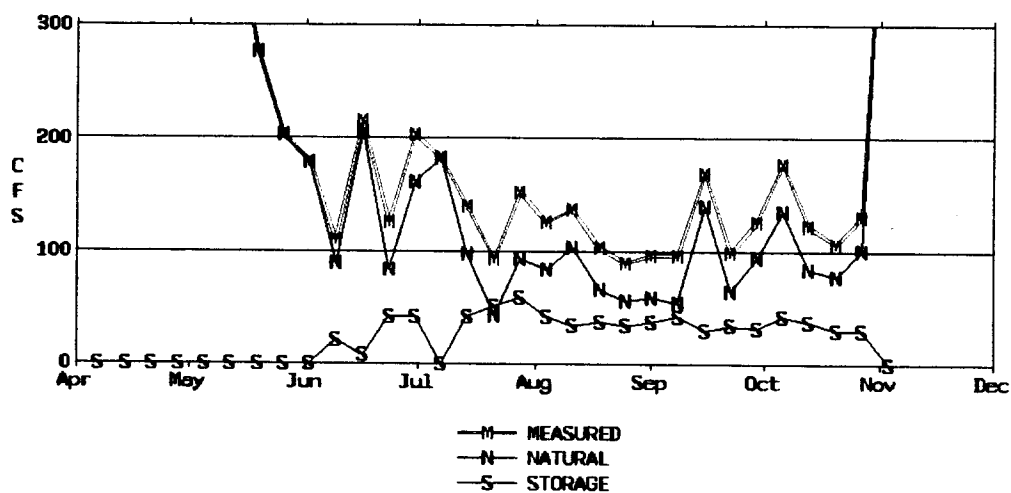
NATURAL FLOW AT ROOD BRIDGE RD. ON T.R. (NFROOD)



NATURAL FLOW AT FARMINGTON RD. BRIDGE ON T.R. (NFFRMO)



NATURAL FLOW AT WEST LINN ON TUALATIN RIVER (NFWSLO)



NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
07-APR-92	50.4000	50.40	0.0000	0.00	0.0000
08-APR-92					
14-APR-92	118.8900	118.89	0.0000	0.00	0.0000
21-APR-92	204.1000	204.10	0.0000	0.00	0.0000
22-APR-92					
28-APR-92	112.3600	112.36	0.0000	0.00	0.0000
29-APR-92					
04-MAY-92					
05-MAY-92	72.3300	72.33	0.0000	0.00	0.0000
11-MAY-92					
12-MAY-92	63.3400	63.34	0.0000	0.00	0.0000
18-MAY-92					
19-MAY-92	66.5000	66.50	0.0000	0.00	0.0000
26-MAY-92	35.8000	35.80	0.0000	0.00	0.0000
27-MAY-92					
01-JUN-92					
02-JUN-92	6.4700	30.97	24.5000	25.00	0.5000
08-JUN-92					
09-JUN-92	40.2100	40.21	0.0000	0.00	0.0000
15-JUN-92					
16-JUN-92	25.3450	26.08	0.7350	0.75	0.0150
22-JUN-92					
23-JUN-92	15.9810	17.50	1.5190	1.55	0.0310
30-JUN-92	75.9040	77.08	1.1760	1.20	0.0240
06-JUL-92					
07-JUL-92	17.2732	18.41	1.1368	1.16	0.0232
13-JUL-92					
14-JUL-92	8.7650	9.50	0.7350	0.75	0.0150
20-JUL-92					
21-JUL-92	9.7000	14.60	4.9000	5.00	0.1000
27-JUL-92					
28-JUL-92	9.7680	18.00	8.2320	8.40	0.1680
03-AUG-92					
04-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
10-AUG-92					
11-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
17-AUG-92					
18-AUG-92	5.6680	13.90	8.2320	8.40	0.1680
24-AUG-92					
25-AUG-92	5.2680	13.50	8.2320	8.40	0.1680
31-AUG-92					
01-SEP-92	5.2680	13.50	8.2320	8.40	0.1680
08-SEP-92	5.2780	13.51	8.2320	8.40	0.1680
09-SEP-92					
14-SEP-92					
15-SEP-92	4.1680	12.40	8.2320	8.40	0.1680
21-SEP-92					
22-SEP-92	5.6680	13.90	8.2320	8.40	0.1680
28-SEP-92					
29-SEP-92	7.9680	16.20	8.2320	8.40	0.1680

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
05-OCT-92					
06-OCT-92	10.1680	18.40	8.2320	8.40	0.1680
12-OCT-92					
13-OCT-92	7.6200	23.30	15.6800	16.00	0.3200
19-OCT-92					
20-OCT-92	10.9200	26.60	15.6800	16.00	0.3200
26-OCT-92					
27-OCT-92	18.2600	26.10	7.8400	8.00	0.1600
03-NOV-92	29.3600	37.20	7.8400	8.00	0.1600

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
07-APR-92	78.6000	78.6	0.0000	0.00	0.0000	0
08-APR-92						
14-APR-92	171.8000	171.8	0.0000	0.00	0.0000	0
21-APR-92	226.9000	226.9	0.0000	0.00	0.0000	0
22-APR-92						
28-APR-92	117.4000	117.4	0.0000	0.00	0.0000	0
29-APR-92						
04-MAY-92						
05-MAY-92	91.3000	91.3	0.0000	0.00	0.0000	0
11-MAY-92						
12-MAY-92	68.0000	68.0	0.0000	0.00	0.0000	0
18-MAY-92						
19-MAY-92	47.0000	47.0	0.0000	0.00	0.0000	0
26-MAY-92	35.6000	35.6	0.0000	0.00	0.0000	0
27-MAY-92						
01-JUN-92						
02-JUN-92	32.1500	56.4	24.2500	25.00	0.7500	0
08-JUN-92						
09-JUN-92	25.0000	25.0	0.0000	0.00	0.0000	0
15-JUN-92						
16-JUN-92	23.2725	24.0	0.7275	0.75	0.0225	0
22-JUN-92						
23-JUN-92	12.4965	14.0	1.5035	1.55	0.0465	0
30-JUN-92	16.8360	18.0	1.1640	1.20	0.0360	0
06-JUL-92						
07-JUL-92	14.8748	16.0	1.1252	1.16	0.0348	0
13-JUL-92						
14-JUL-92	9.8725	10.6	0.7275	0.75	0.0225	0
20-JUL-92						
21-JUL-92	8.9500	13.8	4.8500	5.00	0.1500	0
27-JUL-92						
28-JUL-92	6.8520	15.0	8.1480	8.40	0.2520	0
03-AUG-92						
04-AUG-92	4.4520	12.6	8.1480	8.40	0.2520	0
10-AUG-92						
11-AUG-92	6.3520	14.5	8.1480	8.40	0.2520	0
17-AUG-92						
18-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
24-AUG-92						
25-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
31-AUG-92						
01-SEP-92		15.0		8.40	0.2520	
08-SEP-92		13.0		8.40	0.2520	
09-SEP-92						
14-SEP-92						
15-SEP-92	9.5520	17.7	8.1480	8.40	0.2520	0
21-SEP-92						
22-SEP-92	7.0520	15.2	8.1480	8.40	0.2520	0
28-SEP-92						
29-SEP-92	9.9520	18.1	8.1480	8.40	0.2520	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
05-OCT-92						
06-OCT-92	8.7520	16.9	8.1480	8.40	0.2520	0
12-OCT-92						
13-OCT-92	8.5800	24.1	15.5200	16.00	0.4800	0
19-OCT-92						
20-OCT-92	14.7800	30.3	15.5200	16.00	0.4800	0
26-OCT-92						
27-OCT-92	8.8400	16.6	7.7600	8.00	0.2400	0
03-NOV-92	42.8400	50.6	7.7600	8.00	0.2400	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
07-APR-92	98.00000	98.0	0.00000	0.00	0	0	0	0	0
08-APR-92									
14-APR-92	161.00000	161.0	0.00000	0.00	0	0	0	0	0
21-APR-92	316.00000	316.0	0.00000	0.00	0	0	0	0	0
22-APR-92									
28-APR-92	157.00000	157.0	0.00000	0.00	0	0	0	0	0
29-APR-92									
04-MAY-92									
05-MAY-92	131.00000	131.0	0.00000	0.00	0	0	0	0	0
11-MAY-92									
12-MAY-92	96.80000	96.8	0.00000	0.00	0	0	0	0	0
18-MAY-92									
19-MAY-92	64.60000	64.6	0.00000	0.00	0	0	0	0	0
26-MAY-92	40.00000	40.0	0.00000	0.00	0	0	0	0	0
27-MAY-92									
01-JUN-92									
02-JUN-92	22.14050	78.4	56.25950	25.00	0	37	0	0	0
08-JUN-92									
09-JUN-92	24.24650	111.0	86.75350	0.00	25	41	15	4	0
15-JUN-92									
16-JUN-92	28.07625	106.0	77.92375	0.75	10	40	15	4	0
22-JUN-92									
23-JUN-92	-3.67625	150.0	153.67625	1.55	50	83	14	4	0
30-JUN-92	17.00500	155.0	137.99500	1.20	50	62	14	4	3
06-JUL-92									
07-JUL-92	19.21510	104.0	84.78490	1.16	0	53	15	5	3
13-JUL-92									
14-JUL-92	3.37675	153.0	149.62325	0.75	50	87	9	3	3
20-JUL-92									
21-JUL-92	-11.81350	156.0	167.81350	5.00	60	91	9	3	3
27-JUL-92									
28-JUL-92	-15.92050	171.0	186.92050	8.40	70	97	7	4	3
03-AUG-92									
04-AUG-92	-16.11350	171.0	187.11350	8.40	50	115	8	4	3
10-AUG-92									
11-AUG-92	-5.89100	146.0	151.89100	8.40	40	90	6	4	3
17-AUG-92									
18-AUG-92	-13.99800	157.0	170.99800	8.40	45	102	10	4	3
24-AUG-92									
25-AUG-92	-10.12750	138.0	148.12750	8.40	40	79	10	5	3
31-AUG-92									
01-SEP-92	-8.07450	136.0	144.07450	8.40	45	71	11	4	3
08-SEP-92	-7.75850	134.0	141.75850	8.40	50	55	15	5	3
09-SEP-92									
14-SEP-92									
15-SEP-92	0.07700	118.0	117.92300	8.40	35	52	11	4	3
21-SEP-92									
22-SEP-92	0.50850	100.0	99.49150	8.40	40	33	8	4	0
28-SEP-92									
29-SEP-92	11.32200	97.4	86.07800	8.40	38	22	8	3	0

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

SRBV LOSS (3.5%)

07-APR-92	0	0.00000
08-APR-92		
14-APR-92	0	0.00000
21-APR-92	0	0.00000
22-APR-92		
28-APR-92	0	0.00000
29-APR-92		
04-MAY-92		
05-MAY-92	0	0.00000
11-MAY-92		
12-MAY-92	0	0.00000
18-MAY-92		
19-MAY-92	0	0.00000
26-MAY-92	0	0.00000
27-MAY-92		
01-JUN-92		
02-JUN-92	0	2.04050
08-JUN-92		
09-JUN-92	9	3.14650
15-JUN-92		
16-JUN-92	15	2.82625
22-JUN-92		
23-JUN-92	15	5.57375
30-JUN-92	15	5.00500
06-JUL-92		
07-JUL-92	16	3.07510
13-JUL-92		
14-JUL-92	11	5.42675
20-JUL-92		
21-JUL-92	12	6.08650
27-JUL-92		
28-JUL-92	14	6.77950
03-AUG-92		
04-AUG-92	17	6.78650
10-AUG-92		
11-AUG-92	15	5.50900
17-AUG-92		
18-AUG-92	15	6.20200
24-AUG-92		
25-AUG-92	16	5.37250
31-AUG-92		
01-SEP-92	14	5.22550
08-SEP-92	16	5.14150
09-SEP-92		
14-SEP-92		
15-SEP-92	14	4.27700
21-SEP-92		
22-SEP-92	13	3.60850
28-SEP-92		
29-SEP-92	12	3.12200

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
05-OCT-92							
06-OCT-92	68.45616	116.8	48.34384	50	0	22	3.41616
12-OCT-92							
13-OCT-92	52.62280	95.4	42.77720	45	0	10	3.02280
19-OCT-92							
20-OCT-92	57.83752	91.2	33.36248	35	0	9	2.35752
26-OCT-92							
27-OCT-92	69.86168	103.0	33.13832	35	0	6	2.34168
03-NOV-92			0.00000	0	0	0	0.00000

NFROOD = ROOD - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
07-APR-92	500.0000	500.0	0.0000	0	0	0	0.0000
08-APR-92							
14-APR-92	724.0000	724.0	0.0000	0	0	0	0.0000
21-APR-92	1658.0000	1658.0	0.0000	0	0	0	0.0000
22-APR-92							
28-APR-92	703.0000	703.0	0.0000	0	0	0	0.0000
29-APR-92							
04-MAY-92							
05-MAY-92	655.0000	655.0	0.0000	0	0	0	0.0000
11-MAY-92							
12-MAY-92	434.0000	434.0	0.0000	0	0	0	0.0000
18-MAY-92							
19-MAY-92	262.0000	262.0	0.0000	0	0	0	0.0000
26-MAY-92	180.0000	180.0	0.0000	0	0	0	0.0000
27-MAY-92							
01-JUN-92							
02-JUN-92	134.6172	137.0	2.3828	0	0	37	0.2072
08-JUN-92							
09-JUN-92	124.3596	150.0	25.6404	25	0	41	2.2296
15-JUN-92							
16-JUN-92	220.2240	232.0	11.7760	10	0	40	1.0240
22-JUN-92							
23-JUN-92	24.6548	76.0	51.3452	50	0	83	4.4648
30-JUN-92	232.2472	285.0	52.7528	50	3	62	4.5872
06-JUL-92							
07-JUL-92	208.8268	215.0	6.1732	0	3	53	0.5368
13-JUL-92							
14-JUL-92	140.6372	195.0	54.3628	50	3	87	4.7272
20-JUL-92							
21-JUL-92	66.1796	130.0	63.8204	60	3	91	5.5496
27-JUL-92							
28-JUL-92	87.5932	161.0	73.4068	70	3	97	6.3832
03-AUG-92							
04-AUG-92	128.8340	185.0	56.1660	50	3	115	4.8840
10-AUG-92							
11-AUG-92	82.6440	128.0	45.3560	40	3	90	3.9440
17-AUG-92							
18-AUG-92	96.2712	147.0	50.7288	45	3	102	4.4112
24-AUG-92							
25-AUG-92	87.9524	132.6	44.6476	40	3	79	3.8824
31-AUG-92							
01-SEP-92	76.7676	125.5	48.7324	45	3	71	4.2376
08-SEP-92	89.5980	141.9	52.3020	50	3	55	4.5480
09-SEP-92							
14-SEP-92							
15-SEP-92	114.3912	152.7	38.3088	35	3	52	3.3312
21-SEP-92							
22-SEP-92	79.6748	118.6	38.9252	40	0	33	3.3848
28-SEP-92							
29-SEP-92	117.6232	154.0	36.3768	38	0	22	3.1632

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
05-OCT-92							
06-OCT-92	119.5832	167.0	47.4168	50	0	22	4.1232
12-OCT-92							
13-OCT-92	118.9560	161.0	42.0440	45	0	10	3.6560
19-OCT-92							
20-OCT-92	165.9204	198.7	32.7796	35	0	9	2.8504
26-OCT-92							
27-OCT-92	98.4136	131.0	32.5864	35	0	6	2.8336
03-NOV-92	389.0000	389.0	0.0000	0	0	0	0.0000

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
07-APR-92	543.00	543.0	0.00	0	0.00
08-APR-92					
14-APR-92	736.00	736.0	0.00	0	0.00
21-APR-92	1971.00	1971.0	0.00	0	0.00
22-APR-92					
28-APR-92	694.00	694.0	0.00	0	0.00
29-APR-92					
04-MAY-92					
05-MAY-92	720.00	720.0	0.00	0	0.00
11-MAY-92					
12-MAY-92	416.00	416.0	0.00	0	0.00
18-MAY-92					
19-MAY-92	276.00	276.0	0.00	0	0.00
26-MAY-92	203.00	203.0	0.00	0	0.00
27-MAY-92					
01-JUN-92					
02-JUN-92	179.00	179.0	0.00	0	0.00
08-JUN-92					
09-JUN-92	89.00	110.0	21.00	25	4.00
15-JUN-92					
16-JUN-92	206.60	215.0	8.40	10	1.60
22-JUN-92					
23-JUN-92	84.00	126.0	42.00	50	8.00
30-JUN-92	161.00	203.0	42.00	50	8.00
06-JUL-92					
07-JUL-92	182.00	182.0	0.00	0	0.00
13-JUL-92					
14-JUL-92	97.00	139.0	42.00	50	8.00
20-JUL-92					
21-JUL-92	42.60	93.0	50.40	60	9.60
27-JUL-92					
28-JUL-92	93.20	152.0	58.80	70	11.20
03-AUG-92					
04-AUG-92	84.00	126.0	42.00	50	8.00
10-AUG-92					
11-AUG-92	103.40	137.0	33.60	40	6.40
17-AUG-92					
18-AUG-92	65.20	103.0	37.80	45	7.20
24-AUG-92					
25-AUG-92	55.80	89.4	33.60	40	6.40
31-AUG-92					
01-SEP-92	58.40	96.2	37.80	45	7.20
08-SEP-92	54.00	96.0	42.00	50	8.00
09-SEP-92					
14-SEP-92					
15-SEP-92	139.60	169.0	29.40	35	5.60
21-SEP-92					
22-SEP-92	64.40	98.0	33.60	40	6.40
28-SEP-92					
29-SEP-92	94.08	126.0	31.92	38	6.08

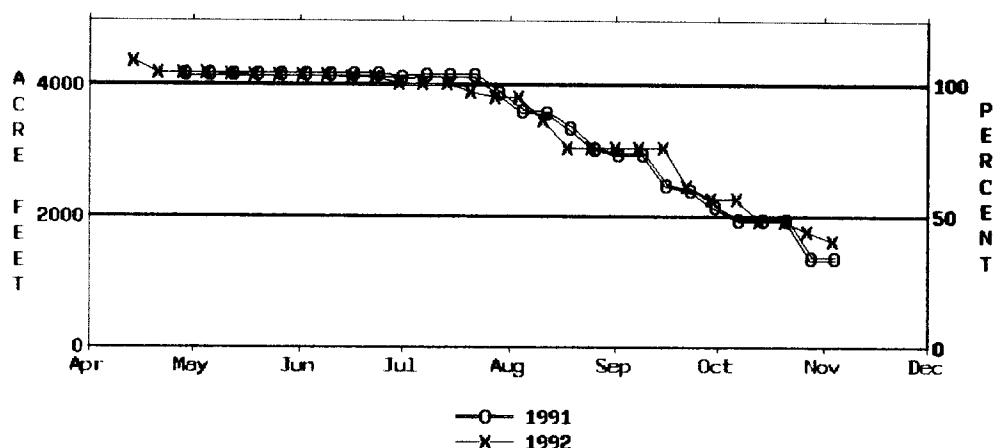
NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
05-OCT-92					
06-OCT-92	135.00	177.0	42.00	50	8.00
12-OCT-92					
13-OCT-92	84.20	122.0	37.80	45	7.20
19-OCT-92					
20-OCT-92	76.60	106.0	29.40	35	5.60
26-OCT-92					
27-OCT-92	100.60	130.0	29.40	35	5.60
03-NOV-92	523.00	523.0	0.00	0	0.00

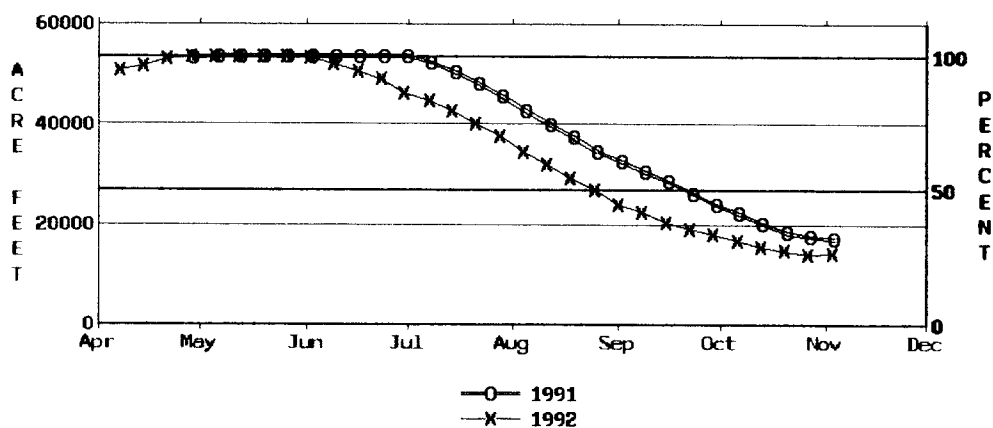
NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16

TRASK (BARNEY RESERVOIR CONTENT) (TBRC)

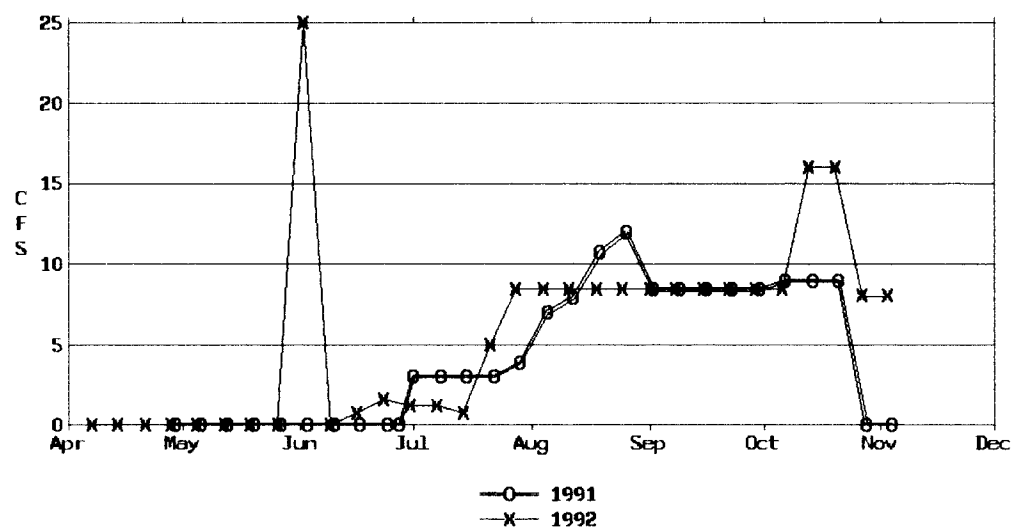
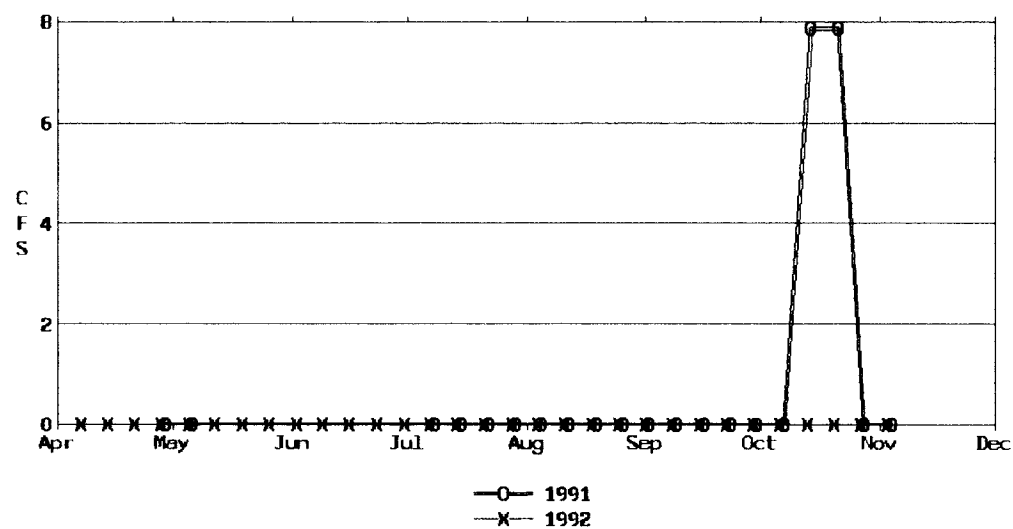
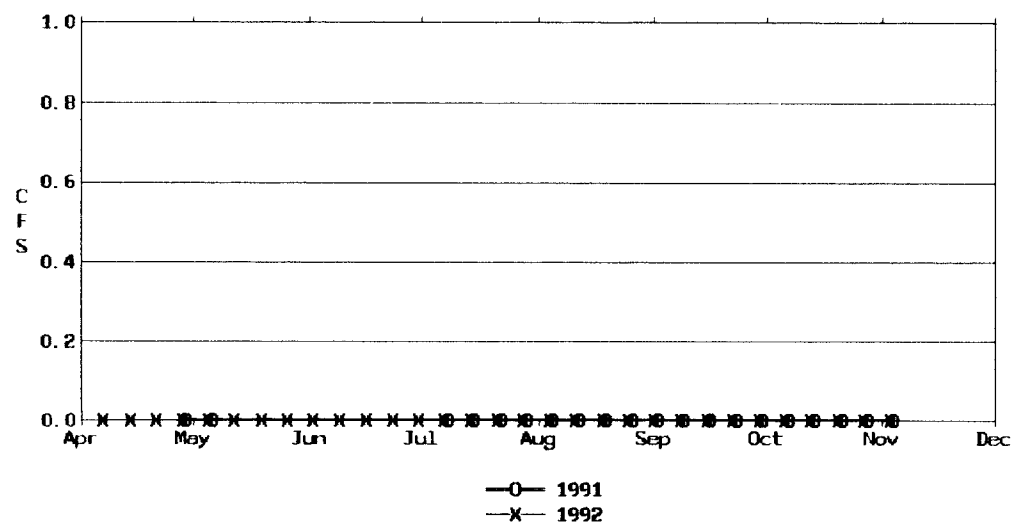


MAXIMUM POOL = 4040.8 AF AT 1590.8 FEET
 MINIMUM POOL = 0.0 AF AT 1530 FEET

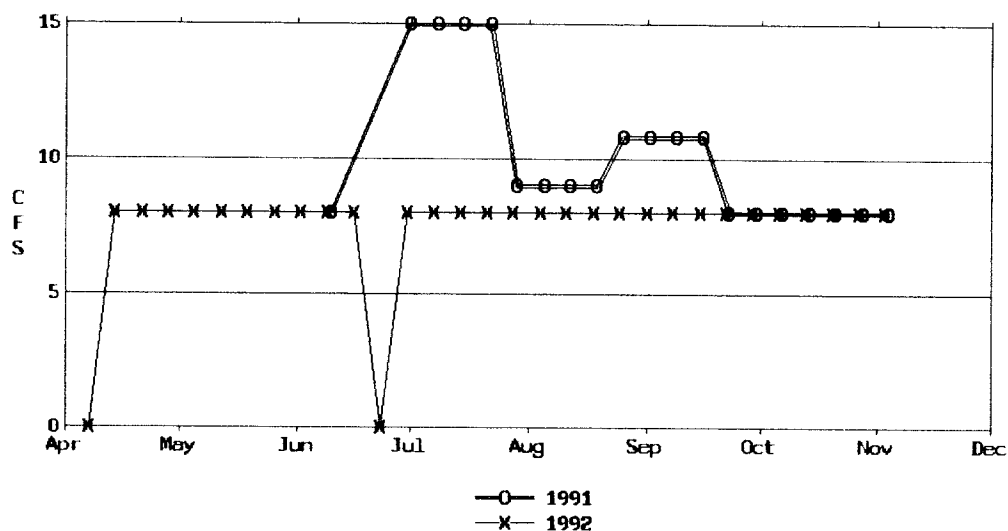
SCOGGIN RESERVOIR STORAGE CONTENT (SCO)



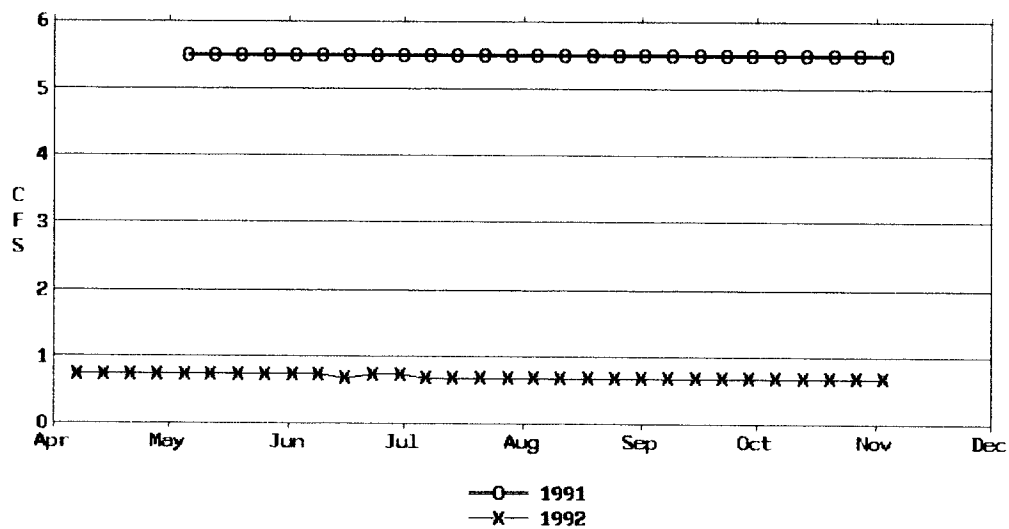
MAXIMUM POOL = 53638 AF AT 303.50 FEET (MAY 1)
 MINIMUM POOL = 33040 AF AT 283.50 FEET (NOV 1)
 ACTIVE CAPACITY = 0 AF AT 235.3 FEET

TRASK RELEASE TO TUALATIN RIVER (TRTR)**TRASK RELEASE FOR WATER QUALITY (TRWQ)****TRASK RELEASE FOR EXCHANGE (TRES)**

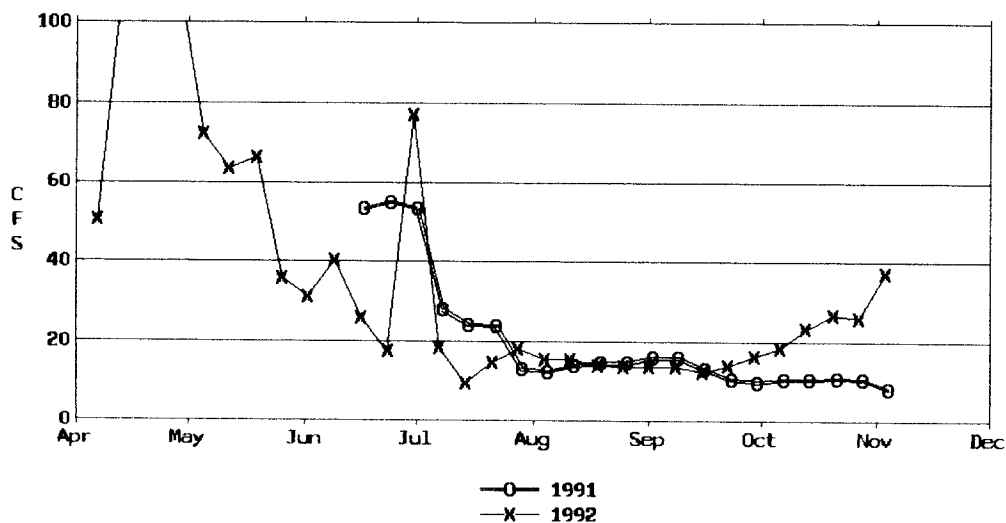
TRASK RELEASE TO NF TRASK RIVER (TRNF)



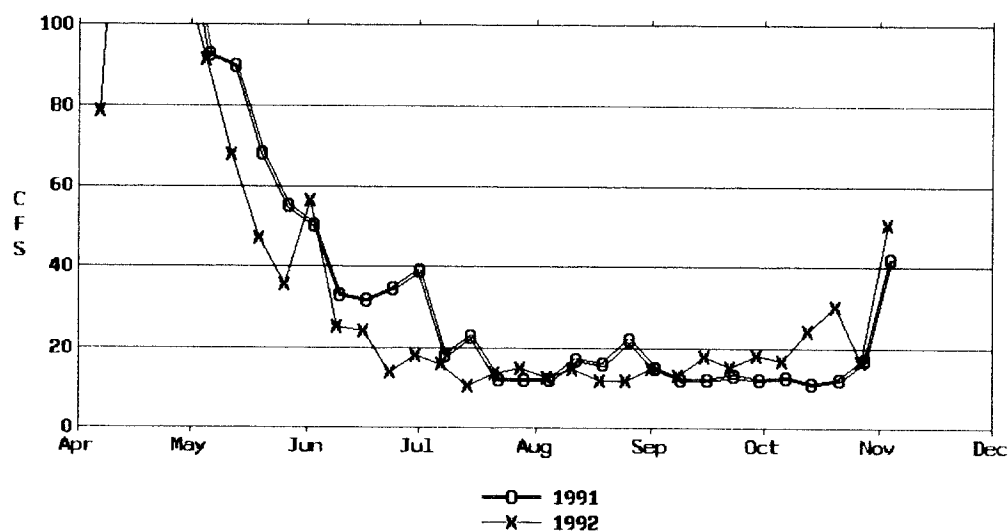
CHERRY GROVE INTAKE - HILLSBORO (CGIC)



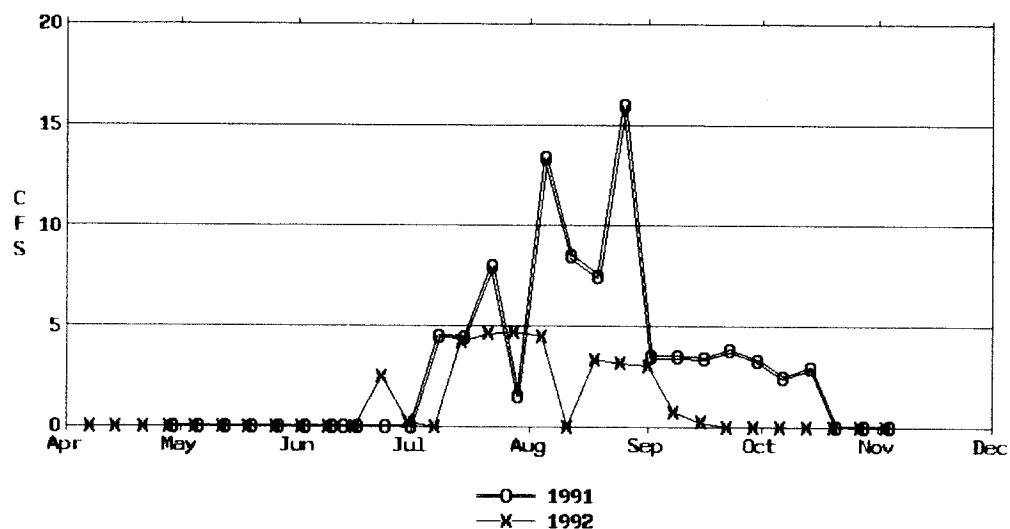
TUALATIN RIVER BELOW LEE FALLS (TRLF)



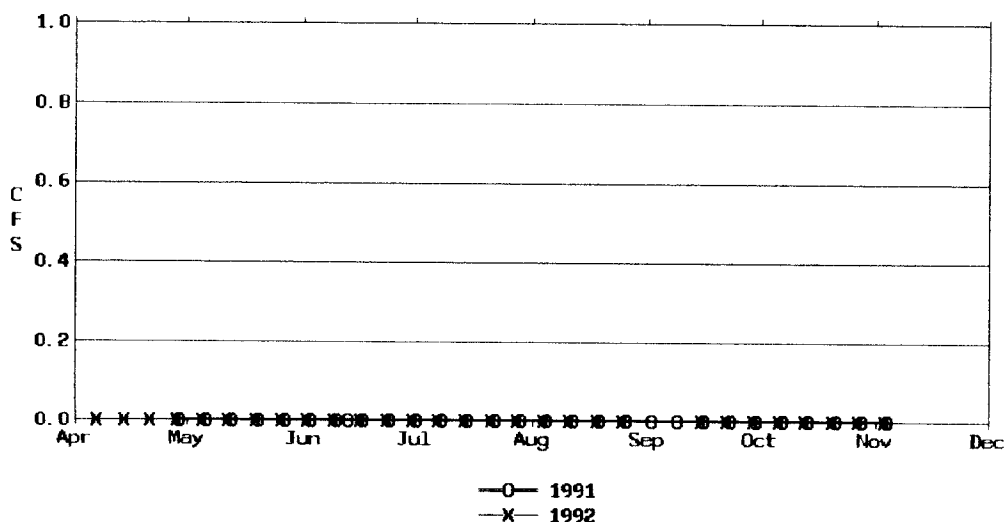
TUALATIN RIVER ABOVE GASTON (GAST)



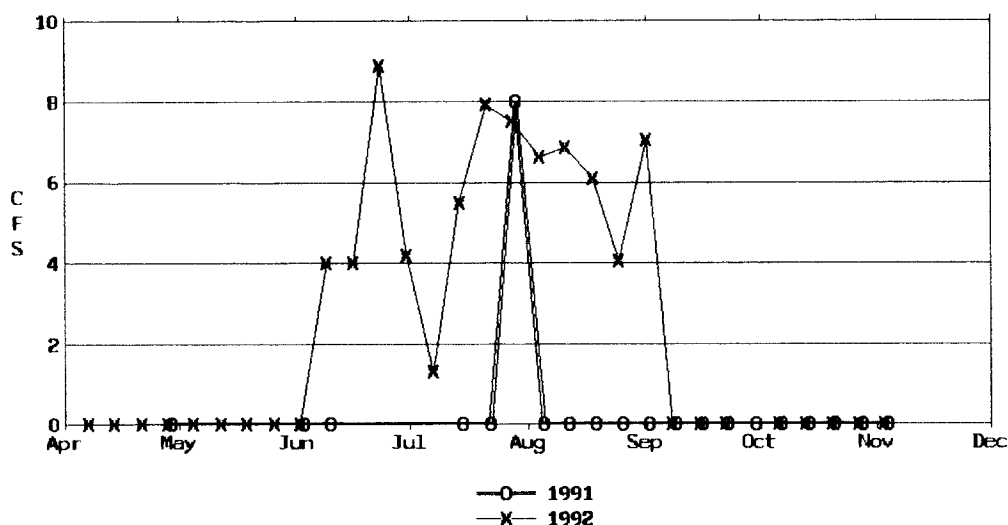
TVID - PATTON VALLEY RIV. TURNOUT #1 (PVR1)



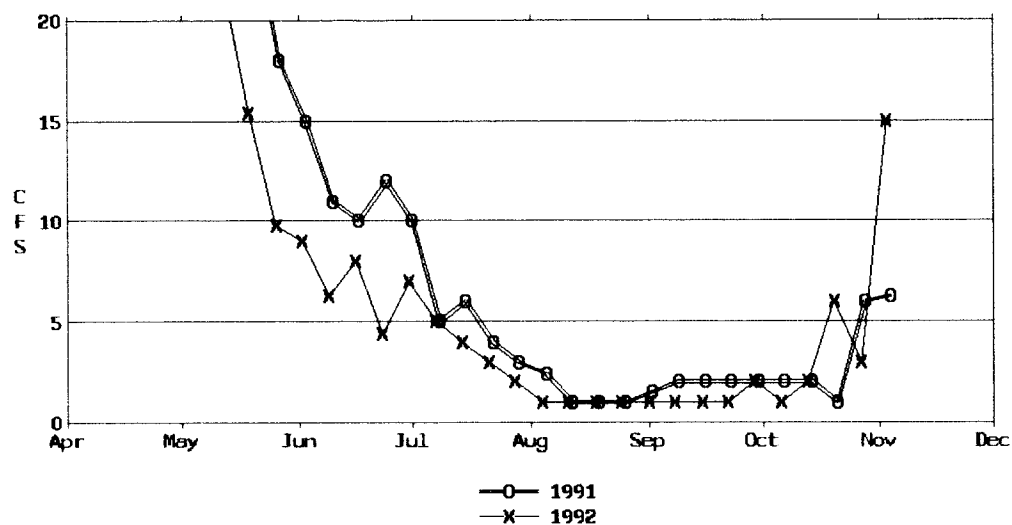
TVID - PATTON VALLEY RIV. TURNOUT #2 (PVR2)



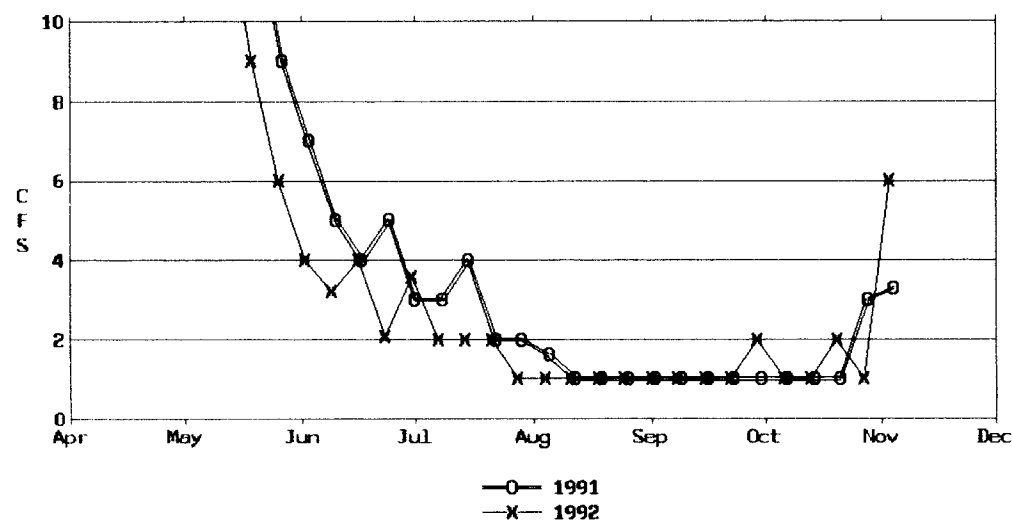
WAPATO CANAL DIVERSION (WAP0)



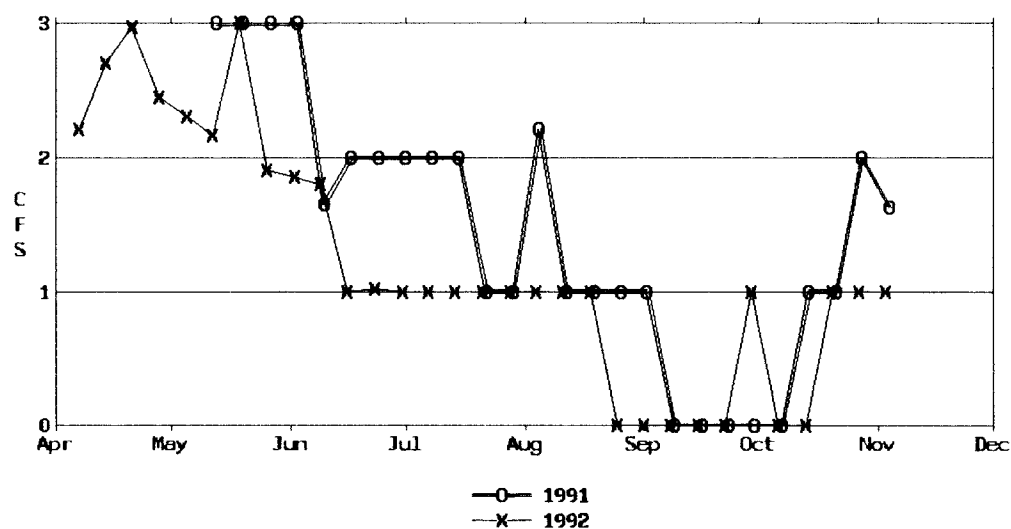
SCOGGIN CREEK ABOVE HAGG LAKE (SCLO)



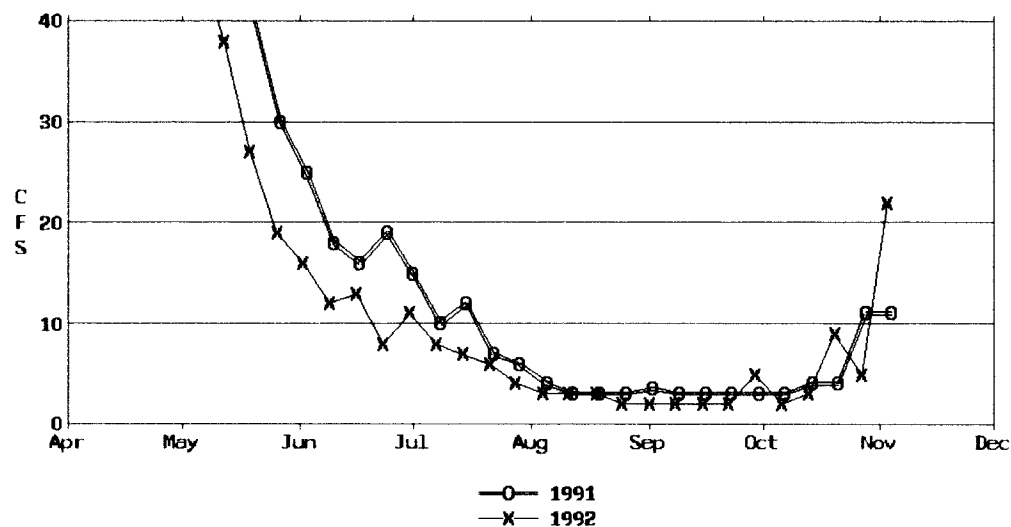
SAIN CREEK ABOVE HAGG LAKE (SCH0)



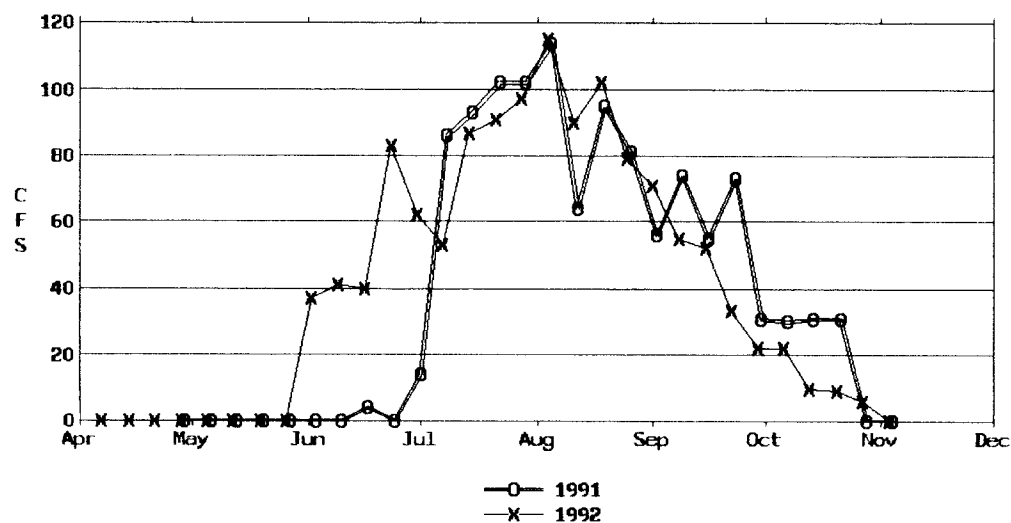
TANNER CREEK ABOVE HAGG LAKE (TANO)



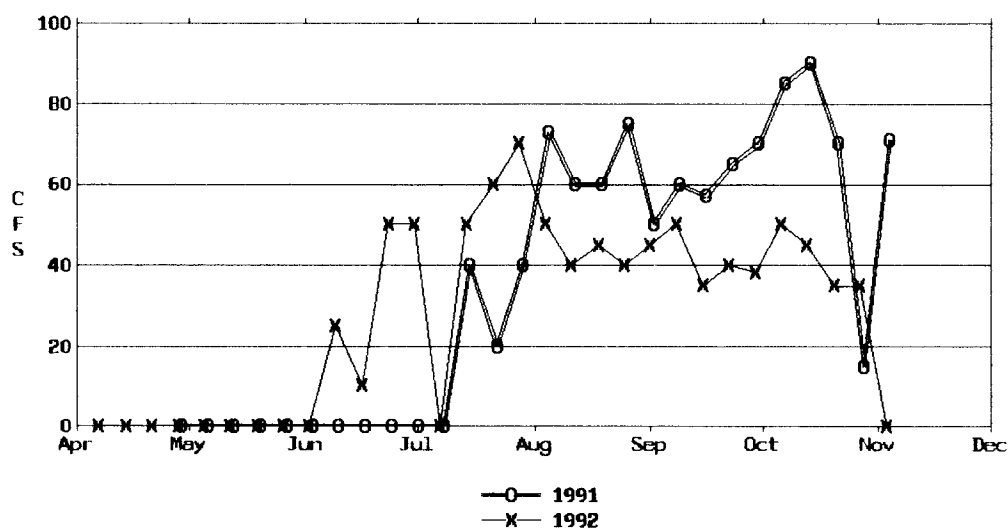
SCOGGINS RESERVOIR COMP. INFLOW (SRCI)



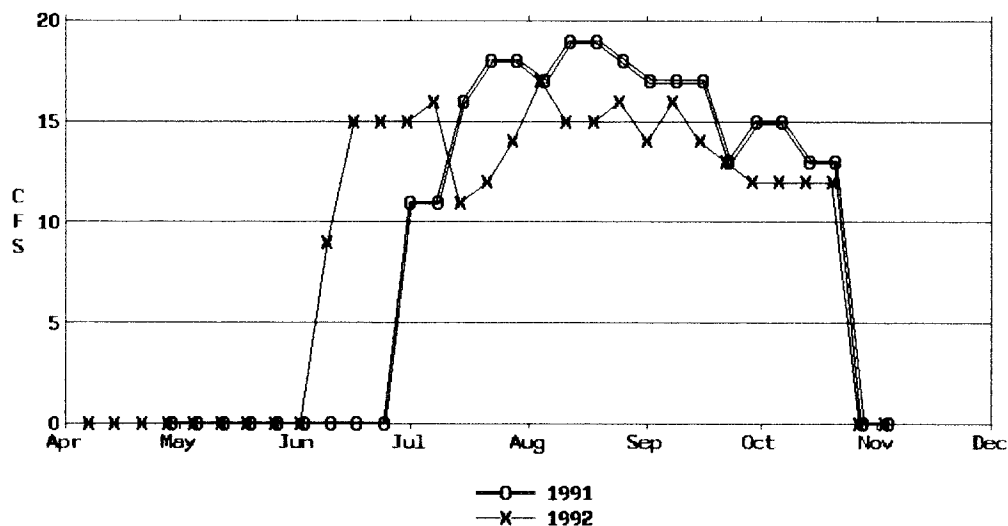
TVID RELEASE FROM SCOGGIN RES. (SRTV)



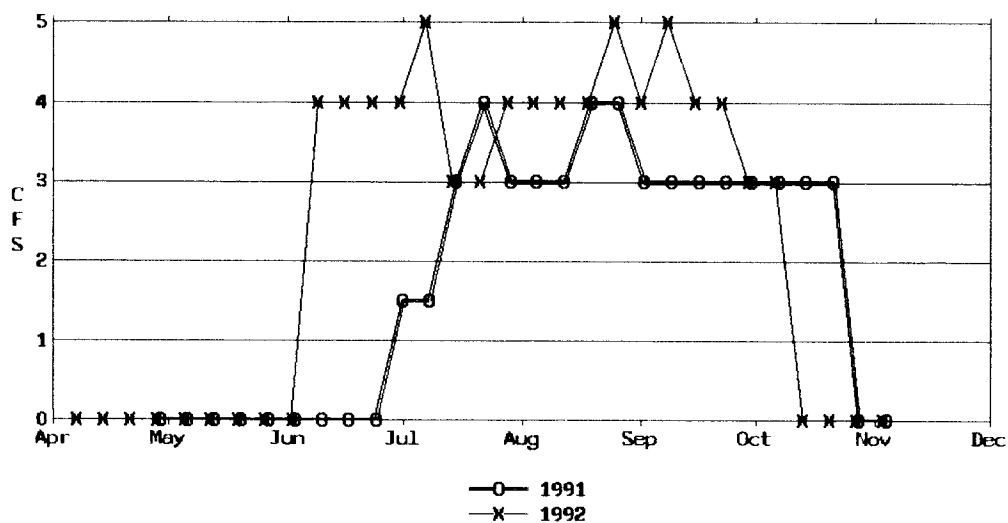
USA RELEASE FROM SCOGGIN RES. (SRUS)



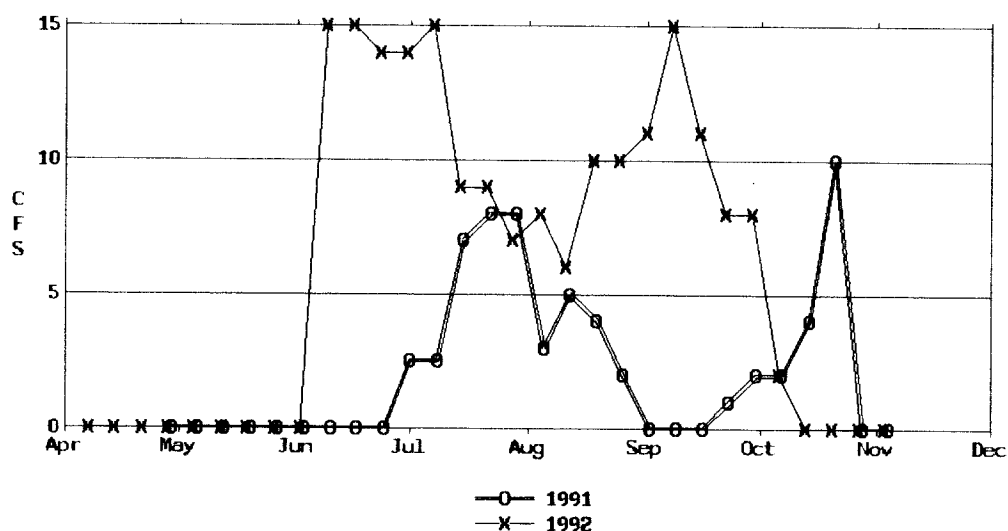
BEAVERTON RELEASE FROM SCOGGIN RES. (SRBV)



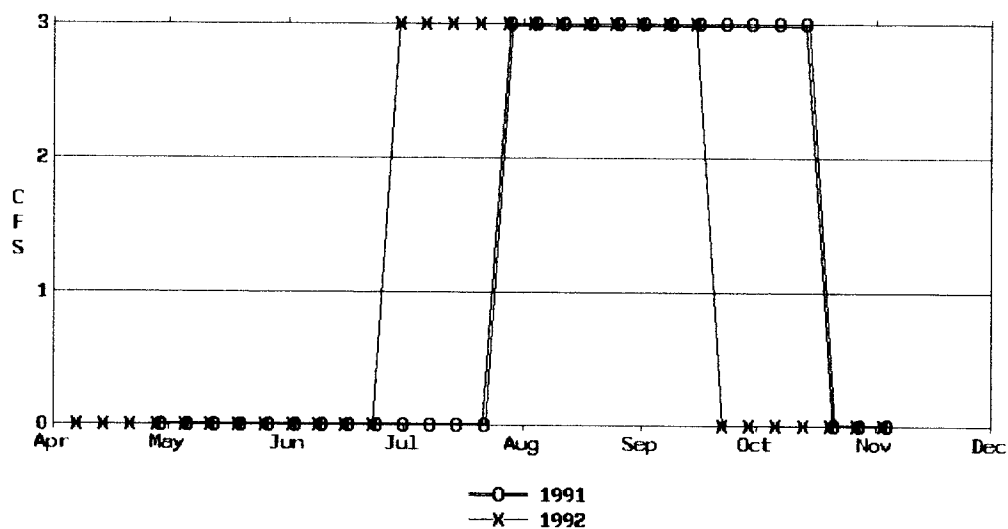
FOREST GROVE RELEASE FROM SCOG. RES. (SRFG)



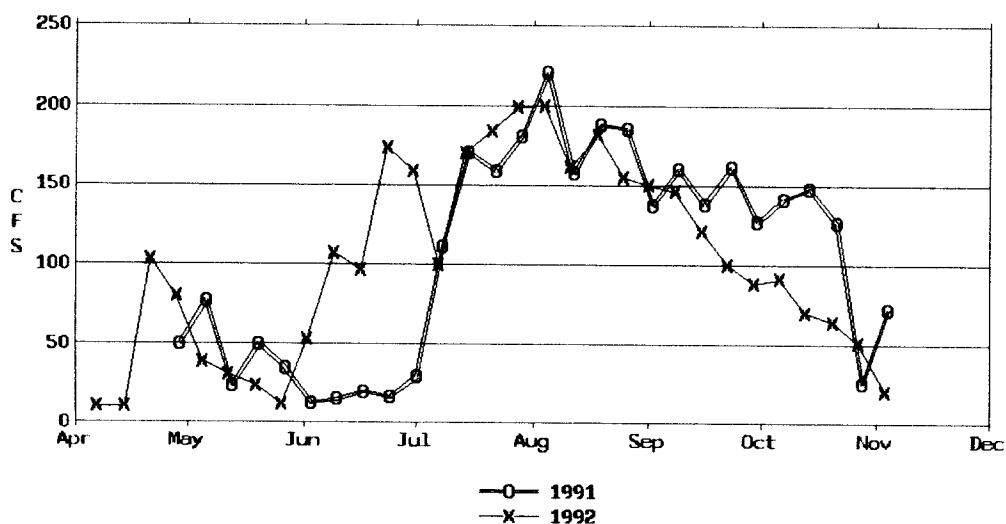
HILLSBORO RELEASE FROM SCOGGIN RES. (SRHL)



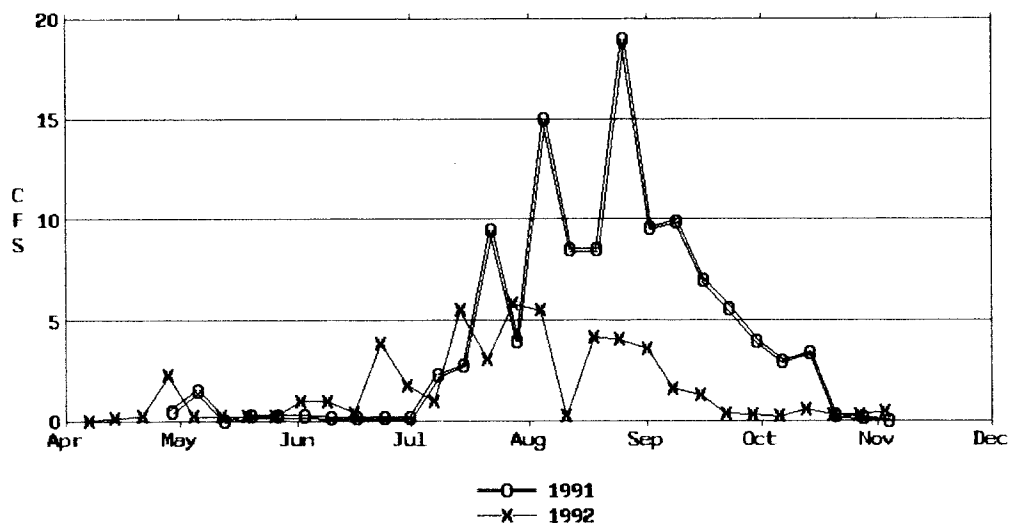
LOC RELEASE FROM SCOGGIN RES. (SRLO)



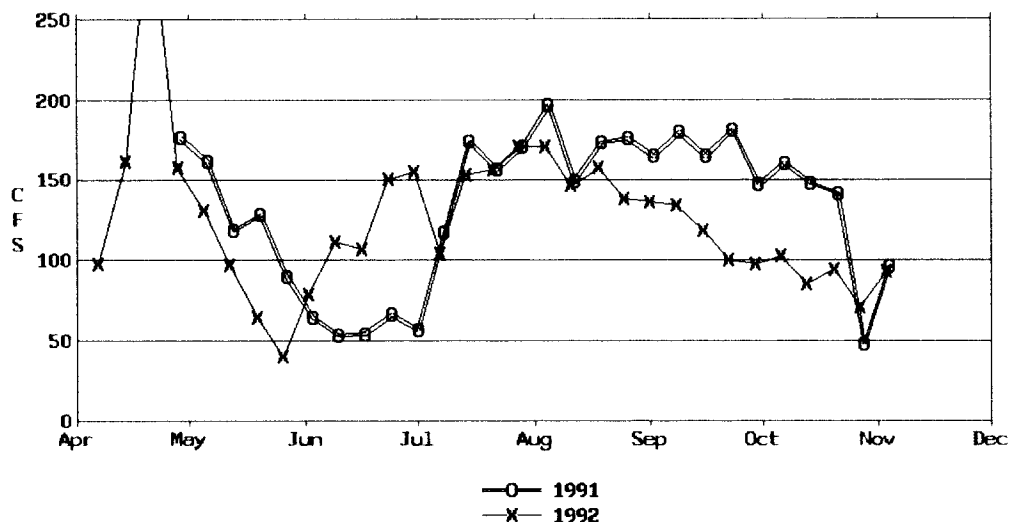
SCOGGIN CR. BELOW HAGG LAKE (RELEASE) (SC00)



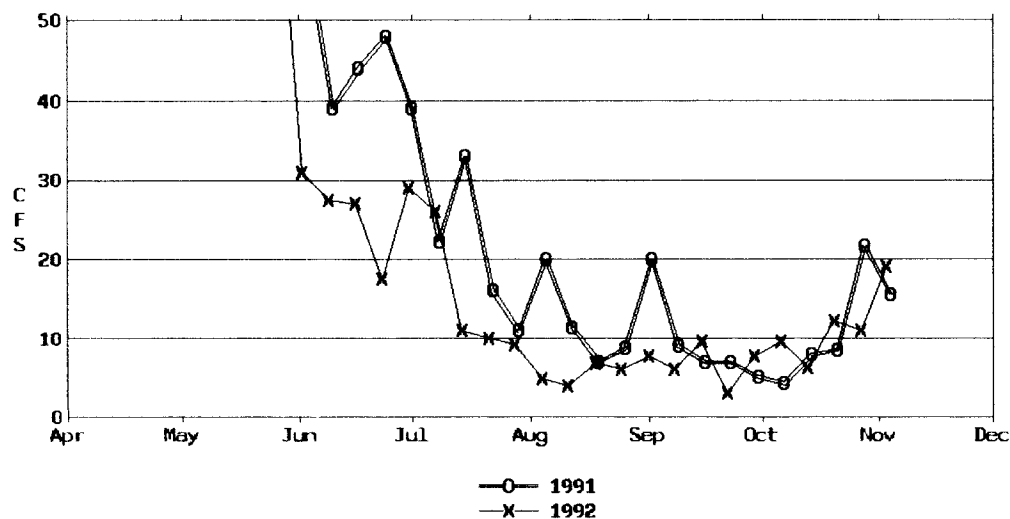
TVID - PATT. VALLEY PUMP PLANT DIV. (PVPP)



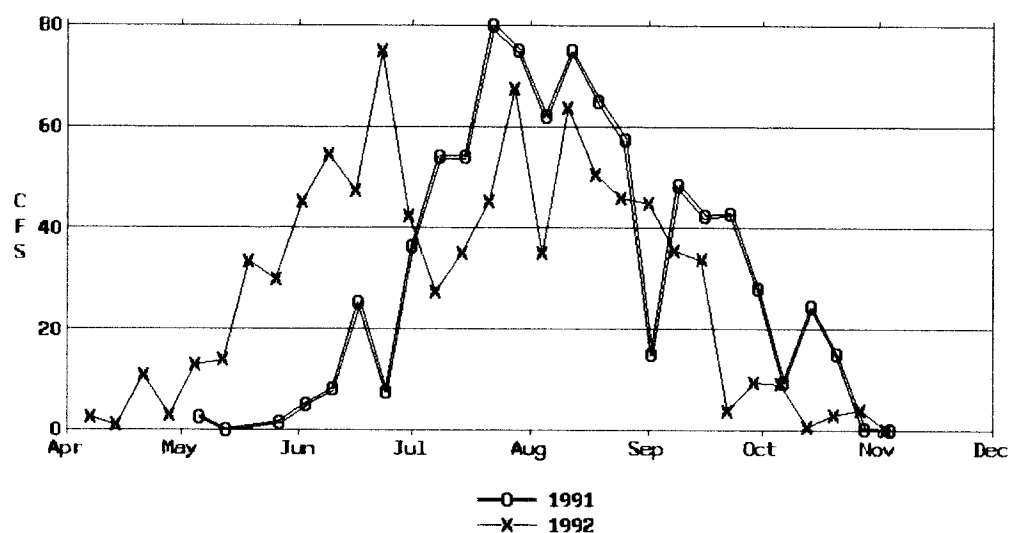
TUALATIN RIV. AT DILLEY BR. (DLLO)



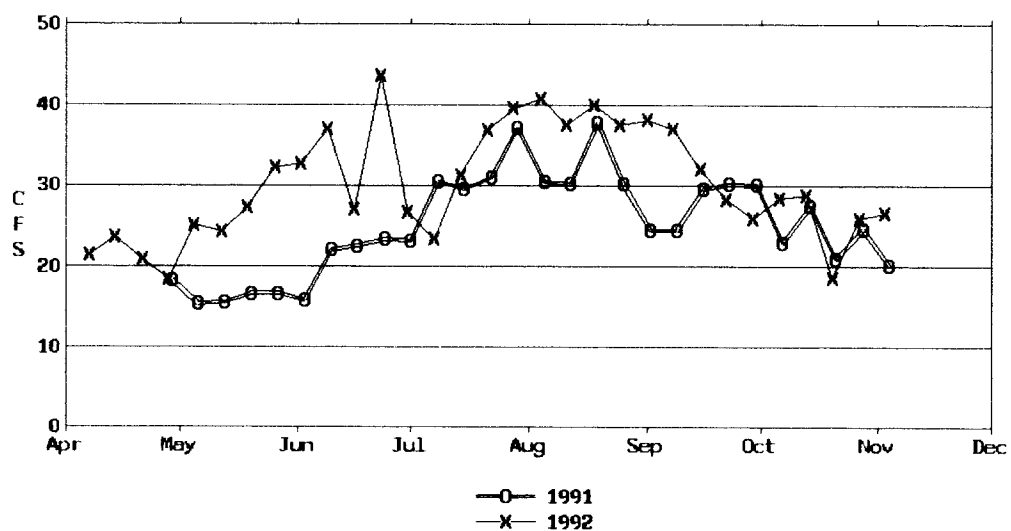
GALES CR. ON OLD HWY 47 BRIDGE (GALES)



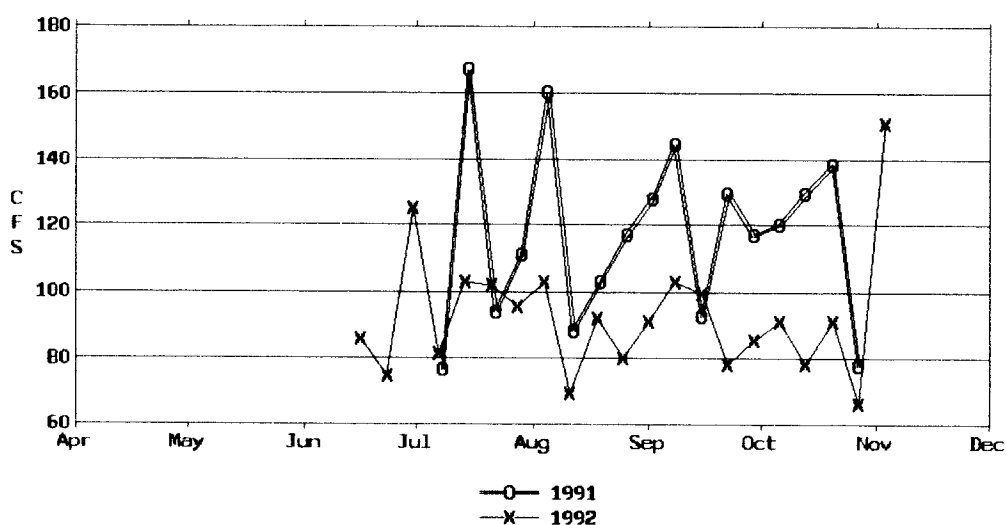
TVID - SPRINGHILL PUMP PLANT DIV. (SHPP)



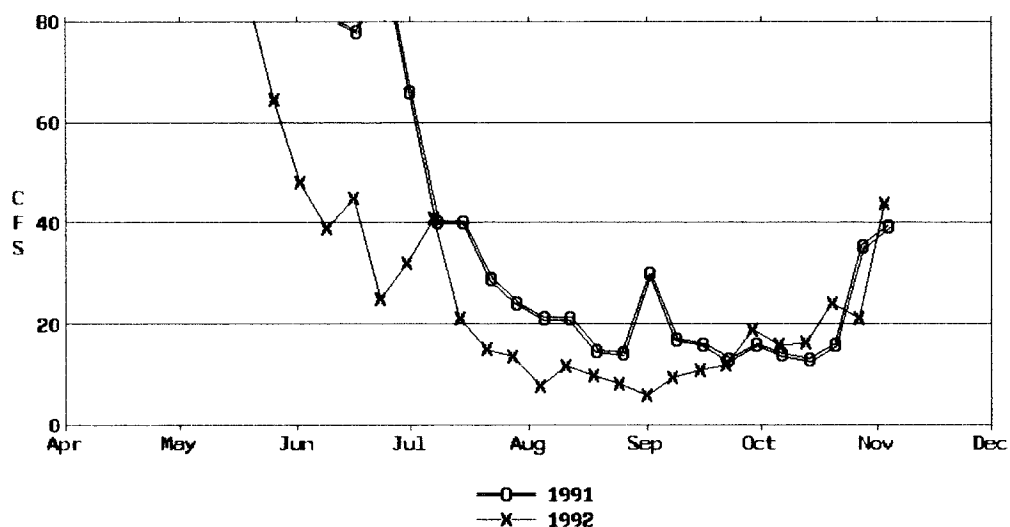
JOINT WATER DIVERSION AT SHPP PLANT (JWCS)



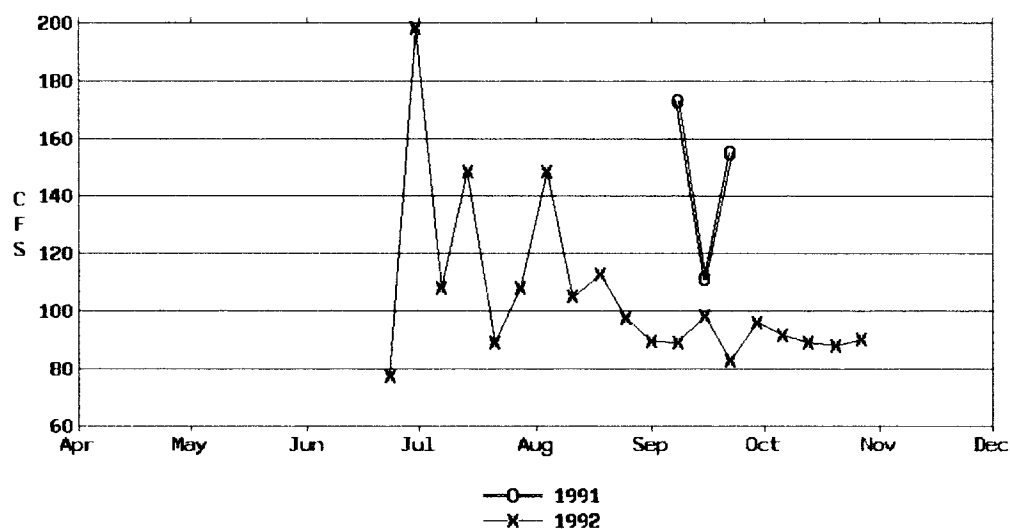
TUALATIN RIV. AT GOLF COURSE RD. (TRGC)



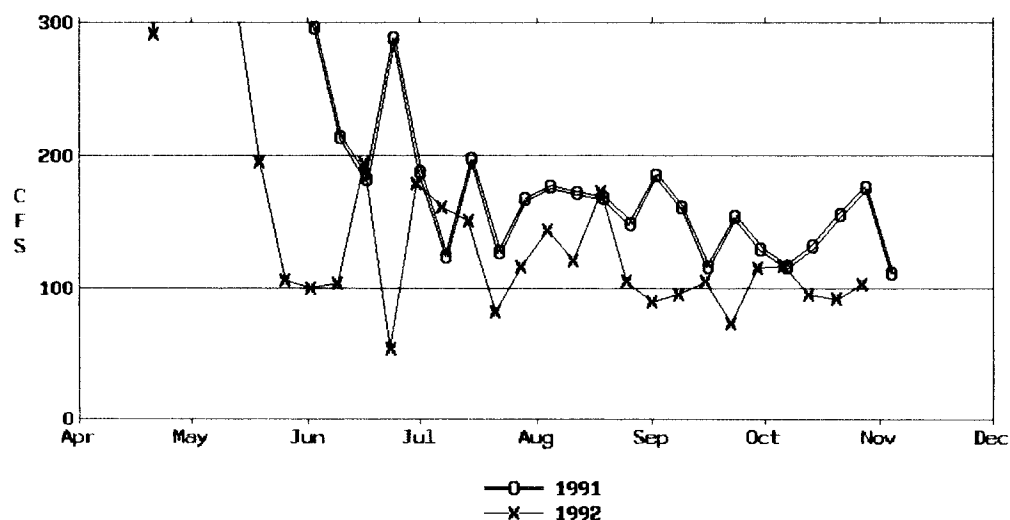
DAIRY CREEK AT HWY 8 BRIDGE (DAIRY)



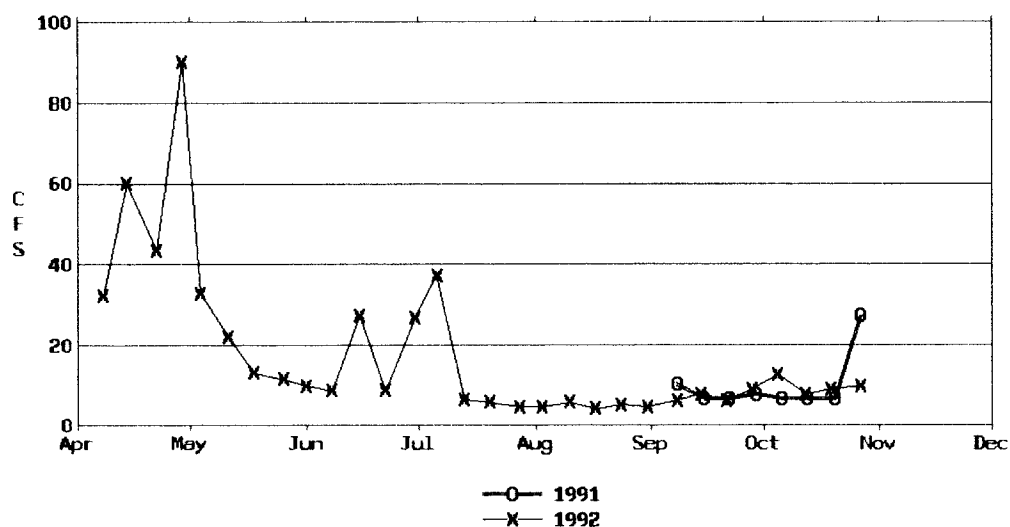
TUALATIN RIV. AT HWY 219 BRIDGE (TRJB)



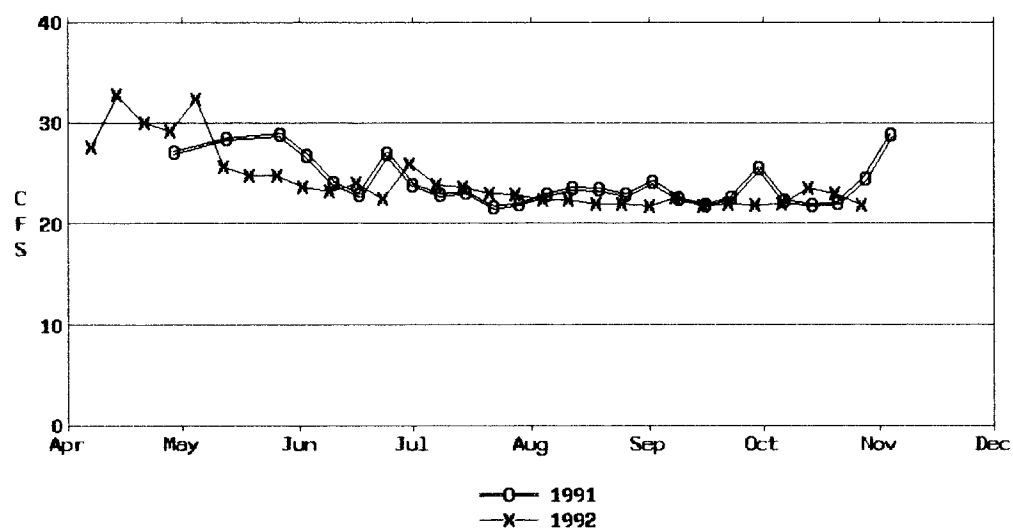
TUALATIN RIV. AT ROOD RD. BRIDGE (ROOD)



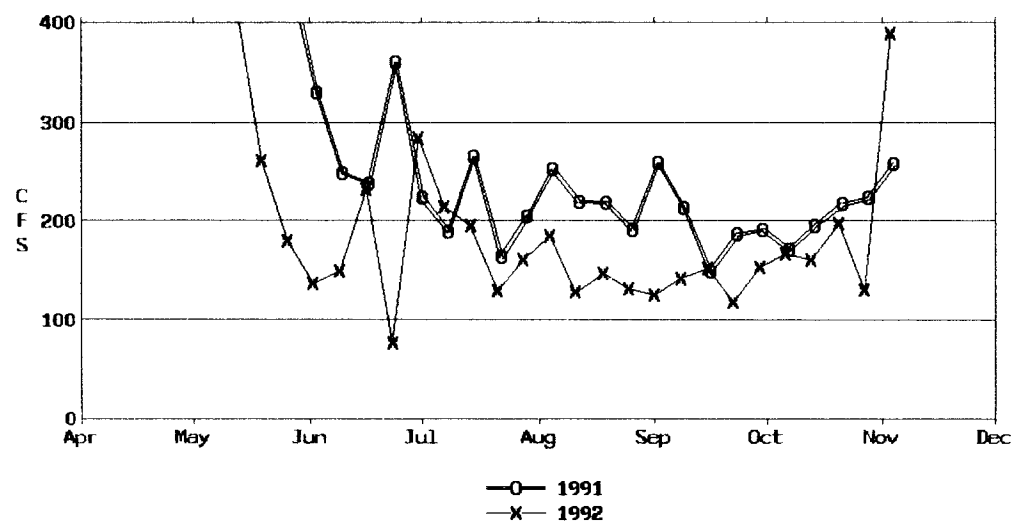
ROCK CREEK AT TV HWY (RCTV)



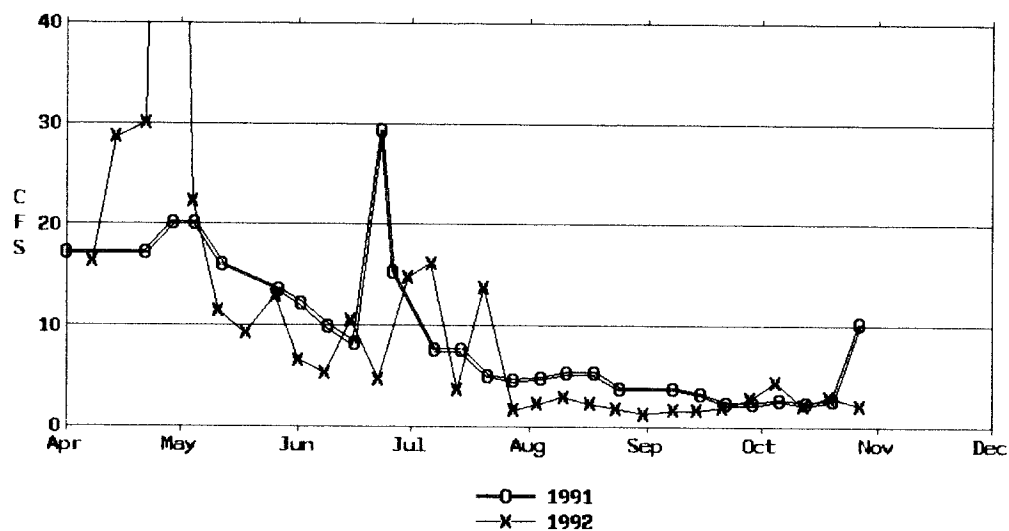
USA ROCK CREEK WWTP DISCHARGE (USARC)



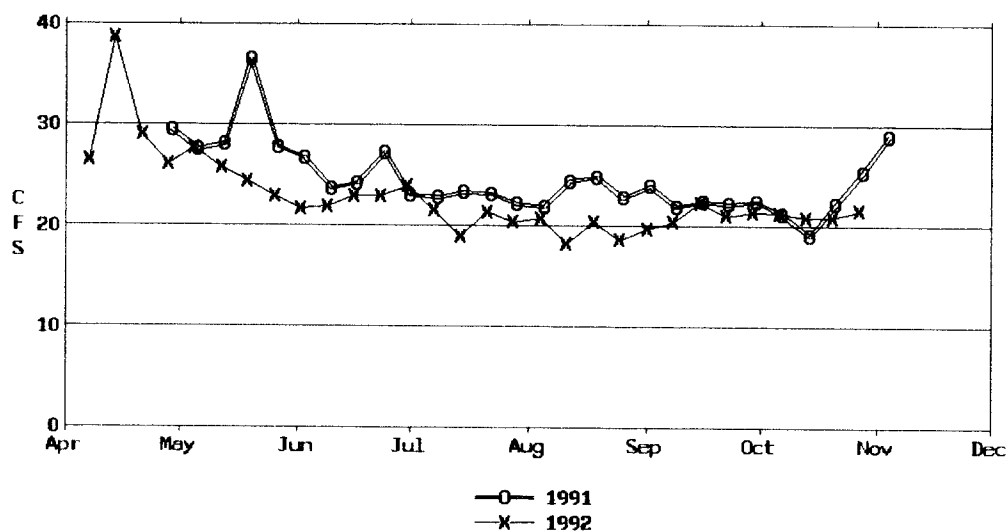
TUALATIN R. AT FARMINGTON RD. BRIDGE (FRMO)



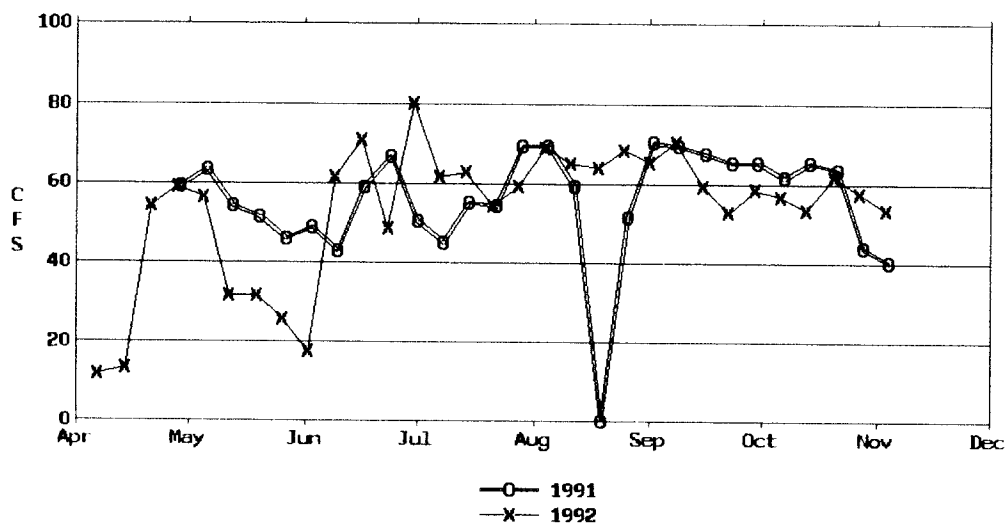
FANNO CREEK AT DURHAM RD. BRIDGE (FANO)



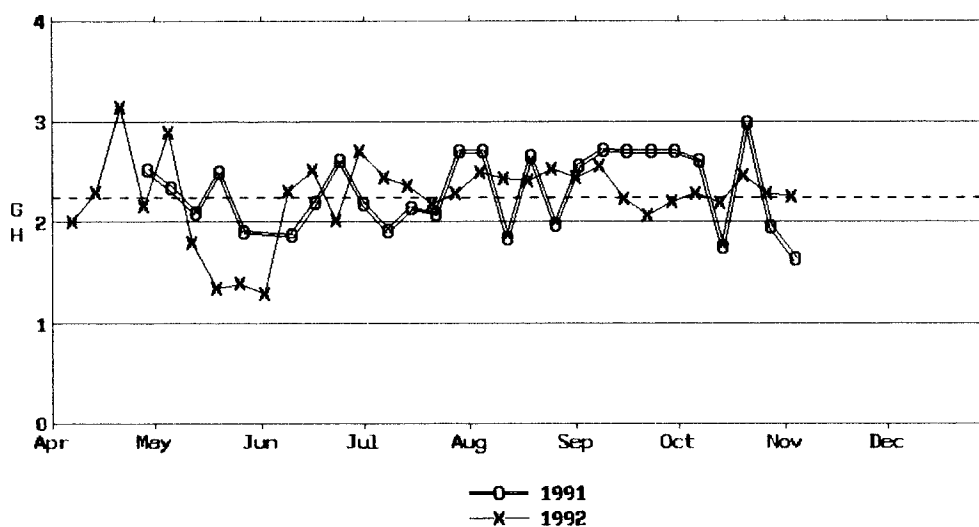
USA DURHAM WWTP DISCHARGE (USADH)



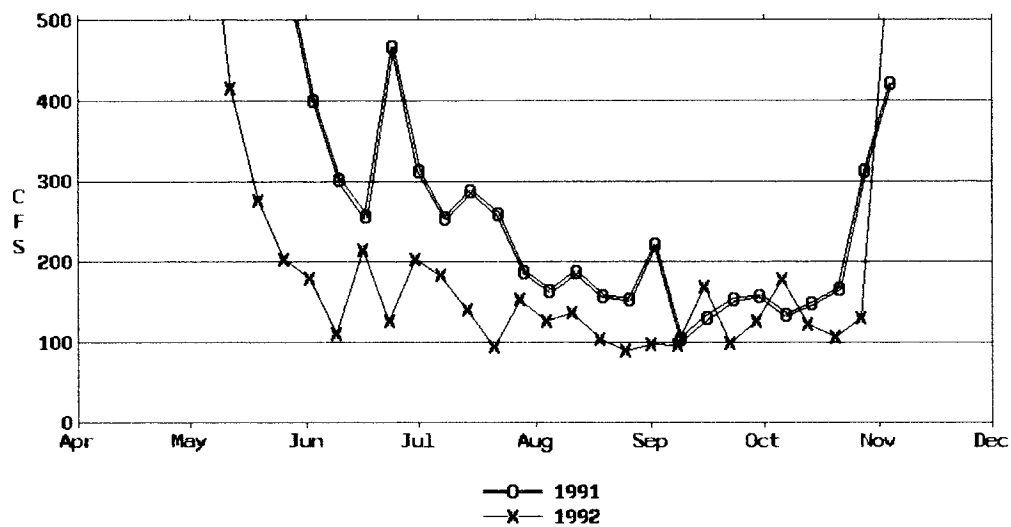
LAKE OSWEGO CORP. CANAL DIVERSION (LOCL)



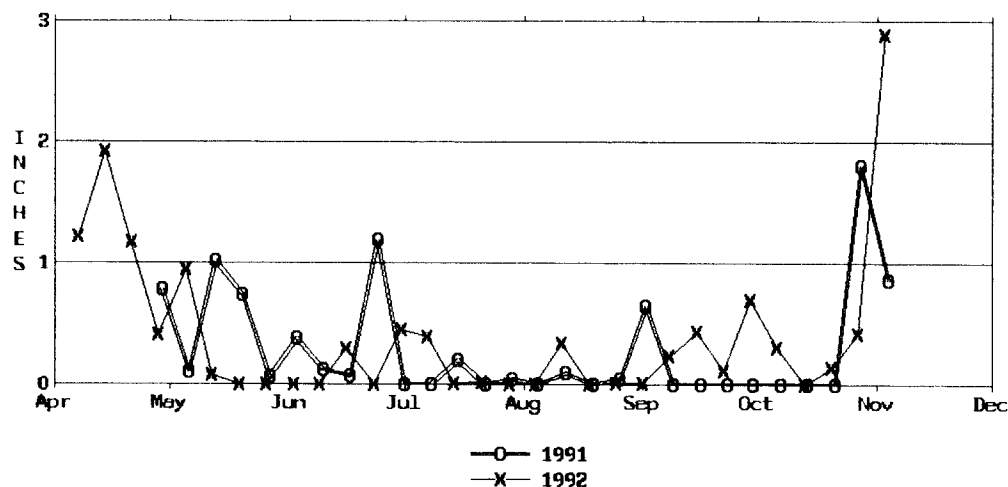
TUALATIN RIV. AT LOC CANAL (LOCS)



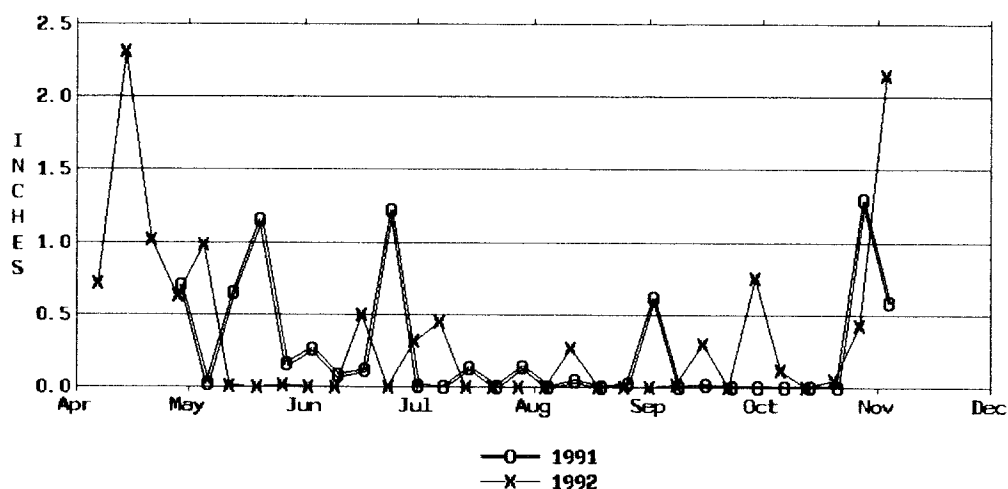
TUALATIN RIV. AT WEST LINN (WSLO)



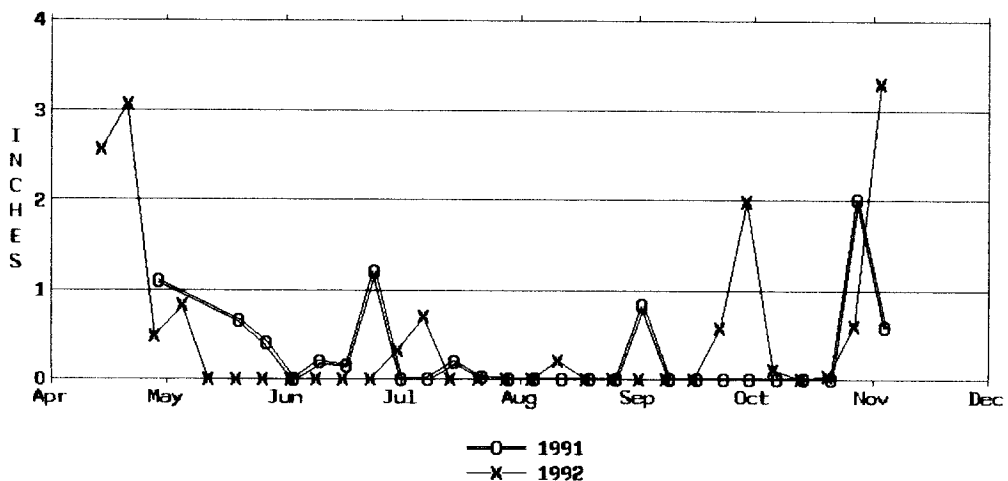
SCOGGIN RESERVOIR STATION (SCOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



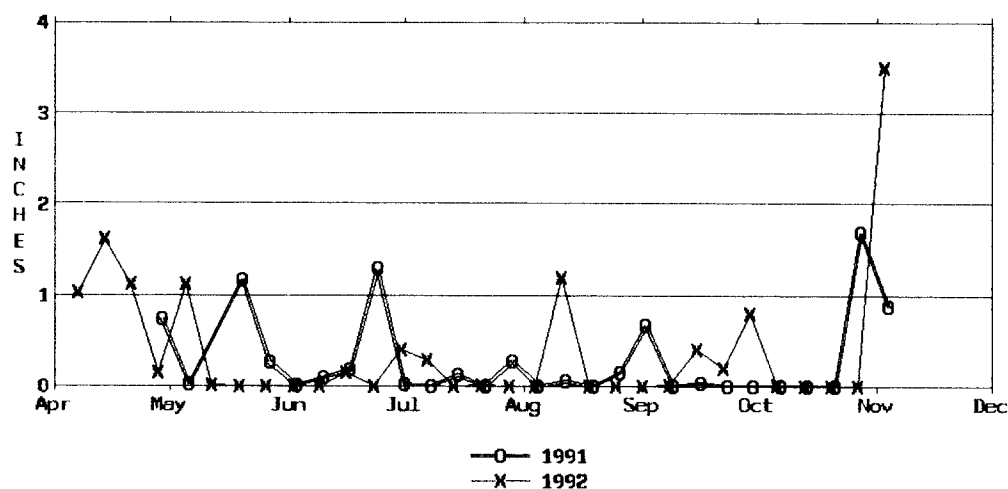
FOREST GROVE STATION (FGOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



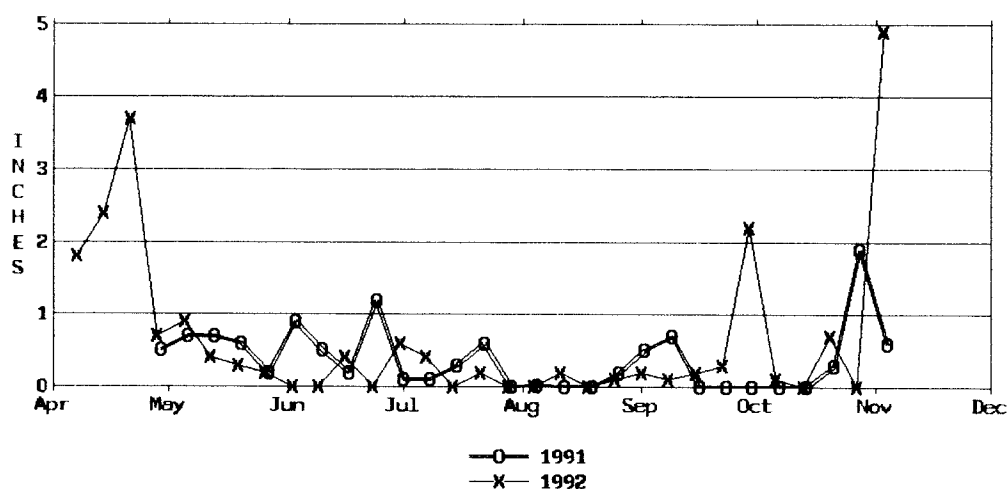
HAINES FALLS STATION (HFOP) **PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION**



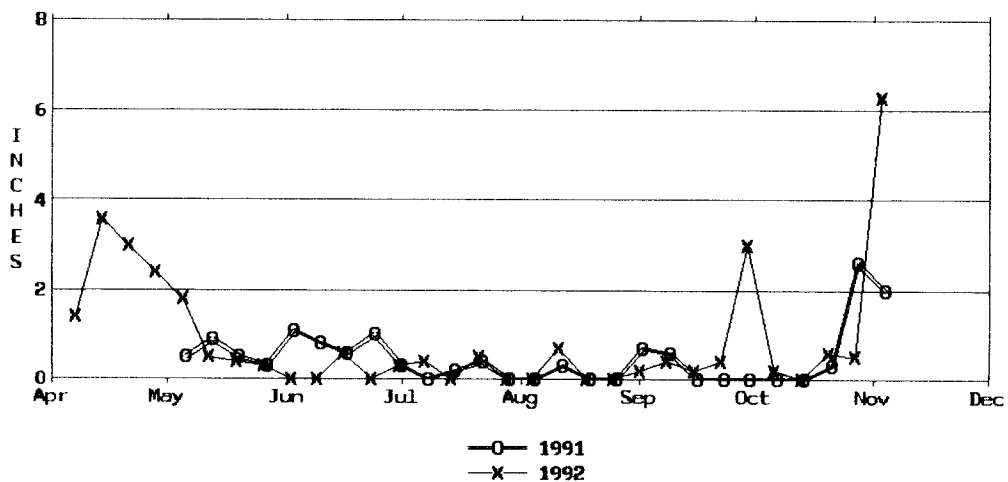
JOINT WATER PLANT STATION (JWOP) PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION



SAIN CREEK STATION (SECO) PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION



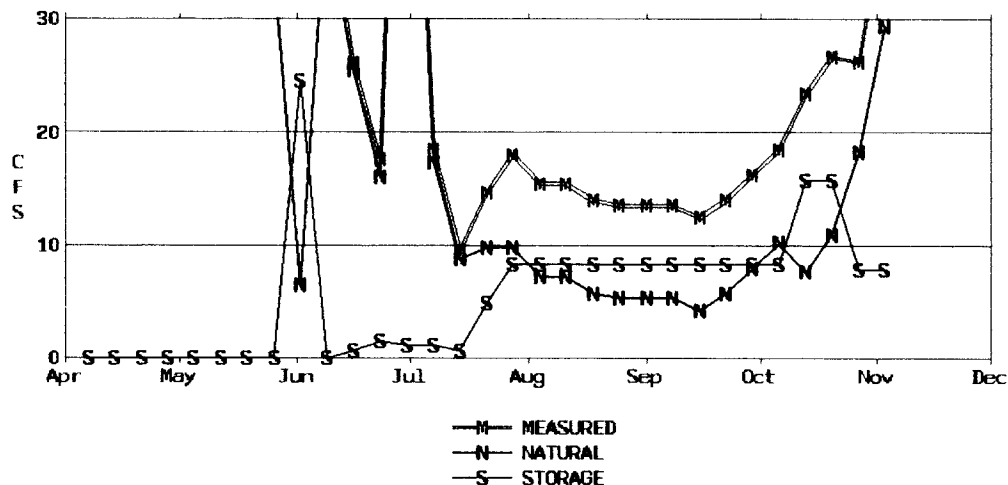
SADDLE MOUNTAIN STATION (SDMO) PREVIOUS 7 DAYS ACCUMULATED PRECIPITATION



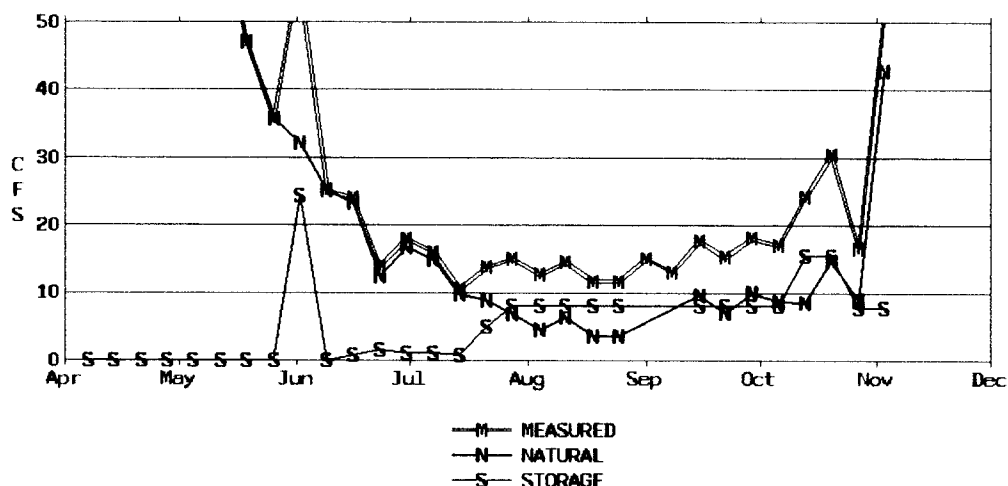
APPENDIX B

HYDROGRAPHS FOR NATURAL FLOW DETERMINATION AND DATA TABLES

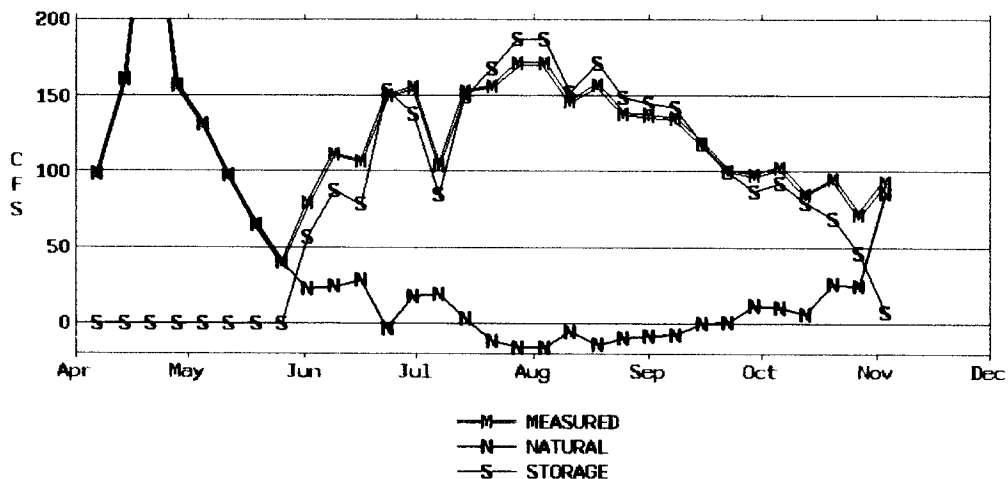
NATURAL FLOW AT LEE FALLS ON TUALATIN RIVER (NFTRLF)



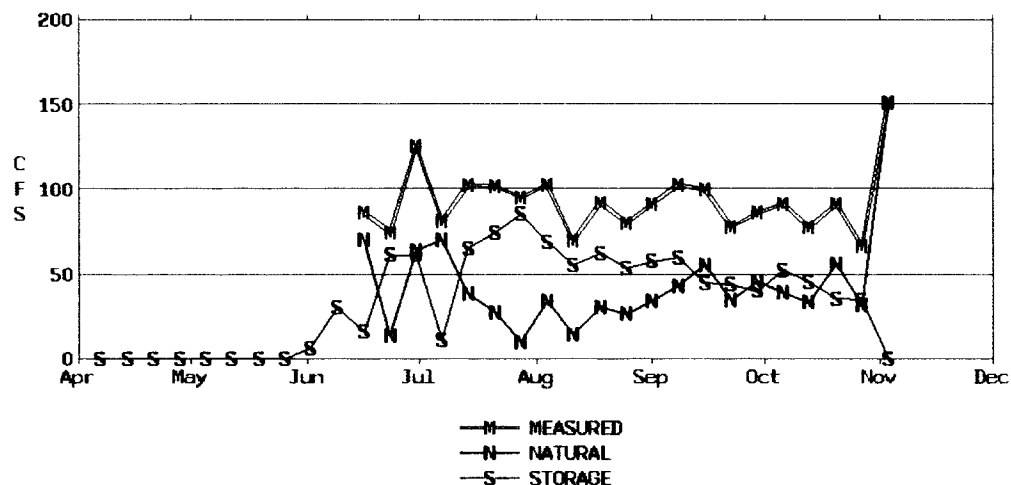
NATURAL FLOW AT GASTON GAUGE ON TUALATIN RIVER (NFGAST)



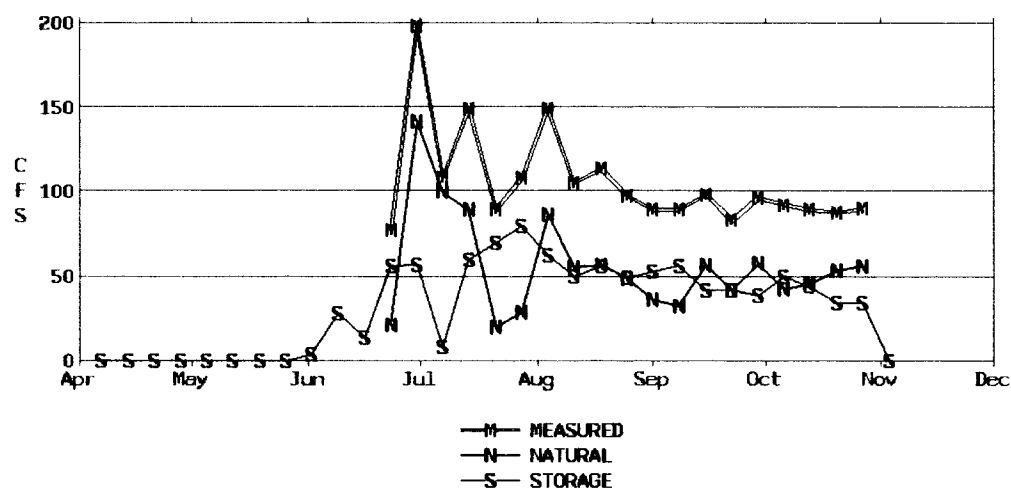
NATURAL FLOW AT DILLEY GAUGE ON TUALATIN RIVER (NFDLLO)



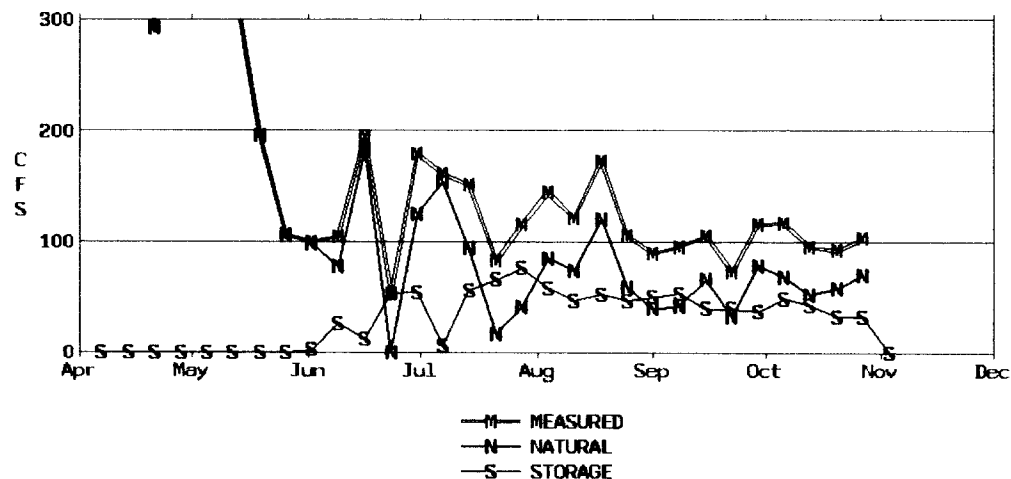
NATURAL FLOW AT GOLF COURSE BRIDGE GAUGE ON T.R. (NFTRGC)



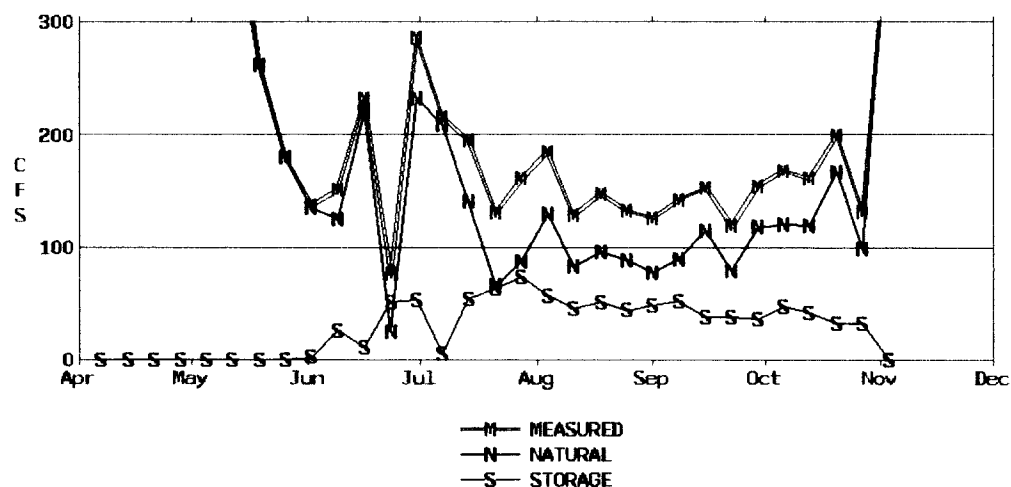
NATURAL FLOW AT HWY 219 BRIDGE GAUGE ON T.R. (NFTRJB)



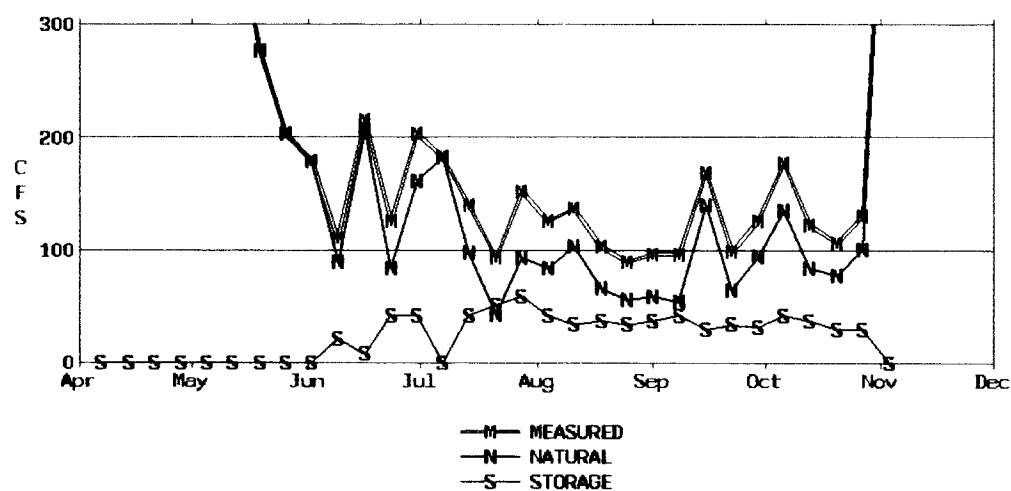
NATURAL FLOW AT ROOD BRIDGE RD. ON T.R. (NFROOD)



NATURAL FLOW AT FARMINGTON RD. BRIDGE ON T.R. (NFFRMO)



NATURAL FLOW AT WEST LINN ON TUALATIN RIVER (NFWsLO)



NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
07-APR-92	50.4000	50.40	0.0000	0.00	0.0000
08-APR-92					
14-APR-92	118.8900	118.89	0.0000	0.00	0.0000
21-APR-92	204.1000	204.10	0.0000	0.00	0.0000
22-APR-92					
28-APR-92	112.3600	112.36	0.0000	0.00	0.0000
29-APR-92					
04-MAY-92					
05-MAY-92	72.3300	72.33	0.0000	0.00	0.0000
11-MAY-92					
12-MAY-92	63.3400	63.34	0.0000	0.00	0.0000
18-MAY-92					
19-MAY-92	66.5000	66.50	0.0000	0.00	0.0000
26-MAY-92	35.8000	35.80	0.0000	0.00	0.0000
27-MAY-92					
01-JUN-92					
02-JUN-92	6.4700	30.97	24.5000	25.00	0.5000
08-JUN-92					
09-JUN-92	40.2100	40.21	0.0000	0.00	0.0000
15-JUN-92					
16-JUN-92	25.3450	26.08	0.7350	0.75	0.0150
22-JUN-92					
23-JUN-92	15.9810	17.50	1.5190	1.55	0.0310
30-JUN-92	75.9040	77.08	1.1760	1.20	0.0240
06-JUL-92					
07-JUL-92	17.2732	18.41	1.1368	1.16	0.0232
13-JUL-92					
14-JUL-92	8.7650	9.50	0.7350	0.75	0.0150
20-JUL-92					
21-JUL-92	9.7000	14.60	4.9000	5.00	0.1000
27-JUL-92					
28-JUL-92	9.7680	18.00	8.2320	8.40	0.1680
03-AUG-92					
04-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
10-AUG-92					
11-AUG-92	7.1680	15.40	8.2320	8.40	0.1680
17-AUG-92					
18-AUG-92	5.6680	13.90	8.2320	8.40	0.1680
24-AUG-92					
25-AUG-92	5.2680	13.50	8.2320	8.40	0.1680
31-AUG-92					
01-SEP-92	5.2680	13.50	8.2320	8.40	0.1680
08-SEP-92	5.2780	13.51	8.2320	8.40	0.1680
09-SEP-92					
14-SEP-92					
15-SEP-92	4.1680	12.40	8.2320	8.40	0.1680
21-SEP-92					
22-SEP-92	5.6680	13.90	8.2320	8.40	0.1680
28-SEP-92					
29-SEP-92	7.9680	16.20	8.2320	8.40	0.1680

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT LEE FALLS ON TUALATIN RIVER

	NFTRLF	TRLF	STORAGE	TRTR	LOSS (2%)
05-OCT-92					
06-OCT-92	10.1680	18.40	8.2320	8.40	0.1680
12-OCT-92					
13-OCT-92	7.6200	23.30	15.6800	16.00	0.3200
19-OCT-92					
20-OCT-92	10.9200	26.60	15.6800	16.00	0.3200
26-OCT-92					
27-OCT-92	18.2600	26.10	7.8400	8.00	0.1600
03-NOV-92	29.3600	37.20	7.8400	8.00	0.1600

NFTRLF = TRLF - STORAGE
 WHERE STORAGE = TRTR - LOSS
 WHERE LOSS = TRTR * .02

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
07-APR-92	78.6000	78.6	0.0000	0.00	0.0000	0
08-APR-92						
14-APR-92	171.8000	171.8	0.0000	0.00	0.0000	0
21-APR-92	226.9000	226.9	0.0000	0.00	0.0000	0
22-APR-92						
28-APR-92	117.4000	117.4	0.0000	0.00	0.0000	0
29-APR-92						
04-MAY-92						
05-MAY-92	91.3000	91.3	0.0000	0.00	0.0000	0
11-MAY-92						
12-MAY-92	68.0000	68.0	0.0000	0.00	0.0000	0
18-MAY-92						
19-MAY-92	47.0000	47.0	0.0000	0.00	0.0000	0
26-MAY-92	35.6000	35.6	0.0000	0.00	0.0000	0
27-MAY-92						
01-JUN-92						
02-JUN-92	32.1500	56.4	24.2500	25.00	0.7500	0
08-JUN-92						
09-JUN-92	25.0000	25.0	0.0000	0.00	0.0000	0
15-JUN-92						
16-JUN-92	23.2725	24.0	0.7275	0.75	0.0225	0
22-JUN-92						
23-JUN-92	12.4965	14.0	1.5035	1.55	0.0465	0
30-JUN-92	16.8360	18.0	1.1640	1.20	0.0360	0
06-JUL-92						
07-JUL-92	14.8748	16.0	1.1252	1.16	0.0348	0
13-JUL-92						
14-JUL-92	9.8725	10.6	0.7275	0.75	0.0225	0
20-JUL-92						
21-JUL-92	8.9500	13.8	4.8500	5.00	0.1500	0
27-JUL-92						
28-JUL-92	6.8520	15.0	8.1480	8.40	0.2520	0
03-AUG-92						
04-AUG-92	4.4520	12.6	8.1480	8.40	0.2520	0
10-AUG-92						
11-AUG-92	6.3520	14.5	8.1480	8.40	0.2520	0
17-AUG-92						
18-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
24-AUG-92						
25-AUG-92	3.5520	11.7	8.1480	8.40	0.2520	0
31-AUG-92						
01-SEP-92		15.0		8.40	0.2520	
08-SEP-92		13.0		8.40	0.2520	
09-SEP-92						
14-SEP-92						
15-SEP-92	9.5520	17.7	8.1480	8.40	0.2520	0
21-SEP-92						
22-SEP-92	7.0520	15.2	8.1480	8.40	0.2520	0
28-SEP-92						
29-SEP-92	9.9520	18.1	8.1480	8.40	0.2520	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT GASTON GAUGE ON TUALATIN RIVER

	NFGAST	GAST	STORAGE	TRTR	LOSS (3%)	PVR2
05-OCT-92						
06-OCT-92	8.7520	16.9	8.1480	8.40	0.2520	0
12-OCT-92						
13-OCT-92	8.5800	24.1	15.5200	16.00	0.4800	0
19-OCT-92						
20-OCT-92	14.7800	30.3	15.5200	16.00	0.4800	0
26-OCT-92						
27-OCT-92	8.8400	16.6	7.7600	8.00	0.2400	0
03-NOV-92	42.8400	50.6	7.7600	8.00	0.2400	0

NFGAST = GAST - STORAGE

WHERE STORAGE = (TRTR - LOSS) + PVR2

WHERE LOSS = TRTR * .03

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
07-APR-92	98.00000	98.0	0.00000	0.00	0	0	0	0	0
08-APR-92									
14-APR-92	161.00000	161.0	0.00000	0.00	0	0	0	0	0
21-APR-92	316.00000	316.0	0.00000	0.00	0	0	0	0	0
22-APR-92									
28-APR-92	157.00000	157.0	0.00000	0.00	0	0	0	0	0
29-APR-92									
04-MAY-92									
05-MAY-92	131.00000	131.0	0.00000	0.00	0	0	0	0	0
11-MAY-92									
12-MAY-92	96.80000	96.8	0.00000	0.00	0	0	0	0	0
18-MAY-92									
19-MAY-92	64.60000	64.6	0.00000	0.00	0	0	0	0	0
26-MAY-92	40.00000	40.0	0.00000	0.00	0	0	0	0	0
27-MAY-92									
01-JUN-92									
02-JUN-92	22.14050	78.4	56.25950	25.00	0	37	0	0	0
08-JUN-92									
09-JUN-92	24.24650	111.0	86.75350	0.00	25	41	15	4	0
15-JUN-92									
16-JUN-92	28.07625	106.0	77.92375	0.75	10	40	15	4	0
22-JUN-92									
23-JUN-92	-3.67625	150.0	153.67625	1.55	50	83	14	4	0
30-JUN-92	17.00500	155.0	137.99500	1.20	50	62	14	4	3
06-JUL-92									
07-JUL-92	19.21510	104.0	84.78490	1.16	0	53	15	5	3
13-JUL-92									
14-JUL-92	3.37675	153.0	149.62325	0.75	50	87	9	3	3
20-JUL-92									
21-JUL-92	-11.81350	156.0	167.81350	5.00	60	91	9	3	3
27-JUL-92									
28-JUL-92	-15.92050	171.0	186.92050	8.40	70	97	7	4	3
03-AUG-92									
04-AUG-92	-16.11350	171.0	187.11350	8.40	50	115	8	4	3
10-AUG-92									
11-AUG-92	-5.89100	146.0	151.89100	8.40	40	90	6	4	3
17-AUG-92									
18-AUG-92	-13.99800	157.0	170.99800	8.40	45	102	10	4	3
24-AUG-92									
25-AUG-92	-10.12750	138.0	148.12750	8.40	40	79	10	5	3
31-AUG-92									
01-SEP-92	-8.07450	136.0	144.07450	8.40	45	71	11	4	3
08-SEP-92	-7.75850	134.0	141.75850	8.40	50	55	15	5	3
09-SEP-92									
14-SEP-92									
15-SEP-92	0.07700	118.0	117.92300	8.40	35	52	11	4	3
21-SEP-92									
22-SEP-92	0.50850	100.0	99.49150	8.40	40	33	8	4	0
28-SEP-92									
29-SEP-92	11.32200	97.4	86.07800	8.40	38	22	8	3	0

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

SRBV LOSS (3.5%)

07-APR-92	0	0.00000
08-APR-92		
14-APR-92	0	0.00000
21-APR-92	0	0.00000
22-APR-92		
28-APR-92	0	0.00000
29-APR-92		
04-MAY-92		
05-MAY-92	0	0.00000
11-MAY-92		
12-MAY-92	0	0.00000
18-MAY-92		
19-MAY-92	0	0.00000
26-MAY-92	0	0.00000
27-MAY-92		
01-JUN-92		
02-JUN-92	0	2.04050
08-JUN-92		
09-JUN-92	9	3.14650
15-JUN-92		
16-JUN-92	15	2.82625
22-JUN-92		
23-JUN-92	15	5.57375
30-JUN-92	15	5.00500
06-JUL-92		
07-JUL-92	16	3.07510
13-JUL-92		
14-JUL-92	11	5.42675
20-JUL-92		
21-JUL-92	12	6.08650
27-JUL-92		
28-JUL-92	14	6.77950
03-AUG-92		
04-AUG-92	17	6.78650
10-AUG-92		
11-AUG-92	15	5.50900
17-AUG-92		
18-AUG-92	15	6.20200
24-AUG-92		
25-AUG-92	16	5.37250
31-AUG-92		
01-SEP-92	14	5.22550
08-SEP-92	16	5.14150
09-SEP-92		
14-SEP-92		
15-SEP-92	14	4.27700
21-SEP-92		
22-SEP-92	13	3.60850
28-SEP-92		
29-SEP-92	12	3.12200

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT DILLEY GAUGE ON TUALATIN RIVER

	NFDLLO	DLLO	STORAGE	TRTR	SRUS	SRTV	SRHL	SRFG	SRLO
05-OCT-92									
06-OCT-92	10.13200	102.0	91.86800	8.40	50	22	2	3	0
12-OCT-92									
13-OCT-92	5.87000	85.0	79.13000	16.00	45	10	0	0	0
19-OCT-92									
20-OCT-92	25.68850	94.3	68.61150	16.00	35	9	0	0	0
26-OCT-92									
27-OCT-92	24.29400	71.0	46.70600	8.00	35	6	0	0	0
03-NOV-92	85.28000	93.0	7.72000	8.00	0	0	0	0	0

SRBV LOSS (3.5%)

05-OCT-92		
06-OCT-92	12	3.33200
12-OCT-92		
13-OCT-92	12	2.87000
19-OCT-92		
20-OCT-92	12	2.48850
26-OCT-92		
27-OCT-92	0	1.69400
03-NOV-92	0	0.28000

NFDLLO = DLLO - STORAGE

WHERE STORAGE = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) - LOSS

WHERE LOSS = (TRTR + SRUS + (SRTV*.90) + SRHL + SRFG + SRLO + SRBV) * .035

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			5.71872	0	37	0	0.20128
08-JUN-92							
09-JUN-92			30.48696	25	41	0	1.07304
15-JUN-92							
16-JUN-92	70.15760	86.0	15.84240	10	40	0	0.55760
22-JUN-92							
23-JUN-92	13.87152	75.0	61.12848	50	83	0	2.15152
30-JUN-92	64.21928	125.0	60.78072	50	62	3	2.13928
06-JUL-92							
07-JUL-92	70.31032	81.4	11.08968	0	53	3	0.39032
13-JUL-92							
14-JUL-92	38.35528	103.0	64.64472	50	87	3	2.27528
20-JUL-92							
21-JUL-92	26.97704	101.9	74.92296	60	91	3	2.63704
27-JUL-92							
28-JUL-92	9.88968	95.4	85.51032	70	97	3	3.00968
03-AUG-92							
04-AUG-92	34.02760	103.0	68.97240	50	115	3	2.42760
10-AUG-92							
11-AUG-92	14.15160	69.6	55.44840	40	90	3	1.95160
17-AUG-92							
18-AUG-92	29.96688	92.1	62.13312	45	102	3	2.18688
24-AUG-92							
25-AUG-92	26.55176	80.3	53.74824	40	79	3	1.89176
31-AUG-92							
01-SEP-92	33.75824	91.1	57.34176	45	71	3	2.01824
08-SEP-92	43.30120	103.0	59.69880	50	55	3	2.10120
09-SEP-92							
14-SEP-92							
15-SEP-92	54.95488	99.7	44.74512	35	52	3	1.57488
21-SEP-92							
22-SEP-92	34.35952	78.1	43.74048	40	33	0	1.53952
28-SEP-92							
29-SEP-92	45.59168	85.7	40.10832	38	22	0	1.41168

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT GOLF COURSE BRIDGE GAUGE ON T.R.

	NFTRGC	TRGC	STORAGE	SRUS	SRTV	SRLO	LOSS (3.4%)
05-OCT-92							
06-OCT-92	39.39968	91.1	51.70032	50	22	0	1.81968
12-OCT-92							
13-OCT-92	33.08440	78.1	45.01560	45	10	0	1.58440
19-OCT-92							
20-OCT-92	55.89896	91.1	35.20104	35	9	0	1.23896
26-OCT-92							
27-OCT-92	31.66264	66.4	34.73736	35	6	0	1.22264
03-NOV-92	151.00000	151.0	0.00000	0	0	0	0.00000

NFTRGC = TRGC - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .16) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .16) + SRLO) * .034

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
07-APR-92			0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92			0.00000	0	0	0	0.00000
21-APR-92			0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92			0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92			0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92			0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92			0.00000	0	0	0	0.00000
26-MAY-92			0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92			3.85836	0	37	0	0.21164
08-JUN-92							
09-JUN-92			27.97548	25	41	0	1.53452
15-JUN-92							
16-JUN-92			13.65120	10	40	0	0.74880
22-JUN-92							
23-JUN-92	21.28476	77.34	56.05524	50	83	0	3.07476
30-JUN-92	141.29064	198.00	56.70936	50	62	3	3.11064
06-JUL-92							
07-JUL-92	99.62916	108.00	8.37084	0	53	3	0.45916
13-JUL-92							
14-JUL-92	89.18364	148.50	59.31636	50	87	3	3.25364
20-JUL-92							
21-JUL-92	19.58652	88.80	69.21348	60	91	3	3.79652
27-JUL-92							
28-JUL-92	28.68084	108.00	79.31916	70	97	3	4.35084
03-AUG-92							
04-AUG-92	86.26380	148.50	62.23620	50	115	3	3.41380
10-AUG-92							
11-AUG-92	54.85080	105.00	50.14920	40	90	3	2.75080
17-AUG-92							
18-AUG-92	56.85944	113.00	56.14056	45	102	3	3.07944
24-AUG-92							
25-AUG-92	48.49788	97.50	49.00212	40	79	3	2.68788
31-AUG-92							
01-SEP-92	36.46212	89.37	52.90788	45	71	3	2.90212
08-SEP-92	32.82060	88.80	55.97940	50	55	3	3.07060
09-SEP-92							
14-SEP-92							
15-SEP-92	56.75344	98.20	41.44656	35	52	3	2.27344
21-SEP-92							
22-SEP-92	41.40876	82.77	41.36124	40	33	0	2.26876
28-SEP-92							
29-SEP-92	57.58184	95.90	38.31816	38	22	0	2.10184

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT HWY 219 BRIDGE GAUGE ON T.R.

	NFTRJB	TRJB	STORAGE	SRUS	SRTV	SRLO	LOSS (5.2%)
05-OCT-92							
06-OCT-92	42.00584	91.70	49.69416	50	22	0	2.72584
12-OCT-92							
13-OCT-92	45.09720	88.80	43.70280	45	10	0	2.39720
19-OCT-92							
20-OCT-92	53.68148	87.80	34.11852	35	9	0	1.87148
26-OCT-92							
27-OCT-92	56.19432	90.00	33.80568	35	6	0	1.85432
03-NOV-92			0.00000	0	0	0	0.00000

NFTRJB = TRJB - STORAGE

WHERE STORAGE = (SRUS + (SRTV * .11) + SRLO) - LOSS

WHERE LOSS = (SRUS + (SRTV * .11) + SRLO) * .052

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
07-APR-92	410.60000	410.6	0.00000	0	0	0	0.00000
08-APR-92							
14-APR-92	509.80000	509.8	0.00000	0	0	0	0.00000
21-APR-92	291.70000	291.7	0.00000	0	0	0	0.00000
22-APR-92							
28-APR-92	516.80000	516.8	0.00000	0	0	0	0.00000
29-APR-92							
04-MAY-92							
05-MAY-92	599.40000	599.4	0.00000	0	0	0	0.00000
11-MAY-92							
12-MAY-92	348.30000	348.3	0.00000	0	0	0	0.00000
18-MAY-92							
19-MAY-92	195.70000	195.7	0.00000	0	0	0	0.00000
26-MAY-92	106.00000	106.0	0.00000	0	0	0	0.00000
27-MAY-92							
01-JUN-92							
02-JUN-92	96.83536	99.6	2.76464	0	0	37	0.19536
08-JUN-92							
09-JUN-92	77.38648	103.8	26.41352	25	0	41	1.86648
15-JUN-92							
16-JUN-92	182.17120	194.5	12.32880	10	0	40	0.87120
22-JUN-92							
23-JUN-92	0.09824	53.0	52.90176	50	0	83	3.73824
30-JUN-92	124.86536	179.0	54.13464	50	3	62	3.82536
06-JUL-92							
07-JUL-92	154.23784	161.0	6.76216	0	3	53	0.47784
13-JUL-92							
14-JUL-92	94.29736	150.3	56.00264	50	3	87	3.95736
20-JUL-92							
21-JUL-92	16.65848	82.3	65.64152	60	3	91	4.63848
27-JUL-92							
28-JUL-92	40.57016	116.0	75.42984	70	3	97	5.33016
03-AUG-92							
04-AUG-92	85.30520	143.4	58.09480	50	3	115	4.10520
10-AUG-92							
11-AUG-92	74.11320	121.0	46.88680	40	3	90	3.31320
17-AUG-92							
18-AUG-92	119.54656	172.0	52.45344	45	3	102	3.70656
24-AUG-92							
25-AUG-92	59.13512	105.2	46.06488	40	3	79	3.25512
31-AUG-92							
01-SEP-92	39.66288	89.8	50.13712	45	3	71	3.54288
08-SEP-92	41.78840	95.4	53.61160	50	3	55	3.78840
09-SEP-92							
14-SEP-92							
15-SEP-92	65.62256	105.0	39.37744	35	3	52	2.78256
21-SEP-92							
22-SEP-92	33.17424	73.0	39.82576	40	0	33	2.81424
28-SEP-92							
29-SEP-92	77.86416	115.0	37.13584	38	0	22	2.62416

NFROOD = ROOD - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

NATURAL FLOW
AT ROOD BRIDGE RD. ON T.R.

	NFROOD	ROOD	STORAGE	SRUS	SRLO	SRTV	LOSS (6.6%)
05-OCT-92							
06-OCT-92	68.45616	116.8	48.34384	50	0	22	3.41616
12-OCT-92							
13-OCT-92	52.62280	95.4	42.77720	45	0	10	3.02280
19-OCT-92							
20-OCT-92	57.83752	91.2	33.36248	35	0	9	2.35752
26-OCT-92							
27-OCT-92	69.86168	103.0	33.13832	35	0	6	2.34168
03-NOV-92			0.00000	0	0	0	0.00000

NFROOD = ROOD - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .08) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .08)) * .066

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
07-APR-92	500.0000	500.0	0.0000	0	0	0	0.0000
08-APR-92							
14-APR-92	724.0000	724.0	0.0000	0	0	0	0.0000
21-APR-92	1658.0000	1658.0	0.0000	0	0	0	0.0000
22-APR-92							
28-APR-92	703.0000	703.0	0.0000	0	0	0	0.0000
29-APR-92							
04-MAY-92							
05-MAY-92	655.0000	655.0	0.0000	0	0	0	0.0000
11-MAY-92							
12-MAY-92	434.0000	434.0	0.0000	0	0	0	0.0000
18-MAY-92							
19-MAY-92	262.0000	262.0	0.0000	0	0	0	0.0000
26-MAY-92	180.0000	180.0	0.0000	0	0	0	0.0000
27-MAY-92							
01-JUN-92							
02-JUN-92	134.6172	137.0	2.3828	0	0	37	0.2072
08-JUN-92							
09-JUN-92	124.3596	150.0	25.6404	25	0	41	2.2296
15-JUN-92							
16-JUN-92	220.2240	232.0	11.7760	10	0	40	1.0240
22-JUN-92							
23-JUN-92	24.6548	76.0	51.3452	50	0	83	4.4648
30-JUN-92	232.2472	285.0	52.7528	50	3	62	4.5872
06-JUL-92							
07-JUL-92	208.8268	215.0	6.1732	0	3	53	0.5368
13-JUL-92							
14-JUL-92	140.6372	195.0	54.3628	50	3	87	4.7272
20-JUL-92							
21-JUL-92	66.1796	130.0	63.8204	60	3	91	5.5496
27-JUL-92							
28-JUL-92	87.5932	161.0	73.4068	70	3	97	6.3832
03-AUG-92							
04-AUG-92	128.8340	185.0	56.1660	50	3	115	4.8840
10-AUG-92							
11-AUG-92	82.6440	128.0	45.3560	40	3	90	3.9440
17-AUG-92							
18-AUG-92	96.2712	147.0	50.7288	45	3	102	4.4112
24-AUG-92							
25-AUG-92	87.9524	132.6	44.6476	40	3	79	3.8824
31-AUG-92							
01-SEP-92	76.7676	125.5	48.7324	45	3	71	4.2376
08-SEP-92	89.5980	141.9	52.3020	50	3	55	4.5480
09-SEP-92							
14-SEP-92							
15-SEP-92	114.3912	152.7	38.3088	35	3	52	3.3312
21-SEP-92							
22-SEP-92	79.6748	118.6	38.9252	40	0	33	3.3848
28-SEP-92							
29-SEP-92	117.6232	154.0	36.3768	38	0	22	3.1632

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT FARMINGTON RD. BRIDGE ON T.R.

	NFFRMO	FRMO	STORAGE	SRUS	SRLO	SRTV	LOSS (8.0%)
05-OCT-92							
06-OCT-92	119.5832	167.0	47.4168	50	0	22	4.1232
12-OCT-92							
13-OCT-92	118.9560	161.0	42.0440	45	0	10	3.6560
19-OCT-92							
20-OCT-92	165.9204	198.7	32.7796	35	0	9	2.8504
26-OCT-92							
27-OCT-92	98.4136	131.0	32.5864	35	0	6	2.8336
03-NOV-92	389.0000	389.0	0.0000	0	0	0	0.0000

NFFRMO = FRMO - STORAGE

WHERE STORAGE = SRUS + SRLO + (SRTV * .07) - LOSS

WHERE LOSS = (SRUS + SRLO + (SRTV * .07)) * .080

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
07-APR-92	543.00	543.0	0.00	0	0.00
08-APR-92					
14-APR-92	736.00	736.0	0.00	0	0.00
21-APR-92	1971.00	1971.0	0.00	0	0.00
22-APR-92					
28-APR-92	694.00	694.0	0.00	0	0.00
29-APR-92					
04-MAY-92					
05-MAY-92	720.00	720.0	0.00	0	0.00
11-MAY-92					
12-MAY-92	416.00	416.0	0.00	0	0.00
18-MAY-92					
19-MAY-92	276.00	276.0	0.00	0	0.00
26-MAY-92	203.00	203.0	0.00	0	0.00
27-MAY-92					
01-JUN-92					
02-JUN-92	179.00	179.0	0.00	0	0.00
08-JUN-92					
09-JUN-92	89.00	110.0	21.00	25	4.00
15-JUN-92					
16-JUN-92	206.60	215.0	8.40	10	1.60
22-JUN-92					
23-JUN-92	84.00	126.0	42.00	50	8.00
30-JUN-92	161.00	203.0	42.00	50	8.00
06-JUL-92					
07-JUL-92	182.00	182.0	0.00	0	0.00
13-JUL-92					
14-JUL-92	97.00	139.0	42.00	50	8.00
20-JUL-92					
21-JUL-92	42.60	93.0	50.40	60	9.60
27-JUL-92					
28-JUL-92	93.20	152.0	58.80	70	11.20
03-AUG-92					
04-AUG-92	84.00	126.0	42.00	50	8.00
10-AUG-92					
11-AUG-92	103.40	137.0	33.60	40	6.40
17-AUG-92					
18-AUG-92	65.20	103.0	37.80	45	7.20
24-AUG-92					
25-AUG-92	55.80	89.4	33.60	40	6.40
31-AUG-92					
01-SEP-92	58.40	96.2	37.80	45	7.20
08-SEP-92	54.00	96.0	42.00	50	8.00
09-SEP-92					
14-SEP-92					
15-SEP-92	139.60	169.0	29.40	35	5.60
21-SEP-92					
22-SEP-92	64.40	98.0	33.60	40	6.40
28-SEP-92					
29-SEP-92	94.08	126.0	31.92	38	6.08

NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16

NATURAL FLOW
AT WEST LINN ON TUALATIN RIVER

	NFWSLO	WSLO	STORAGE	SRUS	LOSS (16%)
05-OCT-92					
06-OCT-92	135.00	177.0	42.00	50	8.00
12-OCT-92					
13-OCT-92	84.20	122.0	37.80	45	7.20
19-OCT-92					
20-OCT-92	76.60	106.0	29.40	35	5.60
26-OCT-92					
27-OCT-92	100.60	130.0	29.40	35	5.60
03-NOV-92	523.00	523.0	0.00	0	0.00

NFWSLO = WSLO - STORAGE
 WHERE STORAGE = SRUS - LOSS
 WHERE LOSS = SRUS * .16