MEMORANDUM

Publication No. 73-e81
WA-CR-1028

TO Mike Palko

FROM Ron Pine

SUBJECT Diffuser Outfall Study - Boise Cascade Papers, Wallula, Washington

DATE July 19, 1973

State of Washington Department of Ecology

A study was conducted on May 15, 1973, in the Columbia River to determine if the diffuser outfall from the subject industry is adequate to comply with the dilution zone policy of the Department of Ecology. A schematic of the study area and its relationship with the main Columbia River are shown in Figure 1. The analytical results of the field samples are presented in Table 1.

A Hydrolab II unit was used to make all field determinations. The dissolved oxygen probe was calibrated using the alkaline-azide modification of the Winkler Method immediately prior to the survey and three times during the field sampling. The average deviation of the Hydrolab from the Winkler test was + 0.6 mg/l. The minimum deviation was + 0.3 mg/l and the maximum was + 0.8 mg/l.

The temperature probe of the Hydrolab was calibrated at the Olympia Laboratory before and after the survey. The calibration indicated a deviation on the probe of less than 0.5 C. Water temperatures were 19.5 C at all stations and at all depths. This would appear to be an anomaly. However, the temperature of the effluent prior to discharge was 28.9 C which would probably not be a sufficient differential, with good diffusion, to measure a ΔT in the receiving water at the stations sampled.

The pH varied between 8.1 and 8.4 with the highest values noted at the control station. Conductivity ranged between 230 and 310 μmohs.

There did not appear to be any violations of state water quality standards in the dilution zone during this study. Color values were higher in the dilution zone area than at the control station but were not aesthetically displeasing.

REP:bjj

Attachments

Table 1. Analytical Results From Samples Collected in the Columbia River near the Outfall Diffuser from Boise Cascade Papers, Wallula, Washington, May 15, 1973.

Station		Time PDT	D.O. mg/l	PBI mg/l	Total Solids ml/l	Color Units	Max. Depth in Feet
1	A [1/]	1116	11.4	130	204	82	
	B		11.8	120	---	76	
	c	1125	11.4	77	---	59	7
2	A	1150	11.8	240	225	122	
	B		11.6	220	---	115	
	C	1155	11.6	28	---	34	8
3	A	1226	11.8	335	---	155	
	B		12.0	100	---	65	
	C	1235	12.4	180	---	99	10
4	A	1250	11.6	260	231	130	
	B		12.0	175	---	96	
	C	1310	12.4	63	---	46.	10
5	A	1319	11.8	90	---	65	
	B		11.8	36	---	42	
	C	1330	12.1	110	---	76	12
6	A	1341	12.5	59	182	44	
	B		11.6	ND	201	44	
	C	1350	11.8	150	---	90	11
7	A	1402	12.5	150	---	97	
	B		11.6	170	---	98	
	C	1409	12.2	30	---	40	10
8	A	1420	11.8	165	---	97	
	B		12.0	180	---	102	
	C	1423	11.8	195	---	163	8
9	A	1439	11.6	350	---	153	
	B		11.8	300	---	148	
	C	1450	11.2	310	---	102	9
10	A	1500	12.2	180	---	82	
	B		12.2	130	---	94	
	C	1510	11.8	150	---	110	10
Control	A	1520	12.2	ND	159	26	
	B		12.2	32	---	27	
	C		11.4	---	---	---	14

1/ A = One foot below surface
B = Mid depth
C = Bottom

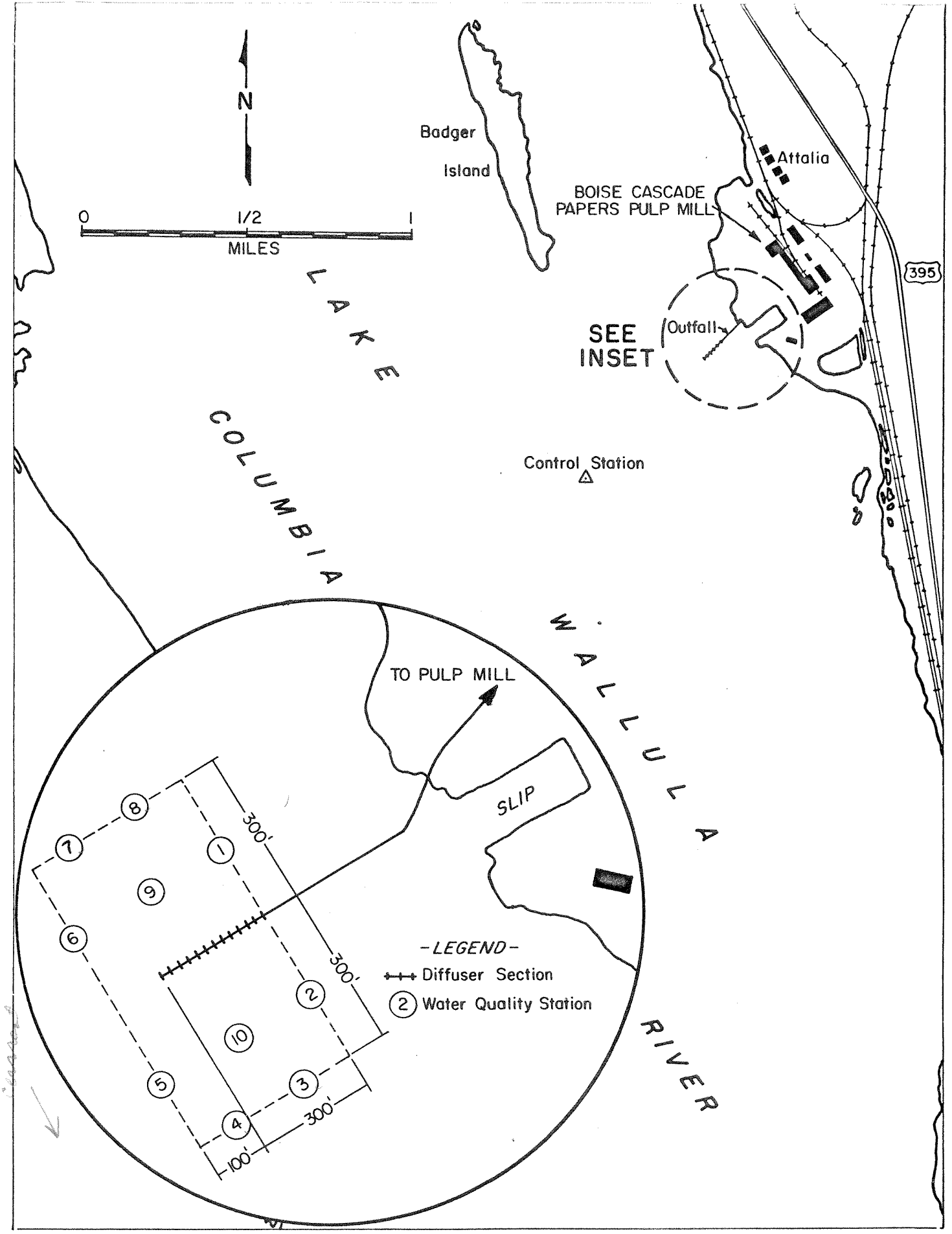


Figure 1. AREA MAP AND SCHEMATIC OF DILLUTION ZONE FOR BOISE CASCADE PAPERS, WALLULA, WASHINGTON, AND FOR DIFFUSER OUTFALL STUDY, MAY 15, 1973.

State of Washington Department of Ecology

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: R. Pine
COPIES TO:
LAB FILES

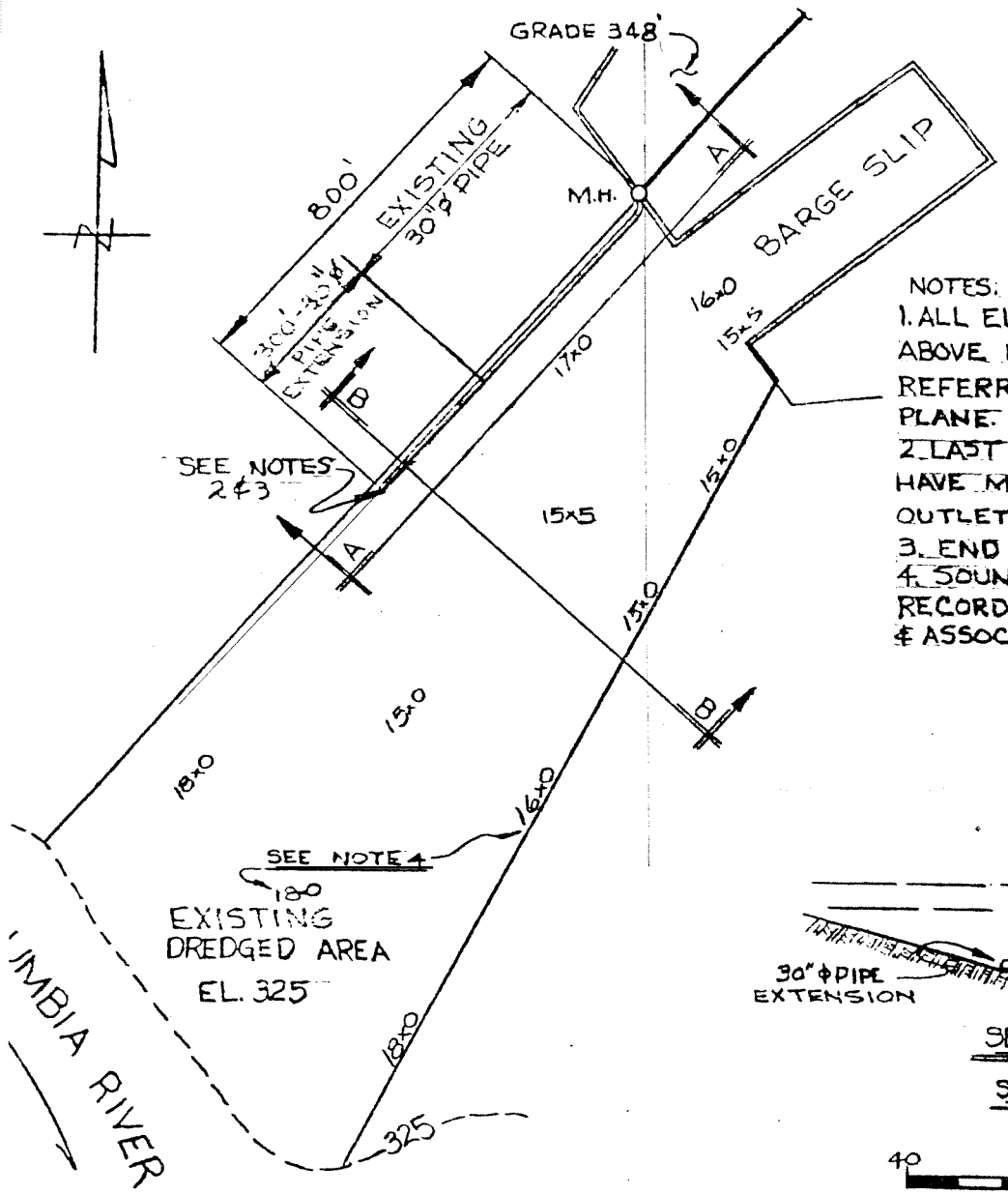
Source Boise Cascade @ Wallula — Collected By R.P. & D.A.

Date Collected 5-15-73 — Goal, Pro./Obj.

Log No.	Station	PBI	Color	T.S.	pH	Log No.	Station	PBI	Color	T.S.	pH
73-1808	Cont A	ND	26	159	8.5	73-1829	7B	170	98	-	8.6
09	" B	32	27	-	8.0	30	7C	30	40	-	8.7
10	1A	130	82	204	8.3	31	8A	165	97	-	8.7
11	1B	120	76	-	8.5	32	8B	180	102	-	8.6
12	1C	77	59	-	8.6	33	8C	195	163	-	8.5
13	2A	240	122	225	8.4	34	9A	350	153	-	8.3
14	2B	220	115	-	8.4	35	9B	300	148	-	8.3
15	2C	28	34	-	8.6	36	9C	310	102	-	8.4
16	3A	335	155	-	8.2	37	10A	180	82	-	8.4
17	3B	100	65	-	8.6	38	10B	130	94	-	8.4
18	3C	180	99	-	8.5	39	10C	150	110	-	8.5
19	4A	260	130	231	8.4						
20	4B	175	96	-	8.5						
21	4C	63	46	-	8.6						
22	5A	90	65	-	8.6						
23	5B	36	42	-	8.7						
24	5C	110	76	-	8.5						
25	6A	59	44	182	8.7						
26	6B	ND	44	201	8.7						
27	6C	150	90	-	8.6						
28	7A	150	97	-	8.6						

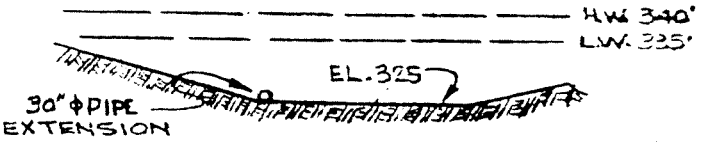
Note: All results are in PPM unless otherwise specified. ND is "None Detected"

Summary by Stephen D. Roth Date 5-22-73



NOTES:

1. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL AND ARE REFERRED TO 1929 DATUM PLANE.
2. LAST 300 FEET OF PIPE TO HAVE MULTIPLE SMALL DIAMETER OUTLETS.
3. END OF PIPE TO BE CAPPED.
4. SOUNDING OF DREDGED AREA RECORDED BY N.W. HANER & ASSOCIATES, AUG. 5, 1955



SECTION B-B

SCALES IN FEET

VERTICAL

40 0 40

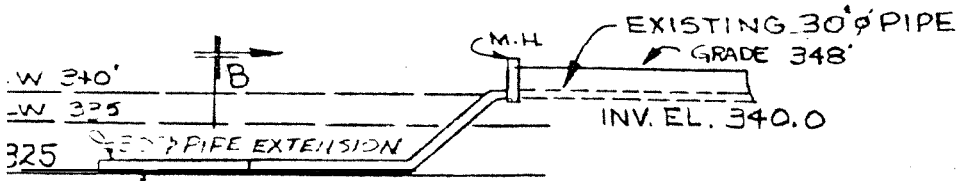
HORIZONTAL

400 0 400

PLAN

SCALE IN FEET

400 0 400



SEE NOTES 2&3

SECTION A-A

SCALES IN FEET

VERTICAL

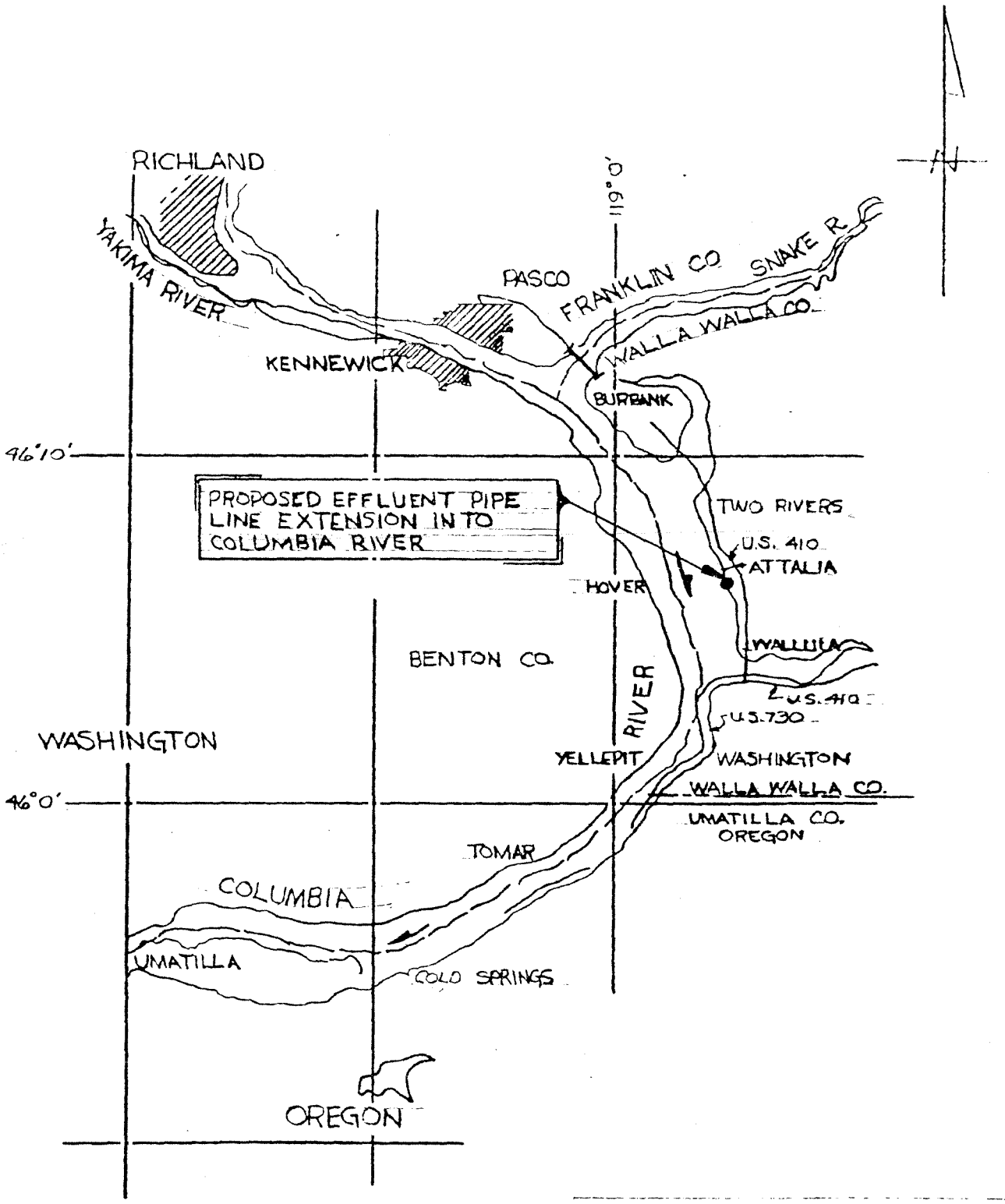
40 0 40

HORIZONTAL

400 0 400

PROPOSED EFFLUENT PIPE LINE EXTENSION INTO McNARY DAM POOL AT COLUMBIA RIVER MILE 317 COUNTY OF WALLA-WALLA STATE WN. APPLICATION BY BOISE CASCADE CORPORATION
SH. 3 OF 3 3/23/72

Walla Walla, Washington 99362



VICINITY MAP

SCALE IN MILES

1 0 0

PROPOSED EFFLUENT PIPE LINE EXTENSION INTO McNARY DAM POOL AT COLUMBIA RIVER MILE 317 COUNTY OF WALLA-WALLA STATE WN. APPLICATION BY BOISE CASCADE CORPORATION. SH 1 OF 3

3/23/12

Walla Walla, Washington 99362