Publication No. 75-e29

WA-30-1010

MEMORANDUM

December 4, 1975

To: Clar Pratt

From: Scott Jeane

Subject: Klickitat River at Klickitat
Receiving Water Study

A receiving water study of the Klickitat River adjacent to St. Regis Mill was completed July 9, 1975. The prior day an efficiency study of the Klickitat STP was accomplished. The weather was dry and sunny. Snyder Creek (see Figure 1) was dry with minor inter gravel stream bed flow only. Glacier melt had increased the turbidity of the Klickitat River. The log pond to which Snyder Creek discharges was being supplied from Klickitat River via a pump station. All flow from Snyder Creek and the log pond flow through the St. Regis Mill proper by way of a concrete-lined ditch. At several points the ditch receives cooling water; boiler blowdown, and floor drain discharges.

Flow in the mill's effluent channel was 4.12 MGD during July 1975. Average flow for the Klickitat River is 830 cfs for July.

I was assisted during the survey by Shirley Prescott (DOE) and Mike Mahoney (St. Regis). Five stations were sampled (see Table 1) and the STP effluent data collected the previous day was incorporated.

No measurable effect on the receiving water from either discharge was measured for the following parameters: temperature, DO, turbidity, total or suspended solids, chlorides, PBI, fecal coliform, and color. Measurable changes in pH and conductivity were noted for both the mill and STP discharges, but the effect is considered negligible. The mill's effluent measured 12,000 total coliform colonies per 100 ml but the receiving water stations demonstrated no significant changes in this parameter.

Precursory analysis of the nutrient data in Table 1 indicate possible increases in several areas. Further analysis was completed by converting mg/l to pounds per day.

Table II Pounds/Day

Location	NO_3-N	NH_3-N	TKN	T-PO_4-P
Above (1)	89.5	179.1	268.6	671.6
Mill (2)	---	1.03	4.13	7.2
STP (5)	1.32	0.15	1.09	3.88
Below (6)	358.2	179.1	179.1	1432.6

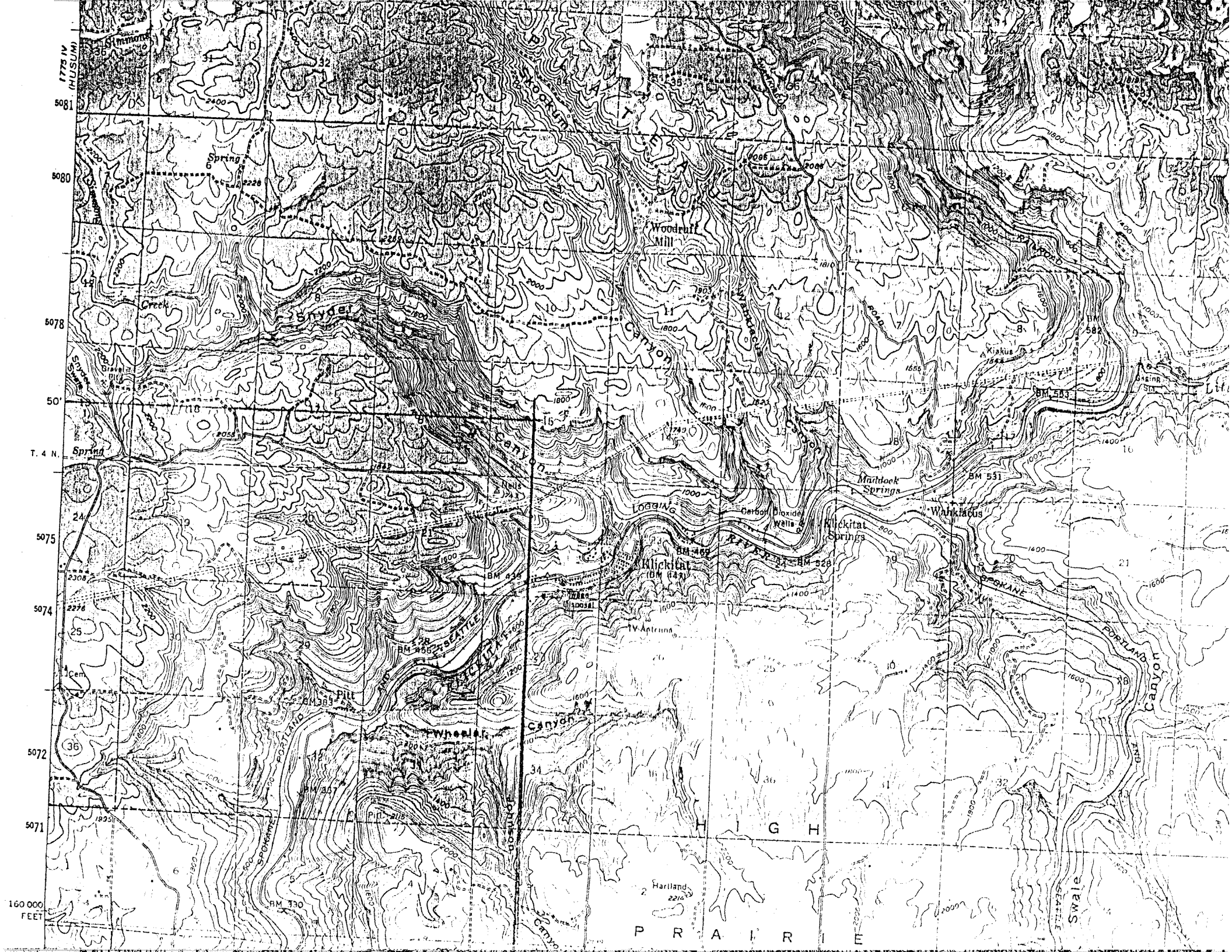
The increase in NO_3-N and T-PO_4-P between station #1 and #6 are not due to either the mill or STP effluents. Determination to the validity and cause of the increases will require future sampling.

Permit Limitations

The flow of the mill effluent was 1/4 of the 16 MDG daily average permit flow. The 28.5°C temperature of the effluent was 4.5°C over the daily maximum. Only 1031 pounds of T.S.S. was measured while the permit allows a daily average of 2540 lbs. and 3340 lbs. daily maximum. The color of the effluent was measured as 75 pt-co units or twice the daily average (32) and above the daily maximum by 35 units.

While the mill effluent was observed discharging unusual levels (as compared to the receiving water or discharge permit) of total coliform, color, and temperature, no impact on the Klickitat River was measured.

GSJ:ee



1775 IV (HUSUM)
5081
5080
5078
50'
T. 4 N.
5075
5074
5072
5071
160 000 FEET
Spring
Creek
Snyder
Canyon
Woodruff Mill
Wahkiacus
Kiakus
Maddock Springs
Wahkiacus
Klickitat Springs
Carbon Dioxide Wells
Klickitat
Pitt
Wheeler
Canyon
Hartland
H I G H
P R A I R I E
Swale
Canyon
SPOKANE
PORTLAND
SEATTLE
LOGGING
RIVER
BM 531
BM 528
BM 469
BM 439
BM 383
BM 330

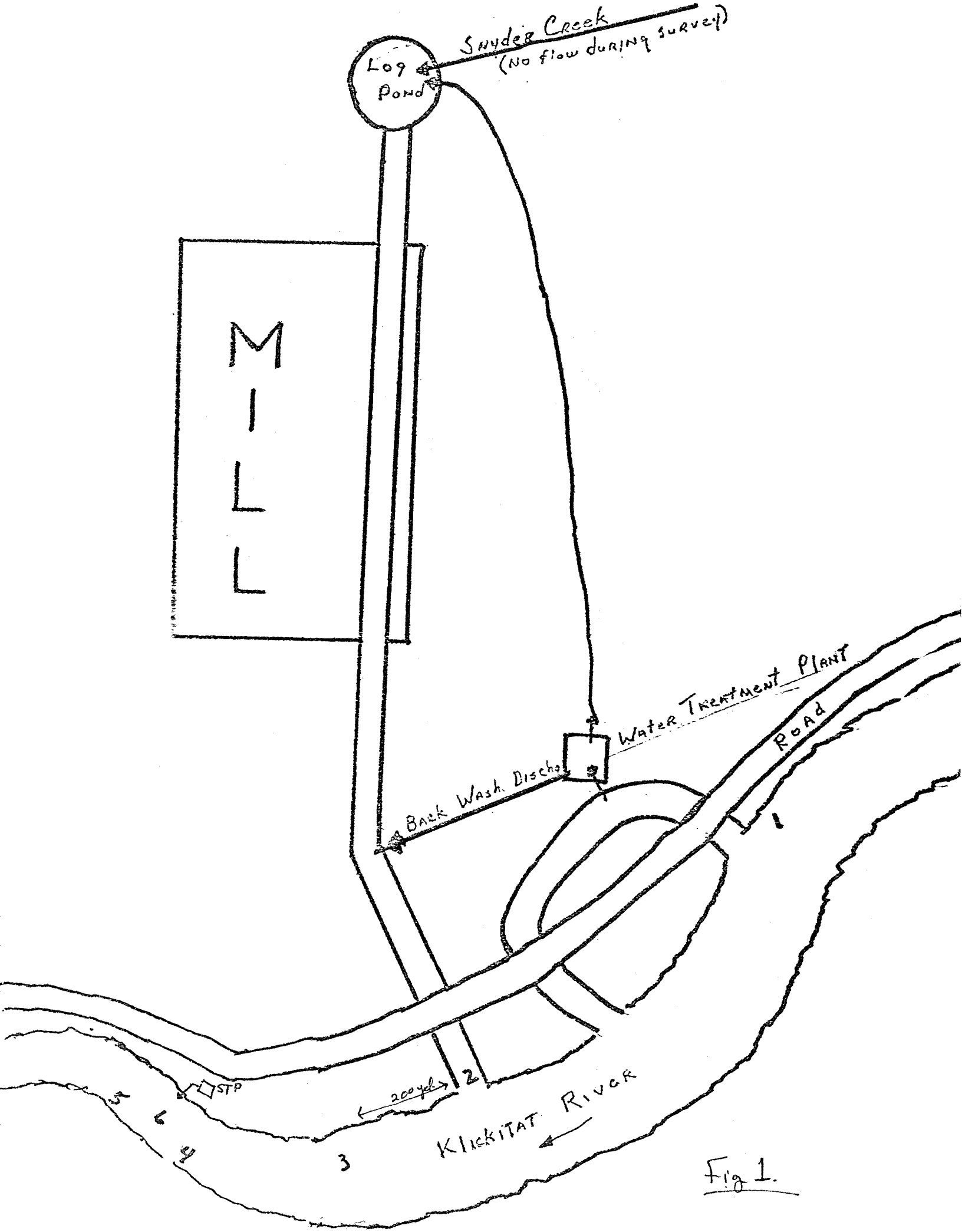

Snyder Creek
(No flow during survey)
Log Pond
MILL
Water Treatment Plant
Road
Back Wash Discha
1
2
200 yds
STP
5
6
4
3
Klickitat River

Fig 1.

lor	Chlories*	PBI*	Coliform Total	Coliform Fecal	NO_3-N*	NH_3-N*	T K-N*	T-PO_4-P*
50	<1	40	1000	<20	.02	.04	.06	.15
75	4	35	12,000	<20	ND	.03	.12	.21
46	<1	25	1200	<20	.02	.05	.10	.16
50	<1	20	800	<20	.04	.02	.02	.19
67	18	--	60	<10	3.40	.38	2.8	10.0
33	<1	20	1400	<20	.08	.04	.04	.32