MEMORANDUM

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Water Pollution Control Commission
P. O. Box 829
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98501

TO: Barley, Dave Runnalles

DATE: July 31, 1970

FROM: Ron Lee

SUBJECT: Green River Survey

On June 30, 1970, a water sampling survey was conducted on the Green River from Big Soos Creek (stream mile 33.9) to below the Black River confluence (stream mile 10.1) to determine if water quality standards were being complied with. Surface dissolved oxygen measurements were taken continously through the entire drift. Significant changes in dissolved oxygen were recorded whenever they occurred. Temperature, total coliform, turbidity, and pH data were collected in selected areas. The location and approximate stream mile for each station are presented in Table 1.

The most pertinent feature in the data was the gradual decline in dissolved oxygen and percent saturation from station 1 to station 8 (Table 2). Significant drops in oxygen concentration occurred just below the Auburn sewage lagoon, Mill Creek, and the Renton treatment plant. A continous decrease in oxygen concentration through the morning and afternoon during sunny weather is somewhat surprising. This is the time of day when photosynthetic activity and oxygen production by aquatic plants would be optimum. On a sunny day one would expect oxygen concentration to gradually increase under natural conditions. The presence of substantial amounts of oxygen consuming wastes is therefore indicated.

Of some concern are the relatively low percent saturation values obtained at all stations, especially station 1. Percent saturation levels in the 90's would be expected in this stretch of river. The dissolved oxygen probe may have been giving consistantly low values. The difference in oxygen concentration levels between the various stations, however, are real and significant.

Total coliform counts increased from 800/100 ml above Auburn Packing Company's outfall to 37,000/100 ml. Bacteriological counts also increased at station 6, downstream from an unnamed tributary to the Green River.

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Table 1. Descriptions and approximate stream mile locations for sampling stations on the Green River in study conducted on June 30, 1970

Station	Approximate stream mile	Description
1	33.9	Green River, just upstream from big Soos Creek
2	33.8	mouth of Soos Creek
3	30.1	50 yds above Auburn sewage lagoon outfall
4	30.0	20 ft below Auburns sewage lagoon outfall
4A	29.4	beneath power line crossing
4B	26.4	river bend just south of Kent City limits
4C	24.5	up C'StP&P RR bridge
4D	24.2	50 yds upstream from Mill Creek
4E	24.1	50 yds downstream from Mill Creek
4F	22.5	just downstream from PDFJ weeds
5	22.3	just upstream from unnamed creek
6	22.2	just downstream from unnamed creek
6A	22.0	State Hwy. 516 (SA) bridge
6B	20.1	just below Kent highlands landfill discharge
6C	18.3	O'Brien Road bridge
6D	14.7	South 180 St. bridge, ORILLIA
6E	12.4	Interurban Ave bridge, TUKWILA
7	11.9	just above Renton (Metro) STP outfall
8	11.8	50 yds below Renton STP outfall
8A	10.9	just below Black River confluence
8B	10.1	just below Seattle Rendering Co. plant.

Table 2. Dissolved oxygen, temperature, pH, turbidity, and total coliform data.

Site	% Sat.	D.O. (ppm)	Temp. (°C)	pH	Turbidity (JTU)	Total coliform (counts/100 ml)
1	82	8.8	11.0	7.3	5.5	420
2	80	8.5	11.0	7.5	5.1	560
3	78	8.1	12.0			520
4	74	7.7	12.0	7.4	7.9	0
4A	75	7.8	12.0			
4B	74	7.7	12.0			
4C	72	74	13.0			
4D	74	7.6	13.0			
4E	72	7.3	13.0			
4F	71	7.2	13.0			
5	71	7.2	13.0			540
6	71	7.2	13.0	7.3	9.0	1100
6A	71	7.2	13.0			
6B	70	7.0	13.7			
6C	68	6.9	13.5			
6D	65	6.5	14.0			
6E	64	6.3	14.4			
7	67	6.6	14.5	7.2	11.0	680
8	64	6.2	15.0	7.2	11.0	580
8A	62	6.1	15.0			
8B	74	7.2	15.2			