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# MEMORANDUM

October 22, 1975

To: Rhys Sterling

From: Phil Williams

Subject: Spokane STP Bypass October 6-9, 1975

On Monday, October 6, the City of Spokane began bypassing approximately 30 million gallons of raw sewage daily into the Spokane River. The bypass continued until Thursday morning leading to a total discharge of about 100 million gallons of untreated waste. On Tuesday October 7 ten samples were taken at various points on the river for nutrient and fecal coliform analysis (see list and figure below). On Thursday October 9 five of these same stations plus three others in the vicinity of Long Lake were sampled for fecal coliforms. Lab work was done by Dan Krueger and Dr. Ray Soltero of EWSC in Cheney. Table 1 presents the data obtained on October 7 and Table 2 for October 9.

The data show a tremendous increase in fecal coliform numbers through influence of the raw sewage. Values for the two sampling dates ran 50 to 250 times higher than standard limits below the discharge. Values weren't exceedingly high in Long Lake proper due to dilution from the lake and the Little Spokane River. Nutrient concentrations increased dramatically below the outfall but this is also the case when the plant is operating.

The data from sample #4 on October 7 are difficult to explain. They show large increases in TP, TSP, Ortho-P, and fecal coliforms. Also this is the only mainstem river station above the overflow showing detectable nitrite levels. This strongly suggests a bad sample and may be related to the method of collection as the sampling bucket struck bottom several times in the fast water.

An attempt was made on the afternoon of October 7 to monitor D.O. levels downstream from the discharge starting at a point approximately 2 miles upstream from Seven Mile Bridge and sampling at approximately ½ mile intervals downstream to Nine Mile Dam. No appreciable sag was found although it is doubtful if sufficient time had elapsed (or distance downstream) for an oxygen demand to be exerted.

Subsequent samplings by the Regional personnel concentrated on fecal coliforms at Nine Mile Bridge and at various points on Long Lake. Samples taken on October 13 showed a dramatic decrease in numbers with none of the

samples exceeding 2000/100 mls. October 16 samples showed a further decrease with only one out of nine yielding a value higher than 339/100 mls. Further sampling by the Region will likely show fecal coliform numbers returning to ambient levels.

PW:ee
Attachment

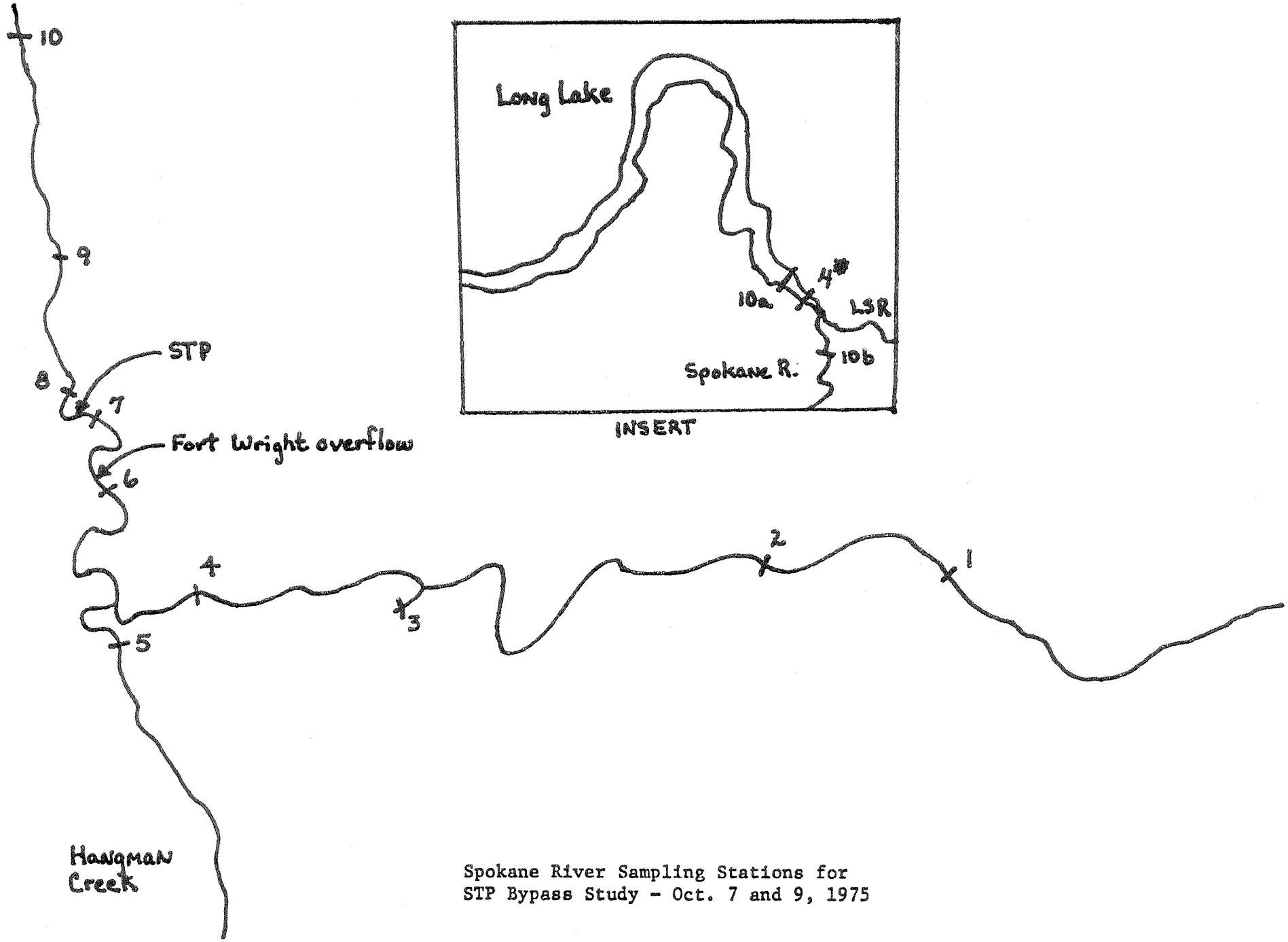
## STP Bypass Survey Sampling Stations

1. Trentroad Bridge
2. Argonne Road Bridge in Millwood
3. Expo site - footbridge on powerhouse side
4. ½ mile above Hangman Creek
5. Hangman Creek - Marne Bridge
6. Fort Wright Bridge - just above overflow
7. Just above STP
8. Bowl and Pitcher footbridge
9. Seven Mile Bridge
10. Nine Mile Dam

10a. Off Mary Ann Phillips dock

10b. Spokane River above confluence with Little Spokane River

4* Long Lake Sampling Station #4




Spokane River Sampling Stations for
STP Bypass Study - Oct. 7 and 9, 1975

Table 1: October 7 Bypass Sampling

| Sta. # | Temp | D.O. | Cond | pH | TSP | TP | $NO_2$ | $PO_4$ | $NH_3$ | $NO_3$ | Turb | Fecal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.5 | 9.4 | 85 | 7.3 | .06 | .07 | 0 | .02 | 0 | .12 | 1.0 | 8 |
| 2 | 12.8 | 9.2 | 80 | 7.2 | .04 | .20 | 0 | .01 | 0 | .11 | 1.3 | 10 |
| 3 | 12.5 | 9.3 | 109 | 7.4 | .04 | .07 | 0 | .01 | .05 | .17 | 1.1 | 54 |
| 4 | 12.5 | 9.5 | 109 | 7.4 | .11 | .30 | .001 | .08 | .06 | .18 | 1.2 | 12,800 |
| 5 | 10.2 | 12.4 | 325 | 7.8 | .14 | .39 | .008 | .11 | .02 | .79 | 2.0 | 88 |
| 6 | 12.5 | 9.7 | 110 | 7.6 | .07 | .29 | 0 | .04 | 0 | .21 | 1.7 | 788 |
| 7 | 12.5 | 10.6 | 125 | 7.5 | .35 | .45 | .005 | .21 | .17 | .24 | 2.2 | 20,200 |
| 8 | 12.6 | 11.2 | 128 | 7.4 | .32 | .50 | .005 | .23 | .17 | .26 | 3.2 | 34,700 |
| 9 | 12.6 | 10.6 | 139 | 7.4 | .16 | .24 | .005 | .16 | .14 | .32 | 2.0 | 16,200 |
| 10 | 13.0 | 9.4 | 139 | 7.3 | .24 | .41 | .011 | .18 | .16 | .31 | 2.3 | 31,200 |

Table 2: October 9 Bypass Sampling

| Sta. | Temp | D.O. | Cond. | pH | Fecal Coliform |
|---|---|---|---|---|---|
| 1 | 11.7 | 9.5 | 79 | 7.1 | 4 |
| 3 | 11.7 | 9.7 | 93 | 7.2 | 13 |
| 6 | 11.7 | 10.6 | 112 | 7.4 | 25 |
| 8 | 11.7 | 10.4 | 130 | 7.3 | 65,400 |
| 9 | 11.6 | 10.2 | 133 | 7.2 | 11,400 |
| 10 | 12.1 | 8.8 | 147 | 7.2 | 39,800 |
| 10a | 12.4 | 8.0 | 157 | 7.4 | 600 |
| 10b | 12.2 | 9.3 | 143 | 7.4 | 31,500 |
| 4* | 12.0 | 8.8 | 155 | 7.3 | 3,800 |