

**INDUSTRIAL WASTE SURVEY  
ADAMS PAPER COMPANY  
WELLS RIVER, VERMONT  
JULY 1, 1971**

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On July 1, 1971, Ray Thompson, sanitary engineer; Kerry Anderson, aquatic sample collector; Robert Myers, student aide; and Robert Atwood, engineering trainee, collected samples of the Adams Paper Company outfall in the village of Wells River, Vermont, and the Wells and Connecticut Rivers. The location of each sampling station is shown in Figure 1. Howard Davis was in charge of the mobile field laboratory in Littleton, New Hampshire.

Adams Paper Company

Adams Paper Company, a Division of Robertson Paper Company, is principally involved in the manufacture of lightweight tissue (8 to 20 pounds) from white and natural Kraft fibers. The paper mill discharges approximately 0.4 mgd of untreated wastewater from one outfall into the Wells River. The production capacity is 7.5 tons/day. Natural and white Kraft pulp and rosin sizing are used as raw materials.

Sampling Information

Figure 1 shows the industrial outfall (APE-1) and the river stations sampled. Table 1 presents locations of the stations.

The mobile field laboratory crew conducted tests for dissolved oxygen, pH, and bacteria, plus filtered for nonfilterable residues. The remaining samples and the filtered residue samples were returned to the Environmental Protection Agency laboratory in Needham, Massachusetts, for analyses.

Sampling was done using two techniques. The first technique was

filling the storage and transport containers directly from the sampling source by hand dipping the container. This method was used at Stations APE-1, WLR-4, CN-09, and CN-10. The second method involved using an initially clean, 3-liter Kemmerer-type sampler. The instrument was first thoroughly washed with sample water prior to collection. The collected sample was then transferred to the storage and transport container. This method was used at Stations WLR-1 and WLR-3.

All sample containers were either one gallon or one quart plastic cubitainers, except bacteria sample bottles and DO sample bottles which were used respectively for these analyses samples. As applicable, all samples were preserved according to Environmental Protection Agency Standard Methods.

#### Sample Identification

Each sample was tagged with one chain of custody tag giving collecting agency, laboratory number, time, date, source of sample, collector's signature and title, and witness's signature and title, plus information on the transfer of the sample. In addition, a prenumbered field data card was filled out for each collection time to record weather condition, the temperature of the sample, and the sampling location.

#### Results

Table 2 summarizes the results of the laboratory analyses. The discharge from the paper mill (sampling Station APE-1) contains constituents measured as 5-day BOD of approximately 24 mg/l. With an effluent flow rate of 0.4 mgd, the BOD concentration corresponds to a loading rate upon the Wells River of 80 pounds per day. The discharge also contains suspended solids measured as total nonfilterable residue at a concentration of 45.5 mg/l

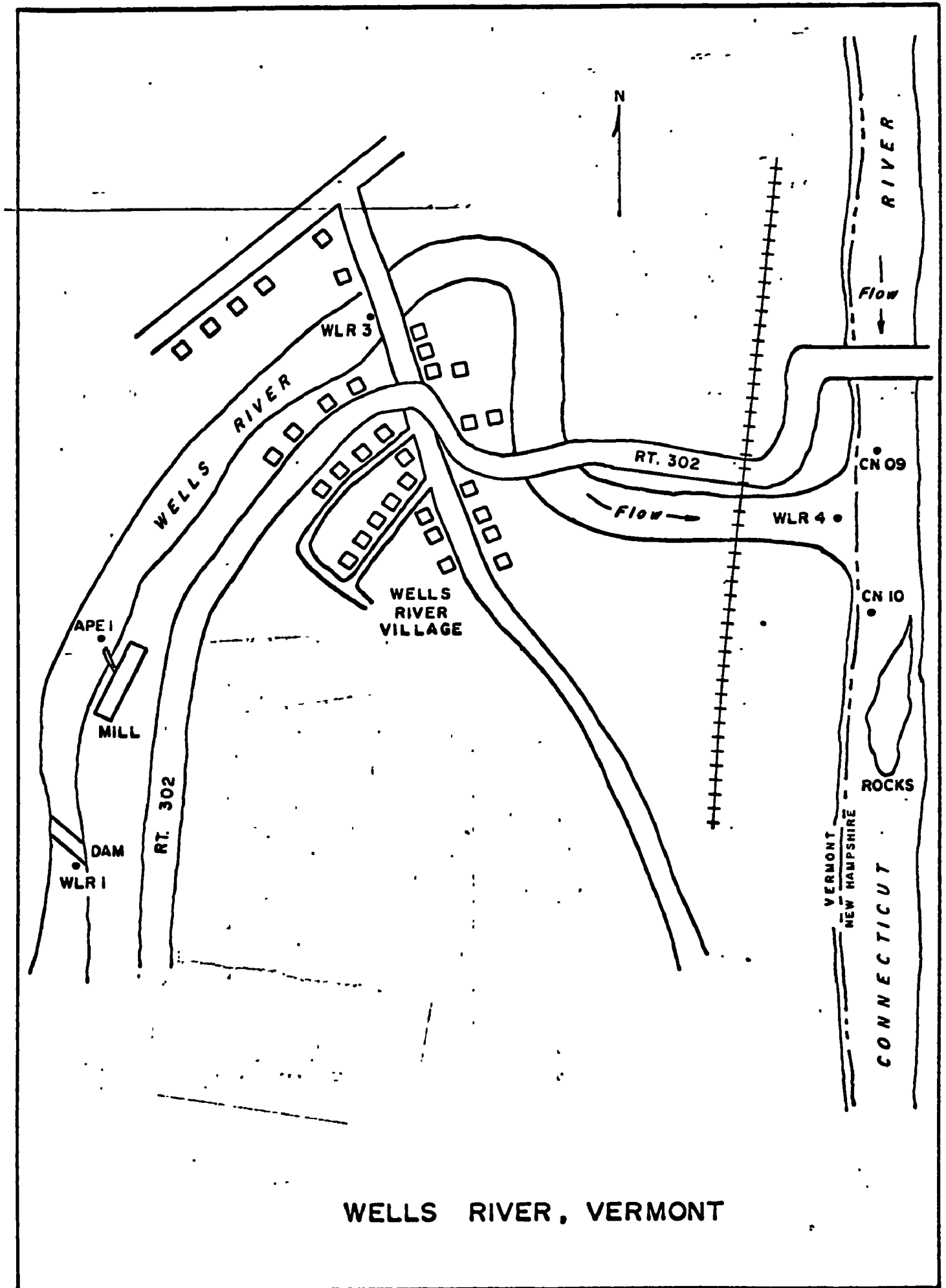
corresponding to a load of approximately 150 pounds per day and was turbid. At the time of sampling, the discharge appeared to be black. The total and fecal coliform bacterial densities are excessively high.

The village of Wells River discharges its waste into Wells River between Stations WLR3 and WLR4.

Although the Connecticut River samples showed no apparent effect from the mill's discharge, the solids discharged by the mill will eventually reach the interstate Connecticut River.

TABLE 1  
SAMPLE STATION IDENTIFICATION

<u>Station</u>	<u>Latitude</u> ° ' "	<u>Longitude</u> ° ' "	<u>Description</u>
(River)			
CN-09	44 09 11	72 02 31	Route 302 bridge over Connecticut River.
CN-10	44 09 08	72 02 31	Connecticut River just below confluence with Wells River.
WLR-1	44 09 09 .	72 03 19	Wells River above dam at Adams Paper Company.
WLR-3,	44 09 16	72 02 47	Route 302 bridge over Wells River.
WLR-4	44 09 09 :	72 02 33	Wells River 50 feet upstream of confluence with Connecticut River.
(Outfall)			
APE-1	44 09 12	72 03 10	Tail race of Adams Paper Company.



WELLS RIVER, VERMONT

FIGURE 1

**SAMPLE ANALYSES**

**ABBREVIATIONS AND UNITS OF MEASURE**

<u>Analyses Reported</u>	<u>Description</u>	<u>Measured In</u>
Temperature	Sample temperature	Degrees centigrade (°C)
pH		Standard units (S.U.)
Turbidity	Turbidity	Jackson Candle Turbidity Units (JTU)
DO	Dissolved oxygen	Milligrams per liter (mg/l)
BOD 5-day	5-day biochemical oxygen demand, incubated at 20°C	mg/l
Total coliforms	Total coliform bacteria	per 100 milliliters
Fecal coliforms	Fecal coliform bacteria	per 100 milliliters
Total residue	Total solids	mg/l
Total nonfilterable residue	Total suspended solids	mg/l
Total p.	Total phosphorus	mg/l as phosphorus

Letters preceding a reported value denote the following:

K - less than

L.A. Laboratory Accident

TABLE 2  
SUMMARY SHEET  
ADAMS PAPER COMPANY  
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Station	Time	Depth (ft.)	Temp. °C	pH SU	DO mg/l	BOD mg/l	Total P mg/l	Turb. JTU	Total NF Residue mg/l	Coliforms/100 ml		Lab No.
(River Stations)												
WLR-1	0720	2.0	23.0	6.8	7.4	K5.5	.013	2	--	8,200	130	27279
	1000	2.0	24.0	7.2	8.0	K1.0	.024	4.5	2.5	1,300	70	27286
	1250	2.0	--	7.2	8.8	K1.0	.078	5	4.0	3,100	100	27293
WLR-3	0740	1.0	23.0	6.9	7.6	6.5	.032	11	25.6	25,000	2,000	27280
	1035	1.0	29.0	7.3	7.9	7.5	.062	10	7.0	12,000	2,700	27287
	1320	1.0	26.0	7.3	7.8	K5.0	.062	15	1.0	9,000	900	27294
WLR-4	0900	2.0	23.0	6.9	6.7	56	.56	15	21.0	620,000	8,500	27281
	1150	2.0	25.0	6.9	7.4	26	.30	10	17.6	360,000	44,000	27288
	1405	2.0	25.0	7.2	7.7	5.5	.16	6	10.7	140,000	40,000	27295
CN-09	0835	2.0	19.5	7.0	8.3	K1.0	.024	3	5.0	2,500	50	27282
	1110	2.0	24.0	6.7	8.4	K1.0	.14	3	--	2,600	190	27289
	1400	2.0	21.5	6.5	8.7	--	.024	6.5	--	3,800	220	27296
CN-10	0840	2.0	19.5	6.8	8.4	K1.0	.013	2	3.0	2,400	K10	27283
	1120	2.0	24.0	6.6	8.4	K1.0	.56	2	L.A.	2,900	280	27290
	1410	2.0	25.0	6.2	8.6	K5.0	.013	12	--	4,700	280	27297
(Industrial Outfall)												
APE-1	0715	--	23.0	7.0	7.8	21.5	.044	31	66.0	9,000	200	27284
	1015	--	23.5	7.6	7.8	23.2	.074	15	30.2	14,000	10,000	27291
	1300	--	25.0	7.3	7.8	28.0	.044	15	40.4	280,000	140,000	27298