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STATE OF WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY
Olympia, Washington 98504 206/753-2800

MEMORANDUM

August 29, 1978

To: Dick Cunningham

From: John Bernhardt

Subject: Brewster Survey

During early 1978 Harold Porath (DOE Central Region) determined that local apple packers were causing serious water quality problems in and around the small community of Brewster. He established that chemicals used in the apple washing process, diphenylamine (DPN) and possibly sodium ortho-phenylphenate (SOPP), had caused extensive bacterial kills in the Brewster STP when wastewaters were discharged into the municipal system. A sample collected by a private consultant from one of the city's local wells contained 5 ppb phenols indicating it may also be contaminated.

On 22 August 1978 Chuck Cline, Harold Porath and I conducted a water quality survey at Brewster. The purpose was to review the sampling previously conducted by Harold and develop a program for future sampling. Our findings are discussed below:

Brewster STP

Since the DOE Central Region has positively determined that chemicals discharged from the local apple packers caused bacterial kills in the Brewster STP during early 1978, further study does not appear necessary on this problem other than some periodic monitoring. The packers now use land disposal. Two approaches should be considered for resolving future problems:

Approach 1 - If a contaminant upsets a wastewater processing system, the system does not meet its effluent limitations and the municipality is in violation of its NPDES permit. Therefore, the governing agency (DOE) can place the responsibility for resolving the problem on the municipality which has the responsibility for controlling what comes into the STP. This approach would be done only if there are further discharges into the municipal system.

Approach 2 - If for some reason (1) above is not practical, DOE can require that the responsible industry, as part of its Waste Discharge Permit, put together an engineering report that shows alternatives for waste disposal. Such a report would be submitted to DOE for review and the alternative employed would have to be approved.

Well Contamination

We felt that one sample containing 5 ppb phenols is insufficient as an indicator of DPN or SOPP contamination. The phenol reading could be due to another contaminant such as a pesticide or petroleum product. Further samples (August 22 would be one) would verify the nature and extent, if there is a problem.

August 22 Field Sampling

Samples were collected at twelve (12) stations to determine if any DPN, SOPP or other toxic chemical is now present in surface or groundwaters at Brewster. The sampling included four wells and eight receiving water stations (See attachment). The samples were taken to DOE and EPA in Seattle for scan analyses to determine the chemical species of any contaminants. The results are forthcoming.

Future Studies

Since there are only 12 stations and no special sampling gear, other than a pair of hip boots, is required, future fieldwork will be handled by Harold Porath. He will develop a sampling schedule after the 22 August analytical results are received. At a minimum a second run will be made during late October.

JB:ee

Attachment

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY
2015 S. 1st. Street, Yakima, Washington 98903 509/575-2491

M E M O R A N D U M

TO: Files

FROM: Harold

SUBJECT: Brewster Sampling Locations of August 22, 1978

DATE: August 22, 1978

Twelve water samples were collected from the Brewster Area on August 22, 1978 by John Bernhardt, Chuck Cline, and myself. These samples will be transported on August 23, 1978 to the Department of Ecology lab in Redmond for immediate gas chromatigraphic analysis. All samples were preserved with copper sulfate and phosphoric acid and kept on ice until analysis. The sampling locations were as follows:

a) Station 1 and Station 2: The two wells located alongside the Columbia River downstream of the Brewster Sewage Treatment plant were sampled at 9:50 am. Both wells are housed in one building and we designated the east (upstream) well as Well #1 and the west (downstream) well as Well #2, although this numbering system may not correspond to the Town of Brewster's numbering system. These two wells are the main supply for the Town of Brewster, and supply the town with 100% of it's water except at times of extreme demand. One of these wells can be pumped at a rate of 250 gpm and the other at 750 gpm, but, according to the City Superintendent, they are presently being pumped at a combined rate of approximately 850 gpm. Samples collected by the Okanogan County Health Department on August 1 and August 14, 1978 were collected from the downstream well, or Well #2. Samples were also collected and tested using the phenol test kit. Results of both samples were negative.

b) Station 3: Town Well #3 on Paradise Hill Road adjacent to Swamp Creek. This well is used as an additional supply for the Town of Brewster but only when the demand exceeds the amount that can be provided by Wells #1 and #2. The maximum pumping rate for this well is 225 gpm. Time of sampling was approximately 10:30.

c) Station 4: Water supply, gravity line from Rat Lake. I believe this is also an additional supply for the Town but again not the main supply. We actually sampled from a weir box located in a field upstream of Well #3 on Swamp Creek. Phenol test kit results were negative. Sample Time: 11:00.

Stations 5 - 11 were all collected along the banks of the Columbia River. A boat was not employed as Bernhardt and Cline felt that if groundwater problems indeed existed and were due to substances entering the groundwater from the river, these substances would be present along the shoreline and thus a boat would not be needed. I agreed.

d) Station 5: Along the shore behind the Goodyear Tire Center located on Bridge Street near it's junction with US 97. Sample time: 12:40.

e) Station 6: off the north point of the cove in which Swamp Creek appears to flow into. Sample time: 12:45.

f) Station 7: along the shore off the corner of 6th Ave SE and 3rd St. SE. Sample time: 12:50.

g) Station 8: STP effluent, taken from the chlorine contact chamber of the STP. Sample time: 13:00.

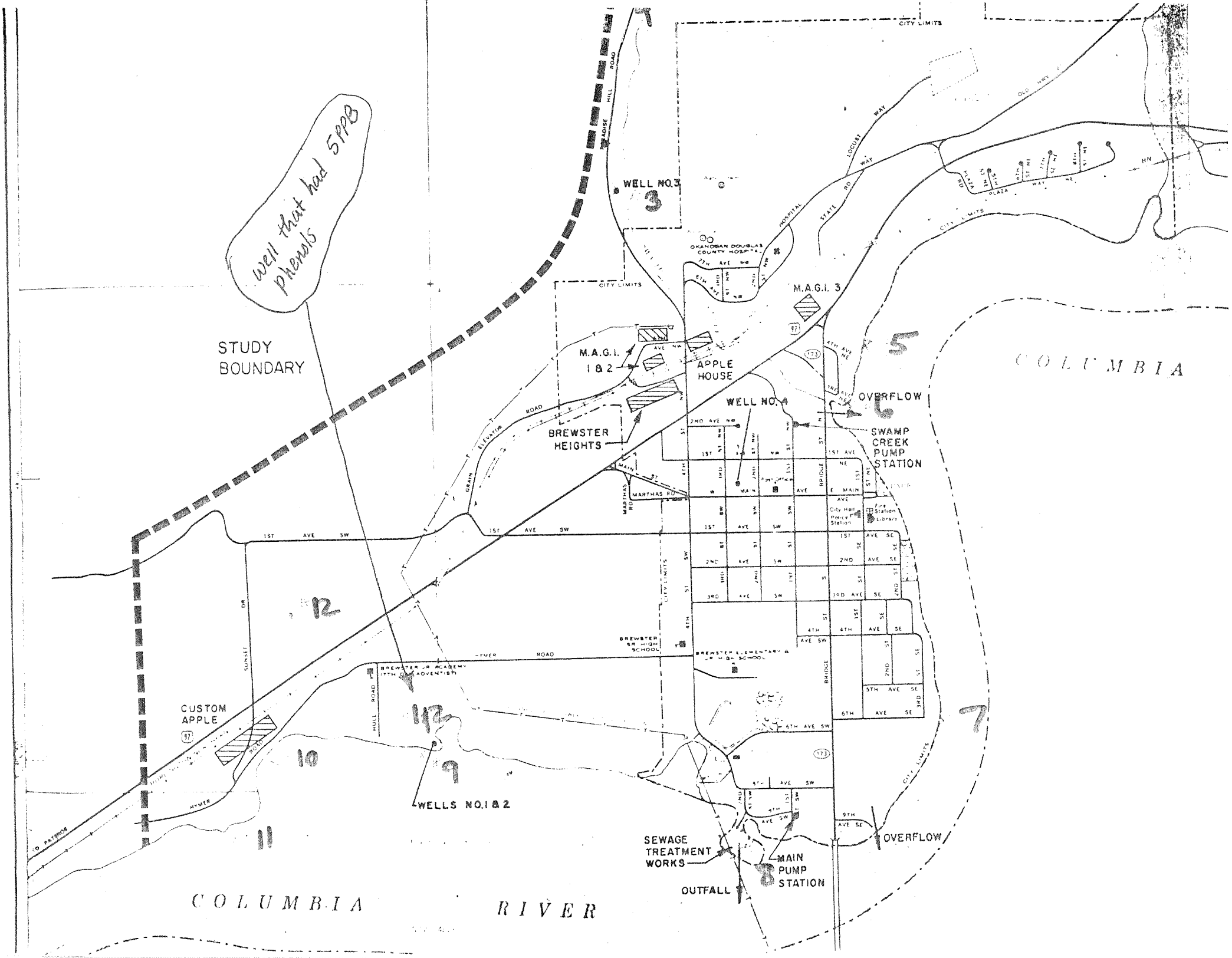
h) Station 9: along the shore adjacent to Wells #1 and #2. Sample time: 13:50.

i) Station 10: along the shore just upstream of the Custom Apple operation. Sample collected adjacent to "Speed Limit 35" sign on road. Sample time: 13:15.

j) Station 11: along the shore downstream of the Custom Apple operation. A pumphouse, pumping water out of the Columbia River is at that site. Sample time: 13:25.

k) Station 12: Highway Department Well. Static level was 61 feet from ground surface. Sample time: 14:05.

Two important comments should be made at this time. 1) Mayor Gamble stated to me that Swamp Creek does not flow into the Columbia River at all during this year. During our sampling we could not see how Swamp Creek could flow under Bridge Street. We could only assume a culvert existed under the road that was hidden from sight by the weeds along Swamp Creek. But the Mayor stated that water in Swamp Creek never reaches the Columbia River. 2) Wells #1 and 2 are directly adjacent to a large, mature apple orchard. It seems very possible that pesticides being used in this orchard could be getting into the wells. I should check with Dr. Pierson in Wenatchee about this and about any GC Traces that may have been done on the pesticides.



well that had 5PPB phenols
STUDY BOUNDARY
WELL NO.3
3
OKANOGAN DOUGLAS COUNTY HOSPITAL
M.A.G.I. 3
M.A.G.I. 1 & 2
APPLE HOUSE
BREWSTER HEIGHTS
WELL NO. 4
OVERFLOW
6
SWAMP CREEK PUMP STATION
5
COLUMBIA
12
CUSTOM APPLE
10
9
WELLS NO.1 & 2
11
SEWAGE TREATMENT WORKS
MAIN PUMP STATION
8
OUTFALL
OVERFLOW
7
COLUMBIA RIVER
CITY LIMITS
HYMER ROAD
1ST AVE SW
MARTHAS RD
MAIN ST
BRIDGE ST
HOSPITAL
STATE RD
LOCUST WAY
GRAIN ELEVATOR ROAD
SUNSET DR
HULL ROAD
BREWSTER SR HIGH SCHOOL
BREWSTER ELEMENTARY & JR HIGH SCHOOL
BREWSTER JR ACADEMY (7TH DAY ADVENTIST)
City Hall Police Station
Fire Station Library