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GROUND WATER BRANCH  
712 City Hall  
Houston 2, Texas

for open file  
- Director's approval  
not necessary  
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WJG  
C May

October 31, 1949

Mr. Frank N. Baldwin  
Director, Utilities Department  
City Hall  
Houston, Texas

Dear Mr. Baldwin:

Enclosed herewith for your information is a memorandum entitled "Decline of pumping-levels in Houston municipal wells, 1939-1949" which we have prepared as a means of keeping you posted with regard to the status of water levels in the Houston municipal wells.

Very truly yours,

J. W. Lang  
Geologist

cc: Mr. C. R. Harvill  
Mr. L. H. Earnest  
Mr. W. L. Broadhurst, Austin  
Mr. W. F. Guyton, Washington

Decline of pumping-levels in Houston municipal wells,  
1939-1949

Measurements of the pumping levels of all the Houston municipal wells which could be measured were made by the Geological Survey during the period from September 30 to October 21, 1949. At the Central plant, wells F-11, F-12, and D-17 had pumping levels below the airline, and it was impossible to get steel-line measurements on account of the construction of the wells. At Heights 5, Northeast 1, Scott Street 3, and South End 6 similar conditions existed and no measurements could be made. The attached table gives the results of these measurements, and also shows the results of measurements recorded in 1939, 1942, and 1948 and gives the decline of the pumping levels for the periods of record. For the Southwest well field, which was put into operation in late 1945, the measurements are for 1946, 1948, and 1949.

During the ten-year period 1939-1949, the 12 wells for which comparative measurements are available registered declines in pumping level ranging from 51 to 119 feet and averaging 84 feet. The least decline was recorded in the wells screened in the shallower sands, namely at the Scott Street plant and in South End 4. The greatest decline was recorded in the deep wells.

From 1939 to 1942 the 16 wells for which comparative measurements are available showed an average decline of 26 feet. From 1942 to 1948 the average decline in 11 wells was 44 feet. In the Southwest well field the decline from 1946 to 1948 in the 6 wells with comparative measurements ranged from about 12 to 36 feet and averaged 24 feet.

It is interesting to note that between September 1948 and September and October 1949 rises were recorded in 6 wells (including two at Southwest field) that ranged from one foot to 9 feet. However, in all the wells showing rises the 1949 measurements were made during the very wet month of October when pumpage was on the average about 8 million gallons a day less than the pumpage for October 1948, and several million gallons a day less than the annual daily average for 1948.

J. W. Lang  
U. S. Geological Survey  
October 31, 1949

DECLINE OF PUMPING LEVELS, IN FEET, RECORDED IN HOUSTON MUNICIPAL WELLS FROM  
1939 to 1949

Plant	Well	Date 1939	Pumping Level	Date 1942	Pumping Level	Decline 1939-1942	Date 1948	Pumping Level	Date 1949	Pumping Level	Decline 1942-1948	Decline 1948-1949	Decline 1939-1949
Central	F-1	8-22	165.0	9-9	197.0	32.0	9-23	224.0	10-19	223.0	27.0	+1.0	58.0
	F-5	8-22	159.0	9-9	168.5	9.5	9-23	256.0	9-30	266.0	87.5	10.0	107.0
	F-11	Unable to measure							9-30	260.0+a/	-	-	-
	F-12	7-27	233.0+	-	-	-	9-23	264.0	9-30	280.0+a/	-	16.0	-
	C-18	Began using well in 1946					9-23	243.0	9-30	251.9	-	8.9	-
	C-19	Began using well in 1948					9-23	256.0	9-30	272.0	-	16.0	-
	C-20	Began using well in 1949							9-30	266.7	-	-	-
	D-17	8-22	232.0+	9-9	273.0	41.0±	9-23	Not pumping	10-6	310+ a/	-	-	-
Heights	5	8-21	169.0	9-9	182.5	13.5	9-23	Unable	9-30	205+ a/	-	-	-
	6	6-22	161.0	3-6	180.0	19.0	9-23	249.0	9-30	260.0	69.0	11.0	99.0
	7	8-21	148.0	9-9	184.0	36.0	9-23	259.7	9-30	267.2	75.7	7.5	119.2
	8	8-21	175.5	3-6	200.0±	24.5	9-23	Unable	9-30	285.0	-	-	109.5
Northeast	1	4-24	181.0	3-6	184.0	3.0	9-29	a/	10-10	240+ a/	-	-	-
	2	8-22	152.5	9-10	197.0	44.5	9-29	234.0	10-20	236	47.0	2.0	83.5
	3	Began using 1944		6-21*	179.0	-	9-29	217.0	10-10	229.7	38.1	12.7	-
East End	1	3-21	134.0	3-5	166.0	32.0	9-29	-	10-6	248.7	-	-	114.7
	2	Began using 1943		8-27*	184.0	-	9-29	Unable	-	-	-	-	-
	3	Began using well in 1948					9-29	242.4	10-6	261.0	-	18.6	-
	4	Began using well in 1949							10-6	245.7	-	-	-
Scott St.	3	10-5	223.0	9-10	227.0	4.0	9-29	a/	10-6	240+ a/	-	-	-
	4	10-18	162.0	9-10	178.0	16.0	9-29	222.0	10-6	213.0	44.0	+9.0	51.0
	5	7-26	196.0	9-12	242.0	46.0	9-29	254.0	10-6	250.0	12.0	+4.0	54.0
South End	2	6-22	149.0	9-10	233.0	84.0	9-30	250.3	10-21	245.0	17.3	+5.3	96.0
	4	8-21	126.0	9-10	127.0	1.0	9-30	168.7	10-6	171.4	41.7	2.7	45.4
	5	8-21	206.0	9-10	214.0	8.0	9-30	a/	10-19	280±	-	-	74.0
	6	8-21	205.0	3-6	203.0?	+2.0?	-	-	10-6	280+ a/	-	-	-
	7	Began using 1944		8-16*	255.0	-	9-30	276.9	10-6	277.6	21.9	.7	-

a/ Below airline. \* 6/21/44; 8/27/43; 8/16/44.

DECLINE OF PUMPING LEVELS, IN FEET, RECORDED IN HOUSTON MUNICIPAL WELLS FROM  
1939 to 1949

<u>Plant</u>	<u>Well</u>	<u>Date</u> 1939	<u>Pumping</u> <u>Level</u>	<u>Date</u> 1946	<u>Pumping</u> <u>Level</u>	<u>Decline</u> <u>1939-1942</u>	<u>Date</u> 1948	<u>Pumping</u> <u>Level</u>	<u>Date</u> 1949	<u>Pumping</u> <u>Level</u>	<u>Decline</u> <u>1946-1948</u>	<u>Decline</u> <u>1948-1949</u>	<u>Decline</u> <u>1939-1949</u>
Southwest	1	Began using 1946		7-11	188.0	-	9-22	219.0	10-10	221.7	31.0	2.7	-
	2			7-11	205.0	-	9-22	221.0	10-10	227.0	16.0	6.0	-
	3			7-11	200.0±	-	9-22	235.0	10-10	238.0	35.0	3.0	-
	4			7-11	193.0	-	6-10	209.0	10-10	223.0	16.0	14.0	-
	5			7-11	196.0	-	9-22	222.0	10-10	224.0	36.0	2.0	-
	6			9-17	210.0	-	9-22	222.4	10-10	219.0	12.5	+3.3	-
	7	Began using well in 1948					9-22	238.1	10-10	239.1	-	1.0	-
	8						9-22	228.8	10-10	220.1	-	+8.7	-