Copies taken from Chas. City General Data

HOWARD R. GREEN COMPANY, CONSULTING ENGINEERS, CEDAR RAPIDS, IOWA

CHARLES CITY (WELL #7) – Devonian aquifer
PUMP TEST AFTER ACIDIZING WITH 5000 GAL. ACID
November 25, 1963

J. W. Gerlich

11-26-63 161' Air Line Depth Well 186'
Static pumping level = 0
10" x 8" Orifice
145' to top of bowls, 4' bowls, 20' suction = 169' Setting

Time	Piezo (in.)	GPM	RPM	D.D.	Remarks	
11:45					Heavy Turbidity, Odor of Acid, Below ph Range our meter	
12:10						
12:30	92	2845	1175	41	Cloudy	ph 6.7
1:00	91	2827	1175	42	Cloudy	
1:30	91	2827	1175	44	Cloudy	Turb. 40 ppm
2:00	91	2827	1175	44	Clear	64 Yield
2:30	90½	2820	1175	45	Clear	City Water ph 8.4
3:00	90½	2820	1175	45½	Clear	Some sand ph 6.9
	WELL #5 OFF STATIC 5'-10" BELOW TOP OF CASING					
3:30	90	2812	1175	46	Clear	ph 7.2
	WELL #5 OFF STATIC 6'-4"				Clear	Iron 4.2 ppm
4:00	89½	2804	1175	47	Clear	
4:30	89½	2804		47	Clear	T. HRNS 304 ppm
	WELL #5 STATIC 6'-11½"					
5:00	89½	2804	1175	47		Yield 60 gal/ft. D.D.
5:05	Slowdown					
5:30	45½	2000	875	33		
6:00	46	2010	875	32		
6:30	46	2010	875	31	YIELD 64 gal/ft. D.D.	
	WELL #5 OFF STATIC 5'-8"					
7:00	46	2010	875	32		
7:30	46	2010	875	32		
8:00	46	2010	875	32		
8:30	46	2010	875	32		

Time	Piezo (in)	GPM	RPM	D.D.	Remarks
8:30	WELL #5 OFF STATIC 6'-1"				
8:37	Started #5 Pump				
8:45	43½	1953	875	35	#5 - 28'-6" Pumping Level
9:00	43	1942	875	36	#5 - 29'-3" Pumping Level
9:30	42½	1933	875	37	#5 - 30'-0" Pumping Level
10:00	42	1921	865	37	#5 - 30'-10" Pumping Level
10:30	42	1921	865	37	#5 - 31'-4"

Everything shut off and #5 Well drained through bypass at 11 P.M. Wednesday A.M. Measured New Well = 175'-6"

11-25-63 Acidized with 5000 gal. well heating acid (31%)

3:40 P.M. Put in 500 gal. conc. acid. Started #5 Well

5:00 P.M. Put in 2000 gal. pressure 42# annular space between pump and well casing

5:15 3000 gal. in 50# pres.

7:30 Finished placing acid and added 1000 gal. of water to clear pump.

Pressure bleed off at 5:15 and kept bled off.

Method of placing acid as follows:

First batch of 500 gal. placed as concentrated
Then 1000 gal. batches of diluted, 1/2 acid - 1/2 water, added.
Started pumping #5 Well when acid placed and ran until 8 P.M.
No change in discharge pH evident.