GL03187

AREA CA Riversd Desert HS UNIVERSITY OF UTAH RESEARCH INSTITUTE EARTH SCIENCE LAB.

REVIEW OF DESERT HOT SPRINGS WELL TEST

C. Goranson, D. McEdwards, and R. Schroeder

Earth Sciences Division Lawrence Berkeley Laboratory University of California Berkeley, California 94720

* This work was supported by the Geothermal Energy Division of the Department of Energy.

REVIEW OF DESERT HOT SPRINGS WELL TEST

-1-

C. Goranson, D. McEdwards, and R. Schroeder

INTRODUCTION

A well test was carried out in June 1977 using three wells at the Desert Hot Springs KGRA. Data were collected and analyzed by B. F. Russell (California State University at Fullerton).

These three wells partially penetrate an aquifer that is estimated to be about 1000 ft. thick. One of the wells was produced at 114 gpm for 4.5 hours. Water levels were measured in the producing well and the two observation wells. From the data in the reports published by the City of Desert Hot Springs¹ the exact locations of the wells, the position of the wells with respect to inferred faults, the geological configuration from well logs, and other valuable data were not available to us. Neither was the history of the wells used in the well tests. For example, how long had the production well been shut in prior to the test? What are the wellhead altitudes relative to sea level, etc.? In Tables 1, 2 and 3 the data available from the city of DHS are summarized.²

ANALYSES

In Fig. 1 we show the downhole pressure vs. time for the producing well, PW-1. This approach is a standard method of analysis. The early times data are not useful^{3,4} for several reasons.

- The early time variation in flowrate is not known.
- The wellbore storage effect cannot be determined from this data.
- The early time data are probably strongly perturbed by partial penetration effects.
- The early time data are probably affected by gravity drainage in this system.

• The system experiences delayed drainage due to partial saturation. Taking into account these complications, analyses are possible, but not with the existing data. Other deficiencies, in addition to those listed above, are:

- The test was not carried out over a long enough time to reach the semi-steady-state condition in the well.
- Sufficiently accurate flow data are not available.

Table 1. Well data for the test over 4.5 hours at 110 gpm flow rate.

		to the second second		
	<u>PW-1</u>	<u> 0W-1</u>	<u>OW-2</u>	
	and the second second second			
Static water level ^a	6.66	18.55	5.9 ft	• • • •
Total depth	180	48	102 ft	
Well diameter	en en el calendario de la compañía d En este de la compañía	6	6 in.	
Open interval	110 to 180	unknown	unknown fee	et
b Temperature	148 148	unknown	unknown °I	7
Distance to PW-1		212	102 ft	
^a From ground level. ^b During pumping.	an an ann an	e telesso com poseda : T	n a station de la composition de la com La composition de la c	
		an a		
en en en de la transferie de la defensión La companya de la defensión de	anne (auss tarba	Alt Mill I. Colorfactor (m. 1977) The Alternative (m. 1977)	ne anterolito di Lo caro de Altra	ng of da Alexandrea
an a	an search anns an search anns anns an search	a vez e statula e Statel i sterat (es	e de Nation para - Constitue - Adria	9-4 3
$\int_{\mathbb{R}} f(x) = \int_{\mathbb{R}} f(x$	ning and start and set	land og same Lættare	restanting franks Maria Santa	Y.
	2 (19)	aldude ta trace a	en in strukte suite State	·3
a matan sana ang basa References ang basa a	n haan ay karakan da Ay karakan da sa sa sa	n da fa da anul da Sestarati na se	en de ser el mort	
		plate af strange a	an the state of the second	N A MARINA
	jan na jekali u in kar jekan skali u	to a 11341 Cha gastistana sito	e de Secol	t ti so
	and the state of the	Bernard Bernard Service	•	. * [*]

TIME SINCE START		DRAWDOWNS (feet)					
(Minutes)		PW-1	•	٤.1	0W-1	OW-2	
0		0					
1	· · · · · ·					· · · ·	
1.5		17.92	•				
2		21.11			0		
3	्र •	22.40			.03	0.1	
rita isa sa 4 asasa as	2				.05	······································	
- 5		21.93			.05	0.35	
6		21.83			.10	.40	
7					.15	.53	
8		21.76			.15	.60	
9					.12	.62	
10	ана на селото на село По селото на		·		.15	.70	
15		22.04			.18	.89	
20	,	22.02			.20	.97	
25		23.15			• 20	• • • •	
30		23 26			29	1 00	
35	e de la companya de	23.20			3/	1.07	
37					• 54	1 12	
42		23 /8					
50		23.40	7			1 22	
55		2J.01	-1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		20	1.22	
57		i a se	17 T. (19		• 29		
60	$(X_{i}, Y_{i}) \in \mathcal{F}_{i}$	22 61				2 F	
65		23.01			0 20	۰. د	
00		·	00.0		0.39	1 00	
00				14 A.	0 11		
09		00 (0			0.44		
90		23.03		· · · ·	• •		
110					A 15	1.34	
119		00 70			0.45		
120	• • • • • • • • • • • • • • • • • • •	23.76		د به در برد در این از در د			
149		A.A. A.M.			0.52	1.34	
150		23.87					
- 210		23.92		· · · · · · ·	••••••••••••••••••••••••••••••••••••••	(a) A second se second second sec	
212					· · · ·	1.36	
217					0.52		
265		•			0.57		
267						1.42	
270		24.10					

Table 2. Drawdowns (water level changes) in the production and observation wells.