



FIGURE 2. - Hydrographs of four wells.

TABLE 3.--Chemical analyses of water from selected wells, 1977-84--Continued

Well	Date	Percent sodium	Sodium ad-sorption ratio	Potas-sium, dis-solved (mg/L as K)	Alka-linity, Field (mg/L as CaCO <sub>3</sub> )	Sulfate, dis-solved (mg/L as SO <sub>4</sub> )	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO <sub>2</sub> )	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> , dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)
26S/40E-15E2	78-06-20	98	96	15	3170	27	460	9.7	50	4900	1.5	--
	79-05-31	99	360	--	--	--	--	--	--	4800	--	--
	80-05-22	98	120	18	--	19	430	10	43	--	.09	2.9
26S/40E-15N1	78-06-21	97	46	7.6	920	11	110	5.4	18	1200	.03	--
	79-05-31	97	50	8.7	940	13	83	7.0	2.8	1300	.10	.38
	80-04-15	--	--	--	--	4.0	--	--	--	--	.10	.21
	80-05-22	98	56	7.5	970	2.6	81	6.0	27	1200	.17	.27
26S/40E-15N2	82-06-14	83	12	7.2	360	190	77	1.0	26	840	<.10	.18
	84-08-11	--	--	--	1050	--	--	--	--	--	--	--
26S/40E-17J1	84-08-07	47	2	4.1	117	34	22	.8	42	250	<.10	--
26S/40E-17R1	84-08-07	44	2	4.7	130	43	27	.7	52	290	<.10	--
26S/40E-19P1	80-03-29	96	14	.5	120	13	68	.8	26	310	--	--
26S/40E-21A1	84-08-08	92	16	7.7	356	20	32	1.9	60	540	<.10	--
26S/40E-21E1	84-08-07	70	4	10	127	5.6	22	1.0	48	230	<.10	--
26S/40E-22B1	84-08-09	76	20	41	313	3100	270	1.3	66	5200	3.3	--
26S/40E-22H1	78-06-19	42	7	76	160	3200	200	2.0	76	5000	1.6	--
	79-05-15	39	6	75	150	3000	260	2.1	73	4700	2.3	.13
	80-04-15	--	--	--	--	2900	--	--	--	--	1.5	.30
	80-05-20	38	6	73	140	2700	210	2.9	--	4300	1.5	.21
	82-06-08	35	6	69	150	3300	250	2.2	79	5200	1.6	.06
	84-08-08	34	5	61	145	3000	240	2.1	78	4800	1.6	.07
26S/40E-22H2	78-06-19	59	19	72	280	8600	460	2.9	37	13000	1.1	--
	79-05-15	120	--	64	270	8300	380	3.0	39	12000	.88	.02
	80-05-20	56	17	68	260	8600	410	3.0	43	13000	.60	.01
	82-06-08	52	16	57	260	9000	420	3.1	40	14000	.20	.02
	83-10-31	56	16	55	--	7900	420	2.9	42	12000	--	--
26S/40E-22H3	78-06-19	56	11	44	220	3300	250	2.3	49	5300	4.9	--
	79-05-15	53	10	46	260	3700	220	2.1	56	5700	.21	.04
	80-05-20	55	12	53	270	4300	290	2.2	60	6800	.03	.07
	82-06-08	47	9	41	270	4400	220	2.3	59	6800	<.10	.04
	84-08-07	47	6	42	--	1500	240	2.7	69	2800	1.1	--
	84-08-09	50	9	35	288	3500	160	2.0	63	5400	<.10	.05
26S/40E-22J1	83-10-31	45	6	39	--	1500	240	2.6	66	2700	--	--
	84-08-08	47	6	42	231	1500	240	2.7	69	2800	1.1	--
26S/40E-22K1	83-10-31	48	4	22	--	390	260	1.4	56	1300	--	--
	84-08-08	49	5	25	319	420	270	1.6	49	1400	.94	--
26S/40E-22N1	78-06-20	36	3	15	180	510	30	2.0	50	1000	1.3	--
	79-05-31	34	3	17	--	620	21	2.6	52	1100	.22	.02
	80-04-15	--	--	--	--	660	--	--	--	--	.03	.16
	80-05-23	80	21	23	200	650	17	2.4	32	2100	.02	.01
26S/40E-22P1	78-06-22	98	60	5.0	660	9.4	150	2.7	4.3	1000	.04	--
	79-05-17	98	61	5.2	540	5.3	140	2.5	5.1	830	<.10	.09
	80-05-28	98	55	8.6	730	7.3	140	.7	29	1100	.16	.21
26S/40E-22P2	83-10-31	42	3	21	--	560	34	2.3	80	1100	--	--
	84-08-08	41	3	22	147	660	42	2.3	78	1200	<.10	--
26S/40E-22P3	84-08-08	99	95	7.7	912	10	250	5.0	35	1400	<.10	--
26S/40E-22P4	84-08-09	39	3	14	90	340	96	.5	59	780	.63	--
26S/40E-23A1	78-06-19	87	23	25	430	320	640	2.2	54	2100	.65	--
	79-05-17	88	24	24	390	400	700	2.0	55	2200	.38	.04
	80-04-15	--	--	--	--	490	--	--	--	--	.50	.08
	80-05-21	87	24	27	370	560	750	2.0	59	2500	.39	.04
	82-06-10	82	22	34	369	1400	880	1.8	61	3900	.35	.06
26S/40E-23A2	78-06-19	92	26	16	330	58	440	2.1	59	1200	.07	--
	79-05-17	90	21	17	330	54	420	2.2	61	1200	<.10	.08
	80-05-21	--	--	--	--	--	--	--	--	--	--	--
	82-06-10	92	24	14	350	65	430	2.4	70	1200	<.10	.06

TABLE 3.--Chemical analyses of water from selected wells, 1977-84--Continued

Well	Date	Arsenic, total (µg/L as As)	Arsenic, dis-solved (µg/L as As)	Barium, dis-solved (µg/L as Ba)	Beril-lium, dis-solved (µg/L as Be)	Boron, dis-solved (µg/L as B)	Cadmium, dis-solved (µg/L as Cd)	Chro-mium, hexa-valent, dis-solved (µg/L as Cr)	Cobalt, dis-solved (µg/L as Co)	Copper, total recov-erable (µg/L as Cu)	Copper, dis-solved (µg/L as Cu)	Iron, total recov-erable (µg/L as Fe)	Iron, dis-solved (µg/L as Fe)
26S/40E-15E2	78-06-20	--	--	--	--	420000	--	--	--	--	--	--	240
	79-05-31	--	--	--	--	440000	--	--	--	--	--	--	--
	80-05-22	33	--	--	--	390000	--	--	--	--	--	--	590
26S/40E-15N1	78-06-21	--	--	--	--	14000	--	--	--	--	--	--	660
	79-05-31	6	--	--	--	170000	--	--	--	--	--	--	710
	80-04-15	--	5	--	--	--	<1	0	<3	--	--	--	--
	80-05-22	8	--	--	--	17000	--	--	--	--	--	--	560
26S/40E-15N2	82-06-14	6	--	--	--	17000	--	--	--	--	--	--	180
	84-08-11	--	--	--	--	--	--	--	--	--	--	--	--
26S/40E-17J1	84-08-07	--	--	54	1	210	1	--	<3	--	<10	--	140
26S/40E-17R1	84-08-07	--	--	--	--	220	--	--	--	--	--	--	46
26S/40E-19P1	80-03-29	--	--	--	--	540	--	--	--	<10	--	0	--
26S/40E-21A1	84-08-08	--	--	--	--	1700	--	--	--	--	--	--	120
26S/40E-21E1	84-08-07	--	--	--	--	210	--	--	--	--	--	--	89
26S/40E-22B1	84-08-09	--	--	24	<2	1200	5	--	<9	--	30	--	500
26S/40E-22H1	78-06-19	--	--	--	--	3300	--	--	--	--	--	--	40
	79-05-15	910	--	--	--	3200	--	--	--	--	--	--	80
	80-04-15	--	540	--	--	--	10	0	0	--	--	--	--
	80-05-20	990	--	--	--	4400	--	--	--	--	--	--	190
	82-06-08	880	--	--	--	3200	--	--	--	--	--	--	60
	84-08-08	--	--	27	<2	3000	<3	--	<9	--	<30	--	150
26S/40E-22H2	78-06-19	--	--	--	--	16000	--	--	--	--	--	--	300
	79-05-15	19	--	--	--	15000	--	--	--	--	--	--	690
	80-05-20	94	--	--	--	15000	--	--	--	--	--	--	2500
	82-06-08	100	--	--	--	1500	--	--	--	--	--	--	2300
	83-10-31	--	--	--	--	17000	--	--	--	--	--	--	80
26S/40E-22H3	78-06-19	--	--	--	--	8300	--	--	--	--	--	--	60
	79-05-15	91	--	--	--	1900	--	--	--	--	--	--	410
	80-05-20	190	--	--	--	11000	--	--	--	--	--	--	3300
	82-06-08	130	--	--	--	9400	--	--	--	--	--	--	320
	84-08-07	--	--	33	<2	2500	5	--	<9	--	<30	--	1200
	84-08-09	--	--	--	--	8400	<3	--	<9	--	--	--	760
26S/40E-22J1	83-10-31	--	--	--	--	2300	--	--	--	--	--	--	40
	84-08-08	--	--	--	--	2500	5	--	<9	--	--	--	1200
26S/40E-22K1	83-10-31	--	--	--	--	900	--	--	--	--	--	--	70
	84-08-08	--	--	--	--	1200	2	--	<3	--	--	--	430
26S/40E-22N1	78-06-20	--	--	--	--	560	--	--	--	--	--	--	90
	79-05-31	170	--	--	--	560	--	--	--	--	--	--	90
	80-04-15	--	160	--	--	--	<1	0	<3	--	--	--	--
	80-05-23	250	--	--	--	620	--	--	--	--	--	--	40
26S/40E-22P1	78-06-22	--	--	--	--	3900	--	--	--	--	--	--	70
	79-05-17	8	--	--	--	1900	--	--	--	--	--	--	60
	80-05-28	13	--	--	--	7000	--	--	--	--	--	--	190
26S/40E-22P2	83-10-31	--	--	--	--	540	--	--	--	--	--	--	130
	84-08-08	--	--	17	1	550	1	--	<3	--	<10	--	1700
26S/40E-22P3	84-08-08	--	--	16	<2	35000	<3	--	<9	--	<30	--	87
26S/40E-22P4	84-08-09	--	--	--	--	330	<1	--	<3	--	--	--	89
26S/40E-23A1	78-06-19	--	--	--	--	9600	--	--	--	--	--	--	20
	79-05-17	81	--	--	--	9600	--	--	--	--	--	--	100
	80-04-15	--	51	--	--	--	10	0	0	--	--	--	--
	80-05-21	84	--	--	--	12000	--	--	--	--	--	--	40
	82-06-10	80	--	--	--	12000	--	--	--	--	--	--	2100
26S/40E-23A2	78-06-19	--	--	--	--	6400	--	--	--	--	--	--	20
	79-05-17	16	--	--	--	6300	--	--	--	--	--	--	<10
	80-05-21	19	--	--	--	--	--	--	--	--	--	--	--
	82-06-10	6	--	--	--	6900	--	--	--	--	--	--	140

WATER LEVELS

Water levels were measured in 131 wells in Indian Wells Valley during 1977-84. The location of wells is shown on plate 1. The depth to water in wells was measured with a steel tape to an accuracy of 0.01 inch. Seventy-seven of the wells were measured annually; thirty-nine, semiannually; eight, intermittently; four, continuously; and three, once only (table 1). Water levels for each well are given in table 2, which also includes well location, well depth, perforated interval, well diameter, altitude above sea level, and maximum and minimum water levels. Because of space limitations, only the midnight measurements are given for wells with continuous recorders.

In general, water levels have declined in Indian Wells Valley, except in the northern part of the valley and near China Lake. One hundred and six of the wells monitored have water-level measurements spanning at least 3 years of the period 1977-84 (table 2). Sixty-five of these wells had a net water-level decline during the monitoring period. Twenty-three wells had water-level declines greater than 5 feet, and one well had a decline greater than 10 feet. Only one well had a net water-level rise greater than 5 feet.

Hydrographs of four selected wells (25S/38E-25L1, 26S/39E-19Q1, 26S/40E-19P1, and 27S/40E-4A1) representing water-level conditions in Indian Wells Valley are shown in figure 2. The location of these wells is shown in figure 1. The hydrograph of well 25S/38E-25L1 is representative of water-level conditions in the western part of the valley. The water level in this well has declined more than 20 feet since 1950 and about 10 feet since 1977. The general decline since 1950 is probably the result of municipal and industrial pumpage in the Inyokern, intermediate, and Ridgecrest areas to the south and southeast. The increased rate of water-level declines since the late 1970's is probably the result of agricultural pumpage. The greatest water-level changes are observed near Inyokern, the intermediate area, and Ridgecrest where most of the ground-water pumpage occurs. The hydrograph of well 26S/39E-19Q1 is representative of conditions in the Inyokern area. Water levels have declined more than 20 feet in this well since 1950 and about 6 feet since 1977. Well 26S/40E-19P1 is in the intermediate area, where the greatest water-level declines in the valley have occurred. Water levels have declined more than 40 feet since 1950 and about 10 feet since 1977. Well 27S/40E-4A1 is in the Ridgecrest area, and its hydrograph shows a water-level decline of about 20 feet since 1960 and about 10 feet since 1977.