

**Table 6-3**  
**Vertical Ground Water Gradients**  
**2004 Ground Water Monitoring Events**  
**Hookston Station Remedial Investigation**  
**Pleasant Hill, California**

Well Designation	Date	Screened Interval	Screen Midpoint	Screen Midpoint Separation	Depth to Water	TOC Elevation	Ground Water Elevation	Head Difference	Vertical Gradient
<b>A-B Zone Well Clusters</b>									
MW-08A	3/10/2004	10-25	20.0		15.00	66.80	51.80		
MW-08B	3/10/2004	45-60	52.5	32.5	15.58	66.65	51.07	-0.73	-0.022
MW-08A	4/19/2004	10-25	20.4		15.69	66.80	51.11		
MW-08B	4/19/2004	45-60	52.5	32.2	16.54	66.65	50.11	-1.00	-0.031
MW-08A	7/30/2004	10-25	20.9		16.75	66.80	50.05		
MW-08B	7/30/2004	45-60	52.5	31.6	17.74	66.65	48.91	-1.14	-0.036
<b>Avg Vertical Gradient:</b>									<b>-0.030</b>
MW-11A	3/10/2004	10-25	20.2		15.35	70.05	54.70		
MW-11B	3/10/2004	40-50	45	24.8	15.35	70.22	54.87	0.17	0.007
MW-11A	4/19/2004	10-25	20.56		16.12	70.05	53.93		
MW-11B	4/19/2004	40-50	45	24.4	16.19	70.22	54.03	0.10	0.004
MW-11A	7/30/2004	10-25	21.4		17.72	70.05	52.33		
MW-11B	7/30/2004	40-50	45	23.6	17.70	70.22	52.52	0.19	0.008
<b>Avg Vertical Gradient:</b>									<b>0.006</b>
MW-12A	3/10/2004	10-25	20.23		15.45	70.13	54.68		
MW-12B	3/10/2004	50-60	55	34.8	17.33	70.15	52.82	-1.86	-0.053
MW-12A	4/19/2004	10-25	20.61		16.22	70.13	53.91		
MW-12B	4/19/2004	50-60	55	34.4	19.09	70.15	51.06	-2.85	-0.083
MW-12A	7/30/2004	10-25	21.70		18.45	70.13	51.68		
MW-12B	7/30/2004	50-60	55	33.3	19.70	70.15	50.45	-1.23	-0.037
<b>Avg Vertical Gradient:</b>									<b>-0.058</b>
MW-13A	3/10/2004	18-33	25.5		14.62	67.67	53.05		
MW-13B	3/10/2004	45-55	50	24.5	15.82	67.61	51.79	-1.26	-0.051
MW-13A	4/19/2004	18-33	25.5		15.50	67.67	52.17		
MW-13B	4/19/2004	45-55	50	24.5	16.81	67.61	50.80	-1.37	-0.056
MW-13A	7/30/2004	18-33	25.5		16.80	67.67	50.87		
MW-13B	7/30/2004	45-55	50	24.5	18.02	67.61	49.59	-1.28	-0.052
<b>Avg Vertical Gradient:</b>									<b>-0.053</b>
MW-14A	3/10/2004	29-34	31.5		14.62	64.71	50.09		
MW-14B	3/10/2004	40-50	45	13.5	14.58	64.69	50.11	0.02	0.001
MW-14A	4/19/2004	29-34	31.5		15.58	64.71	49.13		
MW-14B	4/19/2004	40-50	45	13.5	15.58	64.69	49.11	-0.02	-0.001
MW-14A	7/30/2004	29-34	31.5		16.63	64.71	48.08		
MW-14B	7/30/2004	40-50	45	13.5	16.68	64.69	48.01	-0.07	-0.005
<b>Avg Vertical Gradient:</b>									<b>-0.002</b>

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**Vertical Ground Water Gradients**  
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Well Designation	Date	Screened Interval	Screen Midpoint	Screen Midpoint Separation	Depth to Water	TOC Elevation	Ground Water Elevation	Head Difference	Vertical Gradient
MW-15A	3/10/2004	14.5-24.5	19.6		14.72	63.68	48.96		
MW-15B	3/10/2004	49-59	54	34.4	15.22	64.23	49.01	0.05	0.001
MW-15A	4/19/2004	14.5-24.5	20.1		15.67	63.68	48.01		
MW-15B	4/19/2004	49-59	54	33.9	16.23	64.23	48.00	-0.01	0.000
MW-15A	7/30/2004	14.5-24.5	20.5		16.41	63.68	47.27		
MW-15B	7/30/2004	49-59	54	33.5	17.24	64.23	46.99	-0.28	-0.008
<b>Avg Vertical Gradient:</b>									<b>-0.002</b>
MW-16A	3/10/2004	15-25	20		14.11	61.15	47.04		
MW-16B	3/10/2004	35-45	40	20.0	14.35	61.06	46.71	-0.33	-0.016
MW-16A	4/19/2004	15-25	20.3		15.52	61.15	45.63		
MW-16B	4/19/2004	35-45	40	19.7	16.23	61.06	44.83	-0.80	-0.041
MW-16A	7/30/2004	15-25	20.7		16.35	61.15	44.80		
MW-16B	7/30/2004	35-45	40	19.3	16.46	61.06	44.60	-0.20	-0.010
<b>Avg Vertical Gradient:</b>									<b>-0.022</b>
MW-17A	3/10/2004	20.7-30.7	26.3		21.90	64.61	42.71		
MW-17B	3/10/2004	44-54	49	22.7	21.82	64.53	42.71	0.00	0.000
MW-17A	4/19/2004	20.7-30.7	26.8		22.91	64.61	41.70		
MW-17B	4/19/2004	44-54	49	22.2	22.82	64.53	41.71	0.01	0.000
MW-17A	7/30/2004	20.7-30.7	27.1		23.41	64.61	41.20		
MW-17B	7/30/2004	44-54	49	21.9	23.31	64.53	41.22	0.02	0.001
<b>Avg Vertical Gradient:</b>									<b>0.000</b>
MW-18A	3/10/2004	14.7-24.7	21.0		17.35	69.10	51.75		
MW-18B	3/10/2004	32-42	37	16	17.61	69.27	51.66	-0.09	-0.006
MW-18A	4/19/2004	14.7-24.7	21.6		18.48	69.10	50.62		
MW-18B	4/19/2004	32-42	37	15.4	18.71	69.27	50.56	-0.06	-0.004
MW-18A	7/30/2004	14.7-24.7	22.3		19.81	69.10	49.29		
MW-18B	7/30/2004	32-42	37	14.7	20.02	69.27	49.25	-0.04	-0.003
<b>Avg Vertical Gradient:</b>									<b>-0.004</b>
MW-19A	3/10/2004	14-24	22.2		20.30	67.32	47.02		
MW-19B	3/10/2004	29-39	34	11.9	20.16	66.67	46.51	-0.51	-0.043
MW-19A	4/19/2004	14-24	22.6		21.25	67.32	46.07		
MW-19B	4/19/2004	29-39	34	11.4	21.35	66.67	45.32	-0.75	-0.066
MW-19A	7/30/2004	14-24	23.1		22.13	67.32	45.19		
MW-19B	7/30/2004	29-39	34	10.9	22.21	66.67	44.46	-0.73	-0.067
<b>Avg Vertical Gradient:</b>									<b>-0.059</b>
MW-20A	3/10/2004	10-20	15.9		11.89	66.47	54.58		
MW-20B	3/10/2004	30.5-40.5	35.5	19.6	11.87	66.46	54.59	0.01	0.001
MW-20A	4/19/2004	10-20	16.4		12.73	66.47	53.74		
MW-20B	4/19/2004	30.5-40.5	35.5	19.1	12.70	66.46	53.76	0.02	0.001
MW-20A	7/30/2004	10-20	17.1		14.19	66.47	52.28		
MW-20B	7/30/2004	30.5-40.5	35.5	18.4	14.12	66.46	52.34	0.06	0.003
<b>Avg Vertical Gradient:</b>									<b>0.002</b>

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Well Designation	Date	Screened Interval	Screen Midpoint	Screen Midpoint Separation	Depth to Water	TOC Elevation	Ground Water Elevation	Head Difference	Vertical Gradient
MW-21A	3/10/2004	10-20	16.1		12.23	65.81	53.58		
MW-21B	3/10/2004	29-39	34	17.9	12.25	65.88	53.63	0.05	0.003
MW-21A	4/19/2004	10-20	16.5		13.00	65.81	52.81		
MW-21B	4/19/2004	29-39	34	17.5	13.02	65.88	52.86	0.05	0.003
MW-21A	7/30/2004	10-20	17.2		14.33	65.81	51.48		
MW-21B	7/30/2004	29-39	34	16.8	14.36	65.88	51.52	0.04	0.002
<b>Avg Vertical Gradient:</b>									<b>0.003</b>
MW-22A	3/10/2004	15-25	20.0		14.51	64.11	49.60		
MW-22B	3/10/2004	40-50	45	25.0	15.56	64.44	48.88	-0.72	-0.029
MW-22A	4/19/2004	15-25	20.0		14.90	64.11	49.21		
MW-22B	4/19/2004	40-50	45	25.0	16.45	64.44	47.99	-1.22	-0.049
MW-22A	7/30/2004	15-25	20.2		15.31	64.11	48.80		
MW-22B	7/30/2004	40-50	45	24.8	17.55	64.44	46.89	-1.91	-0.077
<b>Avg Vertical Gradient:</b>									<b>-0.052</b>
MW-24A	3/10/2004	19.5-29.5	24.5		16.55	61.04	44.49		
MW-24B	3/10/2004	39.5-49.5	44.5	20.0	16.82	61.09	44.27	-0.22	-0.011
MW-24A	4/19/2004	19.5-29.5	24.5		17.38	61.04	43.66		
MW-24B	4/19/2004	39.5-49.5	44.5	20.0	17.62	61.09	43.47	-0.19	-0.009
MW-24A	7/30/2004	19.5-29.5	24.5		18.05	61.04	42.99		
MW-24B	7/30/2004	39.5-49.5	44.5	20.0	18.30	61.09	42.79	-0.20	-0.010
<b>Avg Vertical Gradient:</b>									<b>-0.010</b>
<b>B-C Zone Well Clusters</b>									
MW-15B	3/10/2004	49-59	54		15.22	64.23	49.01		
MW-15C	3/10/2004	90-95	92.5	38.5	15.50	64.39	48.89	-0.12	-0.003
MW-15B	4/19/2004	49-59	54		16.23	64.23	48.00		
MW-15C	4/19/2004	90-95	92.5	38.5	16.29	64.39	48.10	0.10	0.003
MW-15B	7/30/2004	49-59	54		17.24	64.23	46.99		
MW-15C	7/30/2004	90-95	92.5	38.5	17.45	64.39	46.94	-0.05	-0.001
<b>Avg Vertical Gradient:</b>									<b>-0.001</b>
MW-19B	3/10/2004	29-39	34.0		20.16	66.67	46.51		
MW-19C	3/10/2004	70-80	75	41.0	18.29	66.86	48.57	2.06	0.050
MW-19B	4/19/2004	29-39	34.0		21.35	66.67	45.32		
MW-19C	4/19/2004	70-80	75	41.0	19.40	66.86	47.46	2.14	0.052
MW-19B	7/30/2004	29-39	34.0		22.21	66.67	44.46		
MW-19C	7/30/2004	70-80	75	41.0	20.57	66.86	46.29	1.83	0.045
<b>Avg Vertical Gradient:</b>									<b>0.049</b>

**Notes:**

All measurements in feet.

Elevations relative to mean sea level.

Negative gradients indicate downward flow potential, positive gradients indicate upward flow potential.

Screen Midpoint = middle of the screen for wells with water levels above the top of the screen or is the midpoint between the water level and bottom of the screen for wells with water levels below the top of the well screen.