

OTTER CREEK MINE, PERMIT ID: C2012018 Exhibit 314C Appendix B
Groundwater Flow Model Development, Calibration, and Mine Dewatering Simulation

Table 4-2. Calibration Targets and Steady-State Calibration Results

Well ID	Source	Layer No.	Hydrostratigraphic Unit	Date/Description of Observed Head	Observed Head (ft)	Targeted Residual (ft)	Computed Head (ft)	Residual Head (ft)	Level 1 Cal. (Y/N)
7409	GWIC	1	Bedrock, Knobloch	Driller's Log	3212.00	30	3212.14	-0.14	Y
B12-UK1	Arch Coal	1	Knobloch	6/10/2014	3180.76	15	3191.41	-10.65	Y
A4	Arch Coal	1	Alluvium	10/18/2011	3166.83	15	3157.43	9.40	Y
7421	GWIC	1	Knobloch	Driller's Log	3153.00	30	3147.09	5.91	Y
B8-KU	Arch Coal	1	Knobloch	10/18/2011	3144.94	15	3124.08	20.87	N
B7-KU	Arch Coal	1	Knobloch	10/17/2011	3143.78	15	3143.83	-0.05	Y
7770 - WO-8	GWIC	1	Alluvium	MBMG Monitored, 10/17/2011	3141.86	30	3137.67	4.19	Y
7772 - WO-9	GWIC	1	Alluvium	MBMG Monitored, 10/17/2011	3140.36	30	3137.27	3.09	Y
215085 - WO-11	GWIC	1	Alluvium	MBMG Monitored, 10/17/2011	3137.86	30	3136.94	0.92	Y
7778 - WO-7	GWIC	1	Alluvium	MBMG Monitored, 10/17/2011	3135.76	30	3138.09	-2.33	Y
7783 - WO-4	GWIC	1	Alluvium	MBMG Monitored, 10/17/2011	3132.14	30	3136.50	-4.36	Y
B10-KU	Arch Coal	1	Knobloch	10/17/2011	3132.08	15	3124.18	7.91	Y
A5	Arch Coal	1	Alluvium	10/18/2011	3131.25	15	3121.59	9.66	Y
B6-K	Arch Coal	1	Knobloch	10/19/2011	3108.05	10	3104.99	3.06	Y
A3	Arch Coal	1	Alluvium	10/18/2011	3100.23	5	3099.39	0.84	Y
B4-K	Arch Coal	1	Knobloch	10/20/2011	3092.15	10	3083.90	8.24	Y
100472	GWIC	1	Knobloch	MBMG monitored, hydrograph	3086.50	30	3069.38	17.12	Y
K-3	Arch Coal	1	Knobloch	10/25/2011	3072.32	10	3077.95	-5.64	Y
A7	Arch Coal	1	Alluvium	10/21/2011	3071.44	5	3075.07	-3.63	Y
K-6	Arch Coal	1	Knobloch	10/25/2011	3068.01	10	3076.23	-8.22	Y
AVF4-1	Arch Coal	1	Alluvium	10/19/2011	3065.25	5	3067.12	-1.87	Y
B11-K	Arch Coal	1	Knobloch	10/18/2011	3059.46	10	3066.42	-6.96	Y
100476	GWIC	1	Knobloch	Driller's Log	3059.00	30	3071.66	-12.66	Y
A2	Arch Coal	1	Alluvium	10/18/2011	3052.06	15	3072.22	-20.16	N
A6	Arch Coal	1	Alluvium	10/21/2011	3045.45	5	3046.15	-0.70	Y
K-1	Arch Coal	1	Knobloch	10/21/2011	3045.24	10	3047.27	-2.03	Y
K-5	Arch Coal	1	Knobloch	10/21/2011	3042.77	10	3038.03	4.74	Y
B5-K	Arch Coal	1	Knobloch	10/19/2011	3042.40	10	3036.01	6.39	Y
AVF3-4	Arch Coal	1	Alluvium	10/21/2011	3038.37	5	3038.63	-0.27	Y
C-4	Arch Coal	1	Clinker	10/21/2011	3037.90	10	3037.27	0.63	Y
B9-K	Arch Coal	1	Knobloch	10/19/2011	3036.84	15	3035.94	0.91	Y
B2-K	Arch Coal	1	Knobloch	10/26/2011	3036.03	15	3044.38	-8.35	Y
B3-K	Arch Coal	1	Knobloch	10/25/2011	3028.70	10	3028.39	0.31	Y
AVF6-1	Arch Coal	1	Alluvium	10/18/2011	3025.98	15	3030.79	-4.81	Y
A1	Arch Coal	1	Alluvium	10/18/2011	3025.95	5	3028.80	-2.85	Y
C-2	Arch Coal	1	Clinker	10/18/2011	3025.84	10	3018.69	7.15	Y
C-3	Arch Coal	1	Clinker	10/18/2011	3025.82	10	3032.97	-7.15	Y
C-1	Arch Coal	1	Clinker	10/25/2011	3025.52	10	3023.58	1.94	Y
183560	GWIC	1	Alluvium	MBMG monitored, 10/8/2013	3024.40	30	3026.15	-1.75	Y
AVF5-1	Arch Coal	1	Alluvium	10/21/2011	3021.75	15	3026.51	-4.76	Y
A8	Arch Coal	1	Alluvium	6/18/2014	3019.86	5	3017.90	1.96	Y
7574	GWIC	1	Alluvium	MBMG monitored, 9/26/2013	3017.34	30	3013.88	3.46	Y
7573 - WO-15	GWIC	1	Alluvium	MBMG monitored, 9/26/2013	3014.00	30	3013.31	0.69	Y
7569 - WO-13	GWIC	1	Alluvium	MBMG monitored, hydrograph	3012.00	30	3013.45	-1.45	Y
AVF2-6	Arch Coal	1	Alluvium	10/21/2011	3004.65	5	3004.79	-0.14	Y
AVF2-4	Arch Coal	1	Alluvium	10/21/2011	2999.33	5	2999.66	-0.33	Y
AVF1-3	Arch Coal	1	Alluvium	10/21/2011	2971.07	5	2971.37	-0.30	Y
AVF1-1	Arch Coal	1	Alluvium	10/21/2011	2969.51	5	2972.76	-3.25	Y
172987	GWIC	1	Alluvium	Driller's Log	2956.00	30	2956.28	-0.28	Y
187111	GWIC	1	Alluvium/Knobloch	Driller's Log	2935.00	30	2933.31	1.69	Y
A9	Arch Coal	1	Alluvium	7/8/2014	2925.23	5	2930.01	-4.78	Y
B12-KL	Arch Coal	3	Knobloch	6/16/2014	3156.53	15	3191.41	-34.88	N
7781 - WO-2	GWIC	3	Knobloch	MBMG Monitored, 10/17/2011	3144.68	30	3146.78	-2.10	Y
7782 - WO-3	GWIC	3	Knobloch	MBMG Monitored, 10/17/2011	3141.11	30	3146.78	-5.67	Y
B7-KL	Arch Coal	3	Knobloch	10/17/2011	3129.56	15	3143.80	-14.24	Y
B10-KL	Arch Coal	3	Knobloch	10/17/2011	3120.81	15	3121.09	-0.28	Y
K-2	Arch Coal	3	Knobloch	10/25/2011	3077.16	15	3076.21	0.95	Y
K-4	Arch Coal	3	Knobloch	10/25/2011	3076.72	15	3077.47	-0.75	Y
B8-KL	Arch Coal	3	Knobloch	10/25/2011	3049.99	15	3123.69	-73.70	N
224810	GWIC	6	Underburden	Driller's Log	3172.00	30	3187.18	-15.18	Y
7780-WO-1	GWIC	6	Underburden	MBMG Monitored, 10/17/2011	3153.50	30	3145.55	7.95	Y
B12-U	Arch Coal	6	Underburden	6/10/2014	3146.72	15	3144.64	2.08	Y
103164	GWIC	6	Underburden	Driller's Log	3140.00	30	3135.45	4.55	Y
B7-U	Arch Coal	6	Underburden	10/17/2011	3123.01	15	3125.05	-2.04	Y
175228	GWIC	6	Underburden	Driller's Log	3120.00	30	3137.68	-17.68	Y
B6-U	Arch Coal	6	Underburden	10/19/2011	3084.67	15	3076.90	7.77	Y
B11-U	Arch Coal	6	Underburden	10/18/2011	3074.75	15	3068.94	5.81	Y
B4-U	Arch Coal	6	Underburden	10/19/2011	3058.43	15	3054.60	3.83	Y
204774	GWIC	6	Underburden	Driller's Log	3049.00	30	3037.38	11.62	Y
100492	GWIC	6	Underburden	Driller's Log	3045.00	30	3071.91	-26.91	Y
B1-U	Arch Coal	6	Underburden	10/25/2011	3037.03	15	3040.11	-3.08	Y
B9-U	Arch Coal	6	Underburden	10/19/2011	3031.04	15	3037.98	-6.94	Y
B3-U	Arch Coal	6	Underburden	10/25/2011	3025.68	15	3038.29	-12.61	Y
B2-U	Arch Coal	6	Underburden	10/26/2011	2989.12	15	2996.43	-7.31	Y
GNP PSW2	Arch Coal/GWIC	6	Underburden	8/24/2011	2952.00	15	2959.95	-7.95	Y
B10-U	Arch Coal	8	Underburden	10/17/2011	3116.92	15	3117.08	-0.16	Y
GNP PSW1	Arch Coal/GWIC	8	Underburden	8/16/2011	3080.00	15	3090.27	-10.27	Y
B8-U	Arch Coal	8	Underburden	10/18/2011	3077.12	15	3069.37	7.75	Y
176635	GWIC	8	Underburden	Driller's Log	3075.00	30	3052.68	22.32	Y
B5-U	Arch Coal	8	Underburden	10/19/2011	3065.99	15	3076.04	-10.05	Y
236191	GWIC	8	Underburden	Driller's Log	3046.00	30	3063.54	-17.54	Y
Residual Mean								-2.39	ft
Absolute Residual Mean								7.22	ft
Residual Standard Deviation								12.13	
Sum of Squared Residuals								12,238.20	
Minimum Residual								-73.70	ft
Maximum Residual								22.32	ft
Range of Observed Water Levels								286.77	ft
Residual Standard Deviation/Range in Observed Water Levels								0.04	