

APPENDIX D

Coal Bed Methane Parameters Used to Evaluate Potential Impacts to Surface Water Quality

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Sub-watershed	Stream Gauge Location	Alternative	Wyoming Input						Montana Input					
			WY Number of CBM Wells	Average CBM Well Discharge Rate (gpm)	Managed Water Loss (percent)	Channel Loss (percent)	CBM Produced Water EC (uS/cm)	CBM Produced Water SAR	MT Number of CBM Wells	Average CBM Well Discharge Rate (gpm)	Managed Water Loss (percent)	Channel Loss (percent)	CBM Produced Water EC (uS/cm)	CBM Produced Water SAR
Wyoming Streams														
Upper Belle Fourche	Belle Fourche River below Moorcroft, WY	1	7,630	7.0	49.0	20	970	8.2	NA	NA	NA	NA	NA	NA
		2A			35.5									
		2B			35.5									
		3			49.0									
Antelope Creek	Antelope Creek near Teckla, WY	1	925	11.9	39.8	20	905	7.1	NA	NA	NA	NA	NA	NA
		2A			35.5									
		2B			36.3									
		3			39.8									
Upper Cheyenne	Cheyenne River near Riverview, WY	1	546	9.6	39.8	20	599	6.4	NA	NA	NA	NA	NA	NA
		2A			35.5									
		2B			36.3									
		3			39.8									
Upper Powder River	Powder River near Arvada, WY	1	15,822	6.2	22.8	20	2163	19.5	NA	NA	NA	NA	NA	NA
		2A			61.0									
		2B			64.0									
		3			22.8									
Clear Creek	Clear Creek near Arvada, WY	1	2,257	6.2	59.0	20	3022	29.2	NA	NA	NA	NA	NA	NA
		2A			84.5									
		2B			87.5									
		3			59.0									
Crazy Woman Creek	Crazy Woman Creek near Arvada, WY	1	1,853	6.2	29.3	20	3129	24.8	NA	NA	NA	NA	NA	NA
		2A			84.5									
		2B			88.3									
		3			29.3									
Salt Creek	Salt Creek near Sussex, WY	1	37	6.2	39.8	20	1415	9.7	NA	NA	NA	NA	NA	NA
		2A			89.5									
		2B			92.5									
		3			39.8									
Wyoming/Montana Streams														
Upper Tongue River	Tongue River at Stateline near Decker, MT	1	1,948	6.2	58.3	20	2406	38.7	530	6.2	71.0	20	2406	47
		2A			85.3									
		2B			88.3									
		3			58.3									
Middle Powder	Powder River near Moorhead, MT	1	21,047	6.2	28.1	20	2370	21.8	568	6.2	100	20	3042	41.9
		2A			65.9						0			
		2B			68.9						0			
		3			28.1						0			
Little Powder River	Little Powder River near Weston, WY	1	2,543	6.2	33.5	20	1271	11.1	0	NA	NA	NA	NA	NA
		2A			53.3									
		2B			56.3									
		3			33.5									

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Montana Streams															
Upper Tongue River	Tongue River at Stateline near Decker, MT	A	1,948	6.2	85.3	20	2406	38.7	120	6.2	0.0	20	2207 - 2406	38.7 - 47.0	
		C							530		0				
		D							530		0				
		E							120		0.0				
	Tongue River at Birney Day School, near Birney, MT	A	1,948	6.2	85.3	20	2406	38.7	2,424	6.2	87.7	20	2207 - 2406	38.7 - 47.0	
		C							0						
		D							0						
		E							87.7						
Lower Tongue River	Tongue River below Brandenburg Bridge near Ashland, MT	A	1,948	6.2	85.3	20	2406	38.7	4,935	6.2	93.9	20	2207 - 2406	38.7 - 47.0	
		C							0						
		D							0						
		E							93.9						
Middle Powder River	Powder River at Moorhead, MT	A	21,047	6.2	65.9	20	2370	21.8	568	6.2	100	20	2077 - 3042	24.8 - 41.9	
		C							0						
		D							0						
		E							0						
Lower Powder River	Powder River at Locate, MT	A	21,047	6.2	65.9	20	2370	21.8	1,308	6.2	100	20	2077 - 3042	24.8 - 41.9	
		C							0						
		D							0						
		E							0						
Mizpah Creek	Mizpah Creek at Mizpah, MT	A	NA	NA	NA	NA	NA	NA	66	6.2	100	20	1271 - 2077	11.1 - 24.8	
		C							0						
		D							0						
		E							0						
Little Bighorn River	Little Bighorn River at Stateline near Wyola, MT	A	NA	NA	NA	NA	NA	NA	472	6.2	100	20	2207 - 2406	38.7 - 47.0	
		C							0						
		D							0						
		E							0						
	Little Bighorn River near Hardin, MT	A	NA	NA	NA	NA	NA	NA	NA	944	6.2	100	20	2207 - 2406	38.7 - 47.0
		C								0					
		D								0					
		E								0					
Bighorn River	Bighorn River at Bighorn, MT	A	NA	NA	NA	NA	NA	NA	1,737	6.2	100	20	2207 - 2406	38.7 - 47.0	
		C							0						
		D							0						
		E							0						
Rosebud Creek	Rosebud Creek at Reservation boundary, near Kirby, MT	A	NA	NA	NA	NA	NA	NA	1,821	6.2	100	20	2207 - 2406	38.7 - 47.0	
		C							0						
		D							0						
		E							100						
	Rosebud Creek at mouth, near Rosebud, MT	A	NA	NA	NA	NA	NA	NA	NA	3,642	6.2	100	20	2207 - 2406	38.7 - 47.0
		C								0					
		D								0					
		E								100					

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Lower Yellowstone-Sunday	Yellowstone River at Forsyth, MT	A	NA	NA	NA	NA	NA	NA	2,756	6.2	100	20	2207 - 2406	38.7 - 47.0
		C									0			
		D									0			
		E									0			
Lower Yellowstone	Yellowstone River near Sidney, MT	A	25,538	6.2	83.9	20	2406	38.7	4,064	6.2	100	20	2207 - 2406	38.7 - 47.0
		C									0			
		D									0			
		E									0			