

APPENDIX A
SUPPORTING FIGURES AND TABLES

Table A-1
Coal Mine-related Disturbance in the Wyoming PRB Study Area
(based on GIS)

Area	Disturbance (acreage as of end 2003)
Disturbance by Subregion	
Subregion 1	8,968
Subregion 2	14,628
Subregion 3	27,511
Total	51,107
Disturbance by Subwatershed	
Little Powder River	8,018
Antelope Creek	13,785
Upper Cheyenne River	13,726
Upper Belle Fourche River	15,578
Total	51,107

Table A-2
Wyoming PRB Coal Development by Subregion
Impact-causing Parameters under the Lower Production Scenario
(based on database)

Subregion	Annual Production for Most Recent Report Year (million tons)	Cumulative Disturbed Area for Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Available for Reclamation through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Unavailable for Reclamation through Most Recent Report Year (acres)	Total Employment for Report Year	Annual Water Consumption (mmgpy)	Annual Water Production (acre-feet)
Past and Present (2003)								
Subregion 1	55	12,047	3,054	3,360	5,633	746	387	586
Subregion 2	77	21,249	6,783	6,107	8,359	861	544	1,373
Subregion 3	232	35,498	11,401	13,992	10,105	3,090	1,709	2,295
Total for Past and Present	364	68,794	21,238	23,459	24,097	4,697	2,640	4,254
Reasonably Foreseeable Development (2010)								
Subregion 1	62	34,049	5,154	10,592	18,303	787	441	505
Subregion 2	95	56,590	12,509	20,424	23,657	1,323	656	2,072
Subregion 3	254	105,093	27,751	44,109	33,153	6,253	1,874	4,354
Total for 2010	411	195,652	45,414	75,125	75,113	8,363	2,971	6,931
Reasonably Foreseeable Development (2015)								
Subregion 1	74	46,575	6,804	14,482	25,289	830	543	505
Subregion 2	112	76,003	16,009	28,078	31,916	1,369	764	2,072
Subregion 3	281	144,686	38,851	60,306	45,529	3,186	2,077	4,354
Total for 2015	467	267,264	61,664	102,866	102,734	5,405	3,384	6,931
Reasonably Foreseeable Development (2020)								
Subregion 1	78	59,723	8,629	18,566	32,528	840	569	505
Subregion 2	126	96,544	20,009	36,086	40,459	1,476	845	2,072
Subregion 3	291	186,554	51,351	77,314	57,889	3,215	2,157	4,354
Total for 2020	495	342,831	79,989	131,966	130,876	5,531	3,571	6,931

Table A-3
Wyoming PRB Coal Development by Subregion
Impact-causing Parameters under the Upper Production Scenario
(based on database)

Subregion	Annual Production for Most Recent Report Year (million tons)	Cumulative Disturbed Area for Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year(acres)	Cumulative Unreclaimed Areas Available for Reclamation through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Unavailable for Reclamation through Most Recent Report Year (acres)	Total Employment for Report Year	Annual Water Consumption (mmgy)	Annual Water Production (acre-feet)
Past and Present (2003)								
Subregion 1	55	12,047	3,054	3,360	5,633	746	387	586
Subregion 2	77	21,249	6,783	6,107	8,359	861	544	1,373
Subregion 3	232	35,498	11,401	13,992	10,105	3,090	1,709	2,295
Total for Past and Present	364	68,794	21,238	23,459	24,097	4,697	2,640	4,254
Reasonably Foreseeable Development (2010)								
Subregion 1	78	34,520	5,404	10,592	18,524	811	570	505
Subregion 2	117	58,116	12,983	20,513	24,620	1,375	807	2,072
Subregion 3	284	107,103	27,951	44,109	35,043	3,153	2,101	4,354
Total for 2010	479	199,739	46,338	75,215	78,187	5,339	3,478	6,931
Reasonably Foreseeable Development (2015)								
Subregion 1	104	47,521	7,329	14,482	25,710	905	785	505
Subregion 2	138	80,416	18,183	28,259	33,974	1,431	952	2,072
Subregion 3	301	149,584	39,451	60,306	49,827	3,186	1,834	4,354
Total for 2015	543	277,521	64,963	103,047	109,511	5,522	3,571	6,931
Reasonably Foreseeable Development (2020)								
Subregion 1	121	61,288	9,529	18,566	33,193	1,019	935	505
Subregion 2	148	104,873	24,583	36,393	43,897	1,444	1,018	2,072
Subregion 3	307	194,933	51,651	77,314	65,968	3,215	2,279	4,354
Total for 2020	576	361,094	85,763	132,273	143,058	5,678	4,232	6,931

Table A-4
Montana PRB Coal Development by Subregion
Impact-causing Parameters under the Lower Production Scenario
(based on database)

Subregion	Annual Production for Most Recent Report Year (million tons)	Cumulative Disturbed Area for Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Available for Reclamation through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Unavailable for Reclamation through Most Recent Report Year (acres)	Total Employment for Report Year	Annual Water Consumption (mmgpy)	Annual Water Production (acre-feet)
Past and Present (2003)								
Subregion 4	17	9,581	2,474	3,677	3,430	277	122	0
Subregion 5	19.1	22,037	11,318	7,831	2,888	456	141	0
Total for Past and Present	36.1	31,618	13,792	11,508	6,318	733	263	0
Reasonably Foreseeable Development (2010)								
Subregion 4	21	29,310	3,614	15,226	10,470	316	151	0
Subregion 5	20	64,393	15,718	39,981	8,694	432	144	0
Total for 2010	41	93,703	19,332	55,207	19,164	748	295	0
Reasonably Foreseeable Development (2015)								
Subregion 4	28	39,815	4,764	20,821	14,230	400	202	0
Subregion 5	20	84,252	18,924	53,716	11,612	411	144	0
Total for 2015	48	124,067	23,688	74,537	25,842	811	346	0
Reasonably Foreseeable Development (2020)								
Subregion 4	36	50,928	6,089	26,389	18,450	492	260	0
Subregion 5	20	103,309	22,303	67,067	13,939	391	144	0
Total for 2020	56	154,237	28,392	93,456	32,389	883	404	0

Table A-5
Montana PRB Coal Development by Subregion
Impact-causing Parameters under the Upper Production Scenario
(based on database)

Subregion	Annual Production for Most Recent Report Year (million tons)	Cumulative Disturbed Area for Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Available for Reclamation through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas Unavailable for Reclamation through Most Recent Report Year (acres)	Total Employment for Report Year	Annual Water Consumption (mmgpy)	Annual Water Production (acre-feet)
Past and Present (2003)								
Subregion 4	17	9,581	2,474	3,677	3,430	277	122	0
Subregion 5	19.1	22,037	11,318	7,831	2,888	456	141	0
Total for Past and Present	36.1	31,618	13,792	11,508	6,318	733	263	0
Reasonably Foreseeable Development (2010)								
Subregion 4	27	29,686	3,614	15,602	10,470	372	195	0
Subregion 5	24	64,713	15,718	40,151	8,844	476	174	0
Total for 2010	51	94,399	19,332	55,753	19,314	848	369	0
Reasonably Foreseeable Development (2015)								
Subregion 4	35	40,737	4,764	21,743	14,230	444	252	0
Subregion 5	39	85,823	18,880	54,831	12,112	707	282	0
Total for 2015	74	126,560	23,644	76,574	26,342	1151	534	0
Reasonably Foreseeable Development (2020)								
Subregion 4	42	52,541	6,089	28,002	18,450	491	302	0
Subregion 5	41	108,343	22,302	70,852	15,189	676	296	0
Total for 2020	83	160,884	28,391	98,854	33,639	1167	598	0

Table A-6
Total Past and Present Development-related Disturbance in the Wyoming PRB by
Subwatershed
(based on GIS)

Subwatershed	Total Disturbance (acres)
Little Bighorn River	64
Upper Tongue River	3,574
Middle Fork Powder River	259
North Fork Powder River	0
Upper Powder River	12,444
South Fork Powder River	313
Salt Creek	1,225
Crazy Woman Creek	494
Clear Creek	4,405
Middle Powder River	2,297
Little Powder River	17,896
Little Missouri River	163
Antelope Creek	19,807
Dry Fork Cheyenne River	1,684
Upper Cheyenne River	16,656
Lightning Creek	2,900
Upper Belle Fourche River	37,148
Middle North Platte River	561
Total	121,890

**Table A-7
Wyoming PRB Development-related Impact-causing Parameters
Under the Lower Production Scenario
(based on database)**

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
Past and Present (most recent data from 2002 or 2003, as available)							
Antelope Creek	110	831,582	31,887	28,610	12,226	18,198	1,386
Clear Creek	0	17,042	5	7,840	3,281	4,559	0
Crazy Woman Creek	0	0	0	1,916	1,416	501	0
Dry Fork Cheyenne River	0	398,311	10,277	3,423	1,681	1,742	0
Lightning Creek	0	508,091	983	5,350	2,237	3,113	0
Little Bighorn River	0	108,053	0	88	24	65	0
Little Missouri River	0	0	0	630	465	164	0
Little Powder River	50	2,961,036	39,619	43,178	25,650	19,582	676
Middle North Platte River	0	160,366	0	1,876	1,611	265	0
Middle Powder River	0	0	0	703	383	319	0
Middle Fork Powder River	0	428,817	18,756	7,509	4,472	3,037	0
North Fork Powder River	0	0	0	88	88	0	0
Salt Creek	0	171,352	28	3,396	1,963	1,432	0
South Fork Powder River	0	85,143	1	1,029	696	333	0
Upper Belle Fourche River	81	0	0	34,083	14,089	22,096	1,001
Upper Cheyenne River	122	153,924	26,899	27,604	8,699	15,794	1,704
Upper Powder River	0	2,305,549	65,143	34,839	20,774	14,065	0
Upper Tongue River	0	18,076	35,389	13,113	7,497	5,616	0
Total for Past and Present	363	8,147,342	228,988	215,275	107,254	110,880	4,767
Reasonably Foreseeable Development (2010)							
Antelope Creek	121	699,364	124,760	77,277	34,957	48,580	1,399
Clear Creek	0	34,084	169	20,695	11,187	9,508	0

Table A-7 (Continued)

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
Crazy Woman Creek	0	12,808	35,756	11,141	6,926	4,215	0
Dry Fork Cheyenne River	0	381,362	28,179	9,189	5,682	3,507	0
Lightning Creek	0	298,985	24,237	12,253	7,510	4,744	0
Little Bighorn River	0	0	0	88	24	65	0
Little Missouri River	0	179,312	552	1,163	905	258	0
Little Powder River	57	4,178,501	51,147	72,365	45,187	37,813	709
Middle North Platte River	0	276,996	321	2,174	1,846	328	0
Middle Powder River	0	250,826	17,914	5,126	3,375	1,751	0
Middle Fork Powder River	0	531,616	34,655	12,455	7,920	4,535	0
North Fork Powder River	0	0	0	245	131	114	0
Salt Creek	0	186,403	329	3,050	2,051	999	0
South Fork Powder River	0	72,529	364	729	468	261	0
Upper Belle Fourche River	100	0	0	72,996	31,526	55,133	1,450
Upper Cheyenne River	133	54,368	27,425	63,994	20,280	42,856	1,721
Upper Powder River	0	1,894,972	181,584	78,135	50,712	27,254	0
Upper Tongue River	0	71,701	67,123	24,599	15,542	9,057	0
Total for 2010	411	9,123,826	594,513	467,676	246,228	250,977	5,279
Reasonably Foreseeable Development (2015)							
Antelope Creek	133	640,214	159,496	107,423	50,628	63,894	1,399
Clear Creek	0	29,824	168	31,251	20,073	11,178	0
Crazy Woman Creek	0	10,246	50,673	18,760	12,984	5,775	0
Dry Fork Cheyenne River	0	349,581	35,223	13,133	8,972	4,161	0
Lightning Creek	0	277,891	34,558	17,260	11,848	5,412	0
Little Bighorn River	0	0	0	51	24	27	0
Little Missouri River	0	158,820	489	1,284	1,042	242	0
Little Powder River	69	3,807,528	46,315	90,844	60,168	45,588	709
Middle North Platte River	0	247,838	413	2,317	1,993	324	0
Middle Powder River	0	224,142	22,279	7,786	5,532	2,254	0
Middle Fork Powder River	0	496,370	37,371	16,781	11,989	4,792	0

Table A-7 (Continued)

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
North Fork Powder River	0	0	0	182	114	68	0
Salt Creek	0	177,720	557	3,362	2,368	993	0
South Fork Powder River	0	67,799	340	770	516	255	0
Upper Belle Fourche River	117	0	0	93,423	40,993	71,909	1,450
Upper Cheyenne River	148	52,249	21,868	84,945	27,445	57,079	1,721
Upper Powder River	0	1,723,898	213,672	110,829	80,175	30,485	0
Upper Tongue River	0	64,471	73,699	33,066	24,349	8,717	0
Total for 2015	467	8,328,592	697,121	633,467	361,214	313,154	5,279
Reasonably Foreseeable Development (2020)							
Antelope Creek	137	581,064	180,836	140,035	67,528	79,301	1,399
Clear Creek	0	25,563	164	43,292	30,611	12,682	0
Crazy Woman Creek	0	10,246	60,920	26,908	20,060	6,848	0
Dry Fork Cheyenne River	0	317,801	39,675	17,421	12,724	4,697	0
Lightning Creek	0	257,714	41,878	23,042	16,839	6,203	0
Little Bighorn River	0	0	0	51	24	27	0
Little Missouri River	0	140,888	434	1,383	1,153	230	0
Little Powder River	71	3,436,555	40,484	110,376	75,610	54,070	709
Middle North Platte River	0	218,681	573	2,443	2,112	331	0
Middle Powder River	0	197,459	24,947	10,562	7,977	2,585	0
Middle Fork Powder River	0	461,125	37,865	21,285	16,432	4,853	0
North Fork Powder River	0	0	0	88	88	0	0
Salt Creek	0	168,458	670	3,740	2,680	1,059	0
South Fork Powder River	0	63,069	316	817	558	259	0
Upper Belle Fourche River	133	0	0	116,102	50,759	90,388	1,450
Upper Cheyenne River	154	50,131	16,359	106,754	34,582	71,917	1,721
Upper Powder River	0	1,555,456	228,783	145,257	112,845	32,242	0
Upper Tongue River	0	56,638	78,251	43,636	34,453	9,183	0
Total for 2020	495	7,540,849	752,156	813,193	487,036	376,874	5,279

Table A-7 (Continued)

Subwatershed	Annual Water Consumption ² (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Past and Present (most recent data from 2002 or 2003, as available)									
Antelope Creek	763	1,768	713	0	0	453	65	0	65
Clear Creek	0	374	93	0	37	131	19	56	37
Crazy Woman Creek	0	0	0	0	0	0	0	0	0
Dry Fork Cheyenne River	0	1	0	0	0	0	0	0	0
Lightning Creek	0	16	4	0	2	6	1	2	2
Little Bighorn River	0	212	53	0	21	74	11	32	21
Little Missouri River	0	0	0	0	0	0	0	0	0
Little Powder River	359	4,722	2,039	0	0	1,359	453	453	227
Middle North Platte River	0	314	78	0	31	110	16	47	31
Middle Powder River	0	0	0	0	0	0	0	0	0
Middle Fork Powder River	0	1,173	411	59	59	352	117	117	59
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	231	58	0	23	81	12	35	23
South Fork Powder River	0	99	25	0	10	35	5	15	10
Upper Belle Fourche River	660	447	0	0	0	0	0	0	0
Upper Cheyenne River	946	1,366	600	0	0	382	55	0	55
Upper Powder River	0	5,370	1,880	0	537	2,148	269	269	269
Upper Tongue River	0	2,727	0	682	136	1,227	273	136	273
Total for Past and Present	2,728	18,820	5,953	740	857	6,358	1,293	1,162	1,070
Reasonably Foreseeable Development (2010)									
Antelope Creek	842	9,875	4,937	0	0	3,142	0	0	449
Clear Creek	0	3,051	763	0	305	1,068	0	458	305
Crazy Woman Creek	0	29	10	0	3	9	0	4	2
Dry Fork Cheyenne River	0	1,248	312	0	125	437	0	187	125
Lightning Creek	0	1,557	389	0	156	545	0	234	156
Little Bighorn River	0	0	0	0	0	0	0	0	0

Table A-7 (Continued)

Subwatershed	Annual Water Consumption ² (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Little Missouri River	0	59	15	0	6	21	0	9	6
Little Powder River	412	6,217	2,723	0	0	1,816	1	605	303
Middle North Platte River	0	563	141	0	56	197	0	84	56
Middle Powder River	0	918	229	0	92	321	0	138	92
Middle Fork Powder River	0	2,162	757	108	108	648	0	216	108
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	270	68	0	27	95	0	41	27
South Fork Powder River	0	89	22	0	9	31	0	13	9
Upper Belle Fourche River	773	675	0	0	0	0	0	0	0
Upper Cheyenne River	1,032	1,658	626	0	0	398	0	0	57
Upper Powder River	0	15,343	5,370	0	1,534	6,137	1	767	767
Upper Tongue River	0	4,477	0	1,119	224	2,015	0	224	448
Total for 2010	3,059	48,191	16,362	1,227	2,645	16,879	3	2,980	2,908
Reasonably Foreseeable Development (2015)									
Antelope Creek	925	12,763	6,525	0	0	4,152	593	0	593
Clear Creek	0	4,149	1,037	0	415	1,452	207	622	415
Crazy Woman Creek	0	39	14	0	4	12	2	6	2
Dry Fork Cheyenne River	0	1,766	441	0	177	618	88	265	177
Lightning Creek	0	2,234	559	0	223	782	112	335	223
Little Bighorn River	0	0	0	0	0	0	0	0	0
Little Missouri River	0	52	13	0	5	18	3	8	5
Little Powder River	514	5,658	2,472	0	0	1,648	549	549	275
Middle North Platte River	0	512	128	0	51	179	26	77	51
Middle Powder River	0	1,230	308	0	123	431	62	185	123
Middle Fork Powder River	0	2,329	815	116	116	699	233	233	116
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	274	68	0	27	96	14	41	27
South Fork Powder River	0	84	21	0	8	29	4	13	8
Upper Belle Fourche River	881	675	0	0	0	0	0	0	0

Table A-7 (Continued)

Subwatershed	Annual Water Consumption ² (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Upper Cheyenne River	1,152	1,425	498	0	0	317	45	0	45
Upper Powder River	0	18,096	6,334	0	1,810	7,238	905	905	905
Upper Tongue River	0	4,899	0	1,225	245	2,204	490	245	490
Total for 2015	3,472	56,184	19,233	1,341	3,205	19,876	3,332	3,483	3,456
Reasonably Foreseeable Development (2020)									
Antelope Creek	953	14,572	7,520	0	0	4,786	684	0	684
Clear Creek	0	4,973	1,243	0	497	1,740	249	746	497
Crazy Woman Creek	0	46	16	0	5	14	2	7	2
Dry Fork Cheyenne River	0	2,101	525	0	210	735	105	315	210
Lightning Creek	0	2,715	679	0	271	950	136	407	271
Little Bighorn River	0	0	0	0	0	0	0	0	0
Little Missouri River	0	46	12	0	5	16	2	7	5
Little Powder River	529	5,029	2,189	0	0	1,459	486	486	243
Middle North Platte River	0	465	116	0	47	163	23	70	47
Middle Powder River	0	1,432	358	0	143	501	72	215	143
Middle Fork Powder River	0	2,359	826	118	118	708	236	236	118
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	269	67	0	27	94	13	40	27
South Fork Powder River	0	78	20	0	8	27	4	12	8
Upper Belle Fourche River	973	675	0	0	0	0	0	0	0
Upper Cheyenne River	1,204	1,194	371	0	0	236	34	0	34
Upper Powder River	0	19,400	6,790	0	1,940	7,760	970	970	970
Upper Tongue River	0	5,187	0	1,297	259	2,334	519	259	519
Total for 2020	3,659	60,539	20,731	1,415	3,530	21,524	3,535	3,770	3,777

¹ Natural gas produced by conventional gas and CBNG wells.

² Based on coal mine information, with the exception of 70 power plant-related employees identified in the Upper Belle Fourche River subwatershed numbers.

³ Includes coal mine and CBNG water production.

⁴ Represents CBNG-related water discharge.

Table A-8
Wyoming PRB Development-related Impact-causing Parameters
Under the Upper Production Scenario
(based on database)

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
Past and Present (most recent data from 2002 or 2003, as available)							
Antelope Creek	110	831,582	31,887	28,610	12,226	18,198	1,386
Clear Creek	0	17,042	5	7,840	3,281	4,559	0
Crazy Woman Creek	0	0	0	1,916	1,416	501	0
Dry Fork Cheyenne River	0	398,311	10,277	3,423	1,681	1,742	0
Lightning Creek	0	508,091	983	5,350	2,237	3,113	0
Little Bighorn River	0	108,053	0	88	24	65	0
Little Missouri River	0	0	0	630	465	164	0
Little Powder River	50	2,961,036	39,619	43,178	25,650	19,582	676
Middle North Platte River	0	160,366	0	1,876	1,611	265	0
Middle Powder River	0	0	0	703	383	319	0
Middle Fork Powder River	0	428,817	18,756	7,509	4,472	3,037	0
North Fork Powder River	0	0	0	88	88	0	0
Salt Creek	0	171,352	28	3,396	1,963	1,432	0
South Fork Powder River	0	85,143	1	1,029	696	333	0
Upper Belle Fourche River	81	0	0	34,083	14,089	22,096	1,001
Upper Cheyenne River	122	153,924	26,899	27,604	8,699	15,794	1,704
Upper Powder River	0	2,305,549	65,143	34,839	20,774	14,065	0
Upper Tongue River	0	18,076	35,389	13,113	7,497	5,616	0
Total for Past and Present	363	8,147,342	228,988	215,275	107,254	110,880	4,767
Reasonably Foreseeable Development (2010)							
Antelope Creek	127	699,364	124,760	78,344	36,024	49,647	1,399
Clear Creek	0	34,084	169	20,695	11,187	9,508	0
Crazy Woman Creek	0	12,808	35,756	11,141	6,926	4,215	0
Dry Fork Cheyenne River	0	381,362	28,179	9,189	5,682	3,507	0

Table A-8 (Continued)

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
Lightning Creek	0	298,985	24,237	12,253	7,510	4,744	0
Little Bighorn River	0	0	0	88	24	65	0
Little Missouri River	0	179,312	552	1,163	905	258	0
Little Powder River	70	4,178,501	51,147	72,791	45,363	37,989	732
Middle North Platte River	0	276,996	321	2,174	1,846	328	0
Middle Powder River	0	250,826	17,914	5,126	3,375	1,751	0
Middle Fork Powder River	0	531,616	34,655	12,455	7,920	4,535	0
North Fork Powder River	0	0	0	245	131	114	0
Salt Creek	0	186,403	329	3,050	2,051	999	0
South Fork Powder River	0	72,529	364	729	468	261	0
Upper Belle Fourche River	125	0	0	74,567	32,534	56,230	1,450
Upper Cheyenne River	157	54,368	27,425	65,017	21,103	43,679	1,721
Upper Powder River	0	1,894,972	181,584	78,135	50,712	27,254	0
Upper Tongue River	0	71,701	67,123	24,599	15,542	9,057	0
Total for 2010	479	9,123,826	594,513	471,763	249,302	254,140	5,302
Reasonably Foreseeable Development (2015)							
Antelope Creek	133	640,214	159,496	110,011	53,216	66,482	1,399
Clear Creek	0	29,824	168	31,251	20,073	11,178	0
Crazy Woman Creek	0	10,246	50,673	18,760	12,984	5,775	0
Dry Fork Cheyenne River	0	349,581	35,223	13,133	8,972	4,161	0
Lightning Creek	0	277,891	34,558	17,260	11,848	5,412	0
Little Bighorn River	0	0	0	51	24	27	0
Little Missouri River	0	158,820	489	1,284	1,042	242	0
Little Powder River	88	3,807,528	46,315	91,713	60,512	45,932	732
Middle North Platte River	0	247,838	413	2,317	1,993	324	0
Middle Powder River	0	224,142	22,279	7,786	5,532	2,254	0
Middle Fork Powder River	0	496,370	37,371	16,781	11,989	4,792	0
North Fork Powder River	0	0	0	182	114	68	0
Salt Creek	0	177,720	557	3,362	2,368	993	0
South Fork Powder River	0	67,799	340	770	516	255	0
Upper Belle Fourche River	154	0	0	97,913	43,128	74,225	1,450

Table A-8 (Continued)

Subwatershed	Annual Coal Production for Report Year (million tons)	Annual Oil Production for Report Year (barrels)	Annual Gas Production for Report Year ¹ (mmcf)	Cumulative Disturbance Through Most Recent Year (acres)	Cumulative Permanently Reclaimed Areas through Most Recent Report Year (acres)	Cumulative Unreclaimed Areas through Most Recent Report Year (acres)	Total Employment for Report Year ²
Upper Cheyenne River	168	52,249	21,868	87,255	29,155	58,789	1,721
Upper Powder River	0	1,723,898	213,672	110,829	80,175	30,485	0
Upper Tongue River	0	64,471	73,699	33,066	24,349	8,717	0
Total for 2015	543	8,328,592	697,121	643,724	367,991	320,112	5,302
Reasonably Foreseeable Development (2020)							
Antelope Creek	137	581,064	180,836	145,237	73,230	85,003	1,399
Clear Creek	0	25,563	164	43,292	30,611	12,682	0
Crazy Woman Creek	0	10,246	60,920	26,908	20,060	6,848	0
Dry Fork Cheyenne River	0	317,801	39,675	17,421	12,724	4,697	0
Lightning Creek	0	257,714	41,878	23,042	16,839	6,203	0
Little Bighorn River	0	0	0	51	24	27	0
Little Missouri River	0	140,888	434	1,383	1,153	230	0
Little Powder River	103	3,436,555	40,484	111,822	76,156	54,616	732
Middle North Platte River	0	218,681	573	2,443	2,112	331	0
Middle Powder River	0	197,459	24,947	10,562	7,977	2,585	0
Middle Fork Powder River	0	461,125	37,865	21,285	16,432	4,853	0
North Fork Powder River	0	0	0	88	88	0	0
Salt Creek	0	168,458	670	3,740	2,680	1,059	0
South Fork Powder River	0	63,069	316	817	558	259	0
Upper Belle Fourche River	166	0	0	124,540	54,316	94,252	1,450
Upper Cheyenne River	170	50,131	16,359	109,931	36,959	74,294	1,721
Upper Powder River	0	1,555,456	228,783	145,257	112,845	32,242	0
Upper Tongue River	0	56,638	78,251	43,636	34,453	9,183	0
Total for 2020	576	7,540,849	752,156	831,456	499,218	389,363	5,302

Table A-8 (Continued)

Subwatershed	Annual Water ² Consumption (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Past and Present (most recent data from 2002 or 2003, as available)									
Antelope Creek	763	1,768	713	0	0	453	65	0	65
Clear Creek	0	374	93	0	37	131	19	56	37
Crazy Woman Creek	0	0	0	0	0	0	0	0	0
Dry Fork Cheyenne River	0	1	0	0	0	0	0	0	0
Lightning Creek	0	16	4	0	2	6	1	2	2
Little Bighorn River	0	212	53	0	21	74	11	32	21
Little Missouri River	0	0	0	0	0	0	0	0	0
Little Powder River	359	4,722	2,039	0	0	1,359	453	453	227
Middle North Platte River	0	314	78	0	31	110	16	47	31
Middle Powder River	0	0	0	0	0	0	0	0	0
Middle Fork Powder River	0	1,173	411	59	59	352	117	117	59
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	231	58	0	23	81	12	35	23
South Fork Powder River	0	99	25	0	10	35	5	15	10
Upper Belle Fourche River	660	447	0	0	0	0	0	0	0
Upper Cheyenne River	946	1,366	600	0	0	382	55	0	55
Upper Powder River	0	5,370	1,880	0	537	2,148	269	269	269
Upper Tongue River	0	2,727	0	682	136	1,227	273	136	273
Total for Past and Present	2,728	18,820	5,953	740	857	6,358	1,293	1,162	1,070
Reasonably Foreseeable Development (2010)									
Antelope Creek	884	9,875	4,937	0	0	3,142	0	0	449
Clear Creek	0	3,051	763	0	305	1,068	0	458	305
Crazy Woman Creek	0	29	10	0	3	9	0	4	2
Dry Fork Cheyenne River	0	1,248	312	0	125	437	0	187	125
Lightning Creek	0	1,557	389	0	156	545	0	234	156
Little Bighorn River	0	0	0	0	0	0	0	0	0
Little Missouri River	0	59	15	0	6	21	0	9	6
Little Powder River	520	6,217	2,723	0	0	1,816	1	605	303
Middle North Platte River	0	563	141	0	56	197	0	84	56
Middle Powder River	0	918	229	0	92	321	0	138	92

Table A-8 (Continued)

Subwatershed	Annual Water ² Consumption (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Middle Fork Powder River	0	2,162	757	108	108	648	0	216	108
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	270	68	0	27	95	0	41	27
South Fork Powder River	0	89	22	0	9	31	0	13	9
Upper Belle Fourche River	945	675	0	0	0	0	0	0	0
Upper Cheyenne River	1,217	1,658	626	0	0	398	0	0	57
Upper Powder River	0	15,343	5,370	0	1,534	6,137	1	767	767
Upper Tongue River	0	4,477	0	1,119	224	2,015	0	224	448
Total for 2010	3,566	48,191	16,362	1,227	2,645	16,879	3	2,980	2,908
Reasonably Foreseeable Development (2015)									
Antelope Creek	925	12,763	6,525	0	0	4,152	593	0	593
Clear Creek	0	4,149	1,037	0	415	1,452	207	622	415
Crazy Woman Creek	0	39	14	0	4	12	2	6	2
Dry Fork Cheyenne River	0	1,766	441	0	177	618	88	265	177
Lightning Creek	0	2,234	559	0	223	782	112	335	223
Little Bighorn River	0	0	0	0	0	0	0	0	0
Little Missouri River	0	52	13	0	5	18	3	8	5
Little Powder River	681	5,658	2,472	0	0	1,648	549	549	275
Middle North Platte River	0	512	128	0	51	179	26	77	51
Middle Powder River	0	1,230	308	0	123	431	62	185	123
Middle Fork Powder River	0	2,329	815	116	116	699	233	233	116
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	274	68	0	27	96	14	41	27
South Fork Powder River	0	84	21	0	8	29	4	13	8
Upper Belle Fourche River	1,144	675	0	0	0	0	0	0	0
Upper Cheyenne River	909	1,425	498	0	0	317	45	0	45
Upper Powder River	0	18,096	6,334	0	1,810	7,238	905	905	905
Upper Tongue River	0	4,899	0	1,225	245	2,204	490	245	490
Total for 2015	3,659	56,184	19,233	1,341	3,205	19,876	3,332	3,483	3,456

Table A-8 (Continued)

Subwatershed	Annual Water ² Consumption (mmgpy)	Annual Water Production ³ (mmgpy)	Annual Water Disposal (Discharge Volume Direct) (mmgpy)	Annual Water Disposal (Passive Treatment) ⁴ (mmgpy)	Annual Water Disposal (Active Treatment) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Infiltration Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Discharge Volume to Containment Impoundments) ⁴ (mmgpy)	Annual Water Disposal (Land Application) ⁴ (mmgpy)	Annual Water Disposal (Injection) ⁴ (mmgpy)
Reasonably Foreseeable Development (2020)									
Antelope Creek	953	14,572	7,520	0	0	4,786	684	0	684
Clear Creek	0	4,973	1,243	0	497	1,740	249	746	497
Crazy Woman Creek	0	46	16	0	5	14	2	7	2
Dry Fork Cheyenne River	0	2,101	525	0	210	735	105	315	210
Lightning Creek	0	2,715	679	0	271	950	136	407	271
Little Bighorn River	0	0	0	0	0	0	0	0	0
Little Missouri River	0	46	12	0	5	16	2	7	5
Little Powder River	816	5,029	2,189	0	0	1,459	486	486	243
Middle North Platte River	0	465	116	0	47	163	23	70	47
Middle Powder River	0	1,432	358	0	143	501	72	215	143
Middle Fork Powder River	0	2,359	826	118	118	708	236	236	118
North Fork Powder River	0	0	0	0	0	0	0	0	0
Salt Creek	0	269	67	0	27	94	13	40	27
South Fork Powder River	0	78	20	0	8	27	4	12	8
Upper Belle Fourche River	1,225	675	0	0	0	0	0	0	0
Upper Cheyenne River	1,326	1,194	371	0	0	236	34	0	34
Upper Powder River	0	19,400	6,790	0	1,940	7,760	970	970	970
Upper Tongue River	0	5,187	0	1,297	259	2,334	519	259	519
Total for 2020	4,320	60,539	20,731	1,415	3,530	21,524	3,535	3,770	3,777

¹ Natural gas produced by conventional gas and CBNG wells.

² Based on coal mine information, with the exception of 70 power plant-related employees identified in the Upper Belle Fourche River subwatershed numbers.

³ Includes coal mine and CBNG water production.

⁴ Represents CBNG-related water discharge.