

**2016 Annual Report
Powder River Basin Controlled Groundwater Area
Technical Advisory Committee**

Introduction

The Powder River Basin Controlled Groundwater Area (PRBCGA) was established to protect existing water users from impacts resulting from coal bed methane (CBM) development. The Montana Board of Oil and Gas Conservation (MBOGC) implements the PRBCGA through regulations that require characterization, monitoring, and evaluation of ground-water conditions, and mitigation of impacts to existing water users.

A technical advisory committee (TAC) was established to oversee the ground-water characterization, monitoring, and evaluation requirements of the PRBCGA. TAC consists of five members selected by DNRC for their expertise in hydrogeology, water quality, and CBM extraction systems and operations. Two additional ex-officio members represent the CBM industry, and water user and conservation interests. In addition to overseeing monitoring and reporting requirements for individual fields, TAC is assigned to review groundwater data and scientific evidence related to the PRBCGA and make recommendations to the MBOGC regarding mitigation of impacts.

The purpose of this report is to describe the activities of TAC during 2016 and the impacts of CBM development on groundwater resources through September 2015.

Summary of TAC Annual Meeting

TAC met at the Montana Bureau of Mines and Geology office in Billings on June 25, 2015. Attendees included TAC members, Elizabeth (Liddi) Meredith (MBMG), Jill Frankforter (USGS for John Kilpatrick), Adam McMahon (DEQ), Adam Shallcross (BLM), Terry Punt (Public), and Russell Levens (DNRC). Also attending were Mark Elison of the Billings DNRC Water Resources Office, Shawn Kazara and John Wheaton of MBMG, Don Sasse of the Coal Bed Methane Protection Act Program, and Andy Efta (USFS).

Groundwater Monitoring

Liddi Meredith presented a summary of the report titled 2015 Annual Coalbed Methane Regional Groundwater Monitoring Report: Powder River Basin, Montana. The 2015 annual report identifies 90 CBM wells in Montana that produced water and/or gas compared to 148 wells in northern Wyoming. Total water production in Montana is reported to be 2.36 million barrels or 304 acre-feet compared to 33.5 million barrels or 4,322 acre-feet in the two townships in Wyoming that are nearest to Montana. MBMG reports that the 20-foot drawdown contour extends approximately one mile from the field boundaries. Drawdown extends a shorter distance than predicted in the Final Statewide EIS which MBMG attributes to lower development rates and production than anticipated in the EIS, and the role of faults as barriers that reduce the lateral extent of drawdown.

CBM Water Production

Total water production from all CBM wells through September 2014 is listed in Table 1. The Coal Creek and Dietz fields operated by Summit Gas were in production in Montana during 2014. The CX Field owned by Fidelity Exploration & Production Company near Decker Montana had no production in 2014.

MBMG monitors groundwater levels and chemistry in dedicated monitoring wells installed beginning in the 1970s to document the effects dewatering of coal-mine and for coal bed methane production. Locations of regional monitoring wells, and data and interpretations from monitoring conducted through 2014 are found in Meredith and Kuzara (2015).

Table 1. Total water produced from CBM wells through September 2014. Numbers of wells include wells that produced water and/or gas.

Year / Field	# Wells	Total Water Production	
		Barrels	Acre-Feet
2000	165	20,169,638	2600
CX Ranch Field	165	20,169,638	2600
2001	236	38,756,615	4996
CX Ranch Field	236	38,756,615	4996
2002	244	16,299,771	2101
CX Ranch Field	244	16,299,771	2101
2003	327	11,415,551	1471
CX Ranch Field	327	11,415,551	1471
2004	423	15,426,082	1988
CX Ranch Field	423	15,426,082	1988
2005	529	19,426,428	2504
Coal Creek Field		1,665,378	215
CX Ranch Field		17,760,490	2289
Dietz Field		561	0
2006	808	21,317,810	2748
Coal Creek Field		2,653,015	342
CX Ranch Field		18,536,211	2389
Dietz Field		128,584	17
2007	723	38,325,853	4940
Coal Creek Field		3,090,469	398
CX Ranch Field		33,463,422	4314
Dietz Field		1,771,963	228
2008	908	40,210,222	5183
Coal Creek Field	32	1,766,946	228
CX Ranch Field	773	35,501,872	4576
Dietz Field	102	2,763,864	356
Waddle Creek Field	1	88,770	11
2009	887	35,850,182	4621
Coal Creek Field	32	2,087,222	269
CX Ranch Field	759	31,765,126	4095
Dietz Field	95	1,846,468	238
Waddle Creek Field	1	151,366	20
2010	822	33,540,339	4323
Coal Creek Field	28	2,261,728	292
CX Ranch Field	711	29,310,387	3778
Dietz Field	82	1,817,520	234
Waddle Creek Field	1	150,704	19
2011	748	26,940,211	3473
Coal Creek Field	23	1,841,774	237
CX Ranch Field	654	23,766,841	3064
Dietz Field	70	1,239,176	160
Waddle Creek Field	1	92,420	12

2012	575	15,818,948	2039
Coal Creek Field	19	866,486	112
CX Ranch Field	497	14,009,519	1806
Dietz Field	58	927,316	120
Waddle Creek Field	1	15,627	2
2013	378	9,856,565	1271
Coal Creek Field	30	1,486,035	192
CX Ranch Field	295	7,141,952	921
Dietz Field	52	1,228,578	158
Waddle Creek Field	1	0	0
2014	90	3,817,654	492
Coal Creek Field	33	2,494,936	322
CX Ranch Field	0	0	0
Dietz Field	55	1,322,718	171
Waddle Creek Field	2	0	0
2015	90	2,361,453	304
Coal Creek Field	28	1,275,262	164
CX Ranch Field	0	0	0
Dietz	60	1,086,191	140
Waddle Creek Field	2	0	0

References

Kuzara, S., Meredith, E., Wheaton, J., Bierbach, S., Sasse, D., 2016. 2015 Annual coalbed methane regional groundwater monitoring report, Powder River Basin, Montana: Montana Bureau of Mines and Geology Open-File Report 679, 96 p., 3 sheets.