

**2014 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 2014 and the impacts of CBM development on groundwater resources through September 2013.

**Summary of TAC Annual Meeting**

TAC met at the MBOGC office in Billings on April 15, 2014. Attendees included TAC members, Elizabeth (Liddi) Meredith, Kyle Blasch, Emily Hinz, Peter Bierbach, Terry Punt, and Russell Levens. TAC member Tom Osborn was absent. Liddi Meredith is a new TAC member, taking John Wheaton's seat representing the Montana Bureau of Mines and Geology (MBMG). Also attending were Kim Overcast and Mark Elison of the Billings DNRC Water Resources Office, John Wheaton of MBMG, Terry Webster and April Kohler representing Summit Gas Resources, and Hannah Hostetter representing the Northern Plains Resource Council.

**Groundwater Monitoring**

Liddi Meredith presented a summary of the report titled 2013 Annual Coalbed Methane Regional Groundwater Monitoring Report: Powder River Basin, Montana. The 2013 annual report identifies 378 CBM wells in Montana that produced water and/or gas compared to 875 wells in Wyoming. Total water production in Montana is reported to be 9.86 million barrels or 1,270 acre-feet compared to 60.2 million barrels or 7,757 acre-feet in the two townships in Wyoming that are nearest to Montana. MBMG reports that the 20-foot drawdown contour extends a maximum distance of 1 to 1.5 miles from the edge of the CX Field, a shorter distance that predicted in the Final Statewide EIS. They attribute the shorter distance 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**

The CX Field operated by Fidelity Exploration & Production Company near Decker Montana and the Coal Creek and Dietz fields operated by Summit Gas were in production in Montana during 2013. Total water production from all CBM wells through

September 2013 is listed in Table 1. 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 2013 are found in Meredith and Kuzara (2014).

Table 1. Total water produced from CBM wells through September 2013. Numbers of wells include wells that produced water and/or gas.

Year / Field	# Wells	Total Water Production	
		Barrels	Gallons
<b>2000</b>	<b>165</b>	<b>20,169,638</b>	<b>847,124,796</b>
CX Ranch Field	165	20,169,638	847,124,796
<b>2001</b>	<b>236</b>	<b>38,756,615</b>	<b>1,627,777,830</b>
CX Ranch Field	236	38,756,615	1,627,777,830
<b>2002</b>	<b>244</b>	<b>16,299,771</b>	<b>684,590,369</b>
CX Ranch Field	244	16,299,771	684,590,369
<b>2003</b>	<b>327</b>	<b>11,415,551</b>	<b>479,453,122</b>
CX Ranch Field	327	11,415,551	479,453,122
<b>2004</b>	<b>423</b>	<b>15,426,082</b>	<b>647,895,458</b>
CX Ranch Field	423	15,426,082	647,895,458
<b>2005</b>	<b>529</b>	<b>19,426,428</b>	<b>815,909,976</b>
Coal Creek Field		1,665,378	69,945,876
CX Ranch Field		17,760,490	745,940,540
Dietz Field		561	23,562
<b>2006</b>	<b>808</b>	<b>21,317,810</b>	<b>895,348,020</b>
Coal Creek Field		2,653,015	111,426,630
CX Ranch Field		18,536,211	778,520,862
Dietz Field		128,584	5,400,528
<b>2007</b>	<b>723</b>	<b>38,325,853</b>	<b>1,609,685,831</b>
Coal Creek Field		3,090,469	129,799,698
CX Ranch Field		33,463,422	1,396,508,872
Dietz Field		1,771,963	74,422,446
<b>2008</b>	<b>908</b>	<b>40,210,222</b>	<b>1,688,829,324</b>
Coal Creek Field	32	1,766,946	74,211,732
CX Ranch Field	773	35,501,872	1,491,078,624
Dietz Field	102	2,763,864	116,082,288
Waddle Creek Field	1	88,770	3,728,340
<b>2009</b>	<b>887</b>	<b>35,850,182</b>	<b>1,505,707,644</b>
Coal Creek Field	32	2,087,222	87,663,324
CX Ranch Field	759	31,765,126	1,334,135,292
Dietz Field	95	1,846,468	77,551,656
Waddle Creek Field	1	151,366	6,357,372
<b>2010</b>	<b>822</b>	<b>33,540,339</b>	<b>1,408,694,238</b>
Coal Creek Field	28	2,261,728	94,992,576
CX Ranch Field	711	29,310,387	1,231,036,254
Dietz Field	82	1,817,520	76,335,840
Waddle Creek Field	1	150,704	6,329,568
<b>2011</b>	<b>748</b>	<b>26,940,211</b>	<b>1,131,488,862</b>
Coal Creek Field	23	1,841,774	77,354,508
CX Ranch Field	654	23,766,841	998,207,322
Dietz Field	70	1,239,176	52,045,392
Waddle Creek Field	1	92,420	3,881,640

<b>2012</b>	<b>575</b>	<b>15,818,948</b>	<b>665,235,816</b>
Coal Creek Field	19	866,486	37,232,412
CX Ranch Field	497	14,009,519	588,399,798
Dietz Field	58	927,316	38,947,272
Waddle Creek Field	1	15,627	656,334
<b>2013</b>	<b>378</b>	<b>9,856,565</b>	<b>413,975,730</b>
Coal Creek Field	30	1,486,035	62,413,470
CX Ranch Field	295	7,141,952	299,961,984
Dietz Field	52	1,228,578	51,600,276
Waddle Creek Field	1	0	0

### References

Meredith, E., and Kuzara, S., 2014. 2013 Annual coalbed-methane regional groundwater monitoring report: Powder River Basin, Montana: Montana Bureau of Mines and Geology Open-File Report 651, 89 p., 6 sheets.