

May 29, 2013

Dr. Angela Nugent
Designated Federal Officer
EPA Science Advisory Board Staff Office (1400R)
US EPA
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Dr. Nugent:

On behalf of America's Natural Gas Alliance (ANGA), the American Exploration and Production Council (AXPC), the American Petroleum Institute (API), the Colorado Oil and Gas Association (COGA), the Independent Petroleum Association of America (IPAA), the Petroleum Association of Wyoming (PAW), and the Western Energy Alliance (WEA), we appreciate this opportunity to submit comments to the Environmental Protection Agency's (EPA) Scientific Advisory Board's (SAB) consideration of additional fact-finding regarding Effluent Limitation Guidelines for coalbed methane (CBM). We believe the data will lead EPA to conclude that an ELG for CBM is not warranted at this time and that consideration of the same factors will lead the SAB to conclude their engagement is unnecessary.

- According to the rationale presented in EPA's initial 1979 development document for ELGs, a separate ELG for CBM is not warranted given that its growth is not anticipated. In fact, volumes of produced water from the three major CBM basins - Powder River in Wyoming/Montana, Black Warrior in Alabama, and Raton in Colorado/New Mexico - have declined considerably due to an overall decline in CBM production with almost no new wells being drilled in the basins. The number of plugged/abandoned permits is even greater than the number of Applications for Permits to Drill (APD) in the Wyoming Portion of the Powder River basin. Attached is additional data that demonstrates this point.
- Produced water from CBM extraction is currently being managed responsibly according to the best professional judgment standard. This is especially true because a considerable amount of CBM production takes place in jurisdictions with water scarcity, where extensive state regulations - through the NPDES permitting process - require careful documentation of water use.
- The gas prices used in EPA's initial assessment of CBM have declined significantly from over \$10/mcf in 2007 to approximately \$4/mcf today. This large change in prices has significantly affected the economics of drilling for CBM, making it extremely challenging for EPA to identify economically achievable technologies to effectively remove pollutants of concern.

As representatives of the oil and gas industry, the signatory associations remain ready and willing to further assist the EPA's Office of Water in its rulemaking process.

Sincerely,

Amy Farrell
America's Natural Gas Alliance

V. Bruce Thompson
American Exploration & Production Council

Amy Emmert
American Petroleum Institute

Andrew Place
Colorado Oil and Gas Association

Lee Fuller
Independent Petroleum Association of America

John Robitaille
Petroleum Association of Wyoming

Kathleen Sgamma
Western Energy Alliance

Black Warrior Basin CBM Water Production Profile

5/29/2013	6:50 PM								
Month	Water	FWSV	Water	Water Prod	Total	GPD	Gas Producing	GPD	BBL/D
	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Jan-92	8,699,178	7,002,824	1.242	11,785,983	3,039	3,878	2,656	4,437	105.65
Feb-92	8,359,505	6,882,199	1.215	12,106,869	3,067	3,947	2,654	4,562	108.61
Mar-92	9,787,521	7,526,152	1.300	13,260,512	3,078	4,308	2,612	5,077	120.88
Apr-92	9,497,741	7,302,900	1.301	13,296,837	3,086	4,309	2,684	4,954	117.96
May-92	9,345,962	7,659,753	1.220	12,662,271	3,089	4,099	2,641	4,794	114.15
Jun-92	8,769,280	7,538,490	1.163	12,276,992	3,103	3,956	2,621	4,684	111.53
Jul-92	8,383,136	7,714,073	1.087	11,357,797	3,110	3,652	2,586	4,392	104.57
Aug-92	8,324,687	7,888,780	1.055	11,278,608	3,032	3,720	2,602	4,335	103.20
Sep-92	8,093,095	7,703,915	1.051	11,330,333	3,006	3,769	2,570	4,409	104.97
Oct-92	8,276,974	8,072,683	1.025	11,213,965	3,076	3,646	2,628	4,267	101.60
Nov-92	8,179,914	7,879,647	1.038	11,451,880	3,173	3,609	2,632	4,351	103.60
Dec-92	8,349,920	8,145,804	1.025	11,312,795	3,186	3,551	2,627	4,306	102.53
Jan-93	8,823,781	8,191,795	1.077	11,954,800	3,198	3,738	2,650	4,511	107.41
Feb-93	8,108,925	7,567,980	1.071	12,163,388	3,225	3,772	2,666	4,562	108.63
Mar-93	8,377,454	8,198,373	1.022	11,350,099	3,238	3,505	2,662	4,264	101.52
Apr-93	9,329,842	8,563,423	1.089	13,061,779	3,258	4,009	2,674	4,885	116.30
May-93	9,667,306	8,895,485	1.087	13,097,640	3,274	4,001	2,679	4,889	116.40
Jun-93	9,288,832	8,680,739	1.070	13,004,365	3,288	3,955	2,684	4,845	115.36
Jul-93	9,431,446	8,980,579	1.050	12,778,088	3,293	3,880	2,698	4,736	112.77
Aug-93	9,066,872	9,065,345	1.000	12,284,149	3,240	3,791	2,614	4,699	111.89
Sep-93	8,559,591	8,944,636	0.957	11,983,427	3,242	3,696	2,648	4,525	107.75
Oct-93	8,638,598	9,318,960	0.927	11,703,907	3,240	3,612	2,682	4,364	103.90
Nov-93	8,201,461	9,044,075	0.907	11,482,045	3,255	3,528	2,690	4,268	101.63
Dec-93	8,363,627	9,293,010	0.900	11,331,366	3,262	3,474	2,698	4,200	100.00
Jan-94	8,209,752	9,142,306	0.898	11,122,890	3,267	3,405	2,692	4,132	98.38
Feb-94	7,777,406	8,450,834	0.920	11,666,109	3,277	3,560	2,703	4,316	102.76
Mar-94	8,368,753	9,412,405	0.889	11,338,311	3,324	3,411	2,694	4,209	100.21
Apr-94	8,123,857	9,040,500	0.899	11,373,400	3,267	3,481	2,676	4,250	101.19
May-94	8,326,268	9,378,868	0.888	11,280,750	3,267	3,453	2,682	4,206	100.15
Jun-94	7,950,962	9,200,640	0.864	11,131,347	3,291	3,382	2,694	4,132	98.38
Jul-94	8,284,164	9,425,794	0.879	11,597,830	3,194	3,631	2,691	4,310	102.62
Aug-94	8,316,682	9,408,877	0.884	11,267,763	3,203	3,518	2,695	4,181	99.55
Sep-94	8,269,038	9,222,970	0.897	11,576,653	3,216	3,600	2,692	4,300	102.39
Oct-94	8,405,171	9,565,898	0.879	11,387,651	3,204	3,554	2,705	4,210	100.23
Nov-94	8,157,541	9,277,569	0.879	11,420,557	3,210	3,558	2,710	4,214	100.34
Dec-94	7,267,768	9,144,589	0.795	9,846,653	3,220	3,058	2,711	3,632	86.48
Jan-95	8,087,468	9,498,766	0.851	10,957,215	3,226	3,397	2,713	4,039	96.16
Feb-95	7,220,879	8,628,692	0.837	10,831,319	3,262	3,320	2,728	3,970	94.53
Mar-95	7,894,097	9,545,116	0.827	10,695,228	3,267	3,274	2,737	3,908	93.04

Black Warrior Basin CBM Water Production Profile

5/29/2013	6:50 PM								
Month	Water	FWSV	Water	Water Prod	Total	GPD	Gas Producing	GPD	BBL/D
	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Apr-95	7,443,195	9,270,887	0.803	10,420,473	3,273	3,184	2,729	3,818	90.91
May-95	7,494,292	9,685,973	0.774	10,153,557	3,272	3,103	2,727	3,723	88.65
Jun-95	7,183,892	9,270,887	0.775	10,057,449	3,291	3,056	2,740	3,671	87.40
Jul-95	7,121,569	9,545,116	0.746	9,648,577	3,306	2,919	2,734	3,529	84.03
Aug-95	6,984,605	9,567,160	0.730	9,463,013	3,322	2,849	2,732	3,464	82.47
Sep-95	6,919,878	9,286,442	0.745	9,687,829	3,333	2,907	2,738	3,538	84.24
Oct-95	6,528,040	9,430,299	0.692	8,844,441	3,357	2,635	2,748	3,219	76.63
Nov-95	6,347,959	9,086,386	0.699	8,887,143	3,375	2,633	2,759	3,221	76.69
Dec-95	6,524,881	9,304,474	0.701	8,840,161	3,375	2,619	2,788	3,171	75.49
Jan-96	6,625,343	9,253,535	0.716	8,976,271	3,405	2,636	2,810	3,194	76.06
Feb-96	5,766,554	8,425,611	0.684	8,351,561	3,408	2,451	2,797	2,986	71.09
Mar-96	6,574,611	9,386,411	0.700	8,907,537	3,399	2,621	2,791	3,192	75.99
Apr-96	6,312,182	9,184,514	0.687	8,837,055	3,422	2,582	2,746	3,218	76.62
May-96	6,499,538	9,630,016	0.675	8,805,826	3,409	2,583	2,759	3,192	75.99
Jun-96	6,234,255	9,435,259	0.661	8,727,957	3,414	2,557	2,739	3,187	75.87
Jul-96	6,352,740	9,643,641	0.659	8,606,938	3,338	2,578	2,685	3,206	76.32
Aug-96	6,186,369	9,740,101	0.635	8,381,532	3,306	2,535	2,743	3,056	72.75
Sep-96	5,824,904	9,345,644	0.623	8,154,866	3,291	2,478	2,728	2,989	71.17
Oct-96	5,809,495	9,223,667	0.630	7,870,929	3,263	2,412	2,743	2,869	68.32
Nov-96	5,479,731	8,871,057	0.618	7,671,623	3,215	2,386	2,747	2,793	66.49
Dec-96	5,854,005	9,602,729	0.610	7,931,233	3,223	2,461	2,754	2,880	68.57
Jan-97	5,741,166	9,611,425	0.597	7,778,354	3,200	2,431	2,751	2,827	67.32
Feb-97	5,177,313	8,699,657	0.595	7,765,970	3,209	2,420	2,746	2,828	67.34
Mar-97	5,684,946	9,620,984	0.591	7,702,185	3,195	2,411	2,718	2,834	67.47
Apr-97	5,374,854	9,241,901	0.582	7,524,796	3,210	2,344	2,747	2,739	65.22
May-97	5,489,567	9,561,590	0.574	7,437,478	3,176	2,342	2,759	2,696	64.18
Jun-97	5,325,719	9,274,597	0.574	7,456,007	3,188	2,339	2,766	2,696	64.18
Jul-97	5,390,152	9,421,454	0.572	7,302,787	3,201	2,281	2,758	2,648	63.04
Aug-97	5,052,038	9,347,198	0.540	6,844,697	3,157	2,168	2,753	2,486	59.20
Sep-97	5,201,078	9,319,085	0.558	7,281,509	3,176	2,293	2,770	2,629	62.59
Oct-97	5,394,371	9,821,386	0.549	7,308,503	3,212	2,275	2,753	2,655	63.21
Nov-97	5,166,511	9,711,862	0.532	7,233,115	3,227	2,241	2,785	2,597	61.84
Dec-97	5,364,456	9,926,100	0.540	7,267,973	3,229	2,251	2,784	2,611	62.16
Jan-98	5,459,016	9,879,039	0.553	7,396,086	3,235	2,286	2,784	2,657	63.25
Feb-98	5,064,845	8,941,504	0.566	7,597,268	3,238	2,346	2,788	2,725	64.88
Mar-98	5,652,476	9,705,466	0.582	7,658,193	3,216	2,381	2,772	2,763	65.78
Apr-98	5,580,544	9,493,534	0.588	7,812,762	3,258	2,398	2,798	2,792	66.48
May-98	5,992,162	10,084,004	0.594	8,118,413	3,270	2,483	2,826	2,873	68.40
Jun-98	5,510,041	9,557,320	0.577	7,714,057	3,272	2,358	2,824	2,732	65.04

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	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Jul-98	5,607,398	9,804,932	0.572	7,597,120	3,294	2,306	2,851	2,665	63.45
Aug-98	5,521,489	9,799,114	0.563	7,480,727	3,294	2,271	2,851	2,624	62.47
Sep-98	5,401,821	9,611,164	0.562	7,562,549	3,318	2,279	2,862	2,642	62.91
Oct-98	5,717,695	9,977,810	0.573	7,746,555	3,329	2,327	2,862	2,707	64.45
Nov-98	5,391,010	9,764,011	0.552	7,547,414	3,340	2,260	2,866	2,633	62.70
Dec-98	5,517,693	9,917,951	0.556	7,475,584	3,332	2,244	2,860	2,614	62.23
Jan-99	5,371,702	9,612,740	0.559	7,277,790	3,353	2,171	2,876	2,531	60.25
Feb-99	5,202,296	9,021,070	0.577	7,803,444	3,358	2,324	2,881	2,709	64.49
Mar-99	5,750,369	9,794,154	0.587	7,790,823	3,370	2,312	2,876	2,709	64.50
Apr-99	5,394,044	9,404,784	0.574	7,551,662	3,364	2,245	2,873	2,628	62.58
May-99	5,597,568	9,794,927	0.571	7,583,802	3,376	2,246	2,882	2,631	62.65
Jun-99	5,504,185	9,574,159	0.575	7,705,859	3,363	2,291	2,891	2,665	63.46
Jul-99	5,542,480	9,661,518	0.574	7,509,166	3,354	2,239	2,896	2,593	61.74
Aug-99	5,462,350	9,636,564	0.567	7,400,603	3,351	2,208	2,905	2,548	60.66
Sep-99	5,266,118	9,450,620	0.557	7,372,565	3,358	2,196	2,875	2,564	61.06
Oct-99	5,565,758	9,759,752	0.570	7,540,704	3,353	2,249	2,876	2,622	62.43
Nov-99	5,226,886	9,463,856	0.552	7,317,640	3,356	2,180	2,874	2,546	60.62
Dec-99	5,213,211	9,505,627	0.548	7,063,060	3,369	2,096	2,879	2,453	58.41
Jan-00	4,797,567	9,289,783	0.516	6,499,929	3,395	1,915	2,865	2,269	54.02
Feb-00	4,537,806	8,945,930	0.507	6,571,995	3,411	1,927	2,888	2,276	54.18
Mar-00	4,831,430	9,632,112	0.502	6,545,808	3,412	1,918	2,890	2,265	53.93
Apr-00	4,907,852	9,262,050	0.530	6,870,993	3,373	2,037	2,894	2,374	56.53
May-00	5,279,840	9,564,845	0.552	7,153,332	3,400	2,104	2,910	2,458	58.53
Jun-00	5,148,588	9,296,799	0.554	7,208,023	3,396	2,123	2,930	2,460	58.57
Jul-00	5,152,185	9,499,961	0.542	6,980,380	3,403	2,051	2,944	2,371	56.45
Aug-00	5,310,366	9,547,405	0.556	7,194,689	3,404	2,114	2,947	2,441	58.13
Sep-00	5,197,517	9,216,114	0.564	7,276,524	3,436	2,118	2,984	2,439	58.06
Oct-00	4,592,340	9,559,688	0.480	6,221,880	3,449	1,804	3,010	2,067	49.22
Nov-00	4,255,014	9,245,743	0.460	5,957,020	3,465	1,719	3,023	1,971	46.92
Dec-00	3,940,822	9,310,094	0.423	5,339,178	3,482	1,533	3,036	1,759	41.87
Jan-01	4,439,418	9,209,620	0.482	6,014,695	3,526	1,706	3,046	1,975	47.01
Feb-01	4,094,219	8,340,869	0.491	6,141,329	3,563	1,724	3,076	1,997	47.54
Mar-01	5,229,495	9,509,065	0.550	7,085,122	3,570	1,985	3,096	2,288	54.49
Apr-01	5,014,927	9,239,289	0.543	7,020,898	3,563	1,971	3,115	2,254	53.66
May-01	4,907,348	9,838,443	0.499	6,648,665	3,575	1,860	3,120	2,131	50.74
Jun-01	4,656,293	9,501,639	0.490	6,518,810	3,588	1,817	3,153	2,067	49.23
Jul-01	4,690,286	9,590,984	0.489	6,354,581	3,612	1,759	3,183	1,996	47.53
Aug-01	4,730,985	9,778,395	0.484	6,409,722	3,624	1,769	3,192	2,008	47.81
Sep-01	4,652,545	9,522,973	0.489	6,513,563	3,520	1,850	3,191	2,041	48.60

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	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Oct-01	4,845,295	9,724,780	0.498	6,564,593	3,542	1,853	3,230	2,032	48.39
Nov-01	4,804,581	9,445,553	0.509	6,726,413	3,574	1,882	3,260	2,063	49.13
Dec-01	4,811,038	9,766,292	0.493	6,518,181	3,607	1,807	3,286	1,984	47.23
Jan-02	5,735,200	9,734,486	0.589	7,770,271	3,617	2,148	3,289	2,363	56.25
Feb-02	4,331,367	8,828,790	0.491	6,497,051	3,725	1,744	3,293	1,973	46.98
Mar-02	4,735,926	9,703,968	0.488	6,416,416	3,730	1,720	3,308	1,940	46.18
Apr-02	4,574,451	9,468,913	0.483	6,404,231	3,748	1,709	3,324	1,927	45.87
May-02	4,775,858	9,894,377	0.483	6,470,517	3,771	1,716	3,357	1,927	45.89
Jun-02	4,609,347	9,569,194	0.482	6,453,086	3,803	1,697	3,384	1,907	45.40
Jul-02	4,747,005	9,829,826	0.483	6,431,426	3,813	1,687	3,397	1,893	45.08
Aug-02	5,183,744	9,844,007	0.527	7,023,137	3,840	1,829	3,419	2,054	48.91
Sep-02	5,049,600	9,576,838	0.527	7,069,440	3,858	1,832	3,433	2,059	49.03
Oct-02	5,162,046	9,955,938	0.518	6,993,740	3,892	1,797	3,469	2,016	48.00
Nov-02	4,919,485	9,644,854	0.510	6,887,279	3,920	1,757	3,491	1,973	46.97
Dec-02	5,248,953	9,905,303	0.530	7,111,485	3,955	1,798	3,520	2,020	48.10
Jan-03	5,200,010	9,692,120	0.537	7,045,175	3,974	1,773	3,532	1,995	47.49
Feb-03	4,617,589	8,931,155	0.517	6,926,384	3,995	1,734	3,550	1,951	46.45
Mar-03	5,126,375	9,978,662	0.514	6,945,411	4,057	1,712	3,584	1,938	46.14
Apr-03	4,946,488	9,764,432	0.507	6,925,083	4,069	1,702	3,621	1,912	45.54
May-03	4,934,450	10,162,279	0.486	6,685,384	4,084	1,637	3,657	1,828	43.53
Jun-03	4,694,742	9,940,530	0.472	6,572,639	4,126	1,593	3,686	1,783	42.46
Jul-03	4,849,152	10,169,429	0.477	6,569,819	4,175	1,574	3,720	1,766	42.05
Aug-03	5,050,701	10,196,843	0.495	6,842,885	4,196	1,631	3,752	1,824	43.42
Sep-03	4,936,596	9,976,060	0.495	6,911,234	4,210	1,642	3,777	1,830	43.57
Oct-03	5,258,639	10,350,303	0.508	7,124,608	4,250	1,676	3,813	1,869	44.49
Nov-03	5,209,966	10,043,940	0.519	7,293,952	4,268	1,709	3,827	1,906	45.38
Dec-03	5,310,001	10,207,682	0.520	7,194,195	4,224	1,703	3,837	1,875	44.64
Jan-04	4,271,295	10,165,020	0.420	5,786,916	4,258	1,359	3,864	1,498	35.66
Feb-04	4,926,110	9,515,611	0.518	7,134,366	4,283	1,666	3,870	1,844	43.89
Mar-04	5,307,313	10,170,701	0.522	7,190,553	4,320	1,664	3,901	1,843	43.89
Apr-04	5,082,486	9,971,744	0.510	7,115,480	4,334	1,642	3,920	1,815	43.22
May-04	5,307,781	10,385,107	0.511	7,191,187	4,353	1,652	3,945	1,823	43.40
Jun-04	5,114,538	10,057,223	0.509	7,160,353	4,401	1,627	3,969	1,804	42.95
Jul-04	5,234,599	10,388,284	0.504	7,092,037	4,441	1,597	4,002	1,772	42.19
Aug-04	5,095,652	10,440,823	0.488	6,903,787	4,474	1,543	4,044	1,707	40.65
Sep-04	4,892,461	9,936,972	0.492	6,849,445	4,487	1,527	4,072	1,682	40.05
Oct-04	5,213,706	10,415,471	0.501	7,063,731	4,524	1,561	4,106	1,720	40.96
Nov-04	4,644,855	7,738,464	0.600	6,502,797	4,543	1,431	4,123	1,577	37.55
Dec-04	5,320,318	10,047,596	0.530	7,208,173	4,576	1,575	4,179	1,725	41.07

Black Warrior Basin CBM Water Production Profile

5/29/2013	6:50 PM								
Month	Water	FWSV	Water	Water Prod	Total	GPD	Gas Producing	GPD	BBL/D
	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Jan-05	5,346,689	9,880,593	0.541	7,243,901	4,601	1,574	4,195	1,727	41.11
Feb-05	4,863,353	9,059,532	0.537	7,295,030	4,634	1,574	4,225	1,727	41.11
Mar-05	5,403,288	9,987,745	0.541	7,320,584	4,654	1,573	4,231	1,730	41.20
Apr-05	5,246,003	9,711,394	0.540	7,344,404	4,686	1,567	4,260	1,724	41.05
May-05	6,536,405	10,102,053	0.647	8,855,775	4,736	1,870	4,311	2,054	48.91
Jun-05	5,545,426	9,692,298	0.572	7,763,596	4,757	1,632	4,338	1,790	42.61
Jul-05	5,575,729	9,750,961	0.572	7,554,213	4,771	1,583	4,335	1,743	41.49
Aug-05	5,409,360	9,568,187	0.565	7,328,810	4,802	1,526	4,368	1,678	39.95
Sep-05	5,565,291	9,396,178	0.592	7,791,407	4,821	1,616	4,378	1,780	42.37
Oct-05	6,000,687	9,838,056	0.610	8,129,963	4,850	1,676	4,404	1,846	43.95
Nov-05	5,966,532	9,630,505	0.620	8,353,145	4,878	1,712	4,425	1,888	44.95
Dec-05	5,888,961	9,598,854	0.614	7,978,592	4,908	1,626	4,475	1,783	42.45
Jan-06	6,163,902	9,430,351	0.654	8,351,093	4,930	1,694	4,490	1,860	44.28
Feb-06	5,611,420	8,843,603	0.635	8,417,130	4,942	1,703	4,521	1,862	44.33
Mar-06	5,943,259	9,607,029	0.619	8,052,157	4,960	1,623	4,533	1,776	42.29
Apr-06	5,788,223	9,505,305	0.609	8,103,512	4,978	1,628	4,543	1,784	42.47
May-06	6,078,124	9,994,733	0.608	8,234,878	5,059	1,628	4,592	1,793	42.70
Jun-06	5,862,979	9,648,143	0.608	8,208,171	5,106	1,608	4,616	1,778	42.34
Jul-06	6,122,313	10,011,075	0.612	8,294,747	5,148	1,611	4,646	1,785	42.51
Aug-06	6,115,187	10,165,437	0.602	8,285,092	5,186	1,598	4,684	1,769	42.11
Sep-06	6,038,486	9,657,352	0.625	8,453,880	5,227	1,617	4,709	1,795	42.74
Oct-06	6,226,398	9,875,321	0.631	8,435,765	5,268	1,601	4,736	1,781	42.41
Nov-06	6,224,434	9,576,717	0.650	8,714,208	5,275	1,652	4,773	1,826	43.47
Dec-06	6,526,533	9,836,380	0.664	8,842,400	5,329	1,659	4,835	1,829	43.54
Jan-07	6,559,642	9,745,283	0.673	8,887,257	5,358	1,659	4,890	1,817	43.27
Feb-07	5,934,157	8,812,684	0.673	8,901,236	5,376	1,656	4,890	1,820	43.34
Mar-07	6,697,806	9,763,486	0.686	9,074,447	5,406	1,679	4,918	1,845	43.93
Apr-07	6,357,507	9,365,647	0.679	8,900,510	5,457	1,631	4,944	1,800	42.86
May-07	6,532,785	9,723,446	0.672	8,850,870	5,496	1,610	4,974	1,779	42.37
Jun-07	6,402,753	9,458,086	0.677	8,963,854	5,530	1,621	5,009	1,790	42.61
Jul-07	6,448,609	9,793,088	0.658	8,736,825	5,567	1,569	5,050	1,730	41.19
Aug-07	6,379,332	9,755,086	0.654	8,642,966	5,602	1,543	5,076	1,703	40.54
Sep-07	6,321,534	9,462,380	0.668	8,850,148	5,630	1,572	5,080	1,742	41.48
Oct-07	7,235,060	9,900,811	0.731	9,802,339	5,652	1,734	5,128	1,912	45.51
Nov-07	6,515,527	9,522,345	0.684	9,121,738	5,668	1,609	5,121	1,781	42.41
Dec-07	6,652,055	9,639,701	0.690	9,012,462	5,677	1,588	5,150	1,750	41.67
Jan-08	6,357,104	9,345,286	0.680	8,612,851	5,695	1,512	5,167	1,667	39.69
Feb-08	5,903,279	8,745,397	0.675	8,549,576	5,710	1,497	5,167	1,655	39.40
Mar-08	6,286,824	9,401,949	0.669	8,517,633	5,740	1,484	5,198	1,639	39.02

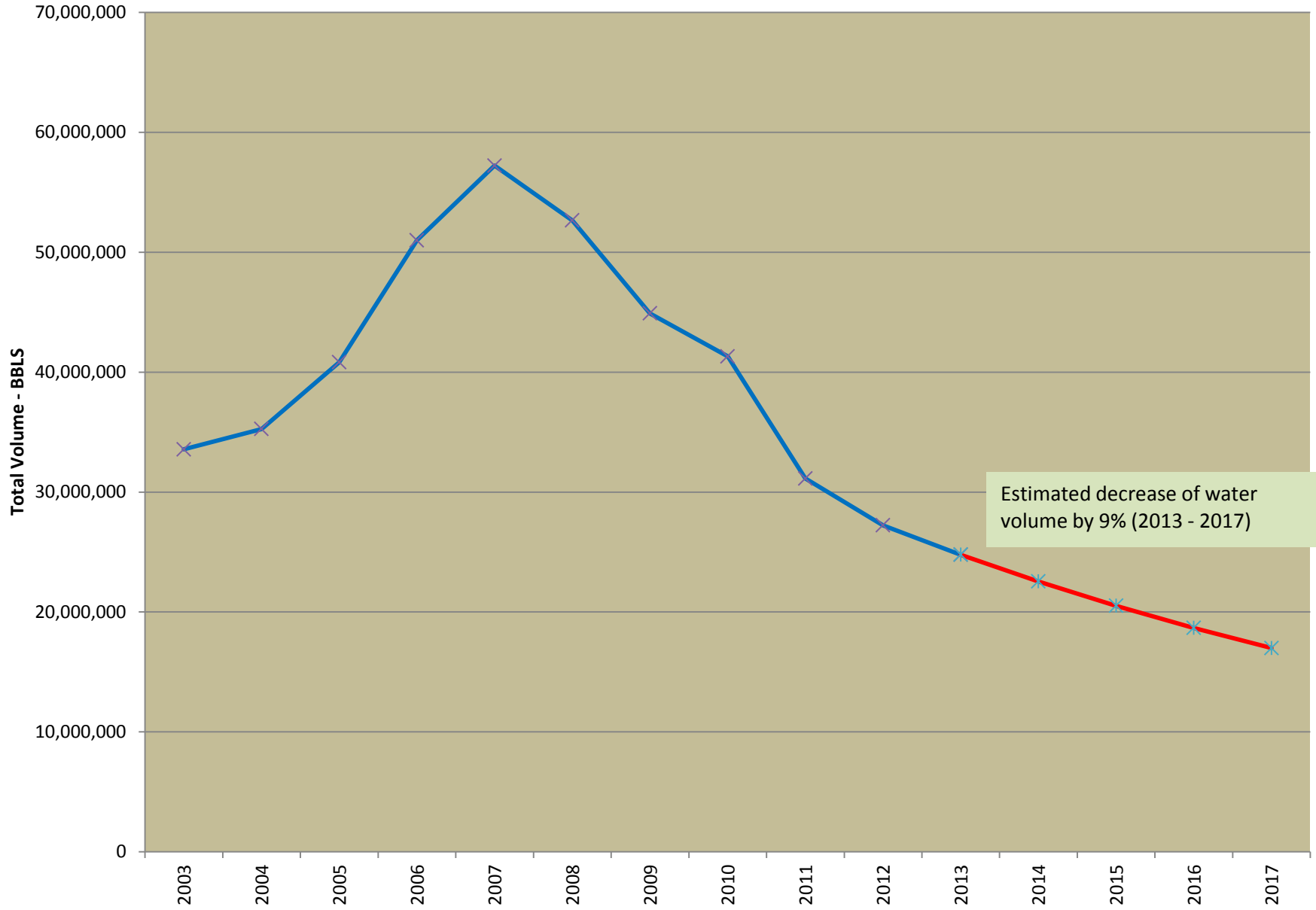
Black Warrior Basin CBM Water Production Profile

5/29/2013	6:50 PM								
Month	Water	FWSV	Water	Water Prod	Total	GPD	Gas Producing	GPD	BBL/D
	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Apr-08	6,110,393	9,175,811	0.666	8,554,550	5,759	1,485	5,229	1,636	38.95
May-08	6,454,682	9,512,521	0.679	8,745,053	5,784	1,512	5,253	1,665	39.64
Jun-08	5,694,711	9,140,247	0.623	7,972,595	5,811	1,372	5,278	1,511	35.97
Jul-08	6,197,435	9,410,265	0.659	8,396,525	5,828	1,441	5,284	1,589	37.83
Aug-08	6,196,572	9,510,003	0.652	8,395,356	5,819	1,443	5,313	1,580	37.62
Sep-08	6,110,792	9,249,270	0.661	8,555,109	5,852	1,462	5,342	1,601	38.13
Oct-08	6,478,286	9,712,775	0.667	8,777,033	5,894	1,489	5,370	1,634	38.92
Nov-08	6,250,185	9,290,480	0.673	8,750,259	5,918	1,479	5,423	1,614	38.42
Dec-08	6,302,726	9,462,838	0.666	8,539,177	5,944	1,437	5,442	1,569	37.36
Jan-09	5,962,579	9,376,902	0.636	8,078,333	5,959	1,356	5,468	1,477	35.18
Feb-09	5,649,958	8,471,881	0.667	8,474,937	5,971	1,419	5,447	1,556	37.05
Mar-09	6,449,820	9,426,767	0.684	8,738,466	5,990	1,459	5,457	1,601	38.13
Apr-09	5,842,733	9,078,095	0.644	8,179,826	5,997	1,364	5,453	1,500	35.72
May-09	6,395,937	9,353,651	0.684	8,665,463	6,001	1,444	5,475	1,583	37.68
Jun-09	5,991,619	8,970,261	0.668	8,388,267	6,016	1,394	5,470	1,534	36.51
Jul-09	6,653,366	9,236,913	0.720	9,014,238	6,042	1,492	5,479	1,645	39.17
Aug-09	6,716,957	9,259,331	0.725	9,100,393	6,043	1,506	5,468	1,664	39.63
Sep-09	6,457,649	8,826,395	0.732	9,040,709	6,044	1,496	5,505	1,642	39.10
Oct-09	6,578,378	9,107,601	0.722	8,912,641	6,075	1,467	5,478	1,627	38.74
Nov-09	5,494,343	7,392,664	0.743	7,692,080	6,091	1,263	5,467	1,407	33.50
Dec-09	6,600,678	8,769,026	0.753	8,942,854	6,091	1,468	5,489	1,629	38.79
Jan-10	6,099,800	8,509,633	0.717	8,264,245	6,095	1,356	5,488	1,506	35.85
Feb-10	5,655,927	7,907,619	0.715	8,483,891	6,105	1,390	5,501	1,542	36.72
Mar-10	6,283,663	8,761,921	0.717	8,513,350	6,091	1,398	5,482	1,553	36.98
Apr-10	6,142,712	8,527,055	0.720	8,599,797	9,133	942	5,508	1,561	37.17
May-10	6,319,772	8,889,234	0.711	8,562,272	6,134	1,396	5,510	1,554	37.00
Jun-10	5,970,259	8,922,038	0.669	8,358,363	6,142	1,361	5,521	1,514	36.05
Jul-10	6,109,223	8,766,839	0.697	8,277,012	6,136	1,349	5,515	1,501	35.73
Aug-10	6,074,656	8,781,597	0.692	8,230,179	6,086	1,352	5,507	1,494	35.58
Sep-10	5,873,215	8,505,192	0.691	8,222,501	6,108	1,346	5,514	1,491	35.50
Oct-10	5,199,173	7,260,997	0.716	7,044,041	6,122	1,151	5,493	1,282	30.53
Nov-10	5,830,720	8,402,489	0.694	8,163,008	6,136	1,330	5,545	1,472	35.05
Dec-10	6,480,405	8,509,341	0.762	8,779,904	6,149	1,428	5,562	1,579	37.58
Jan-11	5,958,896	8,440,907	0.706	8,073,343	6,140	1,315	5,569	1,450	34.52
Feb-11	5,421,146	7,625,726	0.711	8,131,719	6,117	1,329	5,587	1,455	34.65
Mar-11	5,889,504	8,443,439	0.698	7,979,328	6,123	1,303	5,578	1,430	34.06
Apr-11	5,220,546	7,993,851	0.653	7,308,764	6,137	1,191	5,558	1,315	31.31
May-11	5,706,128	8,014,725	0.712	7,730,883	6,138	1,260	5,542	1,395	33.21
Jun-11	5,893,920	7,846,673	0.751	8,251,488	6,151	1,341	5,524	1,494	35.57

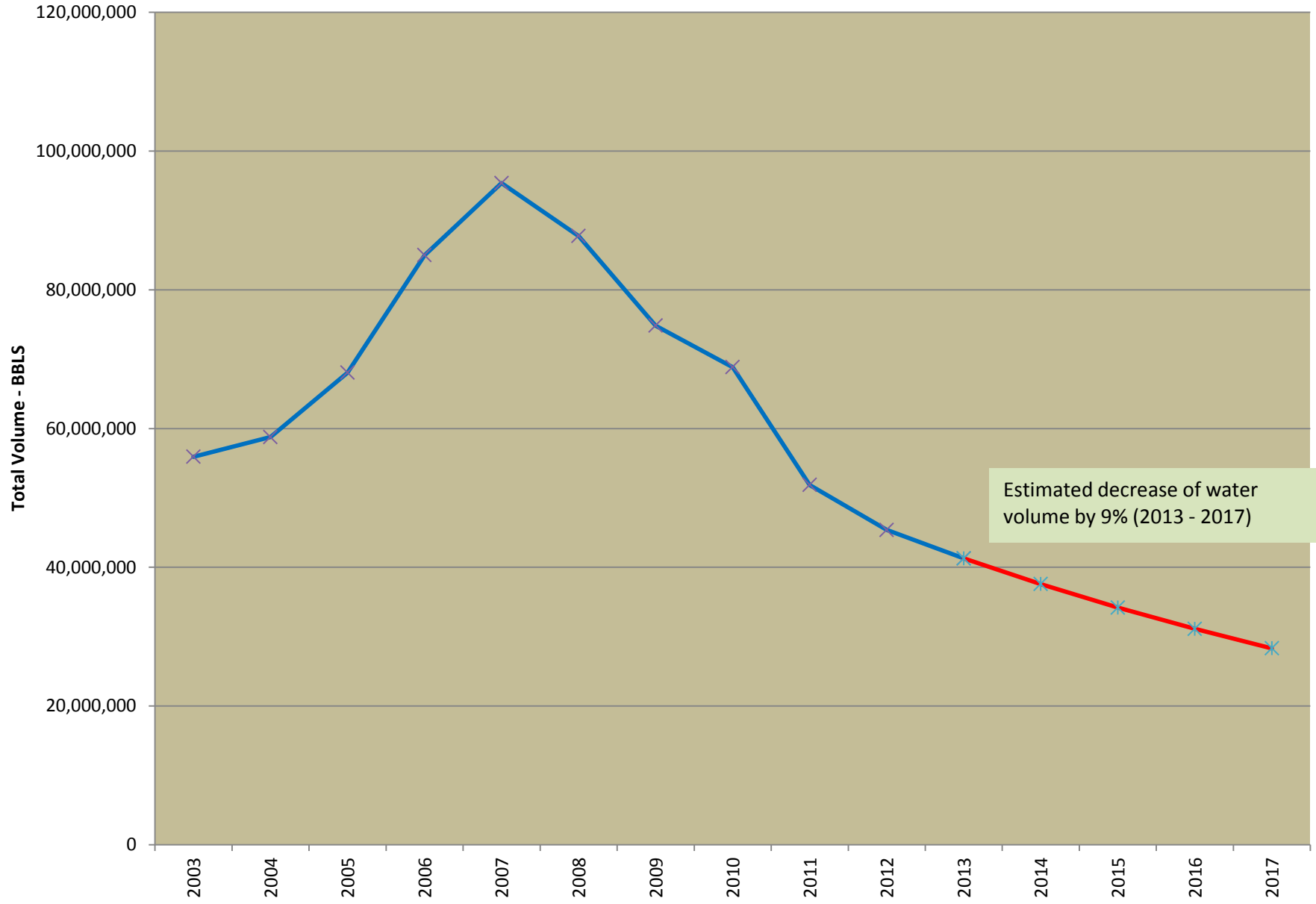
Black Warrior Basin CBM Water Production Profile

5/29/2013	6:50 PM								
Month	Water	FWSV	Water	Water Prod	Total	GPD	Gas Producing	GPD	BBL/D
	BBL/Month	MCF/Month	BBL/MCF	GPD	Wells	Per Well	Wells	Per Well	Per well
Jul-11	6,075,598	8,102,206	0.750	8,231,455	6,162	1,336	5,535	1,487	35.41
Aug-11	5,733,911	8,125,644	0.706	7,768,525	6,161	1,261	5,547	1,400	33.35
Sep-11	5,017,566	6,937,778	0.723	7,024,592	6,177	1,137	5,549	1,266	30.14
Oct-11	5,912,465	8,186,692	0.722	8,010,436	6,195	1,293	5,576	1,437	34.20
Nov-11	5,845,727	7,894,956	0.740	8,184,018	6,200	1,320	5,593	1,463	34.84
Dec-11	5,951,689	8,026,174	0.742	8,063,579	6,211	1,298	5,596	1,441	34.31
Jan-12	5,668,647	7,980,780	0.710	7,680,102	6,202	1,238	5,622	1,366	32.53
Feb-12	5,453,771	7,444,365	0.733	7,898,565	6,200	1,274	5,603	1,410	33.56
Mar-12	5,874,291	7,887,059	0.745	7,958,717	6,207	1,282	5,593	1,423	33.88
Apr-12	5,584,406	7,569,241	0.738	7,818,168	6,207	1,260	5,594	1,398	33.28
May-12	5,577,746	7,739,727	0.721	7,556,946	6,206	1,218	5,589	1,352	32.19
Jun-12	5,945,947	7,461,215	0.797	8,324,326	6,211	1,340	5,565	1,496	35.62
Jul-12	5,398,582	7,677,850	0.703	7,314,208	6,210	1,178	5,547	1,319	31.39
Aug-12	5,258,911	7,655,919	0.687	7,124,976	6,202	1,149	5,546	1,285	30.59
Sep-12	5,702,818	7,386,380	0.772	7,983,945	6,201	1,288	5,561	1,436	34.18
Oct-12	5,204,327	7,551,177	0.689	7,051,024	6,184	1,140	5,536	1,274	30.33
Nov-12	5,097,849	7,220,025	0.706	7,136,989	6,190	1,153	5,527	1,291	30.75
Dec-12	5,271,153	7,341,604	0.718	7,141,562	6,182	1,155	5,556	1,285	30.60

Company A Surface Water Discharge 2003-2013



Company A Produced Water 2003-2013



Sum of Water Production (BBL)

Row Labels	Company A (Amount Discharge)				RED RIVER RANCH (Amount Discharge)	
	Company A	Projected with 9% decline	Projected with 9% decline	Projected with 9% decline		
2000	23325930			13995558	#REF!	
2001	36916145			22149687	#REF!	
2002	50228366			30137020	#REF!	
2003	55930905			33558543	#REF!	
2004	58772327			35263396	#REF!	
2005	68049258			40829555	#REF!	
2006	84998842			50999305	#REF!	
2007	95377934			57226760	#REF!	
2008	87762602			52657561	#REF!	
2009	74846386			44907832	#REF!	
2010	68855141			41313085	#REF!	
2011	51880236			31128142	#REF!	
2012	45373922			27224353	#REF!	
2013	41290269.02	41290269.02		24774161	24774161	#REF!
2014		37574144.81			22544487	#REF!
2015		34192471.78			20515483	#REF!
2016		31115149.32			18669090	#REF!
2017		28314785.88			16988872	#REF!

Grand Total

Column Labels

Company B

Company C

Company D

Company E

277095

444249

253924

2430223

0

45335

3775

0

4921824

55552

721344

2733257

4921824

55552

Company F

Company G

Company H

Company I

5139895

848316

2810828

3751686

6712729

2851209

119684

294990

76142

0

0

490816

7950723

848316

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Grand Total

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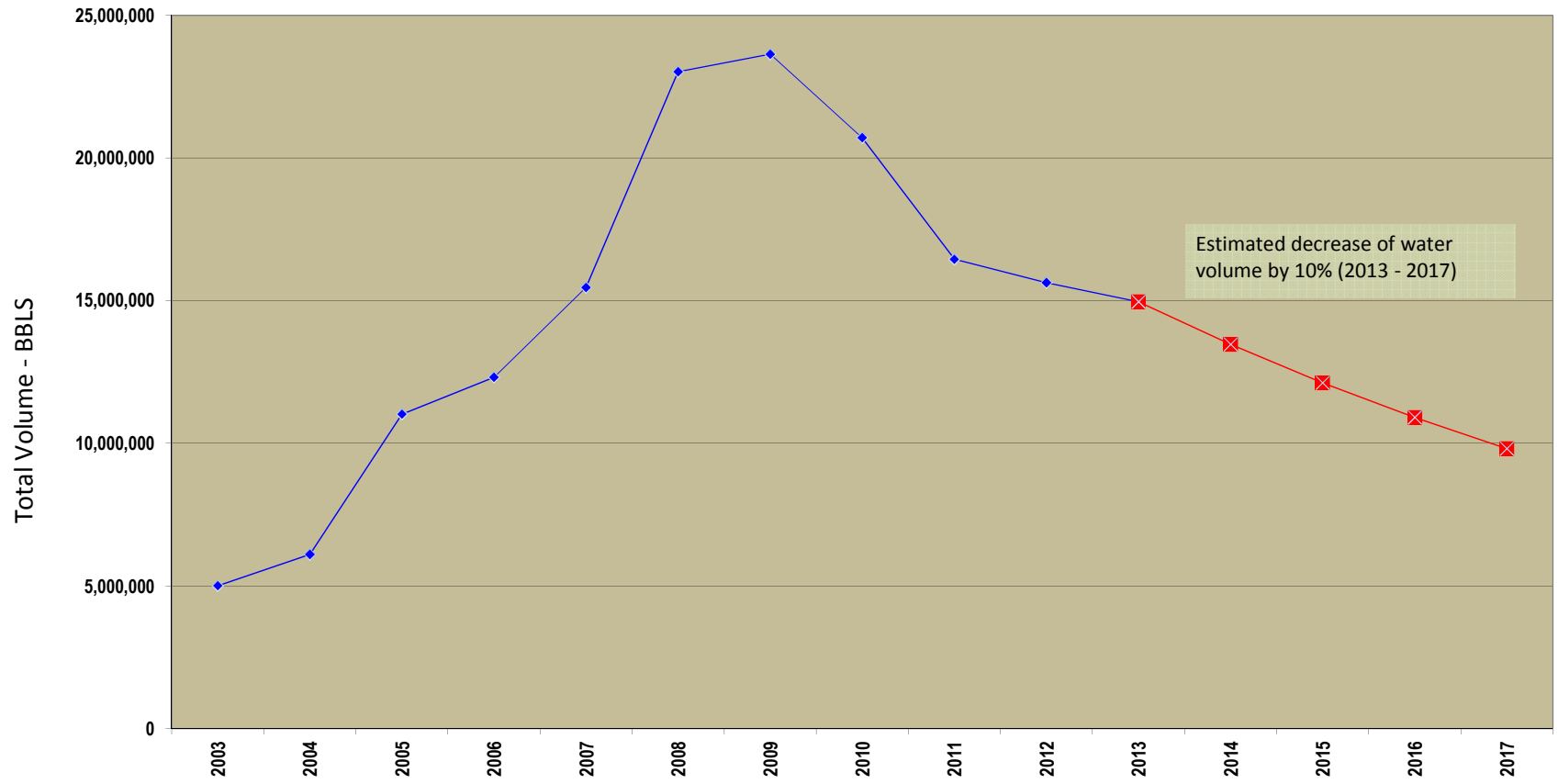
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Water Production 2003 - 2013



Surface Water Discharge 2003 - 2013

