Appendix F
Project Emissions Inventory

TABLE OF CONTENTS

The following is a list of the tables included within this appendix.

F.1.0 2005 ACTUAL EMISSIONS INVENTORY TABLES

F.2.0 2005 POTENTIAL EMISSIONS INVENTORY TABLES

F.3.0 PROPOSED ACTION EMISSIONS INVENTORY TABLES

F.4.0 NO ACTION EMISSIONS INVENTORY TABLES

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

				Location		Production		Drill Rig Engines		Process Burners	Wellhead IC Engines
						Gas	Condensate	SO2	N0x	N0x	N0x
Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MCF	BBL	TPY	TPY	TPY	TPY
Antelope 2-6	49-035-22635	Pinedale Anticline	**CT-3483**	42.51667	109.64278	312,385	2,557	0.00	19.32	0.000	0.0
Antelope 11-10D	49-035-22927	Pinedale Anticline	AP-1357 Waiver	42.49459	109.59229	0	0	0.00	19.32	0.000	0.0
Antelope 11-4	49-035-22133	Pinedale Anticline	**CT-2980**	45.50972	109.60917	430,040	3,574	0.00	19.32	0.000	0.0
Antelope 1-9	49-035-22173	Pinedale Anticline	**MD-836**	42.50166	109.59860	262,743	3,843	0.00	19.32	0.150	0.0
Antelope 2-9	49-035-22601	Pinedale Anticline	**MD-836**	42.50222	109.60278	142,349	1,352	0.00	15.07	0.000	0.0
Antelope 12-4D	49-035-23752	Pinedale Anticline	AP-3347	42.50610	109.60880	217,982	2,535	0.58	15.07	0.064	0.0
Antelope 13-4D	49-035-22718	Pinedale Anticline	AP-3347	42.50611	109.60883	515,710	8,120	0.58	15.07	0.178	0.0
Antelope 14-4	49-035-22717	Pinedale Anticline	**CT-3468**	42.50611	109.60889	267,889	2,020	0.00	15.07	0.180	0.0
Falcon 1-36	49-035-21742	Pinedale Anticline	AP-S50 Waiver / AP-0500 / MD-864	42.53056	109.65750	79,975	544	0.00	15.07	0.232	0.0
Falcon 2-36D	49-035-23797	Pinedale Anticline	Application Pending	42.5277	109.65828	496,889	4,629	0.58	15.07	0.313	0.0
Falcon 7-36D	49-035-23795	Pinedale Anticline	Application Pending	42.52769	109.65831	471,048	5,748	0.58	11.29	0.101	0.0
Falcon 8-36	49-035-22327	Pinedale Anticline	AP-0500 / **MD-864**	42.52778	109.65778	276,644	2,554	0.00	11.29	0.163	0.0
Jensen 6-11D	49-035-22875	Pinedale Anticline	**CT-3646**	42.67806	109.80249	537,395	3,771	0.00	11.29	0.168	0.0
Jensen 1	49-035-20606	Pinedale Anticline	AP-N21, AP-KV0 Waiver, PNA	42.67428	109.80739	0	0	0.00	10.45	0.000	0.0
Jensen 1A	49-035-22263	Pinedale Anticline	**CT-3123**	42.67527	109.80583	671,548	4,157	0.00	10.45	0.000	0.0
Jensen 9-10D	49-035-23707	Pinedale Anticline	AP-3353	42.67540	109.80629	1,688,943	9,010	0.00	9.17	0.000	0.0
Jensen 2	49-035-20748	Pinedale Anticline	AP-N31, AP-KU0 Waiver	42.66555	109.79194	0	0	0.00	9.17	0.062	0.0
Jensen 15-11D	49-035-23283	Pinedale Anticline	AP-3062	42.67010	109.79727	385,247	3,022	0.00	9.17	0.070	0.0
Jensen 16-11D	49-035-23284	Pinedale Anticline	AP-3062	42.66531	109.79186	609,225	3,889	0.00	9.17	0.141	0.0
Jensen 3	49-035-21666	Pinedale Anticline	AP-2830	42.66100	109.80266	0	0	0.00	9.17	0.143	0.0
Jensen 4	49-035-21902	Pinedale Anticline	AP-2830	42.66306	109.80333	132,888	736	0.00	9.17	0.273	0.0
Jensen 14-11D	49-035-23300	Pinedale Anticline	AP-2830	42.66299	109.80027	850,425	4,541	0.00	9.17	0.279	0.0
Jensen 3-14	49-035-23313	Pinedale Anticline	AP-2830	42.66304	109.81026	563,681	5,118	0.00	9.17	0.456	0.0
Jensen 7-11D	49-035-23282	Pinedale Anticline	AP-3624	42.67055	109.80414	1,317,826	7,144	0.76	9.17	0.459	0.0
Jensen 10-11D	49-035-22660	Pinedale Anticline	**CT-3196**	42.67055	109.80277	524,527	3,734	0.00	5.24	0.000	0.0
Jensen 11-11D	49-035-22701	Pinedale Anticline	AP-3624 / AP-2830	42.67055	109.80277	817,715	6,015	0.00	5.24	0.000	0.0
Jensen 12-11D	49-035-23285	Pinedale Anticline	AP-3624 / AP-2830	42.67055	109.80277	1,281,885	7,660	0.00	5.24	0.091	0.0
Jensen 13-11D	49-035-23566	Pinedale Anticline	AP-3624 / AP-2830	42.67055	109.80277	572,603	4,580	0.00	5.24	0.162	0.0
Mesa 6-28D	49-035-22603	Pinedale Anticline	AP-0036 / **CT-3134**	42.71583	109.84083	620,530	4,385	0.00	5.24	0.238	0.0
Mesa 11-28	49-035-22530	Pinedale Anticline	AP-0036 / **CT-3134**	42.71583	109.84083	410,530	2,843	0.00	5.24	0.331	0.0
Mesa 12-28	49-035-22564	Pinedale Anticline	AP-0847 / **MD-911**	42.71583	109.84083	518,727	3,606	0.00	5.24	0.374	0.0
Mesa 13-28D	49-035-22774	Pinedale Anticline	AP-1905 (4/20/04) **MD-1091**	42.71556	109.84083	566,498	4,578	0.00	5.24	0.441	0.0
Mesa 14-28D	49-035-22775	Pinedale Anticline	AP-0847 / **MD-911**	42.71556	109.84083	623,111	4,111	0.00	5.24	0.509	0.0
Mesa 9-29D	49-035-22565	Pinedale Anticline	AP-1905 (4/20/04) **MD-1091**	42.71583	109.84583	417,857	3,047	0.00	4.74	0.000	0.0
Mesa 3-28D	49-035-22698	Pinedale Anticline	**CT-3369**	42.72194	109.84917	544,990	3,653	0.00	4.74	0.000	0.0
Mesa 4-28D	49-035-22695	Pinedale Anticline	**CT-3369**	42.72194	109.84917	462,051	3,780	0.00	4.74	0.000	0.0
Mesa 5-28D	49-035-22697	Pinedale Anticline	**CT-3369**	42.72194	109.84917	475,580	3,943	0.00	4.74	0.076	0.0
Mesa 1-29D	49-035-22699	Pinedale Anticline	**CT-3369**	42.72194	109.84917	449,607	3,594	0.00	4.74	0.131	0.0
Mesa 5-33	49-035-23090	Pinedale Anticline	**CT-3785**	42.70571	109.84738	592,434	4,023	0.00	4.74	0.221	0.0
Mesa 6-33D	49-035-23089	Pinedale Anticline	**CT-3785**	42.70069	109.84650	478,370	4,066	0.00	4.74	0.294	0.0
Mesa 11-33D	49-035-23054	Pinedale Anticline	NOI SENT TO WDEQ	42.70151	109.84681	523,586	3,769	0.00	4.74	0.368	0.0
Mesa 12-33	49-035-23367	Pinedale Anticline	NOI SENT TO WDEQ	42.70130	109.84629	814,212	6,413	0.00	4.74	0.413	0.0
Mesa 13-33D	49-035-23051	Pinedale Anticline	NOI SENT TO WDEQ	42.70118	109.84603	750,250	5,338	0.00	4.74	0.448	0.0
Mesa 14-33D	49-035-23368	Pinedale Anticline	NOI SENT TO WDEQ	42.70140	109.84655	1,033,394	6,676	0.00	0.00	0.000	0.0
Mesa 9-32D	49-035-23053	Pinedale Anticline	NOI SENT TO WDEQ	42.70108	109.84578	543,079	4,222	0.00	0.00	0.000	0.0
Mesa 11-34D	49-035-23366	Pinedale Anticline	NOI SENT TO WDEQ	42.69913	109.82406	986,633	4,359	0.57	0.00	0.000	0.0
Mesa 12-34	49-035-22907	Pinedale Anticline	**CT-3649**	42.71056	109.80611	896,633	5,543	0.00	0.00	0.000	0.0
Mesa 13-34D	49-035-23365	Pinedale Anticline	NOI SENT TO WDEQ	42.69913	109.82403	808,545	5,165	0.57	0.00	0.000	0.0
Mesa 14-34D	49-035-22908	Pinedale Anticline	NOI SENT TO WDEQ	42.70053	109.82800	1,568,863	9,233	0.00	0.00	0.147	0.0
Mesa 11-35D	49-035-22947	Pinedale Anticline	NOI SENT TO WDEQ	42.69611	109.80781	416,204	2,848	0.50	0.00	0.307	0.0
Mesa 12-35D	49-035-22946	Pinedale Anticline	NOI SENT TO WDEQ	42.69633	109.80789	982,999	5,896	0.50	0.00	0.414	0.0
Mesa 13-35	49-035-22948	Pinedale Anticline	AP-2061	42.69601	109.80776	887,696	5,470	0.00	0.00	0.456	0.0
Mesa 14-35D	49-035-22945	Pinedale Anticline	NOI SENT TO WDEQ	42.6959	109.80772	407,562	2,611	0.50	0.00	0.457	0.0
Mesa 1-27	49-035-22900	Pinedale Anticline	**CT-3751**	42.72202	109.81196	195,882	2,272	0.00	0.00	0.496	0.0
Mesa 7-27	49-035-22422	Pinedale Anticline	**CT-3132**	42.71806	109.81722	421,168	3,179	0.00	0.00	0.542	0.0
Mesa 13-26	49-035-22611	Pinedale Anticline	**CT-3285**	42.71056	109.80611	573,234	4,249	0.00	0.00	0.542	0.0
New Fork 7-3	49-035-22473	Pinedale Anticline	**CT3141 Corrected**	42.68861	109.81667	792,000	4,453	0.00	0.00	0.542	0.0
New Fork 13-10	49-035-21646	Pinedale Anticline	AP-WM9 Waiver	42.57833	109.71165	15,659	113	0.00	0.00	0.542	0.0
New Fork 11-24	49-035-22359	Pinedale Anticline	**CT-3224**	42.64056	109.78250	366,193	2,078	0.00	0.00	0.542	0.0
New Fork 13-32S	49-035-22317	Pinedale Anticline	AP-1709 Waiver	42.60750	109.75083	23,288	210	0.00	0.00	0.542	0.0
North Mesa 4-7	49-035-22588	Pinedale Anticline	AP-1471 Waiver	42.76861	109.88750	26,756	368	0.00	0.00	0.542	0.0
Pinedale 13-19	49-035-21757	Pinedale Anticline	**CT-2013**	42.63631	109.76840	60,807	291	0.00	0.00	0.542	0.0
Steele 16-31	49-035-21725	Pinedale Anticline	AP-MS0 Waiver	42.86860	109.90250	0	0	0.00	0.00	0.542	0.0
Rainbow 7-31	49-035-22055	Pinedale Anticline	**CT3124**	42.52750	109.64306	165,187	1,318	0.00	0.00	0.542	0.0
Rainbow 11-32	49-035-22693	Pinedale Anticline	AP-4228	42.51972	109.62889	442,494	4,464	0.00	0.00	0.542	0.0
Rainbow 12-32	49-035-22680	Pinedale Anticline	AP-4228	42.52028	109.63333	362,981	4,255	0.00	0.00	0.542	0.0
Rainbow 13-32	49-035-22638	Pinedale Anticline	AP-4228	42.52028	109.63333	212,951	2,326	0.00	0.00	0.542	0.0
Rainbow 14-32	49-035-22641	Pinedale Anticline	AP-4228	42.51972	109.62888	162,697	2,102	0.76	0.00	0.542	0.0
Rainbow 11-31	49-035-22637	Pinedale Anticline	**CT3231**	42.52361	109.64750	212,306	1,956	0.00	0.00	0.542	0.0
Riverside 11-2D	49-035-22895	Pinedale Anticline	NOI SENT TO WDEQ	42.68500	109.80301	1,110,401	6,315	0.00	0.00	0.542	0.0
Riverside 12-2D	49-035-23549	Pinedale Anticline	NOI SENT TO WDEQ	42.68355	109.80343	1,408,823	6,879	0.00	0.00	0.542	0.0
Riverside 14-2D	49-035-23548	Pinedale Anticline	NOI SENT TO WDEQ	42.68311	109.80344	1,321,415	7,424	0.00	0.00	0.542	0.0
Pinedale 13-2A	49-035-21830	Pinedale Anticline	**CT-2011**	42.68249	109.80750	279,704	1,607	0.00	0.00	0.542	0.0
Riverside 1-3D	49-035-22898	Pinedale Anticline	AP-4223	42.69045	109.81260	1,595,846	8,437	0.00	0.00	0.542	0.0
Riverside 2-3D	49-035-22899	Pinedale Anticline	AP-4223	42.69044	109.81262	1,617,619	8,347	0.00	0.00	0.542	0.0
Riverside 8-3D	49-035-23162	Pinedale Anticline	AP-4223	42.68835	109.81127	1,332,653	6,450	0.00	0.00	0.542	0.0
Riverside 11-3D(ST)	49-035-23006	Pinedale Anticline	NOI SENT TO WDEQ	42.68260	109.82693	904,245	5,220	1.04	0.00	0.542	0.0
Riverside 12-3	49-035-23360	Pinedale Anticline	NOI SENT TO WDEQ	42.68599	109.8254	586,896	2,749	0.76	0.00	0.542	0.0
Riverside 13-3(ST)	49-035-23008	Pinedale Anticline	**CT-3649**	42.68266	109.82675	284,790	2,192	0.00	0.00	0.542	0.0
Riverside 14-3D	49-035-23359	Pinedale Anticline	NOI SENT TO WDEQ	42.68597	109.82538	678,098	4,330	0.76	0.00	0.542	0.0
Riverside 5-4D	49-035-23956	Pinedale Anticline	AP-4224	42.68469	109.8448	155,053	957	0.45	0.00	0.542	0.0
Riverside 6-4D	49-035-23904	Pinedale Anticline	AP-4224	42.68501	109.84521	398,372	2,900	0.45	0.00	0.542	0.0
Riverside 11-4D	49-035-23955	Pinedale Anticline	AP-4224	42.68485	109.84500	0	0	0.45	0.00	0.542	0.0

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

				Location		Production		Drill Rig Engines		Process Burners	Wellhead IC Engines
						Gas	Condensate	SO2	N0x	N0x	N0x
Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MCF	BBL	TPY	TPY	TPY	TPY
Riverside 14-4D	49-035-23960	Pinedale Anticline	AP-4224	42.68453	109.84459	57,750	651	0.45	0.00	0.542	0.0
Riverside 1-13D	49-035-23346	Pinedale Anticline	AP-4226	42.65919	109.77133	1,254,923	8,661	0.00	0.00	0.542	0.0
Riverside 2-13D	49-035-23342	Pinedale Anticline	AP-4226	42.65919	109.77133	1,053,221	6,334	0.00	0.00	0.542	0.0
Riverside 7-13	49-035-23348	Pinedale Anticline	AP-4226	42.65919	109.77133	926,134	7,305	0.00	0.00	0.542	0.0
Riverside 8-13D	49-035-23345	Pinedale Anticline	AP-4226	42.65919	109.77133	1,090,546	6,621	0.00	0.00	0.542	0.0
Riverside 11-13	49-035-23349	Pinedale Anticline	AP-4225	42.65545	109.78316	396,492	2,992	0.58	0.00	0.542	0.0
Riverside 12-13D	49-035-23343	Pinedale Anticline	AP-4225	42.65537	109.78421	349,623	2,769	0.58	0.00	0.542	0.0
Riverside 13-13D	49-035-23344	Pinedale Anticline	AP-4225	42.6553	109.78338	331,847	2,687	0.58	0.00	0.542	0.0
Riverside 14-13D	49-035-23347	Pinedale Anticline	AP-4225	42.65538	109.77594	425,663	2,385	0.58	0.00	0.542	0.0
Riverside 2-14	49-035-21901	Pinedale Anticline	**CT-3284**	42.66308	109.79836	571,431	3,699	0.00	0.00	0.542	0.0
Pinedale 1-14	49-035-21512	Pinedale Anticline	AP-WM9 Waiver	42.66044	109.79356	39,777	292	0.00	0.00	0.542	0.0
Riverside 8-23D	49-035-23272	Pinedale Anticline	Application Pending	42.64844	109.79201	239,212	1,940	0.76	0.00	0.542	0.0
Riverside 2-24	49-035-23005	Pinedale Anticline	**CT-3762**	42.64779	109.77945	514,300	3,980	0.00	0.00	0.542	0.0
Riverside 11-25	49-035-23352	Pinedale Anticline	Application Pending	42.62604	109.78300	265,866	1,819	0.57	0.00	0.542	0.0
Vible 1-11D	49-035-23097	Pinedale Anticline	AP-2945	42.67368	109.79338	943,504	5,931	0.00	0.00	0.542	0.0
Vible 8-11	49-035-23298	Pinedale Anticline	AP-2945	42.67389	109.79285	848,745	6,034	0.00	0.00	0.542	0.0
Vible 4-12D	49-035-23303	Pinedale Anticline	AP-2945	42.67402	109.79229	1,179,029	11,191	0.00	0.00	0.542	0.0
Jensen 2-11D	49-035-23302	Pinedale Anticline	AP-2945	42.67389	109.79285	1,040,694	6,002	0.00	0.00	0.542	0.0
Warbonnet 11-4D	49-035-23356	Pinedale Anticline	NOI SENT TO WDEQ	42.59759	109.7263	870,007	5,917	0.50	0.00	0.542	0.0
Warbonnet 12-4D	49-035-23309	Pinedale Anticline	NOI SENT TO WDEQ	42.59739	109.72619	1,049,338	8,615	0.50	0.00	0.542	0.0
Warbonnet 13-4D	49-035-23310	Pinedale Anticline	NOI SENT TO WDEQ	42.59699	109.72595	882,856	7,455	0.50	0.00	0.542	0.0
Warbonnet 14-4D	49-035-23311	Pinedale Anticline	NOI SENT TO WDEQ	42.59718	109.72608	972,988	7,315	0.50	0.00	0.542	0.0
Warbonnet 1-6D	49-035-23232	Pinedale Anticline	AP-3775	42.6009	109.75708	888,527	5,572	0.45	0.00	0.542	0.0
Warbonnet 8-6D	49-035-23233	Pinedale Anticline	AP-3775	42.60091	109.75678	694,468	5,538	0.45	0.00	0.542	0.0
Warbonnet 1-9D	49-035-23175	Pinedale Anticline	AP-3554	42.58773	109.71836	1,309,239	11,880	0.00	0.00	0.542	0.0
Warbonnet 2-9D	49-035-23785	Pinedale Anticline	AP-3554	42.58751	109.71831	1,104,821	8,618	0.45	0.00	0.542	0.0
Wabronnet 7-9D(X)	49-035-22933	Pinedale Anticline	AP-3554	42.58679	109.71893	991,187	7,785	0.45	0.00	0.542	0.0
Warbonnet 8-9D	49-035-22934	Pinedale Anticline	CT-3879	42.58721	109.71833	385,056	2,531	0.00	0.00	0.542	0.0
Warbonnet 11-10	49-035-22894	Pinedale Anticline	**CT-3422**	42.58206	109.70706	300,346	2,097	0.00	0.00	0.542	0.0
Warbonnet 11-14D	49-035-22930	Pinedale Anticline	**CT-3501**	42.56427	109.69240	363,630	2,525	0.00	0.00	0.542	0.0
Warbonnet 13-14	49-035-22926	Pinedale Anticline	AP-1321 / CT-3501	42.56427	109.69240	597,012	4,542	0.00	0.00	0.542	0.0
Mesa 1B-29D	49-035-24135	Pinedale Anticline	Application Pending	42.72045	109.85431	0	0	0.50	0.00	0.542	0.0
Mesa 7A-29D	49-035-24128	Pinedale Anticline	Application Pending	42.72050	109.85511	0	0	0.45	0.00	0.542	0.0
Mesa 7B-29D	49-035-24136	Pinedale Anticline	Application Pending	42.72050	109.85520	0	0	0.45	0.00	0.542	0.0
Mesa 8A-29D	49-035-24127	Pinedale Anticline	Application Pending	42.72045	109.85433	0	0	0.50	0.00	0.542	0.0
North Mesa 16-1D	49-035-23289	Pinedale Anticline	Application Pending	42.77265	109.89207	0	0	0.67	0.00	0.542	0.0
Vible 1A-11D	49-035-23798	Pinedale Anticline	Application Pending	42.52769	109.65831	0	0	1.04	0.00	0.542	0.0
Vible 1B-11D	49-035-24198	Pinedale Anticline	Application Pending	42.67407	109.79221	0	0	0.76	0.00	0.542	0.0
Vible 1D-11D	49-035-23799	Pinedale Anticline	Application Pending	42.67397	109.79227	0	0	1.04	0.00	0.542	0.0
Warbonnet 2-5D	49-035-23977	Pinedale Anticline	Application Pending	42.60043	109.74267	0	0	0.67	0.00	0.542	0.0
Warbonnet 12-10D	49-035-23533	Pinedale Anticline	Application Pending	42.57880	109.71211	0	0	1.04	0.00	0.542	0.0
Jensen 1-15D	49-035-23894	Pinedale Anticline	Application Pending	42.66285	109.80382	0	0	0.58	0.00	0.542	0.0
Totals						**67,853,254**	**473,150**	**26.04**	**399.55**	**48.27**	**0.00**

Total NOX TPY	**506.8**
Total VOC TPY	**402.0**

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

	Flashing Emissions Tanks and Pressurized Vessels						Glycol Dehydration Units Still & Flash Tank Vents					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled
Well Name	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
Antelope 2-6	8.163	9.89E-02	1.54E-01	4.73E-03	5.45E-02	N	0.890	0.130	0.270	0.010	0.100	Y
Antelope 11-10D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N	0.000	0.000	0.000	0.000	0.000	N
Antelope 11-4	11.045	1.34E-01	2.08E-01	6.41E-03	7.38E-02	N	0.890	0.130	0.280	0.010	0.110	Y
Antelope 1-9	0.234	2.84E-03	4.41E-03	1.36E-04	1.57E-03	Y	0.940	0.140	0.290	0.010	0.110	Y
Antelope 2-9	0.067	8.13E-04	1.26E-03	3.89E-05	4.48E-04	Y	0.700	0.100	0.200	0.010	0.060	Y
Antelope 12-4D	0.182	2.21E-03	3.43E-03	1.06E-04	1.22E-03	Y	1.910	0.210	0.490	0.020	0.270	Y
Antelope 13-4D	0.571	6.91E-03	1.07E-02	3.31E-04	3.81E-03	Y	1.550	0.210	0.450	0.020	0.190	Y
Antelope 14-4	0.123	1.49E-03	2.31E-03	7.13E-05	8.22E-04	Y	0.690	0.100	0.220	0.010	0.090	Y
Falcon 1-36	0.031	3.81E-04	5.92E-04	1.82E-05	2.10E-04	Y	0.470	0.070	0.140	0.004	0.050	Y
Falcon 2-36D	0.335	4.05E-03	6.30E-03	1.94E-04	2.24E-03	Y	0.470	0.070	0.150	0.005	0.060	Y
Falcon 7-36D	0.470	5.70E-03	8.85E-03	2.73E-04	3.14E-03	Y	0.470	0.070	0.150	0.005	0.070	Y
Falcon 8-36	0.156	1.89E-03	2.94E-03	9.07E-05	1.04E-03	Y	0.630	0.090	0.200	0.010	0.080	Y
Jensen 6-11D	12.666	1.53E-01	2.38E-01	7.35E-03	8.46E-02	N	0.950	0.130	0.300	0.010	0.130	Y
Jensen 1	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	
Jensen 1A	0.277	3.35E-03	5.21E-03	1.61E-04	1.85E-03	Y	0.970	0.140	0.310	0.010	0.140	Y
Jensen 9-10D	0.615	7.45E-03	1.16E-02	3.57E-04	4.11E-03	Y	1.620	0.200	0.490	0.020	0.280	Y
Jensen 2	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	
Jensen 15-11D	0.199	2.41E-03	3.74E-03	1.15E-04	1.33E-03	Y	0.940	0.130	0.300	0.010	0.130	Y
Jensen 16-11D	0.258	3.13E-03	4.86E-03	1.50E-04	1.72E-03	Y	0.890	0.120	0.280	0.010	0.120	Y
Jensen 3	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	
Jensen 4	0.047	5.70E-04	8.86E-04	2.73E-05	3.15E-04	Y	0.680	0.090	0.200	0.010	0.080	Y
Jensen 14-11D	0.297	3.60E-03	5.59E-03	1.72E-04	1.98E-03	Y	0.940	0.130	0.300	0.010	0.130	Y
Jensen 3-14	0.336	4.07E-03	6.33E-03	1.95E-04	2.25E-03	Y	0.970	0.140	0.320	0.010	0.140	Y
Jensen 7-11D	0.557	6.74E-03	1.05E-02	3.23E-04	3.72E-03	Y	1.070	0.140	0.330	0.010	0.180	Y
Jensen 10-11D	0.242	2.93E-03	4.55E-03	1.40E-04	1.61E-03	Y	0.920	0.130	0.290	0.010	0.120	Y
Jensen 11-11D	0.395	4.78E-03	7.43E-03	2.29E-04	2.64E-03	Y	0.950	0.130	0.300	0.010	0.130	Y
Jensen 12-11D	0.530	6.42E-03	9.97E-03	3.07E-04	3.54E-03	Y	0.920	0.120	0.290	0.010	0.150	Y
Jensen 13-11D	0.299	3.62E-03	5.63E-03	1.73E-04	2.00E-03	Y	0.900	0.120	0.280	0.010	0.120	Y
Mesa 6-28D	0.362	4.39E-03	6.81E-03	2.10E-04	2.42E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Mesa 11-28	0.265	3.21E-03	4.99E-03	1.54E-04	1.77E-03	Y	2.150	0.300	0.690	0.020	0.310	Y
Mesa 12-28	0.338	4.09E-03	6.35E-03	1.96E-04	2.26E-03	Y	1.660	0.200	0.420	0.020	0.180	Y
Mesa 13-28D	0.434	5.26E-03	8.17E-03	2.52E-04	2.90E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Mesa 14-28D	0.338	4.09E-03	6.36E-03	1.96E-04	2.26E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Mesa 9-29D	0.265	3.21E-03	4.99E-03	1.54E-04	1.77E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Mesa 3-28D	0.236	2.86E-03	4.44E-03	1.37E-04	1.58E-03	Y	0.890	0.120	0.270	0.010	0.110	Y
Mesa 4-28D	0.244	2.95E-03	4.58E-03	1.41E-04	1.63E-03	Y	0.880	0.120	0.260	0.010	0.110	Y
Mesa 5-28D	0.254	3.08E-03	4.78E-03	1.47E-04	1.70E-03	Y	0.930	0.130	0.290	0.010	0.130	Y
Mesa 1-29D	0.232	2.81E-03	4.36E-03	1.34E-04	1.55E-03	Y	0.890	0.120	0.260	0.010	0.110	Y
Mesa 5-33	0.265	3.21E-03	4.99E-03	1.54E-04	1.77E-03	Y	0.930	0.130	0.290	0.010	0.120	Y
Mesa 6-33D	0.268	3.24E-03	5.04E-03	1.55E-04	1.79E-03	Y	0.930	0.130	0.290	0.010	0.120	Y
Mesa 11-33D	0.243	2.95E-03	4.57E-03	1.41E-04	1.62E-03	Y	0.910	0.130	0.280	0.010	0.120	Y
Mesa 12-33	0.417	5.04E-03	7.84E-03	2.42E-04	2.78E-03	Y	0.970	0.140	0.310	0.010	0.130	Y
Mesa 13-33D	0.346	4.19E-03	6.51E-03	2.01E-04	2.31E-03	Y	0.950	0.130	0.310	0.010	0.140	Y
Mesa 14-33D	0.433	5.24E-03	8.14E-03	2.51E-04	2.89E-03	Y	0.940	0.130	0.300	0.010	0.130	Y
Mesa 9-32D	0.274	3.32E-03	5.16E-03	1.59E-04	1.83E-03	Y	0.980	0.140	0.320	0.010	0.140	Y
Mesa 11-34D	0.603	7.30E-03	1.13E-02	3.50E-04	4.03E-03	Y	0.500	0.060	0.140	0.010	0.090	Y
Mesa 12-34	0.359	4.35E-03	6.76E-03	2.08E-04	2.40E-03	Y	0.920	0.130	0.290	0.010	0.130	Y
Mesa 13-34D	0.993	1.20E-02	1.87E-02	5.76E-04	6.63E-03	Y	0.560	0.070	0.170	0.010	0.100	Y
Mesa 14-34D	0.600	7.26E-03	1.13E-02	3.48E-04	4.00E-03	Y	1.640	0.210	0.480	0.020	0.250	Y
Mesa 11-35D	0.384	4.65E-03	7.22E-03	2.23E-04	2.56E-03	Y	0.640	0.090	0.200	0.010	0.100	Y
Mesa 12-35D	0.813	9.84E-03	1.53E-02	4.71E-04	5.43E-03	Y	0.940	0.120	0.290	0.010	0.150	Y
Mesa 13-35	0.358	4.34E-03	6.73E-03	2.08E-04	2.39E-03	Y	0.910	0.130	0.290	0.010	0.130	Y
Mesa 14-35D	0.988	1.20E-02	1.86E-02	5.73E-04	6.60E-03	Y	0.290	0.040	0.090	0.003	0.050	Y
Mesa 1-27	7.833	9.49E-02	1.47E-01	4.54E-03	5.23E-02	N	0.860	0.110	0.250	0.010	0.100	Y
Mesa 7-27	10.592	1.28E-01	1.99E-01	6.14E-03	7.08E-02	N	0.880	0.120	0.270	0.010	0.110	Y
Mesa 13-26	14.069	1.70E-01	2.65E-01	8.16E-03	9.40E-02	N	0.960	0.140	0.300	0.010	0.120	Y
New Fork 7-3	0.297	3.59E-03	5.58E-03	1.72E-04	1.98E-03	Y	0.950	0.130	0.310	0.010	0.140	Y
New Fork 13-10	0.011	1.34E-04	2.09E-04	6.43E-06	7.41E-05	Y	0.710	0.110	0.220	0.010	0.060	Y
New Fork 11-24	7.042	8.53E-02	1.32E-01	4.08E-03	4.70E-02	N	0.910	0.130	0.280	0.010	0.120	Y
New Fork 13-32S	0.944	1.14E-02	1.78E-02	5.47E-04	6.30E-03	N	6.800	0.750	1.790	0.080	0.980	N
North Mesa 4-7	1.527	1.85E-02	2.87E-02	8.86E-04	1.02E-02	N	4.400	0.500	1.270	0.060	0.770	N
Pinedale 13-19	1.209	1.46E-02	2.27E-02	7.01E-04	8.08E-03	N	0.280	0.040	0.090	0.003	0.030	Y
Steele 16-31	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	
Rainbow 7-31	4.396	5.32E-02	8.27E-02	2.55E-03	2.94E-02	N	0.810	0.110	0.230	0.010	0.090	Y
Rainbow 11-32	0.267	3.23E-03	5.02E-03	1.55E-04	1.78E-03	Y	0.930	0.140	0.300	0.010	0.110	Y
Rainbow 12-32	0.255	3.09E-03	4.80E-03	1.48E-04	1.70E-03	Y	1.200	0.140	0.350	0.020	0.210	Y
Rainbow 13-32	0.139	1.69E-03	2.62E-03	8.08E-05	9.31E-04	Y	0.800	0.110	0.220	0.010	0.080	Y
Rainbow 14-32	0.260	3.15E-03	4.89E-03	1.51E-04	1.74E-03	Y	0.440	0.060	0.140	0.004	0.060	Y
Rainbow 11-31	6.318	7.65E-02	1.19E-01	3.66E-03	4.22E-02	N	0.850	0.120	0.240	0.010	0.090	Y
Riverside 11-2D	0.409	4.95E-03	7.68E-03	2.37E-04	2.73E-03	Y	1.710	0.220	0.510	0.020	0.240	Y
Riverside 12-2D	0.447	5.42E-03	8.42E-03	2.59E-04	2.99E-03	Y	1.710	0.220	0.510	0.020	0.250	Y
Riverside 14-2D	0.484	5.86E-03	9.11E-03	2.81E-04	3.23E-03	Y	1.710	0.220	0.510	0.020	0.250	Y
Pinedale 13-2A	0.104	1.26E-03	1.96E-03	6.05E-05	6.96E-04	Y	0.950	0.130	0.300	0.010	0.120	Y
Riverside 1-3D	0.549	6.65E-03	1.03E-02	3.19E-04	3.67E-03	Y	1.690	0.220	0.500	0.020	0.250	Y
Riverside 2-3D	0.547	6.62E-03	1.03E-02	3.17E-04	3.65E-03	Y	1.700	0.220	0.500	0.020	0.260	Y
Riverside 8-3D	0.484	5.86E-03	9.11E-03	2.81E-04	3.23E-03	Y	0.930	0.120	0.290	0.010	0.170	Y
Riverside 11-3D(ST)	0.358	4.34E-03	6.74E-03	2.08E-04	2.39E-03	Y	0.590	0.070	0.170	0.010	0.100	Y
Riverside 12-3	0.512	6.20E-03	9.63E-03	2.97E-04	3.42E-03	Y	0.460	0.060	0.140	0.010	0.070	Y
Riverside 13-3(ST)	0.146	1.76E-03	2.74E-03	8.45E-05	9.73E-04	Y	0.830	0.120	0.270	0.010	0.110	Y
Riverside 14-3D	0.612	7.41E-03	1.15E-02	3.55E-04	4.09E-03	Y	0.600	0.080	0.180	0.010	0.100	Y
Riverside 5-4D	0.255	3.09E-03	4.80E-03	1.48E-04	1.70E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Riverside 6-4D	0.458	5.55E-03	8.62E-03	2.66E-04	3.06E-03	Y	0.920	0.120	0.290	0.010	0.150	Y
Riverside 11-4D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	Y	0.000	0.000	0.000	0.000	0.000	Y

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

	Flashing Emissions Tanks and Pressurized Vessels						Glycol Dehydration Units Still & Flash Tank Vents					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled
Well Name	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
Riverside 14-4D	0.254	3.08E-03	4.78E-03	1.47E-04	1.70E-03	Y	0.000	0.000	0.000	0.000	0.000	Y
Riverside 1-13D	0.568	6.88E-03	1.07E-02	3.29E-04	3.79E-03	Y	0.920	0.130	0.290	0.010	0.140	Y
Riverside 2-13D	0.415	5.03E-03	7.81E-03	2.41E-04	2.77E-03	Y	0.920	0.130	0.290	0.010	0.140	Y
Riverside 7-13	0.478	5.78E-03	8.98E-03	2.77E-04	3.19E-03	Y	0.960	0.140	0.310	0.010	0.140	Y
Riverside 8-13D	0.513	6.21E-03	9.65E-03	2.98E-04	3.43E-03	Y	0.570	0.070	0.170	0.010	0.110	Y
Riverside 11-13	0.771	9.33E-03	1.45E-02	4.47E-04	5.15E-03	Y	0.280	0.040	0.080	0.003	0.050	Y
Riverside 12-13D	0.697	8.44E-03	1.31E-02	4.04E-04	4.65E-03	Y	0.330	0.050	0.110	0.004	0.050	Y
Riverside 13-13D	0.359	4.35E-03	6.76E-03	2.08E-04	2.40E-03	Y	0.470	0.060	0.140	0.005	0.070	Y
Riverside 14-13D	0.576	6.98E-03	1.08E-02	3.34E-04	3.85E-03	Y	0.430	0.060	0.130	0.005	0.070	Y
Riverside 2-14	0.244	2.95E-03	4.59E-03	1.41E-04	1.63E-03	Y	0.950	0.140	0.300	0.010	0.120	Y
Pinedale 1-14	0.018	2.12E-04	3.30E-04	1.02E-05	1.17E-04	Y	0.230	0.040	0.070	0.002	0.030	Y
Riverside 8-23D	0.256	3.10E-03	4.81E-03	1.48E-04	1.71E-03	Y	0.250	0.040	0.080	0.003	0.030	Y
Riverside 2-24	16.193	1.96E-01	3.05E-01	9.39E-03	1.08E-01	N	1.030	0.130	0.320	0.010	0.160	Y
Riverside 11-25	0.463	5.61E-03	8.71E-03	2.69E-04	3.09E-03	Y	0.400	0.050	0.120	0.005	0.070	Y
Vible 1-11D	0.387	4.68E-03	7.28E-03	2.24E-04	2.58E-03	Y	0.960	0.140	0.310	0.010	0.130	Y
Vible 8-11	0.393	4.76E-03	7.40E-03	2.28E-04	2.63E-03	Y	0.950	0.130	0.300	0.010	0.130	Y
Vible 4-12D	0.761	9.22E-03	1.43E-02	4.41E-04	5.08E-03	Y	0.970	0.130	0.310	0.010	0.150	Y
Jensen 2-11D	0.394	4.77E-03	7.41E-03	2.29E-04	2.63E-03	Y	0.920	0.130	0.290	0.010	0.130	Y
Warbonnet 11-4D	0.454	5.50E-03	8.54E-03	2.63E-04	3.03E-03	Y	1.560	0.150	0.350	0.010	0.180	Y
Warbonnet 12-4D	0.733	8.88E-03	1.38E-02	4.25E-04	4.90E-03	Y	1.310	0.170	0.400	0.010	0.210	Y
Warbonnet 13-4D	0.573	6.94E-03	1.08E-02	3.32E-04	3.83E-03	Y	1.630	0.220	0.510	0.020	0.240	Y
Warbonnet 14-4D	0.464	5.62E-03	8.72E-03	2.69E-04	3.10E-03	Y	1.900	0.260	0.600	0.020	0.280	Y
Warbonnet 1-6D	0.616	7.46E-03	1.16E-02	3.58E-04	4.12E-03	Y	0.840	0.110	0.254	0.010	0.140	Y
Warbonnet 8-6D	0.431	5.22E-03	8.11E-03	2.50E-04	2.88E-03	Y	1.090	0.140	0.320	0.010	0.170	Y
Warbonnet 1-9D	0.763	9.24E-03	1.44E-02	4.43E-04	5.10E-03	Y	1.750	0.230	0.530	0.020	0.280	Y
Warbonnet 2-9D	0.604	7.31E-03	1.14E-02	3.50E-04	4.03E-03	Y	1.390	0.180	0.410	0.020	0.230	Y
Wabronnet 7-9D(X)	0.594	7.19E-03	1.12E-02	3.44E-04	3.97E-03	Y	1.290	0.160	0.390	0.010	0.210	Y
Warbonnet 8-9D	0.160	1.94E-03	3.02E-03	9.31E-05	1.07E-03	Y	0.970	0.140	0.310	0.010	0.120	Y
Warbonnet 11-10	0.141	1.70E-03	2.64E-03	8.15E-05	9.39E-04	Y	0.930	0.130	0.280	0.010	0.110	Y
Warbonnet 11-14D	0.161	1.95E-03	3.03E-03	9.33E-05	1.07E-03	Y	1.260	0.150	0.380	0.020	0.230	Y
Warbonnet 13-14	0.288	3.49E-03	5.42E-03	1.67E-04	1.92E-03	Y	0.900	0.130	0.290	0.010	0.130	Y
Mesa 1B-29D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Mesa 7A-29D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Mesa 7B-29D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Mesa 8A-29D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
North Mesa 16-1D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Vible 1A-11D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Vible 1B-11D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Vible 1D-11D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Warbonnet 2-5D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Warbonnet 12-10D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Jensen 1-15D	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.000	0.000	0.000	0.000	0.000	New Well
Totals	**138.65**	**1.68**	**2.61**	**0.08**	**0.93**	**0.00**	**106.68**	**14.10**	**32.14**	**1.23**	**15.28**	**0.00**

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

	Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Antelope 2-6	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Antelope 11-10D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Antelope 11-4	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Antelope 1-9	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.960	2.37E-02	3.69E-02	1.14E-03	1.31E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Antelope 2-9	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.794	2.17E-02	3.37E-02	1.04E-03	1.20E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Antelope 12-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.064	1.29E-02	2.00E-02	6.17E-04	7.11E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Antelope 13-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.057	1.28E-02	1.99E-02	6.13E-04	7.06E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Antelope 14-4	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.057	1.28E-02	1.99E-02	6.13E-04	7.06E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Falcon 1-36	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.869	2.26E-02	3.52E-02	1.08E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Falcon 2-36D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.640	7.76E-03	1.20E-02	3.71E-04	4.28E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Falcon 7-36D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.627	7.59E-03	1.18E-02	3.64E-04	4.19E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Falcon 8-36	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.869	2.26E-02	3.52E-02	1.08E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 6-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 1A	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Jensen 9-10D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Jensen 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 15-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 16-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 4	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.114	1.35E-02	2.10E-02	6.46E-04	7.44E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 14-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.320	1.60E-02	2.48E-02	7.66E-04	8.82E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 3-14	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.320	1.60E-02	2.48E-02	7.66E-04	8.82E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 7-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.474	5.74E-03	8.92E-03	2.75E-04	3.17E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Jensen 10-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.820	9.93E-03	1.54E-02	4.76E-04	5.48E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 11-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.820	9.93E-03	1.54E-02	4.76E-04	5.48E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 12-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.820	9.93E-03	1.54E-02	4.76E-04	5.48E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 13-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.820	9.93E-03	1.54E-02	4.76E-04	5.48E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 6-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 11-28	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 12-28	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 13-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 14-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 9-29D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.626	7.58E-03	1.18E-02	3.63E-04	4.18E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 3-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 4-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 5-28D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 1-29D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 5-33	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 6-33D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 11-33D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.751	9.09E-03	1.41E-02	4.35E-04	5.02E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 12-33	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.751	9.09E-03	1.41E-02	4.35E-04	5.02E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 13-33D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.751	9.09E-03	1.41E-02	4.35E-04	5.02E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 14-33D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.751	9.09E-03	1.41E-02	4.35E-04	5.02E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 9-32D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.751	9.09E-03	1.41E-02	4.35E-04	5.02E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 11-34D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.433	5.25E-03	8.15E-03	2.51E-04	2.89E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 12-34	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.438	1.74E-02	2.70E-02	8.34E-04	9.61E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 13-34D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.445	5.39E-03	8.37E-03	2.58E-04	2.97E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 14-34D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.438	1.74E-02	2.70E-02	8.34E-04	9.61E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 11-35D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.589	7.13E-03	1.11E-02	3.42E-04	3.93E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 12-35D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.864	1.05E-02	1.63E-02	5.01E-04	5.77E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 13-35	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.972	2.39E-02	3.71E-02	1.14E-03	1.32E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 14-35D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.330	3.99E-03	6.20E-03	1.91E-04	2.20E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Mesa 1-27	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 7-27	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 13-26	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
New Fork 7-3	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
New Fork 13-10	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	2.129	2.58E-02	4.00E-02	1.23E-03	1.42E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
New Fork 11-24	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
New Fork 13-32S	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
North Mesa 4-7	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Pinedale 13-19	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	4.380	5.30E-02	8.24E-02	2.54E-03	2.93E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Steele 16-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Rainbow 7-31	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Rainbow 11-32	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.899	1.09E-02	1.69E-02	5.21E-04	6.01E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Rainbow 12-32	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.176	1.42E-02	2.21E-02	6.82E-04	7.86E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Rainbow 13-32	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.176	1.42E-02	2.21E-02	6.82E-04	7.86E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Rainbow 14-32	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.503	6.09E-03	9.46E-03	2.92E-04	3.36E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Rainbow 11-31	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 11-2D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 12-2D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 14-2D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Pinedale 13-2A	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.564	1.89E-02	2.94E-02	9.07E-04	1.04E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 1-3D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.251	1.52E-02	2.35E-02	7.26E-04	8.36E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 2-3D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.251	1.52E-02	2.35E-02	7.26E-04	8.36E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 8-3D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.251	1.52E-02	2.35E-02	7.26E-04	8.36E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 11-3D(ST)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.536	6.49E-03	1.01E-02	3.11E-04	3.58E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 12-3	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.643	7.78E-03	1.21E-02	3.73E-04	4.29E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 13-3(ST)	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.938	2.35E-02	3.65E-02	1.12E-03	1.29E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 14-3D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.637	7.72E-03	1.20E-02	3.70E-04	4.26E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 5-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.468	5.67E-03	8.81E-03	2.72E-04	3.13E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 6-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.793	9.60E-03	1.49E-02	4.60E-04	5.30E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 11-4D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000

Table F.1.1
Actual Emissions Inventory – Shell 2005 Actual Emissions Inventory

	Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Riverside 14-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.271	3.29E-03	5.10E-03	1.57E-04	1.81E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 1-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 2-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 7-13	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 8-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 11-13	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.166	2.01E-03	3.12E-03	9.61E-05	1.11E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 12-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.148	1.79E-03	2.79E-03	8.59E-05	9.89E-04	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 13-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.335	4.06E-03	6.30E-03	1.94E-04	2.24E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 14-13D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.339	4.10E-03	6.37E-03	1.96E-04	2.26E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 2-14	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	2.953	3.58E-02	5.56E-02	1.71E-03	1.97E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Pinedale 1-14	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.801	9.70E-03	1.51E-02	4.65E-04	5.35E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 8-23D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.442	5.36E-03	8.32E-03	2.57E-04	2.95E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Riverside 2-24	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Riverside 11-25	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.699	8.47E-03	1.32E-02	4.06E-04	4.67E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Vible 1-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Vible 8-11	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Vible 4-12D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 2-11D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.939	1.14E-02	1.77E-02	5.44E-04	6.27E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 11-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.706	8.54E-03	1.33E-02	4.09E-04	4.71E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 12-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.797	9.66E-03	1.50E-02	4.62E-04	5.33E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 13-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.940	1.14E-02	1.77E-02	5.45E-04	6.28E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 14-4D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.085	1.31E-02	2.04E-02	6.29E-04	7.25E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 1-6D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.132	1.37E-02	2.13E-02	6.57E-04	7.56E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 8-6D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.418	1.72E-02	2.67E-02	8.23E-04	9.48E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 1-9D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.046	1.27E-02	1.97E-02	6.07E-04	6.99E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 2-9D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.865	1.05E-02	1.63E-02	5.02E-04	5.78E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Wabronnet 7-9D(X)	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	0.797	9.65E-03	1.50E-02	4.62E-04	5.32E-03	0.034	3.57E-05	5.54E-05	1.71E-06	1.97E-05	1.637
Warbonnet 8-9D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.046	1.27E-02	1.97E-02	6.07E-04	6.99E-03	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 11-10	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	3.754	4.55E-02	7.06E-02	2.18E-03	2.51E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 11-14D	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 13-14	2.57E-02	4.57E-03	7.09E-03	2.19E-04	2.52E-03	1.877	2.27E-02	3.53E-02	1.09E-03	1.25E-02	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 1B-29D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 7A-29D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 7B-29D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Mesa 8A-29D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
North Mesa 16-1D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Vible 1A-11D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Vible 1B-11D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Vible 1D-11D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 2-5D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Warbonnet 12-10D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Jensen 1-15D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
Totals	**2.75**	**0.49**	**0.76**	**0.02**	**0.27**	**152.71**	**1.85**	**2.87**	**0.09**	**1.02**	**1.23**	**0.0013**	**0.0020**	**0.0001**	**0.0007**	**58.95**

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

Well Name	Well Name	API #	Field Name	Air Quality Permit #	Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
					Latitude	Longitude	MCF	BBL	TPY	TPY
Boulder 12A-33	BR 12a-33	4903523709	Pinedale	AP-3125	42.6114	109.7307	666,548	6,648	0.00	25.17
Boulder 15-18	BR 15-18	4903523860	Pinedale		42.6508	109.7612	138,277	1,113	3.17	25.09
Boulder 5-19	BR 5-19	4903522569	Pinedale	CT-3175	42.6439	109.7686	521,417	3,273	0.00	24.90
Boulder 7-19	BR 7-19	4903522878	Pinedale	CT-3304	42.6434	109.7617	387,328	2,317	0.00	24.63
Boulder 6-32	BR 6-32	4903523738	Pinedale		42.6139	109.7470	0	0	3.17	24.58
Boulder 14-34	BR 14-34	4903523718	Pinedale		42.6065	109.7073	0	0	3.17	24.41
Boulder 15D-7D	BR 15d-7d	4903523940	Pinedale		42.6669	109.7574	0	0	3.17	24.28
	GN 12-16 Battery									
Gannett 12-16	GN 12-16	4903523335	Pinedale		42.8280	109.8785	157,097	1,460	0.00	24.20
Gannett 11-16	GN 11-16	4903523373	Pinedale		42.8284	109.8746	119,997	1,118	0.00	24.17
Gannett 14-16	GN 14-16	4903523374	Pinedale		42.8248	109.8745	441,108	4,100	0.00	24.04
Gannett 13-16	GN 13-16	4903522015	Pinedale		42.8244	109.8772	241,728	2,211	0.00	23.96
Lovatt Draw 15-8	LD 15-8	4903521723	Pinedale		42.6694	109.8564	1,942	10	0.00	23.71
Lizard Head 11-8	LH 11-8	4903521678	Pinedale		42.6689	109.7458	8,863	56	0.00	23.60
Lizard Head 13-28	LH 13-28	4903521657	Pinedale		42.6214	109.7314	1,186	40	0.00	23.55
	MS 10-33 Battery									
Mesa 10-33	MS 10-33	4903522983	Pinedale	CT-3609	42.7011	109.8357	836,169	6,139	0.00	23.41
Mesa 9-33	MS 9-33	4903522984	Pinedale		42.7008	109.8321	1,194,593	8,720	0.00	23.20
	MS 11-22 Battery									
Mesa 11-22	MS 11-22	4903523144	Pinedale		42.7291	109.8213	516,285	5,009	0.00	23.04
Mesa 10-22D	MS 10-22d	4903523143	Pinedale		42.7304	109.8211	526,067	5,122	0.00	22.93
	MS 12-22d Battery									
Mesa 12-22D	MS 12-22d	4903522793	Pinedale		42.7300	109.8281	708,765	5,331	0.00	22.87
Mesa 13-22D	MS 13-22d	4903522794	Pinedale		42.7300	109.8281	742,392	5,503	0.00	22.85
Mesa 1-33	MS 1-33	4903522938	Pinedale	AP-1531	42.7086	109.8320	908,189	4,958	0.00	22.72
Mesa 15A-28D	MS 15a-28d	4903524076	Pinedale		42.7113	109.8326	22,204	198	3.17	22.69
	MS 15-22d Battery									
Mesa 15-22D	MS 15-22d	4903523166	Pinedale		42.7239	109.8132	493,601	4,592	0.00	22.66
Mesa 16-22BD	MS 16-22bd	4903523556	Pinedale		42.7241	109.8127	439,786	4,282	0.00	22.66
Mesa 13-23BD	MS 13-23bd	4903523559	Pinedale		42.7241	109.8127	251,709	2,333	0.00	22.61
	MS 15-35 Battery									
Mesa 15-35	MS 15-35	4903522788	Pinedale		42.6956	109.7972	396,578	3,231	0.00	22.56
Mesa 16-35CD	MS 16-35cd	4903523496	Pinedale		42.6957	109.7976	463,478	3,774	0.00	22.44
Mesa 16-35D	MS 16-35d	4903523160	Pinedale		42.6952	109.7987	421,872	3,496	0.00	22.40
Mesa 15B-27D	MS 15b-27d	4903522998	Pinedale		42.7107	109.8168	483,886	3,271	3.17	22.39
	MS 16-21d Battery									
Mesa 16-21D	MS 16-21d	4903522467	Pinedale		42.7239	109.8314	462,580	3,205	0.00	22.34
Mesa 13-22CD	MS 13-22cd	4903523498	Pinedale		42.7225	109.8265	636,495	4,403	0.00	22.28
Mesa 14-22D	MS 14-22d	4903523133	Pinedale		42.7219	109.8217	824,342	5,716	0.00	21.96
Mesa 14C-22D	MS 14c-22d	4903523905	Pinedale		42.7218	109.8215	0	0	3.17	21.96
Mesa 15-21D	MS 15-21d	4903522466	Pinedale		42.7239	109.8311	595,265	4,127	0.00	21.82
Mesa 15-21AD	MS 15-21ad	4903523467	Pinedale		42.7238	109.8313	544,179	3,753	0.00	21.74
Mesa 16-21CD	MS 16-21cd	4903523468	Pinedale		42.7235	109.8337	375	3	0.00	21.69
	MS 16b-28d Battery									
Mesa 16B-28D	MS 16b-28d	4903523518	Pinedale		42.7115	109.8326	1,271,153	7,852	0.00	21.63
Mesa 16D-28D	MS 16d-28d	4903523517	Pinedale		42.7109	109.8329	1,254,886	7,778	0.00	21.49
	MS 2-28d Battery									
Mesa 2-28D	MS 2-28d	4903522363	Pinedale		42.7239	109.8311	613,109	4,120	0.00	21.42
Mesa 6-27D	MS 6-27d	4903522597	Pinedale		42.7181	109.8226	418,831	2,815	0.00	21.31
Mesa 3-27	MS 3-27	4903522790	Pinedale		42.7222	109.8200	784,293	5,261	0.00	21.31
Mesa 4-27	MS 4-27	4903522700	Pinedale		42.7226	109.8264	547,574	3,682	0.00	21.15
Mesa 4-27CD	MS 4-27cd	4903523497	Pinedale		42.7226	109.8266	951,287	6,363	0.00	19.69
Mesa 5-27D	MS 5-27d	4903522606	Pinedale		42.7181	109.8226	553,254	3,717	0.00	0.00
Mesa 1-28D	MS 1-28d	4903522390	Pinedale		42.7236	109.8311	672,568	4,520	0.00	0.00
Mesa 3-27CD	MS 3-27cd	4903523903	Pinedale		42.7218	109.8216	230,961	1,583	3.17	0.00
	MS 3-18d Battery									
Mesa 3-18D	MS 3-18d	4903523176	Pinedale		42.7502	109.8806	360,664	3,233	0.00	0.00
Mesa 6-18	MS 6-18	4903523159	Pinedale		42.7506	109.8803	327,778	2,980	0.00	0.00
	MS 3-35d Battery									
Mesa 3-35D	MS 3-35d	4903523111	Pinedale		42.7064	109.7981	399,994	3,466	0.00	0.00
Mesa 6-35D	MS 6-35d	4903523116	Pinedale		42.7064	109.7978	438,603	3,830	0.00	0.00
	MS 1a-35d Battery									
Mesa 1A-35D	MS 1a-35d	4903523831	Pinedale		42.7067	109.7974	38,408	258	3.17	0.00
Mesa 2-35AD	MS 2-35ad	4903523762	Pinedale		42.7066	109.7974	85,958	689	3.17	0.00
	MS 4-35 Battery									
Mesa 4-35	MS 4-35	4903522789	Pinedale		42.7061	109.8064	304,594	2,122	0.00	0.00
Mesa 5-35	MS 5-35	4903522791	Pinedale		42.7028	109.8061	577,804	4,031	0.00	0.00
Mesa 3-35CD	MS 3-35cd	4903523469	Pinedale		42.7059	109.8081	680,754	4,866	0.00	0.00
Mesa 4-35CD	MS 4-35cd	4903523519	Pinedale		42.7060	109.8081	757,838	5,299	0.00	0.00
	MS 7-28 Battery									
Mesa 7-28	MS 7-28	4903522651	Pinedale		42.7192	109.8364	444,863	2,995	0.00	0.00
Mesa 8-28	MS 8-28	4903522591	Pinedale		42.7189	109.8314	391,780	2,766	0.00	0.00
Mesa 7-34	MS 7-34	4903522867	Pinedale	CT-3615	42.7048	109.8158	625,204	3,980	0.00	0.00
	MS 9-21d Battery									
Mesa 9-21D	MS 9-21d	4903522537	Pinedale		42.7303	109.8325	359,262	2,556	0.00	0.00
Mesa 10-21D	MS 10-21d	4903522283	Pinedale		42.7303	109.8322	407,871	2,907	0.00	0.00
Mesa 9-21AD	MS 9-21ad	4903523901	Pinedale		42.7313	109.8310	209,620	1,346	0.00	0.00
Mesa 10A-21D	MS 10a-21d	4903523899	Pinedale		42.7313	109.8310	345,432	2,219	3.17	0.00
Mesa 9-22BD	MS 9-22bd	4903523553	Pinedale		42.7302	109.8136	401,095	3,738	0.00	0.00
Mesa 9-34	MS 9-34	4903522870	Pinedale	CT-3681	42.7000	109.8126	785,115	4,736	0.00	0.00
Mesa 7C-35D	MS 7c-35d	4903524103	Pinedale		42.6993	109.7968	0	0	3.17	0.00
Mesa 7D-34D	MS 7d-34d	4903524226	Pinedale		42.7043	109.8153	0	0	3.17	0.00
Mesa 8C-34D	MS 8c-34d	4903524163	Pinedale		42.7040	109.8135	0	0	3.17	0.00
Mesa 9C-35D	MS 9c-35d	4903524223	Pinedale		42.6986	109.7958	0	0	3.17	0.00
	PD 4a Battery									
Pinedale 4A	PD 4a	4903522256	Pinedale	AP-1720	42.7061	109.8242	430,570	2,470	0.00	0.00
Mesa 4-34D	MS 4-34d	4903523807	Pinedale		42.7072	109.8250	999,558	5,696	3.17	0.00
Rainbow 13-30	RB 13-30	4903523322	Pinedale	CT-3804	42.5351	109.6525	478,549	4,084	0.00	0.00
Riverside 10D-4D	RS 10d-4d	4903522953	Pinedale		42.6860	109.8323	324,827	2,121	3.17	0.00
Riverside 11-14	RS 11-14	4903523297	Pinedale	CT-3749	42.6561	109.8026	601,673	4,016	0.00	0.00
Riverside 12-12D	RS 12-12d	4903523308	Pinedale	AP-2728	42.6699	109.7877	1,664,560	9,638	0.00	0.00
	RS 1-4 Battery									
Riverside 1-4	RS 1-4	4903522590	Pinedale		42.6940	109.8322	500,369	3,231	0.00	0.00
Riverside 2D-4D	RS 2d-4d	4903523861	Pinedale		42.6939	109.8331	510,196	3,089	3.17	0.00
Riverside 15-12	RS 15-12	4903522679	Pinedale	CT-3752	42.6656	109.7783	938,967	7,069	0.00	0.00
	RS 16-3 Battery									
Riverside 16-3	RS 16-3	4903522871	Pinedale	CT-3784	42.6824	109.8116	987,493	6,192	0.00	0.00
Riverside 1-10D	RS 1-10d	4903523957	Pinedale		42.6822	109.8124	796,242	4,832	3.17	0.00
Riverside 16-4	RS 16-4	4903522962	Pinedale	AP-2932	42.6826	109.8311	696,108	4,290	0.00	0.00
Riverside 2-2	RS 2-2	4903522570	Pinedale		42.6923	109.7974	346,614	2,085	0.00	0.00
Riverside 4-10	RS 4-10	4903522704	Pinedale		42.6790	109.8263	324,793	1,716	0.00	0.00
Riverside 4D-1D	RS 4d-1d	4903523941	Pinedale		42.6866	109.7892	171,605	1,946	3.17	0.00
Riverside 4D-3D	RS 4d-3d	4903523516	Pinedale		42.6931	109.8225	1,324,554	7,890	0.00	0.00
	RS 6b-3d Battery									
Riverside 6B-3D	RS 6b-3d	4903522960	Pinedale		42.6936	109.8234	1,539,823	8,721	0.00	0.00
Riverside 3C-3D	RS 3c-3d	4903524065	Pinedale		42.6936	109.8233	451,416	2,555	3.17	0.00
	RS 8-4 Battery									
Riverside 8-4	RS 8-4	4903522716	Pinedale	AP-0475	42.6906	109.8319	438,525	2,714	0.00	0.00
Riverside 7D-4D	RS 7d-4d	4903523863	Pinedale		42.6905	109.8327	589,432	3,254	3.17	0.00

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

					Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
Well Name	Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MCF	BBL	TPY	TPY
Riverside 9-2	RS 9-2	4903522868	Pinedale	AP-0719	42.6847	109.7913	474,141	3,491	0.00	0.00
Riverside 4D-25D	RS 4d-25d	4903523746	Pinedale		42.6330	109.7907	0	0	3.17	0.00
HSR Sherlock 15-8	SF 15-8	4903521776	Pinedale		42.8392	109.8869	593	0	0.00	0.00
Warbonnet 10-9d	WB 10-9d	4903523381	Pinedale	AP-2701	42.5818	109.7207	645,634	4,641	0.00	0.00
Warbonnet 10D-4D	WB 10d-4d	4903523412	Pinedale		42.5970	109.7220	596,852	4,601	0.00	0.00
Warbonnet 1-21	WB 1-21	4903523767	Pinedale		42.5593	109.7181	97,423	779	3.17	0.00
	WB 1-26d Battery									
Warbonnet 1-26D	WB 1-26d	4903522536	Pinedale		42.5415	109.6779	272,429	1,616	0.00	0.00
Warbonnet 8-26	WB 8-26	4903522394	Pinedale	CT-3244	42.3230	109.4041	290,348	1,754	0.00	0.00
Warbonnet 12D-3D	WB 12d-3d	4903523751	Pinedale		42.5923	109.7132	599,073	6,810	3.17	0.00
	WB 13-11 Battery									
Warbonnet 13-11	WB 13-11	4903522939	Pinedale	CT-3520	42.3441	109.4135	447,259	4,398	0.00	0.00
Warbonnet 14-11D	WB 14-11d	4903523877	Pinedale		42.5780	109.6926	757,344	7,993	3.17	0.00
	WB 13-24 Battery									
Warbonnet 13-24	WB 13-24	4903522618	Pinedale	AP-2541	42.3200	109.4000	485,555	4,131	0.00	0.00
Warbonnet 14-24D	WB 14-24d	4903523558	Pinedale		42.5499	109.6729	1,063,118	9,003	0.00	0.00
Warbonnet 14B-3D	WB 14b-3d	4903523390	Pinedale		42.5936	109.7089	686,969	7,107	3.17	0.00
	WB 15-23 Battery									
Warbonnet 15-23	WB 15-23	4903522304	Pinedale	AP-0146	42.3300	109.4054	267,623	1,843	0.00	0.00
Warbonnet 2-26D	WB 2-26d	4903522494	Pinedale		42.5355	109.6817	207,588	1,436	0.00	0.00
	WB 16-5 Battery									
Warbonnet 16-5	WB 16-5	4903523339	Pinedale	AP-2304	42.3535	109.4412	505,124	4,502	0.00	0.00
Warbonnet 1-8D	WB 1-8d	4903523878	Pinedale		42.5929	109.7374	0	0	3.17	0.00
Warbonnet 9-5d	WB 9-5d	4903523386	Pinedale	AP-2601	42.5938	109.7390	709,259	6,355	0.00	0.00
Warbonnet 16B-10D	WB 16b-10d	4903523413	Pinedale		42.5778	109.6971	1,188,561	9,435	0.00	0.00
Warbonnet 16B-4D	WB 16b-4d	4903523408	Pinedale		42.5928	109.7181	605,508	5,147	0.00	0.00
	WB 16d-10d Battery									
Warbonnet 16D-10D	WB 16d-10d	4903523411	Pinedale		42.5778	109.6971	1,061,948	9,305	0.00	0.00
Warbonnet 9D-10D	WB 9d-10d	4903523465	Pinedale		42.5778	109.6972	1,296,355	11,417	0.00	0.00
Warbonnet 2-8	WB 2-8	4903523383	Pinedale		42.3522	109.4427	660,778	5,888	3.17	0.00
Warbonnet 2C-3D	WB 2c-3d	4903523754	Pinedale		42.5995	109.7033	586,660	7,286	3.17	0.00
Warbonnet 2D-4D	WB 2d-4d	4903523766	Pinedale		42.5987	109.7204	617,120	5,201	3.17	0.00
Warbonnet 3-10	WB 3-10	4903523388	Pinedale		42.5892	109.7073	642,062	5,763	3.17	0.00
Warbonnet 3-3	WB 3-3	4903523384	Pinedale		42.6027	109.7067	544,603	5,204	0.00	0.00
Warbonnet 3-4D	WB 3-4d	4903523379	Pinedale		42.5992	109.7268	721,895	6,446	0.00	0.00
Warbonnet 3-5D	WB 3-5d	4903523856	Pinedale		42.6001	109.7473	434,694	3,872	3.17	0.00
Warbonnet 4-10	WB 4-10	4903523320	Pinedale	AP-2548	42.5897	109.7112	542,978	4,627	0.00	0.00
Warbonnet 4-25	WB 4-25	4903522617	Pinedale	CT-3181	42.5452	109.6740	395,045	427	0.00	0.00
Warbonnet 4-26	WB 4-26	4903522605	Pinedale		42.5458	109.6922	104,906	427	0.00	0.00
Warbonnet 4-4D	WB 4-4d	4903523589	Pinedale	CT-4112	42.6001	109.7315	1,067,729	8,606	3.17	0.00
Warbonnet 5-10D	WB 5-10d	4903523410	Pinedale		42.5896	109.7112	589,982	5,465	0.00	0.00
Warbonnet 5-14	WB 5-14	4903523377	Pinedale	AP-2888	42.5707	109.6937	937,834	10,312	0.00	0.00
Warbonnet 5-23	WB 5-23	4903522438	Pinedale	MD-1090	42.5575	109.6924	292,901	2,304	0.00	0.00
Warbonnet 5-25	WB 5-25	4903523550	Pinedale		42.5420	109.6719	589,097	5,798	0.00	0.00
Warbonnet 5-4	WB 5-4	4903523385	Pinedale		42.6001	109.7308	762,597	5,745	3.17	0.00
Warbonnet 5-9	WB 5-9	4903523382	Pinedale	AP-2285	42.5862	109.7307	637,440	4,888	0.00	0.00
Warbonnet 6-10D	WB 6-10d	4903523871	Pinedale		42.5891	109.7073	567,516	5,500	3.17	0.00
Warbonnet 6-23	WB 6-23	4903522675	Pinedale	MD-1095	42.5569	109.6869	428,595	3,578	0.00	0.00
Warbonet 6-26	WB 6-26	4903522433	Pinedale	CT-3738	42.5422	109.6884	176,243	1,491	0.00	0.00
Warbonnet 6-4	WB 6-4	4903523321	Pinedale		42.5992	109.7269	857,444	6,841	0.00	0.00
Warbonnet 6-5	WB 6-5	4903523786	Pinedale		42.6002	109.7465	557,340	4,263	3.17	0.00
Warbonnet 7-15d	WB 7-15d	4903523337	Pinedale		42.5731	109.6987	1,068,270	7,368	0.00	0.00
Warbonnet 7-23	WB 7-23	4903522876	Pinedale	CT-3396	42.5571	109.6829	285,721	2,140	0.00	0.00
Warbonnet 7-4	WB 7-4	4903522739	Pinedale		42.5991	109.7222	293,589	2,785	0.00	0.00
Warbonnet 7B-3D	WB 7b-3d	4903523753	Pinedale		42.5995	109.7032	608,292	6,762	3.17	0.00
Warbonnet 8-22	WB 8-22	4903522736	Pinedale	AP-2451	42.5571	109.6958	471,200	3,987	0.00	0.00
Warbonnet 8-25	WB 8-25	4903523708	Pinedale		42.5420	109.6578	1,476,065	16,515	3.17	0.00
Warbonnet 8-8	WB 8-8	4903523387	Pinedale		42.5856	109.7369	391,482	2,540	3.17	0.00
Warbonnet 8B-4D	WB 8b-4d	4903523763	Pinedale		42.5987	109.7203	640,205	5,439	3.17	0.00
Warbonnet 9-15	WB 9-15	4903523338	Pinedale	AP-2784	42.5672	109.6980	599,666	4,869	0.00	0.00
Warbonnet 9-23	WB 9-23	4903521675	Pinedale		42.5522	109.6769	78,304	527	0.00	0.00
Warbonnet 9-26	WB 9-26	4903522737	Pinedale	AP-1393	42.5373	109.6774	361,689	3,344	0.00	0.00
Warbonnet 9B-4D	WB 9b-4d	4903523378	Pinedale		42.5969	109.7219	627,302	5,416	0.00	0.00
Warbonnet 9D-4D	WB 9d-4d	4903523409	Pinedale		42.5928	109.7181	709,164	6,680	0.00	0.00
Warbonnet 11D-15D	WB 11d-15d	4903523749	Pinedale		42.5702	109.7108	550,635	6,183	3.17	0.00
Warbonnet 9B-10D	WB 9b-10d	4903523414	Pinedale		42.5795	109.7010	0	0	3.17	0.00
TOTALS									136.28	983.51

Total NOX TPY	1,186.8
Total VOC TPY	900.2

Denotes new well being drilled and therefore no production yet.

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

	Process Burners	Wellhead IC Engines	Flashing Emissions Tanks and Pressurized Vessels					Glycol Dehydration Units Still & Flash Tank Vents				
	N0x	N0x	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Boulder 12A-33	0.154	0.0	1.02	0.012	0.019	0.001	0.007	0.33	0.047	0.003	0.102	0.041
Boulder 15-18	0.092	0.0	0.85	0.010	0.016	0.000	0.006	0.03	0.004	0.000	0.009	0.004
Boulder 5-19	0.000	0.0	0.26	0.003	0.005	0.000	0.002	15.51	2.140	0.140	4.540	1.740
Boulder 7-19	0.061	0.0	9.86	0.119	0.185	0.006	0.066	14.96	2.010	0.130	4.210	1.610
Boulder 6-32	0.061	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Boulder 14-34	0.276	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Boulder 15D-7D	0.061	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Gannett 12-16	0.276	0.0	0.12	0.002	0.002	0.000	0.001	0.26	0.030	0.002	0.060	0.023
Gannett 11-16	0.185	0.0	0.10	0.001	0.002	0.000	0.001	0.24	0.026	0.002	0.052	0.020
Gannett 14-16	0.031	0.0	0.32	0.004	0.006	0.000	0.002	0.31	0.042	0.003	0.089	0.034
Gannett 13-16	0.061	0.0	0.19	0.002	0.004	0.000	0.001	0.34	0.035	0.003	0.079	0.040
Lovatt Draw 15-8	0.307	0.0	0.84	0.010	0.016	0.000	0.006	1.51	0.040	0.003	0.070	0.030
Lizard Head 11-8	0.123	0.0	1.31	0.016	0.025	0.001	0.009	4.85	0.210	0.010	0.390	0.150
Lizard Head 13-28	0.000	0.0	1.99	0.024	0.037	0.001	0.013	0.02	0.001	0.000	0.001	0.000
Mesa 10-33	0.000	0.0	0.50	0.006	0.009	0.000	0.003	0.32	0.046	0.003	0.099	0.039
Mesa 9-33	0.000	0.0	0.90	0.011	0.017	0.001	0.006	0.33	0.048	0.003	0.103	0.042
Mesa 11-22	0.246	0.0	20.85	0.252	0.392	0.012	0.139	0.31	0.044	0.003	0.094	0.036
Mesa 10-22D	0.000	0.0	21.70	0.263	0.408	0.013	0.145	0.32	0.044	0.003	0.094	0.036
Mesa 12-22D	0.092	0.0	21.32	0.258	0.401	0.012	0.142	0.32	0.046	0.003	0.097	0.038
Mesa 13-22D	0.185	0.0	22.25	0.269	0.419	0.013	0.149	0.32	0.046	0.003	0.098	0.038
Mesa 1-33	0.000	0.0	18.51	0.224	0.348	0.011	0.124	0.32	0.046	0.003	0.100	0.039
Mesa 15A-28D	0.246	0.0	7.92	0.096	0.149	0.005	0.053	0.02	0.003	0.000	0.006	0.002
Mesa 15-22D	0.000	0.0	18.82	0.228	0.354	0.011	0.126	0.31	0.044	0.003	0.093	0.036
Mesa 16-22BD	0.123	0.0	22.00	0.266	0.414	0.013	0.147	0.32	0.045	0.003	0.096	0.037
Mesa 13-23BD	0.000	0.0	12.14	0.147	0.228	0.007	0.081	0.30	0.040	0.003	0.083	0.032
Mesa 15-35	0.000	0.0	0.27	0.003	0.005	0.000	0.002	0.30	0.041	0.003	0.086	0.033
Mesa 16-35CD	0.123	0.0	0.35	0.004	0.007	0.000	0.002	0.31	0.044	0.003	0.093	0.036
Mesa 16-35D	0.000	0.0	0.37	0.004	0.007	0.000	0.002	0.31	0.043	0.003	0.092	0.035
Mesa 15B-27D	0.154	0.0	0.88	0.011	0.017	0.001	0.006	0.11	0.016	0.001	0.034	0.014
Mesa 16-21D	0.031	0.0	0.24	0.003	0.005	0.000	0.002	0.31	0.042	0.003	0.089	0.034
Mesa 13-22CD	0.061	0.0	0.41	0.005	0.008	0.000	0.003	0.32	0.046	0.003	0.099	0.038
Mesa 14-22D	0.215	0.0	0.46	0.006	0.009	0.000	0.003	0.32	0.046	0.003	0.100	0.039
Mesa 14C-22D	0.215	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Mesa 15-21D	0.276	0.0	0.32	0.004	0.006	0.000	0.002	0.31	0.044	0.003	0.093	0.036
Mesa 15-21AD	0.215	0.0	0.35	0.004	0.007	0.000	0.002	0.32	0.045	0.003	0.097	0.037
Mesa 16-21CD	0.061	0.0	0.00	0.000	0.000	0.000	0.000	0.01	0.000	0.000	0.000	0.000
Mesa 16B-28D	0.215	0.0	0.73	0.009	0.014	0.000	0.005	0.33	0.048	0.003	0.103	0.042
Mesa 16D-28D	0.154	0.0	0.72	0.009	0.014	0.000	0.005	0.33	0.048	0.003	0.103	0.042
Mesa 2-28D	0.215	0.0	0.29	0.003	0.005	0.000	0.002	0.32	0.044	0.003	0.095	0.036
Mesa 6-27D	0.185	0.0	0.20	0.002	0.004	0.000	0.001	0.30	0.040	0.003	0.085	0.032
Mesa 3-27	0.215	0.0	0.41	0.005	0.008	0.000	0.003	0.32	0.046	0.003	0.099	0.039
Mesa 4-27	0.215	0.0	0.26	0.003	0.005	0.000	0.002	0.31	0.043	0.003	0.052	0.035
Mesa 4-27CD	0.000	0.0	0.62	0.008	0.012	0.000	0.004	0.33	0.047	0.003	0.102	0.041
Mesa 5-27D	0.031	0.0	0.26	0.003	0.005	0.000	0.002	0.31	0.043	0.003	0.092	0.035
Mesa 1-28D	0.061	0.0	0.32	0.004	0.006	0.000	0.002	0.32	0.045	0.003	0.096	0.037
Mesa 3-27CD	0.061	0.0	0.70	0.008	0.013	0.000	0.005	0.06	0.008	0.001	0.017	0.007
Mesa 3-18D	0.061	0.0	0.25	0.003	0.005	0.000	0.002	0.30	0.039	0.003	0.082	0.031
Mesa 6-18	0.092	0.0	0.28	0.003	0.005	0.000	0.002	0.31	0.042	0.003	0.088	0.034
Mesa 3-35D	0.243	0.0	0.28	0.003	0.005	0.000	0.002	0.30	0.041	0.003	0.086	0.033
Mesa 6-35D	0.246	0.0	0.34	0.004	0.006	0.000	0.002	0.31	0.043	0.003	0.090	0.035
Mesa 1A-35D	0.274	0.0	0.20	0.002	0.004	0.000	0.001	0.05	0.006	0.000	0.013	0.005
Mesa 2-35AD	0.307	0.0	0.53	0.006	0.010	0.000	0.004	0.05	0.008	0.000	0.017	0.006
Mesa 4-35	0.307	0.0	0.25	0.003	0.005	0.000	0.002	0.37	0.040	0.004	0.094	0.051
Mesa 5-35	0.336	0.0	0.40	0.005	0.007	0.000	0.003	0.32	0.044	0.003	0.094	0.036
Mesa 3-35CD	0.367	0.0	0.59	0.007	0.011	0.000	0.004	0.33	0.047	0.003	0.101	0.040
Mesa 4-35CD	0.367	0.0	0.80	0.010	0.015	0.000	0.005	0.22	0.032	0.002	0.069	0.028
Mesa 7-28	0.367	0.0	0.24	0.003	0.005	0.000	0.002	0.31	0.042	0.003	0.088	0.034
Mesa 8-28	0.367	0.0	0.21	0.003	0.004	0.000	0.001	0.30	0.040	0.003	0.085	0.032
Mesa 7-34	0.367	0.0	0.30	0.004	0.006	0.000	0.002	0.32	0.044	0.003	0.095	0.037
Mesa 9-21D	0.367	0.0	0.23	0.003	0.004	0.000	0.002	0.30	0.039	0.003	0.082	0.031
Mesa 10-21D	0.367	0.0	0.27	0.003	0.005	0.000	0.002	0.30	0.041	0.003	0.086	0.033
Mesa 9-21AD	0.367	0.0	0.59	0.007	0.011	0.000	0.004	0.06	0.008	0.001	0.017	0.007
Mesa 10A-21D	0.367	0.0	0.94	0.011	0.018	0.001	0.006	0.06	0.008	0.001	0.017	0.007
Mesa 9-22BD	0.367	0.0	18.45	0.223	0.347	0.011	0.123	0.31	0.043	0.003	0.092	0.035
Mesa 9-34	0.367	0.0	0.35	0.004	0.007	0.000	0.002	0.32	0.046	0.003	0.098	0.038
Mesa 7C-35D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Mesa 7D-34D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Mesa 8C-34D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Mesa 9C-35D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Pinedale 4A	0.367	0.0	0.18	0.002	0.003	0.000	0.001	0.30	0.041	0.003	0.087	0.033
Mesa 4-34D	0.367	0.0	1.03	0.012	0.019	0.001	0.007	0.14	0.020	0.001	0.044	0.019
Rainbow 13-30	0.367	0.0	0.33	0.004	0.006	0.000	0.002	0.31	0.043	0.003	0.091	0.035
Riverside 10D-4D	0.367	0.0	0.56	0.007	0.011	0.000	0.004	0.14	0.020	0.001	0.043	0.017
Riverside 11-14	0.367	0.0	0.30	0.004	0.006	0.000	0.002	0.32	0.044	0.003	0.094	0.036
Riverside 12-12D	0.367	0.0	1.05	0.013	0.020	0.001	0.007	0.33	0.048	0.003	0.104	0.044
Riverside 1-4	0.367	0.0	0.24	0.003	0.005	0.000	0.002	0.31	0.043	0.003	0.090	0.035
Riverside 2D-4D	0.367	0.0	1.03	0.013	0.019	0.001	0.007	0.08	0.012	0.001	0.026	0.011
Riverside 15-12	0.367	0.0	0.55	0.007	0.010	0.000	0.004	0.33	0.047	0.003	0.100	0.040
Riverside 16-3	0.367	0.0	0.46	0.006	0.009	0.000	0.003	0.33	0.047	0.003	0.100	0.040
Riverside 1-10D	0.367	0.0	1.13	0.014	0.021	0.001	0.008	0.11	0.016	0.001	0.035	0.015
Riverside 16-4	0.367	0.0	0.64	0.008	0.012	0.000	0.004	0.33	0.048	0.003	0.103	0.042
Riverside 2-2	0.367	0.0	0.19	0.002	0.004	0.000	0.001	14.70	1.940	0.130	4.060	1.550
Riverside 4-10	0.367	0.0	0.16	0.002	0.003	0.000	0.001	0.37	0.040	0.004	0.095	0.052
Riverside 4D-1D	0.367	0.0	0.54	0.007	0.010	0.000	0.004	0.11	0.015	0.001	0.031	0.012
Riverside 4D-3D	0.367	0.0	0.78	0.009	0.015	0.000	0.005	0.33	0.048	0.003	0.103	0.043
Riverside 6B-3D	0.367	0.0	0.98	0.012	0.018	0.001	0.007	0.33	0.048	0.003	0.104	0.044
Riverside 3C-3D	0.367	0.0	1.01	0.012	0.019	0.001	0.007	0.06	0.008	0.001	0.017	0.007
Riverside 8-4	0.367	0.0	0.21	0.003	0.004	0.000	0.001	0.31	0.042	0.003	0.088	0.034
Riverside 7D-4D	0.367	0.0	1.19	0.014	0.022	0.001	0.008	0.08	0.012	0.001	0.026	0.011

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

	Process Burners	Wellhead IC Engines	Flashing Emissions Tanks and Pressurized Vessels					Glycol Dehydration Units Still & Flash Tank Vents				
	N0x	N0x	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Riverside 9-2	0.367	0.0	15.18	0.184	0.286	0.009	0.101	15.38	2.110	0.140	4.460	1.700
Riverside 4D-25D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
HSR Sherlock 15-8	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.02	0.000	0.000	0.001	0.000
Warbonnet 10-9d	0.367	0.0	0.37	0.005	0.007	0.000	0.003	0.32	0.045	0.003	0.097	0.037
Warbonnet 10D-4D	0.367	0.0	0.42	0.005	0.008	0.000	0.003	0.32	0.045	0.003	0.097	0.037
Warbonnet 1-21	0.367	0.0	0.33	0.004	0.006	0.000	0.002	0.05	0.007	0.000	0.016	0.006
Warbonnet 1-26D	0.367	0.0	0.16	0.002	0.003	0.000	0.001	0.29	0.038	0.003	0.079	0.030
Warbonnet 8-26	0.367	0.0	0.17	0.002	0.003	0.000	0.001	0.29	0.039	0.003	0.080	0.031
Warbonnet 12D-3D	0.367	0.0	1.20	0.015	0.023	0.001	0.008	0.17	0.024	0.002	0.052	0.021
Warbonnet 13-11	0.367	0.0	0.32	0.004	0.006	0.000	0.002	0.31	0.043	0.003	0.090	0.035
Warbonnet 14-11D	0.367	0.0	1.10	0.013	0.021	0.001	0.007	0.19	0.028	0.002	0.060	0.024
Warbonnet 13-24	0.367	0.0	0.29	0.003	0.005	0.000	0.002	0.31	0.043	0.003	0.090	0.035
Warbonnet 14-24D	0.367	0.0	0.72	0.009	0.014	0.000	0.005	0.33	0.047	0.003	0.102	0.041
Warbonnet 14B-3D	0.367	0.0	1.67	0.020	0.032	0.001	0.011	0.17	0.024	0.002	0.052	0.022
Warbonnet 15-23	0.367	0.0	0.15	0.002	0.003	0.000	0.001	0.28	0.036	0.002	0.074	0.028
Warbonnet 2-26D	0.367	0.0	0.12	0.001	0.002	0.000	0.001	0.27	0.034	0.002	0.070	0.027
Warbonnet 16-5	0.367	0.0	0.33	0.004	0.006	0.000	0.002	0.31	0.043	0.003	0.092	0.035
Warbonnet 1-8D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Warbonnet 9-5d	0.367	0.0	0.49	0.006	0.009	0.000	0.003	0.32	0.046	0.003	0.098	0.038
Warbonnet 16B-10D	0.367	0.0	1.16	0.014	0.022	0.001	0.008	0.33	0.048	0.003	0.103	0.043
Warbonnet 16B-4D	0.367	0.0	0.49	0.006	0.009	0.000	0.003	0.32	0.046	0.003	0.098	0.038
Warbonnet 16D-10D	0.367	0.0	1.02	0.012	0.019	0.001	0.007	0.33	0.048	0.003	0.103	0.042
Warbonnet 9D-10D	0.367	0.0	1.29	0.016	0.024	0.001	0.009	0.33	0.048	0.003	0.103	0.043
Warbonnet 2-8	0.367	0.0	1.11	0.013	0.021	0.001	0.007	0.22	0.032	0.002	0.069	0.028
Warbonnet 2C-3D	0.367	0.0	1.25	0.015	0.024	0.001	0.008	0.19	0.028	0.002	0.060	0.024
Warbonnet 2D-4D	0.367	0.0	0.85	0.010	0.016	0.000	0.006	0.19	0.028	0.002	0.060	0.024
Warbonnet 3-10	0.367	0.0	1.18	0.014	0.022	0.001	0.008	0.17	0.024	0.002	0.052	0.021
Warbonnet 3-3	0.367	0.0	0.43	0.005	0.008	0.000	0.003	0.32	0.044	0.003	0.094	0.036
Warbonnet 3-4D	0.367	0.0	0.55	0.007	0.010	0.000	0.004	0.32	0.046	0.003	0.099	0.039
Warbonnet 3-5D	0.367	0.0	0.69	0.008	0.013	0.000	0.005	0.19	0.028	0.002	0.059	0.024
Warbonnet 4-10	0.367	0.0	0.42	0.005	0.008	0.000	0.003	0.32	0.044	0.003	0.094	0.036
Warbonnet 4-25	0.367	0.0	0.26	0.003	0.005	0.000	0.002	0.30	0.040	0.003	0.085	0.032
Warbonnet 4-26	0.367	0.0	3.44	0.042	0.065	0.002	0.023	0.25	0.032	0.002	0.066	0.025
Warbonnet 4-4D	0.367	0.0	1.37	0.017	0.026	0.001	0.009	0.25	0.036	0.002	0.078	0.033
Warbonnet 5-10D	0.367	0.0	0.51	0.006	0.010	0.000	0.003	0.32	0.044	0.003	0.095	0.037
Warbonnet 5-14	0.367	0.0	0.87	0.011	0.016	0.001	0.006	0.33	0.047	0.003	0.101	0.040
Warbonnet 5-23	0.367	0.0	0.21	0.003	0.004	0.000	0.001	0.28	0.036	0.002	0.074	0.028
Warbonnet 5-25	0.367	0.0	0.82	0.010	0.016	0.000	0.006	0.27	0.039	0.003	0.084	0.033
Warbonnet 5-4	0.367	0.0	0.71	0.009	0.013	0.000	0.005	0.25	0.036	0.002	0.077	0.032
Warbonnet 5-9	0.367	0.0	0.36	0.004	0.007	0.000	0.002	0.32	0.045	0.003	0.095	0.037
Warbonnet 6-10D	0.367	0.0	1.51	0.018	0.028	0.001	0.010	0.14	0.020	0.001	0.043	0.018
Warbonnet 6-23	0.367	0.0	0.30	0.004	0.006	0.000	0.002	0.30	0.041	0.003	0.087	0.033
Warbonet 6-26	0.367	0.0	8.72	0.106	0.164	0.005	0.058	0.28	0.035	0.002	0.072	0.027
Warbonnet 6-4	0.367	0.0	0.61	0.007	0.012	0.000	0.004	0.33	0.047	0.003	0.101	0.040
Warbonnet 6-5	0.367	0.0	1.07	0.013	0.020	0.001	0.007	0.19	0.028	0.002	0.061	0.025
Warbonnet 7-15d	0.367	0.0	1.33	0.016	0.025	0.001	0.009	0.28	0.040	0.003	0.087	0.037
Warbonnet 7-23	0.367	0.0	8.86	0.107	0.167	0.005	0.059	14.65	1.930	0.130	4.030	1.540
Warbonnet 7-4	0.367	0.0	0.22	0.003	0.004	0.000	0.001	0.29	0.039	0.003	0.081	0.031
Warbonnet 7B-3D	0.367	0.0	1.33	0.016	0.025	0.001	0.009	0.19	0.028	0.002	0.060	0.025
Warbonnet 8-22	0.367	0.0	16.31	0.198	0.307	0.009	0.109	0.31	0.043	0.003	0.092	0.035
Warbonnet 8-25	0.367	0.0	2.15	0.026	0.040	0.001	0.014	0.28	0.040	0.003	0.087	0.037
Warbonnet 8-8	0.367	0.0	0.45	0.005	0.008	0.000	0.003	0.25	0.035	0.002	0.076	0.030
Warbonnet 8B-4D	0.367	0.0	0.97	0.012	0.018	0.001	0.006	0.19	0.028	0.002	0.060	0.024
Warbonnet 9-15	0.367	0.0	0.40	0.005	0.007	0.000	0.003	0.32	0.045	0.003	0.096	0.037
Warbonnet 9-23	0.367	0.0	7.52	0.091	0.142	0.004	0.050	0.20	0.024	0.002	0.048	0.018
Warbonnet 9-26	0.367	0.0	0.27	0.003	0.005	0.000	0.002	0.30	0.040	0.003	0.084	0.032
Warbonnet 9B-4D	0.367	0.0	0.48	0.006	0.009	0.000	0.003	0.32	0.046	0.003	0.098	0.038
Warbonnet 9D-4D	0.367	0.0	0.60	0.007	0.011	0.000	0.004	0.32	0.046	0.003	0.099	0.039
Warbonnet 11D-15D	0.367	0.0	1.02	0.012	0.019	0.001	0.007	0.22	0.032	0.002	0.068	0.027
Warbonnet 9B-10D	0.367	0.0	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
TOTALS	42.00	0.00	326.16	3.95	6.14	0.19	2.18	115.73	15.11	0.99	31.81	12.32

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

	Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Boulder 12A-33	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	1.4	1.7E-02	2.6E-02	8.1E-04	9.4E-03	2.79
Boulder 15-18	0.0	0.0	0.0	0.0	0.0	0.32	0.004	0.006	0.000	0.002	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Boulder 5-19	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Boulder 7-19	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Boulder 6-32	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Boulder 14-34	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Boulder 15D-7D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Gannett 12-16	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Gannett 11-16	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Gannett 14-16	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Gannett 13-16	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Lovatt Draw 15-8	0.0	0.0	0.0	0.0	0.0	0.95	0.011	0.018	0.001	0.006	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Lizard Head 11-8	0.0	0.0	0.0	0.0	0.0	2.49	0.030	0.047	0.001	0.017	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Lizard Head 13-28	0.0	0.0	0.0	0.0	0.0	0.63	0.008	0.012	0.000	0.004	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 10-33	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 9-33	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 11-22	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 10-22D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 12-22D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 13-22D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 1-33	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15A-28D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15-22D	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16-22BD	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 13-23BD	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15-35	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16-35CD	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16-35D	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15B-27D	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	1.2	1.5E-02	2.3E-02	7.0E-04	8.0E-03	3.54
Mesa 16-21D	0.0	0.0	0.0	0.0	0.0	0.74	0.009	0.014	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 13-22CD	0.0	0.0	0.0	0.0	0.0	0.74	0.009	0.014	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 14-22D	0.0	0.0	0.0	0.0	0.0	0.74	0.009	0.014	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 14C-22D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15-21D	0.0	0.0	0.0	0.0	0.0	0.74	0.009	0.014	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 15-21AD	0.0	0.0	0.0	0.0	0.0	0.74	0.009	0.014	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16-21CD	0.0	0.0	0.0	0.0	0.0	0.06	0.001	0.001	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16B-28D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 16D-28D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 2-28D	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 6-27D	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 3-27	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 4-27	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 4-27CD	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 5-27D	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 1-28D	0.0	0.0	0.0	0.0	0.0	0.52	0.006	0.010	0.000	0.003	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 3-27CD	0.0	0.0	0.0	0.0	0.0	0.09	0.001	0.002	0.000	0.001	10.8	1.3E-01	2.0E-01	6.3E-03	7.2E-02	5.04
Mesa 3-18D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 6-18	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 3-35D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 6-35D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 1A-35D	0.0	0.0	0.0	0.0	0.0	0.31	0.004	0.006	0.000	0.002	0.9	1.1E-02	1.7E-02	5.2E-04	6.0E-03	6.07
Mesa 2-35AD	0.0	0.0	0.0	0.0	0.0	0.31	0.004	0.006	0.000	0.002	6.2	7.5E-02	1.2E-01	3.6E-03	4.1E-02	7.42
Mesa 4-35	0.0	0.0	0.0	0.0	0.0	1.02	0.012	0.019	0.001	0.007	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 5-35	0.0	0.0	0.0	0.0	0.0	1.02	0.012	0.019	0.001	0.007	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 3-35CD	0.0	0.0	0.0	0.0	0.0	1.02	0.012	0.019	0.001	0.007	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 4-35CD	0.0	0.0	0.0	0.0	0.0	0.69	0.008	0.013	0.000	0.005	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 7-28	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 8-28	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 7-34	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 9-21D	0.0	0.0	0.0	0.0	0.0	1.61	0.019	0.030	0.001	0.011	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 10-21D	0.0	0.0	0.0	0.0	0.0	1.61	0.019	0.030	0.001	0.011	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 9-21AD	0.0	0.0	0.0	0.0	0.0	0.27	0.003	0.005	0.000	0.002	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.81
Mesa 10A-21D	0.0	0.0	0.0	0.0	0.0	0.27	0.003	0.005	0.000	0.002	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.06
Mesa 9-22BD	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 9-34	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 7C-35D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 7D-34D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.00
Mesa 8C-34D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.00
Mesa 9C-35D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.00
Pinedale 4A	0.0	0.0	0.0	0.0	0.0	2.65	0.032	0.050	0.002	0.018	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Mesa 4-34D	0.0	0.0	0.0	0.0	0.0	1.11	0.013	0.021	0.001	0.007	2.7	3.3E-02	5.1E-02	1.6E-03	1.8E-02	4.86
Rainbow 13-30	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 10D-4D	0.0	0.0	0.0	0.0	0.0	1.57	0.019	0.030	0.001	0.011	0.7	8.5E-03	1.3E-02	4.1E-04	4.7E-03	2.47
Riverside 11-14	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 12-12D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 1-4	0.0	0.0	0.0	0.0	0.0	3.00	0.036	0.056	0.002	0.020	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 2D-4D	0.0	0.0	0.0	0.0	0.0	0.76	0.009	0.014	0.000	0.005	17.9	2.2E-01	3.4E-01	1.0E-02	1.2E-01	6.86
Riverside 15-12	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 16-3	0.0	0.0	0.0	0.0	0.0	2.81	0.034	0.053	0.002	0.019	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 1-10D	0.0	0.0	0.0	0.0	0.0	0.94	0.011	0.018	0.001	0.006	1.0	1.2E-02	1.9E-02	5.8E-04	6.7E-03	3.17
Riverside 16-4	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 2-2	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 4-10	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 4D-1D	0.0	0.0	0.0	0.0	0.0	1.25	0.015	0.024	0.001	0.008	0.1	1.2E-03	1.9E-03	5.8E-05	6.7E-04	5.52
Riverside 4D-3D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 6B-3D	0.0	0.0	0.0	0.0	0.0	3.22	0.039	0.061	0.002	0.021	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 3C-3D	0.0	0.0	0.0	0.0	0.0	0.54	0.007	0.010	0.000	0.004	0.2	2.4E-03	3.8E-03	1.2E-04	1.3E-03	4.44
Riverside 8-4	0.0	0.0	0.0	0.0	0.0	3.00	0.036	0.056	0.002	0.020	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 7D-4D	0.0	0.0	0.0	0.0	0.0	0.76	0.009	0.014	0.000	0.005	0.3	3.6E-03	5.6E-03	1.7E-04	2.0E-03	4.94

Table F.1.2
2005 Actual Emissions Inventory – Ultra 2005 Actual Emissions Inventory

	Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Riverside 9-2	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Riverside 4D-25D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
HSR Sherlock 15-8	0.0	0.0	0.0	0.0	0.0	0.63	0.008	0.012	0.000	0.004	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 10-9d	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 10D-4D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 1-21	0.0	0.0	0.0	0.0	0.0	0.63	0.008	0.012	0.000	0.004	1.0	1.2E-02	1.9E-02	5.8E-04	6.7E-03	5.32
Warbonnet 1-26D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 8-26	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 12D-3D	0.0	0.0	0.0	0.0	0.0	1.89	0.023	0.036	0.001	0.013	4.7	5.7E-02	8.8E-02	2.7E-03	3.1E-02	3.41
Warbonnet 13-11	0.0	0.0	0.0	0.0	0.0	2.37	0.029	0.045	0.001	0.016	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 14-11D	0.0	0.0	0.0	0.0	0.0	1.39	0.017	0.026	0.001	0.009	8.1	9.8E-02	1.5E-01	4.7E-03	5.4E-02	4.51
Warbonnet 13-24	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 14-24D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 14B-3D	0.0	0.0	0.0	0.0	0.0	1.89	0.023	0.036	0.001	0.013	2.2	2.7E-02	4.1E-02	1.3E-03	1.5E-02	3.19
Warbonnet 15-23	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 2-26D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 16-5	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 1-8D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9-5d	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 16B-10D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 16B-4D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 16D-10D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9D-10D	0.0	0.0	0.0	0.0	0.0	1.88	0.023	0.035	0.001	0.013	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 2-8	0.0	0.0	0.0	0.0	0.0	2.52	0.031	0.047	0.001	0.017	8.3	1.0E-01	1.6E-01	4.8E-03	5.5E-02	3.86
Warbonnet 2C-3D	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	5.0	6.1E-02	9.4E-02	2.9E-03	3.3E-02	2.70
Warbonnet 2D-4D	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	6.1	7.4E-02	1.1E-01	3.5E-03	4.1E-02	4.70
Warbonnet 3-10	0.0	0.0	0.0	0.0	0.0	1.89	0.023	0.036	0.001	0.013	9.1	1.1E-01	1.7E-01	5.3E-03	6.1E-02	5.40
Warbonnet 3-3	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 3-4D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 3-5D	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	10.9	1.3E-01	2.1E-01	6.3E-03	7.3E-02	6.76
Warbonnet 4-10	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 4-25	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 4-26	0.0	0.0	0.0	0.0	0.0	3.44	0.042	0.065	0.002	0.023	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 4-4D	0.0	0.0	0.0	0.0	0.0	2.83	0.034	0.053	0.002	0.019	8.4	1.0E-01	1.6E-01	4.9E-03	5.6E-02	5.36
Warbonnet 5-10D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 5-14	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 5-23	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 5-25	0.0	0.0	0.0	0.0	0.0	3.15	0.038	0.059	0.002	0.021	11.9	1.4E-01	2.2E-01	6.9E-03	7.9E-02	3.36
Warbonnet 5-4	0.0	0.0	0.0	0.0	0.0	2.83	0.034	0.053	0.002	0.019	5.9	7.1E-02	1.1E-01	3.4E-03	3.9E-02	5.71
Warbonnet 5-9	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 6-10D	0.0	0.0	0.0	0.0	0.0	1.57	0.019	0.030	0.001	0.011	2.9	3.5E-02	5.5E-02	1.7E-03	1.9E-02	3.01
Warbonnet 6-23	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonet 6-26	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 6-4	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 6-5	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	2.4	2.9E-02	4.5E-02	1.4E-03	1.6E-02	6.98
Warbonnet 7-15d	0.0	0.0	0.0	0.0	0.0	3.15	0.038	0.059	0.002	0.021	2.4	2.9E-02	4.5E-02	1.4E-03	1.6E-02	2.76
Warbonnet 7-23	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 7-4	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 7B-3D	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	1.8	2.2E-02	3.4E-02	1.0E-03	1.2E-02	2.92
Warbonnet 8-22	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 8-25	0.0	0.0	0.0	0.0	0.0	3.15	0.038	0.059	0.002	0.021	3.0	3.6E-02	5.6E-02	1.7E-03	2.0E-02	4.06
Warbonnet 8-8	0.0	0.0	0.0	0.0	0.0	2.83	0.034	0.053	0.002	0.019	3.6	4.4E-02	6.8E-02	2.1E-03	2.4E-02	5.56
Warbonnet 8B-4D	0.0	0.0	0.0	0.0	0.0	2.20	0.027	0.041	0.001	0.015	9.7	1.2E-01	1.8E-01	5.6E-03	6.5E-02	5.63
Warbonnet 9-15	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9-23	0.0	0.0	0.0	0.0	0.0	2.81	0.034	0.053	0.002	0.019	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9-26	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9B-4D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 9D-4D	0.0	0.0	0.0	0.0	0.0	3.75	0.045	0.071	0.002	0.025	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
Warbonnet 11D-15D	0.0	0.0	0.0	0.0	0.0	2.52	0.031	0.047	0.001	0.017	3.5	4.2E-02	6.6E-02	2.0E-03	2.3E-02	5.13
Warbonnet 9B-10D	0.0	0.0	0.0	0.0	0.0	0.00	0.000	0.000	0.000	0.000	0.0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00
TOTALS	0.00	0.00	0.00	0.00	0.00	304.05	3.68	5.72	0.18	2.03	154.30	1.87	2.90	0.09	1.03	161.32

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

					Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
Pad Name	Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MMCF	BBL	TPY	TPY
	Pinedale Compressor Station	na	Pinedale	MD-1267	-	-	-	-	-	-
	Pinedale Stabilizer Site	na	Pinedale	CT-4070	-	-	-	-	-	-
	Mesa 15-6 CDP Site	na	Pinedale	CT-4064	42.77158	109.87258	-	-	-	-
	Mesa 14-16 CDP Site	na	Pinedale	CT-4069	42.74178	109.83982	-	-	-	-
	Stewart Point 16-18 CDP Site	na	Pinedale	CT-4062	42.82905	109.90654	-	-	-	-
Pad Wellsites										
Mesa 7-21	Mesa 2-21D	035-23770	Pinedale	MD-1330	42.73364	109.83739	645.9	4,180	1.5	30.7
Mesa 7-21	Mesa 6-21D	035-23565	Pinedale	MD-1330	42.73351	109.83797	1,051.8	6,513	0.6	12.7
Mesa 7-21	Mesa 6A-21D	035-23790	Pinedale	MD-1330	42.73357	109.83798	496.5	3,132	0.6	13.5
Mesa 7-21	Mesa 7-21	035-22721	Pinedale	MD-1330	42.73333	109.83611	399.7	2,819	-	-
Mesa 7-21	Mesa 7D-21D	035-23765	Pinedale	MD-1330	42.73286	109.83570	494.7	3,291	1.0	20.4
Mesa 7-21	Mesa 8-21D	035-23611	Pinedale	MD-1330	42.73391	109.83763	969.0	6,878	-	-
Mesa 7-21	Mesa 8D-21D	035-23789	Pinedale	MD-1330	42.73360	109.83793	740.8	4,717	1.0	20.3
Mesa 7-21	Mesa 11-21D	035-23371	Pinedale	MD-1330	42.73276	109.83565	1,107.8	7,221	1.0	22.0
Mesa 7-21	Mesa 11A-21D	035-23787	Pinedale	MD-1330	42.73279	109.83649	740.4	4,839	0.8	17.5
Mesa 7-21	Mesa 14A-21D	035-23788	Pinedale	MD-1330	42.73282	109.83644	1,173.0	7,673	1.0	22.1
							7,819.6	51,263		
Mesa 13A-16D	Mesa 13A-16D	035-23369	Pinedale	AP-3122	42.74139	109.84545	686.2	5,122	-	-
Mesa 13A-16D	Mesa 13AA-16D	035-23750	Pinedale	AP-3122	42.74183	109.84588	1,077.0	8,155	-	-
Mesa 13A-16D	Mesa 1-20D	035-23370	Pinedale	AP-3122	42.74194	109.84644	698.3	4,495	0.3	6.1
Mesa 13A-16D	Mesa 4-21D	035-23607	Pinedale	AP-3122	42.74195	109.74195	510.1	3,224	0.6	12.3
Mesa 13A-16D	Mesa 16-17D	035-23609	Pinedale	AP-3122	42.74191	109.84711	546.1	3,478	0.7	15.0
							3,517.7	24,474		
Mesa 11-20	Mesa 11-20	035-22432	Pinedale	AP-0453	42.74191	109.86027	254.8	1,893	-	-
Mesa 11-20	Mesa 13C-20D	035-23975	Pinedale	AP-0453	42.73084	109.86028	238.5	1,760	1.2	25.9
							493.3	3,653		
Mesa 1	Mesa Unit 1	035-20589	Pinedale	MD-1100	42.76659	109.87159	70.2	540	-	-
Mesa 1	Mesa Unit 1-7D	035-23574	Pinedale	MD-1100	42.76557	109.87225	601.6	4,731	-	-
Mesa 1	Mesa Unit 1A-7D	035-23573	Pinedale	MD-1100	42.76601	109.87295	757.8	5,976	-	-
Mesa 1	Mesa Unit 2-7D	035-23961	Pinedale	MD-1100	42.76612	109.87178	221.7	1,569	0.6	12.7
Mesa 1	Mesa Unit 2A-7D	035-23571	Pinedale	MD-1100	42.76605	109.87297	607.9	4,796	-	-
Mesa 1	Mesa Unit 8-7D	035-23171	Pinedale	MD-1100	42.76592	109.87135	506.9	3,978	-	-
							2,766.1	21,590		
Mesa 10-8D	Mesa 10-8D	035-22039	Pinedale	MD-1193	42.75750	109.85639	521.4	4,212	-	-
Mesa 10-8D	Mesa 11-8D	035-21823	Pinedale	MD-1193	42.75750	109.85639	626.2	5,064	-	-
Mesa 10-8D	Mesa 14A-8D	035-23943	Pinedale	MD-1193	42.75859	109.85839	612.4	4,287	0.7	14.4
Mesa 10-8D	Mesa 15-8	035-21680	Pinedale	MD-1193	42.75611	109.85500	338.4	2,669	-	-
Mesa 10-8D	Mesa 16-8D	035-22041	Pinedale	MD-1193	42.75750	109.85639	762.6	6,189	-	-
							2,861.0	22,421		
Mesa 11-16	Mesa 11-16	035-22303	Pinedale	MD-1306	42.74454	109.84054	344.0	2,513	-	-
Mesa 11-16	Mesa 11A-16D	035-23187	Pinedale	MD-1306	42.74526	109.84171	349.0	2,546	-	-
Mesa 11-16	Mesa 14B-16D	035-23896	Pinedale	MD-1306	42.74431	109.84017	505.2	3,721	0.6	13.0
Mesa 11-16	Mesa 7C-16D	035-23898	Pinedale	MD-1306	42.74425	109.84082	334.9	2,369	0.7	15.8
							1,533.1	11,149		
Mesa 12-16	Mesa 12-16	035-22491	Pinedale	AP-2740	42.74572	109.84627	296.6	2,116	-	-
Mesa 12-16	Mesa 12B-16D	035-23526	Pinedale	AP-2740	42.74640	109.84662	678.4	4,821	-	-
Mesa 12-16	Mesa 9-17D	035-22650	Pinedale	AP-2740	42.74658	109.86619	474.8	3,406	-	-
							1,449.8	10,343		
Mesa 12-17D	Mesa 10-17D	035-23608	Pinedale	CT-4186	42.74744	109.85712	1,080.2	8,459	-	-
Mesa 12-17D	Mesa 11C-17D	035-23944	Pinedale	CT-4186	42.74758	109.85769	336.4	2,286	0.7	15.7
Mesa 12-17D	Mesa 12-17D	035-23585	Pinedale	CT-4186	42.74802	109.85726	904.4	7,093	-	-
Mesa 12-17D	Mesa 5-17D	035-23688	Pinedale	CT-4186	42.74762	109.85844	502.1	3,465	-	-
Mesa 12-17D	Mesa 5A-17D	035-23945	Pinedale	CT-4186	42.74761	109.85835	678.8	4,699	0.7	14.2
Mesa 12-17D	Mesa 6-17D	035-23561	Pinedale	CT-4186	42.74735	109.85661	1,112.0	8,708	-	-
Mesa 12-17D	Mesa 7-17D	035-23570	Pinedale	CT-4186	42.74739	109.85654	988.3	7,740	-	-
							5,602.2	42,450		
Mesa 14-16	Mesa 14-16	035-22732	Pinedale	MD-1258	42.74178	109.83982	323.5	2,394	-	-
Mesa 14-16	Mesa 14A-16D	035-23529	Pinedale	MD-1258	42.74185	109.84003	527.5	3,928	-	-
							851.0	6,322		

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

					Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
Pad Name	Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MMCF	BBL	TPY	TPY
Mesa 15-20	Mesa 14-20D	035-23563	Pinedale	MD-1307	42.72892	109.85478	487.3	3,383	-	-
Mesa 15-20	Mesa 15-20	035-22906	Pinedale	MD-1307	42.72873	109.85618	475.5	3,392	-	-
Mesa 15-20	Mesa 16-20D	035-23373	Pinedale	MD-1307	42.74526	109.84171	1,189.7	7,897	-	-
Mesa 15-20	Mesa 16C-20D	035-24022	Pinedale	MD-1307	42.72903	109.85514	351.2	2,387	0.7	15.6
							2,503.7	17,059		
Mesa 15-6	Mesa 14-6D	035-23066	Pinedale	MD-1054	42.77102	109.87253	538.3	4,154	-	-
Mesa 15-6	Mesa 15-6	035-22295	Pinedale	MD-1054	42.77158	109.87258	416.7	3,233	-	-
Mesa 15-6	Mesa 16-6D	035-23069	Pinedale	MD-1054	42.77102	109.87253	452.6	3,496	-	-
							1,407.6	10,883		
Mesa 16-16	Mesa 16-16	035-22729	Pinedale	MD-1306	42.74106	109.83058	334.9	2,385	-	-
Mesa 16-16	Mesa 16C-16D	035-23710	Pinedale	MD-1306	42.74056	109.83500	1,167.0	8,246	-	-
							1,501.9	10,631		
Stewart Point 16-29	Stewart Point 16-29	035-22284	Pinedale	CT-3321	42.79583	109.88277	822.1	6,278	-	-
Stewart Point 16-29	Stewart Point 9-29D	035-22598	Pinedale	CT-3321	42.79630	109.89547	1,251.4	9,805	-	-
							2,073.5	16,083		
Mesa 2	Mesa Unit 2	035-20620	Pinedale	CT-3382	42.74819	109.84056	37.9	255	-	-
Mesa 2	Mesa 2-16D	035-22450	Pinedale	CT-3382	42.74826	109.84124	160.4	1,120	-	-
Mesa 2	Mesa 3-16D	035-22305	Pinedale	CT-3382	42.75083	109.84166	247.9	1,733	-	-
Mesa 2	Mesa 4-16D	035-22449	Pinedale	CT-3382	42.74825	109.84131	237.5	1,636	-	-
Mesa 2	Mesa 7-16D	035-22447	Pinedale	CT-3382	42.74825	109.84138	248.4	1,711	-	-
							932.1	6,455		
Mesa 2-20	Mesa 14-17D	035-23139	Pinedale	MD-1097	42.73806	109.86166	579.7	4,460	-	-
Mesa 2-20	Mesa 15-17D	035-23268	Pinedale	MD-1097	42.73792	109.86245	752.0	5,369	1.0	20.5
Mesa 2-20	Mesa 2-20D	035-23201	Pinedale	MD-1097	42.73778	109.86222	657.3	5,025	-	-
Mesa 2-20	Mesa 3-20	035-22250	Pinedale	MD-1097	42.73611	109.86111	259.0	1,962	-	-
Mesa 2-20	Mesa 5CA-20D		Pinedale	MD-1097			-	-	0.3	6.4
Mesa 2-20	Mesa 4DD-20D		Pinedale	MD-1097			-	-	0.8	16.7
Mesa 2-20	Mesa 2BA-20D		Pinedale	MD-1097			-	-	0.2	3.3
Mesa 2-20	Mesa 5DB-20D		Pinedale	MD-1097			-	-	0.3	6.2
							2,248.0	16,816		
Mesa 3	Mesa 12A-16	035-23849	Pinedale	MD-1222	42.74636	109.84440	547.6	3,845	1.0	21.8
Mesa 3	Mesa Unit 3	035-22071	Pinedale	MD-1222	42.74778	109.84417	192.8	1,484	-	-
Mesa 3	Mesa 4D-16D	035-23859	Pinedale	MD-1222	42.74641	109.84441	366.5	2,558	1.0	20.4
Mesa 3	Mesa 5A-16D	035-23195	Pinedale	MD-1222	42.74694	109.84333	306.4	2,330	-	-
Mesa 3	Mesa 6A-16D	035-23528	Pinedale	MD-1222	42.74663	109.84415	590.3	4,435	-	-
Mesa 3	Mesa 8-17	035-22648	Pinedale	MD-1222	42.74889	109.85027	406.1	3,066	-	-
							2,409.7	17,718		
Mesa 3-21	Mesa 3-21	035-23177	Pinedale	CT-3805	42.73757	109.84065	631.7	4,813	-	-
Mesa 3-21	Mesa 3B-21D	035-23909	Pinedale	CT-3805	42.73720	109.84024	491.8	3,208	0.6	12.0
							1,123.5	8,021		
Mesa 3-8	Mesa 3-8	035-23207	Pinedale	CT-3772	42.76765	109.86011	456.0	3,653	-	-
Mesa 3-8	Mesa 6-8D	035-23186	Pinedale	CT-3772	42.76333	109.85444	416.8	3,336	-	-
							872.8	6,989		
Mesa 5-8	Mesa 5-8	035-22434	Pinedale	AP-0455	42.76333	109.86472	265.1	2,047	-	-
Mesa 5-8	Mesa 9-7	035-22640	Pinedale	AP-0466	42.76278	109.88755	323.5	2,503	-	-
							588.6	4,550		
Mesa 6-6	Mesa 6-6	035-23406	Pinedale	CT-4169	42.77811	109.88061	1,015.2	7,845	-	-
Mesa 6-6	Stewart Point 15-32D	035-23428	Pinedale	CT-4169	42.77731	109.88144	205.4	1,605	-	-
							1,220.6	9,450		
Mesa 7-7	Mesa 10-7D	035-23936	Pinedale	AP-4339	42.76536	109.87481	63.9	454	1.0	20.9
Mesa 7-7	Mesa 3-7	035-22435	Pinedale	AP-4339	42.76833	109.87972	308.7	2,593	-	-
Mesa 7-7	Mesa 6-7D	035-23947	Pinedale	AP-4339	42.76887	109.88101	156.6	1,069	0.7	15.4
Mesa 7-7	Mesa 7-7	035-22159	Pinedale	AP-4339	42.76500	109.87444	309.5	2,621	-	-
Mesa 7-7	Mesa 9B-7D	035-23937	Pinedale	AP-4339	42.76538	109.87476	73.4	521	1.0	21.8
							912.1	7,258		
Mesa 7-8	Mesa 1D-8D	035-23950	Pinedale	AP-4174	42.76376	109.85420	135.2	928	0.6	13.0
Mesa 7-8	Mesa 7-8	035-22251	Pinedale	AP-4174	42.76194	109.85500	365.0	2,782	-	-
Mesa 7-8	Mesa 7A-8D	035-23942	Pinedale	AP-4174	42.76373	109.85495	303.9	2,091	0.6	12.8

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

					Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
Pad Name	Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MMCF	BBL	TPY	TPY
							804.1	5,801		
Mesa 9-8	Mesa 12-9D	035-22752	Pinedale	MD-1339	42.75928	109.85035	472.2	3,778	-	-
Mesa 9-8	Mesa 8-8D	035-23657	Pinedale	MD-1339	42.75971	109.85052	420.6	2,750	0.7	14.1
Mesa 9-8	Mesa 13-9D	035-22750	Pinedale	MD-1339	42.75944	109.85027	257.1	2,596	-	-
Mesa 9-8	Mesa 9-8	035-22751	Pinedale	MD-1339	42.75901	109.84956	856.1	6,857	-	-
							2,006.0	15,981		
Stewart Point 11-33	Stewart Point 11-33	035-22194	Pinedale	MD-1094	42.78430	109.87232	188.3	1,764	-	-
Stewart Point 11-33	Stewart Point 13-33D	035-23265	Pinedale	MD-1094	42.78490	109.87327	708.2	6,655	-	-
							896.5	8,419		
Stewart Point 2-20	Stewart Point 1-20D	035-23070	Pinedale	CT-3760	42.82056	109.88706	1,161.4	10,362	-	-
Stewart Point 2-20	Stewart Point 2-20	035-23068	Pinedale	CT-3760	42.82056	109.88804	806.5	7,193	-	-
Stewart Point 2-20	Stewart Point 3-20D	035-23067	Pinedale	CT-3760	42.82056	109.88811	766.6	6,835	-	-
							2,734.5	24,390		
Stewart Point 3-28	Stewart Point 2A-28D	035-24052	Pinedale	AP-4253	42.80783	109.86684	49.8	428	0.9	18.7
Stewart Point 3-28	Stewart Point 3-28	035-21682	Pinedale	AP-4253	42.80694	109.87333	278.9	2,737	-	-
							328.7	3,165		
Stewart Point 8-32D	Stewart Point 10-32D	035-23569	Pinedale	CT-4166	42.78732	109.88168	657.9	5,563	-	-
Stewart Point 8-32D	Stewart Point 12-33D	035-23442	Pinedale	CT-4166	42.78689	109.88027	1,624.5	13,686	-	-
Stewart Point 8-32D	Stewart Point 16-32D	035-23443	Pinedale	CT-4166	42.78687	109.88004	667.5	5,643	-	-
Stewart Point 8-32D	Stewart Point 5-33DR	035-23429	Pinedale	CT-4166	42.78689	109.88019	1,202.4	10,165	-	-
Stewart Point 8-32D	Stewart Point 7-32D	035-22121	Pinedale	CT-4166	42.78889	109.88667	525.9	4,527	0.7	13.8
Stewart Point 8-32D	Stewart Point 8-32D	035-22087	Pinedale	CT-4166	42.78806	109.88138	2,255.5	19,056	-	-
Stewart Point 8-32D	Stewart Point 9-32D	035-23444	Pinedale	CT-4166	42.78772	109.88080	450.2	3,855	0.7	13.9
							7,383.9	62,495		
Mesa 12-21 LEK	Mesa 12-21D	035-23042	Pinedale	AP-1945	42.73134	109.84339	936.4	6,275	-	-
Mesa 12-21 LEK	Mesa 12B-21D	035-23962	Pinedale	AP-1945	42.73117	109.84285	351.6	2,343	0.9	18.9
Mesa 12-21 LEK	Mesa 13-21D	035-23041	Pinedale	AP-1945	42.73127	109.84327	710.8	4,767	-	-
Mesa 12-21 LEK	Mesa 13D-21D	035-23963	Pinedale	AP-1945	42.73120	109.84281	369.0	2,505	0.9	18.1
Mesa 12-21 LEK	Mesa 14-21D	035-23040	Pinedale	AP-1945	42.73124	109.84321	792.8	5,317	-	-
							3,160.6	21,207		
Stewart Point 4-33	Stewart Point 13-28D	035-22664	Pinedale	CT-3321	42.79194	109.87555	822.1	7,294	-	-
Stewart Point 4-33	Stewart Point 14-28D	035-23119	Pinedale	CT-3321	42.79192	109.87660	414.1	3,672	-	-
Stewart Point 4-33	Stewart Point 1-32D	035-23252	Pinedale	CT-3321	42.79192	109.87660	1,573.2	13,939	-	-
Stewart Point 4-33	Stewart Point 3-33D	035-22666	Pinedale	CT-3321	42.79194	109.87555	447.8	3,968	-	-
Stewart Point 4-33	Stewart Point 4-33	035-22668	Pinedale	CT-3321	42.79194	109.87555	741.3	6,570	-	-
							3,998.5	35,443		
Stewart Point 15-20D	Stewart Point 14-20	035-22678	Pinedale	AP-0856	42.81011	109.89011	761.1	6,088	-	-
Stewart Point 15-20D	Stewart Point 15-20D	035-22896	Pinedale	AP-0856	42.81011	109.89011	763.9	6,111	-	-
							1,525.0	12,199		
					Pad Wells		**66,703.6**	**508,400**	**28.8**	**608.8**
Single Wellsites										
NA	Mesa 11-17	035-22430	Pinedale	CT-3330	42.74611	109.85861	498.8	3,631	-	-
NA	Mesa 11-9	035-23407	Pinedale	????	42.76030	109.84041	114.0	837	0.4	8.4
NA	Mesa 3-17	035-22723	Pinedale	MD-992	42.75278	109.86027	664.8	4,654	-	-
NA	Mesa 3-22D	035-21827	Pinedale	AP-171	42.73806	109.82333	51.4	375	-	-
NA	Mesa 5-21	035-22529	Pinedale	CT-3254	42.73500	109.84722	481.9	3,237	-	-
NA	Mesa 5-22	035-23140	Pinedale	CT-3748	42.73267	109.82677	526.1	4,064	-	-
NA	Mesa 10-16	035-22731	Pinedale	MD-1159	42.74469	109.83596	232.2	1,694	-	-
NA	Mesa 10A-16	035-23395	Pinedale	MD-1159	42.74545	109.83478	486.5	3,550	-	-
NA	Mesa 12-8	035-22891	Pinedale	CT-3539	42.76013	109.86626	415.4	3,216		
NA	Mesa 13-5	035-22193	Pinedale	CT-2726	42.77138	109.86500	228.7	1,783	-	-
NA	Mesa 15-16	035-22490	Pinedale	CT-3253	42.74097	109.83627	316.0	2,244	-	-
NA	Mesa 4-8	035-22728	Pinedale	????	42.76778	109.86500	418.3	3,169	-	-
NA	Mesa Unit 6	035-22091	Pinedale	AP-1635	42.74480	109.84480	191.2	1,238	-	-
NA	Mesa 6-16	035-22448	Pinedale	CT-3382	42.74827	109.84116	189.3	1,611	-	-
NA	Mesa 9-16	035-22730	Pinedale	CT-3220	42.74429	109.83108	222.1	1,752	-	-
NA	Pinedale Unit 8	035-06381	Pinedale	AP-3175	42.81406	109.89214	15.1	261	-	-
NA	Sidewinder 3-15D	035-24023	Pinedale	????	42.65937	109.82118	44.5	267	1.5	32.5

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

					Location		Production		Drill Rig Engines	
							Gas	Condensate	SO2	N0x
Pad Name	Well Name	API #	Field Name	Air Quality Permit #	Latitude	Longitude	MMCF	BBL	TPY	TPY
NA	Stewart Point 11-21	035-22560	Pinedale	Ct3295	42.81448	109.87247	302.0	2,224	-	-
NA	Stewart Point 15-17D	035-22852	Pinedale	????	42.82476	109.88758	887.3	8,696	-	-
NA	Stewart Point 15-33	035-22727	Pinedale	????	42.78111	109.86750	603.7	5,436	-	-
NA	Stewart Point 16-18D	035-22612	Pinedale	????	42.82905	109.90654	118.0	1,612	-	-
NA	Stewart Point 4-29D	035-23564	Pinedale	AP-3151	42.80745	109.90335	264.3	2,288	-	-
NA	Stewart Point 4-32	035-22391	Pinedale	AP-1634	42.79239	109.89680	87.0	705	-	-
NA	Stewart Point 5-17	035-23721	Pinedale	AP-4058	42.83170	109.89849	618.6	7,457	-	-
NA	Stewart Point 5-20	035-22262	Pinedale	MD-990	42.81916	109.89666	225.9	2,763	-	-
NA	Stewart Point 6-32	035-22258	Pinedale	AP-2H1	42.78925	109.88575	225.2	1,805	-	-
NA	Stewart Point 7-20	035-22561	Pinedale	CT-3673	42.81809	109.88687	654.4	5,448	-	-
NA	Stewart Point 9-33	035-22431	Pinedale	Ap-1637	42.78441	109.86263	60.6	668	-	-
NA	Stewart Point 11-34 (Shut in)		Pinedale	NA			-	-	-	-
					Individual Wells		**9,143.3**	**76,685**	**1.9**	**40.9**
					Total Wells		**75,846.9**	**585,085**	**30.8**	**649.6**
Drilled; but not completed	Mesa 10A-8D	035-24111	Pinedale	NA	-	-	-	-	0.6	12.7
Drilled; but not completed	Mesa 10A-20D	035-24045	Pinedale	NA	-	-	-	-	0.3	6.5
Drilled; but not completed	Mesa 1-17D	035-24143	Pinedale	NA	-	-	-	-	0.3	6.6
Drilled; but not completed	Mesa 11A-8D	035-24144	Pinedale	NA	-	-	-	-	0.9	19.1
Drilled; but not completed	Mesa 14-8D	035--23825	Pinedale	NA	-	-	-	-	0.3	6.8
Drilled; but not completed	Mesa 14D-20D	035-24051	Pinedale	NA	-	-	-	-	0.4	8.9
Drilled; but not completed	Mesa 1A-17D	035-23682	Pinedale	NA	-	-	-	-	0.3	7.1
Drilled; but not completed	Mesa 2-17D	035-24142	Pinedale	NA	-	-	-	-	0.9	18.3
Drilled; but not completed	Mesa 2A-17D	035-23769	Pinedale	NA	-	-	-	-	0.5	12.1
Drilled; but not completed	Mesa 3A-17D	035-23681	Pinedale	NA	-	-	-	-	0.3	5.9
Drilled; but not completed	Mesa 6BA-20D	035-24174	Pinedale	NA	-	-	-	-	0.2	4.4
Drilled; but not completed	Mesa 6C-20D	035-24062	Pinedale	NA	-	-	-	-	0.5	11.1
Drilled; but not completed	Mesa 6CA-20D	035-24180	Pinedale	NA	-	-	-	-	0.3	5.7
Drilled; but not completed	Mesa 6D-20D	035-24061	Pinedale	NA	-	-	-	-	0.5	10.7
Drilled; but not completed	Mesa 7B-20D	035-24049	Pinedale	NA	-	-	-	-	0.4	8.8
Drilled; but not completed	Mesa 7C-20D	035-24064	Pinedale	NA	-	-	-	-	1.4	29.2
Drilled; but not completed	Mesa 9-20D	035-24048	Pinedale	NA	-	-	-	-	0.8	17.6
Drilled; but not completed	Mesa 9D-20D	035-24047	Pinedale	NA	-	-	-	-	1.1	23.8
									10.2	**215.4**
									40.9	**865.0**

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

	Burners	Engines	Tanks and Pressurized Vessels						Still & Flash Tank Vents					
	N0x	N0x	VOC	Benzene	Toluene	benzene	Xylene	Controlled	VOC	Benzene	Toluene	benzene	Xylene	Controlled
Pad Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
	-	61.1	-	-	-	-	-	-	-	-	-	-	-	-
	3.9	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.3	1.2	-	-	-	-	-	-	-	-	-	-	-	-
	1.3	1.3	-	-	-	-	-	-	-	-	-	-	-	-
	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Pad Wellsites														
Mesa 7-21		-	1.1166	0.0086	0.0097	0.0006	0.0029	Yes						Yes
Mesa 7-21		-	1.7398	0.0134	0.0152	0.0009	0.0045	Yes						Yes
Mesa 7-21		-	0.8366	0.0064	0.0073	0.0004	0.0021	Yes						Yes
Mesa 7-21		-	0.7530	0.0058	0.0066	0.0004	0.0019	Yes						Yes
Mesa 7-21		-	0.8791	0.0068	0.0077	0.0005	0.0023	Yes						Yes
Mesa 7-21		-	1.8373	0.0141	0.0160	0.0009	0.0047	Yes						Yes
Mesa 7-21		-	1.2600	0.0097	0.0110	0.0006	0.0032	Yes						Yes
Mesa 7-21		-	1.9289	0.0148	0.0168	0.0010	0.0049	Yes						Yes
Mesa 7-21		-	1.2926	0.0099	0.0113	0.0007	0.0033	Yes						Yes
Mesa 7-21		-	2.0496	0.0158	0.0179	0.0011	0.0053	Yes						Yes
	0.79		13.6935	0.1053	0.1194	0.0070	0.0351		1.5651	0.1874	0.4851	0.0248	0.3514	
Mesa 13A-16D		-	1.3682	0.0105	0.0119	0.0007	0.0035	Yes						Yes
Mesa 13A-16D		-	2.1784	0.0168	0.0190	0.0011	0.0056	Yes	0.9896	0.1230	0.2892	0.0132	0.1636	Yes
Mesa 13A-16D		-	1.2007	0.0092	0.0105	0.0006	0.0031	Yes						Yes
Mesa 13A-16D		-	0.8612	0.0066	0.0075	0.0004	0.0022	Yes						Yes
Mesa 13A-16D		-	0.9291	0.0071	0.0081	0.0005	0.0024	Yes	0.9886	0.1229	0.2888	0.0132	0.1632	Yes
	0.44		6.5376	0.0503	0.0570	0.0034	0.0168		1.9782	0.2459	0.5780	0.0264	0.3268	
Mesa 11-20		-	0.5057	0.0039	0.0044	0.0003	0.0013	Yes						Yes
Mesa 11-20		-	0.4701	0.0036	0.0041	0.0002	0.0012	Yes						Yes
	0.33		0.9758	0.0075	0.0085	0.0005	0.0025		0.3296	0.0409	0.0934	0.0041	0.0500	
Mesa 1		-	0.1442	0.0011	0.0013	0.0001	0.0004	Yes						Yes
Mesa 1		-	1.2638	0.0097	0.0110	0.0006	0.0032	Yes						Yes
Mesa 1		-	1.5963	0.0123	0.0139	0.0008	0.0041	Yes						Yes
Mesa 1		-	0.4191	0.0032	0.0037	0.0002	0.0011	Yes						Yes
Mesa 1		-	1.2811	0.0099	0.0112	0.0007	0.0033	Yes						Yes
Mesa 1		-	1.0626	0.0082	0.0093	0.0005	0.0027	Yes						Yes
	0.68		5.7672	0.0444	0.0503	0.0030	0.0148		1.1037	0.1359	0.3345	0.0160	0.2090	
Mesa 10-8D		-	1.1251	0.0087	0.0098	0.0006	0.0029	Yes						Yes
Mesa 10-8D		-	1.3527	0.0104	0.0118	0.0007	0.0035	Yes						Yes
Mesa 10-8D		-	1.1452	0.0088	0.0100	0.0006	0.0029	Yes						Yes
Mesa 10-8D		-	0.7130	0.0055	0.0062	0.0004	0.0018	Yes						Yes
Mesa 10-8D		-	1.6532	0.0127	0.0144	0.0008	0.0042	Yes						Yes
	0.61		5.9892	0.0461	0.0522	0.0031	0.0154		0.9824	0.1201	0.3004	0.0147	0.1953	
Mesa 11-16		-	0.6713	0.0052	0.0059	0.0003	0.0017	Yes						Yes
Mesa 11-16		-	0.6801	0.0052	0.0059	0.0003	0.0017	Yes						Yes
Mesa 11-16		-	0.9940	0.0076	0.0087	0.0005	0.0025	Yes						Yes
Mesa 11-16		-	0.6328	0.0049	0.0055	0.0003	0.0016	Yes						Yes
	0.51		2.9782	0.0229	0.0260	0.0015	0.0076		0.4367	0.0530	0.1345	0.0067	0.0913	
Mesa 12-16		-	0.5652	0.0043	0.0049	0.0003	0.0014	Yes						Yes
Mesa 12-16		-	1.2878	0.0099	0.0112	0.0007	0.0033	Yes						Yes
Mesa 12-16		-	0.9098	0.0070	0.0079	0.0005	0.0023	Yes						Yes
	0.47		2.7629	0.0213	0.0241	0.0014	0.0071		0.4336	0.0527	0.1333	0.0066	0.0896	
Mesa 12-17D		-	2.2596	0.0174	0.0197	0.0012	0.0058	Yes						Yes
Mesa 12-17D		-	0.6106	0.0047	0.0053	0.0003	0.0016	Yes						Yes
Mesa 12-17D		-	1.8947	0.0146	0.0165	0.0010	0.0049	Yes						Yes
Mesa 12-17D		-	0.9256	0.0071	0.0081	0.0005	0.0024	Yes						Yes
Mesa 12-17D		-	1.2552	0.0097	0.0109	0.0006	0.0032	Yes						Yes
Mesa 12-17D		-	2.3261	0.0179	0.0203	0.0012	0.0060	Yes						Yes
Mesa 12-17D		-	2.0675	0.0159	0.0180	0.0011	0.0053	Yes						Yes
	0.67		11.3394	0.0872	0.0989	0.0058	0.0291		1.3653	0.1647	0.4221	0.0213	0.2954	
Mesa 14-16		-	0.6395	0.0049	0.0056	0.0003	0.0016	Yes						Yes
Mesa 14-16		-	1.0493	0.0081	0.0091	0.0005	0.0027	Yes						Yes
	0.33		1.6888	0.0130	0.0147	0.0009	0.0043		0.1817	0.0218	0.0563	0.0029	0.0403	

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Burners	Engines	Tanks and Pressurized Vessels						Still & Flash Tank Vents					
		N0x	N0x	VOC	Benzene	Toluene	benzene	Xylene	Controlled	VOC	Benzene	Toluene	benzene	Xylene	Controlled
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
	Pinedale Compressor Station	-	61.1	-	-	-	-	-	-	-	-	-	-	-	-
	Pinedale Stabilizer Site	3.9	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mesa 15-6 CDP Site	0.3	1.2	-	-	-	-	-	-	-	-	-	-	-	-
	Mesa 14-16 CDP Site	1.3	1.3	-	-	-	-	-	-	-	-	-	-	-	-
	Stewart Point 16-18 CDP Site	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Pad Wellsites															
Mesa 7-21	Mesa 2-21D		-	1.1166	0.0086	0.0097	0.0006	0.0029	Yes						Yes
Mesa 7-21	Mesa 6-21D		-	1.7398	0.0134	0.0152	0.0009	0.0045	Yes						Yes
Mesa 7-21	Mesa 6A-21D		-	0.8366	0.0064	0.0073	0.0004	0.0021	Yes						Yes
Mesa 7-21	Mesa 7-21		-	0.7530	0.0058	0.0066	0.0004	0.0019	Yes						Yes
Mesa 7-21	Mesa 7D-21D		-	0.8791	0.0068	0.0077	0.0005	0.0023	Yes						Yes
Mesa 7-21	Mesa 8-21D		-	1.8373	0.0141	0.0160	0.0009	0.0047	Yes						Yes
Mesa 7-21	Mesa 8D-21D		-	1.2600	0.0097	0.0110	0.0006	0.0032	Yes						Yes
Mesa 7-21	Mesa 11-21D		-	1.9289	0.0148	0.0168	0.0010	0.0049	Yes						Yes
Mesa 7-21	Mesa 11A-21D		-	1.2926	0.0099	0.0113	0.0007	0.0033	Yes						Yes
Mesa 7-21	Mesa 14A-21D		-	2.0496	0.0158	0.0179	0.0011	0.0053	Yes						Yes
		0.79		13.6935	0.1053	0.1194	0.0070	0.0351		1.5651	0.1874	0.4851	0.0248	0.3514	
Mesa 13A-16D	Mesa 13A-16D		-	1.3682	0.0105	0.0119	0.0007	0.0035	Yes						Yes
Mesa 13A-16D	Mesa 13AA-16D		-	2.1784	0.0168	0.0190	0.0011	0.0056	Yes	0.9896	0.1230	0.2892	0.0132	0.1636	Yes
Mesa 13A-16D	Mesa 1-20D		-	1.2007	0.0092	0.0105	0.0006	0.0031	Yes						Yes
Mesa 13A-16D	Mesa 4-21D		-	0.8612	0.0066	0.0075	0.0004	0.0022	Yes						Yes
Mesa 13A-16D	Mesa 16-17D		-	0.9291	0.0071	0.0081	0.0005	0.0024	Yes	0.9886	0.1229	0.2888	0.0132	0.1632	Yes
		0.44		6.5376	0.0503	0.0570	0.0034	0.0168		1.9782	0.2459	0.5780	0.0264	0.3268	
Mesa 11-20	Mesa 11-20		-	0.5057	0.0039	0.0044	0.0003	0.0013	Yes						Yes
Mesa 11-20	Mesa 13C-20D		-	0.4701	0.0036	0.0041	0.0002	0.0012	Yes						Yes
		0.33		0.9758	0.0075	0.0085	0.0005	0.0025		0.3296	0.0409	0.0934	0.0041	0.0500	
Mesa 1	Mesa Unit 1		-	0.1442	0.0011	0.0013	0.0001	0.0004	Yes						Yes
Mesa 1	Mesa Unit 1-7D		-	1.2638	0.0097	0.0110	0.0006	0.0032	Yes						Yes
Mesa 1	Mesa Unit 1A-7D		-	1.5963	0.0123	0.0139	0.0008	0.0041	Yes						Yes
Mesa 1	Mesa Unit 2-7D		-	0.4191	0.0032	0.0037	0.0002	0.0011	Yes						Yes
Mesa 1	Mesa Unit 2A-7D		-	1.2811	0.0099	0.0112	0.0007	0.0033	Yes						Yes
Mesa 1	Mesa Unit 8-7D		-	1.0626	0.0082	0.0093	0.0005	0.0027	Yes						Yes
		0.68		5.7672	0.0444	0.0503	0.0030	0.0148		1.1037	0.1359	0.3345	0.0160	0.2090	
Mesa 10-8D	Mesa 10-8D		-	1.1251	0.0087	0.0098	0.0006	0.0029	Yes						Yes
Mesa 10-8D	Mesa 11-8D		-	1.3527	0.0104	0.0118	0.0007	0.0035	Yes						Yes
Mesa 10-8D	Mesa 14A-8D		-	1.1452	0.0088	0.0100	0.0006	0.0029	Yes						Yes
Mesa 10-8D	Mesa 15-8		-	0.7130	0.0055	0.0062	0.0004	0.0018	Yes						Yes
Mesa 10-8D	Mesa 16-8D		-	1.6532	0.0127	0.0144	0.0008	0.0042	Yes						Yes
		0.61		5.9892	0.0461	0.0522	0.0031	0.0154		0.9824	0.1201	0.3004	0.0147	0.1953	
Mesa 11-16	Mesa 11-16		-	0.6713	0.0052	0.0059	0.0003	0.0017	Yes						Yes
Mesa 11-16	Mesa 11A-16D		-	0.6801	0.0052	0.0059	0.0003	0.0017	Yes						Yes
Mesa 11-16	Mesa 14B-16D		-	0.9940	0.0076	0.0087	0.0005	0.0025	Yes						Yes
Mesa 11-16	Mesa 7C-16D		-	0.6328	0.0049	0.0055	0.0003	0.0016	Yes						Yes
		0.51		2.9782	0.0229	0.0260	0.0015	0.0076		0.4367	0.0530	0.1345	0.0067	0.0913	
Mesa 12-16	Mesa 12-16		-	0.5652	0.0043	0.0049	0.0003	0.0014	Yes						Yes
Mesa 12-16	Mesa 12B-16D		-	1.2878	0.0099	0.0112	0.0007	0.0033	Yes						Yes
Mesa 12-16	Mesa 9-17D		-	0.9098	0.0070	0.0079	0.0005	0.0023	Yes						Yes
		0.47		2.7629	0.0213	0.0241	0.0014	0.0071		0.4336	0.0527	0.1333	0.0066	0.0896	
Mesa 12-17D	Mesa 10-17D		-	2.2596	0.0174	0.0197	0.0012	0.0058	Yes						Yes
Mesa 12-17D	Mesa 11C-17D		-	0.6106	0.0047	0.0053	0.0003	0.0016	Yes						Yes
Mesa 12-17D	Mesa 12-17D		-	1.8947	0.0146	0.0165	0.0010	0.0049	Yes						Yes
Mesa 12-17D	Mesa 5-17D		-	0.9256	0.0071	0.0081	0.0005	0.0024	Yes						Yes
Mesa 12-17D	Mesa 5A-17D		-	1.2552	0.0097	0.0109	0.0006	0.0032	Yes						Yes
Mesa 12-17D	Mesa 6-17D		-	2.3261	0.0179	0.0203	0.0012	0.0060	Yes						Yes
Mesa 12-17D	Mesa 7-17D		-	2.0675	0.0159	0.0180	0.0011	0.0053	Yes						Yes
		0.67		11.3394	0.0872	0.0989	0.0058	0.0291		1.3653	0.1647	0.4221	0.0213	0.2954	
Mesa 14-16	Mesa 14-16		-	0.6395	0.0049	0.0056	0.0003	0.0016	Yes						Yes
Mesa 14-16	Mesa 14A-16D		-	1.0493	0.0081	0.0091	0.0005	0.0027	Yes						Yes
		0.33		1.6888	0.0130	0.0147	0.0009	0.0043		0.1817	0.0218	0.0563	0.0029	0.0403	

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Burners	Engines	Tanks and Pressurized Vessels						Still & Flash Tank Vents					
		N0x	N0x	VOC	Benzene	Toluene	benzene	Xylene	Controlled	VOC	Benzene	Toluene	benzene	Xylene	Controlled
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
Mesa 15-20	Mesa 14-20D		-	0.9037	0.0070	0.0079	0.0005	0.0023	Yes						Yes
Mesa 15-20	Mesa 15-20		-	0.9061	0.0070	0.0079	0.0005	0.0023	Yes						Yes
Mesa 15-20	Mesa 16-20D		-	2.1095	0.0162	0.0184	0.0011	0.0054	Yes						Yes
Mesa 15-20	Mesa 16C-20D		-	0.6376	0.0049	0.0056	0.0003	0.0016	Yes						Yes
		0.50		4.5569	0.0351	0.0397	0.0023	0.0117		1.1622	0.1439	0.3477	0.0163	0.2082	
Mesa 15-6	Mesa 14-6D		-	1.1096	0.0085	0.0097	0.0006	0.0028	Yes						Yes
Mesa 15-6	Mesa 15-6		-	0.8636	0.0066	0.0075	0.0004	0.0022	Yes						Yes
Mesa 15-6	Mesa 16-6D		-	0.9339	0.0072	0.0081	0.0005	0.0024	Yes						Yes
		0.47		2.9071	0.0224	0.0253	0.0015	0.0075		0.1858	0.0220	0.0576	0.0030	0.0442	
Mesa 16-16	Mesa 16-16		-	0.6371	0.0049	0.0056	0.0003	0.0016	Yes						Yes
Mesa 16-16	Mesa 16C-16D		-	2.2027	0.0169	0.0192	0.0011	0.0056	Yes						Yes
		0.29		2.8398	0.0218	0.0248	0.0015	0.0073		0.2177	0.0258	0.0675	0.0035	0.0512	
Stewart Point 16-29	Stewart Point 16-29		-	1.6770	0.0129	0.0146	0.0009	0.0043	Yes						Yes
Stewart Point 16-29	Stewart Point 9-29D		-	2.6191	0.0201	0.0228	0.0013	0.0067	Yes						Yes
		0.33		4.2961	0.0330	0.0375	0.0022	0.0110		0.5207	0.0629	0.1610	0.0081	0.1120	
Mesa 2	Mesa Unit 2		-	0.0681	0.0005	0.0006	0.0000	0.0002	Yes						Yes
Mesa 2	Mesa 2-16D		-	0.2992	0.0023	0.0026	0.0002	0.0008	Yes						Yes
Mesa 2	Mesa 3-16D		-	0.4629	0.0036	0.0040	0.0002	0.0012	Yes						Yes
Mesa 2	Mesa 4-16D		-	0.4370	0.0034	0.0038	0.0002	0.0011	Yes						Yes
Mesa 2	Mesa 7-16D		-	0.4570	0.0035	0.0040	0.0002	0.0012	Yes						Yes
		0.79		1.7243	0.0133	0.0150	0.0009	0.0044		0.4205	0.0520	0.1261	0.0059	0.0761	
Mesa 2-20	Mesa 14-17D		-	1.1914	0.0092	0.0104	0.0006	0.0031	Yes						Yes
Mesa 2-20	Mesa 15-17D		-	1.4342	0.0110	0.0125	0.0007	0.0037	Yes						Yes
Mesa 2-20	Mesa 2-20D		-	1.3423	0.0103	0.0117	0.0007	0.0034	Yes						Yes
Mesa 2-20	Mesa 3-20		-	0.5241	0.0040	0.0046	0.0003	0.0013	Yes						Yes
Mesa 2-20	Mesa 5CA-20D		-	-	-	-	-	-							Yes
Mesa 2-20	Mesa 4DD-20D		-	-	-	-	-	-							Yes
Mesa 2-20	Mesa 2BA-20D		-	-	-	-	-	-							Yes
Mesa 2-20	Mesa 5DB-20D		-	-	-	-	-	-							Yes
		0.43		4.4919	0.0346	0.0392	0.0023	0.0115		0.7796	0.0954	0.2383	0.0116	0.1546	
Mesa 3	Mesa 12A-16		-	1.0271	0.0079	0.0090	0.0005	0.0026	Yes						Yes
Mesa 3	Mesa Unit 3		-	0.3964	0.0030	0.0035	0.0002	0.0010	Yes						Yes
Mesa 3	Mesa 4D-16D		-	0.6833	0.0053	0.0060	0.0004	0.0018	Yes						Yes
Mesa 3	Mesa 5A-16D		-	0.6224	0.0048	0.0054	0.0003	0.0016	Yes						Yes
Mesa 3	Mesa 6A-16D		-	1.1847	0.0091	0.0103	0.0006	0.0030	Yes						Yes
Mesa 3	Mesa 8-17		-	0.8190	0.0063	0.0071	0.0004	0.0021	Yes						Yes
		0.81		4.7329	0.0364	0.0413	0.0024	0.0121		0.6342	0.0767	0.1958	0.0098	0.1349	
Mesa 3-21	Mesa 3-21		-	1.2857	0.0099	0.0112	0.0007	0.0033	Yes						Yes
Mesa 3-21	Mesa 3B-21D		-	0.8569	0.0066	0.0075	0.0004	0.0022	Yes						Yes
		0.28		2.1426	0.0165	0.0187	0.0011	0.0055		0.5220	0.0646	0.1562	0.0073	0.0935	
Mesa 3-8	Mesa 3-8		-	0.9758	0.0075	0.0085	0.0005	0.0025	Yes						Yes
Mesa 3-8	Mesa 6-8D		-	0.8911	0.0069	0.0078	0.0005	0.0023	Yes						Yes
		0.29		1.8669	0.0144	0.0163	0.0010	0.0048		0.4150	0.0514	0.1239	0.0058	0.0736	
Mesa 5-8	Mesa 5-8		-	0.5468	0.0042	0.0048	0.0003	0.0014	Yes						Yes
Mesa 5-8	Mesa 9-7		-	0.6686	0.0051	0.0058	0.0003	0.0017	Yes						Yes
		0.43		1.2154	0.0093	0.0106	0.0006	0.0031		0.2010	0.0246	0.0615	0.0030	0.0400	
Mesa 6-6	Mesa 6-6		-	2.0956	0.0161	0.0183	0.0011	0.0054	Yes						Yes
Mesa 6-6	Stewart Point 15-32D		-	0.4287	0.0033	0.0037	0.0002	0.0011	Yes						Yes
		0.40		2.5243	0.0194	0.0220	0.0013	0.0065		0.9710	0.1193	0.2636	0.0113	0.1336	
Mesa 7-7	Mesa 10-7D		-	0.1213	0.0009	0.0011	0.0001	0.0003	Yes						Yes
Mesa 7-7	Mesa 3-7		-	0.6927	0.0053	0.0060	0.0004	0.0018	Yes						Yes
Mesa 7-7	Mesa 6-7D		-	0.2856	0.0022	0.0025	0.0001	0.0007	Yes						Yes
Mesa 7-7	Mesa 7-7		-	0.7001	0.0054	0.0061	0.0004	0.0018	Yes						Yes
Mesa 7-7	Mesa 9B-7D		-	0.1392	0.0011	0.0012	0.0001	0.0004	Yes						Yes
		0.34		1.9388	0.0149	0.0169	0.0010	0.0050		0.7556	0.0925	0.2028	0.0087	0.1015	
Mesa 7-8	Mesa 1D-8D		-	0.2479	0.0019	0.0022	0.0001	0.0006	Yes						Yes
Mesa 7-8	Mesa 7-8		-	0.7431	0.0057	0.0065	0.0004	0.0019	Yes						Yes
Mesa 7-8	Mesa 7A-8D		-	0.5586	0.0043	0.0049	0.0003	0.0014	Yes						Yes

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		Burners	Engines	Tanks and Pressurized Vessels						Still & Flash Tank Vents					
		N0x	N0x	VOC	Benzene	Toluene	benzene	Xylene	Controlled	VOC	Benzene	Toluene	benzene	Xylene	Controlled
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
		0.33		1.5496	0.0119	0.0135	0.0008	0.0040		0.3698	0.0458	0.1107	0.0052	0.0665	
Mesa 9-8	Mesa 12-9D		-	1.0092	0.0078	0.0088	0.0005	0.0026	Yes						Yes
Mesa 9-8	Mesa 8-8D		-	0.7346	0.0057	0.0064	0.0004	0.0019	Yes						Yes
Mesa 9-8	Mesa 13-9D		-	0.6935	0.0053	0.0060	0.0004	0.0018	Yes						Yes
Mesa 9-8	Mesa 9-8		-	1.8317	0.0141	0.0160	0.0009	0.0047	Yes						Yes
		0.65		4.2689	0.0328	0.0372	0.0022	0.0109		0.4700	0.0566	0.1454	0.0074	0.1025	
Stewart Point 11-33	Stewart Point 11-33		-	0.4712	0.0036	0.0041	0.0002	0.0012	Yes						Yes
Stewart Point 11-33	Stewart Point 13-33D		-	1.7777	0.0137	0.0155	0.0009	0.0046	Yes						Yes
		0.34		2.2489	0.0173	0.0196	0.0012	0.0058		0.2532	0.0307	0.0780	0.0039	0.0531	
Stewart Point 2-20	Stewart Point 1-20D		-	2.7679	0.0213	0.0241	0.0014	0.0071	Yes						Yes
Stewart Point 2-20	Stewart Point 2-20		-	1.9214	0.0148	0.0168	0.0010	0.0049	Yes						Yes
Stewart Point 2-20	Stewart Point 3-20D		-	1.8258	0.0140	0.0159	0.0009	0.0047	Yes						Yes
		0.46		6.5151	0.0501	0.0568	0.0033	0.0167		0.6985	0.0844	0.2157	0.0108	0.1496	
Stewart Point 3-28	Stewart Point 2A-28D		-	0.1143	0.0009	0.0010	0.0001	0.0003	Yes						Yes
Stewart Point 3-28	Stewart Point 3-28		-	0.7311	0.0056	0.0064	0.0004	0.0019	Yes						Yes
		0.31		0.8454	0.0065	0.0074	0.0004	0.0022		0.2935	0.0356	0.0769	0.0032	0.0376	
Stewart Point 8-32D	Stewart Point 10-32D		-	1.4860	0.0114	0.0130	0.0008	0.0038	Yes						Yes
Stewart Point 8-32D	Stewart Point 12-33D		-	3.6558	0.0281	0.0319	0.0019	0.0094	Yes						Yes
Stewart Point 8-32D	Stewart Point 16-32D		-	1.5074	0.0116	0.0131	0.0008	0.0039	Yes						Yes
Stewart Point 8-32D	Stewart Point 5-33DR		-	2.7153	0.0209	0.0237	0.0014	0.0070	Yes						Yes
Stewart Point 8-32D	Stewart Point 7-32D		-	1.2093	0.0093	0.0105	0.0006	0.0031	Yes						Yes
Stewart Point 8-32D	Stewart Point 8-32D		-	5.0903	0.0392	0.0444	0.0026	0.0131	Yes						Yes
Stewart Point 8-32D	Stewart Point 9-32D		-	1.0298	0.0079	0.0090	0.0005	0.0026	Yes						Yes
		0.98		16.6939	0.1284	0.1455	0.0086	0.0428		1.5587	0.1870	0.4829	0.0246	0.3468	
Mesa 12-21 LEK	Mesa 12-21D		-	1.6762	0.0129	0.0146	0.0009	0.0043	Yes	0.2122	0.0255	0.0657	0.0033	0.0466	Yes
Mesa 12-21 LEK	Mesa 12B-21D		-	0.6259	0.0048	0.0055	0.0003	0.0016	Yes	0.1824	0.0226	0.0539	0.0025	0.0312	Yes
Mesa 12-21 LEK	Mesa 13-21D		-	1.2734	0.0098	0.0111	0.0007	0.0033	Yes	0.2063	0.0250	0.0635	0.0032	0.0429	Yes
Mesa 12-21 LEK	Mesa 13D-21D		-	0.6691	0.0051	0.0058	0.0003	0.0017	Yes	0.1843	0.0229	0.0547	0.0025	0.0321	Yes
Mesa 12-21 LEK	Mesa 14-21D		-	1.4203	0.0109	0.0124	0.0007	0.0036	Yes	0.2088	0.0253	0.0644	0.0032	0.0444	Yes
		0.42		5.6649	0.0436	0.0494	0.0029	0.0145		0.9940	0.1213	0.3022	0.0147	0.1972	
Stewart Point 4-33	Stewart Point 13-28D		-	1.9484	0.0150	0.0170	0.0010	0.0050	Yes	0.2096	0.0253	0.0648	0.0033	0.0449	Yes
Stewart Point 4-33	Stewart Point 14-28D		-	0.9809	0.0075	0.0086	0.0005	0.0025	Yes	0.1888	0.0234	0.0566	0.0027	0.0341	Yes
Stewart Point 4-33	Stewart Point 1-32D		-	3.7234	0.0286	0.0325	0.0019	0.0095	Yes	0.2179	0.0258	0.0676	0.0035	0.0515	Yes
Stewart Point 4-33	Stewart Point 3-33D		-	1.0599	0.0082	0.0092	0.0005	0.0027	Yes	0.1917	0.0237	0.0578	0.0027	0.0354	Yes
Stewart Point 4-33	Stewart Point 4-33		-	1.7550	0.0135	0.0153	0.0009	0.0045	Yes	0.2074	0.0251	0.0639	0.0032	0.0436	Yes
		0.78		9.4677	0.0728	0.0825	0.0049	0.0243		1.0154	0.1233	0.3107	0.0154	0.2095	
Stewart Point 15-20D	Stewart Point 14-20		-	1.6262	0.0125	0.0142	0.0008	0.0042	Yes	0.2497	0.0305	0.0765	0.0038	0.0503	Yes
Stewart Point 15-20D	Stewart Point 15-20D		-	1.6324	0.0126	0.0142	0.0008	0.0042	Yes	0.2497	0.0305	0.0765	0.0038	0.0503	Yes
		0.30		3.2586	0.0251	0.0284	0.0017	0.0084		0.4994	0.0610	0.1530	0.0076	0.1006	
		14.76		**137.5**	**1.1**	**1.2**	**0.1**	**0.4**		**21.3**	**2.6**	**6.4**	**0.3**	**4.1**	
Single Wellsites															
NA	Mesa 11-17	0.20	-	0.9699	0.0075	0.0085	0.0005	0.0025	Yes	8.5541	1.0462	2.6158	0.1277	1.7015	No
NA	Mesa 11-9	0.05	-	4.4716	0.0344	0.0390	0.0023	0.0115	No	5.9420	0.7031	1.4692	0.0603	0.6864	No
NA	Mesa 3-17	0.17	-	1.2432	0.0096	0.0108	0.0006	0.0032	Yes	8.8904	1.0755	2.7425	0.1373	1.8878	No
NA	Mesa 3-22D	0.05	-	0.1002	0.0008	0.0009	0.0001	0.0003	No	4.5652	0.4470	0.8427	0.0322	0.3487	No
NA	Mesa 5-21	0.20	-	0.8647	0.0067	0.0075	0.0004	0.0022	Yes	8.5152	1.0428	2.5999	0.1265	1.6784	No
NA	Mesa 5-22	0.17	-	1.0856	0.0084	0.0095	0.0006	0.0028	Yes	8.6226	1.0524	2.6422	0.1297	1.7376	No
NA	Mesa 10-16	0.20	-	0.4525	0.0035	0.0039	0.0002	0.0012	Yes	7.3064	0.9077	2.0945	0.0937	1.1432	No
NA	Mesa 10A-16	0.14	-	0.9483	0.0073	0.0083	0.0005	0.0024	Yes	9.7355	1.1991	2.9499	0.1413	1.8414	No
NA	Mesa 12-8	0.14		0.8591	0.0066	0.0075	0.0004	0.0022	Yes	8.2948	1.0215	2.5138	0.1204	1.5700	No
NA	Mesa 13-5	0.20	-	0.4763	0.0037	0.0042	0.0002	0.0012	Yes	5.2390	0.6484	1.5696	0.0738	0.9437	No
NA	Mesa 15-16	0.20	-	0.5994	0.0046	0.0052	0.0003	0.0015	Yes	7.8600	0.9750	2.3340	0.1085	1.3698	No
NA	Mesa 4-8	0.20	-	16.9303	0.1302	0.1476	0.0087	0.0434	No	8.3059	1.0227	2.5181	0.1207	1.5751	No
NA	Mesa Unit 6	0.29	-	6.6140	0.0509	0.0577	0.0034	0.0170	No	6.9389	0.8581	1.9299	0.0843	1.0070	No
NA	Mesa 6-16	0.20	-	0.4303	0.0033	0.0038	0.0002	0.0011	Yes	6.9221	0.8557	1.9219	0.0838	1.0060	No
NA	Mesa 9-16	0.20	-	9.3600	0.0720	0.0816	0.0048	0.0240	No	7.2241	0.8969	2.0575	0.0916	1.1112	No
NA	Pinedale Unit 8	0.10	-	1.3944	0.0107	0.0122	0.0007	0.0036	No	3.0734	0.1685	0.2930	0.0105	0.1105	No
NA	Sidewinder 3-15D	0.02	-	1.4264	0.0110	0.0124	0.0007	0.0037	No	4.3546	0.4046	0.7510	0.0284	0.3060	No

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Burners	Engines	Tanks and Pressurized Vessels						Still & Flash Tank Vents					
		N0x	N0x	VOC	Benzene	Toluene	benzene	Xylene	Controlled	VOC	Benzene	Toluene	benzene	Xylene	Controlled
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
NA	Stewart Point 11-21	0.20	-	11.8816	0.0914	0.1036	0.0061	0.0305	No	7.7859	0.9665	2.3018	0.1064	1.3362	No
NA	Stewart Point 15-17D	0.20	-	2.3229	0.0179	0.0203	0.0012	0.0060	Yes	10.5609	1.2727	3.2664	0.1650	2.2959	No
NA	Stewart Point 15-33	0.23	-	1.4521	0.0112	0.0127	0.0007	0.0037	Yes	8.7838	1.0665	2.7035	0.1343	1.8275	No
NA	Stewart Point 16-18D	0.23	-	8.6121	0.0662	0.0751	0.0044	0.0221	No	6.0031	0.7138	1.4991	0.0618	0.7053	No
NA	Stewart Point 4-29D	0.16	-	12.2236	0.0940	0.1066	0.0063	0.0313	No	7.5482	0.9382	2.1998	0.1000	1.2378	No
NA	Stewart Point 4-32	0.20	-	3.7664	0.0290	0.0328	0.0019	0.0097	No	5.4375	0.6143	1.2360	0.0493	0.5502	No
NA	Stewart Point 5-17	0.25	-	1.9919	0.0153	0.0174	0.0010	0.0051	Yes	0.2025	0.0247	0.0621	0.0030	0.0408	Yes
NA	Stewart Point 5-20	0.20	-	14.7612	0.1135	0.1287	0.0076	0.0378	No	8.1617	1.0095	2.2723	0.0993	1.1874	No
NA	Stewart Point 6-32	0.18	-	9.6432	0.0742	0.0841	0.0049	0.0247	No	8.1617	1.0095	2.2723	0.0993	1.1874	No
NA	Stewart Point 7-20	0.20	-	1.4553	0.0112	0.0127	0.0007	0.0037	Yes	10.2088	1.2433	3.1345	0.1546	2.0857	No
NA	Stewart Point 9-33	0.20	-	3.5688	0.0275	0.0311	0.0018	0.0092	No	5.3660	0.5259	0.9916	0.0379	0.4105	No
NA	Stewart Point 11-34 (Shut in)		-	-	-	-	-	-	No	-	-	-	-	-	NA
		4.98		**119.9**	**0.9**	**1.0**	**0.1**	**0.3**		**198.6**	**23.7**	**55.8**	**2.6**	**32.9**	
		19.74		**257.4**	**2.0**	**2.2**	**0.1**	**0.7**		**219.9**	**26.3**	**62.2**	**2.9**	**37.0**	
Drilled; but not completed	Mesa 10A-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 10A-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 1-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 11A-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 14-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 14D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 1A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 2-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 2A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 3A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6BA-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6C-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6CA-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 7B-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 7C-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 9-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 9D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
		VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
	Pinedale Compressor Station	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pinedale Stabilizer Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mesa 15-6 CDP Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mesa 14-16 CDP Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stewart Point 16-18 CDP Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pad Wellsites																	
Mesa 7-21	Mesa 2-21D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 6-21D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 6A-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 7-21	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 7-21	Mesa 7D-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 8-21D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 7-21	Mesa 8D-21D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 11-21D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 11A-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 7-21	Mesa 14A-21D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
		-	-	-	-	-	0.5200	0.0003	0.0005	0.0000	0.0002	2.568					17.70
Mesa 13A-16D	Mesa 13A-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 13A-16D	Mesa 13AA-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 13A-16D	Mesa 1-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321					2.213
Mesa 13A-16D	Mesa 4-21D	-	-	-	-	-	-	-	-	-	-	0.321					2.213
Mesa 13A-16D	Mesa 16-17D	-	-	-	-	-	-	-	-	-	-	0.321					2.213
							0.3900	0.0002	0.0003	0.0000	0.0001	1.284					8.85
Mesa 11-20	Mesa 11-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 11-20	Mesa 13C-20D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
							-	-	-	-	-	0.321					2.21
Mesa 1	Mesa Unit 1	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 1	Mesa Unit 1-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 1	Mesa Unit 1A-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 1	Mesa Unit 2-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 1	Mesa Unit 2A-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 1	Mesa Unit 8-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.7800	0.0004	0.0007	0.0000	0.0003	0.321					2.21
Mesa 10-8D	Mesa 10-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 10-8D	Mesa 11-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 10-8D	Mesa 14A-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 10-8D	Mesa 15-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 10-8D	Mesa 16-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.6500	0.0003	0.0006	0.0000	0.0002	0.321					2.21
Mesa 11-16	Mesa 11-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 11-16	Mesa 11A-16D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 11-16	Mesa 14B-16D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 11-16	Mesa 7C-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
							0.1300	0.0001	0.0001	0.0000	0.0000	0.642					4.43
Mesa 12-16	Mesa 12-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 12-16	Mesa 12B-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 12-16	Mesa 9-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.3900	0.0002	0.0003	0.0000	0.0001	-					-
Mesa 12-17D	Mesa 10-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 12-17D	Mesa 11C-17D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 12-17D	Mesa 12-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 12-17D	Mesa 5-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 12-17D	Mesa 5A-17D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 12-17D	Mesa 6-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mesa 12-17D	Mesa 7-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	0.963					6.64
Mesa 14-16	Mesa 14-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 14-16	Mesa 14A-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000		-					-

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
		VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Mesa 15-20	Mesa 14-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 15-20	Mesa 15-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 15-20	Mesa 16-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 15-20	Mesa 16C-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
							0.5200	0.0003	0.0005	0.0000	0.0002	0.321					2.21
Mesa 15-6	Mesa 14-6D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 15-6	Mesa 15-6	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 15-6	Mesa 16-6D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.3900	0.0002	0.0003	0.0000	0.0001	-					-
Mesa 16-16	Mesa 16-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 16-16	Mesa 16C-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
							0.2600	0.0001	0.0002	0.0000	0.0001	0.321					2.21
Stewart Point 16-29	Stewart Point 16-29	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 16-29	Stewart Point 9-29D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
Mesa 2	Mesa Unit 2	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2	Mesa 2-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2	Mesa 3-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2	Mesa 4-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2	Mesa 7-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.6500	0.0003	0.0006	0.0000	0.0002	-					-
Mesa 2-20	Mesa 14-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2-20	Mesa 15-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 2-20	Mesa 2-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2-20	Mesa 3-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 2-20	Mesa 5CA-20D	-	-	-	-	-	na	na	na	na	na	-	-	-	-	-	0
Mesa 2-20	Mesa 4DD-20D	-	-	-	-	-	na	na	na	na	na	-	-	-	-	-	0
Mesa 2-20	Mesa 2BA-20D	-	-	-	-	-	na	na	na	na	na	-	-	-	-	-	0
Mesa 2-20	Mesa 5DB-20D	-	-	-	-	-	na	na	na	na	na	-	-	-	-	-	0
							0.5200	0.0003	0.0005	0.0000	0.0002	0.32					2.21
Mesa 3	Mesa 12A-16	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 3	Mesa Unit 3	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 3	Mesa 4D-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 3	Mesa 5A-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 3	Mesa 6A-16D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 3	Mesa 8-17	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.6500	0.0003	0.0006	0.0000	0.0002	0.642					4.43
Mesa 3-21	Mesa 3-21	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 3-21	Mesa 3B-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
							0.2600	0.0001	0.0002	0.0000	0.0001	0.321					2.21
Mesa 3-8	Mesa 3-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 3-8	Mesa 6-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
Mesa 5-8	Mesa 5-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 5-8	Mesa 9-7	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
Mesa 6-6	Mesa 6-6	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 6-6	Stewart Point 15-32D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
Mesa 7-7	Mesa 10-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 7-7	Mesa 3-7	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 7-7	Mesa 6-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 7-7	Mesa 7-7	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 7-7	Mesa 9B-7D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
							0.6500	0.0003	0.0006	0.0000	0.0002	0.963					6.64
Mesa 7-8	Mesa 1D-8D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Mesa 7-8	Mesa 7-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 7-8	Mesa 7A-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
		VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
							0.2600	0.0001	0.0002	0.0000	0.0001	0.642					4.43
Mesa 9-8	Mesa 12-9D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mesa 9-8	Mesa 8-8D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 9-8	Mesa 13-9D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 9-8	Mesa 9-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	
							0.3900	0.0002	0.0003	0.0000	0.0001	0.321					2.21
Stewart Point 11-33	Stewart Point 11-33	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 11-33	Stewart Point 13-33D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
Stewart Point 2-20	Stewart Point 1-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 2-20	Stewart Point 2-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 2-20	Stewart Point 3-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-					-
							0.3900	0.0002	0.0003	0.0000	0.0001						
Stewart Point 3-28	Stewart Point 2A-28D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
Stewart Point 3-28	Stewart Point 3-28	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.1300	0.0001	0.0001	0.0000	0.0000	0.321					2.21
Stewart Point 8-32D	Stewart Point 10-32D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 8-32D	Stewart Point 12-33D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 8-32D	Stewart Point 16-32D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 8-32D	Stewart Point 5-33DR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 8-32D	Stewart Point 7-32D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Stewart Point 8-32D	Stewart Point 8-32D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 8-32D	Stewart Point 9-32D	-	-	-	-	-	-	-	-	-	-	0.321	-	-	-	-	2.213
							0.1300	0.0001	0.0001	0.0000	0.0000	0.642					4.43
Mesa 12-21 LEK	Mesa 12-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 12-21 LEK	Mesa 12B-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 12-21 LEK	Mesa 13-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Mesa 12-21 LEK	Mesa 13D-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
Mesa 12-21 LEK	Mesa 14-21D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.6500	0.0003	0.0006	0.0000	0.0002	0.642					4.43
Stewart Point 4-33	Stewart Point 13-28D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Stewart Point 4-33	Stewart Point 14-28D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 4-33	Stewart Point 1-32D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 4-33	Stewart Point 3-33D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 4-33	Stewart Point 4-33	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.5200	0.0003	0.0005	0.0000	0.0002	-					-
Stewart Point 15-20D	Stewart Point 14-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
Stewart Point 15-20D	Stewart Point 15-20D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
							0.2600	0.0001	0.0002	0.0000	0.0001	-					-
							11.18	**0.01**	**0.01**	**0.00**	**0.00**	**11.877**	**-**	**-**	**-**	**-**	**81.881**
Single Wellsites																	
NA	Mesa 11-17	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 11-9	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
NA	Mesa 3-17	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 3-22D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 5-21	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 5-22	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 10-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 10A-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 12-8						0.1300	0.0001	0.0001	0.0000	0.0000						
NA	Mesa 13-5	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 15-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 4-8	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa Unit 6	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 6-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Mesa 9-16	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Pinedale Unit 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
NA	Sidewinder 3-15D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213

Table F.1.3
2005 Actual Emissions Inventory – Questar 2005 Actual Emissions Inventory

		Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
		VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	benzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Pad Name	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
NA	Stewart Point 11-21	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 15-17D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 15-33	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 16-18D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 4-29D	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 4-32	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 5-17	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	0.321	-	-	-	-	2.213
NA	Stewart Point 5-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 6-32	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 7-20	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 9-33	-	-	-	-	-	0.1300	0.0001	0.0001	0.0000	0.0000	-	-	-	-	-	0
NA	Stewart Point 11-34 (Shut in)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
							3.51	**0.00**	**0.00**	**0.00**	**0.00**	0.963	-	-	-	-	6.639
							14.7	**0.0**	**0.0**	**0.0**	**0.0**	**12.840**	**-**	**-**	**-**	**-**	**88.520**
Drilled; but not completed	Mesa 10A-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 10A-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 1-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 11A-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 14-8D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 14D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 1A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 2-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 2A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 3A-17D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6BA-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6C-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6CA-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 6D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 7B-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 7C-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 9-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilled; but not completed	Mesa 9D-20D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table F.1.4
2005 Actual Emissions Inventory – BP/Stone 2005 Actual Emissions Inventory

Well Name	API #	Field Name	Air Quality Permit #	Location		Production		Drill Rig Engin		Process Burners	Wellhead IC Engines
						Gas	Condensate	SO2	N0x	N0x	N0x
				Latitude	Longitude	MMCF	BBL	TPY	TPY	TPY	TPY
ANTELOPE 03-05	490352305500	Pinedale Anticline	CT-3914	42.516638	109.628779	569.2	9,848			0.251	0
ANTELOPE 03-09	490352241200	Pinedale Anticline	MD-1278	42.502778	109.609167	114.3	996			0.084	0
ANTELOPE 03-14 (Inactive)	490352187700	Pinedale Anticline		42.486944	109.569444	1.1	0			0.076	0
ANTELOPE 04-05	490352306500	Pinedale Anticline	CT-3868	42.516668	109.633108	236.9	1,246			0.241	0
ANTELOPE 05-04	490352242900	Pinedale Anticline	MD-1279	42.516668	109.633108	429.6	2,276			0.255	0
ANTELOPE 05-05	490352306400	Pinedale Anticline		42.510000	109.610000	890.6	9,520			0.180	0
ANTELOPE 06-04	490352308400	Pinedale Anticline		42.513060	109.633100	126.1	1,619			0.250	0
Antelope 09-05	490352308600	Pinedale Anticline		42.512569	109.608581	14.0	0			0.114	
ANTELOPE 10-05D	490352330500	Pinedale Anticline		42.508970	109.618360	13.9	0			0.114	
ANTELOPE 15-04	490352173900	Pinedale Anticline	CT-1679	42.506110	109.603810	790.4	6,132			0.151	0
ANTELOPE 15-23	490352174000	Pinedale Anticline	AP-1093	42.506111	109.603889	10.0	202			0.115	0
RAINBOW 03-31	490352255600	Pinedale Anticline	CT-3496	42.456389	109.673056	299.7	2,509			0.240	0
Rainbow 03-31PAD		Pinedale Anticline		42.473610	109.648330	0.0	0			0.000	
RAINBOW 04-31D	490352330700	Pinedale Anticline	3-31 pad ct-3496	42.530000	109.650000	541.6	5,472			0.299	0
RAINBOW 04-32D	490352383600	Pinedale Anticline		42.528230	109.629070			0.75	9.29		
RAINBOW 05-31	490352255900	Pinedale Anticline	CT-3866	42.530860	109.648340	258.3	2,067			0.125	0
RAINBOW 05-32	490352329600	Pinedale Anticline	CT-3982	42.530860	109.648340	772.3	18,507			0.261	0
RAINBOW 06-31D	490352344100	Pinedale Anticline		42.508040	109.652090			0.28	3.44		
RAINBOW 06-32	490352329500	Pinedale Anticline	CT-3925	42.528090	109.652060	129.5	1,489			0.237	0
RAINBOW 09-31	490352255800	Pinedale Anticline	CT-3430	42.527390	109.633220	486.8	4,418			0.137	0
Rainbow 10-31D	490352342400	Pinedale Anticline	Produces to 10-32	42.528310	109.629070	156.7	495	0.5	6.22	0.008	
RAINBOW 10-32	490352305600	Pinedale Anticline	CT-3683	42.520125	109.642973	437.4	3,480			0.253	0
RAINBOW 15-29 (Inactive)	490352189700	Pinedale Anticline		42.520125	109.642973	0.0	0			0.000	0
Rainbow 15-30	490352341800	Pinedale Anticline		42.524180	109.623000	456.3	4,862	0.43	5.29	0.251	
Rainbow 15-30 PAD		Pinedale Anticline		42.534722	109.624167	0.0	0			0.000	
RAINBOW 15-31	490352255700	Pinedale Anticline	CT-3915	42.534750	109.643150	360.3	3,268			0.243	0
Rainbow 15-31 PAD		Pinedale Anticline		42.534750	109.643150	0.0	0			0.000	
RAINBOW 15-32	490352305800	Pinedale Anticline	CT-3669	42.520080	109.643020	499.8	4,164			0.107	0
RAINBOW 16-30	490352329400	Pinedale Anticline		42.520080	109.643020	1,721.0	39,098			0.190	0
RAINBOW 16-31	490352306300	Pinedale Anticline	CT-3827	42.520270	109.622690	513.5	4,836			0.158	0
RAINBOW 10-30D	490352330600	Pinedale Anticline		42.53476	109.643086	Comp. Only		0.39	4.83		
							2005 Totals:	**2.35**	**29.07**	**4.34**	**0.00**

Note: All emissions taken from BPs 2005 inventory with the exception of drilling emissions taken from Stones 2005 inventory.

Table F.1.4
2005 Actual Emissions Inventory – BP/Stone 2005 Actual Emissions Inventory

	Flashing Emissions Tanks and Pressurized Vessels						Glycol Dehydration Units Still & Flash Tank Vents					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled
Well Name	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
ANTELOPE 03-05	2.86	0.02	0.01	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
ANTELOPE 03-09	0.30	0.00	0.00	0.00	0.00	yes	6.89	0.692	2.176	0.106	1.371	
ANTELOPE 03-14 (Inactive)	0.00	0.00	0.00	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
ANTELOPE 04-05	0.36	0.00	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
ANTELOPE 05-04	0.67	0.00	0.00	0.00	0.00	yes	14.16	0.748	2.126	0.098	1.735	
ANTELOPE 05-05	2.81	0.02	0.01	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
ANTELOPE 06-04	0.48	0.00	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
Antelope 09-05	0.00	0.00	0.00	0.00	0.00		0.67	0.06	0.20	0.01	0.14	
ANTELOPE 10-05D	0.00	0.00	0.00	0.00	0.00		0.66	0.06	0.20	0.01	0.14	
ANTELOPE 15-04	1.81	0.01	0.01	0.00	0.00	yes	0.13	0.020	0.029	0.000	0.005	yes
ANTELOPE 15-23	3.08	0.02	0.01	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
RAINBOW 03-31	0.73	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
Rainbow 03-31PAD	0.00	0.00	0.00	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
RAINBOW 04-31D	1.59	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 04-32D												
RAINBOW 05-31	0.61	0.00	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 05-32	5.39	0.04	0.02	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 06-31D												
RAINBOW 06-32	0.44	0.00	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 09-31	1.29	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
Rainbow 10-31D	6.83	0.05	0.02	0.00	0.00	no	7.44	0.71	2.29	0.11	1.56	
RAINBOW 10-32	1.03	0.01	0.00	0.00	0.00	yes	8.36	0.870	2.342	0.114	2.014	
RAINBOW 15-29 (Inactive)	0.00	0.00	0.00	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
Rainbow 15-30	1.40	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
Rainbow 15-30 PAD	0.00	0.00	0.00	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
RAINBOW 15-31	0.96	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
Rainbow 15-31 PAD	0.00	0.00	0.00	0.00	0.00	no	0.00	0.00	0.00	0.00	0.00	
RAINBOW 15-32	1.21	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 16-30	11.41	0.08	0.03	0.00	0.01	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 16-31	1.42	0.01	0.00	0.00	0.00	yes	0.00	0.00	0.00	0.00	0.00	
RAINBOW 10-30D												
	46.68	**0.33**	**0.14**	**0.01**	**0.03**		**38.30**	**3.17**	**9.37**	**0.45**	**6.96**	

Table F.1.4
2005 Actual Emissions Inventory – BP/Stone 2005 Actual Emissions Inventory

	Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
ANTELOPE 03-05	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
ANTELOPE 03-09	0.110	0.001	0.002	0.000	0.001	0.024	0.000	0.000	0.000	0.000						
ANTELOPE 03-14 (Inactive)	0.110	0.001	0.002	0.000	0.001	1.198	0.009	0.020	0.001	0.011						
ANTELOPE 04-05	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
ANTELOPE 05-04	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
ANTELOPE 05-05	0.110	0.001	0.002	0.000	0.001	0.043	0.000	0.001	0.000	0.000	1.34	0.01	0.02	0.00	0.01	1.25
ANTELOPE 06-04	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001	0.88	0.01	0.01	0.00	0.01	0.82
Antelope 09-05	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000	0.09	0.00	0.00	0.00	0.00	0.08
ANTELOPE 10-05D	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000	0.06	0.00	0.00	0.00	0.00	0.05
ANTELOPE 15-04	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000						
ANTELOPE 15-23	0.110	0.001	0.002	0.000	0.001	1.797	0.013	0.030	0.001	0.017						
RAINBOW 03-31	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
Rainbow 03-31PAD						0.000	0.000	0.000	0.000	0.000						
RAINBOW 04-31D	0.110	0.001	0.002	0.000	0.001	0.086	0.001	0.001	0.000	0.001						
RAINBOW 04-32D																
RAINBOW 05-31	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000						
RAINBOW 05-32	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001	1.73	0.01	0.03	0.00	0.02	1.62
RAINBOW 06-31D																
RAINBOW 06-32	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001	0.11	0.00	0.00	0.00	0.00	0.11
RAINBOW 09-31	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000						
Rainbow 10-31D	0.110	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.51	0.00	0.01	0.00	0.00	0.48
RAINBOW 10-32	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
RAINBOW 15-29 (Inactive)	0.110	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000						
Rainbow 15-30	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001	1.05	0.01	0.02	0.00	0.01	0.98
Rainbow 15-30 PAD						0.000	0.000	0.000	0.000	0.000						
RAINBOW 15-31	0.110	0.001	0.002	0.000	0.001	0.072	0.001	0.001	0.000	0.001						
Rainbow 15-31 PAD						0.000	0.000	0.000	0.000	0.000						
RAINBOW 15-32	0.110	0.001	0.002	0.000	0.001	0.024	0.000	0.000	0.000	0.000						
RAINBOW 16-30	0.110	0.001	0.002	0.000	0.001	0.036	0.000	0.001	0.000	0.000	0.20	0.00	0.00	0.00	0.00	0.19
RAINBOW 16-31	0.110	0.001	0.002	0.000	0.001	0.043	0.000	0.001	0.000	0.000						
RAINBOW 10-30D											0.03	0.00	0.00	0.00	0.00	0.03
	2.76	**0.02**	**0.05**	**0.00**	**0.03**	**4.15**	**0.03**	**0.07**	**0.00**	**0.04**	**6.00**	**0.05**	**0.10**	**0.00**	**0.06**	**5.61**

Table F.1.5
2005 Actual Emissions Inventory – Yates 2005 Actual Emissions Inventory

Operator	Well Name	API #	Field Name	Air Quality Permit #	Location		Production		Drill Rig Engin		Process Burners	Wellhead IC Engines
							Gas	Condensate	SO2	N0x	N0x	N0x
					Latitude	Longitude	MMCF	BBL	TPY	TPY	TPY	TPY
Yates	Highway Federal #4Y	35-22426	Pinedale	CT-3061	42.49833	109.60416	363.931	4480	-	-	0.813	0.775
Yates	Blue Rim State #1	35-21777	Pinedale	MD-1022	42.57444	109.71666	257.342	2097	-	-	0.783	-
Yates	Blue Rim State #8	35-23039	Pinedale	See Note	42.57138	109.71694	393.422	3190	-	-	-	-
Yates	Southeast Pinedale Unit #1	35-23644	Pinedale	See Note	42.53906	109.58823	20.312	1915	-	-	0.124	-
						Totals:	**1035.007**	**11682**	**0**	**0**	**1.72**	**0.775**
	NOTES:											
	Blue Rim State #8 is commingled through the Blue Rim State #1 production equipment, waiver letter dated November 18, 2003											
	Southeast Pinedale Unit #1 NOI was filed January 11, 2006											

Table F.1.5
2005 Actual Emissions Inventory – Yates 2005 Actual Emissions Inventory

		Flashing Emissions Tanks and Pressurized Vessels						Glycol Dehydration Units Still & Flash Tank Vents					
		VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled	VOC	Benzene	Toluene	Ethylbenzene	Xylene	Controlled
Operator	Well Name	TPY	TPY	TPY	TPY	TPY	(yes/no)	TPY	TPY	TPY	TPY	TPY	(yes/no)
Yates	Highway Federal #4Y	-	-	-	-	-	Yes	0.139	0.016	0.014	0.001	0.004	Yes
Yates	Blue Rim State #1	-	-	-	-	-	Yes	-	-	-	-	-	No Dehy
Yates	Blue Rim State #8	-	-	-	-	-	-	-	-	-	-	-	-
Yates	Southeast Pinedale Unit #1	-	-	-	-	-	Yes	4.440	0.230	0.437	0.017	0.205	No
		0	**0**	**0**	**0**	**0**	**0**	**4.579**	**0.246**	**0.451**	**0.018**	**0.209**	**0**

Table F.1.5
2005 Actual Emissions Inventory – Yates 2005 Actual Emissions Inventory

		Well Head and Flow Line Blow Down Episodes					Pneumatic Pump Operation					Well completions/recompletions/testing					
		VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Operator	Well Name	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
Yates	Highway Federal #4Y	-	-	-	-	-	1.290	0.117	0.179	0.006	0.070	-	-	-	-	-	-
Yates	Blue Rim State #1	-	-	-	-	-	1.290	0.117	0.179	0.006	0.070	-	-	-	-	-	-
Yates	Blue Rim State #8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yates	Southeast Pinedale Unit #1	-	-	-	-	-	0.711	0.065	0.099	0.003	0.039	1.000	0.001	0.001	0.001	0.001	14.460
		0	**0**	**0**	**0**	**0**	**3.291**	**0.299**	**0.457**	**0.015**	**0.179**	**1**	**0.001**	**0.001**	**0.001**	**0.001**	**14.46**
	NOTES:																
	Blue Rim State #8 is commingled through the Blue Rim State #1 production equipment, waiver letter dated November 18, 2003																
	Southeast Pinedale																

Table F.1.6
2005 Actual Emissions Inventory - 2005 Pad, Road and Pipeline Disturbances

Year	Pads (acres)	New Pads (number)	Local Roads (miles)	Local Roads (acres)	Resource Roads (Miles)	Resource Roads (acres)	Pipelines (miles)	Pipelines (acres)	Annual Total (acres)	Cumulative Total (acres)
2005	408.14	52	10.40	46.90	11.96	55.85	26.00	156.00	666.90	666.90

Table F.1.7
2005 Actual Emissions Inventory - Well Pad Construction/Expansion - All Operators - Per Acre

Project: Pinedale Anticline SEIS
Scenario: All Scenerios
Activity: Well Pad Construction
Emissions: Fugitive Particulate Emissions from Well Pad Construction
Date: 11/30/2006

Well Pad Area (Expansion)	Construction Activity TSP Emission Factor[1]	Construction Activity Duration[2]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(acre)	(tons/acre-month)	(days/acre)	(hours/day)	(%)	(lb/acre)	(lb/acre)
1	1.2	2.1	12	50	15.12	3.99

[1] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations"; TSP = total suspended particulates.

[2] Construction Activity Duration taken from an average of durations provided by Shell, Ultra and Questar.

[3] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.1.8
2005 Actual Emissions Inventory - Local Road Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: Local Road Construction
Activity: Access Road Construction
Emissions: Fugitive Particulate Emissions from Access Road Construction
Date: 11/30/2006

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.51	1.2	3.3	12	50	214.32	56.56

[1] Construction Area taken from average of current field activity of 4.51 acres/mile for Local Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.1.9
2005 Actual Emissions Inventory - Resource Road Construction - All Operators - Per Mile

Project: **Pinedale Anticline SEIS**
Scenario: **Resource Road Construction**
Activity: **Access Road Construction**
Emissions: **Fugitive Particulate Emissions from Access Road Construction**
Date: **11/30/2006**

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.67	1.2	3.3	12	50	221.92	58.56

[1] Construction Area taken from average of current field activity of 4.67 acres/mile for Resource Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.1.10
2005 Actual Emissions Inventory - Pipeline Construction - All Operators - Per Mile

Project: **Pinedale Anticline SEIS**
Scenario: **2005**
Activity: **Pipeline Construction**
Emissions: **Fugitive Particulate Emissions from Pipeline Construction**
Date: **11/30/2006**

Pipeline Length	Pipeline Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	6.00	1.2	3.3	12	50	285.12	75.24

[1] Construction Area taken from average of current field activity of 6.00 acres/mile for pipelines.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.1.11
2005 Actual Emissions Inventory - Ancillary Facilities Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Misc. Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Construction Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lbs)	(tpy)	$PM_{2.5}$ Emissions (controlled)[5] (lbs)	(tpy)
Stabilizer Facility	5.67	1.2	11.9	12	50	971.61	0.49	256.40	0.13
Paradise Compressor Station	10.00	1.2	21	12	50	3024.00	1.51	798.00	0.40
Questar Gathering System	275.48	1.2	120	12	50	476029.44	238.01	125618.88	62.81
Total Other Construction:	291.15	1.2	152.9	12	50	480025.05	240.01	126673.28	63.34

[1] Construction area provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to pad construction and pipeline construction for stabilizer faclity/compressor station and gathering system, respectively.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.1.12
2005 Actual Emissions Inventory - Construction Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Well Pad, Resource Road, Pipeline Construction
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor :	0.3733 lb/hr/100m^2	Based on AP-42 Chapter 13.2.5 (EPA 2004a), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.
Control Efficiency:	50 %	
Disturbed Area:		
Well Pad Construction/Exp.:	1 acres	4,047.00 m^2
Access Road Construction:	1 acres	4,047.00 m^2
Pipeline Construction	1 acres	4,047.00 m^2

PM_{10} Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	# of Construction Hours Per Acre (hr)	PM_{10} Emissions (lb/hr)	$PM_{2.5}$ Emissions (lb/hr)	PM_{10} Emissions (tons/acre)	$PM_{2.5}$ Emissions (tons/acre)
Well Pad Construction:	0.3733	0.1493	40.47	50	25.2	7.55	3.02	0.10	0.04
Road Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01
Pipeline Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01

Table F.1.13
2005 Actual Emissions Inventory - Well Pad Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Heavy Trucks	Local	Chemical	35,000	35	5.1	2.4	240	10	2400	85	1.54	0.24	552.85	84.77
	Resource	Water	35,000	20	5.1	2.4	240	1	240	50	1.54	0.24	184.28	28.26
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	160	10	1600	85	0.60	0.09	144.80	21.65
	Resource	Water	7,000	20	5.1	2.4	160	1	160	50	0.46	0.07	36.48	5.45
									Total Unpaved Road Traffic Emissions (lb/pad)				918.40	140.13

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.1.14
2005 Actual Emissions Inventory - Road Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Resource Road Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Gravel/Haul Trucks	Local	Chemical	35,000	35	5.1	2.4	88	10	880	85	1.54	0.24	202.71	31.08
	Resource	Water	35,000	20	5.1	2.4	88	1	88	50	1.54	0.24	67.57	10.36
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	58	10	580	85	0.60	0.09	52.49	7.85
	Resource	Water	7,000	20	5.1	2.4	58	1	58	50	0.46	0.07	13.22	1.98
										Total Unpaved Road Traffic Emissions (lb/pad)			335.99	51.27

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.1.15
2005 Actual Emissions Inventory - Pipeline Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Unpaved Road Traffic
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per pad	RT Distance (miles)	VMT[4] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[6] (controlled) (lb/pad)
Semis/transport, boom, equipment, water removal, sand, and gravel trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light truck/pick-ups	Local	Chemical	7,000	35	5.1	2.4	200	10	2000	85	0.23	0.03	69.00	10.26
	Resource	Water	7,000	20	5.1	2.4	200	1	200	50	0.23	0.03	23.00	3.42
												Total Unpaved Road Traffic Emissions (lb/pad)	1,113.36	170.29

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.1.16
2005 Actual Emissions Inventory - Well Pad Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2] (g/hp-hr)					Construction Activity Duration (days/acre)	Construction Activity Duration (hours/day)	Pollutant Emissions (lb/acre)				
	(hp)			CO	NO_x	SO_2	VOC	PM_{10}	equipment type)		CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	25.19	20.44	0.39	2.96	1.19
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	11	51.94	42.17	0.79	6.11	2.44
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	2.1	11	207.78	168.67	3.18	24.44	9.78
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	56.67	46.00	0.87	6.67	2.67
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	12.59	10.22	0.19	1.48	0.59
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	10	31.48	25.56	0.48	3.70	1.48
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	39.67	32.20	0.61	4.67	1.87
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	2.1	6	31.17	25.30	0.48	3.67	1.47
									Total Heavy Equipment Tailpipe Emissions		456.48	370.56	6.98	53.70	21.48

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.1.17
2005 Actual Emissions Inventory - Road Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Road Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2] (g/hp-hr)					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions (lb/mile)				
	(hp)			CO	NO_x	SO_2	VOC	PM_{10}	(days/mile)	(hours/day)	CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	11	81.63	66.26	1.25	9.60	3.84
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	3.3	11	326.51	265.05	4.99	38.41	15.37
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	89.05	72.29	1.36	10.48	4.19
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	19.79	16.06	0.30	2.33	0.93
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	10	49.47	40.16	0.76	5.82	2.33
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	62.33	50.60	0.95	7.33	2.93
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	3.3	6	48.98	39.76	0.75	5.76	2.30
									Total Heavy Equipment Tailpipe Emissions		717.33	582.30	10.97	84.39	33.76

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.1.18
2005 Actual Emissions Inventory - Pipeline Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Grader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Excavator	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Trencher	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Tractor (side-boom)	150	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	29.68	24.10	0.45	3.49	1.40
										Total Emissions from Heavy Equipment Tailpipes	187.99	152.60	2.88	22.12	8.85

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.1.19
2005 Actual Emissions Inventory - Drilling Traffic - All Operators

Project: **Pinedale Anticline SEIS**
Scenario: **All Operators**
Activity: **Drilling**
Emissions: **Fugitive Particulate Emissions from Traffic on Unpaved Roads**
Date: **11/30/2006**

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis-tractor/ trailer/mud/water/fuel / cement trucks[1]	Local Road	Chemical	44,000	35	5.1	2.4	360	10	3,600	85	1.70	0.26	919.22	140.95
	Resource Road	Water	44,000	20	5.1	2.4	360	1	360	50	1.70	0.26	306.41	46.98
Vendors/ marketers/ various / workers	Local Road	Chemical	7,000	35	5.1	2.4	540	10	5,400	85	0.60	0.090	488.69	73.07
	Resource Road	Water	7,000	20	5.1	2.4	540	1	540	50	0.46	0.068	123.11	18.39
												Total Unpaved Road Traffic Emissions (lb/well)	1,837.43	279.39

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.1.20
2005 Actual Emissions Inventory - Rig Move Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/move)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Rig Haul Trucks	Local Road	Chemical	44,000	35	5.1	2.4	26.3	10	263	85	1.70	0.26	67.15	10.30
	Resource Road	Water	44,000	20	5.1	2.4	26.3	1	26	50	1.70	0.26	22.38	3.43
Light Trucks	Local Road	Chemical	7,000	35	5.1	2.4	8.8	10	88	85	0.74	0.11	9.83	1.51
	Resource Road	Water	7,000	20	5.1	2.4	8.8	1	9	50	0.74	0.11	3.28	0.50
											Total Unpaved Road Traffic Emissions (lb/well)		102.64	15.74

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/well x control efficiency.

Table F.1.21
2005 Actual Emissions Inventory - Drilling Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	360	11	3960	45	24	128.68
NO_x	11.44	360	11	3960	45	24	99.87
SO_2[2]	0.13	360	11	3960	45	24	1.13
VOC	5.69	360	11	3960	45	24	49.67

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

[3] Based on a life of project average of 45 days per well.

Table F.1.22
2005 Actual Emissions Inventory - Rig Move Haul Truck Tailpipe - All Operators

Project: **Pinedale Anticline SEIS**
Scenario: **All Operators**
Activity: **Rig Move**
Emissions: **Diesel Combustion Emissions from Heavy Equipment Tailpipes**
Date: **11/30/2006**

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration (days/move)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	26.3	11	289.3	3	24	9.40
NO_x	11.44	26.3	11	289.3	3	24	7.30
SO_2[2]	0.13	26.3	11	289.3	3	24	0.08
VOC	5.69	26.3	11	289.3	3	24	3.63

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

Table F.1.23
2005 Actual Emissions Inventory - Completion/Testing Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emissions[5] (lb/VMT)	$PM_{2.5}$ Emissions[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis/ transport/ water/ sand/ frac trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3,000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light Trucks/ Pickups	Local	Chemical	7,000	35	5.1	2.4	450	10	4,500	85	0.74	0.11	502.42	77.04
	Resource	Water	7,000	20	5.1	2.4	450	1	450	50	0.74	0.11	167.47	25.68
									Total Unpaved Road Traffic Emissions (lb/well)				1,691.26	259.33

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/well x control efficiency.

Table F.1.24
2005 Actual Emissions Inventory - Completion/Testing Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration[3] (hours/day)	Emissions (lb/well)
CO	14.74	300	11	3300	10	18	107.24
NO_x	11.44	300	11	3300	10	18	83.23
SO_2[2]	0.16	300	11	3300	10	18	1.16
VOC	5.69	300	11	3300	10	18	41.40

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, aged with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

[3] Haul Activity Duration for completion activities based on an average of 10 days per well and an average of 24 hr/day for 5 days and 12 hr/day for 5 days.

Table F.1.25
2005 Actual Emissions Inventory - Production Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	RTs (RT)	RT Distance (miles)	VMT[3] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[5] (controlled) (lb/RT)
Light Truck	Local	Chemical	7,000	35	5.1	2.4	1	10	10	85	0.74	0.11	1.12	0.17
	Resource	Water	7,000	20	5.1	2.4	1	1	1	50	0.74	0.11	0.37	0.06
												Total Access and Unimproved Road Emissions (lb/RT)	1.49	0.23

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
[5] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.1.26
2005 Actual Emissions Inventory - Liquids Gathering Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	RT (RT)	RT Distance (miles)	VMT[3] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[5] (controlled) (lb/RT)
Haul Truck	Local	Chemical	54,000	35	5.1	2.4	1	10	10	85	1.87	0.29	2.80	0.43
	Resource	Water	54,000	20	5.1	2.4	1	1	1	50	1.87	0.29	0.93	0.14
												Total Access and Unimproved Road Emissions (lb/RT)	3.73	0.57

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
[5] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.1.27
2005 Actual Emissions Inventory - Tanker Traffic Tailpipe - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mi)	RT (RT)	Single Well Round Trip Distance (mi/RT)	Single Well Daily VMT (mi/RT)	Daily Emissions Single Well (lb/RT)
CO	14.74	1	11	11.00	0.36
NO_x	11.44	1	11	11.00	0.28
SO_2[2]	0.16	1	11	11.00	0.00
VOC	5.69	1	11	11.00	0.14

[1] AP-42 (EPA 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

Table F.1.28
2005 Actual Emissions Inventory - 2005 Compression Totals

Compression:	2005 (Baseline Year)	
	(lb/hr)	(tpy)
NOx:	96.3	421.9
CO:	36.0	157.7
VOC:	73.2	320.5
PM10:	0.0	0.0
PM2.5:	0.0	0.0
SO2:	0.0	0.0
Formaldehyde:	9.5	41.7

Paradise 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1187.

Falcon 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1186.

Pinedale 2005 based on (2) 1,860 hp and (2) 3,720 hp compressors as provided by Questar and emissions from MD-1267.

Table F.1.29
2005 Actual Emissions Inventory - Granger Gas Plant 2005 Actual Emissions

Pollutant	(lb/hr)	(tpy)[1]
NOx:	38.52	168.7
CO:	57.58	252.2
VOCs:	22.35	97.9
SO2:	0.00	0.0
PM10:	0.00	0.0
Benzene:	0.02	0.1
Toluene:	0.00	0.0
Ethylbenzene	0.00	0.0
Xylene:	0.00	0.0
n-Hexane	0.00	0.0
ormaldehyde:	4.61	20.2
Total HAPs:	4.63	20.3

[1] Emissions taken from 2005 actual emissions inventory as submitted to WDEQ-AQD.

Table F.1.30
2005 Actual Emissions Inventory - Opal Gas Plant 2005 Actual Emissions

Pollutant	(lb/hr)	(tpy)[1]
NOx:	70.27	307.8
CO:	40.39	176.9
VOCs:	33.08	144.9
SO2:	0.00	0.0
PM10:	0.00	0.0
Benzene:	1.85	8.1
Toluene:	0.53	2.3
Ethylbenzene:	0.18	0.8
Xylene:	0.25	1.1
n-Hexane:	1.39	6.1
Formaldehyde:	0.00	0.0
Total HAPs:	4.20	18.4

[1] Emissions taken from 2005 actual emissions inventory as submitted to WDEQ-AQD.

Table F.1.31
2005 Actual Emissions Inventory - WDEQ Submitted Operator Actual Emissions Inventory Summaries

			Process	Wellhead	Flashing Emissions				
	Drill Rig Engines		Burners	IC Engines	Tanks and Pressurized Vessels				
	SO2	N0x	N0x	N0x	VOC	Benzene	Toluene	Ethylbenzene	Xylene
Shell Totals:	26.04	399.55	48.27	0.00	138.65	1.68	2.61	0.08	0.93
Ultra Totals:	136.28	983.51	42.00	0.00	326.16	3.95	6.14	0.19	2.18
Questar Totals:	40.92	865.02	19.74	0.00	257.39	1.98	2.24	0.13	0.66
BP/Stone Totals:	2.35	29.07	4.34	0.00	46.68	0.33	0.14	0.01	0.03
Yates Totals:	0.00	0.00	1.72	0.78	0.00	0.00	0.00	0.00	0.00
TOTALS:	**205.60**	**2277.15**	**116.07**	**0.78**	**768.88**	**7.94**	**11.12**	**0.41**	**3.80**

	Glycol Dehydration Units									
	Still & Flash Tank Vents					Well Head and Flow Line Blow Down Episodes				
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene
Shell Totals:	106.68	14.10	32.14	1.23	15.28	2.75	0.49	0.76	0.02	0.27
Ultra Totals:	115.73	15.11	0.99	31.81	12.32	0.00	0.00	0.00	0.00	0.00
Questar Totals:	219.88	26.31	62.20	2.89	37.02	0.00	0.00	0.00	0.00	0.00
BP/Stone Totals:	38.30	3.17	9.37	0.45	6.96	2.76	0.02	0.05	0.00	0.03
Yates Totals:	4.58	0.25	0.45	0.02	0.21	0.00	0.00	0.00	0.00	0.00
TOTALS:	**485.17**	**58.93**	**105.15**	**36.41**	**71.80**	**5.51**	**0.51**	**0.80**	**0.03**	**0.30**

	Pneumatic Pump Operation					Well completions/recompletions/testing					
	VOC	Benzene	Toluene	Ethylbenzene	Xylene	VOC	Benzene	Toluene	Ethylbenzene	Xylene	N0x
Shell Totals:	152.71	1.85	2.87	0.09	1.02	1.23	0.00	0.00	0.00	0.00	58.95
Ultra Totals:	304.05	3.68	5.72	0.18	2.03	154.30	1.87	2.90	0.09	1.03	161.32
Questar Totals:	14.69	0.01	0.01	0.00	0.00	12.84	0.00	0.00	0.00	0.00	88.52
BP/Stone Totals:	4.15	0.03	0.07	0.00	0.04	6.00	0.05	0.10	0.00	0.06	5.61
Yates Totals:	3.29	0.30	0.46	0.02	0.18	1.00	0.00	0.00	0.00	0.00	14.46
TOTALS:	**478.88**	**5.87**	**9.13**	**0.28**	**3.27**	**175.37**	**1.92**	**3.00**	**0.10**	**1.09**	**328.86**

Table F.1.32
2005 Actual Emissions Inventory - Total Construction Disturbance Emissions

		2005 (lb/hr)[1]	2005 (tpy)[2]
Pad Construction/Expansion:	PM_{10}	2.82	3.09
	$PM_{2.5}$	0.74	0.81
Local Road Construction:	PM_{10}	1.02	1.11
	$PM_{2.5}$	0.27	0.29
Resource Road Construction:	PM_{10}	1.21	1.33
	$PM_{2.5}$	0.32	0.35
Pipeline Construction:	PM_{10}	3.38	3.71
	$PM_{2.5}$	0.89	0.98
Wind Erosion[3]:	PM_{10}	21.44	46.95
	$PM_{2.5}$	8.58	18.78
Ancillary Facilities Construction:	PM_{10}	219.19	240.01
	$PM_{2.5}$	57.84	63.34
Total Construction Surface Disturbace Emissions:	PM_{10}	249.06	296.20
	$PM_{2.5}$	68.64	84.55

Note: Construction Surface Disturbance Emissions occur during summer months (May-Oct.) and daylight hours (12 hrs/day) only.
[1] lb/hr number based on 6 months of construction at 12 hrs/day.
[2] tpy numbers based on total construction occuring over a 6 month period between May and October of each year.
[3] Wind erosion numbers based on 6 months of construction and 24 hr/day.

Table F.1.33
2005 Actual Emissions Inventory - Total Construction Traffic and Heavy Equipment Tailpipe Emissions

		2005 (lb/hr)	2005 (tpy)
Pad Construction Traffic:	PM_{10}	30.19	33.06
	$PM_{2.5}$	4.61	5.04
Road Construction Traffic:	PM_{10}	7.98	8.74
	$PM_{2.5}$	1.22	1.33
Pipeline Construction Traffic:	PM_{10}	26.44	28.95
	$PM_{2.5}$	4.04	4.43
Ancillary Facilities Construction Traffic:	PM_{10}	31.65	34.65
	$PM_{2.5}$	4.84	5.30
Well Pad Construction Heavy Equipment Tailpipe:	CO	85.07	93.15
	NO_x	69.06	75.62
	SO_2	1.30	1.42
	VOC	10.01	10.96
	$PM_{10/2.5}$	4.00	4.38
Road Construction Heavy Equipment Tailpipe:	CO	7.32	8.02
	NO_x	5.95	6.51
	SO_2	0.11	0.12
	VOC	0.86	0.94
	$PM_{10/2.5}$	0.34	0.38
Pipeline Construction Heavy Equipment Tailpipe:	CO	2.23	2.44
	NO_x	1.81	1.98
	SO_2	0.03	0.04
	VOC	0.26	0.29
	$PM_{10/2.5}$	0.11	0.12
Ancillary Facilities Construction Heavy Equipment Tailpipe:	CO	5.87	6.42
	NO_x	4.76	5.22
	SO_2	0.09	0.10
	VOC	0.69	0.76
	$PM_{10/2.5}$	0.28	0.30
Drilling Traffic:	PM_{10}	36.08	158.02
	$PM_{2.5}$	5.49	24.03
Rig Move Traffic:	PM_{10}	2.02	8.83
	$PM_{2.5}$	0.31	1.35
Drilling Haul Truck Tailpipe:	CO	2.53	11.07
	NO_x	1.96	8.59
	SO_2	0.02	0.10
	VOC	0.98	4.27
Rig Move Haul Truck Tailpipe:	CO	0.18	0.81
	NO_x	0.14	0.63
	SO_2	0.00	0.01
	VOC	0.07	0.31
Total Construction Surface Disturbace Emissions:	**CO**	103.21	121.92
	NO_x	83.68	98.55
	SO_2	1.56	1.79
	VOC	12.87	17.53
	PM_{10}	139.08	277.42
	$PM_{2.5}$	25.23	46.66

Note: All tpy numbers except drilling related based on total emissions during the six month construction season (May-October). All lb/hr numbers except drilling related based on this total and assumed to happen evenly over the daylight hours of the construction season (2190 hrs/yr). All drilling emissions based on year-round drilling.

Table F.1.34
2005 Actual Emissions Inventory - Total Frac/Completion Emissions

		2005 (lb/hr)[1]	2005 (tpy)[2]
Completion Traffic:	PM_{10}	33.21	145.45
	$PM_{2.5}$	5.09	22.30
Completion/Testing Haul Truck Tailpipe:	CO	2.11	9.22
	NO_x	1.63	7.16
	SO_2	0.02	0.10
	VOC	0.81	3.56
Total Completion/Testing Traffic Emissions:	CO	2.11	9.22
	NO_x	1.63	7.16
	SO_2	0.02	0.10
	VOCs	0.81	3.56
	PM_{10}	33.21	145.45
	$PM_{2.5}$	5.09	22.30

[1] lb/hr number based on tpy and year-round activity.
[2] tpy numbers based on number of wells drilled per year.

Table F.1.35
2005 Actual Emissions Inventory - Total Construction Emissions

		2005 (lb/hr) Summer	2005 (lb/hr) Winter	(tpy) Total
Total 2005 Construction Disturbance Emissions:	PM_{10}	249.06	0.00	296.20
	$PM_{2.5}$	68.64	0.00	84.55
2005 Construction Traffic and Heavy Equipment Tailpipe Emissions:	CO	103.21	0.00	121.92
	NO_x	83.68	0.00	98.55
	SO_2	1.56	0.00	1.79
	VOC	12.87	0.00	17.53
	PM_{10}	139.08	0.00	277.42
	$PM_{2.5}$	25.23	0.00	46.66
2005 Drill Rig Engine Emissions[1]:	CO	486.08	488.81	2031.60
	NOx	594.54	607.51	2590.88
	SO2	50.85	50.92	221.00
	VOC	58.33	59.04	244.47
	PM10/2.5	31.83	32.82	133.46
2005 Completion Emissions[2]:	CO	41.87	41.87	183.37
	NO_x	75.08	75.08	328.86
	SO_2	2.01	2.01	8.81
	VOCs	40.04	40.04	175.37
	PM_{10}	35.50	35.50	155.50
	$PM_{2.5}$	7.39	7.39	32.35
2005 TOTAL CONSTRUCTION EMISSIONS:	**CO**	631.16	530.68	2336.89
	NO_x	753.30	682.59	3018.28
	SO_2	54.42	52.93	231.60
	VOCs	111.24	99.08	437.37
	PM_{10}	455.47	68.32	862.58
	$PM_{2.5}$	133.09	40.21	297.03

[1] Drill rig engine emissions based on actual emissions for NOx and SO2 and PTEs from the 2005 potential emissions inventory for other pollutants as these pollutants were not reported in the State's 2005 inventory. Totals include emissions from the rig boilers also. As no emissions inventory was available for Petrogulf, Anschutz or Yates, drilling emissions were added from the 2005 potential inventory

[2] Completion emissions based on actual emissions for NOx and SO2 and PTEs from the 2005 potential emissions inventory for other

Table F.1.36
2005 Actual Emissions Inventory - Total Production Traffic Emissions

		2005	
		(lb/hr)[1]	(tpy)[2]
Production Traffic:	PM_{10}	15.08	66.05
	$PM_{2.5}$	2.31	10.13
Liquids Gathering Haul Truck Traffic:	PM_{10}	13.86	60.69
	$PM_{2.5}$	2.12	9.31
Production Haul Truck Tailpipe:	CO	1.33	5.81
	NO_x	1.03	4.51
	SO_2	0.01	0.06
	VOC	0.51	2.24
Total Production Traffic Emissions:	CO	1.33	5.81
	NO_x	1.03	4.51
	SO_2	0.01	0.06
	VOCs	0.51	2.24
	PM_{10}	28.93	126.73
	$PM_{2.5}$	4.44	19.43

[1] lb/hr number based on tpy and year-round activity.
[2] tpy numbers based on number of wells drilled per year.

Table F.1.37
2005 Actual Emissions Inventory - Total Production Emissions

		2005 (Baseline) (lb/hr) Summer	(lb/hr) Winter	(tpy) Total
# of Wells Drilled:			172	
# of Wells in Production:			286	
Production Traffic[1]:	PM_{10}	15.08	15.08	66.05
	$PM_{2.5}$	2.31	2.31	10.13
Liquids Gathering Haul Truck Traffic:	PM_{10}	13.86	13.86	60.69
	$PM_{2.5}$	2.12	2.12	9.31
Production Haul Truck Tailpipe[1]:	CO	1.33	1.33	5.81
	NO_x	1.03	1.03	4.51
	SO_2	0.01	0.01	0.06
	VOC	0.51	0.51	2.24
Production Wind Erosion:	PM_{10}	47.46	47.46	207.86
	$PM_{2.5}$	18.98	18.98	83.14
Separator/Indirect Line Heaters[1,3]:	$PM_{10/2.5}$	0.16	0.57	1.61
	SO_2	0.01	0.05	0.13
	NO_x	2.15	7.51	21.14
	CO	0.45	1.58	4.44
	VOC	0.12	0.41	1.16
Dehy Reboiler Heaters[1]:	$PM_{10/2.5}$	0.02	0.06	0.18
	SO_2	0.00	0.01	0.01
	NO_x	0.24	0.85	2.40
	CO	0.05	0.18	0.50
	VOC	0.01	0.05	0.13
Dehy Flashing Emissions[2,4]:	VOC	110.77	110.77	485.17
	Total HAPs	63.18	63.18	276.75
	Benzene	13.45	13.45	58.93
	Toluene	24.01	24.01	105.15
	Ethylbenzene	8.31	8.31	36.41
	Xylene	16.39	16.39	71.80
	n-Hexane	1.02	1.02	4.46
Fugitive HAPs and VOCs[2,4]:	VOC	109.33	109.33	478.88
	Total HAPs	4.37	4.37	19.12
	Benzene	1.34	1.34	5.87
	Toluene	2.08	2.08	9.13
	Ethylbenzene	0.06	0.06	0.28
	Xylene	0.75	0.75	3.27
	n-Hexane	0.13	0.13	0.56

Table F.1.37
2005 Actual Emissions Inventory - Total Production Emissions

		2005 (Baseline) (lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Condensate Storage Pre Gathering System[2,4]:	VOC	175.54	175.54	768.88
	Total HAPs	12.96	12.96	56.76
	Benzene	1.81	1.81	7.94
	Toluene	2.54	2.54	11.12
	Ethylbenzene	0.09	0.09	0.41
	Xylene	0.87	0.87	3.80
	n-Hexane	7.65	7.65	33.49
	NOx	10.09	10.09	44.17
	CO	54.88	54.88	240.36
2005 Compression:	NOx	96.32	96.32	421.90
	CO	36.00	36.00	157.70
	VOC	73.17	73.17	320.50
	PM10	0.00	0.00	0.00
	PM2.5	0.00	0.00	0.00
	SO2	0.00	0.00	0.00
	Formaldehyde	9.52	9.52	41.70
2005 Granger and Opal Actual Emissions:	NOx:	108.79	108.79	476.50
	CO:	97.97	97.97	429.10
	VOCs:	55.43	55.43	242.80
	SO2:	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00
	Benzene:	1.87	1.87	8.20
	Toluene:	0.53	0.53	2.30
	Ethylbenzene:	0.18	0.18	0.80
	Xylene:	0.25	0.25	1.10
	n-Hexane:	1.39	1.39	6.10
	Formaldehyde:	4.61	4.61	20.20
	Total HAPs:	8.84	8.84	38.70
TOTAL PRODUCTION EMISSIONS:	**NOx**	218.62	224.59	970.62
	CO	190.68	191.94	837.91
	VOC	524.90	525.23	2299.77
	PM10	76.57	77.02	336.38
	PM2.5	23.60	24.05	104.37
	SO2	0.02	0.07	0.20
	Formaldehyde	14.13	14.13	61.90
	Benzene	18.48	18.48	80.94
	Toluene	29.16	29.16	127.71
	Ethylbenzene	8.65	8.65	37.90
	Xylene	18.26	18.26	79.97
	n-Hexane	10.19	10.19	44.62
	Total HAPs	98.86	98.86	433.03

[1] No actual emissions available, emissions based on 2005 potential to emit inventory.

[2] No actual emissions available for n-hexane, NOx or CO from these sources, emissions for these pollutants based on 2005 potential to emit inventory.

[3] Sepatator and indirect line heater emissions are based on 2005 potential to emit calculations, as operator's 2005 inventories were mostly based on PTE without taking into account intermittent, seasonal usage. Therefore, the "actual" emissions reported are higher than the PTEs calculated.

[4] Reported "actual" emissions from these sources are greater than calculated "potential" emissions due to the fact that the "actual" emissions in many cases are based on permitted levels that do not take into account well production declines and other operating parameters.

Table F.1.38
2005 Actual Emissions Inventory - Total Emissions

		2005 (lb/hr) Summer	2005 (lb/hr) Winter	(tpy) Total
TOTAL 2005 ACTUAL CONSTRUCTION EMISSIONS:	CO	631.16	530.68	2336.89
	NO_x	753.30	682.59	3018.28
	SO_2	54.42	52.93	231.60
	VOCs	111.24	99.08	437.37
	PM_{10}	455.47	68.32	862.58
	$PM_{2.5}$	133.09	40.21	297.03
TOTAL 2005 ACTUAL PRODUCTION EMISSIONS:	NOx	218.62	224.59	970.62
	CO	190.68	191.94	837.91
	VOC	524.90	525.23	2299.77
	PM10	76.57	77.02	336.38
	PM2.5	23.60	24.05	104.37
	SO2	0.02	0.07	0.20
	Formaldehyde	14.13	14.13	61.90
	Benzene	18.48	18.48	80.94
	Toluene	29.16	29.16	127.71
	Ethylbenzene	8.65	8.65	37.90
	Xylene	18.26	18.26	79.97
	n-Hexane	10.19	10.19	44.62
	Total HAPs	98.86	98.86	433.03
TOTAL 2005 ACTUAL EMISSIONS:	**NOx**	971.93	907.18	3988.90
	CO	821.83	722.62	3174.80
	VOC	636.13	624.31	2737.14
	PM10	532.04	145.34	1198.97
	PM2.5	156.69	64.26	401.39
	SO2	54.44	53.00	231.80
	Formaldehyde	14.13	14.13	61.90
	Benzene	18.48	18.48	80.94
	Toluene	29.16	29.16	127.71
	Ethylbenzene	8.65	8.65	37.90
	Xylene	18.26	18.26	79.97
	n-Hexane	10.19	10.19	44.62
	Total HAPs	98.86	98.86	433.03

Table F.2.1
2005 Potential Emissions Inventory - Pad, Road and Pipeline Disturbances

Year	Pads (acres)	New Pads (number)	Local Roads (miles)	Local Roads (acres)	Resource Roads (Miles)	Resource Roads (acres)	Pipelines (miles)	Pipelines (acres)	Annual Total (acres)
Pre-ROD	**332.05**	**56**	**--**	**--**	**108.3**	**652.3**	**12.14**	**60.15**	**1044.5**
Rod to 2005	**1399.88**	**214**	**--**	**--**	**164.56**	**857.13**	**108.18**	**648.81**	**2858.91**
2005	408.14	52	10.40	46.90	11.96	55.85	26.00	156.00	666.90

Table F.2.2
2005 Potential Emissions Inventory - Well Pad Construction/Expansion - All Operators - Per Acre

Project: Pinedale Anticline SEIS
Scenario: All Scenerios
Activity: Well Pad Construction
Emissions: Fugitive Particulate Emissions from Well Pad Construction
Date: 11/30/2006

Well Pad Area (Expansion)	Construction Activity TSP Emission Factor[1]	Construction Activity Duration[2]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(acre)	(tons/acre-month)	(days/acre)	(hours/day)	(%)	(lb/acre)	(lb/acre)
1	1.2	2.1	12	50	15.12	3.99

[1] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations"; TSP = total suspended particulates.

[2] Construction Activity Duration taken from an average of durations provided by Shell, Ultra and Questar.

[3] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.2.3
2005 Potential Emissions Inventory - Local Road Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: Local Road Construction
Activity: Access Road Construction
Emissions: Fugitive Particulate Emissions from Access Road Construction
Date: 11/30/2006

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.51	1.2	3.3	12	50	214.32	56.56

[1] Construction Area taken from average of current field activity of 4.51 acres/mile for Local Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.2.4
2005 Potential Emissions Inventory - Resource Road Construction - All Operators - Per Mile

Project: **Pinedale Anticline SEIS**
Scenario: **Resource Road Construction**
Activity: **Access Road Construction**
Emissions: **Fugitive Particulate Emissions from Access Road Construction**
Date: **11/30/2006**

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.67	1.2	3.3	12	50	221.92	58.56

[1] Construction Area taken from average of current field activity of 4.67 acres/mile for Resource Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.2.5
2005 Potential Emissions Inventory - Pipeline Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: 2005
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Pipeline Construction
Date: 11/30/2006

Pipeline Length (mi)	Pipeline Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days/mi)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lb/mi)	$PM_{2.5}$ Emissions (controlled)[5] (lb/mi)
1	6.00	1.2	3.3	12	50	285.12	75.24

[1] Construction Area taken from average of current field activity of 6.00 acres/mile for pipelines.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.2.6
2005 Potential Emissions Inventory - Ancillary Facilities Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Misc. Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Construction Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lbs)	PM_{10} Emissions (controlled)[4] (tpy)	$PM_{2.5}$ Emissions (controlled)[5] (lbs)	$PM_{2.5}$ Emissions (controlled)[5] (tpy)
Stabilizer Facility	5.67	1.2	11.9	12	50	971.61	0.49	256.40	0.13
Paradise Compressor Station	10.00	1.2	21	12	50	3024.00	1.51	798.00	0.40
Questar Gathering System	275.48	1.2	120	12	50	476029.44	238.01	125618.88	62.81
Total Other Construction:	291.15	1.2	152.9	12	50	480025.05	240.01	126673.28	63.34

[1] Construction area provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to pad construction and pipeline construction for stabilizer faclity/compressor station and gathering system, respectively.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.2.7
2005 Potential Emissions Inventory - Construction Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Well Pad, Resource Road, Pipeline Construction
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor :	0.3733 lb/hr/100m^2	Based on AP-42 Chapter 13.2.5 (EPA 2004a), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.
Control Efficiency:	50 %	
Disturbed Area:		
Well Pad Construction/Exp.:	1 acres	4,047.00 m^2
Access Road Construction:	1 acres	4,047.00 m^2
Pipeline Construction	1 acres	4,047.00 m^2

PM_{10} Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	# of Construction Hours Per Acre (hr)	PM_{10} Emissions (lb/hr)	$PM_{2.5}$ Emissions (lb/hr)	PM_{10} Emissions (tons/acre)	$PM_{2.5}$ Emissions (tons/acre)
Well Pad Construction:	0.3733	0.1493	40.47	50	25.2	7.55	3.02	0.10	0.04
Road Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01
Pipeline Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01

Table F.2.8
2005 Potential Emissions Inventory - Well Pad Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Heavy Trucks	Local	Chemical	35,000	35	5.1	2.4	240	10	2400	85	1.54	0.24	552.85	84.77
	Resource	Water	35,000	20	5.1	2.4	240	1	240	50	1.54	0.24	184.28	28.26
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	160	10	1600	85	0.60	0.09	144.80	21.65
	Resource	Water	7,000	20	5.1	2.4	160	1	160	50	0.46	0.07	36.48	5.45
												Total Unpaved Road Traffic Emissions (lb/pad)	918.40	140.13

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.2.9
2005 Potential Emissions Inventory - Road Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Resource Road Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Gravel/Haul Trucks	Local	Chemical	35,000	35	5.1	2.4	88	10	880	85	1.54	0.24	202.71	31.08
	Resource	Water	35,000	20	5.1	2.4	88	1	88	50	1.54	0.24	67.57	10.36
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	58	10	580	85	0.60	0.09	52.49	7.85
	Resource	Water	7,000	20	5.1	2.4	58	1	58	50	0.46	0.07	13.22	1.98
												Total Unpaved Road Traffic Emissions (lb/pad)	335.99	51.27

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.2.10
2005 Potential Emissions Inventory - Pipeline Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Unpaved Road Traffic
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per pad	RT Distance (miles)	VMT[4] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[6] (controlled) (lb/pad)
Semis/transport, boom, equipment, water removal, sand, and gravel trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light truck/pick-ups	Local	Chemical	7,000	35	5.1	2.4	200	10	2000	85	0.23	0.03	69.00	10.26
	Resource	Water	7,000	20	5.1	2.4	200	1	200	50	0.23	0.03	23.00	3.42
												Total Unpaved Road Traffic Emissions (lb/pad)	1,113.36	170.29

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.2.11
2005 Potential Emissions Inventory - Well Pad Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2] (g/hp-hr)					Construction Activity Duration (days/acre)	Construction Activity Duration (hours/day)	Pollutant Emissions (lb/acre)				
	(hp)			CO	NO_x	SO_2	VOC	PM_{10}	equipment type)		CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	25.19	20.44	0.39	2.96	1.19
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	11	51.94	42.17	0.79	6.11	2.44
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	2.1	11	207.78	168.67	3.18	24.44	9.78
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	56.67	46.00	0.87	6.67	2.67
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	12.59	10.22	0.19	1.48	0.59
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	10	31.48	25.56	0.48	3.70	1.48
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	39.67	32.20	0.61	4.67	1.87
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	2.1	6	31.17	25.30	0.48	3.67	1.47
									Total Heavy Equipment Tailpipe Emissions		456.48	370.56	6.98	53.70	21.48

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.2.12
2005 Potential Emissions Inventory - Road Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Road Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	11	81.63	66.26	1.25	9.60	3.84
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	3.3	11	326.51	265.05	4.99	38.41	15.37
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	89.05	72.29	1.36	10.48	4.19
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	19.79	16.06	0.30	2.33	0.93
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	10	49.47	40.16	0.76	5.82	2.33
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	62.33	50.60	0.95	7.33	2.93
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	3.3	6	48.98	39.76	0.75	5.76	2.30
									Total Heavy Equipment Tailpipe Emissions		717.33	582.30	10.97	84.39	33.76

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.2.13
2005 Potential Emissions Inventory - Pipeline Construction - Heavy Equipment Tailpipe - All Operators

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Activity: **Pipeline Construction**
Emissions: **Diesel Combustion Emissions from Heavy Equipment Tailpipes**
Date: **11/30/2006**

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Grader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Excavator	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Trencher	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Tractor (side-boom)	150	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	29.68	24.10	0.45	3.49	1.40
										Total Emissions from Heavy Equipment Tailpipes	187.99	152.60	2.88	22.12	8.85

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, Tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.2.14
2005 Potential Emissions Inventory - Drilling Traffic - All Operators

Project: **Pinedale Anticline SEIS**
Scenario: **All Operators**
Activity: **Drilling**
Emissions: **Fugitive Particulate Emissions from Traffic on Unpaved Roads**
Date: **11/30/2006**

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis-tractor/ trailer/mud/water/fuel / cement trucks[1]	Local Road	Chemical	44,000	35	5.1	2.4	360	10	3,600	85	1.70	0.26	919.22	140.95
	Resource Road	Water	44,000	20	5.1	2.4	360	1	360	50	1.70	0.26	306.41	46.98
Vendors/ marketers/ various / workers	Local Road	Chemical	7,000	35	5.1	2.4	540	10	5,400	85	0.60	0.090	488.69	73.07
	Resource Road	Water	7,000	20	5.1	2.4	540	1	540	50	0.46	0.068	123.11	18.39
												Total Unpaved Road Traffic Emissions (lb/well)	1,837.43	279.39

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.2.15
2005 Potential Emissions Inventory - Rig Move Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Rig Haul Trucks	Local Road	Chemical	44,000	35	5.1	2.4	26.3	10	263	85	1.70	0.26	67.15	10.30
	Resource Road	Water	44,000	20	5.1	2.4	26.3	1	26	50	1.70	0.26	22.38	3.43
Light Trucks	Local Road	Chemical	7,000	35	5.1	2.4	8.8	10	88	85	0.74	0.11	9.83	1.51
	Resource Road	Water	7,000	20	5.1	2.4	8.8	1	9	50	0.74	0.11	3.28	0.50
										Total Unpaved Road Traffic Emissions (lb/well)			102.64	15.74

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/well x control efficiency.

Table F.2.16
2005 Potential Emissions Inventory - Drilling Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	360	11	3960	45	24	128.68
NO_x	11.44	360	11	3960	45	24	99.87
SO_2[2]	0.13	360	11	3960	45	24	1.13
VOC	5.69	360	11	3960	45	24	49.67

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

[3] Based on a life of project average of 45 days per well.

Table F.2.17
2005 Potential Emissions Inventory - Rig Move Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Diesel Combustion Emissions from Haul Truck Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration (days/move)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	26.3	11	289.3	3	24	9.40
NO_x	11.44	26.3	11	289.3	3	24	7.30
SO_2[2]	0.13	26.3	11	289.3	3	24	0.08
VOC	5.69	26.3	11	289.3	3	24	3.63

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

Table F.2.18
2005 Potential Emissions Inventory - Ultra Tier 0 Rig

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 0
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration		Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,640	0.42	62	24	12,487.90	8.39	6.24
NOx	Tier 0	10.89	3,640	0.42	62	24	54,615.76	36.70	27.31
SO_2	Tier 0	0.44	3,640	0.42	62	24	2,206.70	1.48	1.10
VOC	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80
PM_{10}[4]	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.2.19
2005 Potential Emissions Inventory - Ultra Tier 1 Rig

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 1**
Effective Dates: **2005**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,640	0.42	62	24	42,629.38	28.65	21.31
NOx	Tier 1	6.90	3,640	0.42	62	24	34,605.03	23.26	17.30
SO_2	Tier 1	0.44	3,640	0.42	62	24	2,206.70	1.48	1.10
VOC	Tier 1	1.00	3,640	0.42	62	24	5,015.22	3.37	2.51
PM_{10}[4]	Tier 1	0.40	3,640	0.42	62	24	2,006.09	1.35	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.2.20
2005 Potential Emissions Inventory - Shell Tier 0 Rig

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 0
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	4,040	0.42	45	24	10,059.82	9.31	5.03
NOx	Tier 0	10.89	4,040	0.42	45	24	43,996.57	40.74	22.00
SO_2	Tier 0	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65
PM_{10}[4]	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

F.2.21
2005 Potential Emissions Inventory - Shell Tier 1 Rig

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 1
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	4,040	0.42	45	24	34,340.76	31.80	17.17
NOx	Tier 1	6.90	4,040	0.42	45	24	27,876.61	25.81	13.94
SO_2	Tier 1	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 1	1.00	4,040	0.42	45	24	4,040.09	3.74	2.02
PM_{10}[4]	Tier 1	0.40	4,040	0.42	45	24	1,616.04	1.50	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.2.22
2005 Potential Emissions Inventory - Questar Tier 0 Rig

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 0
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,940	0.42	45	24	9,810.82	9.08	4.91
NOx	Tier 0	10.89	3,940	0.42	45	24	42,907.55	39.73	21.45
SO_2	Tier 0	0.44	3,940	0.42	45	24	1,733.64	1.61	0.87
VOC	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63
PM_{10}[4]	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.2.23
2005 Potential Emissions Inventory - Questar Tier 1 Rig

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 1
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,940	0.42	45	24	33,490.74	31.01	16.75
NOx	Tier 1	6.90	3,940	0.42	45	24	27,186.60	25.17	13.59
SO_2	Tier 1	0.44	3,940	0.42	45	24	1,733.64	1.61	0.87
VOC	Tier 1	1.00	3,940	0.42	45	24	3,940.09	3.65	1.97
PM_{10}[4]	Tier 1	0.40	3,940	0.42	45	24	1,576.03	1.46	0.79

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.2.24
2005 Potential Emissions Inventory - Questar Tier 2 Rig

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	45	24	10,244.23	9.49	5.12
NOx	Tier 2	4.50	3,940	0.42	45	24	17,730.39	16.42	8.87
SO_2	Tier 2	0.44	3,940	0.42	45	24	1,733.64	1.61	0.87
VOC	Tier 2	0.30	3,940	0.42	45	24	1,182.03	1.09	0.59
PM_{10}[4]	Tier 2	0.15	3,940	0.42	45	24	591.01	0.55	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1250 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.2.25
2005 Potential Emissions Inventory - Yates Tier 1 Rig

Project: **Pinedale Anticline SEIS**
Scenario: **Yates - Tier 1**
Effective Dates: **2005**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	58	24	42,453.71	30.50	21.23
NOx	Tier 1	6.90	3,875	0.42	58	24	34,462.43	24.76	17.23
SO_2	Tier 1	0.44	3,875	0.42	58	24	2,197.60	1.58	1.10
VOC	Tier 1	1.00	3,875	0.42	58	24	4,994.55	3.59	2.50
PM_{10}[4]	Tier 1	0.40	3,875	0.42	58	24	1,997.82	1.44	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.2.26
2005 Potential Emissions Inventory - Anschutz Tier 0 Rig

Project: Pinedale Anticline SEIS
Scenario: Anschutz - Tier 0
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	58	24	12,436.44	8.93	6.22
NOx	Tier 0	10.89	3,875	0.42	58	24	54,390.70	39.07	27.20
SO_2	Tier 0	0.44	3,875	0.42	58	24	2,197.60	1.58	1.10
VOC	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80
PM_{10}[4]	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.2.27
2005 Potential Emissions Inventory - BP/Stone Tier 2 Rig

Project: **Pinedale Anticline SEIS**
Scenario: **BP/Stone - Tier 2**
Effective Dates: **2005**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,6] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,875	0.42	58	24	12,985.84	9.33	6.49
NOx	Tier 2	4.50	3,875	0.42	58	24	22,475.50	16.15	11.24
SO_2	Tier 2	0.13	3,875	0.42	58	24	649.29	0.47	0.32
VOC	Tier 2	0.30	3,875	0.42	58	24	1,498.37	1.08	0.75
PM_{10}[4]	Tier 2	0.15	3,875	0.42	58	24	749.18	0.54	0.37

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.
[6] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.2.28
2005 Potential Emissions Inventory - Petrogulf Tier 0 Rig

Project: Pinedale Anticline SEIS
Scenario: Petrogulf - Tier 0
Effective Dates: 2005
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	58	24	12,436.44	8.93	6.22
NOx	Tier 0	10.89	3,875	0.42	58	24	54,390.70	39.07	27.20
SO_2	Tier 0	0.44	3,875	0.42	58	24	2,197.60	1.58	1.10
VOC	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80
PM_{10}[4]	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 1200 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.2.29
2005 Potential Emissions Inventory - Drill Rig Boiler Emissions

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Activity: **Drilling**
Emissions: **Rig Boilers**
Date: **11/30/2006**

Fuel Combustion Source:

Unit Description	Rig Boilers	
Design Firing Rate (MMBTU/hr) :	5	

Operating Parameters:

Annual Operating hours	4380	
Operation %	Winter (Nov. - Apr.)	100

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	21.90	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1] (lb/MMscf)	(lb/hr)
Total PM	7.6000	0.03800
SO_2	0.6	0.00300
NO_x	100.0000	0.50000
CO	21.0000	0.10500
VOC	5.50000	0.02750

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.2.30
2005 Potential Emissions Inventory - Frac/Other Completion Engine Emissions

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Effective Dates: **All**
Emissions: **Diesel Combustion Emissions from Frac/Other Completion Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	9,200	0.40	4	24	2,025.02	21.09	1.01
NOx	Tier 2	4.50	9,200	0.40	4	24	3,504.84	36.51	1.75
SO_2	Tier 2	0.13	9,200	0.40	4	24	101.25	1.05	0.05
VOC	Tier 2	0.30	9,200	0.40	4	24	233.66	2.43	0.12
PM_{10}[4]	Tier 2	0.15	9,200	0.40	4	24	116.83	1.22	0.06

Note: Frac engines are EPA Tier 2 from data provided by operators and Frac contractor Halliburton.
[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of operators current data. Frac pump engines constitute the majority of the hp used.
[3] Load factor based on weighted average of full load and idle conditions during frac operations.
[4] PM2.5 assumed equivalent to PM10 for frac engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.2.31
2005 Potential Emissions Inventory - Completion/Testing Traffic

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emissions[5] (lb/VMT)	$PM_{2.5}$ Emissions[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis/ transport/ water/ sand/ frac trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3,000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light Trucks/ Pickups	Local	Chemical	7,000	35	5.1	2.4	450	10	4,500	85	0.74	0.11	502.42	77.04
	Resource	Water	7,000	20	5.1	2.4	450	1	450	50	0.74	0.11	167.47	25.68
									Total Unpaved Road Traffic Emissions (lb/well)				1,691.26	259.33

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/well x control efficiency.

Table F.2.32
2005 Potential Emissions Inventory - Completion/Testing Haul Truck Tailpipe

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration[3] (hours/day)	Emissions (lb/well)
CO	14.74	300	11	3300	10	18	107.24
NO_x	11.44	300	11	3300	10	18	83.23
SO_2[2]	0.16	300	11	3300	10	18	1.16
VOC	5.69	300	11	3300	10	18	41.40

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

[3] Haul Activity Duration for completion activities based on an average of 10 days per well and an average of 24 hr/day for 5 days and 12 hr/day for 5 days.

Table F.2.33
2005 Potential Emissions Inventory - Production Traffic – Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	RTs (RTs)	RT Distance (miles)	VMT[3] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[5] (controlled) (lb/RT)
Light Truck	Local	Chemical	7,000	35	5.1	2.4	1	10	10	85	0.74	0.11	1.12	0.17
	Resource	Water	7,000	20	5.1	2.4	1	1	1	50	0.74	0.11	0.37	0.06
												Total Access and Unimproved Road Emissions (lb/RT)	1.49	0.23

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.2.34
2005 Potential Emissions Inventory - Liquids Gathering Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	RT (RT)	RT Distance (miles)	VMT[3] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[5] (controlled) (lb/RT)
Haul Truck	Local	Chemical	54,000	35	5.1	2.4	1	10	10	85	1.87	0.29	2.80	0.43
	Resource	Water	54,000	20	5.1	2.4	1	1	1	50	1.87	0.29	0.93	0.14
												Total Access and Unimproved Road Emissions (lb/RT)	3.73	0.57

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.2.35
2005 Potential Emissions Inventory - Tanker Traffic Tailpipe - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mi)	RT (RT)	Single Well Round Trip Distance (mi/RT)	Single Well Daily VMT (mi/RT)	Daily Emissions Single Well (lb/RT)
CO	14.74	1	11	11.00	0.36
NO_x	11.44	1	11	11.00	0.28
SO_2[2]	0.16	1	11	11.00	0.00
VOC	5.69	1	11	11.00	0.14

[1] AP-42 (EPA 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] The SO_2 emission factor is base don a S balance and 350 ppm diesel fuel.

Table F.2.36
2005 Potential Emissions Inventory - Production Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production Wind Erosion
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor : 0.3733 lb/hr/100m^2 Based on AP-42 Chapter 13.2.5 (EPA 2004), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.

Control Efficiency: 50 %

Disturbed Area: 1 acres 4,047.00 m^2

PM Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	PM_{10} Emissions (lb/hr/acre)	$PM_{2.5}$ Emissions (lb/hr/acre)	PM_{10} Emissions[1] (tons/acre/yr)	$PM_{2.5}$ Emissions[1] (tons/acre/yr)
Production:	0.3733	0.1493	40.47	50	7.55	3.02	0.18	0.07

[1] TPY numbers based on lb/hr/acre and 47 hours per year that the wind speed in the Jonah Field met data overcome the threshold friction velocity.

Table F.2.37
2005 Potential Emissions Inventory - Separator/Indirect Line Heaters

Project: **Pinedlae Anticline SEIS**
Scenario: **Average per Well**
Activity: **Production**
Emissions: **Separator/Line Heaters**
Date: **11/30/2006**

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.75	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combustec	1.48	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1]	(lb/hr)		(tpy)
	(lb/MMscf)	Winter	Summer	Total
Total PM	7.6000	0.00200	0.00057	0.0056
SO_2	0.6	0.00016	0.00005	0.0004
NO_x	100.0000	0.02625	0.00750	0.0739
CO	21.0000	0.00551	0.00158	0.0155
VOC	5.50000	0.00144	0.00041	0.0041

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.2.38
2005 Potential Emissions Inventory - Dehy Reboiler Heater

Project: **Pinedlae Anticline SEIS**
Scenario: **Average per Well**
Activity: **Production**
Emissions: **Dehy Reboiler Heater**
Date: **11/30/2006**

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.085	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combuste	0.17	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1]	(lb/hr)		(tpy)
	(lb/MMscf)	Winter	Summer	Total
Total PM	7.6000	0.00023	0.00006	0.0006
SO_2	0.6	0.00002	0.00001	0.0001
NO_x	100.0000	0.00298	0.00085	0.0084
CO	21.0000	0.00062	0.00018	0.0018
VOC	5.50000	0.00016	0.00005	0.0005

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.2.39
2005 Potential Emissions Inventory - Dehydrator Flashing

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: TEG Dehydrator Flashing
Date: 11/30/2006

Pollutant	Uncontrolled (tpy)	Uncontrolled (lb/hr)	Controlled[1] (tpy)	Controlled[1] (lb/hr)
VOC	12.55	2.87	0.63	0.14
HAP	8.52	1.95	0.43	0.10
Benzene	1.42	0.32	0.07	0.02
Toluene	3.83	0.88	0.19	0.04
Ethylbenzene	0.18	0.04	0.01	2.10E-03
Xylene	2.97	0.68	0.15	0.03
n-Hexane	0.11	0.02	0.01	1.20E-03

[1] Data based on GRI-GLYCalc V. 4.0, 4 MMSCFD, 0.32 gpm glycol flow rate, average representative gas analysis and 95% destruction efficiency for controlled.

Table F.2.40
2005 Potential Emissions Inventory - Fugitive HAPs and VOCs - Per Pad

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production
Emissions: Fugitive VOC/HAP Emissions
Date: 11/30/2006

Gas Analysis Weight Fraction

VOC	0.13930
Benzene	0.00052
Toluene	0.00091
Ethlybenzene	0.00003
Xylene	0.00036
n-hexane	0.00131

Source	Quantity	Emission Factor[1] (lb/hr/component)	Non-methane Hydrocarbons[2] (lb/hr)	Non-methane Hydrocarbons (tpy)	Benzene[2] (lb/hr)	Benzene (tpy)	Toluene[2] (lb/hr)	Toluene (tpy)	Ethlybenzene[2] (lb/hr)	Ethlybenzene (tpy)	Xylene[2] (lb/hr)	Xylene (tpy)	n-Hexane[2] (lb/hr)	n-Hexane (tpy)
Valves	20	0.00992	0.0276	0.121	0.00010	0.00045	0.00018	0.00079	0.000006	0.000028	0.00007	0.00031	0.00026	0.0011
Flanges	30	0.00086	0.0036	0.016	0.00001	0.00006	0.00002	0.00010	0.000001	0.000004	0.00001	0.00004	0.00003	0.0001
Connections	275	0.00044	0.0169	0.074	0.00006	0.00028	0.00011	0.00048	0.000004	0.000017	0.00004	0.00019	0.00016	0.0007
Pump seals	2	0.00529	0.0015	0.006	0.00001	0.00002	0.00001	0.00004	0.000000	0.000002	0.00000	0.00002	0.00001	0.0001
Open ended lines	3	0.00441	0.0018	0.008	0.00001	0.00003	0.00001	0.00005	0.000000	0.000002	0.00000	0.00002	0.00002	0.0001
		Total Emissions/Well	0.0514	0.225	0.00019	0.00084	0.00034	0.00147	0.000012	0.000052	0.00013	0.00058	0.00048	0.0021

[1] Taken from the WDEQ (2001) "Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance".
[2] Calculated as weight fraction * emissions factor * quantity of source.

Table F.2.41
2005 Potential Emissions Inventory - Condensate Storage Emissions - Per Well

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: Condensate Storage Tanks
Date: 11/30/2006

Average Controlled Condensate Storage Emissions[1]

VOC and HAP Emissions		
VOC	1.1856	tpy/well
HAP	0.0594	tpy/well
Benzene	0.0029	tpy/well
Toluene	0.0001	tpy/well
Ethylbenzene	0.0017	tpy/well
Xylene	0.0022	tpy/well
n-Hexane	0.0526	tpy/well

NO_x and CO Emissions from Smokeless Flare Combustion		
NO_x Emission Factor	0.068	lb/MMBTU
CO Emission Factor	0.37	lb/MMBTU
Heat Content	1,000	Btu/scf
Condensate Production	13.00	bbl/day
Gas to Oil Ratio	957.37	scf/bbl
Gas Production	12,445.81	SCFD
Combustion Emissions from Storage Tanks		
NO_x	0.15	tpy/tank
CO	0.84	tpy/tank

Average Uncontrolled Storage Tank Emissions[1]

VOC	16.1000	tpy/well
HAP	0.7880	tpy/well
Benzene	0.0372	tpy/well
Toluene	0.0021	tpy/well
Ethylbenzene	0.0223	tpy/well
Xylene	0.0283	tpy/well
n-Hexane	0.6981	tpy/well

Table F.2.42
2005 Potential Emissions Inventory - Compression Emissions

	2005	
Compression:	**(lb/hr)**	**(tpy)**
NOx:	96.3	421.9
CO:	36.0	157.7
VOC:	73.2	320.5
PM10:	0.0	0.0
PM2.5:	0.0	0.0
SO2:	0.0	0.0
Formaldehyde:	9.5	41.7

Paradise 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1187
Falcon 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1186.
Pinedale 2005 based on (2) 1,860 hp and (2) 3,720 hp compressors as provided by Questar and emissions from MD-1267.

Table F.2.43
2005 Potential Emissions Inventory - Granger Gas Plant 2005 Potential Emissions

Pollutant	(lb/hr)	(tpy)[1]
NOx:	68.88	301.7
CO:	73.70	322.8
VOCs:	32.01	140.2
SO2:	0.00	0.0
PM10:	0.00	0.0
Benzene:	0.07	0.3
Toluene:	0.02	0.1
Ethylbenzene:	0.00	0.0
Xylene:	0.02	0.1
n-Hexane:	0.07	0.3
Formaldehyde:	7.65	33.5
Total HAPs:	7.83	34.3

[1] Emissions taken from WDEQ-AQD permit # MD-644A. BTEX and n-Hexane estimated from Total HAPs.

Table F.2.44
2005 Potential Emissions Inventory - Opal Gas Plant 2005 Potential Emissions

Pollutant	(lb/hr)	(tpy)[1]
NOx:	127.76	559.6
CO:	117.33	513.9
VOCs:	54.98	240.8
SO2:	0.00	0.0
PM10:	0.00	0.0
Benzene:	2.58	11.3
Toluene:	0.75	3.3
Ethylbenzene:	0.23	1.0
Xylene:	0.37	1.6
n-Hexane:	1.94	8.5
Formaldehyde:	0.00	0.0
Total HAPs:	5.87	25.7

[1] Emissions taken from WDEQ-AQD permit # MD-1188. HAPs estimated from total HAPs in MD-1188 and speciated based on the ratios in Opal's 2005 actual emissions inventory.

Table F.2.45
2005 Potential Emissions Inventory - Drill Rig Schedule

	Questar			Ultra			Shell			Yates			Anschutz			BP/Stone			Petrogulf			Total		
Year	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves
2005	60	7.4	8	46	8.9	18	46	5.7	12	7	1.2	2	1	0.3	1.0	6	1.4	3.0	6.0	1.0	6.0	172.0	25.9	50.0

Note: Number of Rigs operating are averaged over the year to remain consistent with the proposed action inventory.

Table F.2.46
2005 Potential Emissions Inventory - Rig Counts and Tier Levels by Operator

		2005
Questar:	Tier 0:	3
	Tier 1:	4
	Tier 2:	0.4
	Total:	7.4
Ultra:	Tier 0:	6
	Tier 1:	2.9
	Tier 2:	0
	Total:	8.9
Shell:	Tier 0:	2
	Tier 1:	3.7
	Tier 2:	0
	Total:	5.7
Yates:	Tier 0:	0
	Tier 1:	1.2
	Tier 2:	0
	Total:	1.2
Anschutz:	Tier 0:	0.3
	Tier 1:	0
	Tier 2:	0
	Total:	0.3
BP/Stone:	Tier 0:	0
	Tier 1:	0
	Tier 2:	1.4
	Total:	1.4
Petrogulf:	Tier 0:	1
	Tier 1:	0
	Tier 2:	0
	Total:	1

Note: Totals based on averages taken from Rig Data.

Table F.2.47
2005 Potential Emissions Inventory - Total Drilling Rig Engine Emissions

		2005	
		(lb/hr)[1]	(tpy)[2]
Questar:	CO	155.09	685.69
	NO_x	226.45	990.07
	SO_2	11.88	52.01
	VOC	18.53	81.91
	PM_{10}	9.56	42.02
Ultra:	CO	133.44	513.28
	NO_x	287.67	1106.08
	SO_2	13.20	50.75
	VOC	16.25	62.49
	PM_{10}	10.38	39.92
Shell:	CO	136.28	595.59
	NO_x	176.98	770.12
	SO_2	2.77	12.08
	VOC	16.24	70.94
	PM_{10}	7.93	34.58
Yates:	CO	36.60	148.59
	NO_x	29.71	120.62
	SO_2	1.89	7.69
	VOC	4.31	17.48
	PM_{10}	1.72	6.99
Anschutz:	CO	2.68	6.22
	NO_x	11.72	27.20
	SO_2	0.47	1.10
	VOC	0.34	0.80
	PM_{10}	0.34	0.80
BP/Stone:	CO	13.06	38.96
	NO_x	22.60	67.43
	SO_2	0.65	1.95
	VOC	1.51	4.50
	PM_{10}	0.75	2.25
Petrogulf:	CO	8.93	37.31
	NO_x	39.07	163.17
	SO_2	1.58	6.59
	VOC	1.15	4.79
	PM_{10}	1.15	4.79
Total:	**CO**	486.07	2025.64
	NO_x	794.20	3244.68
	SO_2	32.45	132.17
	VOC	58.32	242.92
	PM_{10}	31.84	131.36

[1] lb/hr based on worst case # of drill rigs operating at once.
[2] tpy numbers based on makeup of drill fleet and # of wells proposed to be drilled in given year.

Table F.2.48
2005 Potential Emissions Inventory - Total Drilling Rig Boiler Emission

		2005 (lb/hr)[1]	2005 (tpy)[2]				
Questar:	CO	0.78	1.70	**Anschutz:**	CO	0.03	0.07
	NO_x	3.70	8.10		NO_x	0.15	0.33
	SO_2	0.02	0.05		SO_2	0.00	0.00
	VOC	0.20	0.45		VOC	0.01	0.02
	PM_{10}	0.28	0.62		PM_{10}	0.01	0.02
Ultra:	CO	0.93	2.05	**BP/Stone:**	CO	0.15	0.32
	NO_x	4.45	9.75		NO_x	0.70	1.53
	SO_2	0.03	0.06		SO_2	0.00	0.01
	VOC	0.24	0.54		VOC	0.04	0.08
	PM_{10}	0.34	0.74		PM_{10}	0.05	0.12
Shell:	CO	0.60	1.31	**Petrogulf:**	CO	0.11	0.23
	NO_x	2.85	6.24		NO_x	0.50	1.10
	SO_2	0.02	0.04		SO_2	0.00	0.01
	VOC	0.16	0.34		VOC	0.03	0.06
	PM_{10}	0.22	0.47		PM_{10}	0.04	0.08
Yates:	CO	0.13	0.28				
	NO_x	0.60	1.31				
	SO_2	0.00	0.01				
	VOC	0.03	0.07				
	PM_{10}	0.05	0.10				
Total:	**CO**	2.72	5.96				
	NO_x	12.95	28.36				
	SO_2	0.08	0.17				
	VOC	0.71	1.56				
	PM_{10}	0.98	2.16				

[1] lb/hr based on worst case # of drill rigs operating at once.

[2] tpy numbers based on boilers running throughout the winter season (Nov.-April).

Table F.2.49
2005 Potential Emissions Inventory - Total Construction Disturbance Emissions

		2005 (lb/hr)[1]	2005 (tpy)[2]
Pad Construction/Expansion:	PM_{10}	2.82	3.09
	$PM_{2.5}$	0.74	0.81
Local Road Construction:	PM_{10}	1.02	1.11
	$PM_{2.5}$	0.27	0.29
Resource Road Construction:	PM_{10}	1.21	1.33
	$PM_{2.5}$	0.32	0.35
Pipeline Construction:	PM_{10}	3.38	3.71
	$PM_{2.5}$	0.89	0.98
Wind Erosion[3]:	PM_{10}	21.44	46.95
	$PM_{2.5}$	8.58	18.78
Other Construction Activities:	PM_{10}	219.19	240.01
	$PM_{2.5}$	57.84	63.34
Total Construction Surface Disturbace Emissions:	PM_{10}	249.06	296.20
	$PM_{2.5}$	68.64	84.55

Note: Construction Surface Disturbance Emissions occur during summer months (May-Oct.) and daylight hours (12 hrs/day) only.

[1] lb/hr number based on 6 months of construction at 12 hrs/day.
[2] tpy numbers based on total construction occuring over a 6 month period between May and October of each year.
[3] Wind erosion lb/hr totals assume that construction is evenly distributed over the summer construction season.

Table F.2.50
2005 Potential Emissions Inventory - Total Construction Traffic and Heavy Equipment Tailpipe Emissions

		2005 (lb/hr)	2005 (tpy)
Pad Construction Traffic[1]:	PM_{10}	30.19	33.06
	$PM_{2.5}$	4.61	5.04
Road Construction Traffic:	PM_{10}	7.98	8.74
	$PM_{2.5}$	1.22	1.33
Pipeline Construction Traffic:	PM_{10}	26.44	28.95
	$PM_{2.5}$	4.04	4.43
Other Construction Activities Traffic[2]:	PM_{10}	31.65	34.65
	$PM_{2.5}$	4.84	5.30
Well Pad Construction Heavy Equipment Tailpipe:	CO	85.07	93.15
	NO_x	69.06	75.62
	SO_2	1.30	1.42
	VOC	10.01	10.96
	$PM_{10/2.5}$	4.00	4.38
Road Construction Heavy Equipment Tailpipe:	CO	7.32	8.02
	NO_x	5.95	6.51
	SO_2	0.11	0.12
	VOC	0.86	0.94
	$PM_{10/2.5}$	0.34	0.38
Pipeline Construction Heavy Equipment Tailpipe:	CO	2.23	2.44
	NO_x	1.81	1.98
	SO_2	0.03	0.04
	VOC	0.26	0.29
	$PM_{10/2.5}$	0.11	0.12
er Construction Activities Heavy Equipment Tailpipe:	CO	5.87	6.42
	NO_x	4.76	5.22
	SO_2	0.09	0.10
	VOC	0.69	0.76
	$PM_{10/2.5}$	0.28	0.30

		2005 (lb/hr)	2005 (tpy)
Drilling Traffic:	PM_{10}	36.08	158.02
	$PM_{2.5}$	5.49	24.03
Rig Move Traffic:	PM_{10}	2.02	8.83
	$PM_{2.5}$	0.31	1.35
Drilling Haul Truck Tailpipe:	CO	2.53	11.07
	NO_x	1.96	8.59
	SO_2	0.02	0.10
	VOC	0.98	4.27
Rig Move Haul Truck Tailpipe:	CO	0.18	0.81
	NO_x	0.14	0.63
	SO_2	0.00	0.01
	VOC	0.07	0.31
Total Construction Surface Disturbace Emissions:	**CO**	103.21	121.92
	NO_x	83.68	98.55
	SO_2	1.56	1.79
	VOC	12.87	17.53
	PM_{10}	139.08	277.42
	$PM_{2.5}$	25.23	46.66

Note: All tpy numbers except drilling related based on total emissions during the six month construction season (May-October). All lb/hr numbers except drilling related based on this total and assumed to happen evenly over the daylight hours of the construction season (2190 hrs/yr). All drilling emissions based on year-round drilling.

[1] Based on new pads and 20 expanded pads

[2] For estimates of traffic and HE tailpipe emissions for other construction activities, the stabilizer facility and Paradise Compressor Station were conservatively assumed to be pads and Questar's gathering system was treated as other pipelines.

Table F.2.51
2005 Potential Emissions Inventory - Total Frac/Completion Emissions

		2005 (lb/hr)[1]	2005 (tpy)[2]
Frac and Other Completion Engine Emissions:	CO	39.76	174.15
	NO_x	68.82	301.42
	SO_2	1.99	8.71
	VOCs	4.59	20.09
	$PM_{10/2.5}$	2.29	10.05
Completion Traffic:	PM_{10}	33.21	145.45
	$PM_{2.5}$	5.09	22.30
Completion/Testing Haul Truck Tailpipe:	CO	2.11	9.22
	NO_x	1.63	7.16
	SO_2	0.02	0.10
	VOC	0.81	3.56
Total Frac/Completion Emissions:	CO	41.87	183.37
	NO_x	70.45	308.57
	SO_2	2.01	8.81
	VOCs	5.40	23.65
	PM_{10}	35.50	155.50
	$PM_{2.5}$	7.39	32.35

[1] lb/hr number based on tpy and year-round activity.

[2] tpy numbers based on number of wells drilled per year.

Table F.2.52
2005 Potential Emissions Inventory - Total Construction Emissions

		2005 (lb/hr) Summer	2005 (lb/hr) Winter	(tpy) Total
Total 2005 Potential Construction Disturbance Emissions:	PM_{10}	249.06	0.00	296.20
	$PM_{2.5}$	68.64	0.00	84.55
2005 Potential Construction Traffic and Heavy Equipment Tailpipe Emissions:	CO	103.21	0.00	121.92
	NO_x	83.68	0.00	98.55
	SO_2	1.56	0.00	1.79
	VOC	12.87	0.00	17.53
	PM_{10}	139.08	0.00	277.42
	$PM_{2.5}$	25.23	0.00	46.66
2005 Potential Drill Rig Engine Emissions:	CO	486.07	486.07	2025.64
	NOx	794.20	794.20	3244.68
	SO2	32.45	32.45	132.17
	VOC	58.32	58.32	242.92
	PM10	31.84	31.84	131.36
2005 Potential Drill Rig Boiler Emissions:	CO	0.00	2.72	5.96
	NOx	0.00	12.95	28.36
	SO2	0.00	0.08	0.17
	VOC	0.00	0.71	1.56
	PM10	0.00	0.98	2.16
2005 Potential Completion Emissions[1]:	CO	41.87	41.87	183.37
	NO_x	70.45	70.45	308.57
	SO_2	2.01	2.01	8.81
	VOCs	5.40	5.40	23.65
	PM_{10}	35.50	35.50	155.50
	$PM_{2.5}$	7.39	7.39	32.35
POTENTIAL CONSTRUCTION EMISSIONS:	**CO**	631.15	530.66	2336.89
	NO_x	948.33	877.60	3680.16
	SO_2	36.02	34.54	142.94
	VOCs	76.59	64.43	285.66
	PM_{10}	455.48	68.32	862.63
	$PM_{2.5}$	133.10	40.21	297.08

[1] 2005 potential completion emissions are slightly less than reported in the operators 2005 actual inventories, as some of the operators used average, overly conservative numbers per well in their actual inventories.

Table F.2.53
2005 Potential Emissions Inventory - Total Production Emissions

		(lb/hr) Summer	2005 (lb/hr) Winter	(tpy) Total
# of Wells Drilled:			172	
# of Wells in Production:			286	
Production Traffic:	PM_{10}	15.08	15.08	66.05
	$PM_{2.5}$	2.31	2.31	10.13
Liquids Gathering Haul Truck Traffic:	PM_{10}	13.86	13.86	60.69
	$PM_{2.5}$	2.12	2.12	9.31
Production Haul Truck Tailpipe:	CO	1.33	1.33	5.81
	NO_x	1.03	1.03	4.51
	SO_2	0.01	0.01	0.06
	VOC	0.51	0.51	2.24
Production Wind Erosion:	PM_{10}	47.46	47.46	207.86
	$PM_{2.5}$	18.98	18.98	83.14
Separator/Indirect Line Heaters:	$PM_{10/2.5}$	0.16	0.57	1.61
	SO_2	0.01	0.05	0.13
	NO_x	2.15	7.51	21.14
	CO	0.45	1.58	4.44
	VOC	0.12	0.41	1.16
Dehy Reboiler Heaters:	$PM_{10/2.5}$	0.02	0.06	0.18
	SO_2	0.00	0.01	0.01
	NO_x	0.24	0.85	2.40
	CO	0.05	0.18	0.50
	VOC	0.01	0.05	0.13
Dehy Flashing Emissions:	VOC	118.86	118.86	520.59
	Total HAPs	80.69	80.69	353.43
	Benzene	13.41	13.41	58.72
	Toluene	36.28	36.28	158.92
	Ethylbenzene	1.72	1.72	7.53
	Xylene	28.14	28.14	123.27
	n-Hexane	1.02	1.02	4.46
Fugitive HAPs and VOCs:	VOC	13.67	13.67	59.89
	Total HAPs	0.31	0.31	1.35
	Benzene	0.05	0.05	0.22
	Toluene	0.09	0.09	0.39
	Ethylbenzene	0.00	0.00	0.01
	Xylene	0.03	0.03	0.15
	n-Hexane	0.13	0.13	0.56
Condensate Storage Pre Gathering System[1]:	VOC	174.80	174.80	765.63
	Total HAPs	8.64	8.64	37.83
	Benzene	0.41	0.41	1.81
	Toluene	0.02	0.02	0.09
	Ethylbenzene	0.24	0.24	1.07
	Xylene	0.31	0.31	1.37
	n-Hexane	7.65	7.65	33.49
	NOx	10.09	10.09	44.17
	CO	54.88	54.88	240.36
2005 Compression:	NOx	96.32	96.32	421.90
	CO	36.00	36.00	157.70
	VOC	73.17	73.17	320.50
	PM10	0.00	0.00	0.00
	PM2.5	0.00	0.00	0.00
	SO2	0.00	0.00	0.00
	Formaldehyde	9.52	9.52	41.70
2005 Granger and Opal Potential Emissions:	NOx:	196.64	196.64	861.30
	CO:	191.03	191.03	836.70
	VOCs:	86.99	86.99	381.00
	SO2:	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00
	Benzene:	2.65	2.65	11.61
	Toluene:	0.78	0.78	3.40
	Ethylbenzene:	0.23	0.23	1.00
	Xylene:	0.39	0.39	1.70
	n-Hexane:	2.01	2.01	8.80
	Formaldehyde:	7.65	7.65	33.50
	Total HAPs:	13.70	13.70	60.00
TOTAL PRODUCTION EMISSIONS:	**NOx**	306.47	312.44	1355.42
	CO	283.74	284.99	1245.51
	VOC	468.14	468.46	2051.15
	PM10	76.57	77.03	336.38
	PM2.5	23.60	24.05	104.36
	SO2	0.03	0.06	0.20
	Formaldehyde	17.17	17.17	75.20
	Benzene	16.52	16.52	72.36
	Toluene	37.17	37.17	162.81
	Ethylbenzene	2.19	2.19	9.61
	Xylene	28.88	28.88	126.49
	n-Hexane	10.80	10.80	47.32
	Total HAPs	112.74	112.74	493.80

[1] Assumes that 90% of the condensate storage is controlled to 98%.

Table F.2.54
2005 Potential Emissions Inventory - Total Emissions

		2005 (lb/hr) Summer	2005 (lb/hr) Winter	(tpy) Total
TOTAL 2005 POTENTIAL CONSTRUCTION EMISSIONS:	CO	631.15	530.66	2336.89
	NO_x	948.33	877.60	3680.16
	SO_2	36.02	34.54	142.94
	VOCs	76.59	64.43	285.66
	PM_{10}	455.48	68.32	862.63
	$PM_{2.5}$	133.10	40.21	297.08
TOTAL 2005 POTENTIAL PRODUCTION EMISSIONS:	NOx	306.47	312.44	1355.42
	CO	283.74	284.99	1245.51
	VOC	468.14	468.46	2051.15
	PM10	76.57	77.03	336.38
	PM2.5	23.60	24.05	104.36
	SO2	0.03	0.06	0.20
	Formaldehyde	17.17	17.17	75.20
	Benzene	16.52	16.52	72.36
	Toluene	37.17	37.17	162.81
	Ethylbenzene	2.19	2.19	9.61
	Xylene	28.88	28.88	126.49
	n-Hexane	10.80	10.80	47.32
	Total HAPs	112.74	112.74	493.80
TOTAL 2005 POTENTIAL EMISSIONS:	**NOx**	1254.81	1190.04	5035.58
	CO	914.88	815.65	3582.39
	VOC	544.72	532.90	2336.82
	PM10	532.05	145.35	1199.01
	PM2.5	156.70	64.26	401.45
	SO2	36.05	34.60	143.14
	Formaldehyde	17.17	17.17	75.20
	Benzene	16.52	16.52	72.36
	Toluene	37.17	37.17	162.81
	Ethylbenzene	2.19	2.19	9.61
	Xylene	28.88	28.88	126.49
	n-Hexane	10.80	10.80	47.32
	Total HAPs	112.74	112.74	493.80

Table F.3.1
Proposed Action Emissions Inventory - Pad, Road and Pipeline Disturbances by Year

Year	Pads (acres)	New Pads (number)	Expanded Pads (number)	Local Roads (miles)	Local Roads (acres)	Resource Roads (Miles)	Resource roads (acres)	Pipelines (miles)	Pipelines (acres)	Total (acres)
Pre-ROD	332.05	56	--	--	--	108.3	652.3	12.14	60.15	1044.5
ROD through 2005	1808.02	266	--	--	--	176.52	912.98	134.18	804.81	3525.81
2006 [1]	295.50	26	43	5.20	23.45	5.98	27.93	13.00	78.00	424.88
2007	822.50	44	37	8.80	39.69	10.12	47.26	22.00	132.00	1041.45
2008	680.50	36	31	7.20	32.47	8.28	38.67	18.00	108.00	859.64
2009	712.00	37	19	7.40	33.37	8.51	39.74	18.50	111.00	896.12
2010	623.00	29	18	5.80	26.16	6.67	31.15	14.50	87.00	767.31
2011	589.00	33	11	6.60	29.77	7.59	35.45	16.50	99.00	753.21
2012	556.00	13	13	2.60	11.73	2.99	13.96	6.50	39.00	620.69
2013	485.00	15	10	3.00	13.53	3.45	16.11	7.50	45.00	559.64
2014	567.00	11	20	2.20	9.92	2.53	11.82	5.50	33.00	621.74
2015	537.00	12	18	2.40	10.82	2.76	12.89	6.00	36.00	596.71
2016	557.00	12	19	2.40	10.82	2.76	12.89	6.00	36.00	616.71
2017	508.00	8	20	1.60	7.22	1.84	8.59	4.00	24.00	547.81
2018	399.00	0	25	0.00	0.00	0.00	0.00	0.00	0.00	399.00
2019	342.00	0	18	0.00	0.00	0.00	0.00	0.00	0.00	342.00
2020	230.00	0	11	0.00	0.00	0.00	0.00	0.00	0.00	230.00
2021	210.00	0	10	0.00	0.00	0.00	0.00	0.00	0.00	210.00
2022	210.00	0	10	0.00	0.00	0.00	0.00	0.00	0.00	210.00
2023	84.00	0	4	0.00	0.00	0.00	0.00	0.00	0.00	84.00
Total 2007-2023	**8112.00**	**250**	**294**	**50.00**	**225.50**	**57.50**	**268.53**	**125.00**	**750.00**	**9356.03**

[1] The year 2006 is neither part of the No Action nor the Proposed Action

Table F.3.2
Proposed Action Emissions Inventory - Well Pad Construction/Expansion - All Operators - Per Acre

Project: Pinedale Anticline SEIS
Scenario: All Scenerios
Activity: Well Pad Construction
Emissions: Fugitive Particulate Emissions from Well Pad Construction
Date: 11/30/2006

Well Pad Area (Expansion)	Construction Activity TSP Emission Factor[1]	Construction Activity Duration[2]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(acre)	(tons/acre-month)	(days/acre)	(hours/day)	(%)	(lb/acre)	(lb/acre)
1	1.2	2.1	12	50	15.12	3.99

[1] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations"; TSP = total suspended particulates.

[2] Construction Activity Duration taken from an average of durations provided by Shell, Ultra and Questar.

[3] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.3
Proposed Action Emissions Inventory - Local Road Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: Local Road Construction
Activity: Access Road Construction
Emissions: Fugitive Particulate Emissions from Access Road Construction
Date: 11/30/2006

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.51	1.2	3.3	12	50	214.32	56.56

[1] Construction Area taken from average of current field activity of 4.51 acres/mile for Local Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.4
Proposed Action Emissions Inventory - Resource Road Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: Resource Road Construction
Activity: Access Road Construction
Emissions: Fugitive Particulate Emissions from Access Road Construction
Date: 11/30/2006

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.67	1.2	3.3	12	50	221.92	58.56

[1] Construction Area taken from average of current field activity of 4.67 acres/mile for Resource Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.5
Proposed Action Emissions Inventory - Pipeline Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Pipeline Construction
Date: 11/30/2006

Pipeline Length (mi)	Pipeline Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days/mi)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lb/mi)	$PM_{2.5}$ Emissions (controlled)[5] (lb/mi)
1	6.00	1.2	3.3	12	50	285.12	75.24

[1] Construction Area taken from average of current field activity of 6.00 acres/mile for pipelines.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.6
Proposed Action Emissions Inventory - Ultra/Shell Gathering System Construction - 2008

Project: **Pinedale Anticline SEIS**
Scenario: **Other Construction Activities**
Activity: **Misc. Construction**
Emissions: **Fugitive Particulate Emissions from Const. Activities**
Date: **11/30/2006**

Construction Activity	Construction Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]		$PM_{2.5}$ Emissions (controlled)[5]	
	(acres)	(tons/acre-month)	(days)	(hours/day)	(%)	(lbs)	(tpy)	(lbs)	(tpy)
Ultra/Shell Gathering System	351.52	1.2	150	12	50	759283.20	379.64	200366.40	100.18

[1] Acres of construction provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.7
Proposed Action Emissions Inventory - Sales Pipeline Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Sales Pipeline Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Year of Proposed Construction	Construction Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lbs)	PM_{10} Emissions (controlled)[4] (tpy)	$PM_{2.5}$ Emissions (controlled)[5] (lbs)	$PM_{2.5}$ Emissions (controlled)[5] (tpy)
QGM (2) Mesa Loop inside PAPA	2007	145.45	1.2	39.6	12	50	82,941	41.47	21,887	10.94
QGM Water Gathering System	2007	109.09	1.2	59.4	12	50	93,311	46.66	24,624	12.31
TEPPCO Mesa to Falcon inside PAPA	2011	155.15	1.2	52.8	12	50	117,964	58.98	31,129	15.56
						Total 2007:	176,253	88.13	46,511	23.26
						Total 2011:	117,964	58.98	31,129	15.56

[1] Acres of construction provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.8
Proposed Action Emissions Inventory - Ancillary Facilities Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Ancillary Facilities Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Year of Proposed Construction	Construction Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration[3] (days)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[4] (lbs)	PM_{10} Emissions (controlled)[4] (tpy)	$PM_{2.5}$ Emissions (controlled)[5] (lbs)	$PM_{2.5}$ Emissions (controlled)[5] (tpy)
Compressor Sites Expansion	2011	90.00	1.2	189	12	50	244,944	122.47	64,638	32.32
Central Gathering Facilities - TEPPCO	2011	90.00	1.2	189	12	50	244,944	122.47	64,638	32.32
Central Gathering Facilities - QGM	2007	12.00	1.2	25.2	12	50	4,355	2.18	1,149	0.57
Falcon Stbilizer Facility - TEPPCO	2011	20.00	1.2	42	12	50	12,096	6.05	3,192	1.60
Water Trucking Facility - TEPPCO	2011	20.00	1.2	42	12	50	12,096	6.05	3,192	1.60
Water Trucking Facility - QGM	2007	7.00	1.2	14.7	12	50	1,482	0.74	391	0.20
Falcon Truck Unloading - QGM	2007	15.00	1.2	31.5	12	50	6,804	3.40	1,796	0.90
Expand Stbilizer Site - QGM	2007	5.00	1.2	10.5	12	50	756	0.38	200	0.10
						Total 2007:	13,396	6.70	3,535	1.77
						Total 2011:	514,080	257.04	135,660	67.83

[1] Acres of construction provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to pads and or pipelines, respectively.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.3.9
Proposed Action Emissions Inventory - Construction Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Well Pad, Resource Road, Pipeline Construction
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor :	0.3733 lb/hr/100m^2	Based on AP-42 Chapter 13.2.5 (EPA 2004), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.	
Control Efficiency:	50 %		
Disturbed Area:			
Well Pad Construction/Exp.:	1 acres	4,047.00 m^2	
Access Road Construction:	1 acres	4,047.00 m^2	
Pipeline Construction	1 acres	4,047.00 m^2	

PM_{10} Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	# of Construction Hours Per Acre (hr)	PM_{10} Emissions (lb/hr)	$PM_{2.5}$ Emissions (lb/hr)	PM_{10} Emissions (tons/acre)	$PM_{2.5}$ Emissions (tons/acre)
Well Pad Construction:	0.3733	0.1493	40.47	50	25.2	7.55	3.02	0.10	0.04
Road Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01
Pipeline Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01

Table F.3.10
Proposed Action Emissions Inventory - Well Pad Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Heavy Trucks	Local	Chemical	35,000	35	5.1	2.4	240	10	2400	85	1.54	0.24	552.85	84.77
	Resource	Water	35,000	20	5.1	2.4	240	1	240	50	1.54	0.24	184.28	28.26
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	160	10	1600	85	0.60	0.09	144.80	21.65
	Resource	Water	7,000	20	5.1	2.4	160	1	160	50	0.46	0.07	36.48	5.45
												Total Unpaved Road Traffic Emissions (lb/pad)	918.40	140.13

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.11
Proposed Action Emissions Inventory - Road Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Resource Road Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Heavy Trucks	Local	Chemical	35,000	35	5.1	2.4	88	10	880	85	1.54	0.24	202.71	31.08
	Resource	Water	35,000	20	5.1	2.4	88	1	88	50	1.54	0.24	67.57	10.36
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	58	10	580	85	0.60	0.09	52.49	7.85
	Resource	Water	7,000	20	5.1	2.4	58	1	58	50	0.46	0.07	13.22	1.98
												Total Unpaved Road Traffic Emissions (lb/pad)	335.99	51.27

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.12
Proposed Action Emissions Inventory - Pipeline Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Pipeline Construction Traffic
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per pad	RT Distance (miles)	VMT[4] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[6] (controlled) (lb/pad)
Semis/transport, boom, equipment, water removal, sand, and gravel trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light truck/pick-ups	Local	Chemical	7,000	35	5.1	2.4	200	10	2000	85	0.23	0.03	69.00	10.26
	Resource	Water	7,000	20	5.1	2.4	200	1	200	50	0.23	0.03	23.00	3.42
												Total Unpaved Road Traffic Emissions (lb/pad)	1,113.36	170.29

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.13
Proposed Action Emissions Inventory - Well Pad Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2] (g/hp-hr)					Construction Activity Duration (days/acre/ equipment type)	Construction Activity Duration (hours/day)	Pollutant Emissions (lb/acre)				
	(hp)			CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	25.19	20.44	0.39	2.96	1.19
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	11	51.94	42.17	0.79	6.11	2.44
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	2.1	11	207.78	168.67	3.18	24.44	9.78
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	56.67	46.00	0.87	6.67	2.67
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	12.59	10.22	0.19	1.48	0.59
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	10	31.48	25.56	0.48	3.70	1.48
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	39.67	32.20	0.61	4.67	1.87
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	2.1	6	31.17	25.30	0.48	3.67	1.47
									Total Heavy Equipment Tailpipe Emissions		456.48	370.56	6.98	53.70	21.48

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.3.14
Proposed Action Emissions Inventory - Road Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Road Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	11	81.63	66.26	1.25	9.60	3.84
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	3.3	11	326.51	265.05	4.99	38.41	15.37
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	89.05	72.29	1.36	10.48	4.19
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	19.79	16.06	0.30	2.33	0.93
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	10	49.47	40.16	0.76	5.82	2.33
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	62.33	50.60	0.95	7.33	2.93
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	3.3	6	48.98	39.76	0.75	5.76	2.30
										Total Heavy Equipment Tailpipe Emissions	717.33	582.30	10.97	84.39	33.76

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.3.15
Proposed Action Emissions Inventory - Pipeline Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Grader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Excavator	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Trencher	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Tractor (side-boom)	150	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	29.68	24.10	0.45	3.49	1.40
										Total Emissions from Heavy Equipment Tailpipes	187.99	152.60	2.88	22.12	8.85

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.3.16
Proposed Action Emissions Inventory - Drilling Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis-tractor/ trailer/mud/water/ fuel/ cement trucks[1]	Local Road	Chemical	44,000	35	5.1	2.4	300	10	3,000	85	1.70	0.26	766.02	117.46
	Resource Road	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Vendors/ marketers/ various/ workers	Local Road	Chemical	7,000	35	5.1	2.4	300	10	3,000	85	0.60	0.090	271.49	40.59
	Resource Road	Water	7,000	20	5.1	2.4	300	1	300	50	0.46	0.068	68.39	10.22
												Total Unpaved Road Traffic Emissions (lb/well)	1,361.25	207.42

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.17
Proposed Action Emissions Inventory - Rig Move Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well Drilled	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Rig Haul Trucks	Local Road	Chemical	44,000	35	5.1	2.4	6.6	10	66	85	1.70	0.26	16.85	2.58
	Resource Road	Water	44,000	20	5.1	2.4	6.6	1	7	50	1.70	0.26	5.62	0.86
Light Trucks/Pickups	Local Road	Chemical	7,000	35	5.1	2.4	2.2	10	22	85	0.74	0.11	2.46	0.38
	Resource Road	Water	7,000	25	5.1	2.4	2.2	1	2	50	0.74	0.11	0.82	0.13
										Total Unpaved Road Traffic Emissions (lb/well)			25.74	3.95

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.18
Proposed Action Emissions Inventory - Drilling Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Diesel Combustion Emissions from Haul Truck Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	300	11	3300	45	24	107.24
NO_x	11.44	300	11	3300	45	24	83.23
SO_2[2]	0.13	300	11	3300	45	24	0.95
VOC	5.69	300	11	3300	45	24	41.40

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

[3] Based on a life of project average of 45 days per well.

Table F.3.19
Proposed Action Emissions Inventory - Rig Move Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Emissions (lb/well)
CO	14.74	6.6	11	72.6	2.36
NO_x	11.44	6.6	11	72.6	1.83
SO_2[2]	0.13	6.6	11	72.6	0.02
VOC	5.69	6.6	11	72.6	0.91

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

Table F.3.20
Proposed Action Emissions Inventory - Ultra Tier 0 Rig – 2006

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 0
Effective Dates: 2006
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,640	0.42	62	24	12,487.90	8.39	6.24
NOx	Tier 0	10.89	3,640	0.42	62	24	54,615.76	36.70	27.31
SO_2	Tier 0	0.13	3,640	0.42	62	24	651.98	0.44	0.33
VOC	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80
PM_{10}[4]	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.21
Proposed Action Emissions Inventory - Ultra Tier 1 Rig – 2006

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 1
Effective Dates: 2006
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,640	0.42	62	24	42,629.38	28.65	21.31
NOx	Tier 1	6.90	3,640	0.42	62	24	34,605.03	23.26	17.30
SO_2	Tier 1	0.13	3,640	0.42	62	24	651.98	0.44	0.33
VOC	Tier 1	1.00	3,640	0.42	62	24	5,015.22	3.37	2.51
PM_{10}[4]	Tier 1	0.40	3,640	0.42	62	24	2,006.09	1.35	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.22
Proposed Action Emissions Inventory - Ultra Tier 0 Rig – 2007

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 0**
Effective Dates: **2007**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,640	0.42	55	24	11,077.98	8.39	5.54
NOx	Tier 0	10.89	3,640	0.42	55	24	48,449.47	36.70	24.22
SO_2	Tier 0	0.13	3,640	0.42	55	24	578.37	0.44	0.29
VOC	Tier 0	0.32	3,640	0.42	55	24	1,423.68	1.08	0.71
PM_{10}[4]	Tier 0	0.32	3,640	0.42	55	24	1,423.68	1.08	0.71

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.23
Proposed Action Emissions Inventory - Ultra Tier 1 Rig - 2007-2009

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 1
Effective Dates: 2007-2009
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,640	0.42	55	24	37,816.39	28.65	18.91
NOx	Tier 1	6.90	3,640	0.42	55	24	30,698.01	23.26	15.35
SO_2	Tier 1	0.13	3,640	0.42	55	24	578.37	0.44	0.29
VOC	Tier 1	1.00	3,640	0.42	55	24	4,448.99	3.37	2.22
PM_{10}[4]	Tier 1	0.40	3,640	0.42	55	24	1,779.59	1.35	0.89

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.24
Proposed Action Emissions Inventory - Ultra Tier 2 Rig - 2007-2010

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 2**
Effective Dates: **2007-June 1, 2010**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,640	0.42	55	24	11,567.37	8.76	5.78
NOx	Tier 2	4.50	3,640	0.42	55	24	20,020.44	15.17	10.01
SO_2	Tier 2	0.13	3,640	0.42	55	24	578.37	0.44	0.29
VOC	Tier 2	0.30	3,640	0.42	55	24	1,334.70	1.01	0.67
PM_{10}[4]	Tier 2	0.15	3,640	0.42	55	24	667.35	0.51	0.33

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.25
Proposed Action Emissions Inventory - Ultra Tier 2 Rig - 2010-2015

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 2**
Effective Dates: **June 1, 2010 - 2015**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,640	0.42	55	24	11,567.37	8.76	5.78
NOx	Tier 2	4.50	3,640	0.42	55	24	20,020.44	15.17	10.01
SO_2	Tier 2	0.006	3,640	0.42	55	24	26.69	0.02	0.01
VOC	Tier 2	0.30	3,640	0.42	55	24	1,334.70	1.01	0.67
PM_{10}[4]	Tier 2	0.15	3,640	0.42	55	24	667.35	0.51	0.33

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.26
Proposed Action Emissions Inventory - Ultra Tier 2 Rig - 2015+

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 2
Effective Dates: 2015+
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,640	0.42	45	24	9,464.21	8.76	4.73
NOx	Tier 2	4.50	3,640	0.42	45	24	16,380.36	15.17	8.19
SO_2	Tier 2	0.006	3,640	0.42	45	24	21.84	0.02	0.01
VOC	Tier 2	0.30	3,640	0.42	45	24	1,092.02	1.01	0.55
PM_{10}[4]	Tier 2	0.15	3,640	0.42	45	24	546.01	0.51	0.27

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.27
Proposed Action Emissions Inventory - Shell Tier 0 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	4,040	0.42	45	24	10,059.82	9.31	5.03
NOx	Tier 0	10.89	4,040	0.42	45	24	43,996.57	40.74	22.00
SO_2	Tier 0	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65
PM_{10}[4]	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.28
Proposed Action Emissions Inventory - Shell Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	4,040	0.42	45	24	34,340.76	31.80	17.17
NOx	Tier 1	6.90	4,040	0.42	45	24	27,876.61	25.81	13.94
SO_2	Tier 1	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 1	1.00	4,040	0.42	45	24	4,040.09	3.74	2.02
PM_{10}[4]	Tier 1	0.40	4,040	0.42	45	24	1,616.04	1.50	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.29
Proposed Action Emissions Inventory - Shell Tier 2 Rig - 2006-2007

Project: **Pinedale Anticline SEIS**
Scenario: **Shell - Tier 2**
Effective Dates: **2006-2007**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	4,040	0.42	45	24	10,504.23	9.73	5.25
NOx	Tier 2	4.50	4,040	0.42	45	24	18,180.40	16.83	9.09
SO_2	Tier 2	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 2	0.30	4,040	0.42	45	24	1,212.03	1.12	0.61
PM_{10}[4]	Tier 2	0.15	4,040	0.42	45	24	606.01	0.56	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.30
Proposed Action Emissions Inventory - Shell Tier 1 Rig - 2008-2009

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 1
Effective Dates: 2008 - 2009
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	4,040	0.42	40	24	30,525.12	31.80	15.26
NOx	Tier 1	6.90	4,040	0.42	40	24	24,779.21	25.81	12.39
SO_2	Tier 1	0.13	4,040	0.42	40	24	466.85	0.49	0.23
VOC	Tier 1	1.00	4,040	0.42	40	24	3,591.19	3.74	1.80
PM_{10}[4]	Tier 1	0.40	4,040	0.42	40	24	1,436.48	1.50	0.72

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.31
Proposed Action Emissions Inventory - Shell Tier 2 Rig - 2008-2010

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 2
Effective Dates: 2008 - June 1, 2010
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	4,040	0.42	40	24	9,337.09	9.73	4.67
NOx	Tier 2	4.50	4,040	0.42	40	24	16,160.36	16.83	8.08
SO_2	Tier 2	0.13	4,040	0.42	40	24	466.85	0.49	0.23
VOC	Tier 2	0.30	4,040	0.42	40	24	1,077.36	1.12	0.54
PM_{10}[4]	Tier 2	0.15	4,040	0.42	40	24	538.68	0.56	0.27

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.32
Proposed Action Emissions Inventory - Shell Tier 2 Rig - 2010-2015

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 2
Effective Dates: June 1, 2010 - 2015
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	4,040	0.42	40	24	9,337.09	9.73	4.67
NOx	Tier 2	4.50	4,040	0.42	40	24	16,160.36	16.83	8.08
SO_2	Tier 2	0.006	4,040	0.42	40	24	21.55	0.02	0.01
VOC	Tier 2	0.30	4,040	0.42	40	24	1,077.36	1.12	0.54
PM_{10}[4]	Tier 2	0.15	4,040	0.42	40	24	538.68	0.56	0.27

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.33
Proposed Action Emissions Inventory - Shell Tier 2 Rig - 2015+

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 2
Effective Dates: 2015+
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	4,040	0.42	30	24	7,002.82	9.73	3.50
NOx	Tier 2	4.50	4,040	0.42	30	24	12,120.27	16.83	6.06
SO_2	Tier 2	0.006	4,040	0.42	30	24	16.16	0.02	0.01
VOC	Tier 2	0.30	4,040	0.42	30	24	808.02	1.12	0.40
PM_{10}[4]	Tier 2	0.15	4,040	0.42	30	24	404.01	0.56	0.20

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.34
Proposed Action Emissions Inventory - Questar Tier 0 Rig – 2006

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,940	0.42	45	24	9,810.82	9.08	4.91
NOx	Tier 0	10.89	3,940	0.42	45	24	42,907.55	39.73	21.45
SO_2	Tier 0	0.006	3,940	0.42	45	24	23.64	0.02	0.01
VOC	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63
PM_{10}[4]	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.35
Proposed Action Emissions Inventory - Questar Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,940	0.42	45	24	33,490.74	31.01	16.75
NOx	Tier 1	6.90	3,940	0.42	45	24	27,186.60	25.17	13.59
SO_2	Tier 1	0.006	3,940	0.42	45	24	23.64	0.02	0.01
VOC	Tier 1	1.00	3,940	0.42	45	24	3,940.09	3.65	1.97
PM_{10}[4]	Tier 1	0.40	3,940	0.42	45	24	1,576.03	1.46	0.79

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.36
Proposed Action Emissions Inventory - Questar Tier 2 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	45	24	10,244.23	9.49	5.12
NOx	Tier 2	4.50	3,940	0.42	45	24	17,730.39	16.42	8.87
SO_2	Tier 2	0.006	3,940	0.42	45	24	23.64	0.02	0.01
VOC	Tier 2	0.30	3,940	0.42	45	24	1,182.03	1.09	0.59
PM_{10}[4]	Tier 2	0.15	3,940	0.42	45	24	591.01	0.55	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.37
Proposed Action Emissions Inventory - Questar Tier 1 Rig - 2008-2009

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 1
Effective Dates: 2008-2009
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,940	0.42	40	24	29,769.55	31.01	14.88
NOx	Tier 1	6.90	3,940	0.42	40	24	24,165.87	25.17	12.08
SO_2	Tier 1	0.006	3,940	0.42	40	24	21.01	0.02	0.01
VOC	Tier 1	1.00	3,940	0.42	40	24	3,502.30	3.65	1.75
PM_{10}[4]	Tier 1	0.40	3,940	0.42	40	24	1,400.92	1.46	0.70

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.3.38
Proposed Action Emissions Inventory - Questar Tier 2 Rig - 2008-2015

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2008-2015
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	40	24	9,105.98	9.49	4.55
NOx	Tier 2	4.50	3,940	0.42	40	24	15,760.35	16.42	7.88
SO_2	Tier 2	0.006	3,940	0.42	40	24	21.01	0.02	0.01
VOC	Tier 2	0.30	3,940	0.42	40	24	1,050.69	1.09	0.53
PM_{10}[4]	Tier 2	0.15	3,940	0.42	40	24	525.34	0.55	0.26

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.39
Proposed Action Emissions Inventory - Questar Tier 2 Rig - 2015+

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2015+
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	35	24	7,967.73	9.49	3.98
NOx	Tier 2	4.50	3,940	0.42	35	24	13,790.30	16.42	6.90
SO_2	Tier 2	0.006	3,940	0.42	35	24	18.39	0.02	0.01
VOC	Tier 2	0.30	3,940	0.42	35	24	919.35	1.09	0.46
PM_{10}[4]	Tier 2	0.15	3,940	0.42	35	24	459.68	0.55	0.23

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.40
Proposed Action Emissions Inventory - Yates Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Yates - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	58	24	42,453.71	30.50	21.23
NOx	Tier 1	6.90	3,875	0.42	58	24	34,462.43	24.76	17.23
SO_2	Tier 1	0.13	3,875	0.42	58	24	649.29	0.47	0.32
VOC	Tier 1	1.00	3,875	0.42	58	24	4,994.55	3.59	2.50
PM_{10}[4]	Tier 1	0.40	3,875	0.42	58	24	1,997.82	1.44	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.41
Proposed Action Emissions Inventory - Yates Tier 1 Rig - 2008-2009

Project: Pinedale Anticline SEIS
Scenario: Yates - Tier 1
Effective Dates: 2008 - 2009
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	47	24	34,402.15	30.50	17.20
NOx	Tier 1	6.90	3,875	0.42	47	24	27,926.45	24.76	13.96
SO_2	Tier 1	0.13	3,875	0.42	47	24	526.15	0.47	0.26
VOC	Tier 1	1.00	3,875	0.42	47	24	4,047.31	3.59	2.02
PM_{10}[4]	Tier 1	0.40	3,875	0.42	47	24	1,618.92	1.44	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.42
Proposed Action Emissions Inventory - Anschutz Tier 0 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Anschutz - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	58	24	12,436.44	8.93	6.22
NOx	Tier 0	10.89	3,875	0.42	58	24	54,390.70	39.07	27.20
SO_2	Tier 0	0.13	3,875	0.42	58	24	649.29	0.47	0.32
VOC	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80
PM_{10}[4]	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.43
Proposed Action Emissions Inventory - Anschutz Tier 0 Rig - 2008-2010

Project: **Pinedale Anticline SEIS**
Scenario: **Anschutz - Tier 0**
Effective Dates: **2008-June 1, 2010**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	47	24	10,077.81	8.93	5.04
NOx	Tier 0	10.89	3,875	0.42	47	24	44,075.22	39.07	22.04
SO_2	Tier 0	0.13	3,875	0.42	47	24	526.15	0.47	0.26
VOC	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65
PM_{10}[4]	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.44
Proposed Action Emissions Inventory - Anschutz Tier 0 Rig - 2010-2015

Project: Pinedale Anticline SEIS
Scenario: Anschutz - Tier 0
Effective Dates: June 1, 2010 - 2015
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	47	24	10,077.81	8.93	5.04
NOx	Tier 0	10.89	3,875	0.42	47	24	44,075.22	39.07	22.04
SO_2	Tier 0	0.006	3,875	0.42	47	24	24.28	0.02	0.01
VOC	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65
PM_{10}[4]	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.45
Proposed Action Emissions Inventory - Anschutz Tier 0 Rig - 2015+

Project: Pinedale Anticline SEIS
Scenario: Anschutz - Tier 0
Effective Dates: 2015+
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	37	24	7,933.59	8.93	3.97
NOx	Tier 0	10.89	3,875	0.42	37	24	34,697.51	39.07	17.35
SO_2	Tier 0	0.006	3,875	0.42	37	24	19.12	0.02	0.01
VOC	Tier 0	0.32	3,875	0.42	37	24	1,019.58	1.15	0.51
PM_{10}[4]	Tier 0	0.32	3,875	0.42	37	24	1,019.58	1.15	0.51

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.46
Proposed Action Emissions Inventory - BP/Stone Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: BP/Stone - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	58	24	42,453.71	30.50	21.23
NOx	Tier 1	6.90	3,875	0.42	58	24	34,462.43	24.76	17.23
SO_2	Tier 1	0.006	3,875	0.42	58	24	29.97	0.02	0.01
VOC	Tier 1	1.00	3,875	0.42	58	24	4,994.55	3.59	2.50
PM_{10}[4]	Tier 1	0.40	3,875	0.42	58	24	1,997.82	1.44	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.47
Proposed Action Emissions Inventory - BP/Stone Tier 1 Rig - 2008-2009

Project: Pinedale Anticline SEIS
Scenario: BP/Stone - Tier 1
Effective Dates: 2008-2009
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	47	24	34,402.15	30.50	17.20
NOx	Tier 1	6.90	3,875	0.42	47	24	27,926.45	24.76	13.96
SO_2	Tier 1	0.006	3,875	0.42	47	24	24.28	0.02	0.01
VOC	Tier 1	1.00	3,875	0.42	47	24	4,047.31	3.59	2.02
PM_{10}[4]	Tier 1	0.40	3,875	0.42	47	24	1,618.92	1.44	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.3.48
Proposed Action Emissions Inventory - BP/Stone Tier 2 Rig - 2006-2007

Project: **Pinedale Anticline SEIS**
Scenario: **BP/Stone - Tier 2**
Effective Dates: **2006-2007**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,6] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,875	0.42	58	24	12,985.84	9.33	6.49
NOx	Tier 2	4.50	3,875	0.42	58	24	22,475.50	16.15	11.24
SO_2	Tier 2	0.006	3,875	0.42	58	24	29.97	0.02	0.01
VOC	Tier 2	0.30	3,875	0.42	58	24	1,498.37	1.08	0.75
PM_{10}[4]	Tier 2	0.15	3,875	0.42	58	24	749.18	0.54	0.37

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.
[6] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.49
Proposed Action Emissions Inventory - BP/Stone Tier 2 Rig - 2008-2009

Project: **Pinedale Anticline SEIS**
Scenario: **BP/Stone - Tier 2**
Effective Dates: **2008-2009**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,6] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,875	0.42	47	24	10,523.01	9.33	5.26
NOx	Tier 2	4.50	3,875	0.42	47	24	18,212.90	16.15	9.11
SO_2	Tier 2	0.006	3,875	0.42	47	24	24.28	0.02	0.01
VOC	Tier 2	0.30	3,875	0.42	47	24	1,214.19	1.08	0.61
PM_{10}[4]	Tier 2	0.15	3,875	0.42	47	24	607.10	0.54	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.
[6] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.50
Proposed Action Emissions Inventory - Drill Rig Boiler Emissions

		Project:	**Pinedale Anticline SEIS**
		Scenario:	**All**
		Activity:	**Drilling**
		Emissions:	**Rig Boilers**
		Date:	**11/30/2006**
Fuel Combustion Source:			
Unit Description		Rig Boilers	
Design Firing Rate (MMBTU/hr)	:	5	
Operating Parameters:			
Annual Operating hours		4380	
Operation %		Winter (Nov. - Apr.)	100
Actual Fuel Combustion for the Year for Unit:			
Volume of Natural Gas Combusted		21.90	MMSCF
Heat Content		1,000	Btu/scf
Potential Emission Data:			
		Emission Factor[1] (lb/MMscf)	(lb/hr)
Total PM		7.6000	0.03800
SO_2		0.6	0.00300
NO_x		100.0000	0.50000
CO		21.0000	0.10500
VOC		5.50000	0.02750

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.3.51
Proposed Action Emissions Inventory - Frac/Other Completion Engine Emissions

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Effective Dates: **All**
Emissions: **Diesel Combustion Emissions from Frac/Other Completion Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 2	2.60	9,200	0.40	3	24	1,518.76	21.09	0.76
NOx	Tier 2	4.50	9,200	0.40	3	24	2,628.63	36.51	1.31
SO_2	Tier 2	0.13	9,200	0.40	3	24	75.94	1.05	0.04
VOC	Tier 2	0.30	9,200	0.40	3	24	175.24	2.43	0.09
PM_{10}[4]	Tier 2	0.15	9,200	0.40	3	24	87.62	1.22	0.04

Note: Frac engines are EPA Tier 2 from data provided by operators and Frac contractor Halliburton.
[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of operators current data. Frac pump engines constitute the majority of the hp used.
[3] Load factor based on weighted average of full load and idle conditions during frac operations.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for frac engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.3.52
Proposed Action Emissions Inventory - Completion/Testing Traffic

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emissions[5] (lb/VMT)	$PM_{2.5}$ Emissions[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis/ transport/ water/ sand/ frac trucks[1]	Local	Chemical	44,000	35	5.1	2.4	180	10	1,800	85	1.70	0.26	459.61	70.47
	Resource	Water	44,000	20	5.1	2.4	180	1	180	50	1.70	0.26	153.20	23.49
Light Trucks/ Pickups	Local	Chemical	7,000	35	5.1	2.4	120	10	1,200	85	0.74	0.11	133.98	20.54
	Resource	Water	7,000	20	5.1	2.4	120	1	120	50	0.74	0.11	44.66	6.85
										Total Unpaved Road Traffic Emissions (lb/well)			791.46	121.36

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.3.53
Proposed Action Emissions Inventory - Completion/Testing Haul Truck Tailpipe

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Activity: **Completion/Testing**
Emissions: **Diesel Combustion Emissions from Heavy Equipment Tailpipes**
Date: **11/30/2006**

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration[3] (hours/day)	Emissions (lb/well)
CO	14.74	180	11	1980	10	18	64.34
NO_x	11.44	180	11	1980	10	18	49.94
SO_2[2]	0.16	180	11	1980	10	18	0.70
VOC	5.69	180	11	1980	10	18	24.84

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

[3] Haul Activity Duration for completion activities based on an average of 10 days per well and an average of 24 hr/day for 5 days and 12 hr/day for 5 days.

Table F.3.54
Proposed Action Emissions Inventory - Production Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs (RT)	RT Distance (miles)	VMT[4] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[6] (controlled) (lb/RT)
Light Truck	Local	Chemical	7,000	35	5.1	2.4	1	10	10	85	0.74	0.11	1.12	0.17
	Resource	Water	7,000	20	5.1	2.4	1	1	1	50	0.74	0.11	0.37	0.06
												Total Access and Unimproved Road Emissions (lb/RT)	1.49	0.23

[1] Avg. light truck wt.
[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[6] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
[7] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.3.55
Proposed Action Emissions Inventory - Liquids Gathering Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs (RT)	RT Distance (miles)	VMT[4] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[6] (controlled) (lb/RT)
Tanker	Local	Chemical	54,000	35	5.1	2.4	1	10	10	85	1.87	0.29	2.80	0.43
	Resource	Water	54,000	20	5.1	2.4	1	1	1	50	1.87	0.29	0.93	0.14
												Total Access and Unimproved Road Emissions (lb/RT)	3.73	0.57

[1] Haul trucks weight range is 28,000-80,000 lbs. Average weight of 54,000 lbs used for calculations.
[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[6] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
[7] Calculated as lb/VMT x VMT/RT x control efficiency.

Table F.3.56
Proposed Action Emissions Inventory - Tanker Traffic Tailpipe - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mi)	RTs (RTs/well/day)	Round Trip Distance (mi/RT)	Single Well Daily VMT (mi/RT/day)	Daily Emissions Single Well (lb/RT)
CO	14.74	1	11	11.00	0.36
NO_x	11.44	1	11	11.00	0.28
SO_2[2]	0.16	1	11	11.00	0.00
VOC	5.69	1	11	11.00	0.14

[1] AP-42 (EPA 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

Table F.3.57
Proposed Action Emissions Inventory - Production Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production Wind Erosion

Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor : 0.3733 lb/hr/100m^2 Based on AP-42 Chapter 13.2.5 (EPA 2004), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.

Control Efficiency: 50 %

Disturbed Area: 1 acres 4,047.00 m^2

PM Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	PM_{10} Emissions (lb/hr/acre)	$PM_{2.5}$ Emissions (lb/hr/acre)	PM_{10} Emissions[1] (tons/acre/yr)	$PM_{2.5}$ Emissions[1] (tons/acre/yr)
Production:	0.3733	0.1493	40.47	50	7.55	3.02	0.18	0.07

[1] TPY numbers based on lb/hr/acre and 47 hours per year that the wind speed in the Jonah Field met data overcome the threshold friction velocity.

Table F.3.58
Proposed Action Emissions Inventory - Separator/Indirect Line Heaters

Project: **Pinedlae Anticline SEIS**
Scenario: **Average per Well**
Activity: **Production**
Emissions: **Separator/Line Heaters**
Date: **11/30/2006**

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.75	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combuste	1.48	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1]	(lb/hr)		(tpy)
	(lb/MMscf)	Winter	Summer	Total
Total PM	7.6000	0.00200	0.00057	0.0056
SO_2	0.6	0.00016	0.00005	0.0004
NO_x	100.0000	0.02625	0.00750	0.0739
CO	21.0000	0.00551	0.00158	0.0155
VOC	5.50000	0.00144	0.00041	0.0041

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.3.59
Proposed Action Emissions Inventory - Dehy Reboiler Heaters

Project: Pinedlae Anticline SEIS
Scenario: Average per Well
Activity: Production
Emissions: Dehy Reboiler Heater
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.085	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combuste	0.17	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1] (lb/MMscf)	(lb/hr) Winter	(lb/hr) Summer	(tpy) Total
Total PM	7.6000	0.00023	0.00006	0.0006
SO_2	0.6	0.00002	0.00001	0.0001
NO_x	100.0000	0.00298	0.00085	0.0084
CO	21.0000	0.00062	0.00018	0.0018
VOC	5.50000	0.00016	0.00005	0.0005

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.3.60
Proposed Action Emissions Inventory - Dehydrator Flashing

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: TEG Dehydrator Flashing
Date: 11/30/2006

	Uncontrolled		Controlled[1]	
Pollutant	(tpy)	(lb/hr)	(tpy)	(lb/hr)
VOC	12.55	2.87	0.63	0.14
HAP	8.52	1.95	0.43	0.10
Benzene	1.42	0.32	0.07	0.02
Toluene	3.83	0.88	0.19	0.04
Ethylbenzene	0.18	0.04	0.01	2.10E-03
Xylene	2.97	0.68	0.15	0.03
n-Hexane	0.11	0.02	0.01	1.20E-03

[1] Data based on GRI-GLYCalc V. 4.0, 4 MMSCFD, 0.32 gpm glycol flow rate, average representative gas analysis and 95% destruction efficiency for controlled.

Table F.3.61
Proposed Action Emissions Inventory - Average Well Production Decline Factors

Year	Factor
0	1
1	0.33426
2	0.23752
3	0.18898
4	0.15838
5	0.13689
6	0.12165
7	0.10828
8	0.09692
9	0.08708
10	0.07884
11	0.07083
12	0.06407
13	0.05803
14	0.05261
15	0.04772
16	0.04331
17	0.03932
18	0.03571
19	0.03243
20	0.02946
21	0.02675
22	0.02428
23	0.02376
24	0.01998
25	0.01811

Note: Decline factors averaged from data provided by all Shell, Ultra and Questar.

Table F.3.62
Proposed Action Emissions Inventory - Fugitive HAPs and VOCs - Per Pad

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production
Emissions: Fugitive VOC/HAP Emissions
Date: 11/30/2006

Gas Analysis Weight Fraction

VOC	0.13930
Benzene	0.00052
Toluene	0.00091
Ethlybenzene	0.00003
Xylene	0.00036
n-hexane	0.00131

Source	Quantity	Emission Factor[1] (lb/hr/component)	Non-methane Hydrocarbons[2] (lb/hr)	Non-methane Hydrocarbons (tpy)	Benzene[2] (lb/hr)	Benzene (tpy)	Toluene[2] (lb/hr)	Toluene (tpy)	Ethlybenzene[2] (lb/hr)	Ethlybenzene (tpy)	Xylene[2] (lb/hr)	Xylene (tpy)	n-Hexane[2] (lb/hr)	n-Hexane (tpy)
Valves	20	0.00992	0.0276	0.121	0.00010	0.00045	0.00018	0.00079	0.000006	0.000028	0.00007	0.00031	0.00026	0.0011
Flanges	30	0.00086	0.0036	0.016	0.00001	0.00006	0.00002	0.00010	0.000001	0.000004	0.00001	0.00004	0.00003	0.0001
Connections	275	0.00044	0.0169	0.074	0.00006	0.00028	0.00011	0.00048	0.000004	0.000017	0.00004	0.00019	0.00016	0.0007
Pump seals	2	0.00529	0.0015	0.006	0.00001	0.00002	0.00001	0.00004	0.000000	0.000002	0.00000	0.00002	0.00001	0.0001
Open ended lines	3	0.00441	0.0018	0.008	0.00001	0.00003	0.00001	0.00005	0.000000	0.000002	0.00000	0.00002	0.00002	0.0001
		Total Emissions/Pad	0.0514	0.225	0.00019	0.00084	0.00034	0.00147	0.000012	0.000052	0.00013	0.00058	0.00048	0.0021

[1] Taken from the WDEQ (2001) "Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance".
[2] Calculated as weight fraction * emissions factor * quantity of source.

Table F.3.63
Proposed Action Emissions Inventory - Condensate Storage Emissions - Per Well

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: Condensate Storage Tanks
Date: 11/30/2006

Average Controlled Condensate Storage Emissions

VOC and HAP Emissions		
VOC	1.1856	tpy/well
HAP	0.0594	tpy/well
Benzene	0.0029	tpy/well
Toluene	0.0001	tpy/well
Ethylbenzene	0.0017	tpy/well
Xylene	0.0022	tpy/well
n-Hexane	0.0526	tpy/well
Based on 30 bbl per day		

NO_x and CO Emissions from Smokeless Flare Combustion		
NO_x Emission Factor	0.068	lb/MMBTU
CO Emission Factor	0.37	lb/MMBTU
Heat Content	1,000	Btu/scf
Condensate Production	13.00	bbl/day
Gas to Oil Ratio	957.37	scf/bbl
Gas Production	12,445.81	SCFD
Combustion Emissions from Storage Tanks		
NO_x	0.15	tpy/facility
CO	0.84	tpy/facility

Average Uncontrolled Storage Tank Emissions

VOC	16.1000	tpy/well
HAP	0.7880	tpy/well
Benzene	0.0372	tpy/well
Toluene	0.0021	tpy/well
Ethylbenzene	0.0223	tpy/well
Xylene	0.0283	tpy/well
n-Hexane	0.6981	tpy/well
Based on 8 bbl per day		

Table F.3.64
Proposed Action Emissions Inventory - Pinedale Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: Questar - Pinedale C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Pinedale Compressor Station					
2006 Projected Increase (hp)	7,440	(I.C. Engines/Recip.)				
2009 Projected Increase (hp)	31,000	(Turbines/Centrifugal)				
2015 Projected Increase (hp)	15,500	(Turbines/Centrifugal)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		
Potential Fuel Combustion for the Units:						
Assumes gas consumed at rate of	6601	Btu/hp-hr				
Heat Content	1000	Btu/scf				

Emission Data:	**2006-2008 Increase from Baseline**		**2009-2014 Increase from Baseline**		**2015 + Increase from Baseline**		Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy					
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	0.0	0.0	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	11.5	50.3	25.2	110.2	32.0	140.1	BACT	0.7	Provided by Questar	0.2	g/hp-hr
CO	4.1	18.0	17.8	77.8	24.6	107.8	Permitted Emissions[2]	0.250	Provided by Questar	0.200	g/hp-hr
VOC	7.5	33.0	8.4	36.6	8.8	38.4	Permitted Emissions[2]	0.460	Provided by Questar	0.012	g/hp-hr
Formaldehyde	0.7	3.2	1.7	7.4	2.2	9.5	Permitted Emissions[2]	0.045	Provided by Questar	0.014	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.
[2] Emission rates taken from Pindale C.S. WDEQ Permit # MD-1267.
[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.3.65
Proposed Action Emissions Inventory - Paradise Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Paradise C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Paradise Compressor Station					
2011 Projected Increase (hp)	59,000	(I.C. Engines/Recip.)				
2011 Projected Increase (hp)	125,000	(Turbines/Centrifugal)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline** lb/hr	tpy	Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
PM_{10}	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	201.3	881.6	BACT	0.7	Permitted Emissions[2]	0.4	g/hp-hr
CO	176.8	774.4	Permitted Emissions[2]	0.300	Permitted Emissions[2]	0.500	g/hp-hr
VOC	172.5	755.6	Permitted Emissions[2]	0.500	Permitted Emissions[2]	0.390	g/hp-hr
Formaldehyde	10.7	46.8	Permitted Emissions[2]	0.080	Permitted Emissions[2]	0.001	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.

[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.3.66
Proposed Action Emissions Inventory - Falcon Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Falcon C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Falcon Compressor Station					
2011 Projected Increase (hp)	7,366	(I.C. Engines/Recip.)				
2011 Projected Increase (hp)	30,000	(Turbines/Centrifugal)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline** lb/hr	tpy	Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
PM_{10}	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	37.8	165.7	BACT	0.7	Permitted Emissions[2]	0.4	g/hp-hr
CO	37.9	166.2	Permitted Emissions[2]	0.300	Permitted Emissions[2]	0.500	g/hp-hr
VOC	33.9	148.5	Permitted Emissions[2]	0.500	Permitted Emissions[2]	0.390	g/hp-hr
Formaldehyde	1.4	6.0	Permitted Emissions[2]	0.080	Permitted Emissions[2]	0.001	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.
[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.
[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.3.67
Proposed Action Emissions Inventory - Bird Canyon Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Bird Canyon C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Bird Canyon Compressor Station					
2011 Projected Increase (hp)	14,672	(I.C. Engines/Recip.)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline** lb/hr	tpy	Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Units
PM_{10}	0.0	0.0	AP-42[1]	0.00008	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
NO_x	22.6	99.2	BACT	0.7	g/hp-hr
CO	9.7	42.5	Permitted Emissions[2]	0.300	g/hp-hr
VOC	16.2	70.8	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	2.6	11.3	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.

Table F.3.68
Proposed Action Emissions Inventory - Compression Emissions by Year

	2005 (Baseline Year)		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015+	
Compression:	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
NOx	96.3	421.9	107.8	472.2	107.8	472.2	107.8	472.2	121.5	532.1	121.5	532.1	383.2	1678.5	383.2	1678.5	383.2	1678.5	383.2	1678.5	390.1	1708.5
CO	36.0	157.7	40.1	175.7	40.1	175.7	40.1	175.7	53.8	235.5	53.8	235.5	278.2	1218.7	278.2	1218.7	278.2	1218.7	278.2	1218.7	285.1	1248.6
VOC	73.2	320.5	80.7	353.5	80.7	353.5	80.7	353.5	81.5	357.1	81.5	357.1	304.1	1332.1	304.1	1332.1	304.1	1332.1	304.1	1332.1	304.5	1333.9
PM10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Formaldehyde	9.5	41.7	10.3	44.9	10.3	44.9	10.3	44.9	11.2	49.1	11.2	49.1	25.8	113.2	25.8	113.2	25.8	113.2	25.8	113.2	26.3	115.3

Paradise 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1187.
Falcon 2005 based on (6) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1186.
Pinedale 2005 based on (2) 1,860 hp and (2) 3,720 hp compressors as provided by Questar and emissions from MD-1267.

Table F.3.69
Proposed Action Emissions Inventory - Granger Gas Plant Expansion

	2005 Potential Emissions		2007 Projected Expansion		2007+ Projected Totals	
Pollutant:	**(lb/hr)**	**(tpy)[1]**	**(lb/hr)**	**(tpy)[2]**	**(lb/hr)**	**(tpy)**
NOx:	68.88	301.7	68.88	301.7	137.8	603.4
CO:	73.70	322.8	73.70	322.8	147.4	645.6
VOCs:	32.01	140.2	32.01	140.2	64.0	280.4
SO2:	0.00	0.0	0.00	0.0	0.0	0.0
PM10:	0.00	0.0	0.00	0.0	0.0	0.0
Benzene:	0.07	0.3	0.07	0.3	0.1	0.6
Toluene:	0.02	0.1	0.02	0.1	0.0	0.2
Ethylbenzene:	0.00	0.0	0.00	0.0	0.0	0.0
Xylene:	0.02	0.1	0.02	0.1	0.0	0.2
n-Hexane:	0.07	0.3	0.07	0.3	0.1	0.6
Formaldehyde:	7.65	33.5	7.65	33.5	15.3	67.0
Total HAPs:	7.83	34.3	7.83	34.3	15.7	68.6

[1] Emissions taken from WDEQ-AQD permit # MD-644A
[2] Plant size to double in 2007, therefore emissions assumed to double over 2005 potentials.

Table F.3.70
Proposed Action Emissions Inventory - Opal Gas Plant Expansion

	2005 Potential Emissions		2011 Projected Expansion		2011+ Projected Totals	
Pollutant:	**(lb/hr)**	**(tpy)[1]**	**(lb/hr)**	**(tpy)[2]**	**(lb/hr)**	**(tpy)**
NOx:	127.76	559.6	8.56	37.50	136.32	597.1
CO:	117.33	513.9	14.27	62.50	131.60	576.4
VOCs:	54.98	240.8	26.78	117.30	81.76	358.1
SO2:	0.00	0.0	0.00	0.00	0.00	0.0
PM10:	0.00	0.0	0.00	0.00	0.00	0.0
Benzene:	2.58	11.3	1.23	5.40	3.82	16.7
Toluene:	0.75	3.3	1.28	5.60	2.03	8.9
Ethylbenzene:	0.23	1.0	0.00	0.00	0.23	1.0
Xylene:	0.37	1.6	0.53	2.30	0.89	3.9
n-Hexane:	1.94	8.5	0.59	2.60	2.53	11.1
Formaldehyde:	0.00	0.0	0.11	0.50	0.11	0.5
Total HAPs:	5.87	25.7	3.74	16.40	9.61	42.1

[1] Emissions taken from WDEQ-AQD permit # MD-644A
[2] Emissions based on Pioneer Gas Plant Expansion WDEQ-AQD permit # CT-4302.

Table F.3.71
Proposed Action Emissions Inventory - 2006 Drill Rig Schedule

	Questar			Ultra			Shell			Yates			Anschutz			BP/Stone			Total		
Year	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs[1]	Rig Moves	Wells	Rigs[2]	Rig Moves	Wells	Rigs	Rig Moves
2006	50	7.5	8	61	10.4	20	60	8	14	8	1	2	17	4/3	4	9	1/2	2	205	31.9	50

[1]Anschutz will have 4 rigs (May through November) and 3 rigs (November through May).

[2]BP/Stone will have 1 rig (for quarters 1 through 3) and 2 rigs for the fourth quarter.

Table F.3.72
Proposed Action Emissions Inventory - 2007-2025 Drill Rig Schedule

	Questar			Ultra			Shell			Yates			Anschutz			BP/Stone			Total		
Year	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs[1]	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves
2007	90	8.08	11	69	10.4	20	72	9	14	8	1	2	17	4/3	4	12	2	2	268	34.48	53
2008	90	14	15	95	14.3	21	80	10	16	8	1	2	16	4/3	4	10	2	2	299	45.3	60
2009	90	15	15	106	16	21	80	10	16	4	1	2	15	4/3	4	10	2	2	305	48	60
2010	90	15	15	107	16	21	80	10	16				14	4/3	4				291	45	56
2011	90	15	15	107	16	21	80	10	12				13	4/3	4				290	45	52
2012	90	15	15	107	16	8	80	10	12				12	4/3	4				289	45	39
2013	90	15	15	107	16	8	80	10	12				11	4/3	4				288	45	39
2014	90	15	15	107	16	8	80	10	12				10	4/3	4				287	45	39
2015	90	15	15	107	16	8	80	10	12				10	4/3	4				287	45	39
2016	90	15	15	107	16	8	80	10	12				9	4/3	4				286	45	39
2017	87	14	14	107	16	8	80	10	12				8	4/3	4				282	44	38
2018	84	13	13	107	16	8	80	10	12				8	4/3	4				279	43	37
2019	84	13	13	107	16	8	15	2	2				7	4/3	4				213	35	27
2020	80	12	12	107	16	8													187	28	20
2021	70	10	10	107	16	8													177	26	18
2022	36	5	5	107	16	8													143	21	13
2023	5	3	3	107	16	8													112	19	11
2024				107	16	8													107	16	8
2025				9	3	2													9	3	2
Total	**1,346**			**1,884**			**967**			**20**			**150**			**32**			**4,399**		

[1]Anschutz will have 4 rigs (May through November) and 3 rigs (November through May).

Table F.3.73
Proposed Action Emissions Inventory - Rig Counts and Tier Levels by Operator and Year

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Questar:	Tier 0:	2.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A
	Tier 1:	3.92	0.75	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A
	Tier 2:	1.25	7.33	10	10	15	15	15	15	15	15	15	14	13	13	12	10	5	3	N/A	N/A
	Total:	7.5	8.08	14	15	15	15	15	15	15	15	15	14	13	13	12	10	5	3	N/A	N/A
Ultra:	Tier 0:	6.4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tier 1:	4	3.8	4.8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tier 2:	0	4.6	9.5	11	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	3
	Total:	10.4	10.4	14.3	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	3
Shell:	Tier 0:	2.5	1	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 1:	3.5	4	3	3	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 2:	2	4	7	7	10	10	10	10	10	10	10	10	10	2	N/A	N/A	N/A	N/A	N/A	N/A
	Total:	8	9	10	10	10	10	10	10	10	10	10	10	10	2	N/A	N/A	N/A	N/A	N/A	N/A
Yates:	Tier 0:	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 1:	1	1	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 2:	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total:	1	1	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anschutz:	Tier 0:	4	4	4	4	4	4	4	4	4	4	4	4	4	4	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 2:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	Total:	4	4	4	4	4	4	4	4	4	4	4	4	4	4	N/A	N/A	N/A	N/A	N/A	N/A
BP/Stone:	Tier 0:	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 1:	1	1	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tier 2:	0	1	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total:	1	2	2	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Totals based on rig schedules submitted by operators.

Table F.3.74
Proposed Action Emissions Inventory - Total Drilling Rig Emissions by Year

		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Questar:	CO	154.58	554.84	92.79	553.98	218.89	678.40	249.90	719.72	142.28	409.77	142.28	409.77	142.28	409.77	142.28	409.77	142.28	409.77	142.28	358.55
	NO_x	211.77	767.61	139.22	835.69	264.86	818.49	290.03	835.30	246.26	709.22	246.26	709.22	246.26	709.22	246.26	709.22	246.26	709.22	246.26	620.56
	SO_2	0.16	0.59	0.18	1.06	0.31	0.95	0.33	0.95	0.33	0.95	0.33	0.95	0.33	0.95	0.33	0.95	0.33	0.95	0.33	0.83
	VOC	18.39	66.04	10.76	64.22	25.54	79.15	29.19	84.06	16.42	47.28	16.42	47.28	16.42	47.28	16.42	47.28	16.42	47.28	16.42	41.37
	PM_{10}	9.12	32.94	5.11	30.54	11.31	35.02	12.77	36.77	8.21	23.64	8.21	23.64	8.21	23.64	8.21	23.64	8.21	23.64	8.21	20.69
Ultra:	CO	168.31	591.87	165.96	724.01	220.76	982.56	239.64	691.82	140.21	618.85	140.21	618.85	140.21	618.85	140.21	618.85	140.21	618.85	140.21	506.34
	NO_x	327.93	1525.71	231.55	1008.96	255.72	1127.15	283.12	1093.12	242.67	1071.09	242.67	1071.09	242.67	1071.09	242.67	1071.09	242.67	1071.09	242.67	876.35
	SO_2	4.56	19.89	4.56	19.95	6.27	27.47	7.01	30.65	7.01	13.84	0.32	1.43	0.32	1.43	0.32	1.43	0.32	1.43	0.32	1.17
	VOC	20.38	72.82	19.62	85.55	25.78	114.78	27.97	80.08	16.18	71.41	16.18	71.41	16.18	71.41	16.18	71.41	16.18	71.41	16.18	58.42
	PM_{10}	12.30	51.76	9.61	41.84	11.27	50.05	12.30	38.71	8.09	35.70	8.09	35.70	8.09	35.70	8.09	35.70	8.09	35.70	8.09	29.21
Shell:	CO	154.03	620.78	175.41	757.76	163.47	627.74	163.47	627.74	97.26	373.48	97.26	373.48	97.26	373.48	97.26	373.48	97.26	373.48	97.26	280.11
	NO_x	225.85	916.72	211.32	912.90	195.27	749.84	195.27	749.84	168.34	646.41	168.34	646.41	168.34	646.41	168.34	646.41	168.34	646.41	168.34	484.81
	SO_2	3.89	15.76	4.38	18.91	4.86	18.67	4.86	18.67	4.86	8.21	0.22	0.86	0.22	0.86	0.22	0.86	0.22	0.86	0.22	0.65
	VOC	18.33	73.89	20.65	89.21	19.08	73.26	19.08	73.26	11.22	43.09	11.22	43.09	11.22	43.09	11.22	43.09	11.22	43.09	11.22	32.32
	PM_{10}	9.35	37.84	9.43	40.72	8.42	32.32	8.42	32.32	5.61	21.55	5.61	21.55	5.61	21.55	5.61	21.55	5.61	21.55	5.61	16.16
Yates:	CO	30.50	169.81	30.50	169.81	30.50	137.61	30.50	68.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	24.76	137.85	24.76	137.85	24.76	111.71	24.76	55.85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.47	2.60	0.47	2.60	0.47	2.10	0.47	1.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	3.59	19.98	3.59	19.98	3.59	16.19	3.59	8.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	1.44	7.99	1.44	7.99	1.44	6.48	1.44	3.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anschutz:	CO	35.74	105.71	35.74	105.71	35.74	80.62	35.74	75.58	35.74	70.54	35.74	65.51	35.74	60.47	35.74	55.43	35.74	50.39	35.74	39.67
	NO_x	156.30	462.32	156.30	462.32	156.30	352.60	156.30	330.56	156.30	308.53	156.30	286.49	156.30	264.45	156.30	242.41	156.30	220.38	156.30	173.49
	SO_2	1.87	5.52	1.87	5.52	1.87	4.21	1.87	3.95	0.09	0.17	0.09	0.16	0.09	0.15	0.09	0.13	0.09	0.12	0.09	0.10
	VOC	4.59	13.59	4.59	13.59	4.59	10.36	4.59	9.71	4.59	9.07	4.59	8.42	4.59	7.77	4.59	7.12	4.59	6.48	4.59	5.10
	PM_{10}	4.59	13.59	4.59	13.59	4.59	10.36	4.59	9.71	4.59	9.07	4.59	8.42	4.59	7.77	4.59	7.12	4.59	6.48	4.59	5.10
BP/Stone:	CO	30.50	191.04	39.83	166.32	39.83	112.31	39.83	112.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	24.76	155.08	40.90	170.81	40.90	115.35	40.90	115.35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.02	0.13	0.04	0.18	0.04	0.12	0.04	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	3.59	22.48	4.66	19.48	4.66	13.15	4.66	13.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	1.44	8.99	1.97	8.24	1.97	5.57	1.97	5.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total:	**CO**	573.65	2234.06	540.22	2477.58	709.19	2619.24	759.08	2295.98	415.49	1472.65	415.49	1467.61	415.49	1462.57	415.49	1457.53	415.49	1452.50	415.49	1184.66
	NO_x	971.36	3965.28	804.04	3528.54	937.80	3275.13	990.38	3180.02	813.56	2735.25	813.56	2713.21	813.56	2691.17	813.56	2669.14	813.56	2647.10	813.56	2155.21
	SO_2	10.97	44.48	11.49	48.22	13.81	53.53	14.58	55.39	12.29	23.17	0.96	3.39	0.96	3.38	0.96	3.37	0.96	3.36	0.96	2.74
	VOC	68.87	268.79	63.87	292.02	83.24	306.90	89.08	268.36	48.41	170.85	48.41	170.20	48.41	169.55	48.41	168.90	48.41	168.26	48.41	137.21
	PM_{10}	38.24	153.10	32.14	142.92	39.00	139.80	41.49	126.32	26.50	89.96	26.50	89.31	26.50	88.66	26.50	88.01	26.50	87.37	26.50	71.16

[1] lb/hr based on worst case # of drill rigs operating at once from Tables B.X.X and B.X.X.

[2] tpy numbers based on makeup of drill fleet and # of wells proposed to be drilled in given year.

Table F.3.74
Proposed Action Emissions Inventory - Total Drilling Rig Emissions by Year

		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Questar:	CO	142.28	358.55	132.80	346.60	123.31	334.64	123.31	334.64	113.82	318.71	94.85	278.87	47.43	143.42	28.46	19.92	N/A	N/A	N/A	N/A
	NO_x	246.26	620.56	229.84	599.88	213.42	579.19	213.42	579.19	197.00	551.61	164.17	482.66	82.09	248.23	49.25	34.48	N/A	N/A	N/A	N/A
	SO_2	0.33	0.83	0.31	0.80	0.28	0.77	0.28	0.77	0.26	0.74	0.22	0.64	0.11	0.33	0.07	0.05	N/A	N/A	N/A	N/A
	VOC	16.42	41.37	15.32	39.99	14.23	38.61	14.23	38.61	13.13	36.77	10.94	32.18	5.47	16.55	3.28	2.30	N/A	N/A	N/A	N/A
	PM_{10}	8.21	20.69	7.66	20.00	7.11	19.31	7.11	19.31	6.57	18.39	5.47	16.09	2.74	8.27	1.64	1.15	N/A	N/A	N/A	N/A
Ultra:	CO	140.21	506.34	140.21	506.34	140.21	506.34	140.21	506.34	140.21	506.34	140.21	506.34	140.21	506.34	140.21	506.34	140.21	496.87	26.29	42.59
	NO_x	242.67	876.35	242.67	876.35	242.67	876.35	242.67	876.35	242.67	876.35	242.67	876.35	242.67	876.35	242.67	876.35	242.67	859.97	45.50	73.71
	SO_2	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.17	0.32	1.15	0.06	0.10
	VOC	16.18	58.42	16.18	58.42	16.18	58.42	16.18	58.42	16.18	58.42	16.18	58.42	16.18	58.42	16.18	58.42	16.18	57.33	3.03	4.91
	PM_{10}	8.09	29.21	8.09	29.21	8.09	29.21	8.09	29.21	8.09	29.21	8.09	29.21	8.09	29.21	8.09	29.21	8.09	28.67	1.52	2.46
Shell:	CO	97.26	280.11	97.26	280.11	97.26	280.11	19.45	52.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	168.34	484.81	168.34	484.81	168.34	484.81	33.67	90.90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.22	0.65	0.22	0.65	0.22	0.65	0.04	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	11.22	32.32	11.22	32.32	11.22	32.32	2.24	6.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	5.61	16.16	5.61	16.16	5.61	16.16	1.12	3.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Yates:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anschutz:	CO	35.74	35.70	35.74	31.73	35.74	31.73	35.74	27.77	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	156.30	156.14	156.30	138.79	156.30	138.79	156.30	121.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.09	0.09	0.09	0.08	0.09	0.08	0.09	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	4.59	4.59	4.59	4.08	4.59	4.08	4.59	3.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	4.59	4.59	4.59	4.08	4.59	4.08	4.59	3.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BP/Stone:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total:	**CO**	415.49	1180.70	406.00	1164.78	396.52	1152.83	318.71	921.27	254.04	825.04	235.06	785.21	187.64	649.75	168.67	526.25	140.21	496.87	26.29	42.59
	NO_x	813.56	2137.86	797.14	2099.83	780.73	2079.14	646.06	1667.89	439.68	1427.96	406.84	1359.01	324.76	1124.57	291.92	910.83	242.67	859.97	45.50	73.71
	SO_2	0.96	2.73	0.94	2.69	0.92	2.66	0.74	2.13	0.59	1.90	0.54	1.81	0.43	1.50	0.39	1.21	0.32	1.15	0.06	0.10
	VOC	48.41	136.70	47.32	134.81	46.22	133.44	37.24	106.66	29.31	95.20	27.12	90.60	21.65	74.97	19.46	60.72	16.18	57.33	3.03	4.91
	PM_{10}	26.50	70.65	25.95	69.45	25.41	68.76	20.92	55.12	14.66	47.60	13.56	45.30	10.83	37.49	9.73	30.36	8.09	28.67	1.52	2.46

Table F.3.75
Proposed Action Emissions Inventory - Total Drilling Rig Boiler Emissions by Year

		2006		2007		2008		2009		2010		2011		2012		2013		2014	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Questar:	CO	0.79	1.72	0.85	1.86	1.47	3.22	1.58	3.45	1.58	3.45	1.58	3.45	1.58	3.45	1.58	3.45	1.58	3.45
	NO_x	3.75	8.21	4.04	8.85	7.00	15.33	7.50	16.43	7.50	16.43	7.50	16.43	7.50	16.43	7.50	16.43	7.50	16.43
	SO_2	0.02	0.05	0.02	0.05	0.04	0.09	0.05	0.10	0.05	0.10	0.05	0.10	0.05	0.10	0.05	0.10	0.05	0.10
	VOC	0.21	0.45	0.22	0.49	0.39	0.84	0.41	0.90	0.41	0.90	0.41	0.90	0.41	0.90	0.41	0.90	0.41	0.90
	PM_{10}	0.29	0.62	0.31	0.67	0.53	1.17	0.57	1.25	0.57	1.25	0.57	1.25	0.57	1.25	0.57	1.25	0.57	1.25
Ultra:	CO	1.09	2.39	1.09	2.39	1.50	3.29	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68
	NO_x	5.20	11.39	5.20	11.39	7.15	15.66	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52
	SO_2	0.03	0.07	0.03	0.07	0.04	0.09	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11
	VOC	0.29	0.63	0.29	0.63	0.39	0.86	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96
	PM_{10}	0.40	0.87	0.40	0.87	0.54	1.19	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33
Shell:	CO	0.84	1.84	0.95	2.07	1.05	2.30	1.05	2.30	1.05	2.30	1.05	2.30	1.05	2.30	1.05	2.30	1.05	2.30
	NO_x	4.00	8.76	4.50	9.86	5.00	10.95	5.00	10.95	5.00	10.95	5.00	10.95	5.00	10.95	5.00	10.95	5.00	10.95
	SO_2	0.02	0.05	0.03	0.06	0.03	0.07	0.03	0.07	0.03	0.07	0.03	0.07	0.03	0.07	0.03	0.07	0.03	0.07
	VOC	0.22	0.48	0.25	0.54	0.28	0.60	0.28	0.60	0.28	0.60	0.28	0.60	0.28	0.60	0.28	0.60	0.28	0.60
	PM_{10}	0.30	0.67	0.34	0.75	0.38	0.83	0.38	0.83	0.38	0.83	0.38	0.83	0.38	0.83	0.38	0.83	0.38	0.83
Yates:	CO	0.11	0.23	0.11	0.23	0.11	0.23	0.11	0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	0.50	1.10	0.50	1.10	0.50	1.10	0.50	1.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.03	0.06	0.03	0.06	0.03	0.06	0.03	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	0.04	0.08	0.04	0.08	0.04	0.08	0.04	0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anschutz:	CO	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92
	NO_x	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38
	SO_2	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03
	VOC	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24
	PM_{10}	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33
BP/Stone:	CO	0.11	0.23	0.21	0.46	0.21	0.46	0.21	0.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	0.50	1.10	1.00	2.19	1.00	2.19	1.00	2.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.03	0.06	0.06	0.12	0.06	0.12	0.06	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	0.04	0.08	0.08	0.17	0.08	0.17	0.08	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total:	**CO**	3.35	7.34	3.62	7.93	4.76	10.42	5.04	11.04	4.73	10.35	4.73	10.35	4.73	10.35	4.73	10.35	4.73	10.35
	NO_x	15.95	34.93	17.24	37.76	22.65	49.60	24.00	52.56	22.50	49.28	22.50	49.28	22.50	49.28	22.50	49.28	22.50	49.28
	SO_2	0.10	0.21	0.10	0.23	0.14	0.30	0.14	0.32	0.14	0.30	0.14	0.30	0.14	0.30	0.14	0.30	0.14	0.30
	VOC	0.88	1.92	0.95	2.08	1.25	2.73	1.32	2.89	1.24	2.71	1.24	2.71	1.24	2.71	1.24	2.71	1.24	2.71
	PM_{10}	1.21	2.65	1.31	2.87	1.72	3.77	1.82	3.99	1.71	3.74	1.71	3.74	1.71	3.74	1.71	3.74	1.71	3.74

[1] lb/hr based on worst case # of drill rigs operating at once from Tables B.X.X and B.X.X.

[2] tpy numbers based on boilers running throughout the winter season (Nov.-April).

Table F.3.75
Proposed Action Emissions Inventory - Total Drilling Rig Boiler Emissions by Year

		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025	
	(lb/l	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Questar:	CO	1.58	3.45	1.47	3.22	1.37	2.99	1.37	2.99	1.26	2.76	1.05	2.30	0.53	1.15	0.32	0.69	N/A	N/A	N/A	N/A
	NO_x	7.50	16.43	7.00	15.33	6.50	14.24	6.50	14.24	6.00	13.14	5.00	10.95	2.50	5.48	1.50	3.29	N/A	N/A	N/A	N/A
	SO_2	0.05	0.10	0.04	0.09	0.04	0.09	0.04	0.09	0.04	0.08	0.03	0.07	0.02	0.03	0.01	0.02	N/A	N/A	N/A	N/A
	VOC	0.41	0.90	0.39	0.84	0.36	0.78	0.36	0.78	0.33	0.72	0.28	0.60	0.14	0.30	0.08	0.18	N/A	N/A	N/A	N/A
	PM_{10}	0.57	1.25	0.53	1.17	0.49	1.08	0.49	1.08	0.46	1.00	0.38	0.83	0.19	0.42	0.11	0.25	N/A	N/A	N/A	N/A
Ultra:	CO	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	1.68	3.68	0.32	0.69
	NO_x	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	8.00	17.52	1.50	3.29
	SO_2	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.05	0.11	0.01	0.02
	VOC	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.44	0.96	0.08	0.18
	PM_{10}	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.61	1.33	0.11	0.25
Shell:	CO	1.05	2.30	1.05	2.30	1.05	2.30	0.21	0.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	5.00	10.95	5.00	10.95	5.00	10.95	1.00	2.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.03	0.07	0.03	0.07	0.03	0.07	0.01	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.28	0.60	0.28	0.60	0.28	0.60	0.06	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	0.38	0.83	0.38	0.83	0.38	0.83	0.08	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Yates:	CO /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2 /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10} /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anschutz:	CO	0.42	0.92	0.42	0.92	0.42	0.92	0.42	0.92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	2.00	4.38	2.00	4.38	2.00	4.38	2.00	4.38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.11	0.24	0.11	0.24	0.11	0.24	0.11	0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BP/Stone:	CO /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2 /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10} /	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total:	**CO**	4.73	10.35	4.62	10.12	4.52	9.89	3.68	8.05	2.94	6.44	2.73	5.98	2.21	4.83	2.00	4.37	1.68	3.68	0.32	0.69
	NO_x	22.50	49.28	22.00	48.18	21.50	47.09	17.50	38.33	14.00	30.66	13.00	28.47	10.50	23.00	9.50	20.81	8.00	17.52	1.50	3.29
	SO_2	0.14	0.30	0.13	0.29	0.13	0.28	0.11	0.23	0.08	0.18	0.08	0.17	0.06	0.14	0.06	0.12	0.05	0.11	0.01	0.02
	VOC	1.24	2.71	1.21	2.65	1.18	2.59	0.96	2.11	0.77	1.69	0.72	1.57	0.58	1.26	0.52	1.14	0.44	0.96	0.08	0.18
	PM_{10}	1.71	3.74	1.67	3.66	1.63	3.58	1.33	2.91	1.06	2.33	0.99	2.16	0.80	1.75	0.72	1.58	0.61	1.33	0.11	0.25

Table F.3.76
Proposed Action Emissions Inventory - Total Construction Disturbance Emissions by Year

		2006		2007		2008		2009		2010		2011		2012		2013	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Pad Construction/Expansion:	PM_{10}	2.04	2.23	5.68	6.22	4.70	5.14	4.92	5.38	4.30	4.71	4.07	4.45	3.84	4.20	3.35	3.67
	$PM_{2.5}$	0.54	0.59	1.50	1.64	1.24	1.36	1.30	1.42	1.14	1.24	1.07	1.18	1.01	1.11	0.88	0.97
Local Road Construction:	PM_{10}	0.51	0.56	0.86	0.94	0.70	0.77	0.72	0.79	0.57	0.62	0.65	0.71	0.25	0.28	0.29	0.32
	$PM_{2.5}$	0.13	0.15	0.23	0.25	0.19	0.20	0.19	0.21	0.15	0.16	0.17	0.19	0.07	0.07	0.08	0.08
Resource Road Construction:	PM_{10}	0.61	0.66	1.03	1.12	0.84	0.92	0.86	0.94	0.68	0.74	0.77	0.84	0.30	0.33	0.35	0.38
	$PM_{2.5}$	0.16	0.18	0.27	0.30	0.22	0.24	0.23	0.25	0.18	0.20	0.20	0.22	0.08	0.09	0.09	0.10
Pipeline Construction:	PM_{10}	1.69	1.85	2.86	3.14	2.34	2.57	2.41	2.64	1.89	2.07	2.15	2.35	0.85	0.93	0.98	1.07
	$PM_{2.5}$	0.45	0.49	0.76	0.83	0.62	0.68	0.64	0.70	0.50	0.55	0.57	0.62	0.22	0.24	0.26	0.28
Wind Erosion[3]:	PM_{10}	14.69	32.18	38.88	85.14	32.14	70.38	33.58	73.53	29.14	63.81	27.95	61.20	25.09	54.94	22.15	48.50
	$PM_{2.5}$	5.88	12.87	15.55	34.06	12.85	28.15	13.43	29.41	11.66	25.53	11.18	24.48	10.04	21.98	8.86	19.40
Ultra/Shell Gathering System Construction:	PM_{10}	N/A	N/A	N/A	N/A	346.70	379.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	91.49	100.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline Construction:	PM_{10}	N/A	N/A	80.48	88.13	N/A	N/A	N/A	N/A	N/A	N/A	53.86	58.98	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	21.24	23.26	N/A	N/A	N/A	N/A	N/A	N/A	14.21	15.56	N/A	N/A	N/A	N/A
Ancillary Facility Construction:	PM_{10}	N/A	N/A	6.12	6.70	N/A	N/A	N/A	N/A	N/A	N/A	234.74	257.04	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	1.61	1.77	N/A	N/A	N/A	N/A	N/A	N/A	61.95	67.83	N/A	N/A	N/A	N/A
Total Construction Surface Disturbace Emissions:	PM_{10}	19.54	37.49	135.90	191.39	387.43	459.42	42.49	83.29	36.57	71.95	324.18	385.58	30.33	60.68	27.11	53.94
	$PM_{2.5}$	7.16	14.27	41.16	62.09	106.61	130.82	15.78	31.99	13.62	27.67	89.35	110.08	11.42	23.49	10.17	20.83

Note: Construction Surface Disturbance Emissions occur during summer months (May-Oct.) and daylight hours (12 hrs/day) only.

[1] lb/hr number based on 6 months of construction at 12 hrs/day.

[2] tpy numbers based on total construction occuring over a 6 month period between May and October of each year.

[3] Wind erosion lb/hr totals assume that construction is evenly distributed over the summer construction season.

Table F.3.76
Proposed Action Emissions Inventory - Total Construction Disturbance Emissions by Year

		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Pad Construction/Expansion:	PM_{10}	3.91	4.29	3.71	4.06	3.85	4.21	3.51	3.84	2.75	3.02	2.36	2.59	1.59	1.74	1.45	1.59	1.45	1.59	0.58	0.64
	$PM_{2.5}$	1.03	1.13	0.98	1.07	1.01	1.11	0.93	1.01	0.73	0.80	0.62	0.68	0.42	0.46	0.38	0.42	0.38	0.42	0.15	0.17
Local Road Construction:	PM_{10}	0.22	0.24	0.23	0.26	0.23	0.26	0.16	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.06	0.06	0.06	0.07	0.06	0.07	0.04	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resource Road Construction:	PM_{10}	0.26	0.28	0.28	0.31	0.28	0.31	0.19	0.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.07	0.07	0.07	0.08	0.07	0.08	0.05	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction:	PM_{10}	0.72	0.78	0.78	0.86	0.78	0.86	0.52	0.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.19	0.21	0.21	0.23	0.21	0.23	0.14	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wind Erosion[3]:	PM_{10}	25.42	55.68	24.19	52.98	25.06	54.88	22.65	49.59	17.34	37.97	14.86	32.55	10.00	21.89	9.13	19.99	9.13	19.99	3.65	7.99
	$PM_{2.5}$	10.17	22.27	9.68	21.19	10.02	21.95	9.06	19.84	6.94	15.19	5.94	13.02	4.00	8.76	3.65	7.99	3.65	7.99	1.46	3.20
Ultra/Shell Gathering System Construction:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline Construction:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Construction Surface Disturbace Emissions:	PM_{10}	30.53	61.26	29.19	58.46	30.20	60.51	27.02	54.38	20.09	40.99	17.22	35.13	11.58	23.63	10.58	21.57	10.58	21.57	4.23	8.63
	$PM_{2.5}$	11.52	23.75	11.00	22.64	11.38	23.44	10.21	21.10	7.66	15.99	6.57	13.70	4.42	9.21	4.03	8.41	4.03	8.41	1.61	3.37

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2006			2007			2008			2009		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	28.94	0.00	31.68	33.97	0.00	37.20	28.10	0.00	30.77	23.48	0.00	25.72
	$PM_{2.5}$	4.41	0.00	4.83	5.18	0.00	5.68	4.29	0.00	4.69	3.58	0.00	3.92
Road Construction Traffic:	PM_{10}	3.99	0.00	4.37	6.75	0.00	7.39	5.52	0.00	6.05	5.68	0.00	6.22
	$PM_{2.5}$	0.61	0.00	0.67	1.03	0.00	1.13	0.84	0.00	0.92	0.87	0.00	0.95
Pipeline Construction Traffic:	PM_{10}	13.22	0.00	14.47	22.37	0.00	24.49	18.30	0.00	20.04	18.81	0.00	20.60
	$PM_{2.5}$	2.02	0.00	2.21	3.42	0.00	3.75	2.80	0.00	3.07	2.88	0.00	3.15
Ultra/Shell Gathering System Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	58.97	0.00	64.58	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	9.02	0.00	9.88	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	30.50	0.00	33.40	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	4.67	0.00	5.11	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	2.31	0.00	2.53	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	0.35	0.00	0.39	N/A	N/A	N/A	N/A	N/A	N/A
Well Pad Construction Heavy Equipment Tailpipe:	CO	61.59	0.00	67.45	171.44	0.00	187.73	141.84	0.00	155.32	148.41	0.00	162.51
	NO_x	50.00	0.00	54.75	139.17	0.00	152.39	115.14	0.00	126.08	120.47	0.00	131.92
	SO_2	0.94	0.00	1.03	2.62	0.00	2.87	2.17	0.00	2.38	2.27	0.00	2.49
	VOC	7.25	0.00	7.93	20.17	0.00	22.09	16.69	0.00	18.27	17.46	0.00	19.12
	$PM_{10/2.5}$	2.90	0.00	3.17	8.07	0.00	8.83	6.67	0.00	7.31	6.98	0.00	7.65
Road Construction Heavy Equipment Tailpipe:	CO	3.66	0.00	4.01	6.20	0.00	6.79	5.07	0.00	5.55	5.21	0.00	5.71
	NO_x	2.97	0.00	3.26	5.03	0.00	5.51	4.12	0.00	4.51	4.23	0.00	4.63
	SO_2	0.06	0.00	0.06	0.09	0.00	0.10	0.08	0.00	0.08	0.08	0.00	0.09
	VOC	0.43	0.00	0.47	0.73	0.00	0.80	0.60	0.00	0.65	0.61	0.00	0.67
	$PM_{10/2.5}$	0.17	0.00	0.19	0.29	0.00	0.32	0.24	0.00	0.26	0.25	0.00	0.27
Pipeline Construction Heavy Equipment Tailpipe:	CO	1.12	0.00	1.22	1.89	0.00	2.07	1.55	0.00	1.69	1.59	0.00	1.74
	NO_x	0.91	0.00	0.99	1.53	0.00	1.68	1.25	0.00	1.37	1.29	0.00	1.41
	SO_2	0.02	0.00	0.02	0.03	0.00	0.03	0.02	0.00	0.03	0.02	0.00	0.03
	VOC	0.13	0.00	0.14	0.22	0.00	0.24	0.18	0.00	0.20	0.19	0.00	0.20
	$PM_{10/2.5}$	0.05	0.00	0.06	0.09	0.00	0.10	0.07	0.00	0.08	0.07	0.00	0.08
Ultra/Shell GS Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	4.98	0.00	5.45	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	4.04	0.00	4.43	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	0.08	0.00	0.08	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	0.59	0.00	0.64	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	0.23	0.00	0.26	N/A	N/A	N/A

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2006			2007			2008			2009		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	2.58	0.00	2.82	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	2.09	0.00	2.29	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	0.04	0.00	0.04	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	0.30	0.00	0.33	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	0.12	0.00	0.13	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	17.07	0.00	18.69	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	13.86	0.00	15.17	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	0.26	0.00	0.29	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	2.01	0.00	2.20	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	0.80	0.00	0.88	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Traffic:	PM_{10}	31.86	31.86	139.53	41.65	41.65	182.41	46.46	46.46	203.51	47.39	47.39	207.59
	$PM_{2.5}$	4.85	4.85	21.26	6.35	6.35	27.79	7.08	7.08	31.01	7.22	7.22	31.63
Rig Move Traffic:	PM_{10}	0.60	0.60	2.64	0.79	0.79	3.45	0.88	0.88	3.85	0.90	0.90	3.93
	$PM_{2.5}$	0.09	0.09	0.40	0.12	0.12	0.53	0.13	0.13	0.59	0.14	0.14	0.60
Drilling Haul Truck Tailpipe:	CO	2.51	2.51	10.99	3.28	3.28	14.37	3.66	3.66	16.03	3.73	3.73	16.35
	NO_x	1.95	1.95	8.53	2.55	2.55	11.15	2.84	2.84	12.44	2.90	2.90	12.69
	SO_2	0.02	0.02	0.10	0.03	0.03	0.13	0.03	0.03	0.14	0.03	0.03	0.14
	VOC	0.97	0.97	4.24	1.27	1.27	5.55	1.41	1.41	6.19	1.44	1.44	6.31
Rig Move Haul Truck Tailpipe:	CO	0.06	0.06	0.24	0.07	0.07	0.32	0.08	0.08	0.35	0.08	0.08	0.36
	NO_x	0.04	0.04	0.19	0.06	0.06	0.25	0.06	0.06	0.27	0.06	0.06	0.28
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VOC	0.02	0.02	0.09	0.03	0.03	0.12	0.03	0.03	0.14	0.03	0.03	0.14
Total Construction Surface Disturbace Emissions:	**CO**	68.94	2.56	83.91	202.53	3.35	232.78	157.18	3.74	184.40	159.02	3.82	186.67
	NO_x	55.87	1.99	67.72	164.28	2.60	188.44	127.46	2.90	149.10	128.95	2.96	150.93
	SO_2	1.04	0.02	1.21	3.08	0.03	3.47	2.38	0.03	2.71	2.41	0.03	2.75
	VOC	8.80	0.99	12.89	24.73	1.29	31.33	19.50	1.44	26.09	19.73	1.47	26.45
	PM_{10}	81.72	32.46	196.11	147.70	42.43	301.13	165.46	47.34	336.69	103.57	48.29	272.04
	$PM_{2.5}$	15.11	4.95	32.80	30.49	6.47	54.63	31.38	7.21	58.06	21.99	7.36	48.25

Note: All tpy numbers except drilling related based on total emissions during the six month construction season (May-October).

All lb/hr numbers except drilling related based on this total and assumed to happen evenly over the daylight hours of the construction season (2190 hrs/yr).

All drilling numbers based on year-round drilling.

[1] For the purpose of estimating the number of pads constructed/expanded for the year and average of 15 acres per expansion/construction of a pad was used.

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2010			2011			2012			2013		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	19.71	0.00	21.58	18.45	0.00	20.20	10.90	0.00	11.94	10.48	0.00	11.48
	$PM_{2.5}$	3.01	0.00	3.29	2.82	0.00	3.08	1.66	0.00	1.82	1.60	0.00	1.75
Road Construction Traffic:	PM_{10}	4.45	0.00	4.87	5.06	0.00	5.54	1.99	0.00	2.18	2.30	0.00	2.52
	$PM_{2.5}$	0.68	0.00	0.74	0.77	0.00	0.85	0.30	0.00	0.33	0.35	0.00	0.38
Pipeline Construction Traffic:	PM_{10}	14.74	0.00	16.14	16.78	0.00	18.37	6.61	0.00	7.24	7.63	0.00	8.35
	$PM_{2.5}$	2.26	0.00	2.47	2.57	0.00	2.81	1.01	0.00	1.11	1.17	0.00	1.28
Ultra/Shell Gathering System Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	16.27	0.00	17.81	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	2.49	0.00	2.72	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	12.92	0.00	14.14	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	1.97	0.00	2.16	N/A	N/A	N/A	N/A	N/A	N/A
Well Pad Construction Heavy Equipment Tailpipe:	CO	129.86	0.00	142.19	122.77	0.00	134.43	115.89	0.00	126.90	101.09	0.00	110.70
	NO_x	105.41	0.00	115.43	99.66	0.00	109.13	94.08	0.00	103.01	82.06	0.00	89.86
	SO_2	1.99	0.00	2.17	1.88	0.00	2.06	1.77	0.00	1.94	1.55	0.00	1.69
	VOC	15.28	0.00	16.73	14.44	0.00	15.82	13.63	0.00	14.93	11.89	0.00	13.02
	$PM_{10/2.5}$	6.11	0.00	6.69	5.78	0.00	6.33	5.45	0.00	5.97	4.76	0.00	5.21
Road Construction Heavy Equipment Tailpipe:	CO	4.08	0.00	4.47	4.65	0.00	5.09	1.83	0.00	2.00	2.11	0.00	2.31
	NO_x	3.32	0.00	3.63	3.77	0.00	4.13	1.49	0.00	1.63	1.71	0.00	1.88
	SO_2	0.06	0.00	0.07	0.07	0.00	0.08	0.03	0.00	0.03	0.03	0.00	0.04
	VOC	0.48	0.00	0.53	0.55	0.00	0.60	0.22	0.00	0.24	0.25	0.00	0.27
	$PM_{10/2.5}$	0.19	0.00	0.21	0.22	0.00	0.24	0.09	0.00	0.09	0.10	0.00	0.11
Pipeline Construction Heavy Equipment Tailpipe:	CO	1.24	0.00	1.36	1.42	0.00	1.55	0.56	0.00	0.61	0.64	0.00	0.70
	NO_x	1.01	0.00	1.11	1.15	0.00	1.26	0.45	0.00	0.50	0.52	0.00	0.57
	SO_2	0.02	0.00	0.02	0.02	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.01
	VOC	0.15	0.00	0.16	0.17	0.00	0.18	0.07	0.00	0.07	0.08	0.00	0.08
	$PM_{10/2.5}$	0.06	0.00	0.06	0.07	0.00	0.07	0.03	0.00	0.03	0.03	0.00	0.03
Ultra/Shell GS Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2010			2011			2012			2013		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	1.37	0.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	1.11	0.00	1.22	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	0.02	0.00	0.02	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	0.16	0.00	0.18	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	0.06	0.00	0.07	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	96.30	0.00	105.45	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	78.17	0.00	85.60	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	1.47	0.00	1.61	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	11.33	0.00	12.41	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	4.53	0.00	4.96	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Traffic:	PM_{10}	45.22	45.22	198.06	45.06	45.06	197.38	44.91	44.91	196.70	44.75	44.75	196.02
	$PM_{2.5}$	6.89	6.89	30.18	6.87	6.87	30.08	6.84	6.84	29.97	6.82	6.82	29.87
Rig Move Traffic:	PM_{10}	0.86	0.86	3.75	0.85	0.85	3.73	0.85	0.85	3.72	0.85	0.85	3.71
	$PM_{2.5}$	0.13	0.13	0.57	0.13	0.13	0.57	0.13	0.13	0.57	0.13	0.13	0.57
Drilling Haul Truck Tailpipe:	CO	3.56	3.56	15.60	3.55	3.55	15.55	3.54	3.54	15.50	3.53	3.53	15.44
	NO_x	2.76	2.76	12.11	2.76	2.76	12.07	2.75	2.75	12.03	2.74	2.74	11.98
	SO_2	0.03	0.03	0.14	0.03	0.03	0.14	0.03	0.03	0.14	0.03	0.03	0.14
	VOC	1.38	1.38	6.02	1.37	1.37	6.00	1.37	1.37	5.98	1.36	1.36	5.96
Rig Move Haul Truck Tailpipe:	CO	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34
	NO_x	0.06	0.06	0.27	0.06	0.06	0.27	0.06	0.06	0.26	0.06	0.06	0.26
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VOC	0.03	0.03	0.13	0.03	0.03	0.13	0.03	0.03	0.13	0.03	0.03	0.13
Total Construction Surface Disturbace Emissions:	**CO**	138.83	3.64	163.98	230.14	3.63	263.92	121.90	3.62	145.35	107.45	3.60	129.50
	NO_x	112.57	2.83	132.54	186.69	2.82	213.67	98.82	2.81	117.43	87.10	2.80	104.56
	SO_2	2.10	0.03	2.40	3.50	0.03	3.93	1.84	0.03	2.12	1.62	0.03	1.88
	VOC	17.31	1.41	23.57	28.05	1.40	35.31	15.31	1.40	21.35	13.61	1.39	19.47
	PM_{10}	91.34	46.07	251.37	126.05	45.92	288.86	70.83	45.76	227.88	70.90	45.60	227.43
	$PM_{2.5}$	19.32	7.02	44.23	28.27	7.00	53.94	15.52	6.97	39.90	14.95	6.95	39.20

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2014			2015			2016			2017		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	13.00	0.00	14.24	12.58	0.00	13.78	13.00	0.00	14.24	11.74	0.00	12.86
	$PM_{2.5}$	1.98	0.00	2.17	1.92	0.00	2.10	1.98	0.00	2.17	1.79	0.00	1.96
Road Construction Traffic:	PM_{10}	1.69	0.00	1.85	1.84	0.00	2.02	1.84	0.00	2.02	1.23	0.00	1.34
	$PM_{2.5}$	0.26	0.00	0.28	0.28	0.00	0.31	0.28	0.00	0.31	0.19	0.00	0.21
Pipeline Construction Traffic:	PM_{10}	5.59	0.00	6.12	6.10	0.00	6.68	6.10	0.00	6.68	4.07	0.00	4.45
	$PM_{2.5}$	0.86	0.00	0.94	0.93	0.00	1.02	0.93	0.00	1.02	0.62	0.00	0.68
Ultra/Shell Gathering System Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Well Pad Construction Heavy Equipment Tailpipe:	CO	118.18	0.00	129.41	111.93	0.00	122.57	116.10	0.00	127.13	105.89	0.00	115.95
	NO_x	95.94	0.00	105.05	90.86	0.00	99.49	94.25	0.00	103.20	85.96	0.00	94.12
	SO_2	1.81	0.00	1.98	1.71	0.00	1.87	1.78	0.00	1.94	1.62	0.00	1.77
	VOC	13.90	0.00	15.23	13.17	0.00	14.42	13.66	0.00	14.96	12.46	0.00	13.64
	$PM_{10/2.5}$	5.56	0.00	6.09	5.27	0.00	5.77	5.46	0.00	5.98	4.98	0.00	5.46
Road Construction Heavy Equipment Tailpipe:	CO	1.55	0.00	1.70	1.69	0.00	1.85	1.69	0.00	1.85	1.13	0.00	1.23
	NO_x	1.26	0.00	1.38	1.37	0.00	1.50	1.37	0.00	1.50	0.91	0.00	1.00
	SO_2	0.02	0.00	0.03	0.03	0.00	0.03	0.03	0.00	0.03	0.02	0.00	0.02
	VOC	0.18	0.00	0.20	0.20	0.00	0.22	0.20	0.00	0.22	0.13	0.00	0.15
	$PM_{10/2.5}$	0.07	0.00	0.08	0.08	0.00	0.09	0.08	0.00	0.09	0.05	0.00	0.06
Pipeline Construction Heavy Equipment Tailpipe:	CO	0.47	0.00	0.52	0.52	0.00	0.56	0.52	0.00	0.56	0.34	0.00	0.38
	NO_x	0.38	0.00	0.42	0.42	0.00	0.46	0.42	0.00	0.46	0.28	0.00	0.31
	SO_2	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01
	VOC	0.06	0.00	0.06	0.06	0.00	0.07	0.06	0.00	0.07	0.04	0.00	0.04
	$PM_{10/2.5}$	0.02	0.00	0.02	0.02	0.00	0.03	0.02	0.00	0.03	0.02	0.00	0.02
Ultra/Shell GS Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2014			2015			2016			2017		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Traffic:	PM_{10}	44.60	44.60	195.34	44.60	44.60	195.34	44.44	44.44	194.66	43.82	43.82	191.94
	$PM_{2.5}$	6.80	6.80	29.76	6.80	6.80	29.76	6.77	6.77	29.66	6.68	6.68	29.25
Rig Move Traffic:	PM_{10}	0.84	0.84	3.69	0.84	0.84	3.69	0.84	0.84	3.68	0.83	0.83	3.63
	$PM_{2.5}$	0.13	0.13	0.57	0.13	0.13	0.57	0.13	0.13	0.56	0.13	0.13	0.56
Drilling Haul Truck Tailpipe:	CO	3.51	3.51	15.39	3.51	3.51	15.39	3.50	3.50	15.33	3.45	3.45	15.12
	NO_x	2.73	2.73	11.94	2.73	2.73	11.94	2.72	2.72	11.90	2.68	2.68	11.74
	SO_2	0.03	0.03	0.14	0.03	0.03	0.14	0.03	0.03	0.14	0.03	0.03	0.13
	VOC	1.36	1.36	5.94	1.36	1.36	5.94	1.35	1.35	5.92	1.33	1.33	5.84
Rig Move Haul Truck Tailpipe:	CO	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.33
	NO_x	0.06	0.06	0.26	0.06	0.06	0.26	0.06	0.06	0.26	0.06	0.06	0.26
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VOC	0.03	0.03	0.13	0.03	0.03	0.13	0.03	0.03	0.13	0.03	0.03	0.13
Total Construction Surface Disturbace Emissions:	**CO**	123.80	3.59	147.35	117.73	3.59	140.71	121.88	3.58	145.22	110.89	3.53	133.01
	NO_x	100.37	2.79	119.06	95.44	2.79	113.66	98.81	2.78	117.32	89.89	2.74	107.42
	SO_2	1.87	0.03	2.15	1.78	0.03	2.05	1.84	0.03	2.12	1.67	0.03	1.93
	VOC	15.53	1.39	21.56	14.81	1.39	20.77	15.30	1.38	21.29	13.99	1.36	19.80
	PM_{10}	71.38	45.44	227.43	71.34	45.44	227.39	71.79	45.28	227.37	66.74	44.65	219.75
	$PM_{2.5}$	15.68	6.92	39.92	15.43	6.92	39.64	15.67	6.90	39.82	14.46	6.80	38.18

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2018			2019			2020			2021		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	10.48	0.00	11.48	7.55	0.00	8.27	4.61	0.00	5.05	4.19	0.00	4.59
	$PM_{2.5}$	1.60	0.00	1.75	1.15	0.00	1.26	0.70	0.00	0.77	0.64	0.00	0.70
Road Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ultra/Shell Gathering System Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Well Pad Construction Heavy Equipment Tailpipe:	CO	83.17	0.00	91.07	71.29	0.00	78.06	47.94	0.00	52.50	43.77	0.00	47.93
	NO_x	67.51	0.00	73.93	57.87	0.00	63.37	38.92	0.00	42.61	35.53	0.00	38.91
	SO_2	1.27	0.00	1.39	1.09	0.00	1.19	0.73	0.00	0.80	0.67	0.00	0.73
	VOC	9.78	0.00	10.71	8.39	0.00	9.18	5.64	0.00	6.18	5.15	0.00	5.64
	$PM_{10/2.5}$	3.91	0.00	4.29	3.35	0.00	3.67	2.26	0.00	2.47	2.06	0.00	2.26
Road Construction Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ultra/Shell GS Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2018			2019			2020			2021		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Traffic:	PM_{10}	43.35	43.35	189.89	33.10	33.10	144.97	29.06	29.06	127.28	27.50	27.50	120.47
	$PM_{2.5}$	6.61	6.61	28.93	5.04	5.04	22.09	4.43	4.43	19.39	4.19	4.19	18.36
Rig Move Traffic:	PM_{10}	0.82	0.82	3.59	0.63	0.63	2.74	0.55	0.55	2.41	0.52	0.52	2.28
	$PM_{2.5}$	0.13	0.13	0.55	0.10	0.10	0.42	0.08	0.08	0.37	0.08	0.08	0.35
Drilling Haul Truck Tailpipe:	CO	3.42	3.42	14.96	2.61	2.61	11.42	2.29	2.29	10.03	2.17	2.17	9.49
	NO_x	2.65	2.65	11.61	2.02	2.02	8.86	1.78	1.78	7.78	1.68	1.68	7.37
	SO_2	0.03	0.03	0.13	0.02	0.02	0.10	0.02	0.02	0.09	0.02	0.02	0.08
	VOC	1.32	1.32	5.77	1.01	1.01	4.41	0.88	0.88	3.87	0.84	0.84	3.66
Rig Move Haul Truck Tailpipe:	CO	0.08	0.08	0.33	0.06	0.06	0.25	0.05	0.05	0.22	0.05	0.05	0.21
	NO_x	0.06	0.06	0.26	0.04	0.04	0.20	0.04	0.04	0.17	0.04	0.04	0.16
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VOC	0.03	0.03	0.13	0.02	0.02	0.10	0.02	0.02	0.09	0.02	0.02	0.08
Total Construction Surface Disturbace Emissions:	**CO**	86.66	3.49	106.36	73.95	2.66	89.73	50.28	2.34	62.74	45.99	2.21	57.63
	NO_x	70.22	2.71	85.79	59.94	2.07	72.42	40.73	1.82	50.57	37.25	1.72	46.44
	SO_2	1.30	0.03	1.53	1.11	0.02	1.30	0.75	0.02	0.89	0.69	0.02	0.82
	VOC	11.13	1.35	16.62	9.42	1.03	13.69	6.54	0.90	10.13	6.00	0.85	9.38
	PM_{10}	58.57	44.17	209.25	44.63	33.72	159.65	36.48	29.61	137.21	34.28	28.02	129.60
	$PM_{2.5}$	12.25	6.73	35.52	9.65	5.14	27.44	7.47	4.51	23.00	6.97	4.27	21.66

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2022			2023			2024			2025		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	4.19	0.00	4.59	1.68	0.00	1.84	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.64	0.00	0.70	0.26	0.00	0.28	N/A	N/A	N/A	N/A	N/A	N/A
Road Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ultra/Shell Gathering System Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Well Pad Construction Heavy Equipment Tailpipe:	CO	43.77	0.00	47.93	17.51	0.00	19.17	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	35.53	0.00	38.91	14.21	0.00	15.56	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.67	0.00	0.73	0.27	0.00	0.29	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	5.15	0.00	5.64	2.06	0.00	2.26	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	2.06	0.00	2.26	0.82	0.00	0.90	N/A	N/A	N/A	N/A	N/A	N/A
Road Construction Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ultra/Shell GS Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table F.3.77
Proposed Action Emissions Inventory - Toptal Construction Traffic and Heavy Equipment Emissions by Year

		2022			2023			2024			2025		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Traffic:	PM_{10}	22.22	22.22	97.33	17.40	17.40	76.23	16.63	16.63	72.83	1.40	1.40	6.13
	$PM_{2.5}$	3.39	3.39	14.83	2.65	2.65	11.62	2.53	2.53	11.10	0.21	0.21	0.93
Rig Move Traffic:	PM_{10}	0.42	0.42	1.84	0.33	0.33	1.44	0.31	0.31	1.38	0.03	0.03	0.12
	$PM_{2.5}$	0.06	0.06	0.28	0.05	0.05	0.22	0.05	0.05	0.21	0.00	0.00	0.02
Drilling Haul Truck Tailpipe:	CO	1.75	1.75	7.67	1.37	1.37	6.01	1.31	1.31	5.74	0.11	0.11	0.48
	NO_x	1.36	1.36	5.95	1.06	1.06	4.66	1.02	1.02	4.45	0.09	0.09	0.37
	SO_2	0.02	0.02	0.07	0.01	0.01	0.05	0.01	0.01	0.05	0.00	0.00	0.00
	VOC	0.68	0.68	2.96	0.53	0.53	2.32	0.51	0.51	2.21	0.04	0.04	0.19
Rig Move Haul Truck Tailpipe:	CO	0.04	0.04	0.17	0.03	0.03	0.13	0.03	0.03	0.13	0.00	0.00	0.01
	NO_x	0.03	0.03	0.13	0.02	0.02	0.10	0.02	0.02	0.10	0.00	0.00	0.01
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VOC	0.01	0.01	0.07	0.01	0.01	0.05	0.01	0.01	0.05	0.00	0.00	0.00
Total Construction Surface Disturbace Emissions:	**CO**	45.56	1.79	55.77	18.91	1.40	25.31	1.34	1.34	5.86	0.11	0.11	0.49
	NO_x	36.92	1.39	44.99	15.30	1.09	20.33	1.04	1.04	4.55	0.09	0.09	0.38
	SO_2	0.69	0.02	0.80	0.28	0.01	0.35	0.01	0.01	0.05	0.00	0.00	0.00
	VOC	5.84	0.69	8.66	2.60	0.54	4.62	0.52	0.52	2.26	0.04	0.04	0.19
	PM_{10}	28.90	22.64	106.02	20.23	17.73	80.41	16.94	16.94	74.20	1.42	1.42	6.24
	$PM_{2.5}$	6.15	3.45	18.07	3.78	2.70	13.02	2.58	2.58	11.31	0.22	0.22	0.95

Table F.3.78
Proposed Action Emissions Inventory - Total Frac/Completion Emissions by Year

		2006		2007		2008		2009		2010		2011		2012		2013		2014	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Frac and Other Completion Engine Emissions:	CO	35.54	155.67	46.46	203.51	51.84	227.06	52.88	231.61	50.45	220.98	50.28	220.22	50.11	219.46	49.93	218.70	49.76	217.94
	NO_x	61.51	269.43	80.42	352.24	89.72	392.98	91.52	400.87	87.32	382.47	87.02	381.15	86.72	379.84	86.42	378.52	86.12	377.21
	SO_2	1.78	7.78	2.32	10.18	2.59	11.35	2.64	11.58	2.52	11.05	2.51	11.01	2.51	10.97	2.50	10.94	2.49	10.90
	VOCs	4.10	17.96	5.36	23.48	5.98	26.20	6.10	26.72	5.82	25.50	5.80	25.41	5.78	25.32	5.76	25.23	5.74	25.15
	$PM_{10/2.5}$	2.05	8.98	2.68	11.74	2.99	13.10	3.05	13.36	2.91	12.75	2.90	12.71	2.89	12.66	2.88	12.62	2.87	12.57
Completion Traffic:	PM_{10}	18.52	81.12	24.21	106.05	27.01	118.32	27.56	120.70	26.29	115.16	26.20	114.76	26.11	114.37	26.02	113.97	25.93	113.57
	$PM_{2.5}$	2.84	12.44	3.71	16.26	4.14	18.14	4.23	18.51	4.03	17.66	4.02	17.60	4.00	17.54	3.99	17.48	3.98	17.41
Completion/Testing Haul Truck Tailpipe:	CO	1.51	6.59	1.97	8.62	2.20	9.62	2.24	9.81	2.14	9.36	2.13	9.33	2.12	9.30	2.12	9.27	2.11	9.23
	NO_x	1.17	5.12	1.53	6.69	1.70	7.47	1.74	7.62	1.66	7.27	1.65	7.24	1.65	7.22	1.64	7.19	1.64	7.17
	SO_2	0.02	0.07	0.02	0.09	0.02	0.10	0.02	0.11	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10
	VOC	0.58	2.55	0.76	3.33	0.85	3.71	0.86	3.79	0.83	3.61	0.82	3.60	0.82	3.59	0.82	3.58	0.81	3.56
Total Frac/Completion Emissions:	CO	37.05	162.27	48.43	212.14	54.04	236.67	55.12	241.42	52.59	230.34	52.41	229.55	52.23	228.76	52.05	227.97	51.87	227.18
	NO_x	62.68	274.55	81.95	358.93	91.43	400.45	93.26	408.48	88.98	389.73	88.67	388.39	88.37	387.05	88.06	385.71	87.76	384.37
	SO_2	1.79	7.86	2.34	10.27	2.62	11.46	2.67	11.69	2.55	11.15	2.54	11.11	2.53	11.07	2.52	11.04	2.51	11.00
	VOCs	4.68	20.51	6.12	26.81	6.83	29.91	6.97	30.51	6.65	29.11	6.62	29.01	6.60	28.91	6.58	28.81	6.56	28.71
	PM_{10}	20.57	90.11	26.89	117.80	30.00	131.42	30.61	134.06	29.20	127.91	29.10	127.47	29.00	127.03	28.90	126.59	28.80	126.15
	$PM_{2.5}$	4.89	21.42	6.39	28.00	7.13	31.24	7.28	31.87	6.94	30.41	6.92	30.30	6.89	30.20	6.87	30.09	6.85	29.99

[1] lb/hr number based on tpy and year-round activity.

[2] tpy numbers based on number of wells drilled per year.

Table F.3.78
Proposed Action Emissions Inventory - Total Frac/Completion Emissions by Year

		2017		2018		2019		2020		2021		2022		2023		2024		2025	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Frac and Other Completion Engine Emissions:	CO	48.89	214.15	48.37	211.87	36.93	161.75	32.42	142.00	30.69	134.41	24.79	108.59	19.42	85.05	18.55	81.25	1.56	6.83
	NO_x	84.62	370.64	83.72	366.69	63.92	279.95	56.11	245.78	53.11	232.63	42.91	187.95	33.61	147.20	32.11	140.63	2.70	11.83
	SO_2	2.44	10.71	2.42	10.59	1.85	8.09	1.62	7.10	1.53	6.72	1.24	5.43	0.97	4.25	0.93	4.06	0.08	0.34
	VOCs	5.64	24.71	5.58	24.45	4.26	18.66	3.74	16.39	3.54	15.51	2.86	12.53	2.24	9.81	2.14	9.38	0.18	0.79
	$PM_{10/2.5}$	2.82	12.35	2.79	12.22	2.13	9.33	1.87	8.19	1.77	7.75	1.43	6.26	1.12	4.91	1.07	4.69	0.09	0.39
Completion Traffic:	PM_{10}	25.48	111.60	25.21	110.41	19.24	84.29	16.90	74.00	15.99	70.04	12.92	56.59	10.12	44.32	9.67	42.34	0.81	3.56
	$PM_{2.5}$	3.91	17.11	3.87	16.93	2.95	12.92	2.59	11.35	2.45	10.74	1.98	8.68	1.55	6.80	1.48	6.49	0.12	0.55
Completion/Testing Haul Truck Tailpipe:	CO	2.07	9.07	2.05	8.98	1.56	6.85	1.37	6.02	1.30	5.69	1.05	4.60	0.82	3.60	0.79	3.44	0.07	0.29
	NO_x	1.61	7.04	1.59	6.97	1.21	5.32	1.07	4.67	1.01	4.42	0.82	3.57	0.64	2.80	0.61	2.67	0.05	0.22
	SO_2	0.02	0.10	0.02	0.10	0.02	0.07	0.01	0.07	0.01	0.06	0.01	0.05	0.01	0.04	0.01	0.04	0.00	0.00
	VOC	0.80	3.50	0.79	3.46	0.60	2.65	0.53	2.32	0.50	2.20	0.41	1.78	0.32	1.39	0.30	1.33	0.03	0.11
Total Frac/Completion Emissions:	CO	50.96	223.22	50.42	220.84	38.49	168.60	33.79	148.02	31.99	140.10	25.84	113.19	20.24	88.65	19.34	84.70	1.63	7.12
	NO_x	86.23	377.68	85.31	373.66	65.13	285.27	57.18	250.45	54.12	237.05	43.73	191.52	34.25	150.00	32.72	143.30	2.75	12.05
	SO_2	2.47	10.81	2.44	10.69	1.86	8.16	1.64	7.17	1.55	6.78	1.25	5.48	0.98	4.29	0.94	4.10	0.08	0.34
	VOCs	6.44	28.21	6.37	27.91	4.86	21.31	4.27	18.71	4.04	17.71	3.27	14.31	2.56	11.20	2.44	10.70	0.21	0.90
	PM_{10}	28.30	123.95	28.00	122.63	21.37	93.62	18.77	82.19	17.76	77.80	14.35	62.85	11.24	49.23	10.74	47.03	0.90	3.96
	$PM_{2.5}$	6.73	29.47	6.66	29.15	5.08	22.26	4.46	19.54	4.22	18.49	3.41	14.94	2.67	11.70	2.55	11.18	0.21	0.94

Table F.3.79
Proposed Action Emissions Inventory - Total Construction Emissions by Year

		2006			2007			2008			2009		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	19.54	0.00	37.49	135.90	0.00	191.39	387.43	0.00	459.42	42.49	0.00	83.29
	$PM_{2.5}$	7.16	0.00	14.27	41.16	0.00	62.09	106.61	0.00	130.82	15.78	0.00	31.99
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	68.94	2.56	83.91	202.53	3.35	232.78	157.18	3.74	184.40	159.02	3.82	186.67
	NO_x	55.87	1.99	67.72	164.28	2.60	188.44	127.46	2.90	149.10	128.95	2.96	150.93
	SO_2	1.04	0.02	1.21	3.08	0.03	3.47	2.38	0.03	2.71	2.41	0.03	2.75
	VOC	8.80	0.99	12.89	24.73	1.29	31.33	19.50	1.44	26.09	19.73	1.47	26.45
	PM_{10}	81.72	32.46	196.11	147.70	42.43	301.13	165.46	47.34	336.69	103.57	48.29	272.04
	$PM_{2.5}$	15.11	4.95	32.80	30.49	6.47	54.63	31.38	7.21	58.06	21.99	7.36	48.25
Drill Rig Engine Emissions by Year:	CO	573.65	573.65	2234.06	540.22	540.22	2477.58	709.19	709.19	2619.24	759.08	759.08	2295.98
	NOx	971.36	971.36	3965.28	804.04	804.04	3528.54	937.80	937.80	3275.13	990.38	990.38	3180.02
	SO2	10.97	10.97	44.48	11.49	11.49	48.22	13.81	13.81	53.53	14.58	14.58	55.39
	VOC	68.87	68.87	268.79	63.87	63.87	292.02	83.24	83.24	306.90	89.08	89.08	268.36
	PM10	38.24	38.24	153.10	32.14	32.14	142.92	39.00	39.00	139.80	41.49	41.49	126.32
Drill Rig Boiler Emissions by Year:	CO	0.00	3.35	7.34	0.00	3.62	7.93	0.00	4.76	10.42	0.00	5.04	11.04
	NOx	0.00	15.95	34.93	0.00	17.24	37.76	0.00	22.65	49.60	0.00	24.00	52.56
	SO2	0.00	0.10	0.21	0.00	0.10	0.23	0.00	0.14	0.30	0.00	0.14	0.32
	VOC	0.00	0.88	1.92	0.00	0.95	2.08	0.00	1.25	2.73	0.00	1.32	2.89
	PM10	0.00	1.21	2.65	0.00	1.31	2.87	0.00	1.72	3.77	0.00	1.82	3.99
Completion Emissions by Year:	CO	37.05	37.05	162.27	48.43	48.43	212.14	54.04	54.04	236.67	55.12	55.12	241.42
	NO_x	62.68	62.68	274.55	81.95	81.95	358.93	91.43	91.43	400.45	93.26	93.26	408.48
	SO_2	1.79	1.79	7.86	2.34	2.34	10.27	2.62	2.62	11.46	2.67	2.67	11.69
	VOCs	4.68	4.68	20.51	6.12	6.12	26.81	6.83	6.83	29.91	6.97	6.97	30.51
	PM_{10}	20.57	20.57	90.11	26.89	26.89	117.80	30.00	30.00	131.42	30.61	30.61	134.06
	$PM_{2.5}$	4.89	4.89	21.42	6.39	6.39	28.00	7.13	7.13	31.24	7.28	7.28	31.87
TOTAL CONSTRUCTION EMISSIONS BY YEAR:	**CO**	679.63	616.61	2487.57	791.17	595.62	2930.43	920.41	771.73	3050.73	973.22	823.05	2735.11
	NO_x	1089.91	1051.98	4342.48	1050.27	905.83	4113.66	1156.69	1054.78	3874.29	1212.59	1110.60	3791.99
	SO_2	13.80	12.88	53.76	16.91	13.96	62.18	18.81	16.60	68.00	19.65	17.42	70.14
	VOCs	82.35	75.42	304.10	94.72	72.23	352.24	109.57	92.76	365.63	115.78	98.84	328.21
	PM_{10}	160.07	92.48	479.46	342.64	102.78	756.10	621.89	118.07	1071.10	218.15	122.21	619.70
	$PM_{2.5}$	65.40	49.28	224.24	110.18	46.31	290.52	184.13	55.07	363.69	86.54	57.95	242.42

Table F.3.79
Proposed Action Emissions Inventory - Total Construction Emissions by Year

		2010			2011			2012			2013		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	36.57	0.00	71.95	324.18	0.00	385.58	30.33	0.00	60.68	27.11	0.00	53.94
	$PM_{2.5}$	13.62	0.00	27.67	89.35	0.00	110.08	11.42	0.00	23.49	10.17	0.00	20.83
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	138.83	3.64	163.98	230.14	3.63	263.92	121.90	3.62	145.35	107.45	3.60	129.50
	NO_x	112.57	2.83	132.54	186.69	2.82	213.67	98.82	2.81	117.43	87.10	2.80	104.56
	SO_2	2.10	0.03	2.40	3.50	0.03	3.93	1.84	0.03	2.12	1.62	0.03	1.88
	VOC	17.31	1.41	23.57	28.05	1.40	35.31	15.31	1.40	21.35	13.61	1.39	19.47
	PM_{10}	91.34	46.07	251.37	126.05	45.92	288.86	70.83	45.76	227.88	70.90	45.60	227.43
	$PM_{2.5}$	19.32	7.02	44.23	28.27	7.00	53.94	15.52	6.97	39.90	14.95	6.95	39.20
Drill Rig Engine Emissions by Year:	CO	415.49	415.49	1472.65	415.49	415.49	1467.61	415.49	415.49	1462.57	415.49	415.49	1457.53
	NOx	813.56	813.56	2735.25	813.56	813.56	2713.21	813.56	813.56	2691.17	813.56	813.56	2669.14
	SO2	12.29	12.29	23.17	0.96	0.96	3.39	0.96	0.96	3.38	0.96	0.96	3.37
	VOC	48.41	48.41	170.85	48.41	48.41	170.20	48.41	48.41	169.55	48.41	48.41	168.90
	PM10	26.50	26.50	89.96	26.50	26.50	89.31	26.50	26.50	88.66	26.50	26.50	88.01
Drill Rig Boiler Emissions by Year:	CO	0.00	4.73	10.35	0.00	4.73	10.35	0.00	4.73	10.35	0.00	4.73	10.35
	NOx	0.00	22.50	49.28	0.00	22.50	49.28	0.00	22.50	49.28	0.00	22.50	49.28
	SO2	0.00	0.14	0.30	0.00	0.14	0.30	0.00	0.14	0.30	0.00	0.14	0.30
	VOC	0.00	1.24	2.71	0.00	1.24	2.71	0.00	1.24	2.71	0.00	1.24	2.71
	PM10	0.00	1.71	3.74	0.00	1.71	3.74	0.00	1.71	3.74	0.00	1.71	3.74
Completion Emissions by Year:	CO	52.59	52.59	230.34	52.41	52.41	229.55	52.23	52.23	228.76	52.05	52.05	227.97
	NO_x	88.98	88.98	389.73	88.67	88.67	388.39	88.37	88.37	387.05	88.06	88.06	385.71
	SO_2	2.55	2.55	11.15	2.54	2.54	11.11	2.53	2.53	11.07	2.52	2.52	11.04
	VOCs	6.65	6.65	29.11	6.62	6.62	29.01	6.60	6.60	28.91	6.58	6.58	28.81
	PM_{10}	29.20	29.20	127.91	29.10	29.10	127.47	29.00	29.00	127.03	28.90	28.90	126.59
	$PM_{2.5}$	6.94	6.94	30.41	6.92	6.92	30.30	6.89	6.89	30.20	6.87	6.87	30.09
TOTAL CONSTRUCTION EMISSIONS BY YEAR:	**CO**	606.91	476.44	1877.32	698.03	476.25	1971.43	589.61	476.06	1847.03	574.99	475.87	1825.35
	NO_x	1015.10	927.86	3306.80	1088.92	927.55	3364.55	1000.75	927.23	3244.93	988.72	926.92	3208.68
	SO_2	16.93	15.00	37.02	7.00	3.67	18.73	5.33	3.66	16.87	5.10	3.65	16.58
	VOCs	72.37	57.70	226.24	83.08	57.67	237.24	70.32	57.64	222.52	68.60	57.62	219.90
	PM_{10}	183.61	103.49	544.93	505.84	103.23	894.96	156.66	102.97	507.99	153.41	102.71	499.71
	$PM_{2.5}$	66.38	42.17	196.01	151.04	42.13	287.38	60.33	42.08	185.99	58.49	42.03	181.89

Table F.3.79
Proposed Action Emissions Inventory - Total Construction Emissions by Year

		2014			2015			2016			2017		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	30.53	0.00	61.26	29.19	0.00	58.46	30.20	0.00	60.51	27.02	0.00	54.38
	$PM_{2.5}$	11.52	0.00	23.75	11.00	0.00	22.64	11.38	0.00	23.44	10.21	0.00	21.10
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	123.80	3.59	147.35	117.73	3.59	140.71	121.88	3.58	145.22	110.89	3.53	133.01
	NO_x	100.37	2.79	119.06	95.44	2.79	113.66	98.81	2.78	117.32	89.89	2.74	107.42
	SO_2	1.87	0.03	2.15	1.78	0.03	2.05	1.84	0.03	2.12	1.67	0.03	1.93
	VOC	15.53	1.39	21.56	14.81	1.39	20.77	15.30	1.38	21.29	13.99	1.36	19.80
	PM_{10}	71.38	45.44	227.43	71.34	45.44	227.39	71.79	45.28	227.37	66.74	44.65	219.75
	$PM_{2.5}$	15.68	6.92	39.92	15.43	6.92	39.64	15.67	6.90	39.82	14.46	6.80	38.18
Drill Rig Engine Emissions by Year:	CO	415.49	415.49	1452.50	415.49	415.49	1184.66	415.49	415.49	1180.70	406.00	406.00	1164.78
	NOx	813.56	813.56	2647.10	813.56	813.56	2155.21	813.56	813.56	2137.86	797.14	797.14	2099.83
	SO2	0.96	0.96	3.36	0.96	0.96	2.74	0.96	0.96	2.73	0.94	0.94	2.69
	VOC	48.41	48.41	168.26	48.41	48.41	137.21	48.41	48.41	136.70	47.32	47.32	134.81
	PM10	26.50	26.50	87.37	26.50	26.50	71.16	26.50	26.50	70.65	25.95	25.95	69.45
Drill Rig Boiler Emissions by Year:	CO	0.00	4.73	10.35	0.00	4.73	10.35	0.00	4.73	10.35	0.00	4.62	10.12
	NOx	0.00	22.50	49.28	0.00	22.50	49.28	0.00	22.50	49.28	0.00	22.00	48.18
	SO2	0.00	0.14	0.30	0.00	0.14	0.30	0.00	0.14	0.30	0.00	0.13	0.29
	VOC	0.00	1.24	2.71	0.00	1.24	2.71	0.00	1.24	2.71	0.00	1.21	2.65
	PM10	0.00	1.71	3.74	0.00	1.71	3.74	0.00	1.71	3.74	0.00	1.67	3.66
Completion Emissions by Year:	CO	51.87	51.87	227.18	51.87	51.87	227.18	51.69	51.69	226.38	50.96	50.96	223.22
	NO_x	87.76	87.76	384.37	87.76	87.76	384.37	87.45	87.45	383.03	86.23	86.23	377.68
	SO_2	2.51	2.51	11.00	2.51	2.51	11.00	2.50	2.50	10.96	2.47	2.47	10.81
	VOCs	6.56	6.56	28.71	6.56	6.56	28.71	6.53	6.53	28.61	6.44	6.44	28.21
	PM_{10}	28.80	28.80	126.15	28.80	28.80	126.15	28.70	28.70	125.71	28.30	28.30	123.95
	$PM_{2.5}$	6.85	6.85	29.99	6.85	6.85	29.99	6.82	6.82	29.88	6.73	6.73	29.47
TOTAL CONSTRUCTION EMISSIONS BY YEAR:	**CO**	591.15	475.67	1837.37	585.08	475.67	1562.89	589.06	475.48	1562.65	567.85	465.12	1531.12
	NO_x	1001.68	926.60	3199.80	996.76	926.60	2702.52	999.82	926.29	2687.50	973.26	908.11	2633.11
	SO_2	5.34	3.64	16.80	5.25	3.64	16.08	5.31	3.63	16.10	5.08	3.57	15.72
	VOCs	70.49	57.59	221.24	69.78	57.59	189.41	70.24	57.56	189.31	67.75	56.33	185.47
	PM_{10}	157.21	102.45	505.96	155.83	102.45	486.89	157.20	102.19	487.98	148.01	100.58	471.19
	$PM_{2.5}$	60.54	41.98	184.76	59.77	41.98	167.17	60.37	41.94	167.54	57.35	41.16	161.86

Table F.3.79
Proposed Action Emissions Inventory - Total Construction Emissions by Year

		2018			2019			2020			2021		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	20.09	0.00	40.99	17.22	0.00	35.13	11.58	0.00	23.63	10.58	0.00	21.57
	$PM_{2.5}$	7.66	0.00	15.99	6.57	0.00	13.70	4.42	0.00	9.21	4.03	0.00	8.41
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	86.66	3.49	106.36	73.95	2.66	89.73	50.28	2.34	62.74	45.99	2.21	57.63
	NO_x	70.22	2.71	85.79	59.94	2.07	72.42	40.73	1.82	50.57	37.25	1.72	46.44
	SO_2	1.30	0.03	1.53	1.11	0.02	1.30	0.75	0.02	0.89	0.69	0.02	0.82
	VOC	11.13	1.35	16.62	9.42	1.03	13.69	6.54	0.90	10.13	6.00	0.85	9.38
	PM_{10}	58.57	44.17	209.25	44.63	33.72	159.65	36.48	29.61	137.21	34.28	28.02	129.60
	$PM_{2.5}$	12.25	6.73	35.52	9.65	5.14	27.44	7.47	4.51	23.00	6.97	4.27	21.66
Drill Rig Engine Emissions by Year:	CO	396.52	396.52	1152.83	318.71	318.71	921.27	254.04	254.04	825.04	235.06	235.06	785.21
	NOx	780.73	780.73	2079.14	646.06	646.06	1667.89	439.68	439.68	1427.96	406.84	406.84	1359.01
	SO2	0.92	0.92	2.66	0.74	0.74	2.13	0.59	0.59	1.90	0.54	0.54	1.81
	VOC	46.22	46.22	133.44	37.24	37.24	106.66	29.31	29.31	95.20	27.12	27.12	90.60
	PM10	25.41	25.41	68.76	20.92	20.92	55.12	14.66	14.66	47.60	13.56	13.56	45.30
Drill Rig Boiler Emissions by Year:	CO	0.00	4.52	9.89	0.00	3.68	8.05	0.00	2.94	6.44	0.00	2.73	5.98
	NOx	0.00	21.50	47.09	0.00	17.50	38.33	0.00	14.00	30.66	0.00	13.00	28.47
	SO2	0.00	0.13	0.28	0.00	0.11	0.23	0.00	0.08	0.18	0.00	0.08	0.17
	VOC	0.00	1.18	2.59	0.00	0.96	2.11	0.00	0.77	1.69	0.00	0.72	1.57
	PM10	0.00	1.63	3.58	0.00	1.33	2.91	0.00	1.06	2.33	0.00	0.99	2.16
Completion Emissions by Year:	CO	50.42	50.42	220.84	38.49	38.49	168.60	33.79	33.79	148.02	31.99	31.99	140.10
	NO_x	85.31	85.31	373.66	65.13	65.13	285.27	57.18	57.18	250.45	54.12	54.12	237.05
	SO_2	2.44	2.44	10.69	1.86	1.86	8.16	1.64	1.64	7.17	1.55	1.55	6.78
	VOCs	6.37	6.37	27.91	4.86	4.86	21.31	4.27	4.27	18.71	4.04	4.04	17.71
	PM_{10}	28.00	28.00	122.63	21.37	21.37	93.62	18.77	18.77	82.19	17.76	17.76	77.80
	$PM_{2.5}$	6.66	6.66	29.15	5.08	5.08	22.26	4.46	4.46	19.54	4.22	4.22	18.49
TOTAL CONSTRUCTION EMISSIONS BY YEAR:	**CO**	533.60	454.95	1489.91	431.15	363.54	1187.65	338.11	293.11	1042.25	313.04	272.00	988.92
	NO_x	936.26	890.25	2585.68	771.12	730.75	2063.90	537.59	512.67	1759.63	498.22	475.68	1670.97
	SO_2	4.66	3.52	15.16	3.72	2.73	11.82	2.98	2.33	10.15	2.78	2.19	9.58
	VOCs	63.73	55.12	180.55	51.52	44.10	143.77	40.13	35.26	125.72	37.17	32.74	119.26
	PM_{10}	132.07	99.21	445.21	104.14	77.35	346.44	81.48	64.09	292.96	76.18	60.34	276.43
	$PM_{2.5}$	51.97	40.43	153.00	42.21	32.47	121.43	31.01	24.69	101.69	28.79	23.04	96.03

Table F.3.79
Proposed Action Emissions Inventory - Total Construction Emissions by Year

		2022			2023			2024			2025		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	10.58	0.00	21.57	4.23	0.00	8.63	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	4.03	0.00	8.41	1.61	0.00	3.37	N/A	N/A	N/A	N/A	N/A	N/A
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	45.56	1.79	55.77	18.91	1.40	25.31	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	36.92	1.39	44.99	15.30	1.09	20.33	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.69	0.02	0.80	0.28	0.01	0.35	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	5.84	0.69	8.66	2.60	0.54	4.62	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	28.90	22.64	106.02	20.23	17.73	80.41	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	6.15	3.45	18.07	3.78	2.70	13.02	N/A	N/A	N/A	N/A	N/A	N/A
Drill Rig Engine Emissions by Year:	CO	187.64	187.64	649.75	168.67	168.67	526.25	140.21	140.21	496.87	26.29	26.29	42.59
	NOx	324.76	324.76	1124.57	291.92	291.92	910.83	242.67	242.67	859.97	45.50	45.50	73.71
	SO2	0.43	0.43	1.50	0.39	0.39	1.21	0.32	0.32	1.15	0.06	0.06	0.10
	VOC	21.65	21.65	74.97	19.46	19.46	60.72	16.18	16.18	57.33	3.03	3.03	4.91
	PM10	10.83	10.83	37.49	9.73	9.73	30.36	8.09	8.09	28.67	1.52	1.52	2.46
Drill Rig Boiler Emissions by Year:	CO	0.00	2.21	4.83	0.00	2.00	4.37	0.00	1.68	3.68	0.00	0.32	0.69
	NOx	0.00	10.50	23.00	0.00	9.50	20.81	0.00	8.00	17.52	0.00	1.50	3.29
	SO2	0.00	0.06	0.14	0.00	0.06	0.12	0.00	0.05	0.11	0.00	0.01	0.02
	VOC	0.00	0.58	1.26	0.00	0.52	1.14	0.00	0.44	0.96	0.00	0.08	0.18
	PM10	0.00	0.80	1.75	0.00	0.72	1.58	0.00	0.61	1.33	0.00	0.11	0.25
Completion Emissions by Year:	CO	25.84	25.84	113.19	20.24	20.24	88.65	19.34	19.34	84.70	1.63	1.63	7.12
	NO_x	43.73	43.73	191.52	34.25	34.25	150.00	32.72	32.72	143.30	2.75	2.75	12.05
	SO_2	1.25	1.25	5.48	0.98	0.98	4.29	0.94	0.94	4.10	0.08	0.08	0.34
	VOCs	3.27	3.27	14.31	2.56	2.56	11.20	2.44	2.44	10.70	0.21	0.21	0.90
	PM_{10}	14.35	14.35	62.85	11.24	11.24	49.23	10.74	10.74	47.03	0.90	0.90	3.96
	$PM_{2.5}$	3.41	3.41	14.94	2.67	2.67	11.70	2.55	2.55	11.18	0.21	0.21	0.94
TOTAL CONSTRUCTION EMISSIONS BY YEAR:	**CO**	259.04	217.47	823.54	207.82	192.30	644.59	159.55	161.23	585.25	27.92	28.23	50.40
	NO_x	405.40	380.37	1384.08	341.47	336.76	1101.96	275.39	283.39	1020.79	48.25	49.75	89.05
	SO_2	2.37	1.76	7.92	1.65	1.44	5.98	1.26	1.31	5.35	0.14	0.15	0.46
	VOCs	30.76	26.18	99.21	24.62	23.08	77.70	18.62	19.06	69.00	3.24	3.32	6.00
	PM_{10}	64.65	48.61	229.68	45.44	39.43	170.21	18.83	19.43	77.03	2.42	2.53	6.66
	$PM_{2.5}$	24.42	18.48	80.66	17.80	15.83	60.03	10.64	11.25	41.18	1.73	1.85	3.65

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2005 (Baseline/PTE)[1]			2006			2007			2008			2009			2010		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
# of Wells Drilled:			172			205			268			299			305			291	
of Wells in Production:			286			458			663			931			1230			1535	
Production Traffic:	PM_{10}				3.55	3.55	15.55	5.14	5.14	22.52	7.22	7.22	31.62	9.54	9.54	41.77	11.90	11.90	52.13
	$PM_{2.5}$				0.54	0.54	2.38	0.79	0.79	3.45	1.11	1.11	4.85	1.46	1.46	6.40	1.82	1.82	7.99
Gathering System Maintenance Traffic:	PM_{10}				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.54	9.54	41.77	11.90	11.90	52.13
	$PM_{2.5}$				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.46	1.46	6.40	1.82	1.82	7.99
Liquids Haul Truck Gathering Traffic:	PM_{10}				20.60	20.60	90.22	35.27	35.27	154.48	47.53	47.53	208.20	5.52	5.52	24.19	6.02	6.02	26.37
	$PM_{2.5}$				3.16	3.16	13.83	5.41	5.41	23.69	7.29	7.29	31.92	0.85	0.85	3.71	0.92	0.92	4.04
Production Haul Truck Tailpipe:	CO				1.97	1.97	8.64	3.38	3.38	14.79	4.55	4.55	19.94	0.53	0.53	2.32	0.58	0.58	2.53
	NO_x				1.53	1.53	6.70	2.62	2.62	11.48	3.53	3.53	15.47	0.41	0.41	1.80	0.45	0.45	1.96
	SO_2				0.02	0.02	0.09	0.04	0.04	0.16	0.05	0.05	0.22	0.01	0.01	0.03	0.01	0.01	0.03
	VOC				0.76	0.76	3.33	1.30	1.30	5.71	1.76	1.76	7.70	0.20	0.20	0.89	0.22	0.22	0.97
Production Wind Erosion:	PM_{10}				55.56	55.56	243.37	60.73	60.73	266.00	73.39	73.39	321.45	83.84	83.84	367.23	94.74	94.74	414.95
	$PM_{2.5}$				22.23	22.23	97.35	24.29	24.29	106.40	29.36	29.36	128.58	33.54	33.54	146.89	37.89	37.89	165.98
Separator/Indirect Line Heaters:	$PM_{10/2.5}$				0.26	0.91	2.57	0.38	1.32	3.72	0.53	1.86	5.23	0.70	2.45	6.91	0.87	3.06	8.62
	SO_2				0.02	0.07	0.20	0.03	0.10	0.29	0.04	0.15	0.41	0.06	0.19	0.55	0.07	0.24	0.68
	NO_x				3.44	12.02	33.85	4.97	17.40	49.00	6.98	24.44	68.81	9.23	32.29	90.91	11.51	40.29	113.46
	CO				0.72	2.52	7.11	1.04	3.65	10.29	1.47	5.13	14.45	1.94	6.78	19.09	2.42	8.46	23.83
	VOC	See 2005 Emissions Inventory			0.19	0.66	1.86	0.27	0.96	2.70	0.38	1.34	3.78	0.51	1.78	5.00	0.63	2.22	6.24
Dehy Reboiler Heaters:	$PM_{10/2.5}$				0.03	0.10	0.29	0.04	0.15	0.42	0.06	0.21	0.59	0.08	0.28	0.78	0.10	0.35	0.98
	SO_2				0.00	0.01	0.02	0.00	0.01	0.03	0.00	0.02	0.05	0.01	0.02	0.06	0.01	0.03	0.08
	NO_x				0.39	1.36	3.84	0.56	1.97	5.55	0.79	2.77	7.80	1.05	3.66	10.30	1.30	4.57	12.86
	CO				0.08	0.29	0.81	0.12	0.41	1.17	0.17	0.58	1.64	0.22	0.77	2.16	0.27	0.96	2.70
	VOC				0.02	0.07	0.21	0.03	0.11	0.31	0.04	0.15	0.43	0.06	0.20	0.57	0.07	0.25	0.71
Dehy Flashing Emissions:	VOC				111.21	111.21	487.09	137.32	137.32	601.45	179.29	179.29	785.30	214.05	214.05	937.56	238.43	238.43	1044.33
	Total HAPs				75.51	75.51	330.71	93.23	93.23	408.36	121.73	121.73	533.18	145.33	145.33	636.56	161.88	161.88	709.05
	Benzene				12.55	12.55	54.98	15.50	15.50	67.89	20.24	20.24	88.64	24.16	24.16	105.83	26.91	26.91	117.88
	Toluene				33.94	33.94	148.66	41.91	41.91	183.56	54.72	54.72	239.66	65.33	65.33	286.13	72.77	72.77	318.72
	Ethylbenzene				1.61	1.61	7.07	1.99	1.99	8.73	2.60	2.60	11.39	3.11	3.11	13.60	3.46	3.46	15.15
	Xylene				26.33	26.33	115.32	32.51	32.51	142.40	42.45	42.45	185.92	50.68	50.68	221.97	56.45	56.45	247.25
	n-Hexane				0.94	0.94	4.14	1.17	1.17	5.11	1.52	1.52	6.67	1.82	1.82	7.96	2.03	2.03	8.87
Fugitive HAPs and VOCs:	VOC				16.55	16.55	72.50	17.89	17.89	78.35	20.15	20.15	88.26	22.00	22.00	96.36	23.90	23.90	104.69
	Total HAPs				0.37	0.37	1.63	0.40	0.40	1.76	0.45	0.45	1.98	0.49	0.49	2.17	0.54	0.54	2.35
	Benzene				0.06	0.06	0.27	0.07	0.07	0.29	0.08	0.08	0.33	0.08	0.08	0.36	0.09	0.09	0.39
	Toluene				0.11	0.11	0.47	0.12	0.12	0.51	0.13	0.13	0.58	0.14	0.14	0.63	0.16	0.16	0.68
	Ethylbenzene				0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.01	0.01	0.02	0.01	0.01	0.02
	Xylene				0.04	0.04	0.19	0.05	0.05	0.20	0.05	0.05	0.23	0.06	0.06	0.25	0.06	0.06	0.27
	n-Hexane				0.16	0.16	0.68	0.17	0.17	0.74	0.19	0.19	0.83	0.21	0.21	0.91	0.22	0.22	0.99

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2005 (Baseline/PTE)[1]			2006			2007			2008			2009			2010		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC				130.84	130.84	573.10	161.56	161.56	707.65	210.95	210.95	923.95	25.18	25.18	110.31	28.05	28.05	122.87
	Total HAPs				6.47	6.47	28.32	7.98	7.98	34.97	10.42	10.42	45.65	1.24	1.24	5.45	1.39	1.39	6.07
	Benzene				0.31	0.31	1.36	0.38	0.38	1.67	0.50	0.50	2.18	0.06	0.06	0.26	0.07	0.07	0.29
	Toluene				0.02	0.02	0.07	0.02	0.02	0.08	0.03	0.03	0.11	0.00	0.00	0.01	0.00	0.00	0.01
Condensate Storage[1]:	Ethylbenzene				0.18	0.18	0.80	0.23	0.23	0.99	0.29	0.29	1.29	0.04	0.04	0.15	0.04	0.04	0.17
	Xylene				0.23	0.23	1.02	0.29	0.29	1.26	0.38	0.38	1.65	0.04	0.04	0.20	0.05	0.05	0.22
	n-Hexane				5.72	5.72	25.07	7.07	7.07	30.96	9.23	9.23	40.42	1.10	1.10	4.83	1.23	1.23	5.38
	NOx				9.08	9.08	39.79	9.82	9.82	43.00	11.06	11.06	48.44	1.31	1.31	5.75	1.39	1.39	6.10
	CO				49.43	49.43	216.49	53.42	53.42	233.97	60.17	60.17	263.55	7.14	7.14	31.26	7.58	7.58	33.21
	NOx				107.81	107.81	472.19	107.81	107.81	472.19	107.81	107.81	472.19	121.47	121.47	532.06	121.47	121.47	532.06
	CO				40.11	40.11	175.66	40.11	40.11	175.66	40.11	40.11	175.66	53.77	53.77	235.53	53.77	53.77	235.53
	VOC				80.72	80.72	353.55	80.72	80.72	353.55	80.72	80.72	353.55	81.54	81.54	357.14	81.54	81.54	357.14
Proposed Compression:	PM10				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
	PM2.5				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
	SO2				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde				10.26	10.26	44.93	10.26	10.26	44.93	10.26	10.26	44.93	11.22	11.22	49.12	11.22	11.22	49.12
	NOx:				196.64	196.64	861.30	265.53	265.53	1163.00	265.53	265.53	1163.00	265.53	265.53	1163.00	265.53	265.53	1163.00
	CO:				191.03	191.03	836.70	264.73	264.73	1159.50	264.73	264.73	1159.50	264.73	264.73	1159.50	264.73	264.73	1159.50
	VOCs:				86.99	86.99	381.00	119.00	119.00	521.20	119.00	119.00	521.20	119.00	119.00	521.20	119.00	119.00	521.20
	SO2:				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10:	See 2005 Emissions Inventory			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger	Benzene:				2.65	2.65	11.61	2.72	2.72	11.91	2.72	2.72	11.91	2.72	2.72	11.91	2.72	2.72	11.91
Production Emissions:	Toluene:				0.78	0.78	3.40	0.80	0.80	3.50	0.80	0.80	3.50	0.80	0.80	3.50	0.80	0.80	3.50
	Ethylbenzene:				0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:				0.39	0.39	1.70	0.41	0.41	1.80	0.41	0.41	1.80	0.41	0.41	1.80	0.41	0.41	1.80
	n-Hexane:				2.01	2.01	8.80	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10
	Formaldehyde:				7.65	7.65	33.50	15.30	15.30	67.00	15.30	15.30	67.00	15.30	15.30	67.00	15.30	15.30	67.00
	Total HAPs:				13.70	13.70	60.00	21.53	21.53	94.30	21.53	21.53	94.30	21.53	21.53	94.30	21.53	21.53	94.30
	NOx				318.89	328.45	1417.67	391.31	405.15	1744.23	395.70	415.13	1775.71	398.99	424.67	1803.82	401.66	433.70	1829.44
	CO				283.33	285.34	1245.40	362.79	365.69	1595.38	371.19	375.27	1634.74	328.32	333.72	1449.86	329.35	336.08	1457.29
	VOC				427.28	427.81	1872.64	518.09	518.85	2270.90	612.29	613.36	2684.16	462.54	463.96	2029.03	491.85	493.61	2158.16
	PM10				80.00	80.73	352.01	101.56	102.61	447.14	128.73	130.21	567.09	99.68	101.64	440.89	113.64	116.07	503.06
	PM2.5				26.22	26.95	116.43	30.91	31.96	137.68	38.34	39.82	171.18	36.63	38.58	164.70	41.62	44.05	187.62
TOTAL PRODUCTION	**SO2**				0.04	0.10	0.32	0.07	0.15	0.49	0.10	0.21	0.68	0.07	0.22	0.63	0.08	0.28	0.79
EMISSIONS:	**Formaldehyde**				17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93	26.51	26.51	116.12	26.51	26.51	116.12
	Benzene				15.58	15.58	68.22	18.67	18.67	81.77	23.53	23.53	103.07	27.02	27.02	118.36	29.79	29.79	130.47
	Toluene				34.84	34.84	152.60	42.84	42.84	187.65	55.67	55.67	243.85	66.27	66.27	290.28	73.73	73.73	322.92
	Ethylbenzene				2.03	2.03	8.89	2.45	2.45	10.73	3.13	3.13	13.71	3.37	3.37	14.78	3.73	3.73	16.35
	Xylene				26.99	26.99	118.23	33.26	33.26	145.66	43.29	43.29	189.60	51.19	51.19	224.21	56.97	56.97	249.54
	n-Hexane				8.83	8.83	38.69	10.48	10.48	45.90	13.02	13.02	57.02	5.20	5.20	22.80	5.56	5.56	24.33
	Total HAPs				106.18	106.18	465.05	133.25	133.25	583.65	164.20	164.20	719.17	179.58	179.58	786.55	196.29	196.29	859.73

[1] 90% of pads assumed to be connected to gathering system after 2009. 90% of unconnected pads assumed to be controlled to 98%. Centralized gathering facilities to be equipped with VRUs.

One combustion unit assumed per pad with tanks, as worst case.

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2011 (lb/hr) Summer	2011 (lb/hr) Winter	2011 (tpy) Total	2012 (lb/hr) Summer	2012 (lb/hr) Winter	2012 (tpy) Total	2013 (lb/hr) Summer	2013 (lb/hr) Winter	2013 (tpy) Total	2014 (lb/hr) Summer	2014 (lb/hr) Winter	2014 (tpy) Total	2015 (lb/hr) Summer	2015 (lb/hr) Winter	2015 (tpy) Total	2016 (lb/hr) Summer	2016 (lb/hr) Winter	2016 (tpy) Total
# of Wells Drilled:			290			289			288			287			287			286	
of Wells in Production:			1826			2116			2405			2693			2980			3267	
Production Traffic:	PM_{10}	14.16	14.16	62.01	16.41	16.41	71.86	18.65	18.65	81.67	20.88	20.88	91.45	23.11	23.11	101.20	25.33	25.33	110.95
	$PM_{2.5}$	2.17	2.17	9.51	2.52	2.52	11.02	2.86	2.86	12.52	3.20	3.20	14.02	3.54	3.54	15.52	3.88	3.88	17.01
Gathering System Maintenance Traffic:	PM_{10}	14.16	14.16	62.01	16.41	16.41	71.86	18.65	18.65	81.67	20.88	20.88	91.45	23.11	23.11	101.20	25.33	25.33	110.95
	$PM_{2.5}$	2.17	2.17	9.51	2.52	2.52	11.02	2.86	2.86	12.52	3.20	3.20	14.02	3.54	3.54	15.52	3.88	3.88	17.01
Liquids Haul Truck Gathering Traffic:	PM_{10}	6.50	6.50	28.47	6.65	6.65	29.12	6.47	6.47	28.35	6.16	6.16	26.98	5.88	5.88	25.76	5.66	5.66	24.80
	$PM_{2.5}$	1.00	1.00	4.37	1.02	1.02	4.46	0.99	0.99	4.35	0.94	0.94	4.14	0.90	0.90	3.95	0.87	0.87	3.80
Production Haul Truck Tailpipe:	CO	0.62	0.62	2.73	0.64	0.64	2.79	0.62	0.62	2.71	0.59	0.59	2.58	0.56	0.56	2.47	0.54	0.54	2.37
	NO_x	0.48	0.48	2.12	0.49	0.49	2.16	0.48	0.48	2.11	0.46	0.46	2.00	0.44	0.44	1.91	0.42	0.42	1.84
	SO_2	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03
	VOC	0.24	0.24	1.05	0.25	0.25	1.08	0.24	0.24	1.05	0.23	0.23	1.00	0.22	0.22	0.95	0.21	0.21	0.92
Production Wind Erosion:	PM_{10}	104.07	104.07	455.81	113.22	113.22	495.92	120.77	120.77	528.97	127.57	127.57	558.77	135.13	135.13	591.88	142.39	142.39	623.65
	$PM_{2.5}$	41.63	41.63	182.32	45.29	45.29	198.37	48.31	48.31	211.59	51.03	51.03	223.51	54.05	54.05	236.75	56.95	56.95	249.46
Separator/Indirect Line Heaters:	$PM_{10/2.5}$	1.04	3.64	10.26	1.21	4.22	11.89	1.37	4.80	13.51	1.54	5.37	15.13	1.70	5.95	16.74	1.86	6.52	18.35
	SO_2	0.08	0.29	0.81	0.10	0.33	0.94	0.11	0.38	1.07	0.12	0.42	1.19	0.13	0.47	1.32	0.15	0.51	1.45
	NO_x	13.70	47.93	134.96	15.87	55.55	156.40	18.04	63.13	177.76	20.20	70.69	199.05	22.35	78.23	220.26	24.50	85.76	241.47
	CO	2.88	10.07	28.34	3.33	11.66	32.84	3.79	13.26	37.33	4.24	14.85	41.80	4.69	16.43	46.25	5.15	18.01	50.71
	VOC	0.75	2.64	7.42	0.87	3.05	8.60	0.99	3.47	9.78	1.11	3.89	10.95	1.23	4.30	12.11	1.35	4.72	13.28
Dehy Reboiler Heaters:	$PM_{10/2.5}$	0.12	0.41	1.16	0.14	0.48	1.35	0.16	0.54	1.53	0.17	0.61	1.71	0.19	0.67	1.90	0.21	0.74	2.08
	SO_2	0.01	0.03	0.09	0.01	0.04	0.11	0.01	0.04	0.12	0.01	0.05	0.14	0.02	0.05	0.15	0.02	0.06	0.16
	NO_x	1.55	5.43	15.30	1.80	6.30	17.73	2.04	7.15	20.15	2.29	8.01	22.56	2.53	8.87	24.96	2.78	9.72	27.37
	CO	0.33	1.14	3.21	0.38	1.32	3.72	0.43	1.50	4.23	0.48	1.68	4.74	0.53	1.86	5.24	0.58	2.04	5.75
	VOC	0.09	0.30	0.84	0.10	0.35	0.97	0.11	0.39	1.11	0.13	0.44	1.24	0.14	0.49	1.37	0.15	0.53	1.51
Dehy Flashing Emissions:	VOC	251.60	251.60	1102.01	265.40	265.40	1162.44	277.61	277.61	1215.95	288.45	288.45	1263.40	298.11	298.11	1305.73	307.05	307.05	1344.87
	Total HAPs	170.83	170.83	748.21	180.19	180.19	789.24	188.49	188.49	825.58	195.84	195.84	857.79	202.41	202.41	886.53	208.47	208.47	913.11
	Benzene	28.40	28.40	124.39	29.96	29.96	131.21	31.34	31.34	137.25	32.56	32.56	142.61	33.65	33.65	147.39	34.66	34.66	151.81
	Toluene	76.79	76.79	336.32	81.00	81.00	354.76	84.72	84.72	371.09	88.03	88.03	385.58	90.98	90.98	398.49	93.71	93.71	410.44
	Ethylbenzene	3.65	3.65	15.99	3.85	3.85	16.87	4.03	4.03	17.64	4.19	4.19	18.33	4.33	4.33	18.95	4.46	4.46	19.51
	Xylene	59.57	59.57	260.90	62.83	62.83	275.21	65.73	65.73	287.88	68.29	68.29	299.12	70.58	70.58	309.14	72.69	72.69	318.40
	n-Hexane	2.14	2.14	9.36	2.25	2.25	9.87	2.36	2.36	10.33	2.45	2.45	10.73	2.53	2.53	11.09	2.61	2.61	11.42
Fugitive HAPs and VOCs:	VOC	25.39	25.39	111.22	27.09	27.09	118.65	27.76	27.76	121.58	28.53	28.53	124.96	29.09	29.09	127.43	29.71	29.71	130.13
	Total HAPs	0.57	0.57	2.50	0.61	0.61	2.67	0.62	0.62	2.73	0.64	0.64	2.81	0.65	0.65	2.86	0.67	0.67	2.93
	Benzene	0.09	0.09	0.42	0.10	0.10	0.44	0.10	0.10	0.45	0.11	0.11	0.47	0.11	0.11	0.48	0.11	0.11	0.49
	Toluene	0.17	0.17	0.73	0.18	0.18	0.78	0.18	0.18	0.80	0.19	0.19	0.82	0.19	0.19	0.83	0.19	0.19	0.85
	Ethylbenzene	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03
	Xylene	0.06	0.06	0.28	0.07	0.07	0.30	0.07	0.07	0.31	0.07	0.07	0.32	0.07	0.07	0.33	0.08	0.08	0.33
	n-Hexane	0.24	0.24	1.05	0.25	0.25	1.12	0.26	0.26	1.14	0.27	0.27	1.18	0.27	0.27	1.20	0.28	0.28	1.22

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2011			2012			2013			2014			2015			2016		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC	29.60	29.60	129.66	31.23	31.23	136.77	32.66	32.66	143.06	33.94	33.94	148.65	35.07	35.07	153.63	36.13	36.13	158.23
	Total HAPs	1.46	1.46	6.41	1.54	1.54	6.76	1.61	1.61	7.07	1.68	1.68	7.34	1.73	1.73	7.59	1.79	1.79	7.82
	Benzene	0.07	0.07	0.31	0.07	0.07	0.32	0.08	0.08	0.34	0.08	0.08	0.35	0.08	0.08	0.36	0.09	0.09	0.37
	Toluene	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02
Condensate Storage[1]:	Ethylbenzene	0.04	0.04	0.18	0.04	0.04	0.19	0.05	0.05	0.20	0.05	0.05	0.21	0.05	0.05	0.21	0.05	0.05	0.22
	Xylene	0.05	0.05	0.23	0.06	0.06	0.24	0.06	0.06	0.26	0.06	0.06	0.27	0.06	0.06	0.27	0.06	0.06	0.28
	n-Hexane	1.30	1.30	5.67	1.37	1.37	5.98	1.43	1.43	6.26	1.48	1.48	6.50	1.53	1.53	6.72	1.58	1.58	6.92
	NOx	1.49	1.49	6.51	1.52	1.52	6.67	1.57	1.57	6.86	1.60	1.60	6.99	1.63	1.63	7.14	1.66	1.66	7.29
	CO	8.09	8.09	35.43	8.29	8.29	36.31	8.52	8.52	37.31	8.69	8.69	38.05	8.87	8.87	38.86	9.06	9.06	39.67
	NOx	383.22	383.22	1678.52	383.22	383.22	1678.52	383.22	383.22	1678.52	383.22	383.22	1678.52	390.06	390.06	1708.45	390.06	390.06	1708.45
	CO	278.23	278.23	1218.65	278.23	278.23	1218.65	278.23	278.23	1218.65	278.23	278.23	1218.65	285.07	285.07	1248.59	285.07	285.07	1248.59
	VOC	304.14	304.14	1332.13	304.14	304.14	1332.13	304.14	304.14	1332.13	304.14	304.14	1332.13	304.55	304.55	1333.92	304.55	304.55	1333.92
Proposed Compression:	PM10	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04
	PM2.5	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.04	0.01	0.01	0.04
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde	25.85	25.85	113.22	25.85	25.85	113.22	25.85	25.85	113.22	25.85	25.85	113.22	26.33	26.33	115.32	26.33	26.33	115.32
	NOx:	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50
	CO:	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00
	VOCs:	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50
	SO2:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger	Benzene:	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31
Production Emissions:	Toluene:	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10
	Ethylbenzene:	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10
	n-Hexane:	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70
	Formaldehyde:	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50
	Total HAPs:	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70
	NOx	674.53	712.64	3037.91	677.00	721.17	3061.98	679.44	729.64	3085.89	681.85	738.07	3109.62	691.10	753.30	3163.23	693.51	761.71	3186.92
	CO	569.14	577.14	2510.36	569.86	579.14	2516.31	570.58	581.13	2522.24	571.23	583.03	2527.82	578.72	591.78	2563.41	579.39	593.71	2569.08
	VOC	757.59	759.69	3322.83	774.84	777.27	3399.14	789.29	792.05	3463.15	802.29	805.39	3520.82	814.19	817.61	3573.66	824.92	828.67	3621.36
	PM10	125.89	128.79	557.75	137.63	140.98	610.16	147.42	151.24	654.07	156.33	160.60	694.08	166.02	170.75	737.51	175.46	180.64	779.87
	PM2.5	45.96	48.86	207.65	50.17	53.53	227.11	53.69	57.51	243.53	56.89	61.16	258.54	60.40	65.13	274.89	63.79	68.97	290.75
TOTAL PRODUCTION	**SO2**	0.10	0.33	0.93	0.11	0.38	1.08	0.13	0.43	1.22	0.14	0.48	1.36	0.16	0.53	1.50	0.17	0.58	1.64
EMISSIONS:	**Formaldehyde**	41.26	41.26	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	32.52	32.52	142.43	34.08	34.08	149.29	35.47	35.47	155.36	36.70	36.70	160.74	37.79	37.79	165.54	38.81	38.81	169.98
	Toluene	79.03	79.03	346.16	83.25	83.25	364.65	86.99	86.99	381.01	90.30	90.30	395.51	93.25	93.25	408.45	95.98	95.98	420.41
	Ethylbenzene	3.93	3.93	17.20	4.13	4.13	18.09	4.31	4.31	18.87	4.47	4.47	19.57	4.61	4.61	20.19	4.74	4.74	20.77
	Xylene	60.62	60.62	265.52	63.89	63.89	279.86	66.79	66.79	292.55	69.36	69.36	303.80	71.65	71.65	313.84	73.77	73.77	323.12
	n-Hexane	6.34	6.34	27.78	6.55	6.55	28.67	6.72	6.72	29.43	6.87	6.87	30.11	7.01	7.01	30.71	7.14	7.14	31.27
	Total HAPs	223.70	223.70	979.81	233.17	233.17	1021.29	241.54	241.54	1057.93	248.96	248.96	1090.45	256.06	256.06	1121.54	262.18	262.18	1148.36

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2017			2018			2019			2020			2021			2022		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
# of Wells Drilled:			282			279			213			187			177			143	
of Wells in Production:			3553			3835			4114			4327			4514			4691	
Production Traffic:	PM_{10}	27.55	27.55	120.66	29.73	29.73	130.24	31.90	31.90	139.71	33.55	33.55	146.95	35.00	35.00	153.30	36.37	36.37	159.31
	$PM_{2.5}$	4.22	4.22	18.50	4.56	4.56	19.97	4.89	4.89	21.42	5.14	5.14	22.53	5.37	5.37	23.51	5.58	5.58	24.43
Gathering System Maintenance Traffic:	PM_{10}	27.55	27.55	120.66	29.73	29.73	130.24	31.90	31.90	139.71	33.55	33.55	146.95	35.00	35.00	153.30	36.37	36.37	159.31
	$PM_{2.5}$	4.22	4.22	18.50	4.56	4.56	19.97	4.89	4.89	21.42	5.14	5.14	22.53	5.37	5.37	23.51	5.58	5.58	24.43
Liquids Haul Truck Gathering Traffic:	PM_{10}	5.64	5.64	24.71	5.54	5.54	24.26	4.85	4.85	21.26	4.18	4.18	18.29	3.74	3.74	16.37	3.35	3.35	14.67
	$PM_{2.5}$	0.86	0.86	3.79	0.85	0.85	3.72	0.74	0.74	3.26	0.64	0.64	2.80	0.57	0.57	2.51	0.51	0.51	2.25
Production Haul Truck Tailpipe:	CO	0.54	0.54	2.37	0.53	0.53	2.32	0.46	0.46	2.04	0.40	0.40	1.75	0.36	0.36	1.57	0.32	0.32	1.40
	NO_x	0.42	0.42	1.84	0.41	0.41	1.80	0.36	0.36	1.58	0.31	0.31	1.36	0.28	0.28	1.22	0.25	0.25	1.09
	SO_2	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02
	VOC	0.21	0.21	0.91	0.20	0.20	0.90	0.18	0.18	0.79	0.15	0.15	0.68	0.14	0.14	0.61	0.12	0.12	0.54
Production Wind Erosion:	PM_{10}	149.88	149.88	656.49	156.54	156.54	685.66	161.40	161.40	706.91	165.55	165.55	725.12	168.35	168.35	737.37	170.90	170.90	748.55
	$PM_{2.5}$	59.95	59.95	262.60	62.62	62.62	274.27	64.56	64.56	282.76	66.22	66.22	290.05	67.34	67.34	294.95	68.36	68.36	299.42
Separator/Indirect Line Heaters:	$PM_{10/2.5}$	2.03	7.09	19.96	2.19	7.65	21.54	2.34	8.21	23.11	2.47	8.63	24.31	2.57	9.01	25.36	2.67	9.36	26.35
	SO_2	0.16	0.56	1.58	0.17	0.60	1.70	0.19	0.65	1.82	0.19	0.68	1.92	0.20	0.71	2.00	0.21	0.74	2.08
	NO_x	26.65	93.27	262.61	28.76	100.67	283.45	30.86	107.99	304.08	32.45	113.58	319.82	33.86	118.49	333.64	35.18	123.14	346.72
	CO	5.60	19.59	55.15	6.04	21.14	59.53	6.48	22.68	63.86	6.82	23.85	67.16	7.11	24.88	70.06	7.39	25.86	72.81
	VOC	1.47	5.13	14.44	1.58	5.54	15.59	1.70	5.94	16.72	1.78	6.25	17.59	1.86	6.52	18.35	1.94	6.77	19.07
Dehy Reboiler Heaters:	$PM_{10/2.5}$	0.23	0.80	2.26	0.25	0.87	2.44	0.27	0.93	2.62	0.28	0.98	2.75	0.29	1.02	2.87	0.30	1.06	2.99
	SO_2	0.02	0.06	0.18	0.02	0.07	0.19	0.02	0.07	0.21	0.02	0.08	0.22	0.02	0.08	0.23	0.02	0.08	0.24
	NO_x	3.02	10.57	29.76	3.26	11.41	32.12	3.50	12.24	34.46	3.68	12.87	36.25	3.84	13.43	37.81	3.99	13.96	39.30
	CO	0.63	2.22	6.25	0.68	2.40	6.75	0.73	2.57	7.24	0.77	2.70	7.61	0.81	2.82	7.94	0.84	2.93	8.25
	VOC	0.17	0.58	1.64	0.18	0.63	1.77	0.19	0.67	1.90	0.20	0.71	1.99	0.21	0.74	2.08	0.22	0.77	2.16
Dehy Flashing Emissions:	VOC	314.76	314.76	1378.66	320.34	320.34	1403.10	325.13	325.13	1424.06	302.87	302.87	1326.58	287.72	287.72	1260.22	277.88	277.88	1217.11
	Total HAPs	213.71	213.71	936.05	217.50	217.50	952.64	220.75	220.75	966.87	205.64	205.64	900.69	195.35	195.35	855.63	188.67	188.67	826.36
	Benzene	35.53	35.53	155.62	36.16	36.16	158.38	36.70	36.70	160.75	34.19	34.19	149.74	32.48	32.48	142.25	31.37	31.37	137.38
	Toluene	96.06	96.06	420.75	97.76	97.76	428.21	99.23	99.23	434.61	92.43	92.43	404.86	87.81	87.81	384.60	84.80	84.80	371.45
	Ethylbenzene	4.57	4.57	20.00	4.65	4.65	20.36	4.72	4.72	20.66	4.39	4.39	19.25	4.17	4.17	18.29	4.03	4.03	17.66
	Xylene	74.52	74.52	326.40	75.84	75.84	332.19	76.98	76.98	337.15	71.71	71.71	314.07	68.12	68.12	298.36	65.79	65.79	288.15
	n-Hexane	2.67	2.67	11.71	2.72	2.72	11.92	2.76	2.76	12.10	2.57	2.57	11.27	2.44	2.44	10.70	2.36	2.36	10.34
Fugitive HAPs and VOCs:	VOC	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84
	Total HAPs	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99
	Benzene	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50
	Toluene	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87
	Ethylbenzene	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03
	Xylene	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34
	n-Hexane	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2017			2018			2019			2020			2021			2022		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC	37.03	37.03	162.21	37.69	37.69	165.08	38.25	38.25	167.55	35.63	35.63	156.08	33.85	33.85	148.27	32.69	32.69	143.20
	Total HAPs	1.83	1.83	8.02	1.86	1.86	8.16	1.89	1.89	8.28	1.76	1.76	7.71	1.67	1.67	7.33	1.62	1.62	7.08
	Benzene	0.09	0.09	0.38	0.09	0.09	0.39	0.09	0.09	0.40	0.08	0.08	0.37	0.08	0.08	0.35	0.08	0.08	0.34
	Toluene	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02
Condensate Storage[1]:	Ethylbenzene	0.05	0.05	0.23	0.05	0.05	0.23	0.05	0.05	0.23	0.05	0.05	0.22	0.05	0.05	0.21	0.05	0.05	0.20
	Xylene	0.07	0.07	0.29	0.07	0.07	0.29	0.07	0.07	0.30	0.06	0.06	0.28	0.06	0.06	0.26	0.06	0.06	0.26
	n-Hexane	1.62	1.62	7.10	1.65	1.65	7.22	1.67	1.67	7.33	1.56	1.56	6.83	1.48	1.48	6.49	1.43	1.43	6.26
	NOx	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39
	CO	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20
	NOx	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45
	CO	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59
	VOC	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92
Proposed Compression:	PM10	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04
	PM2.5	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32
	NOx:	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50
	CO:	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00
	VOCs:	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50
	SO2:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger	Benzene:	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31
Production Emissions:	Toluene:	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10
	Ethylbenzene:	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10
	n-Hexane:	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70
	Formaldehyde:	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50
	Total HAPs:	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70
	NOx	695.92	770.09	3210.55	698.27	778.32	3233.72	700.54	786.42	3256.46	702.27	792.60	3273.77	703.80	798.03	3289.01	705.25	803.17	3303.45
	CO	580.01	595.59	2574.55	580.49	597.31	2579.38	580.92	598.95	2583.92	581.23	600.20	2587.32	581.51	601.30	2590.36	581.79	602.35	2593.26
	VOC	834.29	838.37	3663.13	840.65	845.05	3691.69	846.10	850.83	3716.27	821.30	826.27	3608.18	804.44	809.62	3534.79	793.50	798.89	3487.34
	PM10	185.34	190.97	824.12	194.26	200.34	864.18	200.77	207.29	893.65	206.03	212.90	917.46	209.96	217.12	935.31	213.61	221.05	951.90
	PM2.5	67.31	72.94	307.15	70.47	76.55	321.98	72.81	79.34	333.21	74.76	81.63	342.49	76.15	83.31	349.23	77.44	84.88	355.47
TOTAL PRODUCTION	**SO2**	0.18	0.63	1.78	0.20	0.68	1.92	0.21	0.73	2.05	0.22	0.76	2.16	0.23	0.80	2.25	0.24	0.83	2.33
EMISSIONS:	**Formaldehyde**	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	39.68	39.68	173.81	40.31	40.31	176.58	40.86	40.86	178.95	38.34	38.34	167.92	36.62	36.62	160.41	35.51	35.51	155.53
	Toluene	98.34	98.34	430.74	100.04	100.04	438.20	101.51	101.51	444.59	94.71	94.71	414.84	90.09	90.09	394.59	87.08	87.08	381.43
	Ethylbenzene	4.85	4.85	21.26	4.94	4.94	21.62	5.01	5.01	21.93	4.68	4.68	20.50	4.46	4.46	19.52	4.31	4.31	18.89
	Xylene	75.60	75.60	331.13	76.92	76.92	336.92	78.06	78.06	341.89	72.78	72.78	318.79	69.19	69.19	303.07	66.86	66.86	292.85
	n-Hexane	7.25	7.25	31.76	7.33	7.33	32.09	7.39	7.39	32.38	7.09	7.09	31.05	6.88	6.88	30.14	6.75	6.75	29.55
	Total HAPs	267.47	267.47	1171.52	271.28	271.28	1188.22	274.56	274.56	1202.56	259.34	259.34	1135.91	248.98	248.98	1090.55	242.25	242.25	1061.07

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2023 (lb/hr) Summer	2023 (lb/hr) Winter	2023 (tpy) Total	2024 (lb/hr) Summer	2024 (lb/hr) Winter	2024 (tpy) Total	2025 (lb/hr) Summer	2025 (lb/hr) Winter	2025 (tpy) Total	2026 (lb/hr) Summer	2026 (lb/hr) Winter	2026 (tpy) Total
# of Wells Drilled:			112			107			9			0	
of Wells in Production:			4834			4946			5053			5062	
Production Traffic:	PM_{10}	37.48	37.48	164.16	38.35	38.35	167.97	39.18	39.18	171.60	39.25	39.25	171.91
	$PM_{2.5}$	5.75	5.75	25.17	5.88	5.88	25.75	6.01	6.01	26.31	6.02	6.02	26.36
Gathering System Maintenance Traffic:	PM_{10}	37.48	37.48	164.16	38.35	38.35	167.97	39.18	39.18	171.60	39.25	39.25	171.91
	$PM_{2.5}$	5.75	5.75	25.17	5.88	5.88	25.75	6.01	6.01	26.31	6.02	6.02	26.36
Liquids Haul Truck Gathering Traffic:	PM_{10}	3.00	3.00	13.15	2.70	2.70	11.81	2.42	2.42	10.62	2.18	2.18	9.55
	$PM_{2.5}$	0.46	0.46	2.02	0.41	0.41	1.81	0.37	0.37	1.63	0.33	0.33	1.46
Production Haul Truck Tailpipe:	CO	0.29	0.29	1.26	0.26	0.26	1.13	0.23	0.23	1.02	0.21	0.21	0.91
	NO_x	0.22	0.22	0.98	0.20	0.20	0.88	0.18	0.18	0.79	0.16	0.16	0.71
	SO_2	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01
	VOC	0.11	0.11	0.49	0.10	0.10	0.44	0.09	0.09	0.39	0.08	0.08	0.35
Production Wind Erosion:	PM_{10}	173.46	173.46	759.74	174.48	174.48	764.21	174.48	174.48	764.21	174.48	174.48	764.21
	$PM_{2.5}$	69.38	69.38	303.89	69.79	69.79	305.68	69.79	69.79	305.68	69.79	69.79	305.68
Separator/Indirect Line Heaters:	$PM_{10/2.5}$	2.76	9.64	27.15	2.82	9.87	27.78	2.88	10.08	28.38	2.89	10.10	28.44
	SO_2	0.22	0.76	2.14	0.22	0.78	2.19	0.23	0.80	2.24	0.23	0.80	2.24
	NO_x	36.26	126.89	357.29	37.10	129.83	365.57	37.90	132.64	373.48	37.97	132.88	374.15
	CO	7.61	26.65	75.03	7.79	27.26	76.77	7.96	27.85	78.43	7.97	27.90	78.57
	VOC	1.99	6.98	19.65	2.04	7.14	20.11	2.08	7.30	20.54	2.09	7.31	20.58
Dehy Reboiler Heaters:	$PM_{10/2.5}$	0.31	1.09	3.08	0.32	1.12	3.15	0.33	1.14	3.22	0.33	1.14	3.22
	SO_2	0.02	0.09	0.24	0.03	0.09	0.25	0.03	0.09	0.25	0.03	0.09	0.25
	NO_x	4.11	14.38	40.49	4.20	14.71	41.43	4.30	15.03	42.33	4.30	15.06	42.40
	CO	0.86	3.02	8.50	0.88	3.09	8.70	0.90	3.16	8.89	0.90	3.16	8.90
	VOC	0.23	0.79	2.23	0.23	0.81	2.28	0.24	0.83	2.33	0.24	0.83	2.33
Dehy Flashing Emissions:	VOC	258.67	258.67	1132.97	237.39	237.39	1039.78	224.77	224.77	984.49	175.21	175.21	767.42
	Total HAPs	175.62	175.62	769.24	161.18	161.18	705.96	152.61	152.61	668.43	118.96	118.96	521.05
	Benzene	29.20	29.20	127.89	26.80	26.80	117.37	25.37	25.37	111.13	19.78	19.78	86.63
	Toluene	78.94	78.94	345.77	72.45	72.45	317.33	68.60	68.60	300.46	53.47	53.47	234.21
	Ethylbenzene	3.75	3.75	16.44	3.44	3.44	15.09	3.26	3.26	14.28	2.54	2.54	11.14
	Xylene	61.24	61.24	268.24	56.20	56.20	246.17	53.22	53.22	233.08	41.48	41.48	181.69
	n-Hexane	2.20	2.20	9.62	2.02	2.02	8.83	1.91	1.91	8.36	1.49	1.49	6.52
Fugitive HAPs and VOCs:	VOC	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84	30.33	30.33	132.84
	Total HAPs	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99	0.68	0.68	2.99
	Benzene	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.11	0.50
	Toluene	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87	0.20	0.20	0.87
	Ethylbenzene	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03	0.01	0.01	0.03
	Xylene	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34	0.08	0.08	0.34
	n-Hexane	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25	0.29	0.29	1.25

Table F.3.80
Proposed Action Emissions Inventory - Total Production Emissions by Year

		2023			2024			2025			2026		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC	30.43	30.43	133.30	27.93	27.93	122.34	26.45	26.45	115.83	20.61	20.61	90.29
	Total HAPs	1.50	1.50	6.59	1.38	1.38	6.04	1.31	1.31	5.72	1.02	1.02	4.46
	Benzene	0.07	0.07	0.32	0.07	0.07	0.29	0.06	0.06	0.27	0.05	0.05	0.21
	Toluene	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01
Condensate Storage[1]:	Ethylbenzene	0.04	0.04	0.19	0.04	0.04	0.17	0.04	0.04	0.16	0.03	0.03	0.13
	Xylene	0.05	0.05	0.24	0.05	0.05	0.22	0.05	0.05	0.21	0.04	0.04	0.16
	n-Hexane	1.33	1.33	5.83	1.22	1.22	5.35	1.16	1.16	5.07	0.90	0.90	3.95
	NOx	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39	1.69	1.69	7.39
	CO	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20	9.18	9.18	40.20
	NOx	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45	390.06	390.06	1708.45
	CO	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59	285.07	285.07	1248.59
	VOC	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92	304.55	304.55	1333.92
Proposed Compression:	PM10	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04
	PM2.5	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.04
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32	26.33	26.33	115.32
	NOx:	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50	274.09	274.09	1200.50
	CO:	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00	279.00	279.00	1222.00
	VOCs:	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50	145.78	145.78	638.50
	SO2:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger	Benzene:	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31	3.95	3.95	17.31
Production Emissions:	Toluene:	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10	2.08	2.08	9.10
	Ethylbenzene:	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10	0.94	0.94	4.10
	n-Hexane:	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70	2.67	2.67	11.70
	Formaldehyde:	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50	15.41	15.41	67.50
	Total HAPs:	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70	25.27	25.27	110.70
	NOx	706.42	807.33	3315.11	707.33	810.58	3324.22	708.20	813.69	3332.94	708.26	813.93	3333.60
	CO	582.00	603.19	2595.58	582.17	603.85	2597.39	582.33	604.48	2599.13	582.32	604.52	2599.18
	VOC	772.09	777.64	3393.90	748.35	754.02	3290.19	734.28	740.08	3228.85	678.88	684.70	2986.24
	PM10	217.02	224.68	967.32	218.67	226.52	974.96	219.29	227.31	978.06	219.13	227.16	977.36
	PM2.5	78.67	86.34	361.35	79.23	87.08	364.22	79.39	87.40	365.26	79.36	87.40	365.20
TOTAL PRODUCTION	**SO2**	0.25	0.85	2.40	0.25	0.87	2.45	0.26	0.89	2.51	0.26	0.89	2.51
EMISSIONS:	**Formaldehyde**	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	33.34	33.34	146.01	30.93	30.93	135.46	29.50	29.50	129.21	23.89	23.89	104.65
	Toluene	81.22	81.22	355.75	74.73	74.73	327.31	70.88	70.88	310.44	55.75	55.75	244.19
	Ethylbenzene	4.03	4.03	17.66	3.72	3.72	16.29	3.53	3.53	15.48	2.81	2.81	12.29
	Xylene	62.31	62.31	272.91	57.27	57.27	250.83	54.28	54.28	237.73	42.53	42.53	186.29
	n-Hexane	6.49	6.49	28.41	6.20	6.20	27.13	6.02	6.02	26.38	5.35	5.35	23.42
	Total HAPs	229.12	229.12	1003.56	214.58	214.58	939.84	205.95	205.95	902.05	172.07	172.07	753.65

Table F.3.81
Proposed Action Emissions Inventory - Total Emissions by Year

		2006			2007			2008			2009			2010		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
TOTAL CONSTRUCTION EMISSIONS:	CO	679.63	616.61	2487.57	791.17	595.62	2930.43	920.41	771.73	3050.73	973.22	823.05	2735.11	606.91	476.44	1877.32
	NO_x	1089.91	1051.98	4342.48	1050.27	905.83	4113.66	1156.69	1054.78	3874.29	1212.59	1110.60	3791.99	1015.10	927.86	3306.80
	SO_2	13.80	12.88	53.76	16.91	13.96	62.18	18.81	16.60	68.00	19.65	17.42	70.14	16.93	15.00	37.02
	VOCs	82.35	75.42	304.10	94.72	72.23	352.24	109.57	92.76	365.63	115.78	98.84	328.21	72.37	57.70	226.24
	PM_{10}	160.07	92.48	479.46	342.64	102.78	756.10	621.89	118.07	1071.10	218.15	122.21	619.70	183.61	103.49	544.93
	$PM_{2.5}$	65.40	49.28	224.24	110.18	46.31	290.52	184.13	55.07	363.69	86.54	57.95	242.42	66.38	42.17	196.01
TOTAL PRODUCTION EMISSIONS:	NOx	318.89	328.45	1417.67	391.31	405.15	1744.23	395.70	415.13	1775.71	398.99	424.67	1803.82	401.66	433.70	1829.44
	CO	283.33	285.34	1245.40	362.79	365.69	1595.38	371.19	375.27	1634.74	328.32	333.72	1449.86	329.35	336.08	1457.29
	VOC	427.28	427.81	1872.64	518.09	518.85	2270.90	612.29	613.36	2684.16	462.54	463.96	2029.03	491.85	493.61	2158.16
	PM10	80.00	80.73	352.01	101.56	102.61	447.14	128.73	130.21	567.09	99.68	101.64	440.89	113.64	116.07	503.06
	PM2.5	26.22	26.95	116.43	30.91	31.96	137.68	38.34	39.82	171.18	36.63	38.58	164.70	41.62	44.05	187.62
	SO2	0.04	0.10	0.32	0.07	0.15	0.49	0.10	0.21	0.68	0.07	0.22	0.63	0.08	0.28	0.79
	Formaldehyde	17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93	26.51	26.51	116.12	26.51	26.51	116.12
	Benzene	15.58	15.58	68.22	18.67	18.67	81.77	23.53	23.53	103.07	27.02	27.02	118.36	29.79	29.79	130.47
	Toluene	34.84	34.84	152.60	42.84	42.84	187.65	55.67	55.67	243.85	66.27	66.27	290.28	73.73	73.73	322.92
	Ethylbenzene	2.03	2.03	8.89	2.45	2.45	10.73	3.13	3.13	13.71	3.37	3.37	14.78	3.73	3.73	16.35
	Xylene	26.99	26.99	118.23	33.26	33.26	145.66	43.29	43.29	189.60	51.19	51.19	224.21	56.97	56.97	249.54
	n-Hexane	8.83	8.83	38.69	10.48	10.48	45.90	13.02	13.02	57.02	5.20	5.20	22.80	5.56	5.56	24.33
	Total HAPs	106.18	106.18	465.05	133.25	133.25	583.65	164.20	164.20	719.17	179.58	179.58	786.55	196.29	196.29	859.73
TOTAL PROPOSED ACTION EMISSIONS:	**NOx**	1408.80	1380.43	5760.15	1441.58	1310.98	5857.89	1552.38	1469.91	5650.00	1611.59	1535.27	5595.81	1416.76	1361.57	5136.23
	CO	962.97	901.95	3732.98	1153.96	961.32	4525.81	1291.59	1146.99	4685.46	1301.55	1156.77	4184.97	936.26	812.52	3334.61
	VOC	509.63	503.23	2176.75	612.81	591.08	2623.14	721.86	706.12	3049.80	578.33	562.80	2357.24	564.22	551.31	2384.40
	PM10	240.08	173.21	831.47	444.20	205.39	1203.24	750.63	248.28	1638.20	317.83	223.85	1060.59	297.25	219.56	1047.99
	PM2.5	91.62	76.23	340.68	141.09	78.27	428.20	222.47	94.89	534.87	123.16	96.53	407.13	108.00	86.23	383.63
	SO2	13.84	12.98	54.08	16.98	14.12	62.67	18.90	16.81	68.67	19.72	17.64	70.77	17.02	15.28	37.80
	Formaldehyde	17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93	26.51	26.51	116.12	26.51	26.51	116.12
	Benzene	15.58	15.58	68.22	18.67	18.67	81.77	23.53	23.53	103.07	27.02	27.02	118.36	29.79	29.79	130.47
	Toluene	34.84	34.84	152.60	42.84	42.84	187.65	55.67	55.67	243.85	66.27	66.27	290.28	73.73	73.73	322.92
	Ethylbenzene	2.03	2.03	8.89	2.45	2.45	10.73	3.13	3.13	13.71	3.37	3.37	14.78	3.73	3.73	16.35
	Xylene	26.99	26.99	118.23	33.26	33.26	145.66	43.29	43.29	189.60	51.19	51.19	224.21	56.97	56.97	249.54
	n-Hexane	8.83	8.83	38.69	10.48	10.48	45.90	13.02	13.02	57.02	5.20	5.20	22.80	5.56	5.56	24.33
	Total HAPs	106.18	106.18	465.05	133.25	133.25	583.65	164.20	164.20	719.17	179.58	179.58	786.55	196.29	196.29	859.73

Table F.3.81
Proposed Action Emissions Inventory - Total Emissions by Year

		2011 (tpy) Total	2011 (lb/hr) Summer	2012 (lb/hr) Winter	2012 (tpy) Total	2013 (lb/hr) Summer	2013 (lb/hr) Winter	2013 (tpy) Total	2014 (lb/hr) Summer	2014 (lb/hr) Winter	2014 (tpy) Total	2015 (lb/hr) Summer	2015 (lb/hr) Winter	2015 (tpy) Total
TOTAL CONSTRUCTION EMISSIONS:	CO	1971.43	589.61	476.06	1847.03	574.99	475.87	1825.35	591.15	475.67	1837.37	585.08	475.67	1562.89
	NO_x	3364.55	1000.75	927.23	3244.93	988.72	926.92	3208.68	1001.68	926.60	3199.80	996.76	926.60	2702.52
	SO_2	18.73	5.33	3.66	16.87	5.10	3.65	16.58	5.34	3.64	16.80	5.25	3.64	16.08
	VOCs	237.24	70.32	57.64	222.52	68.60	57.62	219.90	70.49	57.59	221.24	69.78	57.59	189.41
	PM_{10}	894.96	156.66	102.97	507.99	153.41	102.71	499.71	157.21	102.45	505.96	155.83	102.45	486.89
	$PM_{2.5}$	287.38	60.33	42.08	185.99	58.49	42.03	181.89	60.54	41.98	184.76	59.77	41.98	167.17
TOTAL PRODUCTION EMISSIONS:	NOx	3037.91	677.00	721.17	3061.98	679.44	729.64	3085.89	681.85	738.07	3109.62	691.10	753.30	3163.23
	CO	2510.36	569.86	579.14	2516.31	570.58	581.13	2522.24	571.23	583.03	2527.82	578.72	591.78	2563.41
	VOC	3322.83	774.84	777.27	3399.14	789.29	792.05	3463.15	802.29	805.39	3520.82	814.19	817.61	3573.66
	PM10	557.75	137.63	140.98	610.16	147.42	151.24	654.07	156.33	160.60	694.08	166.02	170.75	737.51
	PM2.5	207.65	50.17	53.53	227.11	53.69	57.51	243.53	56.89	61.16	258.54	60.40	65.13	274.89
	SO2	0.93	0.11	0.38	1.08	0.13	0.43	1.22	0.14	0.48	1.36	0.16	0.53	1.50
	Formaldehyde	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.74	41.74	182.82
	Benzene	142.43	34.08	34.08	149.29	35.47	35.47	155.36	36.70	36.70	160.74	37.79	37.79	165.54
	Toluene	346.16	83.25	83.25	364.65	86.99	86.99	381.01	90.30	90.30	395.51	93.25	93.25	408.45
	Ethylbenzene	17.20	4.13	4.13	18.09	4.31	4.31	18.87	4.47	4.47	19.57	4.61	4.61	20.19
	Xylene	265.52	63.89	63.89	279.86	66.79	66.79	292.55	69.36	69.36	303.80	71.65	71.65	313.84
	n-Hexane	27.78	6.55	6.55	28.67	6.72	6.72	29.43	6.87	6.87	30.11	7.01	7.01	30.71
	Total HAPs	979.81	233.17	233.17	1021.29	241.54	241.54	1057.93	248.96	248.96	1090.45	256.06	256.06	1121.54
TOTAL PROPOSED ACTION EMISSIONS:	**NOx**	6402.46	1677.75	1648.40	6306.91	1668.16	1656.56	6294.57	1683.53	1664.67	6309.43	1687.85	1679.91	5865.75
	CO	4481.79	1159.48	1055.20	4363.34	1145.57	1056.99	4347.59	1162.38	1058.70	4365.20	1163.81	1067.46	4126.30
	VOC	3560.07	845.17	834.92	3621.66	857.89	849.67	3683.05	872.79	862.97	3742.05	883.97	875.20	3763.07
	PM10	1452.71	294.29	243.96	1118.15	300.84	253.95	1153.78	313.54	263.06	1200.04	321.85	273.20	1224.41
	PM2.5	495.02	110.51	95.61	413.11	112.19	99.54	425.42	117.43	103.15	443.30	120.17	107.11	442.06
	SO2	19.67	5.44	4.04	17.95	5.23	4.08	17.80	5.48	4.12	18.16	5.41	4.17	17.58
	Formaldehyde	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.26	41.26	180.72	41.74	41.74	182.82
	Benzene	142.43	34.08	34.08	149.29	35.47	35.47	155.36	36.70	36.70	160.74	37.79	37.79	165.54
	Toluene	346.16	83.25	83.25	364.65	86.99	86.99	381.01	90.30	90.30	395.51	93.25	93.25	408.45
	Ethylbenzene	17.20	4.13	4.13	18.09	4.31	4.31	18.87	4.47	4.47	19.57	4.61	4.61	20.19
	Xylene	265.52	63.89	63.89	279.86	66.79	66.79	292.55	69.36	69.36	303.80	71.65	71.65	313.84
	n-Hexane	27.78	6.55	6.55	28.67	6.72	6.72	29.43	6.87	6.87	30.11	7.01	7.01	30.71
	Total HAPs	979.81	233.17	233.17	1021.29	241.54	241.54	1057.93	248.96	248.96	1090.45	256.06	256.06	1121.54

Table F.3.81
Proposed Action Emissions Inventory - Total Emissions by Year

		2016			2017			2018			2019			2021		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
TOTAL CONSTRUCTION EMISSIONS:	CO	589.06	475.48	1562.65	567.85	465.12	1531.12	533.60	454.95	1489.91	431.15	363.54	1187.65	313.04	272.00	988.92
	NO_x	999.82	926.29	2687.50	973.26	908.11	2633.11	936.26	890.25	2585.68	771.12	730.75	2063.90	498.22	475.68	1670.97
	SO_2	5.31	3.63	16.10	5.08	3.57	15.72	4.66	3.52	15.16	3.72	2.73	11.82	2.78	2.19	9.58
	VOCs	70.24	57.56	189.31	67.75	56.33	185.47	63.73	55.12	180.55	51.52	44.10	143.77	37.17	32.74	119.26
	PM_{10}	157.20	102.19	487.98	148.01	100.58	471.19	132.07	99.21	445.21	104.14	77.35	346.44	76.18	60.34	276.43
	$PM_{2.5}$	60.37	41.94	167.54	57.35	41.16	161.86	51.97	40.43	153.00	42.21	32.47	121.43	28.79	23.04	96.03
TOTAL PRODUCTION EMISSIONS:	NOx	693.51	761.71	3186.92	695.92	770.09	3210.55	698.27	778.32	3233.72	700.54	786.42	3256.46	703.80	798.03	3289.01
	CO	579.39	593.71	2569.08	580.01	595.59	2574.55	580.49	597.31	2579.38	580.92	598.95	2583.92	581.51	601.30	2590.36
	VOC	824.92	828.67	3621.36	834.29	838.37	3663.13	840.65	845.05	3691.69	846.10	850.83	3716.27	804.44	809.62	3534.79
	PM10	175.46	180.64	779.87	185.34	190.97	824.12	194.26	200.34	864.18	200.77	207.29	893.65	209.96	217.12	935.31
	PM2.5	63.79	68.97	290.75	67.31	72.94	307.15	70.47	76.55	321.98	72.81	79.34	333.21	76.15	83.31	349.23
	SO2	0.17	0.58	1.64	0.18	0.63	1.78	0.20	0.68	1.92	0.21	0.73	2.05	0.23	0.80	2.25
	Formaldehyde	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	38.81	38.81	169.98	39.68	39.68	173.81	40.31	40.31	176.58	40.86	40.86	178.95	36.62	36.62	160.41
	Toluene	95.98	95.98	420.41	98.34	98.34	430.74	100.04	100.04	438.20	101.51	101.51	444.59	90.09	90.09	394.59
	Ethylbenzene	4.74	4.74	20.77	4.85	4.85	21.26	4.94	4.94	21.62	5.01	5.01	21.93	4.46	4.46	19.52
	Xylene	73.77	73.77	323.12	75.60	75.60	331.13	76.92	76.92	336.92	78.06	78.06	341.89	69.19	69.19	303.07
	n-Hexane	7.14	7.14	31.27	7.25	7.25	31.76	7.33	7.33	32.09	7.39	7.39	32.38	6.88	6.88	30.14
	Total HAPs	262.18	262.18	1148.36	267.47	267.47	1171.52	271.28	271.28	1188.22	274.56	274.56	1202.56	248.98	248.98	1090.55
TOTAL PROPOSED ACTION EMISSIONS:	**NOx**	1693.33	1688.00	5874.42	1669.18	1678.20	5843.66	1634.52	1668.57	5819.40	1471.67	1517.18	5320.36	1202.02	1273.71	4959.98
	CO	1168.45	1069.19	4131.73	1147.86	1060.70	4105.68	1114.09	1052.25	4069.30	1012.07	962.50	3771.57	894.55	873.30	3579.28
	VOC	895.16	886.23	3810.68	902.04	894.70	3848.60	904.38	900.18	3872.24	897.63	894.93	3860.04	841.61	842.36	3654.04
	PM10	332.66	282.84	1267.84	333.35	291.55	1295.31	326.33	299.56	1309.39	304.91	284.64	1240.09	286.14	277.46	1211.74
	PM2.5	124.16	110.91	458.28	124.66	114.10	469.00	122.44	116.98	474.97	115.03	111.81	454.65	104.94	106.36	445.27
	SO2	5.48	4.21	17.74	5.26	4.20	17.50	4.86	4.20	17.08	3.93	3.46	13.87	3.01	2.98	11.83
	Formaldehyde	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	38.81	38.81	169.98	39.68	39.68	173.81	40.31	40.31	176.58	40.86	40.86	178.95	36.62	36.62	160.41
	Toluene	95.98	95.98	420.41	98.34	98.34	430.74	100.04	100.04	438.20	101.51	101.51	444.59	90.09	90.09	394.59
	Ethylbenzene	4.74	4.74	20.77	4.85	4.85	21.26	4.94	4.94	21.62	5.01	5.01	21.93	4.46	4.46	19.52
	Xylene	73.77	73.77	323.12	75.60	75.60	331.13	76.92	76.92	336.92	78.06	78.06	341.89	69.19	69.19	303.07
	n-Hexane	7.14	7.14	31.27	7.25	7.25	31.76	7.33	7.33	32.09	7.39	7.39	32.38	6.88	6.88	30.14
	Total HAPs	262.18	262.18	1148.36	267.47	267.47	1171.52	271.28	271.28	1188.22	274.56	274.56	1202.56	248.98	248.98	1090.55

Table F.3.81
Proposed Action Emissions Inventory - Total Emissions by Year

		2022			2023			2024			2025			2026		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
TOTAL CONSTRUCTION EMISSIONS:	CO	259.04	217.47	823.54	207.82	192.30	644.59	159.55	161.23	585.25	27.92	28.23	50.40	0.00	0.00	0.00
	NO_x	405.40	380.37	1384.08	341.47	336.76	1101.96	275.39	283.39	1020.79	48.25	49.75	89.05	0.00	0.00	0.00
	SO_2	2.37	1.76	7.92	1.65	1.44	5.98	1.26	1.31	5.35	0.14	0.15	0.46	0.00	0.00	0.00
	VOCs	30.76	26.18	99.21	24.62	23.08	77.70	18.62	19.06	69.00	3.24	3.32	6.00	0.00	0.00	0.00
	PM_{10}	64.65	48.61	229.68	45.44	39.43	170.21	18.83	19.43	77.03	2.42	2.53	6.66	0.00	0.00	0.00
	$PM_{2.5}$	24.42	18.48	80.66	17.80	15.83	60.03	10.64	11.25	41.18	1.73	1.85	3.65	0.00	0.00	0.00
TOTAL PRODUCTION EMISSIONS:	NOx	705.25	803.17	3303.45	706.42	807.33	3315.11	707.33	810.58	3324.22	708.20	813.69	3332.94	708.26	813.93	3333.60
	CO	581.79	602.35	2593.26	582.00	603.19	2595.58	582.17	603.85	2597.39	582.33	604.48	2599.13	582.32	604.52	2599.18
	VOC	793.50	798.89	3487.34	772.09	777.64	3393.90	748.35	754.02	3290.19	734.28	740.08	3228.85	678.88	684.70	2986.24
	PM10	213.61	221.05	951.90	217.02	224.68	967.32	218.67	226.52	974.96	219.29	227.31	978.06	219.13	227.16	977.36
	PM2.5	77.44	84.88	355.47	78.67	86.34	361.35	79.23	87.08	364.22	79.39	87.40	365.26	79.36	87.40	365.20
	SO2	0.24	0.83	2.33	0.25	0.85	2.40	0.25	0.87	2.45	0.26	0.89	2.51	0.26	0.89	2.51
	Formaldehyde	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	35.51	35.51	155.53	33.34	33.34	146.01	30.93	30.93	135.46	29.50	29.50	129.21	23.89	23.89	104.65
	Toluene	87.08	87.08	381.43	81.22	81.22	355.75	74.73	74.73	327.31	70.88	70.88	310.44	55.75	55.75	244.19
	Ethylbenzene	4.31	4.31	18.89	4.03	4.03	17.66	3.72	3.72	16.29	3.53	3.53	15.48	2.81	2.81	12.29
	Xylene	66.86	66.86	292.85	62.31	62.31	272.91	57.27	57.27	250.83	54.28	54.28	237.73	42.53	42.53	186.29
	n-Hexane	6.75	6.75	29.55	6.49	6.49	28.41	6.20	6.20	27.13	6.02	6.02	26.38	5.35	5.35	23.42
	Total HAPs	242.25	242.25	1061.07	229.12	229.12	1003.56	214.58	214.58	939.84	205.95	205.95	902.05	172.07	172.07	753.65
TOTAL PROPOSED ACTION EMISSIONS:	**NOx**	1110.65	1183.55	4687.53	1047.89	1144.09	4417.06	982.72	1093.97	4345.01	756.46	863.44	3421.99	708.26	813.93	3333.60
	CO	840.83	819.82	3416.80	789.82	795.50	3240.17	741.72	765.08	3182.64	610.25	632.71	2649.53	582.32	604.52	2599.18
	VOC	824.26	825.07	3586.54	796.71	800.72	3471.59	766.97	773.09	3359.19	737.52	743.40	3234.84	678.88	684.70	2986.24
	PM10	278.25	269.67	1181.58	262.45	264.11	1137.53	237.50	245.95	1051.98	221.71	229.84	984.73	219.13	227.16	977.36
	PM2.5	101.86	103.36	436.13	96.46	102.16	421.38	89.87	98.33	405.40	81.12	89.25	368.91	79.36	87.40	365.20
	SO2	2.61	2.59	10.25	1.89	2.29	8.38	1.51	2.18	7.81	0.40	1.04	2.97	0.26	0.89	2.51
	Formaldehyde	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82	41.74	41.74	182.82
	Benzene	35.51	35.51	155.53	33.34	33.34	146.01	30.93	30.93	135.46	29.50	29.50	129.21	23.89	23.89	104.65
	Toluene	87.08	87.08	381.43	81.22	81.22	355.75	74.73	74.73	327.31	70.88	70.88	310.44	55.75	55.75	244.19
	Ethylbenzene	4.31	4.31	18.89	4.03	4.03	17.66	3.72	3.72	16.29	3.53	3.53	15.48	2.81	2.81	12.29
	Xylene	66.86	66.86	292.85	62.31	62.31	272.91	57.27	57.27	250.83	54.28	54.28	237.73	42.53	42.53	186.29
	n-Hexane	6.75	6.75	29.55	6.49	6.49	28.41	6.20	6.20	27.13	6.02	6.02	26.38	5.35	5.35	23.42
	Total HAPs	242.25	242.25	1061.07	229.12	229.12	1003.56	214.58	214.58	939.84	205.95	205.95	902.05	172.07	172.07	753.65

Table F.4.1
No Action Emissions Inventory - Pad, Road and Pipeline Disturbances by Year

Year	Pads (acres)	New Pads (number)	Expanded Pads (number)	Local Roads (miles)	Local Roads (acres)	Resource Roads (Miles)	Resource roads (acres)	Pipelines (miles)	Pipelines (acres)	Annual Total (acres)
Pre-ROD	332.05	56	--	--	--	108.3	652.3	12.14	60.15	1044.5
ROD through 2005	1808.02	266	--	--	--	176.52	912.98	134.18	804.81	3525.81
2006 [1]	295.50	26	43	5.20	23.45	5.98	27.93	13.00	78.00	424.88
2007	807.50	92	24	18.40	82.98	21.16	98.82	46.00	276.00	1265.30
2008	12.60	1	1	0.20	0.90	0.23	1.07	0.50	3.00	17.58
Total 2007-2008	**820.10**	**93**	**25**	**18.60**	**83.89**	**21.39**	**99.89**	**46.50**	**279.00**	**1282.88**

Table F.4.2
No Action Emissions Inventory - Well Pad Construction/Expansion - All Operators - Per Acre

Project: Pinedale Anticline SEIS
Scenario: All Scenerios
Activity: Well Pad Construction
Emissions: Fugitive Particulate Emissions from Well Pad Construction
Date: 11/30/2006

Well Pad Area (Expansion)	Construction Activity TSP Emission Factor[1]	Construction Activity Duration[2]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(acre)	(tons/acre-month)	(days/acre)	(hours/day)	(%)	(lb/acre)	(lb/acre)
1	1.2	2.1	12	50	15.12	3.99

[1] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations"; TSP = total suspended particulates.

[2] Construction Activity Duration taken from an average of durations provided by Shell, Ultra and Questar.

[3] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.3
No Action Emissions Inventory - Local Road Construction - All Operators - Per Mile

Project: **Pinedale Anticline SEIS**
Scenario: **Local Road Construction**
Activity: **Access Road Construction**
Emissions: **Fugitive Particulate Emissions from Access Road Construction**
Date: **11/30/2006**

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.51	1.2	3.3	12	50	214.32	56.56

[1] Construction Area taken from average of current field activity of 4.51 acres/mile for Local Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.4
No Action Emissions Inventory - Resource Road Construction - All Operators - Per Mile

Project: **Pinedale Anticline SEIS**
Scenario: **Resource Road Construction**
Activity: **Access Road Construction**
Emissions: **Fugitive Particulate Emissions from Access Road Construction**
Date: **11/30/2006**

Road Length	Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	$PM_{2.5}$ Emissions (controlled)[4]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	4.67	1.2	3.3	12	50	221.92	58.56

[1] Construction Area taken from average of current field activity of 4.67 acres/mile for Resource Roads.

[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".

[3] Construction Activity Duration taken from the average of data provided by Shell, Ultra and Questar.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.5
No Action Emissions Inventory - Pipeline Construction - All Operators - Per Mile

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Pipeline Construction
Date: 11/30/2006

Pipeline Length	Pipeline Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	$PM_{2.5}$ Emissions (controlled)[5]
(mi)	(acres)	(tons/acre-month)	(days/mi)	(hours/day)	(%)	(lb/mi)	(lb/mi)
1	6.00	1.2	3.3	12	50	285.12	75.24

[1] Construction Area taken from average of current field activity of 6.00 acres/mile for pipelines.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.6
No Action Emissions Inventory - Sales Pipeline Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Sales Pipeline Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Year of Proposed Construction	Construction Area[1] (acres)	Construction Activity TSP Emission Factor[2] (tons/acre-month)	Construction Activity Duration (days)	Construction Activity Duration (hours/day)	Emission Control Efficiency (%)	PM_{10} Emissions (controlled)[3] (lbs)	PM_{10} Emissions (controlled)[3] (tpy)	$PM_{2.5}$ Emissions (controlled)[4] (lbs)	$PM_{2.5}$ Emissions (controlled)[4] (tpy)
QGM (2) Mesa Loop inside PAPA	2007	145.45	1.2	39.6	12	50	82,941	41.47	21,887	10.94
QGM Water Gathering System	2007	109.09	1.2	59.4	12	50	93,311	46.66	24,624	12.31
TEPPCO Mesa to Falcon inside PAPA	2011	155.15	1.2	52.8	12	50	117,964	58.98	31,129	15.56
						Total 2007:	176,253	88.13	46,511	23.26
						Total 2011:	117,964	58.98	31,129	15.56

[1] Acres of construction provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.7
No Action Emissions Inventory - Ancillary Facilities Construction

Project: Pinedale Anticline SEIS
Scenario: Other Construction Activities
Activity: Ancillary Facilities Construction
Emissions: Fugitive Particulate Emissions from Const. Activities
Date: 11/30/2006

Construction Activity	Year of Proposed Construction	Construction Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]		$PM_{2.5}$ Emissions (controlled)[4]	
		(acres)	(tons/acre-month)	(days)	(hours/day)	(%)	(lbs)	(tpy)	(lbs)	(tpy)
Compressor Sites Expansion	2011	90.00	1.2	189	12	50	244,944	122.47	64,638	32.32
Central Gathering Facilities - QGM	2007	12.00	1.2	25.2	12	50	4,355	2.18	1,149	0.57
Water Trucking Facility - QGM	2007	7.00	1.2	14.7	12	50	1,482	0.74	391	0.20
Falcon Truck Unloading - QGM	2007	15.00	1.2	31.5	12	50	6,804	3.40	1,796	0.90
Expand Stbilizer Site - QGM	2007	5.00	1.2	10.5	12	50	756	0.38	200	0.10
						Total 2007:	13,396	6.70	3,535	1.77
						Total 2011:	244,944	122.47	64,638	32.32

[1] Acres of construction provided by operators.
[2] AP-42 (EPA 2004a), Section 13.2.3, "Heavy Construction Operations".
[3] Construction Activity Duration assumed to be similar to road construction.
[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table F.4.8
No Action Emissions Inventory - Construction Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Well Pad, Resource Road, Pipeline Construction
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor :	0.3733 lb/hr/100m^2	Based on AP-42 Chapter 13.2.5 (EPA 2004a), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.	
Control Efficiency:	50 %		
Disturbed Area:			
Well Pad Construction/Exp.:	1 acres	4,047.00 m^2	
Access Road Construction:	1 acres	4,047.00 m^2	
Pipeline Construction	1 acres	4,047.00 m^2	

PM_{10} Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	# of Construction Hours Per Acre (hr)	PM_{10} Emissions (lb/hr)	$PM_{2.5}$ Emissions (lb/hr)	PM_{10} Emissions (tons/acre)	$PM_{2.5}$ Emissions (tons/acre)
Well Pad Construction:	0.3733	0.1493	40.47	50	25.2	7.55	3.02	0.10	0.04
Road Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01
Pipeline Construction	0.3733	0.1493	40.47	50	8.3	7.55	3.02	0.03	0.01

Table F.4.9
No Action Emissions Inventory - Well Pad Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Heavy Trucks	Local	Chemical	35,000	35	5.1	2.4	240	10	2400	85	1.54	0.24	552.85	84.77
	Resource	Water	35,000	20	5.1	2.4	240	1	240	50	1.54	0.24	184.28	28.26
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	160	10	1600	85	0.60	0.09	144.80	21.65
	Resource	Water	7,000	20	5.1	2.4	160	1	160	50	0.46	0.07	36.48	5.45
									Total Unpaved Road Traffic Emissions (lb/pad)				918.40	140.13

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.10
No Action Emissions Inventory - Road Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Resource Road Const. Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	Round Trips (RTs) (RT/pad)	RT Distance (miles)	Vehicle Miles Traveled (VMT)[3] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[5] (controlled) (lb/pad)
Gravel/Haul Trucks	Local	Chemical	35,000	35	5.1	2.4	88	10	880	85	1.54	0.24	202.71	31.08
	Resource	Water	35,000	20	5.1	2.4	88	1	88	50	1.54	0.24	67.57	10.36
Light Trucks/Pickups	Local	Chemical	7,000	35	5.1	2.4	58	10	580	85	0.60	0.09	52.49	7.85
	Resource	Water	7,000	20	5.1	2.4	58	1	58	50	0.46	0.07	13.22	1.98
												Total Unpaved Road Traffic Emissions (lb/pad)	335.99	51.27

[1] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[2] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[3] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[4] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[5] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.11
No Action Emissions Inventory - Pipeline Construction Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Fugitive Particulate Emissions from Pipeline Construction Traffic
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per pad	RT Distance (miles)	VMT[4] (VMT/pad)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/pad)	$PM_{2.5}$ Emissions[6] (controlled) (lb/pad)
Semis/transport, boom, equipment, water removal, sand, and gravel trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light truck/pick-ups	Local	Chemical	7,000	35	5.1	2.4	200	10	2000	85	0.23	0.03	69.00	10.26
	Resource	Water	7,000	20	5.1	2.4	200	1	200	50	0.23	0.03	23.00	3.42
												Total Unpaved Road Traffic Emissions (lb/pad)	1,113.36	170.29

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.12
No Action Emissions Inventory - Well Pad Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Pad Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2] (g/hp-hr)					Construction Activity Duration (days/acre)	Construction Activity Duration (hours/day)	Pollutant Emissions (lb/acre)				
	(hp)			CO	NO_x	SO_2	VOC	PM_{10}	equipment type)		CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	25.19	20.44	0.39	2.96	1.19
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	11	51.94	42.17	0.79	6.11	2.44
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	2.1	11	207.78	168.67	3.18	24.44	9.78
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	56.67	46.00	0.87	6.67	2.67
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	2.1	8	12.59	10.22	0.19	1.48	0.59
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	2.1	10	31.48	25.56	0.48	3.70	1.48
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	2.1	12	39.67	32.20	0.61	4.67	1.87
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	2.1	6	31.17	25.30	0.48	3.67	1.47
									Total Heavy Equipment Tailpipe Emissions		456.48	370.56	6.98	53.70	21.48

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.4.13
No Action Emissions Inventory - Road Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Road Construction Heavy Equip.
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Loader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Dozer	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	11	81.63	66.26	1.25	9.60	3.84
Scraper	600	2	0.4	8.5	6.9	0.13	1	0.4	3.3	11	326.51	265.05	4.99	38.41	15.37
Grader	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	89.05	72.29	1.36	10.48	4.19
Backhoe	100	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	19.79	16.06	0.30	2.33	0.93
Roller	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	10	49.47	40.16	0.76	5.82	2.33
Water Truck	210	1	0.4	8.5	6.9	0.13	1	0.4	3.3	12	62.33	50.60	0.95	7.33	2.93
Dump Truck	330	1	0.4	8.5	6.9	0.13	1	0.4	3.3	6	48.98	39.76	0.75	5.76	2.30
									Total Heavy Equipment Tailpipe Emissions		717.33	582.30	10.97	84.39	33.76

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.4.14
No Action Emissions Inventory - Pipeline Construction - Heavy Equipment Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Pipeline Construction
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Heavy Equipment	Engine Horsepower	Number Required	Operating Load Factor[1]	Pollutant Emission Factor[2]					Construction Activity Duration	Construction Activity Duration	Pollutant Emissions				
	(hp)			(g/hp-hr)					(days/mile)	(hours/day)	(lb/mile)				
				CO	NO_x	SO_2	VOC	PM_{10}			CO	NO_x	SO_2	VOC	PM_{10}[3]
Grader	200	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	39.58	32.13	0.61	4.66	1.86
Excavator	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Trencher	300	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	59.37	48.19	0.91	6.98	2.79
Tractor (side-boom)	150	1	0.4	8.5	6.9	0.13	1	0.4	3.3	8	29.68	24.10	0.45	3.49	1.40
										Total Emissions from Heavy Equipment Tailpipes	187.99	152.60	2.88	22.12	8.85

[1] Taken from "Surface Mining" (Pfleider 1972) for average service duty.

[2] Emission factors based on the fact that there is a mix of Tier 0, 1 and 2 equipment operating in the field. Therefore, tier 1 emission factors are conservatively assumed for the life of project.

SO_2 emissions based on a sulfur balance and 350 ppm diesel fuel.

[3] $PM_{2.5}$ assumed equivalent to PM_{10} for combustion sources.

Table F.4.15
No Action Emissions Inventory - Drilling Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis-tractor/ trailer/mud/water/ fuel/ cement trucks[1]	Local Road	Chemical	44,000	35	5.1	2.4	360	10	3,600	85	1.70	0.26	919.22	140.95
	Resource Road	Water	44,000	20	5.1	2.4	360	1	360	50	1.70	0.26	306.41	46.98
Vendors/ marketers/ various/ workers	Local Road	Chemical	7,000	35	5.1	2.4	540	10	5,400	85	0.60	0.090	488.69	73.07
	Resource Road	Water	7,000	20	5.1	2.4	540	1	540	50	0.46	0.068	123.11	18.39
												Total Unpaved Road Traffic Emissions (lb/well)	1,837.43	279.39

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.16
No Action Emissions Inventory - Rig Move Traffic - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Rig Haul Trucks	Local Road	Chemical	44,000	35	5.1	2.4	26.3	10	263	85	1.70	0.26	67.15	10.30
	Resource Road	Water	44,000	20	5.1	2.4	26.3	1	26	50	1.70	0.26	22.38	3.43
Light Trucks	Local Road	Chemical	7,000	35	5.1	2.4	8.8	10	88	85	0.74	0.11	9.83	1.51
	Resource Road	Water	7,000	20	5.1	2.4	8.8	1	9	50	0.74	0.11	3.28	0.50
											Total Unpaved Road Traffic Emissions (lb/well)		102.64	15.74

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.17
No Action Emissions Inventory - Drilling Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Drilling
Emissions: Diesel Combustion Emissions from Haul Truck Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	360	11	3960	45	24	128.68
NO_x	11.44	360	11	3960	45	24	99.87
SO_2[2]	0.13	360	11	3960	45	24	1.13
VOC	5.69	360	11	3960	45	24	49.67

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

[3] Based on a life of project average of 45 days per well.

Table F.4.18
No Action Emissions Inventory - Rig Move Haul Truck Tailpipe - All Operators

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Rig Move
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well\)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration (days/move)	Haul Activity Duration (hours/day)	Emissions (lb/well)
CO	14.74	26.3	11	289.3	3	24	9.40
NO_x	11.44	26.3	11	289.3	3	24	7.30
SO_2[2]	0.13	26.3	11	289.3	3	24	0.08
VOC	5.69	26.3	11	289.3	3	24	3.63

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a sulfur balance and 350 ppm diesel fuel.

Table F.4.19
No Action Emissions Inventory - Ultra Tier 0 Rig – 2006

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 0**
Effective Dates: **2006**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,640	0.42	62	24	12,487.90	8.39	6.24
NOx	Tier 0	10.89	3,640	0.42	62	24	54,615.76	36.70	27.31
SO_2	Tier 0	0.13	3,640	0.42	62	24	651.98	0.44	0.33
VOC	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80
PM_{10}[4]	Tier 0	0.32	3,640	0.42	62	24	1,604.87	1.08	0.80

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.20
No Action Emissions Inventory - Ultra Tier 1 Rig – 2006

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 1**
Effective Dates: **2006**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,640	0.42	62	24	42,629.38	28.65	21.31
NOx	Tier 1	6.90	3,640	0.42	62	24	34,605.03	23.26	17.30
SO_2	Tier 1	0.13	3,640	0.42	62	24	651.98	0.44	0.33
VOC	Tier 1	1.00	3,640	0.42	62	24	5,015.22	3.37	2.51
PM_{10}[4]	Tier 1	0.40	3,640	0.42	62	24	2,006.09	1.35	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.21
No Action Emissions Inventory - Ultra Tier 0 Rig - 2007-2008

Project: **Pinedale Anticline SEIS**
Scenario: **Ultra - Tier 0**
Effective Dates: **2007- 2008**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,640	0.42	55	24	11,077.98	8.39	5.54
NOx	Tier 0	10.89	3,640	0.42	55	24	48,449.47	36.70	24.22
SO_2	Tier 0	0.13	3,640	0.42	55	24	578.37	0.44	0.29
VOC	Tier 0	0.32	3,640	0.42	55	24	1,423.68	1.08	0.71
PM_{10}[4]	Tier 0	0.32	3,640	0.42	55	24	1,423.68	1.08	0.71

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.22
No Action Emissions Inventory - Ultra Tier 1 Rig - 2007-2008

Project: Pinedale Anticline SEIS
Scenario: Ultra - Tier 1
Effective Dates: 2007-2008
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,640	0.42	55	24	37,816.39	28.65	18.91
NOx	Tier 1	6.90	3,640	0.42	55	24	30,698.01	23.26	15.35
SO_2	Tier 1	0.13	3,640	0.42	55	24	578.37	0.44	0.29
VOC	Tier 1	1.00	3,640	0.42	55	24	4,448.99	3.37	2.22
PM_{10}[4]	Tier 1	0.40	3,640	0.42	55	24	1,779.59	1.35	0.89

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Ultra.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.23
No Action Emissions Inventory - Shell Tier 0 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	4,040	0.42	45	24	10,059.82	9.31	5.03
NOx	Tier 0	10.89	4,040	0.42	45	24	43,996.57	40.74	22.00
SO_2	Tier 0	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65
PM_{10}[4]	Tier 0	0.32	4,040	0.42	45	24	1,292.83	1.20	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.24
No Action Emissions Inventory - Shell Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	4,040	0.42	45	24	34,340.76	31.80	17.17
NOx	Tier 1	6.90	4,040	0.42	45	24	27,876.61	25.81	13.94
SO_2	Tier 1	0.13	4,040	0.42	45	24	525.21	0.49	0.26
VOC	Tier 1	1.00	4,040	0.42	45	24	4,040.09	3.74	2.02
PM_{10}[4]	Tier 1	0.40	4,040	0.42	45	24	1,616.04	1.50	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.25
No Action Emissions Inventory - Shell Tier 0 Rig – 2008

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 0
Effective Dates: 2008
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	4,040	0.42	40	24	8,942.06	9.31	4.47
NOx	Tier 0	10.89	4,040	0.42	40	24	39,108.06	40.74	19.55
SO_2	Tier 0	0.13	4,040	0.42	40	24	466.85	0.49	0.23
VOC	Tier 0	0.32	4,040	0.42	40	24	1,149.18	1.20	0.57
PM_{10}[4]	Tier 0	0.32	4,040	0.42	40	24	1,149.18	1.20	0.57

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.26
No Action Emissions Inventory - Shell Tier 1 Rig – 2008

Project: Pinedale Anticline SEIS
Scenario: Shell - Tier 1
Effective Dates: 2008
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	4,040	0.42	40	24	30,525.12	31.80	15.26
NOx	Tier 1	6.90	4,040	0.42	40	24	24,779.21	25.81	12.39
SO_2	Tier 1	0.13	4,040	0.42	40	24	466.85	0.49	0.23
VOC	Tier 1	1.00	4,040	0.42	40	24	3,591.19	3.74	1.80
PM_{10}[4]	Tier 1	0.40	4,040	0.42	40	24	1,436.48	1.50	0.72

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Shell.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.27
No Action Emissions Inventory - Questar Tier 0 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,940	0.42	45	24	9,810.82	9.08	4.91
NOx	Tier 0	10.89	3,940	0.42	45	24	42,907.55	39.73	21.45
SO_2	Tier 0	0.006	3,940	0.42	45	24	23.64	0.02	0.01
VOC	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63
PM_{10}[4]	Tier 0	0.32	3,940	0.42	45	24	1,260.83	1.17	0.63

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.28
No Action Emissions Inventory - Questar Tier 2 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	45	24	10,244.23	9.49	5.12
NOx	Tier 2	4.50	3,940	0.42	45	24	17,730.39	16.42	8.87
SO_2	Tier 2	0.006	3,940	0.42	45	24	23.64	0.02	0.01
VOC	Tier 2	0.30	3,940	0.42	45	24	1,182.03	1.09	0.59
PM_{10}[4]	Tier 2	0.15	3,940	0.42	45	24	591.01	0.55	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.4.29
No Action Emissions Inventory - Questar Tier 0 Rig – 2008

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 0
Effective Dates: 2008
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,940	0.42	40	24	8,720.73	9.08	4.36
NOx	Tier 0	10.89	3,940	0.42	40	24	38,140.04	39.73	19.07
SO_2	Tier 0	0.006	3,940	0.42	40	24	21.01	0.02	0.01
VOC	Tier 0	0.32	3,940	0.42	40	24	1,120.74	1.17	0.56
PM_{10}[4]	Tier 0	0.32	3,940	0.42	40	24	1,120.74	1.17	0.56

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table F.4.30
No Action Emissions Inventory - Questar Tier 2 Rig – 2008

Project: Pinedale Anticline SEIS
Scenario: Questar - Tier 2
Effective Dates: 2008
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,940	0.42	40	24	9,105.98	9.49	4.55
NOx	Tier 2	4.50	3,940	0.42	40	24	15,760.35	16.42	7.88
SO_2	Tier 2	0.006	3,940	0.42	40	24	21.01	0.02	0.01
VOC	Tier 2	0.30	3,940	0.42	40	24	1,050.69	1.09	0.53
PM_{10}[4]	Tier 2	0.15	3,940	0.42	40	24	525.34	0.55	0.26

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of current fleet. - Current fleet data provided by Questar.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.4.31
No Action Emissions Inventory - Yates Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Yates - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	58	24	42,453.71	30.50	21.23
NOx	Tier 1	6.90	3,875	0.42	58	24	34,462.43	24.76	17.23
SO_2	Tier 1	0.13	3,875	0.42	58	24	649.29	0.47	0.32
VOC	Tier 1	1.00	3,875	0.42	58	24	4,994.55	3.59	2.50
PM_{10}[4]	Tier 1	0.40	3,875	0.42	58	24	1,997.82	1.44	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.32
No Action Emissions Inventory - Yates Tier 1 Rig – 2008

Project: **Pinedale Anticline SEIS**
Scenario: **Yates - Tier 1**
Effective Dates: **2008**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	47	24	34,402.15	30.50	17.20
NOx	Tier 1	6.90	3,875	0.42	47	24	27,926.45	24.76	13.96
SO_2	Tier 1	0.13	3,875	0.42	47	24	526.15	0.47	0.26
VOC	Tier 1	1.00	3,875	0.42	47	24	4,047.31	3.59	2.02
PM_{10}[4]	Tier 1	0.40	3,875	0.42	47	24	1,618.92	1.44	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.33
No Action Emissions Inventory - Anschutz Tier 0 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: Anschutz - Tier 0
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	58	24	12,436.44	8.93	6.22
NOx	Tier 0	10.89	3,875	0.42	58	24	54,390.70	39.07	27.20
SO_2	Tier 0	0.13	3,875	0.42	58	24	649.29	0.47	0.32
VOC	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80
PM_{10}[4]	Tier 0	0.32	3,875	0.42	58	24	1,598.26	1.15	0.80

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.34
No Action Emissions Inventory - Anschutz Tier 0 Rig – 2008

Project: **Pinedale Anticline SEIS**
Scenario: **Anschutz - Tier 0**
Effective Dates: **2008**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration [5]	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 0	2.49	3,875	0.42	47	24	10,077.81	8.93	5.04
NOx	Tier 0	10.89	3,875	0.42	47	24	44,075.22	39.07	22.04
SO_2	Tier 0	0.13	3,875	0.42	47	24	526.15	0.47	0.26
VOC	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65
PM_{10}[4]	Tier 0	0.32	3,875	0.42	47	24	1,295.14	1.15	0.65

[1] Based on AP-42 (EPA, 1996), Section 3.4, Large Stationary Diesel and Dual Fuel Engines for engines >600hp.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.35
No Action Emissions Inventory - BP/Stone Tier 1 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: BP/Stone - Tier 1
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	58	24	42,453.71	30.50	21.23
NOx	Tier 1	6.90	3,875	0.42	58	24	34,462.43	24.76	17.23
SO_2	Tier 1	0.006	3,875	0.42	58	24	29.97	0.02	0.01
VOC	Tier 1	1.00	3,875	0.42	58	24	4,994.55	3.59	2.50
PM_{10}[4]	Tier 1	0.40	3,875	0.42	58	24	1,997.82	1.44	1.00

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.36
No Action Emissions Inventory - BP/Stone Tier 1 Rig – 2008

Project: **Pinedale Anticline SEIS**
Scenario: **BP/Stone - Tier 1**
Effective Dates: **2008**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Hour	Emissions per Well
		(g/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tons)
CO	Tier 1	8.50	3,875	0.42	47	24	34,402.15	30.50	17.20
NOx	Tier 1	6.90	3,875	0.42	47	24	27,926.45	24.76	13.96
SO_2	Tier 1	0.006	3,875	0.42	47	24	24.28	0.02	0.01
VOC	Tier 1	1.00	3,875	0.42	47	24	4,047.31	3.59	2.02
PM_{10}[4]	Tier 1	0.40	3,875	0.42	47	24	1,618.92	1.44	0.81

[1] Based on EPA Tier 1 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.

Table F.4.37
No Action Emissions Inventory - BP/Stone Tier 2 Rig - 2006-2007

Project: Pinedale Anticline SEIS
Scenario: BP/Stone - Tier 2
Effective Dates: 2006-2007
Emissions: Diesel Combustion Emissions from Drilling Engines
Date: 11/30/2006

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,6] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,875	0.42	58	24	12,985.84	9.33	6.49
NOx	Tier 2	4.50	3,875	0.42	58	24	22,475.50	16.15	11.24
SO_2	Tier 2	0.006	3,875	0.42	58	24	29.97	0.02	0.01
VOC	Tier 2	0.30	3,875	0.42	58	24	1,498.37	1.08	0.75
PM_{10}[4]	Tier 2	0.15	3,875	0.42	58	24	749.18	0.54	0.37

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.
[6] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.4.38
No Action Emissions Inventory - BP/Stone Tier 2 Rig – 2008

Project: **Pinedale Anticline SEIS**
Scenario: **BP/Stone - Tier 2**
Effective Dates: **2008**
Emissions: **Diesel Combustion Emissions from Drilling Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,6] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	3,875	0.42	47	24	10,523.01	9.33	5.26
NOx	Tier 2	4.50	3,875	0.42	47	24	18,212.90	16.15	9.11
SO_2	Tier 2	0.006	3,875	0.42	47	24	24.28	0.02	0.01
VOC	Tier 2	0.30	3,875	0.42	47	24	1,214.19	1.08	0.61
PM_{10}[4]	Tier 2	0.15	3,875	0.42	47	24	607.10	0.54	0.30

[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 15 ppm diesel fuel.
[2] Horsepower determined by average of other operators current fleets.
[3] Load factor based on 65% usage factor and average 65% engine load for a total load factor of 42% or 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.
[5] Drilling duration derived from an average of other operators.
[6] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.4.39
No Action Emissions Inventory - Drill Rig Boiler Emissions

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Drilling
Emissions: Rig Boilers
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Rig Boilers	
Design Firing Rate (MMBTU/hr) :	5	

Operating Parameters:

Annual Operating hours	4380	
Operation %	Winter (Nov. - Apr.)	100

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	21.90	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1] (lb/MMscf)	(lb/hr)
Total PM	7.6000	0.03800
SO_2	0.6	0.00300
NO_x	100.0000	0.50000
CO	21.0000	0.10500
VOC	5.50000	0.02750

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.4.40
No Action Emissions Inventory - Frac/Other Completion Engine Emissions

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Effective Dates: **All**
Emissions: **Diesel Combustion Emissions from Frac/Other Completion Engines**
Date: **11/30/2006**

Pollutant	EPA Tier Certification	Pollutant Emission Factor[1,5] (g/hp-hr)	Horsepower[2] (hp)	Overall Load Factor[3]	Drilling Activity Duration (days/well)	Drilling Activity Duration (hours/day)	Emissions per Well (lb/well)	Emissions per Hour (lb/hr)	Emissions per Well (tons)
CO	Tier 2	2.60	9,200	0.40	4	24	2,025.02	21.09	1.01
NOx	Tier 2	4.50	9,200	0.40	4	24	3,504.84	36.51	1.75
SO_2	Tier 2	0.13	9,200	0.40	4	24	101.25	1.05	0.05
VOC	Tier 2	0.30	9,200	0.40	4	24	233.66	2.43	0.12
PM_{10}[4]	Tier 2	0.15	9,200	0.40	4	24	116.83	1.22	0.06

Note: Frac engines are EPA Tier 2 from data provided by operators and Frac contractor Halliburton.
[1] Based on EPA Tier 2 Nonroad Diesel Standards.
All SO_2 emissions based on S-balance equation in Section 3.4 and 350 ppm diesel fuel.
[2] Horsepower determined by average of operators current data. Frac pump engines constitute the majority of the hp used.
[3] Load factor based on weighted average of full load and idle conditions during frac operations.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for frac engines.
[5] NO_x+VOCs standard of 4.8. Split based on EPA-NRC-009 (EPA 2004b).

Table F.4.41
No Action Emissions Inventory - Completion/Testing Traffic

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Completion/Testing Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs per Well	RT Distance (miles)	VMT[4] (VMT/well)	Emission Control Efficiency (%)	PM_{10} Emissions[5] (lb/VMT)	$PM_{2.5}$ Emissions[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/well)	$PM_{2.5}$ Emissions[6] (controlled) (lb/well)
Semis/ transport/ water/ sand/ frac trucks[1]	Local	Chemical	44,000	35	5.1	2.4	300	10	3,000	85	1.70	0.26	766.02	117.46
	Resource	Water	44,000	20	5.1	2.4	300	1	300	50	1.70	0.26	255.34	39.15
Light Trucks/ Pickups	Local	Chemical	7,000	35	5.1	2.4	450	10	4,500	85	0.74	0.11	502.42	77.04
	Resource	Water	7,000	20	5.1	2.4	450	1	450	50	0.74	0.11	167.47	25.68
										Total Unpaved Road Traffic Emissions (lb/well)			1,691.26	259.33

[1] Semi vehicle weight range is 28,000-60,000 lbs; average weight of 44,000 lbs used for calculations.

[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."

[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."

[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance.

[5] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.

[6] Calculated as lb/VMT x VMT/pad x control efficiency.

Table F.4.42
No Action Emissions Inventory - Completion/Testing Haul Truck Tailpipe

Project: **Pinedale Anticline SEIS**
Scenario: **All**
Activity: **Completion/Testing**
Emissions: **Diesel Combustion Emissions from Heavy Equipment Tailpipes**
Date: **11/30/2006**

Pollutant	Pollutant Emission Factor[1] (g/mile)	Total Haul Truck RTs (RTs/well)	RT Distance (miles/RT)	Total Haul Truck Miles Traveled (miles/well)	Haul Activity Duration[3] (days/well)	Haul Activity Duration[3] (hours/day)	Emissions (lb/well)
CO	14.74	300	11	3300	10	18	107.24
NO_x	11.44	300	11	3300	10	18	83.23
SO_2[2]	0.16	300	11	3300	10	18	1.16
VOC	5.69	300	11	3300	10	18	41.40

[1] AP-42 (EPA 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is based on a S balance and 350 ppm diesel fuel.

[3] Haul Activity Duration for completion activities based on an average of 10 days per well and an average of 24 hr/day for 5 days and 12 hr/day for 5 days.

Table F.4.43
No Action Emissions Inventory - Production Traffic – Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight[1] (lb)	Average Vehicle Speed (mph)	Silt Content[2] (%)	Moisture Content[3] (%)	RTs[4] (RTs)	RT Distance (miles)	VMT[4] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[5] (lb/VMT)	$PM_{2.5}$ Emission Factor[5] (lb/VMT)	PM_{10} Emissions[6] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[6] (controlled) (lb/RT)
Light Truck	Local	Chemical	7,000	35	5.1	2.4	1	10	10	85	0.74	0.11	1.12	0.17
	Resource	Water	7,000	20	5.1	2.4	1	1	1	50	0.74	0.11	0.37	0.06
												Total Access and Unimproved Road Emissions (lb/RT)	1.49	0.23

[1] Haul trucks weight range is 28,000-80,000 lbs. Average weight of 54,000 lbs used for calculations.
[2] AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[3] AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[4] Calculated as Round Trips per Vehicle Type x Round Trip Distance
[6] AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
[7] Calculated as lb/VMT x VMT/well x control efficiency.

Table F.4.44
No Action Emissions Inventory - Liquids Gathering Traffic - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Date: 11/30/2006

Vehicle Type	Road Type	Dust Control Method	Average Vehicle Weight (lb)	Average Vehicle Speed (mph)	Silt Content[1] (%)	Moisture Content[2] (%)	RT (RT)	RT Distance (miles)	VMT[3] (VMT/RT)	Emission Control Efficiency (%)	PM_{10} Emission Factor[4] (lb/VMT)	$PM_{2.5}$ Emission Factor[4] (lb/VMT)	PM_{10} Emissions[5] (controlled) (lb/RT)	$PM_{2.5}$ Emissions[5] (controlled) (lb/RT)
Haul Truck	Local	Chemical	54,000	35	5.1	2.4	1	10	10	85	1.87	0.29	2.80	0.43
	Resource	Water	54,000	20	5.1	2.4	1	1	1	50	1.87	0.29	0.93	0.14
												Total Access and Unimproved Road Emissions (lb/RT)	3.73	0.57

1 AP-42 (EPA 2004a), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
2 AP-42 (EPA 2004a), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
3 Calculated as Round Trips per Vehicle Type x Round Trip Distance
4 AP-42 (EPA 2004a), Section 13.2.2 "Unpaved Roads", equations 1a and 1F.
5 Calculated as lb/VMT x VMT/well x control efficiency.

Table F.4.45
No Action Emissions Inventory - Tanker Traffic Tailpipe - Per Round Trip

Project: Pinedale Anticline SEIS
Scenario: All Operators
Activity: Production Traffic
Emissions: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Date: 11/30/2006

Pollutant	Pollutant Emission Factor[1] (g/mi)	RT (RT)	Single Well Round Trip Distance (mi/RT)	Single Well Daily VMT (mi/pad/day)	Daily Emissions Single Well (lb/pad/day)
CO	14.74	1	11	11.00	0.36
NO_x	11.44	1	11	11.00	0.28
SO_2[2]	0.16	1	11	11.00	0.00
VOC	5.69	1	11	11.00	0.14

[1] AP-42 (EPA 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] The SO_2 emission factor is base don a S balance and 350 ppm diesel fuel.

Table F.4.46
No Action Emissions Inventory - Production Wind Erosion - All Operators - Per Acre of Disturbance

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production Wind Erosion
Emissions: Wind Erosion
Date: 11/30/2006

Emission Factor : 0.3733 lb/hr/100m^2 Based on AP-42 Chapter 13.2.5 (EPA 2004), Industrial Wind Erosion using Jonah Field, Wyoming meteorological data.

Control Efficiency: 50 %

Disturbed Area: 1 acres 4,047.00 m^2

PM Emissions Calculations:

	PM_{10} Emission Factor (lb/hr/100 m^2)	$PM_{2.5}$ Emission Factor (lb/hr/100 m^2)	Area (100 m^2)	Control Efficiency (%)	PM_{10} Emissions (lb/hr/acre)	$PM_{2.5}$ Emissions (lb/hr/acre)	PM_{10} Emissions[1] (tons/acre/yr)	$PM_{2.5}$ Emissions[1] (tons/acre/yr)
Production:	0.3733	0.1493	40.47	50	7.55	3.02	0.18	0.07

[1] TPY numbers based on lb/hr/acre and 47 hours per year that the wind speed in the Jonah Field met data overcome the threshold friction velocity.

Table F.4.47
No Action Emissions Inventory - Separator/Indirect Line Heaters

Project: Pinedlae Anticline SEIS
Scenario: Average per Well
Activity: Production
Emissions: Separator/Line Heaters
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.75	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combuste	1.48	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1] (lb/MMscf)	(lb/hr) Winter	(lb/hr) Summer	(tpy) Total
Total PM	7.6000	0.00200	0.00057	0.0056
SO_2	0.6	0.00016	0.00005	0.0004
NO_x	100.0000	0.02625	0.00750	0.0739
CO	21.0000	0.00551	0.00158	0.0155
VOC	5.50000	0.00144	0.00041	0.0041

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.4.48
No Action Emissions Inventory - Dehy Reboiler Heaters

Project: **Pinedlae Anticline SEIS**
Scenario: **Average per Well**
Activity: **Production**
Emissions: **Dehy Reboiler Heater**
Date: **11/30/2006**

Fuel Combustion Source:

Unit Description	Separator/Line Heaters	
Design Firing Rate (MMBTU/hr)	0.085	

Operating Parameters:

Annual Operating hours	1971	
Operation %	Winter (Nov. - Apr.)	35
	Summer (May - Oct.)	10

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combuste	0.17	MMSCF
Heat Content	1,000	Btu/scf

Potential Emission Data:

	Emission Factor[1]	(lb/hr)		(tpy)
	(lb/MMscf)	Winter	Summer	Total
Total PM	7.6000	0.00023	0.00006	0.0006
SO_2	0.6	0.00002	0.00001	0.0001
NO_x	100.0000	0.00298	0.00085	0.0084
CO	21.0000	0.00062	0.00018	0.0018
VOC	5.50000	0.00016	0.00005	0.0005

[1] Emission factors taken from WDEQ "Oil and Gas Production Facilities - Chapter 6, Section 2 Permitting Guidance" and AP-42, Table 1.4-2.

Table F.4.49
No Action Emissions Inventory - Dehydrator Flashing

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: TEG Dehydrator Flashing
Date: 11/30/2006

Pollutant	Uncontrolled (tpy)	Uncontrolled (lb/hr)	Controlled[1] (tpy)	Controlled[1] (lb/hr)
VOC	12.55	2.87	0.63	0.14
HAP	8.52	1.95	0.43	0.10
Benzene	1.42	0.32	0.07	0.02
Toluene	3.83	0.88	0.19	0.04
Ethylbenzene	0.18	0.04	0.01	2.10E-03
Xylene	2.97	0.68	0.15	0.03
n-Hexane	0.11	0.02	0.01	1.20E-03

[1] Data based on GRI-GLYCalc V. 4.0, 4 MMSCFD, 0.32 gpm glycol flow rate, average representative gas analysis and 95% destruction efficiency for controlled.

Table F.4.50
No Action Emissions Inventory - Average Well Production Decline Factors

Year	Factor
0	1
1	0.33426
2	0.23752
3	0.18898
4	0.15838
5	0.13689
6	0.12165
7	0.10828
8	0.09692
9	0.08708
10	0.07884
11	0.07083
12	0.06407
13	0.05803
14	0.05261
15	0.04772
16	0.04331
17	0.03932
18	0.03571
19	0.03243
20	0.02946
21	0.02675
22	0.02428
23	0.02376
24	0.01998
25	0.01811
26	0.01
27	0.01
28	0.01
29	0.01

Note: Decline factors averaged from data provided by all Shell, Ultra and Questar.

Table F.4.51
No Action Emissions Inventory - Fugitive HAPs and VOCs - Per Pad

Project: Pinedale Anticline SEIS
Scenario: All
Activity: Production
Emissions: Fugitive VOC/HAP Emissions
Date: 11/30/2006

Gas Analysis Weight Fraction

VOC	0.13930
Benzene	0.00052
Toluene	0.00091
Ethlybenzene	0.00003
Xylene	0.00036
n-hexane	0.00131

Source	Quantity	Emission Factor[1] (lb/hr/component)	Non-methane Hydrocarbons[2] (lb/hr)	Non-methane Hydrocarbons (tpy)	Benzene[2] (lb/hr)	Benzene (tpy)	Toluene[2] (lb/hr)	Toluene (tpy)	Ethlybenzene[2] (lb/hr)	Ethlybenzene (tpy)	Xylene[2] (lb/hr)	Xylene (tpy)	n-Hexane[2] (lb/hr)	n-Hexane (tpy)
Valves	20	0.00992	0.0276	0.121	0.00010	0.00045	0.00018	0.00079	0.000006	0.000028	0.00007	0.00031	0.00026	0.0011
Flanges	30	0.00086	0.0036	0.016	0.00001	0.00006	0.00002	0.00010	0.000001	0.000004	0.00001	0.00004	0.00003	0.0001
Connections	275	0.00044	0.0169	0.074	0.00006	0.00028	0.00011	0.00048	0.000004	0.000017	0.00004	0.00019	0.00016	0.0007
Pump seals	2	0.00529	0.0015	0.006	0.00001	0.00002	0.00001	0.00004	0.000000	0.000002	0.00000	0.00002	0.00001	0.0001
Open ended lines	3	0.00441	0.0018	0.008	0.00001	0.00003	0.00001	0.00005	0.000000	0.000002	0.00000	0.00002	0.00002	0.0001
		Total Emissions/Well	0.0514	0.225	0.00019	0.00084	0.00034	0.00147	0.000012	0.000052	0.00013	0.00058	0.00048	0.0021

[1] Taken from the WDEQ (2001) "Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance".
[2] Calculated as weight fraction * emissions factor * quantity of source.

Table F.4.52
No Action Emissions Inventory - Condensate Storage Emissions - Per Well

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Production
Emissions: Condensate Storage Tanks
Date: 11/30/2006

Average Controlled Condensate Storage Emissions[1]

VOC and HAP Emissions		
VOC	1.1856	tpy/well
HAP	0.0594	tpy/well
Benzene	0.0029	tpy/well
Toluene	0.0001	tpy/well
Ethylbenzene	0.0017	tpy/well
Xylene	0.0022	tpy/well
n-Hexane	0.0526	tpy/well

NO_x and CO Emissions from Smokeless Flare Combustion		
NO_x Emission Factor	0.068	lb/MMBTU
CO Emission Factor	0.37	lb/MMBTU
Heat Content	1,000	Btu/scf
Condensate Production	13.00	bbl/day
Gas to Oil Ratio	957.37	scf/bbl
Gas Production	12,445.81	SCFD
Combustion Emissions from Storage Tanks		
NO_x	0.15	tpy/facility
CO	0.84	tpy/facility

Average Uncontrolled Storage Tank Emissions[1]

VOC	16.1000	tpy/well
HAP	0.7880	tpy/well
Benzene	0.0372	tpy/well
Toluene	0.0021	tpy/well
Ethylbenzene	0.0223	tpy/well
Xylene	0.0283	tpy/well
n-Hexane	0.6981	tpy/well

Table F.4.53
No Action Emissions Inventory - Pinedale Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: Questar - Pinedale C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Pinedale Compressor Station					
2006 Projected Increase (hp)	7,440	(I.C. Engines/Recip.)				
2009 Projected Increase (hp)	31,000	(Turbines/Centrifugal)				

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2006-2008 Increase from Baseline**		**2009-2014 Increase from Baseline**		Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
	lb/hr	tpy	lb/hr	tpy					
PM_{10}	0.0	0.0	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	11.5	50.3	25.2	110.2	BACT	0.7	Provided by Questar	0.2	g/hp-hr
CO	4.1	18.0	17.8	77.8	Permitted Emissions[2]	0.250	Provided by Questar	0.200	g/hp-hr
VOC	7.5	33.0	8.4	36.6	Permitted Emissions[2]	0.460	Provided by Questar	0.012	g/hp-hr
Formaldehyde	0.7	3.2	1.7	7.4	Permitted Emissions[2]	0.045	Provided by Questar	0.014	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Pindale C.S. WDEQ Permit # MD-1267.

[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.4.54
No Action Emissions Inventory - Paradise Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Paradise C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Paradise Compressor Station					
2011 Projected Increase (hp)	59,000	(I.C. Engines/Recip.)				
2011 Projected Increase (hp)	125,000	(Turbines/Centrifugal)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline** lb/hr	tpy	Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
PM_{10}	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	201.3	881.6	BACT	0.7	Permitted Emissions[2]	0.4	g/hp-hr
CO	176.8	774.4	Permitted Emissions[2]	0.300	Permitted Emissions[2]	0.500	g/hp-hr
VOC	172.5	755.6	Permitted Emissions[2]	0.500	Permitted Emissions[2]	0.390	g/hp-hr
Formaldehyde	10.7	46.8	Permitted Emissions[2]	0.080	Permitted Emissions[2]	0.001	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.

[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.4.55
No Action Emissions Inventory - Falcon Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Falcon C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Falcon Compressor Station					
2011 Projected Increase (hp)	7,366	(I.C. Engines/Recip.)				
2011 Projected Increase (hp)	30,000	(Turbines/Centrifugal)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline** lb/hr	tpy	Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Method of Determination (Turbines)	Emission Factor (Turbines)	Units
PM_{10}	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	AP-42[3]	0.00660	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	Fuel Analysis	0.00	lb/MMscf
NO_x	37.8	165.7	BACT	0.7	Permitted Emissions[2]	0.4	g/hp-hr
CO	37.9	166.2	Permitted Emissions[2]	0.300	Permitted Emissions[2]	0.500	g/hp-hr
VOC	33.9	148.5	Permitted Emissions[2]	0.500	Permitted Emissions[2]	0.390	g/hp-hr
Formaldehyde	1.4	6.0	Permitted Emissions[2]	0.080	Permitted Emissions[2]	0.001	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.

[3] Based on AP-42, Chapter 3, Table 3.1-2a for a natural gas fired turbine.

Table F.4.56
No Action Emissions Inventory - Bird Canyon Compressor Station Expansion

Project: Pinedale Anticline SEIS
Scenario: All Scenarios
Activity: Projected PAPA Compression
Emissions: JGG/Teppco Bird Canyon C.S.
Date: 11/30/2006

Fuel Combustion Source:

Unit Description	Bird Canyon Compressor Station					
2011 Projected Increase (hp)	14,672	(I.C. Engines/Recip.)				
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr
Operating hours	8,760					
Capacity (%)	100	(while operating)				
Annual Load (%)	Winter	25	Spring	25		
	Summer	25	Fall	25		

Potential Fuel Combustion for the Units:

Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	**2011+ Increase from Baseline**		Method of Determination (I.C. Engines)	Emission Factor (I.C. Engines)	Units
	lb/hr	tpy			
PM_{10}	0.0	0.0	AP-42[1]	0.00008	lb/MMscf
$PM_{2.5}$	0.0	0.0	AP-42[1]	0.00008	lb/MMscf
SO_2	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
NO_x	22.6	99.2	BACT	0.7	g/hp-hr
CO	9.7	42.5	Permitted Emissions[2]	0.300	g/hp-hr
VOC	16.2	70.8	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	2.6	11.3	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-2.

[2] Emission rates taken from Bird Canyon Permit MD-1013, issued June 23, 2004.

Table F.4.57
No Action Emissions Inventory - Compression Emissions by Year

Compression:	2005 (Baseline Year)		2006		2007		2008		2009		2010		2011	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
NOx	96.3	421.9	107.8	472.2	107.8	472.2	107.8	472.2	121.5	532.1	121.5	532.1	383.2	1678.5
CO	36.0	157.7	40.1	175.7	40.1	175.7	40.1	175.7	53.8	235.5	53.8	235.5	278.2	1218.7
VOC	73.2	320.5	80.7	353.5	80.7	353.5	80.7	353.5	81.5	357.1	81.5	357.1	304.1	1332.1
PM10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Formaldehyde	9.5	41.7	10.3	44.9	10.3	44.9	10.3	44.9	11.2	49.1	11.2	49.1	25.8	113.2

Paradise 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1187.
Falcon 2005 based on (5) 3,668 hp compressors, (2) 1,800 hp generators, and (1) 245 hp VRU as provided by TEPPCO and emissions from MD-1186.
Pinedale 2005 based on (2) 1,860 hp and (2) 3,720 hp compressors as provided by Questar and emissions from MD-1267.

Table F.4.58
No Action Emissions Inventory - Granger Gas Plant Expansion

Pollutant	2005 Potential Emissions (lb/hr)	(tpy)[1]	2007 Projected Expansion (lb/hr)	(tpy)[2]	2007 Projected Totals (lb/hr)	(tpy)
NOx:	68.88	301.7	68.88	301.7	137.8	603.4
CO:	73.70	322.8	73.70	322.8	147.4	645.6
VOCs:	32.01	140.2	32.01	140.2	64.0	280.4
SO2:	0.00	0.0	0.00	0.0	0.0	0.0
PM10:	0.00	0.0	0.00	0.0	0.0	0.0
Benzene:	0.07	0.3	0.07	0.3	0.1	0.6
Toluene:	0.02	0.1	0.02	0.1	0.0	0.2
Ethylbenzene:	0.00	0.0	0.00	0.0	0.0	0.0
Xylene:	0.02	0.1	0.02	0.1	0.0	0.2
n-Hexane:	0.07	0.3	0.07	0.3	0.1	0.6
Formaldehyde:	7.65	33.5	7.65	33.5	15.3	67.0
Total HAPs:	7.83	34.3	7.83	34.3	15.7	68.6

[1] Emissions taken from WDEQ-AQD permit # MD-644A
[2] Plant size to double in 2007, therefore emissions assumed to double over 2005 potentials.

Table F.4.59
No Action Emissions Inventory - Opal Gas Plant Expansion

	2005 Potential Emissions		2011 Projected Expansion		2011+ Projected Totals	
Pollutant	**(lb/hr)**	**(tpy)[1]**	**(lb/hr)**	**(tpy)[2]**	**(lb/hr)**	**(tpy)**
NOx:	127.76	559.6	8.56	37.50	136.32	597.1
CO:	117.33	513.9	14.27	62.50	131.60	576.4
VOCs:	54.98	240.8	26.78	117.30	81.76	358.1
SO2:	0.00	0.0	0.00	0.00	0.00	0.0
PM10:	0.00	0.0	0.00	0.00	0.00	0.0
Benzene:	2.58	11.3	1.23	5.40	3.82	16.7
Toluene:	0.75	3.3	1.28	5.60	2.03	8.9
Ethylbenzene:	0.23	1.0	0.00	0.00	0.23	1.0
Xylene:	0.37	1.6	0.53	2.30	0.89	3.9
n-Hexane:	1.94	8.5	0.59	2.60	2.53	11.1
Formaldehyde:	0.00	0.0	0.11	0.50	0.11	0.5
Total HAPs:	5.87	25.7	3.74	16.40	9.61	42.1

[1] Emissions taken from WDEQ-AQD permit # MD-644A
[2] Emissions based on Pioneer Gas Plant Expansion WDEQ-AQD permit # CT-4302.

Table F.4.60
No Action Emissions Inventory - 2006 Drill Rig Schedule

	Questar			Ultra			Shell			Yates			Anschutz			BP/Stone			Total		
Year	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs	Rig Moves	Wells	Rigs[1]	Rig Moves	Wells	Rigs[2]	Rig Moves	Wells	Rigs	Rig Moves
2006	50	7.6	8	61	10.4	20	60	8	14	8	1	2	17	4/3	4	9	1/2	2	205	32	50

[1]Anschutz will have 4 rigs (May through November) and 3 rigs (November through May).

[2]BP/Stone will have 1 rig (for quarters 1 through 3) and 2 rigs for the fourth quarter.

Table F.4.61
No Action Emissions Inventory - 2007-2008 Drill Rig Schedule

	Questar				Ultra				Shell				Yates			
		Rigs				Rigs				Rigs				Rigs		
Year	Wells	S	W	Rig Moves	Wells	S	W	Rig Moves	Wells	S	W	Rig Moves	Wells	S	W	Rig Moves
2007	50	10	6	8	69	16	8	20	75	10	10	15	8	1	1	2
2008	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1
Total	**51**				**70**				**76**				**9**			

Anschutz				BP/Stone				Total						Completion %	
	Rigs				Rigs				Rigs		S/W %				
Wells	S	W	Rig Moves	Wells	S	W	Rig Moves	Wells	S	W	S	W	Rig Moves	Summer	Winter
17	4	3	4	12	2	2	2	231	43	30	0.589041096	0.410958904	51	0.66	0.34
1	0	1	1	1	0	1	1	6	0	6	0	1	6	0.13	0.87
18				**13**				**237**							

Table F.4.62
No Action Emissions Inventory - Rig Counts and Tier Levels by Operator and Year

		2006	2007		2008	
		Year-Round	Summer	Winter	Summer	Winter
Questar:	Tier 0:	2.5	4	1	0	0
	Tier 1:	4.2	0	0	0	0
	Tier 2:	0.9	6	5	0	1
	Total:	7.6	10	6	0	1
Ultra:	Tier 0:	6.4	10	5	0	0
	Tier 1:	4	6	3	0	1
	Tier 2:	0	0	0	0	0
	Total:	10.4	16	8	0	1
Shell:	Tier 0:	3	3	3	0	0
	Tier 1:	5	7	7	0	1
	Tier 2:	0	0	0	0	0
	Total:	8	10	10	0	1
Yates:	Tier 0:	0	0	0	0	0
	Tier 1:	1	1	1	0	1
	Tier 2:	0	0	0	0	0
	Total:	1	1	1	0	1
Anschutz:	Tier 0:	4	4	3	0	1
	Tier 1:	0	0	0	0	0
	Tier 2:	0	0	0	0	0
	Total:	4	4	3	0	1
BP/Stone:	Tier 0:	0	0	0	0	0
	Tier 1:	1	1	1	0	0
	Tier 2:	0	1	1	0	1
	Total:	1	2	2	0	1

Note: Totals based on rig schedules submitted by operators.

Table F.4.63
No Action Emissions Inventory - Total Drilling Rig Engine Emissions by Year

		2006			2007			2008		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Questar:	CO	161.49	161.49	577.66	93.25	56.51	252.86	0.00	9.49	4.55
	NO_x	219.82	219.82	802.24	257.42	121.81	632.09	0.00	16.42	7.88
	SO_2	0.17	0.17	0.59	0.22	0.13	0.59	0.00	0.02	0.01
	VOC	19.23	19.23	68.87	11.24	6.64	30.14	0.00	1.09	0.53
	PM_{10}	9.54	9.54	34.59	7.95	3.90	19.80	0.00	0.55	0.26
Ultra:	CO	168.31	168.31	591.87	255.82	127.91	729.79	0.00	28.65	18.91
	NO_x	327.93	327.93	1525.71	506.58	253.29	1440.74	0.00	23.26	15.35
	SO_2	4.56	4.56	19.89	7.01	3.51	19.95	0.00	0.44	0.29
	VOC	20.38	20.38	72.82	31.01	15.50	88.45	0.00	3.37	2.22
	PM_{10}	12.30	12.30	51.76	18.87	9.44	53.74	0.00	1.35	0.89
Shell:	CO	198.64	198.64	811.69	250.52	250.52	1020.69	0.00	31.80	15.26
	NO_x	248.09	248.09	1002.79	302.89	302.89	1222.69	0.00	25.81	12.39
	SO_2	3.94	3.94	15.98	4.86	4.86	19.70	0.00	0.49	0.23
	VOC	23.63	23.63	96.54	29.78	29.78	121.28	0.00	3.74	1.80
	PM_{10}	11.33	11.33	46.06	14.07	14.07	57.05	0.00	1.50	0.72
Yates:	CO	30.50	30.50	169.81	30.50	30.50	169.81	0.00	30.50	17.20
	NO_x	24.76	24.76	137.85	24.76	24.76	137.85	0.00	24.76	13.96
	SO_2	0.47	0.47	2.60	0.47	0.47	2.60	0.00	0.47	0.26
	VOC	3.59	3.59	19.98	3.59	3.59	19.98	0.00	3.59	2.02
	PM_{10}	1.44	1.44	7.99	1.44	1.44	7.99	0.00	1.44	0.81
Anschutz:	CO	35.74	35.74	105.71	35.74	26.80	105.71	0.00	8.93	5.04
	NO_x	156.30	156.30	462.32	156.30	117.22	462.32	0.00	39.07	22.04
	SO_2	1.87	1.87	5.52	1.87	1.40	5.52	0.00	0.47	0.26
	VOC	4.59	4.59	13.59	4.59	3.44	13.59	0.00	1.15	0.65
	PM_{10}	4.59	4.59	13.59	4.59	3.44	13.59	0.00	1.15	0.65
BP/Stone:	CO	30.50	30.50	191.04	39.83	39.83	166.32	0.00	9.33	5.26
	NO_x	24.76	24.76	155.08	40.90	40.90	170.81	0.00	16.15	9.11
	SO_2	0.02	0.02	0.13	0.04	0.04	0.18	0.00	0.02	0.01
	VOC	3.59	3.59	22.48	4.66	4.66	19.48	0.00	1.08	0.61
	PM_{10}	1.44	1.44	8.99	1.97	1.97	8.24	0.00	0.54	0.30
Total:	**CO**	625.16	625.16	2447.78	705.65	532.07	2445.18	0.00	118.69	66.23
	NO_x	1001.65	1001.65	4085.99	1288.85	860.88	4066.50	0.00	145.46	80.73
	SO_2	11.01	11.01	44.71	14.47	10.41	48.54	0.00	1.90	1.07
	VOC	75.01	75.01	294.27	84.87	63.62	292.91	0.00	14.02	7.82
	PM_{10}	40.63	40.63	162.98	48.89	34.26	160.41	0.00	6.51	3.63

[1] lb/hr based on worst case # of drill rigs operating at once.

[2] tpy numbers based on makeup of drill fleet and # of wells proposed to be drilled in given year.

Table F.4.64
No Action Emissions Inventory - Total Drilling Rig Boiler Emissions by Year

		2006		2007		2008	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Questar:	CO	0.80	1.75	0.63	1.38	0.11	0.23
	NO_x	3.80	8.32	3.00	6.57	0.50	1.10
	SO_2	0.02	0.05	0.02	0.04	0.00	0.01
	VOC	0.21	0.46	0.17	0.36	0.03	0.06
	PM_{10}	0.29	0.63	0.23	0.50	0.04	0.08
Ultra:	CO	1.09	2.39	0.84	1.84	0.11	0.23
	NO_x	5.20	11.39	4.00	8.76	0.50	1.10
	SO_2	0.03	0.07	0.02	0.05	0.00	0.01
	VOC	0.29	0.63	0.22	0.48	0.03	0.06
	PM_{10}	0.40	0.87	0.30	0.67	0.04	0.08
Shell:	CO	0.84	1.84	1.05	2.30	0.11	0.23
	NO_x	4.00	8.76	5.00	10.95	0.50	1.10
	SO_2	0.02	0.05	0.03	0.07	0.00	0.01
	VOC	0.22	0.48	0.28	0.60	0.03	0.06
	PM_{10}	0.30	0.67	0.38	0.83	0.04	0.08
Yates:	CO	0.11	0.23	0.11	0.23	0.11	0.23
	NO_x	0.50	1.10	0.50	1.10	0.50	1.10
	SO_2	0.00	0.01	0.00	0.01	0.00	0.01
	VOC	0.03	0.06	0.03	0.06	0.03	0.06
	PM_{10}	0.04	0.08	0.04	0.08	0.04	0.08
Anschutz:	CO	0.32	0.69	0.32	0.69	0.11	0.23
	NO_x	1.50	3.29	1.50	3.29	0.50	1.10
	SO_2	0.01	0.02	0.01	0.02	0.00	0.01
	VOC	0.08	0.18	0.08	0.18	0.03	0.06
	PM_{10}	0.11	0.25	0.11	0.25	0.04	0.08
BP/Stone:	CO	0.11	0.23	0.21	0.46	0.11	0.23
	NO_x	0.50	1.10	1.00	2.19	0.50	1.10
	SO_2	0.00	0.01	0.01	0.01	0.00	0.01
	VOC	0.03	0.06	0.06	0.12	0.03	0.06
	PM_{10}	0.04	0.08	0.08	0.17	0.04	0.08
Total:	**CO**	3.26	7.13	3.15	6.90	0.63	1.38
	NO_x	15.50	33.95	15.00	32.85	3.00	6.57
	SO_2	0.09	0.20	0.09	0.20	0.02	0.04
	VOC	0.85	1.87	0.83	1.81	0.17	0.36
	PM_{10}	1.18	2.58	1.14	2.50	0.23	0.50

[1] lb/hr based on worst case # of drill rigs operating at once.
[2] tpy numbers based on boilers running throughout the winter season (Nov.-April)

Table F.4.65
No Action Emissions Inventory - Total Construction Disturbance Emissions by Year

		2006		2007		2008		2009		2010		2011	
		(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]	(lb/hr)[1]	(tpy)[2]
Pad Construction/Expansion:	PM_{10}	2.04	2.23	5.58	6.10	0.09	0.10	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.54	0.59	1.47	1.61	0.02	0.03	N/A	N/A	N/A	N/A	N/A	N/A
Local Road Construction:	PM_{10}	0.51	0.56	1.80	1.97	0.02	0.02	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.13	0.15	0.48	0.52	0.01	0.01	N/A	N/A	N/A	N/A	N/A	N/A
Resource Road Construction:	PM_{10}	0.61	0.66	2.14	2.35	0.02	0.03	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.16	0.18	0.57	0.62	0.01	0.01	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction:	PM_{10}	1.69	1.85	5.99	6.56	0.07	0.07	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.45	0.49	1.58	1.73	0.02	0.02	N/A	N/A	N/A	N/A	N/A	N/A
Wind Erosion[3]:	PM_{10}	14.69	32.18	41.64	91.20	0.62	1.36	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	5.88	12.87	16.66	36.48	0.25	0.54	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline Construction:	PM_{10}	N/A	N/A	80.48	88.13	N/A	N/A	N/A	N/A	N/A	N/A	53.86	58.98
	$PM_{2.5}$	N/A	N/A	21.24	23.26	N/A	N/A	N/A	N/A	N/A	N/A	14.21	15.56
Ancillary Facility Construction:	PM_{10}	N/A	N/A	6.12	6.70	N/A	N/A	N/A	N/A	N/A	N/A	111.85	122.47
	$PM_{2.5}$	N/A	N/A	1.61	1.77	N/A	N/A	N/A	N/A	N/A	N/A	29.52	32.32
Total Construction Surface Disturbace Emissions:	PM_{10}	19.54	37.49	143.75	203.01	0.81	1.57	N/A	N/A	N/A	N/A	165.71	181.45
	$PM_{2.5}$	7.16	14.27	43.60	65.98	0.30	0.60	N/A	N/A	N/A	N/A	43.73	47.88

Note: Construction Surface Disturbance Emissions occur during summer months (May-Oct.) and daylight hours (12 hrs/day) only.

[1] lb/hr number based on 6 months of construction at 12 hrs/day.

[2] tpy numbers based on total construction occuring over a 6 month period between May and October of each year.

[3] Wind erosion lb/hr totals assume that construction is evenly distributed over the summer construction season.

Table F.4.66
No Action Emissions Inventory - Total Construction Traffic and Heavy Equipment Tailpipe Emissions by Year

		2006			2007			2008			2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Pad Construction Traffic[1]:	PM_{10}	28.94	0.00	31.68	48.65	0.00	53.27	0.84	0.00	0.92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	4.41	0.00	4.83	7.42	0.00	8.13	0.13	0.00	0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Road Construction Traffic:	PM_{10}	3.99	0.00	4.37	14.11	0.00	15.46	0.15	0.00	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.61	0.00	0.67	2.15	0.00	2.36	0.02	0.00	0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Traffic:	PM_{10}	13.22	0.00	14.47	46.77	0.00	51.21	0.51	0.00	0.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	2.02	0.00	2.21	7.15	0.00	7.83	0.08	0.00	0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline ConstructionTraffic:	PM_{10}	N/A	N/A	N/A	30.50	0.00	33.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.27	0.00	17.81
	$PM_{2.5}$	N/A	N/A	N/A	4.67	0.00	5.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49	0.00	2.72
Ancillary Facility Construction Traffic:	PM_{10}	N/A	N/A	N/A	1.32	0.00	1.45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.52	0.00	2.76
	$PM_{2.5}$	N/A	N/A	N/A	0.20	0.00	0.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.38	0.00	0.42
Well Pad Construction Heavy Equipment Tailpipe:	CO	61.59	0.00	67.45	168.31	0.00	184.30	2.63	0.00	2.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	50.00	0.00	54.75	136.63	0.00	149.61	2.13	0.00	2.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.94	0.00	1.03	2.57	0.00	2.82	0.04	0.00	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	7.25	0.00	7.93	19.80	0.00	21.68	0.31	0.00	0.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	2.90	0.00	3.17	7.92	0.00	8.67	0.12	0.00	0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Road Construction Heavy Equipment Tailpipe:	CO	3.66	0.00	4.01	12.96	0.00	14.19	0.14	0.00	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	2.97	0.00	3.26	10.52	0.00	11.52	0.11	0.00	0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.06	0.00	0.06	0.20	0.00	0.22	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.43	0.00	0.47	1.52	0.00	1.67	0.02	0.00	0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	0.17	0.00	0.19	0.61	0.00	0.67	0.01	0.00	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pipeline Construction Heavy Equipment Tailpipe:	CO	1.12	0.00	1.22	3.95	0.00	4.32	0.04	0.00	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	0.91	0.00	0.99	3.21	0.00	3.51	0.03	0.00	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.02	0.00	0.02	0.06	0.00	0.07	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.13	0.00	0.14	0.46	0.00	0.51	0.01	0.00	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{10/2.5}$	0.05	0.00	0.06	0.19	0.00	0.20	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sales Pipeline Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	2.58	0.00	2.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.37	0.00	1.50
	NO_x	N/A	N/A	N/A	2.09	0.00	2.29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.11	0.00	1.22
	SO_2	N/A	N/A	N/A	0.04	0.00	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02	0.00	0.02
	VOC	N/A	N/A	N/A	0.30	0.00	0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16	0.00	0.18
	$PM_{10/2.5}$	N/A	N/A	N/A	0.12	0.00	0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.06	0.00	0.07

Table F.4.66
No Action Emissions Inventory - Total Construction Traffic and Heavy Equipment Tailpipe Emissions by Year

		2006			2007			2008			2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Ancillary Facility Heavy Equipment Tailpipe:	CO	N/A	N/A	N/A	17.07	0.00	18.69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	96.30	0.00	105.45
	NO_x	N/A	N/A	N/A	13.86	0.00	15.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	78.17	0.00	85.60
	SO_2	N/A	N/A	N/A	0.26	0.00	0.29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.47	0.00	1.61
	VOC	N/A	N/A	N/A	2.01	0.00	2.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.33	0.00	12.41
	$PM_{10/2.5}$	N/A	N/A	N/A	0.80	0.00	0.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.53	0.00	4.96
Drilling Traffic:	PM_{10}	43.00	43.00	188.34	57.08	39.82	212.22	0.00	2.52	5.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	6.54	6.54	28.64	8.68	6.06	32.27	0.00	0.38	0.84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rig Move Traffic:	PM_{10}	2.40	2.40	10.52	3.19	2.22	11.85	0.00	0.14	0.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	0.37	0.37	1.61	0.49	0.34	1.82	0.00	0.02	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drilling Haul Truck Tailpipe:	CO	6.02	6.02	13.19	4.00	2.79	14.86	0.00	0.18	0.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	4.67	4.67	10.24	3.10	2.16	11.54	0.00	0.14	0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.05	0.05	0.12	0.04	0.02	0.13	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	2.32	2.32	5.09	1.54	1.08	5.74	0.00	0.07	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rig Move Haul Truck Tailpipe:	CO	0.22	0.22	0.96	0.29	0.20	1.09	0.00	0.01	0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	0.17	0.17	0.75	0.23	0.16	0.84	0.00	0.01	0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	0.08	0.08	0.37	0.11	0.08	0.42	0.00	0.00	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Construction Surface Disturbace Emissions:	**CO**	72.61	6.24	86.83	209.16	2.99	240.28	2.81	0.19	3.49	N/A	N/A	N/A	N/A	N/A	N/A	97.67	0.00	106.95
	NO_x	58.72	4.85	69.98	169.63	2.32	194.48	2.28	0.15	2.82	N/A	N/A	N/A	N/A	N/A	N/A	79.29	0.00	86.82
	SO_2	1.07	0.06	1.24	3.17	0.03	3.57	0.04	0.00	0.05	N/A	N/A	N/A	N/A	N/A	N/A	1.49	0.00	1.64
	VOC	10.22	2.41	14.01	25.76	1.16	32.55	0.33	0.07	0.52	N/A	N/A	N/A	N/A	N/A	N/A	11.49	0.00	12.58
	PM_{10}	94.67	45.40	252.80	211.27	42.05	389.42	1.63	2.66	7.61	N/A	N/A	N/A	N/A	N/A	N/A	23.38	0.00	25.60
	$PM_{2.5}$	17.08	6.91	41.38	40.41	6.40	68.29	0.36	0.40	1.28	N/A	N/A	N/A	N/A	N/A	N/A	7.47	0.00	8.18

Note: All tpy numbers except drilling related based on total emissions during the six month construction season (May-October).
All lb/hr numbers except drilling related based on this total and assumed to happen evenly over the daylight hours of the construction season (2190 hrs/yr).
All drilling numbers based on year-round drilling.
[1] For the purpose of estimating the number of pads constructed/expanded for the year and average of 15 acres per expansion/construction of a pad was used.
[2] Drilling traffic lb/hr based on average rigs in summer and winter.

Table F.4.67
No Action Emissions Inventory - Total Completion Emissions by Year

		2006 (lb/hr) Summer	2006 (lb/hr) Winter	2006 (tpy) Total	2007 (lb/hr) Summer	2007 (lb/hr) Winter	2007 (tpy) Total	2008 (lb/hr) Summer	2008 (lb/hr) Winter	2008 (tpy) Total
Frac and Other Completion Engine Emissions:	CO	47.39	47.39	207.56	70.51	36.29	233.89	0.37	2.40	6.08
	NO_x	82.02	82.02	359.25	122.03	62.81	404.81	0.64	4.16	10.51
	SO_2	2.37	2.37	10.38	3.53	1.81	11.69	0.02	0.12	0.30
	VOCs	5.47	5.47	23.95	8.14	4.19	26.99	0.04	0.28	0.70
	$PM_{10/2.5}$	2.73	2.73	11.97	4.07	2.09	13.49	0.02	0.14	0.35
Completion Traffic:	PM_{10}	39.58	39.58	173.35	58.89	30.31	195.34	0.31	2.01	5.07
	$PM_{2.5}$	6.07	6.07	26.58	9.03	4.65	29.95	0.05	0.31	0.78
Completion/Testing Haul Truck Tailpipe:	CO	2.51	2.51	10.99	3.73	1.92	12.39	0.02	0.13	0.32
	NO_x	1.95	1.95	8.53	2.90	1.49	9.61	0.02	0.10	0.25
	SO_2	0.03	0.03	0.12	0.04	0.02	0.13	0.00	0.00	0.00
	VOC	0.97	0.97	4.24	1.44	0.74	4.78	0.01	0.05	0.12
Total Frac/Completion Emissions:	CO	49.90	49.90	218.56	74.24	38.21	246.28	0.39	2.53	6.40
	NO_x	83.97	83.97	367.78	124.93	64.30	414.42	0.66	4.26	10.76
	SO_2	2.40	2.40	10.50	3.57	1.84	11.83	0.02	0.12	0.31
	VOCs	6.44	6.44	28.19	9.58	4.93	31.77	0.05	0.33	0.83
	PM_{10}	42.31	42.31	185.33	62.96	32.40	208.83	0.33	2.15	5.42
	$PM_{2.5}$	8.80	8.80	38.56	13.10	6.74	43.45	0.07	0.45	1.13

[1] lb/hr number based on tpy and Summer/Winter average emissions.
[2] tpy numbers based on number of wells drilled per year.

Table F.4.68
No Action Inventory - Total Construction Emissions by Year

		2006			2007			2008		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	19.54	0.00	37.49	143.75	0.00	203.01	0.81	0.00	1.57
	$PM_{2.5}$	7.16	0.00	14.27	43.60	0.00	65.98	0.30	0.00	0.60
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	72.61	6.24	86.83	209.16	2.99	240.28	2.81	0.19	3.49
	NO_x	58.72	4.85	69.98	169.63	2.32	194.48	2.28	0.15	2.82
	SO_2	1.07	0.06	1.24	3.17	0.03	3.57	0.04	0.00	0.05
	VOC	10.22	2.41	14.01	25.76	1.16	32.55	0.33	0.07	0.52
	PM_{10}	94.67	45.40	252.80	211.27	42.05	389.42	1.63	2.66	7.61
	$PM_{2.5}$	17.08	6.91	41.38	40.41	6.40	68.29	0.36	0.40	1.28
Drill Rig Engine Emissions by Year:	CO	625.16	625.16	2447.78	705.65	532.07	2445.18	0.00	118.69	66.23
	NOx	1001.65	1001.65	4085.99	1288.85	860.88	4066.50	0.00	145.46	80.73
	SO2	11.01	11.01	44.71	14.47	10.41	48.54	0.00	1.90	1.07
	VOC	75.01	75.01	294.27	84.87	63.62	292.91	0.00	14.02	7.82
	PM10/2.5	40.63	40.63	162.98	48.89	34.26	160.41	0.00	6.51	3.63
Drill Rig Boiler Emissions by Year:	CO	0.00	3.26	7.13	0.00	3.15	6.90	0.00	0.63	1.38
	NOx	0.00	15.50	33.95	0.00	15.00	32.85	0.00	3.00	6.57
	SO2	0.00	0.09	0.20	0.00	0.09	0.20	0.00	0.02	0.04
	VOC	0.00	0.85	1.87	0.00	0.83	1.81	0.00	0.17	0.36
	PM10/2.5	0.00	1.18	2.58	0.00	1.14	2.50	0.00	0.23	0.50
Completion Emissions by Year:	CO	49.90	49.90	218.56	74.24	38.21	246.28	0.39	2.53	6.40
	NO_x	83.97	83.97	367.78	124.93	64.30	414.42	0.66	4.26	10.76
	SO_2	2.40	2.40	10.50	3.57	1.84	11.83	0.02	0.12	0.31
	VOCs	6.44	6.44	28.19	9.58	4.93	31.77	0.05	0.33	0.83
	PM_{10}	42.31	42.31	185.33	62.96	32.40	208.83	0.33	2.15	5.42
	$PM_{2.5}$	8.80	8.80	38.56	13.10	6.74	43.45	0.07	0.45	1.13
TOTAL CONSTRUCTION EMISSIONS BT YEAR:	**CO**	747.68	684.56	2760.30	989.05	576.43	2938.63	3.20	122.04	77.49
	NO_x	1144.34	1105.96	4557.69	1583.41	942.50	4708.26	2.94	152.87	100.88
	SO_2	14.48	13.56	56.64	21.20	12.36	64.13	0.06	2.04	1.47
	VOCs	91.67	84.71	338.35	120.20	70.53	359.04	0.38	14.58	9.53
	PM_{10}	197.15	129.52	641.18	466.87	109.85	964.16	2.78	11.55	18.73
	$PM_{2.5}$	73.67	57.52	259.77	146.00	48.54	340.63	0.73	7.59	7.14

Table F.4.68
No Action Inventory - Total Construction Emissions by Year

		2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
Total Construction Disturbance Emissions by Year:	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	165.71	0.00	181.45
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	43.73	0.00	47.88
Construction Traffic and Heavy Equipment Tailpipe Emissions by Year:	CO	N/A	N/A	N/A	N/A	N/A	N/A	97.67	0.00	106.95
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	79.29	0.00	86.82
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	1.49	0.00	1.64
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	11.49	0.00	12.58
	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	23.38	0.00	25.60
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	7.47	0.00	8.18
Drill Rig Engine Emissions by Year:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NOx	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM10/2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drill Rig Boiler Emissions by Year:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NOx	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM10/2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Completion Emissions by Year:	CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL CONSTRUCTION EMISSIONS BT YEAR:	**CO**	N/A	N/A	N/A	N/A	N/A	N/A	97.67	0.00	106.95
	NO_x	N/A	N/A	N/A	N/A	N/A	N/A	79.29	0.00	86.82
	SO_2	N/A	N/A	N/A	N/A	N/A	N/A	1.49	0.00	1.64
	VOCs	N/A	N/A	N/A	N/A	N/A	N/A	11.49	0.00	12.58
	PM_{10}	N/A	N/A	N/A	N/A	N/A	N/A	189.09	0.00	207.06
	$PM_{2.5}$	N/A	N/A	N/A	N/A	N/A	N/A	51.20	0.00	56.06

Table F.4.69
No Action Emissions Inventory - Total Production Emissions by Year

		2005	2006			2007			2008	
			(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
# of Wells Drilled:		172		205			231			6	
# of Wells in Production:		286		458			663			894	
Production Traffic:	PM_{10}		24.15	24.15	105.77	34.96	34.96	153.11	47.13	47.13	206.45
	$PM_{2.5}$		3.70	3.70	16.22	5.36	5.36	23.48	7.23	7.23	31.66
Liquids Gathering Haul Truck Traffic:	PM_{10}		20.60	20.60	90.22	35.27	35.27	154.48	47.53	47.53	208.20
	$PM_{2.5}$		3.16	3.16	13.83	5.41	5.41	23.69	7.29	7.29	31.92
Production Haul Truck Tailpipe:	CO		1.97	1.97	8.64	3.38	3.38	14.79	4.55	4.55	19.94
	NO_x		1.53	1.53	6.70	2.62	2.62	11.48	3.53	3.53	15.47
	SO_2		0.02	0.02	0.09	0.04	0.04	0.16	0.05	0.05	0.22
	VOC		0.76	0.76	3.33	1.30	1.30	5.71	1.76	1.76	7.70
Production Wind Erosion:	PM_{10}		55.56	55.56	243.37	60.73	60.73	266.00	76.11	76.11	333.37
	$PM_{2.5}$		22.23	22.23	97.35	24.29	24.29	106.40	30.45	30.45	133.35
Separator/Indirect Line Heaters:	$PM_{10/2.5}$		0.26	0.91	2.57	0.38	1.32	3.72	0.51	1.78	5.02
	SO_2		0.02	0.07	0.20	0.03	0.10	0.29	0.04	0.14	0.40
	NO_x		3.44	12.02	33.85	4.97	17.40	49.00	6.71	23.47	66.08
	CO		0.72	2.52	7.11	1.04	3.65	10.29	1.41	4.93	13.88
	VOC		0.19	0.66	1.86	0.27	0.96	2.70	0.37	1.29	3.63
Dehy Reboiler Heaters:	$PM_{10/2.5}$	**See 2005 Inventory**	0.03	0.10	0.29	0.04	0.15	0.42	0.06	0.20	0.57
	SO_2		0.00	0.01	0.02	0.00	0.01	0.03	0.00	0.02	0.04
	NO_x		0.39	1.36	3.84	0.56	1.97	5.55	0.76	2.66	7.49
	CO		0.08	0.29	0.81	0.12	0.41	1.17	0.16	0.56	1.57
	VOC		0.02	0.07	0.21	0.03	0.11	0.31	0.04	0.15	0.41
Dehy Flashing Emissions[1]:	VOC		111.21	111.21	487.09	137.32	137.32	601.45	163.92	163.92	717.95
	Total HAPs		75.51	75.51	330.71	93.23	93.23	408.36	111.29	111.29	487.45
	Benzene		12.55	12.55	54.98	15.50	15.50	67.89	18.50	18.50	81.04
	Toluene		33.94	33.94	148.66	41.91	41.91	183.56	50.02	50.02	219.11
	Ethylbenzene		1.61	1.61	7.07	1.99	1.99	8.73	2.38	2.38	10.42
	Xylene		26.33	26.33	115.32	32.51	32.51	142.40	38.81	38.81	169.98
	n-Hexane		0.94	0.94	4.14	1.17	1.17	5.11	1.39	1.39	6.10
Fugitive HAPs and VOCs:	VOC		16.55	16.55	72.50	17.89	17.89	78.35	22.62	22.62	99.06
	Total HAPs		0.37	0.37	1.63	0.40	0.40	1.76	0.51	0.51	2.23
	Benzene		0.06	0.06	0.27	0.07	0.07	0.29	0.08	0.08	0.37
	Toluene		0.11	0.11	0.47	0.12	0.12	0.51	0.15	0.15	0.65
	Ethylbenzene		0.00	0.00	0.02	0.00	0.00	0.02	0.01	0.01	0.02
	Xylene		0.04	0.04	0.19	0.05	0.05	0.20	0.06	0.06	0.25
	n-Hexane		0.16	0.16	0.68	0.17	0.17	0.74	0.21	0.21	0.93

Table F.4.69
No Action Emissions Inventory - Total Production Emissions by Year

		2005	2006			2007			2008	
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC	130.84	130.84	573.10	161.56	161.56	707.65	192.86	192.86	844.71
	Total HAPs	6.47	6.47	28.32	7.98	7.98	34.97	9.53	9.53	41.74
	Benzene	0.31	0.31	1.36	0.38	0.38	1.67	0.46	0.46	2.00
	Toluene	0.02	0.02	0.07	0.02	0.02	0.08	0.02	0.02	0.10
Condensate Storage[1]:	Ethylbenzene	0.18	0.18	0.80	0.23	0.23	0.99	0.27	0.27	1.18
	Xylene	0.23	0.23	1.02	0.29	0.29	1.26	0.34	0.34	1.51
	n-Hexane	5.72	5.72	25.07	7.07	7.07	30.96	8.44	8.44	36.95
	NOx	11.35	11.35	49.73	12.27	12.27	53.75	15.52	15.52	67.96
	CO	61.78	61.78	270.61	66.77	66.77	292.46	84.42	84.42	369.78
	NOx	107.81	107.81	472.19	107.81	107.81	472.19	107.81	107.81	472.19
	CO	40.11	40.11	175.66	40.11	40.11	175.66	40.11	40.11	175.66
	VOC	80.72	80.72	353.55	80.72	80.72	353.55	80.72	80.72	353.55
Proposed Compression:	PM10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde	10.26	10.26	44.93	10.26	10.26	44.93	10.26	10.26	44.93
	NOx:	196.64	196.64	861.30	265.53	265.53	1163.00	265.53	265.53	1163.00
	CO:	191.03	191.03	836.70	264.73	264.73	1159.50	264.73	264.73	1159.50
	VOCs:	86.99	86.99	381.00	119.00	119.00	521.20	119.00	119.00	521.20
	SO2: **See 2005**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10: **Inventory**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger Production	Benzene:	2.65	2.65	11.61	2.72	2.72	11.91	2.72	2.72	11.91
Emissions:	Toluene:	0.78	0.78	3.40	0.80	0.80	3.50	0.80	0.80	3.50
	Ethylbenzene:	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:	0.39	0.39	1.70	0.41	0.41	1.80	0.41	0.41	1.80
	n-Hexane:	2.01	2.01	8.80	2.08	2.08	9.10	2.08	2.08	9.10
	Formaldehyde:	7.65	7.65	33.50	15.30	15.30	67.00	15.30	15.30	67.00
	Total HAPs:	13.70	13.70	60.00	21.53	21.53	94.30	21.53	21.53	94.30
	NOx	321.16	330.72	1427.62	393.76	407.60	1754.98	399.84	418.51	1792.19
	CO	295.69	297.70	1299.52	376.14	379.05	1653.87	395.37	399.29	1740.32
	VOC	427.28	427.81	1872.64	518.09	518.85	2270.90	581.27	582.30	2548.22
	PM10	100.60	101.33	442.22	131.38	132.43	577.73	171.35	172.77	753.62
	PM2.5	29.38	30.10	130.26	35.48	36.53	157.71	45.53	46.95	202.52
	SO2	0.04	0.10	0.32	0.07	0.15	0.49	0.09	0.21	0.66
TOTAL PRODUCTION	**Formaldehyde**	17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93
EMISSIONS:	**Benzene**	15.58	15.58	68.22	18.67	18.67	81.77	21.76	21.76	95.32
	Toluene	34.84	34.84	152.60	42.84	42.84	187.65	50.99	50.99	223.36
	Ethylbenzene	2.03	2.03	8.89	2.45	2.45	10.73	2.88	2.88	12.62
	Xylene	26.99	26.99	118.23	33.26	33.26	145.66	39.62	39.62	173.54
	n-Hexane	8.83	8.83	38.69	10.48	10.48	45.90	12.12	12.12	53.08
	Total HAPs	106.30	106.30	465.59	133.41	133.41	584.32	153.12	153.12	670.65

[1] 90% Controlled - 10% Uncontrolled.

Table F.4.69
No Action Emissions Inventory - Total Production Emissions by Year

		2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
# of Wells Drilled:			0			0			0	
# of Wells in Production:			900			900			900	
Production Traffic:	PM_{10}	47.45	47.45	207.84	47.45	47.45	207.84	47.45	47.45	207.84
	$PM_{2.5}$	7.28	7.28	31.87	7.28	7.28	31.87	7.28	7.28	31.87
Liquids Gathering Haul Truck Traffic:	PM_{10}	55.23	55.23	241.89	60.22	60.22	263.75	65.00	65.00	284.72
	$PM_{2.5}$	8.47	8.47	37.09	9.23	9.23	40.44	9.97	9.97	43.66
Production Haul Truck Tailpipe:	CO	5.29	5.29	23.16	5.77	5.77	25.25	6.22	6.22	27.26
	NO_x	4.10	4.10	17.98	4.47	4.47	19.60	4.83	4.83	21.16
	SO_2	0.06	0.06	0.25	0.06	0.06	0.27	0.07	0.07	0.30
	VOC	2.04	2.04	8.94	2.23	2.23	9.75	2.40	2.40	10.52
Production Wind Erosion:	PM_{10}	76.33	76.33	334.31	76.33	76.33	334.31	76.33	76.33	334.31
	$PM_{2.5}$	30.53	30.53	133.72	30.53	30.53	133.72	30.53	30.53	133.72
Separator/Indirect Line Heaters:	$PM_{10/2.5}$	0.51	1.80	5.06	0.51	1.80	5.06	0.51	1.80	5.06
	SO_2	0.04	0.14	0.40	0.04	0.14	0.40	0.04	0.14	0.40
	NO_x	6.75	23.63	66.52	6.75	23.63	66.52	6.75	23.63	66.52
	CO	1.42	4.96	13.97	1.42	4.96	13.97	1.42	4.96	13.97
	VOC	0.37	1.30	3.66	0.37	1.30	3.66	0.37	1.30	3.66
Dehy Reboiler Heaters:	$PM_{10/2.5}$	0.06	0.20	0.57	0.06	0.20	0.57	0.06	0.20	0.57
	SO_2	0.00	0.02	0.05	0.00	0.02	0.05	0.00	0.02	0.05
	NO_x	0.77	2.68	7.54	0.77	2.68	7.54	0.77	2.68	7.54
	CO	0.16	0.56	1.58	0.16	0.56	1.58	0.16	0.56	1.58
	VOC	0.04	0.15	0.41	0.04	0.15	0.41	0.04	0.15	0.41
Dehy Flashing Emissions[1]:	VOC	87.15	87.15	381.72	67.33	67.33	294.89	56.47	56.47	247.34
	Total HAPs	59.17	59.17	259.17	45.71	45.71	200.22	38.34	38.34	167.93
	Benzene	9.84	9.84	43.09	7.60	7.60	33.29	6.37	6.37	27.92
	Toluene	26.60	26.60	116.50	20.55	20.55	90.00	17.23	17.23	75.49
	Ethylbenzene	1.26	1.26	5.54	0.98	0.98	4.28	0.82	0.82	3.59
	Xylene	20.63	20.63	90.37	15.94	15.94	69.82	13.37	13.37	58.56
	n-Hexane	0.74	0.74	3.24	0.57	0.57	2.50	0.48	0.48	2.10
Fugitive HAPs and VOCs:	VOC	22.67	22.67	99.29	22.67	22.67	99.29	22.67	22.67	99.29
	Total HAPs	0.51	0.51	2.23	0.51	0.51	2.23	0.51	0.51	2.23
	Benzene	0.08	0.08	0.37	0.08	0.08	0.37	0.08	0.08	0.37
	Toluene	0.15	0.15	0.65	0.15	0.15	0.65	0.15	0.15	0.65
	Ethylbenzene	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02
	Xylene	0.06	0.06	0.25	0.06	0.06	0.25	0.06	0.06	0.25
	n-Hexane	0.21	0.21	0.93	0.21	0.21	0.93	0.21	0.21	0.93

Table F.4.69
No Action Emissions Inventory - Total Production Emissions by Year

		2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
	VOC	102.54	102.54	449.12	79.21	79.21	346.96	66.44	66.44	291.01
	Total HAPs	5.07	5.07	22.19	3.91	3.91	17.14	3.28	3.28	14.38
	Benzene	0.24	0.24	1.06	0.19	0.19	0.82	0.16	0.16	0.69
	Toluene	0.01	0.01	0.05	0.01	0.01	0.04	0.01	0.01	0.03
Condensate Storage[1]:	Ethylbenzene	0.14	0.14	0.63	0.11	0.11	0.48	0.09	0.09	0.41
	Xylene	0.18	0.18	0.80	0.14	0.14	0.62	0.12	0.12	0.52
	n-Hexane	4.49	4.49	19.65	3.47	3.47	15.18	2.91	2.91	12.73
	NOx	15.55	15.55	68.11	15.55	15.55	68.11	15.55	15.55	68.11
	CO	84.62	84.62	370.62	84.62	84.62	370.62	84.62	84.62	370.62
	NOx	121.47	121.47	532.06	121.47	121.47	532.06	383.22	383.22	1678.52
	CO	53.77	53.77	235.53	53.77	53.77	235.53	278.23	278.23	1218.65
	VOC	81.54	81.54	357.14	81.54	81.54	357.14	304.14	304.14	1332.13
Proposed Compression:	PM10	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.04
	PM2.5	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.03
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formaldehyde	11.22	11.22	49.12	11.22	11.22	49.12	25.85	25.85	113.22
	NOx:	265.53	265.53	1163.00	265.53	265.53	1163.00	274.09	274.09	1200.50
	CO:	264.73	264.73	1159.50	264.73	264.73	1159.50	279.00	279.00	1222.00
	VOCs:	119.00	119.00	521.20	119.00	119.00	521.20	145.78	145.78	638.50
	SO2:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PM10:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Opal and Granger Production	Benzene:	2.72	2.72	11.91	2.72	2.72	11.91	3.95	3.95	17.31
Emissions:	Toluene:	0.80	0.80	3.50	0.80	0.80	3.50	2.08	2.08	9.10
	Ethylbenzene:	0.23	0.23	1.00	0.23	0.23	1.00	0.23	0.23	1.00
	Xylene:	0.41	0.41	1.80	0.41	0.41	1.80	0.94	0.94	4.10
	n-Hexane:	2.08	2.08	9.10	2.08	2.08	9.10	2.67	2.67	11.70
	Formaldehyde:	15.30	15.30	67.00	15.30	15.30	67.00	15.41	15.41	67.50
	Total HAPs:	21.53	21.53	94.30	21.53	21.53	94.30	25.27	25.27	110.70
	NOx	414.17	432.96	1855.21	414.54	433.33	1856.83	685.21	703.99	3042.35
	CO	409.98	413.93	1804.36	410.46	414.41	1806.45	649.64	653.59	2854.08
	VOC	415.35	416.38	1821.48	372.38	373.42	1633.30	598.31	599.35	2622.87
	PM10	179.58	181.00	789.67	184.57	185.99	811.53	189.36	190.79	832.53
	PM2.5	46.85	48.27	208.32	47.61	49.04	211.67	48.35	49.78	214.91
	SO2	0.10	0.22	0.70	0.11	0.22	0.72	0.11	0.23	0.74
TOTAL PRODUCTION	**Formaldehyde**	26.51	26.51	116.12	26.51	26.51	116.12	41.26	41.26	180.72
EMISSIONS:	**Benzene**	12.88	12.88	56.43	10.59	10.59	46.39	10.57	10.57	46.29
	Toluene	27.56	27.56	120.70	21.50	21.50	94.19	19.47	19.47	85.27
	Ethylbenzene	1.64	1.64	7.19	1.32	1.32	5.79	1.15	1.15	5.02
	Xylene	21.28	21.28	93.23	16.55	16.55	72.49	14.48	14.48	63.43
	n-Hexane	7.52	7.52	32.92	6.33	6.33	27.72	6.27	6.27	27.47
	Total HAPs	97.49	97.49	427.02	82.88	82.88	363.02	93.26	93.26	408.47

Table F.4.70
No Action Emissions Inventory - Total Emissions by Year

		2006			2007			2008			2009			2010			2011		
		(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total	(lb/hr) Summer	(lb/hr) Winter	(tpy) Total
TOTAL CONSTRUCTION EMISSIONS:	CO	747.68	684.56	2760.30	989.05	576.43	2938.63	3.20	122.04	77.49	N/A	N/A	N/A	N/A	N/A	N/A	97.67	0.00	106.95
	NO_x	1144.34	1105.96	4557.69	1583.41	942.50	4708.26	2.94	152.87	100.88	N/A	N/A	N/A	N/A	N/A	N/A	79.29	0.00	86.82
	SO_2	14.48	13.56	56.64	21.20	12.36	64.13	0.06	2.04	1.47	N/A	N/A	N/A	N/A	N/A	N/A	1.49	0.00	1.64
	VOCs	91.67	84.71	338.35	120.20	70.53	359.04	0.38	14.58	9.53	N/A	N/A	N/A	N/A	N/A	N/A	11.49	0.00	12.58
	PM_{10}	197.15	129.52	641.18	466.87	109.85	964.16	2.78	11.55	18.73	N/A	N/A	N/A	N/A	N/A	N/A	189.09	0.00	207.06
	$PM_{2.5}$	73.67	57.52	259.77	146.00	48.54	340.63	0.73	7.59	7.14	N/A	N/A	N/A	N/A	N/A	N/A	51.20	0.00	56.06
TOTAL PRODUCTION EMISSIONS:	NOx	321.16	330.72	1427.62	393.76	407.60	1754.98	399.84	418.51	1792.19	414.17	432.96	1855.21	414.54	433.33	1856.83	685.21	703.99	3042.35
	CO	295.69	297.70	1299.52	376.14	379.05	1653.87	395.37	399.29	1740.32	409.98	413.93	1804.36	410.46	414.41	1806.45	649.64	653.59	2854.08
	VOC	427.28	427.81	1872.64	518.09	518.85	2270.90	581.27	582.30	2548.22	415.35	416.38	1821.48	372.38	373.42	1633.30	598.31	599.35	2622.87
	PM10	100.60	101.33	442.22	131.38	132.43	577.73	171.35	172.77	753.62	179.58	181.00	789.67	184.57	185.99	811.53	189.36	190.79	832.53
	PM2.5	29.38	30.10	130.26	35.48	36.53	157.71	45.53	46.95	202.52	46.85	48.27	208.32	47.61	49.04	211.67	48.35	49.78	214.91
	SO2	0.04	0.10	0.32	0.07	0.15	0.49	0.09	0.21	0.66	0.10	0.22	0.70	0.11	0.22	0.72	0.11	0.23	0.74
	Formaldehyde	17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93	26.51	26.51	116.12	26.51	26.51	116.12	41.26	41.26	180.72
	Benzene	15.58	15.58	68.22	18.67	18.67	81.77	21.76	21.76	95.32	12.88	12.88	56.43	10.59	10.59	46.39	10.57	10.57	46.29
	Toluene	34.84	34.84	152.60	42.84	42.84	187.65	50.99	50.99	223.36	27.56	27.56	120.70	21.50	21.50	94.19	19.47	19.47	85.27
	Ethylbenzene	2.03	2.03	8.89	2.45	2.45	10.73	2.88	2.88	12.62	1.64	1.64	7.19	1.32	1.32	5.79	1.15	1.15	5.02
	Xylene	26.99	26.99	118.23	33.26	33.26	145.66	39.62	39.62	173.54	21.28	21.28	93.23	16.55	16.55	72.49	14.48	14.48	63.43
	n-Hexane	8.83	8.83	38.69	10.48	10.48	45.90	12.12	12.12	53.08	7.52	7.52	32.92	6.33	6.33	27.72	6.27	6.27	27.47
	Total HAPs	106.30	106.30	465.59	133.41	133.41	584.32	153.12	153.12	670.65	97.49	97.49	427.02	82.88	82.88	363.02	93.26	93.26	408.47
TOTAL NO ACTION EMISSIONS:	**NOx**	1465.50	1436.68	5985.31	1977.17	1350.10	6463.23	402.78	571.38	1893.07	414.17	432.96	1855.21	414.54	433.33	1856.83	764.49	703.99	3129.17
	CO	1043.37	982.26	4059.82	1365.19	955.47	4592.50	398.57	521.34	1817.82	409.98	413.93	1804.36	410.46	414.41	1806.45	747.32	653.59	2961.03
	VOC	518.95	512.52	2210.99	638.29	589.38	2629.94	581.65	596.88	2557.75	415.35	416.38	1821.48	372.38	373.42	1633.30	609.80	599.35	2635.45
	PM10	297.75	230.85	1083.40	598.25	242.28	1541.90	174.13	184.31	772.35	179.58	181.00	789.67	184.57	185.99	811.53	378.45	190.79	1039.58
	PM2.5	103.04	87.62	390.04	181.48	85.07	498.33	46.26	54.54	209.66	46.85	48.27	208.32	47.61	49.04	211.67	99.55	49.78	270.97
	SO2	14.53	13.66	56.96	21.27	12.51	64.62	0.16	2.25	2.13	0.10	0.22	0.70	0.11	0.22	0.72	1.61	0.23	2.38
	Formaldehyde	17.91	17.91	78.43	25.56	25.56	111.93	25.56	25.56	111.93	26.51	26.51	116.12	26.51	26.51	116.12	41.26	41.26	180.72
	Benzene	15.58	15.58	68.22	18.67	18.67	81.77	21.76	21.76	95.32	12.88	12.88	56.43	10.59	10.59	46.39	10.57	10.57	46.29
	Toluene	34.84	34.84	152.60	42.84	42.84	187.65	50.99	50.99	223.36	27.56	27.56	120.70	21.50	21.50	94.19	19.47	19.47	85.27
	Ethylbenzene	2.03	2.03	8.89	2.45	2.45	10.73	2.88	2.88	12.62	1.64	1.64	7.19	1.32	1.32	5.79	1.15	1.15	5.02
	Xylene	26.99	26.99	118.23	33.26	33.26	145.66	39.62	39.62	173.54	21.28	21.28	93.23	16.55	16.55	72.49	14.48	14.48	63.43
	n-Hexane	8.83	8.83	38.69	10.48	10.48	45.90	12.12	12.12	53.08	7.52	7.52	32.92	6.33	6.33	27.72	6.27	6.27	27.47
	Total HAPs	106.30	106.30	465.59	133.41	133.41	584.32	153.12	153.12	670.65	97.49	97.49	427.02	82.88	82.88	363.02	93.26	93.26	408.47