"David Garbett"
<david@suwa.org>

07/14/2011 07:40 PM

To <UT_Comments@blm.gov>
cc
bcc
Subject Exhibits 2 to Comments on November 2011 Oil and Gas Lease Sale

Mr. Ogaard,

Please find attached to this email exhibits that accompany comments that will be submitted by the Southern Utah Wilderness Alliance tomorrow. This is the second of numerous emails to follow with attachments.

Thank you,

David Garbett
Staff Attorney
Southern Utah Wilderness Alliance
425 E 100 S
Salt Lake City, UT 84111
Telephone: 801.428.3992
Fax: 801.486.4233

Letter Regarding Significant New Information in the Vernal Field Office.pdf

Moab RMP Exerpts.pdf

Letter from Svoboda to Northrup.pdf

southern
utah
wilderness
alliance

July 6, 2010

SENT VIA EMAIL (Mike_Stiewig@blm.gov)

Mike Stiewig
Field Office Manager
Vernal Field Office
170 S 500 E
Vernal, UT 84078

Re: Notice of Significant New Information Concerning Ground-Level Ozone and Fine Particulates in the Uinta Basin.

Dear Mike,

This letter informs you of significant new information that has just become available regarding ground-level ozone pollution in the Vernal Field Office as well as significant new information concerning fine particulates ($PM_{2.5}$).

Significant New Ozone Information

The U.S. Environmental Protection Agency (EPA) has recently made available monitoring data from the Uinta Basin for January through May of 2010. This data was posted on the EPA's AirExplorer website. *See* EPA, AirExplorer, http://www.epa.gov/airexplorer/ (last visited July 1, 2010). The "Query Concentrations" selection allows visitors to view ozone data for the Uinta Basin (Uintah County) for 2010. This data reveals critical, previously unknown, information regarding ozone concentrations in the Vernal Field Office. *See* EPA, AirExplorer, Query Concentrations, http://www.epa.gov/cgi-bin/broker?msaorcountyName=&msaorcountyValue =&poll=44201&county=49047&site=-1&msa=-1&state=-1&sy=2010&flag=Y&query=view&_debug=2&_service=data&_program=dataprog.query_daily3P_dm.sas (set for ozone, Utah's Uintah County, all monitors, 2010) (last visited on July 1, 2010) (relevant results attached as Exhibit 1).[1]

This monitoring data shows that this past winter ozone levels in the Vernal Field Office repeatedly exceeded federal standards set for the protection of human health and the environment. Between two monitors in the Uinta Basin operating from January through

[1] The first column lists the monitor number: monitor 49-047-2003 is the monitor located near Ouray and monitor 49-047-2002 is the Red Wash monitor. The third column lists the date the sample was taken. The highlighted column lists the highest eight-hour average concentration for the day in parts per million.

May, 2010, sixty-nine exceedances of the Clean Air Act's national ambient air quality standards (NAAQS) for ozone were recorded. *See* Exhibit 1 (showing monitoring data from the Uinta Basin); National Ambient Air Quality Standards for Ozone, 73 Fed. Reg. 16,436 (Mar. 27, 2008) (establishing an eight-hour ozone NAAQS of 0.075 parts per million). The fourth-highest value recorded during that time for the Uinta Basin was 0.117 parts per million (ppm). *See id.* The ozone NAAQS is 0.075 ppm. 73 Fed. Reg. at 16,436. Thus, ozone values in the area managed by the Vernal Field Office are far above federal air quality standards.

The Bureau of Land Management (BLM) has never disclosed, considered or analyzed how the activities it authorizes in the Vernal Field Office will impact levels of ground-level ozone in the Uinta Basin according to these new levels, *but must do so before approving any further site specific projects (e.g. a revised Rock House environmental assessment).* Furthermore, the BLM has never evaluated whether it will be able to comply with its obligation of observing federal air quality standards considering this new information. *See* 43 U.S.C. § 1712(c)(8) (requiring BLM in land use plans to "provide for compliance with applicable pollution control laws, including State and Federal air . . . pollution *standards* or implementation plans" (emphasis added)); 43 U.S.C. § 1732(a) (stating that BLM must "manage the public lands ... in accordance with land use plans developed ... under section 1712"); *see also* 43 C.F.R. § 2920.7(b)(3) (requiring that BLM "land use authorizations shall contain terms and conditions which shall . . . [r]equire compliance with *air quality standards* established pursuant to applicable Federal or State law" (emphasis added)). The ozone NAAQS constitute a federal air quality standard that the BLM must observe.

The Vernal Field Office cannot rely on the Independent Petroleum Association of Mountain States' (IPAMS) Uinta Basin Air Quality Study (UBAQS) to analyze the impacts to ozone from activities approved by the BLM. The EPA recently informed the Vernal Field Office that the "EPA, the National Park Service, and the Forest Service, recognized that there were important shortcomings in the UBAQS modeling protocols that will need to be improved to meet the provisions of [the National Environmental Policy Act (NEPA)]." Letter from Larry Svoboda, EPA, to Bill Stringer, BLM 2 (Oct. 16, 2009) (attached as Exhibit 2). The EPA reminded the Vernal Field Office that the BLM has already entered into a memorandum of understanding with IPAMS that "the UBAQS effort was not an analysis undertaken pursuant to provisions of NEPA." *Id.* at 7.[2]

UBAQS does not incorporate recent ozone monitoring data into its modeling. Ironically, UBAQS actually predicts exceedances of the ozone NAAQS in the Uinta Basin. *See* IPAMS, Uinta Basin Air Quality Study (UBAQS) TS-10, TS-28 to -29 (June 30, 2009)

[2] The EPA also listed the most significant flaws of UBAQS. *See* Letter from Svoboda to Stringer at 7. First, the $PM_{2.5}$ and PM_{10} (a course particulate) "values could be over the NAAQS, but there is little to no discussion of what is causing such impacts." *Id.* Second, UBAQS poor ability to predict high $PM_{2.5}$ values (in other words, the model does not match up with the high values of $PM_{2.5}$ recorded in Vernal). *See id.* And third, UBAQS takes a limited analysis, examining only pollutant concentrations in 2006 and 2012. *See id.* It is important to note that UBAQS does not provide any analysis beyond 2012. *See id.* at 7-8. The EPA also indicates that UBAQS has likely "understated by large amounts" off-road mobile source emissions. *Id.* at 8.

(excerpts attached as Exhibit 3), *available at* http://ipams.org/wp-content/uploads/UBAQS_Final_Report_Jun30_2009.pdf (showing predicted exceedances of the ozone NAAQS 0.075 parts per million standard in the Uinta Basin). UBAQS also predicts exceedances of the 24-hour maximum average NAAQS for $PM_{2.5}$ and PM_{10} (a measure for course particulates). *See* Letter from Svoboda to Stringer at 9. Therefore, UBAQS itself cannot even support any analysis by the Vernal Field Office that might conclude that cumulative impacts will be insignificant to air quality.

Significant New Information Regarding $PM_{2.5}$

SUWA has previously informed the Vernal Field Office of significant issues regarding monitoring values of fine particulates, or $PM_{2.5}$, from 2006 and 2007. However, significant new monitoring data is now available that further bolsters those initial observations. The NAAQS 24-hour average maximum limit on $PM_{2.5}$ is 35 micrograms per cubic meter ($\mu g/m^3$). National Ambient Air Quality Standards for Particulate Matter, 71 Fed. Reg. 61,144, 61,144 (Oct. 17, 2006). The Utah Division of Air Quality (DAQ) operated a $PM_{2.5}$ monitor in Vernal from approximately December 2006 to December 2007 which showed that $PM_{2.5}$ concentrations in the Uinta Basin often significantly exceed NAAQS. *See* DAQ, Particulate PM2.5 Data Archive, http://www.airmonitoring.utah.gov/dataarchive/archpm25.htm (showing concentrations substantially higher than 35 $\mu g/m^3$, the 24-hour average maximum NAAQS limit, particularly during January and February 2007) (January readings attached as Exhibit 4 and February readings as Exhibit 5; Vernal is listed as "VL"). Air quality monitoring data from the DAQ's Vernal monitor during that time showed that $PM_{2.5}$ has reached concentrations as high as 63.3 $\mu g/m^3$. DAQ, Particulate PM2.5 Data Archive, January 2007, http://www.airmonitoring.utah.gov/dataarchive/PM25JAN07.pdf.

In 2008, DAQ operated a monitor in Vernal, Utah during February and March. *See* Letter from Stephen S. Tuber, EPA, to David Garbett, Southern Utah Wilderness Alliance 2 (Sep. 3, 2009) (attached as Exhibit 6). In that short period the DAQ's Vernal monitor recorded one exceedance of the NAAQS for the 24-hour maximum average of $PM_{2.5}$. *Id.*

In 2009, monitors in the area recorded further exceedances of NAAQS. From a period spanning a part of 2009, January 21 to March 5, an EPA-funded Vernal monitor operated by the State of Utah recorded four exceedances. Letter from Tuber to Garbett at 2. During that same period a monitor in Roosevelt recorded three exceedances of the 24-hour maximum average value for $PM_{2.5}$. *Id.* The high concentration observed in Vernal was 60.9 $\mu g/m^3$ and the high concentration recorded in Roosevelt was 42.4 $\mu g/m^3$, both well in excess of NAAQS. *See id.* These values show that current maximum concentrations of $PM_{2.5}$ are at a level detrimental to human health and the environment.

The current $PM_{2.5}$ 24-hour average maximum baseline for the Uinta Basin should be either the highest (63.3 $\mu g/m^3$) or second highest (60.9 $\mu g/m^3$) concentration reading from the Vernal monitor. Both of these values indicate that $PM_{2.5}$ is a significant problem in the Uinta Basin. The Vernal Field Office has never analyzed how its

activities will effect levels of $PM_{2.5}$ in light of this significant new information; and it has not demonstrated that it can approve activities while still observing the NAAQS for $PM_{2.5}$'s 24-hour maximum average.

Conclusion

The Vernal Field Office must disclose, consider, and analyze this significant new information in all future approvals. Please utilize this information as submitted by SUWA for every future site specific approval, application for permit to drill, and all other NEPA analyses in the Vernal Field Office. The Vernal Field Office must demonstrate that all activities it approves comply with NAAQS. *See* 43 U.S.C. §§ 1712(c)(8), 1732(a); 43 C.F.R. § 2920.7(b)(3).

Please let me know if you have any questions about this information: 801.428.3992. I look forward to working with the Vernal Field Office to incorporate this new information and protect human health and the environment by addressing these unacceptably high levels of pollution.

Sincerely,

/s/ David Garbett

David Garbett
Stephen Bloch
Southern Utah Wilderness Alliance

CC: Bill Stringer, Green River District Manager

Exhibit 1

Ozone Monitoring for Uinta Basin for 2010 - Jan to May.xls

AQS_SITE_ID	POC	SAMPLE_	DAILY_MAX_CONC	UNITS	DAILY_	DAILY_OB	PERCENT
49-047-2003	1	1/1/2010	0.066	ppm	71	24	100
49-047-2003	1	1/2/2010	0.089	ppm	135	24	100
49-047-2003	1	1/3/2010	0.09	ppm	137	22	92
49-047-2003	1	1/4/2010	0.073	ppm	93	20	83
49-047-2003	1	1/5/2010	0.076	ppm	101	24	100
49-047-2003	1	1/6/2010	0.081	ppm	114	24	100
49-047-2003	1	1/7/2010	0.046	ppm	39	24	100
49-047-2003	1	1/8/2010	0.042	ppm	36	24	100
49-047-2003	1	1/9/2010	0.048	ppm	41	24	100
49-047-2003	1	1/10/2010	0.067	ppm	74	22	92
49-047-2003	1	1/11/2010	0.068	ppm	77	20	83
49-047-2003	1	1/12/2010	0.075	ppm	100	24	100
49-047-2003	1	1/13/2010	0.091	ppm	140	24	100
49-047-2003	1	1/14/2010	0.111	ppm	190	24	100
49-047-2003	1	1/15/2010	0.092	ppm	142	24	100
49-047-2003	1	1/16/2010	0.094	ppm	147	24	100
49-047-2003	1	1/17/2010	0.122	ppm	203	22	92
49-047-2003	1	1/18/2010	0.114	ppm	197	20	83
49-047-2003	1	1/19/2010	0.093	ppm	145	24	100
49-047-2003	1	1/20/2010	0.081	ppm	114	24	100
49-047-2003	1	1/21/2010	0.073	ppm	93	24	100
49-047-2003	1	1/22/2010	0.058	ppm	49	24	100
49-047-2003	1	1/23/2010	0.05	ppm	42	24	100
49-047-2003	1	1/24/2010	0.061	ppm	54	22	92
49-047-2003	1	1/25/2010	0.064	ppm	64	20	83
49-047-2003	1	1/26/2010	0.067	ppm	74	24	100
49-047-2003	1	1/27/2010	0.065	ppm	67	24	100
49-047-2003	1	1/28/2010	0.077	ppm	104	24	100
49-047-2003	1	1/29/2010	0.065	ppm	67	24	100
49-047-2003	1	1/30/2010	0.057	ppm	48	24	100
49-047-2003	1	1/31/2010	0.064	ppm	64	20	83
49-047-2003	1	2/1/2010	0.06	ppm	51	20	83
49-047-2003	1	2/2/2010	0.059	ppm	50	24	100
49-047-2003	1	2/3/2010	0.063	ppm	61	24	100
49-047-2003	1	2/4/2010	0.078	ppm	106	24	100
49-047-2003	1	2/5/2010	0.093	ppm	145	24	100
49-047-2003	1	2/6/2010	0.1	ppm	161	24	100
49-047-2003	1	2/7/2010	0.103	ppm	169	22	92
49-047-2003	1	2/8/2010	0.092	ppm	142	20	83
49-047-2003	1	2/9/2010	0.074	ppm	97	24	100
49-047-2003	1	2/10/2010	0.087	ppm	129	24	100
49-047-2003	1	2/11/2010	0.098	ppm	156	24	100
49-047-2003	1	2/12/2010	0.111	ppm	190	24	100
49-047-2003	1	2/13/2010	0.122	ppm	203	24	100
49-047-2003	1	2/14/2010	0.102	ppm	166	22	92
49-047-2003	1	2/15/2010	0.089	ppm	135	20	83
49-047-2003	1	2/16/2010	0.084	ppm	122	24	100
49-047-2003	1	2/17/2010	0.092	ppm	142	16	67
49-047-2003	1	2/18/2010	0.108	ppm	182	24	100
49-047-2003	1	2/19/2010	0.103	ppm	169	24	100
49-047-2003	1	2/20/2010	0.075	ppm	100	24	100

Ozone Monitoring for Uinta Basin for 2010 - Jan to May.xls

49-047-2003	1	2/21/2010	0.053	ppm	45	22	92
49-047-2003	1	2/22/2010	0.063	ppm	61	20	83
49-047-2003	1	2/23/2010	0.073	ppm	93	24	100
49-047-2003	1	2/24/2010	0.085	ppm	124	24	100
49-047-2003	1	2/25/2010	0.116	ppm	201	24	100
49-047-2003	1	2/26/2010	0.113	ppm	195	24	100
49-047-2003	1	2/27/2010	0.106	ppm	177	24	100
49-047-2003	1	2/28/2010	0.123	ppm	204	22	92
49-047-2003	1	3/1/2010	0.111	ppm	190	20	83
49-047-2003	1	3/2/2010	0.096	ppm	151	24	100
49-047-2003	1	3/3/2010	0.111	ppm	190	24	100
49-047-2003	1	3/4/2010	0.117	ppm	201	24	100
49-047-2003	1	3/5/2010	0.067	ppm	74	24	100
49-047-2003	1	3/6/2010	0.088	ppm	132	24	100
49-047-2003	1	3/7/2010	0.073	ppm	93	22	92
49-047-2003	1	3/9/2010	0.06	ppm	51	24	100
49-047-2003	1	3/10/2010	0.052	ppm	44	24	100
49-047-2003	1	3/12/2010	0.061	ppm	54	24	100
49-047-2003	1	3/13/2010	0.056	ppm	47	24	100
49-047-2003	1	3/14/2010	0.041	ppm	35	22	92
49-047-2003	1	3/15/2010	0.05	ppm	42	20	83
49-047-2003	1	3/16/2010	0.055	ppm	47	24	100
49-047-2003	1	3/17/2010	0.063	ppm	61	24	100
49-047-2003	1	3/18/2010	0.057	ppm	48	24	100
49-047-2003	1	3/19/2010	0.047	ppm	40	24	100
49-047-2003	1	3/20/2010	0.048	ppm	41	24	100
49-047-2003	1	3/21/2010	0.054	ppm	46	22	92
49-047-2003	1	3/22/2010	0.053	ppm	45	20	83
49-047-2003	1	3/23/2010	0.052	ppm	44	24	100
49-047-2003	1	3/24/2010	0.051	ppm	43	24	100
49-047-2003	1	3/25/2010	0.052	ppm	44	24	100
49-047-2003	1	3/26/2010	0.051	ppm	43	24	100
49-047-2003	1	3/27/2010	0.049	ppm	42	24	100
49-047-2003	1	3/28/2010	0.054	ppm	46	22	92
49-047-2003	1	3/29/2010	0.052	ppm	44	20	83
49-047-2003	1	3/30/2010	0.053	ppm	45	24	100
49-047-2003	1	3/31/2010	0.054	ppm	46	24	100
49-047-2003	1	4/1/2010	0.053	ppm	45	24	100
49-047-2003	1	4/7/2010	0.058	ppm	49	24	100
49-047-2003	1	4/8/2010	0.058	ppm	49	24	100
49-047-2003	1	4/9/2010	0.053	ppm	45	24	100
49-047-2003	1	4/10/2010	0.059	ppm	50	24	100
49-047-2003	1	4/11/2010	0.056	ppm	47	22	92
49-047-2003	1	4/12/2010	0.059	ppm	50	20	83
49-047-2003	1	4/13/2010	0.058	ppm	49	24	100
49-047-2003	1	4/14/2010	0.06	ppm	51	24	100
49-047-2003	1	4/15/2010	0.067	ppm	74	24	100
49-047-2003	1	4/16/2010	0.069	ppm	80	24	100
49-047-2003	1	4/17/2010	0.063	ppm	61	24	100
49-047-2003	1	4/18/2010	0.061	ppm	54	22	92
49-047-2003	1	4/19/2010	0.06	ppm	51	20	83
49-047-2003	1	4/20/2010	0.05	ppm	42	24	100

49-047-2003	1	4/22/2010	0.064	ppm	64	22	92
49-047-2003	1	4/23/2010	0.058	ppm	49	24	100
49-047-2003	1	4/24/2010	0.057	ppm	48	24	100
49-047-2003	1	4/25/2010	0.054	ppm	46	22	92
49-047-2003	1	4/26/2010	0.055	ppm	47	20	83
49-047-2003	1	4/27/2010	0.056	ppm	47	24	100
49-047-2003	1	4/28/2010	0.058	ppm	49	24	100
49-047-2003	1	4/29/2010	0.051	ppm	43	24	100
49-047-2003	1	4/30/2010	0.044	ppm	37	24	100
49-047-2003	1	5/1/2010	0.043	ppm	36	24	100
49-047-2003	1	5/2/2010	0.054	ppm	46	22	92
49-047-2003	1	5/3/2010	0.051	ppm	43	20	83
49-047-2003	1	5/4/2010	0.061	ppm	54	24	100
49-047-2003	1	5/5/2010	0.057	ppm	48	24	100
49-047-2003	1	5/6/2010	0.066	ppm	71	24	100
49-047-2003	1	5/7/2010	0.057	ppm	48	24	100
49-047-2003	1	5/8/2010	0.057	ppm	48	24	100
49-047-2003	1	5/9/2010	0.066	ppm	71	22	92
49-047-2003	1	5/10/2010	0.057	ppm	48	20	83
49-047-2003	1	5/11/2010	0.067	ppm	74	24	100
49-047-2003	1	5/12/2010	0.053	ppm	45	24	100
49-047-2003	1	5/13/2010	0.056	ppm	47	24	100
49-047-2003	1	5/14/2010	0.057	ppm	48	24	100
49-047-2003	1	5/15/2010	0.056	ppm	47	24	100
49-047-2003	1	5/16/2010	0.062	ppm	58	22	92
49-047-2003	1	5/17/2010	0.059	ppm	50	20	83
49-047-2003	1	5/18/2010	0.054	ppm	46	24	100
49-047-2003	1	5/19/2010	0.047	ppm	40	24	100
49-047-2003	1	5/20/2010	0.056	ppm	47	24	100
49-047-2003	1	5/21/2010	0.056	ppm	47	24	100
49-047-2003	1	5/22/2010	0.058	ppm	49	24	100
49-047-2003	1	5/23/2010	0.052	ppm	44	22	92
49-047-2003	1	5/24/2010	0.063	ppm	61	20	83
49-047-2003	1	5/25/2010	0.055	ppm	47	24	100
49-047-2003	1	5/26/2010	0.059	ppm	50	24	100
49-047-2003	1	5/27/2010	0.047	ppm	40	24	100
49-047-2003	1	5/28/2010	0.06	ppm	51	24	100
49-047-2003	1	5/29/2010	0.057	ppm	48	24	100
49-047-2003	1	5/30/2010	0.057	ppm	48	22	92
49-047-2002	1	1/1/2010	0.065	ppm	67	24	100
49-047-2002	1	1/2/2010	0.072	ppm	90	24	100
49-047-2002	1	1/3/2010	0.082	ppm	116	22	92
49-047-2002	1	1/4/2010	0.069	ppm	80	20	83
49-047-2002	1	1/5/2010	0.073	ppm	93	24	100
49-047-2002	1	1/6/2010	0.079	ppm	109	24	100
49-047-2002	1	1/7/2010	0.042	ppm	36	24	100
49-047-2002	1	1/8/2010	0.04	ppm	34	24	100
49-047-2002	1	1/9/2010	0.05	ppm	42	24	100
49-047-2002	1	1/10/2010	0.064	ppm	64	22	92
49-047-2002	1	1/11/2010	0.073	ppm	93	20	83
49-047-2002	1	1/12/2010	0.077	ppm	104	24	100
49-047-2002	1	1/13/2010	0.084	ppm	122	24	100

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49-047-2002	1	1/14/2010	0.085	ppm	124	24	100
49-047-2002	1	1/15/2010	0.098	ppm	156	22	92
49-047-2002	1	1/16/2010	0.093	ppm	145	20	83
49-047-2002	1	1/17/2010	0.099	ppm	159	24	100
49-047-2002	1	1/18/2010	0.088	ppm	132	24	100
49-047-2002	1	1/19/2010	0.08	ppm	111	24	100
49-047-2002	1	1/20/2010	0.067	ppm	74	24	100
49-047-2002	1	1/21/2010	0.051	ppm	43	24	100
49-047-2002	1	1/22/2010	0.051	ppm	43	24	100
49-047-2002	1	1/23/2010	0.045	ppm	38	24	100
49-047-2002	1	1/24/2010	0.047	ppm	40	22	92
49-047-2002	1	1/25/2010	0.051	ppm	43	20	83
49-047-2002	1	1/26/2010	0.058	ppm	49	24	100
49-047-2002	1	1/27/2010	0.062	ppm	58	24	100
49-047-2002	1	1/28/2010	0.064	ppm	64	24	100
49-047-2002	1	1/29/2010	0.058	ppm	49	24	100
49-047-2002	1	1/30/2010	0.052	ppm	44	24	100
49-047-2002	1	1/31/2010	0.056	ppm	47	20	83
49-047-2002	1	2/1/2010	0.057	ppm	48	20	83
49-047-2002	1	2/2/2010	0.047	ppm	40	24	100
49-047-2002	1	2/3/2010	0.055	ppm	47	24	100
49-047-2002	1	2/4/2010	0.07	ppm	84	24	100
49-047-2002	1	2/5/2010	0.082	ppm	116	24	100
49-047-2002	1	2/6/2010	0.082	ppm	116	24	100
49-047-2002	1	2/7/2010	0.08	ppm	111	22	92
49-047-2002	1	2/8/2010	0.049	ppm	42	20	83
49-047-2002	1	2/9/2010	0.062	ppm	58	24	100
49-047-2002	1	2/10/2010	0.072	ppm	90	24	100
49-047-2002	1	2/11/2010	0.091	ppm	140	24	100
49-047-2002	1	2/12/2010	0.085	ppm	124	24	100
49-047-2002	1	2/13/2010	0.085	ppm	124	24	100
49-047-2002	1	2/14/2010	0.076	ppm	101	22	92
49-047-2002	1	2/15/2010	0.07	ppm	84	20	83
49-047-2002	1	2/17/2010	0.078	ppm	106	24	100
49-047-2002	1	2/18/2010	0.087	ppm	129	24	100
49-047-2002	1	2/19/2010	0.085	ppm	124	24	100
49-047-2002	1	2/20/2010	0.08	ppm	111	24	100
49-047-2002	1	2/21/2010	0.051	ppm	43	22	92
49-047-2002	1	2/22/2010	0.061	ppm	54	20	83
49-047-2002	1	2/23/2010	0.067	ppm	74	24	100
49-047-2002	1	2/24/2010	0.078	ppm	106	24	100
49-047-2002	1	2/25/2010	0.098	ppm	156	24	100
49-047-2002	1	2/26/2010	0.094	ppm	147	24	100
49-047-2002	1	2/27/2010	0.103	ppm	169	24	100
49-047-2002	1	2/28/2010	0.088	ppm	132	22	92
49-047-2002	1	3/1/2010	0.085	ppm	124	20	83
49-047-2002	1	3/2/2010	0.079	ppm	109	24	100
49-047-2002	1	3/3/2010	0.105	ppm	174	24	100
49-047-2002	1	3/4/2010	0.091	ppm	140	24	100
49-047-2002	1	3/5/2010	0.06	ppm	51	24	100
49-047-2002	1	3/6/2010	0.069	ppm	80	24	100
49-047-2002	1	3/7/2010	0.068	ppm	77	22	92

Ozone Monitoring for Uinta Basin for 2010 - Jan to May.xls

49-047-2002	1	3/8/2010	0.064	ppm	64	20	83
49-047-2002	1	3/9/2010	0.064	ppm	64	24	100
49-047-2002	1	3/11/2010	0.052	ppm	44	24	100
49-047-2002	1	3/12/2010	0.058	ppm	49	24	100
49-047-2002	1	3/13/2010	0.055	ppm	47	24	100
49-047-2002	1	3/14/2010	0.043	ppm	36	22	92
49-047-2002	1	3/15/2010	0.047	ppm	40	20	83
49-047-2002	1	3/16/2010	0.053	ppm	45	24	100
49-047-2002	1	3/17/2010	0.056	ppm	47	24	100
49-047-2002	1	3/18/2010	0.053	ppm	45	24	100
49-047-2002	1	3/19/2010	0.045	ppm	38	24	100
49-047-2002	1	3/20/2010	0.05	ppm	42	24	100
49-047-2002	1	3/21/2010	0.052	ppm	44	22	92
49-047-2002	1	3/22/2010	0.051	ppm	43	20	83
49-047-2002	1	3/23/2010	0.048	ppm	41	24	100
49-047-2002	1	3/24/2010	0.048	ppm	41	24	100
49-047-2002	1	3/25/2010	0.05	ppm	42	24	100
49-047-2002	1	3/26/2010	0.049	ppm	42	24	100
49-047-2002	1	3/27/2010	0.047	ppm	40	24	100
49-047-2002	1	3/28/2010	0.053	ppm	45	22	92
49-047-2002	1	3/29/2010	0.051	ppm	43	20	83
49-047-2002	1	3/30/2010	0.051	ppm	43	24	100
49-047-2002	1	3/31/2010	0.054	ppm	46	24	100
49-047-2002	1	4/1/2010	0.052	ppm	44	24	100
49-047-2002	1	4/2/2010	0.051	ppm	43	24	100
49-047-2002	1	4/3/2010	0.055	ppm	47	24	100
49-047-2002	1	4/4/2010	0.055	ppm	47	22	92
49-047-2002	1	4/5/2010	0.054	ppm	46	20	83
49-047-2002	1	4/6/2010	0.05	ppm	42	24	100
49-047-2002	1	4/7/2010	0.054	ppm	46	24	100
49-047-2002	1	4/8/2010	0.058	ppm	49	24	100
49-047-2002	1	4/9/2010	0.054	ppm	46	24	100
49-047-2002	1	4/10/2010	0.059	ppm	50	24	100
49-047-2002	1	4/11/2010	0.054	ppm	46	22	92
49-047-2002	1	4/12/2010	0.058	ppm	49	20	83
49-047-2002	1	4/13/2010	0.056	ppm	47	24	100
49-047-2002	1	4/14/2010	0.06	ppm	51	24	100
49-047-2002	1	4/15/2010	0.067	ppm	74	24	100
49-047-2002	1	4/16/2010	0.062	ppm	58	24	100
49-047-2002	1	4/17/2010	0.059	ppm	50	24	100
49-047-2002	1	4/18/2010	0.057	ppm	48	22	92
49-047-2002	1	4/19/2010	0.058	ppm	49	20	83
49-047-2002	1	4/20/2010	0.051	ppm	43	24	100
49-047-2002	1	4/22/2010	0.062	ppm	58	22	92
49-047-2002	1	4/23/2010	0.056	ppm	47	24	100
49-047-2002	1	4/24/2010	0.055	ppm	47	24	100
49-047-2002	1	4/25/2010	0.052	ppm	44	22	92
49-047-2002	1	4/26/2010	0.053	ppm	45	20	83
49-047-2002	1	4/27/2010	0.053	ppm	45	24	100
49-047-2002	1	4/28/2010	0.058	ppm	49	24	100
49-047-2002	1	4/30/2010	0.044	ppm	37	22	92
49-047-2002	1	5/1/2010	0.043	ppm	36	24	100

Ozone Monitoring for Uinta Basin for 2010 - Jan to May.xls

49-047-2002	1	5/2/2010	0.051	ppm	43	22	92
49-047-2002	1	5/3/2010	0.05	ppm	42	20	83
49-047-2002	1	5/4/2010	0.062	ppm	58	24	100
49-047-2002	1	5/5/2010	0.055	ppm	47	24	100
49-047-2002	1	5/6/2010	0.068	ppm	77	24	100
49-047-2002	1	5/7/2010	0.052	ppm	44	24	100
49-047-2002	1	5/8/2010	0.058	ppm	49	24	100
49-047-2002	1	5/9/2010	0.065	ppm	67	22	92
49-047-2002	1	5/10/2010	0.057	ppm	48	20	83
49-047-2002	1	5/11/2010	0.068	ppm	77	24	100
49-047-2002	1	5/12/2010	0.052	ppm	44	24	100
49-047-2002	1	5/13/2010	0.049	ppm	42	24	100
49-047-2002	1	5/14/2010	0.052	ppm	44	24	100
49-047-2002	1	5/15/2010	0.057	ppm	48	24	100
49-047-2002	1	5/16/2010	0.062	ppm	58	22	92
49-047-2002	1	5/17/2010	0.055	ppm	47	20	83
49-047-2002	1	5/19/2010	0.045	ppm	38	22	92
49-047-2002	1	5/20/2010	0.054	ppm	46	24	100
49-047-2002	1	5/21/2010	0.054	ppm	46	24	100
49-047-2002	1	5/22/2010	0.058	ppm	49	24	100
49-047-2002	1	5/23/2010	0.048	ppm	41	22	92
49-047-2002	1	5/24/2010	0.059	ppm	50	20	83
49-047-2002	1	5/25/2010	0.053	ppm	45	24	100
49-047-2002	1	5/26/2010	0.062	ppm	58	24	100
49-047-2002	1	5/27/2010	0.05	ppm	42	24	100
49-047-2002	1	5/28/2010	0.055	ppm	47	24	100
49-047-2002	1	5/29/2010	0.059	ppm	50	24	100
49-047-2002	1	5/30/2010	0.056	ppm	47	22	92

Exhibit 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

October 16, 2009

Ref: EPR-N

Bill Stringer, Bureau of Land Management
Vernal Field Office
170 South 500 East
Vernal, Utah 84078

Re: Scoping Comments on the Greater Chapita Wells Natural Gas Infill Project Environmental Impact Statement, Uintah County, Utah

Dear Mr. Stringer:

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Bureau of Land Management's (BLM) scoping notice for the proposed Greater Chapita Wells Natural Gas Infill Project Area (GCWPA) by EOG Resources, Inc. (EOG). Consistent with our authority under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, we respond with the following comments for your consideration as you proceed with the Draft Environmental Impact Statement (EIS).

Project Background

EOG proposes to drill up to 7,028 new infill natural gas wells in the GCWPA in Uintah County, Utah. The project area is 42,027 acres in size, of which 78% are federal lands administered by BLM, 16% are Northern Ute Tribal and allotted lands, 5% are state lands, and 1% are privately-owned lands. EOG plans to drill at a rate of 469 infill wells per year for approximately 15 years, resulting in construction of 700 new well pads and access roads and expansion of approximately 979 existing or previously authorized well pads. Under the proposed plan, each 640 acre section could contain 32 well pads on 20-acre spacing. EOG would directionally drill from one to six wells on each well pad to produce bottom hole locations at 5 to 10-acre spacing. The project would use both existing and new produced water disposal and treatment facilities, produced water pipelines, natural gas pipelines, and gas compression facilities.

Key Issues Identified by EPA

Based on our current understanding of the proposed project and the area, EPA has identified five key issues that will need to be thoroughly analyzed and addressed in this EIS:

(1) Regional air quality with an emphasis on regional $PM_{2.5}$ and ozone;
(2) Dust suppression on unpaved roads;
(3) Wetlands, streams, and riparian land protection;
(4) Alternatives for produced water management; and
(5) Analysis of potential impacts of the chemicals used for hydraulic fracturing.

Additional comments on other important environmental issues, including cumulative impacts, are provided in the enclosed "Detailed Comments."

(1) Regional Air Quality:

Given the declining air quality trends in the Uinta Basin area, air quality analysis will be particularly important in order to manage the direct impacts of Chapita Wells when combined with other existing and reasonably foreseeable development within the basin. EPA is especially concerned with measured ozone and $PM_{2.5}$ concentrations in the surrounding area. Ozone concentrations measured at an air monitoring site located in eastern Utah are currently approaching the National Ambient Air Quality Standard (NAAQS)[1]. $PM_{2.5}$ concentrations over the 24-hour NAAQS have been measured by the Utah Division of Air Quality in the Vernal, Utah area. The NEPA analysis for this project will need to carefully and thoroughly evaluate the proposed project's potential contribution to air quality in the area. The Draft EIS should analyze and disclose the project's direct, indirect, and cumulative impacts on all criteria pollutants to assure that the region remains under the NAAQS.

In 2007, BLM arranged for a regional numerical air quality model to be undertaken pursuant to a Memorandum of Understanding (MOU) between the BLM and the Independent Petroleum Association of the Mountain States (IPAMS). This substantial 2-year effort is known as the Uinta Basin Air Quality Study (UBAQS). As you are aware, the participating agencies, including EPA, the National Park Service, and the Forest Service, recognized that there were important shortcomings in the UBAQS modeling protocols that will need to be improved to meet the provisions of NEPA. Therefore we call upon the BLM to conduct modeling that will amend those shortcomings to be completed as part of the Chapita Wells EIS analysis. EPA's detailed technical concerns with the work so far performed for the UBAQS are provided in the enclosed Detailed Comments.

The revised modeling analysis needed for this EIS should also address and disclose the project's potential effect on Prevention of Significant Deterioration increments, as well as on air quality-related values in nearby Class II areas (e.g., visibility, acid deposition). Based on our recent discussions with the Utah Department of Air Quality, it now appears that the relatively high concentrations of $PM_{2.5}$ observed at the Vernal monitor could be a result of secondary particulate formation due to chemical reactions of nitrogen or organic compounds; this issue should be addressed in the air quality analysis as well. Given the large scale of the proposed action, the Draft EIS should include specific and detailed mitigation measures to reduce emissions to assure compliance with the NAAQS.

To accomplish this major endeavor, we recommend BLM coordinate an air quality workgroup involving the Utah Department of Air Quality, the Northern Ute Tribe, the Forest Service, the National Park Service, and EPA to guide and direct this vitally important regional air quality modeling effort.

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[1] Canyonlands NPS, 3-year average (2006-2008) 4th maximum 8-hour average is currently 71 ppb, http://www.epa.gov/oar/data/

(2) Dust Suppression from Unpaved Roads and Disturbed Areas:

Dust particulates from construction, vehicle travel on unpaved roads, and ongoing oil and gas operations are an important concern. It is vital to the operator's interests to assure that dust does not generate unsafe traveling conditions on these roads. The airborne dust can also be dangerous to asthma sufferers. In addition, long distance transport of fugitive dust out of the basin into the Uinta Mountains may contribute to dust on snow events in that area. Dust on snow can accelerate the snow melt, resulting in reduction in stream flow during the later part of the season. We suggest this EIS evaluate the direct and indirect contribution to dust on snow in the Uinta Mountains. (See, for example, research by Dr. Thomas Painter and others at the University of Utah's Snow Optics Laboratory, http://www.geog.utah.edu/faculty/index.html?id=53.) Every effort should be made by BLM to assure that the operator avoids vehicle use off highway and assure adequate road dust abatement, either by dust suppression or road surface improvements. EPA recommends the Draft EIS include detailed plans for dust control for the project and its related roads. The dust control plans should include dust suppression, inspection, and documentation of an accountable process.

(3) Wetlands, Streams and Riparian Habitat Protection:

The southwest corner of the GCWPA is adjacent to the White River, which has important riparian and wetland habitat. We suggest the Draft EIS provide in detail those management practices that would be obligated by the operators for all phases and actions involved in drilling and production. It is also important that the EIS include a detailed inventory and mapping of wetland resources within the area being proposed for drilling. This map should include both wetlands that are regulated under Section 404 of the Clean Water Act and wetlands that are determined to be non-jurisdictional and protected under Executive Order (EO) 11990 – Protection of Wetlands (May 24, 1977). EO 11990 applies to all wetlands located on Federal lands, which constitute a majority of the GCWPA. It directs Federal Agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. As the project proceeds, EPA encourages the BLM to require delineation and marking of perennial seeps, springs and wetlands on maps and on the ground before development so industry employees will be able to avoid them. We also recommend establishment of 100-foot buffer zones to avoid adverse impacts to streams, wetlands, and riparian areas.

(4) Produced Water Management Alternatives Analysis:

Under the proposed action, produced water from the gas wells may be stored in a tank on the well pad and transported by truck to an approved disposal site. Produced water from some of these natural gas wells may also be transported by pipeline to existing central facilities. The company may choose to either manage this produced water by disposal in an injection well or by evaporation in surface impoundments. EPA recommends the EIS include detail of the environmental risks of these alternative means of produced water management. In addition, we suggest that consideration be given to transporting this produced water to another Uinta Basin energy company for use in water flood operations. Water flood operations are currently ongoing in the Uinta Basin, typically located west of the Green River, and are using high quality culinary water for water flood purposes. There could be important environmental advantages of using the

produced water for water flood recovery in lieu of culinary water, as well as avoiding surface evaporation pit or well disposal. EPA further recommends the Draft EIS evaluate installation of a liquid gathering system. Liquid gathering systems can significantly reduce impacts to air quality and wildlife and have been successfully implemented in oil and gas fields.

(5) Impact of the Chemicals Used for Hydraulic Fracturing:

The EIS should describe any useable groundwater resources within the project area. We understand there is very limited use of ground water in the area. Nevertheless, we suggest this EIS identify if there are existing domestic wells within the Birds Nest and Douglas Creek aquifers within the Green River Formation or wells within the shallow alluvium along the White River within the GCWPA. This evaluation should include groundwater quality and quantity of all aquifers, recharge zones, any laterally extensive confining units or the lack there of, and zones of fracturing or faulting that extend to depth that could allow migration of fluids or gas during well construction or hydraulic fracturing. The use of hydraulic fracturing fluids is likely to recover natural gas in these formations. An analysis of the management of the fracturing fluids should be provided including the toxicity and fate of these fluids with a focus on avoiding surface spills or leaks of these fluids from the reserve pits. Some hydraulic fracturing compounds contain materials that could be harmful if released. This EIS should evaluate mitigation measures to protect surface and ground water sources, even if such protection is considered outside of the jurisdiction of the BLM. Mitigation measures (e.g., backflow preventers, adequate casing, pit lining) should be developed and implemented for this project to protect surface and ground water zones.

EPA would like to discuss with BLM the air and water quality impact analyses and mitigation measures planned for this proposed action. By working together early in the EIS process, we hope to be able to assist BLM with the development of an analysis which will adequately address potential air quality and water quality impacts and identify appropriate mitigation measures. If you have any questions about our comments, please contact me at 303-312-6004, or you may contact Molly Brodin of my staff at 303-312-6577.

Sincerely,

original signed by Joyel Dhieux, acting for:

/s/ Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation

Enclosure: EPA's Detailed Scoping Comments

cc: Brock Labaren, UDEQ, Salt Lake City
Maxine Natchees, Uintah and Ouray Tribe, Ft. Duchesne
Chris Shaver, National Park Service, Denver
Jeff Sorkin, Forest Service, Denver

Detailed Comments by the Region 8 Environmental Protection Agency
Scoping for the Draft Environmental Impact Statement
Greater Chapita Wells Gas Infill Project

Jurisdiction

It appears that the proposed GCWPA is located on the southeastern portion of the Uintah and Ouray Reservation, which is known as the Uncompahgre Reservation. The Tenth Circuit Court of Appeals has determined that all lands within the Uncompahgre Reservation are Indian country as defined at 18 U.S.C. Section 1151. This is true regardless of the surface ownership of the land (thus, Tribal, State, private and federal lands in this area are Indian country). Please confirm that the proposed project is located within the Uncompahgre Reservation. Assuming that the proposed project is located on the Uncompahgre Reservation, we recommend that BLM offer to consult with the Ute Indian Tribe regarding this and other projects on the Reservation, if it has not already done so.

EPA directly implements most federal environmental programs, including the Clean Water Act (CWA), Clean Air Act (CAA), and Safe Drinking Water Act (SDWA), on Indian country lands in Utah. EPA has not approved the Ute Indian Tribe or the State of Utah to implement federal environmental programs in Indian country. Thus, assuming the project is located within the Uncompahgre Reservation, EPA is the appropriate governmental authority to issue federal environmental permits, conduct inspections, take enforcement actions, and take any other actions pursuant to our statutes and authorities.

Depending upon how the GCWPA development proceeds regarding additional gas compression and other facilities subject to Clean Air Act permits, this project may be affected by a clarification of EPA's regulatory policy under the Clean Air Act. A September 22, 2009, memorandum from Assistant Administrator Gina McCarthy, entitled "Withdrawal of Source Determination for Oil and Gas Industries"[2] reiterates the importance of the three regulatory criteria for identifying emissions activities that belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under the control of the same person or persons under common control. This September 2009 memo withdraws the "Wehrum Memo" of 2007 and states that "permitting authorities should ... rely foremost on the three regulatory criteria for identifying emission activities that belong to the same 'building', 'structure', 'facility' or 'installation'" to make case-by-case source determination decisions.

Water Quality Impacts

The EPA recommends the Draft EIS include an accurate description of surface and groundwater resources, as both are essential to understanding the potential effects of any

[2] Withdrawal of Source Determinations for Oil and Gas Industries, EPA memo by Assistant Administrator Gina McCarthy, September 22, 2009, http://www.epa.gov/Region7/programs/artd/air/nsr/nsrmemos/oilgaswithdrawal.pdf.

management alternative. The Draft EIS should clearly describe water bodies within the analysis area which may be impacted by development activities. Identifying affected watersheds on maps of the various alternatives helps convey their relationship with project activities.

The EIS should analyze potential impacts to surface water, groundwater, and existing and potential drinking water. Impacts to consider include: water quality; water quantity; and any adverse change to current water quality of the rivers, streams, and their tributaries. Best Management Practices (BMPs) and mitigation measures should be used to protect these resources and designed into the alternatives under consideration.

The EPA also recommends the EIS disclose the extent to which aquatic habitat, including season and spawning habitats, stream bank vegetation, and riparian habitats, could be impaired by potential activities; this should include effects on surface and subsurface water quality and quantity, aquatic biota, stream structure and channel stability, and streambed substrate. Particular attention should be directed at evaluating and disclosing the cumulative effects of increased levels of erosion and sedimentation. Water quality parameters such as conductivity, dissolved and suspended solids, metals, pH, temperature, dissolved oxygen and physical aquatic habitat parameters may also be important monitoring indicators for determining stream or lake impairment or stress, as well as its sensitivity to further impacts. Existing water quality standards applicable to the affected water bodies should be presented to provide a basis for determining whether existing uses will be protected and water quality standards met.

Cumulative Impacts

The EIS should analyze impacts according to airsheds and watersheds, rather than political boundaries. The assessment should include the cumulative impact of reasonably foreseeable energy development, energy-related activities and other activities that may affect air quality, water quality, and other resources of concern in the area. The purpose of a cumulative impacts analysis is to assess the incremental impacts on each resource of concern due to connected and unconnected actions that take place in a geographic area over time (i.e., past, present, and future) no matter which entity (public or private) undertakes the actions. Cumulative impact analysis aids in identifying the level of significance of those impacts on a particular resource and the appropriate type and level of mitigation required to offset the current proposal's contribution to these impacts.

Greenhouse Gas Emissions

EPA recommends the Draft EIS include an analysis and disclosure of greenhouse gas emissions and climate change. While methane represents only 8 percent of the U.S. greenhouse gas emissions, it is 23 times more effective as a greenhouse gas than carbon dioxide. Oil and natural gas systems are the biggest contributor to methane emissions in the U.S., accounting for 26 percent of the total (EPA's Natural Gas Star Program and the U.S. Emissions Inventory 2007: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005). For the Draft EIS, we suggest a four step approach:

1. Consider the future needs and capacity of the proposed action to adapt to projected climate change effects.

2. Characterize and quantify the expected annual cumulative emissions attributable to the pipeline, and use CO2-equivalent as a metric for comparing the different types of greenhouse gases (GHGs) emitted.

3. Briefly discuss the link between GHGs and climate change, and the potential impacts of climate change.

4. Discuss potential means to mitigate project-related emissions. One voluntary mitigation effort targeted at the oil and gas industry is EPA's GasSTAR program. Through the program, EPA technical experts help identify and promote the implementation of cost-effective technologies and practices to reduce GHG emissions.

Hazardous Air Pollutants

Hazardous air pollutants may be emitted during the drilling, completion and production of the wells. EPA recommends the EIS analyze and disclose the potential impacts on concentrations of hazardous air pollutants, including formaldehyde, benzene, toluene, ethyl benzene, xylene, n-hexane, and formaldehyde.

Additional Air Quality Comments

(1) Technical concerns regarding the Uinta Basin Air Quality Study (UBAQS)

As noted in previous correspondence between EPA Region 8 and your offices, the UBAQS modeling effort provided an important update to regional air emissions based on the Western Regional Air Program's Phase III inventory. This Phase III inventory is an important data set providing volatile organic compound (VOC) emission rates largely consistent with actual emission rates in the basin today. However, the BLM noted as part of the MOU with IPAMS, that the UBAQS effort was not an analysis undertaken pursuant to provisions of NEPA. NEPA requires the lead agency to conduct an analysis of past, present, and reasonably foreseeable development regardless of what entity is approving the action. In this area, both the Northern Ute Tribe and the State of Utah are approving other oil and gas development that will contribute air emissions within the basin. The participating agencies, including EPA, the National Park Service, and the Forest Service, recognized that there were important shortcomings in the UBAQS modeling protocols that will need to be improved to meet the provisions of NEPA.

EPA's primary concerns with this study include:

1) The expected PM_{10} (2006 and 2012), $PM_{2.5}$ (2006 and 2012), and O_3 (2012 only) values could be over the NAAQS, but there is little to no discussion of what is causing such impacts.

2) There is a lack of explanation for the poor particulate matter performance evaluation results. The inability of the model to predict the high $PM_{2.5}$ events in Vernal is of particular concern given the proximity to proposed major oil and gas developments.

3) The purpose of UBAQS was not clearly defined. The output was for the years 2006 and 2012 only, while for NEPA purposes analysis of the cumulative impacts should be based on the maximum emission year during the life of the project of about 30 years.

The 2009 Uinta Basin Air Quality Study (UBAQS) presents air quality impact results from emission sources located primarily in the Uinta Basin of eastern Utah using the CMAQ model conducted for the years 2006 and 2012. We believe this is one of the first attempts at predicting ozone with associated cumulative emissions from the oil and gas developments in Eastern Utah and Western Colorado. Our detailed technical comments on UBAQS follow.

Ozone:

The predicted 8-hour ozone levels in the 2006 modeling year achieved the NAAQS across the entire Uinta basin. When modeled using 2012 emissions (and 2006 meteorology) ozone NAAQS exceedences were predicted along the UT-CO border in Uinta and Rio Blanco Counties (page 4-69). The text indicates that these modeled exceedences are likely "just an artifact due to conservatisms in the model." The conservative factors cited include: (1) the CMAQ performance evaluation showed that the model estimated fourth highest ozone concentrations that were greater than observed at most ozone monitoring sites; and (2) the emission inventory used in 2012 overstated on-road mobile source activity that would result in overstated 2012 ozone estimates.

1. Because model performance overstated concentrations at some monitoring sites does not necessarily mean that the model is over predicting at the unmonitored locations where exceedances are predicted. In fact, CAMx (a grid-type model that is similar to CMAQ) under predicted ozone impacts related to Upper Green River Basin oil and gas development in the Hiawatha Model Performance Evaluation Study (2009). There is no similar ozone monitoring data downwind of major oil and gas source regions in the current study to adequately test the model for a potentially similar scenario in the Uinta /Piceance Basins. Moreover, the 12 km grid resolution used in this study would tend to make the UBAQS modeling even less likely to replicate ozone impacts from this source category than the 4 km grid resolution used in other NEPA project specific actions.

2. While it is possible that on road emission factors used in the model are high, off-road mobile source activity from oil and gas development have historically been understated by large amounts. Furthermore, development activity beyond 2012 is likely to increase, which will increase emissions and impacts to levels even higher than those projected in this study. EPA believes that these modeled exceedances in Uinta and Rio Blanco counties should be taken seriously in considering the modeling results. The difference in predicted ozone concentrations from 2006 to 2012 for this same area is greater

than 3.0 ppb. We believe this to be a substantial increase in ozone over a relatively short period of time and warrants additional review and analysis.

Ozone Performance Evaluation:

Page 4-45. The text notes that EPA guidance for ozone attainment demonstration modeling stresses that the Unmonitored Area Analysis has more uncertainties than the projections at the monitors and it should be treated separately from the monitor based attainment demonstration test (EPA, 2007). While it is expected that additional emission controls will likely be needed to eliminate predicted exceedances of the ozone NAAQS in the monitor based attainment test, the same requirements may not be appropriate in unmonitored areas. These comments are taken out of context. The referenced EPA guidance is intended for use in determining emission reduction requirements in well-monitored non attainment areas. This is not the situation in Uinta-Piceance Basin as monitoring data are extremely sparse. The area is experiencing rapid oil and gas development and ozone precursor emissions are increasing, but the area is currently attainment for the ozone NAAQS. While the unmonitored area analysis and the absolute predictions from the grid models have uncertainties, they are the only methodologies available to predict the potential ozone impact from these developments. These modeling tools are essential to determine air quality impacts for action subject to NEPA analysis, especially given the scale of the proposed action in the Greater Chapita Wells area.

$PM_{2.5}$:

Page 3-168 of the UBAQS text notes that CMAQ exhibited overall PM performance comparable to that of the Regional Planning Organization's (RPO's) 2002 CMAQ simulations that were judged acceptable for use in regional haze State Implementation Plans (SIPs). The acceptance of CMAQ for use in regional haze SIPs has no relationship to the potential use of CMAQ in project-specific NEPA analyses. In the regional haze SIP context, CMAQ predictions are used in a relative sense to determine future changes in measured visibility values at IMPROVE monitoring sites. In NEPA analyses, the model's absolute predictions of the incremental impact of the project are used to determine direct impacts. In the latter case, model performance is typically a much more serious concern.

The model predicted 24 hour $PM_{2.5}$ and PM_{10} NAAQS exceedences in the Unita/Piceance Basin during 2006 and 2012. We are unsure why these exceedances are predicted for this area. The report should describe which PM species are contributing to the exceedences. The text should also note that in the performance evaluation for $PM_{2.5}$ the model under predicted concentrations and thus it is possible that the extent and magnitude of the $PM_{2.5}$ exceedences have been underestimated.

Visibility:

The text on page 3-168 states that "overall the CMAQ has a nitrate (NO_3) over prediction bias for the highest days which would result in the modeling over predicting the potential visibility impacts at Class I areas due to oil and gas related emissions." It additionally states, "Again, the NO_3 over prediction bias needs to be accounted for in the interpretation of the future-year NO_3 and visibility impacts in the UBAQS." This statement is not supported by the data shown in Figure 3-22 indicating CMAQ under predictions of nitrate concentrations occur throughout the year at STN sites and during April through October at IMPROVE and CASTNET sites. The underestimation of nitrate at the more urbanized speciation trend network (STN) is of concern because it may be representative of model performance in high emissions regions associated with similar emissions from oil and gas developments. We note that this is similar to the issue noted above regarding ozone under predictions near areas of dense oil and gas development.

The text also states that CMAQ has a bias toward over prediction on days when nitrate makes its largest contribution to visibility impairment, thus CMAQ will provide a conservative estimate of nitrate impacts. The performance statistics used to reach this conclusion were largely based on IMPROVE and CASTNet monitoring sites that are essentially background sites and do not reflect the impact of large nearby urban or industrial sources. For example, the IMPROVE site at Pinedale does not reflect major impacts for the oil and gas sources in the Upper Green River Basin. The nitrate performance of the model needs to be tested at transport distances of 50 to 200 km directly downwind of very large sources. The only data set that appears to reflect this situation is Rocky Mountain National Park (RMNP) and the sources in the Denver urban area. At RMNP, the model generally underestimated NO_3 during spring and summer of 2005 and greatly underestimated NO_3 during wintertime episodes at RMNP in February and March 2006. Based on this performance, we remain concerned about potential under predictions of visibility impacts at Class 1 areas directly downwind of large oil and gas developments.

PM Model Performance Evaluation:

We are concerned with the PM and visibility performance evaluation results and subsequent interpretation of these results from the other recent grid model analyses including the 2009 Southern Ute and 2009 Hiawatha EISs. When compared to the monitored IMPROVE or STN measurement data, the model operational evaluation for PM species in some cases is well over the model performance goals of $\leq$60% fractional bias and $\leq$75% fractional error identified in the modeling protocols. Rather than resolving the inaccuracies of these model predictions, a qualitative discussion dismissing the inability of the model to accurately predict particulate impacts with a discussion on summer and wintertime data trends has been presented for the various modeling results. This is not the intent of the modeling performance goals. According to EPA procedures, a diagnostic analysis should be considered whenever results from an operational evaluation exceed the performance goals. Since this was not presented in the UBAQS report, we have no indication of the source or subsequent resolution of these inaccuracies.

The results of the UBAQS study indicate that most areas near the various projects are in attainment with the current ozone NAAQS. However, we are concerned that the model years studied coupled with some of the technical concerns already presented casts some doubt for us that we do not fully understand the full impact of development in Eastern Utah and Western Colorado. Under NEPA, the Federal Land Managers (FLMs) must disclose cumulative effects along with the direct and indirect impacts of proposed developments and mitigate impacts that may cause or contribute to exceedances of an air quality standard. When selecting modeling year scenarios, EPA prefers that maximum emission (NOx and/or VOC) scenario years for determining maximum impacts during the life of a NEPA project. A cumulative effects analysis, such as the UBAQS, is useful in providing the overall condition of the entire airshed from all the various emission sources. The results of the study can then help inform the decision maker on possible planning decisions or mitigation strategies on future NEPA actions and selection of additional monitoring locations. We believe that UBAQS is a good first step in determining resultant impacts from the overall growth of primarily oil and gas in our Region and that additional studies are warranted.

(2) Recommendations for an Air Quality Workgroup and Air Quality Modeling Protocol:

EPA Region 8 recommends that BLM form an inter-agency air quality workgroup for Chapita Wells to define the air quality analysis, the results of the analysis, and appropriate mitigation measures. One of the primary purposes of an air quality workgroup would be to provide feedback to BLM at the earliest stages of EIS development. EPA Region 8 believes stakeholder involvement is important at all stages of the air quality analysis including the emission inventory, the modeling protocol, analysis of results, and identification of appropriate mitigation if necessary. As mentioned in the cover letter, EPA would like to meet with BLM to discuss the air quality impact analysis planned for this EIS.

In preparing the EIS, EPA Region 8 recommends the approach used by BLM to analyze and predict air quality impacts be documented in an Air Quality Modeling Protocol and be fully vetted with the air quality workgroup. An Air Quality Modeling Protocol provides a "roadmap" for how the air analysis will be conducted and the results presented. It describes the model that will be used for analysis, including model settings, modeling boundaries, and important model inputs such as meteorology, background data, and emission inventories. The Protocol should also generally describe the standards and thresholds to which the air impact results will be compared. EPA Region 8 recommends that a Draft Air Quality Modeling Protocol be circulated among the air quality workgroup for comment and discussion. As part of this discussion, EPA Region 8 recommends workgroup members discuss and reach agreement on the emission inventories that will be used and the alternatives that will be modeled. EPA suggests BLM work with the air quality workgroup to obtain written concurrence from each member on the Protocol prior to proceeding with the air quality analysis. If significant disagreements persist, EPA recommends those issues be elevated within the respective agencies for resolution. By discussing the model, emission inventories, and alternatives up front, BLM may avoid additional costly and time consuming air quality modeling analysis revisions at a later date.

(3) Air Quality Mitigation

If the Chapita Wells air quality analysis discloses significant, adverse impacts to air quality, then EPA will insist that the EIS include specific and detailed mitigation measures to address the impacts. EPA Region 8 also recommends the Draft EIS include modeled demonstrations that the mitigation measures will be effective. A significant, adverse impact to air quality may include contribution to predicted violations of a NAAQS and/or predicted adverse impacts on air quality related values (i.e., visibility impacts to a Federal Class II area).

Air quality mitigation measures may include, but are not limited to:

- Tier II or better drilling rig engines (i.e. natural gas drilling rigs),
- Electric drilling rigs,
- Selective catalytic reduction or other secondary emission controls on drilling rig engines,
- Fuel additives,
- Electric or natural gas-fired compression,
- Condensate and water collection rather than tanks and trucks,
- Controls on start-up,
- Avoid natural gas driven pneumatic pumps if possible,
- Use of low bleed pneumatic devises or solar-electric pumps,
- Reduced pace of development,
- Phased development,
- Centralization of gathering facilities,
- Emission offsets,
- Green completions,
- Low or no flow pneumatic valves, and
- Additional EPA Gas Star program measures.

Exhibit 3

UINTA BASIN AIR QUALITY STUDY
(UBAQS)

Prepared for

Ms. Kathleen Sgamma
Independent Petroleum Association of Mountain States (IPAMS)
410 17th Street, Suite 1920
Denver, Colorado 80202

June 30, 2009

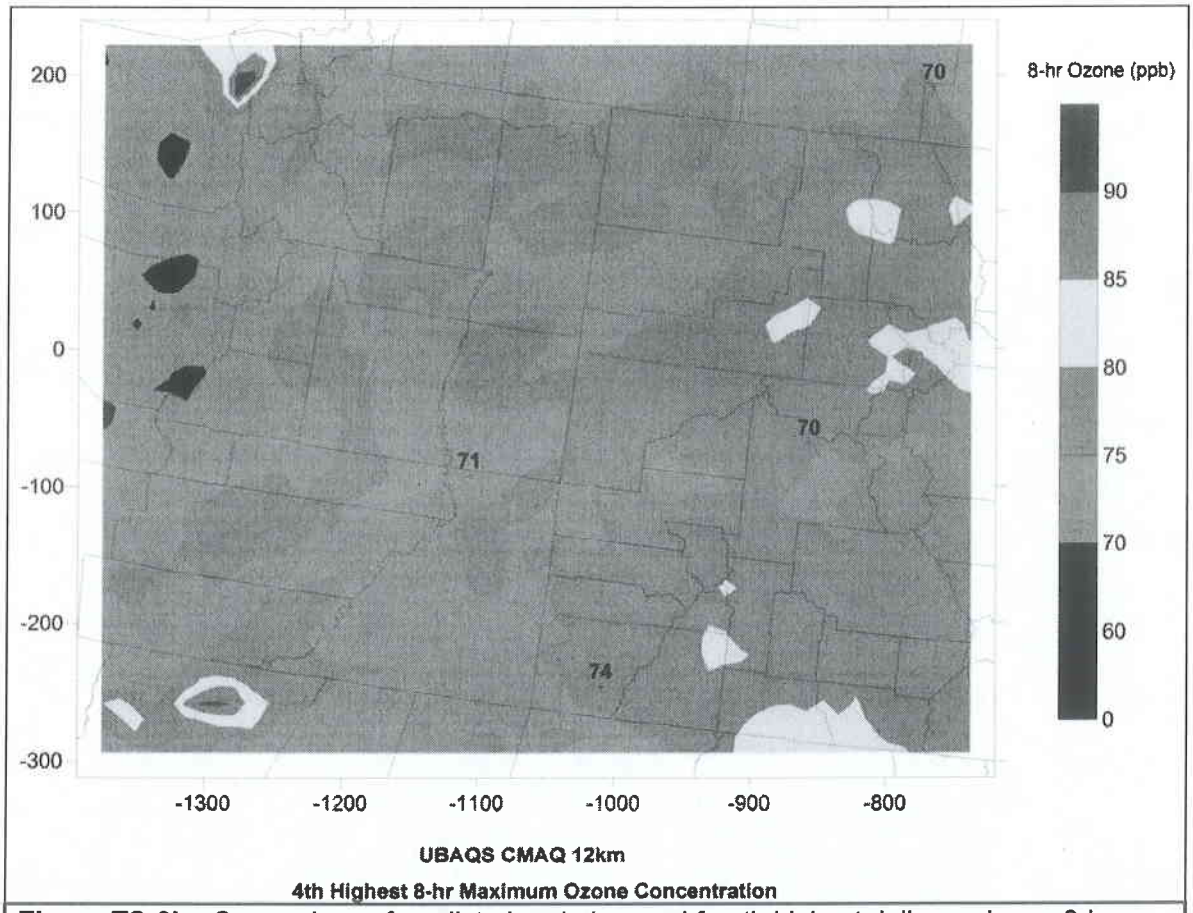

Figure TS-3b. Comparison of predicted and observed fourth highest daily maximum 8-hour ozone concentrations in the UBAQS 12 km CMAQ domain during 2006.

Nitrate (NO_3) Model Performance Evaluation

Figure TS-4 compares time series of the predicted and observed 24-hour NO_3 concentrations at the two IMPROVE sites that are just south (Canyonlands) and east (Mount Zirkel) of the Uinta Basin (results for all CASTNet sites are presented in Chapter 3). Both the observations and model prediction agree that NO_3 is higher in the winter and lower in the summer. During the summer both the observed and predicted NO_3 concentrations approach zero so that NO_3 is not an important component of $PM_{2.5}$ mass or visibility impairment.

Figure TS-5 compares the cumulative frequency distribution of predicted and observed 24-hour NO_3 concentrations at the Canyonlands and Mount Zirkel IMPROVE monitoring sites during 2005 and 2006. At observed concentrations greater than 0.1 $\mu g/m^3$, the predicted NO_3 concentrations are from 50% to 100% higher than the observed values. These results indicate that the UBAQS CMAQ model will overestimate the NO_3 and visibility impairment associated with future year O&G and other developments in the Uinta Basin. The NO_3 overprediction tendency also needs to be accounted for when interpreting the UBAQS future year modeling results.

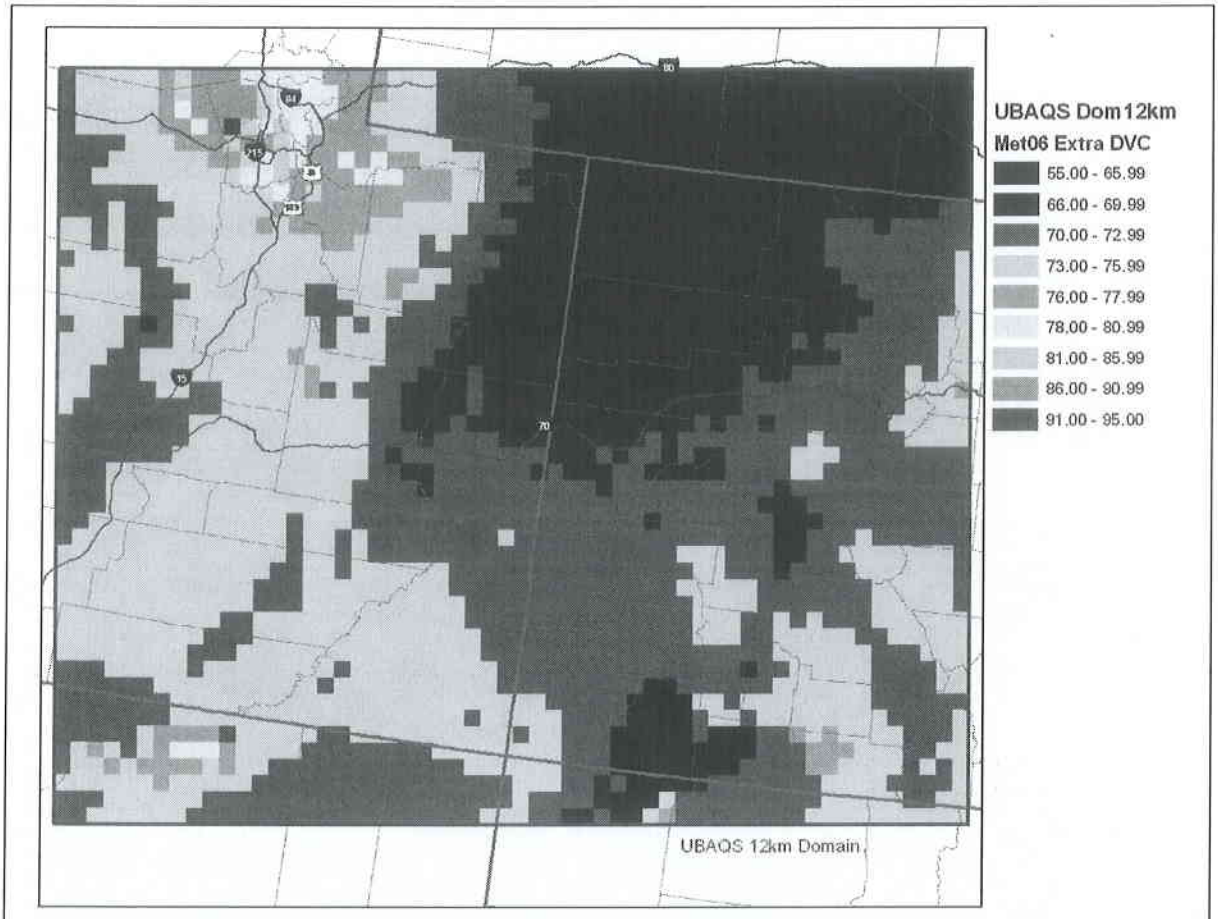

Figure TS-8a. Results of the enhanced MATS unmonitored area analysis for the 2006 meteorological year displaying 2006T emissions scenario current year 8-hour ozone Design Values (ppb).

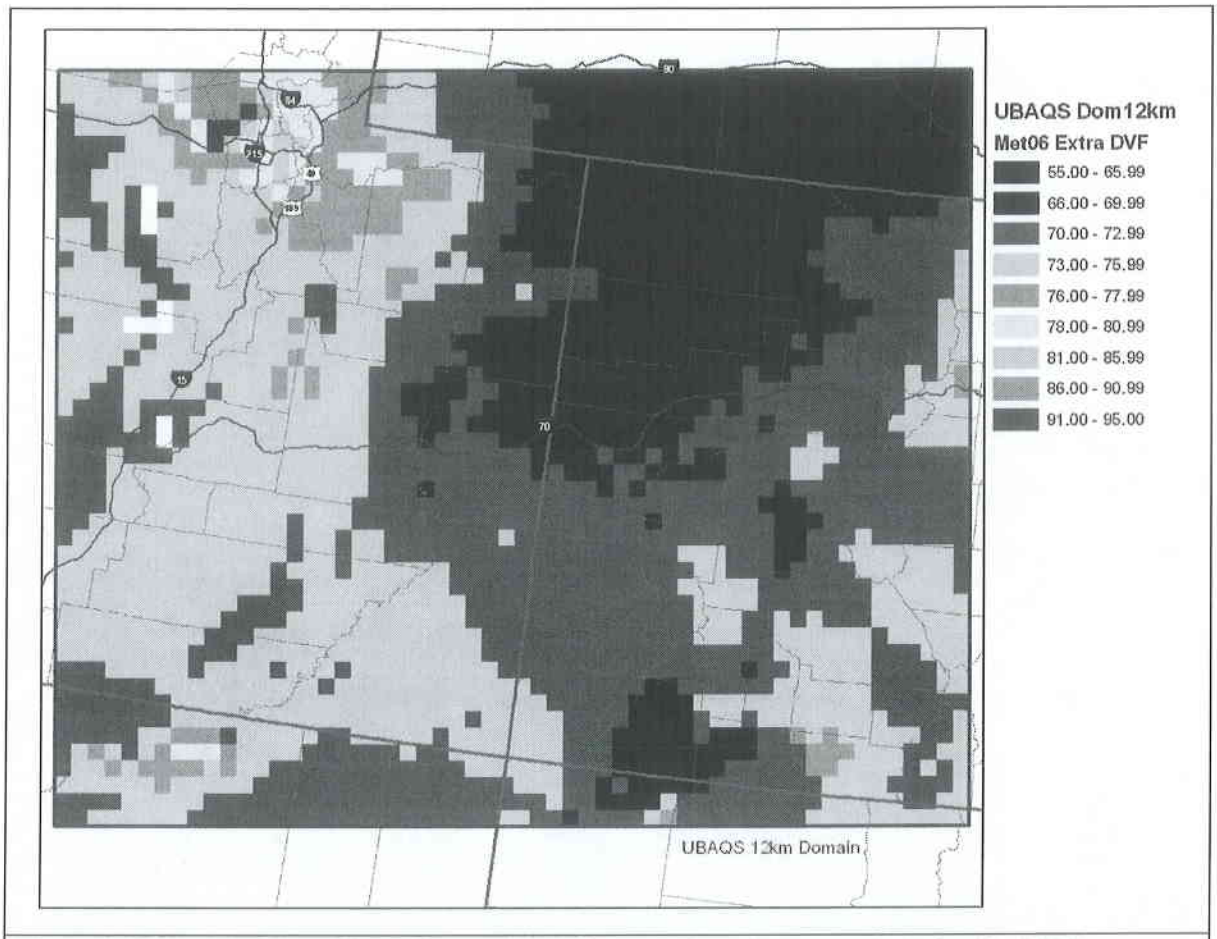

Figure TS-8b. Results of the enhanced MATS unmonitored area analysis for the 2006 meteorological year displaying 2012 emissions scenario projected 2012 8-hour ozone Design Values (ppb).

Exhibit 4

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2007 January

Date	BR	BV	CW	HE	HG	HV	HW	VL	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	T3	WT	WX	WV	VX
01/01							27.9		21.0	18.0				26.7									
01/02							36.3		18.0	18.7				35.2									
01/03	30.8	31.4	36.0	13.3	22.0	31.6	36.6		24.1	26.0	34.7			34.3	34.7	35.0	29.6	15.3	23.4	26.7		35.9	
01/04							8.9	22.9	5.0		5.1			7.9									
01/05							7.6		4.7		9.0			6.1									
01/06	3.2	9.2	8.7	5.3	6.8	6.8	10.5	9.7	3.7	3.8	10.5	11.5		6.8	12.2	7.6	8.7	10.2	5.0	6.3	8.0	9.9	10.3
01/07							9.6		4.7		10.4			10.4									
01/08							18.9		8.6		19.7			16.3									
01/09	21.2	26.9	25.3	16.1	20.5	26.2			14.3		28.8						24.5	16.2	9.5	19.1			
01/10							21.8	45.1	21.5		8.5			26.5									
01/11							5.1		2.9		4.7			6.1									
01/12	3.3	3.5	7.0		11.2	3.4	3.6	4.0	6.1	5.7	9.5			8.3	9.2	6.0	7.6	4.6	7.6	5.6	5.5		
01/13							8.7		8.2		16.1											12.3	11.7
01/14							17.7		14.8														
01/15	14.1	27.8	37.4		29.4	18.6	31.5	35.5	20.2					33.6		22.8	27.9		16.6	21.6		32.0	
01/16							44.8		27.2					47.7									
01/17							48.4		35.3														
01/18	25.0	29.7	49.8		51.6	30.3	42.8	55.7	31.2	33.7	61.8			52.2		31.8	55.1	13.7	24.2	26.1	25.8	49.5	49.5
01/19							47.2		22.9		67.0			55.7									
01/20							65.2		24.6		68.8			66.6									
01/21	14.2	19.9	18.0		38.7	26.2	16.3		18.3		42.1		8.2	20.5	47.8	27.5	41.5	6.9	8.9			25.7	
01/22							27.2		19.0					32.5									
01/23							46.8		25.5					44.1									
01/24	33.6	45.1	58.0		45.1	45.2	51.8		30.0	30.6	51.2	53.5	30.1		50.3	50.4	45.7		14.7	44.3	44.2		
01/25							64.2		38.7		62.5			62.0									
01/26							75.5		49.3		69.0			79.2									
01/27	55.3	65.5	85.0	57.5	71.3	56.8	86.7	63.3	41.3		74.5		65.1	78.7	74.9	62.3	71.3		39.5	56.4		80.6	
01/28							76.0		26.1		64.9			81.1									
01/29							64.6		31.8					80.6									
01/30	64.6	68.4	71.5		56.7	72.4	78.1		45.1	46.5			60.2	80.6	63.5	76.9	57.7			73.2	74.5	78.8	79.0
01/31							33.8	34.4	18.2					36.6									
Arith Mean	26.5	32.7	39.7	23.0	35.3	31.8	37.1	33.8	21.4	22.9	35.9	32.5	40.9	39.9	41.8	35.6	37.0	11.1	16.6	31.0	31.6	40.6	37.7
Max 24-hr Avg	64.6	68.4	85.0	57.5	71.3	72.4	86.7	63.3	49.3	46.5	74.5	53.5	65.1	81.1	74.9	76.9	71.3	16.2	39.5	73.2	74.5	80.6	79.0
Std.Dev																							
Days Data	10	10	10	4	10	10	30	8	31	8	20	2	4	26	7	9	10	6.0	9	9	5	8	4
Yearly Mean	74.0	12.1	13.9	8.7	11.7	10.7	13.8	24.5	9.6	9.1	11.9	10.6	9.5	16.2	12.1	12.2	11.7	8.8	7.5	10.6	10.4	13.6	12.9

Exhibit 5

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2007 February

Date	BR	BV	CW	HE	HG	HV	HW	VL	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	T3	WT	WX	WV	VX
02/01							11.2	14.7	8.4		15.8			12.5									
02/02	6.4	10.3	12.8	9.0	11.6	8.3	12.9		6.8		10.7		6.6	13.0	8.4	8.9	11.9			8.0		11.1	
02/03							14.7		12.6		17.7			14.0				10.2	7.5				
02/04							13.5		19.2		20.3			16.2									
02/05	12.4	23.8	20.1	9.5	15.2	15.8	25.7		21.0	21.5	28.4	28.0	19.2	27.0	25.6	21.3	24.9		6.2	16.4	15.5	26.9	25.7
02/06							31.1		20.0		32.0			35.4				8.4					
02/07							37.6		22.8		24.7			52.9									
02/08	12.2	11.4	7.7	5.6	7.4	8.9	6.9	51.8	16.7		9.3		7.7	13.3	8.2	14.6	5.8	9.8	3.7	8.0		11.4	
02/09							13.8		9.4					20.2									
02/10							7.9		11.2		11.7			10.1									
02/11	2.5	3.3	3.2		3.1	4.5	5.2	18.8	3.4	3.7	2.7	3.0	2.7	6.5	3.1	2.5		5.5	2.3	4.9	4.7	6.4	6.0
02/12							3.7		2.9		4.7			7.8									
02/13							9.7		3.6		8.6			9.0									
02/14	2.7	6.4	6.6	3.0	5.9	5.3	6.6	4.5	5.9		7.6		1.4	7.6	7.2	7.3	6.0	3.3	1.7	5.4		5.5	
02/15							7.5		3.4		4.2			9.4									
02/16							6.2		2.3		7.8			5.6									
02/17	1.9	4.1	6.3	2.2	2.8	5.8	4.3	3.2	2.6	4.5	5.9		4.3	8.2	6.0	7.9	3.0	5.1	3.7	5.5	6.4	9.1	7.6
02/18							6.6		4.8		4.2			7.9									
02/19							4.8		4.0		5.0			3.8									
02/20	5.8	8.8	8.9	4.0	6.4	6.4	7.6	7.0	6.5		8.9		2.8	8.2	10.8	7.0	11.3	4.8	2.6	7.5		5.9	
02/21							3.2		8.0		4.5			6.3									
02/22							3.7		6.3		3.9			5.8									
02/23	1.7		3.2	2.2	3.3	1.5	3.8	4.0		2.4	2.5	2.6	2.1		1.3	1.0	4.0	3.2	0.9	3.2	2.8	2.4	3.0
02/24							5.0		1.5		3.5			6.0									
02/25							3.8		2.7		4.5			5.0									
02/26	1.4	2.3	2.9	1.1	4.2	2.2	3.0		2.5		4.4		2.9	4.2	4.0	4.2	3.3		0.5	2.9		3.2	
02/27							3.8	2.4	4.0		4.8							3.4					
02/28							8.7		13.6		9.1												

	BR	BV	CW	HE	HG	HV	HW	VL	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	T3	WT	WX	WV	VX
Arith Mean	5.2	8.8	8.0	4.6	6.7	6.5	9.7	13.3	8.4	8.0	9.9	11.2	5.5	12.3	8.3	8.3	8.8	6.0	3.2	6.9	7.4	9.1	10.6
Max 24-hr Avg	12.4	23.8	20.1	9.5	15.2	15.8	37.6	51.8	22.8	21.5	32.0	28.0	19.2	52.9	25.6	21.3	24.9	10.2	7.5	16.4	15.5	26.9	25.7
Std.Dev	4.4	6.9	5.6	3.2	4.2	4.2	8.5		6.5	9.0	8.1	14.6	5.5	11.1	7.1	6.3	2.3	4.1	2.8	4.1	5.6	7.4	10.3
Days Data	9	8	9	8	9	9	28	8	27	4	27	3	9	26	9	9	8	9.0	9	9	4	9	4
Yearly Mean	67.8	11.8	13.5	8.8	11.6	10.4	13.7	20.6	9.6	9.1	12.4	10.8	9.1	15.9	11.9	11.9	11.7	8.6	7.1	10.4	10.1	13.3	12.7

Exhibit 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

SEP 0 3 2009

Ref: 8P-AR

David Garbett
Staff Attorney
Southern Utah Wilderness Alliance
425 E 100 S
Salt Lake City, UT 84111

RE: "$PM_{2.5}$ Monitor in Vernal, Utah", your August 6, 2009 letter

Dear Mr. Garbett:

Thank you for your August 6, 2009 letter to Carol Rushin, Acting Regional Administrator for EPA Region 8, regarding ambient air monitoring in Vernal and the greater Uintah Basin. Ms. Rushin has asked me to address your letter in detail.

You expressed three specific concerns in your letter, which we address below.

1) First, you asked why the Utah Division of Air Quality (DAQ) was permitted to remove a monitor in Vernal after it recorded high $PM_{2.5}$ concentrations in 2007. 40 CFR Part 58, Appendix D, Section 4.7 requires $PM_{2.5}$ monitoring in any Metropolitan Statistical Area (MSA) with a population of more than 500,000 people. That section also requires monitoring in any MSA with more than 50,000 people if monitors in that MSA have a 3-year $PM_{2.5}$ design value greater than 85% of the NAAQS (that is, a design value of 30 $\mu g/m^3$ or greater). Since Vernal has a population of only 8,696, and Uintah County as a whole has a total population of only 29,885 (U. S. Census Bureau 2008 population estimates), the Code of Federal Regulations contains no requirement mandating monitoring in Vernal or the Uintah Basin. DAQ staff have explained that the monitoring the State conducted in Vernal in 2006, 2007, and 2008 was done exclusively with State funds, and so the monitoring did not need to comply with the monitoring requirements of 40 CFR Part 58.

We do want to note that EPA Region 8 funded the Utah DAQ to conduct limited survey ambient air monitoring in 2009 aimed at better understanding the nature of the $PM_{2.5}$ problem in Vernal. The data collected in 2009 is relevant to your second question. Also, related to your third question, two industry funded ambient air monitors located within the Uintah and Ouray Reservation will soon be collecting additional $PM_{2.5}$ data.

2) Your second question was whether the Utah DAQ had conducted speciation analysis of

$PM_{2.5}$ samples from Vernal. In 2008, DAQ collected $PM_{2.5}$ samples in February and March. The 2008 data included one exceedance of the $PM_{2.5}$ NAAQS on February 19, 2008. The Utah DAQ conducted chemical speciation analysis of this sample, and stated in its "Uintah Basin Special Study" monitoring plan from January 2009 that:

> "The levels of ammonia were non-detected on the passive ammonia samplers. The low molecular weight hydrocarbons were higher than samples from the Wasatch Front. The organic and elemental carbon fraction of the filters collected on the day with the highest $PM_{2.5}$ concentration were double and the concentration of Nitrate was about half of that observed from Wasatch Front filters."

We have not seen further data from 2008 apart from the statements included in this January 2009 monitoring plan.

In order to gain more information on $PM_{2.5}$ air quality in Vernal, EPA Region 8 agreed to provide funding to Utah under the annual EPA $PM_{2.5}$ monitoring grant to conduct episodic monitoring during wintertime inversions in the 1st quarter of 2009 using non-regulatory monitors. Utah monitored $PM_{2.5}$ in Vernal and Roosevelt from January 21, 2009 through March 5, 2009. Of the 30 days in that period on which Utah collected samples in each community, exceedances of the 24-hour $PM_{2.5}$ standard were recorded on three days in Roosevelt and four days in Vernal. Concentrations in Vernal were as high as 60.9 $\mu g/m^3$ while those in Roosevelt were as high as 42.4 $\mu g/m^3$.

Speciation analysis was done on the samples collected in 2009 that were above the level of the NAAQS. The Utah DAQ's draft project report describes the speciation analysis. However, the DAQ has noted that because of the small study size and uncertainties in the laboratory analysis, more data is needed in order to make final conclusions.

With the above qualifications, the DAQ does state in its draft project report:

> "The analysis of the filter data for the filters with mass concentrations greater than 35 $\mu g/m^3$ results in more unexplained mass than typically observed compared to previous sampling conducted along the Wasatch Front. Blank concentrations for the Teflon filter do not substantially affect the mass calculations but without the carbon fraction the unexplained mass is quite large. Prior sampling and analysis of filters from the Uintah Basin has attributed a large fraction of the total mass to the elemental carbon. The inversion period chemical profile for the Uintah Basin is not consistent with profiles observed along the urbanized Wasatch Front or in Cache Valley where elemental carbon (or "unexplained mass" from the Teflon filters) represents a smaller portion of the chemical speciation."

3) With regard to future data, EPA Region 8 can provide you a copy of the Utah DAQ final report on monitoring done in the Uintah Basin in 2009 once it is released by the Utah DAQ, as well as a copy of the January 2009 monitoring plan. You may also be able to obtain these documents directly from the Utah DAQ. In addition, ambient $PM_{2.5}$ data will soon be collected

by two industry funded monitors located on the Uintah and Ouray Indian Reservation. This $PM_{2.5}$ data will be loaded into AQS, and will be accessible through public portals to ambient air monitoring data (http://www.epa.gov/air/data/ for example) or directly from EPA Region 8 upon request. This continuous (hourly), but non-regulatory $PM_{2.5}$ monitoring, is currently expected to begin at the two sites in the Uintah Basin in October 2009. The data will be collected with Federal Equivalent Method (FEM) $PM_{2.5}$ monitors.

As a follow up on the $PM_{2.5}$ data collection activities over the past four years, and in light of the air quality issues identified, EPA Region 8 will be discussing Uintah Basin air quality and next steps with the Utah DAQ in the near future.

I hope that the information provided is helpful. If you have further questions, you may contact Richard Payton of my staff at (303) 312-6439.

Sincerely,

Stephen S. Tuber
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc: Cheryl Heying, UT DAQ

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

THE MOAB FIELD OFFICE
PROPOSED RESOURCE MANAGEMENT PLAN
AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Bureau of Land Management
Utah State Office
Salt Lake City, Utah

Prepared by the
Moab Field Office
August 2008

Selma Sierra
Utah State Director

would also be applied as appropriate on local and resource roads that represent a dust problem. Lower speed limits, enforced by the appropriate authority, would also act to limit dust in project and adjacent areas.

In the absence of quantitative data specific to localized development processes, and due to the fact that state and Federal pre-construction/excavation permitting processes are required to consider cumulative impacts of proposed and surrounding future sources to ensure that proposed sources within the project area would not contribute to exceedances of the ambient air quality standards, management decisions specific to the development of these mineral resources are not projected to generate emissions sufficient to result in noncompliance with air quality criteria. Therefore, the management of these resources will not be discussed further in this section. Development potential for all locatable, salable and leasable mineral resources in the MPA is discussed in greater detail in Section 4.3.7 (Mineral Resources) of this document.

The Reasonably Foreseeable Development (RFD) scenario prepared for the RMP identified high development potential areas for oil and gas (leasable mineral resources) within the MPA. Approximately 2,027 oil and gas wells have been drilled in the MPA between 1891 and 2004 (UDOGM 2004), averaging approximately 18 wells per year.

High development areas identified within the MPA include the Book Cliffs, Greater Cisco Area, Roan Cliffs, Salt Wash, Big Flat – Hatch Point, Lisbon Valley, and Eastern Paradox (BLM 2005e; BLM 2005f) (Section 4.3.7 Mineral Resources).

Primary emission sources for oil and gas development were identified as gas-fired compressors (estimated at 0.063 per producing well or a minimum of 2 per RFD area), glycol dehydrators (estimated at 1 per producing well), flaring (assumed to occur in 60% of the producing wells, with flared gas assumed to be 'sweet'), fugitive dust (from roadways and pads, with construction assumed to represent the critical period). Primary emission components were identified as CO, NOx, SO2, PM10, and PM2.5, CO2, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs).

To assess the potential for air quality effects from oil and gas development, it was assumed that the average surface disturbance per existing well was representative of future well sites. In the RFD (BLM 2005f) and Mineral Potential Report (MPR; BLM 2005e), past development was used to predict future development. The total number of existing oil and gas wells (577 capable of producing oil and gas) and their associated roads and pipelines, covering a total area of 8,655 acres, were used to calculate the projected, approximate surface disturbance per well: 15 acres (BLM 2005f). In the following analysis, 15 acres is assumed to be the projected disturbance per well under each alternative. This acreage is divided into 10 acres of road developed per well and 5 acres of well pad disturbance.

For the purposes of this analysis, it was assumed that the number of wells likely to be drilled under each alternative would be proportional to the acreage of land open for mineral resource development under that alternative, as described in Section 4.3.7 Mineral Resources. For example, if an alternative had 90% of BLM lands in the MPA open for development, it would be assumed that 90% of the RFD on BLM lands would be drilled under that alternative. In addition, it was assumed that 50% of the wells drilled would be dry. The assumed maximum well pads constructed per year were also derived from the analysis of oil and gas development described in Section 4.3.7. Future oil and gas development over the next 15 years is projected to be between

18 and 52 wells per year. This assumption projects a total number (over 15 years) of total 264 - 451 wells and approximately 3,960 – 6,665 additional acres of disturbance (BLM 2005f). While special stipulations (timing limitations and controlled surface use) may impose minor restrictions, surface-disturbing activities could still occur and therefore, these special stipulations would not result in a reduction in the number of wells.

Predicted number of wells and associated acreages on BLM lands within the RFD areas (Book Cliffs, Greater Cisco Area, Roan Cliffs, Salt Wash, Big Flat – Hatch Point, Lisbon Valley and Eastern Paradox), were used as the basis of analysis for air quality impacts specific to future oil and gas development within the MPA. Impacts on air quality were assessed [redacted]nual estimated emissions at peak oil and gas production during the lifetime of the RMP (15 years).

Dispersion modeling was not conducted for this analysis, because the locations of oil and gas wells can not be determined at the programmatic planning level. AP-42, Fifth Edition methodology was employed to calculate total emissions from the following sources: compressors, glycol dehydrators, flaring, fugitive dust associated with well pad construction and vehicle travel to and from wells (EPA 2005).

For each development scenario, the number of expected compressors [redacted] based on expected number of total producing wells and the expected gas production potential of each well. The number of compressors necessary for each alternative was calculated from an assessment of the average number of compressors (0.063 per [redacted] well) required for projected oil and gas development in the Vernal FO, located to the north of the MPA (Trinity and Nicholls 2006). To accommodate the expansive distances potential between wells and the separate RFD areas, a minimum of two compressors per RFD area was assumed. The analysis assumed there would be one glycol dehydrator per gas well, with a well spacing of 40 acres.

Generalized projected emissions from compressors include CO, NOx, CO2, SO2, PM10, and PM2.5, VOCs, Total Organic Compounds (TOC), and a variety of hazardous air pollutants [redacted]). Emission rates were calculated using AP-42, Fifth Edition factors for 4-stroke lean-burn engines (EPA 2003f, EPA 2006). Conversion between AP-42 factors (lb/MMBtu fuel input) and emission rates used in the analysis (grams/second) were based on the following assumptions derived from the Vernal FO Air Quality Model Report (Trinity and Nicholls 2006). Required compression was calculated based on the assumption that 1,100 hp of compression is required to move 10 million ft3/day of gas from a field pressure of 250 psi to a sales line pressure of 800 psi. The compressors are assumed to have a turbine efficient of 34%. NOx emissions rates for compressors were calculated based on a best available control technology (BACT) limit of 0.7 grams per horsepower hour (g/hp-hr). Emission rates calculated for each pollutant are assumed to be emitted evenly throughout the year and are displayed in Table 4.6. In future sections and tables, "other hazardous air pollutants" will be grouped for analysis and discussion as these represent a small fraction of the total hazardous air pollutants emitted from compressors.

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
Criteria Pollutants and Greenhouse Gases	
CO	5.78E-01
NOx	1.94E-01

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
[redacted]	1.14E+02
PM10	1.04E-02
PM2.5	1.04E-02
SO2	6.10E-04
[redacted]	1.22E-01
[redacted]	1.52E+00
Hazardous Air Pollutants	
Acetaldehyde	8.67E-03
[redacted]	5.33E-03
Benzene	4.56E-04
Ethylbenzene	4.12E-05
Formaldehyde	5.48E-02
[redacted]	0.00E+00
Naphthalene	7.72E-05
[redacted]	4.23E-04
[redacted]	1.91E-04
Acenaphthylene	5.73E-06
Benzo(b)fluoranthene	1.72E-07
Benzo(e)pyrene	4.30E-07
Benzo(g,h,i)perylene	4.29E-07
Biphenyl	2.20E-04
Carbon Tetrachloride	3.81E-05
Chlorobenzene	3.15E-05
Chloroform	2.96E-05
Chrysene	7.19E-07
Ethylene Dibromide	4.59E-05
Fluroanthene	1.15E-06
Fluorene	5.88E-06
Methanol	2.59E-03
Methylene Chloride	2.07E-05
n-Hexane	1.15E-03
Phenanthrene	1.08E-05
[redacted]	2.49E-05
[redacted]	1.41E-06
[redacted]	2.45E-05
Tetrachloroethane	2.57E-06

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
[redacted]	4.23E-04
Vinyl Chloride	1.55E-05
[redacted]	1.91E-04

An average emission rate of 1.45x10-7 g/sec hydrogen sulfide (H2S) was assumed for all glycol dehydrators (Trinity and Nicholls 2006). All H2S was assumed to convert to SO2 (ATSDR 1999) for the purposes of this assessment. Other emission estimates for glycol dehydrators are summarized in Table 4.7 and were derived from assumptions relating to glycol dehydrators in the Vernal FO (Trinity and Nicholls 2006).

Table 4.7. Emission Rates for Glycol Dehydrators

Pollutant	Emission Rate (g/sec)
SO2	5.32E-02
Benzene	3.68E-02
Ethylbenzene	6.70E-03
H2S	1.45E-07
Toluene	5.78E-02
Xylenes	1.09E-01

Flaring was assumed to be required in 60% or less of the producing wells. Flared gas was assumed to be "sweet" and contain no sulfur. Flaring emissions applicable to this analysis were assumed to be primarily NOx and CO. Flaring emissions and relative percentage of wells flared were calculated using the generalized flaring emissions identified for the Vernal FO RMP [redacted]

Table 4.8. Emission Rates for Flaring

Pollutant	Emission Rate (g/sec)
[redacted]	5.32E-02
[redacted]	9.80E-03
[redacted]	8.90E-04
[redacted]	8.90E-04

Fugitive dust emissions were estimated using AP-42, Fifth Edition Section 13.2.2 for construction traffic on roads and Section 13.2.3 for heavy construction operations of well pads and new roads. Section 13.2.3 estimates total suspended particulates which are converted to PM10 by applying a conversion factor of 0.26 (Trinity and Nicholls 2006). Conversion from PM10 to PM2.5 is similarly achieved through a conversion factor of 0.15.

Construction activity was assumed to occur for 14 days for each well pad developed, both producing and dry. It was assumed that the control efficiency (PM10 and PM2.5) for watering was 25% on construction sites including the well pad and on new resource roads. It was assumed that watering of all exposed disturbance areas at the well pad site itself would occur as appropriate during the construction period. It was assumed that 10% of the roads would be watered. The control efficient for graveling roads was assumed to be 75%; 40% of new roads were assumed to be graveled. It was therefore assumed that 50% of new roads would receive no treatment to reduce fugitive dust. All of these assumptions were taken from the Vernal FO Air Quality Model Report and fugitive dust calculations (Trinity and Nicholls 2006). A total of 12 construction vehicles operating on-site at any one time were assumed with a total of 346 round trips (the majority of which are pick-up trucks for site visits). The average round trip distance was assumed to be 10 miles. Vehicle weights range from 8,000 lbs for a diesel pick-up truck to 85,000 lbs for diesel low-boy equipment haulers, cementer trucks, and completion rigs. It was assumed that all mobile vehicles would be working at any one time on-site. This scenario is assumed to be representative of periods of intense activity and, therefore, serves as a conservative estimate of critical conditions.

Soils in the MPA have been characterized as having low to moderate wind-erodibility. Soil moisture content of 5% and soil silt content of 5% were assumed.

In addition to construction-specific actions, some additional post-construction particulate (dust) emissions are projected to occur on a short-term basis due to loss of vegetation within the construction and staging areas. Given appropriate soil stabilization and revegetation measures, these emissions are projected to be minimal to negligible.

The contribution to the degradation of air quality from other [non-oil and gas] mineral development was considered nominal and oil and gas related activities were assumed to be the largest component of mineral related activity within the MPA. Therefore, only oil and gas related emissions were directly considered in assessing [redacted].

4.3.1.3.2 ALTERNATIVE A

4.3.1.3.2.1 Impacts of Recreation and Travel Management Decisions on Air Quality

Recreation management decisions under Alternative A would maintain existing levels of motorized vehicle use without additional constraints. Projected effects on air quality would be primarily associated with combustion byproducts from automobiles, OHVs, and other hydrocarbon-combustion based transport, and surface disturbance related to off-trail and off-road activities. Projected air quality constituents of concern specific to recreational use include particulate matter (PM10 and PM2.5), hydrocarbons and combustion by-products.

As the locations of all existing and future recreation sites within the MPA are not presently known, precise quantification of air quality impacts is not possible. As the MPA is not currently experiencing non-attainment, continued recreational use at the existing level is not projected to result in long-term, project-wide exceedances of ambient air quality standards. However, if heavy recreational use occurs in a relatively small area, local conditions may exist that contribute to short-term exceedance of air quality standards.

Impacts of recreation management decisions that limit or reduce surface and vegetation disturbance, OHV and other off-trail access and improve existing roadway and trail surfaces are

approximately [redacted] acres over the life of the RMP (a decrease of approximately 4% from Alternative A). Oil and gas development is anticipated to occur in all RFD areas but is projected to be least likely to occur in the Roan Cliffs RFD Area, while the Book Cliffs and Greater Cisco RFD Areas are projected to experience the greatest amount of development, similar to Alternative A. Additional information on disturbance specific to salable resources, other leasable resources, and geophysical exploration is available in Section 4.3.7.3.2, Impacts of Mineral Resource Development Decisions on Mineral Resource Development. Calculated numbers of wells for each RFD area under the Proposed Plan are also listed in Table 4.15.

Table 4.15. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under the Proposed Plan over 15 years

[redacted]	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
[redacted]					
[redacted]					
[redacted]					
[redacted]					
[redacted]					
[redacted]					
[redacted]					
[redacted]					

Note: Calculations based on BLM lands only, and are specific to the life of the RMP (15 years).

[1] The number of oil and natural gas wells was calculated as a cumulative total, not independently. For the purpose of analyzing impacts of minerals decisions on the total number of oil and natural gas wells, BLM lands designated as No Surface Occupancy (NSO) were not considered open for development.

[2] Necessary compressors were calculated at 0.063 per producing well (minimum of 2 per RFD area). Necessary glycol dehydrators were calculated at 1 per producing well (Trinity and Nicholls 2006).

Total emissions (tons/year) of criteria pollutants and greenhouse gases from compressors, glycol dehydrators, flaring, and fugitive dust associated with construction activities for the Proposed Plan are summarized in Table 4.16. The base-year emission inventory for Grand and San Juan Counties are also displayed for comparison purposes. Particulate emissions increases are expected to be 10% and 8% for PM10 and PM2.5 over base-year data respectively. A 2% increase in CO, a 7% increase in NOx, and a 4% increase in volatile organic compounds (VOCs)

over base-year emissions are also expected. VOCs and NOx are precursors to ozone formation. No base-year TOC data is available for comparison.

Table 4.16. Summary of Predicted Emissions and Comparison to Regional Base-year for the Moab FO Related to Expected Oil and Gas Development Under the Proposed Plan

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent change from Regional Base-year

[1] 2005 Emission inventory obtained from Utah Division of Air Quality. URL: http://www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05_State_List.htm

Emissions of hazardous air pollutants (HAPs) are summarized in Table 4.17 for the Proposed Plan. Base-year HAPs data from the State of Utah Division of Air Quality for Grand and San Juan Counties do not include emissions from existing oil and gas development and therefore were found not be appropriate for comparison. The largest projected emissions of HAPs are for benzene (278 t/year), toluene (437 t/year), and xylenes (824 t/year). All of the HAPs listed below with the exception of H2S and naphthalene are also considered VOCs and are included as such in the criteria pollutant discussion above.

Table 4.17. Predicted Emissions of Hazardous Air Pollutants (HAPs) for the Moab FO Related to Expected Oil and Gas Development under the Proposed Plan

Pollutant	Emissions from Compressors (t/year)	Emissions from Glycol Dehydrators (t/year)	Total Emissions (t/year)
Benzene	0.3	277.54	278.0
Ethylbenzene	0.0	50.57	50.6
Formaldehyde	40.0	0.00	40.0
H_2S	0.0	<0.01	<0.01
Toluene	0.3	436.27	437.0
Xylenes	0.1	824.06	824.0
Other HAPs	13.8	0.00	13.8

Comments of the Draft EIS by Resource Type

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			2006 is available. This analysis is further severely flawed because BLM has failed to incorporate the air quality data from Canyonlands monitoring station in Table 3.2, Ambient Air Quality Data for the MPA and has not utilized this data in its analysis.	
National Parks Conservation Association	970	4	BLM fails to address potential impacts from ozone due to oil and gas development. According to the National Parks Service, "Tropospheric (ground-level) ozone concentrations were monitored in the park from 1987-1992, and are currently monitored in Canyonlands NP, 1992-present. An analysis of the data indicates that ozone concentrations have significantly increased in the park. The observed concentrations in Canyonlands NP fall within a range that may produce visible effects or growth effects on sensitive plant species under certain conditions. It is likely that ozone concentrations in Arches NP are similar." NPS goes on to state "Several plant species that occur in Arches NP are known to be sensitive to ozone (e.g., Rhus trilobata)." Studies already conducted in other Utah national parks including Bryce, Zion and Cedar Breaks have demonstrated symptoms of "ozone injury" on plant species. BLM has relied on out-dated air quality trend data in determining their preferred alternative will have no impacts on the air quality in the affected Class I airsheds. The BLM is obligated to re-analyze their finding based on the most current air trend data, which is already showing a decline in air quality. In Chapter 4.3.1 BLM states incorrectly "Background CO, Nox, and SO2 concentration information was not available within the MPA." They have again ignored air data from Canyonlands monitoring station and should be required to re-asses the air quality data utilizing the most comprehensive data.	Predicting ozone associated with oil and gas development requires air dispersion modeling, which was not used in this analysis. Estimated emissions of NOx and VOCs are included in the analysis, both of which are precursors to ozone formation. Increases in VOCs and NOx are estimated to be 7% and 4% respectively under the PRMP.
National Parks	970	5	Projected emissions rates for gas compressors (Table	Chapter 2 of the DRMP/EIS on pg. 2-7 states that the

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September 12, 2008

Ref: 8EPR-N

Brent Northrup, Bureau of Land Management
Moab Field Office RMP Comments
82 East Dogwood
Moab, Utah 84532

RE: Final Resource Management Plan and Environmental Impact Statement for the Moab Field Office Planning Area
CEQ# 20080287

Dear Mr. Northrup:

Consistent with our responsibilities and authorities under the National Environmental Policy Act and Section 309 of the Clean Air Act (CAA), the Region 8 Office of the U.S. Environmental Protection Agency (EPA) has reviewed the Final Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the Bureau of Land Management's (BLM) Moab Field Office Planning Area. The BLM manages approximately 1.8 million acres of public lands in Grand County and a portion of San Juan County in southeastern Utah. This RMP will revise and replace the 1985 Grand Resources Area RMP. BLM intends to implement Alternative C to protect important natural resources and promote commodity production and recreation opportunities.

Our review of the Final RMP/EIS focuses on five issues: (1) the lack of information provided regarding air quality impacts from oil and gas development, (2) recommendations to further reduce the environmental impacts resulting from motorized vehicle travel on public lands, (3) recommendations for additional areas to be managed as Areas of Critical Environmental Concern, (4) analysis of the effects of oil and gas development in the planning area on climate change, and (5) analysis of BLM's ability to adapt to the impacts caused by climate change.

1. Lack of information on air quality impacts from oil and gas development. The Final RMP/EIS notes that while dispersion air quality modeling was not conducted for this analysis, BLM did assess the general trend in air quality and visibility impacts specific to reasonably foreseeable new sources in the planning area. While the Final RMP/EIS indicates that the projected concentrations would be below National Ambient Air Quality Standards (NAAQS) for criteria pollutants, the absence of detailed dispersion modeling does not provide for confidence that this projection will remain valid. EPA had recommended that BLM provide additional information in the Final RMP/EIS and while some additional analysis and information

regarding air quality was included in Chapter 4 of the FEIS based on EPA comments, the information did not sufficiently support the conclusion that ambient air quality criteria will be protected. Ozone is of particular concern because of the potential emissions of volatile organic compounds and oxides of nitrogen from projected oil and gas development. For example, the monitored data from Canyonlands National Park has shown an increasing trend upwards near EPA's new ozone NAAQS.

Although the Draft RMP/EIS mentions carbon dioxide (CO_2) as a greenhouse gas that would be emitted by wildfires in the planning area, the document does not address potential effects on climate change in general. The Final RMP/EIS should have included information on these effects from fires and from oil and gas development. Specifically, we restate our recommendation that the BLM encourage oil and gas lessees to participate in EPA's Natural Gas STAR program. Through this program (www.epa.gov/gasstar), EPA works with companies who produce natural gas to install cost-effective technologies and practices to reduce emissions of methane, a potent greenhouse gas.

Section 4.3.1.3 summarizes potential impacts to air quality. Oil and gas development is projected to occur at a relatively low rate of about 30 wells per year under the Preferred Alternative C, although this rate of development has been exceeded in recent years. Because of the lack of a numeric modeling approach, it is not possible to determine potential impacts from specific development. EPA recommends that the Record of Decision contain a commitment similar to the following excerpt from the Rawlins, Wyoming Draft RMP/EIS, which used a comparative, emissions-based approach: *"As project-specific developments are proposed, quantitative air quality analysis would be conducted for project-specific assessments performed pursuant to NEPA."*

Comments from several industry sources alleged that BLM does not have any direct authority over air quality or air emissions under the Clean Air Act. In the Final EIS in the response to these comments, the BLM states it agrees it does not have direct authority over air quality or emissions originating on public lands under the Clean Air Act since the State of Utah has primacy for compliance with the CAA. The goal for Air Quality in the Final RMP states that BLM will: "Maintain existing air quality and air quality related values by ensuring that all authorized uses on public lands comply with and support Federal, State, and local laws and regulations for protecting air quality." This response fails to acknowledge the fairly complex set of obligations of the BLM both with respect to regulated criteria pollutants as administered by Utah DEQ and with respect to certain other sources of air pollution not currently regulated under the Clean Air Act. For example, consider that under the following provisions, BLM has the authority to obtain reduced air emissions from actions it approves for third parties operating on public lands: 1) the National Environmental Policy Act and CEQ regulations, 2) the Energy Policy Act of 2005, especially Section 366, 3) the Onshore Oil and Gas Order Number 1, and 4) the Federal Land Policy and Management Act of 1976 in its implementing regulations at 43 CFR § 1610.3-2(a). The BLM's role in fulfilling these obligations is especially critical given that BLM, through its land management decisions, is one of the main agencies affecting air quality and visibility in the intermountain west. We look forward to working with the Moab Field Office in NEPA compliance for future oil and gas developments within this planning area in

order to reduce and minimize both regulated criteria pollutants and other harmful air emissions.

2. Recommendations to further reduce environmental impacts resulting from motorized vehicle travel on public lands. The public lands managed by BLM in the Moab area are nationally and internationally renowned for their recreational opportunities, particularly for uses including off-highway vehicles and all terrain vehicles not normally found on city streets. As a result of these cumulatively destructive motorized recreational uses, some of the public lands in the Moab planning area have been significantly adversely impacted. In response, BLM now proposes to restrict off-highway vehicle use to all but one open area, the White Wash Sand Dunes Area, by limiting recreational travel on all other public lands to designated routes. While EPA agrees that this is an important step in the right direction, EPA remains concerned that without a change in the proposed travel and recreational management prescriptions beyond those proposed under Preferred Alternative C, BLM will be unable to adequately control and mitigate ongoing and future impacts to cultural, riparian, and other valuable resources. Preferred Alternative C would allow these vehicles to travel up to 300 feet on each side of the trail. This alternative appears likely to promote misuse by sanctioning off-road motorized uses through open desert terrain which is vulnerable to abuse due to the fragile soil conditions. Given the BLM's limited funding for enforcement, allowing off-road vehicles an option to progress 300 feet on either side of the trail could result in additional adverse impacts, particularly affecting riparian areas and streams. In similar circumstances, the U.S. Forest Service has determined that appropriate discretion must be provided to the local federal land agency officials to limit use of motor vehicles within a specified distance of designated routes only for specific purposes. Consequently, the Forest Service's rule includes a provision which allows the federal land manager to limit the use of motor vehicle use for the purposes of big game retrieval or dispersed camping. Further, it must be recognized that in general the Forest Service will have less difficulty in managing uses of off-highway vehicles on their public lands due to limited vehicular access conditions in densely forested areas. EPA recommends that the BLM rules similarly restrict off-highway vehicles through the Moab planning area to limited uses identical to the provisions of the Forest Service's 2005 Travel Management Rule found at 36 CFR 212.51(b).[1]

3. Recommendations for additional areas to be managed as Areas of Critical Environmental Concern. We reiterate our suggestion that specific critical areas be further protected by their designation as Areas of Critical Environmental Concern (ACEC) as noted in our Draft RMP/EIS comments. These areas include White Wash Sand Dunes, Labyrinth Canyon, Upper Courthouse Wash, the Colorado River Corridor, and the Canyon Rims. (See our attached Draft RMP/EIS comments for further explanation.)

4. Analysis of the effects of oil and gas development in the planning area on climate change. In our comments on the Draft EIS, EPA suggested that emissions of greenhouse gas (CO2 and methane) from oil and gas development be included in the Final EIS. While BLM acknowledged the basic body of scientific evidence about the increase in these gases in the atmosphere and their adverse potential effects, BLM responded it would not be able to conduct this type of assessment until the EPA provided the regulatory protocol or emission standards

[1] Department of Agriculture, Forest Service, "Travel Management; Designated Routes and Areas for Motor Vehicle Use"; Final Rule, November 2005, http://www.fs.fed.us/recreation/programs/ohv/final.pdf.

regarding climate change. NEPA requires federal agencies to take a hard look at potential environmental impacts associated with their proposed actions. Lack of regulatory protocol or emission standards for greenhouse gases does not preclude BLM from fulfilling this responsibility. Analysis of greenhouse gas emissions will still be needed for future NEPA compliance regarding the approval of oil and gas operations in the Moab planning area.

We recommend implementation of EPA's developed best management practices and other technologies and practices pursuant to our Natural Gas Star program since many of these air emission controls that reduce methane, a significant greenhouse gas, also tend to increase the maximum economic recovery of federally-leased natural gas resources.

5. Analysis of BLM's ability to adapt to the impacts caused by climate change. Several commenters on the Draft EIS suggested that BLM assess how the BLM might adapt its land management plans to respond to climate change. In the Final EIS, BLM acknowledges that the assessment of climate change is in its formative stage and thus it is not now possible for BLM to understand the impact on a regional or local scale, nor develop plans to adapt to a changing climate. We recommend that BLM work with other agencies that have recently developed predictive analysis for areas within or near the Moab planning area. In particular, we invite the BLM to consider ways to reduce dust that may impact early on- set of snow melt within the Colorado River drainage and continuation of BLM's on-going role in removing water-consuming invasive plants. See, for example, the analysis provided by the National Resource Council regarding responses to the lower stream flow potential on the Colorado River.[2]

EPA recognizes the complexity and diversity of the proposed resource management actions and supports BLM's intention to move forward to implement a new RMP plan based on emerging issues and changing circumstances. We expect that planning issues discussed in our comments will continue to be among those monitored as the plan is implemented. If you would like to discuss these comments, or any other issues related to our review of the Final RMP/EIS, please contact Weston Wilson at 303-312-6562. Thank you for the opportunity to comment.

Sincerely,

original signed by:

/s/ Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation

Enclosure: EPA comments on the Draft RMP/EIS, December 12, 2007

[2] Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability, Committee on the Scientific Bases of Colorado River Basin Water Management, National Research Council, 2007, http://www.onthecolorado.com/Resources/ClimateDocs/NAS2007.pdf