

5.0 CONSULTATION AND COORDINATION

5.1 CONSULTATION, COORDINATION, AND PREPARATION

The persons and agencies coordinated in preparation of the Tumbleweed Exploratory Drilling Project EA are identified in **Table 5-1**. The purpose and authorities for the consultation, and findings/conclusions are also provided in **Table 5-1**.

Table 5-1. List of Persons, Agencies, and Organizations Consulted.

Agency/Organization	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Fish & Wildlife Service	Section 7 Consultation under the Endangered Species Act (16 USC 1531) and EA Preparation and Review	<p>Formal Section 7 Consultation with the USFWS over the original <i>Tumbleweed Exploratory Drilling EA (EA-UT-080-05-201)</i> was concluded on September 13, 2007, in a letter and Biological Opinion from the USFWS to the BLM VFO. The revised Tumbleweed II EA has not changed to the extent that re-initiation of consultation would be necessary. The USFWS has determined that additional consultation is not required (see Appendix F).</p> <p>In addition, the USFWS played an active role in the development of this EA as a member of the BLM's IDT under the Pilot Office Project. Section 365 of the Energy Policy Act of 2005 established the Federal Permit Streamlining Pilot Project to improve coordination of oil and gas permitting on Federal mineral estate as a means of meeting the Nation's need for dependable, affordable, environmentally responsible energy. Pilot Offices are intended to be innovators in better coordination of the permitting that allows efficient development and the inspection & enforcement that help ensure environmental responsibility. The USFWS, which participates in the Pilot Office Project provided direct input as a non-BLM preparer of this EA (see Table 5-3 and Appendix A).</p>
Utah State Historical Preservation Office	Section 106 Consultation.	<p>Section 106 consultation was formally initiated between the BLM and Utah SHPO on December 3, 2008. See Appendix F of the EA for SHPO consultation documentation and SHPO's no adverse effect concurrence. Consultation for this project is considered to be closed for those portions of the project that have had a Class III survey completed (i.e., the proposed well pads, roads, and pipeline corridors for the TUF #18-9, TUF #17-4, and TUF #17-12) as each of these reports recommended a "no historic properties affected" determination. Section 106 consultation will be re-initiated on a site-specific level as appropriate, following receipt of any site-specific</p>

Agency/Organization	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
		applications and prior to any surface disturbance at new locations and if previously unknown sites are found during surface-disturbing activities.
Native American Tribes	Native American Consultation	Native American Tribal consultation was formally initiated by the BLM on December 8, 2008. The following tribes were contacted: White Mesa Ute, Ute Mountain Ute, Ute, Southern Ute, Hopi, Navajo Nation, Laguna Pueblo, Zia Pueblo, Santa Clara Pueblo, Eastern Shoshone, and Northwest Band of Shoshone. The Laguna Pueblo responded on December 18, 2008 and stated that no significant impacts would occur, but requested that they be notified if additional sites are found. No other responses were received. See Appendix F of the final EA for consultation documentation from interested Native American Tribes. Consultation for this project is considered to be closed for those portions of the project that have had a Class III survey completed. Native American consultation will be re-initiated on a site-specific level as appropriate, following receipt of any site specific applications and prior to any surface disturbance at new locations and if previously unknown sites are found during surface-disturbing activities.
EPA	General Coordination	The EPA was provided a copy of the draft EA for their review and comment. The BLM did not receive any comments from the EPA. However, the Tumbleweed II Project Area falls within Indian Country, thus air quality (as well as water quality) for the area is within the jurisdiction of the EPA. As stated in Chapter 2 of the EA, as required by the EPA, Stewart would obtain all necessary air quality permits to construct, test, and operate facilities.
USACE	EA Preparation and Review	The USACE played an active role in the development of this EA as a member of the BLM's IDT under the Pilot Office Project. Section 365 of the Energy Policy Act of 2005 established the Federal Permit Streamlining Pilot Project to improve coordination of oil and gas permitting on Federal mineral estate as a means of meeting the Nation's need for dependable, affordable, environmentally responsible energy. Pilot Offices are intended to be innovators in better coordination of the permitting that allows efficient development and the inspection & enforcement that help ensure environmental responsibility. The USACE, which participates in the Pilot Office Project provided direct input as a non-BLM preparer of this EA (see Table 5-3 and Appendix A).

Agency/Organization	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
State of Utah	EA Preparation and Review	The State of Utah, Division of Air Quality and Division of Wildlife Resources provided written comments on the original <i>Tumbleweed Exploratory Drilling EA (EA-UT-080-05-201)</i> . The agencies' comments have been incorporated into the content of this current EA as appropriate. In addition, the UDWR provided wildlife information (e.g., GIS shapefiles, wildlife population data, etc.) for the wildlife analyses within this EA.
Uintah County	EA Preparation and Review	Uintah County played an active role in the development of this EA as a Cooperating Agency (CA) for this project. In their role as a CA, Uintah County representatives provided direct input as a non-BLM preparer of this EA (see Table 5-3 and Appendix A).

5.2 SUMMARY OF PUBLIC PARTICIPATION

This EA was preceded by the original *Tumbleweed Exploratory Drilling Environmental Assessment (EA-UT-080-05-201)* (BLM 2007a), for which a Decision Record and FONSI were signed on September 21, 2007. Since September 2007, a number of events have occurred that have prompted the publication of this current Tumbleweed II EA, including for example, an appeal and State Director remand of the original 2007 Decision Record; completion of the new Vernal RMP; BLM approval and subsequent rescinding of two Categorical Exclusions for two additional wells in the area; addition of an air quality analysis to Chapters 3 and 4; addition of a directional drilling alternative, etc. Detailed information on the history of the Tumbleweed exploratory drilling project is included in Appendix B. Public participation for the Tumbleweed II Draft EA (DOI-BLM-UTG010-2009-0090-EA) was initiated with the posting of the proposed project on the BLM's Environmental Notice Bulletin Board (ENBB) in November, 2008. All comments submitted for the previously published EA UT-080-05-201 which are still applicable and within the context of the new RMP, were taken into account as this new EA was written.

The Tumbleweed II EA was provided to the public for a 15+ day review and comment period, which ended on October 16, 2009. The BLM received 22 comment letters on the project; 21 of which encouraged BLM's approval of the project; two of which (including one of the aforementioned support letters) offered additional information and comments for the BLM to consider. All substantive comments and BLM's response to those comments are summarized in Table 5-2. If any clarifications or modifications to this EA were made as a result of public comments, the BLM's responses in **Table 5-2** indicate where in the document and to what extent modifications were implemented.

Table 5-2. Response to Comments

Commenter	Comment	BLM Response
SUWA	<p>The Tumbleweed II EA prematurely dismisses the directional drilling alternative previously provided by Mr. Ken Kreckel on behalf of SUWA (attached hereto). <i>See</i> EA at 29-30. The BLM refused to consider a directional alternative in the prior EA because it was supposedly premature and technically difficult. <i>See</i> 2007 EA at 27-28. The Tumbleweed II EA now admits that directional drilling is “economically” feasible and that it would fit the project applicant’s goals. EA at 30. This demonstrates the impropriety of the BLM’s rejection of Mr. Kreckel’s analysis. NEPA clearly tasks the BLM with considering non-speculative, technically feasible alternatives. <i>See Utahns for Better Transp.</i>, 305 F.3d at 1172. Just because this alternatives may not be preferred by Stewart does not release the BLM from its obligation to fully consider it. <i>See Colorado Env’tl. Coal.</i>, 185 F.3d at 1174. The Tumbleweed II EA does not say that Mr. Kreckel’s alternative is technically infeasible, it simply says that it would be more difficult than vertical drilling. <i>See</i> EA at 30. Whether or not an option is “economically” feasible for Stewart, does not release the BLM from its NEPA obligation of considering that alternative. <i>See Colorado Env’tl. Coal.</i>, 185 F.3d at 1174. The fact that the BLM and Stewart have already changed positions on directional drilling from the 2007 EA to the Tumbleweed II EA illustrates the fickleness of its current position disfavoring Mr. Kreckel’s directional drilling proposal and shows that Mr. Kreckel was correct when he said that directional drilling could be done here.</p>	<p>SUWA’s comment does not accurately reflect the rationale for dismissing Mr. Kreckel’s suggested well pad locations, nor does SUWA’s comment accurately reflect BLM’s rationale for analyzing Alternative D in the Tumbleweed II EA. Alternative D specifically responds to issues raised by Southern Utah Wilderness Alliance (SUWA) and Mr. Ken Kreckel about directional drilling during the comment period for the 2007 Tumbleweed EA (<i>Tumbleweed Exploratory Drilling EA (EA UT-080-05-201)</i>). The text that SUWA refers to (EA page 30) would be more correctly paraphrased by the following: “<i>the well pad locations recommended by Mr. Kreckel would not allow Stewart Petroleum to access their targeted reserves and [thus] would not meet the purpose and need for the project. However, the BLM and Stewart have determined that additional directional drilling from alternate well pad locations would be technically and economically feasible... The locations of the well pads as proposed under Section 2.4 are based on the operator’s proprietary seismic data for the Tumbleweed Unit, as well as knowledge gained and lessons learned during the drilling and completion of the TUF #18-9.</i>”</p> <p>Alternative D complies with case law requiring alternatives to the Proposed Action to be both “non-speculative . . . and bounded by some notion of feasibility.” Also, page 5 of Mr. Kreckel’s comments on the 2007 Tumbleweed EA stated that the BLM “<i>should adopt [Mr. Kreckel’s alternative] or a similar directional alternative</i>”. Mr. Kreckel’s comments also stated that, “<i>as the operator is the one who is proposing operations...the operator should bear the responsibility of showing why a directional alternative is not feasible, or suggesting one of its own.</i>” Alternative D satisfies Mr. Kreckel’s suggestion for a “similar” directional alternative. Alternative D achieves SUWA’s and Mr. Kreckel’s goal of reducing surface disturbance and impacts to wilderness characteristics, but does so in a way that is actionable from both a technical and economic standpoint of the applicant. NEPA does not require BLM to conduct a “separate analysis of alternatives which are not significantly distinguishable from alternatives actually considered, or which have substantially similar consequences.” <i>Headwaters, Inc. v. BLM</i>, 914 F.2d 1174, 1181 (9th Cir. 1990).</p> <p>Alternative D was developed using new drilling information that is now available as a result of the TUF #18-9 (i.e., data that became available subsequent to the completion of the 2007 Tumbleweed EA). This alternative: 1) responds to SUWA and Mr. Kreckel’s suggestion that a directional drilling alternative be analyzed; 2)</p>

Commenter	Comment	BLM Response
		<p>is based on proprietary 3D seismic and geologic data from the TUF #18-9; and 3) is technically and economically feasible. Because Mr. Kreckel did not have access to the operator’s proprietary 3D seismic and geologic data, his suggested well pad locations did not take into account the modeled locations of sub-surface natural gas reservoirs, nor did they include consideration of the technical difficulties experienced by the operator during the drilling and completion of the TUF #18-9 well. The reservoir data from the operator’s 3D seismic data and “lessons learned” from the downhole issues experienced in drilling the TUF #18-9 were, however, taken into consideration by the operator and BLM when determining the potential well pad locations illustrated in Alternative D.</p> <p>With this new, technical information in mind, much of which was not available until after the 2007 Tumbleweed EA was published, the BLM does now contend that additional directional drilling may be feasible, not solely because it is economically feasible for the operator, but because there are more data available to develop a reasonable directional drilling alternative. BLM’s inclusion of Alternative D in the Tumbleweed II EA is an example of how the NEPA process is intended to work; the BLM is charged with using the best available information. For this exploratory project, more information became available to the BLM following the operator’s completion of the first exploratory well. The results of the TUF #18-9 provided additional, site-specific information that the BLM and Stewart needed in order to make informed decisions on where well pads need to be located to make additional directional drilling technically and economically feasible. These data allowed the BLM to develop and fully evaluate the directional drilling alternative that comprises Alternative D.</p>
SUWA	<p>The Federal Land Policy and Management Act (FLPMA) requires the BLM to ensure that its approval of the EA complies with all applicable air quality standards. See 43 U.S.C. § 1712(c)(8) (requiring BLM to “provide for compliance with applicable pollution control laws, including State and Federal air ... pollution standards or implementation plans”). Regulation extends this same requirement to all BLM leases, permits, and other land use authorizations. See 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</p>	<p>The BLM assumes SUWA’s reference to the Big Pack EA is an error. However, the Tumbleweed II project would be in compliance with the Approved RMP as described in Section 1.4 of the EA, SUWA is also directed to Sections 2.1.14.1 and 2.1.15.1 of the EA, which clearly state the applicant would be subject to the listed air quality requirements and applicant-committed air quality measures. As disclosed in section 4.2.1.9, based on the model results and the negligible amount of project-specific emissions, the Proposed Action is not likely to violate, or otherwise contribute to any violation of any applicable air quality standard, and may only contribute a small amount to any projected future potential exceedance of any applicable air quality standards. The other alternatives would have similar impacts.</p>

Commenter	Comment	BLM Response
	<p>standards established pursuant to applicable Federal or State law”). The Vernal Resource Management Plan (RMP) also requires that BLM comply with Federal, State, and local air quality laws and regulations. Vernal RMP at 2-16; Record of Decision and Approved Resource Management Plan for the Vernal RMP (October 2008). All “resource management authorizations and actions” – such as BLM’s approval of the development project described in the Big Pack EA – must conform to this land use plan direction. 43 C.F.R. § 1610.5-3(a); see also 43 U.S.C. § 1732(a) (Secretary “shall manage the public lands ... in accordance with the land use plans”).</p>	
<p>SUWA</p>	<p>The Tumbleweed II EA’s PM_{2.5} (particulate matter 2.5 microns in diameter or smaller) background data is severely flawed and as a result the EA understates the impacts of this air pollutant in the project area. The EA states that the current ambient concentration of PM_{2.5} for the 24-hour average maximum is 25 µg/m³. EA at 49. It attributes the source of this data to Dave Prey from the Utah Division of Air Quality (DAQ) based on “personal communications from January 11 and June 13, 2008. <i>Id.</i> However, DAQ has specifically asked BLM not to use these figures or to attribute them to DAQ.</p> <p>More importantly, monitoring in Vernal, Utah shows that the background levels of PM_{2.5} are significantly higher than 25 µg/m³. The BLM must abandon this figure of 25 µg/m³ and instead adopt a background figure based on actual monitoring in the Uinta Basin, placing this background level closer 60 µg/m³. On August 11, 2009 DAQ sent the BLM a letter asking that it not use the background figure of 25 µg/m³ for the 24-hour average maximum of PM_{2.5}. <i>See</i> Letter</p>	<p>Project-specific PM_{2.5} contributions during the development and operational phases of the Proposed Action are expected to be negligible as summarized in Tables 4-4 and 4-5. The Final EA has been modified to acknowledge new background concentrations for PM_{2.5} based on coordination between the UDAQ and the BLM State Office Air Quality Specialist. The state of Utah currently does not require PM_{2.5} modeling for new sources and does not have an official background. The UDAQ conducted limited monitoring PM_{2.5} in Vernal, Utah in December 2006. During the 2006-2007 winter season, PM_{2.5} levels were measured at the Vernal monitoring station higher than the new PM_{2.5} health standard that became effective in December 2006. The PM_{2.5} concentrations presented in Tables 3-8, 4-4, and 4-5 of the Final EA represent 98th percentile values from the limited PM_{2.5} monitoring conducted in Vernal, Utah in 2007. The smaller figure of the 24-hour averaging period (15 µg/m³) is representative of average summer concentrations, while the larger value (52 µg/m³) is representative of winter inversion conditions, based on this limited monitoring.</p> <p>The State of Utah is in the process of identifying areas that are experiencing high PM_{2.5} levels and identifying potential strategies to improve wintertime air quality in those areas. The sources of elevated PM_{2.5} concentrations during winter inversions near Vernal, Utah haven’t been identified as of yet. Based on experiences and studies in other areas of the Rocky Mountain west and the emission inventory in the Uinta Basin, potential sources and controls can however be tentatively identified.</p>

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	<p>from Bryce Bird, DAQ, to Stephanie Howard, BLM (Aug. 11, 2009) (DAQ Letter) (attached hereto). The DAQ letter stated that the BLM had been citing DAQ, specifically to Dave Prey personal communications from January 11 and June 13, 2008, among others, for its PM_{2.5} background concentration figures. DAQ Letter at 2. DAQ then specifically asked the BLM to stop citing these sources and this figure. <i>Id.</i> The BLM cannot use or cite to this PM_{2.5} 24-hour average maximum figure in the Tumbleweed II EA.</p> <p>The Utah Division of Air Quality had a PM_{2.5} monitor in Vernal from approximately December 2006 to December 2007 which shows that P.M_{2.5} concentrations in the Uinta Basin often significantly exceed the background figure assumed in the EA. <i>See</i> DAQ, PM_{2.5} Actual Concentration (24-hour average) in Micrograms per Cubic Meter, January 2007, http://www.airmonitoring.utah.gov/dataarchive/PM25JAN07.pdf, February 2007, http://www.airmonitoring.utah.gov/dataarchive/PM25Feb07.pdf (Vernal data is listed under “VL”). P.M_{2.5} is extremely harmful to human health and its ambient concentration is limited by NAAQS to 35 µg/m³. Air quality monitoring data from winter 2007 shows that PM_{2.5} has reached concentrations as high as 63.3 µg/m³. <i>Id.</i> To adequately protect human health and understand the true environmental impacts of this project the BLM must adopt a PM_{2.5} baseline for purposes of modeling that is more reflective of the actual data collected in the area. This means that the EA should have used a baseline with either the highest figure from 2007 (63.3 µg/m³) or the highest from 2009 (60.9 µg/m³) concentration reading from the Vernal monitor.</p> <p>On September 3, 2009 the Environmental Protection</p>	<p>In Utah elevated PM_{2.5} concentrations along the Wasatch Front are associated with secondarily formed particles from sulfates, nitrates, and organic chemicals from a wide variety of sources (UDAQ, 2006). In the Cache Valley of northern Utah approximately half of ambient PM_{2.5} during elevated concentrations are composed of ammonium nitrate, most likely from agricultural operations, with the rest from combustion, primarily mobile sources and woodstoves (Martin, 2006). For comparison, PM_{2.5} in most rural areas in the western United States is typically dominated by total carbonaceous mass and crustal materials from combustion activities and fugitive dust respectively (EPA, 2009).</p> <p>As the Uinta Basin is neither a major metropolitan area as found on the Wasatch Front, nor has significant agricultural activities as found in Cache Valley, the most likely causes of elevated PM_{2.5} at the Vernal monitoring station are probably those common to other areas of the western US (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. Typical combustion controls include burning restrictions such as open burning and woodstove bans during poor air quality, and improvements in combustion devices such as woodstove change-out programs. Mobile combustion controls include diesel engine retrofitting (school bus retrofits for example), clean fuels (low sulfur diesel), and vehicle miles travelled reduction programs. Oil and gas industry precursor controls include nitrogen oxide engine controls such as catalytic reduction, ignition retard, and newer low emission engines (Tier II or better). Though volatile organic compound (VOC) control measures are usually not required in PM_{2.5} nonattainment areas unless it is demonstrated that their presence contributes significantly to PM_{2.5} concentrations, their dual application in reducing ozone precursor gases suggest it may be prudent to include VOC controls in the overall emission control package. Examples of oil and gas VOC controls include flaring, green completions, vapor recovery, dehydrator and pneumatic controls, and fugitive leak detection.</p> <p>The winter inversion PM_{2.5} value does not represent typical conditions in the project area because the PM_{2.5} monitoring location in Vernal, Utah was located in an urban setting with a high density of inhabitants and in proximity to highways (Highway 40 and Highway 191). As such, the higher, winter time inversion PM_{2.5} concentration value reflects impacts from activities and activity levels not expected in the rural and sparsely inhabited region of the Proposed Action. Potential impacts from agricultural activities and wood burning would not be expected to measurably contribute to PM_{2.5} concentrations in the region of the Proposed Action. Therefore,</p>

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	<p>Agency (EPA) provided SUWA with a letter indicating that during the winter of 2008 and 2009 monitors were functioning in Vernal, Utah that recorded extremely high maximum 24-hour average values for PM_{2.5}. <i>See</i> Letter from Stephen S. Tuber, EPA, to David Garbett, SUWA (Sep. 3, 2009) (attached hereto). This letter informed SUWA that a monitor was in Vernal during February and March of 2008 which recorded at least one exceedance of the national ambient air quality standard (NAAQS) of 35 µg/m³ for the 24-hour average maximum concentration of PM_{2.5}. <i>Id.</i> at 2. In 2009, monitors operated in Vernal and Roosevelt from January 21 to March 5. <i>Id.</i> These monitors recorded four days of exceedances in Vernal and three days of exceedances in Roosevelt. <i>Id.</i> Concentrations in Vernal went as high as 60.9 µg/m³. This information clearly shows that the background value of PM_{2.5} is significantly higher than what the Tumbleweed II EA represents. The BLM must adopt this monitored data in the preparation of its EA.</p>	<p>the value for average summer conditions was used in analyzing PM_{2.5} impacts from the Proposed Action.</p>
SUWA	<p>The EA completely fails to analyze potential contributions of this project to concentrations of ground-level ozone in the area. The BLM must model the likely contributions of the activities related to this project to ozone levels. The EPA has issued a new rule implementing a more stringent NAAQS standard for ozone. <i>See</i> National Ambient Air Quality Standard for Ozone, 73 Fed. Reg. 16,436 (March 27, 2008). The new NAAQS eight-hour standard for ozone set by the EPA is 75 parts per billion. Recently, the BLM released the West Tavaputs Plateau Natural Gas Full Field Development Plan Draft Environmental Impact Statement, UT-070-05-055 (February 2008) (WTP DEIS) (excerpts attached hereto). The WTP DEIS modeled resulting levels of ozone that would exceed this new NAAQS standard. <i>Compare</i> WTP DEIS at 4-18, <i>with</i> 73 Fed. Reg. at 16,436. Furthermore, 2008</p>	<p>Based on the limitations of modeling a project as small in size as Tumbleweed II project (as summarized below), the BLM, in cooperation with other regulatory agencies, IPAMS, and the oil and gas operators in the Uinta Basin, has obtained the best information possible to disclose potential effects from ground level ozone. As described in Section 4.2.5.10 of the EA, the Uinta Basin Air Quality Study was conducted to estimate changes to air quality and air quality related values (AQRV) within the Uinta Basin that may result from future industrial activity, including oil and gas development. Data used as input for the UBAQS consisted of the most complete, accurate, and current emissions and meteorological data available. Emissions data included the WRAP Phases II and III inventories for oil and gas sources, in addition to other non-oil and gas emissions sources. Scaling factors, based on expected rates of development, were applied to the baseline emissions 2006 inventory, and “on-the-books” regulations were applied to the uncontrolled 2012 emissions projections to generate the final 2012 emissions projections by county for the six-county focus area of the UBAQS that comprises the Uinta Basin.</p> <p>The Uinta UBAQS model results indicate that average ambient concentrations of</p>

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	<p>monitoring in Dinosaur National Monument recorded ozone levels at 0.069 parts per million, which is very close to the NAAQS limit. <i>See</i> National Park Service Memorandum: Notice of December 19, 2008 Competitive Oil & Gas Lease Sale of Lands Proximal to Arches National Park, Canyonlands Park and Dinosaur National Monument (Nov. 24, 2008) at 2 (attached hereto). The EPA has also raised concerns regarding ozone analysis in the Vernal RMP. <i>See</i> Letter from Larry Svoboda, EPA, to Selma Sierra, BLM (Sept. 23, 2008) (attached hereto). The BLM must model the likely levels of ozone that will result from the project analyzed in the EA as it is possible that this project will also violate NAAQS for ozone.</p> <p>In addition, the EA must consider the cumulative effects of ozone emissions from all of the other ongoing and planned projects in the vicinity. The EA completely fails to undertake this analysis, dismissing ozone as an issue too large in scope for analysis in the EA. <i>See</i> EA at 7. However, the BLM has never prepared any cumulative ozone analysis in the Vernal Field Office for any project, ever. There is simply no basis for the agency to conclude that it may postpone this analysis for some other document, project, and planning phase. The EA may not rely on the Vernal RMP for ozone analysis [because] it ignored potential impacts of oil and gas activity on ozone pollution. <i>See generally</i> Letter from Vicki Stamper to Bill Stringer, BLM, Re: Comments on January 2005 Draft Resource Management Plan Amendment and Draft Environmental Impact Statement for the Vernal Field Office (March 31, 2005). The Air Quality Assessment Report for the Vernal and Glenwood Springs RMPs failed to analyze the contribution of volatile organic compounds (VOCs) or nitrous oxides (NO_x) on ground level ozone and failed to do an ozone analysis.</p>	<p>criteria pollutants will remain below the NAAQS within the six-county Uinta Basin area. Specifically, the UBAQS results estimated that the Uinta Basin would be in attainment of the 8-hour ozone NAAQS for 2012 (UBAQS, Executive Summary and Overview, IPAMS, June 2009). In terms of cumulative effects from the Tumbleweed II project, the Proposed Action is within the modeled scope of projected development, and as such, would not violate, or otherwise contribute to any violation, of any applicable air quality standard, and it would not contribute to any projected future potential exceedances of any applicable air quality standards.</p> <p>Public comments received on the 2007 Tumbleweed EA asserted that the BLM failed to address potential effects of the project on air quality. In response to these comments, the BLM completed an air quality analysis for the Tumbleweed II project. In the Tumbleweed II EA, an affected environment discussion for air quality has been prepared and is included in Section 3.2.10, direct and indirect impacts on air quality are discussed in the alternative-specific analyses in Chapter 4.0, and cumulative effects, including those from ozone emissions, are discussed in Section 4.2.5.10. Table 4-10 in this section demonstrates that for regional ozone issues, when the emissions inventory for the production phase of the Proposed Action is compared to the regional emission inventory compiled during the WRAP Phase III study for the Uinta Basin, 2006 Baseline Emissions (WRAP, 2009), the VOC and NO_x emissions from the Proposed Action comprise a very small percentage of the WRAP baseline emissions. Section 4.2.5.10 then goes on to provide an objective, detailed, and scientifically sound rationale for why project-specific cumulative ozone modeling is not appropriate for a project the size of Tumbleweed II project. Briefly, Section 4.2.5.10 demonstrates that based on the magnitude of the projected increase in VOC emissions for the Uinta Basin from 2006 to 2012, and the inconsequential contribution that would be emitted from the Proposed Action, an accurate analysis of potential ozone impacts from the Tumbleweed II project is not feasible. Any cumulative ozone impacts from the Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the regional cumulative VOC and NO_x emission inventory. The potential cumulative ozone impact from the Proposed Action cannot be modeled with any accuracy due to the small level of the emissions from the Proposed Action, the size of the project, and the lack of photochemical grid model sensitivity. When compared to regional emissions inventories (such as those identified in the UBAQS results), the amounts of ozone precursors emitted from the Proposed Action are not expected to have a measurable contribution or effect on</p>

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	<p>Stamper Comments at 20-21.... Thus, the EA may not turn to any other document for an analysis of ozone pollution from this project or from the cumulative impacts of this project combined with others. The BLM must model the ozone precursors and contributions to ozone levels that will result from this project. The BLM cannot avoid this analysis any longer.</p> <p>Recently, two federal district court judges have called into serious question the ozone analysis conducted by BLM in the Vernal RMP and have rejected the notion that the BLM may shun ozone analysis at the site-specific development stage. <i>See</i> Order, <i>S. Utah Wilderness Alliance v. Allred</i>, Civ. Action No. 08-2187 (Urbina) at 3 (Jan. 17, 2009) (issuing a temporary restraining order in part because of a finding that the Vernal RMP had failed to consider ozone impacts because it lacked dispersion modeling) (attached hereto); Order, <i>S. Utah Wilderness Alliance v. Kempthorne</i>, Civ. Action No. 08-0411 (Oberdorfer) at 1 (Dec. 1, 2008) (rejecting the Rock House EA because the BLM had failed to sufficiently explain why it had not analyzed impacts from ozone) (attached hereto). Thus, BLM may not rely on the Vernal RMP for ozone analysis and it may not shirk such analysis at the site-specific development stage. BLM must prepare quantitative ozone dispersion modeling before proceeding with development here.</p>	<p>regional ozone formation. Despite the limitations of modeling project-specific ozone contributions, Section 4.2.1.9 of the EA states that emissions of NO_x and VOC, ozone precursors, can be seen to be 28.4 tons/yr for NO_x, and 13.7 tons/yr of VOC from Table 4-1 and Table 4-2 (above) during the year of development. Thereafter, emissions during production would decrease to 4.3 tons/yr for NO_x, and 10.4 tons/yr of VOC. As can be seen from Table 4.9 below, emissions during project operations are estimated to represent less than 0.05% of the projected Uinta Basin emissions for NO_x and VOC. Project emissions of ozone precursors would be dispersed and/or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background conditions. Emissions of these infinitesimal levels can be expected to have a negligible impact on ozone formation.</p> <p><u>Based on the above, the BLM</u> has taken a hard look at air quality, including ozone related effects. The BLM has further provided a detailed, explanation as to why project-specific cumulative ozone modeling is not appropriate for a project the size of Tumbleweed II project. The evaluation of ozone related effects presented in the EA represents the best available information, and an analysis appropriate in scale and content for a nine-well project.</p>
SUWA	Erosion and sedimentation data are old (25-35 years) and it is unclear whether they are still valid.	Studies concerning the amount of increased erosion associated with the construction of oil and gas facilities have not been conducted in the Uinta Basin or elsewhere. Therefore, as described in Section 4.2.1.1 , the erosion and sedimentation estimates were developed for this project using the assumption that erosion on newly-disturbed soil surfaces is about triple the background erosion rate, prior to interim reclamation. The background erosion rate for the Uinta Basin was reported to be about 1.45 tons per acre per year by the BLM. This background rate has not changed since it was disclosed in the Final Environmental Impact Statement

Commenter	Comment	BLM Response
		<p>on the Book Cliffs Resource Management Plan (BLM 1984). The following statement has been added to the text in Section 4.2.1.1, “<i>In general, erosion estimates are subject to considerable uncertainty. Factors which contribute to the uncertainty include the exact location of the various facilities, the actual road and pipeline gradients, the effectiveness of BMPs, surface roughness, the amount of vegetative cover, and climatic conditions. As such, these estimates should be considered to be accurate within the range of +/- 100 percent. However, because the estimates were made using the same set of assumptions for each alternative, they provide a valuable way to compare the potential increased erosion that would result under the various alternatives.</i>” In addition, the text has been modified to state that the “natural background” erosion rate is 1.45 tons per acre per year instead of the “current” erosion rate.</p>
SUWA	<p>35% of the project area is estimated as including biological crusts, <i>see</i> EA at 31 (2,647 acres of the Winteridge-Moonset association occur in the 7,655 acre project area, and “it is assumed for purposes of this EA that biological soil crusts may occur wherever this association is present”), yet the EA concludes, without explanation, that damage to biological soil crusts will have no effect on reclamation. EA 54-55, 76. Such an assertion requires analysis and explanation. Biological soil crusts possess many characteristics that facilitate reclamation, including increased soil stability, increased water infiltration, and increased soil fertility, which would be rendered useless through surface disturbance. <i>See</i> http://geochange.er.usgs.gov/sw/impacts/biology/crypt o/.</p>	<p>The following sentence has been removed from text, “<i>It is important to note the loss of biological crusts would have no effect on the reclamation potential of the soils in the Project Area.</i>”</p> <p>The Tumbleweed EA fully discloses the impacts of the project on sensitive soils in compliance with NEPA. See Sections 3.2.1, 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.2.4.1 and 4.2.5.1, including a map of all soils in the Project Area in Figure 3-1.</p> <p>Section 2.1.9 and Section 2.1.13 discuss interim reclamation, revegetation and soils. The EA fully discloses the potential impacts to soils from the Proposed Action and includes several ACEPM designed to reduce the impacts to soils and biological soil crusts. Section 2.1.15.5 includes several specific ACEPMs for the protection of soils including: (1) full compliance with BLM’s Gold Book; (2) preservation and protection of topsoil; (3) erosion control and revegetation measures; and (4) BMPs for unstable soils.</p>
SUWA	<p>Although the EA acknowledges direct effects of the project on soils within the project area, including erosion, sedimentation, soil and water table pollution, soil compaction, and blending of soil types, there is no discussion or analysis of indirect effects. EA at 53-55. For example, a result of soil compaction is decreased water-holding capacity in the soil, which has the reasonably foreseeable effect of desertification, which could lead to climate change.</p>	<p>It is difficult at times to differentiate between direct and indirect effects, which may be the same effect varied only by time or space, and the terms are often used interchangeably. However, the first and seventh paragraphs of Section 4.2.1.1 have been modified to include indirect effects on soils, including the reduction of water holding capacity and the loss of topsoil productivity from increased erosion, removal of biological crusts, and contamination. The following has been added to the first paragraph of Section 4.2.1.1, “<i>Surface disturbance and removal of vegetation, including biological soil crusts, could also cause indirect effects on soils by reducing their water holding capacity. The loss of water holding capacity</i></p>

Commenter	Comment	BLM Response
	<p>http://pubs.usgs.gov/gip/deserts/desertification/. Reasonably foreseeable indirect effects, though more remote in space and time than direct impacts, are due the same analytical emphasis under NEPA (40 CFR 1508.8)</p>	<p><i>and impacts on microorganisms from increased erosion, removal of biological soil crusts, and contamination could also indirectly lead to the loss of topsoil productivity and the ability of these soils to support vegetation.”</i> The seventh paragraph of Section 4.2.1.1 has been revised to read, <i>“Contamination of surface and subsurface soils near gas facilities can occur in oil and gas fields. Sources of potential contamination include leaks or spills of liquid hydrocarbons from wellheads, conveyance pipelines, produced water sumps, and oil storage tanks. Other potential sources of soil contamination include leaks of saline water, liquid hydrocarbons, and hydro-fracturing chemicals from reserve pits, and spills and leaks of fuels and lubricants from vehicles and drilling equipment. Petroleum released to surface soils infiltrates the soil and can migrate vertically until the water table is encountered. Direct impacts from such a spill or leak on soils could include loss of vegetation, disruption of microbial communities, and changes to physical soil characteristics. Depending on the size and type of spill, the indirect effects on soils would primarily consist of the potential loss of soil productivity.”</i>Also, climate change is addressed in Sections 3.2.9 and 4.2.5.10 of the EA.</p> <p>However, as described in the USGS article referenced by SUWA in their comment (see excerpts below), there is a lack of scientific consensus about the causes of desertification. In addition, reclamation potential for the area is fair as described in Section 3.2.3.2, which is supported by BLM field observations of two reclaimed well sites near the project area which were plugged and abandoned in the 1960s as cited in that section. Therefore, specific references to desertification have not been added to this EA.</p> <p><i>In these marginal areas [desert transition zones], human activity may stress the ecosystem beyond its tolerance limit, resulting in degradation of the land. By pounding the soil with their hooves, livestock compact the substrate, increase the proportion of fine material, and reduce the percolation rate of the soil, thus encouraging erosion by wind and water. Grazing and the collection of firewood reduces or eliminates plants that help to bind the soil.</i></p> <p><i>This degradation of formerly productive land-- desertification--is a complex process. It involves multiple causes, and it proceeds at varying rates in different climates. Desertification may intensify a general climatic trend toward greater</i></p>

Commenter	Comment	BLM Response
		<p><i>aridity, or it may initiate a change in local climate.</i></p> <p><i>Desertification does not occur in linear, easily mappable patterns. Deserts advance erratically, forming patches on their borders. Areas far from natural deserts can degrade quickly to barren soil, rock, or sand through poor land management. The presence of a nearby desert has no direct relationship to desertification.</i></p> <p><i>...Scientists still question whether desertification, as a process of global change, is permanent or how and when it can be halted or reversed.</i></p> <p><i>...In 1988 Ridley Nelson pointed out in an important scientific paper that the desertification problem and processes are not clearly defined. There is no consensus among researchers as to the specific causes, extent, or degree of desertification. Contrary to many popular reports, desertification is actually a subtle and complex process of deterioration that may often be reversible.</i></p>
SUWA	<p>The discussion of alternatives lacks meaningful analysis regarding their various potential effects on soils. What analysis there is assumes that impacts to soils from the project are directly proportional to surface disturbance, without scientific justification, despite the fact that direct effects of the project include pollution into the soil and water table, and soil compaction and blending, among others. EA 75-76, 78. For example, compaction and blending reduce the reclamation potential of soils, EA 54, therefore impacts of various amounts of soil compaction and blending are not simply troublesome insofar as surface disturbance is concerned.</p>	<p>The Tumbleweed EA fully discloses the impacts of the project on sensitive soils in compliance with NEPA. See Figure 3-1 and Sections 3.2.1, 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.2.4.1 and 4.2.5.1 for a map and description of project area soils, as well alternative-specific impact analyses to soil resources. These sections include discussion on the potential for soil compaction, blending. In addition, the Tumbleweed EA fully discloses the impacts of the project on water quality in compliance with NEPA – see Sections 3.2.2, 4.2.1.2, 4.2.2.2, 4.2.3.2, 4.2.4.2 and 4.2.5.2. Related analyses on effects of soil erosion on surface water are included in Section 4.2.1.2, 4.2.2.2, 4.2.3.2, 4.2.4.2, and 4.2.5.3.</p> <p>The primary impact on soils from the Proposed Action or action alternatives would result from the disturbance/removal/excavation of surface soils and removal of vegetation because the Proposed Action has been designed to minimize the potential for contamination of soils through the use of lined reserve pits and secondary containment around all storage tanks that contain oil, glycol, and produced water. Therefore, contamination of soils could potentially occur but is not anticipated.</p> <p>The direct impacts to soils are directly proportional to the amount of surface disturbance under each alternative (47.7 acres for the Proposed Action, 77.5 acres for Alternative C, and 38.2 acres for Alternative D). Further, the difference between the acreage of surface disturbance between the alternatives is minimal (Alternative C would result in 29.8 acres more disturbance than the Proposed</p>

Commenter	Comment	BLM Response
		<p>Action , and Alternative D would result in 9.5 acres less disturbance than the Proposed Action).</p> <p>Proposed reclamation is discussed in detail in Section 2.1.13.</p>
SUWA	<p>The Tumbleweed II EA has failed to inventory cultural resources within five of the proposed eight well pads and associated access roads and pipeline corridors in the project area. Indeed, based on such incomplete inventories, the EA declares that the project will have no direct impacts on known cultural resources. However, such a statement seems disingenuous in the face of the recently undesignated area that was the Main Canyon ACEC. The Main Canyon area has been identified as having numerous sites associated with Northern Ute migration, and there are historical inscriptions in the area. Given that several of the well pads and their accompanying access roads and pipeline corridors have not been inventoried, it seems likely that the proposed project could impact cultural resources.</p>	<p>BLM is fully compliant with requirements to complete Class III cultural resource surveys for all well pads (and all other areas proposed for surface disturbance) prior to site-specific application approval and surface disturbance being initiated. This requirement was clearly defined in Section 2.1.14.2 of the EA, which specifically states:</p> <p><i>“In accordance with the National Historic Preservation Act (NHPA) of 1966, as amended, the Archaeological Resources Protection Act (ARPA) of 1979, and the Native American Graves Protection and Repatriation Act (NAGPRA), prior to any project-related surface disturbance, all locations proposed for surface disturbance would be examined by an archaeologist approved by the appropriate SMA to determine the presence of cultural resources (i.e., Class III cultural resource inventories with 100 percent pedestrian field survey would be completed). Consultation would be completed with the Utah State Historic Preservation Office (SHPO) prior to the onset of development, as set out in existing regulations. If any cultural resources eligible for listing to the National Register of Historic Places (NRHP) are identified, recommendations would be made to avoid or recover such resources. To date, Class III inventories have been completed for the TUF #18-9, #17-4, and #17-12 proposed well pads and associated access roads and pipeline corridors. Additional Class III survey work would be completed following project approval and prior to any surface-disturbing activities.</i></p> <p><i>If cultural resources are uncovered during surface-disturbing activities, Stewart would suspend operations at the site and immediately contact the appropriate AO, who would arrange for a determination of eligibility in consultation with the Utah SHPO and if necessary, would recommend a recovery or avoidance plan.”</i></p> <p>This pre-disturbance survey and avoidance process is a fairly standard operating practice for oil and gas projects within the VFO, which has been explained in numerous previous NEPA documents. Furthermore, the existing TUF #18-9 is an excellent example of how this process works. Prior to construction of the TUF #18-9 well pad and associated road/pipeline corridor, the previous leaseholder (Bill Barrett Corporation) funded the completion of Class III cultural resource surveys</p>

Commenter	Comment	BLM Response
		<p>for the then proposed well pad and associated access road and pipeline. The fieldwork was conducted by Keith Montgomery (Principal Investigator of Montgomery Archaeological Consultants) on June 4, 2004, under the auspices of U.S.D.I. (FLPMA) Permit No. 04-UT-60122 and State of Utah Antiquities Project (Survey) No. U-04-MQ-0508b,s. Mr. Montgomery’s survey of the TUF #18-9 (formerly called the #9-18-15-21) involved an intensive, 100 percent cover, pedestrian survey of the areas proposed for disturbance and no cultural resources were identified.</p> <p>In addition, the EA has been modified at Section 4.2.1.8 to reflect the potential for cultural resources to be located in portions of the Tumbleweed II Project Area that, to date, have not yet been inventoried.</p>
SUWA	<p>Although the Tumbleweed II EA mentions that the proposed project will affect noise within the project area, there is no discussion or analysis of the effects of noise pollution on wildlife. Recent studies show that “certain unnatural sounds—particularly loud, repetitive noises” interfere with animals’ ability to breed, evade predators, and find habitats. Scott Streater, “Solitude Becomes Exhibit A in Battle Over National Parks Management,” New York Times, Oct. 8, 2009; See also Scott Streater, “Land Letter,” available at www.eenews.net/public/landletter/2008/08/07/1.</p>	<p>The sources referenced in SUWA’s comment letter are news stories from “Land Letter”; a Washington, D.C.-based, online, weekly newsletter. While these opinion articles authored by Mr. Streater refer to ongoing scientific studies by the National Park Services or in-progress journal articles, Mr. Streater’s news stories by themselves do not represent peer-reviewed, scientific papers.</p> <p>However, the BLM does not discount, nor does it ignore, the potential for noise-related effects on wildlife. The analyses within the EA clearly recognize that noise from oil and gas development has the potential to affect wildlife. This potential issue is first addressed in Section 1.7.5, Issues #3 and #6, which state:</p> <p><i>“The alternatives could result in a temporary decrease in reproductive success and nutritional condition of wildlife caused by increased energy expenditure that could occur due to physical responses to noise and visual disturbance during construction, drilling, and completion.</i></p> <p><i>The removal of vegetation and visual and noise disturbances during construction, drilling, completion, and operational activities could potentially affect fish and wildlife including special status species.”</i></p> <p>The wildlife impact analyses in Chapter 4 address that as a physical response to noise and visual disturbances, the project could temporarily decrease wildlife reproductive success and nutritional condition by increasing energy expenditure. Increased energy expenditure could result as a physical response to noise and visual disturbances. However, as the Tumbleweed II project is exploratory in nature, and</p>

Commenter	Comment	BLM Response
		<p>human disturbances (i.e., increased traffic, noise, and human presence) associated with construction, drilling, and completion activities would be short-term in nature, the above-mentioned impacts could affect individual animals, but would not likely result in population-level declines in the Tumbleweed Project Area. For wells that are productive, ongoing operational activities associated with the Proposed Action (e.g., pumper visits, workovers, etc.) could result in visual and noise related impacts on wildlife populations within the Tumbleweed Project Area that could last for the 20 to 30 year life of the project. Yet, because of the small scale of the project, potential effects from project-related noise or otherwise, would likely be limited to individual animals, and would not result in population-level declines. Furthermore, application of winter surface disturbance and drilling restrictions (December 1 – April 30) would reduce impacts to elk and mule deer winter habitat values.</p> <p>In addition, Section 2.1.15.8 of the Tumbleweed II EA includes specific ACEPMs to protect wildlife, sage-grouse, raptors and Mexican Spotted Owl.</p>
SUWA	<p>The EA concludes, without analysis, that impacts to wildlife, including loss, disturbance, and fragmentation of habitat; displacement from habitat; and visual, audible, and human disturbances will last only as long as the duration of the project. EA 60. Additionally, the Draft EA concludes, again without analysis, that direct losses to crucial habitats and foraging areas will not negatively impact wildlife because the project is temporary. EA 60-61.</p>	<p>Based on the cited page numbers, we believe SUWA is referring to the impact analyses for pronghorn antelope, bighorn sheep, and bison. However, SUWA has incorrectly and inadequately captured the wildlife analyses included in the EA. The analyses on pages 60-61 of the Tumbleweed II EA, as well as the other species-specific wildlife analyses in the EA, state that human disturbances (i.e., increased traffic, noise, human presence) caused by construction, drilling, and completion activities may be short-term in nature. However, the analyses go on to say that ongoing operational activities associated with the Proposed Action (e.g., pumper visits, workovers, etc.) could result in small-scale visual and noise related impacts on wildlife populations within the Tumbleweed Project Area that could last for the 20 to 30 year life of the project. The analyses for elk, mule deer, pronghorn antelope, and bighorn sheep also disclose that habitat loss and fragmentation, as well as visual and noise disturbances, could result in reduced habitat use by Rocky Mountain bighorn sheep within and near disturbed areas, increased animal densities in adjoining habitats, and increased stress from intra- and inter-specific competition. These species-specific analyses then conclude that individual animals could be adversely affected by the project, but given the temporary nature of most impacts and BLM's discretion to implement seasonal closures (for elk or mule deer), or because of the periodical occurrence of these species (pronghorn antelope, bighorn sheep) within the Tumbleweed Project Area, the Proposed Action is not likely to negatively impact the species at a population level.</p>

Commenter	Comment	BLM Response
		In addition, Section 2.1.15.8 of the Tumbleweed II EA includes specific ACEPMs to protect wildlife, sage-grouse, raptors and Mexican Spotted Owl.
SUWA	There is no analysis of indirect or cumulative impacts to wildlife, which is particularly alarming in the section in special status species. EA 62-65, 83-84. For species more susceptible to Federal listing, there needs to be analysis of the cumulative effects of the proposed project in conjunction with other projects before concluding that the project will not lead toward Federal listing of special status species or have negligible impact. EA 63, 83-84.	<p>The fish and wildlife analyses do indeed disclose the direct and indirect effects of the project within Sections 4.2.1.5 and 4.2.1.6, including detailed discussions of potential effects on special status species that have the potential to occur in the project area (e.g., greater sage-grouse, Mexican spotted owl, golden eagle, and Colorado River endangered fish species). While direct and indirect effects are well defined in 40 CFR 1508.8, in practice, the difference between a direct impact vs. an indirect impact, especially in the context of wildlife populations and habitats, can be subjective and frequently interchangeable. Therefore, the wildlife and special status species analyses in Sections 4.2.1.5 and 4.2.1.6 do disclose some direct vs. indirect impacts, but by no means does the analysis focus on discriminating between those two types of impacts. Instead the analysis focuses on evaluating and disclosing the potential effects, as well as providing mitigation to avoid or reduce those effects. For example, the introductory paragraph of Section 4.2.1.5 points out that surface disturbance associated with the proposed project could indirectly affect wildlife habitat quality and quantity as a result of the potential for increased levels of weed infestation. Yet any loss of change in the quality or quantity of habitat could also be construed as a direct impact. Thus, the BLM’s fish and wildlife analyses focus on the direct and indirect effects of the project without trying to define which impact falls under which subjective category.</p> <p>The BLM acknowledges that the golden eagle discussion in Section 4.2.1.6 of the EA did not adequately refer back to the operator’s commitment to conduct raptor nest inventories and to avoid construction or drilling activities within species-specific buffers of active raptor nests during the nesting season (see Section 2.1.15.8). These protective measures are one of the primary reasons that the project is not likely to adversely affect raptor nesting activity (direct or indirect). A reference to these measures has been added to the golden eagle discussion to better clarify why they project would not likely result in a trend towards Federal listing of the golden eagle.</p> <p>However, the bald eagle, Mexican spotted owl, and greater sage-grouse discussions in Section 4.2.1.6 included reasoned and rationale descriptions for why impacts (regardless of whether they are considered direct or indirect) to the species would not be adverse and/or would not contribute to a trend towards Federal listing of the species. These discussions specifically speak to the potential effects that could</p>

Commenter	Comment	BLM Response
		<p>occur if not for mitigation measures, either volunteered to by the operator or required by the BLM or other agency, that are intended to reduce, avoid, or minimize direct and indirect effects on the species. For example, the Mexican spotted owl analysis concludes with the following statements, “<i>Based on these continuing survey and PAC commitments, and that no MSO were documented during the 2008 and 2009 surveys, the Proposed Action would likely have no effect on breeding, nesting or foraging MSO. Furthermore, as the Proposed Action would not include any development within the Willow Creek and Upper Bottom Canyon corridors, potential impacts to designated MSO habitat would be minimal. Specifically, under the Proposed Action, 0.1 acre of good habitat and 0.2 acre of fair habitat would be disturbed as a result of construction activities. Based on the above assessment, BLM has determined that the Proposed Action “may affect, is not likely to adversely affect” the MSO.</i>”</p> <p>As for cumulative impacts, Section 4.2.5.6 and 4.2.5.7 of the EA concisely but accurately disclose the potential cumulative effect that the Tumbleweed II project could have on fish and wildlife species and habitats, including special status species. The cumulative impact analyses provide reasoned, rationale explanations as to why the Tumbleweed II project would have minor cumulative effects on fish and wildlife populations or habitats; primarily because the project itself would largely result in small or minor effects on individual animals, whose incremental contribution to cumulative effects would also be small.</p>
SUWA	<p>In the discussion of alternatives, the estimated impact on wildlife for all of the options is directly proportional to surface disturbance without analysis explaining why. EA 77-79. There is no meaningful discussion of the impacts of the proposed alternatives in a way that clarifies, for the public and the decision maker, the comparative impacts of the proposed alternatives. EA 77-79.</p>	<p>The BLM’s comparison of the Proposed Action to the No Action alternative very clearly discloses that under the No Action alternative project-related impacts on wildlife would not occur.</p> <p>The remaining alternative analyses focus on comparisons of the action alternatives: comparisons of Alternative C (Buried Pipelines) and Alternative D (Directional Drilling) against the Proposed Action. In the context of potential effects to wildlife populations and habitats, the design features of the action alternatives are similar or identical. The potential change agents or causes of potential effect to wildlife from the action alternatives are largely limited to surface disturbance. For example, as discussed in Chapter 2.0, the number of wells drilled would be identical under the Proposed Action, Alternative C, or Alternative D. Therefore, temporary visual- or noise-related disturbances from drilling activities and potential effects on big game species would be very similar or identical in nature regardless of the action alternative. Similarly, as discussed in Chapter 2.0, water use would be identical</p>

Commenter	Comment	BLM Response
		<p>under any of the three action alternatives. Therefore, potential depletion effects on the Colorado River endangered fish species would also be similar or identical regardless of the action alternative. Absent any other measureable or marked difference between potential effects, the key difference between the action alternatives in relation to wildlife is the difference in acreage of surface disturbance (i.e., wildlife habitat loss). The wildlife impact analyses in Sections 4.2.3.5, 4.2.3.6, 4.2.4.5, and 4.2.4.6 concisely, but accurately disclose these comparative differences in surface disturbance and associated differences in wildlife habitat loss.</p>
SUWA	<p>The Tumbleweed II EA lacks any analysis of cumulative or indirect impacts on vegetation. For example, the EA explains that it could take more than 50 years for disturbed vegetation to re-grow, but there is no analysis of the effect this will have at the ecosystemic level. See 40 CFR 1508.8. Moreover, dismissing the additional impacts on vegetation of this project within the context of other Vernal drilling operations as incremental and minor defeats the purpose of the requirement that cumulative impacts be analyzed. See 40 CFR 1508.7 (“Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”).</p>	<p>Section 4.2.1.3 of the EA describes, in detail, the potential direct and indirect effects of the Proposed Action on vegetation resources. SUWA did not provide a definition as to what they believe constitutes an ecosystemic level impact. 40 CFR 1508.8 only defines direct and indirect impacts. For purposes of impact analysis within this EA, the BLM assumes that the “ecosystemic level” impact referred to by SUWA is the biotic or abiotic resource effects that influence the ecosystem of which it is a part. Biotic and abiotic impacts, and their influence on the ecosystem of which they are part (for example: vegetation communities, wildlife communities, and soils and watershed and the interaction of each on and with the others) are fully disclosed in Chapter 4. In addition, reclamation potential for the area is fair as described in Section 3.2.3.2, which is supported by BLM field observations of two reclaimed well sites near the project area which were plugged and abandoned in the 1960s as cited in that section. Therefore, it is not expected that the impacts from this project would impact ecosystems beyond what is currently disclosed in the EA.</p> <p>Section 4.2.5.4 of the EA provides a succinct but accurate description of potential cumulative effects on vegetation. This section discussed how Alternatives A, C, or D would disturb relatively small areas (47.7, 77.5, and 38.3 acres, respectively) of vegetation. However, any increase in surface disturbance must be acknowledged as incrementally and cumulatively adding to vegetation disturbance within the Vernal planning area. Specifically, the total estimated cumulative disturbance of 44,091 acres in the 1,691,116 acre-Vernal planning area would increase by 0.09 percent to 0.18 percent due to project construction, depending on the action alternative selected. Assuming successful implementation of Applicant-Required Measures and ACEPMs (see Section 2.1.15.6), vegetation losses from the 47.7 acres of disturbance under the Proposed Action (77.5 acres under Alternative C, 38.2 acres under Alternative D) would be minor. Each acre of vegetation disturbance would subsequently and incrementally adds to cumulative vegetation impacts in the Vernal Planning Area; however, these project-specific cumulative contributions</p>

Commenter	Comment	BLM Response
		would be minor.
SUWA	The discussion of alternatives once again determines, without explanation, that the degree of impact to vegetation is directly proportional to surface disturbance, despite the fact that disturbing vegetation will likely make even non-disturbed areas more susceptible to noxious and invasive weeds. EA 75-78.	In the context of potential effects to vegetation resources, the design features of the action alternatives (Alternatives A, C, and D) are similar or identical (see Section 2.1.15.6). The potential change agents or causes of potential effect to vegetation from the action alternatives are largely limited to surface disturbance. However, Section 4.2.3.3 of the EA has been revised to recognize that the potential for weed infestation would be higher under Alternative C given the increase in surface disturbance and construction activities associated with burying pipelines.
SUWA	According to the EA, Willow Creek, which is just west of the Project Area, is considered a 303(d) impaired water body under the Clean Water Act. EA 34. There is no analysis of how the proposed project will impact the amount of Total Dissolved Solids in Willow Creek, nor is there analysis of the cumulative impacts of the project with other drilling projects in the area. The BLM is required by FLPMA to ensure that the approval of this activity will not lead to further impairment of Willow Creek. The BLM must model the potential water pollution from this project to assure the public that approval will not lead to further impairment of Willow Creek.	Section 4.2.1.2 of the EA acknowledges that sediment loading to Willow Creek would increase by about 0.23 percent and that TDS could be expected to increase by a similar percentage. Section 303(d) of the Clean Water Act requires States to identify water-quality limited water bodies and prepare a Total Maximum Daily Load (TMDL) analysis for those stream and lakes. However, the State is not required to ensure that no further impairment occurs. Section 4.2.5.3 of the EA has been revised to indicate that the Proposed Action could incrementally increase TDS loading to Willow Creek.
SUWA	Although the Draft EA evaluates the effects of the Project on surface water, there is no discussion of the impact of the project on groundwater or the water table. EA 55. Such an omission is particularly salient in a project utilizing hydraulic fracturing, given the risk of chemical injection into the water table.	Compliance with “Onshore Oil and Gas Order No. 2, Drilling Operations” will assure that the project will not adversely affect groundwater quality. State-of-the-art drilling and well completion techniques would be conducted, as approved, to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, and abnormally pressured zones. Using these techniques, the possibility of adverse degradation of groundwater quality by the Proposed Action is considered to be negligible and detailed analysis is therefore not required in the EA.
SUWA	There is no mention within the EA of reserve pits or pollution containment systems, or their respective direct and indirect impacts on water and ecosystems.	Several sections of the EA discuss the construction of reserve pits and their containment systems. The third paragraph in Section 2.1.2 states, “ <i>To avoid impacts to soils and shallow groundwater, the reserve pit would be lined with 12-milimeter (minimum) plastic nylon reinforced material. The liner would overlay a felt liner pad if rock is encountered during excavation. The pit liner would overlap the pit walls and be covered with dirt and/or rocks to hold it in place. The reserve pit liners would have minimum burst strength equal to or greater than 300 pounds, puncture strength</i> ”

Commenter	Comment	BLM Response
		<p><i>equal to or greater than 160 pounds, and grab tensile strength exceeding 150 pounds. Each liner would be resistant to deterioration by hydrocarbons, and all liners would be tested in accordance with American Society for Testing and Materials standards.”</i></p> <p>The fourth paragraph in Section 2.1.2 states, <i>“To assure stability, the reserve pit would be constructed on the cut side of the pads. The pit would not be constructed in a natural drainage, where flood hazards exist, or where surface run-off could enter the pit or damage the pit walls.”</i></p> <p>The fourth paragraph in Section 2.1.5 states, <i>“Upon completion of drilling, any hydrocarbons in the reserve pit would be removed as soon as possible and processed or disposed of at an appropriate offsite commercial facility. Cuttings generated during the drilling process would be buried in the reserve pit following the evaporation or removal of free liquids.”</i></p> <p>The first paragraph in Section 2.1.11 states: <i>“As mentioned previously, any hydrocarbons remaining in the reserve pit would be removed as soon as possible and processed or disposed of at an appropriate offsite commercial facility. All drilling mud/water would be hauled off-site to a licensed, commercial disposal facility. Cuttings generated during the drilling process would be buried in the reserve pit following removal of any excess liquids. On Federal lands, this would occur within 90-days of completing the well per BLM regulations.”</i></p> <p>Section 4.2.1.1 of the EA has been modified to discuss potential impacts to soils from leaks of produced water, fracturing fluids, and hydrocarbons from reserve pits. The seventh paragraph has been changed to read, <i>“Contamination of surface and subsurface soils near gas facilities can occur in oil and gas fields. Sources of potential contamination include leaks or spills of liquid hydrocarbons from wellheads, conveyance pipelines, produced water sumps, and oil storage tanks. Other potential sources of soil contamination include leaks of saline water, liquid hydrocarbons, and hydro-fracturing chemicals from reserve pits, and spills and leaks of fuels and lubricants from vehicles and drilling equipment. Petroleum released to surface soils infiltrates the soil and can migrate vertically until the water table is encountered. Direct impacts from such a spill or leak on soils could include loss of vegetation, disruption of microbial communities, and changes to physical soil characteristics. Depending on the size and type of spill, the indirect</i></p>

Commenter	Comment	BLM Response
		<p><i>effects on soils would primarily consist of the potential loss of soil productivity.”</i></p> <p>Section 4.2.1.2 of the EA has been modified to discuss potential impacts to water resources from leaks of produced water, fracing fluids, and hydrocarbons from reserve pits. The second paragraph has been changed to read, <i>“The Proposed Action would not result in direct surface disturbance to any Tumbleweed Project Area drainages, other than the slightly increased sedimentation described above. There is a slight chance that development and production activities could lead to contamination of nearby surface water resources. Sources of potential surface water contamination include leaks from wellheads, pipelines, and oil storage tanks; leaks from tanker trucks; leaks of produced water, fracing fluids, and liquid hydrocarbons from reserve pits; leaching of contaminants from impacted soils near these facilities; and fuel spills. To reduce the potential for hydrocarbon contamination of Tumbleweed Project Area drainages, several environmental protection measures would be implemented as described in Section 2.1.14. All pipelines would be designed to minimize the potential for spills and leaks and would be permitted through the APD or ROW grant process as appropriate. All storage tanks and production facilities that contain oil, glycol, produced water, or other potentially hazardous fluids would be surrounded by secondary means of containment for the entire contents of the largest single tank in use plus freeboard for precipitation or other appropriate containment and/or diversionary structures or equipment so that any discharge from a primary containment system, such as a tank or pipe, would not drain, infiltrate, or otherwise escape to groundwater or surface waters before cleanup is completed. In addition, a Spill Prevention, Control, and Countermeasure (SPCC) Plan, which outlines the methodology to be used in the event of a spill, would be prepared and would be maintained onsite at all times. The SPCC Plan would describe how to contain a spill and how to facilitate rapid clean up of any spill prior to its contamination of either surface or subsurface waters. In the unlikely event that a release or spill occurs, steps would be immediately initiated to stop and contain the spill/leak and to remediate the impacted materials, thus reducing the likelihood of impacts to nearby drainages, and subsequently the Green River.”</i></p>
SUWA	The analysis of impacts under Alternatives C and D perfunctorily addresses the impacts of the alternatives by concluding that the degree of impact is directly proportional to the amount of surface disturbance without reasonable or scientific explanation. EA 76,	<p>The BLM’s comparison of the Proposed Action to the No Action alternative very clearly discloses that under the No Action alternative project related impacts on surface water resources would not occur.</p> <p>In the context of potential effects to water resources, the primary effect on surface</p>

Commenter	Comment	BLM Response
	78.	<p>water resources from the action alternatives (i.e., Proposed Action, Alternative C, or Alternative D) would be increased erosion and sedimentation. The amount of increased erosion and sedimentation is assumed to be directly proportional to the amount of new surface disturbance. Because the number of wells drilled would be identical under the Proposed Action, Alternative C, and Alternative D, the causes of potential effect to surface water resources from the action alternatives is largely limited to surface disturbance.</p> <p>In general, erosion estimates are subject to considerable uncertainty. Factors which contribute to the uncertainty include the exact location of the various facilities, the actual road and pipeline gradients, the effectiveness of BMPs, surface roughness, the amount of vegetative cover, and climatic conditions. In addition, sediment delivery to drainages is dependent on a number of factors which cannot be quantified, including the exact slope length and steepness, surface roughness, the type and degree of vegetative cover, and climatic conditions. However, because the estimates were made using the same set of assumptions for each alternative, they provide a valuable and meaningful way to compare the potential increased erosion that would result under each of the various action alternatives. Further, the difference between the acreage of surface disturbance between the alternatives is minimal (Alternative C would result in 29.8 acres more disturbance than the Proposed Action, and Alternative D would result in 9.5 acres less disturbance than the Proposed Action).</p>
SUWA	Although the Vernal Field Office Approved RMP declined to designate the Main Canyon ACEC or the Book Cliffs SRMA, BLM must analyze the effects of the proposed project on ACECs and SRMAs. See EA at 6-7. ACEC and SRMAs are public resources in the same way vegetation, soils, or wildlife are public resources. The decision not to designate an ACEC or SRMA does not affect the BLM's duty to analyze impacts to those resources, in the same way that a decision to open an area to oil and gas drilling does not eliminate BLM's duty to analyze impacts on vegetation, soils, or wildlife.	Public comments received by the BLM on the draft 2007 Tumbleweed EA requested that the BLM include analysis of impacts to the former potential Main Canyon ACEC, and former potential Book Cliffs SRMA. In response, the BLM included detailed information within the final 2007 Tumbleweed EA (BLM 2007a) on how proposed development could impact these areas. This analysis can be found in the <i>Tumbleweed Exploratory Drilling EA (UT-080-05-201)</i> (BLM 2007a), which is included in the public record for this project. Because an assessment of impacts to these areas has already been included in the Approved RMP, and management decisions have already been made for these areas within the Approved RMP, potential effects to the former potential Main Canyon ACEC or Book Cliffs SRMA are not included within the Tumbleweed II EA. However, potential impacts to individual resource components of the former potential ACEC and SRMA (e.g., cultural resources, recreation, etc.) are analyzed in the Tumbleweed II EA as appropriate within the resource-specific sections of this EA.
SUWA	Although the Vernal Field Office Approved RMP	An analysis of impacts from the alternatives on non-WSA lands with wilderness

Commenter	Comment	BLM Response
	declined to manage non-WSA lands with wilderness characteristics as wilderness, BLM cannot decline to analyze the effects of the proposed project on lands with wilderness characteristics. See EA at 6-7. Lands with wilderness characteristics are a public resource in the same way vegetation, soils, or wildlife are public resources. The decision not to manage areas with wilderness characteristics as wilderness does not affect the BLM’s duty to analyze impacts to that resource, in the same way that a decision to open an area to oil and gas drilling does not eliminate BLM’s duty to analyze impacts on vegetation, soils, or wildlife.	characteristics has been added to the final EA – see Sections 3.2.11, 4.2.1.11, 4.2.2.11, 4.2.3.11, 4.2.4.11, and 4.2.5.12.
Stewart Petroleum	BLM should assess the impacts of the Proposed Action on existing wilderness characteristics regardless of the management prescriptions, goals, and objectives BLM chooses in its FLPMA-directed Vernal RMP.	An analysis of impacts from the alternatives on non-WSA lands with wilderness characteristics has been added to the final EA – see Sections 3.2.11, 4.2.1.11, 4.2.2.11, 4.2.3.11, 4.2.4.11, and 4.2.5.12.
SUWA	The Tumbleweed II EA fails to quantify or identify preexisting and ongoing impacts. Cumulative impacts analysis clearly requires that past and present actions be included in the analysis as well. The EA should include analysis and quantification of past and present impacts as well as cumulative future impacts, specifically it should also analyze the impacts from off-road vehicle use in the area of the project.	<p>Section 4.2.5 focuses on cumulative effects from past, present, and reasonably foreseeable impacts. This section specifically discusses cumulative impacts as the incremental effect to specific resources or issues that would occur under Alternatives A, C, or D, in conjunction with other cumulative actions. Section 4.2.5.1 provides discussion on past and present oil and gas activities in the Uinta Basin, both of which serve as introductions to the outlook for reasonably foreseeable development in the Tumbleweed Project Area and the greater Uinta Basin. Other activities discussed in the context of cumulative effects include livestock grazing, vegetative management through prescribed burning, and recreational projects. Sections 4.2.5.2 through 4.2.5.11 provide resource and issue-specific analyses of cumulative effects. The Cumulative Impact Analysis Area (CIAA) for each of these resources is defined within the respective section.</p> <p>As discussed in the Sections 3.2.10 and 4.2.1.7, OHV use within the Tumbleweed Project Area is “limited” to designated roads and trails. New and improved roads would increase opportunities for OHV use within the limited use area. All new or upgraded roads would terminate at proposed well pads. In addition, no roads would be constructed in canyons and no new loop routes would be created. Therefore, it is expected that increased OHV use in the Tumbleweed Project Area would be minimal.</p>
SUWA	The Tumbleweed II EA fails to comply with the NHPA	The BLM has complied with requirements under the NHPA. Section 3.2.8 of the

Commenter	Comment	BLM Response
	<p>because it fails to: (1) accurately identify the proposed project’s “area of potential of effects,” and (2) assess adverse effects to historic properties from the proposed project.</p>	<p>EA describes the affected environment for cultural resources within the Tumbleweed Project Area. As per regulations set forth under 36 CFR 800, the APE for the Tumbleweed II project is defined as the individual areas surveyed for Class III inventories. Section 3.2.8 of the EA has been modified to clarify this point. Sections 4.2.1.8, 4.2.2.8, 4.2.3.8, 4.2.4.8, and 4.2.5.9 of the EA evaluate and disclose the potential direct, indirect, and cumulative effects of the project for each of the alternatives. Based on Class III surveys conducted to date, and pre-disturbance Class III survey requirements outlined in Section 2.1.14.2, the BLM does not anticipate any adverse effects to historic properties from this project.</p> <p>As discussed in Table 5-1 of the EA, Section 106 consultation was formally initiated between the BLM and SHPO on December 3, 2008, and consultation for this project is considered to be closed for those portions of the project that have had a Class III survey completed (i.e., the proposed well pads, roads, and pipeline corridors for the TUF #18-9, #17-4, and #17-12). Each of these cultural reports included a recommendation of "no historic properties affected". Section 106 consultation will be re-initiated on a site-specific level as appropriate, following receipt of any site-specific applications and prior to any surface disturbance at new locations and if previously unknown sites are found during surface-disturbing activities. Cultural survey reports that have been completed to date for the Tumbleweed II Project Area are available in the project record for this EA.</p>
<p>SUWA</p>	<p>BLM is required to consult with the State Historic Preservation Office (SHPO) and Native American tribes regarding the potential effects of an undertaking such as the Proposed Action. See 36 C.F.R. §§ 800.3 and 800.4.</p> <p>In addition, should BLM determine that the Proposed Action will result in a “no historic properties affected” finding, the documentation supporting such a finding must be made available to the public for inspection. Id. § 800.4(d)(1). The BLM has not made any information regarding historic properties available for public inspection.</p>	<p>The BLM must then make a good faith effort to identify the historic properties which exist within the APE. Id. § 800.4(b). The BLM satisfied this requirement through completion a Class I literature reviews and requirements for Class III surveys of areas proposed for surface disturbance (some of which have already been completed) with subsequent requirements for avoidance if cultural sites or artifacts are discovered (see Section 2.1.14.2). As summarized in each of the cultural reports completed to date for the site-specific Class III surveys, a recommendation of "no historic properties affected" has been proposed for this project pursuant to Section 106, CFR 800.</p> <p>As stated in Table 5-1 of the EA, Section 106 consultation was formally initiated between the BLM and SHPO on December 3, 2008, and consultation for this project is considered to be closed for those portions of the project that have had a Class III survey completed (i.e., the proposed well pads, roads, and pipeline corridors for the TUF #18-9, #17-4, and #17-12), as each of these reports included a recommendation of "no historic properties affected". Section 106 consultation will</p>

Commenter	Comment	BLM Response
		<p>be re-initiated on a site-specific level as appropriate, following receipt of any site-specific applications and prior to any surface disturbance at new locations, and if previously unknown sites are found during surface-disturbing activities. Cultural survey reports that have been completed to date for the Tumbleweed II Project Area are available in the project record for this EA.</p> <p>As also stated in Table 5-1, Native American Tribal consultation was formally initiated by the BLM on December 8, 2008. The following tribes were contacted: White Mesa Ute, Ute Mountain Ute, Ute, Southern Ute, Hopi, Navajo Nation, Laguna Pueblo, Zia Pueblo, Santa Clara Pueblo, Eastern Shoshone, and Northwest Band of Shoshone. The Laguna Pueblo responded on December 18, 2008, and stated that no significant impacts would occur, but requested that they be notified if additional sites are found. No other responses were received. See Appendix F of the Tumbleweed II EA for consultation documentation from interested Native American Tribes. Consultation for this project is considered to be closed. Native American consultation will be re-initiated on a site-specific level as appropriate, following receipt of any site-specific applications and prior to any surface disturbance at new locations, and if previously unknown sites are found during surface-disturbing activities.</p>

5.3 EA PREPARATION

The list of BLM reviewers and non-BLM preparers for the Tumbleweed Exploratory Drilling Project EA is provided in **Table 5-3**.

Table 5-3. List of Preparers

BLM Preparers		
Name	Title	Responsibilities
Stephanie Howard	Environmental Coordinator	NEPA and Project Management, Proposed ACECs, Areas with Wilderness Characteristics, Recreation Resources
Brandon McDonald	Wildlife Biologist	Fish and Wildlife, Special Status Species
Clayton Newberry	Botanist	Vegetation
Steve Strong	Natural Resource Specialist	Soil Resources
Mark Stavropolous	Supervisory Range Specialist	Rangeland Management and Wild Horses
Blaine Phillips	Archaeologist	Cultural Resources
Matt Baker	Petroleum Engineer	Directional Drilling Review/Analysis
Non-BLM Preparers		
Sue Nall, USACE	Environmental Engineer	Water Resources
Diane Coltharp, Uintah County	Uintah County Public Lands Coordinator	County Transportation Plan
Bekee Megown, USFWS Drew Crane, USFWS	Wildlife Biologists	T&E Species and Section 7 Consultation under the ESA
Buys & Associates Preparers		
Name	Title	Responsibilities
Dawn Martin, Buys & Associates, Inc.	NEPA Project Manager	Project Management
Kirby Carroll, Buys & Associates, Inc.	Senior Ecologist	Wildlife, Vegetation, Rangeland Management, Special Status Species,
Dave Nicholson Buys & Associates, Inc.	Senior Geologist/Hydrologist	Soils, Water Resources, Paleontology
Jody Patterson Montgomery Archaeological Consultants	Archaeologist	Cultural Resources
Melissa Bridendall, Buys & Associates, Inc.	Biologist	Wildlife, Technical Review and Editing
Daniel Pring Buys & Associates, Inc.	Air Quality Specialist	Air Quality
Montgomery Archaeological Consultants	Cultural Resource Specialists	Cultural Resources
Nicole Peace Buys & Associates, Inc	GIS Specialist	GIS
Kendell Johnson Buys & Associates, Inc.	Word Processer	Copy Editing, Document Preparation

BLM IDT for the Tumbleweed EA is reflected in the IDT Checklist in **Appendix A**.