

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-UT-G010-2014-0081-EA
UTU 89280**

April 2014

**Ambre Energy
Seep Ridge Oil Shale Exploration Application**

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Ambre Energy Seep Ridge Oil Shale Exploration Application DOI-BLM-UT-G010-2014-0081-EA

CHAPTER 1 INTRODUCTION AND PURPOSE AND NEED

INTRODUCTION

Ambre Energy LLC, has proposed to drill six (6) temporary core holes to define the potentially minable oil shale resources in the Seep Ridge area of Uintah County, Utah on Bureau of Land Management (BLM) lands. The 2013 Record of Decision for the *Proposed Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah and Wyoming and Final Programmatic Environmental Impact Statement* determined which lands are open for leasing in the Seep Ridge area, and which are not. A portion of the proposed exploration permit, including one of the temporary core holes, overlapped areas that are not available for leasing, per the 2013 ROD. Because the lands are not available for leasing, the BLM removed these areas from the proposed action and placed them in an alternative considered but not analyzed in accordance with 43 CFR Part 3910.21. The remaining land and drill holes are retained in the Proposed Action, as described in Chapter 2. See the map in Appendix B.

This EA is a site-specific analysis of potential impacts that could result from the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions. *Significance* is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). A FONSI statement documents the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the Vernal Field Office Resource Management Plan (VFO RMP; BLM, 2008). If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The BLM's purpose for the project is to consider an exploration plan submitted by Ambre Energy LLC, which will allow them to determine the feasibility for the recovery of oil shale in the project area. The exploration will be done in a way that is consistent with state, local and tribal plans to the extent allowed under federal laws, regulations, policies, and plans.

CONFORMANCE WITH BLM LAND USE PLAN(S)

The modified proposed action, as explained in the introduction section, is in conformance with the Vernal Field Office (VFO) Record of Decision (ROD) for the Approved Resource Management Plan. Decision MIN-15 (pg. 99) states:

MIN-15 Management decisions regarding combined hydrocarbon areas/special tar sand areas are deferred to the PEIS that is being prepared.

In March 2013, a ROD was signed for the *Proposed Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah and Wyoming and Final Programmatic Environmental Impact Statement*. The oil shale decisions in the above ROD:

- Are subject to existing applicable Federal, State, and local laws and regulatory requirements, as well as established BLM policies;
- Identify the most geologically prospective oil shale areas within the planning unit;
- Designate 678,700 acres of land within the most geologically prospective oil shale area as available for application for leasing for commercial oil shale development in accordance with Federal, State, and local regulations and BLM policies, including all oil shale resources on split estate lands (Federal minerals, Tribal surface) within the Hill Creek Extension of the Uintah and Ouray Reservation, subject to further consultation with the Ute Indian Tribe;
- Allow only the use of surface mining technologies in areas in Utah and Wyoming where the overburden is 0 to 500 feet thick;
- Require additional NEPA analysis of the environmental, social, and economic effects of reasonably foreseeable development before the issuance of leases for commercial development;
- Require additional NEPA analysis of the site-specific environmental, social and economic effects of particular development proposals to consider site-specific and project-specific factors before the approval of project-specific development plans; and
- Require the BLM to consider and give priority to the use of land exchanges, where appropriate and feasible, to consolidate land ownership and mineral interests within the oil shale basins.

The exploration plan would be subject to the Vernal Field Office RMP ROD Appendix K which contains pertinent surface stipulations applicable to all surface-disturbing activities. The modified proposed action is consistent with all RMP decisions and their corresponding goals and objectives.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

The Proposed Action and No Action Alternative are consistent with federal, state and local laws, regulations and plans. All work in the proposed exploration plan is consistent with:

- 43 CFR 3930—Management of Oil Shale Exploration and Leases.

CHAPTER 2 DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This EA focuses on the Proposed and No Action Alternatives for the exploration plan submitted by Ambre Energy LLC. Only the Proposed and No Action Alternatives were analyzed since no unresolved conflicts have been identified. The No Action Alternative is considered and analyzed in order to provide a baseline for comparison of the impacts of the proposed action.

PROPOSED ACTION

Retained Lands Legal Description

T. 13 S., R. 21 E., SLM, Utah	W $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
Sec. 1, lots 1-4, S $\frac{1}{2}$ N $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$;	Sec. 21, NE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$,
Sec. 24, N $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$, S $\frac{1}{2}$ SE $\frac{1}{4}$;	N $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
Sec. 25, NE $\frac{1}{4}$ NE $\frac{1}{4}$.	Sec. 22, all;
	Sec. 23, all;
T. 13 S., R. 22 E., SLM, Utah	Sec. 24, N $\frac{1}{2}$, SW $\frac{1}{4}$;
Sec. 5, S $\frac{1}{2}$ SW $\frac{1}{4}$;	Sec. 25, N $\frac{1}{2}$ NW $\frac{1}{4}$;
Sec. 6, lots 4-7, SE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$;	Sec. 26, N $\frac{1}{2}$, SW $\frac{1}{4}$;
Sec. 7, lot 1, NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$;	Secs. 27-29, all;
Sec. 8, NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$;	Sec. 30, lot 1, NE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$,
Sec. 9, S $\frac{1}{2}$;	SE $\frac{1}{4}$ SE $\frac{1}{4}$;
Sec. 14, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$,	Sec. 33, all;
S $\frac{1}{2}$ SE $\frac{1}{4}$;	Sec. 34, N $\frac{1}{2}$, SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$;
Sec. 15, all;	Sec. 35, NW $\frac{1}{4}$ NW $\frac{1}{4}$.
Sec. 16, all;	
Sec. 17, NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$;	T. 14 S., R. 22 E., SLM, Utah
Sec. 19, lots 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$;	Sec. 3, lots 3, 4, SE $\frac{1}{4}$ NW $\frac{1}{4}$;
Sec. 20, W $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$,	

Containing 11,761.07 acres

Proposed Action Description

Ambre Energy LLC, proposes to drill five (5) temporary core holes to enable them to define the potentially minable oil shale resources on Bureau of Land Management (BLM) lands in the Seep Ridge area of Uintah County, Utah. See the Location Map (Appendix B). All core holes will be drilled along existing roads and two tracks in the project area.

If needed, existing roads will be upgraded using a blade as necessary to make each road drivable. No disturbance for upgraded roads would occur outside the road boundary.

Each core hole will be drilled along existing roads and two tracks, so that no new roads will be created during drilling activities. Each drilling site will be no larger than 70' x 100' in size (0.16 acre per site). If needed, any brush will be grubbed using a brush-hog.

The five (5) core holes will be located as shown in the following table and the map in Appendix B:

Drill Hole	Easting	Northing	Elevation (feet amsl)	Mahogany Zone Elevation (feet amsl)	Projected Total Depth (feet)
JKS-002	635269	4393280	6,630	6,230	450
JKS-003	632366	4392870	6,380	6,240	200
JKS-004	627690	4391708	6,420	6,305	165
JKS-005	634100	4390720	6,620	6,470	200
JKS-006	633360	4388098	6,830	6,700	200

The drilling will be conducted using a long-year core-drilling rig with split tube core barrels. The drill rig will be truck mounted on one vehicle. All core holes will be drilled with a 5” up to 6¼” drill bit. The holes will be cored from the surface to the total depth.

If needed a small (8’ x 6’ x 4’deep) reserve pit will be dug with a backhoe during drilling activities. All materials from the reserve pit will be piled adjacent to the pit and used to fill the pit upon completion of all operations. Topsoil will be removed separately and used to cover the disturbed area when the site has been reclaimed. Disturbed areas will be scarified and reseeded with a seed mixture, which has been approved by the BLM. Once all drilling activities have been completed, each drill hole will be properly abandoned using bentonite or a plugging gel from the total depth up to five (5) feet from the surface. A cement plug will be placed in the top five (5) feet of each drill hole.

No drill holes will be converted into monitoring wells during this scope of work.

The estimated time for drilling and reclamation activities to take place is ten (10) days for all five (5) sites.

Up to two truckloads, or about 6,000 gallons (less than 0.02 acre-feet), of water would be utilized for dust control during the project. The water would be obtained through a commercial water supplier; however the source of the water is anticipated to be the Green River. It has not yet been determined which water supplier will be utilized.

All work conducted during the exploration activities by Ambre Energy will comply with Federal Oil Shale performance standards (43 CFR 3930.10) and with the Vernal Field Office 2008 approved Resource Management Plan.

NO ACTION

The No Action Alternative would be to deny the proposed exploration plan submitted by Ambre Energy, LLC. With this alternative the applicant would not be allowed to drill the five (5) proposed exploratory wells.

ALTERNATIVES CONSIDERED BUT DISMISSED

A portion of the exploration permit is located outside the area identified as open for lease by the March 2013 ROD for the *Proposed Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah and Wyoming and Final Programmatic Environmental Impact Statement*. As a result, this portion of the permit has been dropped from detailed analysis.

Rejected Lands Legal Description

T. 13 S., R. 21 E., SLM, Utah
 Sec. 1, S¹/₂S¹/₂;
 Sec. 12, NE¹/₄;
 Sec. 24, S¹/₂SW¹/₄;
 Sec. 25, NW¹/₄NE¹/₄, S¹/₂NE¹/₄, NW¹/₄,
 S¹/₂.

T. 13 S., R. 22 E., SLM, Utah
 Sec. 5, N¹/₂SW¹/₄;
 Sec. 6, lot 3;
 Sec. 7, lot 2, SE¹/₄;
 Sec. 8, NE¹/₄SW¹/₄, S¹/₂SW¹/₄;
 Sec. 14, N¹/₂N¹/₂, SW¹/₄NE¹/₄, S¹/₂NW¹/₄,
 N¹/₂SW¹/₄, SE¹/₄SW¹/₄, NW¹/₄SE¹/₄;
 Sec. 17, W¹/₂NW¹/₄,
 Sec. 18, NE¹/₄;
 Sec. 20, NE¹/₄NE¹/₄, NE¹/₄SE¹/₄;

Sec. 21, W¹/₂NW¹/₄, SE¹/₄NW¹/₄, N¹/₂SW¹/₄,
 SE¹/₄SW¹/₄, SW¹/₄SE¹/₄;
 Sec. 25, S¹/₂NW¹/₄;
 Sec. 30, lots 2-4, SE¹/₄NW¹/₄, E¹/₂SW¹/₄,
 SW¹/₄SE¹/₄;
 Sec. 31, all;
 Sec. 34, E¹/₂SE¹/₄;
 Sec. 35, E¹/₂W¹/₂, SW¹/₄NW¹/₄, W¹/₂SW¹/₄.

T. 14 S., R. 22 E., SLM, Utah
 Sec. 3, lots 1,2, S¹/₂NE¹/₄, SW¹/₄NW¹/₄,
 S¹/₂;
 Sec. 4, all;
 Sec. 5, all;
 Secs. 8-11, all;

Containing 8,138.32 acres

Drill Hole	Easting	Northing	Elevation (feet amsl)	Mahogany Zone Elevation (feet amsl)	Projected Total Depth (feet)
JKS-001	630098	4397180	6,410	5,860	600

CHAPTER 3 AFFECTED ENVIRONMENT

INTRODUCTION AND GENERAL SETTING

The affected environment was considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Checklist (Appendix A). The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis, are described in Chapter 3 and impacts on these resources are analyzed in Chapter 4.

BLM SENSITIVE PLANT SPECIES

Barneby's Catseye (Cryptantha barnebyi)

Barneby's catseye is a Utah BLM sensitive plant species, endemic to the Uinta Basin. This member of the borage family is a perennial herb growing 15 to 35 cm tall, covered in yellow-bristly hairs. Flowers develop from May to June. The species grows on white shale knolls of the Green River formation in association with shadscale, rabbitbrush, sagebrush, and pinyon-juniper plant communities at 5,000 to 7,900 feet elevation. Habitat for this species occurs within the project area.

Graham's Catseye (Cryptantha grahamii)

Graham's catseye is a Utah BLM sensitive plant species, endemic to the Uinta Basin. This member of the borage family is a perennial herb growing 15 to 25 cm tall. White flowers develop from May to June. The species grows on shale outcrops of the Green River formation in association with mixed desert shrub, sagebrush, pinyon-juniper, and mountain brush communities at 5,000 to 7,400 feet in elevation. Habitat for this species occurs within the project area.

Spanish Bayonet (Yucca sterilis)

Spanish bayonet (*Yucca sterilis*) is a Utah BLM sensitive plant species, apparently endemic to the Uinta Basin. This member of the asparagus family (formally a member of the agave family) is perennial subshrub that arises from a deep-seated horizontal rhizome. The plant produces white flowers that are not known to produce viable seed. Known occurrences of the species are found growing in sandy soils. However, this species is new to the UT BLM sensitive plant species list and as such has not been extensively surveyed for nor is the range and exact habitat requirements fully understood. Therefore, any sandy soils within the proposed project area are assumed to be potential habitat for the species.

INVASIVE PLANTS/NOXIOUS WEEDS, SOILS, AND VEGETATION

The following weeds have been documented within the same or adjacent subwatershed as the project area: Russian knapweed (*Acroptilon repens*), whitetop (*Cardaria draba*), field bindweed (*Convolvulus arvensis*), black henbane (*Hyoscyamus niger*), broadleaved pepperweed (*Lepidium latifolium*), salt cedar (*Tamarix ramosissima*), and Canada thistle. Although the invasive species cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola iberica*), and halogeton (*Halogeton glomeratus*) are not documented within the project area, they are common across the VFO and are likely to occur in the project area.

Soils in the project area are extremely variable and include loam, sandy loam, clay loam, silt loam, and stony and gravelly loam, with rocky outcrops and badlands. These soils tend to be shallow and well-drained, but can be up to 60 inches deep in places.

The vegetation in the project area includes a wide variety of plant species, including Utah juniper (*Juniperus osteosperma*), two-needle piñon (*Pinus edulis*), black sagebrush (*Artemisia nova*), Wyoming big sagebrush (*Artemisia wyomingensis*), rabbitbrush (*Chrysothamnus* spp.), globemallow (*Sphaeralcea* spp.), buckwheat (*Eriogonum* spp.), shadscale (*Atriplex confertifolia*), horsebrush (*Tetradymia* spp.), bottlebrush squirreltail (*Elymus elymoides*), needle and thread grass (*Hesperostipa comata*), birchleaf mountain mahogany (*Cercocarpus montanus*), Indian ricegrass (*Achnatherum hymenoides*), saline wildrye (*Leymus salinus*), Mormon tea (*Ephedra* spp.), bluebunch wheatgrass (*Pseudoroegneria spicata*), fourwing saltbush (*Atriplex canescens*), western wheatgrass (*Pascopyrum smithii*), winterfat (*Krascheninnikovia lanata*), and galleta grass (*Pleuraphis jamesii*).

THREATENED, ENDANGERED, PROPOSED, OR CANDIDATE PLANT SPECIES

Graham's Beardtongue (Penstemon grahamii)

Graham's beardtongue is currently proposed for federal listing as a threatened species and is endemic to the Uinta Basin in northeast Utah and adjacent western Colorado. It is a perennial herb and member of the plantain family (formerly a member of the figwort family). Graham's beardtongue consists of one to several shoots growing to 20 centimeters tall from a tap-rooted caudex. The species produces pinkish or lavender flowers from mid-May to mid-June.

Graham's beardtongue grows on weathered exposures of oil-shale associated with the Green River Formation between 4,600 and 6,800 feet elevation. Associated vegetation communities include: shadscale (*Atriplex confertifolia*), buckwheat (*Eriogonum* spp.), horsebrush (*Tetradymia nuttallii*), salina wildrye (*Leymus salinus*), and piñon-juniper communities. The project area plus a 300-foot buffer was surveyed in May 2013. Based on these surveys and existing GIS data, approximately 14 Graham's beardtongue individuals were identified within 300 feet of one of the proposed drill holes (JKS-002). Two of the proposed drill holes (JKS-002 and 003) occur within proposed critical habitat along existing roads.

White River Beardtongue (Penstemon scariosus var. albifluvis)

White River beardtongue is currently proposed for federal listing as a threatened species and is endemic to the Uinta Basin in northeast Utah and adjacent western Colorado. This member of the plantain family (formerly a member of the figwort family) is a perennial herb with a woody caudex and several clusters of 15 to 50 centimeter tall, upright stems that produces light blue to blue-lavender bilaterally symmetrical flowers from May to early June.

White River beardtongue grows on sparsely vegetated pale tan, shale slopes of the Green River formation 5,000 and 6,800 feet elevation. Associated vegetation communities include shadscale, rabbitbrush (*Chrysothamnus* spp.), Indian ricegrass (*Achnatherum hymenoides*), saline wildrye, sagebrush (*Artemisia* spp.), Barneby's thistle (*Cirsium barnebyi*), and pinyon-juniper communities. The project area plus a 300-foot buffer was surveyed in May 2013, and no White River beardtongue individuals were identified, nor are any of the drill holes within proposed critical habitat.

CHAPTER 4 ENVIRONMENTAL IMPACTS

DIRECT AND INDIRECT IMPACTS

Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. This section analyzes the impacts of the proposed action to those potentially impacted resources described in the affected environment (Chapter 3).

PROPOSED ACTION

BLM SENSITIVE PLANT SPECIES

Barneby's Catseye (Cryptantha barnebyi), Graham's Catseye (C. grahamii), and Spanish Bayonet (Yucca sterilis)

There are no known individuals within the proposed surface disturbance area, although surveys have not been conducted for these species. Because of the minimal disturbance associated with the Proposed Action, we expect low potential for direct physical damage to Barneby's catseye, Graham's catseye, and Spanish bayonet individuals as a result of the Proposed Action.

Possible dispersed direct and indirect negative impacts which may result from implementation of the Proposed Action include: loss of suitable habitat, loss of habitat and forage opportunities for pollinators of the species, habitat modification by invasive weed species which may compete with individuals, accidental spray or drift of herbicides used during invasive plant control, and the deposition of fugitive dust from construction activities and vehicle traffic on unpaved roads.

Due to the low potential for direct impacts and indirect negative impacts, the Proposed Action ***"may affect, but is not likely to lead to the federal listing"*** of Barneby's catseye, Graham's catseye, or Spanish bayonet.

INVASIVE PLANTS/NOXIOUS WEEDS, SOILS, AND VEGETATION

The proposed action would disturb approximately 0.16 acres per site (a total of 0.8 acres) of soils and vegetation. Disturbed areas would be reclaimed after the project is completed. If reclamation efforts are successful, direct long-term impacts to vegetation would not occur. If reclamation efforts are not successful, the entire area could remain disturbed for the long term.

Direct impacts to soils include mixing of soil horizons, soil compaction, short-term loss of topsoil and site productivity, and loss of soil/topsoil through wind and water erosion. Loss of soil/topsoil in disturbed areas would reduce the success of seeded native species due to increased competition by annual weeds. Annual weeds are adapted to disturbed conditions and out-compete native perennial species for soil moisture and nutrients.

Additional direct impacts to vegetation are primarily associated with clearing of vegetation during the project. Indirect impacts to vegetation resources include the invasion and establishment of introduced, undesired plant species. The severity of these invasions would depend on the success of reclamation and revegetation, and the degree and success of noxious weed control efforts.

The area's poor soil reclamation potential has made successful reclamation efforts challenging. BLM field inspections indicate that what was previously considered short-term impacts may be more accurately portrayed as long-term impacts.

Impacts to soils and vegetation would be partially mitigated by implementing the following mitigation measures:

Mitigation Measures:

- The project reclamation would be conducted in conformance with the Green River District Reclamation Policy.
- The following measures from the Vernal Field Office Weed Policy would apply to this project.
 - A pre-disturbance noxious weed inventory shall be conducted on all surface disturbing projects to determine the presence of noxious weeds prior to beginning the project, and to determine whether treatment is needed prior to disturbance (see the VFO Surface Disturbance Weed Policy, Table 1 for the Utah Noxious Weed List). If noxious weeds are found, a report including: 1) location (GPS if possible); 2) species; 3) canopy cover or number of plants; 4) and size of infestation (estimate of square feet or acres) shall be provided to the BLM Weed Coordinator prior to disturbance occurring. Information can be recorded on a data sheet or in a GPS using a data dictionary. See the VFO Surface Disturbance Weed Policy, Appendix E for a sample data sheet and data dictionary elements. (PM, PAW)
 - All vehicles and equipment shall be cleaned either through power-washing or other approved method prior to entering the project area from outside the Uinta Basin.
 - All vehicles, and equipment shall be power-washed after driving through a noxious weed infestation.
 - Certified noxious weed free seed and mulch shall be used in all reclamation projects (archeological, fire, minerals, recreation, range, etc).
 - All projects involving surface disturbance shall include a weed management plan. The weed management plan may be integrated into an overall reclamation plan if desired.
 - All herbicide treatments shall be applied by a Utah-licensed Pesticide Applicator. If licensed in another state, a reciprocal license may be obtained through the Utah Department of Agriculture website.
 - Weeds shall be controlled within the disturbance areas, including borrow areas along roads. Reseed if feasible to promote competition for weeds.
 - All disturbance areas shall be monitored for noxious weeds annually, for a minimum of three growing seasons following completion of project or until desirable vegetation is established. Monitoring reports should include a shapefile

(compatible with ArcMap) of all noxious weed species found. When possible, data shall include cover, size of infestation, and treatment applied.

- The use of mechanical dragging (before seed set), manual control, and biological control shall be considered before the use of chemicals. Dragging shall not occur after seed set.
- All surface disturbing projects shall have an approved Pesticide Use Proposal (PUP) prior to chemical application on BLM lands. See Appendix B of the VFO Surface Disturbance Weed Policy for a PUP form and instructions. Note: A PUP can take months to be approved, so plan accordingly.

THREATENED, ENDANGERED, PROPOSED, OR CANDIDATE PLANT SPECIES

Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus var. albifluvis)

There are approximately 14 known Graham's beardtongue individuals within 300 feet of the proposed surface disturbance area for well JKS-002. The closest documented plant is 205 feet away. Because the proposed action will occur next to an existing road and will be limited to a 70 x 100 foot disturbance area, we do not expect direct loss to individual Graham's beardtongues, although indirect impacts will occur. In addition, 0.32 acres of soil disturbance would occur within proposed critical habitat for Graham's beardtongue. Each proposed drill hole would disturb up to 0.16 acre of the soil surface immediately adjacent to an existing road. The close proximity of this proposed drill hole to an existing road and the minimal amount of surface disturbance will minimize impacts to proposed critical habitat. In addition, following the Green River Reclamation guidelines and VFO Surface Disturbing weed policy as identified in the mitigation measures will ensure that the primary constituent elements for this unit of critical habitat are retained.

No White River beardtongue individuals or proposed critical habitat were located within 300 feet of the proposed surface disturbance area, so we expect no direct impacts to White River beardtongue individuals or proposed critical habitat as a result of the Proposed Action.

Possible dispersed direct and indirect negative impacts to both species which may result from implementation of the proposed action include: loss of suitable habitat, loss of habitat and forage opportunities for pollinators of the species, habitat modification by invasive weed species which may compete with individuals, accidental spray or drift of herbicides used during invasive plant control, and the deposition of fugitive dust from construction activities and vehicle traffic on unpaved roads.

Because of these indirect negative impacts, the proposed action is “**not likely to jeopardize the continued existence of or destroy or adversely modify the proposed critical habitat**” of Graham's and White River beardtongues. Prior to the signing of this document or approval of the associated ROW, section 7 conference with the USFWS will be completed.

Mitigation Measures:

- Any surface disturbing activities for drill hole JKS-002 (including brush-hogging, digging a reserve pit, drilling, or reclamation) will not occur during flowering season (typically two weeks in May or June) for Graham's beardtongue, to be confirmed by the BLM botanist.
- Any construction or reclamation activities will not create disturbance outside of the boundary of the 70 x 100-foot drill hole area. This will be confirmed by the BLM botanist during or after construction and reclamation activities.

NO ACTION

BLM SENSITIVE PLANT SPECIES

Barneby's Catseye (Cryptantha barnebyi), Graham's Catseye (C. grahamii), and Spanish Bayonet (Yucca sterilis)

Under the No Action Alternative, permission to drill the five core holes would not be granted, so there would be no direct disturbance or indirect effects to Barneby's catseye, Graham's catseye, or Spanish bayonet or their associated habitats from surface-disturbing activities associated with the proposed project.

INVASIVE PLANTS/NOXIOUS WEEDS, SOILS, AND VEGETATION

Under the No Action Alternative, permission to drill the five core holes would not be granted, so invasive plants/noxious weeds, soils and vegetation would not be impacted.

THREATENED, ENDANGERED, PROPOSED, OR CANDIDATE PLANT SPECIES

Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus var. albifluvis)

Under the No Action Alternative, permission to drill the five core holes would not be granted, so there would be no direct disturbance or indirect effects to Graham's or White River beardtongues or their proposed critical habitat from surface-disturbing activities associated with the proposed project. Current land use trends in the area would continue, including increased industrial development, increased off-highway vehicles (OHV) traffic, and increased recreation use.

CUMULATIVE IMPACTS

A cumulative impact is defined in CEQ regulations (40 CFR §1508.7) as "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Cumulative impacts can result from individually minor but collectively major actions taking place over a period of time. The cumulative impact area varies by resource.

BLM SENSITIVE PLANT SPECIES

Barneby’s Catseye (Cryptantha barnebyi) and Graham’s Catseye (C. grahamii)

The CIAA for Barneby’s and Graham’s catseye is the outcrops of oilshale. This area covers approximately 1,146,390 acres on BLM, Ute tribal, state of Utah, and privately held lands. Within the CIAA, there are approximately 2,096 miles of roads. Past, present and reasonably foreseeable disturbance from oil and gas will affect 3,430 acres (0.3% of the CIAA), as shown in **Table 1**. Cumulative impacts include dust impacts to plants, habitat fragmentation, and plant and pollinator habitat destruction. Surface disturbance is a good indicator of the extent of these cumulative impacts.

Table 1. Cumulative Impacts Analysis for BLM sensitive plant species.				
	Project Area (acres)	Surface Disturbance Analyzed (acres)	Project Area within the CIAA (acres)	Surface Disturbance within the CIAA¹ (acres)
Ongoing Field Development				
Gasco EIS	236,165	3,604	41,730	637
West Tavaputs EIS	137,930	1603	38,575	448
Tumbleweed II EA	7,283	37	5,475	28
Rye Patch EA	5,534	40	3,117	23
Past Developments and Current and Future Developments Not Covered by a Field Development NEPA Document				
214 abandoned wells ^{2,3}	NA ⁴	NA	NA	1,064
286 existing wells ^{2,3}	NA	NA	NA	1,090
30 proposed wells ^{2,3}	NA	NA	NA	122
Field Development Proposals				
Atchee EA	11,388	281.5	732	18
Total CIAA disturbance from oil and gas				
	--	--	--	3,430 (0.3%)
Current Project				
Proposed Action	NA	NA	NA	0.32 (<0.1%)
No Action				
Total CIAA disturbance from energy development				3,431 (0.3%)
¹ Assumes surface disturbance was authorized evenly across the analysis area of the document. ² Uses the assumption contained within the Greater Uinta Basin Cumulative Impacts Technical Support Document. ³ As of 12/20/2013 ⁴ NA = not applicable				

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 1,146,390 acres. Additionally, it is highly unlikely that the range of the species is as large as that associated with the oilshale outcrops in Utah. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat. The Proposed Action would add less than 1 acre of new surface disturbance. The No Action alternative would not result in an additional accumulation of impacts.

Spanish Bayonet (Yucca sterilis)

The CIAA for Spanish bayonet is the Vernal Planning Area. Existing data reveals that the species prefers to grow in soils with a high sand content. Currently, populations are known to occur within Pariette Draw, the Horseshoe Bend Area, north of Roosevelt, and along Willow Creek. However, due to the recent addition of this species to the Utah BLM sensitive plant species list, it is not known if this is representative of the species range, nor are the habitat requirements understood beyond the need for sandy soils.

Past direct and indirect impacts to the species from development, grazing, and recreation have included the loss of individuals and suitable habitat to development from widespread energy development and other land use conversion; increased competition with non-native plant species introduced during the course of development, grazing, or recreation; accidental spray or drift of herbicides used during invasive plant control; and altered photosynthesis, respiration, and transpiration due to increased fugitive dust resulting from the surface disturbance and project related traffic. The Proposed Action would add less than 1 acre of new surface disturbance. The No Action alternative would not result in an additional accumulation of impacts.

INVASIVE PLANTS/NOXIOUS WEEDS, SOILS, AND VEGETATION

The CIAA for Invasive Plants/Noxious Weeds, Soils, and Vegetation are the Upper Sand Wash and Sunday School Canyon subwatersheds, encompassing a total of 43,632 acres. Cumulative impacts include soil disruption, dust impacts, plant and pollinator habitat destruction, and weed invasion. Surface disturbance is a good indicator of the extent of these cumulative impacts.

Within the CIAA, there is one active approved field development NEPA document within the CIAA, Kerr-McGee's Greater Natural Buttes EIS (16,462 acres of the 162,911 acre project area is in the CIAA). A total of 8,147 acres of surface disturbance was authorized across the analysis area of this document. If the disturbance is relatively uniform throughout the project area, then approximately 823 acres of disturbance will occur within the CIAA.

Within the CIAA there also are oil and natural gas wells that do not tier to this NEPA document and are located within previously undeveloped areas. As of January 3, 2014, there are 5 abandoned oil and gas locations outside of the scope of the field development document. Using the assumption contained within the Greater Uinta Basin Cumulative Impacts Technical Support Document, 26 acres of the CIAA were disturbed some point in the past and are in various stages of reclamation (0.05% of the CIAA). There are currently 25 well pads that serve as platforms for actively producing wells not permitted under this document. Using the above assumption, this

has resulted in 130 acres of surface disturbance (0.3% of the CIAA). Finally, 4 wells are currently proposed that do not tier to this document that will result in 20.8 acres of surface disturbance (0.05% of the CIAA).

Within the CIAA, there are approximately 134 miles of roads. There are no currently proposed field developments within the CIAA. Thus, in total about 1,000 acres (2.3% of the CIAA) have been or will be disturbed within the CIAA due to energy development activities. The Proposed Action would add 0.8 acres of new surface disturbance. The No Action alternative would not result in an additional accumulation of impacts.

THREATENED, ENDANGERED, PROPOSED, OR CANDIDATE PLANT SPECIES

Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus var. albifluvis)

The CIAA for Graham's and White River beardtongues is the outcrops of oil shale. This area covers approximately 1,146,390 acres on BLM, Ute tribal, state of Utah, and privately held lands. Within the CIAA, there are approximately 2,096 miles of roads. Past, present and reasonably foreseeable disturbance from oil and gas will affect 3,430 acres (0.3% of the CIAA), as shown in Table 1 above. Cumulative impacts include dust impacts to plants, habitat fragmentation, and plant and pollinator habitat destruction. Surface disturbance is a good indicator of the extent of these cumulative impacts.

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 1,146,390 acres. Additionally, it is highly unlikely that the range of the species is as large as that associated with the oilshale outcrops in Utah. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat. The Proposed Action would add less than 1 acre of new surface disturbance. The No Action alternative would not result in an additional accumulation of impacts.

CHAPTER 5 PERSONS, GROUPS, AND AGENCIES CONSULTED

CONSULTATION AND COORDINATION

Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Fish and Wildlife Service	Endangered Species Act	Because of the proximity of Graham’s beardtongue individuals to one drill hole and location of three drill holes within proposed critical habitat, we are conferencing with the USFWS at a formal level so that the final biological opinion will apply to this project regardless of the future listing status of Graham’s beardtongue.
Utah State Historic Preservation Office	National Historic Preservation Act	The five proposed drill holes have been surveyed, and all have SHPO concurrence letters received 2-15-2013.
Utah Division of Wildlife Resources	Washington Office Instruction Memorandum 2012-043	The proposed site JKS-002 is located on the outer fringes of greater sage-grouse Preliminary Priority Habitat. The BLM and Utah Division of Wildlife Resources have been in cooperation (02/21/2013 email/ B. Maxfield (UDWR)). Both agencies agree no mitigation/stipulations need be required given the amount of disturbance proposed. The project is therefore in conformance with IM 2012-043.

LIST OF PREPARERS

BLM staff specialists who determined the affected resources for this document are listed in Appendix A. Those who contributed further analysis in the body of this EA are listed below.

Table 5.2. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Andrew McCormick	Geologist	Team Lead
Stephanie Howard	NEPA Coordinator	Team Lead, NEPA Compliance
Jessica Brunson	Botanist	Vegetation, Weeds, Special Status Plants
Brandon McDonald	Biologist	Special Status and Endangered Fish

APPENDIX A

Interdisciplinary Team Checklist

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: Ambre Energy Seep Ridge Oil Shale Exploration Project

NEPA Log Number: DOI-BLM-UT-G010-2014-0081-EA

File/Serial Number: UTU-89280

Project Leader: Andrew McCormick

DETERMINATION OF STAFF: *(Choose one of the following abbreviated options for the left column)*

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
NI	Air Quality & Greenhouse Gas Emissions	Due to the short duration of activities at each exploratory hole, the small amount of equipment necessary, and the minimal anticipated surface disturbance, impacts to air quality and greenhouse gases are expected to be temporary and indistinguishable from background values by both models and monitors.	Stephanie Howard	4/30/2013
NP	BLM Natural Areas	Part of the Sunday School Canyon inventory unit. No Wilderness Character was found during inventory.	Jason West	10/12/2012
NP	Cultural: Archaeological Resources	The five proposed drill holes have been surveyed, and all have SHPO concurrence letters received 2-15-2013.	Jimmie McKenzie	2/15/2013
NP	Cultural: Native American Religious Concerns	No known TCPs are located at drill hole locations and Native American access is not restricted.	Jimmie McKenzie	2/15/2013
NP	Designated Areas: Areas of Critical Environmental Concern	None present as per Vernal RMP and GIS layer review.	Jason West	10/12/2012
NP	Designated Areas: Wild and Scenic Rivers	None present as per Vernal RMP and GIS layer review.	Jason West	10/12/2012
NP	Designated Areas: Wilderness Study Areas	None present as per Vernal RMP and GIS layer review.	Jason West	10/12/2012
NP	Environmental Justice	No environmental justice communities are present or would be disproportionately adversely impacted by the proposed exploratory holes.	Stephanie Howard	4/30/2013
NP	Farmlands (prime/unique)	No prime or unique farmlands as designated by the NRCS based on the Uintah County Soil Survey are present in the project area.	Stephanie Howard	4/30/2013
NI	Fuels/Fire Management	There are no planned fuels projects in the immediate area. Disturbance in this vegetation type could increase the amount of invasive plants, specifically Bromus tectorum. The increase of Bromus tectorum could lead to a change of ecosystem dynamics and an increase in fire frequency. Applying the Green River District Reclamation Guidelines should prevent additional hazardous fuels.	Blaine Tarbell	5/28/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Geology/Minerals/Energy Production	Proposed action would not inhibit further development of future oil and gas activities.	Andy McCormick	10/12/2012
PI	Invasive Plants/Noxious Weeds, Soils & Vegetation	IP/NW: Up to 0.8 acres of native vegetation will be disturbed at the test well drilling sites, and additional road grading may occur as a result of the proposed project, providing suitable habitat for the establishment of invasive plants and noxious weeds. Soils: Soils will be disturbed on approximately 0.8 acres during the construction process. This soil disturbance could lead to an increase in soil erosion in the area. Disturbed areas will be reseeded. Veg: Up to 0.8 acres of native vegetation will be disturbed as a result of the proposed project.	Jessi Brunson	1/28/14
NI	Lands/Access	Two Uintah County road ROWs and two pipeline ROWs are encountered by the proposed drill holes JKS 002 and JKS 006. Uintah County, QEP Field Services and Red Rock Gathering should be notified of the proposed project.	Katie White Bull	04/30/2013
NP	Lands with Wilderness Characteristics (LWC)	See BLM Natural Areas Rationale	Jason West	10/12/2012
NI	Livestock Grazing & Rangeland Health Standards	Due to the minimal surface disturbance and short duration of the exploratory activity; there are no anticipated impacts to livestock grazing and/or rangeland health standards. However, if the exploratory well activity leads to further shale development, more in-depth analysis would be required to assess impacts at that time.	Dusty Carpenter	Updated 01/2014
NP	Paleontology	No paleo localities are located in these areas. Middle Parachute Creek member of the Green River Formation at surface.	Betty Gamber	10/12/2012
PI	Plants: BLM Sensitive	The following UT BLM sensitive plant species are present or expected within the same or an adjacent subwatershed as the proposed project: Barneby's catseye (<i>Cryptantha barnebyi</i>), Graham's catseye (<i>Cryptantha grahamii</i>), and <i>Yucca sterilis</i> . <ul style="list-style-type: none"> The proposed project is located within potential and suitable habitat for Barneby's catseye. No populations were identified. The proposed project is located within potential and suitable habitat for Graham's catseye. No populations were identified. Sandy soil in the vicinity of the proposed project may provide suitable habitat for <i>Yucca sterilis</i>. However, as no populations were identified and given the exclusively clonal nature of the species, the potential for future establishment is negligible. 	Aaron Roe and Jessi Brunson	9/17/2013
PI	Plants: Threatened, Endangered, Proposed, or Candidate	The following federally listed, proposed, or candidate plant species are present or expected within the same or an adjacent subwatershed as the proposed project: Graham's penstemon (<i>Penstemon grahamii</i>) and White River penstemon (<i>Penstemon scariosus</i> var. <i>albifluvis</i>).	Aaron Roe and Jessi Brunson	9/17/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<ul style="list-style-type: none"> The proposed project is located within potential and suitable habitat for Graham's penstemon. Plants were identified within 300 feet of the project area. The proposed project is located within potential and suitable habitat for White River penstemon. No populations were identified. 		
NI	Plants: Wetland/Riparian	The Sunday School Canyon riparian area exists in the area of the proposed action. As long as the amount of disturbance is kept to a minimum, and erosion levels remain the same, no additional analysis is necessary.	James Hereford II	7/24/2013
NI	Recreation	Area is limited to designated routes for OHV use. Some hunting occurs within the project area, however based on the scope of the project it is not anticipated that hunting will be impacted based on the number of available acres open to hunting, and no direct or indirect loss of big game can be associated with the project (see wildlife rationale).	Jason West	10/12/2012
NI	Socio-Economics	Due to the small size of this project in relation to ongoing development activities in the Uinta Basin, no distinguishable impact to the social or economic status of Uintah County is anticipated to occur.	Stephanie Howard	4/30/2013
NI	Visual Resources	VRM Class III identified for project, best management practices will be followed. Class III objectives state, "The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape."	Jason West	10/12/2012
NI	Wastes (hazardous/solid)	<p>Hazardous Waste: No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the project.</p> <p>Solid Wastes: Trash would be confined in a covered container and hauled to an approved landfill. Burning of waste or oil would not be done. Human waste would be contained and be disposed of at an approved sewage treatment facility.</p>	Andrew McCormick	5/1/2013
NI	Water: Floodplains	Although a known active or inactive 100 yr. floodplain is within the project area, because the proposed drilling locations are not directly in the floodplain, the proposed action will not impact the flood plain and at this time does not require detailed analysis. However additional analysis will need to take place in order to quantify the potential impacts from full scale oil shale development: mainly, how increases in erosion and potential increases in water chemistry affect floodplain environments.	Andrew McCormick Updated: James Hereford II	5/1/2013 7/24/2013
NI	Water: Groundwater Quality	Groundwater may occur at 250ft below ground surface or deeper. If groundwater is encountered during drilling, the groundwater must be sampled and	Betty Gamber	7/19/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		tested. BLM should get a copy of the analysis.		
NI	Water: Hydrologic Conditions (storm water)	The proposed exploration drilling will not alter the topography of the area. It is not expected that surface water or storm water would be created to the level of concern for Clean Water Act Section 402 (storm water) review. However additional analysis will need to take place to understand how those potential changes in topography from development could alter the hydrologic conditions in the area.	Andrew McCormick Updated: James Hereford II	5/1/2013 7/24/2013
NI	Water: Surface Water Quality	Surface waters: The only potential for the proposed project to negatively impact water quality would be increased potential for chemical spills or increased disturbance to surface soils, which could cause soil erosion. This would not be expected to occur in a way that would be negative to surface waters. The site is in an upland area and more than 1/2 mile from perennial waters. However additional analysis will need to take place to understand how those potential changes in erosion and water chemistry from development could alter the surface water quality in the area.	Andrew McCormick Updated: James Hereford II	5/1/2013 7/24/2013
NI	Water: Waters of the U.S.	Waters of the U.S. are not present per USGS topographic map and GIS data review. The proposed project would not impact any drainage where a high water mark can be distinguished, drainages which regularly run water, or wetlands/riparian areas, onsite. However, waters of the U.S do occur down gradient since the proposed action takes place in the Lower White River hydrologic unit boundary. Additional analysis will need to take place for any development activities to better understand the potential affects to this watershed and how those could affect waters of the U.S.	Andrew McCormick Updated: James Hereford II	5/1/2013 7/24/2013
NI	Wild Horses	There are no BLM managed horses within the project area; however occasional "out of HA" horses from the Hillcreek HA are observed within the project area.	Dusty Carpenter	Updated 01/2014
NI	Wildlife: Migratory Birds (including raptors)	No known raptor nests occur within 1/2 mile of the project area; however, migratory birds could be present during project activities. Project activities are not anticipated to impact migratory birds as the project is located immediately adjacent to existing roads (County Class 1-B & D Roads) where nuptial activity would not likely occur. The proposed project would have minimal disturbance as the project would last 10 days total for all sites and anticipated ground disturbance would be 0.16 acre per site (total 0.8 acre). Successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be temporary. Overall, given the size of the project and the cumulative amount of impacts that may be attributed to project activities these impacts are not seen to contribute to a loss of individuals or populations to the extent further analysis is needed.	Brandon McDonald	02/20/2013
NI	Wildlife: Non-USFWS Designated	The RMP/ROD identifies the entire project area as being within crucial deer and elk winter range, which has a timing restriction from December 1 – April 30. If project activities were to occur during these time	Brandon McDonald	02/20/2013

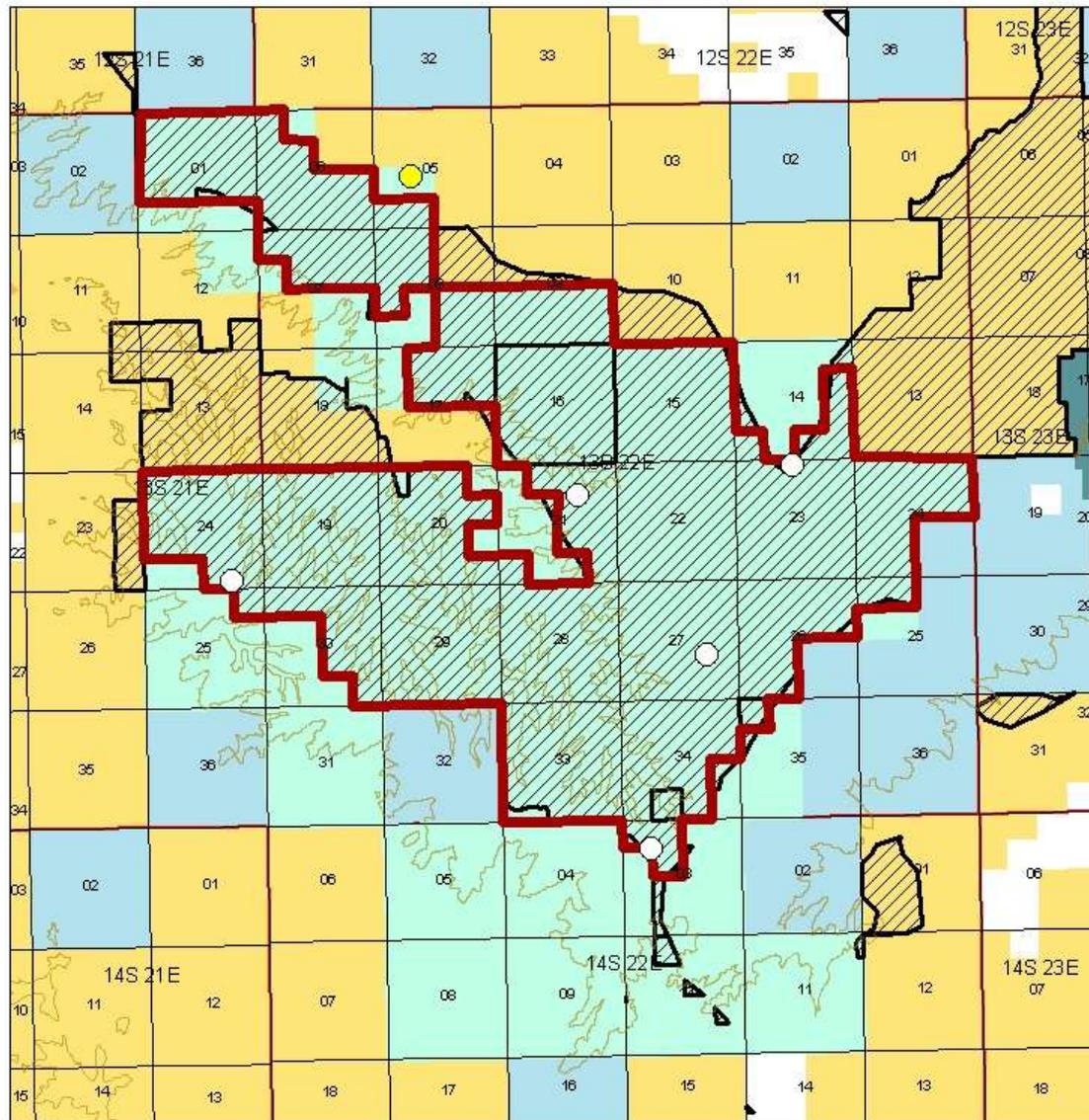
Determination	Resource/Issue	Rationale for Determination	Signature	Date
		periods it could cause big game to move into other adjacent habitats or into habitats where interspecific and intraspecific competition between species may increase. The proposed project would have minimal disturbance as the project would last 10 days total for all sites and anticipated ground disturbance would be 0.16 acre per site (total 0.8 acre). Successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be temporary. Overall, given the size of the project and the cumulative amount of impacts that may be attributed to project activities these impacts are not seen to contribute to a loss of individuals or populations to the extent further analysis is needed.		
NI	Wildlife: Threatened, Endangered, Proposed or Candidate	The proposed site JKS-002 is located on the outer fringes of greater sage-grouse Preliminary Priority Habitat. This project is in conformance of WO-IM-2012-043. The BLM and Utah Division of Wildlife Resources have been in cooperation (02/21/2013 email/ B. Maxfield (UDWR)). Both agencies agree no mitigation/stipulations need be required given the amount of disturbance proposed. The project is therefore in conformance with IM 2012-043. In addition, water depletions within the Green River is anticipated to occur. The proponent will utilize 0.02 acre/feet during project implementation. The USFWS has determined that water-related activities in the Upper Colorado River basin, resulting in less than 0.1 acre/feet per year of depletions in flow, have no effect on the Colorado River endangered fish species, and thus do not require consultation with us for potential effects on those species.	Brandon McDonald	02/20/2013
NI	Woodlands/Forestry	No impact to forest and woodland resources from proposed action.	David Palmer	1/25/2013

FINAL REVIEW:

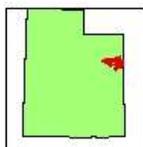
Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			

APPENDIX B
Map

Ambre Energy Oil Shale Exploration License UTU-89280



Location



Legend

-  UTU_89280_REVISIED
-  UTU_89280_OLD
-  Alternative_2_Oilshale_PEIS
-  Drill Hole JKS_001 To Be Deleted
-  Drill Hole
-  mahogany oil shale outcrop

