

**UNITED STATES DEPARTMENT OF THE INTERIOR**  
**BUREAU OF LAND MANAGEMENT**  
**KINGMAN FIELD OFFICE OIL AND GAS LEASE SALE**  
**ENVIRONMENTAL ASSESSMENT**  
**DOI-BLM-AZ-CO10-2012-0014-EA**

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## **ENVIRONMENTAL ASSESSMENT**

### **CHAPTER 1 INTRODUCTION**

**Environmental Assessment Number:** DOI-BLM-AZ-CO10-2012-0014-EA

#### **1.1 Project Name and Location**

##### **KINGMAN FIELD OFFICE OIL AND GAS LEASE SALE**

Approximately 20 miles south of Kingman, Mohave County, Arizona (see Map 1).

It is the policy of the Bureau of Land Management (BLM) to make mineral resources available for use and to encourage development of mineral resources to meet national, regional, and local needs. This policy is based on various laws, including the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act (FLPMA) of 1976. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 Sec. 5102(a)(b)(1)(A) directs the BLM to conduct quarterly oil and gas lease sales in each state whenever eligible lands are available for leasing. The BLM State Office conducts mineral estate lease auctions for lands managed by the federal government, whether the surface is managed by the Department of the Interior (BLM or Bureau of Reclamation), United States Forest Service, or other Departments and agencies. In some cases the BLM holds subsurface mineral rights on split estate lands where the surface estate is owned by another party other than the federal government. Mineral leases can be sold on such lands as well. The Arizona State Office does not have the staffing to hold such a sale, so the BLM Colorado State Office will host the sale for the BLM Arizona State Office.

Oil and gas companies file Expressions of Interest (EOI) to nominate parcels for leasing by the BLM. From these EOIs, the Arizona State Office provides draft parcel lists to the appropriate field offices for review. BLM field offices then review legal descriptions of nominated parcels to determine: if they are in areas open to leasing; if new information has come to light which might change previous analyses conducted during the land use planning process; if there are special resource conditions of which potential bidders should be made aware; and which stipulations should be identified and included as part of a lease. Ultimately, all of the lands in proposed lease sales (including those covered by this EA) are nominated by the oil and gas industry, and therefore represent areas of high interest.

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of leasing and development of parcels located in the Kingman Field Office (KFO), to be included as part of a competitive oil and gas lease sale tentatively scheduled for May, 2013.

The project area covers the area of the proposed lease parcels in central Mohave County in northwestern Arizona. The area is mostly open rangeland with US-owned surface and mineral estates; although there are some split-estate parcels (privately-owned surface and U.S.- owned mineral estate or U.S.-owned surface estate and privately-owned mineral estate).

The original nomination was for leasing Sections 6, 7 and 18, Township 18 North, Range 17 West; and Sections 19, 30 and 31, Township 19 North, Range 17 West, Gila & Salt River Meridian, Mohave County, Arizona. Land status research determined that the U.S. federal government did not own the mineral estate underlying Section 7, Township 18 North, Range 17 West; and Sections 19 and 31, Township 19 North, Range 17 West; therefore the oil and gas lease sale could not include them.

There are two parcels offered for oil and gas leasing:

Sections 6 and 18, Township 18 North, Range 17 West, containing 1095.97 and 1109.76 acres respectively, and Section 30, Township 19 North, Range 17 West, containing 1123.64 acres, Gila & Salt River Meridian, Mohave County, Arizona. Both the surface and mineral estates of these parcels are U.S.-owned.

**1.2 Purpose and Need for Action** Measures would need to be taken to avoid disturbance to or impacting the four existing rights-of-way on federal surface on parcels MTM-97300-MC, MF, DZ, and MQ in the event of any exploration and development activities on the leased parcels. Any new “off-lease” or third party rights-of-way required across federal surface for future exploration and/or development of the 29 parcels would be subject to stipulations to protect other resources as determined by environmental analyses which would be completed on a case-by-case basis.

The purpose of offering parcels for competitive oil and gas leasing is to allow private individuals or companies to explore for and develop oil and gas resources for sale on public markets.

This action is needed to help meet the energy needs of the people of the United States. By conducting lease sales, the BLM provides for the potential increase of energy reserves for the U.S., a steady source of significant income, and at the same time meets the requirement identified in the Energy Policy Act, Sec. 362(2), Federal Oil and Gas Leasing Reform Act of 1987, and the Mineral Leasing Act of 1920, Sec. 17.

The decision to be made is whether to sell oil and gas leases on the parcels in question, and, if so, what stipulations would be identified as required for specific parcels at the time of lease sale.

**1.3 Lease Stipulations**

Leasing of Federal oil and gas mineral estate in Parcels AZ020911-01 and AZ020911-02 would carry with it protective stipulations summarized in Table 1. The stipulations are specific to the Kingman Field Office, under the current land use plan (BLM 1995).

<b>Table 1. Lease Stipulations Applicable to all Parcels</b>		
<i>Number</i>	<i>Where Applicable</i>	<i>Stipulation Title and Synopsis</i>
KFO-1	All lands	<b>Cultural Resources Standard Stipulation:</b> Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Bureau of Land Management authorized officer. The holder shall suspend all operations in the immediate area of such discovery until

		written authorization to proceed is issued by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.
KFO-2	All lands	<b>Vegetation Stipulation:</b> A salvage and reclamation plan would be developed by the proponent and submitted to the BLM authorized officer for approval prior to the approval of application for permit to drill.
KFO-3	All lands	<b>Invasive, Non-Native Species:</b> A weed control COA (conditions of approval) would be applied to the authorization for any surface disturbance activities associated with any development of the nominated parcels.
KFO-4	All lands	<b>Special Status Species:</b> A special status species COA would be applied to the authorization for any surface disturbance activities associated with any development of the nominated parcels.
KFO-5	All lands	<b>Wildlife Resources and Migratory Birds:</b> A wildlife resources and migratory birds COA would be applied to the authorization for any surface disturbance activities associated with any development of the nominated parcels.

#### 1.4 Conformance with Land Use Plans

This EA is tiered to the decisions, information, and analysis contained in the Kingman Resource Area Resource Management Plan (RMP), March 1995, which states, unless otherwise restricted, all Federal mineral estates administered by BLM within the Planning Area are available for orderly and efficient development of mineral resources. Lease applications will be considered on a case-by-case basis, and will be issued with needed restrictions to protect resources. Special stipulations would be incorporated into any lease agreement after the results of site-specific environmental assessments become known.

At the time of this review it is unknown whether a particular parcel will be sold and a lease issued. It is unknown when, where, or if future well sites, roads, and facilities might be proposed. Assessment of projected activities and impacts was based on potential well densities discerned from the Reasonably Foreseeable Development Scenario developed in May 2012. Detailed site-specific analysis of activities associated with any particular parcel would occur when a lease holder submits an application for permit to drill (APD).

The proposed project would not be in conflict with any local, county, or state laws or plans. The proposed action is in conformance with the applicable land use plans because it is specifically provided for in the following land use plan decision:

Kingman Resource Area Resource Management Plan, approved March 7, 1995, p. 60.

“Approximately 1,555,000 acres of federal minerals would be open to mineral leasing with standard lease terms. Approximately 23,100 acres would be open to mineral leasing with no surface occupancy, 1,114 acres would be withdrawn from mineral leasing in areas of critical environmental concern and 386,532 acres are withdrawn from mineral leasing in wilderness.”

“It is expected that no more than ten exploratory wells would be drilled for oil and gas within the area during the life of the Resource Management Plan. Production, if it occurs, is not expected to lead to field development. Production development would be limited to tank batteries with oil and gas picked up and hauled by tanker truck. Site-specific environmental analyses would be conducted when applications for permit to drill are submitted.”

## CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

### 2.1 Proposed Action

The Bureau of Land Management (BLM), Arizona State Office (ASO), proposes to lease, through competitive lease sale, two parcels of federal mineral estate for the purpose of oil and gas exploration and development. The parcels which include 3,329.37 acres administered by the Kingman Field Office (KFO) were nominated for leasing by an oil and gas exploration company. The parcels are located in central Mohave County, approximately 20 miles south of Kingman, AZ. Parcel number, size, and detailed locations are listed in Table 2. The location of each parcel is shown on Map 1. Figures 1, 2 and 3 are photographs of the three sections which compose the two lease parcels.

<b>Table 2. List of Lands to be considered for May 2013 Oil and Gas Lease Sale</b>			
<i>Parcel Number</i>	<i>Township-Range</i>	<i>Sections</i>	<i>Acres</i>
AZ020 911-01	T. 18 N., R.17 W., G&SRM	Section 6, All	1,095.97
AZ020 911-01	T. 18 N., R. 17 W. G&SRM	Section 18: All	1,109.76
AZ020	T. 19 N., R. 17 W.,	Section	1,123.64

911-02	G&SRM	30, All	
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Both the surface and mineral estates of these parcels are owned by the U.S. and they would be subject to leasing stipulations as per the oil and gas leasing decisions in the Kingman Resource Management Plan, that would protect identified resources or resource uses that otherwise might be impacted by the proposed action.

Map 1: Location of Nominated Parcels



Figure 1: Lease parcel AZ020911-01/Section 6, T. 18 N., R. 17 W., G. & S. R. M.



Figure 2: Lease parcel AZ020911-01/Section 18, T. 18 N., R. 17 W., G. & S. R. M.



Figure 3: Lease parcel AZ020911-02/Section 30, T.19 N., R. 17 W., G. & S. R. M.

Standard lease terms, conditions, and operating procedures, as well as additional stipulations and lease notices, would apply to the proposed lease sale parcels. Standard operating procedures, as well as best management practices (BMPs) and conditions of approval (COAs) include measures to protect the environment and resources including surface and groundwater, air quality, wildlife, visual resources, cultural resources, recreation, and others as identified in the Kingman RMP.

Standard operating procedures, best management practices, required conditions of approval and the application of lease stipulations change over time to meet overall RMP objectives. In some cases new lease stipulations may need to be developed and these types of changes may require a RMP amendment. There is no relief from meeting RMP objectives if local conditions were to change, for instance, if the climate were to become drier and hotter during the life of the RMP, management practices might need to be modified to continue meeting overall RMP management objectives. An example of such a modification would be the implementation of additional conditions of approval to reduce surface disturbance where possible, and implement more aggressive dust treatment measures to improve air quality.

Oil and gas leases would be issued for a 10-year period and would continue for as long thereafter as oil or gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments or does not comply with the terms and conditions of the lease, the lease may be terminated or

cancelled.

No surface-disturbing activities would be permitted until the lease owner or operator secures approval of an Application for Permit to Drill (APD), and any other requisite surface use authorizations.

## **2.2 No Action Alternative**

For EAs on externally initiated proposed actions, the No Action alternative generally means that the proposed action would not take place. In the case of a lease sale, this would mean that all expressions of interest to lease (parcel nominations) would be deferred, denied, or rejected. Such a decision would preclude the development of the oil and gas resources potentially contained within that area of Federal mineral estate until such time as a lease sale is made.

The No Action alternative would exclude offering both lease parcels covering 3,329.37 acres in the Kingman Field Office from the upcoming lease sale. Surface management would remain the same, and the interest in oil and gas development of these parcels, as defined by the proponent, would terminate.

## **CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **3.1 Introduction**

The lease parcels are wholly-owned (surface and mineral estates) by the United States of America.

In preparation of this EA, the resource specialists identified the following elements of the natural and human environment present at the lease parcels and potentially affected by oil and gas exploration and development:

Air Quality	Range Management
Climate	Special Status Species
Cultural Resources (Archaeology)	Vegetation Resources
Geology and Minerals	Visual Resources
Invasive Non-Native Plants	Water Quality, Surface & Groundwater
Lands and Realty	Wildlife Resources
Soil Resources	

These elements are addressed in the following subsections. Elements not addressed were determined by the KFO staff as not potentially present or as potentially present but not subject to potentially significant adverse impacts from post-leasing oil and gas development.

If, during the review of an oil and gas development plan submitted by an operator subsequent to the lease sale, the KFO determines that these and any additional environmental elements are present and subject to potentially significant adverse impacts by a specific project, those elements would be analyzed in a project-specific EA prepared in response to any proposal that includes a surface-disturbing activity. As appropriate, any potentially affected resources would be protected through the application of standard lease stipulations, standard or site-specific COAs, and other management actions within BLM's regulatory authority.

At a minimum, these include BLM's authority to require the following:

- Relocation of a proposed surface-disturbing activity by up to 200 meters to protect a sensitive resource.
- Submittal and implementation of an adequate reclamation plan and achievement of reclamation goals.
- Conduct operations in a manner that avoids undue impacts to other resources.

### 3.2 Air Quality

#### Affected Environment

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility.

National Ambient Air Quality Standards (NAAQS) are health-based criteria for the maximum acceptable concentrations of air pollutants in areas of public use. Although specific air quality monitoring has not been conducted within the project area, regional air quality monitoring has been conducted in Flagstaff and elsewhere in Mohave County. Air pollutants measured in the region for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than 10 microns (μ) in diameter (PM<sub>10</sub>) and less than 2.5 μ in diameter (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>).

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

Environmental Consequences - The project area lies within Mohave County, which has been described as an attainment area under NAAQS. An attainment area is an area where ambient air pollution quantities are below NAAQS standards. As shown in Table 3, regional background values are well below established standards, and all areas within the cumulative study area are designated as attainment for all criteria pollutants. Federal air quality regulations are enforced by the Arizona Department of Environmental Quality (ADEQ) through its delegated authority from the U.S. Environmental Protection Agency (EPA). As defined in accordance with Arizona Revised Statutes (A.R.S.) §49-107, the ADEQ has delegated to the Mohave County Health Department the responsibility for determining potential impacts subject to air quality laws, regulations, standards, control measures, and management practices. ADEQ has the ultimate responsibility for reviewing and permitting any project's air quality impacts. Permitting of activities related to oil and gas exploration would be based on site-specific, detailed engineering values, which would be assessed prior to commencement of any development activities.

**Table 3. 2010 Summary of Pollutant Concentrations, Mohave County, Arizona**

<i>Pollutant</i>	<i>NAAQS Standard</i>	<i>Highest Recorded Concentration</i>	<i># of NAAQS Exceedences</i>	<i>Stations Monitoring Pollutant</i>
<i>PM-2.5</i>	<i>15 µg/m<sup>3</sup></i>	<i>2.9 µg/m<sup>3</sup></i>	<i>0</i>	<i>1</i>
<i>PM-10</i>	<i>150 µg/m<sup>3</sup></i>	<i>38 µg/m<sup>3</sup></i>	<i>0</i>	<i>3</i>

Source: EPA Air Quality Statistics Report: Mohave County, AZ

Development of the parcels would result in localized short-term increases in pollutant emissions from vehicles and drilling equipment and fugitive dust emissions from the use of vehicles on unpaved access roads.

Mitigation Measures - In the event any such development should occur, specific performance standards regarding air quality impacts would be defined to meet or exceed current local and national regulations.

#### *No-Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under this Alternative, any oil and gas resources contained within the parcels would not be developed. Adverse impacts potentially associated with development of these resources would not occur.

### **3.3 Climate**

#### Affected Environment

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Since the current land use plan was approved (BLM, 1995), ongoing scientific research has identified the potential impacts of “greenhouse gases” (GHGs) and their effects on global atmospheric conditions. These GHGs include carbon dioxide, methane, nitrous oxide, water vapor, and several trace gases. Through complex interactions on a global scale, these GHG emissions are believed by many experts to cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated back into space.

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity. There is uncertainty regarding how climate change may affect different regions. The assessment of GHG emissions and climate change remains in its formative phase. Therefore, it is not yet possible to know with certainty the net impact to climate from GHGs produced globally over the last century or from those produced today.

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of climate change on the specific parcels. A number of activities

contribute to the phenomenon of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity. While potential oil and gas leasing or development projects may contribute to GHGs to the atmosphere, these contributions would not have a significant effect on a phenomenon occurring at the global scale. Without additional meteorological monitoring and modeling data, it is difficult to determine the spatial and temporal variability and change in climatic conditions; but it is generally accepted that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

Environmental Consequences and Mitigation Measures

*Proposed action*

The assessment of Greenhouse Gas (GHG) emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the proposed action on climate. While BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate change are speculative given the current state of the science. The BLM does not have the ability to associate an action’s contribution to climate change with impacts in any particular area, since the science to be able to do so is not yet available. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level and determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. If and when additional information on the impacts of climate change becomes known, such information would be incorporated into the BLMs planning and NEPA documents as appropriate.

Leasing the subject tracts would have no direct impacts on climate as a result of GHG emissions. There is an assumption, however, that leasing parcels would lead to some type of development that would have indirect effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined.

Current oil and gas production in Arizona is limited to four fields located in northern Apache County (see section under *Geology and Minerals*). Oil and gas production statistics for the United States as a whole, and the contribution from Arizona’s portion of the industry is shown in Table 7.

<b>Table 7. 2011 Oil and Gas Production</b>				
<i>Location</i>	<i>Oil (thousand bls)</i>	<i>% U.S. Total</i>	<i>Gas (Mcf)</i>	<i>% U.S. Total</i>
United States	2,078,479	100	23,576,117	100
Arizona	37	0.0018	168	0.0007
<i>Source: Arizona Oil and Gas Conservation Commission; U.S. Energy Information Administration</i>				

In order to estimate the contribution of oil and gas development to greenhouse gases in Arizona, the assumption is that the percentage of U.S. total production of oil and gas is comparable to the percentage of

total emissions as a result of oil and gas production for the United States. Albeit, rather simplistic in the approach, this assumption states that similar emissions occur in all areas that may have very different characteristics and operational procedures, but which could be reflected in output of total emissions. While not precise, this assumption is adequate for the purpose of comparison of sources of GHG emissions in a broad sense.

<b>Table 8. 2010 Oil and Gas Production Potential Emissions (latest data available)</b>						
<b>Location</b>	<b>Oil (in Tg<sup>1</sup> CO<sub>2</sub><sup>e</sup>)</b>		<b>Gas (in Tg CO<sub>2</sub><sup>e</sup>)</b>		<b>Total Oil &amp; Gas Production (in Tg CO<sub>2</sub><sup>e</sup>)</b>	<b>% Total U.S. GHG Emissions (in Tg CO<sub>2</sub><sup>e</sup>)<sup>2</sup></b>
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>		
United States	0.3	31.0	32.3	215.4	279	.04
Arizona (to date)	0.0002	0.0217	0.0226	0.151	0.1953	.00003
Source: EPA, U.S. Greenhouse Gas Inventory Report 1. Tg = teragrams or million metric tons of CO <sub>2</sub> equivalent (CO <sub>2</sub> <sup>e</sup> ) 2. In 2010, total GHG emissions for the U.S. for all sources totaled 6,821.8 Tg CO <sub>2</sub> <sup>e</sup> (EPA)						

The table above shows the estimated GHG emissions for oil and gas production for the U.S., and Arizona. Only production phase emissions are considered here since processing and refining emissions would take place after these resources leave the jurisdiction of the BLM. Further, fossil fuel combustion and electricity generation for use at well sites and facilities are also not included for the purpose of this analysis, which is for operations.

To estimate the potential emissions from the proposed lease sale, the total emissions per well is interpreted. Based on total Arizona oil and gas production for 2011 (see Table 7) the potential GHG emissions that potentially could be produced, given the potential number of wells that could be developed on the nominated parcels is shown in Table 9.

**Table 9. Potential GHG Emissions Resulting from Proposed Lease Sale Referenced to Oil and Gas Production Data from 2010**

Total U.S. GHG Emissions from all sources	6,821,800,000 metric tons	100%
Total U.S. GHG Emissions from Oil & Gas Production	279,000,000 metric tons	0.0409%
Total Arizona GHG Emissions from Oil & Gas Production	195,300 metric tons	0.00003%
Total Arizona GHG Emissions per well	10,279 <sup>1</sup> metric tons	0.000002%
Total Potential GHG Emissions from Oil & Gas Production at Full Development)	853,157 <sup>2</sup> metric tons 215,859 <sup>3</sup> metric tons	0.0001% 0.00003%
Source: EPA, U.S. Greenhouse Gas Inventory Report 1. Based on total number of producing wells in Arizona in 2010, (19, AZOGC) 2. Based on total acreage proposed for lease sale (3,329.37) and 40-acre spacing. Potential number of wells at full build out is ~83. 3. Based on total acreage proposed for lease sale (3,329.37) and 160-acre spacing. Potential number of wells at full build out is ~21.		

GHG emissions from consumptive uses of oil and gas are not direct effects under NEPA because they do not occur at the same time and place as the action. They are also not indirect effects because oil and gas leasing and production would not be a proximate cause of greenhouse gas emissions resulting from consumption.

### Potential Mitigation

The EPA’s inventory data describes “Natural Gas Systems” and “Petroleum Systems” as the two major categories of total U.S. sources of GHG gas emissions regarding oil and gas development (EPA, 2012). The identified emission gasses are carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). The EPA data shows that CO<sub>2</sub> emissions from these two systems has remained relatively flat since 2005, while CH<sub>4</sub> emissions show a decline since 2005 for Natural Gas Systems. Petroleum system emissions for methane have increased slightly from 2005 levels from 29.2 Tg CO<sub>2</sub><sup>e</sup> to 31.0 Tg CO<sub>2</sub><sup>e</sup> in 2010. The success of reducing CH<sub>4</sub> emissions can be attributed in part to the promotion of EPA’s Natural Gas Star Program, a voluntary partnership that encourages natural gas companies to adopt best management practices to reduce methane emissions. As such, BLM will work with potential developers to facilitate the use of these emission reducing practices.

### No-Action Alternative

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources if any, contained within the parcels would not be developed and produced. Adverse effects resulting from such development would not occur.

### 3.4 Soil Resources

#### Affected Environment

The following soils are found in the lease parcels and classified as:

Section 6, T. 18 N., R. 17 W.:

Mapping Unit # S-10 – Arizo-Franconia-Riverwash complex, dry, 1 – 3 percent slopes, Ecological Site: R030XB218AZ, Sandy Wash 6 – 10” precipitation zone.

Mapping Unit #S-18 Castaneda extremely gravelly loam, dry 1-7 percent slopes, Ecological Site: R030XB214AZ Limy upland, 6-10” precipitation zone.

Mapping Unit # S-51 Goodsprings family gravelly, sandy loam, dry, 1 – 15 percent slopes, Ecological Site: R030XB214AZ Limy upland, 6-10” precipitation zone.

Section 18, T. 18 N., R. 17 W.:

Both mapping units S-18 and S-51, as described above.

Section 30, T. 19 N., R. 17 W.:

Both mapping units S-10 and S-18, as described above.

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

Environmental Consequences – Development of the parcels would involve surface disturbance for access roads, well pads, and pipelines. This development would result in long and short term vegetation loss and soil compaction and displacement. The largest proportions of soils have low to moderate slopes that reduce the potential for sediment transport through erosion. However, construction activities could potentially increase local soil loss and loss of preferred forage production. Potential for such soil loss and transport would increase as a function of slope, feature (pad, road, or pipeline route) to be constructed, and proximity to drainages. There is potential for accidental spills or leaks of products and materials related to oil and gas development throughout the affected area. Soil contamination and a decrease in soil fertility would be the effect of these events,

Mitigation Measures - Impacts could be adequately mitigated through standard conditions of approval (COAs) related to topsoil handling and reclamation. Best management practices (BMPs) would be incorporated into the standard lease terms and conditions of all the parcels, in order to lessen the potential spill hazard.

##### *No-Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources if any, contained within the parcels would not be developed and produced. Adverse effects resulting from such development would not occur.

### **3.5 Water Quality, Surface and Ground**

#### ***Surface Water***

##### Affected Environment

The lease parcels are located in Sacramento Wash, an ephemeral wash and tributary of the Colorado River. It joins the Colorado River thirty miles downstream to the southwest at the unincorporated community of Topock, Arizona. Sacramento Wash drains Sacramento Valley Basin, which measures 176,300 square miles. Intense thunderstorms during the monsoon season cause flash-floods. Lighter rainfall is absorbed and infiltrates to groundwater. Average annual precipitation is 8.1 inches. Average annual flow per year is about 10.5 million acre-feet.

##### Environmental Consequences and Mitigation Measures

###### *Proposed Action*

Environmental Consequences - Development of the nominated parcels would result in impacts to surface water associated with traffic, waste management, and the use, storage and transportation of fluids, i.e., chemicals, and produced water. Contamination of soils could cause long-term reduction in site productivity resulting in increased erosion and potential sediment and contaminant delivery to nearby dry washes during runoff.

Mitigation Measures - Although surface waters would be most susceptible to sedimentation over the short-term, runoff could be channeled during periods of precipitation through the implementation of Best Management Practices (BMPs) and other preventative measures. These measures would include but not limited to, limiting cut slope steepness, limiting road grade to 10%, crowning of road surfaces, installing culverts and drainage systems, and applying gravel to new or upgraded roads within the project area, as well as designing mitigation measures to reduce risk to surface waters associated with the accidental release of fluids.

###### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources, if any, contained within the parcels would not be developed. Consequently, adverse impacts potentially associated with development of the parcels would not occur.

#### ***Groundwater***

##### Affected Environment

The lease parcels lie in the Sacramento Valley Basin. Sacramento Valley is the product of Tertiary-age Basin and Range faulting. It was subsequently filled with alluvium to present. In the township surrounding the lease parcels, groundwater has been found and extracted at depths from 350 to 1,500 feet from water-bearing lenses of Tertiary-age valley-fill alluvium. Well yields in the vicinity range from 100

– 500 gallons per minute. Fluorine, nitrates and radionuclides have been found in concentrations which exceed drinking water standards in two wells, both located within five miles of the lease parcels.

## Environmental Consequences and Mitigation Measures

### *Proposed Action*

Environmental Consequences - Potential impacts to groundwater resources may include contamination of the groundwater with produced water, drilling mud, and petroleum constituents however with the use of proper construction practices, drilling practices, and BMPs, no significant adverse impact to groundwater aquifers is anticipated if the lease parcels were to be developed.

Mitigation Measures - Oil and gas casing and cementing programs are designed to prevent fluid and produced hydrocarbon migration into fresh water zones. Geologic and engineering reviews are conducted to ensure that the cementing and casing programs are adequate to protect all downhole resources.

### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, the potential oil and gas resources, if any, contained within the lease parcels would not be developed or produced. Consequently, adverse impacts potentially associated with development of the parcels would not occur.

## **3.6 Vegetation Resources**

### Affected Environment

The parcels are located within Mohave Desert Scrub with the landscape being dominated by foothill paloverde, ocotillo, creosote, and white bursage. Other plant components include flat-top buckwheat, range ratany, fluffgrass, buckhorn cholla, beavertail cactus, wolfberry, catclaw acacia, canyon ragweed, and an occasional saguaro cactus and Joshua tree.

## Environmental Consequences and Mitigation Measures

### *Proposed Action*

Environmental Consequences - If the nominated parcels were leased and developed, vegetation would likely be affected by subsequent oil and gas exploration and development activities. The extent of disturbance would be dependent upon the approved amount of development by the BLM. Vegetation would be cleared within all well pads, pipelines, and access roads.

Mitigation Measures- With implementation of Conditions of Approval (COAs) applied by the KFO to all authorizations for surface-disturbing activities associated with the leased parcels, desirable forbs and grasses could be established within desired timeframes. Establishment of self-sustaining native plant communities that meet desired reclamation standards for cover and species composition would be implemented as part of approved reclamation activities. COAs attached to authorizations would

include comprehensive plant survey to determine native seed mix, and to determine plants to be salvaged, plant salvage and transplanting back into reclaimed sites, watering of salvaged and transplanted plants, seedbed preparation, hydro seeding with approved native seed mixes, use of mulch, vertical mulching, site protection from grazing, weed control, and monitoring of reclamation success.

#### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, potential oil and gas resources, if any, contained within the nominated parcels would not be developed or produced, therefore, impacts to vegetation related to development of these resources would not occur.

### **3.7 Invasive, Non-Native Species**

#### Affected Environment

The following invasive and or non-native species are nearby or present on the site: filaree and red brome. Sahara mustard is known from the I-40 highway corridor. Malta star-thistle has not been documented in this area but occurs 30 miles north within the right of way of U.S. Route 93 and has the potential to be present.

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

Environmental Consequences - Surface disturbing activities provide a niche for the invasion and establishment of invasive non-native species, particularly when these species are already present within the area. If one or more of the nominated parcels were to be developed, there would be potential for weed invasion.

Mitigation Measures - Mitigation measures designed to minimize the spread of these species would be attached as a condition of approval to permitted activities. Measures may include the washing of all vehicles and equipment (including the undercarriage) that enter the project area. A weed control COA would be applied to the authorization for any surface disturbance activities associated with any development of the nominated parcels.

##### *No Action Alternative*

The No Action Alternative constitutes a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, potential oil and gas resources contained within the nominated parcels would not be developed and produced; therefore, no new infestations of invasive non-native species should occur. However, existing infestations have the potential to spread if not treated.

### 3.8 Special Status Species

#### *Federally Listed, Proposed, or Candidate Species and BLM Sensitive Species, and Arizona State Listed Species*

##### Affected Environment

There are no federally listed or proposed species on the lease parcels. The Sonoran desert tortoise, a candidate species for federal listing under the Endangered Species Act occurs within all lease parcels. This area has been classified by the BLM as Category III, Rawhide Mountains/Dutch Flat, desert tortoise habitat (BLM 1995). The goal of Category III tortoise habitat is “to limit tortoise habitat and population declines to the extent possible by mitigating impacts” (BLM, 1988). White-margined penstemon (*Penstemon albomarginatus*), a BLM sensitive species has the potential to occur in all parcels. However, it is documented in only one of the parcels (Section 18, T. 18 N., R. 17 W.) .

##### Environmental Consequences and Mitigation Measures

###### *Proposed Action*

Environmental Consequences - Development of this area for oil and gas would displace and destroy habitat for the Sonoran desert tortoise and for white-margined penstemon. Even if all of the acres located within the parcel are not developed, tortoise would still receive impacts associated with road development, traffic, and people. Typically this results in the tortoise being run over or harassed by people. Encounters with people often end in collection or harm to the individual tortoise.

Mitigation Measures - In the event the nominated parcels were to be developed, a comprehensive plant and desert tortoise survey would be conducted prior to any surface disturbing activities. Plants should be avoided if practicable or salvaged and re-planted under permit from the BLM. Lease stipulations would be attached to authorizations that may require modification or disapproval of proposed activities that are likely to result in jeopardy to the continued existence of a proposed, listed, or candidate species, or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.D. §1531 et seq., including completion of any required procedure for conference or consultation.

###### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, potential oil and gas resources, if any, contained within the nominated parcels would not be developed or produced, therefore, impacts to federally listed, proposed, or candidate Species and BLM sensitive species, and Arizona state listed species related to development of these resources would not occur.

### **3.9 Wildlife Resources and Migratory Birds**

#### Affected Environment

Migratory birds may be found nesting on all three lease parcels. All three parcels have the potential to support kit fox, burrowing owls, and nesting raptors. There is no nesting habitat for bald or golden eagles within the parcels however there is nesting habitat for the golden eagle within ten miles of the project area. Wildlife typical of the project area include Merriam's kangaroo rat, desert woodrat, western diamondback rattlesnake, leopard lizard, desert iguana, cactus wren, Bendire's thrasher, and black-throated sparrow.

The proposed project area lies within the Walnut Creek Wildlife Movement Corridor. Approximately three-quarters (3/4) of section 18, and one-quarter (1/4) of section 6 is within the corridor. This corridor is one of two linkages where the management objective of the said lands would be to maintain natural movement of wildlife species across I-40 between the Black Mountains and Hualapai Mountains (Kingman Resource Area Resource Management Plan, 1995, pg. 83).

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

Environmental Consequences - Development of this area for oil and gas would displace and destroy habitat for many of the above mentioned species. Species such as the kit fox, burrowing owls and nesting raptors have limitations on the habitat areas that they can occupy.

Wildlife movement through the corridor is expected to be reduced and for some species possibly eliminated due to the estimated 21 oil wells (4 acres each= 84 acres) with up to 2.5 miles of attendant roads that are proposed to be developed within the wildlife movement corridor. The loss of 84 currently undeveloped acres as well as the obstacles these wells and roads would present to wildlife may inhibit wildlife use of the corridor, especially use by larger species such as mule deer, bobcat, and mountain lions. The presence of these facilities may reduce or prevent tortoise from living within the corridor area and thus eventually encountering and using the wildlife crossing. It may take several generations of tortoise for a tortoise crossing to occur. Tortoise would more likely encounter human activity within the oil well development area. Tortoise would be susceptible to harassment (unintentional and intentional), collection, and death by vehicle collision.

The Walnut Creek Wildlife Movement Corridor is one of three corridors located along I-40 between California and Kingman, Arizona. This corridor is two miles wide north to south and contains public land on both sides of I-40 that links directly to public land away from the highway thereby reducing the possibility of development within these sections. Walnut Creek passes under a bridge at I-40 within this corridor which allows animals like mule deer safe passage across the road. Animals can also cross over the top of the road as well. This corridor is important to maintain connectivity among the formerly connected wild lands of the Hualapai Mountains and Cerbat Mountains. Keeping this corridor in its natural biological and physical state would facilitate wildlife movement within this corridor.

Mitigation Measures - In the event the proposed lease parcels were to be developed, a survey to identify potential raptor nesting sites prior to ground disturbing activities in and near the project area would be conducted. Potential impacts to individuals and the success of golden eagles nests within ten miles of an

active nest would be addressed. To reduce the potential for the take of migratory birds, construction activities that may result in destruction of migratory bird nests should be undertaken outside of the nesting season (February 1 through July 31) (Corman et.al. 2005). If this cannot be done then to avoid take, a 100 % surveys for migratory birds 150 feet around each area of disturbance (including new and upgraded roads) would be required during the nesting season. Surveys for kit fox, burrowing owls and nesting raptors would be conducted prior to ground disturbing activities and avoidance of these areas would be practiced whenever possible. Site specific mitigation measures would be developed in the event that kit fox or burrowing owl burrows are discovered. In addition BMPs would be implemented to reduce preventable causes of direct wildlife mortality. In Arizona, wildlife is property of the state and managed by the Arizona Game and Fish Commission. Contact with the AZGFD to develop strategies to minimize impacts to wildlife would be undertaken prior to any surface disturbance of the proposed lease parcels.

Pre- and post- project development monitoring of the Walnut Creek Wildlife Movement Corridor is recommended to document how animals use the corridor. Monitoring outside of the corridor is also recommended to document how animals use the corridor compared to the adjacent land matrix both before and after construction (Bier and Loe 1992).

In addition, purchase of other suitable wildlife crossing parcels within the I-40 corridor and donation of these parcels to the BLM is a possible mitigation measure for development of the proposed lease parcels.



Map 2: Walnut Creek Wildlife Movement Corridor

### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, the potential oil and gas resources that may be contained within the nominated parcels would not be developed and produced. Consequently, adverse impacts to wildlife resources and migratory birds potentially associated with such development would not occur.

Development of the wildlife movement corridor would not occur. Human activity in the form of well drilling, maintenance and operation would not occur and therefore disturbance to wildlife movement would not occur. The linkage between the Hualapai Mountains and Black Mountains would remain unhindered. Animals would pass unimpeded under the Walnut Creek Bridge on Interstate 40.

## **3.10 Range Management**

### Affected Environment

The lease parcels lie within the Walnut Creek grazing allotment, owned by Gary Overson. The Walnut Creek allotment consists of 79,101 acres of public land and is currently authorized for a total of 5,843 animal unit months or AUMs.

### Environmental Consequences and Mitigation Measures

#### *Proposed Action*

Implementation of oil and gas development within the nominated parcels would cause a small reduction in forage for livestock (less than 1 AUM) by removing existing vegetation for well pads, pipelines, and access roads. The extent of disturbance would be dependent upon the approved amount of development by the BLM.

Mitigation Measures- With implementation of Conditions of Approval (COAs) applied by the KFO to all authorizations for surface-disturbing activities associated with the leased parcels, desirable forbs and grasses could be established within desired timeframes. Establishment of self-sustaining native plant communities that meet desired reclamation standards for cover and species composition would be implemented as part of approved reclamation activities. COAs attached to authorizations would include comprehensive plant survey to determine native seed mix, and to determine plants to be salvaged, plant salvage and transplanting back into reclaimed sites, watering of salvaged and transplanted plants, seedbed preparation, hydro seeding with approved native seed mixes, use of mulch, vertical mulching, site protection from grazing, weed control, and monitoring of reclamation success.

#### *No Action Alternative*

The No Action Alternative constitutes a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources contained within the nominated parcels would not be developed. Consequently, adverse impacts potentially associated with the development would not occur.

### **3.11 Visual Resources**

#### *Affected Environment*

The lease parcels are visual resource management category IV. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

#### Environmental Consequences and Mitigation Measures

#### *Proposed Action*

Implementation of oil and gas development within the nominated parcels would create contrasts by removing existing vegetation and exposing bare ground. Contrasts in color, form, line, and texture would be present within the existing landscape in the short term. Visual impacts such as lighting, dust, and increased traffic from construction activities would also occur. Visual impacts associated with production activities and traffic related to oil and gas development would continue for the producing life of the wells.

Mitigation Measures - In the long term, interim reclamation of development activities would reduce visual contrasts after several (up to 5 years) growing seasons. Certain paint schemes for production facilities may be required by the authorized officer.

#### *No Action Alternative*

The No Action Alternative constitutes a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources contained within the nominated parcels would not be developed. Consequently, adverse impacts potentially associated with the development would not occur.

### **3.12 Geology and Minerals**

#### Affected Environment

The geologic record in the vicinity of the lease parcels is exposed in the Black Mountains to the northwest and the Hualapai Mountains to the east. From oldest to youngest, the lithology consists of:

- 1.) Pre- Cambrian age crystalline basement complex, including gneissoid granite, gneiss, schists and amphibolite of volcanic origins.
- 2.) Late Jurassic or early Cretaceous age granite porphyry intrusive stocks and dikes, and pegmatite, diabase and lamprophyre dikes.
- 3.) Tertiary age volcanic extrusive flows including andesites, trachytes, rhyolites, latites and basalts with interbedded ash, tuff and breccia, primarily in the Black Mountain Range.
- 4.) Tertiary to Quaternary age valley fill alluvium.

### 5.) Quaternary age basalt flows.

In the Sacramento Valley, several gravel pits have been developed in the valley-fill gravel, notably to the south near Yucca (a Federal Highways Administration pit and a public use area pit) and to the north near McConnico (a Mohave County Public Works Department Free Use Permit gravel pit and a public use area pit).

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

The abundance of valley-fill gravel in Sacramento Valley and the large empty open spaces there would compensate for any mineral materials removed from development by oil and gas leasing and drilling. No adverse impacts to the supply of mineral materials for public use would be expected. The depth to bedrock in the vicinity of the oil and gas lease parcels (750 -1,500 feet) would preclude development of hard rock mining there.

##### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, potential oil and gas resources contained within the parcels would not be developed. Consequently, adverse impacts potentially associated with development of the parcels would not occur, nor would the benefits associated with production of Federal oil and gas resources contained within the parcel boundaries.

### **3.13 Cultural Resources (Archaeology)**

#### Affected Environment

A records search was conducted for the lands proposed for potential oil and gas leasing. In total, three class III surveys have been conducted for previous actions on public land. The surveys found no evidence of areas of cultural significance. The likelihood of sites within the project area is relatively low and would likely only consist of historic occurrences related to transportation corridors (I-40 and RR). Aboriginal sites, whether prehistoric or historic, would most likely not be present. It is a possibility that isolated manifestations related to tool procurement or hunting/gathering activities could be found adjacent to larger ephemeral washes within the proposed areas, however, sample surveys have not indicated the presence of these types of manifestations.

#### Environmental Consequences and Mitigation Measures

##### *Proposed Action*

The likelihood of significant archaeological resources being present within the proposed project area is low. Therefore, it is not anticipated that oil and gas exploration activities on the proposed lands would have an adverse effect to significant cultural resources or historic properties. To assist in mitigating any chance of adversely affecting any undiscovered cultural resources, the proponent should ensure that Class III surveys are conducted by professional, permitted archaeological consultants prior to any ground disturbing activities. Given the size of the proposed project area, any cultural resources encountered should easily be avoided by any proposed activities.

### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, potential oil and gas resources contained within the nominated parcels would not be developed and produced. Consequently, adverse impacts potentially associated with development of the parcels would not occur.

## **3.14 Native American Religious Concerns**

### Affected Environment

There are no known Native American religious concerns within the proposed lease areas. There is the possibility, however, that Traditional Cultural Properties (TCP) may be affected by any proposed action. TCP's would likely need to be identified through an ethnographic study focusing on the proposed project area and its significance to potentially affected tribes.

### Environmental Consequences and Mitigation Measures

#### *Proposed Action*

It is not known whether the proposed action would result in adverse effects to areas important to Native Americans for religious or traditional cultural reasons. TCP's would most likely need to be identified through consultation with potentially affected tribes. In addition, an ethnographic study of the proposed project area may need to be conducted in order to positively identify TCP's.

#### *No Action Alternative*

If this alternative were chosen, cultural sites and possible TCP's would not be affected.

## **3.15 Lands and Realty**

### Affected Environment

LR2000 reports and Master Title Plats were reviewed for the subject lands, Secs. 6, 18, T. 18 N., R. 17 W., and Sec. 30, T. 19 N., R. 17 W., all within the G&SRM., Mohave County, Arizona.

The lease, if issued, would be subject to the following:

Right-of-way AZA 12454 for a gas pipeline, granted to El Paso Natural Gas Company, its successors and assigns, pursuant to the Act of February 25, 1920, as amended (30 U.S.C. 185), as to the SE $\frac{1}{4}$ NE $\frac{1}{4}$  of Sec. 8, T. 18 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZA 24993 for a gas pipeline, granted to El Paso Natural Gas Company, its successors and assigns, pursuant to the Act of February 25, 1920, as amended (30 U.S.C. 185), as to the E $\frac{1}{2}$ E $\frac{1}{2}$  of Sec. 8, T. 18 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZAR 449 for a gas pipeline, granted to El Paso Natural Gas Company, its successors and assigns, pursuant to the Act of February 25, 1920, as amended (30 U.S.C. 185), as to the E $\frac{1}{2}$ E $\frac{1}{2}$  of Sec. 8, T. 18 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZAR 4006 for a gas pipeline, granted to El Paso Natural Gas Company, its successors and assigns, pursuant to the Act of February 25, 1920, as amended (30 U.S.C. 185), as to the E $\frac{1}{2}$ E $\frac{1}{2}$  of Sec. 8, T. 18 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZAR 12967 for a gas pipeline, granted to El Paso Natural Gas Company, its successors and assigns, pursuant to the Act of February 25, 1920, as amended (30 U.S.C. 185), as to the E $\frac{1}{2}$ E $\frac{1}{2}$  of Sec. 8, T. 18 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way PHX 34352 for an electric line, granted to UniSource Energy Corporation, its successors and assigns, pursuant to the Act of October 21, 1976 (43 U.S.C. 1761), as to the NE $\frac{1}{4}$  of Sec. 8, T. 18 N., R. 17 W., lots 2, 9, 10, 11, 20, W $\frac{1}{2}$ SE $\frac{1}{4}$ , Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way PHX 86795 for a railroad, granted to the Burlington Northern Santa Fe Railway Company, its successors and assigns, pursuant to the Act of July 27, 1866 (14 Stat., 292), as to the E $\frac{1}{2}$ E $\frac{1}{2}$ E $\frac{1}{2}$  of Sec. 6, T. 18 N., R. 17 W., the E $\frac{1}{2}$ SE $\frac{1}{4}$  of Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZA 7475 for a telephone line, granted to Citizens Utilities Rural, Company, its successors and assigns, pursuant to the Act of October 21, 1976 (43 U.S.C. 1761), as to lots 5, 6, 15, and 16, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZA 27844 for a fiber optic line, granted to Electric Lightwave, LLC, its successors and assigns, pursuant to the Act of October 21, 1976 (43 U.S.C. 1761), as to lots 4, 5, 6, 15, and 16, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way AZAR 34052 for an electric line, granted to UniSource Energy Corporation, its successors and assigns, pursuant to the Act of March 4, 1911 (43 U.S.C. 961), as to lots 5, 6, 15, and 16, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way PHX 85420 for a highway, granted to the Arizona Department of Transportation, its successors and assigns, pursuant to the Act of August 27, 1958 (23 U.S.C. 317(A)), as to lots 4, 5, 6, 7, 15, and 16, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Right-of-way PHX 86250 for a highway, granted to the Arizona Department of Transportation, its successors and assigns, pursuant to the Act of November 9, 1921 (42 Stat. 216), as to lots 5 and 6, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

Application for a right-of-way for a road, filed by the Mohave County Board of Supervisors , which could affect lots 3, 8, 13, 14, and 17, Sec. 30, T. 19 N., R. 17 W., Gila and Salt River Meridian, Arizona;

All rights existing upon lease issuance.

### Environmental Consequences and Mitigation Measures

#### *Proposed Action*

Measures would need to be taken to avoid disturbance to or impacting the existing and pending rights-of-way on federal surface in the event of any exploration and development activities on the leased parcels. Any new “off-lease” or third party rights-of-way required across federal surface for future exploration and/or development of the two parcels would be subject to stipulations to protect other resources as determined by environmental analyses which would be completed on a case-by-case basis.

#### *No Action Alternative*

The No Action Alternative would constitute a decision to not lease the Federal mineral estate described in this EA. Under the No Action Alternative, oil and gas resources that may be contained within the parcels would not be developed and produced. Consequently, adverse impacts potentially associated with development would not occur.

### **3.16 Cumulative Impacts**

Current uses of the subject lands include agricultural, utility corridors, mineral material extraction, and home and road development on private and state surface lands. Surface land modification is characteristic of these activities, with localized impacts. An increase in development activities related to oil and gas exploration would potentially increase land modifications to include an increase in potential pollution from chemicals used for industrial applications, and expansion of noxious weeds and other invasive species due to increased surface disturbance, and a short term increase of vehicle traffic associated with oil and gas development. Although none of these impacts are characterized as significant, and while new technologies and regulatory requirements have reduced the impacts of some land uses, foreseeable future actions could further impact various elements of the human environment. The anticipated impact levels for future actions range from negligible to locally major. The primary reasons for this assessment are twofold: (1) current activity in the study area is negligible, almost non-existent, so any increase in activity would impact existing conditions; and (2) current oil and gas development is non-existent, thus any activity related to development and production of these resources would result in an addition to individually nominal effects of all uses. Development of these parcels would contribute to the collective impacts for some resources especially for the desert tortoise, which potentially would be eliminated from these parcels due to the extensive road, pipeline, and well networks. It is unknown if burrowing owls or kit foxes would be able to maintain their populations within these parcels following oil and gas development.

### **3.17 Reasonably Foreseeable Development**

Play type: structural from Paleozoic sediments

Analog field: Grant Canyon and Bacon Flat in Railroad Valley NV

Kind of production: oil production

Drilling technique: vertical well bore -one well per pad

Use existing roads when possible.

Transportation to market: trucked to nearest market

Well pad size: 4 acres

Well spacing 40 to 160 acres

Field development- clustered wells to develop small aerial extent structural traps. Clustered development will minimize new road construction.

Tank batteries would be needed to store oil.

Roads would have 16 foot running surface and would likely measure no more than 7 miles in total for the nominated lands.

Field development for the nominated lands as well as lands outside of the project area would likely be a maximum of five fields developed with a maximum of 17 wells per field producing over the entire Sacramento Valley, not just on nominated lands.

Completion method: conventional

Productive life: 30 years

Average drilling time: 4 weeks per well

Projected total depth (TD) of each well: 5,000-7,000 ft.

Seismic studies may be needed.

## **CHAPTER 4 CONSULTATION AND COORDINATION**

### **4.1 Tribes, Individuals, Organizations and Agencies Consulted**

Hualapai Tribe  
Arizona State Land Department  
Contex Energy Company  
Oil & Gas Program Administrator, State Of Arizona

**4.2 Preparers**

Mike Blanton, BLM Rangeland Management Specialist

Fred Conrath, BLM Arizona State Office Program Lead

Len Marceau, BLM Outdoor Recreation Planner

Paul Misiaszek, BLM Geologist

Rebecca Peck, BLM Wildlife Biologist

Tim Watkins, BLM Archaeologist

Andy Whitefield, BLM Environmental Protection Specialist (Realty Specialist)

## CHAPTER 5 REFERENCES

Anning, D.W., Truini, Margot, Flynn, M. E., and Remick, W. H., 2007, Ground-Water Occurrence and Movement, 2006, and Water-Level Changes in the Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona: U.S. Geological Survey Scientific Investigations Report 2007-5182

Arizona Bureau of Mines, 1933, Arizona Gold Placers and Placering, Mineral Technology Series No. 35, Bulletin No. 135.

Beier, Paul and Loe, Steve, 1992, In My Experience: A Checklist for Evaluating Impacts to Wildlife Movement Corridors: *Wildlife Society Bulletin*, Vol. 20, No. 4 (Winter, 1992), pp. 434-440.

Brown, David E., 1994, Biotic Communities Southwestern United States and Northwestern Mexico: Salt Lake City, University of Utah Press.

Bureau of Land Management, 1988, Desert Tortoise Habitat Management on the Public Lands. A Rangeland Plan: Arizona State Office, Phoenix, Arizona.

Bureau of Land Management, 1995, Kingman Resource Area Resource Management Plan and Final Environmental Impact Statement.

Corman, Troy E. and Cathryn Wise-Gervais ed., 2005, Arizona Breeding Bird Atlas: University of New Mexico Press.

Lathrop, E.W., and Archbold, E.F., 1980, Plant response to utility right of way construction in the Mojave Desert: *Environ. Management* 4(3) : 215-226.

Natural Resources Conservation Service, 1996, Soil Survey of Central Mohave County, Provisional Report.

Reynolds, Stephen J., 1988, Geological Map of Arizona: Arizona Geological Survey, Map 26.

Schrader, F.C., 1909, Mineral Deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave County, Arizona: U.S. Geological Survey Bulletin 397.

U.S. Geological Survey, Groundwater Atlas of the United States: HA-730-C

**Finding of No Significant Impact**  
**DOI-BLM-AZ-C010-2012-0014-EA**  
**Kingman Field Office Oil and Gas Leasing EA**

Based on the analysis of potential environmental impacts contained in the attached environmental assessment (EA), and considering the significance criteria in 40 CFR 1508.27, described below, I have determined that the proposed action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

### **Context**

The Bureau of Land Management (BLM), Arizona State Office (ASO), proposes to lease, through competitive lease sale, two parcels of public land for the purpose of oil and gas exploration and development. The parcels are located about twenty miles south of Kingman, Mohave County, Arizona. They contain 2,205.73 acres and 1,123.64 acres.

This EA analyzes the oil and gas leasing action; it does not analyze potential surface disturbing development actions that may or may not be proposed in the future.

### **Intensity**

*1. Impacts that may be both beneficial and adverse.*

Benefits of the proposed action include offering federal land mineral estate parcels for competitive oil and gas leasing to allow private individuals or companies to explore for and potentially develop oil and gas resources for sale on public markets. Production of oil and gas resources on public lands contributes to decreasing the dependence of the United States on foreign energy sources. It is the policy of the BLM as derived from various laws, including the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976, to make mineral resources available for leasing to meet national, regional, and local needs. The EA indicated no significant impacts on society as a whole, the affected region, the affected interests, or the locality, from the leasing decision. Any future development of the lease would be analyzed at the time of the site-specific Application for Permit to Drill (APD). Authorization of future development projects would require full compliance with BLM directives and stipulations.

*2. Degree of effect on public health and safety.*

The decision to lease oil and gas does not in itself affect public health and safety. If oil and gas development activities are proposed in the future, it will be subject to site-specific environmental analysis.

*3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:*

The proposed action would not impact historic or cultural resources, wetlands, or ecologically critical areas. All parcels would be subject to stipulations to protect cultural resources. The proposed lease areas do not have wilderness, wilderness study areas, lands with wilderness characteristics, wild and scenic rivers, park lands, or prime farmlands.

4. *Degree to which the possible effects on the quality of the human environment are likely to be highly controversial:*

The decision to lease oil and gas does not affect the quality of the human environment, and does not have highly controversial impacts. Oil and gas leasing decisions are not unique. If development of the leases is proposed in the future, it is at that state that site specific effects to the human environment will be analyzed.

5. *Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.*

There are no effects that are considered to be highly uncertain or involve unique or unknown risk as a result of the leasing decision. These decisions are not unique or unusual, and are established by the Mineral Leasing Act of 1920 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA).

6. *Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:*

This decision is not precedent setting. Future oil and gas development actions will be analyzed for their site specific impacts when an APD is submitted. The Proposed Action is not unusual and significant cumulative effects are not predicted. The decision does not represent a decision in principle about a future consideration.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:*

The decision to lease does not establish an assurance for future surface disturbing activities from which a cumulative impact analysis can be adequately addressed. The Proposed Action was considered in the context of past, present and reasonably foreseeable actions. No significant cumulative effects are predicted.

8. *Degree to which the action may adversely affect district, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:*

A records search was conducted for the lands proposed for potential oil and gas leasing. In total, three class III surveys have been conducted for previous actions on public land. The surveys found no evidence of areas of cultural significance. The likelihood of significant archaeological resources being present within the proposed project area is low. Therefore, it is not anticipated that oil and gas exploration activities on the proposed lands would have an adverse effect to significant cultural resources or historic properties. To assist in mitigating any chance of adversely affecting any undiscovered cultural resources, the proponent would ensure that Class III surveys are conducted by professional, permitted archaeological consultants prior to any ground disturbing activities. Given the size of the proposed project area, any cultural resources encountered should easily be avoided by any proposed activities.

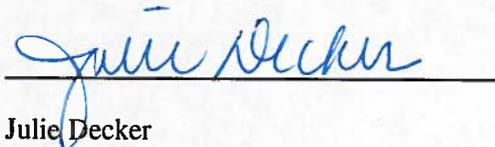
9. *Degree to which the action may adversely affect an endangered or threatened species or its critical habitat:*

The KFO staff has reviewed the parcels; no adverse impacts to any threatened or endangered species or their habitat under the Endangered Species Act were identified. If, at a future time, development is proposed, it would be subject to site specific environmental analysis and projects could be modified or mitigated so as to not have adverse effects. The lessee would be alerted of potential habitat for a threatened, endangered, candidate, or other special status plant or animal.

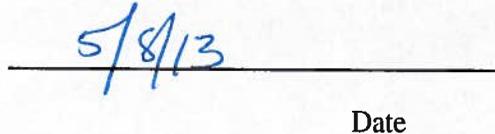
10. *Whether the action threatens a violation of federal, state, or local environmental protection law:*

To the best of my knowledge, the Proposed Action does not violate or threaten violation of any federal, state, local, or tribal law or requirement imposed for the protection of the environment.

**Approved:**

  
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Julie Decker  
Deputy State Director  
Division of Resources

  
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Date