ENVIRONMENTAL ASSESSMENT
BLM Office: Carlsbad Field Office

DOI-BLM-NM-P020-2011-1151-EA
Lease #: NMNM118720
COG Operating LLC
Patterson B 52 Federal No 2H

1.0 Purpose and Need for Action

COG Operating LLC has applied by sundry notice to relocate one horizontal oil well. The new location for the proposed well is as follows:

Patterson B 52 Federal No 2H:

Proposed New Location:
Surface Location: 330' FNL & 330' FEL, Section 5, T. 19 S., R. 32 E.
Bottom Location: 380' FNL & 330' FWL, Section 5, T. 19 S., R. 32 E.

Permitted Location:
Surface Location: 330' FNL & 660' FEL, Section 5, T. 19 S., R. 32 E.
Bottom Location: same

1.1 The need for this proposed action is for further development of a federal oil and gas lease.

1.2 The Carlsbad 1988 Resource Management Plan (RMP), 1997 RMP Amendment (RMPA), and the 2008 Pecos District Special Status Species RMPA have been reviewed, and it has been determined that the proposed action conforms with the land use plan terms and conditions as required by 43 CFR 1610.5.

1.3 The Carlsbad Field Office utilizes a resource conflict map that was prepared by an interdisciplinary team showing areas of concern. These areas of concern include Special Management Areas (SMA's), Threatened and Endangered (T&E) Habitat, known locations of Threatened and Endangered (T&E) species, areas with other Special Status species, Wildlife Habitat projects, Riparian/Wetland habitat, 100-year floodplains, etc. The conflict map is reviewed, and the author of the EA signs off the projects shown to be outside of the areas of concern. The projects, which occur in the areas of concern depicted on the map, are reviewed and signed off only by the resource specialist with the expertise for that area.

The critical elements subject to requirements specified in statute, regulation, or executive order listed below are either not present or not affected by the proposed action or alternative.

Areas of Critical Environmental Concern
Hazardous/Solid Wastes
Environmental Justice
Floodplains

Prime/Unique Farmlands
Threatened & Endangered Species
Water Quality
Wilderness
Wild/Scenic Rivers
Wetlands/Riparian

1.4 Legal requirements or considerations

All BLM requirements have been met. It is the responsibility of the applicant to obtain and comply with any other Federal, State, local or permits or requirements.

2.0 Alternatives Including the Proposed Action

2.1 Alternative A – Proposed Action

COG Operating LLC proposes to relocate the Patterson B 52 Federal No 2H well 330 feet to the east. The location will be constructed with a 300 x 300 feet caliche pad. The well will be drilled utilizing a closed loop system. The proposed access road will access the southeast corner of the well pad and travel southeast for 787 feet before connecting with the southwest corner of the Valhalla 4 Federal Com #1 well pad. The well pad will be constructed with the v-door to the east. Approximately 2.61 acres of disturbance will be created by construction activities.

If the well is productive there could be a need for oil pipelines, tank batteries, electric lines and salt water disposal pipelines, and there could be an increase in applications to drill in the adjacent acreage tracts.

Mitigation Measures: The mitigation measures include the Pecos District Conditions of Approval, lesser prairie-chicken timing stipulations, and a low profile well marker.

2.2 Alternative B - No Action

The BLM NEPA Handbook (H-1790-1) states that for Environmental Assessments (EAs) on externally initiated proposed actions, the No Action Alternative generally means that the proposed activity will not take place. This option is provided in 43 CFR 3162.3-1 (h) (2). This alternative would deny the approval of the proposed application, and the current land and resource uses would continue to occur in the proposed project area.

2.3 Alternatives Considered But Not Further Analyzed

Field investigation of all areas of proposed surface disturbance for Alternative A-Proposed Action were inspected to ensure that potential impacts to natural and cultural resources would be minimized through the implementation of mitigation measures. These measures are described for all resources potentially impacted in Section 4.0 of this EA. Therefore, no additional alternative other than those listed above have been considered for this project.

3.0 Affected Environment

This section is a discussion, by relevant resources, of the current condition of the affected environment.

Location: Approximately 20 miles southeast of Loco Hills, New Mexico.

3.1 Air Quality

Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. The area of the proposed action is within the Pecos River airshed and is classified as a Class II Air Quality Area. A Class II area allows moderate amounts of air quality degradation. The primary causes of air pollution in the project area are from motorized equipment and dust storms caused by strong winds during the spring. Particulates from nearby oil and gas production, agricultural burning, recreational and industrial vehicular traffic and ambient dust can also affect air quality. Air quality in the area near the proposed action is generally considered good, and the proposed action is not located in any of the areas designated by the Environmental Protection Agency (EPA) as "non-attainment areas" for any listed pollutants regulated by the Clean Air Act.

Greenhouse gases (GHG), including carbon dioxide (CO_2) and methane (CH_4), are not regulated by the EPA under the Clean Air Act. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks 1990-2006, found that in 2006, total U.S. GHG emissions were over 6 billion metric tons and that total U.S. GHG emissions have increased by 14.1% from 1990 to 2006. The report also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation.

3.2 Climate Change

Ongoing scientific research has identified the potential impacts of anthropogenic (man-made) GHG-emissions, changes in biological carbon sequestration, and other changes due to land management activities on the global climate. Through complex interactions on a regional and global scale, these changes cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although natural GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent ($CO_2(e)$) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations (Intergovernmental Panel on Climate Change (IPCC) 2007).

Global mean surface temperatures have increased nearly 1.33°F from 1906-2005. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° N) have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the IPCC indicated that by the year 2100, global average surface temperatures would increase between 2.5°F and 10.4°F above 1990 levels, (IPCC Third Assessment Report: Climate Change 2001) depending on the assumptions made in the predictive model. The National Academy of Sciences has confirmed these findings, but also has indicated there are uncertainties regarding how climate change may affect different regions. More recently, the Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures. Increases in temperatures would increase water vapor retention in the atmosphere, and reduce soil moisture, increasing generalized drought conditions, while at the same time enhancing heavy storm events. Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict.

Several activities contribute to the phenomena of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildland fires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

3.3 Range

The proposed action is within the Salt Lake range allotment (#77029). This allotment is a yearlong cow-calf deferred rotation operation. Range improvement projects such as windmills, water delivery systems (pipelines, storage tanks, and water troughs), earthen reservoirs, fences, and brush control projects are located within the allotment, but not within the project area. In general, an average rating of the range land within this area is six acres/AUM (Animal Unit Months). In order to support one cow, for one year, about 72 acres is needed. This equals about nine cows per section.

3.4 Soil

The area of the proposed project is mapped as MF: Maljamar and palomas fine sands, 0 to 3 percent slopes. These are sandy soils and are described below:

Sandy

Typically, these soils are deep, well-drained to excessively drained, non-calcareous to weakly calcareous sands. They are found on undulating plains and low hills in the "sand country" east of the Pecos River. Permeability is moderate to very rapid, water-holding capacity is low to moderate, and little runoff occurs. These soils are susceptible to wind erosion and careful management is needed to maintain a cover of desirable forage plants and to control erosion. Reestablishing native plant cover could take 3-5 years due to unpredictable rainfall and high temperatures.

Low stability soils, such as the sandy and deep sands found on this area, typically contain only large filamentous cyanobacteria. Cyanobacteria, while present in some locations,

are not significant. While they occur in the top 4 mm of the soil; this type of soil crust is important in binding loose soil particles together to stabilize the soil surface and reduce erosion. The cyanobacteria also function in the nutrient cycle by fixing atmospheric nitrogen, contributing to soil organic matter, and maintaining soil moisture. Cyanobacteria are mobile, and can often move up through disturbed sediments to reach light levels necessary for photosynthesis. Horizontally, they occur in nutrient-poor areas between plant clumps. Because they lack a waxy epidermis, they tend to leak nutrients into the surrounding soil. Vascular plants such as grasses and forbs can then utilize these nutrients.

3.5 Vegetation

Sandy

Vegetation within this project area is dominated by warm season, short and midgrasses such as black grama, bush muhly, various dropseeds, and three-awns. Bluestems, bristlegrass, lovegrasses, and hooded windmillgrass make up some of the less common grasses. Shrubs include mesquite, shinnery oak, sand sagebrush, broom snakeweed, and yucca. A large variety of forbs occur and production fluctuates greatly from year to year, and season to season. Common forbs include bladderpod, dove weed, globemallow, annual buckwheat, and sunflower.

3.6 Visual Resource Management (VRM)

The Visual Resource Management (VRM) program identifies visual values, establishes objectives in the RMP for managing those values, and provides a means to evaluate proposed projects to ensure that visual management objectives are met.

This project occurs within a Visual Resource Management Class IV zone. The objective of VRM Class IV 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 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 landscape elements of color, form, line and texture.

3.7 Wildlife Habitat

This project occurs in the sand shinnery habitat type. Sand shinnery communities extend across the southern Great Plains occupying sandy soils in portions of north and west Texas, west Oklahoma, and southeast New Mexico. Portions of Eddy, Lea and Chaves counties consist largely of sand shinnery habitat and are intermixed with areas of mesquite to a lesser degree. The characteristic feature of these communities is co-dominance by shinnery oak and various species of grasses. In New Mexico Shinnery oak occurs in sandy soil areas, often including sand dunes.

Various bird, mammal, reptile and invertebrate species inhabit the sand shinnery ecosystem in New Mexico. Herbivorous mammals include mule deer, pronghorn, and numerous rodent species. Carnivores include coyote, bobcat, badger, striped skunk, and swift fox. Two upland game bird species, scaled quail and mourning dove, are prevalent

throughout the sand shinnery in New Mexico. Many species of songbirds nest commonly, with a much larger number that use the habitat during migration or for non-nesting activities. Common avian predators include northern harrier, Swainson's hawk, red-tailed hawk, kestrel, burrowing owl, and Chihuahuan raven. Numerous snake and lizard species have been recorded, including the sand dune lizard, the only vertebrate species restricted entirely to sand shinnery habitat.

3.8 Special Status Species

Lesser Prairie-Chicken

In New Mexico, the lesser prairie-chicken (LPC) formerly occupied a range that encompassed the easternmost one-third of the state, extending to the Pecos River, and 48 km west of the Pecos near Fort Sumner. This covered about 38,000 km^2. By the beginning of the 20th Century, populations still existed in nine eastern counties (Union, Harding, Chaves, De Baca, Quay, Curry, Roosevelt, Lea, and Eddy). The last reliable records from Union County are from 1993. Currently, populations exist only in parts of Lea, Eddy, Curry, Chaves, and Roosevelt counties, comprising about 23% of the historical range.

LPC are found throughout dry grasslands that contained shinnery oak or sand sage. Currently, they most commonly are found in sandy-soiled, mixed-grass vegetation, sometimes with short-grass habitats with clayey or loamy soils interspersed. They occasionally are found in farmland and smaller fields, especially in winter. Shinnery oak shoots are used as cover and produce acorns, which are important food for LPC and many other species of birds, such as the scaled quail, northern bobwhite, and mourning dove. Current geographic range of shinnery oak is nearly congruent with that of the lesser prairie-chicken, and these species sometimes are considered ecological partners. Population densities of LPC are greater in shinnery oak habitat than in sand sage habitat.

LPC use a breeding system in which males form display groups. These groups perform mating displays on arenas called leks. During mating displays male vocalizations called booming, attract females to the lek. Leks are often on knolls, ridges, or other raised areas, but in New Mexico leks are just as likely to be on flat areas such as roads, abandoned oil drill pads, dry playa lakes or at the center of wide, shallow depressions. Leks may be completely bare, covered with short grass, or have scattered clumps of grass or short tufts of plants. An important physical requirement for location of leks is visibility of surroundings, but the most important consideration is proximity of suitable nesting habitat, breeding females and the ability to hear male vocalizations.

In 1987, there were 35 documented active booming grounds known to exist within the CFO. Due to population decreases and unpredictable weather cycles the LPC is currently a candidate for federal listing, and potentially may become extirpated from Eddy and southern Lea counties.

In June 1998, the US Fish and Wildlife Service (USFWS) issued a statement regarding their status review of the lesser prairie-chicken. It stated, "Protection of the lesser prairie-chicken under the Federal Endangered Species Act (ESA) is warranted but precluded

which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the Bureau of Land Management is mandated to carry out management consistent with the principles of multiple use, for the conservation of candidate species and their habitats, and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06).

Sand Dune Lizard

The sand dune lizard (SDL) is a species with a limited geographic range including parts of Chaves, Eddy, Lea and Roosevelt Counties of southeastern New Mexico and 4 counties in Texas. The SDL is a habitat specialist, found exclusively in association with Shinnery oak dune complexes. These complexes are patchworks of shinnery oak and scattered sandsage interspersed with areas of open sand and wind-created sandy blowouts. These complexes create ideal habitat for the SDL.

The SDL may also require specific sand particle size. Research has shown that there are significant differences in the composition of sand between sites that are occupied and unoccupied by SDL. Occupied sites have slightly coarser sand than unoccupied sites.

The U.S. Fish and Wildlife Service (USFWS) was petitioned on May 28, 2002 by The Center for Biological Diversity and Chihuahuan Desert Conservation Alliance to list the SDL as an endangered species under the Endangered Species Act. In May 2005 the USFWS issued a statement regarding their status review of the SDL. It stated, "Protection of the sand dune lizard under the Federal Endangered Species Act (ESA) is warranted but precluded, which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the Bureau of Land Management is mandated to carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06).

3.9 Cultural Resources

The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 12,000 – 8,000 B.C.), Archaic (ca. 8,000 B.C. – A.D. 950), Ceramic (ca. A.D. 600 – 1540), Protohistoric and Spanish Colonial (ca. A.D. 1400 – 821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in Living on the Land: *11,000 Years of Human Adaptation in Southeastern New Mexico; An Overview of Cultural Resources in the Roswell District, Bureau of Land Management* published in 1989 by the U.S. Department of Interior, Bureau of Land Management.

Native American Religious Concerns

The BLM conducts Native American consultation regarding Traditional Cultural Places (TCP) and Sacred Sites during land-use planning and its associated environmental impact review. In addition, during the oil & gas lease sale process, Native American

consultation is conducted to identify TCPs and sacred sites whose management, preservation, or use would be incompatible with oil and gas or other land-use authorizations. With regard to Traditional Cultural Properties, the BLM has very little knowledge of tribal sacred or traditional use sites, and these sites may not be apparent to archaeologists performing surveys in advance of drilling. However, to date no TCPs or sacred sites have been identified in the vicinity of the current project area.

3.10 Noxious Weeds

There are four plant species within the CFO that are identified in the New Mexico Noxious Weed List Noxious Weed Management Act of 1998. These species are African rue, Malta starthistle, Russian olive, and salt cedar. African rue and Malta starthistle populations have been identified throughout the Carlsbad Field Office and mainly occur along the shoulders of highway, state and county roads, lease roads and well pads (especially abandoned well pads). The CFO has an active noxious weed monitoring and treatment program, and partners with county, state and federal agencies and industry to treat infested areas with chemical and monitor the counties for new infestations.

Currently there are no known populations of invasive, non-native species along the proposed route.

4.0 Environmental Impacts or Consequences

This section is a discussion, by relevant resources, of the potential impacts of the proposed action. The discussion includes direct, indirect, cumulative and residual impacts after mitigation actions have been applied.

No Action Alternative

Projects requiring approval from the BLM such as Applications for Permit to Drill can be denied when the BLM determines that adverse effects to resources (direct or indirect) cannot be mitigated to reach a Finding of No Significant Impact (FONSI). Under the No Action Alternative, the proposed projects would not be constructed and there would be no new impacts to natural or cultural resources from oil and gas production. The No Action Alternative would result in the continuation of the current land and resource uses in the project area and is used as the baseline for comparison of alternatives.

4.1 Air Quality

The winds that frequent the southeastern part of New Mexico generally disperse odors and emissions, however, air quality would be impacted temporarily from exhaust emissions, chemical odors, dust caused by vehicles traveling to and from the project area and from motorized equipment used during construction. Impacts to air quality will diminish upon completion of the construction of the proposed action.

The EPA has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. The EPA has delegated regulation of air quality to some states of which New Mexico is one. The New Mexico Air Quality Bureau's (NMAQB) mission is to protect the inhabitants and natural beauty of New Mexico by preventing the deterioration of air quality. The NMAQB is responsible for:

ensuring air quality standards are met and maintained; issuing air quality Construction and Operating Permits; enforcing air quality regulations and permit conditions. Any emission source must comply with the NMAQB regulations.

Impacts to air quality on lands managed by BLM in southeastern New Mexico are reduced by the following standard practices which include: utilizing existing disturbance; minimizing surface disturbance; reclaiming and quickly establishing vegetation on areas not necessary for production; periodic watering of access roads during dry periods; removal and reuse of caliche for building other projects. Moreover, BLM monitors well sites throughout the life of the well which includes: construction monitoring, drilling inspections, post-drilling environmental inspections, interim reclamation inspections and monitoring, production inspections and final reclamation inspection and monitoring.

4.2 Climate Change

Climate change analyses are comprised of several factors, including GHGs, land use management practices, and the albedo effect. The tools necessary to quantify incremental climatic impacts of specific activities associated with those factors are presently unavailable. As a consequence, impact assessment of effects of specific anthropogenic activities cannot be performed. Additionally, specific levels of significance have not yet been established. Qualitative and/or quantitative evaluation of potential contributing factors within the project area are included where appropriate and practicable. When further information on the impacts to climate change in southeastern New Mexico is known, such information will be incorporated into the BLM's NEPA documents as appropriate.

Environmental and economic climate change impacts from commodity consumption are not effects of the proposed planning decisions and thus are not required to be analyzed under the NEPA. They are not direct effects, as defined by the Council on Environmental Quality (CEQ), because they do not occur at the same time and place as the action. Neither are they indirect effects because the proposed plan actions and resulting greenhouse gas emissions production are not a proximate cause of the emissions or other factors resulting from consumption. The BLM does not determine the destination of the resources produced from Federal lands. The effects from consumption are not only speculative, but beyond the scope of agency authority or control. Therefore, this document does not include analysis of the consumption of resources produced as a result of planning decisions.

Mitigation: None

4.3 Range

Alternative A – Proposed Action

The loss of 2.61 acres of vegetation will not affect the Animal Unit Months (AUMs) which are authorized for livestock use in this area. There are occasional livestock injuries or deaths due to accidents such as collisions with vehicles, falling into mud pits or other excavations and ingesting plastic or other materials present at the work site. If

further development occurs, the resulting loss of vegetation could reduce the AUMs authorized for livestock use in this area. A lessee's fence is located approximately 140 feet west of the center hole.

Impacts to the ranching operation are reduced by the following standard practices such as utilizing existing surface disturbance, minimizing the well pad and access road total surface disturbance, minimizing vehicular use, placing parking and staging areas on caliche surfaced areas, reclaiming the areas not necessary for production, and quickly establishing vegetation on the reclaimed areas.

Mitigation Measures: Avoid allotment boundary fence 140 feet east of center hole

4.4 Soil

Alternative A – Proposed Action

There is a potential for wind and water erosion due to the erosive nature of these soils once the cover is lost. There is always the potential for soil contamination due to spills or leaks. Soil contamination from spills or leaks can result in decreased soil fertility, less vegetative cover, and increased soil erosion.

Impacts to soil resources are reduced by the following standard practices which include: utilizing existing surface disturbance, minimizing the well pad and access road total surface disturbance, minimizing vehicular use, placing parking and staging areas on caliche surfaced areas, utilizing steel tanks rather than reserve pits, reclaiming the areas not necessary for production and quickly establishing vegetation on the reclaimed areas.

Mitigation Measures:

To further reduce impacts the following COAs will apply:
Interim reclamation will be conducted all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to mitigate impacts to soil resources.

Stockpile topsoil to enhance reclamation.

4.5 Vegetation

Alternative A – Proposed Action

2.61 acres of vegetation will be removed when the well pad is constructed. The flowline will be placed adjacent to an existing lease road within existing disturbance, no vegetation will be removed. This impact will last as long as the well is productive. However, interim reclamation, conducted within 6 months of the well being completed will reduce this area by about 1/3. When the well is plugged and abandoned, the rest of the pad will be reclaimed and potentially re-vegetate in 3-5 years, depending on timely rainfall.

Impacts to vegetation are reduced by the following standard practices which include: utilizing existing surface disturbance, minimizing the well pad and access road total surface disturbance, minimizing vehicular use, placing parking and staging areas on

caliche surfaced areas, utilizing steel tanks rather than reserve pits, reclaiming the areas not necessary for production and quickly establishing vegetation on the reclaimed areas.

Mitigation Measures:
To further reduce impacts the following COAs will apply:
Interim reclamation will be conducted all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to mitigate impacts to soil resources.

4.6 Visual Resource Management (VRM)

Alternative A – Proposed Action
This project will cause some short term and long-term visual impacts to the natural landscape. Short term impacts occur during construction operations and prior to interim reclamation. These include the presence of construction equipment vehicle traffic. However, interim reclamation, conducted within 6 months after construction will reduce this area by about 1/3 by recontouring and revegetating.

Long term impacts are visible to the casual observer through the life of the well. These include the visual evidence of storage tanks, piping, pump jacks, pads and roads which cause visible contrast to form, line, color, and texture. Removal of vegetation due to road and drill pad construction exposes bare soil lighter in color and smoother in texture than the surrounding vegetation. The surfacing of these areas with caliche materials causes further contrasts. Those contrasts will be visible to visitors in the area.

After final abandonment and reclamation, the pad and associated infrastructure will be removed, reclaimed, recontoured and revegetated, thereby eliminating visual impacts.

Short and long term impacts are minimized by best management practices such as color selection, reducing cut and fill, screening facilities with natural features and vegetation, interim reclamation and contouring roads along natural changes in elevation.

Mitigation Measures:
To minimize the visual impacts the following COA will apply: Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color Shale Green, Munsell Soil Color No. 5Y 4/2"

4.7 Wildlife

Alternative A – Proposed Action
Impacts of the proposed action to wildlife in the localized area may include but are not limited to: possible mortality, habitat degradation and fragmentation, avoidance of habitat during construction and drilling activities and the potential loss of burrows and nests.

Standard mitigation measures and elements of the proposed action minimize these impacts to wildlife. These include: the NTL-RDO 93-1(modification of open-vent exhaust stacks to prevent perching and entry from birds and bats), nets on open top production tanks, interim reclamation, closed loop systems, exhaust mufflers, berming

collection facilities, minimizing cut and fill, road placement, avoidance of: wildlife waters, stick nests, drainages and playas and dunal features.

These practices reduce mortality to wildlife and allow habitat to be available in the immediate surrounding area thus reducing stressors on wildlife populations at a localized level. Impacts to local wildlife populations are therefore expected to be minimal.

Mitigation Measures: None

4.8 Special Status Species

Lesser Prairie-Chicken

Impacts of the proposed action to LPC in the localized area may include but are not limited to: disruptions in breeding cycles, habitat degradation and fragmentation, avoidance of habitat during construction and drilling activities and potentially loss of nests. Noise and human activity generated from construction activity could impact the LPC by reducing the establishment of seasonal "booming grounds" or leks, thus possibly reducing reproductive success in the species. It is believed that the noise generated by construction activity and human presence could mask or disrupt the booming of the male prairie-chicken and thus, the females cannot hear the booming. In turn, female LPC would not arrive at the booming ground, and subsequently, there would be decreased courtship interaction and possibly decreased reproduction. Decreased reproduction and the loss of recruitment into the local population would result in an absence of younger male LPC to replace mature male LPC once they expire, eventually causing the lek to disband and become inactive. Additionally, habitat fragmentation caused by development could possibly decrease the habitat available for nesting, brooding and feeding activities.

The CFO takes every precaution to ensure that active booming grounds and nesting habitats are protected by applying a timing and noise condition of approval within portions of suitable and occupied habitat for the LPC. It is not known at this time whether active booming grounds or nest locations are associated with this specific location. Only after survey efforts during the booming season are conducted, will it be known whether an active lek is in close proximity (within 1.5 miles) of the proposed location or not.

Exceptions to timing and noise requirements will be considered in emergency situations such as mechanical failures, however, these exceptions will not be granted if BLM determines, on the basis of biological data or other relevant facts or circumstances, that the grant of an exception would disrupt LPC booming activity during the breeding season. Requests for exceptions on a non-emergency basis may also be considered, but these exceptions will not be granted if BLM determines that there are prairie-chicken sightings, historic leks and or active leks within 1.5 miles of the proposed location, or any combination of the above mentioned criteria combined with suitable habitat.

In light of the circumstances under which exceptions may be granted, minimal impacts to the LPC are anticipated as a result of the grant of exceptions to the timing limitation for

LPC Condition of Approval. In light of these requirements and mitigation measures as below, minimal impacts to the LPC are anticipated as a result of oil and gas activity.

Raptors have been observed using plugged and abandoned well markers as perches. Artificial perches may increase raptor presences in a given area. Furthermore, artificial perches may provide strategically-located vantage points and may improve the hunting efficiency of raptors. In order to improve the probability of maintaining a stable lesser prairie-chicken population low profile plugged and abandoned well markers will be installed. The well marker will be approximately 2 inches above ground level and contain the following information: operator name, lease name, and well number and location, including unit letter, section, township, and range. The previous listed information will be welded, stamped, or otherwise permanently engraved into the metal of the marker.

Mitigation Measures:
In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

Sand Dune Lizard
The sand dune lizard (SDL) is threatened by activities that remove shinnery oak, disrupt the morphology of the sand dunes, or otherwise degrade suitable habitat. Construction of the proposal in sand dune complexes that are suitable habitat or occupied habitat could impact local populations of SDL by reducing the size of habitat available to the species and possibly extirpating SDL from the location.

Mitigation
In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. The RMPA requires that existing leases within the SDL habitat be surveyed for the species and habitat suitability prior to development when surveys are requested by BLM. These surveys determine if the area proposed for development is occupied, suitable but unoccupied, or unsuitable. Depending on the results of surveys, proposed development is moved to avoid suitable or occupied SDL habitat.

The CFO ensures that occupied and suitable dune complexes are protected by conducting intensive surveys during the summer months. Once identified, proposed locations are relocated to avoid impacts to the active dune complexes.

Wildlife biologists have worked closely with industry representatives to locate this project away from dune complexes which minimizes impact to habitat. In addition, the

road has been contoured to maintain the integrity of the dune complex and all construction is situated within previously disturbed areas whenever possible to allow for immigration and emigration corridors. Through these negotiated modifications, impacts to SDL localized populations and habitats are minimized.

4.9 Cultural Resources

The project falls within the area covered by the Permian Basin Memorandum of Agreement (MOA). The Permian Basin MOA is an optional method of compliance with Section 106 of the National Historic Preservation Act for energy related projects in a 28 quadrangle area of the Carlsbad Field Office. The MOA is a form of off-site mitigation which allows industry to design projects to avoid known NRHP eligible cultural resources and to contribute to a mitigation fund in lieu of paying for additional archaeological inventory in this area that has received adequate previous survey. Funds received from the Permian Basin MOA will be utilized to conduct archaeological research and outreach in Southeastern New Mexico. Research will include archaeological excavation of significant sites, predictive modeling, targeted research activities, as well as professional and public presentations on the results of the investigations.

The proponent chose to participate in the Permian Basin MOA by planning to avoid all known NRHP eligible and potentially eligible cultural resources. The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the MOA serves as mitigation for the effects of this project on cultural resources. If any skeletal remains that might be human or funerary objects are discovered by any activities, the project proponent will cease activities in the area of discovery and notify the BLM within 24 hours as required by the Permian Basin MOA.

4.10 Noxious Weeds

Alternative A – Proposed Action

Any surface disturbance can increase the possibility of establishment of new populations of invasive, non-native species. The construction of the proposed action may contribute to the establishment and spread of African rue and Malta starthistle. The main mechanism for seed dispersion would be by equipment and vehicles that were previously used and/or driven across noxious weed infested areas. Noxious weed seed could be carried to and from the project area by construction equipment and transport vehicles.

Mitigation Measures:

To further reduce impacts the following COAs will apply:

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

5.0 Cumulative Impact Analysis

Cumulative impacts are the combined effect of past projects, specific planned projects, and other reasonably foreseeable future actions within the project study area to which oil and gas exploration and development may add incremental impacts. This includes all actions, not just oil and gas actions, which may occur in the area including foreseeable non-federal actions.

The combination of all land use practices across a landscape has the potential to change the visual character, disrupt natural water flow and infiltration, disturb cultural sites, cause minor increases in greenhouse gas emissions, fragment wildlife habitat and contaminate groundwater. However, the likelihood of these impacts occurring is minimized through standard mitigation measures, special Conditions of Approval and ongoing monitoring studies.

All resources are expected to sustain some level of cumulative impacts over time; however these impacts fluctuate with the gradual abandonment and reclamation of wells. As new wells are being drilled, there are others being abandoned and reclaimed. As the oil field plays out, the cumulative impacts will lessen as more areas are reclaimed and less are developed.

6.0 Consultations and Coordination

Prepared by: John Fast, Natural Resource Specialist BLM-CFO
Date: 07/26/11

The following individuals have been consulted regarding the proposed action:

James Renn, Archaeologist, BLM-CFO
L. Rex McAliley, Ph.D., Wildlife Biologist, BLM-CFO
James Smith, Planning & Environmental Coordinator, BLM-CFO

7.0 References

Draft New Mexico GHG Inventory and Reference Case Projection – June 2005. (Available on the Internet: http://www.nmclimatechange.us/ewebeditpro/items/O117F6527.pdf)

EPA Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. Environmental Protection Agency, Washington, D.C.

Enquist, Carolyn and Gori, Dave. Implications of Recent Climate Change on Conservation Priorities in New Mexico. April 2008.

Intergovernmental Panel on Climate Change (IPCC). 2001. Climate Change

2001: Synthesis Report. Contribution of Working Groups I, II, III to the Third Assessment Report. (Available on the Internet: http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/)

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007, Synthesis Report. A Report of the Intergovernmental Panel on Climate Change.

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Basis (Summary for Policymakers). Cambridge University Press. Cambridge, England and New York, New York. (Available on the Internet: http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf)

New Mexico GHG Inventory and Reference Case Projection 1990-2020 (Draft) – June 2005. (Available on the Internet: http://www.nmclimatechange.us/ewebeditpro/items/O117F6527.pdf)

New Mexico Environment Department Air Quality Bureau. (Available on the Internet: http://www.nmenv.state.nm.us/aqb/)

Sebastian, L., and S. Larralde. 1989. *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico.* Cultural Resources Series No. 6. New Mexico Bureau of Land Management. Prepared by the Office of Contract Archeology, University of New Mexico, for the Bureau of Land Management, Roswell District.

DECISION RECORD (DR)
AND
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
BLM Office: Carlsbad Field Office

DOI-BLM-NM-P020-2011-1151-EA
Lease #: NMNM 118720
COG Operating LLC
Patterson B 52 Federal No 2H

Purpose and Need for Action
COG Operating LLC has applied by sundry notice to relocate one horizontal oil well. The new location for the proposed well is as follows:

Patterson B 52 Federal No 2H:

Proposed New Location:
Surface Location: 330' FNL & 330' FEL, Section 5, T. 19 S., R. 32 E.
Bottom Location: 380' FNL & 330' FWL, Section 5, T. 19 S., R. 32 E.

Permitted Location:
Surface Location: 330' FNL & 660' FEL, Section 5, T. 19 S., R. 32 E.
Bottom Location: same

Recommendation and Rationale:
Our analysis has shown with proper mitigation as described in Section 2.1 of the attached EA the proposed action would have minimal environmental impacts. The proposed action is consistent with the Carlsbad Resource Area Management Plan and Amendments. Therefore, it is recommended that this application be approved.

Mitigation Measures:
The mitigation measures include the Pecos District Conditions of Approval, lesser prairie chicken timing stipulations, and a low profile well marker.

Prepared by:

John Fast — 7-29-11

John Fast, Natural Resource Specialist — Date

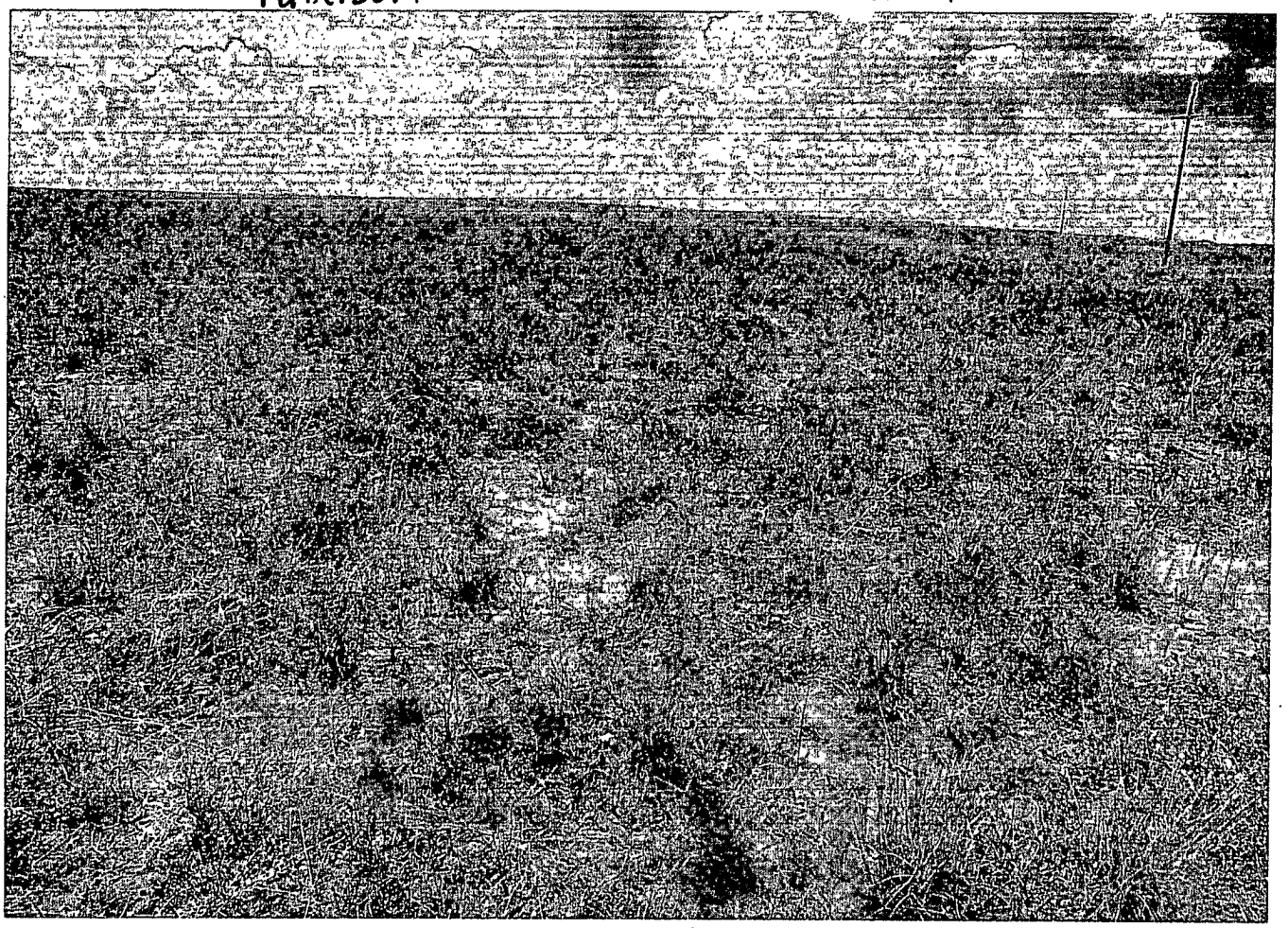
Finding of No Significant Impact/Decision Record:
I have reviewed this environmental assessment including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action with the mitigation measures described in Section 2.1 of the attached EA will not have any significant impacts on the human environment, no significant impacts to minority or low-income populations or communities have been identified for the proposed action and that an EIS is not

required. I have determined that the proposed project is in conformance with the approved land use plan. It is my decision to implement the project with the mitigation measures as described in the attached EA.

James Stovall, Field Manager
Carlsbad Field Office, BLM

8/5/11
Date

Patterson B-52 2H North



East

Mayte Reyes
<mreyes1@concho.com>
07/29/2011 10:51 AM

To "dwhitloc@blm.gov" <dwhitloc@blm.gov>, "jfast@blm.gov" <jfast@blm.gov>
cc Rand French <rfrench@concho.com>
bcc
Subject Patterson B-52 Federal #2H

Good morning Gentlemen,

Please note that the attached Production Facility Layout and the Site Diagram belongs to the Patterson B-52 Federal #2H. Please let me know if there is other information you may need. The original and 3 copies will be in the mail today.

Thank you very much for your help and have a great weekend!

Mayte

Mayte Reyes
Regulatory Analyst
COG OPERATING LLC
2208 W Main St
Artesia, New Mexico 88210-3720
575.748.6945

CONCHO

A Blank C-144 Closed Loop diagram Basin Rigs 4-11-11.ppt Production Facility Layout Patterson B-52 Federal #2H XLS

Patterson B-52 Lft South

West

Well-Site Evaluation Field Form

Company Name: COG **Well Name** Patterson B-52 24

Location: Section 5, T. 19 S. R. 32 E. Footage 330 FNL & 330 FEL

Examined by J Fast **Date** 7-25-11

Evaluation:

Description & Topography: (cut & fill, etc.)

level slight undulating dunes

Soils: (reseeding stips, etc.) sandy Cave Area: low

Hydrogeology: (wells, playas, floodplain, drainages, erosive soils, plant indicators, etc.)

NA

Wildlife: (habitat, LPC, SDL, etc.) LPC

Other: (VRM, range, existing structures, etc.) Eline ~~150~~ 50' E & 200's

Well Infrastructure

(Oil) Gas Vertical (Horizontal) Directional

V-Door Direction: east

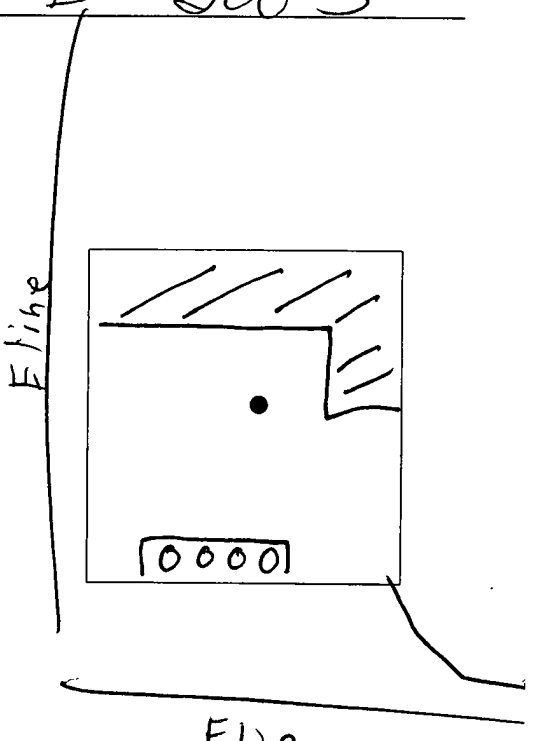
Pad Size: 300 x 300

Road Route: SE to existing pad

Pipeline:

Production Facility Placement: south

Interim Reclamation: North



* ~~SW corner under line~~
11's Eline

to exist pad east