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Glossary

- acre-foot.** The volume of water sufficient to cover one acre of land to a depth of 1 foot. Equals 43,560 cubic feet or approximately 325,851 U.S. gallons.
- Albedo.** The amount of solar energy (shortwave radiation) reflected from the Earth back into space. It is a measure of the reflectivity of the earth's surface.
- Anhydrite.** Relatively common sedimentary mineral that forms massive rock layers and develops from the dewatering of gypsum.
- Anticline.** A geologic structure in which rocks are folded so the rock layers are convex, forming a dome, with the younger rocks on the outside.
- Applicant–committed Environmental Protection Measures.** Actions agreed to in advance of project initiation by the proponent; designed to protect resources.
- Aquifer.** A body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs.
- Aquitard.** A bed of low permeability adjacent to an aquifer that may store groundwater, although it does not yield water readily.
- Aridisols.** Soils that occur under arid climates, where evaporation greatly exceeds precipitation. They are characterized by an accumulation of carbonates and other salts.
- Big Game.** Native ungulate wildlife species that are hunted, such as deer and pronghorn antelope.
- Biological Soil Crust.** Community of non-vascular primary producers that occur as a "crust" on the surface of soils; made up of a mixture of algae, lichens, mosses, and cyanobacteria (bluegreen algae).
- Breccia.** A deposit consisting of fragmented rock materials caused by the collapse of underground voids due to dissolution of evaporite layers.
- Clastic rocks.** Sedimentary rocks composed of particles weathered from any type of pre-existing rocks and minerals.
- Convergence (mining).** Closure of the mined area through subsidence
- Cumulative Effect.** The impact that results from identified actions when they are added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.
- Diagenetic (geology).** The process of chemical and physical change in deposited sediment during its conversion to rock.
- Drawdown Contour.** A line derived from water modeling that depicts extent of lowering of the water level after pumping compared to its previous level.

Drawdown. The lowering of the water level in a well, spring, water body, or water table as a result of water withdrawal from an aquifer.

Elastoplastic rock. Massive, homogeneous, and relatively elastic rock with load-deformation characteristics that allow the rock to deviate significantly from a straight line without fracturing.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no continuous supply from melting snow or other source, and its channel is above the water table at all times.

Erosion. Detachment and movement of soil or rock fragments by water, wind, ice, or gravity. Wearing away of the land surface by running water, wind, ice, or other geologic agents, including such processes as gravitational creep.

Escarpment. A long, precipitous, cliff-like ridge of land or rock, commonly formed by faulting or fracturing of the underlying bedrock.

Evaporite (geology). Any of a variety of minerals found in the sedimentary deposit of soluble salts that result from the evaporation of water.

Facies (geology). A rock or stratified body with specific characteristics such as appearance or composition.

Forage. The plant material actually consumed by or available to grazing animals.

Fugitive Dust. A non-point source of air pollution, such as from unpaved roads, agricultural croplands, and construction sites.

Granitic (geology). A common, coarse-grained, light-colored, hard igneous rock consisting chiefly of quartz, orthoclase or microcline, and mica.

Groundwater. Subsurface water that is in the zone of saturation. The top surface of the groundwater is the "water table." Source of water for wells, seepage, springs.

Habitat Fragmentation. The division of large contiguous blocks of wildlife habitat into isolated smaller parcels separated by distances great enough to discourage wildlife movement between parcels.

Habitat. An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

Hypersaline. Extremely salty, having much more salt than normal seawater or brine water.

Karst. Terrain with distinctive, often rolling, landforms created from the dissolution of soluble rocks, principally limestone and dolomite. It is characterized by springs, caves, and sinkholes that are often directly connected to aquifers.

Langbeinite. A potassium magnesium sulfate mineral with formula $K_2Mg_2(SO_4)_3$.

Metamorphic (geology). Rock that has been changed or transformed from its original form by excessive heat or pressure.

pH. A measure of the acidity or alkalinity of a solution. The pH scale ranges from 0 to 14, with 7 used for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity.

Physiography. The physical geography of an area, characterized by similar landforms and geology.

Polyhalite. A hydrated potassium-calcium-magnesium-sulfate salt with the formula $K_2Ca_2Mg(SO_4)_4 \cdot 2(H_2O)$ that has less solubility in water than other evaporite minerals. It is thought to have formed as a replacement mineral from the dissolution of anhydrite by brine solutions.

Potash. Common name for various mined and manufactured salts that contain potassium in water-soluble form.

Potentiometric surface. The level to which groundwater would rise if not confined; equivalent to the top of a water table in an unconfined aquifer.

Sedimentary rocks. Rocks formed by accumulation and cementation of minerals transported by wind or water, or chemically precipitated.

Subsidence. The gradual settling or sudden sinking of the Earth's surface caused by the subsurface movement of bedrock. Subsidence can occur naturally or can be man-made due to conditions including dissolution of subsurface strata, removal of bedrock by underground mining, withdrawal of subsurface fluids, thawing, and natural consolidation of subsurface materials.

Sylvite. Potassium chloride in natural mineral form. It forms crystals in the isometric system very similar to normal rock salt, halite.

Talus. The loose rock created by physical weathering, typically found on a steep mountainside or at the base of a cliff or slope.

Topography. The form and structure of the surface of land.

Volcanic (geology). Relating to or produced by volcanoes.

Vug. A small cavity in a rock or vein, often with a mineral lining of different composition from that of the surrounding rock.

Watershed. The area of land where all of the water that drains from it flows into the same place.

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Appendix A

Lease Stipulations and Conditions of Approval for Secretary's Potash Area

POTENTIAL POTASH LEASE STIPULATIONS AND CONDITIONS OF APPROVAL

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1 Existing Potash Lease Stipulations

The following lease stipulations may be attached to the potash leases issued to ICP should this project be approved. Not all stipulations would be attached to all leases.

1.1 Special Stipulations

These stipulations are a minimum requirement for general lease operations. More restrictive stipulations may be required for specific projects.

1.1.1 Damage Indemnity

The lessee shall agree and stipulate that the Federal Government, the Department of the Interior, and the Bureau of Land Management and its representatives shall not be responsible for damage or injury to persons and property which may occur during the permitted use period or as a result of such use.

1.1.2 Compliance with Laws and Regulations

The lessee shall comply with all applicable Federal, State and local laws and regulations existing or hereafter enacted or promulgated during the term of this action.

1.1.3 Oil and Gas Production

Operations shall not be conducted which in the opinion of the authorized officer would constitute a hazard to oil and gas production or that would unreasonably interfere with the orderly development and production under any oil and gas lease issued for the same lands.

1.1.4 Pollution Removal

If, during any phase of the construction or operation of the lease, any pollutant or hazardous material should be discharged by the operator or his representative impacting Federal lands, the control and total removal, disposal, and cleanup of such pollutant or hazardous material, wherever found, shall be the responsibility of lessee, regardless of fault. Upon failure of lessee to control, dispose of, or cleanup such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control the cleanup, the discharge, and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the lessee. Such action by the Authorized Officer shall not relieve the lessee of any responsibility as provided herein.

1.1.5 Wood and Plant Removal

Removal of fuel wood and live plants from public lands are not permitted unless approved by the authorized officer.

1.1.6 Mineral Removal

Removal of mineral materials such as sand, gravel, caliche, or building stone is not allowed unless authorized by a current sales contract. No new caliche pits or other material pits on federal lands shall be allowed without the approval of the Authorized Officer. Mineral materials

removed from Federal lands is by permit only. A permit shall be purchased prior to mineral material removal.

1.1.7 Antiquities

The collection, excavation, removal, damage to or alteration of any antiquities, including Indian artifacts and arrowheads is prohibited by the Archeological Resources Protection Act (16 USC 470aa-4701l). The lessee shall be responsible for ensuring that people employed by the lessee or under contract to the lessee shall abide by this law.

1.1.8 Cultural Resources

Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the lessee or any person working on the lessee's behalf, on Federal land shall be immediately reported to the 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. The authorized officer shall determine the appropriate actions necessary in order to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any measures necessary to mitigate the site as determined by the authorized officer With consultation with the lessee.

1.1.9 Cultural Survey

A cultural survey shall be conducted by an archeologist approved by the BLM, prior to any construction activities on lands not previously surveyed.

1.1.10 New Construction

The lessee shall obtain prior written approval from the BLM of any construction not authorized in a previously approved plan. Notification to the BLM of the activity shall be in the form of a written mining plan modification.

1.1.11 Fences

If a fence is crossed during lease operations, to prevent slacking of fence wire, the lessee will brace and tie-off each existing fence to be crossed before cutting. During construction, the opening shall be protected to prevent the escape of livestock. Fences which have been cut during construction will be restored by the lessee to a condition which is equal to or better than the original. Cattle guards and adjacent gates which are of a suitable width will also be installed in any fence where a road created during construction is to be regularly traveled.

1.1.12 Gates

Gates or cattle guards on public lands shall not be locked or closed to public use by the lessee. Gates will be kept closed at all times unless the grazing allottee requests them to be left open.

1.1.13 Surface Owner Notification

Prior to any construction, the lessee shall notify the grazing allottee or the surface owner, in the case of private ownership, of the activity. Abandonment stipulations will coincide with surface owner agreement.

1.1.14 Scattering

Vegetation, soil and rocks left as a result of construction or maintenance activity will be randomly scattered in the vicinity and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer.

1.1.15 Blading

Clearing and blading of roads and pads will be held to a minimum unless approved by the authorized officer.

1.1.16 Pits

At the conclusion of construction activities requiring the excavation of pits on the surface of Federal lands, the pits will be filled with soil such that after compaction the pit is at ground level.

1.1.17 Trash

No landfills for the disposal of any waste shall be allowed. All trash shall be hauled to an approved sanitary landfill or dump site. Any other methods of disposal shall first be approved by the Authorized Officer.

1.1.18 Concrete

No excess or waste concrete shall be dumped on Federal lands. If concrete is accidentally spilled, it will be removed and disposed of properly.

1.1.19 Noxious Weeds

The operation of the lease may not result in the establishment of noxious weeds as defined by the Carlsbad Field Office. If any lease action is responsible for the establishment of any noxious weeds on the leased or surrounding lands, the lessee will be responsible for their removal at the lessee's expense. The current noxious weeds defined by the Carlsbad Field Office are: Malta Starthistle, African Rue, Scotch Thistle, Saltcedar, or Rayless Goldenrod. This list may change at any time.

1.1.20 Painting

Any structures erected at a location away from the main plant site, as determined by the BLM shall be painted a color which blends in with the natural landscape. The color shall be one that is approved by the BLM.

1.2 Road Construction Stipulations**1.2.1 Road Width and Grade**

The road will have a driving surface no greater than 12 feet. The maximum grade of the road at any point will be no more than 10 percent. Minimum road construction techniques are recommended.

1.2.2 Surface Disturbance Width

The maximum width of surface disturbance resulting from road construction will be 30 feet. Minimum road techniques are recommended.

1.2.3 Cattle guards

Where used, all cattle guard grids and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) Load Rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads (exceeding H-20 loading), are anticipated (see BLM standard drawings for cattle guards). Cattle guard grid length shall not be less than 8 feet and width of not less than 14 feet. A wire gate (1 6-foot minimum width) will be provided on one side of the cattle guard unless requested otherwise by the surface user.

1.3 Reclamation

Stipulations required by the Authorized Officer on specific actions may differ from the following general guidelines.

1.3.1 Core Hole Reclamation

- A. All the core holes shall be plugged from bottom to top with cement to protect water bearing aquifers.
- B. A 4-inch pipe marker will be set extending 5 feet above ground level and will have the location and lessee's name appropriately marked on the pipe.
- C. Upon abandonment of a core hole, a lithology log shall be submitted with assays and mineral balances when warranted.

1.3.2 Road and Site Reclamation

- A. Any new roads or pads constructed during lease operation will be ripped and seeded, and any drilling pads constructed will be ripped and seeded.
- B. Any areas where vehicles have been driven across open country will have three tee posts with wire stretched between them, erected across the access to the disturbance in order to restrict further vehicular use.
- C. Any land disturbed during construction will be seeded to the specifications below.
- D. A berm will be constructed across the entrance to any road reclaimed with a minimum height of 3 feet and a length sufficient to prohibit or discourage vehicular travel.
- E. The surface allottee can request that a road be allowed to remain, if approved by the Authorized Officer.

1.3.3 Facility Reclamation

Any surface structure erected during lease operation shall be removed and disposed of in a proper manner according to Federal, State and County laws and regulations. Any concrete spilled on the Public Lands shall be removed and disposed of properly.

1.3.4 Hazardous Waste Removal

Any hazardous wastes spilled or otherwise used on the site will be removed and disposed of by a method approved by the authorized officer at the expense of the lessee.

1.3.5 Reseeding

If after one growing season the vegetation has not taken hold, re-seeding will be required as in the steps below.

1.3.5.1 Seeding Techniques

Seeds shall be drilled to a proper depth to insure good coverage and germination. The seed mixture shall be evenly and uniformly planted over the disturbed area. If drilling is not possible, seeds shall be broadcast and the area raked or dragged to cover the seed.

1.3.5.2 Seed Mixture

A certified "Weed Free" seed mixture will be used for reclamation. The suggested seed mixtures can be found in Section 3 of this appendix. The seed mixture may be changed with the approval of the authorized officer. Species are to be planted in pounds of pure live seed per acre.

1.3.5.3 Soil Preparation

A granular 16-12-12 fertilizer, or better, will be required at the rate of 200 lbs. per acre. Fertilizer requirements may be modified prior to the performance of reclamation upon approval of the Authorized Officer.

Water shall be applied directly after planting, irrigated a minimum of three inches into the soil in order to provide adequate amounts of moisture, and to help embed the seeds. Seeding prior to the fall rainy season is preferable.

2 Pending Conditions of Approval

These COAs will be applied to the APDs and ROWs associated with this project as needed and as determined by BLM resource specialists)

2.1 General

2.1.1 Damage Indemnity

The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2.1.2 Toxic Substances Control Act Compliance

The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be

furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

2.1.3 Hazardous Waste Indemnity

The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

2.1.4 Fences

The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer. The holder will make a documented good-faith effort to contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence.

2.1.5 Scattering

Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. A berm will be left over the ditch line to allow for settling back to grade.

2.1.6 Erosion Control Structures

In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

2.1.7 Reseeding

The holder will reseed. Seeding will be done according to the attached seeding requirements.

2.1.8 Painting Requirements

All permanent surface production facilities, including the well-drive control system, treatment, storage, power (except specifically approved electrical transmission lines and poles, or other permanent above-ground facilities not otherwise specifically subject to safety coloring requirements), shall be painted by the holder to blend with the dominant natural color of the surrounding landscape. The paint used shall be one of the "Standard Environmental Colors"

designated by the Rocky Mountain Five-State Interagency Committee, and shall be a flat, non-reflective finish. Any exception to this Painting Requirement must be approved by the BLM Authorized Officer in writing prior to implementation.

2.1.9 Cultural Resources

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 authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

2.1.10 Native American Graves Protection and Repatriation Act

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes.

2.1.11 Pollution Removal

If, during any phase of the construction, operation, maintenance, or termination of the [PROJECT], any oil or other pollutant should be discharged, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of the Holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the Holder. Such action by the Authorized Officer shall not relieve the Holder of any liability or responsibility as provided herein.

2.2 Pipelines

2.2.1 All Pipelines

2.2.1.1 Damage Liability

The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury

to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- Activities of other parties including, but not limited to:
 1. Land clearing.
 2. Earth-disturbing and earth-moving work.
 3. Blasting.
 4. Vandalism and sabotage.
- Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

2.2.1.2 Right-Of-Way

All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

All construction and maintenance activity will be confined to the authorized right-of-way.

2.2.1.3 Signage

The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

2.2.2 Buried Pipeline

2.2.2.1 Cover

The pipeline will be buried with a minimum cover of 24 inches between the top of the pipe and ground level.

2.2.2.2 Blading

Blading of all vegetation will be allowed. Blading is defined as the complete removal of brush and ground vegetation. Clearing of brush species will be allowed. Clearing defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface. In areas where blading and/or clearing is allowed, maximum width of these operations will not exceed 35 feet.

2.2.3 Surface Pipeline

2.2.3.1 *No Blading W/O Approval*

No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

2.2.3.2 *Minimize Suspension*

The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

2.2.3.3 *Crossing Burial*

The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

2.3 Cave/Karst

2.3.1 Karst Features

The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction and no further construction will be done at that point until clearance has been issued by the Authorized Officer. Special restoration stipulations or a realignment may be required at such intersections, if any. The project will be routed around sinkholes and other karst features when practical. Turnout ditches and drainage leadoffs will not be constructed in such a manner as to increase or decrease the natural flow of water into or out of cave or karst features.

2.3.2 Surface Disturbance Buffer

Surface disturbance will not be allowed within up to 200 meters of known cave entrances, passages or aspects of significant caves, or significant karst features. Waiver of this requirement will be considered for projects that enhance or protect renewable natural resource values, or when an approved plan of operations ensures the protection of cave and karst resources.

2.3.3 Cave Protection

To mitigate or lessen the probability of impacts associated with the drilling wells in karst areas, the guidelines listed in Appendix 3, Practices for Oil and Gas Drilling and Production in Cave and Karst Areas, as approved in the Carlsbad Resource Management Plan Amendment of 1997, page AP 3-4 through AP 3-7 will be applied as appropriate.

2.3.4 Protection Protocols

BLM maintains up to date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible. Drilling pads, roads, utilities, pipelines and flowlines will be routed around cave and karst features at an adequate distance to mitigate

adverse impacts. Wellbore engineering plans will incorporate required cave and aquifer protection protocols.

2.3.5 Aquifer Recharge

Highly sensitive cave and karst areas with critical freshwater aquifer recharge concerns may have a number of special surface and subsurface planning and construction requirements based upon the risk of adverse impacts created by a specific location or process.

2.3.6 Cave/Karst Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- Delayed Blasting
OR
No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminants.

2.3.7 Cave/Karst Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed Mud System with Buried Cuttings Pit/Drying Area.
OR
Closed Mud System with Cuttings Pit/Drying Area and Cuttings Removed.
OR
Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after drilling vertically at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers.

2.4 Roads

2.4.1 Invasive Plant Species

The Holder shall ensure that the entire right-of-way, including the driving surface, ditching and drainage control structures, road verges and any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

2.4.2 Road Width and Grade

The road will have a driving surface of 14 feet (all roads shall have a minimum driving surface of 12 feet, unless local conditions dictate a different width). The maximum grade is 10 percent. Maximum width of surface disturbance from construction will be 30 feet.

2.4.3 Crowning and Ditching

Crowning with materials on site and ditching on one side of the road on the uphill side will be required. The road cross-section will conform to the cross section diagrams in Figure 1. If conditions dictate, ditching may be required for both sides of the road; if local conditions permit, a flat-bladed road may be considered. The crown shall have a grade of approximately 2% (i.e., 1" crown on a 12' wide road).

2.4.4 Drainage

Drainage control shall be ensured over the entire road through the use of borrow ditches, out-sloping, in-sloping, natural rolling topography, lead-off (turnout) ditches, culverts, and/or drainage dips.

2.4.4.1 Lead-Off Ditches

All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval for lead-off ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road slope (in %):

[INSERT SPACING INTERVAL TABLE]

A typical lead-off ditch has a minimum depth of 1 foot below and a berm 6 inches above natural ground level. The berm will be on the down-slope side of the lead-off ditch. The ditch end will tie into vegetation whenever possible.

2.4.4.2 Culvert Pipes

Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter must be 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map (Further details can be obtained from the Pecos District Office or the appropriate Field Office).

2.4.8 Maintenance

The holder shall maintain the road in a safe, usable condition. A maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance, and surfacing.

2.4.9 Public Access

Public access along this road will not be restricted by the holder without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the Authorized Officer.

2.5 Power Lines

2.5.1 All Power Lines

2.5.1.1 Blading of Powerline ROWs

There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

2.5.1.2 Power Line Signage

The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

2.5.1.3 Abandonment

Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

2.5.1.4 Removal of Surface Structures

All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

2.5.1.5 Noxious Weeds

The holder shall insure that the equipment and or vehicles that will be used to construct, maintain and administer the access roads, well pad, and resulting well are not polluted with invasive and noxious weed seeds. Transporting of invasive and noxious weed seeds could occur if the equipment and vehicles were previously used in noxious weed infested areas. In order to prevent the spread of noxious weeds, the Authorized Officer shall require that the equipment and vehicles be cleaned with either high pressure water or air prior to construction, maintenance and administration of the access roads, well pad, and resulting well. The holder is

responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods, which include following EPA and BLM requirements and policy.

2.5.1.6 Waste Disposal

The holder shall be responsible for maintaining the site in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment.

2.5.2 Overhead Power Lines

2.5.2.1 Raptor Protection

Powerlines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Powerlines," Raptor Research Foundation, Inc., 1981. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication are "raptor safe." Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

2.5.2.2 Special Power Line Stipulations

Limit all disturbance to authorized width of approved access road.
For reclamation remove poles, lines, transformer, etc. and dispose of properly.
Fill in any holes from the poles removed.

2.5.3 Buried Power Lines

2.5.3.1 Limits

The holder shall conduct all activities associated with the construction, operation and termination of the power line within the authorized limits.

2.5.3.2 Construction Trenches

Construction trenches left open overnight shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole.

2.5.3.3 Excavated Soil

The holder shall evenly spread the excess soil excavated from trench in the immediate vicinity of the trench structure.

2.5.3.4 Special Buried Powerline Stipulations

The construction of this project would consist of digging a trench to a depth of at least 38 inches, then installing the power line and covering with backfill dirt. After completing construction of the buried power line, the line shall be marked with underground power line warning signs at least every ¼ mile.

2.6 Reclamation

2.6.1 Interim Reclamation

2.6.1.1 Interim Reclamation

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

2.6.1.2 Reduction Strategy

Within six (6) months of well completion, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient well operation.

2.6.1.3 Caliche Removal

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for operation or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

2.6.1.4 Reseeding Requirements

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

2.6.1.5 Notice

Upon completion of interim reclamation, the operator shall submit a Subsequent Report of Reclamation (Form 3160-5).

2.6.2 Final Reclamation

2.6.2.1 Final Reclamation

At final abandonment, well locations, facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

2.6.2.2 Earthwork

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

2.6.2.3 Revegetation

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

2.6.2.4 Contact BLM Prior to Abandonment

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives.

2.6.2.5 Abandoned Well Marker

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

2.7 Recreation

2.7.1 RMP Guidelines

To mitigate impacts associated with the drilling and production of oil and gas wells and associated infrastructure (roads, power lines, pipelines, etc.) in the SRMA, the guidelines in Appendix 4 as approved in the Carlsbad Resource Management Plan Amendment of 1997, page AP4-131 will be followed. This includes the standard mitigation for protecting ORV trails and camping areas.

2.7.2 Powerline and Pipeline recreation mitigation

The pipeline shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. During all phases of construction, open ditches shall have proper signage notifying trail users of potential hazards. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. Power line poles will be spaced to avoid pole placement within trails and "two tracks." All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

2.8 Range

2.8.1 Range Standard Practices

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, utilizing steel tanks instead of reserve pits, 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. Avoiding existing range improvement projects, or moving them, will prevent them from being damaged by the proposed action.

2.8.2 Livestock Watering Requirement

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

OR

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be moved a minimum of 200 meters away from the proposed action.

2.9 Visual Resources

2.9.1 Reclamation Requirements

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

2.9.2 Low Profile Facilities

All permanent surface production facilities, including the well-drive control system, treatment, storage, power (except specifically approved electrical transmission lines and poles), or other permanent above-ground facilities shall be "low profile", not to exceed ___ feet in height. Any exception to this Low Profile Facilities must be approved in writing by the BLM Authorized Officer prior to implementation.

2.10 Soil

2.10.1 Slopes or Fragile Soils

Surface disturbance will not be allowed on slopes over 30 percent. Exceptions will be considered for authorized mineral material extraction sites and designated OHV areas, for the installation of projects designed to enhance or protect renewable natural resources, or if a plan of operations and development which provides for adequate mitigation of impacts was approved by the Authorized Officer. Occupancy or use of fragile soils will be considered on a case-by-case basis.

2.10.2 Rights-Of-Way

2.10.2.1 Standard ROW Practices

Impacts to soil resources will be reduced by following standard practices such as utilizing existing surface disturbance and quickly establishing vegetation on the disturbed areas.

2.10.2.2 ROW Mitigation

To further reduce impacts the following COAs will apply: minimizing the right-of-way width, no blading along the proposed route, minimizing vehicular use, and placing parking and staging areas on caliche surfaced areas.

Temporary soil erosion mitigation includes installing silt fences, diversion berms, or other soil erosion controls to slow water migration across disturbed areas during construction and reclamation.

2.10.3 Well Pads

2.10.3.1 Well Pad Standard Practices

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, utilizing steel tanks instead of reserve pits, 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.

2.10.3.2 Well Pad Mitigation

To further reduce impacts the following COAs will apply:

- Surface with caliche, interim reclamation, and caliche removal at time of reclamation.
- Stockpile topsoil to enhance reclamation.

OR

There is no measurable soil on this well pad to stockpile. No topsoil stockpile is required.

- Install silt fences, diversion berms, or other soil erosion controls to slow water migration across disturbed areas during construction and reclamation.

2.11 Wildlife

2.11.1 Wildlife Habitat Projects

2.11.1.1 Raptor Nests and Heronries

Surface disturbance will not be allowed within up to 200 meters of active heronries or by delaying activity for up to 120 days, or a combination of both. Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both.

Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.

2.11.1.2 Prairie Dog Towns

Surface disturbance will not be allowed on public lands within known prairie dog towns or towns identified in the future. Exceptions to this requirement will be considered for maintaining existing structures or facilities. Prairie dog control will not be authorized on public lands, except in emergency situations involving public health.

2.11.2 Special Status Species

2.11.2.1 Prairie Chickens

2.11.2.1.1 LPC Timing Limitation

Drilling will not be allowed in lesser Prairie Chicken habitat during the period of March 15 through June 15, each year. During that period, other activities that produce noise or involve

human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 a.m. and 9:00 a.m. The 3:00 a.m. to 9:00 a.m. restriction will not apply to normal, around-the-clock operations, which do not require a human presence during the period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise. Exceptions to these requirements will be considered for areas of no or low prairie chicken booming activity, or unoccupied habitat, including leks, as determined at the time of permitting, or in emergency situations.

2.11.2.1.2 Ground Level Dry Hole Markers

The BLM Carlsbad Field Office (CFO) Conditions of Approval (COA) Requires that ground level dry hole markers be placed on well within the Lesser Prairie Chicken habitat area. The dry hole markers will be to the following specifications:

- 1) An 8 inch X 8 inch steel plate 1/8 to 3/16 of an inch thick is to be placed on the old dry hole marker stand pipe 2 inches from ground level, in the Lesser Prairie Chicken habitat area.
- 2) Steel plate may be welded or bolted approximately 2 inches from ground level on the stand pipes. If plates are bolted to the stand pipe, the person installing the plate will be required to weld a pipe collar on the plate and place a minimum of two set screws/bolt on each collar. Aluminum data plates may be bolted with minimum ¼ inch bolt and locking nuts or self tapping fine threaded screws. A minimum of one in each corner is to be installed on each plate.
- 3) An 8 inch x 8 inch aluminum plate, which is 12 gauge or .080 sign material (1/8 inch aluminum plate may be used in place of the .080 plate) with the required information for that well stamped or engraved in a minimum 3/8 inch tall letter or number.
- 4) The following information will be stamped or engraved on the 8 inch X 8 inch aluminum plate in the following order.
 - a) First row: Operators name
 - b) Second row: Well name and number
 - c) Third row: Legal location to include ¼ ¼, Section, Township, and range. If the legal location cannot be placed on one row it can be split into two rows with the ¼ ¼ (example: 1980 FNL 1980 FWL) being on the top row.
 - d) Fourth row: Lease Number and API number.

NMOCD Order No. R-12965 also required the operator to notify NMOCD when this type of dry hole marker is used. This can be done on the subsequent report of abandonment which is submitted to the BLM after the well is plugged. State that a ground level dry hole marker was installed as required in the COA's from the BLM.

2.11.2.2 Sand Dune Lizards

Surface disturbance will not be allowed in documented occupied habitat areas, or within up to 100 meters of suitable habitat associated with occupied habitat areas identified through field

review. An exception to this restriction will be considered when an on-site evaluation of habitat extent, available species occurrence data, the proposed surface use, and proposed mitigations indicate the proposal will not adversely affect the local population.

2.12 Water Quality/Watershed

2.12.1 Streams, Rivers and Floodplains

Surface disturbance will not be allowed within up to 200 meters of the outer edge of 100-year floodplains, to protect the integrity of those floodplains. On a case-by-case basis, an exception to this requirement may be considered based on one or more of the criteria listed below. The first three criteria would not be applied in areas of identified critical or occupied habitat for federally listed threatened or endangered species.

- Additional development in areas with existing developments that have shown no adverse impacts to the riparian areas as determined by the Authorized Officer, following a case-by-case review at the time of permitting.
- Suitable off-site mitigation if habitat loss has been identified.
- An approved plan of operations ensures the protection of water or soil resources, or both.
- Installation of habitat, rangeland or recreation projects designed to enhance or protect renewable natural resources.

2.12.2 Playas and Alkali Lakes

Surface disturbance will not be allowed within up to 200 meters of playas or alkali lakes. Waiver of this requirement will be considered on a case-by-case basis for projects designed to enhance or protect renewable natural resources. Mitigation could include: installing fencing; developing a supplemental water supply; planting trees and shrubs for shelter belts; conducting playa basin excavation; constructing erosion control structures or cross dikes; or by improving the habitat in another area.

2.12.3 Standard Practices to Protect Watersheds

Standard practices or design features of the proposed project that minimize impacts to the watershed and water quality include: utilizing a closed loop system with no reserve pits, berming of the production facilities, utilizing existing surface disturbance, minimizing the well pad and access road total surface disturbance, minimizing vehicular use, surfacing parking and staging areas with caliche and reclaiming the areas not necessary for production and quickly reestablishing vegetation on the reclaimed areas.

2.12.4 Mitigation Measures to Protect Watersheds

To further reduce impacts the following COAs will apply:

Surface disturbance will not be allowed (within x feet of playa; or describe pad restriction).

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

2.12.5 Surface Pipelines

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

2.13 Vegetation

2.13.1 Well pads

2.13.1.1 Vegetation to Protect Vegetation from Well Pads

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, utilizing steel tanks instead of reserve pits, 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.

2.13.1.2 Mitigation to Protect Vegetation from Well Pads

To further reduce impacts the following COAs will apply: Interim reclamation and caliche removal at time of reclamation.

2.13.2 Rights-Of-Way

2.13.2.1 Standard Practices to Protect Vegetation from ROWs

Impacts to vegetation will also be reduced by following standard practices such as utilizing existing surface disturbance and quickly establishing vegetation on the disturbed areas.

2.13.2.2 Mitigation to Protect Vegetation from ROWs

To further reduce impacts the following COAs will apply: Minimizing the right-of-way width, No blading along the proposed route, Minimizing vehicular use, Placing parking and staging areas on caliche surfaced areas.

2.14 Noxious Weeds

2.14.1 Mitigation for Weeds

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.

2.14.2 African Rue Standard Stipulations

2.14.2.1 African Rue (*Peganum harmala*)

The standard stipulation for the BLM Carlsbad Field Office states 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.

2.14.2.2 Spraying

The spraying of African Rue must be completed by a licensed or certified applicator. In order to attempt to kill or remove African Rue the proper mix of chemical is needed. The mix consists of 1% Arsenal (Imazapyr) and 1% Roundup (Glyphosate). African rue must be sprayed two weeks prior to any dirt working activities or disturbances to the site being sprayed. This will allow proper time to ensure the plants mortality. After the two week period the operator or necessary parties must contact the Carlsbad Field Office to inspect the effectiveness of the application treatment to the plant species. No ground disturbing activities can take place until the inspection by the authorized officer is complete. The operator may contact the Carlsbad Field Office at (505) 234-5972.

2.14.2.3 African Rue Management Practices

In addition to spraying for African Rue good management practices must be followed. All equipment must be washed off using a power washer in a designated containment area. The containment area needs to be bermed to allow for containment of the seed to prevent it from entering any open areas of the nearby landscape. The containment area needs to be excavated near or adjacent to the well pad at a depth of three feet and just large enough to get equipment inside it to be washed off. This will allow all seeds to be in a centrally located area that can be treated at a later date if the need arises.

2.15 Archaeology

2.15.1 Archaeological, Paleontological and Historical Sites

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required

to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

2.15.2 Historic Properties

Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.

2.15.2.1 Professional Archaeological Monitoring

Contact your project archaeologist, or BLM's Cultural Resources Section at (575) 234-2228, 5917, 2236, or 5967, for assistance.

- A. These stipulations must be given to your monitor at least 5 days prior to the start of construction.
- B. No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor.

2.15.2.2 Monitor Duties

The archaeological monitor shall:

- A. Observe all ground-disturbing activities within 100 feet of cultural site
- B. Ensure that all reroutes are adhered to avoid cultural site
- C. Submit a brief monitoring report within 30 days of completion of monitoring

2.15.3 Site Protection and Employee Education

It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or disturb cultural resources on Public Lands.

2.16 Welding

The following precautions will be taken for all arc and/or gas welding operations, and operations where oxy-acetylene cutting and brazing are done in a wildland fire environment.

1. At the work site, clear away all flammable vegetation down to mineral soil for a minimum radius of 6 feet around where the welding/cutting will take place. This includes grasses and other vegetative material.
2. While conducting the welding/cutting operations, the operator will have within 25 feet of the welding/cutting site:
 - Five (5) gallons of water and/or;
 - A five (5) pound multi-purpose dry fire extinguisher and a round point shovel.

3. After welding/cutting activities are completed, a routine return to the site will be required within 1 hour after the completion of the activity to check for any potential hot material that may start a wildland fire.
4. Operators and contractors are reminded that they may be held responsible for any wildland fire that starts from welding/cutting operations. This includes all cost for suppressing any wildland fire that starts from these activities.

2.17 Seed Mixtures

2.17.1 Seed Requirements

The holder shall seed all disturbed areas with the appropriate seed mixture found in Section 3 of this appendix. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

2.17.2 Seeding Methods

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

2.18 Drilling

2.18.1 Waste Material And Fluids

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

3 Seed Mixtures Currently Used for Ecological Sites

BLM SERIAL #:

COMPANY REFERENCE:

3.1 Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

BLM Serial #:

Company Reference:

3.2 Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

BLM SERIAL #:

COMPANY REFERENCE:

3.3 Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

BLM SERIAL #:

COMPANY REFERENCE:

3.4 Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass (<i>Setaria magrostachya</i>)	1.0
Green Spangletop (<i>Leptochloa dubia</i>)	2.0
Side oats Grama (<i>Bouteloua curtipendula</i>)	5.0

*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

BLM SERIAL #:

COMPANY REFERENCE:

3.5 Seed Mixture 4, for Gypsum Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Alkali Sacaton (<i>Sporobolus airoides</i>)	1.0
DWS Four-wing saltbush (<i>Atriplex canescens</i>) (DWS: DeWinged Seed)	5.0

*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

Appendix B

Comments on Draft EIS and Responses

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Introduction

During the 45-day public comment period for the Draft EIS, the BLM received written correspondence from 29 commenters. All comment documents were reviewed and each distinct comment was assigned a category and a response. In some cases, one comment was assigned to more than one category.

Table B-1 totals the number of comments with responses under each category.

Table B-1 Comments on the Draft EIS by Assigned Category

Category	# of Comments
Air Quality	9
Alternatives	35
BLM Authorities & Responsibilities	3
Cave/Karst	10
Climate Change	2
Co-development	46
Consultation	3
Cultural Resources	3
Cumulative Impacts	12
Editorial	1
Geology	10
Green House Gases	2
Hazardous Materials	1
Health/Safety	5
Leasing	9
Livestock Grazing/Range Management	3
Mining	3
Mitigation Measures	24
Monitoring/Mitigation	18
NEPA Process	14
Oil and Gas	49
Permits/Special Uses	7
Preference Right Leases	4
Project Description	18
Project Support	27
Public Involvement	2
Purpose and Need	1
Reclamation	4

Category	# of Comments
RFD	15
Riparian Areas/Wetlands	1
Socioeconomics	27
Soils	4
Subsidence	25
Surface Disturbance	3
Threatened & Endangered Species	1
Travel Management	5
Vegetation/Botany	9
Visual/Scenic Resources	1
Water Resources	56
Wildlife	18
Total	490

The remainder of this appendix presents the comments in each category followed by responses from the BLM. Where multiple comments received the same response, the comments are grouped together sorted by the last name of the commenter, then the BLM response follows the grouped comments. All BLM responses are in shaded boxes to make them easy to find. In some cases, the response is on a following page.

Where the same comment was assigned to more than one category, the comment and its response will be displayed under each category. This allows a reader interested in a single category or topic to view a comment and its BLM response under that topic without having to search through all of the topics to find the information. For example, a comment related to mitigation of impacts to water resources is likely to appear under the topic "Mitigation Measures" as well as "Water Resources".

The topics are presented in this appendix alphabetically. For those readers most familiar with the standard BLM groupings of topics by resources and programs, **Table B-2** provides those groupings as a cross-reference.

Table B-2 Comment Category Cross-Reference

Resource or Program Category	Comment Category
Specific Resources	Air Quality Cave/Karst Cultural Resources Greenhouse Gases Hazardous Materials Health/Safety Livestock Grazing/Range Management Riparian Areas/Wetlands Socioeconomics Soils Threatened & Endangered Species

Resource or Program Category	Comment Category
	Travel Management Vegetation/Botany Visual/Scenic Resources Water Resources Wildlife
Geology, Mining, & Minerals-Related	Geology Co-Development Leasing Oil and Gas Preference Right Leases RFD Subsidence Permits/Special Uses Project Support Reclamation Surface Disturbance
NEPA & Process-Related	Alternatives Consultation Cumulative Impacts Mitigation Measures Monitoring/Mitigation NEPA Process Project Description Public Involvement Purpose and Need
Other	BLM Authorities & Responsibilities Editorial

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Air Quality

Comment:

Ozone - ES-10 - Nitrogen oxides are not the same as ozone and need to be covered separately. Does this analysis include impacts within the mined area as well as those involved in transportation of ore? How would pollutants produced by trucking compare with those produced by rail transport??

Queen, Michael

BLM Response:

Section 4.5 of the DEIS and FEIS discusses ozone and nitrogen oxides separately. It also makes the distinction between ozone and its precursors. Because the possible rail transport was determined to be speculative, there was no detailed comparison to trucking.

Comment:

Page 4-52: ICP has refined the design of the Plant Facility to comply with the 24-hour PM2.5 increment standard. ICP's PSD air quality permit application to the State of New Mexico will include dispersion modeling that will demonstrate compliance with this standard.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The language of the EIS on page 4-53 addresses that compliance with this standard is a necessity for obtaining a permit and acknowledges the preliminary nature of the modeling results: While the results in Table 4.5-8 based on preliminary emission inventory results show violation of the 24-hour PM2.5 Increment Standard, the project would not be able to get a PSD air quality permit without first demonstrating compliance with all standards.

Comment:

Air Quality 1-10 Why are "analyzing or recommending other equipment ...Out of the scope of this EIS"? If we were to only believe the company we would never see the need of an EIS

Queen, Michael

BLM Response:

It is outside of the expertise and authority of the BLM to identify and analyze all possible equipment that may be used in mining and processing operations. Under NEPA, the BLM must analyze the impacts to air quality as proposed by the company and determine whether there would be adverse effects resulting from the project. If the adverse impacts are determined to be significant, mitigation measures are generally proposed to minimize those impacts. In this case, as demonstrated in Section 4.5 of the DEIS and FEIS, no significant adverse impacts to air quality were predicted to result from the construction and operations under the Proposed Action.

Air Quality

Comment:

The DEIS does not address chemical deposition of the potential fugitive particulate matter. Agave is concerned with tailings dust getting on plant equipment then having possible corrosion issues with plant materials. Plant materials could be copper, aluminum, carbon, stainless, paint, buildings, vehicles, etc. If bypassing or filling the plant filters, the dust could get into the equipment, internals, process liquids (amine, etc.) and condensate. It could also damage bearings, motor shafts, and any other type of rotating equipment. The DEIS does state on page 2-11, "once sprayed with water, the tailings would harden so they would not be susceptible to wind erosion." However, the DEIS does not address particulate matter during the transportation to the tailings pile. "Tailings generated during the SOP processing would be transported to the dry stack tailings stockpile located in the southern part of the plant site by truck." (see page 2-9).

Knowlton, Jennifer; Agave Energy Company

Comment:

In addition, various public scoping documents refer to similar comments from landowners regarding effects of particulate emissions specifically from the tailings piles.

Knowlton, Jennifer; Agave Energy Company

Comment:

Agave Energy would like the EIS to address how particulate matter will affect the surrounding areas. Although section 4.5.5.1 of the DEIS addresses particulate emissions from stationary sources, it does not estimate emissions from fugitive sources. Agave Energy is concerned about the integrity of the Red Hills Gas Processing Plant which is located north possibly north east from where the dry stack tailings will be located. The area experiences high winds therefore the possibility for solid waste to land in the plant or strike someone or something is highly probable.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

The EIS addresses both stationary and fugitive PM sources. The modeling analysis includes the fugitive sources outlined in the Operations PTE Emission Inventory in section 4.5.5.1. This inventory includes the fugitive sources associated with the tailings pile. Dust from the tailings stockpile would be minimized by spraying water on it soon after placement on the pile. Because most of the waste material to be placed on the tailings stockpile would consist of anhydrite, it would harden through a process called gypsification through the interaction with the water sprayed on the pile to control dust. Once the tailings harden, they would not be susceptible to wind erosion. Dust from the tailings pile would be monitored and mitigated appropriately.

Comment:

The AQB agrees with the analysis in the draft EIS regarding air quality impacts. The AQB, in conjunction with EPA, has been working with ICP regarding their application for a Prevention of Significant Deterioration permit and associated air quality analyses.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The BLM will take your comments into consideration when making a decision. The modeling prepared in compliance with AQB requirements was utilized in the impact analysis of the DEIS and FEIS.

Air Quality

Comment:

In the Environmental Consequences Section addressing Air Quality, the DEIS describes impacts to ambient air quality relating to construction equipment emissions and project generated air emissions. In general, the DEIS does not appear to fully address air quality impacts and mitigation measures related to potential construction activities (i.e., excavation, surface disturbance related to route/trail network, and/or roadway management activities) in the Ochoa Mine Project area.

Recommendations: The FEIS should include best management practices for PM10 and fugitive dust control (e.g., gravel roads, soil wetting practices, limiting access, traffic and speed reduction). Also, the FEIS should more fully discuss specific actions including dust ordinances on the county level, educational outreach tools, and tools to minimize the public's exposure to PM10 for Lea County, as applicable.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The environmental protection measures required by the BLM listed in Table 2-6 with more details in Appendix A include BMPs to minimize air quality impacts related to construction activities. A recommendation to develop and implement a dust control plan will be included as a mitigation measure in Section 4.5 and may be selected by the BLM in the Record of Decision.

Comment:

The DEIS does not adequately address the rock piles that will be outside the mineshaft. The mine shaft would be located about 1.5 miles west of Red Hills on the north side of Highway 128. The same concerns noted above would also apply to the rock pile. The DEIS does not specify size of the rock material. The height of the projected waste rock piles is significant enough to adversely impact ambient air quality for particulate matter and those emissions are not accounted for in the air quality analysis.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

As these are waste rock piles, the rock size is expected to be variable. However, the rock piles will not contain fine particles. A recommendation to develop and implement a dust control plan was included under the Preferred Alternative and may be selected by the BLM in the Record of Decision.

Alternatives

Comment:

Alternative D would place tailings stockpiles in a playa lake depression. When wetted, playa lakes are important habitat for amphibians, invertebrates, and migratory waterfowl and shorebirds.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

This assessment agrees with the conclusions in Section 4.8.8 but the discussion in this section will be expanded to state the comment more clearly.

Comment:

Alternative B - Change Dry Stack Tailings Stockpile: It appears this Alternative is proposed only to reduce the visual impact of the high tailings piles. Concho supports a change in the tailings piles for a different reason. Backfilling the mine with solid tailings material will inhibit subsidence as discussed in the DEIS. (DEIS, 4-13). If the risk of subsidence diminishes, the risk to well bores also diminishes as well as the risk of leaks, catastrophic failures, or other damages from subsidence.

Giraud, C; Concho Resources, Inc.

BLM Response:

Alternative B was developed in response to public scoping comments reflecting concerns for visual impacts. As described in Chapter 2, backfilling the mine with tailings is one possible way to reduce the size of the stockpile. No matter what the reason for developing this alternative, the potential impacts of this practice are considered in Section 4.2.6 where technical difficulties with this procedure are discussed. This section also notes that the potential for subsidence would be less if the mine voids were backfilled.

Comment:

Dry Stack Tailings 2-11 With 20' lifts and 10' benches, would not the average slope be greater than 1' vertical to 3' horizontal?

Queen, Michael

BLM Response:

No, this is the proposed design.

Alternatives

Comment:

The failure to address the scoping questions in full has an even greater impact when one reviews Action Alternative C. In this scenario, the BLM will establish standards and guidelines for managing concurrent development. The guidelines would be implemented to make management decisions fair and consistent for the development of both potash and oil and gas. (DEIS Executive Summary, 6) How can this alternative be evaluated without any answers to questions about valid existing lease rights and the other issues raised in the scoping process?

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised by the commenter during scoping were not addressed in the DEIS. The impact analysis was performed based on the assumption that co-development decisions would enable all valid existing lease rights to be exercised.

Comment:

Alternatives B - D - 2-2 - All of these alternatives seem to be better than the proposed alternative. Why then was the later selected and vigorously promoted? It must be economics, but if this is the case they should be spelled out

Queen, Michael

BLM Response:

As noted in the Dear Reader letter at the beginning of the DEIS, the BLM has not yet selected a preferred alternative and was seeking public input at that stage. The Proposed Action has not been selected and vigorously promoted in the DEIS. It contains the most detail because it describes the mining and processing operations and facilities that are then incorporated by reference into the other alternatives.

Comment:

Crystallizer 2-3 There is not enough data presented to evaluate the pros and cons of a low water crystallizer. Obviously, anything that impacts production costs, efficiency or profits will be found to be unacceptable by ICP (that's the Free Market way). But these competing interests should be evaluated by BLM and the public in determining the most appropriate action

Queen, Michael

BLM Response:

The BLM has no authority or responsibility to evaluate the pros and cons of production equipment and uses the information provided by the applicant for analysis of the Proposed Action. The low water crystallizer described in Section 2.3.4 was eliminated from detailed analysis because it is technically infeasible, not due to the costs to the company.

Alternatives

Comment:

Several aspects of the DEIS come across as generally insufficient to allow informed decisions to be made at this time. It may be that once the sections are amplified and expanded that they will support the Proposed Action, or they may not. But as presented, the Proposed Action is premature, and supporting it can only be done based on the belief that development is good, more development is better, and both outweigh other considerations of environmental, social or other impacts.

Queen, Michael

BLM Response:

The Proposed Action is the proposal submitted by ICP, not the preferred alternative. It has not been supported or selected by the BLM at this stage.

Comment:

Alternative C seems to have been included without serious consideration. Granted, it is convenient in that the BLM already is working on the implementation guidance for the Secretary's area. It is not appropriate, however, in this circumstance. What may be appropriate for implementing the Secretary's order is not automatically applicable to an area not covered by the Secretary's Order. The Ochoa mine differs in a number of ways from the Secretary's area. There has been no finding that potash in this area is a critical mineral to the United States. The ore in this area is different and in a different zone from the mines in the Secretary's area. This mine will be operated pursuant to the rules for gassy mines and the mines in the Secretary's area remain unwilling to operate under the gassy mines rules. In spite of these and other differences, Alternative C proposes to mimic an implementation guidance that is not working.

Alternative C appears to be a "clever" attempt to encourage oil and gas operators to support Alternative A over this bogus attempt to apply a non-working concept to a different fact situation.

Giraud, C; Concho Resources, Inc.

BLM Response:

Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. Potash is identified as a leasable mineral and the BLM has a responsibility to allow for its orderly and economic development. (See Section 1.2 of the DEIS and FEIS.) The laws do not distinguish between different sources or locations of potash. There is no relationship between operations according to gassy mine rules and implementation of portions of the 2012 Potash Order to this new area. While it is true that the implementation of the new Potash Order has not been completed yet, it was developed in collaboration with both industries as well as other stakeholders and therefore offers an appropriate basis from which to draw possible co-development options for consideration as an action alternative.

Alternatives

Comment:

Alternative C states that the BLM would work with the state to establish guidance for managing the concurrent development of potash and oil and gas. Then Alternative C proceeds to set forth the minimum requirements of the guidance, apparently without any input from the state.

The guidance details are from the draft implementation guidance proposed by the BLM for the 2012 Order. This guidance has not been accepted by the New Mexico Oil Conservation Division as being feasible as drafted. Nor has it been accepted by the Joint industry Technical Committee for the Secretary's Potash Area that is currently reviewing it.

Giraud, C; Concho Resources, Inc.

BLM Response:

The guidance presented in Alternative C is derived from the final 2012 Secretary's Potash Order, dated December 4, 2012. Alternative C presents possible minimum requirements for co-development for consideration by agencies and the public. The BLM has coordinated with the NMOCD during this NEPA process and NMOCD submitted comments on the DEIS. Once the BLM considers all comments, a decision will be made but at this point, Alternative C is only a proposal. Similar to the 2012 Order, the BLM may seek comments from the Joint Industry Technical Committee if Alternative C is selected in the Record of Decision.

Comment:

Alternative A could be made more meaningful if the legal "sideboards" were discussed in the DEIS. Including a procedure for dispute resolution also would be helpful. What will the BLM do in the event the parties reach no agreement? Unfortunately, the DEIS is silent on this point.

Giraud, C; Concho Resources, Inc.

BLM Response:

The legal sideboards for all alternatives are provided by the Purpose and Need section (1.2) in the DEIS and FEIS. The BLM added a process for dispute resolution as part of the Preferred Alternative in Section 2.4.6.5 of the FEIS.

Comment:

At this point in time, Devon generally supports Alternative A although additional modifications to the alternative are needed prior to finalization and adoption of an alternative by the BLM.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM will take your comments and support of the project into consideration when making a decision.

Alternatives

Comment:

Other alternatives must be identified and evaluated to reduce the environmental impacts resulting from the waste produced at the processing plant rather than just moving or expanding the footprint of the dry stack tailings pile into Section 2, Township 25 South, Range 33 East and making any changes to the location of the ponds, which may be necessary. (See Page 2-19, Paragraph 2.4.3 and Page 4-22, Paragraph 4.3.2.I).

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Alternative B includes an option to reduce the tailings stockpile by selling the marketable products such as gypsum that would make up most of the tailings. ICP is currently seeking markets for these products.

Comment:

Processing 2-7 The reactions involved in "calcination" should be expounded upon, and the rates of evaporation, etc., spelled out "cake-like streams" is confusing

Queen, Michael

BLM Response:

Calcining is described in Section 2.4.2.3 of the DEIS and FEIS as driving off water and is one step in the overall ore processing. It is only one of the processing steps. The rates of evaporation vary depending on season and specific climatic conditions.

Comment:

Ponds 2-11 What happens if the 100-year, 24-hour event were exceeded. What would be impacts to various component systems be?? In my 40+ year history with the place, I have seen several events that exceeded these values, and it is likely with climatic warming/change that these events will be more and not less common

Queen, Michael

BLM Response:

Stormwater management ponds are typically designed to safely handle a 100-year 24-hour storm event. This does not mean that this size storm would be contained, but it does mean that the embankment, spillways, and capacity would be correctly designed to safely handle this amount of water with the approval of the appropriate authorities. Pond designs would be reviewed and approved by the NMED and the BLM. Risks and uncertainty considerations will be followed as required by regulations.

Alternatives

Comment:

As discussed in all of the sections above, Alternative A is based on an inaccurate analysis of the existing environment and the future development of oil and gas.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Comment:

Alternative C is identical to Alternative A, except that standards and guidance would be established for concurrent development of fluid minerals. These standards and guidance are not likely to have any significant impact on wildlife or important habitat.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

This assessment agrees with the conclusions in Section 4.8.7 in the DEIS and FEIS.

Comment:

No Action 2-3 "If the existence of a valuable deposit...." If there are additional costs that are required in order to address or preserve public resources or social values, etc., then they need to be taken into account with the other production expenses and used to determine if, in the sum of things, the proposed mine is economically feasible. It sounds reasonable to at least consider a finding that (given the projected costs of addressing the various problems raised, polyhalite cannot be economically recovered and deny the preferred rights lease

Queen, Michael

BLM Response:

As stated in Section 1.4.2 of the DEIS and FEIS, prior to issuing a preference right lease, the BLM must evaluate whether the mine will be profitable after implementing the terms and conditions, including the required mitigation and reclamation measures identified in the agency decision document, in this case, the Record of Decision. This process for evaluating whether the project meets the "valuable deposit requirement" (defined at 43 CFR 3501.5) must be completed subsequent to the NEPA analysis and in compliance with BLM guidelines. Once a valuable deposit is proven, the applicant is entitled, by law, to the lease without competition or payment of an upfront or bonus bid. Once the lease is put into production, the operator is required to pay royalties and taxes. These royalties and taxes are described in Section 4.15.5.5 Public Sector Revenues.

Alternatives

Comment:

Alternative A asks that Concho and other operators agree to negotiate undefined issues with as yet unanswered questions as to the rights of the parties. If Alternative A were compared to the process of settling a complicated lawsuit, it is unlikely that prudent oil and gas or mine operators would agree to enter into binding negotiations without some idea of the legal rights of the parties. Yet, that is what is expected here.

Giraud, C; Concho Resources, Inc.

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights of different types. Under Alternative A, each operator would negotiate agreements based on their specific issues related to development in the mine area. Depending on the negotiations, these agreements or MOUs may carry some legal authority. To date, there have been successful negotiations resulting in signed MOUs with ICP, and cooperation has occurred. These concerns may also be addressed through the development of a "local order" after the ROD. These questions are indeed "unanswered" until the ROD is issued.

Alternatives

Comment:

The Division is opposed to Alternative C- establishment of a local potash order. With development of the Ochoa mine under gassy mine ventilation standards, circumstances are substantially different from the potash mines within the area designated in the Secretary's 2012 Potash Order.....under New Mexico law, the OCD cannot force statutory unitization for exploratory units In addition development areas established by the BLM with drilling islands and setbacks between oil and gas wells and the mine workings may be premature and in conflict with the awaited Sandia Report, a recognized technical report commissioned to define safety setbacks between wells and mine workings.

Bailey, Jami; New Mexico Oil Conservation Division

Comment:

At this point in time, Devon generally supports Alternative A although additional modifications to the alternative are needed prior to finalization and adoption of an alternative by the BLM.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips is very concerned about the BLM's proposal under Alternative C to prohibit drilling islands within one mile of the Project Area. Ochoa DEIS, pg. 2-20. ConocoPhillips believes it would be more appropriate for the BLM to encourage oil and gas lessees and ICP to attempt to work together to resolve development conflicts rather than mandating a single solution. For this reason, ConocoPhillips encourages the BLM not to select Alternative C, but appreciates the BLM's inclusion of an appropriate range of alternatives in the Ochoa DEIS.

Dey, Eileen; Conoco Phillips

Comment:

ICP respectfully requests that BLM choose Alternative A over Alternative D. Alternative D would require ICP to acquire private land, which might not be possible. In addition, potential adverse impacts to the environment under Alternative D would be greater than Alternative A. Selecting Alternative D would also delay the generation of mineral royalties, which would not be in the best interest of the public.

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Section 2.4.4, Alternative C: ICP respectfully requests that BLM choose Alternative A over Alternative D. Alternative D would require ICP to acquire private land, which might not be possible. In addition, potential adverse impacts to the environment under Alternative D would be greater than Alternative A. Selecting Alternative D would also delay the generation of mineral royalties, which would not be in the best interest of the public.

Foote, Randy; Intercontinental Potash Corp. (USA)

Alternatives

Comment:

Section 2.4.4, Alternative C: ICP respectfully requests that BLM choose Alternative A over Alternative C. Alternative C would designate a potash area outside of the SPA that would limit oil and gas development within 1 mile of approved potash mining. ICP believes that mining and oil and gas can both develop their resources to BLM's, the State of New Mexico's, fluid mineral companies' and ICP's benefit for the following reasons: (1) ICP's mine design safety accommodates oil and gas drilling by incorporating MSHA gassy mine regulations. This design calls for mining islands, mining around active and plugged oil and gas wells, and reducing mining rates in areas around oil and gas wells. Based on recent studies, ICP is considering reducing mining rates throughout the mine to increase mine stability. (2) ICP is actively working with oil and gas companies. ICP has several MOUs with oil and gas development companies and is working with other oil and gas companies prior to obtaining formal MOUs. ICP and these companies are sharing development plans and looking for ways to accommodate each other. (3) This interaction has resulted in ICP agreeing to a request from an oil and gas company to move the dry stack tailings facility further south to avoid oil and gas wells. By the same token, oil and gas companies have moved their well locations to accommodate planned mine mains and submains. (4) The collaboration between companies has led to greater understanding of processes and greater trust between the industries. ICP has learned about oil and gas drilling techniques and concerns and can proactively refine mine plans. ICP anticipates that continued partnership with oil and gas development companies will result in even greater trust between the industries and new and upcoming technologies will result in greater development of both fluid and mineral resources.

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

In conclusion, I urge you to select Alternative A and thus permit ICP to create lasting economic opportunities for the citizens of our state.

Gratton, John; New Mexico State University

Comment:

Thank you for a very careful evaluation of the project. I urge you to please select Alternative A and permit ICP to create long lasting economic opportunities for the citizens of our state.

Leavell, Carroll; New Mexico State Senate

Comment:

EOG has reviewed the Draft EIS and favors the Proposed Action (Alternative A). EOG believes the Proposed Action (Alternative A) will minimize the impact on and restrictions to timely and efficient oil and gas exploration and operations in the area.

Pitts, Gary; EOG Resources Inc.

Comment:

Potential establishment of a local BLM and State order, as proposed under Alternative C, to manage development of the Ochoa Mine polyhalite reserves and oil and gas resources must be consistent with the 2012 Secretary's Potash Order in the interests of fairness and maintaining a reasonable working relationship between the agencies, mining companies, and oil and gas interests in southeastern New Mexico.

Ryan, Kevin; Intrepid Potash, Inc.

Alternatives

Comment:

Specifically, we express our support for the proposed Alternative A, as detailed in the Draft EIS for the project, and that the project as proposed will provide a negative minimal impact on our environment, and that the project as proposed will provide a positive maximum impact on our economy.

Schrader, Curtis; City of Jal

Comment:

Of the four action alternatives analyzed in the EIS, the Department recommends that U.S. Bureau of Land Management (BLM) select either Alternative A or C as the Preferred Alternative.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

The Project operator has proposed to design a mine intended to minimize interference with oil and gas development. It proposes to have oil and gas operators sign Memoranda of Understanding (MOUs) that provide for future meetings to prepare a long-term development plan, facilitate sequencing of operations, establish post-mining drilling islands and establish benchmarks for measuring successful co-development. These would, in effect, be agreements to agree sometime in the future. There is nothing concrete or enforceable about the agreements. So, while the proposal may sound workable, there really is nothing there to count on. That makes Alternative A difficult to evaluate.

Giraud, C; Concho Resources, Inc.

BLM Response:

The BLM is aware that ICP has been in contact with the oil and gas lessees to develop MOUs. To date, there have been successful negotiations between some oil and gas companies and ICP with signed MOUs that resulted in cooperation in planning some of the processing facilities. In the event that a disagreement cannot be resolved voluntarily under Alternative A, the BLM added a process for dispute resolution as part of the Preferred Alternative in the FEIS (see Section 2.4.6.5).

Alternatives

Comment:

Concho concurs in the No Action Alternative. The DEIS should be held until the feasibility study is completed and can be included in a supplemental DEIS. Nothing should go forward until the economic viability of the Project is determined.

Giraud, C; Concho Resources, Inc.

BLM Response:

The economic viability is generally assumed in the analysis of all action alternatives. Under NEPA, no cost/benefit analysis is required, especially for projects funded by private entities. If private companies have seen fit to commit their funds to a project, they are not required to justify that commitment of resources. The most recent data from the Prefeasibility Study (cited as Crowl et al. 2011 in the DEIS and FEIS) was used, in addition to other information provided by ICP, to provide a general picture of the costs of the project and the revenues generated, as well as the taxes and royalties to be paid. As stated in Section 1.4.2 of the DEIS and FEIS, prior to issuing a preference right lease, the BLM must evaluate whether the mine will be profitable after implementing the terms and conditions, including the required mitigation and reclamation measures identified in the agency decision document, in this case, the Record of Decision. This process for evaluating whether the project meets the “valuable deposit requirement” (defined at 43 CFR 3501.5) must be completed subsequent to the NEPA analysis and in compliance with BLM guidelines. Once a valuable deposit is proven, the applicant is entitled, by law, to the lease without competition or payment of an upfront or bonus bid. Once the lease is put into production, the operator is required to pay royalties and taxes. These royalties and taxes are described in Section 4.15.5.5 Public Sector Revenues.

Comment:

Alternative B - ES-5 - Minimizing visual impact is a laudable goal. Why, when it is clear that steps could be taken towards this end, is this alternative seemingly dismissed as though it is unimportant? I expect it is because it would be more expensive, but why are these choices not followed through?

Queen, Michael

BLM Response:

Alternative B was not dismissed as unimportant, as evidenced by the fact that it was carried forward to be analyzed in detail.

Comment:

Alternative B would increase the surface disturbance footprint (and hence habitat loss) to reduce visual impact.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

If the Alternative B option that proposes to lower the height of the tailings stockpile without reducing the volume were implemented, then increased surface disturbance would result. This is noted in Section 2.4.3 and in several sections in Chapter 4. Section 4.7.6 estimates that the larger footprint would disturb up to 22% more vegetation.

Alternatives

Comment:

Rail line to Jal 2-2 Leaving ICP to evaluate the pros and cons of a potentially more expensive alternative is like asking a weasel to do a cost analysis of a better fenced chicken yard. They can be expected to play down any alternative approach if it costs more money. However, their profit motives are not synonymous with public interests. A rail line (especially with electric locomotives) could result in fewer greenhouse gasses, less impact to roads, fewer accidents, and less noise. The BLM should demand to know the alternative routes considered by ICP and evaluate the benefits accordingly.

Queen, Michael

BLM Response:

This alternative was eliminated because it is speculative and without enough detail to adequately analyze.

BLM Authorities & Responsibilities

Comment:

The BLM indicates that potash is an important industrial mineral in wide demand in the United States and internationally. Ochoa DEIS, pg. 1-4. Given changes in the industry, agricultural practices, and recent developments in chemical and manufacturing processes, the BLM should describe to what extent potash remains a strategic mineral and whether its development should be favored by the United States. Devon acknowledges that parties are entitled to seek exploration and development leases for potash but questions whether the BLM should continue to prioritize potash development over oil and gas and other resources.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM appreciates the importance of allowing access to valid existing fluid minerals leases but cannot prioritize the development of one mineral over another, according to federal guidance and policy.

Comment:

The BLM should also recognize that an oil and gas lease is a contract between the federal government and the lessee, and that the lessee has certain rights thereunder.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM should expressly recognize in the Ochoa DEIS that oil and gas leases are existing rights that cannot be modified, limited, or curtailed by the BLM.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM has no intent to interfere with the development of valid existing lease rights.

Cave/Karst

Comment:

Caves & karst 1-14 The rocks in this section have been subjected to at least six generations of cave and karst development since first deposited. The main caves and identifiable karst (principally formed in the last two episodes) is certainly west of the Pecos, but there is no reason the products of the other (earlier) four (+) episodes are not found in the mining area. They most certainly are found in the area of the proposed water extraction wells. Impacts to this area through water extraction, although not directly due to mining, still need to be reckoned with

Queen, Michael

Comment:

It is well known that falling water tables commonly result in a loss of buoyant support and consequent collapse of cavernous limestones. What impacts will drainage and collapse of karst porosity in the Capitan Aquifer have on these cave systems and on the extremely rare, poorly understood, and in all likelihood easily impacted organisms that inhabit them? Hand-sample porosity and permeability in the Capitan formation is typically low, but larger scale pores and heterogeneous permeability in these rocks is quite high. These rocks in the Guadalupe Mountains have been subjected to at least six generations of cave and karst (Queen, 1993, 2001, 2009a; Palmers and Queen, 2009). Rocks in the area between the Pecos River and the Glass mountains may have been subjected to at least five of these (it is not clear to what extent post-Laramide uplift and dissolution may have influenced these rocks). The substantial karst porosity associated with the Capitan Aquifer in the region between the Pecos River and the Glass Mountains region is poorly studied (if not completely unstudied), but this does not mean it is volumetrically insignificant or unimportant to regional hydrology, biology, etc. !!!! What will be the impact to the physical environment, karst processes, and karst-hosted communities in the area of the Glass Mountains? These latter are similarly poorly known (much less than in the Guadalupe), but that does not mean they do not exist or are unimportant.

Queen, Michael

BLM Response:

There is no evidence that subsidence has occurred due to historic water withdrawal from the Capitan Aquifer causing collapse of the aquifer. The incidents of subsidence that have occurred over the Capitan aquifer (The Jal Sink and the Wink Sinks) appear to be the result of loss of well integrity leading to the formation of cavities in the Salado formation. The cavities formed eventually migrated to the surface resulting in subsidence as discussed in FEIS Section 3.2.3.2. It is not certain how flow to the well field in all directions poses a problem. However, given the association between the subsidence incidents and possible well integrity problems and since the well field would be operated for 50 years, it is recommended that the production wells be integrity tested at regular intervals to ensure that unsaturated fluids do not migrate from the wells. Monitoring and mitigation measures were included in Section 4.2.10 of the FEIS. Regarding episodes of dissolution: The subject of this comment is beyond the scope of the EIS and does not require further agency response. The purpose of the NEPA (EIS) process is to disclose potential project impacts.

Cave/Karst

Comment:

Wildlife 1-11 Somehow karst and karst related problems have been dropped from this summary of potential impacts. In an area with soluble bedrock it is only reasonable to conclude that karst exists, whether or not it is apparent on the surface. Just because these rare and easily impacted environments are not known on the surface does not mean they are absent or unimportant.

Where significant bit drops or loss of circulation occurs during drilling of water supply wells, not only should geologists and hydrologists be called in but cryptobiologists should be consulted to be sure karst-hosted organisms are not imperiled

Queen, Michael

BLM Response:

The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS. Please refer to Appendix A for protection measures with regard to encountering voids or major lost-circulation zones during well drilling.

Comment:

3.2.1.1 Physiography 3-1 “Another prominent feature....” Elsewhere it suggests that karst is minor in the area - which is it? Significant karst and caves are not necessarily large or well decorated. Some unique biota and minerals are known from small caves and karst features

Queen, Michael

BLM Response:

Section 3.2.1.1 initially describes the regional physiography and geology before focusing in on the project area. The referenced quote is describing a portion of the Pecos Valley that is characterized by karst. As explained in other sections, such as 3.2.3.1 Natural Subsidence, while there are closed depressions within and near the boundaries of the mine area, there is no evidence in the literature or from drilling logs that these depressions are caused by the dissolution of deep evaporites or the collapse of karst features. The BLM Carlsbad Field Office has identified the project area as having a low potential for caves and karst. This will be clarified in the Final EIS.

Comment:

Geologic Hazards 3-14 Dissolution of evaporite minerals is an example of karst, but not synonymous with it. What is honeycomb structure? “....evidence of **d**issolution....”

Queen, Michael

BLM Response:

The text was revised to indicate that dissolution of evaporites is but one type of karst development. “Honeycomb” structure – see Hill (1996) p. 279.

Cave/Karst

Comment:

Geologic Structure 3-12 Once more, these argue for significant karst, which is minimized elsewhere in the report

Queen, Michael

BLM Response:

The paragraph was revised to state the dissolution has taken place west of the project area in the vicinity of Nash Draw, but those conditions do not appear to be present in the project area (see Lorenz 2006).

Comment:

What impacts will drainage and collapse of karst porosity in the Capitan Aquifer have on these cave systems and on the extremely rare, poorly understood, and in all likelihood easily impacted organisms that inhabit them?

Queen, Michael

Comment:

although impacts to the proposed mining area are generally well spelled out, potential impacts to the area from which water would be pumped are not well described or analyzed, and may be significant. The potential effects of considerable drawdown associated with water extraction include impacts to karst, significant subsidence or collapse affecting the oil and gas industry, and impacts to water users in the Glass Mountains.

Queen, Michael

BLM Response:

There is no evidence that subsidence has occurred due to historic water withdrawal from the Capitan Aquifer causing collapse of the aquifer. The incidents of subsidence that have occurred over the Capitan aquifer (The Jal Sink and the Wink Sinks) appear to be the result of loss of well integrity leading to the formation of cavities in the Salado formation. The cavities formed eventually migrated to the surface resulting in subsidence as discussed in FEIS Section 3.2.3.2. It is not certain how flow to the well field in all directions poses a problem. However, given the association between the subsidence incidents and possible well integrity problems and since the well field would be operated for 50 years, it is recommended that the production wells be integrity tested at regular intervals to ensure that unsaturated fluids do not migrate from the wells. Monitoring and mitigation measures were included in Section 4.2.10 of the FEIS.

Comment:

Geologic Hazards 3-17 "Near the project area there are topographic features that may or may not be related to evaporite karst...." Vague

Queen, Michael

BLM Response:

It has been assumed that the only origin of these features is karst, without consideration of other mechanisms, such as erosion. The text in Section 3.2.3.1 of the FEIS was amended to clarify the issue.

Cave/Karst

Comment:

Geologic Hazards 3-17 "Although caves are quite common..." What is the evidence of the Rustler being so deep caves cannot form? Reference? Although caves, per se, may be rare here, other important karst features may occur and host rare communities/organisms, which are only recently attracting attention and study. Although caves formed near the surface may be rare, Klimchouk reports evidence of hypogene caves formed in these rocks, which form from the upwards movement of water. These processes and products are not well understood but should not be ruled out. The salinities noted (2-70 ppt) are all undersaturated in halite and more soluble potash salts, and may cause caves wherever flow is concentrated

Queen, Michael

BLM Response:

The subject of this comment is beyond the scope of the EIS and does not require further agency response. The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS.

Climate Change

Comment:

Discussions of potential impacts to climate are limited to certain greenhouse gasses and other gaseous pollutants. However, water vapor is itself a greenhouse gas and can result in trapping heat. What effects will this have? Furthermore, humid air is significantly less dense than dry air, and will rise due to convection, cooling due to adiabatic processes. Although this seems likely to be minor, what effects will this have on local weather? Might this, for instance, result in the same sort of micro-weather patterns as are associated with cities, where localized input of heat changes regional weather patterns? Might we have more localized gully-washers? Or greater chances of localized tornadic activity?

Queen, Michael

Comment:

Greenhouse - ES-11 Water vapor is also a greenhouse gas, and is totally ignored in these analyses! What will the effects on local climate and weather that may result from releasing this much water in a small area? Changes in rainfall? Changes in temperature?

Queen, Michael

BLM Response:

As stated in section 4.6.2 of the EIS, the tools necessary to quantify climatic impacts from this small-scale project are presently unavailable. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing factors that contribute to climate change. While there is a natural greenhouse effect which is largely driven by water vapor (H₂O) and other greenhouse gases which occur to a certain extent naturally in the atmosphere. However anthropogenic emissions of water vapor do not contribute significantly to the change of atmospheric water vapor concentration. Thus, the IPCC Guidelines do not deal with water vapor as an anthropogenic GHG. (IPCC, website access October 2013 <http://www.ipcc-nggip.iges.or.jp/faq/faq.html>). Standard approaches to quantifying GHG emissions follow suit. The CO₂e definition from 40 CFR Part 98 was the basis of the emissions estimates presented in the EIS and this definition does not include water vapor as an anthropogenic GHG.

Co-development

Comment:

ConocoPhillips is very concerned about the BLM's proposal under Alternative C to prohibit drilling islands within one mile of the Project Area. Ochoa DEIS, pg. 2-20. ConocoPhillips believes it would be more appropriate for the BLM to encourage oil and gas lessees and ICP to attempt to work together to resolve development conflicts rather than mandating a single solution. For this reason, ConocoPhillips encourages the BLM not to select Alternative C, but appreciates the BLM's inclusion of an appropriate range of alternatives in the Ochoa DEIS.

Dey, Eileen; Conoco Phillips

Comment:

Section 2.4.4, Alternative C: ICP respectfully requests that BLM choose Alternative A over Alternative C. Alternative C would designate a potash area outside of the SPA that would limit oil and gas development within 1 mile of approved potash mining. ICP believes that mining and oil and gas can both develop their resources to BLM's, the State of New Mexico's, fluid mineral companies' and ICP's benefit for the following reasons: (1) ICP's mine design safety accommodates oil and gas drilling by incorporating MSHA gassy mine regulations. This design calls for mining islands, mining around active and plugged oil and gas wells, and reducing mining rates in areas around oil and gas wells. Based on recent studies, ICP is considering reducing mining rates throughout the mine to increase mine stability. (2) ICP is actively working with oil and gas companies. ICP has several MOUs with oil and gas development companies and is working with other oil and gas companies prior to obtaining formal MOUs. ICP and these companies are sharing development plans and looking for ways to accommodate each other. (3) This interaction has resulted in ICP agreeing to a request from an oil and gas company to move the dry stack tailings facility further south to avoid oil and gas wells. By the same token, oil and gas companies have moved their well locations to accommodate planned mine mains and submains. (4) The collaboration between companies has led to greater understanding of processes and greater trust between the industries. ICP has learned about oil and gas drilling techniques and concerns and can proactively refine mine plans. ICP anticipates that continued partnership with oil and gas development companies will result in even greater trust between the industries and new and upcoming technologies will result in greater development of both fluid and mineral resources.

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Going forward, EOG believes the Proposed Action (Alternative A) is most consistent with this proven, successful approach and offers the most flexibility and opportunity to develop both oil and gas and commercial potash in a timely and efficient manner. Additionally, this approach minimizes impact to the surface and minimizes waste of federal and state resources.

Pitts, Gary; EOG Resources Inc.

Comment:

Intrepid's comments primarily reflect its strong recommendation that co-development of the Ochoa Mine resources and oil and gas reserves follow similar operating guidelines and practices developed for the Secretary's Potash Area (SPA).

Ryan, Kevin; Intrepid Potash, Inc.

Co-development

Comment:

Intercontinental Potash has proactively sought to align its proposed project with existing and future petroleum operations in the region.

Taylor, Grant; Hobbs Chamber of Commerce

Comment:

As Executive Director of the CDOD, my primary concern when reviewing the Ochoa Project is to make sure the project would not interfere with the economic viability of other businesses operating in the area - including oil and gas, potash, and nuclear. I believe the impact of the Ochoa Project on any of these area industries will be non-existent. Given the experienced mining and engineering staff that IC Potash has already employed, I'm confident they will minimize any potential environmental impacts and prove themselves as great neighbors to the nearby oil and gas, potash, and ranching entities.

Waters, John; Carlsbad Department of Development

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

As previously stated, Devon does not believe the BLM should authorize development of the Ochoa Mine until such time as ICP has entered into a mutually acceptable MOUs with Devon and other impacted lessees. Only through the development of a mutually agreeable agreement can the BLM be assured that co-development of the resources will be possible.

Bolles, Randy; Devon Energy Corp

Comment:

As previously stated, ConocoPhillips does not believe the BLM should authorize development of the Ochoa Mine until such time as ICP has entered into a mutually acceptable MOU with ConocoPhillips and other impacted lessees. Only through the development of a mutually agreeable agreement can the BLM be assured that co-development of the resources, which will benefit all parties, be possible.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM is aware that ICP has been in contact with the oil and gas lessees to develop MOUs. To date, there have been successful negotiations between some oil and gas companies and ICP with signed MOUs that resulted in cooperation in planning some of the processing facilities. The timing of developing the MOUs is up to the cooperating parties and is not under the authority of the BLM. If the BLM chooses the Proposed Action in the ROD, then cooperation between the industries, partially in the form of signed MOUs, can be enforced.

Co-development

Comment:

2.4.2.10 Management of Co-development, p. 2-17: *Many public comments submitted during the scoping period expressed concerns related to the potential for limiting existing and future oil and gas operations as well as oil and gas leases in the mine area as a result of developing a new mine. The proposed Ochoa Mine is not located within the SPA so it would not be governed by the concurrent development goals and management practices presented in the 2012 Order. Therefore, in order to set guidance for managing both fluid and solid minerals in the same area to fully develop both resources, ICP proposes a framework for managing mineral co-development. The goal of this framework would be to ensure that drilling for oil and gas does not interfere with potash mining, potash mining can proceed in a way that does not interfere with fluid mineral extraction, and both development activities would not create safety or environmental hazards. Management of co-development would maximize the recovery of both resources to prevent waste of state and federal minerals and to honor the rights of each lessee.*

Comment: Intrepid again reiterates its strong recommendation that orderly development of commercial potassium mineral deposits and oil and gas reserves be managed consistent with requirements of the 2012 Secretary's Potash Order. Intrepid supports use of private agreements, subject to appropriate regulatory approval, between mining companies and oil and gas operators to manage orderly development of minerals and oil and gas within each company's lease areas.

Ryan, Kevin; Intrepid Potash, Inc.

Comment:

2.4.4 Alternative C-Establishment of Local Potash Order, p. 2-19 and 20: *Alternative C would not change the mining methods and operations and processing methods and buildings described under the Proposed Action. The goal of this alternative is to establish standards for managing co-development of minerals while allowing the BLM to approve the MPO, grant ROW requests, and issue preference rights leases for mining.*

Under Alternative C, the BLM would work collaboratively with the State of New Mexico to establish guidance for managing concurrent development of potash and oil and gas. The guidance evaluated in this alternative may form the basis of a local potash order following publication of the ROD. The guidance would be implemented to make management decisions fairly and consistently regarding the development of both potash and fluid minerals.

Comment: Intrepid again reiterates its strong recommendation that orderly development of commercial potassium mineral deposits and oil and gas reserves be managed consistent with requirements of the 2012 Secretary's Potash Order.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative.

Co-development

Comment:

Alternative A asks that Concho and other operators agree to negotiate undefined issues with as yet unanswered questions as to the rights of the parties. If Alternative A were compared to the process of settling a complicated lawsuit, it is unlikely that prudent oil and gas or mine operators would agree to enter into binding negotiations without some idea of the legal rights of the parties. Yet, that is what is expected here.

Giraud, C; Concho Resources, Inc.

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights of different types. Under Alternative A, each operator would negotiate agreements based on their specific issues related to development in the mine area. Depending on the negotiations, these agreements or MOUs may carry some legal authority. To date, there have been successful negotiations resulting in signed MOUs with ICP, and cooperation has resulted. These concerns may also be addressed through the development of a "local order" after the ROD. These questions are indeed "unanswered" until the ROD is issued.

Comment:

Current SPA requirements establish a minimum of a 1/4 mile and 1/2 mile safety buffer for oil and gas wells, respectively, around active mining and open mine works. While the Ochoa Mine Project does not lie in the SPA, Intrepid recommends similar safety buffer requirements for this project. In regard to operating under rules that apply to a gassy mine, operating as an MSHA Category IV mine does not require permissible equipment to be used under the assumption that explosive methane concentrations may be present in the mine atmosphere.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The type of ore and the mining proposals under consideration for the Ochoa Mine are different from those in the SPA and may require different operations. There is no proposal to implement the requirements or mine plan proposed for the Ochoa Mine to the other potash mines in the SPA. All mines must comply with the safety requirements of MSHA as they apply to each case. In addition to the 200-foot radius is a 60 percent extraction buffer extending outward from the well to radius of 1,500 feet. The 60 percent extraction rate ensures that no subsidence would take place while maximizing potash recovery. The text was revised to provide additional detail as to why a 200-foot no mining buffer and 60 percent extraction buffer from 200 to 1,500 feet from the well is adequate using long established principals of estimating mining subsidence.

Co-development

Comment:

timed development to allow oil and gas production in a mine area ICP would not be mining in for at least 20 years may be a reasonable concept depending on a number of factors. However, it is Intrepid's understanding that BLM is unable to allow for this staged development in the SPA if commercial oil and gas reserves still remain available unless the oil and gas company is willing to pay compensatory royalties to BLM for prematurely curtailing production. This issue may be addressed by a private agreement, subject to approval by the regulatory agencies. Without use of a private agreement, it is not clear how current BLM leasing and production requirements would allow for timed development if oil and gas reserves remain at the end of the time period.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The details for how management of co-development within the SPA is currently implemented does not necessarily apply to the Ochoa Mine project area. Timed development could be applied through the MOUs with specific oil and gas companies, or a "local order" but it may not be needed because ICP is proposing to work with the oil and gas companies to minimize or avoid interference with access to fluid mineral leases within the mine area. Especially because the oil and gas resources in the mine area are most likely to be accessed through horizontal drilling, the BLM does not anticipate that access to oil and gas reserves would be limited.

Comment:

Alternative A could be made more meaningful if the legal "sideboards" were discussed in the DEIS. Including a procedure for dispute resolution also would be helpful. What will the BLM do in the event the parties reach no agreement? Unfortunately, the DEIS is silent on this point.

Giraud, C; Concho Resources, Inc.

BLM Response:

The legal sideboards for all alternatives are provided by the Purpose and Need section (1.2) in the DEIS and FEIS. The BLM added a process for dispute resolution as part of the Preferred Alternative in the FEIS (see Section 2.4.6.5).

Co-development

Comment:

The DEIS finds that, "Potential conflicts between mining and oil and gas interests would be minimized by the management of co-development through the implementation of the measures described in Section 2.4.2.10. No significant adverse impacts to mineral resources would result ... " (DEIS, 4-16) Apparently if the mine operator's proposed framework is accepted there is no need to answer the many concerns raised in the scoping process.

Giraud, C; Concho Resources, Inc.

BLM Response:

The information on the proposed management of co-development and potential conflicts referenced on page 2-17 in the comment is part of the description of the Proposed Action (Alternative A), which is what was proposed by ICP. If this co-development option is selected by the BLM, there would be an expectation that the oil and gas lessees would work with ICP to work out plans for mineral extraction in a way that is mutually beneficial to both parties in each MOU. The summary of impacts referenced on page 4-16 of the DEIS (DEIS Section 4.2.9.5 and FEIS Section 4.2.11) concludes that, if the co-development practices described under any of the action alternatives (A, B, C, or D) were implemented, these actions would minimize adverse impacts to mineral extraction by both industries, thereby making them not significant.

Comment:

As the BLM is aware, there is significant oil and gas development within the region making it entirely possible that methane or other hydrocarbons could be introduced to the mined area from existing, plugged and abandoned, or future oil and gas wells. To the extent hydrocarbons are encountered or introduced into the mine area either from natural sources or wellbores, ICP must accept all responsibility for such events and indemnify and hold harmless ConocoPhillips or other oil and gas operators for any and all adverse impacts, accidents, or other consequences of such events. It would be inappropriate for the BLM or others to hold ConocoPhillips responsible for impacts associated with the potential introduction of hydrocarbons into the proposed mining facility.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, ICP plans to follow the rules and regulations for a gassy mine under Category IV of the MSHA regulations. This indicates that ICP has taken the responsibility for gas that may enter the ore zone. Further responsibilities related to impacts can be established as part of an MOU between ICP and oil and gas companies or through the development of a local potash order.

Co-development

Comment:

Additionally, ConocoPhillips requests that BLM create a damage indemnity similar to that contained in stipulation 2.1.1 in favor of the oil and gas operators in the Project Area. To the extent ConocoPhillips's oil and gas wells, production equipment, or other infrastructure is damaged by mining related subsidence, ConocoPhillips should not be required to bear those costs. Therefore, ConocoPhillips requests the BLM also encourage ICP to enter into separate agreements with oil and gas operators in the area providing indemnity against mining related subsidence damage.

Dey, Eileen; Conoco Phillips

Comment:

Additionally, given the percentage of the proposed water well field that has been leased, the BLM needs to develop an appropriate mechanism to prioritize where oil and gas and water development will be located. As described above, ConocoPhillips has the right to use so much of the surface as is necessary to conduct oil and gas operations within its lease boundary. 43 C.F.R. § 3101.1-2. To the extent ICP is attempting to place roads and well pads within ConocoPhillips's leased area, conflicts could develop. The BLM needs to ensure it has a reasonable procedure to address these potential future conflicts.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM will consider your recommendation before developing the Preferred Alternative to determine whether this can be required. Note that the BLM cannot predict future water usage by oil and gas companies. This is the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company under the Proposed Action or addressed in a "local order" under Alternative C.

Comment:

The DEIS impact analysis also fails because it does not respond to many of the issues raised during the scoping process. While a number of the issues raised were discussed, there was no effort made to respond to questions generally related to the Project's possible interference with the valid existing rights of oil and gas operators to drill and produce in a timely manner.

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS and FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised during scoping were not addressed in the DEIS.

Co-development

Comment:

Because the proposed Ochoa Mine is outside of the Secretary's Potash Area and not governed by Secretary Order 332, 77 Fed. Reg. 71822 (Dec. 4, 2012), the BLM must carefully develop and establish a mechanism to evaluate and manage the development of both polyhalite and oil and gas resources. The BLM must ensure that Devon's existing and potential future oil and gas operations, on its existing leases are not adversely impacted by the construction, operation, or maintenance of the Ochoa Mine. In particular, the BLM must establish a framework to evaluate potential disputes between ICP and oil and gas operators to ensure that existing lease rights are fully and fairly protected. At this point in time, Devon does not believe any of the proposed alternatives adequately protect Devon's lease rights.

Bolles, Randy; Devon Energy Corp

Comment:

Because the proposed Ochoa Mine is outside of the Secretary's Potash Area and not governed by Secretary Order 332, 77 Fed. Reg. 71822 (Dec. 4, 2012), the BLM must carefully develop and establish a mechanism to evaluate and manage the development of both polyhalite and oil and gas resources. The BLM must ensure that ConocoPhillips's existing and potential future oil and gas operations, on its existing leases are not adversely impacted by the construction, operation, or maintenance of the Ochoa Mine. The BLM must establish a framework to evaluate potential disputes between ICP and oil and gas operators to ensure that existing lease rights are fully and fairly protected.

Dey, Eileen; Conoco Phillips

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration.

Co-development

Comment:

As noted above, the BLM also needs to develop a comprehensive framework to determine how it will resolve potential disagreements when oil and gas lessees and ICP cannot co-develop their minerals. As the common lessor in many cases, the BLM will be in the unique position to determine how oil and gas development and mining can proceed together.

Dey, Eileen; Conoco Phillips

Comment:

The BLM and ICP should also develop a comprehensive framework to protect existing oil and gas wells as well as future wells developed in the area. In the event the companies are unable to determine how development operations for both companies should proceed, the BLM should ensure that ConocoPhillips's senior lease rights are fully protected. Finally, ConocoPhillips wants to ensure that ICP does not place any large facilities including the processing plant, tailing stockpiles, waste rock stockpiles, or water evaporation ponds on ConocoPhillips's existing leases as such facilities may interfere with ConocoPhillips's rights and operations.

Dey, Eileen; Conoco Phillips

BLM Response:

Alternatives A and C have different frameworks under consideration for managing conflicts between fluid mineral lessees and mining. In the event that a disagreement cannot be resolved voluntarily under Alternative A, the BLM included a process for dispute resolution as part of the Preferred Alternative in the FEIS (see Section 2.4.6.5). This is also the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company, or addressed through the establishment of a "local order" as described under Alternative C.

Comment:

In the DEIS (2.4.2.10), ICP proposes to develop and sign individual memoranda of understanding with each oil and gas lessee to detail the coordination and management specific to each company and lease. However, the DEIS does not address coordination with area pipeline companies.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

The BLM added a requirement to have ICP coordinate and develop MOUs with companies maintaining infrastructure within the projected subsidence area in the Preferred Alternative.

Co-development

Comment:

In discussing how mining operations will be modified near oil and gas wells, Devon is concerned that both BLM and ICP place far too much emphases on existing wells and do not accurately account for the possibility of new oil and gas development in the Project Area. The BLM must ensure that mining operations are modified as new oil and gas development occurs.

Bolles, Randy; Devon Energy Corp

BLM Response:

The proposals for managing co-development and for reducing the ore extraction rate while increasing the pillar size (under all action alternatives) are designed to allow for mining operations to be modified or coordinated with new oil and gas development. The RFD has been updated in the project area (see Section 2.5 of the FEIS). Based on this new information, the BLM recognizes that there is a high potential for new oil and gas development in the mine area.

Comment:

A positive impact of co-development would be an increase royalties to the BLM and NMSLO.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Co-development under all action alternatives assumes the same level of fluid mineral development would occur as under the No Action. Consequently, though royalty revenues would accrue from fluid mineral development, there would be no difference/change as compared to the No Action. Text will be added in Section 4.15 noting the prospective accrual of royalties and other public sector revenues in conjunction with fluid mineral development under the No Action and that the Proposed Action and other action alternatives would not affect those revenues.

Comment:

Concho appreciates the magnitude of the undertaking in preparing a DEIS for a Project the size of the proposed Ochoa mine. However, Concho needs the analysis to be complete and accurate, especially when discussing the potential conflict between mining and oil and gas operations. Our operations in the Project area recently have been very successful so the capacity to continue drilling within this area is critically important to Concho.

Giraud, C; Concho Resources, Inc.

BLM Response:

The BLM appreciates the importance of allowing access to valid existing fluid minerals leases but cannot prioritize the development of one mineral over another, according to federal guidance and policy. The DEIS considered the recent successful development and production of wells in the mine area in addition to what was projected in the RFD. In preparation for the FEIS, additional information will be considered, some of which was provided by commenters. While it is desirable to have complete data for impact analyses, it is not always possible. However, it is appropriate for a NEPA document to disclose data gaps and to document the assumptions and data used in the analyses, as was done in Sections 4.2.2 and 4.2.3 in the DEIS and FEIS. Valid existing lease rights are recognized in both the Proposed Action alternative and Alternative C.

Co-development

Comment:

Alternative C states that the BLM would work with the state to establish guidance for managing the concurrent development of potash and oil and gas. Then Alternative C proceeds to set forth the minimum requirements of the guidance, apparently without any input from the state.

The guidance details are from the draft implementation guidance proposed by the BLM for the 2012 Order. This guidance has not been accepted by the New Mexico Oil Conservation Division as being feasible as drafted. Nor has it been accepted by the Joint industry Technical Committee for the Secretary's Potash Area that is currently reviewing it.

Giraud, C; Concho Resources, Inc.

BLM Response:

The guidance presented in Alternative C is derived from the final 2012 Secretary's Potash Order, dated December 4, 2012. Alternative C presents possible minimum requirements for co-development for consideration by agencies and the public. The BLM has coordinated with the NMOCD during this NEPA process and NMOCD submitted comments on the DEIS. Once the BLM considers all comments, a decision will be made but at this point, Alternative C is only a proposal. Similar to the 2012 Order, the BLM may seek comments from the Joint Industry Technical Committee if Alternative C is selected in the Record of Decision.

Comment:

The BLM needs to ensure that it takes no actions that could impact existing oil and gas operations within the Project Area. As demonstrated by Figure 3.2-8, there are literally scores of oil and gas wells located within the Project Area. The BLM needs to describe and ensure its mitigation measures are sufficient to protect those oil and gas wells from adverse impacts, particularly those the BLM has identified as having high risk. Ochoa DEIS, pg. 3-15. The BLM also needs to address and analyze the effectiveness of these mitigation measures for both existing and potential future wells.

Bolles, Randy; Devon Energy Corp

Comment:

Given the development potential for oil and gas, BLM and ICP need to develop appropriate mitigation measures and safeguards to ensure that mining activities will not cause adverse impacts to horizontally drilled wells within the Project Area.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Co-development

Comment:

Devon supports the BLM's decision to include lease stipulation 1.3 that requires potash operations not to unreasonably interfere with oil and gas production. Devon strongly encourages the BLM to include this COA in any leases issued to ICP.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips strongly supports BLM Environmental Requirement 1.1.3 which mandates that ICP shall not unreasonably interfere with oil and gas production. Ochoa DEIS, pg. 2-24. ConocoPhillips encourages the BLM to impose this reasonable requirement on any and all approvals for the Ochoa Mine in order to protect the rights of all parties involved.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM will take your comments into consideration when making a decision. The BLM has no intent to interfere with the development of valid existing lease rights.

Comment:

The economic viability review should also factor in a more accurate oil and gas well density number than is presently included in the DEIS. The operator of a mine in an area determined to have low potential for drilling probably anticipates having only a few wells to avoid and a few additional pillars to leave in place. But current data clearly shows that will not be the case for this mine. In fact, it appears certain areas were left out of what would otherwise have been included in the mine plan but for the number of wells already located in those areas. It may be that other areas of the proposed mine will have to be avoided entirely because of the intensity of oil and gas drilling. The DEIS does not address that possibility anywhere in its analysis.

Giraud, C; Concho Resources, Inc.

BLM Response:

Assuming the commenter is referring to the valuable deposit determination when referencing the "economic viability review", it should be noted that the determination of a valuable deposit is based on very specific BLM guidance that considers the mine plan of operations and lease terms and conditions. It is not dependent on other mineral leases and values in the area.

Comment:

Joint planning, individual memoranda of understanding between the potash lessee and the oil and gas operators, and sequencing potash mine extraction and oil and gas development will allow successful co-development of both resources.

Bailey, Jami; New Mexico Oil Conservation Division

BLM Response:

This is the intent of the co-development options under consideration.

Co-development

Comment:

The BLM should provide additional information regarding how it developed the list of so-called “high risk” wells identified in Figure 3.2-8. Ochoa DEIS, pg. 3-15. ConocoPhillips would also like additional information regarding how mining operations will be conducted, or what other actions ICP will take to ensure that activity near the high-risk wells will not result in adverse impacts to the wells or the mine.

Dey, Eileen; Conoco Phillips

BLM Response:

The criteria for the at-risk wells is stated in Section 4.2.5.2., p. 4-9. No changes to text.

Comment:

2.4.2.2 Mine, p. 2-7: *In areas of 60 percent extraction, the rooms would be 27 feet wide with 22-foot by 116-foot pillars, spaced 13.5 feet apart, within a 1,500-foot radius of an active oil or gas well. The larger pillars near active wells would be designed to minimize subsidence.*

Comment: Current SPA requirements establish a minimum of a 1/4 mile and 1/2 mile safety buffer for oil and gas wells, respectively, around active mining and open mine works. While the Ochoa Mine Project does not lie in the SPA, Intrepid recommends similar safety buffer requirements for this project. Intrepid would object to the proposed Ochoa mine plan being required at its operations in the SPA.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The type of ore and the mining proposals under consideration for the Ochoa Mine are different from those in the SPA and may require different operations. There is no proposal to implement the requirements or mine plan proposed for the Ochoa Mine to the other potash mines in the SPA. All mines must comply with the safety requirements of MSHA as they apply to each case.

Co-development

Comment:

2.4.4 Alternative C—Establishment of Local Potash Order - Bullets, p. 2-19 and 20:

- *No drilling islands would be established within 1 mile of approved potash mining operations identified by the 3-year mine plan of development.*
- *Timed development may be considered to allow oil and gas drilling in the mine area ICP would not be mining for at least 20 years.*

Comment: Intrepid recommends that additional clarification be added to the first bullet to say "No drilling islands would be established within 1 mile of approved potash mining operations identified by the 3-year mine plan of development. **The 3-year mine plan of development includes all open works.**" This language and practice would be consistent with how BLM has administered the 3-year mine plan in the SPA and is critical to safe, efficient, and effective mining and protection of potassium mineral reserves. It is essential that potash mining operations have the operational flexibility that the one-mile buffer from open mine works provides. There are significant differences between the operational flexibility needed by underground mining operations as compared to oil and gas drilling. Oil and gas companies operate from multiple fixed surface locations to access the targeted resource. In contrast, mining companies are mining a highly variable orebody subject to salt horsts, undesirable ore zones, and variable ore grades that regularly require adjustments to planned mining operations and the need for flexibility underground to move mining equipment and personnel to different locations and to mine in different directions. These moves often require revised designs and new underground development as equipment and materials cannot be just trammed to a new location as if the access was on the surface. The one-mile buffer around open mine works provides the access needed to ensure that flexibility and protects the mine's booked SEC mine reserves. Intrepid would strenuously object to any change in the current practice of including open mine works as part of the 3-year mine plan at its operations.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative. It should be noted that there are many differences between the geology in the SPA compared to that in the Ochoa Mine area, including different composition and properties of the formations, overburden, and ore zone. ICP also is likely to encounter different issues and require some differences in management and coordination with oil and gas companies. There is no proposal to implement the requirements or mine plan proposed for the Ochoa Mine to the other potash mines in the SPA, which will continue to be managed under the Secretary's Potash Order.

Co-development

Comment:

The BLM and ICP must develop appropriate mitigation measures to protect the increase of horizontal drilling and development within the Project Area.

Bolles, Randy; Devon Energy Corp

Comment:

...although ICP intends to leave 200-foot radius barrier pillars around each oil and gas well, BLM and ICP need to specifically address what mitigation measures, set-backs and other procedures ICP would utilize to protect horizontal development in the Project Area. This is currently inadequately analyzed in the Ochoa DEIS.

Bolles, Randy; Devon Energy Corp

Comment:

Devon appreciates that the BLM acknowledges that there may be significant interest in horizontal development within the Project Area. Ochoa DEIS, pg. 4-17. Given this development potential, the BLM and ICP need to devote substantial efforts to developing appropriate mitigation measures and safeguards to ensure that mining activities will not cause additional harm to horizontally drilled wells within the Project Area.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips encourages the BLM and ICP to develop specific mitigation measures to ensure horizontal wellbores are not adversely impacted by mining activities or mining-related subsidence events. Absent the development of new mitigation measures to protect horizontal development, the BLM should exercise caution before allowing the proposed mine project to move forward.

Dey, Eileen; Conoco Phillips

Comment:

The BLM and ICP must develop appropriate mitigation measures to protect the increase of horizontal drilling and development within the Project Area.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Co-development

Comment:

ConocoPhillips also request the BLM develop, in cooperation with ICP and oil and gas operators, designated routes for oil and gas pipelines and access ways to be located within and near the Project Area. Designating specified corridors that will be protected from potential subsidence using pillars and reducing or extraction will promote co-development will ensure the safe transport of hydrocarbons in the area. ConocoPhillips is willing to work with BLM to develop proposed transportation routes and appropriate setbacks to ensure the development of both oil and gas and polyhalite can co-exist.

Dey, Eileen; Conoco Phillips

BLM Response:

Designation of routes for oil and gas pipelines, as well as transportation routes and appropriate setbacks to ensure the co-existence of polyhalite and oil and gas development, can be determined within the context of a "local order" as described under Alternative C or in a MOU between Conoco Phillips and ICP as described under the Proposed Action. On public lands, the BLM would have a say in travel and road management.

Comment:

The failure to address the scoping questions in full has an even greater impact when one reviews Action Alternative C. In this scenario, the BLM will establish standards and guidelines for managing concurrent development. The guidelines would be implemented to make management decisions fair and consistent for the development of both potash and oil and gas. (DEIS Executive Summary, 6) How can this alternative be evaluated without any answers to questions about valid existing lease rights and the other issues raised in the scoping process?

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised during scoping referred to by the commenter were not addressed in the DEIS. The impact analysis was performed based on the assumption that co-development decisions would enable all valid existing lease rights to be exercised.

Co-development

Comment:

The DEIS notes: "Many public comments submitted during the scoping period expressed concerns related to the potential for limiting existing and future oil and gas operations as well as oil and gas leases in the mine area as a result of developing a new mine." (DEIS, 2-17) It further states that the Project developers propose a framework of future meetings of the Project developer and the oil and gas operators to plan for future development in a joint manner so that neither industry interferes with the other. (DEIS, 2-17) The DEIS finds that, "Potential conflicts between mining and oil and gas interests would be minimized by the management of co-development through the implementation of the measures described in Section 2.4.2.10. No significant adverse impacts to mineral resources would result ... " (DEIS, 4-16) Apparently if the mine operator's proposed framework is accepted there is no need to answer the many concerns raised in the scoping process. The DEIS restates that position later in the socioeconomic impact analysis...The preparers of the DEIS should know they cannot avoid their obligations to address the issues raised in the scoping process by simply saying something to the effect of, "Gee, we hope they work it out". Concho appreciates and generally supports the concept of allowing the parties to work together to address solutions to the problems associated with both industries wanting to operate in the same area. But by failing to address the issues raised in scoping in any meaningful fashion, the DEIS does not even define the problem.

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS and FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised by the commenter during scoping were not addressed in the DEIS. The information on the proposed management of co-development and potential conflicts referenced on page 2-17 in the comment is part of the description of the Proposed Action (Alternative A), which is what was proposed by ICP. If this co-development option is selected by the BLM, there would be an expectation that the oil and gas lessees would work with ICP to work out plans for mineral extraction in a way that is mutually beneficial to both parties in each MOU. The summary of impacts referenced on page 4-16 of the DEIS (DEIS Section 4.2.9.5 and FEIS Section 4.2.11) concludes that, if the co-development practices described under any of the action alternatives (A, B, C, or D) were implemented, these actions would minimize adverse impacts to mineral extraction by both industries, thereby making them not significant. Essentially, the analysis concludes that implementing either the voluntary cooperation methods with signed MOUs as proposed by ICP or the more stringent and defined guidance for managing co-development considered under Alternative C would minimize conflicts for mineral extraction while allowing valid existing lease rights of both industries to be exercised.

Co-development

Comment:

Overall, ConocoPhillips encourages the BLM to more fully analyze and disclose the potential adverse impacts the development the proposed mine will have upon ConocoPhillips's existing and future oil and gas operations in the Project Area. ConocoPhillips appreciates and acknowledges Intercontinental Potash Corporation USA's ("ICP") proposal to develop a framework for managing co-development of oil and gas and potash within the Ochoa Project Area. Ochoa DEIS, pg. 2-17. However, the BLM has not explained how it will manage both resources and how it will ensure that oil and gas operations are not adversely impacted by the proposed mining operations.

Dey, Eileen; Conoco Phillips

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration. BLM has no intent to interfere with the development of valid existing lease rights. The BLM took into account the comments on the DEIS when they developed the preferred alternative and will consider them for the Record of Decision, which will more fully explain how both resources would be managed should the mine project be approved.

Consultation

Comment:

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249; November 6, 2000), requires regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes.

Recommendation: The FEIS should include complete descriptions of consultation and coordination activities, including correspondence to and from Tribal governments and other consultation-related documents. These documents would demonstrate fulfillment of Tribal consultation duties by BLM and Tribal government engagement.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

Tribal consultation is described in Section 5.3 of the DEIS and FEIS. The details of the meetings are maintained in the BLM Carlsbad Field Office and the copies of all correspondence specific to the Ochoa Mine Project are included in the project administrative record. Full copies of all communications are not typically included in an EIS but are available upon request unless the information is confidential.

Comment:

The DEIS identifies that U.S. Fish and Wildlife Service (USFWS) was contacted for threatened and endangered species consultation under Section 7 of the Endangered Species Act, but there is not concurrence from the USFWS on any conclusion reached by BLM in the DEIS on the environmental consequences of the proposed project's alternatives. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent surveying, monitoring, and reporting protocols are applied in protection and mitigation effort.

Recommendation: The FEIS should incorporate concurrence from the USFWS on the BLM determination for impacts of the proposed project to threatened and endangered species. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent surveying, monitoring, and reporting protocols are applied in protection and mitigation efforts.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

A Biological Assessment to evaluate potential impacts to the lesser prairie-chicken was submitted to the USFWS and the USFWS concurred with the findings. This information is described in Section 5.4 of the FEIS. The New Mexico Department of Game and Fish submitted comments on the DEIS and the BLM will coordinate with them as they do on other projects in the Carlsbad Field Office.

Consultation

Comment:

The DEIS identifies that the BLM coordinated and consulted with several federal and state agencies, counties, and municipalities. However, the DEIS does not include comments and concurrences from these entities.

Recommendation: The FEIS should include all comments and concurrences received from consultation and coordination with Agencies, Organizations, Governments, and Persons contacted, including the New Mexico Office of State Engineer; New Mexico Energy, Minerals, and Natural Resource Department; and New Mexico Environmental Department.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As noted in Section 1.5.4 of the DEIS and FEIS, the NMED is a cooperating agency for this project. The BLM has communicated and coordinated with the NMED Ground Water Quality Bureau through meetings, presentations, and discussions. The Ground Water Quality Bureau is currently reviewing a discharge permit application from ICP for this project. This permit is referenced in Section 2.4.7.2 of the FEIS. The New Mexico State Engineer's Office participated in reviews of the groundwater model and provided comments on that model to ICP's contractor that prepared the model and the modeling report, cited as INTERA 2013 in the DEIS and FEIS. The NMOSE did an independent evaluation of the model and concurred with the model results. All comments on the DEIS will be included in an appendix to the FEIS.

Cultural Resources

Comment:

The project falls within the Southeastern New Mexico Archaeological Region. The DEIS provides information that Texas State Historic Preservation Officers (SHPO), Advisory Council on Historic Preservation, and Tribal Historic Preservation Officer (THPO) were contacted by BLM for coordination purposes under National Historic Preservation Act (NHPA) Section 106 Consultation.

Recommendation: The FEIS should include complete descriptions of consultation and coordination activities regarding historic, cultural, or archeological resources, including correspondence and other consultation-related documents. These documents would demonstrate fulfillment of NHPA by BLM.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The New Mexico SHPO was contacted but there is no involvement from the Texas SHPO. Tribal consultation is described in Section 5.3 of the DEIS and FEIS. The details of the meetings are maintained in the BLM Carlsbad Field Office and the copies of all correspondence specific to the Ochoa Mine Project are included in the project administrative record. Full copies of all communications are not typically included in an EIS but are available upon request unless the information is confidential.

Comment:

Page 3-100: See comment regarding negative surveys for well field and pipeline ROW on page 3-97

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Page 3-97: In addition to the three inventories listed here, ICP provided to the BLM on November 11, 2011 a negative survey report for a portion of the ground water well field as well as a negative survey report for the pipeline right of way on July 1, 2013. Please consider updating this portions of the DEIS to include these negative surveys.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The extent of the cultural resources surveys were added to Section 3.13.4 the FEIS.

Cumulative Impacts

Comment:

In examining the potential environmental consequences of the Project, its impact must be considered in combination with all actions that are reasonably foreseeable based on current analysis. Only in this way is it possible to predict the cumulative effect on the resources analyzed as part of the National Environmental Policy Act (NNEPA) review

Giraud, C; Concho Resources, Inc.

BLM Response:

The cumulative impact analysis included in Chapter 4 for each resource takes into account reasonably foreseeable future actions as well as other past and present operations and activities in the project area.

Cumulative Impacts

Comment:

The DEIS concludes that "The interest in oil and gas targets within and near the Ochoa Mine project area would contribute to cumulative impacts to mineral resources and may affect future mine plans should the proposed mining project be approved." (DEIS, 4-17) Despite providing this warning, no apparent effort was made to collect data to analyze these concerns and, instead, the DEIS persists in the false characterization of the Project area as one of low potential for oil and gas development.

Giraud, C; Concho Resources, Inc.

Comment:

Interestingly, it appears that the preparers of the DEIS themselves also may have some doubt as to the accuracy of the projections. The DEIS references drilling activity in areas beyond those included in the RFD and adds detail on several recent wells drilled adjacent to the project area, concluding that should an Avalon well develop into a true resource play, it could expand in all directions. DEIS, 4-17 ... In retrospect, that comment was an astute projection based on a well drilled in 2011. The Avalon portion of the Bone Spring formation in and near the Project area has, indeed, become a resource play.

Giraud, C; Concho Resources, Inc.

Comment:

The RFD relied upon in the DEIS is based on well information that, for the most part, does not consider data subsequent to 2010 and, as a result, misses the dramatic growth in development in or near the Project area that would change its forecast for potential development

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS begins with the recognition that "the primary known future activity would be oil and gas development." (Executive Summary, 6) Given that oil and gas development is the primary anticipated activity in the Project area, it is shocking that the DEIS incorrectly states that the "estimated future drilling potential is low in the vicinity of the 50 year mine area and the plant site." (DEIS, 2-31 , emphasis added). As the basis for *this* characterization, the DEIS credits the "Reasonable Foreseeable Development (RFD) Scenario for the BLM New Mexico Pecos District" (the RFD). While the RFD has its own shortcomings due to its failure to consider important data subsequent to 2010, it does not characterize the Project area as having only low potential for oil and gas development. That misinterpretation is a fatal flaw in the DEIS.

Giraud, C; Concho Resources, Inc.

Comment:

Concho believes the RFD needs to be examined closely for information on areas of high potential that are not included on the summary map of potential plays.

Giraud, C; Concho Resources, Inc.

Cumulative Impacts

Comment:

Concho understands the need for a definite cutoff point for data to be reviewed for the RFD, but we believe using 2010 as that cutoff point resulted in the BLM using stale data in preparing the DEIS. Concho requests that the DEIS be supplemented before the NEPA review process continues so the true impacts to the oil and gas industry can be considered both individually and as part of the cumulative impact analysis using data reflective of the current state of affairs in the Project area.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Comment:

There are several regulated facilities within 1,000 meters of the project area. The DEIS does not identify all the facilities.

Recommendation: The FEIS should include in the cumulative impact analysis all regulated facilities within 1,000 meters of the project area.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

There is only one facility regulated for air quality within 1,000 meters of the processing plant site. Cumulative impact analysis must take into account past, present, and reasonably foreseeable future projects. The air quality modeling performed for the project utilized ambient air quality from the Hobbs monitoring station as the baseline, so that reflects past and current air quality in the region. The ambient air quality, which includes all existing regulated sources, is described in Table 3.5-3.

Cumulative Impacts

Comment:

The DEIS cumulative impact analysis states: "Recent estimates of drilling activity indicated that most of the project facilities would be located in an area of low drilling potential with the exception of an area of moderate potential for the Bone Springs play that is crossed by the proposed water pipeline." (DEIS, 4-17) As discussed earlier, these are not, in fact, the conclusions stated in the RFD. The RFD identifies areas of high and moderate potential in the Project area that are not discussed in the DEIS cumulative impact analysis. (RFD, 13-15, Bone Spring and Delaware Mountain Group plays). Further, as set forth above, the DEIS contains information that actually contradicts RFD conclusions.

Giraud, C; Concho Resources, Inc.

Cumulative Impacts

Comment:

The incorrect assumption of low potential for oil and gas development may drive a different result in the analysis in a number of places. Consider the changes that might be made in the following places based on a determination that the potential for drilling is high instead of low:

DEIS, 2-31 The RFD is quoted as estimating the future drilling potential as low in the Project area. It does say recent drilling demonstrated promising potential, but the DEIS does not carry through on that observation.

DEIS, 3-21 Cementing of casing in oil and gas wells that penetrate salt sections is often problematic and there is no general rule on how to deal with the problems.

DEIS, 3-122 When oil and gas development and potash mining activities occupy the same general area the potential for conflict arises.

DEIS, 3-122 The oil and gas industry is concerned about the effects of the proposed mine project on existing oil and gas facilities and operations, the potential impact of subsidence on oil and gas facilities, potential effects on access to well facilities, and any constraints the proposed project may have on future oil and gas development.

DEIS, 4-2 Forces in the strata could cause bending and rupture of well casings.

DEIS, 4-4 BLM projections of future oil and gas drilling in the project vicinity were used in determining the impact on mineral resources.

DEIS, 4-6 Impacts to mineral resources are only considered significant if there were a permanent or irretrievable loss of the ability to access and recover a commercial mineral resource.

DEIS, 4-6/9 Impact of mining related subsidence on oil and gas wells and pipelines.

DEIS, 4-15 Monitor for instability around active wells. Evaluations of well integrity of active wells with pressure testing and cement bond logs

DEIS, 4-17 If the Avalon develops into a true "resource play" then drilling could expand in all directions. The interest in oil and gas targets within or near the project area would contribute to the cumulative impacts to mineral resources. SWD wells could present problems.

The DEIS's dedication to the determination of low potential for future drilling in the Project area is so interwoven in the analysis that it must be revisited and substantially revised before the process can go forward. The analysis does not consider the economic viability of the mine at the current intensity of drilling, much less in connection with continued future growth in the number of wells. A supplemental DEIS must be prepared to correct *this* fundamental flaw. To do otherwise is a failure to comply with the requirements of NEPA to give a close, hard look at the impacts of a project prior to reaching a decision.

Giraud, C; Concho Resources, Inc.

Cumulative Impacts

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information. The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Comment:

The substantial increase in oil production due to horizontal drilling in the Bone Spring formation is further depicted on Figure 9 which appears on the same page of the RFD Appendix. Concho does not understand how these discrepancies can be reconciled and, therefore, believes the summary map is incorrect. The map must either be revised or an explanation of the conflicting information contained in the RFD Appendix be addressed in a supplemental DEIS.

Giraud, C; Concho Resources, Inc.

Comment:

There can be no real analysis of the specific impacts, much less the cumulative impact, of the Project without an adequate understanding of the intensity of oil and gas operations in the area.

The DEIS must be supplemented and the Supplemental DEIS must be made available for comment before the Final EIS is prepared.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based on data up to 2011. The discussion on recent oil and gas developments was updated for the FEIS. The RFD (Engler et al. 2012) clearly shows that the mine area is outside of the low-medium-high potential areas for the Bone Spring/Avalon Shale development (RFD, Figure 4.1, Figures 6 and 14, Appendix, Part 1). The mine area is within an area of medium to high development potential for the Delaware Group. However, according to the RFD, development in the Delaware would consist of infill drilling, secondary and tertiary recovery (RFD, Table 4.1, pages 9-10, Appendix part 2). In addition the RFD states that such activities would occur in the pools that have been determined by production histories to have the best reservoirs. However, the RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information.

Editorial

Comment:

In general, this draft environmental impact statement (DEIS) follows a pattern which is common amongst such documents, to wit:

A) It is so long and dense that it discourages all but the most committed reader from reading most or all of the document.

B) It approached the problem from the perspective that development is good and growth is better.

C) It suggests a preferred option and alternative options, without really going into why the preferred option has been chosen from the field. It reads like the study was conducted and the report written as though the preferred option had been preferred from the start.

D) It could benefit from more and better graphics, which could do a lot to make the otherwise dense text more readily understandable.

E) It would benefit substantially from careful in-house or extramural editing by careful editors, who have not been involved in its initial preparation. Commonly, those who prepare a complex document are so close to it that what seems straight forward and adequately explained to them is opaque to someone just picking it up *de novo*. This usually leads to the inclusion of both spelling and grammatical errors, inadequately cited sources, confusing graphics, and logical errors, which are more apparent to those unfamiliar to the text than those who have worked closely with its preparation.

Queen, Michael

BLM Response:

The DEIS and FEIS provide detail to address concerns and issues that were expressed during public scoping, as well as to support the conclusions made during the impact analyses. No preferred alternative was selected or identified in the DEIS and no decision will be made until the Record of Decision is signed in 2014. The document has gone through several iterations of review but specific recommendations for additional or revised graphics and logical errors are needed in order to make the revisions referenced in the comments. Where commenters reported errors, and where editorial changes were noted in the DEIS, they have been fixed in the FEIS.

Geology

Comment:

Figure 3.2-6 What are the hatched marked? Are they the same as Capitan Reef Complex?

Queen, Michael

BLM Response:

The blue hatch marks indicate the Capitan Reef Complex. The legend in Figure 3.2-6 will be updated to identify this.

Comment:

Figure 3.2-5 All cross sections should be indicated on plan maps

Queen, Michael

BLM Response:

The cross section is intended for diagrammatic purposes and is not tied to subsurface data at specific points. However, general compass directions will be placed on the figure to enhance understanding of the location of stratigraphic elements in the project area.

Comment:

Geologic Hazards 3-17 “Both sinks contain abundant gypsum dune sand....” Dune sand and gypsum precipitated by groundwater are not the same

Queen, Michael

BLM Response:

The description is by Nicholson and Clebsch (1961). The text was revised to make clear that is their conclusion.

Comment:

Geologic Hazards 3-14 Dissolution of evaporite minerals is an example of karst, but not synonymous with it. What is honeycomb structure?

Queen, Michael

BLM Response:

The text was revised to indicate that dissolution of evaporites is but one type of karst development. “Honeycomb” structure – see Hill (1996) p. 279.

Comment:

3.2.3.3 Seismicity 3-21 Lloyd Pray (personal communication) has described fault scarps cutting recent fanglomerate deposits west of the Guadalupe Mountains, in excess of 4 m high, which were minimally eroded and unvegetated. This suggests seismic activity in the region > Richter 7 within the last 500-1000 years, which is geologically modern.

Queen, Michael

BLM Response:

BLM has relied upon information available on earthquake hazard mapping by the USGS and the New Mexico Bureau of Geology and Mineral Resources. No change to text.

Geology

Comment:

NMED also notes that the EIS broadly describes the ore zone as consisting of polyhalite and salt, presumably NaCl salt, but no further description of ore that will be mined is provided. The Tamarisk Fm in other portions of the Rustler Formation in the Delaware basin is known to contain barium and boron for which WQCC standards exist for ground water as well as other lithophile elements in ground water. Other potential contaminants from the Tamarisk Formation that have not been reported or characterized may be components of the Ochoa mill waste Stream. NMED will require more complete characterization of the waste streams as part of the ground water discharge permitting process.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Additional information on the composition of the ore zone will be provided in the FEIS. However, this information will only be part of the consideration of the waste stream. It is assumed that the NMED will request this information before issuing a discharge permit.

Comment:

3.2.1.2 Reg. Geology 3-3 Where are these pre-Permian rock outcrops? are they figured?

Queen, Michael

BLM Response:

The text was revised to state that Permian rocks occur in the subsurface, but are not exposed in the project area. Permian rocks are exposed to the west in the Nash Draw area, 15 miles west of the project area.

Comment:

3.2.1.3 Permian Rocks 3-9 In places the Capitan Limestone is considered to include shelf crest (=“back reef”) Artesia Gp. carbonates and in places not. The classification of the Capitan Limestone as a reefal limestone harkens back to Newell, et al, 1953, which I have not seen referenced. Reefs made up only a small part of this formation. More modern papers refer to it as a shelf-edge carbonate complex. See Dunham (1960, 1972), Pray (various dates).

Queen, Michael

BLM Response:

Reef is used here in the sense of location of depositional environments as in Harris (2009): ‘We will use the terms “reef”, “forereef”, and “backreef” in their positional sense; while remembering that Dunham (1970) suggested the term “stratigraphic reef” for the Capitan and other abrupt carbonate masses because he recognized little evidence of skeletal boundstone signifying an ecologic or “true” reef.’ The term “reef” is ingrained in the literature of the Capitan Limestone and is a concept that is easily envisioned by the general reader. It would not be useful for this report to characterize the Capitan limestone in formal geological terms such as doloboundstones, dolowakestones, dolopackstones, and so forth. Given the foregoing, whether the Capitan Limestone is a true reef is irrelevant to this discussion. No changes to text.

Geology

Comment:

Monitoring wells 2-11 What are the compositions of the principal ore bed, in terms of the various minerals present?

"A groundwater monitoring plan...." How can the decisions be made before these data are available?

Queen, Michael

BLM Response:

The composition of the principal ore zone has been documented in the analysis of the core data provided to the BLM. As there is no groundwater in the ore zone, the ore composition will not be used to inform the groundwater monitoring plan. Rather baseline data will be collected before mining begins.

Comment:

Bell Canyon Fm. 3-9 Turbidity flows did not deposit sands across the shelf, only in the basin

Queen, Michael

BLM Response:

The text states that sediment was transported across the shelf and into the basin: "The turbidity flows deposited sand in elongated sinuous channels with sediment transport from north to south and southwest across the shelf and into the basin (Payne 1976)."

Green House Gases

Comment:

Processing 2-7 What are the power needs for reverse osmosis? Are the direct or indirect impacts of generating these power needs included in the analysis of greenhouse gasses?

Queen, Michael

Comment:

Greenhouse - ES-11 Calcining is usually applied to cooking limestones so as to drive off CO₂ and create CaO. How is it meant here? Is CO₂ driven off? How much electricity (or gas or oil) is used to accomplish this calcining and how much greenhouse gasses are produced? It is absolutely certain that future thresholds for these gasses will be more rigorous than today's standards. We should not want to create a source of greenhouse gasses now that will be unacceptable in the future

Queen, Michael

BLM Response:

Based on information provided by ICP in December 2012, the required maximum electrical power output would be 70,000 kilowatts (kW) and the plant's average load would be 64,000 kW. While the overall plant power demands are expected to be within this range, the details of the processing plant equipment are under design so the specific requirements of one process, such as calcining, may be subject to change. Electricity would be supplied either from an offsite source by Xcel Energy or onsite from a cogeneration plant powered by natural gas (see FEIS Section 2.4.2.8). Calcining is described in Section 2.4.2.3 of the DEIS and FEIS as driving off water and is one step in the overall ore processing. As stated in section 4.6.2 of the FEIS, the tools necessary to quantify climatic impacts from this small-scale project are presently unavailable. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing factors that contribute to climate change.

Hazardous Materials

Comment:

The DEIS discusses the direct and indirect impacts of hazardous materials and solid and hazardous wastes associated with the project and its operations. The DEIS does not identify the projected volumes, the composition or constituents of the waste, and appropriate mitigation to minimize the generation of solid and hazardous wastes. Additionally, the DEIS does not identify the management practice to prevent wind dispersion of waste from the piles of waste rock material.

Recommendation: The FEIS should identify projected volume and the composition or constituents of solid and hazardous waste. Appropriate mitigation should be evaluated, including measures to minimize the generation of hazardous waste (i.e., hazardous waste minimization). Also, the FEIS should include the management practice to prevent wind dispersion of the waste rock material.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The specific volumes and specific types and composition of solid and hazardous wastes to be generated will not be known until the full design of processing facilities has been completed. The environmental protection measures listed in Chapter 2 require that ICP would comply with all state and federal regulations and guidelines regarding the storage, management, and disposal of all hazardous materials and wastes. The stockpiled waste rock is not expected to be subject to wind erosion due to the lack of fine particles in the stockpile.

Health/Safety

Comment:

I also believe that this project will not present any health risks to Lea County's Citizens or environment.

Fulfer, Gregg; Lea County

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

On January 24, 2012, I submitted the comment:

*Polyhalite is a potash ore, and all **potash is radioactive** because it contains the radioactive isotope K-40. Polyhalite production will increase radiation exposure to mine employees and members of the general public. U.S. Regulations do not define any exposure to radiation (as low as it may be) as "below regulatory concern", the ruling paradigm in radiation protection assumes that all exposure is cumulative, and much of the scientific and technical literature presumes that any (additional) exposure to ionizing radiation has at least some detrimental consequences and should be avoided (ALARA principle). The EIS should address this topic in detail, including either mitigating measures to be implemented or providing a sufficient evidence- and science-based rationale for dismissing this potential concern.*

You "responded" in Table 1-3:

Is there the potential for radiation in the mined substrate?

- *No. No significant levels of radon are expected in the mined substrate.*

Of these two responses, the first is false, and the second is a response to a question that was not asked. Polyhalite IS radioactive, as is any mineral containing potassium. Radon, which is not a byproduct of the decay of K-40, is obviously not an issue, at least as far as polyhalite is concerned. Your curt reply lends itself to interpretation as either ignorant or patronizing.

Rempe, Norbert

BLM Response:

The summary of your comment listed in Chapter 1 of the DEIS was corrected in the FEIS. In response to the original comment, it should be noted that existing federal regulations will establish the need for screening employees in an underground, non-uranium mine. Occupational dose limits are set so that no worker incurs an unacceptable risk. In compliance with federal regulations, ICP will be held to the MSHA standards applicable to ionizing radiation exposure limits, as appropriate.

Health/Safety

Comment:

2.4.2.2 Mine, p. 2-7: *While there are no natural sources of gas within the ore zone, there are oil and gas wells within the mine area. For this reason, all mine equipment and ventilation would follow the rules and regulations for a gassy mine under Category IV of the Mine Safety and Health Administration (MSHA), 30 CFR Part 57.22003. Categories are assigned based on the types and levels of gas in a mine. Category IV applies to mines from which noncombustible ore is extracted where non-explosive methane may exist based on the geology of the area.*

Comment: Intrepid believes the safety of miners is best served by preventing inflow of natural gas from oil and gas operations, which is a primary focus of the 2012 Secretary's Potash Order and the reason for establishment of safety buffers between mine operations and oil and gas wells. Intrepid's mines in the Permian Basin are classified as MSHA Category IV mines, and there are no equipment or ventilation requirements to operate in a condition that presumes methane may be present in explosive concentrations (as required if classified as an MSHA Category III mine). The only MSHA required protection is work place gas testing of the mine atmosphere to be performed each shift. Intrepid would object to any regulatory requirements to operate its mines under the assumption that methane can be allowed in explosive concentrations in order to allow encroachment of oil or gas wells inside established safety buffers.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The excerpt from the DEIS quoted by the commenter is citing the definition of a Category IV gassy mine. ICP plans to comply with MSHA rules and regulations for a Category IV gassy mine. Other activities related to management of co-development considered in the EIS include either voluntary cooperation proposed under the Proposed Action or a local potash order that would utilize some of the guidance from the Secretary's Potash Order, which does not apply outside the SPA. With the issuance of the Record of Decision, the BLM will present which option is selected. The BLM will continue to manage the SPA in accordance with the current Secretary's Potash Order.

Health/Safety

Comment:

On January 24, I submitted the comment:

*Prevailing professional judgment is that salt and potash dust generated from current mining and processing operations presents at worst a mild irritation potential but no actual health hazard. Such dust from current mines and plants is, at least for the most part, easily water-soluble. **Polyhalite is not easily soluble in water**, and may present potential health hazards from dust generated during mining and processing of polyhalite ore. For example, radioactive isotopes contained in poorly water-soluble dust may affect humans in different ways than radioactive isotopes contained in easily water-soluble dust. The EIS should address this topic in detail, including either mitigating measures to be implemented or providing a sufficient evidence- and science-based rationale for dismissing this potential concern.*

I was unable to find in the DEIS a passage addressing this comment. Dust in a polyhalite mine will be qualitatively different from dust in a conventional potash mine. If that difference does not matter, you should explain why you think so.

Rempe, Norbert

BLM Response:

As stated in the DEIS and FEIS, ICP will comply with all ambient air quality standards and MSHA requirements for exposure monitoring in exhaust air from the underground mine. Existing federal regulations will establish the need and define the method and frequency of screening for an underground, non-uranium mine.

Comment:

Current SPA requirements establish a minimum of a 1/4 mile and 1/2 mile safety buffer for oil and gas wells, respectively, around active mining and open mine works. While the Ochoa Mine Project does not lie in the SPA, Intrepid recommends similar safety buffer requirements for this project. In regard to operating under rules that apply to a gassy mine, operating as an MSHA Category IV mine does not require permissible equipment to be used under the assumption that explosive methane concentrations may be present in the mine atmosphere.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

Under the Proposed Action, ICP plans to follow the rules and regulations for a gassy mine under Category IV of the MSHA regulations. This indicates that ICP has taken the responsibility for gas that may enter the ore zone. Further responsibilities related to impacts can be established as part of an MOU between ICP and oil and gas companies or through the development of a local potash order.

Leasing

Comment:

Devon supports the BLM's decision to include lease stipulation 1.3 that requires potash operations not to unreasonably interfere with oil and gas production. Devon strongly encourages the BLM to include this COA in any leases issued to ICP.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips supports the BLM's decision to include lease stipulation 1.3 that requires potash operations not to unreasonably interfere with oil and gas production. ConocoPhillips encourages the BLM to include this COA in any future leases issued to ICP.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM will take your comments into consideration when making a decision. The BLM has no intent to interfere with the development of valid existing lease rights.

Comment:

Should the BLM deny or unreasonably delay Devon's ability to develop its leases, the BLM's action may constitute a taking in violation of the Fifth Amendment to the U.S. Constitution.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM should expressly recognize in the Ochoa DEIS that oil and gas leases are existing rights that cannot be modified, limited, or curtailed by the BLM

Bolles, Randy; Devon Energy Corp

Comment:

The BLM should also recognize that an oil and gas lease is a contract between the federal government and the lessee, and that the lessee has certain rights thereunder.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM has no intent to interfere with the development of valid existing lease rights.

Leasing

Comment:

Because the proposed Ochoa Mine is outside of the Secretary's Potash Area and not governed by Secretary Order 332, 77 Fed. Reg. 71822 (Dec. 4, 2012), the BLM must carefully develop and establish a mechanism to evaluate and manage the development of both polyhalite and oil and gas resources. The BLM must ensure that Devon's existing and potential future oil and gas operations, on its existing leases are not adversely impacted by the construction, operation, or maintenance of the Ochoa Mine. In particular, the BLM must establish a framework to evaluate potential disputes between ICP and oil and gas operators to ensure that existing lease rights are fully and fairly protected. At this point in time, Devon does not believe any of the proposed alternatives adequately protect Devon's lease rights.

Bolles, Randy; Devon Energy Corp

Comment:

Given its existing rights, the BLM cannot modify or alter ConocoPhillips' valid and existing lease rights either directly or indirectly by approving the development of other minerals.

Dey, Eileen; Conoco Phillips

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration. BLM has no intent to interfere with the development of valid existing lease rights.

Comment:

As mining operations move forward, if approved by the BLM, the agency must also recall that as a federal lessee, ConocoPhillips has a legal right to occupy the surface to explore for, produce, and develop oil and gas resources on its leases.

Dey, Eileen; Conoco Phillips

Comment:

As the BLM proceeds with the permitting of the proposed Ochoa Mine, BLM should protect ConocoPhillips's existing lease rights.

Dey, Eileen; Conoco Phillips

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration.

Livestock Grazing/Range Management

Comment:

Table 2-7; Alternative B Rangeland/Livestock Grazing: Please consider rewording this impact. If the dry stack tailings footprint could be reduced by the other options, the acreage available for livestock grazing at the end of the project would be greater than the Proposed Action. This is similar to the comment noted for Geology and Minerals.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

This information will be added to Table 2-7 in the FEIS.

Comment:

The DEIS discusses direct and indirect impacts associated with the loss of forage, increased vehicle traffic, and potential impacts to seasonal livestock movement. The DEIS does not identify the type of fencing to prevent livestock movement in the project area, or clarify the impact on the livestock's water sources and dust from increased vehicle traffic.

Recommendation: The FEIS should include the type of fencing used to prevent livestock movement and clarify the impact on the livestock's water sources and dust from increased vehicle traffic.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The impacts on range improvements and forage from vehicle traffic are described in Section 4.9 of the DEIS and FEIS. The types of rangeland improvements, including water sources, and the locations of these improvements are described in Section 3.9.

Comment:

Rangelands - ES-12 Is this 218 AUMs *per year*?

Queen, Michael

BLM Response:

This number is the AUMs lost long-term due to construction of buildings, roads, and other structures

Mining

Comment:

In a non-response on the same subject, you wrote in section 1.5.2:

A second alternative brought before BLM during public scoping was to convert the underground mine to a storage facility for hazardous or radioactive waste at the end of the mine's life. (This proposal was not carried forward for detailed analysis.)

The second underlined passage is clearly an insufficient response to a thoughtful and substantive comment. Conversations during the August 27 public meeting indicate that the average extraction ratio will likely be closer to 60% rather than the maximum 90%, which may make secondary use of mined space for geologic waste disposal quite feasible. The BLM should not just ignore or dismiss this potential but address it.

Rempe, Norbert

BLM Response:

Section 2.3.1 in the DEIS and FEIS provides a rationale for eliminating this alternative from detailed analysis. The primary rationale is that the disposal of hazardous or radioactive waste is not allowed on public lands by BLM policy so consideration of this alternative is beyond the authority of the BLM and outside the scope of this EIS.

Comment:

Alternative C seems to have been included without serious consideration. Granted, it is convenient in that the BLM already is working on the implementation guidance for the Secretary's area. It is not appropriate, however, in this circumstance. What may be appropriate for implementing the Secretary's order is not automatically applicable to an area not covered by the Secretary's Order. The Ochoa mine differs in a number of ways from the Secretary's area. There has been no finding that potash in this area is a critical mineral to the United States. The ore in this area is different and in a different zone from the mines in the Secretary's area. This mine will be operated pursuant to the rules for gassy mines and the mines in the Secretary's area remain unwilling to operate under the gassy mines rules. In spite of these and other differences, Alternative C proposes to mimic an implementation guidance that is not working.

Alternative C appears to be a "clever" attempt to encourage oil and gas operators to support Alternative A over this bogus attempt to apply a non-working concept to a different fact situation.

Giraud, C; Concho Resources, Inc.

BLM Response:

Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. Potash is identified as a leasable mineral and the BLM has a responsibility to allow for its orderly and economic development. (See Section 1.2 of the DEIS and FEIS.) The laws do not distinguish between different sources or locations of potash. There is no relationship between operations according to gassy mine rules and implementation of portions of the 2012 Potash Order to this new area. While it is true that the implementation of the new Potash Order has not been completed yet, it was developed in collaboration with both industries as well as other stakeholders and therefore offers an appropriate basis from which to draw possible co-development options for consideration as an action alternative.

Mining

Comment:

On January 24, 2012, I submitted the comment: In accordance with its mandate to make environmentally responsible multiple use of public lands, the BLM should address in this EIS the potential of the mined-out underground volume of the proposed mine to be used for geologic disposal of dangerous wastes. This practice of secondary use has been well established in other countries for about half a century. Specific examples in potash and salt mines (both former and still actively operating) are known since 1972. A suitable reference documenting these applications of mined underground openings is Volume XIX of the book series "Reviews in Engineering Geology" with the title "Deep Geologic Repositories" published by the Geological Society of America in 2008. If such secondary use is contemplated from the beginning, measures to accommodate its smooth functioning can be incorporated into mine layout and planning before operations begin rather than as an afterthought. Fees charged for secondary use (per volume or weight of disposed waste, for example) could be a source of somewhat significant and relatively steady revenue in addition to royalties from the extraction of potash ore.

In acknowledgement this comment, you wrote in section 4.0: *A second alternative brought before BLM during public scoping was to convert the underground mine to a storage facility for hazardous or radioactive waste at the end of the mine's life.*

The passages I underlined display a misunderstanding or misinterpretation of my original comment. I did not use the word "storage", which is temporary, but "disposal", which is permanent. If you had read my comment carefully or consulted the offered reference, it should have been clear that the suggested secondary use does NOT have to wait until the end of the mine's life but can be (and has been) implemented in parallel with mining operations.

Rempe, Norbert

BLM Response:

The FEIS corrected the terminology used to describe the comment. However, the conclusion and response to the comment remains as described in Section 2.3.1 in the DEIS and FEIS, which provides a rationale for eliminating this alternative from detailed analysis. The primary rationale is that the disposal of hazardous or radioactive waste is not allowed on public lands by BLM policy so consideration of this alternative is beyond the authority of the BLM and outside the scope of this EIS.

Mitigation Measures

Comment:

Mitigation measures for this project will include a hazing/exclusion plan to keep wildlife out of the process ponds. The requirements include monitoring and adaptive management as needed. We recommend that the loadout facility evaporation pond be included in this plan if it will contain liquids potentially harmful to wildlife. Chain-link fences intended to exclude large and medium size wildlife should be wrapped with a finer mesh material around the bottom to exclude smaller animals. Perimeter and internal fencing intended solely to mark boundaries and discourage trespass should be constructed so as to minimize potential injury to pronghorn and mule deer attempting to cross the fence. Please consult the Department's fencing guideline at wildlife.state.nm.us/conservation/habitat/handbook/index.htm for more information about wildlife-compatible fence design.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

All ponds for the project will be subject to mitigation measures to protect wildlife. In the ICP Mine Plan of Operations, ICP committed to actions/mitigations to reduce impacts to wildlife, including avian and bat species, at the ponds. Text has been added to Section 4.8.10 to reflect the use of the Department's fencing guidelines.

Comment:

Oil and gas operators such as ConocoPhillips should not be responsible additional costs associated with mitigation measures in order to facilitate the development of polyhalite or potash. To the extent such additional mitigation measures are necessary the additional costs associated with such procedures should be borne by ICP.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative to determine whether this can be required. This is the kind of specific agreement that could be negotiated and included in an MOU between ICP with each oil and gas company under the Proposed Action or be addressed under a "local order" under Alternative C.

Comment:

The best practice for compliance with the Migratory Bird Treaty Act is to clear vegetation outside of the typical nesting season (April - August). This is particularly important when clearing the processing plant area to avoid disturbing or displacing any Swainson's hawks using the nests detected in that area during site biological surveys (Figure 3.8-1).

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

Mitigation measure added to Section 4.8.10 of the FEIS.

Mitigation Measures

Comment:

BLM needs to develop mitigation to address horizontal oil and gas development. All of ICP's proposed action mitigation measures related to oil and gas development, such as establishing barrier pillars and reducing ore extraction in areas with active oil and gas wells, are based on the development of vertical oil and gas wells. As the BLM is aware, oil and gas operators in the Project Area are utilizing horizontal development techniques to develop formations that were previously considered non-productive or uneconomic to produce. Ochoa DEIS, pg. 4-17. The BLM and ICP must develop specific mitigation measures to ensure horizontal wellbores are not adversely impacted by mining activities or mining related subsidence events. Absent the development of new mitigation measures to protect horizontal development, the BLM cannot allow the proposed mine project to move forward.

Bolles, Randy; Devon Energy Corp

Comment:

Devon appreciates that the BLM acknowledges that there may be significant interest in horizontal development within the Project Area. Ochoa DEIS, pg. 4-17. Given this development potential, the BLM and ICP need to devote substantial efforts to developing appropriate mitigation measures and safeguards to ensure that mining activities will not cause additional harm to horizontally drilled wells within the Project Area.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM and ICP must develop appropriate mitigation measures to protect the increase of horizontal drilling and development within the Project Area.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Mitigation Measures

Comment:

If the disturbance (or re-disturbance) of this project, including support activities staging areas, and material storage areas, is one or more acres, or is part of common plan of development that is one or more acres, it will require appropriate NPDES permit coverage prior to beginning construction or disturbance. Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during construction and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from the construction site) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.) and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. For more requirements specific to New Mexico, see Part 9.4.1.1, in the 2012 CGP.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The Final EIS will be updated to document that there are no jurisdictional Waters of the U.S. per the U.S. Army Corps of Engineers letter dated May 28, 2013. Because there are no Waters of the U.S. affected by the project, the requirements under NPDES do not apply. Although a CGP is not needed, the BLM will include development and implementation of a SWPPP as a recommended mitigation measure to protect surface water resources. Appropriate BMPs addressing those listed in the comment are already included as BLM requirements.

Mitigation Measures

Comment:

In our scoping comments, we recommended that BLM consider compensatory mitigation for the loss of quality grassland habitat. Vegetation in the area of proposed mine area is shown on Figures 3.7-1 and 3.7-2 as predominately Mesquite Upland Scrub Steppe and Mixed Desert Scrub Steppe. However, our field notes from the 2012 site inspection document diverse grasslands dominated by black grama, with a shrub component of yucca and mesquite. South of NM 128, in the proposed processing facilities area, we observed more burrograss relative to the black grama, and a larger mesquite component. Both areas appeared to be in good range condition and only lightly fragmented by oil and gas infrastructure. Table 4.7-2 shows approximately 1600 acres of expected long-term vegetation loss. Chihuahuan Semi-Desert Grassland has been identified as a key habitat type in the Comprehensive Wildlife Conservation Strategy for New Mexico. Since compensatory mitigation has been deemed beyond the scope of the document, the EIS should be amended to document the loss of high quality grassland habitat.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

As described in Section 3.7.1.4 of DEIS and FEIS, black grama is a component of the Creosote Desert Scrub vegetation type. As listed in Table 4.7-1 of the DEIS and FEIS, it shows that approximately 2 acres of Creosote Desert Scrub would be disturbed by construction of the mine surface facilities north of NM 128. The processing plant site south of NM 128 is proposed to have much more disturbance but, as noted in the comment, less high quality grassland. Therefore, it is likely that only about 2 acres would be disturbed in the area where the commenter noted high quality grassland, leaving a great majority of the high quality grassland undisturbed by construction. The Chihuahuan Semi-Desert Grassland that is a key habitat type for New Mexico was not identified within the project area so would not be affected.

Comment:

4.8.9 Mitigation Measures, p. 71: *Develop and implement an avian monitoring and mitigation plan designed to anticipate and prevent use of the ponds by waterfowl and any resulting risk of mortality. The plan may include bird deterrents to be installed at the evaporation ponds to minimize potential impacts to avian wildlife species (Murphy 2010). Potential deterrents include:*

- *Netting, pond covers, or floating "bird balls," as appropriate.*

Comment: Pond covers and bird balls are not appropriate deterrents for the proposed evaporation ponds, these measures reduce surface evaporation area and inhibit solar evaporation.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative. While netting may not inhibit evaporation (depending on its size and design), covers for evaporation ponds would most likely not be considered appropriate for this situation. This bullet point was deleted in the Final EIS.

Mitigation Measures

Comment:

In Section 2.4.6.3 of the Proposed Action and Alternatives Section, the DEIS identifies specific mitigation measures the applicant has committed to implemented. However, in Section 2.4.6.4 of the Proposed Action and Alternatives Section, the DEIS identifies mitigation measures that would be applied as needed, depending on the site-specific conditions. Further, in the Environmental Consequences Section, the DEIS identifies mitigation measures that could be applied to avoid or minimize potential impacts from the implementation of the proposed project for geology and minerals, surface water, groundwater, soils, vegetation, wildlife and fish, rangelands and livestock grazing, visual resources, hazardous material, health and safety, and cultural resources. In such instances, the DEIS does not address how the BLM will be bound to these mitigation measures.

Recommendation: The FEIS should incorporate a commitment by the BLM to implement mitigation measures selected to reduce or avoid any adverse impacts from proposed project.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The Record of Decision is the place where the BLM will incorporate a commitment to the specific mitigation measures selected to reduce or avoid adverse impacts from the proposed project should an action alternative be selected.

Comment:

Table 2-7; Proposed Action, Terrestrial wildlife habitat: Please reconsider this impact. In the ICP Mine Plan of Operations, ICP committed to actions/mitigations to reduce impacts to avian and bat species at the ponds: "The ponds will be designed to look "industrial" with steep sides rather than "natural" by being long and narrow. Wildlife mitigations for the ponds will include an 8-ft-high fence around the disposal ponds to minimize access by terrestrial wildlife species. ICP will develop and implement an active bird and bat deterrent program to minimize potential impacts to avian and bat wildlife species." ICP requests that the DEIS impact analysis take into account the mitigation measures that ICP committed to in the Mine Plan of Operations to protect migratory birds. By including these mitigation measures in the analysis of the impacts to migratory birds would reduce potential adverse impacts.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Modified text in table.

Mitigation Measures

Comment:

Additionally, the FEIS should include a Construction Emissions Mitigation Plan and ultimately in the Record of Decision. In addition to all applicable local, state, or federal requirements, the following control measures (Fugitive Dust, Mobile and Stationary Source and Administrative) should be included (as applicable) in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other pollutants from construction-related activities:

o Fugitive Dust Source Controls: The FEIS should identify the need for a Fugitive Dust Control Plan to reduce Particulate Matter 10 and Fine Particulate Matter 2.5 emissions during construction and operations. The plan should include these general commitments:

- Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts.
- During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes.
- Vehicle Speed: Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on un-stabilized (and unpaved) roads. Post visible speed limit signs at construction site entrances.
- Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable.
- Provide gravel ramps of at least 20 feet in length at tire washing/cleaning stations, and ensure construction vehicles exit construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable.
- Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project.
- Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily (less during periods of precipitation).
- Stabilize disturbed soils (after active construction activities are completed) with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles (used to transport solid bulk material on public roadways and that have potential to cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.
- Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

Mitigation Measures

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As noted in Section 2.4.2.3 of the DEIS and FEIS under the Proposed Action, two dust control systems would be installed in the processing facilities, and the tailings stockpile would be sprayed with water to harden the tailings before reclamation. In FEIS Section 2.4.2.7, it states that topsoil would be stockpiled and stabilized with vegetation to minimize blowing dust from wind erosion. No significant impacts to air quality were predicted to result from construction emissions (see Section 4.5 of the DEIS and FEIS.) Development and implementation of a dust control plan is included as part of the Proposed Action in FEIS Section 2.4.6.3 and may be selected by the BLM in the Record of Decision.

Comment:

As noted above, although ICP intends to leave 200-foot radius barrier pillars around each oil and gas well, BLM and ICP need to specifically address what mitigation measures, set-backs and other procedures ICP would utilize to protect horizontal development in the Project Area. This is currently inadequately analyzed in the Ochoa DEIS.

Bolles, Randy; Devon Energy Corp

BLM Response:

ICP and the oil and gas operators would negotiate “co-development” agreements to ensure that orderly development takes place under the Proposed Action. One oil and gas company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. Under Alternative C, BLM guidance under a local order would be developed to establish the mitigation measures, setbacks, and other procedures for protecting oil and gas development in the mine area.

Mitigation Measures

Comment:

The BLM needs to ensure that it takes no actions that could impact existing oil and gas operations within the Project Area. As demonstrated by Figure 3.2-8, there are literally scores of oil and gas wells located within the Project Area. The BLM needs to describe and ensure its mitigation measures are sufficient to protect those oil and gas wells from adverse impacts, particularly those the BLM has identified as having high risk. Ochoa DEIS, pg. 3-15. The BLM also needs to address and analyze the effectiveness of these mitigation measures for both existing and potential future wells.

Bolles, Randy; Devon Energy Corp

Comment:

Given the development potential for oil and gas, BLM and ICP need to develop appropriate mitigation measures and safeguards to ensure that mining activities will not cause adverse impacts to horizontally drilled wells within the Project Area.

Dey, Eileen; Conoco Phillips

Comment:

The BLM needs to ensure its approval of the Ochoa Mine does not harm existing oil and gas operations within the Project Area. As demonstrated by Figure 3.2-8, there are literally scores of oil and gas wells located within the Project Area. The BLM needs to describe and ensure its mitigation measures are sufficient to protect those oil and gas wells from adverse impacts, particularly those the BLM has identified as having high risk. Ochoa DEIS, pg. 3-15. The BLM also needs to address and analyze the effectiveness of these mitigation measures for both existing and potential future wells.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate “co-development” agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Comment:

The Department recommends additional requirements as detailed in the Department's trenching guidelines at wildlife.state.nm.us/conservation/habitat/handbook/index.htm. These trenching practices should be applied to the four-mile natural gas pipeline as well as the water line.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The BLM typically requires compliance with these trenching guidelines. This information is already included as a recommended mitigation measure in Section 4.8.9.

Mitigation Measures

Comment:

The BLM must provide the engineering and other information to support the BLM's determination that a 200-foot radius will be sufficient to prevent subsidence or other adverse impacts to existing and future wells. As currently presented in the Ochoa DEIS, the BLM has not demonstrated that the 200-foot radius will be sufficient to protect existing or new oil and gas wells in the area. As the project proponent for the proposed mine, the burden is on ICP to demonstrate the protections are sufficient.

Dey, Eileen; Conoco Phillips

Comment:

As noted above, although ICP intends to leave 200-foot radius barrier pillars around each oil and gas well, BLM and ICP need to specifically address what mitigation measures, set-backs and other procedures ICP would utilize to protect horizontal development in the Project Area.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Comment:

The BLM suggests in the Ochoa DEIS there may be oil and gas wells within the Project Area that may have an increased risk of casing failure or casing leaks. Ochoa DEIS, pgs. 4-9 - 4-13. To the extent these wells were drilled in compliance with all State and Federal regulations, they should be allowed to continue in their current form. Oil and gas operators such as Devon should not be responsible for adding additional casing strings or other mitigation measures in order to facilitate the development of polyhalite or potash. To the extent such additional mitigation measures are necessary, the additional costs associated with such procedures should be borne by ICP, not the oil and gas operators.

Bolles, Randy; Devon Energy Corp

BLM Response:

As discussed in Section 4.2.5.2, it is indicated that at-risk wells present concerns due to conditions that have preceded polyhalite mining: Over the course of several decades, it is not unreasonable to assume that salt zones in these wells could have been subjected to extensive dissolution and may pose as yet undiscovered hazards to mining, potentially limiting efficient ore recovery. Abandoned wells pose no less a hazard than active wells because annular flow behind production casings may not have been detected during the operational lives of the wells or when the wells were abandoned. The BLM is not asking oil and gas operators to take mitigation measures for current wells with regard to polyhalite mining. That is what the proposed buffers are intended to do.

Mitigation Measures

Comment:

A weed management plan, wherein the operator takes responsibility for preventing and containing the spread of noxious weeds on the project area is another required mitigation measure.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

As listed in Table 2-6 of the FEIS, the BLM requires mitigation measures to minimize the establishment and spread of noxious weeds. FEIS Section 4.7.10 recommends development of a noxious weed management plan as a mitigation measure.

Comment:

The BLM and ICP must develop appropriate mitigation measures to protect the increase of horizontal drilling and development within the Project Area.

Bolles, Randy; Devon Energy Corp

BLM Response:

Under the Proposed Action, ICP and the oil and gas operators need to negotiate “co-development” agreements to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Mitigation Measures

Comment:

...the following control measures (Fugitive Dust, Mobile and Stationary Source and Administrative) should be included (as applicable) in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other pollutants from construction-related activities:

o Mobile and Stationary Source Controls:

- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State Standards. In general, commit to the best available emissions control technology. Tier 4 engines should be used for project construction equipment to the maximum extent feasible.
- Where Tier 4 engines are not available, use construction diesel engines with a rating of 50 hp or higher that meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines. , unless such engines are not available.
- Where Tier 3 engine is not available for off-road equipment larger than 100 hp, use a Tier 2 engine, or an engine equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides and diesel particulate matter to no more than Tier 2 levels.
- Consider using electric vehicles, natural gas, biodiesel, or other alternative fuels during construction and operation phases to reduce the project's criteria and greenhouse gas emissions.
- Plan construction scheduling to minimize vehicle trips.
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.
- Maintain and tune engines per manufacturer's specifications to perform at CARB and/or EPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed.

o Administrative controls:

- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
- Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and specify the means by which impacts to these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes).
- Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.

Griffin, Debra; United States Environmental Protection Agency

Mitigation Measures

BLM Response:

A recommendation to develop and implement a dust control plan will be included in the Preferred Alternative and may be selected by the BLM in the Record of Decision. The BLM added a mitigation measure in Section 4.5.10 of the FEIS stating that they will encourage the use of equipment that meets EPA Highway Diesel and Nonroad Diesel Rules.

Comment:

II. Avoidance or Mitigation of Environmental Impacts. It is not possible to claim avoidance or mitigation alternatives to environmental impacts have been adequately addressed when ICP holds prospecting permits issued by the BLM and state mineral leases issued by the New Mexico State Land Commissioner, which together encompass 103,773 acres; but the Draft EIS encompasses only 31,137 acres thereof with 27,202 of these 31,137 acres being identified as the proposed 50 year mine area (Executive Summary ES-1, Table 2-1 at Page 2-4 and Paragraph 2.4.2.1.) Nothing in the Draft EIS examines the environmental impacts which would occur from mining the other 70,000 plus acres ICP holds prospecting permits and mineral leases upon. Not only have the environmental impacts not been identified and evaluated for mining 103,773 acres or more, but also, it is impossible to address avoidance and mitigation of environmental impacts which have not been identified and evaluated. It is critical for a Draft EIS and final EIS to first identify and evaluate environmental impacts of a proposed action and next to develop alternatives to avoid or mitigate such impacts. This has not been accomplished in this Draft EEIS

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time. Recently, ICP relinquished several prospecting permits and gained 1 New Mexico State Land Office lease in 2013. This information will be updated in the FEIS.

Monitoring/Mitigation

Comment:

The DEIS discusses the direct and indirect impacts of hazardous materials and solid and hazardous wastes associated with the project and its operations. The DEIS does not identify the projected volumes, the composition or constituents of the waste, and appropriate mitigation to minimize the generation of solid and hazardous wastes. Additionally, the DEIS does not identify the management practice to prevent wind dispersion of waste from the piles of waste rock material.

Recommendation: The FEIS should identify projected volume and the composition or constituents of solid and hazardous waste. Appropriate mitigation should be evaluated, including measures to minimize the generation of hazardous waste (i.e., hazardous waste minimization). Also, the FEIS should include the management practice to prevent wind dispersion of the waste rock material.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The specific volumes and specific types and composition of solid and hazardous wastes to be generated will not be known until the full design of processing facilities has been completed. The environmental protection measures listed in Chapter 2 require that ICP would comply with all state and federal regulations and guidelines regarding the storage, management, and disposal of all hazardous materials and wastes. The stockpiled waste rock is not expected to be subject to wind erosion due to the lack of fine particles in the stockpile.

Comment:

We also request that in the event the project becomes operational that groundwater monitoring be performed to verify the accuracy of the modeling and that mitigation be required in the event the proposed project does impact groundwater resources in Eddy County.

Purvis, Don; Mosaic Potash

BLM Response:

A draft water monitoring plan will be available for public review when the FEIS is published. The plan will include monitoring water levels, and in some cases, water quality in seven Capitan Monitoring Wells from Carlsbad to south of Jal.

Comment:

Monitoring wells 2-11 What are the compositions of the principal ore bed, in terms of the various minerals present?

"A groundwater monitoring plan...." How can the decisions be made before these data are available?

Queen, Michael

BLM Response:

The composition of the principal ore zone has been documented in the analysis of the core data provided to the BLM. As there is no groundwater in the ore zone, the ore composition will not be used to inform the groundwater monitoring plan. Rather baseline data will be collected before mining begins.

Monitoring/Mitigation

Comment:

In Section 2.4.2.3, the DEIS identifies that a groundwater monitoring plan would be developed in consultation with BLM before mining operations begin. However, it is unclear if this plan is intended for the Processing Plant Site or for the entire project area, including the 50-Year Mine Area and proposed well field.

Recommendation: The FEIS should include a groundwater monitoring plan for the entire project area, including the 50-year mine area and the proposed water well field. Additionally, the groundwater monitoring plan should include baseline groundwater quality monitoring for all aquifers from ground surface to the mining zone; periodic intervals of monitoring up and down-gradient of the project area; and associated monitoring of geology and soil relating to subsidence and potential karst hazards.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

A draft water monitoring plan will be available for public review when the FEIS is published. The plan will address all of the points in the recommendation.

Comment:

In general black grama grasslands have proven to be difficult to reclaim. We recommend establishing revegetation test plots during the life of the mine to demonstrate successful methods. Test plots could also demonstrate whether two feet of cover will be enough to prevent upward migration of salts from the tailings piles.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

There would be minimal salts in the tailings pile so the upward migration of salts was not considered. However, test plots to evaluate successful revegetation methods will be added to the FEIS.

Comment:

Executive Order 13186, *Migratory Bird Treaty Act*, addresses the protection of birds that live, reproduce, or migrate within or across international borders. The DEIS identifies there may be a significant potential adverse impacts to migratory birds from exposure to evaporation pond water unless mitigation measures are implemented.

Recommendation: The FEIS should incorporate concurrence from the USFWS on the BLM determination for impacts of the proposed project to migratory birds. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent protocols are applied in protection and mitigation efforts.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

While formal consultation with the USFWS is not required to comply with the Migratory Bird Treaty Act, discussion of impacts on migratory birds and recommended mitigation measures to protect migratory birds are presented in Section 4.8 of the DEIS and the FEIS. The New Mexico Department of Game and Fish submitted comments on the DEIS and the BLM will coordinate with them as they do on other projects in the Carlsbad Field Office.

Monitoring/Mitigation

Comment:

There are approximately 20 sections where Agave's pipeline overlies the mine or within 2400 feet of the mine plan. A mitigation plan for potential pipeline damage due to subsidence has not been addressed in the DEIS. One important step in the mitigation plan is to determine the magnitude and extent of subsidence during the mining operations. The Ochoa Mine plan indicates the surface subsidence monitoring would occur, but does not provide details on where measurement stations would be placed, when measurements would periodically occur, or when monitoring would start.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

A draft water monitoring plan and a draft subsidence monitoring plan will be available for public review when the FEIS is published. The requested information is expected to be addressed in the subsidence monitoring plan being prepared by ICP.

Comment:

It is recommended that ICP set up a survey network in consultation with Agave Energy Company and other interested parties and begin monitoring with enough lead time prior to mining to provide adequate baseline data for the area. Surface subsidence monitoring is necessary to determine the magnitude and the extent of subsidence away from the edge of the mine workings, and is critical to detect and forecast any mining-induced surface subsidence that would affect the integrity and safety of the pipeline system.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

As noted in Section 2.4.6.3, ICP committed to developing and implementing a subsidence monitoring plan. Section 4.2.10.1 of the FEIS recommends that ICP set up a monitoring network and begin monitoring prior to mining. A draft subsidence monitoring plan will be available for public review when the FEIS is published. The BLM added a requirement to have ICP coordinate and develop MOUs with companies maintaining infrastructure within the projected subsidence area in the Preferred Alternative.

Monitoring/Mitigation

Comment:

Executive Order 13112, *Invasive Species* (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Executive Order 13112 also calls for the restoration of native plants and tree species.

Recommendation: The FEIS should clarify the invasive plant management plan to be used for monitoring and controlling noxious weeds. If herbicides or pesticides will be used to manage vegetation, the FEIS should disclose the projected quantities and types of chemicals. The invasive plant management plan should specify the methods that can be used to limit the introduction and spread of invasive species during and post-construction. The FEIS should specify alternative management practices that limit herbicides use and focus on other methods to limit invasive species vegetation and decrease fire risk. Additionally, the FEIS should specify how the project will meet the requirements of Executive Order 13112 for any new landscaping.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As listed in Table 2-6 of the DEIS and FEIS, the BLM requires mitigation measures to minimize the establishment and spread of noxious weeds. FEIS Section 4.7.10 recommends development of a weed management plan as a mitigation measure.

Comment:

In accordance with Title 20, Chapter 6, Part 2 of New Mexico Administrative Code (NMAC), all ground water with TDS of 10,000 mg/L or less must be protected or pollution abated....

The baseline water quality for all aquifers within the project area (excluding the saline Bell Canyon Aquifer) must be determined before mining and pumping operations commence in order to (1) assess whether the water quality of these aquifers is equal to or below 10,000 mg/L TDS and subject to NMAC 20.6.2 regulations and (2) compare water quality data over the course of the 50-year life of the project to determine if water quality is impacted by mining operation. The DEIS does not indicate that there is ground water in the Quarternary alluvium beneath the proposed project area. However, if ground water is found in the alluvium, it should be monitored for baseline water quality before initiation of the project operations as well.

Recommendation: The FEIS should include the water quality determinations for all appropriate groundwater aquifers and formations.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

Information on the water quality of the shallow aquifers will be expanded in the FEIS. Plans for monitoring the water quality of the shallow aquifer will be included in the water monitoring plan that will be available for public review when the FEIS is published

Monitoring/Mitigation

Comment:

The DEIS does not address potential adverse consequences on Highway 128 due to the mining ramp. Specifically,

- What will the depth of the ramp be when it crosses Highway 128?
- What kind of measures will be put in place to mitigate subsidence, if any, caused under any major highways?
- Will there be construction disturbances caused on the surfaces due to the underground activity related to building the ramp? What will be the time frame for any construction disturbances?

Knowlton, Jennifer; Agave Energy Company

BLM Response:

No potential adverse effects from construction or the existence of the ramp are projected. The ramp construction would not disrupt traffic during construction and would be designed so that subsidence would not occur. The ramp would be designed so that subsidence would not occur. ICP's proposed design for the ramp includes the installation of concrete sides and an arched roof of concrete to ensure stability. The width would be approximately 27 feet and the maximum height would be 14 feet at the top of the arch. The depth of the ramp is variable, but would be at an approximate depth of 600 feet below the ground surface where it crosses NM 128.

Comment:

Additionally, BLM needs to develop mitigation to address horizontal oil and gas development. ICP's proposed action mitigation measures related to oil and gas development, such as establishing barrier pillars and reducing ore extraction in areas with active oil and gas wells, are based on the development of vertical oil and gas wells. As the BLM is aware, oil and gas operators in the Project Area are utilizing horizontal development techniques to develop formations that were previously considered non-productive.

Dey, Eileen; Conoco Phillips

Comment:

ConocoPhillips encourages the BLM and ICP to develop specific mitigation measures to ensure horizontal wellbores are not adversely impacted by mining activities or mining-related subsidence events. Absent the development of new mitigation measures to protect horizontal development, the BLM should exercise caution before allowing the proposed mine project to move forward.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Monitoring/Mitigation

Comment:

With the placement of the processing plant, the area will grow more congested with loading trucks as well as oil field traffic turning off and on of Highway 128. Agave Energy Company would like the final EIS to address future plans for road enhancement or mitigation plans to decrease safety issues.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

Section 4.10.5 of the FEIS details the impacts of additional operational heavy truck traffic relative to the existing traffic levels of the NM 128. Operational heavy truck traffic would result in 192 heavy truck roundtrips. These would be spread out over a 24-hour period resulting in approximately 8 round trips every hour. The DEIS text has been modified to reflect this. Eight new round trips every hour would result in a minor increase to local traffic levels and would constitute a negligible to minor increase in safety related concerns. Future road enhancement would be conducted as needed by the New Mexico State Department of Transportation.

Comment:

Summary of Impacts 2-27 “However, it is not assumed that the recommended mitigation measures would be implemented.” What does this mean? Why recommend something in the first place?

Queen, Michael

BLM Response:

Recommended mitigation measures are incorporated into Chapter 4 after impact analyses are presented. It is assumed that the applicant-committed measures, state and federal requirements, and BLM environmental protection measures would be implemented. Mitigation measures recommended in Chapter 4 may be selected as part of the Record of Decision, at which point they would be required.

Monitoring/Mitigation

Comment:

Geologic Hazards 3-21 - "A major concern...." Lots of attention has been placed on monitoring active and abandoned oil and gas wells in the proposed mining area (at significant expense), but none has been placed on similar monitoring of the significantly greater number of wells present and expected in the area over the Capitan Aquifer, where significant drawdown can cause subsidence of much greater magnitude than estimated for the mine. Why? Who pays for this? Who monitors? Monitoring will have to go on to detect impacts of subsidence on wells even after mining has stopped, and should continue until the water in the aquifer reaches pre- pumping levels. This is long after mining has stopped, and should require substantial bonds for monitoring and mitigation

Queen, Michael

BLM Response:

There is no evidence that subsidence has occurred due to historic water withdrawal from the Capitan Aquifer causing collapse of the aquifer. The incidents of subsidence that have occurred over the Capitan Aquifer (Jal Sink and the Wink Sinks) appear to be the result of loss of well integrity leading to the formation of cavities in the Salado formation. The cavities formed eventually migrated to the surface resulting in subsidence as discussed in FEIS Section 3.2.3.2. The breccia pipes in the basin are associated with the Capitan. It is not certain how flow to the well field in all directions poses a problem. However, given the association between the subsidence incidents and possible well integrity problems and since the well field would be operated for 50 years, it is recommended that the production wells be integrity tested at regular intervals to ensure that unsaturated fluids do not migrate from the wells. Monitoring and mitigation measures were included in Section 4.2.10 of the FEIS.

Comment:

The BLM needs to analyze what impact the predictive draw-down in available groundwater within the Capitan Reef Aquifer will have upon oil and gas activities. To the extent the aquifer is currently utilized as a source of water for oil and gas development activities, the draw-down may have significant impacts on future oil and gas operations within the Project Area. Devon strongly supports BLM imposing additional monitoring requirements on ICP so that the extent and nature of the drawdown are fully understood. Ochoa DEIS, pg. 4-38.

Bolles, Randy; Devon Energy Corp

BLM Response:

A draft water monitoring plan and a draft subsidence monitoring plan will be available for public review when the FEIS is published. Future uses and locations of the Capitan Reef Aquifer by oil and gas operators is not currently known or reasonably foreseeable but the impacts of drawdown in the region are shown in Section 4.3.2. Additionally, the groundwater monitoring plans will monitor water levels, and in some cases, water quality, in seven Capitan monitoring wells between Carlsbad to south of Jal.

Monitoring/Mitigation

Comment:

2.4.6.3 2-23 Applicant-committed Environmental Protection.... There seems to be next to nothing concerning subsidence over Capitan Aquifer where substantial drawdown might result in collapse of cavernous porosity/compaction, or of increase leakage associated with oil and gas wells subjected to this

Queen, Michael

BLM Response:

As noted in the discussion of the Calibrated Model in Section 4.3.2.2 of the DEIS and FEIS and in more detail in the groundwater modeling report cited as INTERA 2013 and available on the Ochoa Mine Project website, the water demands for the current project proposal are a little more than half the average water demands from the Capitan Aquifer documented during the period of intensive oil and gas extraction during the late 1960s to 1972. Despite the greater depletion of the aquifer during that time period, there was no evidence of subsidence due to groundwater withdrawal. Groundwater and subsidence monitoring plans would be developed and implemented to identify potential subsidence problems and facilitate solutions.

NEPA Process

Comment:

Concho understands the need for a definite cutoff point for data to be reviewed for the RFD, but we believe using 2010 as that cutoff point resulted in the BLM using stale data in preparing the DEIS. Concho requests that the DEIS be supplemented before the NEPA review process continues so the true impacts to the oil and gas industry can be considered both individually and as part of the cumulative impact analysis using data reflective of the current state of affairs in the Project area.

Giraud, C; Concho Resources, Inc.

Comment:

This intense drilling activity currently underway is not directly addressed in the DEIS impact analysis. This omission renders the analysis incomplete and its conclusions inaccurate, including the determination that no significant adverse impact to mineral resources would result from the Project. (DEIS, 4-16) The BLM needs to make substantial revisions to the DEIS impact analysis and solicit and review comments on the revised version before it can proceed to a Final EIS. To do anything less risks being told by a court in any appeal of the ultimate decision to revisit the EIS.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Comment:

The DEIS approach to avoiding scoping Issues is likely not to be received well by reviewing courts. Again, Concho urges the BLM to address these issues in a supplemental DEIS.

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS and FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised during scoping were not addressed in the DEIS.

NEPA Process

Comment:

In light of the foregoing, we suggest that the BLM's best course of action to address the failures of the DEIS is to issue a supplemental DEIS based on the correct information. A supplemental DEIS is the required course since wholesale changes appearing for the first time in a Final EIS would deprive interested parties of a fair opportunity for comment.

Giraud, C; Concho Resources, Inc.

BLM Response:

The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12). No supplemental DEIS is planned because comments can be submitted on the FEIS prior to issuance of the Record of Decision.

Comment:

Devon requests that BLM not issue a Record of Decision ("ROD") for the Ochoa Mine Project Area or include a condition of approval ("COA") prohibiting mining operations until such time as ICP has entered into a mutually acceptable MOU with Devon. Only by preventing development of the subsequently issued potash leases until an acceptable MOU is developed can the BLM adequately safeguard Devon's existing lease rights.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips would like to consider developing a Memorandum of Understanding ("MOU") with ICP that describes potential co-development of the two resources within the Project Area. To date, however, ICP and ConocoPhillips have not finalized the terms of the MOU, or otherwise executed the MOU. ConocoPhillips requests that BLM not issue a Record of Decision ("ROD") for the Ochoa Mine Project Area or include a condition of approval ("COA") prohibiting mining operations until such time as ICP has entered into a mutually acceptable MOU with ConocoPhillips. Only by preventing development of the subsequently issued potash leases, until an acceptable MOU is developed, can the BLM adequately safeguard ConocoPhillips's existing lease rights.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM is aware that ICP has been in contact with the oil and gas lessees to develop MOUs. To date, there have been successful negotiations between some oil and gas companies and ICP with signed MOUs that resulted in cooperation in planning some of the processing facilities. The timing of developing the MOUs is up to the cooperating parties and is not under the authority of the BLM.

NEPA Process

Comment:

III. The Draft EIS Is Deficient And Must Be Supplemented. In order for members of the public to be properly informed of ICP's proposed action and to have an opportunity for informed participation in this matter, the public should have been informed in the scoping process that ICP's proposed mine area encompasses 103,773 acres not 31,134 acres of which only 27,202 acres thereof are to be mined.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The proposed action presented for scoping included a 50-year mine area, which is the area proposed by ICP and analyzed in the DEIS and FEIS. The Notice of Intent that initiated public scoping described "areas described, including Federal, State, and nonpublic lands, total 276,480 acres...17 State leases, totaling 25,889 acres in addition to the 26 prospecting permits totaling 77,884 acres."

Comment:

The DEIS reports that oil and gas issues had the highest number of comments of any category during the scoping process. A number of these comments related to concerns about future access for the potential development of oil and gas. (Executive Summary, 3 and 4). The DEIS avoids direct responses to these questions and, as a result, does not rise to the NEPA standard of taking a hard look at the issues raised in the review process.

Giraud, C; Concho Resources, Inc.

BLM Response:

There are two alternatives that address how to manage future access for the development of oil and gas as well as potash mining. Co-development management is considered under Alternatives A and C. Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP under Alternative A. These alternatives consider a range of alternatives for managing co-development and meet the standard of taking a hard look at the environmental consequences of a range of alternatives. The "hard look" standard as applied by the courts relates to the analysis of environmental effects, not the issues raised by comments.

NEPA Process

Comment:

IV. Request For Draft EIS To Be Supplemented. By reason of the foregoing a request is hereby submitted for the Draft EIS to be supplemented by first initiating an additional scoping process to fully inform the public of all action proposed for mining all prospecting permits and mineral leases issued to ICP for the Ochoa Mine encompassing at least 103,773 acres; next identify environmental impacts for all such acres and for the entire life span of the mine; then evaluate all such impacts and develop alternatives to avoid or mitigate such impacts.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The proposed action presented for scoping included a 50-year mine area, which is the area proposed by ICP and analyzed in the DEIS and FEIS. The Notice of Intent that initiated public scoping described “areas described, including Federal, State, and nonpublic lands, total 276,480 acres...17 State leases, totaling 25,889 acres in addition to the 26 prospecting permits totaling 77,884 acres.” The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Comment:

The economic viability of the Project, however, appears to be presumed in all of the Action Alternatives. Concho believes no additional review steps should be taken until the feasibility study is complete and available for review by both the BLM and interested parties. Not having made the feasibility study available concurrently with the DEIS is yet another instance of noncompliance under the NEPA process. Attempting to respond to the DEIS without all the facts in hand is much like shooting in the dark.

Giraud, C; Concho Resources, Inc.

BLM Response:

The economic viability is generally assumed in the analysis of all action alternatives. Under NEPA, no cost/benefit analysis is required, especially for projects funded by private entities. If private companies have seen fit to commit their funds to a project, they are not required to justify that commitment of resources. The most recent data from the Prefeasibility Study (cited as Crowl et al. 2011 in the DEIS and FEIS) was used, in addition to other information provided by ICP, to provide a general picture of the costs of the project and the revenues generated, as well as the taxes and royalties to be paid. As stated in Section 1.4.2 of the DEIS and FEIS, prior to issuing a preference right lease, the BLM must evaluate whether the mine will be profitable after implementing the terms and conditions, including the required mitigation and reclamation measures identified in the agency decision document, in this case, the Record of Decision. This process for evaluating whether the project meets the “valuable deposit requirement” (defined at 43 CFR 3501.5) must be completed subsequent to the NEPA analysis and in compliance with BLM guidelines. Once a valuable deposit is proven, the applicant is entitled, by law, to the lease without competition or payment of an upfront or bonus bid. Once the lease is put into production, the operator is required to pay royalties and taxes. These royalties and taxes are described in Section 4.15.5.5 Public Sector Revenues.

NEPA Process

Comment:

Responses to comments should be placed in a dedicated section of the FEIS and should include the specific location where the revision, if any, was made. If no revision was made, a clear explanation should be included.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As suggested, responses to public comments will be included in an appendix to the FEIS and revisions made to the DEIS noted in the comment responses where applicable.

Comment:

Decisions - ES-3 - It seems that one decision - what the preferred option should be - has already been made, yet the basis why this was chosen over the other is not especially clear

"Many comments were supportive...." Presupposes that some undisclosed number were not, but by focusing on the "many supportive comments" is likely to bias the subsequent discussion

"...it would bring economic benefits..." likewise biased. It is likely to bring several economic downsides as well (additional strain on an already overtaxed aquifer due to increased population; higher utilities; more traffic; higher costs of housing rentals, etc.). These are important, because many of the residents of Carlsbad are retirees, or otherwise living on a fixed income, or have limited skills so that they may not be the ones actually hired by the mine or related businesses, even if their expenses go up like everyone else's.

Queen, Michael

BLM Response:

As noted in the Dear Reader letter at the beginning of the DEIS, the BLM has not yet selected a preferred alternative and was seeking public input at that stage. The section referenced by the commenter is a summary of the public scoping comments on the Proposed Action submitted at the beginning of the project.

Comment:

There can be no real analysis of the specific impacts, much less the cumulative impact, of the Project without an adequate understanding of the intensity of oil and gas operations in the area.

The DEIS must be supplemented and the Supplemental DEIS must be made available for comment before the Final EIS is prepared.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based on data up to 2011. The discussion on recent oil and gas developments provided by commenters was updated for the FEIS.

NEPA Process

Comment:

II. Avoidance or Mitigation of Environmental Impacts. It is not possible to claim avoidance or mitigation alternatives to environmental impacts have been adequately addressed when ICP holds prospecting permits issued by the BLM and state mineral leases issued by the New Mexico State Land Commissioner, which together encompass 103,773 acres; but the Draft EIS encompasses only 31,137 acres thereof with 27,202 of these 31,137 acres being identified as the proposed 50 year mine area (Executive Summary ES-1, Table 2-1 at Page 2-4 and Paragraph 2.4.2.1.) Nothing in the Draft EIS examines the environmental impacts which would occur from mining the other 70,000 plus acres ICP holds prospecting permits and mineral leases upon. Not only have the environmental impacts not been identified and evaluated for mining 103,773 acres or more, but also, it is impossible to address avoidance and mitigation of environmental impacts which have not been identified and evaluated. It is critical for a Draft EIS and final EIS to first identify and evaluate environmental impacts of a proposed action and next to develop alternatives to avoid or mitigate such impacts. This has not been accomplished in this Draft EEIS

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The DEIS and FEIS examine the impacts from proposed activities on all lands within the project area that includes the 50-year mine area, not just the federal surface. The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Oil and Gas

Comment:

BLM needs to develop mitigation to address horizontal oil and gas development. All of ICP's proposed action mitigation measures related to oil and gas development, such as establishing barrier pillars and reducing ore extraction in areas with active oil and gas wells, are based on the development of vertical oil and gas wells. As the BLM is aware, oil and gas operators in the Project Area are utilizing horizontal development techniques to develop formations that were previously considered non-productive or uneconomic to produce. Ochoa DEIS, pg. 4-17. The BLM and ICP must develop specific mitigation measures to ensure horizontal wellbores are not adversely impacted by mining activities or mining related subsidence events. Absent the development of new mitigation measures to protect horizontal development, the BLM cannot allow the proposed mine project to move forward.

Bolles, Randy; Devon Energy Corp

Comment:

Additionally, BLM needs to develop mitigation to address horizontal oil and gas development. ICP's proposed action mitigation measures related to oil and gas development, such as establishing barrier pillars and reducing ore extraction in areas with active oil and gas wells, are based on the development of vertical oil and gas wells. As the BLM is aware, oil and gas operators in the Project Area are utilizing horizontal development techniques to develop formations that were previously considered non-productive.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Comment:

Finally, Devon wants to ensure that ICP does not place any large facilities including the tailing stockpiles, waste rock stockpiles, or water evaporation ponds on Devon's existing leases as such facilities would unreasonably interfere with Devon's rights and operations.

Bolles, Randy; Devon Energy Corp

BLM Response:

This is the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company under the Proposed Action or addressed in a "local order" under Alternative C.

Oil and Gas

Comment:

The economic viability review should also factor in a more accurate oil and gas well density number than is presently included in the DEIS. The operator of a mine in an area determined to have low potential for drilling probably anticipates having only a few wells to avoid and a few additional pillars to leave in place. But current data clearly shows that will not be the case for this mine. In fact, it appears certain areas were left out of what would otherwise have been included in the mine plan but for the number of wells already located in those areas. It may be that other areas of the proposed mine will have to be avoided entirely because of the intensity of oil and gas drilling. The DEIS does not address that possibility anywhere in its analysis.

Giraud, C; Concho Resources, Inc.

BLM Response:

Assuming the commenter is referring to the valuable deposit determination when referencing the "economic viability review", it should be noted that the determination of a valuable deposit is based on very specific BLM guidance that considers the mine plan of operations and lease terms and conditions. It is not dependent on other mineral leases and values in the area.

Comment:

Nevertheless, the DEIS states that the "Assumptions used in the analysis of potential impacts to mineral resources include the following: Existing mineral resource recovery projections are reasonable." (DEIS, 4-5). As shown earlier, the "low potential" assumption used in the DEIS is not based on the RFD projections and is not reasonable.

Giraud, C; Concho Resources, Inc.

BLM Response:

The existing mineral resource recovery projections include more than the information provided by the RFD projection. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Oil and Gas

Comment:

The DEIS misstates the findings of the RFD as to the oil and gas development potential of the Project area in concluding that the Project area has low potential for oil and gas drilling. This stands in direct contradiction to the conclusions stated in the RFD.

Giraud, C; Concho Resources, Inc.

Comment:

From the start of 2011 through August 22, 2013, there were 31 horizontal wells and one vertical well spud in the area that would be impacted by subsidence from the Project in the vicinity of the ten-year mine plan boundaries. (See Well Map which follows). There are another nine wells just outside that ten-year mine boundary and still more in the entire Project area.

Giraud, C; Concho Resources, Inc.

Comment:

DEIS Figure 2-7, (DEIS, 2-32) appears to be based, at least in part, on Figure 4.1 from page 15 of the RFD (RFD, 15). The pale green "arm" of the Bone Spring play is clearly reproduced in DEIS Figure 2-7. However, the Delaware Mountain Group depicted in two shades of yellow on Figure 4.1 of the RFD is completely missing from DEIS Figure 2-7. Thus, the high potential area is not considered at all in the impact analysis.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS cumulative impact analysis states: "Recent estimates of drilling activity indicated that most of the project facilities would be located in an area of low drilling potential with the exception of an area of moderate potential for the Bone Springs play that is crossed by the proposed water pipeline." (DEIS, 4-17) As discussed earlier, these are not, in fact, the conclusions stated in the RFD. The RFD identifies areas of high and moderate potential in the Project area that are not discussed in the DEIS cumulative impact analysis. (RFD, 13-15, Bone Spring and Delaware Mountain Group plays). Further, as set forth above, the DEIS contains information that actually contradicts RFD conclusions.

Giraud, C; Concho Resources, Inc.

Comment:

The cumulative production of wells in or within one mile of the ten year mine plan illustrates the substantial difference between the production from vertical wells versus the production from horizontal wells. See Cumulative Production Lists on the following pages. Six of the horizontal wells have produced more than 100,000 barrels even though they were completed after 2010. In just a few years they surpassed vertical wells operating for a much longer time, some going back to the 1970s. The numbers alone clearly indicate this is not an area of low potential. It is also obvious from the lists that prior to 2010 almost all the wells are vertical. After 2010 all the new wells are horizontal. This again exemplifies the need for more recent data.

Giraud, C; Concho Resources, Inc.

Oil and Gas

Comment:

The DEIS projection that drilling will continue at the then-current pace of approximately 800 new completions (RFD, 39) does not tell the whole story. Many, if not the majority, of those wells are horizontal. One horizontal well replaces four or more vertical wells. Therefore, maintaining the same number of wells actually equates to a substantial increase in production.

This difference is shown in the state's oil production increases. Tom Clifford, the Secretary of the New Mexico Department of Finance and Administration, reports that oil production is up 50% in the last three years. (IPANM presentation, August 2013). That increase is not reflected in projections based on the data available in 2010.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information. The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Comment:

The BLM has not adequately analyzed or disclosed the potential impacts mining related subsidence may have upon oil and gas operations within the Project Area. In addition to adverse impacts to the actual wellbore, subsidence will have significant impacts on gathering systems, pipelines, surface production equipment, and access roads. Further, the mining company must be willing to legally assume all risk and liability and indemnify Devon for any environmental or other adverse consequences resulting from subsidence related accidents. Any subsidence that results in damages to a wellbore, production equipment, or pipeline could have significant adverse impacts.

Bolles, Randy; Devon Energy Corp

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response. The conditions in indemnification agreements between ICP and oil industry parties are strictly up to the parties involved and are outside of the scope of this EIS.

Oil and Gas

Comment:

Lowballing the future of oil and gas development in the area may make it easier to complete the impact analysis, but it does not serve the intended purpose of the NEPA review process and the needs of oil and gas operators. The BLM is required to take a hard look at all the potential impacts of the Project. This requirement presupposes all of the impacts will be considered: such an evaluation requires information that is both current and accurate.

Giraud, C; Concho Resources, Inc.

BLM Response:

While the RFD may not be reflective of recent oil and gas development in the project area, the DEIS supplemented that information with more recent data. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Comment:

The DEIS reports that oil and gas issues had the highest number of comments of any category during the scoping process. A number of these comments related to concerns about future access for the potential development of oil and gas. (Executive Summary, 3 and 4). The DEIS avoids direct responses to these questions and, as a result, does not rise to the NEPA standard of taking a hard look at the issues raised in the review process.

Giraud, C; Concho Resources, Inc.

BLM Response:

There are two alternatives that address how to manage future access for the development of oil and gas as well as potash mining. Co-development management is considered under Alternatives A and C. Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP under Alternative A. These alternatives consider a range of alternatives for managing co-development and meet the standard of taking a hard look at the environmental consequences of a range of alternatives. The "hard look" standard as applied by the courts relates to the analysis of environmental effects, not the issues raised by comments.

Oil and Gas

Comment:

The BLM indicates that potash is an important industrial mineral in wide demand in the United States and internationally. Ochoa DEIS, pg. 1-4. Given changes in the industry, agricultural practices, and recent developments in chemical and manufacturing processes, the BLM should describe to what extent potash remains a strategic mineral and whether its development should be favored by the United States. Devon acknowledges that parties are entitled to seek exploration and development leases for potash but questions whether the BLM should continue to prioritize potash development over oil and gas and other resources.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM appreciates the importance of allowing access to valid existing fluid minerals leases but cannot prioritize the development of one mineral over another, according to federal guidance and policy.

Comment:

Additionally, given the percentage of the proposed water well field that has been leased, the BLM needs to develop an appropriate mechanism to prioritize where oil and gas and water development will be located.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative to determine whether this can be required. This is the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company under the Proposed Action, or it could be addressed under a "local order" as described under Alternative C.

Oil and Gas

Comment:

The DEIS notes: "Many public comments submitted during the scoping period expressed concerns related to the potential for limiting existing and future oil and gas operations as well as oil and gas leases in the mine area as a result of developing a new mine." (DEIS, 2- 17) It further states that the Project developers propose a framework of future meetings of the Project developer and the oil and gas operators to plan for future development in a joint manner so that neither industry interferes with the other. (DEIS, 2-17) The DEIS finds that, "Potential conflicts between mining and oil and gas interests would be minimized by the management of co-development through the implementation of the measures described in Section 2.4.2.1 0. No significant adverse impacts to mineral resources would result ... " (DEIS, 4-16) Apparently if the mine operator's proposed framework is accepted there is no need to answer the many concerns raised in the scoping process. The DEIS restates that position later in the socioeconomic impact analysis...The preparers of the DEIS should know they cannot avoid their obligations to address the issues raised in the seeping process by simply saying something to the effect of, "Gee, we hope they work it out". Concho appreciates and generally supports the concept of allowing the parties to work together to address solutions to the problems associated with both industries wanting to operate in the same area. But by failing to address the issues raised in scoping in any meaningful fashion, the DEIS does not even define the problem.

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS and FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised during scoping were not addressed in the DEIS. The information on the proposed management of co-development and potential conflicts referenced on page 2-17 in the comment is part of the description of the Proposed Action (Alternative A), which is what was proposed by ICP. If this co-development option is selected by the BLM, there would be an expectation that the oil and gas lessees would work with ICP to work out plans for mineral extraction in a way that is mutually beneficial to both parties in each MOU. The summary of impacts referenced on page 4-16 of the DEIS (DEIS Section 4.2.9.5 and FEIS Section 4.2.11) concludes that, if the co-development practices described under any of the action alternatives (A, B, C, or D) were implemented, these actions would minimize adverse impacts to mineral extraction by both industries, thereby making them not significant. Essentially, the analysis concludes that implementing either the voluntary cooperation methods with signed MOUs as proposed by ICP or the more stringent and defined guidance for managing co-development considered under Alternative C would minimize conflicts for mineral extraction while allowing valid existing lease rights of both industries to be exercised.

Oil and Gas

Comment:

ConocoPhillips does not believe the recently completed Reasonable Foreseeable Development Scenario ("RFD Scenario") for the BLM New Mexico Pecos District (Engler *et al.*, 2012) accurately estimated the potential for oil and gas development within the vicinity of the 50-year mine plan area and processing plant site. Ochoa DEIS, pg. 2-31. As discussed in more detail by the BLM in chapter 4, the Bone Springs formation and the Avalon Shale formation have attracted new attention for oil and gas development. Ochoa DEIS, pg. 4-17. The use of new technologies including horizontal drilling techniques has made these formations interesting BLM fully accounted for development in these shale formations in the RFD Scenario for the Pecos District. Although the BLM's RFD report suggests that horizontal development in the Bone Springs/Avalon Shale/Leonard Shale Play has rapidly increased in the past several years, the report does not account for its full potential future development.

Dey, Eileen; Conoco Phillips

Comment:

The DEIS concludes that "The interest in oil and gas targets within and near the Ochoa Mine project area would contribute to cumulative impacts to mineral resources and may affect future mine plans should the proposed mining project be approved." (DEIS, 4-17) Despite providing this warning, no apparent effort was made to collect data to analyze these concerns and, instead, the DEIS persists in the false characterization of the Project area as one of low potential for oil and gas development.

Giraud, C; Concho Resources, Inc.

Comment:

There can be no real analysis of the specific impacts, much less the cumulative impact, of the Project without an adequate understanding of the intensity of oil and gas operations in the area.

The DEIS must be supplemented and the Supplemental DEIS must be made available for comment before the Final EIS is prepared.

Giraud, C; Concho Resources, Inc.

Comment:

As repeatedly illustrated above, the DEIS does not provide complete or accurate information on either the current status or the future development of oil and gas in the Project area. This is the result of relying on outdated and incorrect data in preparing the DEIS analysis.

Giraud, C; Concho Resources, Inc.

Comment:

The BLM must consider recommencing the DEIS process because the basic premise of the impact analysis, i.e., the identification of the Project area as one of low potential for oil and gas development, is wrong. If the impact analysis is wrong in its fundamentals, none of the subsequent analysis can stand.

Giraud, C; Concho Resources, Inc.

Oil and Gas

Comment:

This intense drilling activity currently underway is not directly addressed in the DEIS impact analysis. This omission renders the analysis incomplete and its conclusions inaccurate, including the determination that no significant adverse impact to mineral resources would result from the Project. (DEIS, 4-16) The BLM needs to make substantial revisions to the DEIS impact analysis and solicit and review comments on the revised version before it can proceed to a Final EIS. To do anything less risks being told by a court in any appeal of the ultimate decision to revisit the EIS.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS fails to meet the minimum standards for a NEPA review because the inaccuracy of the determination of the potential for oil and gas development in or near the Project area undermines the entire analysis of the DEIS

Giraud, C; Concho Resources, Inc.

Comment:

Interestingly, it appears that the preparers of the DEIS themselves also may have some doubt as to the accuracy of the projections. The DEIS references drilling activity in areas beyond those included in the RFD and adds detail on several recent wells drilled adjacent to the project area, concluding that should an Avalon well develop into a true resource play, it could expand in all directions. DEIS, 4-17 ... In retrospect, that comment was an astute projection based on a well drilled in 2011. The Avalon portion of the Bone Spring formation in and near the Project area has, indeed, become a resource play.

Giraud, C; Concho Resources, Inc.

Comment:

The BLM chose not to include much of the significant data from its own files or from those of the New Mexico Oil Conservation Division (OCD) relating to Applications for Permit to Drill and drilling after 2010.

Giraud, C; Concho Resources, Inc.

Comment:

While we appreciate that the RFD must have a cutoff date for its analysis, its failure to include representative data for the post-2010 period results in an inaccurate forecast for the future. Too much has changed for the data contained in the RFD to be used to generate accurate future development projections. The change is easily seen in a graph provided by the U.S. Energy Information Administration. It shows a gentle upward curve for production increases at 20 I O. Following 2010, there is a steep upturn of approximately 45 degrees.

Giraud, C; Concho Resources, Inc.

Comment:

The RFD generally understates the areas of high and moderate potential for the Bone Spring formation, including the Avalon Shale. In all likelihood, this error is a result of using old information. The areas of high potential appear to be limited to those areas undergoing substantial drilling in 2010 and there is no real projection of future activity.

Giraud, C; Concho Resources, Inc.

Oil and Gas

Comment:

As discussed in all of the sections above, Alternative A is based on an inaccurate analysis of the existing environment and the future development of oil and gas.

Giraud, C; Concho Resources, Inc.

Comment:

Concho believes the consideration of data from even 2012 would yield very different projections resulting from the current dominance of horizontal drilling in and near the Project area.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS also noted other facts not clearly accounted for in the RFD Conclusions: [cited DEIS 4-17].... Again, this information was not captured in the RFD and, consequently, was not considered in preparation of the DEIS. The most reasonable explanation for this omission is that the Avalon well was drilled in 2011 and the Red Tank horizontal well activity was 11 months ago. A supplemental DEIS, as recommended, could capture this more current information and use it to form the basis for more accurate evaluations and projections than those currently provided.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Oil and Gas

Comment:

In particular, the BLM needs to provide far more detail regarding how it will prevent subsidence and sinkholes that could adversely impact not only wellbores, but also surface production equipment, gathering and other pipelines, and access roads necessary to serve oil and gas wells.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM needs to ensure its approval of the Ochoa Mine does not harm existing oil and gas operations within the Project Area. As demonstrated by Figure 3.2-8, there are literally scores of oil and gas wells located within the Project Area. The BLM needs to describe and ensure its mitigation measures are sufficient to protect those oil and gas wells from adverse impacts, particularly those the BLM has identified as having high risk. Ochoa DEIS, pg. 3-15. The BLM also needs to address and analyze the effectiveness of these mitigation measures for both existing and potential future wells.

Dey, Eileen; Conoco Phillips

Comment:

In discussing how mining operations will be modified near oil and gas wells, ConocoPhillips is concerned that both BLM and ICP place too much emphasis on existing wells and do not account for the possibility of new oil and gas development in the Project Area. The BLM must ensure that mining operations are modified as new oil and gas development occurs.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate “co-development” agreements with ICP to ensure that orderly development takes place or the BLM may develop detailed guidelines as described under Alternative C and develop a local potash order. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Oil and Gas

Comment:

The BLM should provide additional information on how ICP and the BLM will identify plugged and abandoned wells within the Project Area and the steps they have taken to ensure they are aware of all abandoned wells. The BLM's description of the proposed mitigation for the high risk and abandoned wells is currently vague. Ochoa DEIS, pg. 4-15. In order to minimize the risks associated with the high risk wells, ICP and the BLM should consult with the operators of said wells, and their successors, to gain additional information about the high-risk wells before engaging in remedial operations. Finally, to the extent ICP is modifying the existing or plugged and abandoned wells, the ICP must fully indemnify ConocoPhillips from any and all adverse impacts associated with ICP's procedures to address high risk or plugged wells.

Dey, Eileen; Conoco Phillips

BLM Response:

ICPs methodology as originally presented in the mine plan (ICP 2011) was not consistent with the conditions that would exist regarding abandoned wells, namely assuming that production casing would still be present in abandoned wells. Under the Proposed Action, the oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place or work within the local order concept proposed under Alternative C. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response. The conditions in indemnification agreements between ICP and oil industry parties are strictly up to the parties involved and are outside of the scope of this EIS.

Oil and Gas

Comment:

The DEIS fails to include the High Potential of the Delaware Mountain Group Play cited in the RFD in its determination that the area has low potential for oil and gas development.

Giraud, C; Concho Resources, Inc.

Comment:

The substantial increase in oil production due to horizontal drilling in the Bone Spring formation is further depicted on Figure 9 which appears on the same page of the RFD Appendix. Concho does not understand how these discrepancies can be reconciled and, therefore, believes the summary map is incorrect. The map must either be revised or an explanation of the conflicting information contained in the RFD Appendix be addressed in a supplemental DEIS.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based on data up to 2011. The discussion on recent oil and gas developments was updated for the FEIS. The RFD (Engler et al. 2012) clearly shows that the mine area is outside of the low-medium-high potential areas for the Bone Spring/Avalon Shale development (RFD, Figure 4.1, Figures 6 and 14, Appendix, Part 1). The mine area is within an area of medium to high development potential for the Delaware Group. However, according to the RFD, development in the Delaware would consist of infill drilling, secondary and tertiary recovery (RFD, Table 4.1, pages 9-10, Appendix part 2). In addition the RFD states that such activities would occur in the pools that have been determined by production histories to have the best reservoirs. The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

Oil and Gas

Comment:

The BLM suggests in the Ochoa DEIS there may be oil and gas wells within the Project Area that may have an increased risk of casing failure or casing leaks. Ochoa DEIS, pgs. 4-9 - 4-13. To the extent these wells were drilled in compliance with all State and Federal regulations, they should be allowed to continue in their current form. Oil and gas operators such as Devon should not be responsible for adding additional casing strings or other mitigation measures in order to facilitate the development of polyhalite or potash. To the extent such additional mitigation measures are necessary, the additional costs associated with such procedures should be borne by ICP, not the oil and gas operators.

Bolles, Randy; Devon Energy Corp

BLM Response:

As discussed in Section 4.2.5.2, it is indicated that at-risk wells present concerns due to conditions that have preceded polyhalite mining: Over the course of several decades, it is not unreasonable to assume that salt zones in these wells could have been subjected to extensive dissolution and may pose as yet undiscovered hazards to mining, potentially limiting efficient ore recovery. Abandoned wells pose no less a hazard than active wells because annular flow behind production casings may not have been detected during the operational lives of the wells or when the wells were abandoned. The BLM is not asking oil and gas operators to take mitigation measures for current wells with regard to polyhalite mining. That is what the proposed buffers are intended to do.

Comment:

Devon strongly supports BLM Environmental Requirement 1.1.3 which mandates that ICP shall not unreasonably interfere with oil and gas production. Ochoa DEIS, pg. 2-24. Devon encourages the BLM to impose this requirement on any and all approvals for the Ochoa Mine.

Bolles, Randy; Devon Energy Corp

Comment:

The development of the proposed mine will directly impact ConocoPhillips's operations in the Project Area as well as potential future development plans. Given the impact the Ochoa Mine may have upon ConocoPhillips's operations and lease rights we request the BLM carefully consider these comments.

Dey, Eileen; Conoco Phillips

Comment:

Concho appreciates the magnitude of the undertaking in preparing a DEIS for a Project the size of the proposed Ochoa mine. However, Concho needs the analysis to be complete and accurate, especially when discussing the potential conflict between mining and oil and gas operations. Our operations in the Project area recently have been very successful so the capacity to continue drilling within this area is critically important to Concho.

Giraud, C; Concho Resources, Inc.

BLM Response:

The BLM will take your comments into consideration when making a decision. The BLM has no intent to interfere with the development of valid existing lease rights.

Oil and Gas

Comment:

Devon does not believe the BLM has adequately analyzed and disclosed the potential adverse impacts the development of the proposed mine will have upon Devon's existing and future oil and gas operations in the Project Area. Devon appreciates and acknowledges Intercontinental Potash Corporation USA's ("ICP") proposal to develop a framework for managing co-development of oil and gas and potash within the Ochoa Project Area. Ochoa DEIS, pg. 2-17. Unfortunately, the BLM has not provided sufficient details regarding how it will manage both resources and how it will ensure that oil and gas operations are not adversely impacted by the proposed mining operations.

Bolles, Randy; Devon Energy Corp

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration. BLM has no intent to interfere with the development of valid existing lease rights. The BLM took into account the comments on the DEIS when they developed the preferred alternative and will consider them for the Record of Decision, which will more fully explain how both resources would be managed should the mine project be approved.

Oil and Gas

Comment:

The incorrect assumption of low potential for oil and gas development may drive a different result in the analysis in a number of places. Consider the changes that might be made in the following places based on a determination that the potential for drilling is high instead of low:

DEIS, 2-31 The RFD is quoted as estimating the future drilling potential as low in the Project area. It does say recent drilling demonstrated promising potential, but the DEIS does not carry through on that observation.

DEIS, 3-21 Cementing of casing in oil and gas wells that penetrate salt sections is often problematic and there is no general rule on how to deal with the problems.

DEIS, 3-122 When oil and gas development and potash mining activities occupy the same general area the potential for conflict arises.

DEIS, 3-122 The oil and gas industry is concerned about the effects of the proposed mine project on existing oil and gas facilities and operations, the potential impact of subsidence on oil and gas facilities, potential effects on access to well facilities, and any constraints the proposed project may have on future oil and gas development.

DEIS, 4-2 Forces in the strata could cause bending and rupture of well casings.

DEIS, 4-4 BLM projections of future oil and gas drilling in the project vicinity were used in determining the impact on mineral resources.

DEIS, 4-6 Impacts to mineral resources are only considered significant if there were a permanent or irretrievable loss of the ability to access and recover a commercial mineral resource.

DEIS, 4-6/9 Impact of mining related subsidence on oil and gas wells and pipelines.

DEIS, 4-15 Monitor for instability around active wells. Evaluations of well integrity of active wells with pressure testing and cement bond logs

DEIS, 4-17 If the Avalon develops into a true "resource play" then drilling could expand in all directions. The interest in oil and gas targets within or near the project area would contribute to the cumulative impacts to mineral resources. SWD wells could present problems.

The DEIS's dedication to the determination of low potential for future drilling in the Project area is so interwoven in the analysis that it must be revisited and substantially revised before the process can go forward. The analysis does not consider the economic viability of the mine at the current intensity of drilling, much less in connection with continued future growth in the number of wells. A supplemental DEIS must be prepared to correct *this* fundamental flaw. To do otherwise is a failure to comply with the requirements of NEPA to give a close, hard look at the impacts of a project prior to reaching a decision.

Giraud, C; Concho Resources, Inc.

Oil and Gas

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based on data up to 2011. The discussion on recent oil and gas developments was updated for the FEIS. The RFD (Engler et al. 2012) clearly shows that the mine area is outside of the low-medium-high potential areas for the Bone Spring/Avalon Shale development (RFD, Figure 4.1, Figures 6 and 14, Appendix, Part 1). The mine area is within an area of medium to high development potential for the Delaware Group. However, according to the RFD, development in the Delaware would consist of infill drilling, secondary and tertiary recovery (RFD, Table 4.1, pages 9-10, Appendix part 2). In addition the RFD states that such activities would occur in the pools that have been determined by production histories to have the best reservoirs. However, the RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information. It is outside of the scope of this EIS to determine appropriate casing grade and strength. The authorizing agency (BLM or OCD) would determine required grade and strength of casing.

Comment:

As it finalizes the approval process for the mine, the BLM must be cognizant of its multiple use and multiple mineral development obligations.....Devon recognizes the difficult task the BLM faces to manage public lands in the Ochoa Project Area for multiple use, but encourages the BLM to remember that oil and gas development is a crucial part of the BLM's multiple use mandate. The BLM should also recall that oil and gas lessees have not just the right, but the obligation, to develop their lease. 43 C.F.R. §3162.1 (a) (requiring developed leases to maximize production).

Bolles, Randy; Devon Energy Corp

BLM Response:

There are legal rights associated with fluid minerals leases as well as those associated with the prospecting permits for potash. All are valid legal rights that must be considered by the BLM. Management of co-development is important, which is why there are two alternatives with different options for managing access to legal mineral rights under consideration.

Oil and Gas

Comment:

The DEIS impact analysis also fails because it does not respond to many of the issues raised during the scoping process. While a number of the issues raised were discussed, there was no effort made to respond to questions generally related to the Project's possible interference with the valid existing rights of oil and gas operators to drill and produce in a timely manner.

Giraud, C; Concho Resources, Inc.

BLM Response:

Detailed public scoping comments are listed in the Scoping Report on the project website and a brief summary of them are included in Chapter 1 of the DEIS and FEIS. These comments were used to help develop alternatives for analysis, as well as to identify the issues to be analyzed (listed in the first section under each resource in Chapter 4). Specifically, Alternative C was developed for the BLM and the public to consider whether more detailed and specific guidelines and rules for co-development should be implemented in the region, as opposed to the voluntary approach proposed by ICP. It is unclear which issues raised during scoping were not addressed in the DEIS.

Comment:

ICP must also be willing to compensate oil and gas operators for any cost increases resulting from additional safeguards or equipment necessary to protect mining operations. For example, if additional casing string is required to protect mining operations, the additional cost should be borne by ICP, not the operators.

Bolles, Randy; Devon Energy Corp

Comment:

The issue of additional casing requirements for oil and gas wells is not considered in the DEIS and that raises significant questions: Has it been rejected? Is it something to be worked out? If so, who will bear the costs? A fair response to the scoping questions in the impact analysis would have provided answers to these questions.

Giraud, C; Concho Resources, Inc.

BLM Response:

The BLM is not asking oil and gas operators to take mitigation measures for current wells with regard to polyhalite mining. That is what the proposed buffers are intended to do. Compliance with State or Federal regulations is no guarantee that a well is not presenting a potential hazard, not just to polyhalite mining but to the environment and public safety. The existing wells probably cannot have another casing string added. Management of future costs can be addressed in the co-development agreements (Proposed Action) or guidance (Alternative C).

Oil and Gas

Comment:

Should the BLM deny or unreasonably delay Devon's ability to develop its leases, the BLM's action may constitute a taking in violation of the Fifth Amendment to the U.S. Constitution.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM should expressly recognize in the Ochoa DEIS that oil and gas leases are existing rights that cannot be modified, limited, or curtailed by the BLM.

Dey, Eileen; Conoco Phillips

BLM Response:

The BLM has no intent to interfere with the development of valid existing lease rights.

Permits/Special Uses

Comment:

EPA requires that all "operators" (see Definitions, Appendix A in CGP) submit a Notice of Intent (NOI) prior to construction. Generally, this means that at least two parties will require permit coverage--the owner/developer and the general contractor. Each person, firm, public organization, or any other entity that meet the following criteria must file an NOI: (1) they have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or (2) they have day-to-day operational control of those activities at the project necessary to ensure compliance with SWPPP requirements or other permit conditions. It is possibly that other "operators" will require appropriate NPDES permit coverage for this project.

Nelson, Morgan; State of New Mexico Environment Department

Comment:

Operators of certain small construction activity (disturbance of one to five acres) may be waived from permit requirements under limited circumstances. To be eligible for this waiver, operators must certify to EPA that they are eligible (see Section 9 Appendix C of the CGP). Waivers are only available to stormwater discharges associated with small construction activities (i.e., 1-5 acres). The size of the described proposed project activities may exclude this.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The Final EIS will be updated to document that there are no jurisdictional Waters of the U.S. per the U.S. Army Corps of Engineers letter dated May 28, 2013. Because there are no Waters of the U.S. affected by the project, the requirements under NPDES do not apply. Although a CGP and NOI are not needed, the BLM will include development and implementation of a SWPPP as a recommended mitigation measure to protect surface water resources.

Comment:

The DEIS identifies several plans to be developed and applicable permits associated with the proposed project without fully providing information. The associated plans and permits are important components to the DEIS.

Recommendation: The FEIS should include the plans and permits, including copies of or identifying accessible locations, for evaluation.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The development of applicable permits are underway in a parallel process but will not be completed before the FEIS is done. The EIS assumes that ICP would comply with all requirements of the permits once they are finalized. Because not all of the detailed designs have been completed, site-specific locations may not be available for publication in the FEIS. However, the approximate locations are shown on the maps in Chapter 2.

Permits/Special Uses

Comment:

NMED also notes that the EIS broadly describes the ore zone as consisting of polyhalite and salt, presumably NaCl salt, but no further description of ore that will be mined is provided. The Tamarisk Fm in other portions of the Rustler Formation in the Delaware basin is known to contain barium and boron for which WQCC standards exist for ground water as well as other lithophile elements in ground water. Other potential contaminants from the Tamarisk Formation that have not been reported or characterized may be components of the Ochoa mill waste Stream. NMED will require more complete characterization of the waste streams as part of the ground water discharge permitting process.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Additional information on the composition of the ore zone will be provided in the FEIS. However, this information will only be part of the consideration of the waste stream. It is assumed that the NMED will request this information before issuing a discharge permit and more details will be required by the BLM in the revised mine plan from ICP before permitting and bonding is completed.

Comment:

Section 2.4.2.1: ICP currently holds 28 U.S. Department of the Interior (DOI), Bureau of Land Management (BLM) Prospecting Permits (61,983 acres) and 18 New Mexico State Land Office (NMSLO), New Mexico State Trust Lands Potash Mining Leases (27,804 acres) in Lea and Eddy Counties. ICP relinquished several prospecting permits and gained 1 New Mexico State Land Office lease in 2013. ICP will provide an updated list and shapefile to BLM to document the status of permits and leases.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

This will be updated in the FEIS.

Comment:

The project description does not state if there will be discharge of dredged or fill material into a waterbody, including wetlands. A state Water Quality Certification is required under Section 401 for activities regulated under Section 404 of the Federal Clean Water Act by the U.S. Army Corps of Engineers. The NMED has issued conditional certification to use Nationwide Permits for projects in ephemeral stream channels. For projects in intermittent or perennial streams, a project-specific water quality certification must be obtained. The NMED's Surface Water Quality Bureau (SWQB) has developed a joint 404/401 application for this process.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The Final EIS will be updated to document that there are no jurisdictional Waters of the U.S. per the U.S. Army Corps of Engineers letter dated May 28, 2013. Because there are no jurisdictional Waters of the U.S., the Clean Water Act does not apply and no permits are required. There are no proposed activities that would directly affect ephemeral, intermittent, or perennial streams.

Permits/Special Uses

Comment:

Further chemical and radiological characterization of the R/O reject water will be needed to assess the hazardous or radioactive characteristics and how isotopes will concentrate in the R/O process. Both the characteristics of the waste stream and the characteristics of the aquifer into which the waste stream will be injected will need to be provided to NMED to determine what UIC well classification applies, and what permitting actions will be required.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Currently, there is only one possible scenario that includes an injection well to dispose of some of the waste stream. This is one possible option to be considered under Alternative B if it can be demonstrated that it would adequately reduce the size of the tailings stockpile. Should this option be selected by the BLM, the NMED would require more information as part of the permitting process, which is referenced in Table 1-1 of the DEIS and FEIS. The details of the R/O process have not been fully designed at this point.

Preference Right Leases

Comment:

Concho concurs in the No Action Alternative. The DEIS should be held until the feasibility study is completed and can be included in a supplemental DEIS. Nothing should go forward until the economic viability of the Project is determined.

Giraud, C; Concho Resources, Inc.

BLM Response:

The economic viability is generally assumed in the analysis of all action alternatives. Under NEPA, no cost/benefit analysis is required, especially for projects funded by private entities. If private companies have seen fit to commit their funds to a project, they are not required to justify that commitment of resources. The most recent data from the Prefeasibility Study (cited as Crowl et al. 2011 in the DEIS and FEIS) was used, in addition to other information provided by ICP, to provide a general picture of the costs of the project and the revenues generated, as well as the taxes and royalties to be paid. An updated and detailed analysis will be conducted before issuing any preference right leases. As stated in Section 1.4.2 of the DEIS and FEIS, prior to issuing a preference right lease, the BLM must evaluate whether the mine will be profitable after implementing the terms and conditions, including the required mitigation and reclamation measures identified in the agency decision document, in this case, the Record of Decision. This process for evaluating whether the project meets the “valuable deposit requirement” (defined at 43 CFR 3501.5) must be completed subsequent to the NEPA analysis and in compliance with BLM guidelines. No preference right leases would be issued until all requirements are met. Once a valuable deposit is proven, the applicant is entitled, by law, to the lease without competition or payment of an upfront or bonus bid. Once the lease is put into production, the operator is required to pay royalties and taxes. These royalties and taxes are described in Section 4.15.5.5 Public Sector Revenues.

Comment:

I respectfully ask the BLM to approve the preference right leases and the mine plan of operation and closure as described in Alternative A and issue a record of decision in support of Intercontinental Potash Corporation.

Cobb, Sam

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

Preference right 1-5 Along with recent available mining costs, etc., are we are entitled to include diverse indirect costs which are likely to result, for instance to address strain on water resources, roads, mitigation of greenhouse gas input, etc? These should be tallied from the start so that if changed in the future the corporations don't claim an unfair taking

Queen, Michael

BLM Response:

While no value can be assigned to address “strain” on water resources or mitigation of greenhouse gasses, the evaluation of a valuable deposit does take into account the total cost per ton of operations, mitigation measures, and environmental protection measures that will be required by the BLM and compares it to value per ton in order to make an informed decision on the viability of the project.

Preference Right Leases

Comment:

Preference right 1-5 Short of competitive bids, how is a fair market value determined and a fair leasing price set? Even the stipulations applying to preference leases should not amount to a give-away of mineral resources, effectively amounting to corporate welfare at a time of mandatory sequestration.

Queen, Michael

BLM Response:

As stated in Section 1.4.2 of the DEIS and FEIS, prior to issuing a preference right lease, the BLM must evaluate whether the mine will be profitable after implementing the terms and conditions, including the required mitigation and reclamation measures identified in the agency decision document, in this case, the Record of Decision. This process for evaluating whether the project meets the “valuable deposit requirement” (defined at 43 CFR 3501.5) must be completed subsequent to the NEPA analysis and in compliance with BLM guidelines. This parallel process is where fair market value and a fair leasing price are determined, taking the place of the competitive bid process. Once a valuable deposit is proven, the applicant is entitled, by law, to the lease without competition or payment of an upfront or bonus bid. Once the lease is put into production, the operator is required to pay royalties and taxes. These royalties and taxes are described in Section 4.15.5.5 Public Sector Revenues.

Project Description

Comment:

Pages ES-1 and 1-1: Please note that the polyhalite will not be "hoisted to the surface" under the Proposed Action, contrary to the wording used by ICP in the MPO. Polyhalite will be "transported by a conveyor belt system in the ramp" would be a more accurate description of what ICP proposes. The wording on the top of page 61 of the MPO might be a good source.

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Section 2.4.2.3: The EIS states "The second pond would be a storm water detention pond constructed to contain a 100-year, 24 hours storm event." The ICP Mine Plan of Operations (MPO) states, on page 52, top of the page, "...; the two ponds combined will provide containment of the 100-year, 24-hour storm event."

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

This will be corrected in the FEIS.

Comment:

Page 2-16 of the EIS describes a new four-mile gas pipeline and either a new transmission line or an on-site cogeneration facility to provide electric power. These facilities should also be fully included in the EIS analysis.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The gas pipeline and the power generation options are included in the EIS analysis to the degree they can be with the information available. They have not been fully designed. However, detailed designs would be evaluated by the appropriate agency during the ROW permit application process.

Comment:

An example of another actual failure to clearly inform the public exists in the Executive Summary, Page ES-1 in the paragraph entitled, "Project Overview" where the statement is made: "Approximately 55 percent of the minerals within the proposed mine area is owned by the federal government." How can this be correct when the proposed mine area adopted in the Draft EIS is 27,202 acres and only 5,007 acres thereof are identified as BLM acres in Table 2-1 on Page 2-4?

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Table 2-1 provides a breakdown of surface land status. The mineral ownership is substantially different from the land status due to the existence of split estate, whereby the subsurface mineral ownership is different from the surface ownership.

Project Description

Comment:

Also, all the waste water not recycled for use at the processing plant site must be disposed of regularly by injection into a disposal well authorized by the governmental agencies having jurisdiction in order to reduce the risk of pollution of the limited amount of potable underground water in the area.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Under the Proposed Action, all waste water from the project would be sent to lined evaporation ponds for disposal (see Section 2.4.2.3 of the DEIS and FEIS.) In FEIS Section 4.3, it was concluded that no adverse impacts to shallow potable groundwater would occur as long as the capacity and integrity of the evaporation ponds are monitored (through physical inspection and monitoring wells) and maintained, and that remedial actions must be implemented should problems be noted during monitoring.

Comment:

I. Environmental Impacts. The Draft EIS fails to adequately identify and evaluate the environmental impacts of the proposed Ochoa Mine Project for, among other reasons, the following reasons:

1. ICP currently holds 34 BLM prospecting permits encompassing 77,884 acres and 17 state mineral leases issued by the New Mexico State Commissioner of Public Lands encompassing 25,889 acres. Upon, information and belief ICP has obtained additional state mineral leases issued by the Commissioner recently. These permits and leases total at least a minimum of 103,773 acres in which rcp will be allowed to prospect and explore for potassium minerals in Lea and Eddy Counties, New Mexico. If BLM approves ICP's proposed Mine Plan of Operation, the BLM prospecting permits will be converted to preference right leases (See Page 2-6, Paragraph 2.4.2.1) yet, the Draft EIS adopts a 50 year mine area defined as an area projected to be mined within 50 years, i.e. which identifies only 27,202 acres, consisting of 5,007 BLM acres, 16,053 State of New Mexico acres and 6,142 Private Acres, instead of the full 103,773 acres which encompasses the project (See Page 2-4, Paragraph 2.4.2.1 and Table 2-1).

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time. Recently, ICP relinquished several prospecting permits and gained 1 New Mexico State Land Office lease in 2013. This information will be updated in the FEIS.

Project Description

Comment:

Backfilling the mined out areas with solid tailings would be technically difficult and may not be feasible at all. This would require a separate set of conveyors to transfer the material underground and then a set of mobile equipment to distribute the material into the mined out rooms. The ramp and the main development drifts would have to be increased in size to allow room for an additional conveyor coming back into the mine. The manpower would also go up significantly to operate and maintain the additional equipment. Because the fill would not be cemented, mining through older, backfilled parts of the mine might not be feasible, resulting in lost revenue to ICP, BLM, and the State of New Mexico. Additionally, the potential for adverse impacts to miner health and safety would increase.

Traditional backfilling with a slurry, while technically feasible, would compromise stability because water in the slurry would dissolve the salt is present in the mine floor and back. Traditional backfilling would also require a sophisticated piping distribution system with pressure reducing capabilities to eliminate the possibility of pipe line bursts because of the depth of the ore zone, this system would add significantly to the required capital and operating costs of the project. Sustaining capital costs to expand the distribution system with the possible need for expensive pumping systems would be a significant cost as the mine area covers a very large area. The ore bed dips away from the bottom of shaft and slope area so the distribution system will have to flow at a positive gradient which will require pumping systems, this may also cause problems with plugged pipes as the system will not drain with gravity.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

One technical difficulty with backfilling, that there would be little time to backfill before convergence of the mine roof occurs, is described in Section 4.2.6. The requirement to expand the ramp and main development drift will be added to the description of Alternative B. The impacts to revenue are somewhat more speculative but a qualitative discussion will be added to the socioeconomics section of Chapter 4 in the FEIS. No proposal for backfilling as a slurry is under consideration in the EIS.

Comment:

The project description does not state if there will be discharge of dredged or fill material into a waterbody, including wetlands. A state Water Quality Certification is required under Section 401 for activities regulated under Section 404 of the Federal Clean Water Act by the U.S. Army Corps of Engineers. The NMED has issued conditional certification to use Nationwide Permits for projects in ephemeral stream channels. For projects in intermittent or perennial streams, a project-specific water quality certification must be obtained. The NMED's Surface Water Quality Bureau (SWQB) has developed a joint 404/401 application for this process.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The Final EIS will be updated to document that there are no jurisdictional Waters of the U.S. per the U.S. Army Corps of Engineers letter dated May 28, 2013. Because there are no jurisdictional Waters of the U.S., the Clean Water Act does not apply and no permits are required. There are no proposed activities that would directly affect ephemeral, intermittent, or perennial streams.

Project Description

Comment:

There appears to be some confusion within the EIS regarding the extent of the project area. Table 2-1, Surface Land Status in the Project Area, describes a total of 31,134 acres, including 1631 for the water pipeline. This figure is very close to the total acreage calculated from Table 3.4-1, Project Area Soil Limitations. However, Table 4.4-1, also depicting soil disturbance limitations, indicates a minimum of approximately 16,000 acres, including greater than 4300 acres for the water pipeline right-of-way. Much of this area would not actually experience surface disturbance except for possible ground subsidence effects. Table 3.7-1, Vegetation Community Types within the Project Area, describes cover types for a total of 47,577 acres. The EIS should be corrected to either resolve these discrepancies or explain them. The apparent large variation in project area boundaries makes it very difficult to interpret the information needed to assess impacts and recommend mitigation measures. Discussion of soil limitations should relate specifically to the locations where vegetation will be cleared.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The information in Table 4.4-1 is presented to provide an idea of the limitations in the soils proposed to be disturbed by the project in the locations where disturbance is proposed. It includes overlapping acreage that cannot be summed. For example, the same acres may be susceptible to wind erosion, water erosion, and have limited potential for revegetation, so if the acreage were totaled, it would be counted three times. The text immediately above the table explains why the acreage cannot be totaled to come up with the amount of disturbance. The text states "Note that the acreage totals below do not equal the total amount of surface disturbance because some soil map units have more than one limitation and some do not have any or are not rated in the soil survey." A similar note can be added below the table. Because Chapter 3 is describing the environment that may be affected in the project area, Table 3.7-1 describes the acreage of vegetation community types within the entire project area, not just the communities proposed to be disturbed. The tables in Section 4.7 identify the acreage affected by initial disturbance and long-term under each alternative. These tables come to the same total surface disturbance as that presented in Chapter 2 for each alternative.

Project Description

Comment:

I. Environmental Impacts. The Draft EIS fails to adequately identify and evaluate the environmental impacts of the proposed Ochoa Mine Project for, among other reasons, the following reasons:

2. ICP estimates the life span of the mine to be 130 years and not 50 years as arbitrarily adopted and used in the Draft EIS identifying and evaluating the environmental impacts of the proposed Ochoa Mine Project. (See attached copy of the news article in the Hobbs News-Sun issued, dated Sunday June 30, 2013, covering the program Tom Cope, Executive Vice-President for ICP, presented to the Hobbs Rotmy Club.) In fact, if as stated in this news article, the 27,202 acres reflected in the 50 year project area of the Draft EIS is mined out at the rate of one-third of a section annually it will require 127.5 years (640 acres in a section [one square mile] divided by 1/3 = 213.33 acres; and divide 27,202 acres by 213.33 acres = 127.5 years). A similar calculation for mining out 103,773 acres shows it will require more than 400 years to accomplish.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

Comment:

Farther, the existing Draft EIS does not inform the public that the life span of the mine to mine 27,202 is estimated to be 130 years and not 50 years.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Comment:

Abstract - No Page - In this and the sections that follow, the term brackish is commonly used. This term is sufficiently broad as to be either near useless or confusing. In general it refers to how concentrated an aqueous solution is, measured in diverse manners. For clearest understanding it should be defined, and the range and composition of the dissolved solids spelled out

Queen, Michael

BLM Response:

The abstract is required under NEPA and is intended to provide a very brief, non-technical description of the proposed project. In Section 3.3.2.1 of the DEIS and FEIS, there is a more detailed discussion of the Capitan Aquifer where it states that the measured salinity is variable, ranging from 2,300 mg/L to almost 70,000 mg/L total dissolved solids.

Project Description

Comment:

Figure 2-2: The line representing the "Ramp" in this figure actually represents two different features: (1) an underground ramp, and (2) an overland, covered conveyor system. The transition from the underground Ramp to the above ground conveyor would occur where this figure shows a bend in the line. Changing the color or style of the line at this bend would clarify this change for the reader these two distinct features. In addition, ICP was asked by a stakeholders to make slight changes to the location of the dry stack tailings pile and evaporation ponds. The change to the dry stack tailings would be so that the facility does not cover the E-W access road passing through the location shown on the map. This would have less of an impact on travel and ICP is open to making that change. In addition, ICP received a request to change the location of evaporation ponds to accommodate an oil and gas drilling corridor. ICP is also open to making this change. Should the BLM wish to consider either or both modifications to the locations shown in the figure, ICP would be glad to provide the BLM with a shapefile of this proposed changes. Please note that these changes are minor, and are still proposing a location wholly within the area outlined in red as "Processing Plant Facilities", which has been surveyed for cultural and natural resources.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The BLM will update Figure 2-2 and other maps in the FEIS to reflect the recommendations in the comment once ICP provides the updated GIS data.

Comment:

The ground water must be treated to remove the salts before it can be used to process the ore. The EIS does not thoroughly describe how this water will be treated but it appears that ICP intends to reduce the TDS content of its process water to approximately 10,000 ppm using a reverse osmosis (R/O) process. The R/O process would increase the TDS concentration in the R/O reject waste stream by a factor of approximately six. The EIS indicates that the R/O waste stream will be further concentrated by placement in one or more lined solar ponds from which some or all the fluids will be evaporated. The EIS indicates that some unspecified portion of the R/O waste stream would be disposed of through injection to a UIC well; however the details of how much water would be evaporated compared with how much water would be injected into a UIC well were not specified in the EIS. The location of the injection well and the depth and formation into which the R/O waste would be discharged has not been provided.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Currently, there is only one possible scenario that includes an injection well to dispose of some of the waste stream. This is one possible option to be considered under Alternative B if it can be demonstrated that it would adequately reduce the size of the tailings stockpile. Should this option be selected by the BLM, the NMED would require more information as part of the permitting process, which is referenced in Table 1-1 of the DEIS and FEIS. The details of the R/O process have not been fully designed at this point.

Project Description

Comment:

Habitat in the project area is only lightly fragmented by oil and gas activity, and the Reasonably Foreseeable Development Scenario cited on page 2-31 states that estimated future drilling potential is low. Our scoping comments, dated January 23, 2011 (NMGF Project No. 14815), recommended that mine roads be consolidated with existing oil and gas roads to the extent feasible, either by using existing roads or by constructing new multi-purpose roads and reclaiming existing ones. Figure 2-2 shows new roads in the mine surface facility area not consolidated with existing roads. Figure 2-5 shows a new road from NM Highway 128 to the loadout facility. Text on page 2-15 describes this road as "to be improved" but the legend to Figure 2-5 defines it as "new". The stated purpose of using the proposed road alignment is to avoid additional heavy truck traffic through Jal. However, this could be accomplished by creating a route from NM 128 west of Jal that travels straight north through an existing oil and gas wellfield to the loadout area. Contrary to the assertion on page 4-67, big game animals are adversely affected by roads (see Effect of Roads on Wildlife and Habitats at [wildlife.state.nm.us/conservation/habitat handbook/index.htm](http://wildlife.state.nm.us/conservation/habitat%20handbook/index.htm) for documentation).

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

Due to the location of the mine facilities required by the mine design and location of the ore zone in relation to the processing facilities, it is not feasible to share mine access and processing plant roads with existing oil and gas service roads. The proposed new road from NM 128 to the loadout facility actually utilizes existing roads at the beginning and ending of the road but adds new road in the middle in order to access the loadout. The location of the newly constructed segment in the middle is somewhat dependent on where rights-of-way can be obtained. In DEIS and FEIS Section 4.8.5.1, the text acknowledges that increased habitat fragmentation is a potential impact to wildlife and that terrestrial wildlife habitat would be affected by slightly increased habitat fragmentation caused by new roads. The DEIS and FEIS both conclude that big game would not be adversely affect by this fragmentation because the habitat is open and no edge effect would result, and also recognize that habitat disruption would be an indirect effect of vehicle traffic.

Project Description

Comment:

Six specific key objectives were established in the project's Public Participation Plan and are provided below:

- (a) Develop a consistent, meaningful, and coordinated approach to external and internal communication themes and outreach strategies.
- (b) Educate the public and key stakeholders about the proposed Project.
- (c) Increase public awareness and understanding of the NEP A process.
- (d) Identify the public's concerns so they can be addressed in the EIS.
- (e) Effectively communicate, cooperate, and consult with Native American tribes, federal and state agencies, and local elected and appointed officials.
- (f) Evaluate the success of the communications and public participation activities to identify whether additional outreach activities are needed."

The Draft EIS fails to meet the overall scoping goal and the six specific key objections above. In fact, the scoping process as discussed above violates not only the overall scoping goal but all of the six specific key objectives. Public Participation may very well have been substantially more if members of the public had known, particularly if mining a larger area than 27,202 acres reveals different or greater environmental impacts. Had members of the public been fully and properly informed, the Draft EIS would have identified environmental impacts and evaluations thereof for all acres subject to mining by ICP. In addition, alternatives to avoid and mitigate the environmental impacts would have been developed for the entire area subject to mining. The existing Draft EIS does not inform the public of the location of ICP's 103,773 acres of permits and mineral leases except for the 27,202 acres of the limited mining area.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahan

BLM Response:

The proposed action presented for scoping included a 50-year mine area, which is the area proposed by ICP and analyzed in the DEIS and FEIS. The Notice of Intent that initiated public scoping described "areas described, including Federal, State, and nonpublic lands, total 276,480 acres...17 State leases, totaling 25,889 acres in addition to the 26 prospecting permits totaling 77,884 acres." The description of public involvement activities were updated in the FEIS.

Comment:

ES-1: Please add in the first sentence of Project Overview "and Sulphate of Potash Magnesia (SOPM)." after "SOP". Section 5.5 of the Mine Plan of Operations also describes ICP's intent to produce langbeinite (aka Sulphate of Potash Magnesia [SOPM]). Please add SOPM to other descriptions of the project throughout the DEIS so that the description of the Proposed Action may be both consistent and accurate.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Recommended changes were made to the text.

Project Description

Comment:

III. The Draft EIS Is Deficient And Must Be Supplemented. In order for members of the public to be properly informed of ICP's proposed action and to have an opportunity for informed participation in this matter, the public should have been informed in the scoping process that ICP's proposed mine area encompasses 103,773 acres not 31,134 acres of which only 27,202 acres thereof are to be mined.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The proposed action presented for scoping included a 50-year mine area, which is the area proposed by ICP and analyzed in the DEIS and FEIS. The Notice of Intent that initiated public scoping described "areas described, including Federal, State, and nonpublic lands, total 276,480 acres...17 State leases, totaling 25,889 acres in addition to the 26 prospecting permits totaling 77,884 acres."

Project Support

Comment:

I am writing this letter to express my support for Intercontinental Potash Corporation's Ochoa Project near Carlsbad and Loving. The potash industry has been exceedingly good for the citizens of this area, and we would welcome the addition of the Ochoa Project to the family of potash operations currently here.

Brown, Cathryn; New Mexico State House

Comment:

Therefore, I strongly encourage the Bureau of Land Management to promptly issue a record of decision in support of Intercontinental Potash Corporation and the Proposed Alternative.

Brown, Cathryn; New Mexico State House

Comment:

As Mayor of the City of Hobbs I strongly support Intercontinental Potash Corporation project.

Cobb, Sam

Comment:

The Carlsbad Chamber of Commerce supports the ... ICP project.

Defer, Robert; Carlsbad Chamber of Commerce

Comment:

As the owner of Fulfer Oil & Cattle Co. LLC, I wish to express my full support for the Intercontinental Potash Corporation's Ochoa Mine Project.

Fulfer, Gregg; Lea County

Comment:

I am requesting that the Bureau of Land Management approve the preference right leases and mine operation and closure as described in Alternative A.

Fulfer, Gregg; Lea County

Comment:

Again, I am requesting that you select Alternative A and permit ICP to create this mine that will benefit Lea County and the State of New Mexico economically.

Fulfer, Gregg; Lea County

Comment:

I support this project and ask that the Bureau of Land Management approve this project as described as Alternative A.

Gallagher, Michael; Lea County

Comment:

As the County Manager for Lea County, I wish to express my full support of the Intercontinental Potash Corporation's Ochoa Mine Project. It is my understanding that ICP is proposing to develop a new mine in southern Lea County to extract polyhalite ore for the production of the sulfate of potash for fertilizer use. It is my preface the Bureau of Land Management approve this project as described in Alternative A.

Gallagher, Michael; Lea County

Project Support

Comment:

My support is based on the fact that ICP has presented the BLM with a proposal for a new mine that safeguards the environmental resources for which BLM is responsible for managing while at the same time creates economic opportunities for the citizens of Southeastern New Mexico.

Gratton, John; New Mexico State University

Comment:

As President of New Mexico State University Carlsbad, I am submitting my strong letter of support for the above listed ICP project.... I urge the Bureau of Land Management to approve the preference right leases and mine operation and closure plan as described in Alternative A.

Gratton, John; New Mexico State University

Comment:

As a City that would be directly affected by the Ochoa Project, one of the most advanced sulphate of potash projects in the world, I am writing to confirm my support of the Proposed Action. As a result, I urge the BLM to approve the preference right leases and the mine plan of operation and closure as described under Alternative A.

Janway, Dale; City of Carlsbad

Comment:

I encourage the BLM to issue a record of decision in support of Intercontinental Potash Corporation.

Janway, Dale; City of Carlsbad

Comment:

The potash industry leads our local United Way effort, our Relay for Life effort and so much more. So based on our past experiences, I'm very proud to have Intercontinental Potash Corporation join our community in Southeastern New Mexico.

Janway, Dale; City of Carlsbad

Comment:

I am writing to express my support for the ICP Ochoa Project. I urge the BLM to approve the plan as described in Alternative A.

Kernan, Gay; New Mexico State Senate

Comment:

I fully support the adoption of Alternative A and the permitting of the Ochoa Project. I thank you for your role in evaluating this project.

Kernan, Gay; New Mexico State Senate

Comment:

Please be aware of my strong support for the above listed project. I urge the Bureau of Land Management to approve the preference right leases and mine operation and closure plan as describe in Alternative A. I support approval because I believe that ICP has presented the BLM with a proposal for a new mine that safeguards the environmental resources that BLM is responsible for managing while creating economic opportunities for citizens of Southeastern New Mexico.

Leavell, Carroll; New Mexico State Senate

Project Support

Comment:

Your approval of the Draft EIS for this project is respectfully and sincerely requested.

Schrader, Curtis; City of Jal

Comment:

On behalf of our Mayor, Cheryl Chance, and our City Council, it is my sincere pleasure to submit this letter of support for the Proposed Ochoa Mine Project by the Intercontinental Potash Corporation (ICP).

Schrader, Curtis; City of Jal

Comment:

The EDCLC board and members have met on several occasions with ICP and are satisfied that the project will use the appropriate safeguards to protect the environmental resources under the Bureau of Land Management's jurisdiction.

Schubert, Gary; Lea County

Comment:

On behalf of the Economic Development Corporation of Lea County (EDCLC) Board of Directors, please except this statement as an indication of our enthusiastic support for the ICP proposal for the Ochoa Mine Project to be built in Lea County, New Mexico.

Schubert, Gary; Lea County

Comment:

The EDCLC anxiously looks forward to the dedicated community partner Lea County will be gaining. We appreciate the opportunity to show our support and approval of this project.

Schubert, Gary; Lea County

Comment:

I speak for the board of directors and the membership of the Hobbs Chamber of Commerce, and I write in unequivocal support of the proposed Ochoa Project of Intercontinental Potash in Lea County, New Mexico. More specifically, I urge the Bureau of Land Management to approve Alternative A, which outlines preference right leases and a mine operation and closure plan.

Taylor, Grant; Hobbs Chamber of Commerce

Comment:

It's my pleasure to convey the collective support of the Hobbs Chamber of Commerce for the proposed Ochoa Project of Intercontinental Potash.

Taylor, Grant; Hobbs Chamber of Commerce

Comment:

I strongly encourage the BLM to promptly issue a record of decision in support of Intercontinental Potash Corporation and the Proposed Alternative.

Waters, John; Carlsbad Department of Development

Project Support

Comment:

I want to express my support for the Intercontinental Potash Corporation's (IC Potash) Ochoa Project in Lea County. As Executive Director of the Carlsbad Department of Development in neighboring Eddy County, I believe IC Potash's Ochoa Project would be extremely positive for Southeastern New Mexico. Furthermore, I believe that Alternative A, the proposed alternative, is the most viable for our community.

Waters, John; Carlsbad Department of Development

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

I respectfully ask the BLM to approve the preference right leases and the mine plan of operation and closure as described in Alternative A and issue a record of decision in support of Intercontinental Potash Corporation.

Cobb, Sam

BLM Response:

The BLM will take your comments and support of the project into consideration when making a decision.

Public Involvement

Comment:

Six specific key objectives were established in the project's Public Participation Plan and are provided below:

- (a) Develop a consistent, meaningful, and coordinated approach to external and internal communication themes and outreach strategies.
- (b) Educate the public and key stakeholders about the proposed Project.
- (c) Increase public awareness and understanding of the NEP A process.
- (d) Identify the public's concerns so they can be addressed in the EIS.
- (e) Effectively communicate, cooperate, and consult with Native American tribes, federal and state agencies, and local elected and appointed officials.
- (f) Evaluate the success of the communications and public participation activities to identify whether additional outreach activities are needed."

The Draft EIS fails to meet the overall scoping goal and the six specific key objections above. In fact, the scoping process as discussed above violates not only the overall scoping goal but all of the six specific key objectives. Public Participation may very well have been substantially more if members of the public had known, particularly if mining a larger area than 27,202 acres reveals different or greater environmental impacts. Had members of the public been fully and properly informed, the Draft EIS would have identified environmental impacts and evaluations thereof for all acres subject to mining by ICP. In addition, alternatives to avoid and mitigate the environmental impacts would have been developed for the entire area subject to mining. The existing Draft EIS does not inform the public of the location of ICP's 103,773 acres of permits and mineral leases except for the 27,202 acres of the limited mining area.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The proposed action presented for scoping included a 50-year mine area, which is the area proposed by ICP and analyzed in the DEIS and FEIS. The Notice of Intent that initiated public scoping described "areas described, including Federal, State, and nonpublic lands, total 276,480 acres...17 State leases, totaling 25,889 acres in addition to the 26 prospecting permits totaling 77,884 acres." The description of public involvement activities were updated in the FEIS.

Public Involvement

Comment:

Page ES-3: The statement "...wells in the area due to drawdown caused by proposed water usage." appears not to match the information presented in Table 1-3, which does describe concerns for water quality but no concerns for drawdown impacts. This statement does not seem to accurately reflect the comments included under "Water Resources" as part of the AECOM March 27, 2012 Scoping Report. In review of the Scoping Report, it appears that a question is posed on how the proposed pumping might affect the water table, but does not exhibit a *potential concern* for this affect. In ICP's review of the scoping comments for water resources, it would appear that the majority of comments were related to concerns about the effects of the project on shallow groundwater quality associated with the plans for storage ponds and not drawdown. Please consider revising this statement to better describe the public scoping comments regarding water resources.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The summary of public scoping comments described in the Executive Summary and Chapter 1 of the DEIS and FEIS are not intended to be precise. The statement included in the referenced table and the introductory text above the table are merely intended to inform the reader that comments, questions, and concerns related water usage, potential impacts to water quality, and the effects of drawdown were expressed by the public and are analyzed in the EIS.

Purpose and Need

Comment:

Purpose & Need - 1-4 It is certainly not clear why the BLM needs this project, nor why the preferred alternative was selected over the others.

Queen, Michael

BLM Response:

In compliance with National Environmental Policy Act (1969), the BLM must evaluate this project to achieve balanced development, land stewardship, and sustainability, and to make an informed decision on whether the proposed project should be approved. No preferred alternative was selected or identified in the DEIS and no decision will be made until the Record of Decision is signed in 2014.

Reclamation

Comment:

2.4.2.7 Reclamation, p. 2-15: *Additional topsoil would be purchased and trucked from development sites or commercial sources in the region if necessary to supplement onsite stockpiles.*

Comment: Intrepid would encourage stockpiling of adequate growth media during facility construction to meet planned reclamation requirements. Reclamation and revegetation of disturbed sites in New Mexico will utilize native vegetative species that are adapted to the current soil conditions of the area. Salvage of native soils for growth media is appropriate, and reseeding with native adaptive species of vegetation is appropriate to meet the postmining land use objectives of a stable, non-eroding surface that will support livestock and wildlife use.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

As noted in Section 2.4.2.7, suitable soil would be stockpiled and used for post-mining reclamation. It is likely that additional soil would be needed to provide an adequate growth medium for reclamation of the tailings stockpile. As noted in FEIS Section 2.4.7.4 and Appendix A, ICP would be required to meet the BLM's requirements for seed mixtures, which contain native species and are developed for site-specific conditions. Test plots to evaluate successful revegetation methods were incorporated into the Preferred Alternative of the FEIS and can be selected in the ROD.

Comment:

In general black grama grasslands have proven to be difficult to reclaim. We recommend establishing revegetation test plots during the life of the mine to demonstrate successful methods. Test plots could also demonstrate whether two feet of cover will be enough to prevent upward migration of salts from the tailings piles.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

There would be minimal salts in the tailings pile so the upward migration of salts was not considered. However, test plots to evaluate successful revegetation methods were incorporated into the Preferred Alternative of the FEIS and can be selected in the ROD.

Comment:

Any marketable products should be sold and removed. Any product which can not be sold should be given to one or more commercial users in exchange for removal of the product and clean up of the area. Other solid waste should be disposed of by backfilling the mined out areas.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahan

BLM Response:

ICP is currently investigating potential markets for the gypsum, epsomite, and salts. Because most of the tailings would be composed of gypsum, if they are disposed of by backfilling, the solids would not be available as marketable products. This concern is addressed in Alternative B and will be taken into consideration.

Reclamation

Comment:

Reclamation 2-15 If dry stack tailings are not reclaimed until the end of the project will there be an adequate bond on deposit in case the ICP folds or walks away? It wouldn't be the first time that had happened in the history of mineral exploitation.

Queen, Michael

BLM Response:

Section 2.4.2.7 states that the terms of a reclamation bond would be established consistent with state and federal requirements. Under the Preferred Alternative described in the FEIS, reclamation would begin after the first year.

RFD

Comment:

Nevertheless, the DEIS states that the "Assumptions used in the analysis of potential impacts to mineral resources include the following: Existing mineral resource recovery projections are reasonable." (DEIS, 4-5). As shown earlier, the "low potential" assumption used in the DEIS is not based on the RFD projections and is not reasonable.

Giraud, C; Concho Resources, Inc.

BLM Response:

The existing mineral resource recovery projections include more than the information provided by the RFD projection. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

RFD

Comment:

While we appreciate that the RFD must have a cutoff date for its analysis, its failure to include representative data for the post-2010 period results in an inaccurate forecast for the future. Too much has changed for the data contained in the RFD to be used to generate accurate future development projections. The change is easily seen in a graph provided by the U.S. Energy Information Administration. It shows a gentle upward curve for production increases at 2010. Following 2010, there is a steep upturn of approximately 45 degrees.

Giraud, C; Concho Resources, Inc.

Comment:

The substantial increase in oil production due to horizontal drilling in the Bone Spring formation is further depicted on Figure 9 which appears on the same page of the RFD Appendix. Concho does not understand how these discrepancies can be reconciled and, therefore, believes the summary map is incorrect. The map must either be revised or an explanation of the conflicting information contained in the RFD Appendix be addressed in a supplemental DEIS.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based on data up to 2011. The discussion on recent oil and gas developments was updated for the FEIS. The RFD (Engler et al. 2012) clearly shows that the mine area is outside of the low-medium-high potential areas for the Bone Spring/Avalon Shale development (RFD, Figure 4.1, Figures 6 and 14, Appendix, Part 1). The mine area is within an area of medium to high development potential for the Delaware Group. However, according to the RFD, development in the Delaware would consist of infill drilling, secondary and tertiary recovery (RFD, Table 4.1, pages 9-10, Appendix part 2). In addition the RFD states that such activities would occur in the pools that have been determined by production histories to have the best reservoirs. The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

RFD

Comment:

Devon does not believe the recently completed Reasonable Foreseeable Development Scenario ("RFD Scenario") for the BLM New Mexico Pecos District (Engler *et al.*, 2012) accurately estimated the potential for oil and gas development within the vicinity of the 50-year mine plan area and processing plant site. Ochoa DEIS, pg. 2-31. As discussed in more detail by the BLM in chapter 4, the Bone Spring formation and the Avalon Shale formation have attracted new attention for oil and gas development.

Bolles, Randy; Devon Energy Corp

Comment:

ConocoPhillips does not believe the recently completed Reasonable Foreseeable Development Scenario ("RFD Scenario") for the BLM New Mexico Pecos District (Engler *et al.*, 2012) accurately estimated the potential for oil and gas development within the vicinity of the 50-year mine plan area and processing plant site. Ochoa DEIS, pg. 2-31. As discussed in more detail by the BLM in chapter 4, the Bone Springs formation and the Avalon Shale formation have attracted new attention for oil and gas development. Ochoa DEIS, pg. 4-17. The use of new technologies including horizontal drilling techniques has made these formations interesting BLM fully accounted for development in these shale formations in the RFD Scenario for the Pecos District. Although the BLM's RFD report suggests that horizontal development in the Bone Springs/Avalon Shale/Leonard Shale Play has rapidly increased in the past several years, the report does not account for its full potential future development.

Dey, Eileen; Conoco Phillips

Comment:

Interestingly, it appears that the preparers of the DEIS themselves also may have some doubt as to the accuracy of the projections. The DEIS references drilling activity in areas beyond those included in the RFD and adds detail on several recent wells drilled adjacent to the project area, concluding that should an Avalon well develop into a true resource play, it could expand in all directions. DEIS, 4-17 ... In retrospect, that comment was an astute projection based on a well drilled in 2011. The Avalon portion of the Bone Spring formation in and near the Project area has, indeed, become a resource play.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS also noted other facts not clearly accounted for in the RFD Conclusions: [cited DEIS 4-17].... Again, this information was not captured in the RFD and, consequently, was not considered in preparation of the DEIS. The most reasonable explanation for this omission is that the Avalon well was drilled in 2011 and the Red Tank horizontal well activity was 11 months ago. A supplemental DEIS, as recommended, could capture this more current information and use it to form the basis for more accurate evaluations and projections than those currently provided.

Giraud, C; Concho Resources, Inc.

Comment:

The RFD relied upon in the DEIS is based on well information that, for the most part, does not consider data subsequent to 2010 and, as a result, misses the dramatic growth in development in or near the Project area that would change its forecast for potential development

Giraud, C; Concho Resources, Inc.

RFD

Comment:

The RFD generally understates the areas of high and moderate potential for the Bone Spring formation, including the Avalon Shale. In all likelihood, this error is a result of using old information. The areas of high potential appear to be limited to those areas undergoing substantial drilling in 2010 and there is no real projection of future activity.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS begins with the recognition that "the primary known future activity would be oil and gas development." (Executive Summary, 6) Given that oil and gas development is the primary anticipated activity in the Project area, it is shocking that the DEIS incorrectly states that the "estimated future drilling potential is low in the vicinity of the 50 year mine area and the plant site." (DEIS, 2-31 , emphasis added). As the basis for *this* characterization, the DEIS credits the "Reasonable Foreseeable Development (RFD) Scenario for the BLM New Mexico Pecos District" (the RFD). While the RFD has its own shortcomings due to its failure to consider important data subsequent to 2010, it does not characterize the Project area as having only low potential for oil and gas development. That misinterpretation is a fatal flaw in the DEIS.

Giraud, C; Concho Resources, Inc.

Comment:

Concho believes the RFD needs to be examined closely for information on areas of high potential that are not included on the summary map of potential plays.

Giraud, C; Concho Resources, Inc.

Comment:

Concho understands the need for a definite cutoff point for data to be reviewed for the RFD, but we believe using 2010 as that cutoff point resulted in the BLM using stale data in preparing the DEIS. Concho requests that the DEIS be supplemented before the NEPA review process continues so the true impacts to the oil and gas industry can be considered both individually and as part of the cumulative impact analysis using data reflective of the current state of affairs in the Project area.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated in the project area (see Section 2.5 of the FEIS), and a new contract is being developed update the RFD for the entire Pecos District, including the CFO. Information provided by commenters and new information obtained from the NMOCD was also used to update the FEIS (see Section 4.2.12).

RFD

Comment:

DEIS Figure 2-7, (DEIS, 2-32) appears to be based, at least in part, on Figure 4.1 from page 15 of the RFD (RFD, 15). The pale green "arm" of the Bone Spring play is clearly reproduced in DEIS Figure 2-7. However, the Delaware Mountain Group depicted in two shades of yellow on Figure 4.1 of the RFD is completely missing from DEIS Figure 2-7. Thus, the high potential area is not considered at all in the impact analysis.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS cumulative impact analysis states: "Recent estimates of drilling activity indicated that most of the project facilities would be located in an area of low drilling potential with the exception of an area of moderate potential for the Bone Springs play that is crossed by the proposed water pipeline." (DEIS, 4-17) As discussed earlier, these are not, in fact, the conclusions stated in the RFD. The RFD identifies areas of high and moderate potential in the Project area that are not discussed in the DEIS cumulative impact analysis. (RFD, 13-15, Bone Spring and Delaware Mountain Group plays). Further, as set forth above, the DEIS contains information that actually contradicts RFD conclusions.

Giraud, C; Concho Resources, Inc.

Comment:

The DEIS misstates the findings of the RFD as to the oil and gas development potential of the Project area in concluding that the Project area has low potential for oil and gas drilling. This stands in direct contradiction to the conclusions stated in the RFD.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information. The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Riparian Areas/Wetlands

Comment:

Page 3-62: Please reconsider this section on Wetlands and Riparian Areas because the U.S. Army Corps of Engineers has determined that there no waters of the U.S. in the Project Area. In addition, no wetlands or playas were identified in the pedestrian surveys completed by Walsh (2012a) for the Proposed Action.

Footnote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The section provides the required description of the affected environment for wetlands and riparian in the project area. The field survey results, desktop analysis, and NWI available data are summarized in the section. The determination of no WUS in the project area will be added to the FEIS.

Socioeconomics

Comment:

In term of statewide effect, the Ochoa Project will, over its 50-year lifespan, generate more than \$338 million dollars in state mineral royalties. Annually, it will provide \$3.3 million dollars in state severance tax receipts and up to \$190 million dollars in resource excise taxes. The project will also generate millions in gross receipts taxes for both local and state government. The financial impact to New Mexico is, by every measure, truly significant.

Brown, Cathryn; New Mexico State House

Comment:

Implementation of the Proposed Action ("Alternative A") would infuse the local economy with good paying jobs and opportunities for growth. We anticipate the creation of 1,400 construction jobs and 496 permanent operations jobs. This alternative would have wide support from the communities in every direction.

Brown, Cathryn; New Mexico State House

Comment:

The project, during its life, will generate hundreds of jobs and a substantial number of new business opportunities for our residents. It will also generate millions in state mineral royalties, state severance tax receipts, property taxes and gross receipts taxes which will positively impact education, public safety and state government.

Cobb, Sam

Comment:

...Intercontinental Potash Corporation has exhibited its willingness to be an active community partner in supporting many philanthropic and economic diversification activities in the communities in southeast New Mexico and they have committed to me that they will continue to be an active community partner upon the commencement of their construction and subsequent mining activities.

Cobb, Sam

Comment:

The Chamber has supported the Potash Industry for many and years and believes International Potash Corporation will be a great addition that will create new economic opportunities in that field.

Defer, Robert; Carlsbad Chamber of Commerce

Comment:

We believe this project will increase revenues for several communities in the Southeast Area and for the state of New Mexico. It will provide many jobs for our area at both start-up and long term.

Defer, Robert; Carlsbad Chamber of Commerce

Comment:

A positive impact of co-development would be an increase royalties to the BLM and NMSLO.

Foote, Randy; Intercontinental Potash Corp. (USA)

Socioeconomics

Comment:

By supporting this project, Lea County and the State of New Mexico will benefit economically due to the creation of 1,400 construction jobs and the 496 long term operations jobs. This in turn will impact our local communities by boosting local businesses that will provide accommodations with lodging, food and local shopping.

Fulfer, Gregg; Lea County

Comment:

This project will result in the creation of approximately 1,400 construction jobs and an estimated 496 long term operations jobs. This in turn will have a positive impact in our local communities, Lea County and the State of New Mexico by boosting local businesses that will provide accommodations with lodging, food and local shopping.

Gallagher, Michael; Lea County

Comment:

The beneficial impacts of the project include the following:

1. Generating state mineral royalties which would amount to over \$338 million over the 50-year life of the project. These royalties would have a direct impact on the General Fund with positive results for education, public safety, and state government.
2. Generating \$3.3 million per annum in state severance tax receipts. These funds will be dedicated to the state permanent fund and employed to pay debt service on bonds issued by the State of New Mexico.
3. Provide revenue for state government from resource excise taxes of up to \$190 million.
4. Provide direct benefits to the Jal and Eunice School and Hospital Districts and to New Mexico Junior College through the generating of over \$300 million in property taxes over the life of the project.
5. Create up to 1,400 construction jobs and up to 496 long term operations jobs.
6. Create millions in dollars of income from gross receipts taxes during construction and operation phases of the project.

Gratton, John; New Mexico State University

Comment:

Implementation of the Proposed Action (Alternative A) would bring to the City of Carlsbad a variety of socioeconomic benefits. The 1,400 construction jobs that would be created by approving this project would benefit our community through the lodging and food-service establishments that would serve the workers. The 496 operations jobs that would be created during full production would bring to the community high-quality opportunities for employment. In response, the City of Carlsbad will readily accommodate the relatively small incremental population-related service demands.

Janway, Dale; City of Carlsbad

Comment:

I believe the plan presented by ICP contains the necessary safeguards required by the BLM to meet its responsibility to protect the environment while at the same time allows for the creation of economic opportunities for the citizens in our area.

Kernan, Gay; New Mexico State Senate

Socioeconomics

Comment:

The beneficial impacts the project will have among others are:

- 1) Generating state mineral royalties. I understand this would amount to over \$338 million over the 50-year life of the project. It would directly impact the General Fund with positive impact on education, public safety and all parts of state government.
- 2) Generate \$3 .3 million per annum in state severance tax receipts. Part of this will go to the state permanent fund and part to pay debt service on bonds issued by the State of New Mexico.
- 3) Provide revenue for state government from resource excise taxes of up to \$190 million (based on projected production and assumed market value).
- 4) Benefit the Jal and Eunice School and Hospital Districts and New Mexico Junior College by generating over \$300 million in property taxes over the life of the Project.
- 5) Million of dollars that will come from gross receipts taxes during construction and operation.
- 6) Create up to 1,400 construction jobs.
- 7) Create up to 496 long term operations jobs.

Leavell, Carroll; New Mexico State Senate

Comment:

As the closest, most proximate, community to the proposed project mine location, we will be most impacted by the proposed project, and we believe that those impacts will be positive for our community.

Schrader, Curtis; City of Jal

Comment:

The Ochoa project will also provide significant economic benefit to Lea County, its communities, and the State of New Mexico through increased property, gross receipts and other tax revenues. In addition to the fiscal benefits, the Ochoa project will also increase the technological skills and assets in our community and stimulate job growth in Lea County and all of Southeast New Mexico.

Schubert, Gary; Lea County

Comment:

Intercontinental Potash's Ocho Project will be a major contributor to the commercial vitality of Hobbs for the next 100 years. Construction of the Ochoa Project will create up to 1,400 construction jobs, which we know will result in significant direct and indirect commercial activity in and near Hobbs. We also know a remarkable share of the well-paying permanent jobs created by Intercontinental Potash will be held by Hobbs-area residents.

Taylor, Grant; Hobbs Chamber of Commerce

Socioeconomics

Comment:

I also support the Ochoa Project because of the economic growth that it will provide to the citizens of Southeastern New Mexico and Eddy County. Given the outlook provided in the proven and probable ore reserves identified in the mine plan, we look forward to at least 90 years of production and 4 more generations of local people who will have gainful employment in the mining industry in Carlsbad. The implementation of the Proposed Action (Alternative A) would bring the citizens of Eddy County significant gainful employment. As this alternative will result in the creation of 1,400 construction jobs and 496 permanent operations jobs, it is an alternative that would have wide support of the communities in southern Eddy County.

Waters, John; Carlsbad Department of Development

BLM Response:

The BLM will take your comments into consideration when making a decision.

Comment:

...although positive economic impacts are expounded upon at length, potential negative impacts, especially to the residents of Carlsbad, are not adequately enumerated. Specifics follow.

Queen, Michael

BLM Response:

No significant adverse impacts to the residents of Carlsbad have been identified.

Socioeconomics

Comment:

The BLM's socio-economic analysis is not adequate because it does not quantify the level of oil and gas development that could be adversely impacted by mining operations. Ochoa DEIS, pg. 4-113. In particular, the BLM has not analyzed the potential adverse impacts to horizontal drilling if the development of the mine is allowed to proceed. BLM's socio-economic analysis appears to be biased in an attempt to encourage the project and does not fully analyze the potential adverse impacts associated with the loss of oil and gas revenue in the Project Area. Devon believes there could be adverse impacts to the operations and, thus, the economy of the region as a result of this Project Area.

Bolles, Randy; Devon Energy Corp

Comment:

The BLM's socio-economic analysis must adequately quantify the level of oil and gas development that could be adversely impacted by mining operations. Ochoa DEIS, pg. 4-113. The BLM may not have analyzed the potential adverse impacts to horizontal drilling if the development of the mine is allowed to proceed. BLM's socio-economic analysis appears to be biased in an attempt to encourage the project and does not fully analyze the potential adverse impacts associated with the loss of oil and gas revenue in the Project Area. ConocoPhillips encourages the BLM to fully analyze and disclose the potential impacts to the socio-economics of the region if oil and gas activities are adversely impacted by mining operations.

Dey, Eileen; Conoco Phillips

BLM Response:

As a result of managed co-development and the capability to recover fluid minerals from pads located outside of the mine operations area via horizontal drilling, the BLM foresees little, if any, loss in oil and gas revenue from production in the Project Area. Under some circumstances well development and subsequent production might be delayed until after the completion of mining. In those instances, there could be some inefficiencies in development, costs could be higher, and the accrual of revenues to the operators and to taxing entities delayed. However, the net effect of these effects would be limited in scale in contrast to the revenues associated with the mine and the fluid mineral development that could occur under managed co-development. Text will be added in Section 4.15 noting the prospective accrual of royalties and other public sector revenues in conjunction with fluid mineral development under the No Action and that the Proposed Action and other action alternatives would have little, if any net effect on the overall quantity/volume of production and the revenues of operators and public entities.

Socioeconomics

Comment:

My support is based on the fact that ICP has presented the BLM with a proposal for a new mine that safeguards the environmental resources for which BLM is responsible for managing while at the same time creates economic opportunities for the citizens of Southeastern New Mexico.

Gratton, John; New Mexico State University

Comment:

In conclusion, I urge you to select Alternative A and thus permit ICP to create lasting economic opportunities for the citizens of our state.

Gratton, John; New Mexico State University

Comment:

Specifically, we express our support for the proposed Alternative A, as detailed in the Draft EIS for the project, and that the project as proposed will provide a negative minimal impact on our environment, and that the project as proposed will provide a positive maximum impact on our economy.

Schrader, Curtis; City of Jal

BLM Response:

The BLM will take your comments and support of the project into consideration when making a decision.

Comment:

Royalties, etc. - ES-16 Are these annual or total?

Queen, Michael

BLM Response:

On the referenced page, it states that the royalties are listed as average annual.

Comment:

the Project operator is a young, struggling company with a low market value and great aspirations for an expensive mine using technology that remains untested on a large scale. Adding the oversupply in the potash market to the equation may indicate the mine will not be viable for a number of years. The failure to assess the possibility of such a delay, let alone its potential impact, stands as another significant flaw in the DEIS.

Giraud, C; Concho Resources, Inc.

BLM Response:

NEPA does not require an independent assessment of the project's economic or technical feasibility to proceed with an EIS or reach a Record of Decision. Rather, it requires evidence of a technology with commercial potential. ICP has met that standard. If a favorable Record of Decision is produced, the capital markets will decide whether or not the project proceeds, just as in the current market, changes in oil and gas prices (or any other industrial commodity) can alter the business decisions of oil and gas companies to proceed, defer or accelerate investments in particular projects. Changes in commodity prices also affect the revenues that a project yields. Thus, economic feasibility is not a matter for the EIS. The BLM will follow the appropriate procedures for considering whether to issue the Preference Right leases for the project.

Socioeconomics

Comment:

Socioeconomics 1-12 What are the other socioeconomic factors that will impact those in town not hired by the mines and related industries, especially those on fixed or low income? (Rent? Grocery prices? Utilities prices? Water availability/rationing? Traffic? Etc.?)

Queen, Michael

BLM Response:

The EIS acknowledges potential adverse social and economic effects on some individuals, households and groups and effects such as those mentioned in the comment likely already occur in the area due to ongoing cumulative development activities (oil and gas, mining).

Comment:

Socioeconomics 1-12 If there are impacts to range, surface water and groundwater, how can this possibly not impact ranch values????

Queen, Michael

BLM Response:

The EIS recognizes some minor long-term environmental effects of the type described, including effects on permitted grazing on public lands. However, the proponent would utilize water to which rights have been appropriated through the state of New Mexico, implicitly protecting the beneficial use to which others are entitled. Moreover, since grazing on public land is deemed a privilege rather than a right, one to which an allottee is not guaranteed access, federal land management policy does not recognize the value of grazing as an underlying factor in determining ranch value.

Soils

Comment:

Spraying the dry stack tailings pile(s) with water from time to time as proposed will not prevent erosion from spreading and enlarging the footprint to be stored above ground. Storing dry stack piles of gypsum, salt or other waste above ground is unrealistic and should not be approved.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Dust from the tailings stockpile would be minimized by spraying water on it soon after placement on the pile. Because most of the waste material to be placed on the tailings stockpile would consist of anhydrite, it would harden through a process called gypsification through the interaction with the water sprayed on the pile to control dust. Once the tailings harden, they would not be susceptible to wind erosion. A dust management plan will be developed and implemented, and dust control would be ongoing until the tailings harden.

Comment:

Using the figures from Table 3.4-1, 92% of the soils in the project area are rated poor for revegetation potential and 73% are rated high for wind erosion susceptibility. The numbers as broken out by project sub-area on Table 4.4-1 are different but also reflect a large proportion of soils with limitations. No explanation is given for the discrepancy between Chapters 3 and 4.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

As noted in Section 2.4.2.7, suitable soil would be stockpiled and used for post-mining reclamation. It is likely that additional soil would be needed to provide an adequate growth medium for reclamation of the tailings stockpile. As noted in FEIS Section 2.4.7.4 and Appendix A, ICP would be required to meet the BLM's requirements for seed mixtures, which contain native species and are developed for site-specific conditions. Test plots to evaluate successful revegetation methods were incorporated into the Preferred Alternative of the FEIS and can be selected in the ROD. Under the Preferred Alternative, reclamation of the tailings would begin after the first year.

Soils

Comment:

There appears to be some confusion within the EIS regarding the extent of the project area. Table 2-1, Surface Land Status in the Project Area, describes a total of 31,134 acres, including 1631 for the water pipeline. This figure is very close to the total acreage calculated from Table 3.4-1, Project Area Soil Limitations. However, Table 4.4-1, also depicting soil disturbance limitations, indicates a minimum of approximately 16,000 acres, including greater than 4300 acres for the water pipeline right-of-way. Much of this area would not actually experience surface disturbance except for possible ground subsidence effects. Table 3.7-1, Vegetation Community Types within the Project Area, describes cover types for a total of 47,577 acres. The EIS should be corrected to either resolve these discrepancies or explain them. The apparent large variation in project area boundaries makes it very difficult to interpret the information needed to assess impacts and recommend mitigation measures. Discussion of soil limitations should relate specifically to the locations where vegetation will be cleared.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The information in Table 4.4-1 is presented to provide an idea of the limitations in the soils proposed to be disturbed by the project in the locations where disturbance is proposed. It includes overlapping acreage that cannot be summed. For example, the same acres may be susceptible to wind erosion, water erosion, and have limited potential for revegetation, so if the acreage were totaled, it would be counted three times. The text immediately above the table explains why the acreage cannot be totaled to come up with the amount of disturbance. The text states "Note that the acreage totals below do not equal the total amount of surface disturbance because some soil map units have more than one limitation and some do not have any or are not rated in the soil survey." A similar note can be added below the table. Because Chapter 3 is describing the environment that may be affected in the project area, Table 3.7-1 describes the acreage of vegetation community types within the entire project area, not just the communities proposed to be disturbed. The tables in Section 4.7 identify the acreage affected by initial disturbance and long-term under each alternative. These tables come to the same total surface disturbance as that presented in Chapter 2 for each alternative.

Comment:

Methods for reducing the volume and height of the dry stack tailings stockpile must be identified and implemented to address permanent loss of use of surface land, erosion issues resulting from wind and water, and to avoid visual impacts not only for 50 years but also for the estimated 130 year life span of the mine.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Methods for reducing the volume and height of the tailings stockpile are considered under Alternative B and the Preferred Alternative. The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Subsidence

Comment:

Alternative B - Change Dry Stack Tailings Stockpile: It appears this Alternative is proposed only to reduce the visual impact of the high tailings piles. Concho supports a change in the tailings piles for a different reason. Backfilling the mine with solid tailings material will inhibit subsidence as discussed in the DEIS. (DEIS,4-13). If the risk of subsidence diminishes, the risk to well bores also diminishes as well as the risk of leaks, catastrophic failures, or other damages from subsidence.

Giraud, C; Concho Resources, Inc.

BLM Response:

Alternative B was developed in response to public scoping comments reflecting concerns for visual impacts. As described in Chapter 2, backfilling the mine with tailings is one possible way to reduce the size of the stockpile. No matter what the reason for developing this alternative, the potential impacts of this practice are considered in Section 4.2.6 where technical difficulties with this procedure are discussed. This section also notes that the potential for subsidence would be less if the mine voids were backfilled.

Comment:

According to 4.2.5.1 Impacts from Subsidence - Roads (pg. 4-7), "subsidence induced effects on roadways can range from minor to extreme. These include slight heaving, lateral shifting to pavement buckling or fracturing." Agave believes that the current plans inadequately address potential consequences to Highway 128.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

The ramp would be designed so that subsidence would not occur. ICP's proposed design for the ramp includes the installation of concrete sides and an arched roof of concrete to ensure stability. As described in Section 2.4.2.2 of the FEIS, the width would be approximately 27 feet and the maximum height would be 14 feet at the top of the arch. The depth of the ramp is variable, but would be at an approximate depth of 600 feet below the ground surface where it crosses NM 128.

Comment:

Please reconsider the wording of this impact. Alternative B states that impacts would be the same as the Proposed Action, "unless tailings are placed as backfill in the mine, providing fill in the mine void and less subsidence." While ICP agrees that backfilling the mine could reduce subsidence, depending where and when the backfill is placed, this is only one of the options (or a combination of options) that BLM can choose from this alternative. If a different option or combination of options were chosen the impacts would be the same as the Proposed Action.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The wording was presented this way because backfilling is just one option under Alternative B. No change is necessary.

Subsidence

Comment:

Alternative B of the EIS evaluates returning gypsum waste (tailing) generated from the processing of the ore back underground as a means of reducing the height of the waste pile in order to reduce the visual impacts at the surface. Based on a review of subsidence literature (e.g. Holzer, 1984) it has been observed that subsidence can be reduced by mechanically backfilling or stowing of waste in abandoned mine areas. Although Table 2-7 mentions the potential for reduced subsidence resulting from placement of tailing material in the underground workings, it is unclear if evaluation of that alternative included the reduced potential for impacts to water quality that might result.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

As noted in Section 4.2.6 of the DEIS and FEIS, backfilling would minimize subsidence but there are technical difficulties with this proposal because the mine roof is expected to deform into the mined area soon after mining is completed. No significant adverse impacts to water quality are projected to result due to mine subsidence in any case. Additional information on the depth and thickness of the shallow aquifers, specifically the Santa Rosa Aquifer, was added to Section 3.3.2.1 in the FEIS. A draft water monitoring plan and subsidence monitoring plan will be available for public review when the FEIS is published.

Comment:

The BLM must further analyze and disclose the potential impacts mining related subsidence may have upon oil and gas operations within the Project Area. In addition to adverse impacts to the actual wellbore, subsidence will have significant impacts on gathering systems, pipelines, surface production equipment, and access roads.

Dey, Eileen; Conoco Phillips

BLM Response:

Designation of routes for oil and gas pipelines, as well as transportation routes and appropriate setbacks to ensure the co-existence of polyhalite and oil and gas development, can be determined within the context of a "local order" as described under Alternative C or in a MOU between Conoco Phillips and ICP as described under the Proposed Action.

Comment:

As proposed, up to 90% of the mined area will be removed and up to four feet of subsidence may occur at the surface. As indicated earlier, the mined area is likely overlain by the Santa Rosa sandstone, the Dewey Lake Formation, and younger Tertiary and Quaternary rocks that contain protectable water. The EIS provides no information regarding the depth or thickness of aquifers that may be affected by subsidence.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Additional information on the depth and thickness of the shallow aquifers will be added to the FEIS. A draft water monitoring plan and subsidence monitoring plan will be available for public review when the FEIS is published.

Subsidence

Comment:

The BLM has not adequately analyzed or disclosed the potential impacts mining related subsidence may have upon oil and gas operations within the Project Area. In addition to adverse impacts to the actual wellbore, subsidence will have significant impacts on gathering systems, pipelines, surface production equipment, and access roads. Further, the mining company must be willing to legally assume all risk and liability and indemnify Devon for any environmental or other adverse consequences resulting from subsidence related accidents. Any subsidence that results in damages to a wellbore, production equipment, or pipeline could have significant adverse impacts.

Bolles, Randy; Devon Energy Corp

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate “co-development” agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response. The conditions in indemnification agreements between ICP and oil industry parties are strictly up to the parties involved and are outside of the scope of this EIS.

Comment:

Areas of mine workings that will be second mined with an extraction ratio of 90 percent and have subsidence are not known at this time and will be determined during mining operations.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

There are no plans for second mining. The areas of 90 percent extraction would be determined based on negotiations with oil and gas companies under MOUs as described under the Proposed Action and the Preferred Alternative, or could be managed based on a “local order” as described under Alternative C to avoid damage to wells and other infrastructure.

Subsidence

Comment:

Elsewhere in the document it is stated that the cone of disruption due to collapse into a subsurface void extends upwards at approximately a maximum of a 45 degree angle. If so, then the safety radius around existing (but not necessarily active) oil and gas wells needed to avoid damage due to subsidence in the proposed mining area should be approximately 1500 feet and not the 100-150 feet proposed.

Queen, Michael

BLM Response:

As stated in Section 2.4.2.10 of the DEIS and FEIS, the barrier pillars around active oil and gas wells would exceed MSHA requirements. Clarification was added to the FEIS to explicitly reference the 200 foot pillar diameter under the Proposed Action. In addition to the larger pillar surrounding the well, the extraction rate is proposed to be lower (60 percent) within a 1500-foot radius surrounding the well to minimize subsidence.

Comment:

In particular, the BLM needs to provide far more detail regarding how it will prevent subsidence and sinkholes that could adversely impact not only wellbores, but also surface production equipment, gathering and other pipelines, and access roads necessary to serve oil and gas wells.

Bolles, Randy; Devon Energy Corp

Comment:

The integrity and safety of the pipeline could be affected in areas where mining-induced subsidence occurs. A significant portion Agave's pipeline system overlies or is adjacent to the 50 year mine plan. The DEIS does not specifically address the impact mining-induced subsidence on the integrity and safety of any pipeline system. The EIS recognizes that pipelines can be damaged by subsidence deformation. Areas of the mine workings that have second mining with 90 percent extraction will have subsidence that could extend out a distance of 2400-feet from the edge of the mine.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place or rely on guidelines developed into a local potash order. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response. In addition to the 200-foot radius is a 60 percent extraction buffer extending outward from the well to radius of 1,500 feet. The 60 percent extraction rate ensures that no subsidence will take place while maximizing potash recovery. If there is a concern that the 1,500-foot buffer is not sufficient, is the commenter willing to consider proposals for buffers beyond 1,500 feet to provide an additional safety factor. The text was revised to provide additional detail as to why a 200-foot no mining buffer and 60 percent extraction buffer from 200 to 1,500 feet from the well is adequate using long established principals of estimating mining subsidence.

Subsidence

Comment:

4.2.5.1 Geological Hazards, Mining-related Subsidence. Impacts from Subsidence. Oil and Gas Wells p. 4-8: *Subsidence-induced deformations of the rock layers can damage oil and gas wells located within the zone of influence. Subsidence effects on such wells can include distortion of the boreholes, squeezing of casing, and shearing of casing. Well damage could lead to the escape of hydrocarbons along bedding planes or up annular spaces in wells into mine workings. In the potash mines of southeastern New Mexico, it has been common practice to leave 100-foot radius barrier pillars around oil and gas wells (Ehgartner et al. 2008). In addition, lower extraction rates of ore were carried out to a radius equal to the mining depth. ICP intends to leave 200-foot radius barrier pillars around each active oil and gas well with an added safety factor of a 60 percent extraction rate out to 1,500 feet beyond the well. It is projected that no subsidence would occur within the 1,500-foot radius of the well due to the large pillar and reduced extraction rate. Notwithstanding these safety measures, ICP intends to operate the Ochoa Mine under rules that apply to gassy mines to lessen the possible risk of the influx of natural gas into the mine workings (ICP 2011).*

Comment: Subsidence effects on oil and gas wells can include shearing of casing along weak bedding planes that occur in the Salado formation. This potential impact was evaluated by Sandia National Laboratories in the August 2009 report titled "Geomechanical Analyses to Investigate Wellbore/Mine Interactions in the Potash Enclave of Southeastern New Mexico" (2009 Sandia Report). This report and associated analysis were not available and likely not considered in the 2000 Leo Van Sambeek paper referenced on p. 4-6. The 2009 Sandia Report references potential subsidence impacts that can occur outside a typical 45 degree angle of draw. Intrepid recommends ICP evaluates potential subsidence impacts as referenced in the 2009 Sandia Report.

Ryan, Kevin; Intrepid Potash, Inc.

BLM Response:

The new Potash Order of 2012 calls for "buffer zones" of 0.25 to 0.50 mile depending on the depth of the well. The Sandia report referred to (Argüello, et al, 2009, Geomechanical Analyses to Investigate Wellbore/Mine Interactions in the Potash Enclave of Southeastern New Mexico, Sandia Report SAND2009-4795, August 2009). The modeling described in the report was done to help define stand-off distances for the new potash order. The results of the modeling that were presented in the report indicated that effects could go beyond a 0.50-mile buffer. As the commenter correctly summarized, the report indicates that "subsidence effects on oil and gas wells can include shearing of casing along weak bedding planes that occur in the Salado formation." However, this conclusion cannot be applied to the proposed Ochoa Mine because the top of the Salado Formation is approximately 250 feet below the proposed mining level and Secretary's Potash Area mining zones are even deeper. The rock mechanics of the proposed mine are different than those found in the Salado Formation, so the potash enclave study is not applicable in this case. The proposed 200-foot radius barrier pillars and reduced extraction rates are intended to minimize subsidence. Co-development methods that are not possible in the Secretary's Potash Area can be applied in the Ochoa Mine area.

Subsidence

Comment:

Additionally, Devon requests that BLM create a damage indemnity similar to that contained in stipulation 2.1.1 in favor of the oil and gas operators in the Project Area. To the extent Devon's oil and gas wells, production equipment, or other infrastructure are damaged by mining related subsidence, Devon should not be required to bear those costs. Therefore, Devon requests the BLM also enter into separate agreements with it and the other operators in the area providing indemnity against mining related subsidence damage.

Bolles, Randy; Devon Energy Corp

Comment:

Additionally, Devon requests that BLM create a damage indemnity similar to that contained in stipulation 2.1.1 in favor of the oil and gas operators in the Project Area. To the extent Devon's oil and gas wells, production equipment, or other infrastructure are damaged by mining related subsidence, Devon should not be required to bear those costs. Therefore, Devon requests the BLM also enter into separate agreements with it and the other operators in the area providing indemnity against mining related subsidence damage.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM is not asking oil and gas operators to take mitigation measures for current wells with regard to polyhalite mining. That is what the proposed buffers are intended to do. Compliance with State or Federal regulations is no guarantee that a well is not presenting a potential hazard, not just to polyhalite mining but to the environment and public safety. The existing wells probably cannot have another casing string added. Management of future costs can be addressed in the co-development agreements (Proposed Action) or guidance (Alternative C).

Comment:

In the final EIS, ConocoPhillips encourages the BLM to provide additional detail regarding how it will prevent subsidence and sinkholes that could adversely impact not only wellbores, but also surface production equipment, gathering and other pipelines, and access roads necessary to serve oil and gas wells.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, the oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place or the BLM may develop detailed guidelines as describes under Alternative C and develop a local potash order. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voice by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Subsidence

Comment:

From the start of 2011 through August 22, 2013, there were 31 horizontal wells and one vertical well spud in the area that would be impacted by subsidence from the Project in the vicinity of the ten-year mine plan boundaries. (See Well Map which follows). There are another nine wells just outside that ten-year mine boundary and still more in the entire Project area.

Giraud, C; Concho Resources, Inc.

BLM Response:

The discussion of the Bone Spring/Avalon horizontal play potential was written in October 2012 (Section 4.2.10). While the Bone Spring/Avalon Shale play showed promise, the activity at that time and documented in the EIS may not be reflective of current conditions. The RFD (Engler et al. 2012) on which some of discussion was based, used data up to 2011. The RFD has been updated using more recent information in response to comments and the discussion of recent oil and gas developments provided by commenters was used to update the FEIS, which reflects the best available information. The BLM recognizes that, because the horizontal wells would be drilled vertically through the ore zone to a much deeper formation, there would be no difference between protecting or analyzing vertical wellbores from horizontal wellbores.

Comment:

3.2.1.1 Physiography 3-1 “Another prominent feature....” Elsewhere it suggests that karst is minor in the area - which is it? Significant karst and caves are not necessarily large or well decorated. Some unique biota and minerals are known from small caves and karst features

Queen, Michael

BLM Response:

Section 3.2.1.1 initially describes the regional physiography and geology before focusing in on the project area. The referenced quote is describing a portion of the Pecos Valley that is characterized by karst. As explained in other sections, such as 3.2.3.1 Natural Subsidence, while there are closed depressions within and near the boundaries of the mine area, there is no evidence in the literature or from drilling logs that these depressions are caused by the dissolution of deep evaporites or the collapse of karst features. The BLM Carlsbad Field Office has identified the project area as having a low potential for caves and karst. This will be clarified in the Final EIS.

Subsidence

Comment:

The BLM must provide the engineering and other information to support the BLM's determination that a 200-foot radius will be sufficient to prevent subsidence or other adverse impacts to existing and future wells. As currently presented in the Ochoa DEIS, the BLM has not demonstrated that the 200-foot radius will be sufficient to protect existing or new oil and gas wells in the area. As the project proponent for the proposed mine, the burden is on ICP to demonstrate the protections are sufficient.

Dey, Eileen; Conoco Phillips

BLM Response:

Under the Proposed Action, oil and gas operators need to negotiate "co-development" agreements with ICP to ensure that orderly development takes place. One company has already worked cooperatively with ICP. A cooperative approach would apply to many of the concerns voiced by the operators including well locations, real-time monitoring subsidence to minimize surface effects on pipelines and facilities. For a number of reasons, the BLM is hesitant to apply the conditions of the Potash Enclave to the proposed mine area considered in this document. Changes have been made in the FEIS text to address the central concern that underlies this comment; however, due to its overarching nature, specifics regarding the placement of changes in the FEIS are not provided in this response.

Subsidence

Comment:

Geologic Hazards 3-21 - "A major concern...." Lots of attention has been placed on monitoring active and abandoned oil and gas wells in the proposed mining area (at significant expense), but none has been placed on similar monitoring of the significantly greater number of wells present and expected in the area over the Capitan Aquifer, where significant drawdown can cause subsidence of much greater magnitude than estimated for the mine. Why? Who pays for this? Who monitors? Monitoring will have to go on to detect impacts of subsidence on wells even after mining has stopped, and should continue until the water in the aquifer reaches pre- pumping levels. This is long after mining has stopped, and should require substantial bonds for monitoring and mitigation

Queen, Michael

Comment:

although impacts to the proposed mining area are generally well spelled out, potential impacts to the area from which water would be pumped are not well described or analyzed, and may be significant. The potential effects of considerable drawdown associated with water extraction include impacts to karst, significant subsidence or collapse affecting the oil and gas industry, and impacts to water users in the Glass Mountains.

Queen, Michael

Comment:

Considering the amount of drawdown anticipated over the confined Capitan Aquifer, the potential for collapse here is hugely greater than might be expected in the proposed mining area. What will be the potential impacts of this on oil and gas wells in this area? What precautions might be needed to detect this? What precautions should be implemented to detect leakage resulting from horizontal or vertical movement in and around active or abandoned wells? What will this cost? Who will pay for it? Who will be responsible for damage/impacts caused by this?

Queen, Michael

Comment:

In particular, we know that flow in the Capitan Aquifer between the southern Guadalupes and the Pecos River is largely unconfined. However, east of there, as the Capitan Complex continues around the Delaware Basin, flow is upwardly confined by overlying basinal strata, except in select areas, where upwards leakage has resulted in evaporite dissolution and brecciation of the remaining beds to form breccia pipes. This is believed to have resulted in mixing of the brackish waters in the aquifer and the surrounding brines, initiating the first stage of cave development at depth (Queen; Palmers and Queen; Klimchouk). Collapse of Capitan and overlying strata may similarly result in the localized leakage of the waters contained in the aquifer, which will probably continue indefinitely after pumping associated with the Ochoa Mine Project has ceased. Considering the much greater area above and lateral to the Capitan Aquifer, which might be subject to subsidence due to declining water tables, there is likely to be a MUCH GREATER impact on present, future and past oil and gas wells and on the regional petroleum industry in general.

Queen, Michael

Subsidence

Comment:

In addition, on Page 3-14, Paragraph 3.2.3.1 dealing with Natural Subsidence, it is stated, "The Capitan Reef contains a cavernous area in the subsurface and anomalously high porosity, indicating the presence of large vugs, 'honeycomb' structure, and evidence of solution (Hill 1996)." If subsidence occurs to the surface land over the Capitan Aquifer due to drawdown, what are the impacts not only to the aquifer but also to the flow from the Aquifer to the Pecos River? It was noted groundwater from the Capitan Aquifer "would flow to the ICP well field from all directions in the aquifer" (See Page 4-34, Paragraph 4.3.2.5).

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

There is no evidence that subsidence has occurred due to historic water withdrawal from the Capitan Aquifer causing collapse of the aquifer. The incidents of subsidence that have occurred over the Capitan aquifer (The Jal Sink and the Wink Sinks) appear to be the result of loss of well integrity leading to the formation of cavities in the Salado formation. The cavities formed eventually migrated to the surface resulting in subsidence as discussed in FEIS Section 3.2.3.2. It is not certain how flow to the well field in all directions poses a problem, but subsidence monitoring associated with the mine would be required by the BLM. However, given the association between the subsidence incidents and possible well integrity problems and since the well field would be operated for 50 years, it is recommended that the production wells be integrity tested at regular intervals to ensure that unsaturated fluids do not migrate from the wells. Monitoring and mitigation measures were included in Section 4.2.10 of the FEIS.

Comment:

ICP must be willing to legally assume all risk and liability and indemnify ConocoPhillips for any environmental or other adverse consequences resulting from subsidence related accidents. Any subsidence that results in damages to a wellbore, production equipment or pipeline could have significant adverse impacts. ICP must also be willing to compensate oil and gas operators for any cost increases resulting from additional safeguards or equipment necessary to protect mining operations. For example, if additional casing string is required to protect mining operations, the additional cost should be borne by ICP, not the operators.

Dey, Eileen; Conoco Phillips

BLM Response:

This is the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company under the Proposed Action or addressed in a "local order" under Alternative C. The BLM is not asking oil and gas operators to take mitigation measures for current wells with regard to polyhalite mining. That is what the proposed buffers are intended to do. Compliance with State or Federal regulations is no guarantee that a well is not presenting a potential hazard, not just to polyhalite mining but to the environment and public safety.

Subsidence

Comment:

The DEIS does not address potential adverse consequences on Highway 128 due to the mining ramp. Specifically,

- What will the depth of the ramp be when it crosses Highway 128?
- What kind of measures will be put in place to mitigate subsidence, if any, caused under any major highways?
- Will there be construction disturbances caused on the surfaces due to the underground activity related to building the ramp? What will be the time frame for any construction disturbances?

Knowlton, Jennifer; Agave Energy Company

BLM Response:

No potential adverse effects from construction or the existence of the ramp are projected. The ramp construction would not disrupt traffic during construction and would be designed so that subsidence would not occur. The ramp would be designed so that subsidence would not occur. ICP's proposed design for the ramp includes the installation of concrete sides and an arched roof of concrete to ensure stability. As described in Section 2.4.2.2 of the FEIS, the width would be approximately 27 feet and the maximum height would be 14 feet at the top of the arch. The depth of the ramp is variable, but would be at an approximate depth of 600 feet below the ground surface where it crosses NM 128.

Surface Disturbance

Comment:

I. Environmental Impacts. The Draft EIS fails to adequately identify and evaluate the environmental impacts of the proposed Ochoa Mine Project for, among other reasons, the following reasons:

5. An additional example of a lack of reality in assessing environmental impacts concerns Alternative A for storing the dry stack tailings pile (gypsum) above ground with a footprint of 3,909 feet by 4,732 feet (approximately 425 acres) with a height of 200 feet. A larger footprint under Alternative B is proposed in order to reduce the height of the dry stack pile by 30 percent to 140 feet which would increase the size of the footprint to approximately 542 acres, 4376 feet by 5393 feet. Both of these Alternatives are based upon 50 years and not upon ICP's estimated life span of 130 years. (See Page 4-21, Paragraph 4.3.1.6 and Table 2-7 at Page 2-35). How many more acres would be required at 200 feet in height to store above ground a dry stack pile(s) at the end of 130 years of mining? Certainly to accommodate such a huge footprint would require an extension of the footprint beyond the currently proposed processing plant site boundaries.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time and a new analysis of the location of a tailings stockpile would be completed.

Surface Disturbance

Comment:

There appears to be some confusion within the EIS regarding the extent of the project area. Table 2-1, Surface Land Status in the Project Area, describes a total of 31,134 acres, including 1631 for the water pipeline. This figure is very close to the total acreage calculated from Table 3.4-1, Project Area Soil Limitations. However, Table 4.4-1, also depicting soil disturbance limitations, indicates a minimum of approximately 16,000 acres, including greater than 4300 acres for the water pipeline right-of-way. Much of this area would not actually experience surface disturbance except for possible ground subsidence effects. Table 3.7-1, Vegetation Community Types within the Project Area, describes cover types for a total of 47,577 acres. The EIS should be corrected to either resolve these discrepancies or explain them. The apparent large variation in project area boundaries makes it very difficult to interpret the information needed to assess impacts and recommend mitigation measures. Discussion of soil limitations should relate specifically to the locations where vegetation will be cleared.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The information in Table 4.4-1 is presented to provide an idea of the limitations in the soils proposed to be disturbed by the project in the locations where disturbance is proposed. It includes overlapping acreage that cannot be summed. For example, the same acres may be susceptible to wind erosion, water erosion, and have limited potential for revegetation, so if the acreage were totaled, it would be counted three times. The text immediately above the table explains why the acreage cannot be totaled to come up with the amount of disturbance. The text states "Note that the acreage totals below do not equal the total amount of surface disturbance because some soil map units have more than one limitation and some do not have any or are not rated in the soil survey." A similar note can be added below the table. Because Chapter 3 is describing the environment that may be affected in the project area, Table 3.7-1 describes the acreage of vegetation community types within the entire project area, not just the communities proposed to be disturbed. The tables in Section 4.7 identify the acreage affected by initial disturbance and long-term under each alternative. These tables come to the same total surface disturbance as that presented in Chapter 2 for each alternative.

Comment:

In addition, wind erosion and transfer from such a huge footprint would adversely impact more acres of surface lands than 1,585 acres shown in Table 4.4-1 on Page 4-41.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

As noted in Section 2.4.2.3 of the DEIS and FEIS, the tailings stockpile when sprayed with water to control dust would harden, minimizing blowing dust from wind erosion. ICP would be required to stabilize disturbed areas after construction if they are not covered by structures and a dust control plan would be developed in consultation with the BLM (FEIS Section 2.4.6.3).

Threatened & Endangered Species

Comment:

The DEIS identifies that U.S. Fish and Wildlife Service (USFWS) was contacted for threatened and endangered species consultation under Section 7 of the Endangered Species Act, but there is not concurrence from the USFWS on any conclusion reached by BLM in the DEIS on the environmental consequences of the proposed project's alternatives. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent surveying, monitoring, and reporting protocols are applied in protection and mitigation effort.

Recommendation: The FEIS should incorporate concurrence from the USFWS on the BLM determination for impacts of the proposed project to threatened and endangered species. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent surveying, monitoring, and reporting protocols are applied in protection and mitigation efforts.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

A Biological Assessment to evaluate potential impacts to the lesser prairie-chicken was submitted to the USFWS and the USFWS concurred with the findings. This information is described in Section 5.4 of the FEIS. The New Mexico Department of Game and Fish submitted comments on the DEIS and the BLM will coordinate with them as they do on other projects in the Carlsbad Field Office.

Travel Management

Comment:

The New Mexico Roadway Safety Integrated Project was tasked with addressing safety concerns on area highways including Highway 62/180, Highway 31, and Highway 128. As this task force is still laying the groundwork for future activities, Agave recommends additional and detailed traffic density studies along the impacted section of Highway 128.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

Section 4.10.5 of the FEIS has been updated with two years of new traffic from 2011 and 2012 to better augment the analysis and detail anticipated impacts based on the most current data available.

Comment:

With the placement of the processing plant, the area will grow more congested with loading trucks as well as oil field traffic turning off and on of Highway 128. Agave Energy Company would like the final EIS to address future plans for road enhancement or mitigation plans to decrease safety issues.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

Section 4.10.5 of the FEIS details the impacts of additional operational heavy truck traffic relative to the existing traffic levels of the NM 128. Operational heavy truck traffic would result in 192 heavy truck roundtrips. These would be spread out over a 24 hour period resulting in approximately 8 round trips every hour. The DEIS text has been modified to reflect this. Eight new round trips every hour would result in a minor increase to local traffic levels and would constitute a negligible to minor increase in safety related concerns. Future road enhancement would be conducted as needed by the New Mexico State Department of Transportation.

Comment:

Effect on other - ES-13 Is the minimum 10% increase measured in terms of total vehicles? Since big trucks have a hugely greater impact per vehicle than passenger cars, this 10% might actually cause a significant shortening of the life of the road beds.

Queen, Michael

Comment:

Lands & Realty 2-37 10% defined in terms of number of vehicles or total impact on the road system? Big trucks have Big Impacts, far beyond the actual number of vehicles involved

Queen, Michael

BLM Response:

The analysis has been updated to reflect newer traffic data from 2011 and 2012. As such the analysis has been modified and the percent increase is 14 percent. This percent increase results from the addition of operational truck traffic to updated 2012 total annual average daily traffic. As detailed in Section 4.10.5 of the DEIS and FEIS, operational heavy truck traffic would consist of 192 daily roundtrips spread out over a 24 hour period, resulting in approximately 8 roundtrips per hour. Continued road maintenance on NM 128 would be conducted as needed by the New Mexico Department of Transportation.

Travel Management

Comment:

According to 4.10.5 Alternative A-Proposed Actions (pg 4-77), the increase in operations traffic would elevate the annual average daily traffic values to approximately 1,392 vehicles, a 10 percent increase. While the DEIS states that Highway 128 can handle the additional traffic, Agave Energy believes that this assessment is dated and does not reflect current traffic volumes. Agave Energy Company's Red Hills Gas plant entrance is located east of the possible entrance to Ochoa Mine Processing Plant. This may present issues regarding traffic congestion especially since that area has no assigned turn off lanes.

Knowlton, Jennifer; Agave Energy Company

BLM Response:

Sections 3.10.2 and 4.10.5 have been updated to reflect new available traffic data from 2011 and 2012. Additionally, Section 4.10.5 has been updated to reflect that the 192 heavy truck daily round-trips would occur over a 24 hour period equaling approximately 8 round trips every hour, negligibly adding to traffic congestion.

Vegetation/Botany

Comment:

Figure 3.7-2: Please consider changing the source reference for this figure to Walsh 2012a and NWI, if NWI was used. Also, Mesquite Shrubland is missing from the legend but I cannot tell if it is on the map.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Mesquite shrubland has been deleted from the text, and the text updated to be consistent with the table. Figure 3.7-2 was based on the surveys conducted by Walsh, and their interpretations of SWReGAP data for areas that had not been surveyed. The reference for SWReGAP data has been added to the figure for clarification.

Comment:

There appears to be some confusion within the EIS regarding the extent of the project area. Table 2-1, Surface Land Status in the Project Area, describes a total of 31,134 acres, including 1631 for the water pipeline. This figure is very close to the total acreage calculated from Table 3.4-1, Project Area Soil Limitations. However, Table 4.4-1, also depicting soil disturbance limitations, indicates a minimum of approximately 16,000 acres, including greater than 4300 acres for the water pipeline right-of-way. Much of this area would not actually experience surface disturbance except for possible ground subsidence effects. Table 3.7-1, Vegetation Community Types within the Project Area, describes cover types for a total of 47,577 acres. The EIS should be corrected to either resolve these discrepancies or explain them. The apparent large variation in project area boundaries makes it very difficult to interpret the information needed to assess impacts and recommend mitigation measures. Discussion of soil limitations should relate specifically to the locations where vegetation will be cleared.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The information in Table 4.4-1 is presented to provide an idea of the limitations in the soils proposed to be disturbed by the project in the locations where disturbance is proposed. It includes overlapping acreage that cannot be summed. For example, the same acres may be susceptible to wind erosion, water erosion, and have limited potential for revegetation, so if the acreage were totaled, it would be counted three times. The text immediately above the table explains why the acreage cannot be totaled to come up with the amount of disturbance. The text states "Note that the acreage totals below do not equal the total amount of surface disturbance because some soil map units have more than one limitation and some do not have any or are not rated in the soil survey." A similar note can be added below the table. Because Chapter 3 is describing the environment that may be affected in the project area, Table 3.7-1 describes the acreage of vegetation community types within the entire project area, not just the communities proposed to be disturbed. The tables in Section 4.7 identify the acreage affected by initial disturbance and long-term under each alternative. These tables come to the same total surface disturbance as that presented in Chapter 2 for each alternative.

Vegetation/Botany

Comment:

In our scoping comments, we recommended that BLM consider compensatory mitigation for the loss of quality grassland habitat. Vegetation in the area of proposed mine area is shown on Figures 3.7-1 and 3.7-2 as predominately Mesquite Upland Scrub Steppe and Mixed Desert Scrub Steppe. However, our field notes from the 2012 site inspection document diverse grasslands dominated by black grama, with a shrub component of yucca and mesquite. South of NM 128, in the proposed processing facilities area, we observed more burrograss relative to the black grama, and a larger mesquite component. Both areas appeared to be in good range condition and only lightly fragmented by oil and gas infrastructure. Table 4.7-2 shows approximately 1600 acres of expected long-term vegetation loss. Chihuahuan Semi-Desert Grassland has been identified as a key habitat type in the Comprehensive Wildlife Conservation Strategy for New Mexico. Since compensatory mitigation has been deemed beyond the scope of the document, the EIS should be amended to document the loss of high quality grassland habitat.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

As described in Section 3.7.1.4 of DEIS and FEIS, black grama is a component of the Creosote Desert Scrub vegetation type. As listed in Table 4.7-1 of the DEIS and FEIS, it shows that approximately 2 acres of Creosote Desert Scrub would be disturbed by construction of the mine surface facilities north of NM 128. The processing plant site south of NM 128 is proposed to have much more disturbance but, as noted in the comment, less high quality grassland. Therefore, it is likely that only about 2 acres would be disturbed in the area where the commenter noted high quality grassland, leaving a great majority of the high quality grassland undisturbed by construction. The Chihuahuan Semi-Desert Grassland that is a key habitat type for New Mexico was not identified within the project area so would not be affected.

Comment:

Executive Order 13112, *Invasive Species* (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Executive Order 13112 also calls for the restoration of native plants and tree species.

Recommendation: The FEIS should clarify the invasive plant management plan to be used for monitoring and controlling noxious weeds. If herbicides or pesticides will be used to manage vegetation, the FEIS should disclose the projected quantities and types of chemicals. The invasive plant management plan should specify the methods that can be used to limit the introduction and spread of invasive species during and post-construction. The FEIS should specify alternative management practices that limit herbicides use and focus on other methods to limit invasive species vegetation and decrease fire risk. Additionally, the FEIS should specify how the project will meet the requirements of Executive Order 13112 for any new landscaping.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As listed in Table 2-6 of the DEIS and FEIS, the BLM requires mitigation measures to minimize the establishment and spread of noxious weeds. FEIS Section 4.7.10 recommends development of a weed management plan as a mitigation measure.

Vegetation/Botany

Comment:

In general black grama grasslands have proven to be difficult to reclaim. We recommend establishing revegetation test plots during the life of the mine to demonstrate successful methods. Test plots could also demonstrate whether two feet of cover will be enough to prevent upward migration of salts from the tailings piles.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

There would be minimal salts in the tailings pile so the upward migration of salts was not considered. However, test plots to evaluate successful revegetation methods were incorporated into the Preferred Alternative of the FEIS and can be selected in the ROD.

Comment:

Section 3.7.1, 2nd para, line 4: In addition to the work completed by Walsh, it would appear that other sources may have been used in this evaluation. If so, then perhaps an additional reference would help to clarify the source of this information. This sentence lists mesquite shrubland but it is not described, in Table 3.7-1 or the figures. If it is outside of the project area, perhaps delete from this sentence. It is difficult to tell from the scale of the figures.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The vegetation communities in the project area were identified by Walsh Environmental Scientists and Engineers. Additional detail was provided in 2012 by Walsh Environmental concerning the barren and unvegetated wash areas. This reference has been added to the text. Mesquite shrubland has been deleted from the text, and the text updated to be consistent with the table.

Comment:

The EIS states on page 3-63 that no noxious weeds were observed during vegetation surveys. However, our 2012 site inspection field notes document the presence of African rue on disturbed ground in the location of the proposed loadout facility. This omission should be corrected, and the African rue stipulations in Section 2.1.4.2 of Appendix A should be applied.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The observation of the African rue has been added to the FEIS, and the text was adjusted.

Comment:

Figure 3.7-1: Please consider adding the Walsh 2012a reference to the source for this figure. The proposed processing site was surveyed in 2012.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Figure 3.7-1 has been updated to include the Walsh 2012a reference.

Vegetation/Botany

Comment:

Mesquite Shrubland is missing from the Table 3.7-1. Please consider adding it to the table if it has acreage.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Mesquite shrubland has been deleted from the text, and the text updated to be consistent with the table.

Visual/Scenic Resources

Comment:

Methods for reducing the volume and height of the dry stack tailings stockpile must be identified and implemented to address permanent loss of use of surface land, erosion issues resulting from wind and water, and to avoid visual impacts not only for 50 years but also for the estimated 130 year life span of the mine.

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

Methods for reducing the volume and height of the tailings stockpile are considered under Alternative B and the Preferred Alternative. The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Water Resources

Comment:

While the DEIS asserts that an area of constriction along the Eddy/Lea county line "appears to separate the Capitan Aquifer in Eddy County from the Capitan Aquifer in Lea County," any impact to Mosaic's La Huerta Wells or the Pecos River in general would negatively affect Mosaic's water supply and continued operation. Given the projected impacts of the Ochoa Mine Project on the Capitan Aquifer and the potential impacts to Mosaic's operations, we request a critical review of the groundwater modeling for the proposed project. In particular, Mosaic suggests that the New Mexico State Engineer's Office would be in a position to independently evaluate the hydrologic data to validate the assertion that the Pecos River and the portion of the Capitan Aquifer in Eddy County would be minimally impacted by the proposed Ochoa Mine Project.

Purvis, Don; Mosaic Potash

BLM Response:

The New Mexico State Engineer's staff were closely involved in the review of the groundwater modeling that was performed. They commented on the model at various stages and their comments were taken into account to their satisfaction before the model was finalized. The NMOSE did an independent evaluation of the model and concurred with the model results. The water monitoring plan will include using existing monitoring wells along the Pecos River to identify potential changes in the Capitan Aquifer and to trigger mitigation measures if necessary.

Comment:

NMED also notes that the EIS broadly describes the ore zone as consisting of polyhalite and salt, presumably NaCl salt, but no further description of ore that will be mined is provided. The Tamarisk Fm in other portions of the Rustler Formation in the Delaware basin is known to contain barium and boron for which WQCC standards exist for ground water as well as other lithophile elements in ground water. Other potential contaminants from the Tamarisk Formation that have not been reported or characterized may be components of the Ochoa mill waste Stream. NMED will require more complete characterization of the waste streams as part of the ground water discharge permitting process.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

This information is only part of the consideration of the waste stream. It is assumed that the NMED will request this information before issuing a discharge permit.

Water Resources

Comment:

Little information is provided in the draft EIS regarding the nature and extent of the shallow aquifers located between the proposed underground mine workings and the surface at the mine site. NMED notes that a portion of the 16 proposed waste lagoons, each approximately 29 acres in size, may partially lie on the Ogallala Formation. No information is provided on the thickness of the Ogallala in the vicinity of the mill site or the waste pile that is proposed to be built in the south half of T24S, R33E and whether this location serves as a recharge area for the Ogallala Formation to the east.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

As stated in Section 3.3.2.1 of the DEIS, the edge of the Ogallala Aquifer occurs just east of Jal, not in the project area. There is evidence of the Ogallala Formation occurring within the project area but this part of the formation is not water-bearing. More information on shallow aquifers within the project area was added to Section 3.3 the FEIS. Additionally, it is recognized that the surface could act as a recharge area into the Dockum group formations and this will be addressed in the shallow groundwater monitoring in the water monitoring plan to be available when the FEIS is published.

Comment:

Long term impacts to demand for potable water in the Carlsbad area, and the ability of this area to meet these demands

Queen, Michael

BLM Response:

As demonstrated through the groundwater modeling described in Section 4.3.2 and in the separate modeling report available on the Ochoa Project website, no impacts to the potable water used by Carlsbad would result from this project.

Comment:

Jal Loadout 2-15 How much water is Jal supplying? Where will it come from? Who will bear the costs of increased demands? ICP? Jal residents?

Queen, Michael

BLM Response:

To the degree possible, increased demand for services from the county and municipalities under the Proposed Action is discussed in Section 4.15.5 of the DEIS and FEIS. It is assumed that water for the Jal loadout would be supplied by Jal and that the infrastructure is adequate to meet the projected demand (see Section 4.15.3 of the DEIS and FEIS).

Water Resources

Comment:

The proposed Ochoa Mine will utilize potentially a significant amount of water from the Captain Reef Complex. ConocoPhillips encourages the BLM to more fully analyze and understand the potential impacts dewatering the Captain Reef Complex may have upon other water users in the area.

Dey, Eileen; Conoco Phillips

BLM Response:

A draft water monitoring plan will be available for public review when the FEIS is published. Future uses and locations of the Capitan Reef Aquifer by oil and gas operators or other water users is not currently known or reasonably foreseeable, so could not be analyzed in detail, but the impacts of drawdown in the region are shown in Section 4.3.2.

Comment:

The DEIS identifies irreversible and irretrievable commitments of resources, including groundwater. Groundwater levels affected by proposed pumping operations are predicted to partially recover in the Capital Aquifer Formation in the long term. Groundwater recharge would be very slow and unpredictable, but not entirely irreversible once pumping cease in the proposed water well field. The estimated time to rebound to 90 percent of pre-pumping water levels is 500 years.

No impacts to water quality in the Capitan Aquifer were modeled. The drawdown of 650 feet at the end of 50 years may result in a temporary localized increase in its salinity. However, the water quality would return to pre-pumping water quality at the cessation of the pumping as the aquifer rebounds itself. Additionally, there is very little or no information related to the injection, extraction, and monitoring well networks; evaporation ponds system; tailing stockpiles; pipeline system; and reclamation plan in this DEIS. These important components should be designed and comply with federal and state requirements in order to minimize adverse impacts to groundwater.

Recommendation: The FEIS should include the methodology used to model the water quality in the Capitan Aquifer. Additionally, the FEIS should more fully provide information relating to injection, extraction, and monitoring well networks; evaporation ponds system; tailing stockpiles; pipeline system; and reclamation plan.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

Water quality was not modeled for the Capitan Aquifer, mostly because little data are available to use as the basis for modeling but also because, as a non-protectable water source, it was not required. A draft water monitoring plan will be available for public review when the FEIS is published. The future monitoring data should be able to indicate changes in water quality.

Water Resources

Comment:

We also request that in the event the project becomes operational that groundwater monitoring be performed to verify the accuracy of the modeling and that mitigation be required in the event the proposed project does impact groundwater resources in Eddy County.

Purvis, Don; Mosaic Potash

BLM Response:

A draft water monitoring plan will be available for public review when the FEIS is published. ICP committed to groundwater monitoring under the Proposed Action, as referenced in Section 2.4.6.3. A recommended mitigation measure in Section 4.3.3 is to begin groundwater monitoring before mining and processing is initiated. The BLM has initiated measuring water levels in the seven Capitan Monitoring Wells (the remaining original Hiss Wells). Three separate measurements have been made in these wells starting in November 2012. One purpose of measuring these water levels is to compare the data to the results predicted by the groundwater model.

Comment:

Capitan Aquifer 2-34 If there is 650' of drawdown, the surface water somewhere will be affected.

Queen, Michael

BLM Response:

The only surface water impact demonstrated by the groundwater modeling is the predicted slight reduction in discharge to the Pecos River. This is discussed in more detail in Section 4.3.2 of the DEIS and FEIS. The historical Hiss (1975) well water levels show that the wells in the Carlsbad area were not affected by pumpage from the eastern wells in the Capitan. Current water level data collected by the BLM show a similar trend.

Water Resources

Comment:

The text seems to waver between considering the Capitan Aquifer including the Artesia Group backreef carbonates and just being limited to the “Massive Capitan” (reef, reef talus, and other marine shelf margin carbonate rocks). It is clear from studying caves and karst in the Guadalupe Mountains that the rocks of the Capitan group and those of the “backreef” carbonate rocks (Seven Rivers, Yates and Tansil Formations) are hydrologically connected and cannot be considered by themselves. If the backreef rocks are involved in supplying water in the subsurface, will this be saline or fresh? This will affect the degree of confinement and the associated drawdown and salting up of the aquifer.

Queen, Michael

BLM Response:

The Capitan Aquifer as defined by Hiss (1975) includes the carbonate facies of the backreef part of the reef complex. That has been the definition and use of the term Capitan Aquifer in the EIS and in the groundwater model developed by ICP. The evaporite facies of the backreef is not part of the Capitan Aquifer. Comment is correct that saline water is present in the backreef area, especially in the evaporites. And there is hydraulic interaction between the Capitan Aquifer and the backreef evaporite units in certain parts of the reef complex, especially along the northern rim of the Delaware Basin and in the Guadalupe Mountains. In the area of pumping proposed by ICP, the groundwater model developed by ICP incorporated hydraulic interaction between the backreef Artesia Group and the main Capitan Aquifer along the San Simon and Sheffield paleochannels, as well as hydraulic interaction with the San Andres Formation. Interaction between the backreef Artesia Group and the Capitan Limestone in the Central Basin Platform outside of the paleochannels is uncertain, but believed to be low because of the low hydraulic conductivity of the Artesia Group in oil and gas drill stem tests. The interaction between the Artesia Group and the Capitan Aquifer along the paleochannels does affect drawdown, as does water entering from the San Andres Formation. It reduces the amount of drawdown in the Capitan Aquifer. The water quality changes due to interaction between the Capitan Aquifer and the Artesia Group were not modeled

Water Resources

Comment:

I. Environmental Impacts. The Draft EIS fails to adequately identify and evaluate the environmental impacts of the proposed Ochoa Mine Project for, among other reasons, the following reasons:

4. The Draft EIS notes on page 3-34, Paragraph 3.3.2.1, the Bell Canyon Aquifer "underlies the project area and interacts hydraulically with the Capitan Aquifer (Hiss 1975)" and the water quality of the Bell Canyon Aquifer "is saline, consisting of sodium chloride brine with total dissolved solids (TDS) ranging from 180,000 to 270,000 milligrams per liter (mg/L)." At Page 4-32, Paragraph 4.3.2.3 it is foreseen that "drawdown in excess of 700 feet may result in saline water in the lower part of the Capitan Aquifer moving up through the profile in the area of the proposed well field."

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The Bell Canyon Aquifer has a much lower hydraulic conductivity than the Capitan Aquifer. For that reason, vertical flow from the Bell Canyon to the Capitan is limited and interaction between the aquifers is mainly in fractured and faulted areas. Also, the lower part of the Capitan Aquifer is very saline (Hiss 1975) and thus any mixing of waters between the aquifers will have minimal impact on the water quality in the Capitan Aquifer.

Comment:

When one is talking about fifty years of pumping, nearly 400 thousand acre feet of water, and complex geochemical reactions involving mineral dissolution and reprecipitation, it is necessary to have a better idea of the concentration (salinity) and bulk chemistry of the waters involved. First we need to better know what needs to be dissolved and the chemistry of the available water before we can figure out how much water is needed. Saying the water in the Capitan Aquifer varies between 2.3 - 70 ppt is such a wide range as to be almost meaningless without additional constraints. Furthermore, we are not told whether these are principally sulfate or chloride brines, which will affect their behavior. We need to know likely common ion interactions between the mined salts and the extracted waters in order to determine (a) how much water is needed, (b) what mineral salts will result from evaporation and (c) how much of each will result.

Queen, Michael

BLM Response:

An estimate of the composition of the waste stream formed the basis of the information used to size the tailings stockpile. ICP provided a breakdown of the water demands for processing, summarized in Table 2-2, and this formed the basis of the groundwater drawdown. The water demands are based on the designs of processing equipment that are still under development. However, the 4,000 gpm water needs for the project cannot be exceeded without additional evaluation. This amount is adequate for the NEPA analyses, which do not require complete design information.

Water Resources

Comment:

The proposed Ochoa Mine will result in significant water depletion from the Capitan Reef Complex. Water is becoming extraordinarily rare within the Delaware Basin of New Mexico and the BLM must fully analyze and understand the potential impacts dewatering the Capitan Reef Complex may have upon potentially affected communities as well as oil and gas operators in the area.

Bolles, Randy; Devon Energy Corp

BLM Response:

A primary purpose of the water model which was completed for the project was to predict the impact to the community of Carlsbad, which is the only city affected by pumping from the Capitan. The model showed minimal impacts. A draft water monitoring plan will be available for public review when the FEIS is published. Future uses and locations of the Capitan Reef Aquifer by oil and gas operators or other water users is not currently known or reasonably foreseeable, so could not be analyzed in detail, but the impacts of drawdown in the region are shown in Section 4.3.2. The historical Hiss (1975) well water levels show that the wells in the Carlsbad area were not affected by pumpage from the eastern wells in the Capitan. Current water level data collected by the BLM show a similar trend.

Comment:

In Section 2.4.2.3, the DEIS identifies that a groundwater monitoring plan would be developed in consultation with BLM before mining operations begin. However, it is unclear if this plan is intended for the Processing Plant Site or for the entire project area, including the 50-Year Mine Area and proposed well field.

Recommendation: The FEIS should include a groundwater monitoring plan for the entire project area, including the 50-year mine area and the proposed water well field. Additionally, the groundwater monitoring plan should include baseline groundwater quality monitoring for all aquifers from ground surface to the mining zone; periodic intervals of monitoring up and down-gradient of the project area; and associated monitoring of geology and soil relating to subsidence and potential karst hazards.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

A draft water monitoring plan will be available for public review when the FEIS is published. The plan will address all of the points in the recommendation.

Water Resources

Comment:

Please reconsider this section because the U.S. Army Corp of Engineers has determined that there are no waters of the U.S. in the project area. Please see May 28, 2013 letter from USACE to ICP with this determination.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The water resources assessment is based on the physical presence of resources including stream channels and drainage patterns, playas, etc., and potential project effects on them. Although limited in their attributes, these resources exist whether or not they are covered by agency policy, and they interact with other resources (e.g. habitats). However, statements involving regulatory compliance are being reviewed and text modifications are being made accordingly.

Comment:

Capitan Aquifer 2-34 Increase in salinity? Without more data on salinity distribution and composition the effects of this are impossible to assess

Queen, Michael

BLM Response:

Capitan Aquifer monitoring will provide more data on changes to water quality during pumping. As described in Section 3.3.2, the Capitan Aquifer is already highly saline.

Comment:

Page 4-27: EIS states "Only hydraulic conductivity values in hydraulic conductivity Zones 3 through 8 were varied during calibration...". This should read "Only hydraulic conductivity values in hydraulic conductivity Zones 2 through 8 were varied during calibration..." since zone 2 was allowed to vary, but was limited to a minimum of 0.005 ft/day. See INTERA (2013).

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Paragraph referenced in DEIS states that Zone 2 was not allowed to go below 0.005 ft/day. The paragraph as written is correct.

Water Resources

Comment:

ICP's plan to supply the Ochoa Mine Project with deep, non-potable water will have an extremely low impact on Lea County's water supply.

Fulfer, Gregg; Lea County

Comment:

ICP's plan to supply the Ochoa Mine Project with deep, non-potable water from the Capitan Aquifer will provide for the protection of freshwater resources in Lea County.

Gallagher, Michael; Lea County

Comment:

I am in complete support of ICP's plan to supply water needs for the project from deep, non-potable water sources in the Capitan aquifer. Fresh water resources in Lea and Eddy Counties are very limited and this approach will protect our precious resources.

Gratton, John; New Mexico State University

Comment:

I was pleased to learn at the recent hearing in Hobbs that ICP plans to supply the project with deep, non-potable water from the Capitan aquifer. This removes the need for utilizing water from our limited fresh water supply.

Kernan, Gay; New Mexico State Senate

Comment:

I am very pleased with ICP's plan to supply the project with deep, non-potable water from the Capitan aquifer. Fresh water resources in South Lea County are very limited. I believe this is a good approach to developing the project while protecting our precious fresh water.

Leavell, Carroll; New Mexico State Senate

BLM Response:

The BLM will take your comments into consideration when making a decision.

Water Resources

Comment:

The reader is left without a good idea of how the Capitan Aquifer east and southeast of the Laguna Channel functions, of its chemistry, of the potential long term impacts to its chemistry or hydrology, and of the potential long term impacts of a half century of pumping at 4-5 thousand gallons per minute. Although some of these factors are considered as they apply to the proposed mining area, they are not considered as they apply to the Capitan Aquifer and the strata, surface and subsurface hydrology above and around it, and the karst features associated with it, even though the potential drawdown in this area is hugely greater (by one hundred times) than that anticipated to occur in the proposed mining area. Much of this could be improved by better diagrams of the cross section of the aquifer as it runs from the southern Guadalupe Mountains northeast to the Pecos River and hence around the Delaware Basin to the Glass Mountains, and by better data regarding the actual salinity and composition of the waters produced.

Queen, Michael

BLM Response:

The detailed description of the modeling assumptions and results presented in Section 4.3.2, and the associated maps and figures, address potential impacts to the Capitan Aquifer. No drawdown impacts have been identified west of the Laguna submarine canyon. The effects of drawdown of the Capitan Aquifer are presented in the EIS to the degree possible based on available information. Monitoring as pumping occurs would add to the knowledge of this aquifer.

Comment:

Page 4-23: EIS states "...and groundwater influx only from the San Simon Channel, the Sheffield Channel, and the Glass Mountains." Should add the Delaware Mountain Group here as well, since it was part of the overall model design and was represented by two 1D models. The following sentence to be modified accordingly.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

A statement was added to text that states that the calibrated model allows groundwater influx from the Delaware Basin.

Comment:

Well Field 2-12 The section on impacts of drilling water supply wells is generally deficient, in terms of needed water (function of bulk salinity and specific composition), impacts due to potential subsidence, impacts to karst and karst hosted communities

Queen, Michael

BLM Response:

The referenced section on page 2-12 only describes the Proposed Action. The impacts of the proposed project are presented in Chapter 4.

Water Resources

Comment:

EIS states "The Pecos River loses around 2 cubic feet/second of water, which enters the Capitan Aquifer and the Alluvial Aquifer along the Pecos Valley (Bjorkland and Motts 1959)." This might be true, but it is also misleading since groundwater discharge to the Pecos River typically ranges between 20,000 and 40,000 AF/yr (about 28 to 56 cfs) in the river reach between Lake Avalon and Malaga (from CAGW model report), i.e. the river is net gaining. Also, Bjorkland and Motts may be an outdated reference for river flows, CAGW report would be more current. Please consider removing or revising this statement based on the CAGW model report.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The estimate from the CAGW study of 28 to 56 cfs added from the Alluvial Aquifer was added to the text. The amount of water gained or lost by the Pecos River as it passes Carlsbad is a function of climate, water demands for municipal and agricultural use, and release of water from Lake Avalon and the Alluvial Aquifer. This has probably changed over time and will change into the future as climate in southern New Mexico changes over the next 100 years. For now, both the estimate of Bjorkland and Motts (1959) for the reach between damsite 3 and Major Johnson Spring and the CAGW study are in the text.

Comment:

Section 4.3.3: Please consider rephrasing. The statement that "...the impacts to surface water resources from the proposed project would be avoided or reduce to less than significant levels by..." states/implies that the impacts to surface water do rise to the level of significance by the proposed project. There are no Waters of the U.S. Also, in Section 4.3.5, Cumulative Impacts, the DEIS states "adverse effects on surface water in the region should be minimal."

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The FEIS will be revised to state that the impacts to surface water would be minimal. There can be impacts to surface water even if there are no Waters of the U.S.

Water Resources

Comment:

Another example of a lack of reality in assessing environmental impacts is shown in Table 2-7 at page 2-35 and at page 4-34, Paragraph 4.3.2.5 concerning flows to the Pecos River which is based upon 50 years of pumping and not upon an estimated 130 years. Will the flow to the Pecos River be reduced by a greater amount than 28 acre-feet per year stated? On Page 4-130, Paragraph 4.17 recovery of groundwater levels of the Capitan Aquifer are predicted to partially recover to 90 percent of pre-pumping water levels in 500 years after ICP ceases pumping at the end of 50 years. How long will be necessary for the aquifer to make such a recovery after pumping ceases at the end of 130 years of estimated mining? In Paragraph 4.17 it is stated, "Groundwater recharge would be very slow and unpredictable." Will a drawdown of the aquifer of substantially more than 650 feet during an estimated 130 years of mining and pumping damage or destroy the Capitan Aquifer and/or the quality of the water?

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

BLM Handbook 3809-1, Surface Management states that the BLM will not approve mine plans with open-ended or indefinite operating schedules. It also states that mines operating longer than 10 years require periodic reviews. Any changes in circumstances may warrant a plan modification. With this in mind, the BLM analyzed a reasonably foreseeable life of the mine. The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Comment:

In Section 4.3.1.3, the DEIS identifies several surface water impact assessment assumptions, including construction and operations of National Pollutant Discharge Elimination System permits would be obtained in compliance with U.S. EPA regulatory programs for the State of New Mexico. Site-specific Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented in compliance with these permits. The collection and conveyance of stormwater run-off contaminated by the tailing stockpile and other mine waste on the ground may infiltrate and percolate downward to the subsurface and contaminate groundwater.

Recommendation: The FEIS should include consultation and coordination with the New Mexico Environmental Department Ground Water Protection Bureau regarding the New Mexico Water Quality Act and the New Mexico Water Quality Control Commission regulations for the protection of groundwater.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

As noted in Section 1.5.4 of the DEIS and FEIS, the NMED is a cooperating agency for this project. The BLM has communicated and coordinated with the NMED Ground Water Quality Bureau through meetings, presentations, and discussions. The Ground Water Quality Bureau is currently reviewing a discharge permit application from ICP for this project. This permit is referenced in Section 2.4.7.2 of the FEIS.

Water Resources

Comment:

Alternative B of the EIS evaluates returning gypsum waste (tailing) generated from the processing of the ore back underground as a means of reducing the height of the waste pile in order to reduce the visual impacts at the surface. Based on a review of subsidence literature (e.g. Holzer, 1984) it has been observed that subsidence can be reduced by mechanically backfilling or stowing of waste in abandoned mine areas. Although Table 2-7 mentions the potential for reduced subsidence resulting from placement of tailing material in the underground workings, it is unclear if evaluation of that alternative included the reduced potential for impacts to water quality that might result.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

As noted in Section 4.2.6 of the DEIS and FEIS, backfilling would minimize subsidence but there are technical difficulties with this proposal because the mine roof is expected to deform into the mined area soon after mining is completed. No significant adverse impacts to water quality are projected to result due to mine subsidence in any case. Additional information on the depth and thickness of the shallow aquifers, specifically the Santa Rosa Aquifer, was added to Section 3.3.2.1 in the FEIS. A draft water monitoring plan and subsidence monitoring plan will be available for public review when the FEIS is published.

Comment:

I. Environmental Impacts. The Draft EIS fails to adequately identify and evaluate the environmental impacts of the proposed Ochoa Mine Project for, among other reasons, the following reasons:

3. This 50 year time frame is reflected in the Summary of Impacts at Page 4-39, Paragraph 4.3.4 and the Summary of Environmental Impacts in Table 2-7 at pages 2- 33 through 2-40. However, by their own numbers they will be there at least 127.5 years exclusive of expansion. In other words the environmental impacts particularly to the impact on the ground water are not based upon reality. One example of a lack of reality in assessing environmental impacts is demonstrated in Table 2-7 at page 2-34 concerning the pumping of 4,000 gpm from the Capitan Aquifer. The impact is stated to be a maximum drawdown of the Capitan Aquifer of approximately 650 feet and that recovery of the aquifer would begin when pumping ends. However, that presupposes an inaccurate 50 year duration. The foreseeable impact is over 250% greater than the Draft EIS suggests. Questions then must be addressed. What is the true and complete impact to the aquifer during ICP's 130 years of estimated mining and pumping at the rate of 4,000 gallons per minute? Further, even a drawdown of approximately 650 feet after 50 years of pumping may result in an increase of salinity in the Capitan Aquifer. (See Page 2-34, Table 2-7). Will increased salinity to the aquifer occur during the 130 years of estimated mining and pumping? Will it likewise be 250 percent greater than the Draft EEIS suggests

Samberson, C; Heidel, Samberson, Newell, Cox, & McMahon

BLM Response:

The BLM is required to analyze the proposal submitted by the applicant, in this case 50 years, which does not necessarily encompass the full extent of the potential ore zone evaluated by ICP. Should ICP choose to extend their operations and plan beyond 50 years, it is likely that additional NEPA analysis would be required at that time.

Water Resources

Comment:

Page 4-18: Please consider adding to the list of assumptions (or the appropriate section of 4.3.1) the determination from the USACE on May 28, 2013 that no waters of the U.S. exist in the project area.

Footnote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

This will be corrected in the FEIS in several places.

Comment:

The EIS indicates that all the ponds will be lined with a synthetic liner placed on a clay based sub-liner. NMED will evaluate the proposed design based upon detailed analysis of the R/O waste stream and the other contaminants that may be discharged into the waste impoundments to determine its adequacy in protecting ground water should the sludge be left in the lined ponds at closure.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

The EIS assumes that ICP would comply with all NMED permit requirements. More information on the waste stream has been incorporated into the FEIS.

Comment:

Page ES-9: Please consider changing "Flows to the Pecos River" to "Discharge from the Capitan aquifer to the Pecos River". The word "flows" associated with the Pecos could confuse a reader into thinking that the proposed pumping would be reducing flows in the Pecos by 28 AFY.

Footnote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Page ES-3: The statement "...wells in the area due to drawdown caused by proposed water usage." appears not to match the information presented in Table 1-3, which does describe concerns for water quality but no concerns for drawdown impacts. This statement does not seem to accurately reflect the comments included under "Water Resources" as part of the AECOM March 27, 2012 Scoping Report. In review of the Scoping Report, it appears that a question is posed on how the proposed pumping might affect the water table, but does not exhibit a *potential concern* for this affect. In ICP's review of the scoping comments for water resources, it would appear that the majority of comments were related to concerns about the effects of the project on shallow groundwater quality associated with the plans for storage ponds and not drawdown. Please consider revising this statement to better describe the public scoping comments regarding water resources.

Footnote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

This will be corrected in the FEIS.

Water Resources

Comment:

Page 3-37: The EIS statement "On a local scale, however, production can exceed recharge, as is currently the case in Pecos County, Texas." seems to negate the claim in previous paragraph, "This may mean that flow from the Glass Mountains northward through Lea County to the San Simon channel has resumed.", or otherwise it is unclear what the first statement means in terms of recharge. Please clarify so that the statements are consistent with one another.

Footnote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The text has been modified to incorporate other possible reasons for the rebound of the Capitan Aquifer, mainly inflow from the Artesia Group and the San Andres Formation. The cause of the rebound in the Capitan Aquifer is not well understood due to lack of groundwater monitoring. Probably, both resumed northward flow from the Glass Mountains and contributions from the Artesia Group/San Andres Formation are responsible for the aquifer rebound. This has been added to the text.

Comment:

Page 4-34: EIS states "The predicted leakage would be approximately 0.06 percent of the average flow of 50,000 ac-ft/yr in the Pecos River, as measured from 1990 to 2000 (INTERA 2013)." Results from the INTERA (2013) are different, "...0.07 percent of the average gaining flows to the river of 41,580 ac-ft/yr for the period from 1965 through 2001..." As a result, please consider revising EIS text to better reflect INTERA (2013) results, otherwise it is an inaccurate reference of the INTERA 2013 report.

Footnote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Page 4-31: Sensitivity did not include 5) heads and 6) conductances. These were for earlier model using GHB boundary conditions. GHBs were not used in final model.

Footnote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Page 4-27: Grid was 2000 ft by 2000 ft everywhere without any local refinement.

Footnote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text modified.

Water Resources

Comment:

Page 3-37: EIS states "Groundwater flow in the Capitan Aquifer in Lea County during the 1970s was to the southeast toward the potentiometric low near Kermit, Texas, caused by extensive oil and gas pumping in the Hendricks field (Hiss 1975)." There were also large water supply well fields in the Capitan aquifer near Kermit which may have had as much or more to do with the observed drawdown in the Capitan aquifer than did pumping in the Hendricks field itself. Please consider revising this statement.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The oil and gas pumping in the Kermit area is documented and presented in Hiss (1975). The amount of additional drawdown contributed by water supply wells and the use of these wells (for municipal or oil and gas operations) is not documented. The EIS accomplishes its primary objective of describing the historical flow in the Capitan Aquifer by relying on the data in Hiss (1975). Adding a statement about water supply wells would require research on these wells to determine the amount of pumpage, their location, etc. This would not materially benefit the EIS and would require expenditure of time and money. For this reason, the text as it stands is considered sufficient for the EIS.

Comment:

Section 3.2.1.3: Please reconsider the impacts to surface water under the action alternatives because the U.S. Army Corp of Engineers (USACE) determined that there are no waters of the U. S. in the project area. On May 30, 2013, a letter from Mr. Justin Riggs of the USACE to Ms. Susan Serreze of ICP dated May 28, 2013 was provided by ICP to the BLM. Please consider the information presented in this letter as well as the impacts to surface water described in the DEIS.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Impacts are being reviewed in response to this comment; however, regulatory jurisdiction is not the only basis for impact assessments of physical resources, and sometimes plays no role at all. Relevant text sections are being revised to account for the USACE determination.

Comment:

Page 4-27: EIS states "(3) the boundary of the Capitan Aquifer with the back-reef Artesia Group;", this should probably read "(3) the boundary of the Capitan Aquifer with the back-reef Artesia Group and San Andres Formation;" The flow into the back reef was conceptualized as to occur mostly in the San Andres which Hiss showed to exhibit higher K's.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text modified with the addition of the San Andres Formation.

Water Resources

Comment:

Mosaic depends on water resources from the Pecos River Basin to support our mining operations. In particular, our operations rely on groundwater from the Capitan Aquifer that is piped to our facility from wells located in La Huerta, New Mexico, north of Carlsbad. Impacts to those water resources from the Ochoa Mine might materially affect Mosaic's operations.

Purvis, Don; Mosaic Potash

BLM Response:

Statement noted. Impacts to the Capitan Aquifer north of Carlsbad and east of the Pecos River were projected to be very low using the CAGWA model developed by the NMOSE. The wells in La Huerta area are sufficiently close to the Pecos River and can be assumed to be affected by the same drawdown. Groundwater monitoring of the Capitan Aquifer in the three existing wells near the Pecos River would be required should the proposed project be approved. This should enable better information on the extent of drawdown from pumping and would facilitate mitigation if necessary.

Comment:

In Section 4.3,1.5, the DEIS identifies that there are two ponds planned to the west of the tailing stockpile - the tailing leachate pond and the storm water detention pond. Both ponds will have liners. The DEIS is not clear how the leachate, stormwater, and any suspended solids or non-liquids collected in these ponds will be disposed of. The release of the leachate and stormwater effluent to surface drainages could impact off-site surface water resources and surface soil.

Recommendation: The FEIS should clarify any disposal practices or activities associated with the pond systems for the project.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

The FEIS will clarify the disposal practices associated with the pond systems.

Comment:

Additionally, given the percentage of the proposed water well field that has been leased, the BLM needs to develop an appropriate mechanism to prioritize where oil and gas and water development will be located.

Bolles, Randy; Devon Energy Corp

BLM Response:

The BLM considered your recommendation before developing the Preferred Alternative to determine whether this can be required. This is the kind of specific agreement that could be negotiated and included in an MOU between ICP and each oil and gas company under the Proposed Action, or it could be addressed under a "local order" as described under Alternative C.

Water Resources

Comment:

If the disturbance (or re-disturbance) of this project, including support activities staging areas, and material storage areas, is one or more acres, or is part of common plan of development that is one or more acres, it will require appropriate NPDES permit coverage prior to beginning construction or disturbance. Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during construction and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from the construction site) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.) and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. For more requirements specific to New Mexico, see Part 9.4.1.1, in the 2012 CGP.

Nelson, Morgan; State of New Mexico Environment Department

BLM Response:

The Final EIS will be updated to document that there are no jurisdictional Waters of the U.S. per the U.S. Army Corps of Engineers letter dated May 28, 2013. Because there are no Waters of the U.S. affected by the project, the requirements under NPDES do not apply. Although a CGP is not needed, the BLM will include development and implementation of a SWPPP as a recommended mitigation measure to protect surface water resources. Appropriate BMPs addressing those listed in the comment are already included as BLM requirements.

Comment:

Although many voices in town raised in recent times focus on how we can grow as a town, my concerns pertain solely to whether we have the water in the Capitan Aquifer to support the present population indefinitely at current water utilization rates, without developing other water sources of lesser quality and greater expense. I see no hard data that supports that contention (that we have enough water), so I am more concerned about how Carlsbad can be better and smaller than being focused on growth-for-growth's sake.

Queen, Michael

BLM Response:

The Capitan Aquifer source proposed to be used for the project is of "lesser quality" because it is not potable. The modeling analyses described in Section 4.3.2 and described in more detail in the modeling report cited as INTERA 2013 demonstrate that Carlsbad water would not be significantly affected by project pumping (less than 28 acre feet a year). BLM will take the impact to the Pecos river in consideration during the development of the Record of Decision.

Water Resources

Comment:

Page 4-23: EIS states "The calibrated model was based on the period of oil and gas pumping from 1965 to 1972 (Hiss 1975)." Calibration was actually from 1967 through 1972, for a total of 6 years as indicated in the Final Hydrologic Impact Assessment Report (INTERA, 2013).

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text modified in a number of places to reflect comment and indicate to reader that only the period from 1967 – 1972 was used in calibration.

Comment:

In accordance with Title 20, Chapter 6, Part 2 of New Mexico Administrative Code (NMAC), all ground water with TDS of 10,000 mg/L or less must be protected or pollution abated....

The baseline water quality for all aquifers within the project area (excluding the saline Bell Canyon Aquifer) must be determined before mining and pumping operations commence in order to (1) assess whether the water quality of these aquifers is equal to or below 10,000 mg/L TDS and subject to NMAC 20.6.2 regulations and (2) compare water quality data over the course of the 50-year life of the project to determine if water quality is impacted by mining operation. The DEIS does not indicate that there is ground water in the Quarternary alluvium beneath the proposed project area. However, if ground water is found in the alluvium, it should be monitored for baseline water quality before initiation of the project operations as well.

Recommendation: The FEIS should include the water quality determinations for all appropriate groundwater aquifers and formations.

Griffin, Debra; United States Environmental Protection Agency

Comment:

NMED notes that between the Tertiary section (Ogallala) and the Rustler Formation, the Santa Rosa (Triassic section), and the Chinle Formation are likely present and may contain protectable groundwater to some limited extent (Nicholson A, and Clebsch A., 1961, p. 61-89).

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Information on the water quality of the shallow aquifers will be expanded in the FEIS. Plans for monitoring the water quality of the shallow aquifer will be included in the water monitoring plan that will be available for public review when the FEIS is published

Comment:

Please consider removing from the DEIS the discussion on the San Simone Ridge Subwatershed, as it does not appear to be located in the project area.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

The Affected Environment section was revised in the FEIS

Water Resources

Comment:

The BLM needs to analyze what impact the predictive draw-down in available groundwater within the Capitan Reef Aquifer will have upon oil and gas activities. To the extent the aquifer is currently utilized as a source of water for oil and gas development activities, the draw-down may have significant impacts on future oil and gas operations within the Project Area. Devon strongly supports BLM imposing additional monitoring requirements on ICP so that the extent and nature of the drawdown are fully understood. Ochoa DEIS, pg. 4-38.

Bolles, Randy; Devon Energy Corp

BLM Response:

A draft water monitoring plan and a draft subsidence monitoring plan will be available for public review when the FEIS is published. Future uses and locations of the Capitan Reef Aquifer by oil and gas operators is not currently known or reasonably foreseeable but the impacts of drawdown in the region are shown in Section 4.3.2. Additionally, the groundwater monitoring plans will monitor water levels, and in some cases, water quality in seven Capitan Monitoring Wells from Carlsbad to south of Jal.

Comment:

Further chemical and radiological characterization of the R/O reject water will be needed to assess the hazardous or radioactive characteristics and how isotopes will concentrate in the R/O process. Both the characteristics of the waste stream and the characteristics of the aquifer into which the waste stream will be injected will need to be provided to NMED to determine what UIC well classification applies, and what permitting actions will be required.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Currently, there is only one possible scenario that includes an injection well to dispose of some of the waste stream. This is one possible option to be considered under Alternative B if it can be demonstrated that it would adequately reduce the size of the tailings stockpile. Should this option be selected by the BLM, the NMED would require more information as part of the permitting process, which is referenced in Table 1-1 of the DEIS and FEIS. The details of the R/O process have not been fully designed at this point.

Comment:

Summary - ES-9 - It is not clear how and where the drawdown would occur and how it could occur in a confined aquifer without affecting shallow water tables, at least in areas where the aquifer is unconfined (Glass Mountains). A good graphic would help a lot here. Are you suggesting that the confining beds over the Capitan Aquifer would be breached so as to destroy confinement? The potential long term impacts of this are not at all adequately covered!

Queen, Michael

BLM Response:

Groundwater drawdown with associated maps are presented in Section 4.3 of the DEIS and FEIS. This information is not detailed in the Executive Summary that is referenced.

Water Resources

Comment:

As proposed, up to 90% of the mined area will be removed and up to four feet of subsidence may occur at the surface. As indicated earlier, the mined area is likely overlain by the Santa Rosa sandstone, the Dewey Lake Formation, and younger Tertiary and Quaternary rocks that contain protectable water. The EIS provides no information regarding the depth or thickness of aquifers that may be affected by subsidence.

Shore, Lawrence; NM Environment Department, Ground Water Quality Bureau

BLM Response:

Additional information on the depth and thickness of the shallow aquifers will be added to the FEIS.

Wildlife

Comment:

Mitigation measures for this project will include a hazing/exclusion plan to keep wildlife out of the process ponds. The requirements include monitoring and adaptive management as needed. We recommend that the loadout facility evaporation pond be included in this plan if it will contain liquids potentially harmful to wildlife. Chain-link fences intended to exclude large and medium size wildlife should be wrapped with a finer mesh material around the bottom to exclude smaller animals. Perimeter and internal fencing intended solely to mark boundaries and discourage trespass should be constructed so as to minimize potential injury to pronghorn and mule deer attempting to cross the fence. Please consult the Department's fencing guideline at [wildlife.state.nm.us/conservation/habitat handbook/index.htm](http://wildlife.state.nm.us/conservation/habitat%20handbook/index.htm) for more information about wildlife-compatible fence design.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

All ponds for the project will be subject to mitigation measures to protect wildlife. In the ICP Mine Plan of Operations, ICP committed to actions/mitigations to reduce impacts to wildlife, including avian and bat species, at the ponds. Text has been added to Section 4.8.10 of the FEIS to reflect the use of the Department's fencing guidelines.

Comment:

We recommend pre-construction surveys for burrowing owl, because suitable habitat is present. Please follow the survey and mitigation protocol described in the Department Habitat Handbook at [wildlife.state.nm.us/conservation/habitat handbookindex.htm](http://wildlife.state.nm.us/conservation/habitat%20handbook/index.htm).

Wunder, Matthew; NM Dept of Game and Fish

Comment:

The best practice for compliance with the Migratory Bird Treaty Act is to clear vegetation outside of the typical nesting season (April - August). This is particularly important when clearing the processing plant area to avoid disturbing or displacing any Swainson's hawks using the nests detected in that area during site biological surveys (Figure 3.8-1).

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

Mitigation measure added to Section 4.8.10 of the FEIS.

Wildlife

Comment:

Table 2-7; Proposed Action, Terrestrial wildlife habitat: Please reconsider this impact. In the ICP Mine Plan of Operations, ICP committed to actions/mitigations to reduce impacts to avian and bat species at the ponds: "The ponds will be designed to look "industrial" with steep sides rather than "natural" by being long and narrow. Wildlife mitigations for the ponds will include an 8-ft-high fence around the disposal ponds to minimize access by terrestrial wildlife species. ICP will develop and implement an active bird and bat deterrent program to minimize potential impacts to avian and bat wildlife species." ICP requests that the DEIS impact analysis take into account the mitigation measures that ICP committed to in the Mine Plan of Operations to protect migratory birds. By including these mitigation measures in the analysis of the impacts to migratory birds would reduce potential adverse impacts.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Changed impact text to: "Impacts from surface disturbance, habitat disruption, and habitat fragmentation would be relatively minor. Less mobile small game and nongame species likely to be the most affected by surface disturbance, especially during construction. Significant potential adverse impacts to migratory birds and bats from exposure to evaporation pond water would be reduced with the implementation of mitigation measures detailed in the ICP Mine Plan of Operations that include an active bird and bat deterrent program. No impacts to aquatic species."

Comment:

Alternative C is identical to Alternative A, except that standards and guidance would be established for concurrent development of fluid minerals. These standards and guidance are not likely to have any significant impact on wildlife or important habitat.

Wunder, Matthew; NM Dept of Game and Fish

Comment:

Alternative D would place tailings stockpiles in a playa lake depression. When wetted, playa lakes are important habitat for amphibians, invertebrates, and migratory waterfowl and shorebirds.

Wunder, Matthew; NM Dept of Game and Fish

Comment:

Alternative B would increase the surface disturbance footprint (and hence habitat loss) to reduce visual impact.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The BLM will take your comments into consideration when making a decision.

Wildlife

Comment:

Habitat in the project area is only lightly fragmented by oil and gas activity, and the Reasonably Foreseeable Development Scenario cited on page 2-31 states that estimated future drilling potential is low. Our scoping comments, dated January 23, 2011 (NMGF Project No. 14815), recommended that mine roads be consolidated with existing oil and gas roads to the extent feasible, either by using existing roads or by constructing new multi-purpose roads and reclaiming existing ones. Figure 2-2 shows new roads in the mine surface facility area not consolidated with existing roads. Figure 2-5 shows a new road from NM Highway 128 to the loadout facility. Text on page 2-15 describes this road as "to be improved" but the legend to Figure 2-5 defines it as "new". The stated purpose of using the proposed road alignment is to avoid additional heavy truck traffic through Jal. However, this could be accomplished by creating a route from NM 128 west of Jal that travels straight north through an existing oil and gas wellfield to the loadout area. Contrary to the assertion on page 4-67, big game animals are adversely affected by roads (see Effect of Roads on Wildlife and Habitats at [wildlife.state.nm.us/conservation/habitat handbook/index.htm](http://wildlife.state.nm.us/conservation/habitat%20handbook/index.htm) for documentation).

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

Due to the location of the mine facilities required by the mine design and location of the ore zone in relation to the processing facilities, it is not feasible to share mine access and processing plant roads with existing oil and gas service roads. The proposed new road from NM 128 to the loadout facility actually utilizes existing roads at the beginning and ending of the road but adds new road in the middle in order to access the loadout. The location of the newly constructed segment in the middle is somewhat dependent on where rights-of-way can be obtained. In DEIS and FEIS Section 4.8.5.1, the text acknowledges that increased habitat fragmentation is a potential impact to wildlife and that terrestrial wildlife habitat would be affected by slightly increased habitat fragmentation caused by new roads. The DEIS and FEIS both conclude that big game would not be adversely affect by this fragmentation because the habitat is open and no edge effect would result, and also recognize that habitat disruption would be an indirect effect of vehicle traffic.

Comment:

Pages 3-69 and 3-84, Yuma myotis: Please reconsider the statement that the potential for the species to occur is moderate. As stated in the DIES, the preferred habitat for this species is "desert, grassland, woodland, and associated riparian communities, between 4,000 to 7,000 feet in elevation (Findley et al. 1975)." None of these habitats are identified in the Vegetation section, and perhaps the potential occurrence is low.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

As described in the Vegetation section, the project is located within the Chihuahuan Desert Grassland subregion of the Chihuahuan Desert ecoregion that includes desert grassland species, suitable structures for roosting and water sources for foraging (Walsh Environmental 2012b). Additionally, based on comments from NMGF, because the species was detected during surveys of the project area, the potential for presence will be considered high.

Wildlife

Comment:

Page 3-84: Please reconsider the statement that the potential for the species to occur is moderate. In review of BLM 2007b, it appears that there have been sightings of scattered small groups, but the location of these groups were not inside the Project Area. If no Lesser Prairie Chickens have been found by BLM (2007b) or by Walsh (2011 and 2012a), then it would appear that a "moderate" potential of occurrence would be too strong and instead a low potential would be more appropriate. The more recent pedestrian survey data from Walsh (2011, 2012a, 2013) supplement the existing data in BLM (2007b). If there are other supplemental data sources that define "the species' known distribution", which is the basis for selecting moderate potential for occurrence, then perhaps including that reference would assist the reader in understanding the potential occurrence. If there are no other supplemental data sources regarding the species' known distribution, then it would appear that no species have been identified in the Project Area and the potential occurrence would be low.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text will be revised in the FEIS to state that the potential for occurrence is "low".

Comment:

Page 3-86: Please consider adding a statement that no Texas Horned Lizards were captured during the pit fall trapping, and none were detected in the Walsh 2011 or 2012 surveys.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

A reference to the 2011 surveys will be added to the FEIS. The 2012 surveys are already referenced.

Comment:

Executive Order 13186, *Migratory Bird Treaty Act*, addresses the protection of birds that live, reproduce, or migrate within or across international borders. The DEIS identifies there may be a significant potential adverse impacts to migratory birds from exposure to evaporation pond water unless mitigation measures are implemented.

Recommendation: The FEIS should incorporate concurrence from the USFWS on the BLM determination for impacts of the proposed project to migratory birds. Also, BLM should coordinate with New Mexico Department of Game and Fish to ensure current and consistent protocols are applied in protection and mitigation efforts.

Griffin, Debra; United States Environmental Protection Agency

BLM Response:

While formal consultation with the USFWS is not required to comply with the Migratory Bird Treaty Act, discussion of impacts on migratory birds and recommended mitigation measures to protect migratory birds are presented in Section 4.8 of the DEIS and FEIS. The New Mexico Department of Game and Fish submitted comments on the DEIS and the BLM will coordinate with them as they do on other projects in the Carlsbad Field Office.

Wildlife

Comment:

In Table 3.8-1, Sensitive Wildlife Species Potentially Occurring Within the Project Area, any species which was observed or detected during site biological surveys should be recorded as present. Several species of myotis bat were recorded as having low or moderate potential to occur even though they were detected by acoustic monitoring on the project area.

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The text will be updated in the FEIS to indicate high potential presence for any species observed during surveys.

Comment:

Condition of Approval 2.5.2.1, Raptor Protection, should be revised to reference the updated 2006 Avian Power Line Interaction Committee document (which is correctly cited in the Reference section of Appendix A).

Wunder, Matthew; NM Dept of Game and Fish

BLM Response:

The reference will be updated in the FEIS.

Comment:

Page 3-69, Fringed Myotis: Please reconsider the statement that the potential for the species to occur is moderate. Fringed Myotis were detected, but it is unknown how many because it is a high-frequency bat. The DEIS states "Based on these findings and known distribution and preference for woodland habitats, the potential for this species to occur within the project area is considered to be moderate." There are no woodlands in the Project Area and perhaps the potential occurrence would be low.

Foote, Randy; Intercontinental Potash Corp. (USA)

Comment:

Page 3-69, Western Small-footed Myotis: Please reconsider the statement that the potential for the species to occur is moderate. As stated in the DEIS, preferred habitat for this species is "arid habitats associated with cliffs, talus fields, and prairies with steep riverbanks." None of these habitats are present in the Project Area and perhaps the potential occurrence would be low.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Even though the preferred woodland habitat is not found within the project area, this species occupies a wide range of habitats as detailed in text and Table 3.8-1 and suitable roosting and foraging habitat does exist. Additionally, based on comments from NMGF, because the species was detected during surveys of the project area, the potential for presence will be considered high.

Wildlife

Comment:

Page 3-65: Walsh conducted a wildlife survey that included ungulate pellet counts (Walsh, 2012a). Four mule deer were observed in the southern part of the proposed processing area and several pellet piles were found. Mule deer were also observed by Walsh in 2011.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text in the FEIS will be revised to include the mule deer observations as part of the baseline surveys conducted for the project.

Comment:

Page 3-66 and Figure 3.8-1: Please add the Walsh 2013 ecological study of the proposed pipeline to the references and the identified raptor nests to Figure 3.8-1.

Foote, Randy; Intercontinental Potash Corp. (USA)

BLM Response:

Text and figures in the FEIS will be updated with the 2013 survey results.