BLM

United States Department of the Interior
Bureau of Land Management

Determination of NEPA Adequacy (DNA)
DOI-BLM-CO-S050-2012-0041-DNA

October 2012

SG Interests I, Ltd., Application for Permit to Drill the 12-89-7-1 Natural Gas Well

Location: Gunnison County, CO
North of Paonia Reservoir

U.S. Department of the Interior
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NUMBER: DOI-BLM-CO-S050-2012-0041 DNA

CASEFILE/PROJECT NUMBER: COC-66704 and COC-67120X

PROPOSED ACTION TITLE: Application for Permit to Drill (APD) for SG Interests I, Ltd., proposed natural gas well 12-89-7-1

LOCATION/LEGAL DESCRIPTION:

T. 12 S., R. 89 W., Sec. 7, SE1/4NE1/4, 6th PM, Gunnison County, Colorado

APPLICANT: SG Interests I, Ltd.

BACKGROUND:

A. Description of the Proposed Action and Proposed Operator Committed Mitigation Measures

SG Interests I, Ltd., (SG) is proposing to drill a vertical natural gas well (the Federal 12-89-7-1) on private surface land targeting federal subsurface minerals in the Cameo Coal Reservoir of the Mesaverde Group. The well would be constructed on a single well pad designed large enough to accommodate up to four additional natural gas wells with an estimated lifespan of 30-40 years each. These additional wells may include one or two coal bed methane wells; one or two sandstone wells; and/or one to three shale wells on the well pad. Of these wells, at most, one would produce a combination of fee and federal minerals, and it is anticipated that all five wells would produce federal minerals. These combinations are determined based on the target formation and the proximity of federal and fee leases from the surface location. The proposed well is located in SG's Bull Mountain Oil and Gas Unit, and that unit agreement allows for the drilling and production of gas across lease lines.

Access
The turnoff to access the site begins 15 miles north of Paonia, CO, where State Highway 133 intersects Gunnison County Road 265. After 1.25 miles on CR265, access in on a private road (map, figure 2).

Approximately 7.25 miles of access road to the proposed well is considered off-lease road, and approximately 1.25 miles of additional access road is on-lease COC-66704 utilized to access the

proposed well site. All roads used to access this site have been upgraded to accommodate gas drilling traffic and they are not accessible by the general public. The existing access road is approximately 16 feet wide (driving surface). The speed limit on the access road would be 20 mph.

The approximated average daily traffic (ADT) estimates over the entirety of the access road (8.5 miles) are as follows:

(Table 1): ADT Estimates

Activity	Round Trips	Duration of Activity
Well Pad Construction	Pick-ups - 8 per day 4000 gallon water trucks – 2 trips per day Heavy equipment hauler – 1 Semi, 2 trips in 10 days.	10 Days
Drilling	Drill rig mobilization – 45 trips in 14 days Water trucks – 10 trips per day Pick-up trucks – 4 trips per day	14 Days
Completion	Haul trucks – 8 trips in 14 days Pick-ups – 4 trips per day	14 Days
Production	Pick-ups – 2 trips per day	Daily for life of well

To keep dust down, fresh water would be applied to the road more frequently as traffic volumes increase (and according to weather patterns). A maximum estimate of 8,000 gallons of fresh water may be used each day to control fugitive dust per mile during the construction and drilling period of 38 days. Estimated fresh water usage for dust control on the existing road is 10,000 gallons per day on lease (1.25 miles). Roadside ditches would be maintained to control and direct runoff. The off lease portion of the road is already improved and dust is being controlled under existing operations by SG and GEC. Depending on if and when the APD is approved, SG may construct the well pad in the fall of 2012 which would require less water for dust control on the road during higher moisture months.

Graveling of these roads would occur as necessary to maintain the post-construction surface quality. Gravel sources would be checked for possible weed issues and treated as necessary. The current gravel source is United's Tri-County Pit in Hotchkiss, CO. Gravel may be staged on SG's Federal 11-90-35-1 well pad for use in graveling this road. If this area is needed for gravel storage, they would permit this use of the well pad accordingly.

Any required road use permits for CR 265 would be obtained from Gunnison County Public Works. Gunnison County would grade and apply magnesium chloride to County Road 265 annually as per the terms of the agreement between SG, GEC, and Gunnison County (LI # 10-241).

Operations would cease, excepting emergencies, during periods when mud and silt cannot be contained within the road prism, or when construction specification cannot be achieved because

of wet or frozen ground conditions. Vehicles would not be towed through the mud. The operator would schedule heavy traffic periods, such as moving the rig in or out (see Table 2: Drilling for estimated heavy traffic), to take place during the week on public roads if possible and not on weekends or holidays.

All construction signage would be in compliance with the Manual of Uniform Traffic Control Devices. The operator would post warning signs on CR 265 to alert the public of heavy truck traffic. The operator would use flagmen as necessary during drilling and related equipment moves on and off the drill site when utilizing public roads. Figure 2 shows existing access roads and route to the proposed Federal 12-89-7-1 well.

The portion of the existing road that is on lease COC-66704 (1.25 miles beginning at the lease line and continuing to the segment of road that would be realigned, see Figure 1) has been recently upgraded by GEC to access their Hotchkiss 12-90-1-34 well. It has been graveled with 3 inch road base. Nine culverts to move drainage under the road surface have been located along the road. These culverts are 12 inch diameter corrugated metal pipe. The roadside ditches along this segment of road are approximately one foot deep and approximately two feet wide. Rock check dams have been constructed in these ditches to slow water flow and these dams have been spaced according to road grade. The turning radius around the road corners would allow larger vehicles to safely travel this portion of the road. There are vehicle pull-offs located along the road segment to allow vehicles to pass one another safely as needed per line of sight distance. The road crown would be maintained at 2 inch from center.

New Access Construction

The existing access road that passes through the planned well pad area would be routed around the pad on its western edge (see Figure 1). This would result in approximately 810 feet of rerouted roadway entirely on lease. Construction of the planned realignment includes:

- Notification to the private surface landowner before beginning this construction;
- No fence cuts or cattle guards are needed on the realigned portion of the road;
- No culverts or bridges are needed for this rerouted section (except for the one coming onto the pad as mentioned in the well pad construction section);
- A 30 foot wide construction zone (to accommodate the drivable road surface and drainage ditches) would be cleared of vegetation;
- Oak removed from the construction zone would be broken up and used in reclamation;
- Topsoil removed from the rerouted road area would be separated and stored with the topsoil that was salvaged from the well pad area (location shown on Figure 8B);
- Cuts along the realigned road section ranging from 10.4 feet to 1.7 feet,
    - If cuts associated with construction of the road result in fragmented rock, this rock material would be buried in fill areas resulting from construction of the well pad;
- Construction of the road would not take place when the ground and road-building materials are frozen or too wet to achieve the correct compaction;
- The road realignment would be constructed using standard crown-and-ditch specifications,
    - The existing road has a drainage ditch on both sides of it and the ditch has rock check dams installed in it to control flow velocity,

    - This ditch and the rock check dams would be replaced along the realigned section of road,
    - These ditches would conform to the slope, grade and shape of the road cross-section and would not have roots, stumps, rocks or other material sticking out into them,
    - The ditch would be constructed at least one foot below the driving surface of the road;
- Two drainage turn outs would be constructed along the realigned segment of the road;
- The cut and fill areas resulting from creation of a level driving surface would be reclaimed as quickly as possible by returning topsoil to these areas and seeding them;
- Where practicable, SG would scatter woody vegetation over disturbed surfaces during reclamation to serve as mulch and to stabilize the surface;
- No tree branches would be left extending over the roadway;
- The realigned road would be surfaced with 3 inch fractured road base;
- The road width would be maintained through the reroute (approximately 16 foot drivable surface and approximately 30 foot total disturbed area width).
- Areas along the realigned road section that were disturbed during construction, but that are not needed for long-term operations, would be reclaimed.

Drilling and Completion Water Supply

Fresh water to be used during completion and drilling operations would be delivered to the location by water truck. The well may be completed in multiple zones or stages, depending on well log information acquired during the drilling of each well. If the well log information from the sandstone formation is favorable, only one completion stage would occur.

Drilling activities for the initial well drilled on this location would require 3,000 barrels (BBL) of fresh water. SG intends on setting and cementing 80 feet of 16 inch conductor pipe, drill a 12 ¼-inch hole to 400 foot run and cement back to a surface 9 5/8 inch surface casing, then drill an 8 ½ inch hole run and cement to surface 3,500 feet of 5 ½ inch production casing.

A fresh water based spud mud system (FW) would be used for the surface hole (400 feet of 12 ¼- inch hole, set 9 5/8 inch casing). Primary product used would be gel for viscosity control. A low-solids, non-dispersed gel system (LSND) would be used throughout the production hole (3,100 feet of 8 ½ inch hole, set 5 ½ inch casing to surface). Products used may include, but not be limited to, Barite for weighting material, gel for viscosity control, lime for alkalinity control, Pac LV for fluid loss, Desco for rheological control and to reduce gel strengths, and lost circulation materials (LCM) such as fibers, saw dust or walnut shells. Adequate amounts of lost circulation and weighting material would be on location if needed as well as sorbitive agents to handle potential spills of fuel or lubricants.

Approximately 5,000 BBL of water (non-potable) is needed for each well completion stage for up to four completion intervals within this sandstone/coalbed methane well. For each stage, this requires 63 round trips with an 80 BBL water truck (less truck trips would be required if water trucks with greater capacity are available). SG would use two or three water trucks to haul the water; approximately 21 round trips for each of three trucks. SG can use water from their McIntyre Flowback Pits located on their private land north of the proposed location which

includes a mixture of fresh, recycled and produced water (ie, recycled water) for well completion as available.

Fresh water may be drawn from free-flowing fresh water sources and augmented from Bainard Reservoir No.1 according to the terms of SG's approved Augmentation Plan. SG was granted a Water Augmentation Plan in District Court, Water Division No.4, Case No. 09CW16. Water used through SG's Augmentation Plan is replaced from the Bainard Reservoir No. 1 when required under the terms of the plan. The surface and water rights related to Bainard Reservoir No.1 are owned by Rock Creek Ranch I, Ltd. Rock Creek Ranch is an entity owned by the principal and general partner of SG. Bainard Reservoir No.1 itself is not a water source for this project. Fresh water sources could include East and West Muddy Creek, Aspen Leaf Reservoir, Ault Reservoir/Ault Creek (as shown in Figure 5). It is also possible that water for drilling and/or completions may be purchased from a permitted commercial supplier. Commercial water used in SG's operations is trucked from the closest source which is in Paonia.

An estimated 11 flowback tanks would be located on the well pad for one month during completion. Tanks would be set on compacted earth to decrease the permeability of the soil in the event of a release. Approximatly 80% of the water used for well completion (4,000 BBL) flows back immediately and must be hauled off the location. Hauling flowback water requires 50 round trips with 80 BBL water trucks. If SG uses three trucks, each truck makes about 17 round trips to haul the water to disposal. Flowback and stimulation fluids would be sent to separators and tanks before the fluids are transferred for offsite disposal. Flowback water contained in tanks on location would be transferred to the Mcintyre Flowback Pits for storage and reuse or injected into the Federal 24-2 water disposal well (WDW) for disposal. This water would be trucked to the pits or to the WDW. If feasible this water may be transferred to the WDW via the existing buried steel pipeline.

If the well logs are not favorable for the sandstone formation, the well would be completed in the coal formation and an additional 5,000 BBL of recycled water would be required. Transportation of this additional 5,000 BBL of water would be the same as described above for the initial 5,000 BBL used in completion of the sandstone formation.

Pipeline Construction

SG is also proposing to construct a pipeline tie-in from the proposed well to the existing Narrows Gathering Pipeline just west of the proposed well pad location. The new pipeline would be approximately 300 foot long within a 50 foot wide route (about .5 acre). The pipeline tie-in includes a 6 inch diameter gas pipeline and a 4 inch diameter water pipeline buried within the same trench. From here the Narrows Gathering Pipelines would transport produced water and natural gas north to their final destinations (injection well and sales respectively). The pipeline would not be constructed during frozen conditions and frozen soil would not be used to backfill the trench.

Reclamation of the pipeline tie-in route includes:

- Returning the .5 acre work area to near pre-construction contours;
- A slight mound may be left over the pipeline trench to accommodate any settling;
- Returning topsoil to the surface of the route;

- The entire area disturbed during pipeline construction would be covered with salvaged topsoil prior to seeding;
- Weed-free seed would be used in all reclamation activities.
    - The preferred seeding method is drilling, but if this is not feasible on part or the whole route, seed would be broadcast at twice the rate per acre as drilled seed.
    - Disturbed areas on lease would be seeded with a BLM-approved weed free seed mix that has also been approved of by the surface landowner.
- Scattering any woody debris over the roughened surface;

Well Pad Construction

The disturbed area during construction would be approximately 3 acres. The area of the level pad or working surface is approximately 2.75 acres. The shape of the well pad following interim reclamation is shown on the well site layout drawing (Figure 7a). The well pad would be constructed from soils on site in the following manner:

- Topsoil would be salvaged and stored adjacent to the well pad;
- The top six inches of this soil would be salvaged for use over the reclaimed areas;
- The rest of the soil that is manipulated for this project would be considered subsoil and if stored on site, it would be stored separately from topsoil;
- Some topsoil would be used to reclaim areas around the level pad disturbed during construction, but not needed for long-term operations;
- The area of the level well pad would be approximately 2.5 acres following interim reclamation;
- The entire level well pad would be surrounded by a berm with a drainage ditch constructed interior to that berm in order to contain any potential release on the well pad. The berm would be approximately 2.5 feet in height around the pad except at the access road entrance where a culvert would be located.
    - Any fluid in the interior drainage ditch would be contained in the ditch and culvert until clean up.
    - During fracturing operations, the site would be manned 24-hours per day so that any leak or spill can be quickly identified and dealt with. The berm would create a retainment capacity greater than 150% of the largest single container on the location.
- The working surface of the well pad would be graveled with 3 inch fractured road base,
    - From United's Tri County Pit in Hotchkiss, CO (3569 J 75 Drive, Hotchkiss CO), or some similar provider depending on availability.
- Areas along the well pad that were disturbed during construction, but that are not needed for long-term operations, would be reclaimed.

When the well pad no longer contains productive wells, it would undergo final reclamation.

- The well pad area would be returned to near-original contour and the realigned access road would either be recontoured and reclaimed (if no longer needed by the surface landowner) or replaced to its original alignment.
- Topsoil would be spread over the disturbed area.
- The area would be seeded.

All Construction/Project Areas

All areas that are disturbed during construction of this project would be covered under SG's field wide stormwater management plan and discharge permit. SG's plan to control stormwater runoff includes perimeter ditches, silt fence/straw wattles, outfall protection devices, and road side ditches. Figure 8a and Figure 8b depict these controls as currently planned for this project.

Firearms and dogs are not allowed on the access road or location during any phase of this project.

The drilling crew would have sufficient fire equipment on hand during fire season for suppressing fires on the well pad, access road, and pipeline route.

All noxious weeds as defined by Gunnison County, BLM, and the State of Colorado (Colorado Weed Management Act CRS Title 35, Article 5.5 as amended) would be controlled. The following preventative measures would be implemented to prevent the spread of noxious weeds during construction, and monitor and treat infestations after construction is complete:

- If soil stockpiles are created in infested areas, these stockpiles would be kept as close as possible to the infested areas.
    - No soil from infested areas would be moved until they are treated.
    - Soil from an infested area would not be used in any other area beside where it was collected.
- Vehicles and equipment would be required to arrive at the work site clean, power-washed, and free of soil and vegetative debris capable of transporting weed seeds or other propagules.
- Materials used for erosion control and reclamation (i.e. straw bales and seed mixes) would be obtained from sources that are weed-free.
- Disturbed areas would be reseeded in accordance with the Surface Use Agreement and any applicable permit stipulations as soon as possible after construction activities have been completed.
- If any soil stockpiles are maintained for longer than 90 days, these stockpiles would be treated for weeds.

Depending upon the species of weed and the time planned for construction, methods of weed pretreatment may include:

- Mechanical-mowing, pulling by hand, or tillage could be used.
- Chemical-application of an approved herbicide by a licensed applicator.
    - Herbicides would be selected based on recommendations by local weed control district or BLM and subject to fee-landowner approval in consultation with the BLM authorized officer.
    - All herbicides would be applied in accordance with all applicable laws and regulations on BLM and fee-lands.
- Cultural - employing practices such as reseeding with non-invasive species that can outcompete noxious species would be used. This type of treatment would be conducted in some fashion on all disturbed areas associated with the project.

Effective control measures vary for different weed species. For many species, a combination of measures should be employed to be most effective. A table listing the known and potential

weeds within the Bull Mountain Unit as well as the best control measures for each is included with the APD.

SG would continue to monitor the distribution and density of noxious weeds for the life of the project. Surveys would be conducted concurrently with reclamation monitoring and would occur as early in the year as feasible to identify and control noxious weeds before they produce seed. Monitoring data collected would include the noxious weed species, location, and extent of infestation. At locations where new populations have been identified or pre-existing populations have expanded, SG would take action to eradicate the population or control their spread. The selection of control methods would be based on the available technology and information of the weed species and its control.

Well Pad Layout

Temporary facilities on the typical well pad (figure 4A) may include a total of three trailers staffed 24 hours per day, during drilling operations for the:

- Drilling superintendent.
- Company representative,
- The mud logger and mud engineer.

No trailers would be needed during the completion or testing phases as these are daylight operations.

If a closed loop system is employed, a cuttings bin would likely be used rather than a reserve pit or cuttings pit. This cuttings bin is typically a lined trailer container that holds cuttings aboveground until the trailer is hauled to an approved cuttings disposal area.

Gas, if present, would be flared during completion operations. Flaring into a pit or side cut is not practical on this location due to topography and size. SG proposes to utilize the "flare stacked" method for flaring. SG would run a temporary surface pipeline to the edge of the pad. This line would be directed straight up 15-20 feet from the surface of the pad once it reaches the edge of the pad. The flare would reach 5-10 feet from the end of the line.

Aboveground facilities proposed on the well pad include:

- The piping and valves at the well head;
- There would be an enclosed gas/water separator for the well on the pad,
    - Includes gas and water meters, heaters and a fuel gas pot,
    - Dimensions of the separator are approximately 11 feet wide x 20 feet long x 10 feet high;
- Four 400 BBL tanks would be located on the well pad,
    - These measure approximately 12 feet wide and 20 feet high,
    - Tanks have heaters that are used during cold weather conditions;
- Artificial lift may be needed on one or more of the wells on this location during the life of the well,
    - Examples of lift include a 40 horsepower walking beam or other pumping unit may be used,
    - Beam lifts are approximately 7 feet wide x 29 feet long x 20 feet high and are located approximately four feet away from the well head;

- A compressor may be needed on a well during its lifetime,
    - Compressor skids are approximately 14 feet wide x 20 feet long x 9 feet high,
    - Compressor horsepower is decided based on specific well conditions,
    - Compressor engines would be permitted as appropriate through the Air Quality, Control Division of the Colorado Department of Public Health and Environment;
- If necessary, a water transfer pump would be a 20 horsepower natural gas motor with piping and meter enclosed in a shed 6 feet wide by 12 feet long by 8 feet high.
- All garbage and trash would be put in a trash container.
    - The container would be periodically emptied at an approved disposal site.
- A portable latrine would be provided for human wastes, and wastes would be pumped from portable toilets and hauled to an approved sanitation facility.
    - Sewage would not be buried on location.
- No unapproved chemicals would be used during drilling or completion operations.
- Any petroleum product or other spills would be cleaned up immediately and the material would be hauled to an approved facility.
- The operator would prevent gasoline, diesel fuel, oil, grease, or any other petroleum products and drilling fluids from migrating off the location or from entering any live stream or riparian area.
- A spill kit would be available on site.
- Fuels and lubricants would be transported by fuels distributors and would be stored in facilities specifically designed for that purpose.
- The well site cleanup would be concluded once the completion operations have been finished.

If it is necessary to construct a reserve pit on the location:

- The pit would be located in an area of cut soils on the pad and when backfilled, it would be compacted to prevent subsidence;
- Excavation and reclamation of this pit would require approximately 2,775 cubic yards of back fill;
- The pit would be designed to exclude all surface runoff and would be constructed in the cut portion of the well pad. Pit back slopes would be 2: 1 or less.
    - Pit would be lined with an impervious liner.
    - This liner would have a minimum thickness of twenty-four (24) mils.
    - The liner would cover the bottom and interior sides of the pit with the edges secured with at least a 12 inch deep anchor trench around the pit perimeter.
    - The anchor trench would be designed to secure and prevent slippage or damage to the liner materials.
    - The area under the pit over which the liner is laid would be free of rocks and other objects that could puncture the liner.
- A minimum of two feet of free board would be maintained between the maximum fluid level and the top of the pits.
- The lined reserve pit or cuttings pit would be fenced on three sides with woven wire during drilling operations and the fourth side fenced immediately after the rig has been moved off location.
    - Fencing surrounding the reserve or cuttings pit would be 6-8 feet in height to prevent deer and elk as well as other wildlife from entering the pit.

    - After the rig has been moved off location, bird netting would be placed over the pit to prevent birds from entering the pit area.
    - The pit would remain fenced until it has dried enough to be backfilled.
- If fluids must be removed from drilling pits, vacuum trucks would remove these fluids so that the pit liner would not be damaged with heavy equipment.
    - These fluids would likely be disposed of at the Federal 24-2 WDW in the Bull Mountain Unit.
- Pit closure would be according to the COGCC rules and all testing and reporting requirements would be complied with.
    - Free water may be hauled to an approved disposal facility to facilitate drying of pits.
    - Cuttings would be tested in accordance with COGCC Table 9-10 standards and either consolidated and left on site, or removed to an approved location or facility.
    - Pit liners would be removed following removal of the dry cuttings and disposed of at a solid waste disposal facility.
    - Soil testing under the removed liner area would be conducted prior to backfilling the pit area.
- The reserve pit area of the pad would be stabilized during well site operations and reclaimed when the well is no longer productive and final reclamation is taking place.

Mitigation Measures:
SG's proposed surface use Best Management Practices and Conditions of Approval applicable to the Federal 12-89-7-1 APD:

- All conditions of approval (COAs) as outlined in Appendix 1 and 2 of the Environmental Assessment CO-150-2008-035 EA are applicable to the Federal 12-89-7-1 APD (shown in Appendix A of this document). The most stringent mitigation shall apply among the BMPs and COAs.
- SG would abide by all said COAs in the EA as well as those included with the APD once approved.
- SG would haul water from their McIntyre Flowback Pits which includes a mixture of fresh, recycled and produced water (ie, recycled water) for well completion as available.
- Privately-owned roads would be maintained as follows:
    - Improvements and maintenance shall be conducted so as to prevent impacts to storm water runoff quality.
    - Gravel would be placed on the road where and when required to maintain the surface integrity.
    - Periodic road blading would be conducted throughout the road system to re-gather gravel and replace it within the roadway.
- Eighteen inch (18") culverts would be installed at the pad entrance point to route stormwater around the well pad.
- Heavy truck traffic would be suspended whenever mud or silt would be carried away from the road surface beyond the road drainage ditches or would enter surface streams or creeks.
- SG would provide adequate staging areas for rig move operations.

- The drill pad would be fenced stock-tight using a 4 strand or a sheep restricting wire fence not exceeding 42 inches in height. The fencing would initially be located at the approximate limits of the disturbed area. The fenced area may be reduced after interim reclamation.
- A closed-loop mud system would be used to meet the criteria of a DNA under the EA.
- Drill cuttings would not be buried on location in the reserve pit after drilling and completion.
- Drilling mud liquids may be transported to other drilling locations or hauled to a state approved location for land farming or disposal.
- Sanitary facilities would be emptied weekly by a private waste disposal firm and trucked via an appropriate sized transport to an off-site state approved facility for disposal.
- During all construction, drilling and completion operations, trash and garbage would be placed in appropriate caged containers and the container and contents transported to a CDPHE approved sanitary landfill. All containers would be equipped with bear resistant openings.
- Oily wastes would be contained on the site in marked steel drums and disposed of at an approved off-site facility upon completion of site cleanup after drilling and completion operations.
- Prior to the beginning of construction of the drilling pad, a pre-work conference would be scheduled with the land owner to review designs and procedures.
- Prior to construction, all existing vegetation would be removed and/or reserved for slope mulching and would not be transported off-lease.
- Large boulders encountered during excavation would be utilized to define the toe of the fill area and/or placed in the deepest portion of the fill area. If excessive boulders are encountered, they may be stored at one side of the disturbed area for use during reclamation.
- Excavated material if suitable may be screened on-site to provide pad surfacing materials. Excavated material used for fill would be placed in lifts not exceeding one foot depth and would be compacted by vibratory smooth drum or tamping foot roller equipment.
- To minimize disturbed area, back slope cuts would be made as steep as possible consistent with the depth of the cut and the stability of the soil, but generally not steeper than 1:1. Fill slopes would generally not be steeper than 2:1.
- The rathole and mousehole would be filled with aggregate to surface elevation by the drilling crew during demobilization of the drilling rig.
- Upon demobilization of the drilling rig, the drilling pad would be cleaned of all excess materials and debris and any oil or other fluids encountered would be cleaned up and disposed in an approved manner. The same process would be repeated upon demobilization of the completion rig.
- The drilling pad would be reclaimed for the interim by excavating the fill side of the pad and replacing material at the cut side of the pad to create the permanent production pad and re-contour the site to a shape that blends with the surrounding contours, eliminating steep slopes.
- Large boulders may be used to define a cut slope, when required. Slopes of soil fill would not exceed 2:1.

- Following well completion, the edges of the pad not utilized for production operations would be sloped and sufficient reserved topsoil would be placed on the re-contoured areas.
- The topsoil would be seeded with an appropriate and appropriate grass mix and the seed would be drilled into the soil. Generally, placement of topsoil, seed and mulch would be accomplished in late fall.
- Where required by terrain, storm water runoff diversion ditches would be constructed around the site, typically outside of the disturbed area, to assure that major storm events do not introduce storm water flows onto the drilling pad.
- Storm water diversion ditches would be provided with erosion control and silt retention dams constructed of excelsior logs, brush cleared from the pad or segments of fallen logs or un-merchantable timber.
- Once the disturbed area has been defined by clearing and preliminary excavation, the site perimeter would be fenced at the limits of the disturbed area. Silt fence would be incorporated into a portion of the perimeter fencing to provide erosion control for stored topsoil.
- SG's Weed Management Plan would utilize noxious weed control measures as outlined in GEC's Plan of Development (CO-150-2008-35 EA) on and around the pad and along all access routes.

Public Participation

A Notice of Staking for the Federal 12-89-7-1 well was received by BLM and posted for 30 days in the BLM Uncompahgre Field Office public room on November 5, 2010. An on-site was held May 16, 2011; attendees included:

- Bureau of Land Management, representatives from Uncompahgre Field Office,
- COGCC, representative David Kubeczko,
- CO Parks and Wildlife, representatives Brian Magee and Kirk Madariaga,
- SG, representatives from Durango office;
- Registered Surveyor, Dave Nicewicz from Delta

Invited to attend, but did not attend:

- Representation from Gunnison County Commissioners
- Representative of private surface owner Hotchkiss Ranches

B. Land Use Plan (LUP) Conformance

Name of Plan: Uncompahgre Basin Resource Management Plan
Date Approved: July 1989
Decision Number/Page: Management Unit 16, pages 28 and 32

Decision Language: Federal oil and gas estate will be open to leasing, with seasonal restrictions on crucial deer and elk winter range and on bald eagle hunting habitat to protect crucial deer and elk winter range and bald eagle hunting habitat from disturbance.

C. Identify applicable National Environmental Policy Act (NEPA) documents and other related documents that cover the proposed action.

Environmental Assessment CO-150-2008-035 EA and Plan of Development for 16 Natural Gas Wells and associated infrastructure within Oil and Gas Leases COC-65106, COC-65108, COC65523 including permit for Right-of-Way COC-68920, Approved February 10, 2009.

D. NEPA Adequacy Criteria

1. Is the new proposed action a feature of, or essentially similar to, an alternative analyzed in the existing NEPA document(s)? Is the project within the same analysis area, or if the project location is different, are the geographic and resource conditions sufficiently similar to those analyzed in the existing NEPA document(s)? If there are differences, can you explain why they are not substantial?

Yes. The proposed action is similar to the preferred alternative in the CO-150-2008-035 EA (EA) in terms of the proposed action to drill a coalbed methane natural gas well. The proposed 12-89-7-1 well is located adjacent to the analysis area of the EA which exhibits similar geographic features and surface resource uses as analyzed in the EA.

A difference between the proposed action and that of the EA includes the volume of water to drill and complete a coal bed methane natural gas well. SG intends to use fresh water from water sources which they have obtained permission for from the State of Colorado. SG is also permitted to use non-tributary water from their coal bed methane wells. The quantity of water in which SG intends to use is as follows: dust abatement on the road will require approximately 9,048 barrels (BBL) of fresh water (10,000 gal/day x 38 total days); 3,000 BBL of fresh water to drill and set the casing strings associated with the well; and 5,000-20,000 BBL of recycled water as available to complete the well in the proposed target formations. Approximately 12,048 BBL of fresh water is projected to complete this project, however it is not expected this much fresh water will actually be used since the well pad construction is proposed to be this fall during higher moisture months and the need for dust control on the road will be less. The EA projected a total of 16 wells to be drilled using approximately 2,500 BBL of fresh water for each well. Cumulatively, that allowed for 40,000 BBL of fresh water associated with that project. To date, GEC has drilled four wells thus using approximately 10,000 BBL of fresh water. Therefore, approximately 30,000 BBL of fresh water remains available for use under the existing NEPA thresholds, and SG's proposal will use approximately half of that total to construct, drill and complete the 12-89-7-1 proposed well.

Also, according to the EA, the total surface disturbance for the nine well pads would be 14.9 acres initially during construction and drilling activities. SG would utilize similar infrastructure which is already in place. To date, GEC has drilled 4 of the 16 wells analyzed in the EA, disturbing a total of 11.5 acres split between the Deadman Gulch Unit Hotchkiss Federal 20-12D (2.57 acres) and the Hotchkiss Federal 17-11 (2.53 acres) and the newly constructed Hotchkiss 12-89-18 H1 and H2 well pad (6.4 acres). Construction of the proposed well pad, approximately

3 disturbed acres initially, and drilling of a single coal bed methane natural gas well will not cause additional surface disturbance impacts outside those analyzed in the scope of the EA. The respective effects conclusions will not change due to implementation of the proposed action.

The proposed well is located inside a federally unitized area named the Bull Mountain Unit which is currently being analyzed in conjunction with a 150 well master development plan (MDP). The area analyzed in the EA (CO-150-2008-035) included considerably less acreage, cumulative effects and necessary infrastructure than that proposed with the MDP. The proposed 12-89-7-1 well is part of a larger scope NEPA analysis, which the outcome of such may include additional mitigation and best management practices across the entire MDP area.

2. Is the range of alternatives analyzed in the existing NEPA document(s) appropriate with respect to the new proposed action, given current environmental concerns, interests, and resource values?

No.

As noted above, the proposed 12-89-7-1 well has also been proposed as part of a larger MDP. The 150 well MDP has a large amount of private minerals/private surface within the unit boundary; BLM's wildlife timing limitations or other wildlife stipulations would not apply to wells drilled into private minerals. Because of this, BLM has identified the need to consider a wildlife mitigation plan as part of the larger MDP. The 16 well EA this DNA tiers to is comprised of all federal minerals (no private); because of this, a wildlife mitigation plan is not considered necessary for that development.

A raptor survey is also a concern for the proposed 12-89-7-1 well. A survey, which is usually completed in the late spring or early summer, has not been completed. Constructing the pad in the fall (2012) would not be consistent with the requirement to complete a raptor survey, as specified in the EA this proposal tiers to in compliance with the Migratory Bird Treaty Act.

Air quality is also a concern with the larger MDP. Within the MDP area, if the proposal is approved, SG could drill up to 27 wells each year. Because of this, BLM has identified the need to consider an alternative that requires lower emissions drilling engines as part of the larger MDP. The 16 well EA this DNA tiers to allows an average of 3.2 wells per year; because of this, there were not significant impacts to air quality, and an alternative for lower emissions engines was not developed.

3. Is the existing analysis valid in light of any new information or circumstances (such as, rangeland health standard assessment, recent endangered species listings, and updated lists of BLM-sensitive species)? Can you reasonably conclude that new information and new circumstances would not substantially change the analysis of the new proposed action?

No. The existing analysis is adequate for the original project. The proposed 12-89-7-1 well has also been proposed as part of a larger 150 well MDP. There has been new information regarding the larger development that BLM feels should also apply to the 12-89-7-1 well. As noted in the previous question, there are wildlife mitigation and air quality concerns.

4. Are the direct, indirect, and cumulative effects that would result from implementation of the new proposed action similar (both quantitatively and qualitatively) to those analyzed in the existing NEPA document?

No.

The existing analysis is adequate for the original project. The original analysis included wildlife timing limitations which, because all minerals are federal, applied to all areas of the project. That impact analysis is not adequate for the 150 well MDP area; wildlife stipulations would not apply to a large portion of the area because of private minerals, which BLM does not manage. Colorado Parks and Wildlife is on record regarding the MDP that current wildlife stipulations in light of the substantial increase in development proposed under the MDP is inadequate to protect wildlife populations. The proposed 12-89-7-1 well is within the larger MDP area and BLM feels there has been new information regarding the larger development that should apply to proposed well.

The original analysis was adequate for air quality when considering 16 wells over a 5 year period. The proposed 12-89-7-1 well is within the larger MDP area and BLM feels there has been new information regarding the larger development that should apply to proposed well.

5. Are the public involvement and interagency review associated with existing NEPA document(s) adequate for the current proposed action?

The public process for the EA included a scoping notice published in two Newspapers on March 26 and 27, 2008. Scoping letters were also mailed to interested parties within the local region. A draft EA and unsigned FONSI were released, with the public comment period running December 12, 2008 through January 19, 2009. To announce the draft, a press release was published broadly among statewide and public news reporting agencies including the BLM website, and a letter was mailed to multiple interest groups, counties, and state agencies.

The proposed APD from SG was submitted via a Notice of Staking. This information was posted in the public room of the BLM Uncompahgre Field Office for a period of 30 days beginning on November 5, 2010.

The proposed 12-89-7-1 well was included in the MDP when it was scoped in 2008 and 2009. The public comments from the MDP scoping periods and the review period for the preliminary EA showed that additional information and analysis should be applied to any proposals within the MDP area.

E. Persons/Agencies /BLM Staff Consulted
The EA includes a list of persons/agencies consulted and those that participated in the interdisciplinary review of it. In addition, the following persons reviewed this DNA:

Name	Title	Resource/Agency Represented
Thane Stranathan	Natural Resource Specialist	Fluid Minerals/BLM
Teresa Pfifer	Staff Supervisor	Lands & Minerals/BLM
Bruce Krickbaum	NEPA Coordinator	NEPA/BLM
Jedd Sondergard	Hydrologist	Renewable Resources/BLM
Ken Holsinger	Wildlife Biologist	T&E and Wildlife
Glade Hadden	Archaeologist	Cultural and Native American Concerns

REMARKS:

Cultural Resources: In 2005 and 2007, several Class III cultural resource inventories were conducted. All of the proposed well sites were included in the surveys. These intensive inventories were conducted in accordance with the Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (48FR44716) and standard BLM procedures (BLM 1998). The results from those surveys were submitted to the BLM and Colorado State Historic Preservation Office (SHPO). Based on the review and a survey for cultural resources within the project area, there are no cultural resources that would be impacted by the proposed project. Anticipated effects of the proposed action would be negligible and would be low only if subsurface cultural resources are unearthed during construction activities. Under the proposed action, the mitigation measures included in the Surface Use COAs would be attached to the APD. SG also provided a cultural resources update report for the proposed action on September 14, 2012. It concluded that there are no anticipated impacts to cultural resources from the proposed action.

Native American Religious Concerns: No Native American religious concerns have been identified within the project area to date. If such concerns are identified in the future, the appropriate tribal consultation would be conducted. It is not anticipated that the proposed action would result in impacts to Native American religious concerns and no mitigation is proposed.

Threatened and Endangered Species:
SG provided a wildlife (Special Status Species) update report for the proposed action on September 14, 2012. Their report concluded that there are no anticipated impacts to wildlife resources beyond those already disclosed in the EA from the proposed action.

Canada lynx – Although lynx may be occasionally observed within the project area, it is within a lynx analysis unit defined by BLM or USFS and, thus, would not require Section 7 consultation with the USFWS. The proposed project would have no adverse effect on Colorado's lynx population.

Yellow-billed cuckoo – Yellow-billed cuckoos are not likely to occur within the project area on a regular basis. With compliance with mitigation for riparian areas provided in the

COAs that would be required, the proposed project would not adversely affect this species, nor would it contribute toward the need to list the yellow-billed cuckoo.

Gunnison River drainage and Colorado River endangered fish – The proposed drilling operation could result in minor water depletions in the Gunnison River drainage and possibly the upper Colorado River system where USFWS listed and BLM sensitive fish species occur. However, water used for drilling and completion activities would include produced water from the McIntyre Flowback Pits and fresh water from the Bainard Reservoir No. 1, and/or East and West Muddy Creek, Aspen Leaf Reservoir, and Ault Reservoir/Ault Creek. It is also possible that water for drilling and/or completions may be purchased from a permitted commercial supplier. Commercial water used in SG's operations is trucked from the closest source which is in Paonia. Water depletions within the project area would be below the significance level of 7.4 acre-feet/year per well designated by the USFWS through a programmatic agreement with the BLM for water depletions within the Colorado River system. The maximum amount of water that could be expected to be depleted over the course of the project is approximately 4.1 acre-feet (12,048 BBL fresh water and 20,000 BBL recycled water). Well development procedures would also use a closed-loop system to help minimize water depletion from all sources.

Water depletions associated with drilling of gas wells is covered by BLM's Programmatic Biological Assessment for Fluid Minerals. In May 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addresses water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado. In response to BLM's PBA, the USFWS issued a Programmatic Biological Opinion (PBO)(ES/GJ-6-CO-08-F-0006) on December 19, 2008, which determined that BLM water depletions from the Colorado River Basin are not likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, or razorback sucker, and that BLM water depletions are not likely to destroy or adversely modify designated critical habitat.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated in January 1988. The Recovery Program serves as the reasonable and prudent alternative to avoid jeopardy and provide recovery to the endangered fishes by depletions from the Colorado River Basin. The PBO addresses water depletions associated with fluid minerals development on BLM lands, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. The PBO includes reasonable and prudent alternatives developed by the USFWS which allow BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. As a reasonable and prudent alternative in the PBO, USFWS authorized BLM to solicit a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by fluid minerals activities on BLM lands.

Waste water from project activities would not be discharged into any surface waters and would be removed from the site or injected into a permitted Class II well, according to CDPHE and COGCC standards. With the PBO and mitigation, the proposed action would

not jeopardize the continued existence of any listed Colorado River fish species, their designated critical habitat, or contribute to the USFWS listing of any BLM sensitive species.

MITIGATION:
The operator would abide by all stipulations and requirements granted by the lease. The operator would conduct operations utilizing best management practices and with the conditions of approval associated with the EA (Attached as Appendix A and B to this DNA).

Conclusion

Based on the review documented above, I conclude that this proposal conforms to the applicable land use plan; however, the NEPA documentation (CO-150-2008-035 EA) does not fully cover the proposed action and therefore does not constitute BLM compliance with the requirements of the NEPA. The APD submitted for this proposal is considered complete and will be maintained in a pending status.

Signature of Project Lead _____ 10-18-12 Date

Signature of NEPA Coordinator _____ 10-18-12 Date

Signature of the Responsible Official Barbara Sharrow
Barbara Sharrow
Field Manager, Uncompahgre Field Office

Date 10-19-12

Note: The signed Conclusion on this Worksheet is part of an interim step in the BLM's internal decision process and does not constitute an appealable decision.

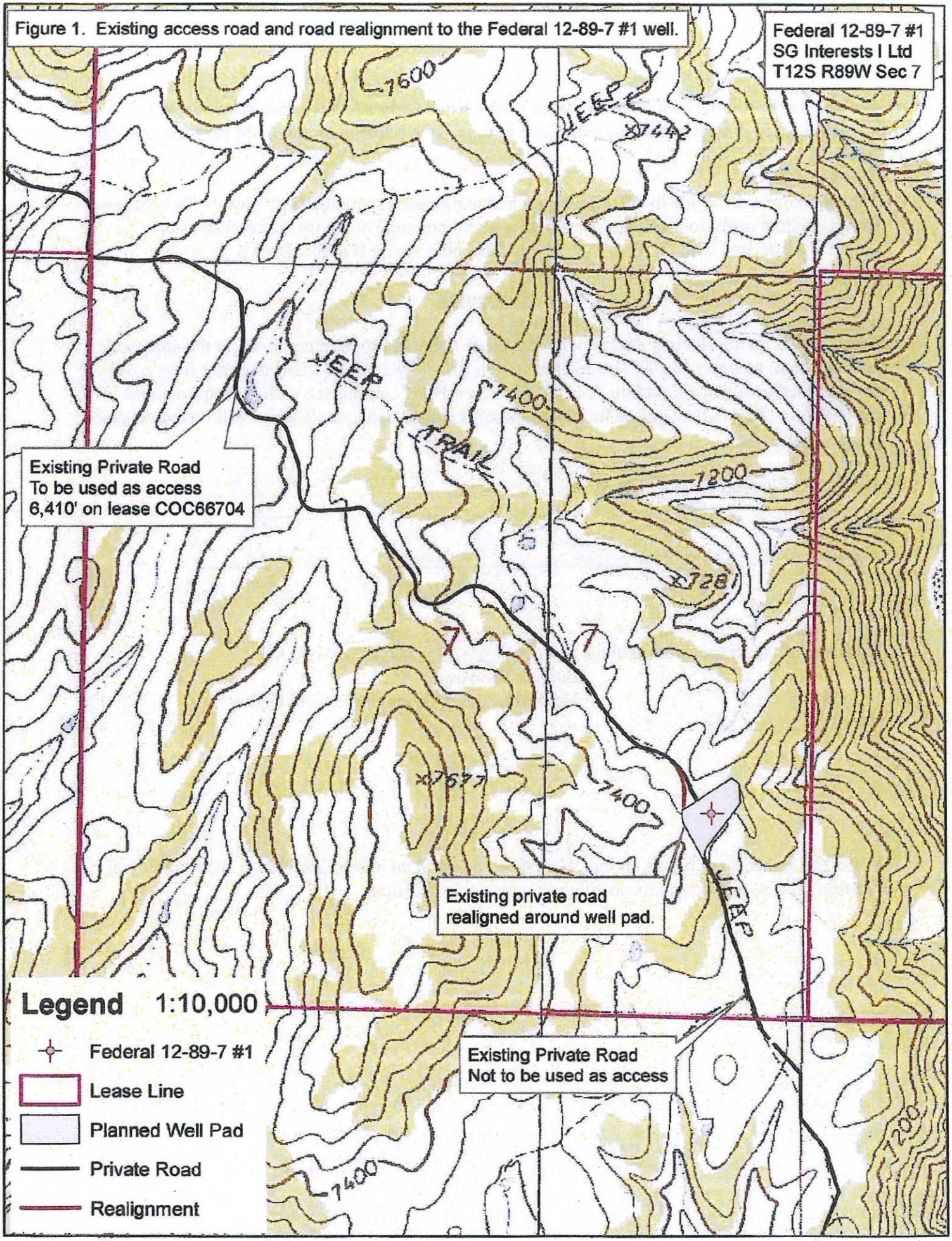


Figure 1. Existing access road and road realignment to the Federal 12-89-7 #1 well.
Federal 12-89-7 #1
SG Interests I Ltd
T12S R89W Sec 7
7600
JEEP
7442
JEEP
TRAIL
7400
7200
7280
7677
7400
Existing Private Road
To be used as access
6,410' on lease COC66704
Existing private road
realigned around well pad.
JEEP
Existing Private Road
Not to be used as access
7400
7200
Legend 1:10,000
Federal 12-89-7 #1
Lease Line
Planned Well Pad
Private Road
Realignment

Appendix A
BLM UFO
Environmental Assessment CO-150-2008-35 EA
Gunnison Energy Corporation
Surface Use Conditions of Approval

Under the Proposed Action Alternative, the following mitigation measures are included in the Surface Use Conditions of Approval (COAs) that would be attached to the Applications for Permit to Drill (APDs) submitted to the BLM.

- The operator shall notify the BLM Authorized Officer at least 48 hours prior to initiation of construction.
- The dirt contractor must be in possession of stipulations involving site and access road construction while construction is in progress.
- The operator is required to correct all maintenance deficiencies when documented and directed by the Authorized Officer.

AIR QUALITY

- If dust becomes a problem during any phase of the operations, the operator will be required to provide dust abatement measures to the road and pad location. These will include water or magnesium chloride, gravel, emulsified asphalt, or other dust palliatives, as approved by the BLM or surface owner, to decrease the application frequency. More specific requirements for dust abatement are described in the *Fugitive Dust Control Plan* (Appendix F of the POD).
- Disturbed areas within the project area would be seeded with a BLM- or surface owner-approved seed mix to stabilize soils and reduce the impacts of dust created from wind erosion and would be revegetated in accordance with GEC's *Environmental Protection Plan* (Appendix L of the POD).
- Operators will be required to be in compliance with the Colorado Department of Public Health and Environment (CDPHE) standards for emissions.

CULTURAL RESOURCES

- If subsurface cultural resources are unearthed during operations, activity in the vicinity of the cultural resource will cease and a BLM representative notified immediately. Pursuant to 43 CFR 10.4, the holder of this authorization must notify the Authorized Officer (AO), by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
- The operator is responsible for informing all persons associated with this project that they will be subject to prosecution for knowingly disturbing Native American Indian shrines, historic and prehistoric archaeological sites, or for collecting artifacts of any kind, including historic items and/or arrowheads and pottery fragments from federal lands.

INVASIVE, NON-NATIVE SPECIES

- Stripped topsoil and vegetation (seed source) would be temporarily stockpiled for future reclamation.

- Upon the cessation of disturbance activities, to encourage the regeneration of desirable vegetation and stabilization of soils prior to implementing full interim reclamation, reseeding would take place on the topsoil stockpile, reserve pit backfill, and cut/fill slopes with a BLM approved seed mix.
- Mandatory noxious weed control is required on the well pads and access roads used by the lessee/operator for the life of the well. Consultation with BLM and Gunnison County Cooperative Extension is required to determine treatment for noxious weeds, if identified.
- All seed mix, erosion control materials, and reclamation materials will be certified weed free.
- All construction vehicles and equipment will be cleaned, power-washed, and free of soil and vegetation debris prior to entry and use of access roads to prevent transporting weed seeds. Surface disturbance and vehicular travel will be limited to approved locations. Construction equipment will be restricted at all times to the road right-of-way (ROW).
- Wash stations will be required at designated infestation areas. Equipment will be power-washed to remove soil and propagules prior to leaving the infested area.
- The operator will monitor for and control noxious weeds on all disturbed areas. Method of control will be by approved mechanical or biological methods or a herbicide approved by BLM, in accordance with Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and the UFO Pesticide Use Proposal (PUP). Application of herbicides must be under direct field supervision of a Colorado State certified pesticide applicator and treatment records must be turned into the BLM within 15 days of treatment. A pesticide use proposal and pesticide application record will be obtained prior to treatment and turned into the BLM within 15 days following herbicide application.
- Road base will be obtained from a certified weed free quarry when possible.
- Where invasive species, such as downy brome (a.k.a., cheatgrass), establish in project areas at levels greater than in the surrounding vegetation, the BLM may require control of that species. A BLM UFO official will be notified as soon as reasonably possible if either yellow toadflax or leafy spurge is found in the project area.

MIGRATORY BIRDS

- Surveys for the presence of nesting raptors will be conducted by a qualified biologist within at least a 0.5-mile radius around each proposed well pad, and within 50 feet of all access roads, ancillary facilities, and any other type of surface disturbance activity in potential habitat. Surveys for breeding raptors should be completed from March 1 through July 31 and prior to project construction activities that would take place during that breeding season. Drilling and/or surface disturbance shall not occur from May 15 through July 15 within 0.5 mile of active raptor nests. Clearances for project development shall expire on May 1 of the following year. Exceptions to this rule shall be considered by a BLM biologist on a case-by-case basis. Completed survey reports shall be submitted to a BLM biologist.
- If feasible, surface disturbing activities shall occur outside the core breeding period for migratory birds (May 15 through July 15).
- The entire surface of the reserve pit shall be covered with bird netting that meets a minimum requirement of 1.5 inch mesh to exclude passerines and other small-sized birds. The bird netting will be maintained for as long as there are liquids in the reserve pit.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

- Waste water from project activities will not be discharged into any surface waters and will be removed from the site or injected into a permitted Class II well, according to CDPHE and Colorado Oil and Gas Conservation Commission (COGCC) standards. With the Programmatic Biological Opinion (PBO) and mitigation, the Proposed Action will not jeopardize the continued existence of any listed Colorado River fish species, its designated critical habitat, or contribute to the USFWS listing of any BLM sensitive species.
- The Operator will consult with the USFWS if any Threatened or Endangered species are discovered on or adjacent to project development areas.

WASTES AND HAZARDOUS MATERIALS

- Signs will be posted on site to identify potential hazards associated with operation, including chemical hazards.
- For all treatment chemicals, Material Safety Data Sheets (MSDS) files will be maintained on site during the drilling and completion operations. Equipment operators will be required to wear appropriate personal protective equipment (PPE) to minimize exposure to potential hazards.
- Drainage control will be constructed around the perimeter of the well locations during the drilling and work-over phase of the operation to contain any accidental spills. The well pad will be designed to prevent off-site runoff water from entering the pad.
- Construction of the berms surrounding containers, tanks, or tank batteries will be designed to prevent lateral movement of fluids through the used materials, prior to storage of fluids. The berms must be constructed to contain, at a minimum, 150% of the storage capacity of the largest tank within the berm. All load lines and valves will be placed inside the berm.
- Control and containment mitigation will be included in the Spill Prevention, Control, and Countermeasures (SPCC) Plan and Health and Safety Plan (HASP) in the event of a release of a hazardous substance or material. The plans will be provided to BLM prior to construction so approval can be completed prior to any disturbance operations. The following elements will be included in the SPCC Plan.

    1. The operator will specifically address the following measures in the SPCC Plan for handling of a leak, spill, or release event.

        a. Identification of the chemical parameters and sampling requirements to be analyzed in the event of a spill, leak, or release, for each petroleum product or hazardous substance handled in or transported onto the drill sites.

        b. How a spill will be prevented and/or how amount will be minimized from reaching surface water.

        c. List of the required contacts for federal, state, and local agencies regarding reportable spills or leaks.

        d. How documentation will be maintained over time pertaining to the circumstances of releases, amount and duration of release, the measures taken to control the release, and the measures taken to minimize or mitigate the impacts from the release.

        e. How released material that has not reached surface water will be recovered.

f. Plans to collect water samples documenting the duration and severity of any release that could reach surface water (near the release site, and at impacted downstream locations within the zone of impact).

2. All releases (unless the reportable spill quantity is less than 10 gallons) of any substance to soil or water will be immediately reported to BLM reportable Compliance Officers. Containment of the spill will occur immediately. Clean up of a spill will occur within 3 days, or as soon as practicable, and proof of cleanup provided for the record.

- To further facilitate coordination with local emergency services, GEC will provide mapped locations of the proposed well sites, including Global Positioning System (GPS) location (latitude/longitude), and MSDS sheets in the SPCC Plan, Fire Prevention Plan, and HASP to the federal agencies with responsibility for drilling activities. A courtesy copy will be provided to the respective emergency services personnel, as applicable, in advance of any exploration drilling activities. In addition, the operator will have phones or radios onsite, as appropriate, to provide accessibility to emergency services.
- Upon demobilization of the drilling rig, the drilling pad will be cleaned up of all excess materials, debris, and any other fluids encountered and disposed of in an approved manner. The same process will be repeated upon demobilization of the completion rig.
- Reclamation of the reserve pit will commence as soon as practical after drilling and completion operations are complete. Drilling fluids and/or produced fluids will be disposed by trucking to GEC's injection well or a state-approved facility. Cuttings and mud remaining in the pit will be dried by evaporation and the pit liner shall remain intact. After the remaining material is sufficiently dried, the liner shall be removed to the solids level and the pit will be backfilled as described in the BLM Gold Book.
- Prior to the onset of winter, the operator shall remove fluids from any pits allowed to remain open over the winter months in order to reduce or eliminate the potential of spring snowmelt to exceed the 2 foot freeboard minimum at any time.
- The operator committed methods for handling waste disposal are as follows.

1. Drilling reserve pits will be constructed on site and lined with 20 mil high density polyethylene (HDPE) liners.
2. Drill cuttings will be buried on location in the reserve pit after drilling and completion or will be transported to a state-approved location for land farming.
3. Drilling mud may be transported to other drilling locations for re-use or will be dried and buried on location in the reserve pit.
4. Fluid in reserve pits from drilling or completion operations may be extracted from the pits and trucked to GEC's approved injection well or to a state-authorized disposal facility.
5. Produced fluid will be transported to GEC's approved injection well or be trucked to a state-approved disposal facility.
6. Sanitary facilities will be provided on site via chemical toilets and sewage holding tanks. GEC will coordinate with surface owners and authorized BLM personnel ensure that sewage will be properly disposed of
7. During all construction, drilling, and completion operations, trash and garbage will be placed in appropriate caged containers and the container and contents transported to a CDPHE-approved sanitary landfill.

8. Waste oils from equipment will be stored on site in secondary containment during operations and recycled at an approved facility immediately upon demobilization of the drilling and completion equipment.

9. A minimum of not less than 2 foot freeboard will be maintained in the pit at all times.

10. Prior to the onset of winter, the operator shall remove fluids from any pits allowed to remain open over the winter months in order to reduce or eliminate the potential of spring snowmelt to exceed the 2 foot freeboard minimum at any time. Any excess fluids that accumulate in the pit would be hauled to GEC's existing disposal well or an approved water disposal facility.

11. No surface discharge of pit fluids or excess liquids would be allowed.

12. Where possible, fluids should be reused.

WATER QUALITY, SURFACE

- Releases of hazardous substances or fuels during construction and operation will be contained and disposed of in accordance with state and federal regulations.
- Temporary erosion and sediment control measures will be applied during the interim period between construction activity and final reclamation. Silt fences or other sediment filtering devices such as weed-free straw bales will be installed along drainage channel banks where sedimentation may occur and at the base of all slopes adjacent to wetlands. Sediment filtering devices will be cleaned out and maintained in functional condition throughout the life of the project. To avoid the possibility of mulching materials entering waterways, loose mulch (i.e., mulch not crimped into the soil surface, tackified, or incorporated into erosion control blankets) will not be applied to drainage channel banks.
- All pipeline crossings of stream channels (intermittent and perennial) will be done in accordance with Bureau of Land Management, Technical Note 423, Hydraulic Considerations for Pipeline Crossing Stream Channels.
- Water bars will be built to control erosion on roads, pipelines, and gathering lines with spacing as shown in the following table. Water bars will be constructed across sideslopes at appropriate intervals according to slope gradient immediately after recontouring of the disturbed areas and following Gold Book standards. The spacing depends on whether mulching is applied in conjunction with placement of water bars. Water bars will be maintained in functional condition throughout the life of the project. Should the integrity of the water bar system be disrupted during seeding, water bars will be repaired and broadcast seeded with the seed raked into the soil.

Required Water Bar Spacing.

Grade	Minimum Spacing
2%	200 feet
2–4%	100 feet
4–5%	75 feet
> 5%	50 feet

WATER QUALITY, GROUND

- Releases of hazardous substances or fuels during construction and operation will be contained and disposed of in accordance with state and federal regulations.

- In the event the cement circulation is lost, a cement bond log will be required by BLM to ascertain if remedial cementing is required to provide an adequate seal between the casing and the strata.
- Reserve pits will be sealed in such a manner as to prevent leakage of the fluids by using at least 12 mil plastic. The bottom of the pits will be smooth and free of any sharp rocks. If the pit has a rocky bottom, it will be bedded with a material such as soil, sand, straw, or hay to minimize the possibility of puncturing the liner. A minimum of 2 feet of freeboard will be maintained in the pit at all times. All oil or floating debris will be removed from the pit immediately after the drilling phase of the well.
- An initial baseline inventory of untested springs or water wells will be completed for water sources within a 1-mile radius of the well prior to construction of the well pad. The testing parameters will be consistent with the established water source baseline database associated with oil and gas drilling in Gunnison County.
- If an exploration well is found to be capable of production and if fresh groundwater zones are encountered during exploration drilling, the operator will install a groundwater monitoring well adjacent to the specific gas well. The groundwater wells will be completed to monitor the fresh groundwater zone(s). If a groundwater well is installed, it will be monitored on a semi-annual basis for water level, total petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylene, specific conductance, total dissolved solids (TDS), pH, sulfate, nitrate, nitrite, ammonia, methane, hydrogen sulfide, selenium, and barium. Data reports will be submitted to the BLM within one month after the laboratory analyses are complete.
- If a well produces water at volumes greater than 1,500 barrels of liquid per day (blpd) after 60 days of continuous operation, and if this water is less than 2,000 milligrams per liter (mg/L) TDS, the gas well will be shut in until it can be determined whether the source of the water is or is not interconnected with shallow water-bearing units or surface water.
- Before any dirt work to restore the location takes place, the reserve pit must be dry. Any water remaining in the reserve pit will be disposed of in an approved disposal facility. All enhanced evaporation of the reserve pit fluids will have prior approval of the AO. The reserve pit must be reclaimed within 12 months from the date the well is spudded. Before reclamation of the reserve pit proceeds, it will be dry and solid. This can be accomplished naturally or by artificial solidification. The reserve pit solids will not be squeezed out of the pit or the liner torn to allow drainage of fluids. The liner will be cut off at the mud level and removed to an approved disposal site. There will be a minimum of 2 feet of overburden on the reserve pit prior to replacing the topsoil and seeding.

WETLANDS AND RIPARIAN ZONES

- On a site-specific basis, full delineation and Clean Water Act permitting would be required prior to any construction activity to mitigate and minimize project effects.
- To the extent possible, the disturbance width of the pipeline ROW at drainage crossing should be narrowed to 30 feet or less to minimize impacts to existing vegetation. In areas with identified riparian vegetation such as willows, pipeline crossings should be reduced to 15foot ROWs or moved to avoid riparian vegetation.
- All drainage crossings would be constructed in accordance with BLM and USACE specifications to minimize erosion, channel alterations, and loss of vegetation.

- If riparian vegetation impacts cannot be avoided at pipeline crossings, replanting of appropriate species would occur immediately after recontouring activities or at the first suitable planting season after recontouring and trench closure.
- Appropriate BMPs for sediment and erosion control such as seeding, water bars, silt fencing, ditches, and reclamation measures are part of the proposed project. Erosion control measures would be placed around well pads and along the pipeline to divert precipitation runoff from entering the well pads and ROW as well as diverting the runoff from construction of well pads from flowing directly into stream channels and riparian areas. Installation of erosion control measures would also serve to filter sediment-laden stormwater prior to leaving construction, well pad, pipeline, and access road areas.
- The lessee and operator would be required to comply with the Clean Water Act, the State of Colorado Stormwater Regulations, and all other applicable laws pertaining to oil and gas operations in wetland and riparian areas.
- The use of erosion control BMPs would be used to minimize the potential of erosion and sediment transport.

SOILS

- The proposed project disturbance areas will be seeded with a weed-free native seed mix approved by the BLM and surface owner to stabilize soils and prevent erosion for areas no longer needed for production.
- Drainage on the well pad areas will be controlled to minimize off-site migration of disturbed soils. Vehicle and pedestrian traffic will be restricted to the well pads and access roads to prevent further soil mixing and compaction outside of the proposed project area. Upon plugging and abandonment of the well following its useful life, the disturbed areas will be seeded to BLM or surface owner specifications.
- Water bars, ditches, and culverts will be used as needed to protect surface water resources and control erosion.
- The operator will adhere to the construction, maintenance, reclamation; guidelines and requirements in the BLM Gold Book (Surface Operating Standards for Oil and Gas Exploration and Development, Fourth Edition).
- Following pipeline construction, 100 percent of the surface disturbances related to pipeline construction will undergo final reclamation which includes recontouring and reseeding.
- The buried pipelines would have a minimum depth of cover of 36 inches in soil or minimum 18 to 24 inches of cover in solid rock.
- Following pipeline construction, the trench would be backfilled with the segregated soils in the order in which they were excavated. The backfilled area would be reclaimed and the roadway would be recontoured to pre-construction conditions. If rocky substrates are encountered at the bottom of the trench, segregated topsoil would not be used to bed the pipe. Rather, an approved bed material would be used at the approval of the BLM Authorized Officer (AO).
- Surface-disturbing activities will not be conducted during extended wet periods (when rutting by vehicles or equipment exceeds 4 inches deep).
- Construction will not be allowed when soils are frozen.
- In addition, COAs listed under Water Quality and Aquatic Habitat will also apply to soils.

- Once well production has ceased, the entire pad would be reclaimed prior to requesting final abandonment and subsequent bond release.

VEGETATION

- The top 12 inches of topsoil will be removed and stockpiled separately so it can be put back over the reclaimed site. All brush, limbs, and other woody materials will be stockpiled separately from the topsoil just outside the well pad perimeter. The stripped vegetation and topsoil will be stockpiled separately just outside the well pad perimeter. The stripped vegetation will not be removed from the location.
- Topsoil shall be segregated and stored separately from subsurface materials to avoid mixing during construction, storage, and interim reclamation. Subsurface materials should never be placed on top of topsoil material at any point in the operation.
- Upon the cessation of disturbance activities, to encourage the regeneration of desirable vegetation and stabilization of soils prior to implementing full interim reclamation, reseeding would take place on the topsoil stockpile, reserve pit backfill, and cut/fill slopes with a BLM approved seed mix.
- Completion of additional interim reclamation activities such as soil recontouring and revegetation will occur immediately after drilling operations are complete to stabilize soils and prevent erosion.
- Mandatory noxious weed control would be required on the well pads and access roads used by the lessee/operator for the life of the well. Consultation with BLM and Gunnison County Cooperative Extension would be required to determine treatment for noxious weeds, if identified.
- All seed mix, erosion control materials, construction materials, and reclamation materials would be a certified weed free mix approved by the BLM.
- Seeding will be performed in accordance with BLM requirements as described in the Environmental Protection Plan (Appendix L) of the POD. Selection of grass and shrub species for revegetation will be based on pre-construction community composition and soil types, as well as establishment potential, soil stabilizing qualities, post-construction land use objectives, and BLM and fee-landowner recommendations. All reclaimed areas will be seeded with a weed-free seed mix appropriate to the rainfall zone, elevation, soils, and temperature regime of the site. The BLM and the surface owner must approve the seed mix.
- Reclamation activities, including control of exotic plants and reseeding, will be required until the reclaimed site supported a plant community made up of desirable species that achieves 80 percent of the vegetation cover found in adjacent, undisturbed vegetation.
- If damage to reclamation reseeding efforts or site specific BMPs is incurred around any well pads due to continued use or presence of livestock, the operator is encouraged to consult with the surface owner as to the problem and if necessary, construct an exclosure fence in accordance with BLM recommended construction standards for exclosure fences in livestock areas installed for a period of two years or until seeded species are firmly established, whichever occurs later.

AQUATIC SPECIES

- Drainage controls will be placed around the well pads during the drilling and work-over phase of the operation to prevent precipitation runoff from entering the well pad and to control any accidental spill of motor fuel or other fluids.

- Construction activity in the vicinity of West Muddy Creek, Buzzard Creek, Coyote Gulch, and Deadman Gulch will include the installation of BMPs as needed to protect surface waters and control erosion.
- Water bars, ditches, and culverts will be used as needed to protect surface water resources and control erosion.
- Soil recontouring and revegetation will occur immediately after drilling operations are complete to stabilize soils and prevent erosion.
- The lessee and/or operator are required to comply with the Clean Water Act, National Pollution Discharge Elimination System, State of Colorado Stormwater Management Regulations, and all other applicable laws pertaining to oil and gas operations.
- Instream work will occur during the FERC construction window for coldwater fisheries, which is from June 1 through September 30.

TERRESTRIAL WILDLIFE

- The entire surface of the reserve pit will be secured and covered with 1.5 inch mesh netting to prevent mortality of birds as soon as the drill rig is removed from the pad, and maintained for as long as there are liquids in the pit.
- Oil or other potentially lethal contaminants that may be discharged into the reserve pits or water ponds during drilling will be expeditiously skimmed from the surface.
- After the drill rig is removed from the pad, the reserve pit must be fenced with 8 foot high fencing that is sufficient to preclude entry by elk, deer, and other wildlife species from the reserve pit area while there are liquid materials in the pit. Escape ramps will be installed to assist small mammals which the netting is not intended to preclude.
- Seasonal timing stipulations for no surface use from December 1 to April 30 will be in place to protect crucial deer and elk winter ranges. This stipulation does apply to construction and drilling but not apply to operation and maintenance of production facilities.
- Avoid construction activities in elk production areas between April 15 and July 15.
- Long-term footprints of the well facilities would be reduced to the smallest practical area.

ACCESS AND TRANSPORTATION

- Should the wells prove productive, and/or future wells be proposed, a comprehensive transportation plan will be developed for the area to ensure utilization of the existing road network and provide a maintenance schedule for access roads.
- The operator shall provide for the safety of the public using State Highway 133 during construction of the project and drilling of the wells. This includes, but is not limited to, posting of appropriate signs to alert traffic on the highway of potential stops or delays when construction equipment is either using the highway or turning off or onto the highway to access the project area.
- Construction-produced fugitive dust will be reduced by watering access roads, as necessary.
- No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support such equipment. If the equipment creates ruts in excess of four (4) inches deep, the soil shall be deemed too wet to adequately support the construction equipment.

- Only the minimum amount of soils and vegetation necessary for the construction of the access road should be removed. All suitable topsoil material [approximately 6 to 8 inches] removed from the ROW shall be stockpiled and reused as cover during reclamation to facilitate re-growth of vegetation along the edge of the ROW.
- One 36 inch diameter culvert will be installed at the crossing of Deadman Gulch.
- All roads shall be constructed to provide drainage and minimize erosion. Culverts shall be installed if necessary to maintain drainage. The minimum diameter for culverts shall be 18 inches.
- Prior to installation of a culvert which meets the 36" minimum standard, a site specific analysis shall address the potential volumes of surface run-off during snowmelt and storm events from the area being drained through the culvert to ensure the culvert is adequately sized to handle the volume of flow.

FIRE

- The operator will have sufficient fire equipment on hand during the fire season for the drilling crew to respond to a small fire start including fire extinguishers and a gasoline powered water pump.
- The operator will install approved spark arrestors on all combustion engines used on the job.
- Crews will have the interagency and local fire contact information available to them so that they can report any potential incidents that may occur.
- All GEC company employees receive general training on fire and fire reporting procedures; however, they are not typically qualified to respond to a wildland fire and all uncontrolled fires will be immediately reported to the appropriate incident response contact.

PALEONTOLOGICAL RESOURCES

- Conduct a museum records search to 1) determine whether any known fossil localities occur within the study area; 2) assess the potential for disturbance of these localities during construction; and 3) further evaluate the paleontological sensitivities of the Ohio Creek Member (of the Mesaverde Formation), the Wasatch Formation, and Quaternary deposits within the study area.
- Conduct a field survey and inspect the study area for 1) surface fossils, 2) exposures of potentially fossiliferous rock, and 3) areas in which fossiliferous rocks could be disturbed during the proposed project. Data collected during the field survey would include types of fossils observed and significance if a determination is possible in the field, the geographic extent of each locality, lithologies of fossil-producing bed(s), Universal Transverse Mercator (UTM) coordinates, and stratigraphic information as appropriate or possible. All fossil occurrences would be recorded and all potentially significant (identifiable and/or well-preserved) fossils would be collected.
- All fossils collected would be cleaned, prepared, identified, and transferred to an approved repository.
- The results of the paleontological survey would be analyzed and presented in a paleontological report prepared using BLM guidelines. In the report, additional recommendations (clearance, sampling, monitoring, salvage, or avoidance) would be made.

NOISE

- The Colorado Oil and Gas Conservation Commission (COGCC) requires that oil and gas operations comply with state maximum permissible noise levels. In the hours between 7:00 a.m. and the next 7:00 p.m. the noise levels permitted below may be increased ten (10) db(A) for a period not to exceed fifteen (15) minutes in any one (1) hour period. The allowable noise level for periodic, impulsive or shrill noises is reduced by five (5) db(A) from the levels shown (802 COGCC).

ZONE	7:00 am to next 7:00 pm	7:00 pm to next 7:00 am
Residential/Agricultural/Rural	55 db(A)	50 db(A)
Commercial	60 db(A)	55 db(A)
Light industrial	70 db(A)	65 db(A)
Industrial	80 db(A)	75 db(A)

- If production is achieved and noise exceeds Colorado noise emission limits as per Colorado Revised Statutes title 25, Environmental Control, Article 12, "Noise Abatement" (C.R.S. 1973,25-12-101 et seq., available at http://www.michie.com/colorado/) and becomes a nuisance with any production operations, adequate muffling techniques, such as hospital-type mufflers, would be applied.

RANGE MANAGEMENT

- Prior to and during construction, the operator will keep BLM grazing allotment permittees and fee-lands ranchers informed regarding schedules to allow them ample opportunity to move livestock away from the ROW.
- Gates and fences will be installed along the ROW as required. Hard or soft plugs will be left or installed to allow livestock to cross to either side of the ROW during construction. Gates, fences, and cattle guards will be repaired or replaced after construction as agreed to with the fee-landowner or BLM. These facilities will be left in as good as or better shape than the pre-construction condition. Fences crossed by the pipeline and cattle guards or gates on access roads or within the ROW damaged during construction on BLM lands will be rebuilt or replaced in accordance with BLM specifications.
- If project activities occur between April 15 and November 15, the operator will achieve dust control primarily through application of water or an approved dust palliative to reduce airborne dust and damage to roadside vegetation communities.

RECREATION

- All recreation activities, including hunting, will be prohibited within the construction ROW. GEC will post signs at the boundaries of the areas under construction.

VISUAL RESOURCES

- All activities should remain in accordance with the BLM Gold Book standards for visual/scenic resources.
- Where feasible and requested by the BLM, clearing would be feathered to eliminate the straight line effect and to soften the visual impact. The BLM landscape architect would locate and define

areas for a feathering treatment and provide specifications. Feathering would be done outside of the 50 foot wide ROW.

- Long-term facilities would be painted with a BLM Standard Environmental Color to blend in with the surrounding natural environment. BLM would be consulted for approval of the color selection. The selected color would be one or two shades darker than the dominant background color and be a semi-gloss paint to resist weathering and staining.
- Natural or artificial features such as topography, vegetation, or an artificial berm would be used to help screen facilities.
- Facilities would avoid being placed on ridge tops.
- Construction of new roads and other linear facilities would be located and constructed to follow the contour of the landform or mimic lines in the vegetation. (Avoid straight roads and steep slopes)
- The minimum width of road necessary would be constructed or upgraded.
- Short-term reclamation would include partially reshaping and re-vegetating roads, and well pads to reduce the amount of bare ground created during construction and drilling activities.
- During reclamation, roads would be re-contoured back to their original contour and rough texture so to match the "texture" of the surrounding landscape.

COMPLIANCE/MONITORING

- On-going compliance inspections and monitoring of drilling, production and post-production activities will be conducted by UFO staff. Specific mitigation developed in this EA and the lease terms and conditions will be followed. The Operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.
- For private surfaces, the BLM approved seed mix is recommended, but the surface landowner has ultimate authority over the seed mix to be used in reclamation. The seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a slower percentage of other crop seed is recommended. Seed tags or other official documentation shall be supplied to the BLM Uncompahgre Field Office Natural Resource Specialist (Thane Stranathan, 970-240-5304 or thane_stranathan@blm.gov) upon completion of each seeding activity necessary during the life of the project.

Appendix B.
BLM UFO
Environmental Assessment CO-150-2008-35 EA
Gunnison Energy Corporation
Downhole Conditions of Approval

Downhole COAs will be attached to each Application for Permit to Drill (APDs) as they are submitted for approval by operator to BLM.

Self Contained Drilling Rigs, Closed-Loop Mud Systems

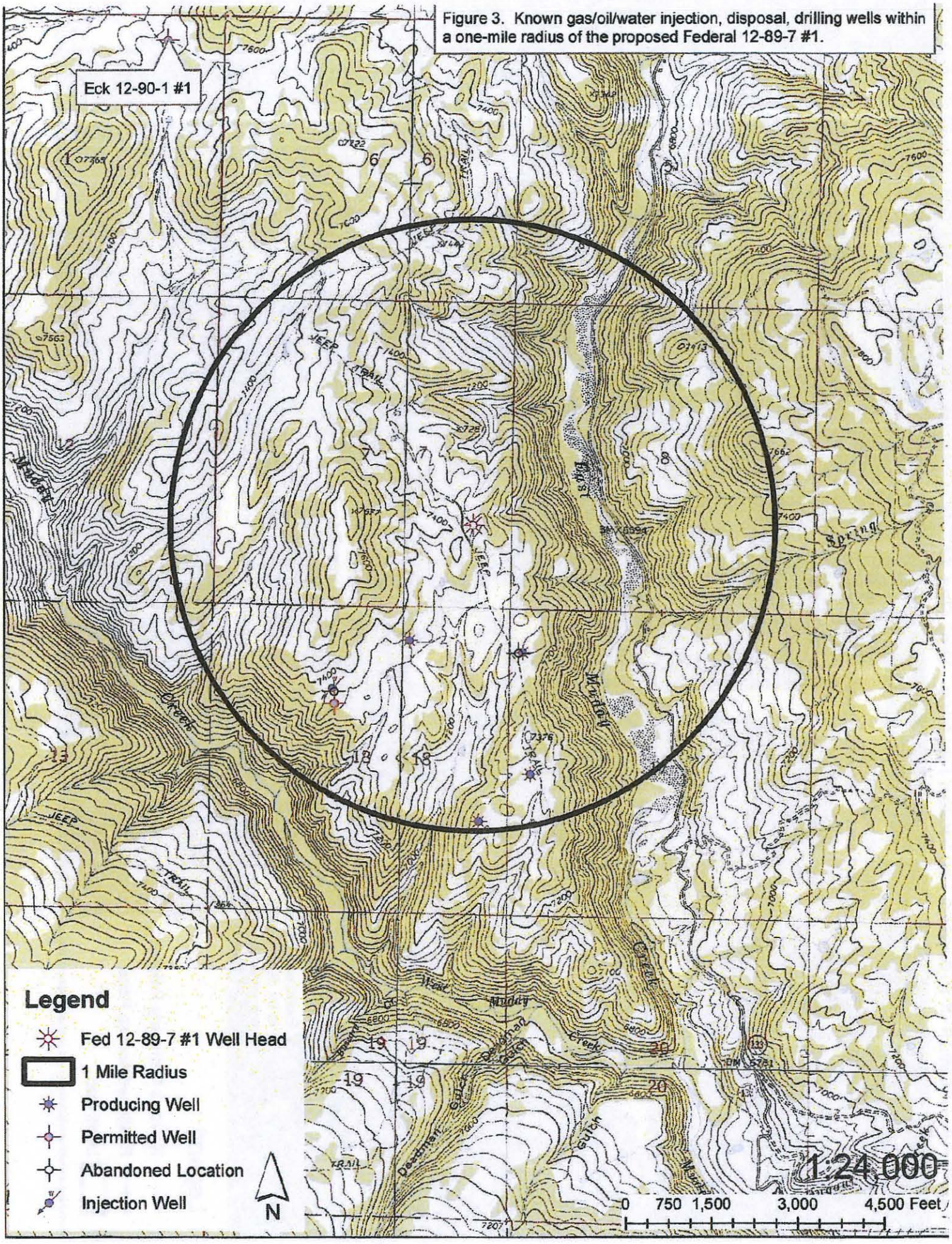
A. Conditions of Approval common to all instances of drilling using a closed-loop system:
- During drilling operations, if the operator has not constructed a lined reserve pit on the well pad, cuttings produced from a closed-loop drilling system shall be stored in a temporary surface impoundment or proper above-ground container.
- Temporary impoundments shall be lined with a minimum 12 mil impermeable barrier on suitable bedding material in order to eliminate opportunity for leakage or destruction of the liner.
- The operator will take steps to ensure that any cuttings from the drilling process are not mixed with or make contact with reserved top-soil material at any stage of the project.
- Free liquid associated with cuttings stored in the temporary impoundment will be vacuumed off prior to permanent disposal of the cuttings and disposed of at a regulated facility.
- The temporary cuttings impoundment shall be protected in order to minimize precipitation contact or movement of cuttings due to weather events.
- Any lined pits or lined temporary impoundments created by the operator on the well pad shall not be constructed on any portion of the location that is considered fill material.
- Potential stormwater drainage shall be diverted around the temporary cuttings impoundment.

B. Conditions of Approval common to permanent disposal of cuttings generated from a closed-loop system:
- The operator may chose to permanently dispose of dry cuttings using one of the following methods:
  - Dry cuttings can be permanently buried on location in a lined cuttings trench in accordance with pit construction and reclamation guidance (BLM Gold Book, 4th edition, 2007).
  - The operator may elect to sample cuttings in the temporary impoundment prior to burial to assure compliance with Colorado State pit closure standards. If the sampling option is exercised, laboratory reports showing compliance with Colorado State pit closure standards shall be submitted to the BLM authorized officer. If cuttings are determined not to exceed the listed concentration levels of State of Colorado COGCC pit closure standards, then the operator may request approval via Sundry notice to the BLM authorized officer to bury the cuttings in an unlined trench or pit, on the cut

area of the well pad and covered with a minimum (3) feet of clean fill material between the cuttings and topsoil replaced during reclamation.

- Dry cuttings can be removed from the location and disposed of at an approved disposal facility. The liner utilized as a barrier for the temporary cuttings impoundment shall be disposed of at a regulated facility once cuttings are removed.

Figure 3. Known gas/oil/water injection, disposal, drilling wells within a one-mile radius of the proposed Federal 12-89-7 #1.



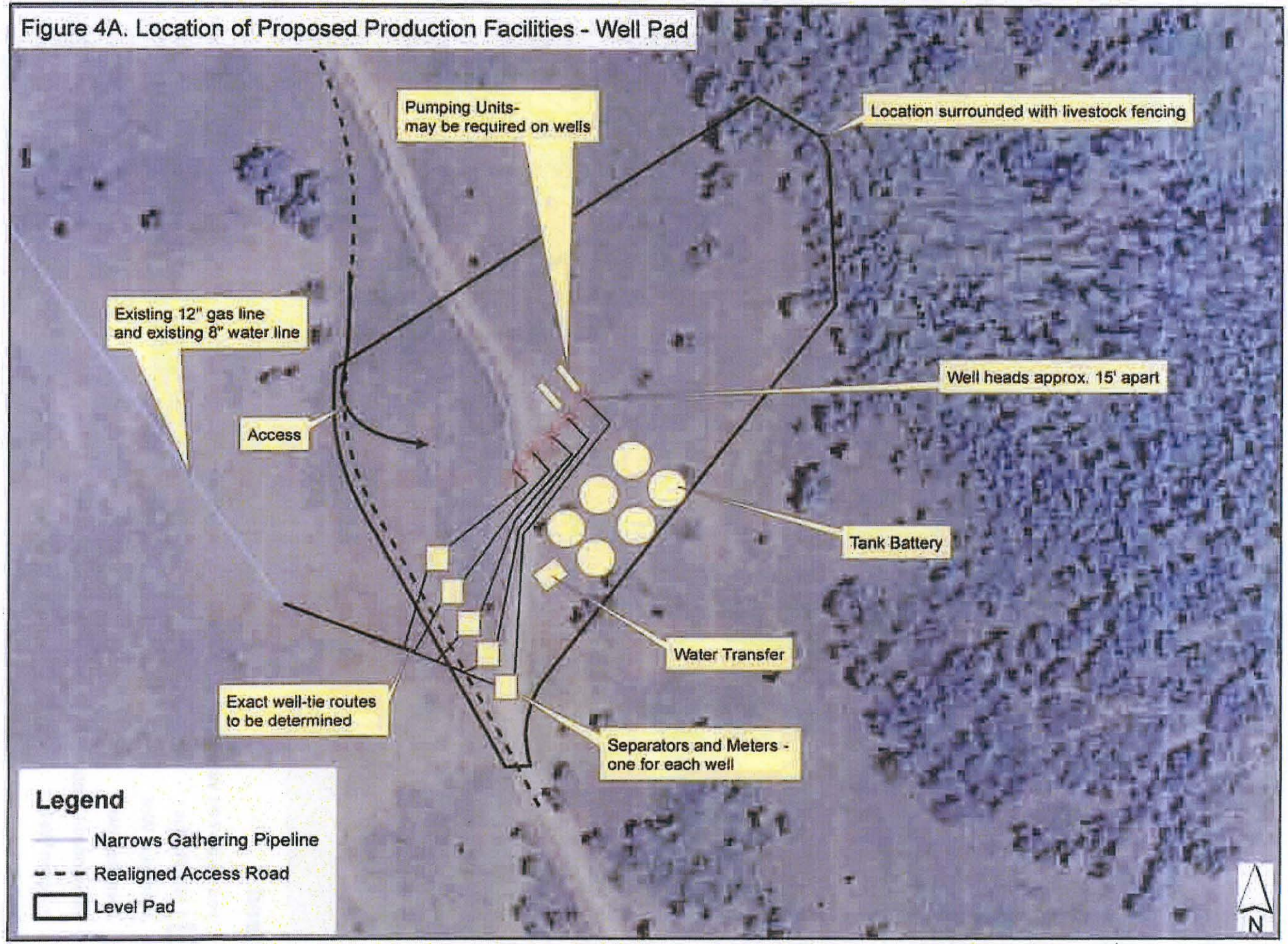


Figure 4A. Location of Proposed Production Facilities - Well Pad
Pumping Units- may be required on wells
Location surrounded with livestock fencing
Existing 12" gas line and existing 8" water line
Well heads approx. 15' apart
Access
Tank Battery
Water Transfer
Exact well-tie routes to be determined
Separators and Meters - one for each well
Legend
Narrows Gathering Pipeline
Realigned Access Road
Level Pad
N

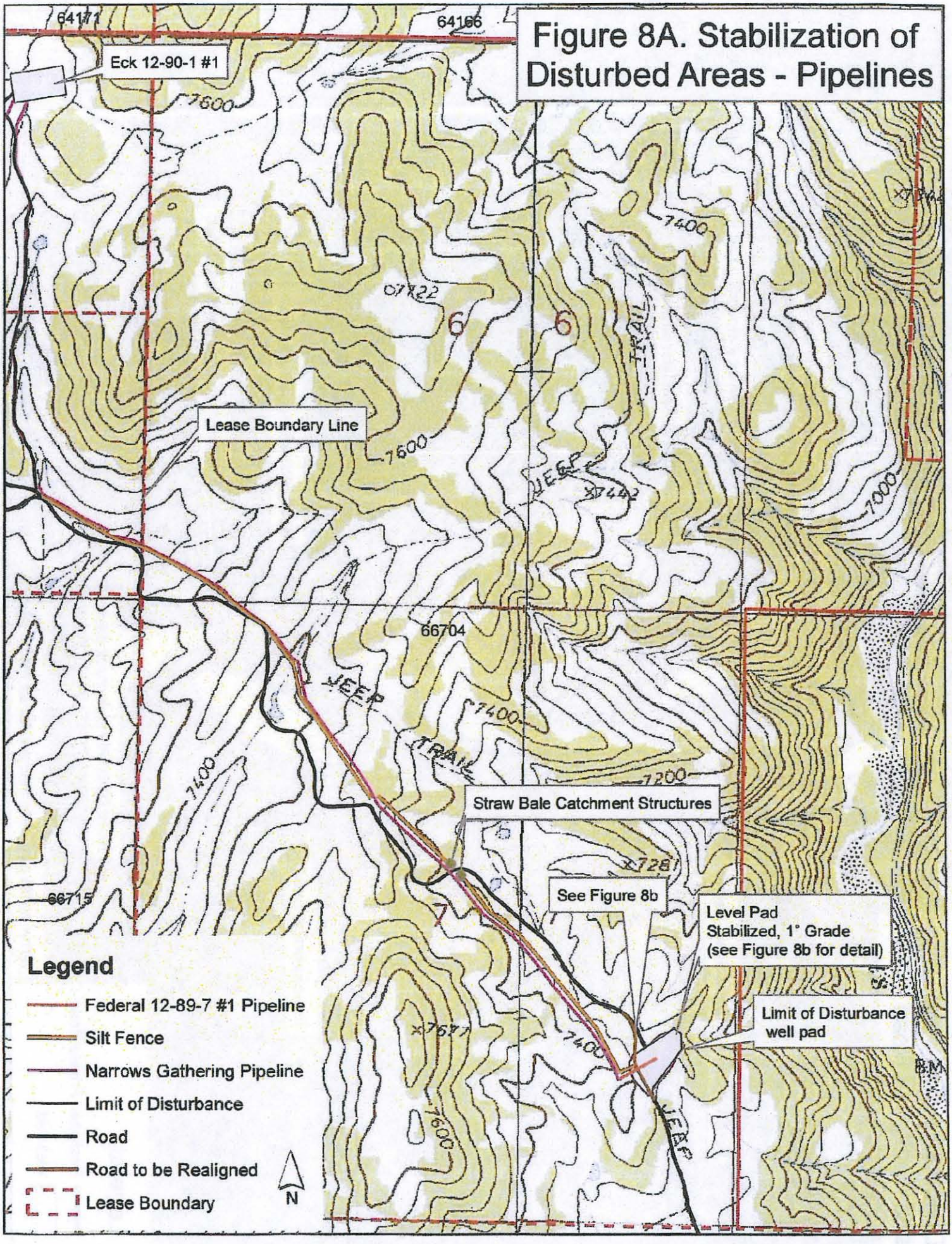


Figure 8A. Stabilization of Disturbed Areas - Pipelines
Eck 12-90-1 #1
Lease Boundary Line
Straw Bale Catchment Structures
See Figure 8b
Level Pad
Stabilized, 1° Grade
(see Figure 8b for detail)
Limit of Disturbance
well pad
Legend
Federal 12-89-7 #1 Pipeline
Silt Fence
Narrows Gathering Pipeline
Limit of Disturbance
Road
Road to be Realigned
Lease Boundary
N
64171
64166
66704
66715
7600
7400
7200
JEEP TRAIL

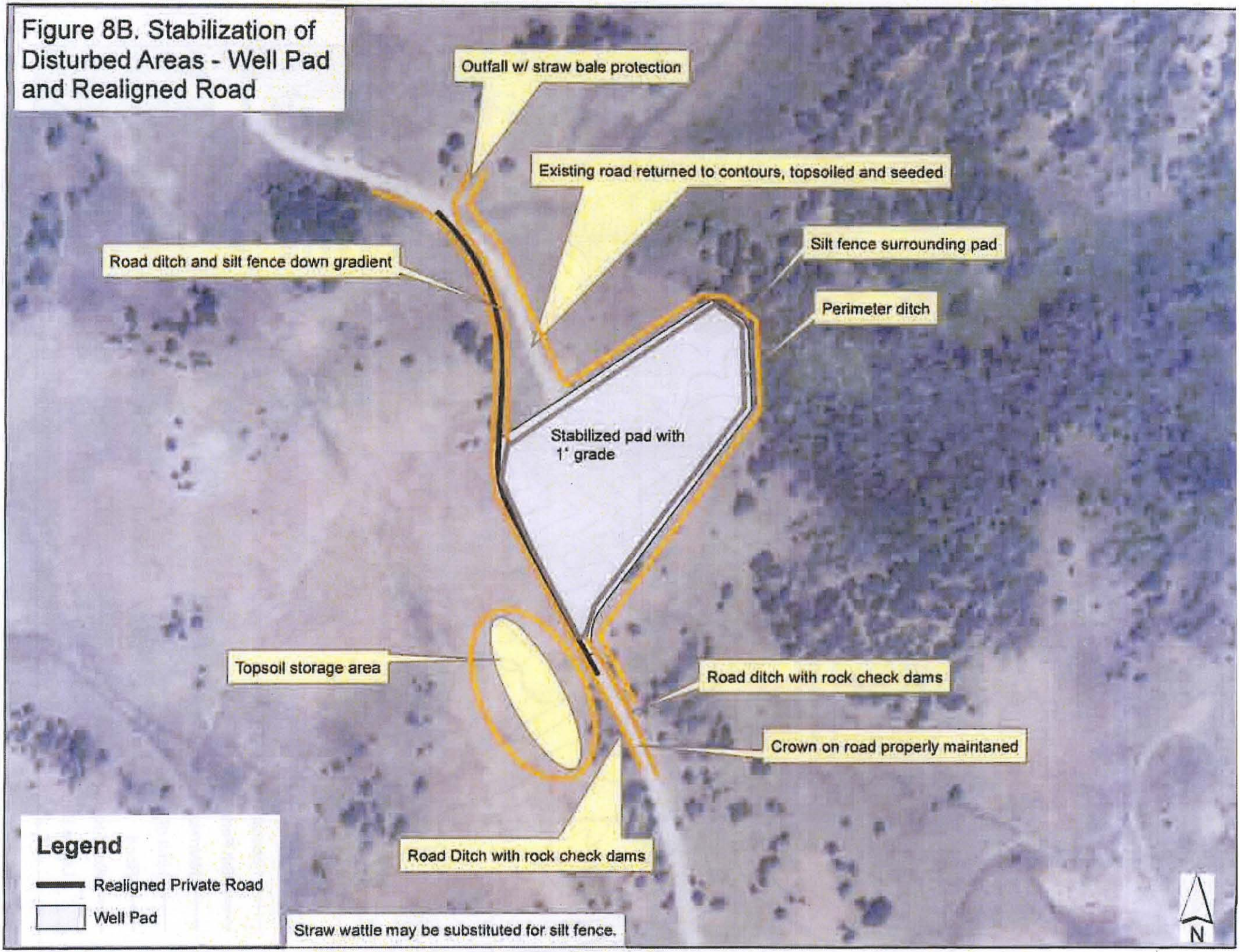


Figure 8B. Stabilization of Disturbed Areas - Well Pad and Realigned Road
Outfall w/ straw bale protection
Existing road returned to contours, topsoiled and seeded
Silt fence surrounding pad
Road ditch and silt fence down gradient
Perimeter ditch
Stabilized pad with 1° grade
Topsoil storage area
Road ditch with rock check dams
Crown on road properly maintaned
Road Ditch with rock check dams
Legend
Realigned Private Road
Well Pad
Straw wattle may be substituted for silt fence.
N

Figure 2. Existing Access Roads.

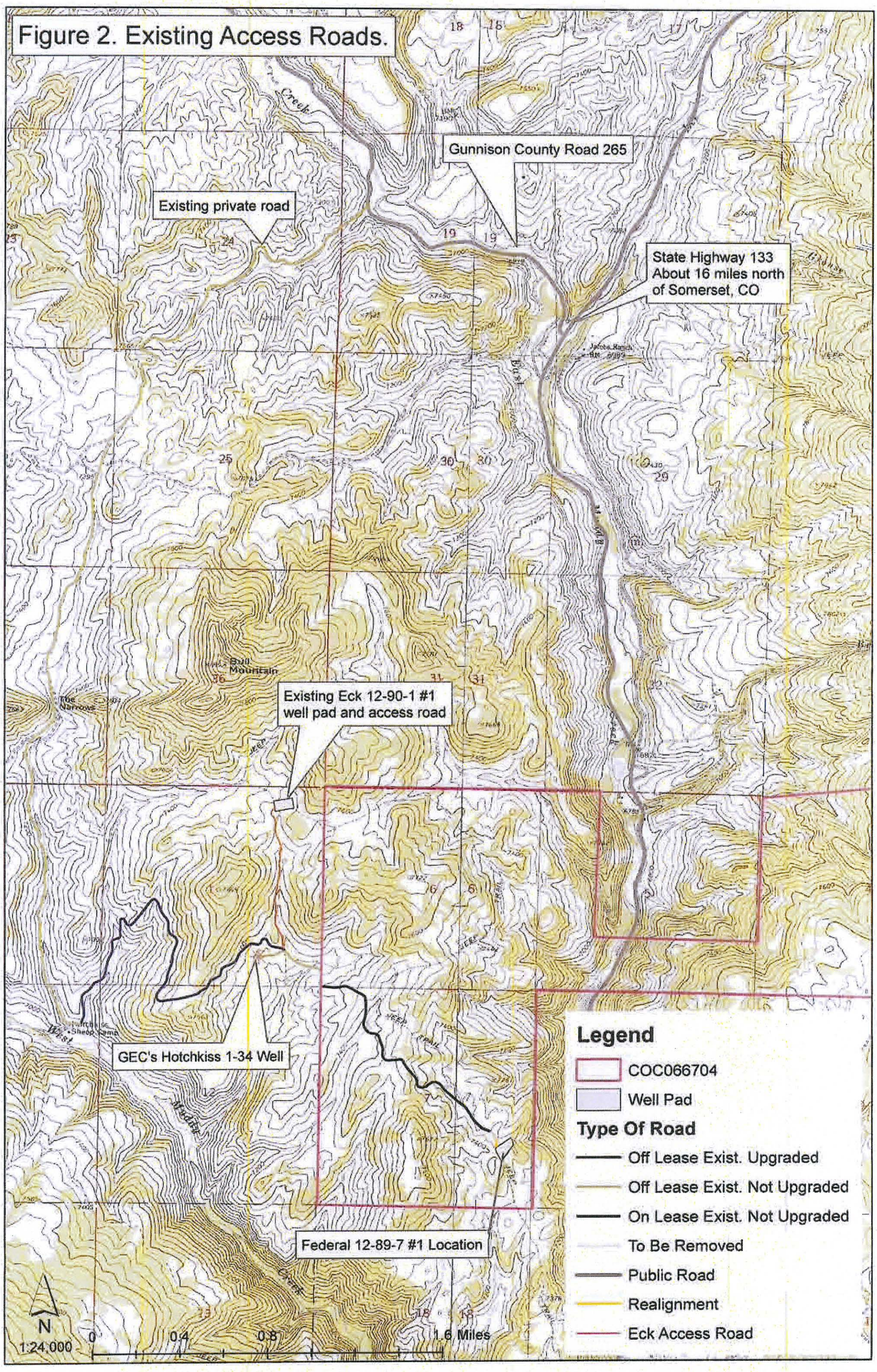
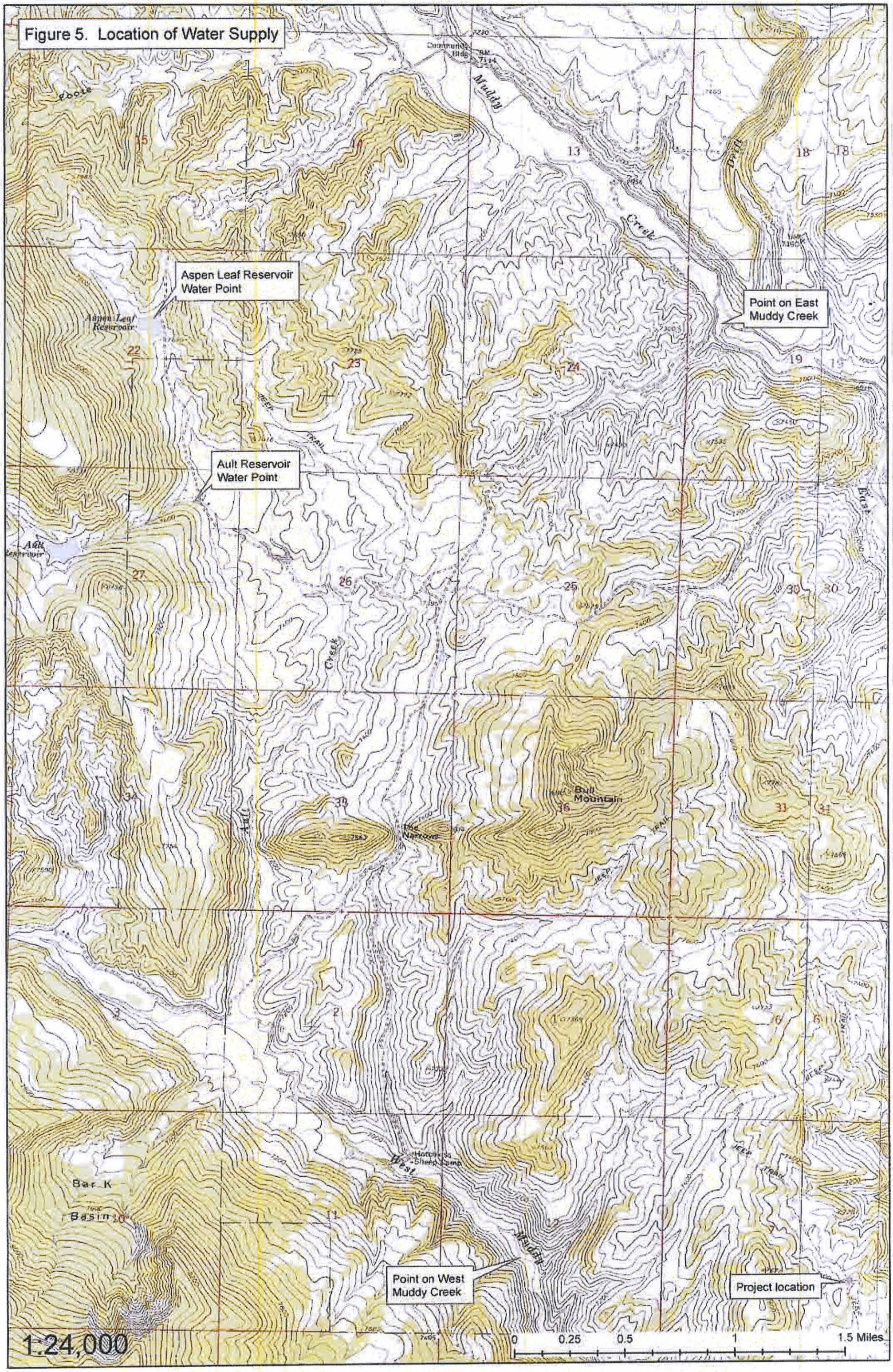
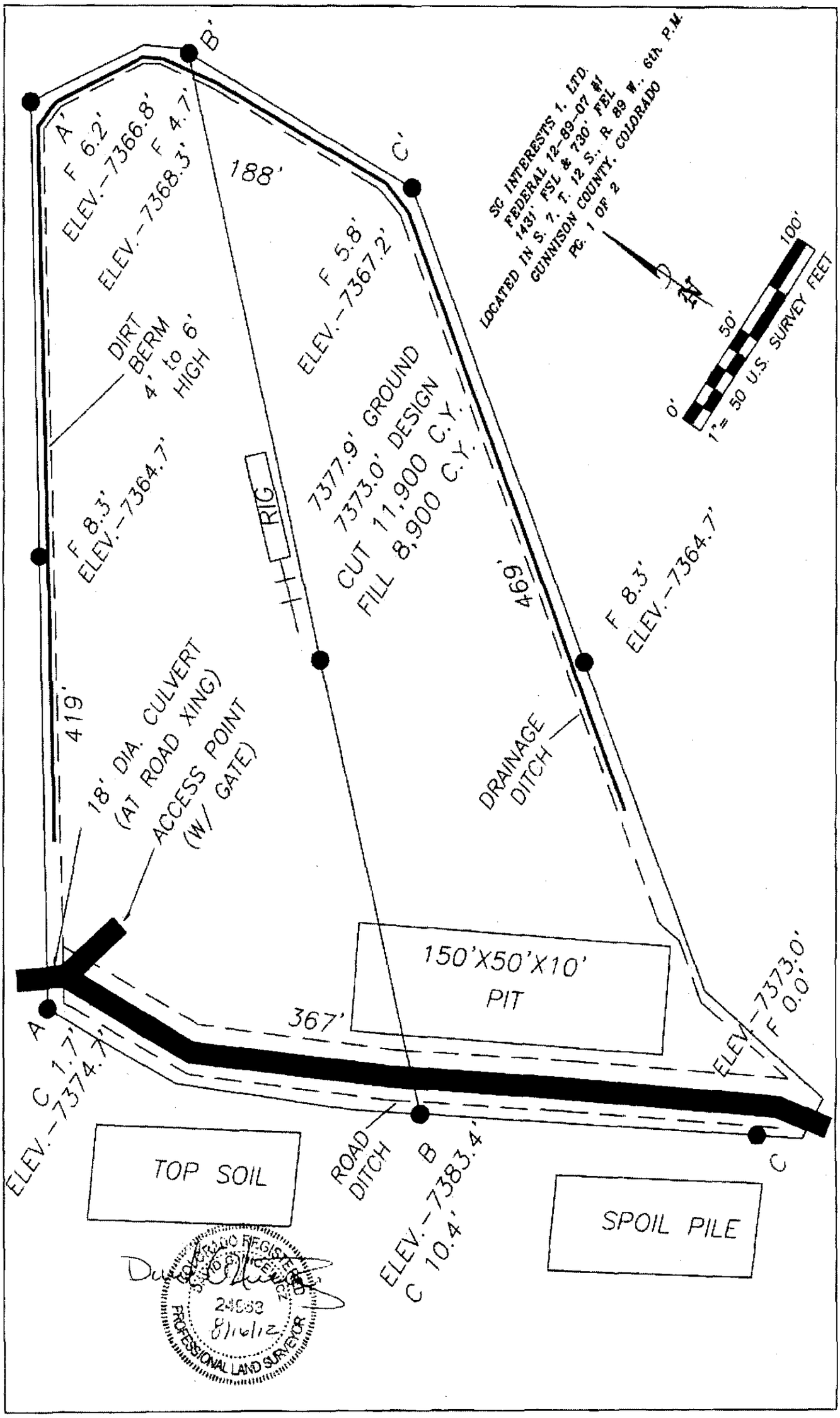


Figure 5. Location of Water Supply



IGURE 7A


SG INTERESTS 1, LTD.
FEDERAL 12-89-07 #1
1431' FSL & 730' FEL
LOCATED IN S. 7, T. 12 S., R. 89 W., 6th P.M.
GUNNISON COUNTY, COLORADO
PG. 1 OF 2
0'
50'
100'
1"= 50 U.S. SURVEY FEET
A'
B'
C'
F 6.2'
ELEV.-7366.8'
F 4.7'
ELEV.-7368.3'
188'
F 5.8'
ELEV.-7367.2'
DIRT BERM 4' to 6' HIGH
F 8.3'
ELEV.-7364.7'
RIG
7377.9' GROUND
7373.0' DESIGN
CUT 11,900 C.Y.
FILL 8,900 C.Y.
469'
F 8.3'
ELEV.-7364.7'
419'
18' DIA. CULVERT
(AT ROAD XING)
ACCESS POINT
(W/ GATE)
DRAINAGE DITCH
150'X50'X10'
PIT
367'
A
C 1.7'
ELEV.-7374.7'
ELEV.-7373.0'
F 0.0'
TOP SOIL
ROAD DITCH
B
ELEV.-7383.4'
C 10.4'
C
SPOIL PILE
COLORADO REGISTERED
24993
8/16/12
PROFESSIONAL LAND SURVEYOR