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State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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January 23, 1998

Dan Meadors, General Manager  
Canyon Fuel Company, LLC  
P.O. Box 719  
Helper, Utah 84526

Re: Gooseberry, West Ridge, Exploration, Canyon Fuel Company, LLC, Skyline Mine,  
ACT/007/005-97M, File #2, Carbon County, Utah

Dear Mr. Meadors:

A review of the referenced amendment by Senior Reclamation Specialists, Mike Suflita, Paul Baker, and Steve Demczak indicate the need to submit additional information identified in the analysis section of this memo.

**TECHNICAL ANALYSIS:**

**OPERATIONAL STANDARDS**

**Hydrologic Balance**

Regulatory Reference R645-202-235

**Analysis:**

The maps do not contain sufficient detail to evaluate the affects of the exploration activities on the surface-water aspects of the hydrologic balance. Specifically, it cannot be determined how close several of the roads and drill sites are to streams, whether any wetlands are impacted, and, importantly, how streams will be crossed. This last item is especially important for Boulger Creek which is a significant perennial stream of importance to fishing recreation in the area. Detailed maps, of USGS 1:24,000 scale or preferably finer, need to be provided for each site and its associated access road.

The plan does not address the stream crossings in sufficient detail to evaluate the sediment and wildlife impacts of the project. Water trucks alone will account for 20 round-trips per site with trucks weighing over 17 tons. In addition, drilling waste will be hauled to a sewage treatment plant, heavy drilling equipment will be hauled in and out, and personnel will make daily trips in and out. A quick estimate shows over 50 round-trips per site. These are significant traffic loads and volumes and consideration must be given to reducing stream sediment impacts to a minimum. Depending on the timing of operations, even the ephemeral streams may be

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flowing. Specific measures must be presented for each site in the plan before evaluation can be made. Forging perennial streams will not be adequate for the traffic contemplated by these operations.

There are a couple of typographic questions. On page 19, paragraph four, reference is made to "7 boreholes" and "the remaining 12 boreholes", which totals to 19, as opposed to the 18 holes proposed in the remainder of the plan. Also, on Figure 1, what is the significance of the two holes east of the exploration area that are designated 97-22-1 and 97-27-1? Also, the description on page one lists 5113 acres, 932 acres, and 3277 acres which total 9322 acres or 14.6 square miles. Figure 1 shows 12.9 square miles of exploration area. Please reconcile these figures or is there an overlap in the description?

Page 18, paragraph two, refers to holes being "cemented to the surface". Please provide specific details of what materials will be used, and how they will be installed. There needs to be a description of what measures will be taken to prevent cross-contamination of the aquifers that are anticipated to be encountered in the Price River and Blackhawk formations (reference page 5, paragraph four). This is a Utah Division of Water Rights well-drilling requirement as well as a hydrologic balance concern for DOGM.

This exploration covers over 12 square miles of surface area, more than half of which is privately owned. The potential exists for mining to affect the water supplies of dozens of families, development companies, ranchers, and the LDS Church. It is prudent and appropriate to begin this exploration and mining endeavor by establishing the potentiometric surface over the area and to decide where groundwater monitoring will take place. Logically this takes place with the drilling of the exploration wells. Therefore, DOGM requires the Operator to:

1. Establish the existing potentiometric surface over the exploration area using readings from these exploration wells. Monitor and plot the potentiometric surface during the life of the mine and through reclamation.
2. Define which of these exploration wells will be used for groundwater monitoring and which geologic formations will be monitored. Consideration for this should include:
  - A. Existing monitoring wells in the active mining area east of the exploration area.
  - B. Water sources for the private landowners in the potentially affected area.
  - C. Consultation with DOGM hydrologists who are responsible for developing the Cumulative Hydrologic Impact Assessment (CHIA). The Forest Service hydrologists could also provide input.

Initially, DOGM suggests that the following well sites be used to establish the

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potentiometric surface and be retained as monitoring wells.

99-21-1	98-21-2
99-29-1	98-33-1
99-32-1	98-2-1

Authority for these requirements is derived from R645-202-235 which states:

“The Division may specify additional measures which will be adopted by the person engaged in coal exploration.”

### **Findings:**

In its present form the exploration proposal does not meet regulations. Several aspects of the operation need further explanation and clarification as described above. The applicant must provide this information and show how the surface and ground-water hydrologic balance will be protected.

## **OPERATIONAL STANDARDS**

### **FISH AND WILDLIFE HABITAT**

Regulatory Reference: R645-202-231

### **Analysis:**

Almost the entire area of the proposed exploration operations contains critical deer and elk fawning and calving areas. These need to be protected from May 15 to July 5. The notice of intention (NOI) says the proposed drilling program will be scheduled to avoid conflict with May 15 to July 15 elk or deer parturition activities in the area. However, the NOI also says Canyon Fuel desires to drill certain holes in mid-June where there would be no direct interference with wildlife.

In addition to the critical elk and deer habitat, the area contains good habitat for accipiters, including northern goshawks, and red-tailed hawks. However, the NOI says no occurrences of threatened, endangered, or sensitive species were identified or are predicted. Northern goshawks are a sensitive species likely to be in the area. The areas near raptor nests need to be protected from disturbance until about July 15.

Canyon Fuel needs to identify specifically which holes could be drilled in mid-June. Areas near these holes should be surveyed for the existence of raptor nests in February and for nesting activity in May. Any active nests must be protected from disturbance until July 15.

When the Division receives information about which holes would be drilled in June, an assessment can be made whether they are in critical elk or deer summer range areas. Anything in this type of critical habitat must not be disturbed until July 5.

According to the NOI, there is no riparian habitat within the proposed access routes or drilling or seismic areas. Bob Thompson, a Forest Service official cited in the NOI, confirmed that he looked at the general areas where the exploration would take place, but, because the exact locations of proposed disturbances were not yet marked, he could not say with certainty whether riparian or wetland areas would be affected.

The NOI says Boulger Creek will be crossed on an existing road and on a reclaimed road. It says the State Engineer's Office will be notified and a permit or written exemption obtained prior to installing the road to 98-4-1. This would be on the reclaimed road.

The Division understands the applicant would ford Boulger Creek in at least one of these crossings, but the NOI needs to clarify how the stream would be crossed. Whether the applicant intends to ford the creek or install a culvert or other stream crossing, they need to show how sediment would be controlled and fish habitat protected. The crucial time period for cutthroat trout spawning extends until July 15.

The NOI says nothing about wetlands that could be affected by the operations. The Fish and Wildlife Service has not completed mapping for the National Wetlands Inventory in this area, so no baseline data is available. The applicant needs to provide information showing whether wetlands occur near the proposed exploration operations. If this information is not available, it will be necessary to wait until the snow is gone to examine the areas.

### **Findings:**

The NOI does not meet the requirements of this section of the regulations. The applicant needs to make the following changes:

**R645-202-231**, The applicant needs to identify which holes might be drilled in June.

With this information, the Division can determine whether these sites are in critical deer fawning or elk calving areas.

**R645-202-231**, The general area of the proposed drilling operations contains good habitat for certain raptor species, including northern goshawks, a Forest Service sensitive species. No drilling should occur before July 15 unless the applicant provides information that there are no raptor nests within one-half mile of the proposed operations or that any existing nests are not active. Surveys to find nests need to be done before trees start to leaf, preferably February, with follow-up surveys for active nests completed the following spring, about May.

**R645-202-231**, The applicant needs to show how Boulger Creek would be crossed and what sediment control measures would be used. The crucial time period for cutthroat trout reproduction extends until July 15.

**R645-202-231**, The applicant needs to provide information about whether wetlands occur near any of the proposed exploration operations. If this information is not available, it will be necessary to wait until the snow is gone to examine the sites and see if wetlands could be affected. In addition, the applicant needs to confirm that no riparian areas would be affected, even by the stream crossings.

## **TOPSOIL**

Regulatory Reference: R645-202-233

### **Analysis:**

Under the regulation heading R645-202-233, the NOI says vegetation and topsoil will be removed from each of the areas prior to disturbance. However, on pages 7 and 17, the NOI says topsoil will be removed and stockpiled "where practical." The applicant needs to define under what circumstances topsoil will be removed and stockpiled. Topsoil needs to be salvaged and stockpiled from the pad areas, but it may not be necessary to salvage topsoil from all roads and seismic lines depending on the degree of disturbance. For example, it would probably cause more disturbance to salvage topsoil if the only disturbance was to drive across a dry meadow. However, it might be necessary to scarify and seed this kind of area.

The NOI also does not discuss how much topsoil will be salvaged, what standards will be used to determine the depth of topsoil salvaged, or how the soil will be salvaged. The only commitment is that the upper soil horizons will be removed and stored for reclamation activities. It is recommended that, during site preparation, the applicant have a person knowledgeable about soils on site to supervise salvage operations. This person could be a soil scientist or a geologist with soils experience.

The NOI says topsoil will be protected from erosion and disturbance during storage, but it does not say how this will be done. The Division recommends the applicant install straw bales around the topsoil piles to prevent the soil from being eroded away. During reclamation, the straw could be used as mulch to provide an additional sediment control measure.

### **Findings:**

The NOI does not meet the requirements of this section of the regulations. The applicant needs to make the following changes:

**R645-202-233**, The NOI needs to discuss under what circumstances topsoil will or will

not be salvaged.

**R645-202-233**, The NOI needs to show how much soil will be salvaged or what criteria will be used to determine the depth of salvage. The Division recommends that a person with soils experience, such as a soil scientist or geologist, be present to supervise salvage operations. The NOI also needs to discuss how soil will be salvaged.

**R645-202-233**, The applicant has committed to protect topsoil from erosion and contamination, but the NOI needs to show how this will be done.

## **ACID- OR TOXIC-FORMING MATERIALS**

Regulatory Reference: R645-202-236

### **Analysis:**

No acid- or toxic- forming materials will be used in drilling according to the NOI. No acid- or toxic-forming materials are expected to be encountered during drilling. Upon completion of drilling, the materials in the mud pit will be taken to a waste rock disposal area owned by Canyon Fuel and permitted by the Division.

Unless tested and found otherwise, all cuttings must be considered toxic- or acid-forming. The applicant should commit to bury them at least four feet deep in the waste rock disposal area.

### **Findings:**

The NOI does not meet the requirements of this section of the regulations. The applicant needs to make the following changes:

**R645-202-236**, All cuttings must be considered toxic or acid-forming unless they are tested and found otherwise, so they must be handled according to the requirements of R645-301-553.260. This includes the requirement to bury the materials at least four feet deep with non-toxic, non-acid-forming, and non-combustible material.

## **REVEGETATION**

Regulatory Reference: R645-202-242

### **Analysis:**

Reclamation work will begin within 2 to 3 days of hole plugging. After grading, salvaged topsoil will be spread, the area scarified if necessary, and seed and fertilizer spread.

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The surfaces of graded areas will be left rough.

Leaving the surface rough is a very effective erosion and sediment control measure. At lower elevation sites, roughening may be the only sediment control measure needed, but at these sites, additional means, such as silt fences or straw bales, may be necessary.

The NOI says the road bed will be seeded with a seed mix *such as* (emphasis added) that shown on page 20. The seed mix shown on page 20 contains seven introduced and only two native species. The Forest Service is in the process of establishing a policy of using native species where possible, and there are many native species available that could be used in this area. After discussing the situation with a Forest Service official, the Division recommends the following species be used:

Perennial Rye (*Lolium perenne*)  
Alfalfa (*Medicago sativa*)  
Yarrow (*Achillea millefolium*)  
Slender Wheatgrass (*Agropyron trachycaulum*)  
Western Wheatgrass (*Agropyron smithii*)  
Kentucky Bluegrass (*Poa pratensis*)  
Showy Goldeneye (*Viguiera multiflora*)  
Sticky Geranium (*Geranium viscosissimum*)  
Snowberry (*Symphoricarpos oreophilus*)  
Mountain Big Sage (*Artemisia tridentata* var. *vaseyana*)

The first two of these species are introduced, but they are included to provide quick cover and to fix nitrogen. The remainder should provide a diverse mixture of species adapted to the site and capable of providing good erosion control. Other species, such as mountain brome, Louisiana sage, Letterman's needlegrass, and silky lupine, could also be used. According to the Forest Service official, the applicant should avoid smooth brome, yellow sweet clover, and intermediate wheatgrass.

The NOI says the seed mixture shall be 99% pure live seed containing a maximum of 1% weeds, none of which is noxious. The standard of 99% pure live seed is impossible to attain. If this commitment remains in the NOI, it will be impossible for the applicant to meet the performance standards, and they may be subject to a notice of violation. Although this is not a deficiency, the Division recommends the applicant modify this commitment.

The NOI does not say what seeding methods will be used. This is an important factor when considering what seeding rate to use. Broadcast seeding followed by light raking is recommended.

No fertilizer type or rate is shown. A small amount of fertilizer is acceptable, but the

soils in the area, as the NOI says, tend to be of good quality

The applicant does not propose to use mulch after seeding. As discussed above, straw bales could be used protect topsoil, and the straw could then be spread on reclaimed areas both for erosion and sediment control and to increase vegetation establishment. It is likely vegetation can be established without using mulch, and other erosion and sediment control measures are available besides mulch, but the Division recommends this procedure. If the applicant uses straw mulch, it will need to be certified noxious weed free if transported across or used on Forest Service land.

The success standards in R645-202-242 are that the reestablished vegetation be diverse, effective, permanent, of the same seasonal variety as species in the area, and capable of stabilizing the soil surface from erosion. These are the performance standards the Division requires. The NOI says revegetation efforts will be diligently pursued to ensure that an acceptable ground cover is established on all disturbed areas and that revegetation will be considered successful when 90% of the predisturbance ground cover is reestablished over the entire disturbed area with no noxious weeds. At least 90% of the vegetation shall consist of seeded or other desirable species.

**Findings:**

The NOI does not meet the requirements of this section of the regulations. The applicant needs to make the following changes:

**R645-202-242,** The applicant needs to show what seed mix will be used to revegetate the area. There is a seed mix in the NOI, but the applicant has not committed to use it. The seed mix in the NOI contains several introduced species not needed for revegetating this area, and several desirable native species are available that could be used instead.

**R645-202-242,** The NOI needs to show what seeding methods will be used.

**R645-202-242,** The NOI needs to show what fertilizer would be used and at what rate.

The Division recommends using straw mulch for sediment and erosion control and to increase vegetation establishment. Also, the standard for pure live seed shown in the NOI is impossible to attain. No specific standard for pure live seed is needed as long as the seed meets the requirements of the Utah Seed Act and is properly stored and used.

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## **Engineering**

Regulatory Reference: R645-301-114.210

The portion of the exploration dealing with category II should provide written documentation for right of entry.

### **RECOMMENDATIONS:**

Prior to approval, the applicant needs to provide details of several aspects of the exploration proposal. The project would occur in an area that contains critical wildlife habitat and several streams. It is likely there are also wetlands in the area. The applicant must show how these resources will be protected.

In addition, the reclamation plan contains few concrete commitments. The applicant must show what methods will be used to reclaim the proposed exploration sites.

Please respond to these deficiencies by February 6, 1998. If you have any questions, please call.

Sincerely,



Joseph C. Helfrich  
Permit Supervisor

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cc: Steve Demczak, PFO

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