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

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 14580
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

March 27, 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, and Paul Baker, 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:

A letter from Maxim Technologies, Inc. was received by the Division on February 19, 1998 as a response to the January 15, 1998 Technical Analysis. This format makes review more difficult and the Operator is encouraged to provide one complete and comprehensive package. This would result in faster Division review. A second advantage is that site inspection would be far less likely to result in miscommunication and possible Notice of Violation. There seems to be information missing from the letter as the opening sentence on page 4 is incomplete.

The submittal indicates "these activities will not result in any new stream crossings." While that is true, there will still be a crossing of Flat Canyon Creek for drill site 99-32-1. This is a perennial stream according to the map and the Division needs to know the plans for minimizing impact to the stream. The significant traffic loads and volumes were enumerated in the January 15, 1998 Technical Analysis. As indicated in that TA, simply fording the stream will not be adequate.

The typographic discrepancies in acreage and number of drill holes were cleared up.

The method of abandoning drill holes not used for monitoring was explained and used a cement/bentonite grout to seal the holes from the bottom to the surface. This should prevent any aquifer cross-contamination underground.

The Operator has not committed to a procedure whereupon they will or will not establish a series of groundwater monitoring wells to determine the potentiometric surface. Instead the term "desirous" is used. Given the nature of the (often) perched groundwater aquifers in the region, and the several private properties on the surface, the potentiometric surface above the mining area would be of the greatest interest. This is where the potential impacts of mining would be manifest. The submittal indicates a desire to determine "the potentiometric surface immediately under the lowest coal to be mined."

This is an application for exploration, not a Mining and Reclamation Plan (MRP) or Permit Application Package. However, mining in this area could not be approved without adequate hydrologic baseline information. It would be expected that, if the Operator decides to mine the area covered in this exploration, the potentiometric surface would be established above the coal to be mined. Three drill holes would be required to establish such a surface. While this analysis will not find the submittal to be inadequate, the Operator is urged to review R635-301-624.100 where it is required to provide, "A description of the geology in the proposed permit and adjacent areas **down to and including** the deeper of either the stratum immediately below the lowest coal seam or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. and will also show how the regional and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water."

Due to winter conditions, this analysis has been strictly a "paperwork exercise" without benefit of a field visit by any of the Division staff. Given the extensive nature of the drilling project, it would be essential that such field visits are conducted before final Division approval be given.

This reviewer concurs completely with other reviewers who indicate the following:

- A. The need for information regarding wetlands, especially on Flat Canyon Creek, that may be affected by the operations.
- B. The need to treat all cuttings as acid or toxic forming unless they are tested and found otherwise.
- C. The recommendation that sites be roughened and then treated with straw mulch after seeding.

Findings:

Prior to approval, the Division needs, as detailed above, information regarding stream crossing, to visit the drill sites, information regarding wetlands, and treatment of untested cuttings as acid and toxic forming.

TECHNICAL ANALYSIS:

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 that need to be protected from May 15 to July 1. However, only certain parts of the area, such as those with nearby water sources and aspen stands, are likely to actually be used for fawning and calving.

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, holes 99-32-1 and 98-2-1 are in locations that may allow for installation before July 15. There should be no concerns with drilling 99-32-1 before July 1, but the road leading to 98-2-1 goes through areas that Wildlife Resources believes are used for fawning and calving. Therefore, this area should not be disturbed until after July 1.

In addition to the critical elk and deer habitat, the area contains good habitat for red-tailed hawks and accipiters, including northern goshawks. The NOI says the areas near the holes proposed to be drilled before July 15 will be surveyed for raptor nests. The area near hole 99-32-1 was surveyed in 1997, and a nest was found about one mile away and over a ridge. This area does not need to be checked again. However, if 98-2-1 is to be drilled before July 15, it will need to be surveyed. The original survey for nests must be done before the trees have started to leaf out and a check for activity completed later during the nesting season. If any active nests are found within one-half mile of the drill site, this area must be until July 15.

According to the NOI, there are no riparian habitats or wetlands 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 response to the Division's first analysis says five of the seven holes on private land with fee coal are on ridgetops and that the other two are on benches more than 100 feet away from standing or flowing water.

Findings:

Information provided in the NOI is not considered adequate to meet the requirements of this section. Prior to approval, the applicant must provide the following in accordance with:

R645-202-231, Because of deer fawning and elk calving areas along the access road, exploration hole 98-2-1 should not be drilled until after July 1. If the applicant intends to drill this

hole before July 15, surveys for raptor nests need to be done to confirm whether there are active nests within one-half mile of the site. One survey would need to be completed before trees in the area leaf out, and another survey would show whether any nests were active. If there are any active nests, the applicant would need to either not drill the hole until later or perform appropriate mitigation.

TOPSOIL

Regulatory Reference: R645-202-233

Analysis:

A soil scientist or geologist with soils experience will be utilized to determine the topsoil which will be salvaged during road and pad construction. The applicant anticipates salvaging and stockpiling the upper two horizons.

The applicant needs to show what criteria will be used to determine whether soil will be salvaged and how much. While the commitment to salvage the upper two horizons is good, it may not always be necessary or desirable to do this. On new roads, salvaging the soil may sometimes cause more environmental damage than leaving it in place.

Where required, silt fencing and/or straw dikes will be used to protect the topsoil stockpile from erosion. The NOI includes a typical layout for a drill pad showing straw bales or silt fence around the downhill side of the topsoil stockpile. This arrangement should be adequate.

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 what criteria will be used to determine whether and how much topsoil will be salvaged.

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.

The applicant commits to collect composite samples from the first three mud pits, and, if these materials are not toxic according to R645-301-553.260, all materials will be considered non-toxic and disposed of in the waste rock area or left in place. If they are found to be toxic or acid-forming, they will be disposed of by burying them with a minimum of four feet of non-toxic, non-acid forming, and non-combustible material in the waste rock area.

These commitments are acceptable. Even if the cuttings are considered non-toxic, they should be buried as deeply as possible since they may have other undesirable characteristics, such as high clay content.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

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 the seed spread. Seed will be either broadcast followed by raking or hydroseeded. The surfaces of graded areas will be left rough. Mulch can be added where needed.

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. Where needed, silt fences and straw dikes may be used to aid in sediment control.

The Division recommends using mulch for sediment control after reclamation. Certified noxious weed free straw is a relatively inexpensive but effective way to control erosion and sedimentation, especially when used in combination with roughening.

The response to the first analysis says the applicant will use the seed mixture recommended by the Division. Rather than referencing the Division's comments, the applicant needs to show the seed mixture in the NOI. The seed mixture recommended by the Division would be acceptable, however. The applicant commits to use seed that complies with the requirements of the Utah Seed Act.

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. The mix recommended by the Division and referenced in the NOI is acceptable, but it needs to be shown in the NOI.

The Division strongly recommends using straw mulch for sediment and erosion control and to increase vegetation establishment.

RECOMMENDATIONS:

The NOI should not be approved until the deficiencies outlined in this memorandum are resolved.

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. 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.

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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.

Engineering

Regulatory Reference: R645-301-114.210

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

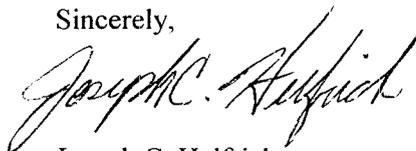
RECOMMENDATIONS:

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 April 13, 1998. If you have any questions, please call.

Sincerely,



Joseph C. Helfrich
Permit Supervisor