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ok

October 19, 2001

Rick Olsen, General Manager  
Canyon Fuel Company, LLC  
P.O. Box 1029  
Wellington, Utah 84542

Re: Gilson Water Well, Canyon Fuel Company, LLC., Dugout Mine, C/007/039-01H,  
Outgoing File

Dear Mr. Olsen:

The above-referenced amendment has been reviewed. There are deficiencies that must be adequately addressed prior to approval. A copy of our Technical Analysis is enclosed for your information. In order for us to continue to process your application, please respond to these deficiencies by November 15, 2001.

If you have any questions, please call me at (801) 538-5325 or Stephen J. Demczak at (435) 613-5242.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

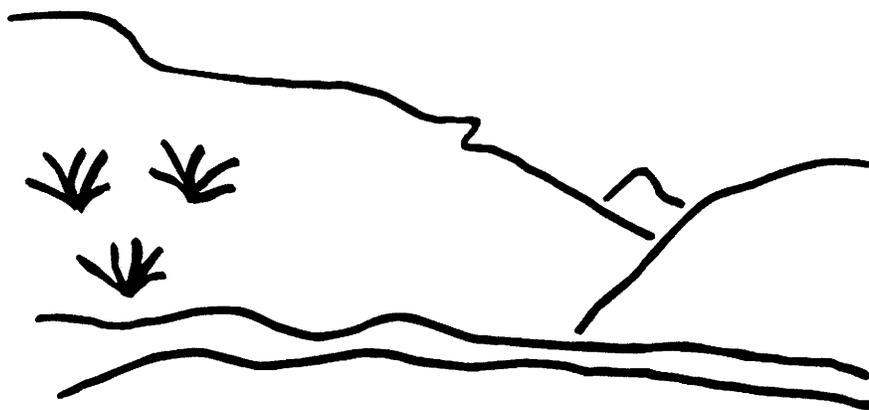
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Enclosure

cc: Price Field Office

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# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Dugout Canyon Mine  
Gilson Water Well  
C/007/039-01H  
Technical Analysis  
October 16, 2001

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## TECHNICAL ANALYSIS

### INTRODUCTION

Canyon Fuel Company, LLC has submitted a proposal to drill a water well and construct an additional water tank. The well will be some 450 feet from the water tanks along the east side of the water tank access road. The well will be 300 feet in depth and will intercept water collecting in the Gilson seam. The drill pad will be fairly level, adjacent to and even with the roadway, extending five feet into the existing stream channel. A retaining wall for the pad will stand 15 feet from the channel to the pad surface (see Dwg G-346 and GE4B001 in Chapter 5).

The water will be used for fire and dust suppression at the Dugout mine.

The Division, under ACT/007/039-AM99G on January 14, 2000, first reviewed the application for the Gilson Seam Well. The application was withdrawn and resubmitted on August 4, 2001 and given the file number C/007/039-01H.

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C/007/039-01H  
October 17, 2001

**INTRODUCTION**

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**SUMMARY OF OUTSTANDING DEFICIENCIES**

**SUMMARY OF DEFICIENCIES**

*The Technical Analysis of the proposed permit changes cannot be completed at this time. Additional information is requested of the permittee to address deficiencies in the proposal. A summary of deficiencies is provided below. Additional comments and concerns may also be found within the analysis and findings made in this Draft Technical Analysis. Upon finalization of this review, any deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the Division, result in denial of the proposed permit changes, or may result in other executive or enforcement action as deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.*

*Accordingly, the permittee must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:*

**Regulations**

- R645-301-244, -301-353, -301-354, -301-355, -301-356**, the applicant needs to commit to following the vegetative guidelines set forth by the Division. Planting is to commence during the first favorable planting season. The applicant needs to commit to applying the standards of success in accordance with the approved post mining land use ..... 34
- R645-301-322, -301-333, -301-342, -301-358**, the applicant must address section 301-322 of the regulations. The current application does not include a wetland classification for the proposed areas to be affected or a reference to appendix 3-3. The applicant must provide the amount of water consumed on an annual basis, if any, as a result of the installation of the well and relocation of the stream..... 16
- R645-301-322**, Plate 5-2 needs to be revised to include the proposed addition within the disturbed area. .... 6
- R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731**, the application must address these sections of the regulations. .... 37
- R645-301-330, -301-331, -301-332**, the proposal needs to include a commitment to implement the protective enhancement measures as described in section 3.1.1 of the approved MRP. .... 18
- R645-301-333, -301-342, -301-358**, the application also needs to include or provide reference to an interim seed mix to establish a shallow rooting cover of grasses and alfalfa. For those disturbed areas associated with the drill pad development and stream location. The application also needs to be revised to include a reference Appendix 3-3..... 31

**SUMMARY OF OUTSTANDING DEFICIENCIES**

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**R645-301-341.200**, Add the Gilson well to the riparian areas shown on Plate 3-1A. .... 30

**R645-301-521.100**, Update the surface facilities map to show the total disturbed area that will include the water well installation. Update Plate 7-5 with complete information as described above. Clarify page 7-4, first paragraph, and first sentence as described above. .... 27

**R645-301-542.200** - A plan for backfilling, soil stabilization, compacting and grading with contour maps, or cross section that shows the anticipated final surface configuration of the well site. .... 30

**R645-301-742**, Provide sediment control measures to be used during construction. .... 25

**R645-301-748 and -301-765**, Provide information on the casing and sealing of the well and the permanent casing and sealing of the well at reclamation. .... 25

**ENVIRONMENTAL RESOURCE INFORMATION**

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## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

### **VEGETATION RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.19; R645-301-320.

**Minimum Regulatory Requirements:**

Provide a map that delineates existing vegetative types and a description of the plant communities within the area affected by surface operations and facilities and within any proposed reference area. The description shall include information adequate to predict the potential for reestablishing vegetation. The map or aerial photograph is required, sufficient adjacent areas shall be included to allow evaluation of vegetation as important habitat for fish and wildlife for those species of fish and wildlife as identified under the fish and wildlife resource information.

**Analysis:**

Vegetation in the proposed addition to the disturbed area is classified as Riparian, (stream bank deciduous). The current Mining and Reclamation Plan, (MRP) includes the vegetative information for the disturbance associated with the construction of the well pad and retaining wall. The location of the drill pad is approximately 450 feet below the water tank along the east side of the water tank access road. The vegetation map, (plate 3-1) of the MRP lists the proposed disturbed area as deciduous stream bank. Plate 3-1 and the vegetation inventory map provided for in attachment 3-1 accurately characterize the vegetation of the drill pad. The information in the MRP and proposal is adequate to predict the potential for revegetation.

**Findings:**

The information provided is adequate to meet the requirements of this section of the regulations.

### **FISH AND WILDLIFE RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 784.21; R645-301-322.

**Minimum Regulatory Reference:**

The application shall include fish and wildlife resource information for the permit area and adjacent area. The scope and level of detail for such information shall be determined by the Division in consultation with State and Federal agencies with responsibilities for fish and wildlife and shall be sufficient to design the protection and enhancement plan required under the operation and reclamation plan.

Site-specific resource information necessary to address the respective species or habitats shall be required when the permit area or adjacent area is likely to include:

## ENVIRONMENTAL RESOURCE INFORMATION

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- (1) Listed or proposed endangered or threatened species of plants or animals or their critical habitats listed by the Secretary under the endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), or those species or habitats protected by similar State statutes;
- (2) Habitats of unusually high value for fish and wildlife such as important streams, wetlands, riparian areas, cliffs supporting raptors, areas offering special shelter or protection, migration routes, or reproduction and wintering areas; or
- (2) Other species or habitats identified through agency consultation as requiring special protection under State or Federal law.

### Analysis:

The Fish and Wildlife Information is located in chapter 3 section 322.100 through 322.200 of the approved MRP, Plate 5-2 needs to be revised to include the proposed addition within the disturbed area.

A raptor survey that does encompass the proposed drill pad location area has been conducted in 2001 by the Utah Division of Wildlife resources. Plate 3-2 of the current MRP includes the current survey.

### Findings:

Information in the application is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-322**, Plate 5-2 needs to be revised to include the proposed addition within the disturbed area.

## SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

### Minimum Regulatory Requirements:

Provide adequate soil survey information on those portions of the permit area to be affected by surface operations or facilities consisting of a map delineating different soils, soil identification, soil description, and present and potential productivity of existing soils.

Where selected overburden materials are proposed as a supplement or substitute for topsoil, provide results of the analysis, trials and tests required. Results of physical and chemical analyses of overburden and topsoil must be provided to demonstrate that the resulting soil medium is equal to or more suitable for sustaining revegetation than the available topsoil, provided that trials and tests are certified by an approved laboratory. These data may be obtained from any one or a combination of the following sources: U.S. Department of Agriculture Soil Conservation Service published data based on established soil series; U.S. Department of Agriculture Soil Conservation Service Technical Guides; State agricultural agency, university, Tennessee Valley Authority, Bureau of Land Management or U.S. Department of Agriculture Forest Service published data based on soil series properties and behavior; or, results of physical and chemical analyses, field site trials, or greenhouse tests of the topsoil and overburden materials (soil series) from the permit area. If the permittee demonstrates through soil survey or other data that the topsoil and unconsolidated material are insufficient and substitute materials will be used, only the substitute materials must be analyzed.

### Analysis:

ENVIRONMENTAL RESOURCE INFORMATION

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The well disturbance is 450 below the water tanks along the water tank access road as shown in Drawings G-346 and GE4B001. The concrete pad for the well site will cover undisturbed soil and a rock outcrop. The plan states that the well site will cover 2000 sq. ft. of undisturbed soil that "lies in a stranded flood plain bench above the stream at the toe of a colluvium covered slope (App 2-8, p ii)." The disturbance will be approximately 30 feet from the realigned stream (see Drawing GE 4 B001).

Chris Hansen, EarthFax Engineering, Inc., gathered the soil resource information. A qualification statement for performing the Dugout Canyon soil survey and a personal résumé are provided in Appendix 2-3, Soil Test Pit Logs.

One soil pit was dug to a depth of five feet. The results of soil analysis for test pit 17 are shown in Table 2-1. The submittal also contains Attachment A, "Technical Field Visit Report"; Attachment B, Exhibit A of Appendix 2-8, "Soils Map – Gilson Water Well Site"; and Attachment C, "Soils Log for Test Pit TP-17"; and Attachment D, "TP-17 Soil Samples" Laboratory Data Sheets from Inter-Mountain Laboratories in Sheridan, Wyoming.

Soils of the site are represented by test pit 17 which is shown on Exhibit A of Appendix 2.8 and described in Table 2-1. The soils are sandy loam with 19% coarse fragments in the surface 1.7 inches. The coarse fragments drop to less than 1% for the next 44 inches and then rise to 4.7%. A buried "Bb1" horizon is found at 29.5 inches. The texture of the 29.5 to 31.0 inch buried "Bb1" horizon is loam. The buried "Bb1" horizon has better properties than the surface topsoil horizon i.e. 9.3 Available Water-Holding Capacity (AWC) compared with less than 5 AWH and saturation percentage of 43.6% compared with less than 33.2%. Below this narrow band of loam is sandy clay loam to a depth of 60 inches.

The Third Order Carbon Co. Survey (SCS, 1988) places the soil in the Rock Outcrop Rubbleland-Travessilla Complex. Mr. Hansen identifies the soil after sampling as TS soil which is described on Plate 2-2 as "native or surficially disturbed soil" and on page 2-5 of the MRP as "loamy mixed Typic Haploboroll." As described, the TS soil appears to have approximately 30% gravel size rock fragments throughout the profile. Cobbles and sand increase in the "C" horizon (from 28 inches downward).

From what has been presented in the plan, the soil in test pit 17 is similar to the TS soil in that it has a neutral pH and low EC and SAR values. However, it has a much finer texture than the TS soil and does not possess the characteristic coarse fragments of the TS soil.

Perhaps the best description of the TS soil is found in the Dugout Mine TA:

*The undisturbed soils were identified by the Order-I survey as part of the SCS listed soil unit Datino Variant complex, and were given the distinction "Soil Type TS." According to the SCS Carbon County soils survey, the Datino Variant soil complex is characterized as very deep, well drained, moderate permeable soils on mountain slopes being formed in colluvium derived*

**ENVIRONMENTAL RESOURCE INFORMATION**

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*dominantly from sandstone and shale. The SCS survey defines Datino Variant soils as loamy-skeletal, mixed Typic Haploborolls. The typic subgroup of Haploborolls<sup>1</sup> is defined as freely drained soils with a moderately thick brownish mollic epipedon. Typic Haploborolls were formed in alluvium during the late-Pleistocene or Holocene ages, do not have a shallow lithic (stone) contact, and do not have deep wide cracks in most years. The USDA handbook further states that where slopes are suitable, Haploborolls are mostly under cultivation.*

*Undisturbed TS soils, as represented by soil test pits TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A, are found on both sides of Dugout Creek in the northeastern portion and in the southwestern portion of the facilities area. The TS soils are found in flat lying areas and on slopes with grades up to 40 percent or more. The soil supports vegetation consisting of sage, cottonwood, gambel oak, grass, pinyon, and fir. Information condensed from soil test pit TP-4, TP-6 and lower sections of pit TP-1 show soil horizons O1 (1 inch), A1 (1 to 5 inches), B2 (5 to 14 inches), B3 (14 to 28 inches), and C (28 inches to 9 feet). Portions of TP-5 and TP-8 soil profiles appear to have been reworked by Dugout Creek; the upper four feet of TP-1 soil profile appear disturbed. Undisturbed Type TS soils have acceptable physical and chemical characteristic results consistent with requirements outlined by DOGM's soil and overburden guidelines as recorded in Table 2-1.*

*Other undisturbed soils located within the Disturbed Area Boundary and described by the SCS soils Order-III survey include Croydon loam, Comodore-Datino Variant complex, and Rock Outcrop-Rubbleland-Travessilla complex soils.*

**Findings:**

The information provided is adequate for the purposes of the Environmental Soils Resource requirements of the Regulations.

**PRIME FARMLAND**

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

**Minimum Regulatory Requirements:**

The U.S. Soil Conservation Service within each State shall establish specifications for prime farmland soil removal, storage, replacement, and reconstruction. The Division shall use the soil-reconstruction specifications to carry out its responsibilities under this section.

The requirements of this part shall not apply to:

Note: This section is suspended "insofar as it excludes from the requirements of Prime Farmlands those coal preparation plants, support facilities, and roads that are surface mining activities".

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<sup>1</sup>Soil Conservation Service, U.S. Department of Agriculture, Agriculture Handbook No.436, pp 288-289.

**ENVIRONMENTAL RESOURCE INFORMATION**

- (1) Coal preparation plants, support facilities, and roads of surface and underground mines that are actively used over extended periods of time and where such uses affect a minimal amount of land.
- (2) Disposal areas containing coal mine waste resulting from underground mines that is not technologically and economically feasible to store in underground mines or on non-prime farmland. The operator shall minimize the area of prime farmland used for such purposes.
- (3) Prime farmland that has been excluded in accordance with any valid existing rights as indicated below.

This section applies to any person who conducts or intends to conduct surface coal mining and reclamation operations on prime farmland historically used for cropland. This section does not apply to:

- (1) Lands on which surface coal mining and reclamation operations are conducted pursuant to any permit issued prior to August 3, 1977; or
- (2) Lands on which surface coal mining and reclamation operations are conducted pursuant to any renewal or revision of a permit issued prior to August 3, 1977; or
- (3) Lands included in any existing surface coal mining operations for which a permit was issued for all or any part thereof prior to August 3, 1977, provided that: such lands are part of a single continuous surface coal mining operation begun under a permit issued before August 3, 1977; and the permittee had a legal right to mine the lands prior to August 3, 1977, through ownership, contract, or lease but not including an option to buy, lease, or contract; and the lands contain part of a continuous recoverable coal seam that was being mined in a single continuous mining pit (or multiple pits if the lands are proven to be part of a single continuous surface coal mining operation) begun under a permit issued prior to August 3, 1977.

For purposes of this section, renewal of a permit means a decision by the Division to extend the time by which the permittee may complete mining within the boundaries of the original permit, and revision of the permit means a decision by the Division to allow changes in the method of mining operations within the original permit area, or the decision of the Division to allow incidental boundary changes to the original permit. A pit shall be deemed to be a single continuous mining pit even if portions of the pit are crossed by a road, pipeline, railroad, or power line or similar crossing. A single continuous surface coal mining operation is presumed to consist only of a single continuous mining pit under a permit issued prior to August 3, 1977, but may include non-contiguous parcels if the operator can prove by clear and convincing evidence that, prior to August 3, 1977, the non-contiguous parcels were part of a single permitted operation. For the purposes of this paragraph, clear and convincing evidence includes, but is not limited to, contracts, leases, deeds or other properly executed legal documents (not including options) that specifically treat physically separate parcels as one surface coal mining operation.

All permit applications, whether or not prime farmland is present, shall include the results of a reconnaissance inspection of the proposed permit area to indicate whether prime farmland exists. The Division in consultation with the U.S. Soil Conservation Service shall determine the nature and extent of the required reconnaissance inspection.

If the reconnaissance inspection establishes that no land within the proposed permit area is prime farmland historically used for cropland, the applicant shall submit a statement that no prime farmland is present. The statement shall identify the basis upon which such a conclusion was reached.

If the reconnaissance inspection indicates that land within the proposed permit area may be prime farmland historically used for croplands, the applicant shall determine if a soil survey exists for those lands and whether soil mapping units in the permit area have been designated as prime farmland. If no soil survey exists, the applicant shall have a soil survey made of the lands within the permit area which the reconnaissance inspection indicates could be prime farmland. Soil surveys of the detail used by the U.S. Soil Conservation Service for operational conservation planning shall be used to identify and locate prime farmland soils.

If the soil survey indicates that no prime farmland soils are present within the proposed permit area, the plan shall include the results of a reconnaissance inspection of the proposed permit area to indicate whether prime farmland exists.

**Analysis:**

The application includes an approval letter dated September 14, 1999 from the State Engineer to change the point of diversion of 2.3 cfs of water from a point located in Section 3 of T14S, R12E (downstream from the mine and leachfield) to the Gilson well site (App. 7-1). Apparently, the Dugout Mine diverted the water for supplemental irrigation of 605.7 acres and for stock watering of 810 cattle from April 1 to September 30. This former use of water was not divulged in the Mining and Reclamation Plan Application.

## ENVIRONMENTAL RESOURCE INFORMATION

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The prime farmland determination letter is found in Volume 2 of the Permit in Appendix 2-1. It refers specifically to Field 1 that is in Section 1 T14S, R12E that the access road bisects. Page 2-2 of the MRP indicates that during the permitting process for the Sage-Point Dugout mine areas of potential prime farmland were identified outside of the Dugout Canyon permit area, near the mouth of Soldier Creek Canyon. No prime farmland was identified in Dugout Canyon.

### Findings:

The information provided is adequate to make a determination that Prime Farmland is not affected by the mining operation as required by the Regulations.

## MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

### Minimum Regulatory Requirements:

The permit application must include as part of the Resource Information, the following maps, plans and cross sections:

#### Affected area boundary maps

The boundaries of all areas proposed to be affected over the estimated total life of the underground mining activities, with a description of size, sequence, and timing of the mining of subareas for which it is anticipated that additional permits will be sought.

#### Archeological site maps

Known archeological sites within the permit or adjacent areas. Note - Information on the nature and location of archeological resources on public land and Indian land as required under the Archeological Resources Protection Act of 1979 must be submitted separately from the application, and marked and held as confidential.

#### Coal resource and geologic information maps

Nature, depth, and thickness of the coal seams to be mined, any coal or rider seams above the seam to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mined. All coal crop lines and the strike and dip of the coal to be mined within the proposed permit area.

#### Cultural resource maps

The boundaries of any public park and locations of any cultural and historical resources listed or eligible for listing in the National Register of Historic Places. Each cemetery that is located in or within 100 feet of the proposed permit area. Any land within the proposed permit area which is within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System, including study rivers designated under Section 5(a) of the Wild and Scenic Rivers Act. Any other relevant information required by the Division.

#### Existing structures and facilities maps

Location and dimensions of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area.

#### Existing surface configuration maps

Sufficient slope measurements to adequately represent the existing land surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of

**ENVIRONMENTAL RESOURCE INFORMATION**

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inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the premining configuration of the land; and, slope measurements shall take into account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed.

**Mine workings maps**

Location and extent of know workings of active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas. Location and extent of existing or previously surface-mined areas within the proposed permit area.

**Monitoring and sampling location maps**

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, fish and wildlife, and air quality, if required, in preparation of the application

**Permit area boundary maps**

The boundaries of land within the proposed permit area upon which the applicant has the legal right to enter and begin underground mining activities.

**Subsurface water resource maps**

Location and extent of subsurface water, if encountered, within the proposed permit or adjacent areas, including, but not limited to, areal and vertical distribution of aquifers, and portrayal of seasonal differences of head in different aquifers on cross sections and contour maps.

**Surface and subsurface manmade features maps**

The location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current use of the buildings. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area.

**Surface and subsurface ownership maps**

All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, included in or contiguous to the permit area.

**Surface water resource maps**

The locations of water-supply intakes for current users of surface waters flowing into, out of, and within a hydrologic area defined by the Division, and those surface waters which will receive discharges from affected areas in the proposed permit area. Location of surface water bodies such as streams, lakes, ponds, springs, constructed or natural drains, and irrigation ditches within the proposed permit and adjacent areas.

**Vegetation reference area maps**

The location and boundaries of any proposed reference areas for determining the success of revegetation.

**Well maps**

Location, and depth if available, of gas and oil wells within the proposed permit area and water wells in the permit area and adjacent areas.

Cross sections, maps, and plans included in a permit application as required by this section shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional, land surveyor, with assistance from experts in related fields such as landscape architecture, and shall be updated periodically as required by the Division.

**Analysis:**

### **Vegetation Reference Area Maps**

Plate 3-1, (vegetation) of the current MRP does depict a riparian reference area for the proposed disturbance.

### **Findings:**

Information in the application is adequate to meet this section of the regulations.

**OPERATION PLAN**

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# OPERATION PLAN

## FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

### Minimum Regulatory Requirements:

#### Protection and enhancement plan

Each application shall include a description of how, to the extent possible using the best technology currently available, the operator will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations and how enhancement of these resources will be achieved where practicable. This description shall apply, at a minimum, to species and habitats identified. The description shall include: protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, and the monitoring of surface water quality and quantity; and, enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Such measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of vegetation for wildlife food and cover, and the placement of perches and nest boxes. Where the plan does not include enhancement measures, a statement shall be given explaining why enhancement is not practicable.

Each operator shall, to the extent possible using the best technology currently available: ensure that electric powerlines and other transmission facilities used for, or incidental to, underground mining activities on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary; locate and operate haul and access roads so as to avoid or minimize impacts on important fish and wildlife species or other species protected by State or Federal law; design fences, overland conveyors, and other potential barriers to permit passage for large mammals except where the Division determines that such requirements are unnecessary; and, fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic-forming materials.

#### Endangered and threatened species

No underground mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The operator shall promptly report to the Division any State- or federally-listed endangered or threatened species within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with appropriate State and Federal fish and wildlife agencies and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

#### Bald and golden eagles

No underground mining activity shall be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs. The operator shall promptly report to the Division any golden or bald eagle nest within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with the U.S. Fish and Wildlife Service and also, where appropriate, the State fish and wildlife agency and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

Nothing in these regulatory requirements shall authorize the taking of an endangered or threatened species or a bald or golden eagle, its nest, or any of its eggs in violation of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq., or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

#### Wetlands and habitats of unusually high value for fish and wildlife

The operator conducting underground mining activities shall avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Underground mining activities shall avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

### Analysis:

### **Protection and Enhancement Plan**

Appendix 3-3 provides for a mitigation plan that could be implemented for the proposed drill pad. The application needs to be revised to include a reference to the mitigation plan contained in Appendix 3-3 section 3.1.1. Plate 3-2 indicates that the area is a high use area for deer and elk at certain times throughout the year. There are no raptor nests within one mile of the proposed drill pad.

### **Endangered and Threatened Species**

The Fish and Wildlife Service has provided a list of proposed and listed threatened and endangered species for Carbon and Emery County for the Dugout Mine. The Division analyzed the potential for each species on this list to be affected by the proposed addition to the permit area, and, except for potential effects to the threatened and endangered fish of the upper Colorado River basin (see discussion below), there should be no effects. Species on the list are:

Graham Beardtongue	Razorback Sucker
Bald Eagle	Humpback Chub
Peregrine Falcon	Colorado Pikeminnow
Black-footed ferret	Bonytail Chub

The peregrine falcon is no longer listed, but it is still protected. Raptor surveys have failed to locate peregrine falcon scrapes in the permit area or the federal lease addition although they have been found nearby. If the current survey indicates that there are raptors within one mile from the proposed disturbed area, mitigation will be required.

According to Ben Franklin of the Utah Natural Heritage Program, there is a historical collection of Graham beardtongue from the extreme northeastern corner of Carbon County a few hundred feet from the county line. It is an endemic that occurs almost exclusively on the Green River Formation in Uintah and Duchesne counties. There is virtually no likelihood the mine would affect this species.

There have been no confirmed sightings of black-footed ferrets in Carbon County in several years, so there should be no effect on this species.

Through water use, the mine could adversely affect threatened and endangered fish of the upper Colorado River basin. The Fish and Wildlife Service requires mitigation when annual water use exceeds 100 acre-feet. According to the revised Probable Hydrologic Consequences document, the increased acreage will not result in increased water use, which is currently estimated at 46.5 acre-feet per year. The water use for the well is not provided in this application.

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The Division received a letter from the Fish and Wildlife Service dated March 28, 2000, concurring with the Division's findings on threatened and endangered species. Although water depletions are considered to jeopardize the continued existence of the threatened and endangered fish of the upper Colorado River basin, depletions are addressed by existing inter-agency Section 7 agreements. Therefore, no additional action or mitigation is required at this time. If the mine causes additional depletions, it will be necessary to reassess this determination.

The existing mining and reclamation plan contains information about threatened, endangered, and sensitive species. According to Section 322.200, no threatened or endangered plant or wildlife species were discovered in recent inventories by Wildlife Resources, the Forest Service, or other qualified personnel. Appendix 3-1 contains a letter from Robert Thompson, Forest Service botanist, indicating the area contains no threatened or endangered plant species.

A June 24, 1995 survey for canyon sweetvetch found this sensitive species along Dugout Creek approximately one-half mile below the gate. The Division is aware of a fairly extensive population in the permit area in Fish Creek Canyon, and it could occur in other parts of the permit area and proposed addition.

Section 322.200 says two listed species, the bald eagle and black-footed ferret, could potentially inhabit the area. There have been no confirmed sightings of black-footed ferrets in Carbon County in several years, but bald eagles probably occur within the permit area during the winter.

Dugout Creek is within the drainage of the Green River, which is habitat for certain threatened and endangered fish of the upper Colorado River basin. Through effects on water quantity and quality, the mine could potentially adversely affect these species.

**Bald and Golden Eagles**

Although bald eagles are common winter residents, there are no nests or concentrated roosting sites within either the current permit area or the proposed addition. As required by R645-301-358.100, the permittee must promptly report to the Division any state or federally listed endangered or threatened species within the permit area of which it becomes aware. Seasonal or migrating bald eagles are expected and would not need to be reported.

**Wetlands and Habitats of Unusually High Value for Fish and Wildlife**

The applicant has not addressed this section of the regulations.

**Findings:**

Information provided in the proposal is not adequate to meet the requirements of these sections of the regulations. Prior to approval the applicant must provide the following in accordance with:

**R645-301-322, -301-333, -301-342, -301-358**, the applicant must address section 301-322 of the regulations. The current application does not include a wetland classification for the proposed areas to be affected or a reference to appendix 3-3. The applicant must provide the amount of water consumed on an annual basis, if any, as a result of the installation of the well and relocation of the stream.

## TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR 817.22; R645-301-230.

### Minimum Regulatory Requirements:

#### Topsoil removal and storage

All topsoil shall be removed as a separate layer from the area to be disturbed, and segregated. Where the topsoil is of insufficient quantity or of poor quality for sustaining vegetation, the selected overburden materials approved by the Division for use as a substitute or supplement to topsoil shall be removed as a separate layer from the area to be disturbed, and segregated. If topsoil is less than 6 inches thick, the operator may remove the topsoil and the unconsolidated materials immediately below the topsoil and treat the mixture as topsoil.

The Division may choose not to require the removal of topsoil for minor disturbances which occur at the site of small structures, such as power poles, signs, or fence lines; or, will not destroy the existing vegetation and will not cause erosion.

All materials shall be removed after the vegetative cover that would interfere with its salvage is cleared from the area to be disturbed, but before any drilling, blasting, mining, or other surface disturbance takes place.

Selected overburden materials may be substituted for, or used as a supplement to, topsoil if the operator demonstrates to the Division that the resulting soil medium is equal to, or more suitable for sustaining vegetation than, the existing topsoil, and the resulting soil medium is the best available in the permit area to support revegetation.

Materials removed shall be segregated and stockpiled when it is impractical to redistribute such materials promptly on regraded areas. Stockpiled materials shall: be selectively placed on a stable site within the permit area; be protected from contaminants and unnecessary compaction that would interfere with revegetation; be protected from wind and water erosion through prompt establishment and maintenance of an effective, quick growing vegetative cover or through other measures approved by the Division; and, not be moved until required for redistribution unless approved by the Division.

Where long-term surface disturbances will result from facilities such as support facilities and preparation plants and where stockpiling of materials would be detrimental to the quality or quantity of those materials, the Division may approve the temporary distribution of the soil materials so removed to an approved site within the permit area to enhance the current use of that site until needed for later reclamation, provided that: such action will not permanently diminish the capability of the topsoil of the host site; and, the material will be retained in a condition more suitable for redistribution than if stockpiled.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, be removed and segregated, stockpiled, and redistributed as subsoil in accordance with the above requirements if it finds that such subsoil layers are necessary to comply with the revegetation.

### Analysis:

#### Removal and Storage

The application includes an approval letter dated September 14, 1999 from the State Engineer to change the point of diversion of 2.3 cfs of water from a point located in Section 3 of T14S, R12E (downstream from the mine and leachfield) to the Gilson well site (App. 7-1). Apparently, the Dugout Mine diverted the water for supplemental irrigation of 605.7 acres and for stock watering of 810 cattle from April 1 to September 30. This former use of water was not

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divulged in the Mining and Reclamation Plan Application.

The prime farmland determination letter is found in Volume 2 of the Permit in Appendix 2-1. It refers specifically to Field 1 that is in Section 1 T14S, R12E that the access road bisects. Page 2-2 of the MRP indicates that during the permitting process for the Sage-Point Dugout mine areas of potential prime farmland were identified outside of the Dugout Canyon permit area, near the mouth of Soldier Creek Canyon. No prime farmland was identified in Dugout Canyon.

**Findings:**

The information provided is adequate to make a determination that Prime Farmland is not affected by the mining operation as required by the Regulations.

**VEGETATION**

Regulatory Reference: R645-301-330, -301-331, -301-332.

**Minimum Regulatory Requirements:**

Each application will contain a plan for protection of vegetation, fish, and wildlife resources throughout the life of the mine. The plan will provide a description of the measures taken to disturb the smallest practicable area at any one time and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion. This may include part or all of the plan for final revegetation as described in reclamation plan for revegetation.

For UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES a description of the anticipated impacts of subsidence on renewable resource lands and how such impact will be mitigated needs to be presented.

A description of how, to the extent possible, using the best technology currently available, the operator will minimize disturbances and adverse impacts. This description will include protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, the monitoring of surface water quality and quantity, and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion.

**Analysis:**

The vegetation map, (Plate 3-1) of the MRP describes the plant communities of the proposed site as deciduous stream bank. The drill pad has been designed to disturb the smallest area possible and still meet the requirements of the Department of Health. Appendix 3-3 section 3.1.1 of the approved MRP provides a detailed description of protective enhancement measures to be taken prior to topsoil removal. The proposal needs to include a commitment to implement the protective enhancement measures as described in this section of the approved MRP.

**Findings:**

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

**R645-301-330, -301-331, -301-332, the proposal needs to include a commitment to implement the protective enhancement measures as described in section 3.1.1 of the approved MRP.**

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### Minimum Regulatory Requirements:

#### General

All underground mining and reclamation activities shall be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The Division may require additional preventative, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented. Mining and reclamation practices that minimize water pollution and changes in flow shall be used in preference to water treatment.

#### Groundwater Monitoring

In order to protect the hydrologic balance underground mining activities shall be conducted according to the hydrologic reclamation plan. Ground-water quality shall be protected by handling earth materials and runoff in a manner that minimizes acidic, toxic, or other harmful infiltration to ground-water systems and by managing excavations and other disturbances to prevent or control the discharge of pollutants into the ground water.

Ground-water monitoring shall be conducted according to the ground-water monitoring plan. The Division may require additional monitoring when necessary. Ground-water monitoring data shall be submitted every 3 months to the Division or more frequently as prescribed by the Division. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the Division and immediately provide for any accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance. Plans and hydrologic information to evaluate and mitigate the noncompliance situation and information relevant to the PHC shall be submitted to the Division as required.

Ground-water monitoring shall proceed through mining and continue during reclamation until bond release. The Division may modify the monitoring requirements including the parameters covered and the sampling frequency if the operator demonstrates, using the monitoring data obtained, that: the operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; or, monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan.

Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of ground water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

#### Surface Water Monitoring

In order to protect the hydrologic balance, underground mining activities shall be conducted according to the approved plan, and the following: surface-water quality shall be protected by handling earth materials, ground-water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contribution of suspended solids to streamflow outside the permit area; and otherwise prevent water pollution. If drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet water-quality standards and effluent limitations, the operator shall use and maintain the necessary water-treatment facilities or water-quality controls. Surface-water quantity and flow rates shall be protected by handling earth materials and runoff in accordance with the steps outlined in the approved plan.

Surface-water monitoring shall be conducted according to the approved surface-water monitoring plan. The Division may

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require additional monitoring when necessary. Surface-water monitoring data shall be submitted every 3 months to the Division or more frequently as prescribed by the Division. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any surface-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the Division and immediately provide for any accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance. Plans and hydrologic information to evaluate and mitigate the noncompliance situation and information relevant to the PHC shall be submitted to the Division as required. The reporting requirements of the water monitoring plan do not exempt the operator from meeting any National Pollutant Discharge Elimination System (NPDES) reporting requirements.

Surface-water monitoring shall proceed through mining and continue during reclamation until bond release. The Division may modify the monitoring requirements, except those required by the NPDES permitting authority, including the parameters covered and sampling frequency if the operator demonstrates, using the monitoring data obtained, that: the operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; and, monitoring is no longer necessary to achieve the purposes set forth in the approved monitoring plan.

Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of surface water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

### Acid- and toxic-forming materials and underground development waste

Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water shall be avoided by: identifying and burying and/or treating, when necessary, materials which may adversely affect water quality, or be detrimental to vegetation or to public health and safety if not buried and/or treated; and, storing materials in a manner that will protect surface water and ground water by preventing erosion, the formation of polluted runoff, and the infiltration of polluted water.

### Discharges into an underground mine

Discharges into an underground mine are prohibited, unless specifically approved by the Division after a demonstration that the discharge will: minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area and otherwise eliminate public hazards resulting from underground mining activities; not result in a violation of applicable water quality standards or effluent limitations; be at a known rate and quality which shall meet the effluent limitations for pH and total suspended solids, except that the pH and total suspended solids limitations may be exceeded, if approved by the Division; and, meet with the approval of the Mine Safety and Health Administration.

Discharges shall be limited to the following: water; coal-processing waste; fly ash from a coal-fired facility; sludge from an acid-mine-drainage treatment facility; flue-gas desulfurization sludge; inert materials used for stabilizing underground mines; and, underground mine development wastes.

Water from one underground mine may be diverted into other underground workings according to the requirements of this section.

### Gravity discharges from underground mines

Surface entries and accesses to underground workings shall be located and managed to prevent or control gravity discharge of water from the mine. The surface entries and accesses of drift mines first used after the implementation of a State, Federal, or Federal Lands Program and located in acid-producing or iron-producing coal seams shall be located in such a manner as to prevent any gravity discharge from the mine. Gravity discharges of water from an underground mine first used before the implementation of a State, Federal, or Federal Lands Program, may be allowed by the Division if it is demonstrated that the untreated or treated discharge complies with the performance standards and any additional NPDES permit requirements.

### Water-quality standards and effluent limitations

Compliance with all applicable State and Federal water quality laws and regulations and with the effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

### Diversions: General

With the approval of the Division, any flow from mined areas abandoned before May 3, 1978, and any flow from undisturbed areas or reclaimed areas, after meeting the criteria for siltation structure removal, may be diverted from disturbed areas by means of temporary or permanent diversions. All diversions shall be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public. Diversions shall not be used to divert water into underground mines without approval of the Division.

The diversion and its appurtenant structures shall be designed, located, constructed, and maintained to: be stable;

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provide protection against flooding and resultant damage to life and property; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and, comply with all applicable local, State, and Federal laws and regulations.

Temporary diversions shall be removed when no longer needed to achieve the purpose for which they were authorized. The land disturbed by the removal process shall be restored. Before diversions are removed, downstream water-treatment facilities previously protected by the diversion shall be modified or removed, as necessary, to prevent overtopping or failure of the facilities. This requirement shall not relieve the operator from maintaining water-treatment facilities as otherwise required.

A permanent diversion or a stream channel reclaimed after the removal of a temporary diversion shall be designed and constructed so as to restore or approximate the premining characteristics of the original stream channel including the natural riparian vegetation to promote the recovery and the enhancement of the aquatic habitat. The Division may specify additional design criteria for diversions.

### Diversions: Perennial and intermittent streams

Diversion of perennial and intermittent streams within the permit area may be approved by the Division after making the finding relating to stream buffer zones that the diversions will not adversely affect the water quantity and quality and related environmental resources of the stream. The design capacity of channels for temporary and permanent stream channel diversions shall be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion. Protection against flooding and resultant damage to life and property shall be met when the temporary and permanent diversions for perennial and intermittent streams are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 10-year, 6-hour precipitation event for a temporary diversion and a 100-year, 6-hour precipitation event for a permanent diversion. The design and construction of all stream channel diversions of perennial and intermittent streams shall be certified by a qualified registered professional engineer as meeting the performance standards and any design criteria set by the Division.

### Diversions: Miscellaneous flows

Diversion of miscellaneous flows, which consist of all flows except for perennial and intermittent streams, may be diverted away from disturbed areas if required or approved by the Division. Miscellaneous flows shall include ground-water discharges and ephemeral streams. The design, location, construction, maintenance, and removal of diversions of miscellaneous flows shall meet all of the general performance standards of this section. Protection against flooding and resultant damage to life and property shall be met when the temporary and permanent diversions for miscellaneous flows are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 2-year, 6-hour precipitation event for a temporary diversion and a 10-year, 6-hour precipitation event for a permanent diversion.

### Stream buffer zones

No land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by underground mining activities, unless the Division specifically authorizes underground mining activities closer to, or through, such a stream. The Division may authorize such activities only upon finding that: underground mining activities will not cause or contribute to the violation of applicable State or Federal water quality standards and will not adversely affect the water quantity and quality or other environmental resources of the stream; and, if there will be a temporary or permanent stream-channel diversion, it will comply with the regulatory requirements for diversions.

The area not to be disturbed shall be designated as a buffer zone, and the operator shall mark it accordingly with buffer zone markers.

### Sediment control measures

Appropriate sediment control measures shall be designed, constructed, and maintained using the best technology currently available to: prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area; meet the more stringent of applicable State or Federal effluent limitations; and, minimize erosion to the extent possible.

Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed areas shall reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include but are not limited to: disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading, and prompt revegetation; stabilizing the backfilled material to promote a reduction of the rate and volume of runoff; retaining sediment within disturbed areas; diverting runoff away from disturbed areas; diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion; using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce overland flow velocity, reduce runoff volume, or trap sediment; treating with chemicals; and, treating mine drainage in underground sumps.

### Siltation Structures: General

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All surface drainage from disturbed areas shall be passed through a siltation structure before leaving the permit area. Siltation structures shall mean a sedimentation pond, a series of sedimentation ponds, or other treatment facility. Other treatment facilities means any chemical treatments, such as flocculation, or mechanical structures, such as clarifiers, that have a point-source discharge and that are utilized to prevent additional contribution of suspended solids to streamflow or runoff outside the permit area.

Disturbed area requiring treatment through a siltation structure shall not include those areas in which the only underground mining activities include: diversion ditches, siltation structures, or roads that are designed, constructed and maintained in accordance with the regulatory requirements; and, for which the upstream area is not otherwise disturbed by the operator.

Additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area shall be prevented to the extent possible using the best technology currently available. Siltation structures for an area shall be constructed before beginning any underground mining activities in that area, and upon construction shall be certified by a qualified registered professional engineer, or when authorized under the regulations, by a qualified registered professional land surveyor, to be constructed as designed and as approved in the reclamation plan.

Any siltation structure which impounds water shall be designed, constructed and maintained in accordance with the requirements for impoundments.

Siltation structures shall be maintained until removal is authorized by the Division and the disturbed area has been stabilized and revegetated. In no case shall the structure be removed sooner than 2 years after the last augmented seeding. When the siltation structure is removed, the land on which the siltation structure was located shall be regraded and revegetated in accordance with the reclamation plan. Sedimentation ponds approved by the Division for retention as permanent impoundments may be exempted from this requirement.

Any point-source discharge of water from underground workings to surface waters which does not meet effluent limitations shall be passed through a siltation structure before leaving the permit area.

### Siltation Structures: Sedimentation ponds

Sedimentation ponds, when used, shall: be used individually or in series; be located as near as possible to the disturbed area and out of perennial streams unless approved by the Division; and, be designed, constructed, and maintained to:

- 1.) Provide adequate sediment storage volume;
- 2.) Provide adequate detention time to allow the effluent from the ponds to meet State and Federal effluent limitations;
- 3.) Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the Division based on terrain, climate, other site-specific conditions and on a demonstration by the operator that the effluent limitations will be met;
- 4.) Provide a nonclogging dewatering device adequate to maintain the required time;
- 5.) Minimize, to the extent possible, short circuiting;
- 6.) Provide periodic sediment removal sufficient to maintain adequate volume for the design event;
- 7.) Ensure against excessive settlement;
- 8.) Be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste; and
- 1.) Be compacted properly.

A sedimentation pond shall include either a combination of principal and emergency spillways or a single open-channel spillway configured as specified in this section, designed and constructed to safely pass the applicable design precipitation event. The Division may approve a single open-channel spillway that is: of nonerodible construction and designed to carry sustained flows; or earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected.

The required design precipitation event for a sedimentation pond meeting the spillway requirements of this section is: for a sedimentation pond meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 100-year 6-hour event, or greater event as specified by the Division; or, for a sedimentation pond not meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 25-year 6-hour event, or greater event as specified by the Division.

In lieu of meeting the above spillway requirements, the Division may approve a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or, as applicable, a qualified registered professional land surveyor that: the sedimentation pond will safely control the design precipitation event; the water from which shall be safely removed in accordance with current, prudent, engineering practices; and, such a sedimentation pond shall be located where failure would not be expected to cause loss of life or serious property damage. If the sediment pond is located where failure would be expected to cause loss of life or serious property damage, a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event may be allowed if, in addition to the design event, is: in the case of a sedimentation pond meeting the size or other criteria of 30 CFR Sec. 77.216(a), designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event as specified by the Division; or, in the case of a sedimentation pond not meeting the size or other criteria of 30 CFR Sec. 77.216(a),

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designed to control the precipitation of a 100-year 6-hour event, or greater event as specified by the Division.

### Siltation Structures: Other treatment facilities

Other treatment facilities shall be designed to treat the 10-year, 24-hour precipitation even unless a lesser design event is approved by the Division based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations will be met. Other treatment facilities shall be designed, constructed and maintained accordance with the applicable requirements as described under sediment ponds.

### Siltation Structures: Exemptions

Exemptions to the requirements of this section may be granted if: the disturbed drainage area within the total disturbed area is small; and, the operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed drainage areas to meet effluent limitations and applicable State and Federal water-quality standards for the receiving waters.

### Discharge structures

Discharge from sedimentation ponds, permanent and temporary impoundments, coal processing waste dams and embankments, and diversions shall be controlled, by energy dissipators, riprap channels, and other devices, where necessary, to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures shall be designed according to standard engineering design procedures.

### Impoundments

The following requirements apply to both temporary and permanent impoundments:

- 1.) An impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) shall comply with the requirements of 30 CFR Sec. 77.216 and this section.
- 2.) The design of impoundments shall be certified as designed to meet the requirements of the regulations using current, prudent, engineering practices and any design criteria established by the Division. The qualified, registered, professional engineer or qualified, registered, professional, land surveyor shall be experienced in the design and construction or impoundments.
- 3.) An impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) or located where failure would be expected to cause loss of life or serious property damage shall have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions, and a seismic safety factor of at least 1.2. Impoundments not meeting the size or other criteria of 30 CFR Sec. 77.216(a), except for a coal mine waste impounding structure, and located where failure would not be expected to cause loss of life or serious property damage shall have a minimum static safety factor of 1.3 for a normal pool with steady state seepage saturation conditions. For an impoundment not meeting the size or other criteria of 30 CFR Sec. 77.216(a), where failure would not be expected to cause loss of life or serious property damage, the Division may establish engineering design standards that ensure stability comparable to a 1.3 minimum static safety factor in lieu of engineering tests to establish compliance with the minimum static safety factor of 1.3.
- 4.) Impoundments shall have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume.
- 5.) Foundations and abutments for an impounding structure shall be stable during all phases of construction and operation and shall be designed based on adequate and accurate information on the foundation conditions. For an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a), foundation investigation, as well as any necessary laboratory testing of foundation material, shall be performed to determine the design requirements for foundation stability. All vegetative and organic materials shall be removed and foundations excavated and prepared to resist failure. Cutoff trenches shall be installed if necessary to ensure stability.
- 6.) Slope protection shall be provided to protect against surface erosion at the site and protect against sudden drawdown.
- 7.) Faces of embankments and surrounding areas shall be vegetated, except that faces where water is impounded may be riprapped or otherwise stabilized in accordance with accepted design practices.
- 8.) Spillways: An impoundment shall include either a combination of principal and emergency spillways, a single open-channel spillway, or, be configured as an impoundment that relies primarily on storage to control the runoff from the applicable design precipitation event. The Division may approve a single open-channel spillway that is of nonerodible construction and designed to carry sustained flows; or, earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected. Except impoundments that rely primarily on storage to control the runoff, the required design precipitation events for an impoundment having spillways are: for an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) a 100-year 6-hour event, or greater event as specified by the Division; and, for an impoundment not meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 25-year 6-hour event, or greater event as specified by the Division. In lieu of meeting the single open-channel spillway requirements, the Division may approve an impoundment that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or qualified

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registered professional land surveyor that the impoundment will safely control the design precipitation event, the water from which shall be safely removed in accordance with current, prudent, engineering practices. Such an impoundment shall be located where failure would not be expected to cause loss of life or serious property damage, except where: in the case of an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a), it is designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event as specified by the Division; or, in the case of an impoundment not meeting the size or other criteria of 30 CFR Sec. 77.216(a), it is designed to control the precipitation of a 100-year 6-hour event, or greater event as specified by the Division.

- 9.) The vertical portion of any remaining highwall shall be located far enough below the low-water line along the full extent of highwall to provide adequate safety and access for the proposed water users.
- 10.) Inspections: Except as provided in paragraph (a)(10)(iv) of this section, a qualified registered professional engineer or other qualified professional specialist under the direction of a professional engineer, shall inspect each impoundment as provided in paragraph (a)(10)(i) of this section. The professional engineer or specialist shall be experienced in the construction of impoundments.

Inspections shall be made regularly during construction, upon completion of construction, and at least yearly until removal of the structure or release of the performance bond. The qualified registered professional engineer, or qualified registered professional land surveyor as applicable, shall promptly after each inspection provide to the Division a certified report that the impoundment has been constructed and/or maintained as designed and in accordance with the approved plan and this section. The report shall include discussion of any appearance of instability, structural weakness or other hazardous condition, depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation, and any other aspects of the structure affecting stability. A copy of the report shall be retained at or near the minesite.

A qualified registered professional land surveyor may inspect any temporary or permanent impoundment that does not meet the size or other criteria of 30 CFR Sec. 77.216(a) and certify and submit the report required above, except that all coal mine waste impounding structures shall be certified by a qualified registered professional engineer. The professional land surveyor shall be experienced in the construction of impoundments. Impoundments subject to 30 CFR Sec. 77.216 must be examined in accordance with 30 CFR Sec. 77.216-3. Other impoundments shall be examined at least quarterly by a qualified person designated by the operator for appearance of structural weakness and other hazardous conditions.

If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Division shall be notified immediately. The Division shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

A permanent impoundment of water may be created, if authorized by the Division in the approved permit based upon the following demonstration:

- 1.) The size and configuration of such impoundment will be adequate for its intended purposes.
- 2.) The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable State and Federal water quality standards, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below applicable State and Federal water quality standards.
- 3.) The water level will be sufficiently stable and be capable of supporting the intended use.
- 4.) Final grading will provide for adequate safety and access for proposed water users.
- 5.) The impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.
- 6.) The impoundment will be suitable for the approved postmining land use.

The Division may authorize the construction of temporary impoundments as part of underground mining activities.

Ponds, impoundments, banks, dams, and embankments

Each application shall include a general plan for each proposed sedimentation pond, water impoundment, and coal processing waste bank, dam, or embankment within the proposed permit area. Each general plan shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor with assistance from experts in related fields such as landscape architecture;
- 2.) Contain a description, map, and cross section of the structure and its location;
- 3.) Contain preliminary hydrologic and geologic information required to assess the hydrologic impact of the structure;
- 4.) Contain a survey describing the potential effect on the structure from subsidence of the subsurface strata resulting from past underground mining operations if underground mining has occurred; and
- 5.) Contain a certification statement which includes a schedule setting forth the dates when any detailed design plans for structures that are not submitted with the general plan will be submitted to the Division. The Division

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shall have approved, in writing, the detailed design plan for a structure before construction of the structure begins.

Each detailed design plan for a structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture;
- 2.) Include any geotechnical investigation, design, and construction requirements for the structure;
- 3.) Describe the operation and maintenance requirements for each structure; and
- 4.) Describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for a structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments covered by Sections 817.81-817.84 of this Chapter shall be certified by a qualified, registered, professional engineer;
- 2.) Include any design and construction requirements for the structure, including any required geotechnical information;
- 3.) Describe the operation and maintenance requirements for each structure; and
- 4.) Describe the timetable and plans to remove each structure, if appropriate.

Sedimentation ponds, whether temporary or permanent, shall be designed in compliance with the requirements of Siltation Structures. Any sedimentation pond or earthen structure which will remain on the proposed permit area as a permanent water impoundment shall also be designed to comply with the requirements for Impoundments. Each plan shall, at a minimum, comply with the requirements of the Mine Safety and Health Administration, 30 CFR Sections 77.216-1 and 77.216-2.

Permanent and temporary impoundments shall be designed to comply with the requirements for Impoundments. Each plan for an impoundment meeting the size of other criteria of the Mine Safety and Health Administration shall comply with the requirements of 30 CFR Sec. 77.216-1 and 77.216-2. The plan required to be submitted to the District Manager of MSHA under Sec. 77.216 of this title shall be submitted to the Division as part of the permit application. For an impoundment not meeting the size of other criteria of 30 CFR Sec. 77.216(a) and located where failure would not be expected to cause loss of life or serious property damage, the Division may establish through the State program approval process engineering design standards that ensure stability comparable to a 1.3 minimum static safety factor in lieu of engineering tests to establish compliance with the minimum static safety factor of 1.3.

Coal processing waste banks, dams and embankments shall be designed to comply with the requirements for Coal Mine Waste. Each plan shall comply with the requirements of the Mine Safety and Health Administration, 30 CFR Sections 77.216-1 and 77.216-2, and shall contain the results of a geotechnical investigation of the proposed dam or embankment foundation area, to determine the structural competence of the foundation which will support the proposed dam or embankment structure and the impounded material. The geotechnical investigation shall be planned and supervised by an engineer or engineering geologist, according to the following:

- 1.) The number, location, and depth of the borings and test pits shall be determined using current prudent engineering practice for the size of the dam or embankment, quantity of material to be impounded, and subsurface conditions.
- 2.) The character of the overburden and bedrock, the proposed abutment sites, and any adverse geotechnical conditions which may affect the particular dam, embankment, or reservoir site shall be considered.
- 3.) All springs, seepage, and ground-water flow observed or anticipated during wet periods in the area of the proposed dam or embankment shall be identified on each plan.
- 4.) Consideration shall be given to the possibility of mudflows, rock-debris falls, or other landslides into the dam, embankment, or impounded material.

If the structure is 20 feet or higher or impounds more than 20 acre-feet, each plan of this section shall include a stability analysis of each structure. The stability analysis shall include, but not be limited to, strength parameters, pore pressures, and long-term seepage conditions. The plan shall also contain a description of each engineering design assumption and calculation with a discussion of each alternative considered in selecting the specific design parameters and construction methods.

### Analysis:

#### Ground-Water Monitoring

Since the proposed water well is for culinary and other water uses, and is covered by a

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valid Water Right, it is not a monitoring well. The approved Water Right is included in the submittal. Therefore, no monitoring is required.

**Diversions**

The water well pad is located between the road and Dugout Creek with the pad being constructed with a bin wall. The creek will need to be shortened slightly to accommodate the construction and will not use a culvert as shown on Dwg. GE4B001. Cross sections of the pad are shown on drawing B-346. Drainage ditch DD-15 is shown across the road from the new pump house.

The ditch design for DD-14 and DD-15, near the pad, used the 10-year, 24-hour design that is consistent with the Division position paper regarding ditches and culverts draining to a sediment pond and exceeds regulation requirements. In this case, the ditches drain to the creek that conforms to regulatory recommendations by diverting runoff away from disturbed areas. Where the slope is less, 6.7%, the ditches are unlined and all other, steeper, sections are concrete lined. The watershed areas, runoff numbers, and Manning roughness coefficients were all checked and found to be appropriate. It appears the ditches are adequately designed.

**Stream Buffer Zones**

Construction will necessarily occur within 100 feet of Dugout Creek. Otherwise, stream Buffer Zones will not be affected by the proposed work.

**Sediment Control Measures**

No sediment control measures are shown during construction of the bin wall and other associated construction. These will need to be described and shown, and be provided during construction.

There is no information in the submittal regarding Casing and Sealing of Wells as required in R645-301-748. Further, there is no information regarding the Permanent Casing and Sealing of Wells as required in R645-301-765. Such information will need to be provided.

**Findings:**

The application does not meet minimum requirements. Accordingly, the Permittee must address those deficiencies as found within this Technical Memo and provide the following, prior to approval, in accordance with the requirements of:

**R645-301-742**, Provide sediment control measures to be used during construction.

**R645-301-748 and -301-765**, Provide information on the casing and sealing of the well and the permanent casing and sealing of the well at reclamation.

## MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### Minimum Regulatory Requirements:

Each application shall contain maps, plans, and cross sections which show the mining activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown and described as an existing structure.

The following shall be shown for the proposed permit area:

#### Affected area maps

The boundaries of all areas proposed to be affected over the estimated total life of all mining activities and reclamation activities, with a description of size, sequence, and timing of phased reclamation activities and treatments. All maps and cross sections used for mining design and mining operations shall clearly show the affected and permit area boundaries in reference to the reclamation work being accomplished.

#### Mining facilities maps

Location of each facility used in conjunction with mining operations. Such structures and facilities shall include, but not be limited to: buildings, utility corridors, roads, and facilities to be used in mining and reclamation operations or by others within the permit area; each coal storage, cleaning, and loading area; each topsoil, spoil, coal preparation waste, underground development waste, and noncoal waste storage area; each water diversion, collection, conveyance, treatment, storage and discharge facility; each source of waste and each waste disposal facility relating to coal processing or pollution control; each facility to be used to protect and enhance fish and wildlife related environmental values; each explosives storage and handling facility; location of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing water dam and embankment, and disposal areas for underground development waste and excess spoil; and, each plan or profile, at cross sections specified by the Division, of the anticipated surface configuration to be achieved for the affected areas during mining operations.

#### Mine workings maps

Location and extent of known workings of proposed, active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas. Location and extent of existing or previously surface-mined areas within the proposed permit area.

#### Monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, as required during mining operations.

### Certification Requirements

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

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**Analysis:**

**Affected Area Maps**

In the first TA, Plate 7-5, Disturbed Area Diversion was cited as being deficient since the location of the new well was not shown. A new Plate 7-5 showing the well was submitted. However, this new plate shows a line drawing of ONLY the diversions. ALL other information previously shown on the plate has been removed. This includes contour line, roads, mine facilities, disturbed area boundaries, and other highly relevant information. The intent of the previous deficiency was to simply ADD the new well location to the existing map. That still needs to be done, without the loss of information previously contained on Plate 7-5.

There is a discrepancy relative to the newly submitted Plate 7-5. The new well is designated as: "Gilson Water Well (See Appendix 7-9, Drawing GE4B001 & B-346)" Appendix 7-9 does not contain these drawings. They are found in Chapter 5. This needs to be clarified.

Page 7-4, the first paragraph, first sentence, is unclear. The location of 450 feet from what is not included.

Plates 7-1 and 7-2 were updated to show the new well location.

**Mining Facilities Maps**

The permittee updated the surface facility map but failed to show the new surface disturbance is within the disturbed area. The map depicts the well area disturbance as being outside the disturbed area.

**Findings:**

Information (map) was not provided in the submittal and, therefore, the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-521.100**, Update the surface facilities map to show the total disturbed area that will include the water well installation. Update Plate 7-5 with complete information as described above. Clarify page 7-4, first paragraph, and first sentence as described above.

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## GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

### Minimum Regulatory Requirements:

Provide a plan for the reclamation of the lands within the proposed permit area, showing how the applicant will comply with the regulatory program and the environmental protection performance standards. The plan shall include, at a minimum, contain the following information for the proposed permit area: a detailed timetable for the completion of each major step in the reclamation plan; a detailed estimate of the cost of the reclamation of the proposed operations required to be covered by a performance bond, with supporting calculations for the estimates; a plan for backfilling, soil stabilization, compacting, and grading, with contour maps or cross sections that show the anticipated final surface configuration of the proposed permit area; a plan for redistribution of topsoil, subsoil, and other material along with a demonstration of the suitability of topsoil substitutes or supplements shall be based upon analysis of the thickness of soil horizons, total depth, texture, percent coarse fragments, pH, and areal extent of the different kinds of soils; other chemical and physical analyses, field-site trials, or greenhouse tests if determined to be necessary or desirable to demonstrate the suitability of the topsoil substitutes or supplements may also be required; a plan for revegetation including, but not limited to, descriptions of the schedule of revegetation, species and amounts per acre of seeds and seedlings to be used, methods to be used in planting and seeding, mulching techniques, irrigation, if appropriate, and pest and disease control measures, if any, measures proposed to be used to determine the success of revegetation, and, a soil testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation; a description of the measures to be used to maximize the use and conservation of the coal resource; a description of measures to be employed to ensure that all debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard are disposed of accordingly and a description of the contingency plans which have been developed to preclude sustained combustion of such materials; a description, including appropriate cross sections and maps, of the measures to be used to seal or manage mine openings, and to plug, case, or manage exploration holes, other bore holes, wells, and other openings within the proposed permit area; and, a description of steps to be taken to comply with the requirements of the Clean Air Act, the Clean Water Act, and other applicable air and water quality laws and regulations and health and safety standards.

### Analysis:

The permittee has committed to reclaiming the well site but did not state whether the well site will be reclaimed to approximate original contour. A plan is needed to show backfilling, soil stabilization, compacting, and grading with contour maps, or cross sections of the anticipated final surface configuration.

The report from the technical site visit dated 6/22/99 indicates that the area is riparian in nature. The plan states on page 7-83 that upon reclamation, the well pad will receive the reclamation treatments described in Section 341 – Revegetation for riparian areas (page 7-83).

Seed mix no. 2 will be used in the riparian areas that are shown on Plate 3-1A. Plate 3-1A must be updated to show the Gilson well receiving the riparian area reclamation treatments.

### Findings:

The information provided is not adequate for the Reclamation Plan Protection of Fish,

Wildlife and Related Environmental Values section of the Regulations: The following information must be provided prior to approval, in accordance with:

**R645-301-341.200**, Add the Gilson well to the riparian areas shown on Plate 3-1A.

Information (map) was not provided in the submittal; therefore, the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-542.200** - A plan for backfilling, soil stabilization, compacting and grading with contour maps, or cross section that shows the anticipated final surface configuration of the well site.

## PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR 817.97; R645-301-333, -301-342, -301-358.

### Minimum Regulatory Requirements:

Where wetlands and habitats of unusually high value for fish and wildlife occur, the operator conducting underground mining activities shall provide a description of the measures taken to avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Designs and plans for underground mining activities shall include measures to avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

Where fish and wildlife habitat is to be a postmining land use, the plant species to be used on reclaimed areas shall be selected on the basis of the following criteria:

- 1.) Their proven nutritional value for fish or wildlife.
- 2.) Their use as cover for fish or wildlife.
- 3.) Their ability to support and enhance fish or wildlife habitat after the release of performance bonds. The selected plants shall be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife.

Where cropland is to be the postmining land use, and where appropriate for wildlife- and crop-management practices, the operator shall intersperse the fields with trees, hedges, or fence rows throughout the harvested area to break up large blocks of monoculture and to diversify habitat types for birds and other animals.

Where residential, public service, or industrial uses are to be the postmining land use and where consistent with the approved postmining land use, the operator shall intersperse reclaimed lands with greenbelts utilizing species of grass, shrubs, and trees useful as food and cover for wildlife.

### Analysis:

The application refers to the approved MRP. Control and mitigation measures provided for in section 333 of the MRP are general and do not provide the specificity required to address the protection of wildlife and related environmental values for the drill pad. The application needs to be revised to include a reference Appendix 3-3. This appendix provides a site-specific protection and enhancement plan for the vegetative and wildlife communities located in the

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proposed drill pad area.

The final reclamation seed mix in the MRP is adequate to provide cover and nutritional value for wildlife. The application needs to include or provide reference to an interim seed mix to establish a shallow rooting cover of grasses and alfalfa for those disturbed areas associated with the drill pad development and stream relocation.

**Findings:**

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

**R645-301-333, -301-342, -301-358**, the application also needs to include or provide reference to an interim seed mix to establish a shallow rooting cover of grasses and alfalfa. For those disturbed areas associated with the drill pad development and stream location. The application also needs to be revised to include a reference Appendix 3-3.

**TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR 817.22; R645-301-240.

**Minimum Regulatory Requirements:**

**Redistribution**

Topsoil materials shall be redistributed in a manner that: achieves an approximately uniform, stable thickness consistent with the approved postmining land use, contours, and surface-water drainage systems; prevents excess compaction of the materials; and, protects the materials from wind and water erosion before and after seeding and planting.

Before redistribution of the material, the regarded land shall be treated if necessary to reduce potential slippage of the redistribution material and to promote root penetration. If no harm will be caused to the redistributed material and reestablished vegetation, such treatment may be conducted after such material is replaced.

The Division may choose not to require the redistribution of topsoil or topsoil substitutes on the approved postmining embankments of permanent impoundments or of roads if it determines that placement of topsoil or topsoil substitutes on such embankments is inconsistent with the requirement to use the best technology currently available to prevent sedimentation, and, such embankments will be otherwise stabilized.

Nutrients and soil amendments shall be applied to the initially redistributed material when necessary to establish the vegetative cover.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, removed and segregated, stockpiled, be redistributed as subsoil in accordance with the requirements of the above if it finds that such subsoil layers are necessary to comply with the revegetation requirements.

**Analysis:**

**Redistribution**

Page 2-40 indicates that 18-inches of topsoil will be returned to the well site at reclamation. Volume calculations are found in Appendix 2-8.

**Findings:**

The information provided is adequate for Reclamation topsoil and subsoil requirements of the Regulations.

**REVEGETATION**

Regulatory Reference: 30 CFR 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Minimum Regulatory Requirements:

Revegetation: General requirements

The permittee shall establish on regraded areas and on all other disturbed areas except water areas and surface areas of roads that are approved as part of the postmining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan and that is: diverse, effective, and permanent; comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division; at least equal in extent of cover to the natural vegetation of the area; and, capable of stabilizing the soil surface from erosion.

The reestablished plant species shall: be compatible with the approved postmining land use; have the same seasonal characteristics of growth as the original vegetation; be capable of self-regeneration and plant succession; be compatible with the plant and animal species of the area; and, meet the requirements of applicable State and Federal seed, poisonous and noxious plant, and introduced species laws or regulations.

The Division may grant exception to these requirements when the species are necessary to achieve a quick-growing, temporary, stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.

When the Division approves a cropland postmining land use, the Division may grant exceptions to the requirements related to the original and native species of the area. Areas identified as prime farmlands must also meet those specific requirements as specified under that section.

Revegetation: Timing

Disturbed areas shall be planted during the first normal period for favorable planting conditions after replacement of the plant-growth medium. The normal period for favorable planting is that planting time generally accepted locally for the type of plant materials selected.

Revegetation: Mulching and other soil stabilizing practices

Suitable mulch and other soil stabilizing practices shall be used on all areas that have been regraded and covered by topsoil or topsoil substitutes. The Division may waive this requirement if seasonal, soil, or slope factors result in a condition where mulch and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

Revegetation: Standards for success

Success of revegetation shall be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the cover occurring in natural vegetation of the area, and the general requirements for Revegetation. Standards for success and statistically valid sampling techniques for measuring success shall be selected by the Division and included in an approved regulatory program.

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Standards for success shall include criteria representative of unmined lands in the area being reclaimed to evaluate the appropriate vegetation parameters of ground cover, production, or stocking. Ground cover, production, or stocking shall be considered equal to the approved success standard when it is not less than 90 percent of the success standard. The sampling techniques for measuring success shall use a 90-percent statistical confidence interval (i.e., a one-sided test with a 0.10 alpha error).

Standards for success shall be applied in accordance with the approved postmining land use and, at a minimum, the following conditions:

- 1.) For areas developed for use as grazing land or pasture land, the ground cover and production of living plants on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 2.) For areas developed for use as cropland, crop production on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 3.) For areas to be developed for fish and wildlife habitat, recreation, shelter belts, or forest products, success of vegetation shall be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows: minimum stocking and planting arrangements shall be specified by the Division on the basis of local and regional conditions and after consultation with and approval by the State agencies responsible for the administration of forestry and wildlife programs. Consultation and approval may occur on either a programwide or a permit-specific basis; trees and shrubs that will be used in determining the success of stocking and the adequacy of the plant arrangement shall have utility for the approved postmining land use. Trees and shrubs counted in determining such success shall be healthy and have been in place for not less than two growing seasons. At the time of bond release, at least 80 percent of the trees and shrubs used to determine such success shall have been in place for 60 percent of the applicable minimum period of responsibility; and, vegetative ground cover shall not be less than that required to achieve the approved postmining land use.

For areas to be developed for industrial, commercial, or residential use less than 2 years after regrading is completed, the vegetative ground cover shall not be less than that required to control erosion.

For areas previously disturbed by mining that were not reclaimed to the requirements of the performance standards and that are remined or otherwise redisturbed by surface coal mining operations, as a minimum, the vegetative ground cover shall be not less than the ground cover existing before redisturbance and shall be adequate to control erosion.

The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the Division.

In areas of more than 26.0 inches of annual average precipitation, the period of responsibility shall continue for a period of not less than five full years. Vegetation parameters identified for grazing land or pasture land and cropland shall equal or exceed the approved success standard during the growing seasons of any two years of the responsibility period, except the first year. Areas approved for the other uses shall equal or exceed the applicable success standard during the growing season of the last year of the responsibility period.

In areas of 26.0 inches or less average annual precipitation, the period of responsibility shall continue for a period of not less than 10 full years. Vegetation parameters shall equal or exceed the approved success standard for at least the last 2 consecutive years of the responsibility period.

The Division may approve selective husbandry practices, excluding augmented seeding, fertilization, or irrigation, provided it obtains prior approval from the Director as a State Program Amendment that the practices are normal husbandry practices, without extending the period of responsibility for revegetation success and bond liability, if such practices can be expected to continue as part of the postmining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices shall be normal husbandry practices within the region for unmined lands having land uses similar to the approved postmining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding, and transplanting specifically necessitated by such actions.

### Analysis:

The plan states on page 7-82 that "reclamation will be consistent with section 340-reclamation plan. The stream channel and adjacent areas will be reclaimed using the appropriate species as stated in section 341-revegetation".

### **General Requirements**

The permittee has committed to establishing a vegetative cover on all reclaimed areas to allow for the designated post mining land-use of wildlife habitat.

### **Timing**

The applicant needs to commit to following the vegetative guidelines set forth by the Division. Planting is to commence during the first favorable planting season.

### **Mulching and Other Soil Stabilizing Practices**

The application refers to the approved MRP. The MRP indicates that mulch will be used on all areas that have been regraded and topsoiled.

### **Standards for Success**

The permittee needs to commit to applying the standards of success in accordance with the approved post mining land use. The approved MRP section 356 page 3-50 outlines the success standards for the riparian vegetative community.

### **Findings:**

The information provided in this section of the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the applicant must provide the following in accordance with:

**R645-301-244, -301-353, -301-354, -301-355, -301-356**, the applicant needs to commit to following the vegetative guidelines set forth by the Division. Planting is to commence during the first favorable planting season. The applicant needs to commit to applying the standards of success in accordance with the approved post mining land use

## **STABILIZATION OF SURFACE AREAS**

Regulatory Reference: 30 CFR 817.95; R645-301-244.

### **Minimum Regulatory Requirements:**

All exposed surface areas shall be protected and stabilized to effectively control erosion and air pollution attendant to erosion. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil shall be replaced; and the areas shall be reseeded or replanted.

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**Analysis:**

No specific information was supplied with this application. The Permittee is required to follow the Mining and Reclamation Section 244 for soil stabilization.

**Findings:**

The information provided is adequate for Reclamation Stabilization of Surface Areas requirements of the Regulations.

**MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

**Minimum Regulatory Requirements:**

Each application shall contain maps, plans, and cross sections which show the reclamation activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown and described as an existing structure.

The permit application must include as part of the reclamation plan information, the following maps, plans and cross sections:

**Affected area boundary maps**

The boundaries of all areas proposed to be affected over the estimated total life of all mining activities and reclamation activities, with a description of size, sequence, and timing of phased reclamation activities and treatments. All maps and cross sections used for reclamation design purposes shall clearly show the affected and permit area boundaries in reference to the reclamation work being accomplished.

**Bonded area map**

The permittee shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit area, the permittee shall file with the Division an additional bond or bonds to cover such increments. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

**Reclamation backfilling and grading maps**

Contour maps and cross sections to adequately show detail and design for backfilling and grading operations during reclamation. Where possible, cross sections shall include profiles of the pre-mining, operations, and post-reclamation topography. Contour maps shall be at a suitable scale and contour interval so as to adequately detail the final surface configuration. When used in the formulation of mass balance calculations, cross sections shall be at adequate scale and intervals to support the mass balance calculations. Mass balance calculations derived from contour information must demonstrate that map scale and contour accuracy are adequate to support the methods used in such earthwork calculations. Detailed cross sections shall be provided when required to accurately depict reclamation designs which include, but are not limited to: terracing and benching, retained roads, highwall remnants, slopes requiring geotechnical analysis, and embankments of permanent impoundments.

**Reclamation facilities maps**

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Location of each facility that will remain on the proposed permit area as a permanent feature, after the completion of underground mining activities. Location and final disposition of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing water dam and embankment, disposal areas for underground development waste and excess spoil, and water treatment and air pollution control facilities within the proposed permit area to be used in conjunction with phased reclamation activities or to remain as part of reclamation.

### Final surface configuration maps

Sufficient slope measurements to adequately delineate the final surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the post-reclamation configuration of the land; and, slope measurements shall take into account variations in slope, to provide accurate representation of the range of slopes and reflect geomorphic differences of the area disturbed through reclamation activities.

### Reclamation monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, if required, to demonstrate reclamation success.

### Reclamation surface and subsurface manmade features maps

The location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current or proposed use of the buildings at the time of final reclamation. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, fences, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area and all roads within the permit area which are to be left as part of the post-mining land use. Buildings, utility corridors, and facilities to be used in conjunction with reclamation or to remain for final reclamation.

### Reclamation treatments maps

The location and boundaries of any proposed areas for reclamation treatments including but not limited to: location, extent and depth of materials used for resoiling; location, extent and types of treatments for revegetation including soil preparation, soil amendments, mulching, seeding, variations in seed mixtures, and other revegetation treatments. Each water diversion, collection, conveyance, treatment, storage and discharge facility to be used during reclamation. Each facility to be used to protect and enhance fish and wildlife related environmental values. other treatments or applications which are specifically designed or required as part of phased or final reclamation activity.

### Certification Requirements.

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

### Analysis:

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**Final Surface Configuration Maps**

The application needs to include final surface configurations and cross section maps of the drill pad stream and associated embankments.

**Findings:**

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

**R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731**, the application must address these sections of the regulations.

**BONDING AND INSURANCE REQUIREMENTS**

Regulatory Reference: 30 CFR 800; R645-301-800, et seq.

**Minimum Regulatory Requirements:**

**General**

After a permit application has been approved, but before a permit is issued, the applicant shall file with the Division, on a form prescribed and furnished by the Division, a bond or bonds for performance made payable to the Division and conditioned upon the faithful performance of all the requirements of the Act, the regulatory program, the permit, and the reclamation plan.

The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit area, the permittee shall file with the Division an additional bond or bonds to cover such increments.

The operator shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

An operator shall not disturb any surface areas, succeeding increments, or extend any underground shafts, tunnels, or operations prior to acceptance by the Division of the required performance bond.

The applicant shall file, with the approval of the Division, a bond or bonds under one of the following schemes to cover the bond amounts for the permit area as determined: a performance bond or bonds for the entire permit area; a cumulative bond schedule and the performance bond required for full reclamation of the initial area to be disturbed; or, an incremental-bond schedule and the performance bond required for the first increment in the schedule.

**Form of bond**

The Division shall prescribe the form of the performance bond. The Division may allow for: a surety bond; a collateral bond; a self-bond; or a combination of any of these bonding methods.

Performance bond liability shall be for the duration of the surface coal mining and reclamation operation and for a period which is coincident with the operator's period of extended responsibility for successful revegetation or until achievement of the reclamation requirements of the Act, regulatory programs, and permit, whichever is later.

With the approval of the Division, a bond may be posted and approved to guarantee specific phases of reclamation within

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the permit area provided the sum of phase bonds posted equals or exceeds the total amount required. The scope of work to be guaranteed and the liability assumed under each phase bond shall be specified in detail.

Isolated and clearly defined portions of the permit area requiring extended liability may be separated from the original area and bonded separately with the approval of the Division. Such areas shall be limited in extent and not constitute a scattered, intermittent, or checkerboard pattern of failure. Access to the separated areas for remedial work may be included in the area under extended liability if deemed necessary by the Division.

The bond liability of the permittee shall include only those actions which he or she is obligated to take under the permit, including completion of the reclamation plan, so that the land will be capable of supporting the postmining land use approved. Implementation of an alternative postmining land use which is beyond the control of the permittee, need not be covered by the bond. Bond liability for prime farmland shall be specific to include productivity requirements.

### Determination of bond amount

The amount of the bond required for each bonded area shall: be determined by the Division; depend upon the requirements of the approved permit and reclamation plan; reflect the probable difficulty of reclamation, giving consideration to such factors as topography, geology, hydrology, and revegetation potential; and, be based on, but not limited to, the estimated cost submitted by the permit applicant.

The amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work has to be performed by the Division in the event of forfeiture, and in no case shall the total bond initially posted for the entire area under 1 permit be less than \$10,000.

An operator's financial responsibility for repairing material damage resulting from subsidence may be satisfied by the liability insurance policy required in this section.

### Terms and conditions for liability insurance

The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the United States certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives, and who are entitled to compensation under the applicable provisions of State law. Minimum insurance coverage for bodily injury and property damage shall be \$300,000 for each occurrence and \$500,000 aggregate.

The policy shall be maintained in full force during the life of the permit or any renewal thereof and the liability period necessary to complete all reclamation operations under this Chapter.

The policy shall include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy including any termination or failure to renew.

The Division may accept from the applicant, in lieu of a certificate for a public liability insurance policy, satisfactory evidence from the applicant that it satisfies applicable State self-insurance requirements approved as part of the regulatory program and the requirements of this section.

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**Analysis:**

**General**

The bonding cost for the removal of the water tank and reclamation of the water well site is approximately \$4,000. The current bond is sufficient to cover this amount and changes to the bond will be required. The permittee has given reclamation cost for this area on Page 6 of appendix 5-6.

**Findings:**

The permittee has met the minimum requirements for this section of the R645 Coal Rules.

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