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

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September 15, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor

FROM: David Darby, Reclamation Specialist

RE: Lila Canyon Significant Revision to the Horse Canyon Mining and Reclamation Plan, UtahAmerican Energy, Inc., Horse Canyon Mine, ACT/007/013-SR98A, Folder #2, Carbon County, Utah

SUMMARY

UtahAmerican Energy, Inc., has submitted a significant revision to the plan for the Horse Canyon Mine. A new mine would be built in Lila Canyon to access coal reserves to the south of the current Horse Canyon permit area.

In the sections of the application dealing hydrologic issues concerning surface and groundwater protection. Hydrologic structures were assessed to ensure they are sized to control, contain and transmit disturbed and undisturbed runoff to minimal contamination and off-site impacts.

The existing hydrologic resources of the proposed Lila Canyon Mine area are detailed under section 720. The proposed operations and potential impacts to the hydrologic balance are described in Sections 728 and 730. All methods and calculations utilized to achieve compliance with hydrologic design criteria and plans are described in Section 740 and Appendix 7-4. 30.

There are several technical issues that need to be resolved before the application can be approved.

Technical Analysis

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.18; R645-301-724.

Minimum Regulatory Requirements:

Analysis:

The proposed mine site is in an area with an annual precipitation of approximately 12 inches, as

described by Lines and others (1984).

The applicant has provided mean annual temperatures, however seasonal temperature have not. Summer thunder storms are common to the area . Data for seasonal and monthly precipitation should be provided.

Findings:

R645-301-724 The applicant should provide seasonal and monthly records of precipitation data. The applicant should submit seasonal temperature data.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR Sec. 785.19; R645-302-320.

Minimum Regulatory Requirements:

Analysis:

An assessment of the permits area by the regulatory authority concludes there are no alluvial valley floors that could be affected by mining. The premining land use is undeveloped rangeland which is not significant to farming; There is no farming activity upstream or downstream of the pemit area, therefore, the proposed operations will not interrupt, discontinue, or preclude farming on an alluvial valley floor. The only potential of subirrigation is in very small area along upper perennial reaches of Little Park Wash , however these areas are very small with no chance of farming activities taking place..

Findings:

A determination of no alluvial valley floors exists in or adjacent to the permit area that can be impacted by mining operations.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Minimum Regulatory Requirements:

Sampling and analysis.

The surface-water monitoring point-source discharge monitoring will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health for Utah Pollutant Discharge Elimination System (U.P.D.E.S.) permits. A U.P.D.E.S. discharge permit application has been submitted to the Division of Environmental Health for the proposed sediment pond and mine water for the Lila Canyon operation. Existing U.P.D.E.S. permit applications for the Lila Canyon Mine are provided in Appendix 7-5. parameters are shown in Table 7-4.

Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4 .

As indicated in Section 731.220, surface-water monitoring data will be submitted at least every 3 months for each monitoring location. When analysis of any surface water sample indicates non-compliance with the permit conditions, the company will promptly notify the Division and immediately take actions to identify the source of the problem, correct the problem and, if necessary, to provide warning to any person whose health and safety is in imminent danger due to the non-compliance.

Baseline information.

Within the permit area, the surface water resources consist of three main drainages: Horse Canyon Creek, an intermittent stream, Little Park Wash, an intermittent stream and Lila Canyon Creek, an intermittent stream. Horse Canyon flows to Icelander Wash which, in turn, flows to Grassy Trail Creek and the Price River. Little Park Wash flows southward to Trail Canyon and the Price River. Lila Canyon flows southwest to Grassy Wash, then south to the Marsh Flat Wash and the Price River. (See Plate 7-1)

Generally, Horse Canyon, Little Park and Lila Canyon Creeks flow during the spring snowmelt runoff period and also as a result of isolated summer thunderstorms. Due to the limited drainage area and elevation of Lila Canyon, the duration of the snowmelt flows is quite short and is limited to the very early spring. Locations of all baseline data points are shown on Plate 7-1. Baseline data information is included in Appendix 7-1. There are no streams, lakes or ponds or irrigation ditches known to exist within the proposed permit or adjacent areas. By late spring to early summer, usually no flow is evident in Horse Canyon Creek, below the minesite or Lila Canyon Creek.

This will be an underground mine with approximately 39.81 acres of surface disturbance for mine site facilities and roads. Runoff from the disturbed minesite area is proposed to be controlled by a system of ditches and culverts which will convey all disturbed area runoff to a sediment pond for final treatment prior to discharge.

Based on results of the PHC determination, base-line study and other available information, numerous small springs and seeps exist within, and adjacent to, the permit area. In addition, ephemeral drainages in the area flow in response to snow melt and precipitation events. The proposed surface-water monitoring program will monitor the significant surface water sources, including drainages above and below the disturbed mine site area, and all point-source discharges (i.e. sediment pond).

Ground-water information.

Seeps, springs and potential mine water discharge will be monitored in accordance with the Ground Water Monitoring Plan in the previous section.

Surface-water information.

The plan will provide data to show impacts to potentially affected springs, seeps, impoundments and drainages within and adjacent to the permit area, by comparison with relevant baseline data and with

applicable effluent limitations

Surface-water quality will be protected by handling earth materials, ground-water discharges and runoff in a manner that minimizes the formation of acid or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and, otherwise prevent water pollution.

Surface-water quality protection is proposed to be accomplished by the plan described in Section 731 and the following methods:

(1) Minimizing surface disturbance and proper handling of earth materials to minimize acidic, toxic or other harmful infiltration to ground-water systems;

(2) Testing (as-necessary) to ensure stockpiled materials are non-acid and non-toxic;

(3) Controlling and treating disturbed area runoff to prevent discharge of pollutants into surface-water, by the use of diversions, culverts, silt fences, sediment ponds, and by chemical treatment if necessary;

(4) Minimizing and/or treating mine water discharge to comply with U.P.D.E.S. discharge standards;

(5) Establishing where surface-water resources exist within or adjacent to the permit area through a Baseline Study (done) and monitoring quality and quantity of significant sources through implementation of a Water Monitoring Plan (proposed);

(6) Proper handling of potentially harmful materials (such as fuels, grease, oil, etc.) in accordance with an approved Spill Prevention Control and Countermeasure Plan (SPCC).

Baseline cumulative impact area information.

The Division will make a findings of the cumulative impacts when the Mining and Reclamation Plan is complete.

Modeling.

Actual surface and ground water information is supplied in this application; therefore, modeling is not proposed. No surface water modeling has been conducted.

Alternative water source information.

A search was conducted of the State of Utah Water Rights files for all rights occurring within, and adjacent to, the permit area for a distance of one mile. The location of those rights are shown on

Plate 7-3. A description of each of the rights is tabulated in Table 7-2.

As noted in the table, the majority of rights are owned by Basic Management L.L.C. (I.P.A.) for industrial use. Other rights owned by the B.L.M. or individuals are primarily for stockwatering.

Basic Management L.L.C. owns the rights to approximately 1.50 cfs in this area. Although the PHC (Appendix 7-3) indicates little, if any, adverse effects on water resources resulting from the operation, if such effects should become evident, lost water sources would be replaced from the rights owned by the company.

Probable hydrologic consequences determination.

The Probable Hydrologic Consequences (PHC) Determination is provided as a separate document in Appendix 7-3. This determination indicates minimal (or no) negative impacts of the mining or reclamation operation on the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.

Water in this area is primarily used for stock or wildlife watering. Any impacts to the small surface springs or seeps as a result of mining would likely be offset by the emergence of new seeps or springs due to fracturing, mine water discharge or replacement of water rights as described under Sections 525, and 731.800.

With underground mining, there always exists a potential for impacting surface or ground water resources; however, as indicated in Section 525, subsidence effects are expected to be minimal due to the amount of cover and massive rock strata between the mining and the surface. Effects on underground water are also expected to be minimal, since this water is not presently issuing to the surface, and any necessary discharges of the water would be in accordance with U.P.D.E.S. requirements.

Findings:

R645-301-731 The applicant should identify if any of the upper reaches of Lila Canyon and Little Park Wash are perennial or intermittent.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

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

Minimum Regulatory Requirements:

Analysis:

Affected Area Boundary Maps

All cross sections, maps and plans required by R645-301-722 as appropriate, and R645-301-731.700 have been prepared and certified according to R645-301-512. Contour Maps of the proposed disturbed area and mining areas are included as Plates 5-2A, 5-2B, 7-1 and 7-2. These maps are U.S.G.S. based contours and accurately represent the proposed permit and adjacent areas. Disturbed area maps are based on aerial photography for greater detail, and are tied to relevant U.S.G.S. elevations.

Monitoring Sampling Location Maps

The permit application package identifies that the location of all known seeps and springs, as well as watering ponds or tanks are shown on Plate 7-1. There are no streams, lakes or ponds or irrigation ditches known to exist within the proposed permit or adjacent areas.

Permit Area Boundary Maps

Several maps including Plate 5-1 show the location of the permit boundaries for the Horse Canyon mine. The permit boundary has been divided into Permit Area A (the Horse Canyon project) and Permit Area B (the Lila Canyon project).

Surface and Subsurface Ownership Maps

A search was conducted of the State of Utah Water Rights files for all rights occurring within, and adjacent to, the permit area for a distance of one mile. The location of those rights are shown on Plate 7-3. A description of each of the rights is tabulated in Table 7-2.

Subsurface Water Resource Maps

As mentioned above, the old Horse Canyon Mine is known to have standing subsurface water. In addition, any drill holes that have encountered water have been noted. Relevant cross sections of drill holes are shown on Plate 6-5. Water monitoring wells are shown on Plates 6-5 and 7-1 and results are included in Appendix 7-1.

Surface Water Resource Maps

Locations of all baseline data points are shown on Plate 7-1. Baseline data information is included in Appendix 7-1.

Location of all known seeps and springs, as well as watering ponds or tanks are shown on Plate 7-1. There are no streams, lakes or ponds or irrigation ditches known to exist within the proposed permit or adjacent areas.

Well Maps

Three water monitoring wells were drilled in the area, IPA #1, IPA #2 and IPA #3, to monitor mine water levels. These wells are shown on Plate 7-1.

Contour Maps

Contour Maps of the proposed disturbed area and mining areas are included as Plates 5-2A, 5-2B, 7-1 and 7-2. These maps are U.S.G.S. based contours and accurately represent the proposed permit and adjacent areas. Disturbed area maps are based on aerial photography for greater detail, and are tied to relevant U.S.G.S. elevations.

Findings:

The operator has submitted sufficient information to meet the minimum requirements of this section.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 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:

Analysis:

Surface-water monitoring.

Locations of all monitoring sites are shown on Plate 7-4 , "Water Monitoring Location Map".

Proposed monitoring methods, parameters and frequencies are described in Table 7-3, "Water Monitoring Stations", and Table 7-4, "Water Monitoring Parameters".

Monitoring reports will be submitted to the Division at least every 3 months, within 30 days following the end of each quarter.

The proposed surface-water monitoring plan is detailed in Section 731.220.
This plan is based on PHC determination and analysis of all baseline hydrologic, geologic and other information in this permit application. The plan provides for monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance as set forth in 751 (see Table 7-4).

Discharges of water from this operation will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U. S.

Environmental Protection Agency set forth in 40 CFR Part 434. See Sections 731 and 742.

The surface-water monitoring parameters are shown in Table 7-4. Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4 .

Table 7-3
Lila Canyon Mine
Water Monitoring Stations

Station	Location	Type	Frequency	Remarks
L-1-S	Lila Canyon	Int. Stream	Monthly	
L-2-S	Rt. Fork Lila (above mine)	Ephemeral Stream	Monthly	
L-3-S	Lila Canyon (below mine)	Int. Stream	Monthly	
L-4-S	Sediment Pond	Discharge	Monthly or as occurs	Per UPDES Permit
L-5-S	Mine Water	Discharge	Monthly or as occurs	Per UPDES Permit
L-6-G	Lila Canyon	Spring	Quarterly	Mont Spring Sample Site H-21
L-7-G	Lila Canyon	Spring	Quarterly	Leslie Spring Sample Site H-18
L-8-G	Little Park	Spring	Quarterly	Cottonwood Spring Sample Site 9
L-9-G	Little Park	Spring	Quarterly	Unnamed Spring Sample Site 10
L-10-G	Little Park	Spring	Quarterly	Pine Spring Sample Site 22
L-11-G	Willows Draw	Spring	Quarterly	Unnamed Spring Sample Site 13-A
IPA-1	Little Park	Borehole	Quarterly	Water Level Only
IPA-2	Little Park	Borehole	Quarterly	Water Level Only
IPA-3	Little Park	Borehole	Quarterly	Water Level Only

Table 7-4 Lila Canyon Mine Water Monitoring Parameters	
Field Measurements	
Water Level or Flow	Surface and Ground
pH	Surface and Ground
Specific Conductivity (ohms/cm)	Surface and Ground
Temperature (^{O}c)	Surface and Ground
Dissolved Oxygen (ppm) (Perennial streams only)	Surface - Perennial Only
Laboratory Measurements (mg/L)	
**Total Settleable Solids	Surface and Ground
Total Suspended Solids	Surface Only
Total Dissolved Solids	Surface and Ground
Total Hardness (as $CACO_3$)	Surface Only
Acidity ($CaCO_3$)	Surface Only
*Carbonate (CO_3^{-2})	Surface and Ground
*Bicarbonate $(HC)_3^{-1}$)	Surface and Ground
*Calcium (Ca)	Surface and Ground
Chloride (Cl^-)	Surface and Ground
Iron (Fe)	Surface and Ground
*Magnesium (Mg)	Surface and Ground
*Total Manganese (Mn)	Surface and Ground
*Potassium (K)	Surface and Ground
*Sodium (Na)	Surface and Ground
*Sulfate (SO_4^{-2})	Surface and Ground

Table 7-4 Lila Canyon Mine Water Monitoring Parameters	
***Oil and Grease	Surface Only (Below Mine)
Cation - Anion Balance	Surface Only (Below Mine)
* Dissolved Form ** UPDES Samples Only *** Designated Samples Only	

Acid and toxic-forming materials.

Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water will be avoided by implementation of a Spill Prevention Control and Countermeasure (SPCC) Plan and by the following:

Potentially acid- or toxic-forming materials will be identified by use of Material Safety Data Sheets (MSDS), or by direct sampling and analysis in the case of underground development waste.

Any material which exhibits acid- or toxic-forming characteristics will be properly stored, protected from runoff, removed to an approved disposal site or buried on site beneath a minimum of 4' of non-acid, non-toxic material.

Storage of potentially acid- or toxic-forming materials, such as fuel, oils, solvents and non-coal waste will be in a controlled manner, designed to contain spillage and prevent runoff to surface or ground water resources.

All oils and solvents will be stored in proper containers within enclosed structures. Fuels will be stored in appropriate tanks, enclosed within concrete or earthen bermed areas designed to contain any spillage.

Non-coal waste (garbage) will be stored in a designated location, in dumpsters, and removed to an approved landfill (East Carbon Development Contractors - ECDC) on a regular, as-needed basis.

Unused or obsolete equipment or supplies will be stored in a designated area. Drainage from the storage area will be directed to the sediment pond as shown on the Sediment Control Map, Plate 7-5.

Underground development waste (if any) will also be stored in a designated area. Such waste will be tested for acid- or toxic-forming potential, and if found to be acid- or toxic-forming, the waste site will be protected from surface runoff by the use of earthen berms.

Transfer of wells.

There are presently three monitoring wells on this permit. When these wells are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations .

Discharges into an underground mine.

There are no plans to discharge any water into an underground mine.

Gravity discharges.

Based on historical data from other mines in the area, some mine water can be expected to be encountered during the mining operation. Typically, such water is stored in "sumps" or designated areas in the mine and used for mining operations or discharged to the surface.

At the present time, there are no plans to divert water from the underground workings of this operation to any other underground workings.

Water quality standards and effluent limitations.

Any discharge from the sediment pond will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

Diversions.

There is one undisturbed diversion planned for this site. This diversion consists of a bypass culvert beneath the sediment pond, which will allow undisturbed runoff to bypass the site without mixing with disturbed area runoff.

Other diversions planned consist of disturbed area ditches and culverts, as shown on Plate 7-5. Design details for all diversions are provided in Appendix 7-4.

All diversions will be constructed and maintained to comply with the requirements of R645-301-742.100 and R645-301-742.300. Details are described under those respective sections of this chapter.

Culvert details are provided in Appendix 7-4. All undisturbed culvert inlets will be provided with headwall protection, consisting of inlet sections, rock or concrete.

Stream buffer zones.

No development or disturbance will take place within 100 feet of a perennial stream.

Sediment control measures.

Sediment control measures within and adjacent to the disturbed areas are detailed in Appendix 7-4. These measures include, but are not limited to:

As discussed in Appendix 7-4, runoff from the disturbed area will be captured in a sediment pond and/or treated as necessary to meet effluent limitations prior to discharge.

Undisturbed diversions will consist of properly designed and protected channels and/or culverts as described in Appendix 7-4.

The primary means of velocity reduction is planned to be the use of rip-rap; however, other methods such as straw dikes, check dams and/or vegetative filters may be employed during the operational or reclamation phases as determined necessary, and with Diversion approval.

Siltation structures.

As described in Appendix 7-4, the only siltation structures planned for this operation are a sediment pond and possible minor, temporary sediment traps such as straw dikes and/or catch basins.

Siltation structures will be designed, constructed and maintained in accordance with the following regulations.

Sedimentation ponds.

The general plan for this site is to drain runoff from the disturbed area into a single sedimentation pond for treatment prior to discharge. Site drainage and design details are described in Appendix 7-4. The general plan includes the following, at a minimum:

The sediment control plan and proposed sediment pond designs have been prepared and certified by a Registered Professional Engineer, State of Utah.

Sediment pond locations, design plans and cross sections are provided on Plates 7-5 and 7-6 , respectively.

The pond is designed to contain the runoff from a 10 year - 24 hour precipitation event for the area in addition to a minimum of 2 years of sediment storage. See "Sediment Pond Construction Requirements" in Appendix 7-4;

The proposed pond is not located where failure would expect to cause loss of life or serious property damage. As shown in Appendix 7-4, the proposed pond embankment will have a minimum of 3H : 1V on the inside slope and 2H : 1V on the outside. These slopes, along with the 95% compaction requirement, will ensure a static safety factor in excess of 1.3, as required.

All discharges from sedimentation ponds, diversions and culverts will be protected from erosion by the use of adequately sized rip-rap, concrete or other approved protection. Details for outlet protection for all drainage control structures are provided in appendix 7-4. All discharge structures have been designed according to standard engineering design procedures.

Other treatment facilities.

Appropriate sediment control measures will 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 effluent limitations under R645-301-751.

Exemptions for siltation structures.

No exemptions requested by the applicant.

Discharge structures.

The Principle Spillway culvert is a corrugated, metal pipe, and the open channel spillway is proposed to be constructed of grouted rip-rap. Each one designed to carry sustained flows.

The sediment pond emergency spillway will be constructed of grouted rip-rap for erosion and velocity control. (See Appendix 7-4).

Diversions and culvert outlets that are expected to have flow velocities in excess of 5 fps will also be equipped with erosion and velocity controls as described in Appendix 7-4.

Impoundments.

No other treatment facilities are planned for this operation.

Casing and sealing of wells.

There are no plans for water wells on this site; however, if any wells are installed in the future, requirements of this section will be met.

Findings:

R645-301-731 The applicant should size the undisturbed drainage culvert in Lila Canyon to account for floods, debris, sediment load and overflow from sedimentation pond. The sizing calculations

should incorporate a curve number value from antecedent moisture condition III, since the culvert will be used during reclamation and visited infrequently.

R645-301-222 The applicant should submit contingency plan to treat groundwater in the event contaminated groundwater is contacted in volumes that have to be discharged from the mine.

R645-301-752 The applicant should commit to evaluating channel morphology parameters and erosion impacts if mine water should be discharged into Lila Canyon.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

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

Minimum Regulatory Requirements:

Analysis:

Affected area maps.

The general area hydrology is identified in Plant 7-1. Plates 5-1 and 7-4 identify the effected area for the Lila Canyon Mine.

Mining facilities maps.

The following is a list of cross-sections and maps provided in this section of the P.A.P.

Plate 7-1	Permit Area Hydrology Map
Plate 7-2	Disturbed Area Hydrology/Watershed
Plate 7-3	Water Rights Locations
Plate 7-4	Water Monitoring Location Map
Plate 7-5	Proposed Sediment Control Map
Plate 7-6	Proposed Sediment Pond
Plate 7-7	Post-Mining Hydrology

Mine workings maps.

The Mine working map is located on Plate 5-5. The map contains a legend that details site information. The map also identifies the mining sequence.
Monitoring and sample location maps.

Findings:

The applicant has supplied sufficient information to address the minimum requirements for this section.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Minimum Regulatory Requirements:

Hydrologic reclamation plan.

Analysis:

Surface-water monitoring.

Surface-water monitoring will continue through mining and reclamation until bond release. Locations, parameters and/or sampling frequency (other than U.P.D.E.S. discharge points) may be modified by the Division

Acid and toxic-forming materials.

Any material which exhibits acid- or toxic-forming characteristics will be properly stored, protected from runoff, removed to an approved disposal site or buried on site beneath a minimum of 4' of non-acid, non-toxic material.

Transfer of wells.

There are presently no plans to transfer any wells to any other party. There are presently three monitoring wells on this permit. When these wells are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations (see Section 631.200

Discharges into an underground mine.

No discharges planned to underground mines.

Gravity discharges.

Section 731.520 explains why gravity discharges from the mine are not expected after mine closure.

The coal seam to be mined dips away from the portal site at approximately 10%. If water is encountered in the mining, it will likely be at a static level far below the exposed outcrop or rock slopes. This may result in some possible mine discharge from pumping, but not from gravity.

Water quality standards and effluent limitations.

A reclamation surface and groundwater was not submitted.

Diversions.

All disturber and undisturbed area diversions will be removed during the backfilling and recontouring reclamation period.

Stream buffer zones.

There will be no development within 100 feet of a perennial stream.

Sediment control measures.

Upon completion of operations, the disturbed area will be reclaimed. All drainage and sediment controls are considered temporary and will be removed when no longer required. The sediment pond will remain in place until Phase II Bond Release requirements have been met. At that time, the pond will be removed and the area will be reclaimed in accordance with the approved plan.

Upon removal of the sediment pond, the area will be regraded and revegetated in accordance with the approved reclamation plan.

Siltation structures.

See Appendix 7-4 for details on removal of siltation structures.

As indicated in Section 761, the sediment pond will remain in place until the stability and vegetation requirements for Phase II Bond Release are met. This will be a minimum of 2 years after the last augmented seeding. At this time, the pond will be removed and the area reclaimed.

Sedimentation ponds.

The proposed sediment pond is considered <u>temporary</u>, and will be removed during final reclamation. The pond is designed in compliance with the requirements of the following sections, as

required:

1. 356.300 - The pond will be maintained until the disturbed area has been stabilized and revegetated. Removal shall not be any sooner than 2 years after the last augmented seeding;
2. 356.400 - Upon removal, the pond area will be reclaimed and reseeded according to the reclamation plan;

Discharge structures.

The sedimentation will be used until Phase II bond release is received. Then the pond will be removed, the area recontoured and revegetated.

Impoundments.

No impoundments will be left on site after reclamation.

Casing and sealing of wells.

The applicant has committed to reclaim the existing wells in an environmentally sound manner. No well will be transferred.

Findings:

R642-742.312 The applicant should discuss how the large undisturbed culvert will be reclaimed and how much will be left in-place to provide for flows under the roadway.

R645-742.312 All reclaimed channels or other hydrologic structures should be designed using Antecedent Moisture Condition III, which yields a higher Curve Number value to ensure maximum protection of hydrologic features while unattended.