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

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bcc: MAW  
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September 28, 1999

Buzz Gerrick  
Western States Minerals Corporation  
250 South Rock Blvd. Suite 130  
Reno, Nevada 89502

Re: Review of Phase II Bond Release Application, Western States Minerals Corporation, J.B. King Mine, ACT/015/002, Folder #2, Emery County, Utah

Dear Mr. Gerrick:

The Division received the Phase II and Phase III bond release application on June 11, 1999. On July 6, 1999, the Division notified you that the Division would proceed with the review of the Phase II bond release application and the public participation period for phase II could proceed.

Deficiencies were identified during the Phase II bond release review and the technical analysis (TA) is attached for your information. I have summarized the deficiencies below and provided clarification and recommendations to assist you in processing your application.

Erosion-Related Deficiencies

R645-301-353.140

The phase II bond release application did not address the erosion standards for the J.B. King Mine which is a commitment in the approved J.B. King Mine plan at UMC 817.110. These erosion standards must be addressed according to your commitment. Please amend or follow the approved plan.

R645-301-300.140 through 143

The approved J.B. King Mine plan also committed to an erosion monitoring program, (See UMC 817.110, page 3 incorporated in October 1995). WSMC has collected data and obtained photos, but needs to summarize and quantify the change encountered across each transect. Please submit this summary.

R645-301-244, R645-301-120 and R645-301-731

An annual soil loss estimate, using the RUSLE (Revised Universal Soil Loss Equation) was submitted for the J.B. King Mine. Elements of the RUSLE equation (e.g. "K" factor) require specific physical soil parameters (including, but not be limited to, soil permeability, soil

structure, %very fine sand, coarse fragment % by weight, %rock cover, and soil density.)

The data used to determine the K value (e.g. the specific physical soil parameters) were submitted. Please provide the methodology used to obtain the K factor selection of the "data" transects. This should be presented to provide justification for the values used.

Prevention of Suspended Solids of Runoff Outside the Permit Area Not in Excess of the Requirements

**R645-301-880.320 (UCA 40-10-17-(j))**

UCA 40-10-17 (j), (I) p4(A) specifies that reclamation must prevent or remove water from contact with toxic-producing deposits. Currently, the sedimentation pond captures this sediment and runoff. As evidenced by the exposed coal refuse materials in the rills, gullies and channel, water has been in contact with possible toxic-producing deposits.

The pond sediments should be sampled for toxic and acid forming characteristics according to the Division's guidelines for topsoil and overburden in conjunction with water quality sampling (see R645-301-733). If sampled sediment and water test results prove negative accordingly, then bond release should proceed.

Impoundment-Related Deficiencies

The impoundment is intended for use as part of the postmining land use, i.e. a stock and wildlife watering pond.

**R645-301-880.320**

"Provisions for sound future maintenance by the landowner (SITLA) or operator" is a requirement when a permanent impoundment is retained. The September 14, 1994 letter from SITLA "concurrs with WSMC's request to leave both reclamation facilities in place because they will enhance grazing practices on the management for this area.." However, SITLA did not agree to any future maintenance. Clarification from SITLA about the "sound future maintenance" is needed. (SITLA and WSMC letters attached.)

**R645-301-733**

Demonstrate that the size and configuration of the impoundment is adequate for the use as a stock pond must be included in the bond release application.

The water quality of the impounded water must meet applicable Utah and Federal water quality standards, which are agricultural water quality standards for Ivie Creek. A sample must be taken and analyzed to demonstrate that the pond is meeting these standards.

Information to demonstrate that the water level will be capable of supporting the intended use,

J.B. King Mine  
Phase II Bond Release Review  
Page 3

must be provided, i.e. WSMC must provide data demonstrating water is available when needed for stock watering and wildlife.

North Perimeter Ditch

R645-301-761.220

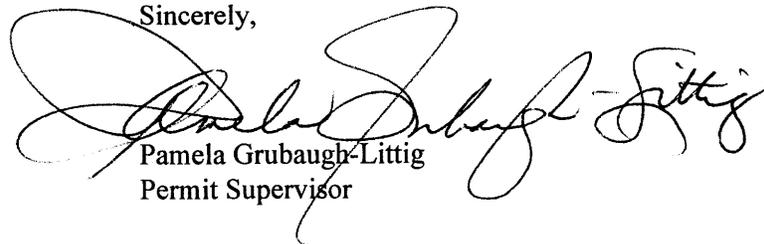
The north perimeter ditch routed to the sedimentation pond needs to be removed, regraded, roughened and seeded. This must be done prior to the Phase II bond release being granted.

This review is for Phase II bond release application only. When these deficiencies are corrected and meet the regulatory requirements, a phase II bond release inspection will be conducted.

Phase III bond release means that all of the requirements of the Act, regulations and the permit have been met and will be handled as a separate review. The Phase III bond release can proceed when the vegetation sampling data and results for Phase III is submitted.

I have also enclosed the Division draft bond release criteria for your information. If you have any questions, please call me. Thank you.

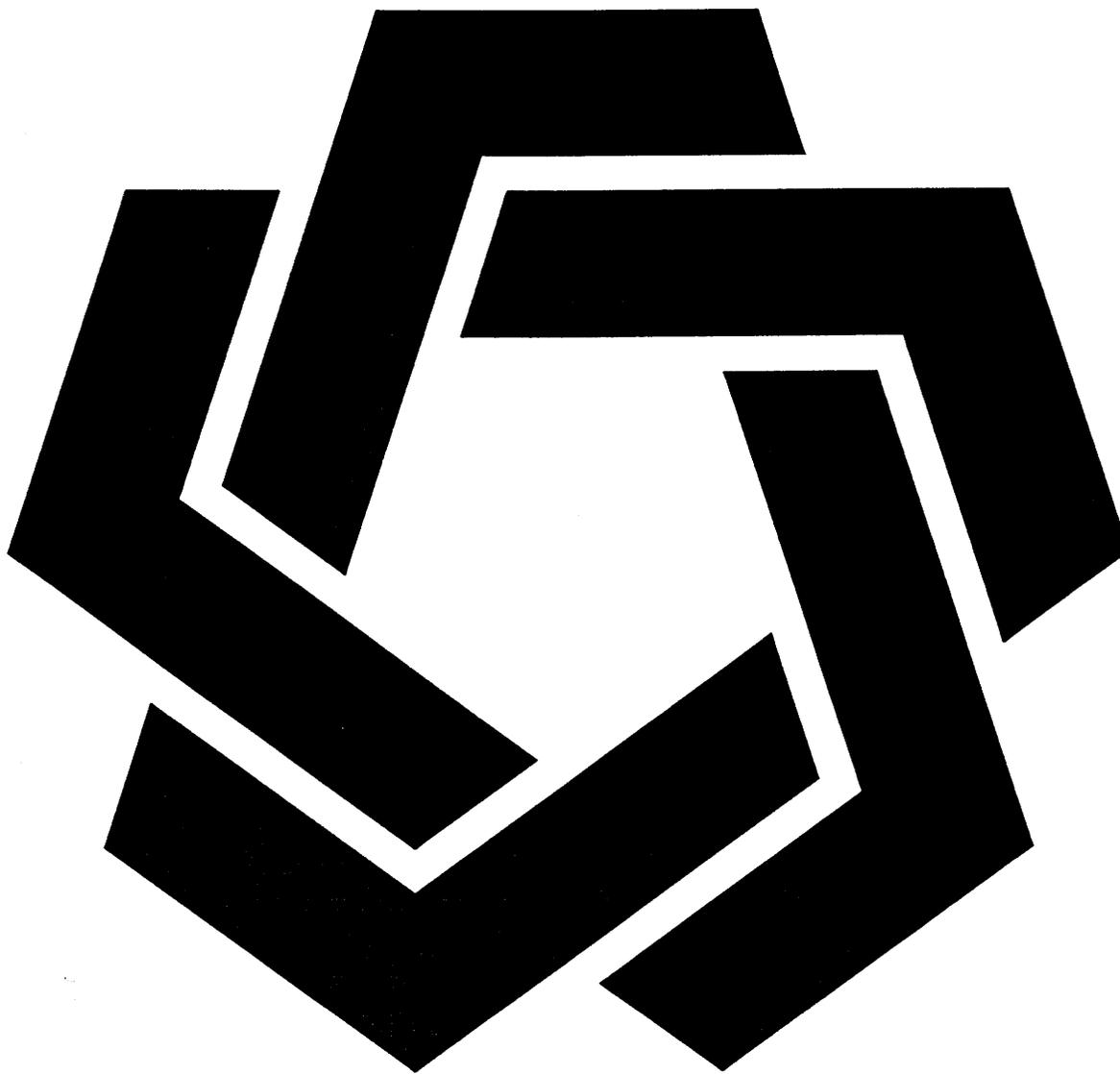
Sincerely,



Pamela Grubaugh-Littig  
Permit Supervisor

tm  
Enclosures  
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State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program



J.B. King Phase II Bond Release  
ACT/015/002  
Technical Analysis  
September 21, 1999

## INTRODUCTION

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### SYNOPSIS

Western States Minerals Corporation (WSMC) submitted a request for Phase II and Phase III bond release on June 11, 1999. A letter from Pamela Grubaugh-Littig to WSMC, dated July 6, 1999, indicated the Division would process the application for Phase II bond release. The submittal was determined to be incomplete with regard to Phase III bond release. For reviewing purposes, information should be submitted in a format where Phase II bond release is addressed separately from Phase III bond release.

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TECHNICAL ANALYSIS

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## RECLAMATION BOND RELEASE VEGETATION

Regulatory Reference: 30 CFR Sec. 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.

### Analysis:

#### Standards for Success.

The regulatory requirements for phase II bond release are described in R645-301-880.320. To meet phase II bond release, successful vegetation establishment must be demonstrated. To date the Division considers vegetation to be successfully established if it meets the regulatory and approved permit requirements for vegetative cover, and if vegetation is determined to be adequate to reduce the erosion rate to erosion levels comparable to the off site area. The vegetative cover, at the J. B. King Mine, needs to meet 90 percent of the reference area cover, at a 90 percent statistical confidence level, to be acceptable for bond release relative to vegetative requirements.

### Cover

The Bond Release application provides vegetation sampling data collected in June 1998 by Bamberg Associates. Vegetative cover and shrub densities were sampled using techniques described in the Division's Vegetation Information Guidelines. Vegetation cover was surveyed using an ocular sampling method. A 4m<sup>2</sup> quadrant is used on the disturbed area and a 1m<sup>2</sup> quadrant is used in the reference area. A completely random sampling design is used by establishing a grid system on site.

The average cover on the reclaimed site sampled by Bamberg was 18.4 percent vegetative cover. This cover value represents total desirable cover; annual weeds were excluded from the total. A total of 40 samples were taken (n=40). The minimum required sample size (n(min)) was calculated according to the Division's Vegetation Information Guidelines. Twenty-two samples were required to meet sample adequacy. The median (or middle value) was 17.0 percent vegetative cover.

The reference area, a shadscale-grass community, was approved by the Division as a reference site in 1985. Total average vegetative cover was 13.1 percent at the reference area in June 1998. A total of 20 samples were taken (n=20). The n(min) required to meet sample adequacy was calculated at 6 samples. The median cover was 13.0 percent.

**TECHNICAL ANALYSIS**

The Division has traditionally performed its own vegetation sampling at the time of Phase II Bond Release. At the J.B. King Mine, the reclaimed area and reference areas were sampled in early July 1998. Division sampling methodologies were similar to Bamberg's except that a stratified random sampling design was used. Total desirable plant cover on the reclaimed site had an average 17.2 percent cover (n=50). The n(min) required to meet sample adequacy was calculated at 141 samples. The median vegetative cover was 10.0 percent. Total desirable plant cover on the reference area measured 20.5 percent cover. The sample size was 20 (n=20) and the n(min) was 23. The median vegetative cover was 10.0 percent.

A comparison of means and medians for sampling completed by the Division show no statistically significant difference between the reclaimed and reference areas means at the 90 percent confidence level. The Division's data set did not meet the calculated minimum sample size on the reclaimed area because the high variation in vegetation cover on site increased n(min) to a value greater than the number of samples obtained. The results of the two studies are summarized in the table below.

	Division			Bamberg Associates	
	Reclaimed	Reference	90 % of Reference	Reclaimed	Reference
Mean % Cover	17.2	20.45	18.4	18.4	13.1
Confidence Interval	13.5 to 20.9	17.47 to 23.43	15.7 to 21.1	16.5 to 20.1	12.2 to 14.0
Median	10.0	20.5	18.45	17.0	13.0
Standard Deviation	15.7	7.7	7.0	6.7	2.4
Variance	246.0	59.7	48.4	44.7	5.7
Minimum Value	0.0	9.0		8.0	9.0
Maximum Value	75.0	38.0		32.0	18.0
n	50	20	20	40	20
n(min)	141	23		22	6

## TECHNICAL ANALYSIS

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Vegetation cover, on the reclaimed area, measured by Bamberg Associates and the Division had similar mean values but were dissimilar for median and variance. The difference in mean and median is explained by the wide range of cover values in the Division sample (0 to 75 percent cover) versus the narrow range in the Bamberg Associates sample (8 to 32 percent cover). When asked, Bamberg Associates stated that no values or quadrants were excluded from the sample because of no or low cover values. The discrepancy in the large variance of the Division's data and low variance in Bamberg's data is of concern to the Division. Because of this concern the Division conducted another study in September 1998 and found a range of cover values (0 to 80) and thus variance (266), similar to the Division's July study.

The Division requires the sample to meet a minimum calculated sample size to provides protection against releasing the bond when the bond should not be released (statistically known as a Type II Error). A large range of sample values results in a large variance from the mean and increases the confidence interval. Large confidence intervals in the data will almost always insure the standard can be met. Sampling until the requirements for a minimum calculated sample size is met either reduces the variance, or ensures that enough samples have been taken to represent the true mean.

Both the Bamberg Associates' and the Division's data indicate that vegetation establishment (cover) requirements for Phase II bond release are met. The vegetation of the reclaimed area is not significantly different than the reference area. In the case of the Bamberg study no statistical tests are required since the reclaimed area has greater vegetation cover than the reference area. However, because of the discrepancy in the sample variance between the Division's and the Operator's data, the Division should be present when the permittee collects data for Phase III bond release. This will increase the Division's confidence in the data, ensuring that the sampling is not biased and does not exclude extremes in vegetation cover.

### **Erosion**

Erosion since reclamation continues to be an on going issue at the J. B. King mine site. Most attempts (contour furrows, silt fencing, smoothing, stuffing with straw or rock, and re-seeding) to reduce the sheet flow and rill and gully formation have been unsuccessful. Vegetation establishment does not appear to have reduced the erosion to levels observed off site. A vegetation cover of 20 percent will reduce, but will not eliminate erosion.

In 1994, a rock mulch, biosolids, and surface roughening treatment was applied to the refuse pile to reduce erosion and refuse exposure. Although erosion is still apparent on the refuse pile, this treatment has reduced erosion rates. Completely recontouring the site to allow for base controls, complex slope shapes, site drainage, and top soiling with low erosive materials could possibly stabilize the site to background levels; however, completely recontouring the site is an unrealistic expectation nearly 15 years after initial reclamation.

## TECHNICAL ANALYSIS

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The plan contains Permit Amendment, Reclamation Plan Revision, J.B. King Mine, July 1995, section UMC 817.110 Erosion Monitoring Plan and Standard for Bond Release which states that the standard for bond release will be based "Upon the demonstrated establishment of Normal Erosion (as defined in the OSM document entitled *Technical Note - Method for Evaluation of Erosion on Reclaimed Coal Lands in Western United States*, draft 12/5/90,) WSMC will be eligible for release from site liability and surety bonding as related to erosion control." The Phase II bond release application did not provide the above described documentation related to erosion control. See additional erosion control discussions in the **Topsoil and Hydrology** sections in this Bond Release Analyses.

### Findings:

Information provided in the bond release application does not meet the minimum regulatory and permit requirements for Phase II bond release. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-353.140**, the operator has committed to an erosion standard in section UMC 817.110 of the permit. The Phase II bond release application must address the standard, or obtain approval to change the permit to another erosion standard.

## TOPSOIL AND SUBSOIL

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

### Analysis:

State regulation R645-301-880.320 provides the regulatory requirements for Phase II bond release. Either of the following soils related requirements must be satisfied prior to Phase II bond release:

- **Evaluation of Erosional Soil Stabilization.** Show suspended solids or runoff outside the permit area is not in excess of the requirements set by UCA 40-10-17(j) and by R645-301-751.
- **Evaluation of Soil Productivity for Prime Farmlands.** Show soil productivity for Prime Farmlands has been returned to equivalent levels as farmed land in the surrounding area according to the requirements set by UCA 40-10-11(4) and by R645-301-200.

**Acid and Toxic Drainage - UCA 40-10-17(j)**

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**TECHNICAL ANALYSIS**

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Lands to be released shall not contribute suspended solids or runoff outside the permit area in excess of the requirements set by UCA 40-10-17(j).

For which the applicable parts state:

(j) Minimize the disturbances to the prevailing hydrologic balance at the mine site and associated offsite areas and to the quality and quantity of water in surface and groundwater systems both during and after surface coal mining operations by:

(I) Avoiding acid or toxic mine drainage by such measures as, but not limited to:

‘p4(A) Preventing or removing water from contact with toxic-producing deposits;

During May 1994, a drilling and sampling program was conducted at the JB King mine for the following reasons:

- To determine side slope materials acceptability for the reclamation channels.
- To determine the toxic and/or acid forming characteristics of the channel material into which the proposed reconstructed channels could potentially erode.
- To determine the toxic and/or acid forming characteristics of the refuse material.

The July 1995 permit amendment (incorporated Oct. 5, 1995) provides results for both the channel and refuse materials analyses at the site. The amendment states the site will not produce acid and toxic forming material after mixing with non-toxic fills during the erosion processes. Adjacent offsite areas were also sampled and were shown to be generally similar to the onsite samples, except they were non-acid forming. Sampling and conclusions were based in part on the State of Utah guidelines for topsoil and overburden management for underground and surface coal mining.<sup>1</sup> The amendment showed the following:

- The channel and native soil materials contain toxic levels of boron and selenium.
- The refuse pile materials contained toxic levels of boron and selenium, and the refuse was shown to be acid forming.

The 1995 amendment contains errors with respect to reporting selenium and boron analyses. Both boron and selenium were reported as soluble, but were in fact analyzed as total. Additional boron and selenium testing was done in October 1994 using sample splits from the May 1994 samples. The Hansen, Allen and Luce 1994 report to Western States Minerals is summarized as follows:

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<sup>1</sup>Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

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### TECHNICAL ANALYSIS

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- Channel and native soil materials contained non-toxic levels of boron and selenium.
- The refuse pile materials contained toxic levels of selenium.

Reclamation at the J. B. King Mine was conducted in 1985-86. The resulting convex surface results in a land form predisposed to erosion. Currently no refuse is exposed at the refuse pile. However, it is obvious that rills and gullies have formed at the reclaimed site, especially in the area located south of the refuse pile and north of the main drainage channels. In this east-central site area, off-site drainage flowing across the reclaimed surface has resulted in considerable rill and gully formation, often exposing buried coal refuse material (Figures 1 thru 3). This exposed coal refuse is not associated with the refuse pile. Refuse is also exposed at the lower end, north east eroding bank of the main, right fork drainage channel (Figure 4). This east-central site area is identified as AREA 3 in Figure 2 "JB King Mine site Layout Transect and Area of Influence Map" from the "Soil Loss Evaluation of the Reclaimed JB King Mine" May 1999, WSMC Engineering Reno, Nevada.

UCA 40-10-17(j), (I), p4(A) specifies the site design must prevent or remove water from contact with toxic-producing deposits. Water is contact with possible toxic-producing deposits when transported through rills, gullies, and channels with exposed coal refuse materials. According to the October 5, 1995 amended permit, harmful effects of toxic and acid forming materials should be nullified through the erosion process by mixing with other non-toxic/non-acid forming materials. At a minimum, the pond sediments should be sampled for toxic and acid forming characteristics according to the Division's guidelines for topsoil and overburden, and representative (seasonal) pond water sampling should be conducted to show State criteria for water quality are met. Sampling should include selenium and pH.

#### **Erosional Stability (Soil Stabilization) - R645-301-244**

##### *Erosion Monitoring Program*

The Phase II bond release application does not provide a summary for information collected for the "Erosion Monitoring Program". As specified in the approved Mine Reclamation Plan, the "Erosion Monitoring Program" was set up for the reclaimed JB King Mine in 1995 to monitor erosion for bond release purposes.

##### *Soil Loss Evaluation - RUSLE*

Western States Minerals presents a "Soil Loss Evaluation" report dated May 1999, which quantifies erosion at the JB King Mine site as determined using the Revised Universal Soil Loss Equation (RUSLE). The "Soil Loss Evaluation" report includes a prediction of the current rate of soil loss at the site, and a comparison of the RUSLE prediction versus an estimate of sediment



**Figure 1.** Area 3 gully erosion into coal refuse material.



**Figure 2.** Area 3 gully erosion into coal refuse material.



**Figure 3.** Area 3 gully erosion into coal refuse material.



**Figure 4.** Left fork channel bank has eroded exposing coal refuse.

## TECHNICAL ANALYSIS

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volumes collected in the sedimentation pond. As reported by Western States, the RUSLE prediction for soil loss at the reclaimed site is 1.27 tons/acre/year and average soil loss to the sedimentation pond is 1.48 tons/acre/year.

RUSLE is an accepted practice for determining the average annual soil erosion rates exclusive of rill, gully and channel erosion rates. However, it is not clear where Western States obtained soil data associated with each of the six transects within the mine site study area. It is not clear whether the "Soil Loss Evaluation" report data from 1993 represents soil characteristics for each region identified by transect.

Each region associated with a transect at the mine site represents areas with different soils characteristics. Elements of the RUSLE equation (e.g., K factor) require specific soil physical parameters for determining the value that represents site specific soils. These soil parameters would include, but not be limited to, soil permeability, soil structure, % very fine sand, coarse fragment % by weight, % rock cover, and soil density. The 1993 soil data does not report % very fine sand, soil permeability, soil density, % rock by weight, or % surface rock cover. Additional transect specific data should include % canopy cover and soil root mass. These parameters and others need to be collected specifically for each of the six transects. Using non-site specific data, or averaging across the site for missing data, does not accurately represent each region; therefore, the K factor used to determine the annual erosion rate can not be validated.

### **Prime Farmlands Evaluation - UCA 40-10-11(4)**

No prime farmlands exist on site; UCA 40-10-11(4) does not apply.

### **Findings:**

Information provided in the application is not considered adequate to meet the requirements of this section. The applicant must provide the following in accordance with:

**R645-301-880.320.** Sample and analyze the pond sediments for toxic and acid forming characteristics according to the Division's guidelines for topsoil and overburden. Provide analyses for sediment pond water, at seasonal high and low water levels, according to State criteria for water quality, including selenium and pH.

**R645-300-140 thru -143.** As specified in the approved Mine Reclamation Plan and prior to Phase II bond release, the "Erosion Monitoring Program" needs to be quantified, concluded, and summarized.

**R645-301-244, R645-301-120, and R645-301-731.** The amendment must contain current and site specific soil information for the RUSLE equation used in the "Soil Loss Evaluation of the Reclaimed JB King Mine" report.

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**TECHNICAL ANALYSIS**

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**HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-880.320.

**Analysis:**

**Sedimentation Pond Retention**

The following R645-301 regulations apply to permanent impoundments:

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

733.221. The size and configuration of such impoundment will be adequate for its intended purposes;

733.222. The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable Utah 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 Utah and federal water quality standards;

733.223. The water level will be sufficiently stable and be capable of supporting the intended use; and,

880.320. The applicant needs to provide for sound future maintenance by the operator or the landowner with the Division.

Approval to retain the pond was previously granted. There were references to some of the regulatory requirements in the 1995 reclamation plan. For instance the text stated that State Lands would provide for future maintenance as land owner. However, the documentation specific to this requirement did not provide acknowledgment, by the landowner, to provide for sound future maintenance of the permanent impoundment. A document, which specifies the land owner will provide for sound future maintenance of the permanent impoundment, needs to be provided in the bond release application.

Water quality and water level information were not provided for sedimentation pond waters. In addition, sediment pond water needs to be demonstrated to meet the state water quality standard for the postmining landuse of wildlife and grazing.

**Diversions.**

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**TECHNICAL ANALYSIS**

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The following R645-301 regulations applies to diversions:

- 1) R634-301-742.313. Removal of all Temporary Sediment Control Measures and Diversions.

The north perimeter ditch routed to the sedimentation pond needs to be removed, regraded, roughened, and seeded before bond release can be granted.

**Water quality standards and effluent limitations.**

The following R645-301 regulations applies to water quality standards and effluent limitations:

- 1) UCA 40-10-17(j)

Lands to be released shall not contribute suspended solids or runoff outside the permit area in excess of the requirements set by UCA 40-10-17(j).

For which the applicable parts state:

(j) Minimize the disturbances to the prevailing hydrologic balance at the mine site and associated offsite areas and to the quality and quantity of water in surface and groundwater systems both during and after surface coal mining operations by:

(I) Avoiding acid or toxic mine drainage.

(ii)(A) Conducting surface coal mining operations so as to prevent to the extent possible using the best technology currently available, additional contributions of suspended solids to stream -flow or runoff outside the permit are, but in no event shall contributions be in excess of requirements set by applicable state or federal law:

**Acid and Toxic Drainage**

The July 1995 permit amendment provides analyses of substitute topsoil materials at the site and suggests that after mixing through erosion processes the site will not produce acid and toxic forming material. The site does contain boron and selenium levels which are above the standards presented in the guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, State of Utah Department of Oil Gas and Mining, April 1988, by James Leatherwood and Dan Duce. See discussions under **Topsoil and Subsoil** in this Bond Release analyses.

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## TECHNICAL ANALYSIS

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### Additional Contributions of Suspended Solids

Reclamation at the J. B. King Mine was conducted in 1985-86 and was one of the first sites reclaimed in Utah under the SCMRA program. Regrading at the site was completed by placing the fill against the highwall with a convex land form. The deepest fill is located in areas where adjacent undisturbed lands with high runoff rates transport water through the site. Climatic changes impose periods of drought and high intensity short duration thunderstorms on this site. Unfortunately this results in land form and an environment predisposed to erosion, especially along the drainages.

The erosion from this site is primarily retained on site. The sedimentation pond captures the sediment and is not known to have discharged during the reclamation period; therefore, the requirements to minimize additional contributions of suspended solids to stream-flow, or runoff, outside the permit area is met at this site. In addition, Rock mulch and biosolids were added to the refuse pile to decrease erosion in 1995. This activity has increased vegetation success and uses best technology currently available to reduce onsite erosion.

The applicant submitted and compared annual sediment volumes deposited in the pond with the sheet and rill erosion rates estimated using RUSLE. The sediment deposition in the pond doubled beyond the average annual estimated sediment deposition for 1997 and 1998. The increased sediment volume was attributed to high intensity storms.

An Erosion Monitoring Program was set up for the reclaimed J.B. King Mine in 1995 to monitor erosion for Bond release purposes. Information was collected on-site and off-site along erosion monitoring transects and precipitation was recorded with an on-site recording rain gauge. The response to precipitation events and recovery from erosive events at the reclaimed site was proposed to be used to determine whether the erosive rate at the site is acceptable for the post mining land use.

A photographic record was also obtained on the site for each transect. Data was collected twice for the first two years after installation. The applicant installed a recording rain gauge and collected data for two years. The rain gauge was provided to determine the rill and gully erosion rate changes and influences from the intensity and duration of precipitation events. The applicant has not provided any information summarizing their data.

### R645-301-880.210

The Division will not make a determination whether pollution of surface and subsurface water is occurring or determine the probability of future occurrence until all other requirements are met.

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**TECHNICAL ANALYSIS**

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**FINDINGS**

The application does not meet the minimum requirements in accordance with the R645 requirements for Phase II bond release; therefore the following needs to be provided in the bond release application:

**R645-301-733.** 1) Describe how the size and configuration of the impoundment is adequate for its intended purposes. 2) Demonstrate that the quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable Utah and Federal water quality standards. 3) Demonstrate that the water level will be sufficiently stable and be capable of supporting the intended use.

**R645-301-761.** 1) The north perimeter ditch routed to the sedimentation pond needs to be removed, regraded, roughened, and seeded before bond release can be granted.

**R645-301- 880.320.** The bond release application needs to provide documentation which provides acknowledgment, by the landowner, to provide for sound future maintenance of the permanent impoundment.