

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

October 19, 2004

TO: Internal File

THRU: Karl Housekeeper, Inspector, Team Lead

FROM: Jerriann Ernstsens, Ph.D., Environmental Specialist II, Biologist

RE: Vegetation Standards Clarification and Updates, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/0013, Task ID #2022

SUMMARY:

The Division received an amendment, on August 24, 2004, that addresses revegetation standards at the Horse Canyon Mine.

The proposed changes do not meet the minimum Revegetation requirements of the Coal Mine Permitting regulations.

TECHNICAL MEMO

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The list below provides editorial or clarity issues associated with the Reclamation chapters that the Permittee must address (R645-301-121.200). Remove productivity related statements. Correct the misused word “diversity” to read “density”. Provide reasoning for the removal of the life-form requirement. (Details for these deficiencies are in the Revegetation section of this TA.)

Findings:

Information provided in the plan does not meet the minimum Permit Application Format and Contents in General Contents requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

- R645-301-121.200**, • Remove productivity related statements. • Correct the misused word “diversity” to read “density”. • Provide reasoning for the removal of the life-form requirement.

RECLAMATION PLAN

REVEGETATION

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:

Revegetation: Standards For Success

The R645 rules do not require productivity measurements for years nine and ten if the postmine land use is wildlife (refer to R645-301-356.230). The postmine land use for Horse Canyon Mine is wildlife. The amendment includes removing statements concerning productivity survey requirements for success standards. The Permittee must remove remaining productivity related statements (see R645-301-121.200 for deficiency): (Amendment Chap. VIII Sec. 8.4.2.)

- Pg. 44: “livestock or”
- Pg. 44: “The productive measurements will be....”.

The Division will judge success based on the effectiveness and permanence of the vegetation for the approved postmine land use. The Permittee will meet success standards when plant cover (MRP VIII Sec. 8.4.2.6 p. 42) and woody plant densities (MRP Chap. VIII Sec. 8.4.2.6 p. 45) are not less than 90% of the standard at the 90% confidence level.

The proposed woody plant density success standard is 2,000 stems/acre, which is 1,000 stem/acre less than the approved MRP (Amendment Chap. VIII Sec. 8.4.2.6 p. 45). The Permittee commitments to bring “diversity” within 90% of the standard. The Permittee must correct the misused word “diversity” to read “density” (see R645-301-121.200 for deficiency). The Permittee must also provide support for the change in the density value to 2,000 (R645-301-356.231).

The *Vegetation Information Guidelines* state that success includes when similarity indices are greater or equal to 70% between reclaimed and reference areas (p.5). The idea behind this similarity requirement is to determine if the number of species (diversity) and distribution within an area are the same. The Jaccard equation is one of the models to use to compare similarity.

The MRP and amendment are somewhat unclear in terminology and methodology for comparing diversity at time of bond release. The Permittee may want to replace the commitment to measure diversity using ranking or “relative importance” with the Jaccard’s equation (Vegetation Information Guidelines). In order to successfully meet similarity requirement of 70%, the Permittee must use life-forms as the equation parameter (Jaccard) not species. If the seed mix had been developed with the same or nearly the same species as those found in the reference area, then the Permittee could use species as the equation parameter.

The MRP states that relative importance (relative cover) of any one species will not exceed 50%. It also states success includes meeting a standard of at least one tree or shrub, one

TECHNICAL MEMO

forb, and two cool season grasses. The Permittee must provide reasoning for the removal of this standard (see R645-301-121.200 for deficiency).

Findings:

Information provided in the plan does not meet the minimum Revegetation - Reclamation Plan requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

R645-301-356.231, Provide support for the change in the density value to 2,000

RECOMMENDATIONS:

Do not approve the amendment until the Permittee addresses all deficiencies.