

0032

Act/015/032

#2



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

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December 15, 1995

MEMO TO: Daron Haddock, Permit Supervisor

FROM: *JB* Priscilla Burton, Soils Reclamation Specialist

RE: Expansion of Crandall Canyon Mine Surface Facility Area.
Crandall Canyon. Genwal Resources Inc. ACT/015/032. Emery
County. Utah. Folder #2.

SUMMARY:

Genwal Resources Inc. have presented plans to expand across Crandall Canyon Creek. The creek would be culverted and a pad created on top, adding 4.05 acres of additional surface disturbance. Genwal Resources personnel have sampled and analyzed soils within the facilities expansion area. No soils map or descriptive survey information was found with the submittal. Sample analyses were provided.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21

Analysis:

- Chapter 2 Soils
- Plate 5-3 Disturbed Area (not found)
- Plate 2-1 Soil Survey (not found)
- Appendix 2-3A (not found)
- Appendix 2-3B

Soil sample analyses presented in Appendix 2-3B show good quality material was sampled, but laboratory methods were not disclosed with the analysis results. Field notes are lacking, sample location is not indicated on any map and the samples were not adequately labeled. Therefore the Division can not determine from what location and to what depth topsoil should be salvaged.



The regulations (R645-301-222 and 223, R645-302-314.100 et seq) require that a soil survey is conducted according to the standards of the Soils Conservation Service as published in the "National Cooperative Soil Survey." The Division "Guidelines for Management of Topsoil and Overburden" request that qualified soil scientists conduct a soil survey of any location prior to disturbance. The qualifications of Genwal personnel were not disclosed. The Division assumes that Genwal personnel do not possess the requisite qualifications to conduct a soil survey, hence the lack of necessary information to evaluate the soil profile.

Findings:

The reclamation plan can not be considered technically adequate.

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-222 Soil Survey and R645-301-223 Soil Characterization. The application must include an organized, clear and concise description of the premining soils resource, including a map delineating the different soils, soil identification and description and present and potential productivity of existing soils. The survey will meet the standards of the National Cooperative Soil Survey as incorporated by reference in R645-302-314.100.

ALLUVIAL VALLEY FLOORS

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

Analysis:

Appendix 2-2 (not found)

The opinion of the SCS and the National Forest Service was sought as to the existence of an alluvial valley floor. These agencies were sent information from a field study conducted by Valley Engineering. The field study was not included in this submittal, nor were the opinions of the SCS and the NFS. As the Division is charged with making the alluvial valley floor determination, any information concerning the issue must be submitted to the Division for review.

Findings:

The reclamation plan can not be considered technically adequate with regard to the Alluvial Valley discussion.

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-302-321 et seq Alluvial Valley Floor Determination. The applicant shall submit to the Division the results of a field investigation of the proposed permit and adjacent area. The field investigations shall include sufficiently detailed geologic, hydrologic, land use, soils and vegetation studies on areas required to be investigated by the Division, after consultation with the applicant, to enable the Division to make an evaluation regarding the existence of the probable alluvial valley floor in the proposed permit or adjacent area and to determine which areas, if any, require more detailed study in order to allow the Division to make a final determination regarding the existence of an alluvial valley floor.

OPERATION PLAN TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec.817.22; R645-301-232, -301-233, -301-234, -301-242, -301-243.

Analysis:

Chapter 2, page 2-3 (sampling of sites P1, P2, P3)
Section 2.31, 2.42 (soil volumes)
Plates 2-2 and 2-3 (presently stockpiled soil locations and volumes)
Plate 5-3 (soil stockpile locations) not included

A short discussion of soils that will not be salvaged is provided on page 2-3. Sites P1, P2, and P3 were sampled for revegetation success and soil depth. Apparently, the soil was not considered deep enough to salvage. No further information was provided with the submittal. A map locating sites was not provided with the submittal. The narrative further states that slopes greater than 30% will not have topsoil removed. No indication of the area covered by slopes greater than 30% is given. Generally, soil salvage can be conducted on slopes of 50%. Genwal Resources Inc. should discuss this issue with the Division or provide reasons for not attempting to salvage topsoil off lesser slopes.

No soils will be removed in the area of the stream bank. Here, a geotextile fabric will be laid over the soils to protect them *in situ*. It is not made clear how the stream bed will be excavated for placement of the culvert without disturbing the streambed soils, however.

Where "practical," Genwal Resources Inc. plans to remove soil to a minimum depth of one foot. This soil will be segregated into topsoil and subsoil piles and stored on the upper storage pad. Estimated topsoil salvage is not disclosed.

Soil salvage plans should be based on the soil profile and technical difficulty of recovery, not the amount required for a six inch redistribution layer. An adequate soil survey is required before the soil salvage operation can begin. The survey will enable prediction of soil salvage volumes, which will enable discussion of stockpile size and location.

Findings:

The plan can not be considered technically adequate with regard to a description of soil handling plans. The mining and reclamation application is not in compliance with the requirements of 30 CFR 817.22.

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-232.100 Topsoil and Subsoil Removal and R645-301-234 Topsoil Storage. All topsoil will be removed as a separate layer from the area to be disturbed, and segregated and stockpiled. Evaluation of compliance with this regulation requires that the deficiency stated under soils resource information is completed. This deficiency is repeated here: *The application must include an organized, clear and concise description of the premining soils resource, including a map delineating the different soils, soil identification and description and present and potential productivity of existing soils. The survey will meet the standards of the National Cooperative Soil Survey as incorporated by reference in R645-302-314.100.*

RECLAMATION PLAN

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 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.

Analysis:

Presently, the mine has 3,701 yd³ stored in three stockpiles. Salvage of 6,300 yd³ is planned. A total of 10,000 yd³ will thus be stored on the site.

A six inch topsoil replacement depth is planned for the site. Volume calculations are presented in section 2.42, but areas considered conflict with those mentioned elsewhere in the submittal. (i.e. Is the acreage increasing to 10.14 acres or 13.75 acres.)

Assumming 13.75 acres of total disturbance, less 3.20 acres

for topsoil pile areas, road and streambed, leaves 10.55 acres to receive topsoil. If only six inches is applied, then 8,510 yd³ of stockpiled topsoil would be required.

Soil Salvage plans should be based upon the soil profile and not the amount required for a six inch layer redistribution. Crandall Canyon mine site has been operating with a deficiency of stockpiled topsoil, hence the description of substitute materials in the plan. This expansion provides an opportune time to recover large amounts of topsoil to replace the topsoil lost in previous salvage operations. Genwal Resources Inc. could take this opportunity to improve the reclamation plan so that more than six inches of topsoil can be replaced over portions of the site. Pockets of deep mollisol-like soils could be created which would provide islands of lush vegetation.

Conventional topsoil replacement techniques will be used except where the slopes are too steep. Here other methods will be used as described in section 5.40 (not included with the submittal). Slopes considered too steep were not identified. It is mentioned on page 2-5 that after erosion occurs, mulch will be applied to the reclaimed slope. The Division requests that mulching occur prior to the occurrence of erosion, as a means of avoiding erosion of the redistributed topsoil.

Findings:

The reclamation plan can not be considered technically adequate.

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-242 Soil Redistribution and R645-301-244 Soil Stabilization.

More detail in the plan regarding the soil salvage (as requested in deficiencies listed under Operations Topsoil and Subsoil) is required. The Division can not approve the 6" cover over the entire reclamation site. During reclamation, pockets of deep mollisol-like soils could be created which would provide islands of lush vegetation. Slopes where soils will not be salvaged should be identified. Acreages to be reclaimed should be reviewed for accuracy. Stabilization practices should include mulching immediately after topsoiling.