



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

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September 28, 2000

TO: ~~Internal File~~

THRU: Priscilla W. Burton, Team Lead *WB*

FROM: Wayne H. Western, Senior Reclamation Specialist *W H W*

RE: Reclamation Plan, Energy West Mining Company, Cottonwood/Wilberg Mine  
~~ACT/013/019-AM00B-2~~

**SUMMARY:**

On August 9, 2000, the Division received the revised reclamation plan for the Cottonwood/Wilberg Mine. I reviewed the engineering and bonding sections of the plan and found several deficiencies that are outlined in this memo.

**TECHNICAL ANALYSIS:**

**RECLAMATION PLAN**

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

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

**Analysis:**

**Reclamation backfilling and grading maps**

The Division reviewed the approved and proposed reclamation plan and found that neither contains detailed cross sections. Without detailed cross sections the Division is unable to

**TECHNICAL MEMO**

evaluate the reclamation plan. The cross sections are needed to verify that the backfilling and grading plan meets the requirements of the coal rules and the reclamation bond is adequate.

The permittee must give the Division detailed cross sections that show the operational and reclamation phases for all disturbed areas at the Cottonwood mine. The cross sections should be on 100 foot intervals and be at a scale of not smaller than 1 inch equals 100 feet. The Division needs the cross sections for several reasons including but not limited to the following:

- verify that the reclamation plan meets the requirements of the coal rules
- verify that the cut and fill quantities match
- verify that concrete structures left in place will be adequately backfilled

**Findings:**

Information provided in 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:

**R645-301-542.200**, the permittee must give the Division cross sections that show the operational and reclamation phases for the disturbed areas. Those cross sections must **(1)** be of a scale of 1" = 100' or smaller, **(2)** be on 100' intervals, **(3)** show the location of all concrete structures that the permittee proposes to leave in place for final reclamation, **(4)** show the location of the highwalls and **(5)** list the cut and fill quantities.

**BONDING AND INSURANCE REQUIREMENTS**

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

**Analysis:**

**Determination of bond amount**

The Division, reviewed the reclamation cost estimate and divided the review into three sections: demolition, earthwork and revegetation.

*Demolition*

The Division reviewed the demolition cost estimate and made the following analysis:

**TECHNICAL MEMO**

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- The permittee is not clear and concise when describing noncoal waste disposal. On page 1 of part 4 of the MRP and proposed reclamation plan the permittee states that all noncoal waste except concrete will be shipped off-site. In the remarks section of the demolition cost estimates the permittee states that steel will be sent to a salvage facility. In the reclamation cost calculations the permittee includes disposal fees for steel debris sent to the Nielson landfill. The Division does not consider the Nielson landfill to be a salvage facility since they charge a disposal fee. The permittee needs to be consistent when describing the disposal facilities where building debris will be taken.
- A salvage facility implies that the material can be disposed of at no cost. The Division does not consider the Nielson landfill to be a salvage facility since a disposal fee is charged. The permittee must not use the term salvage facility and landfill interchangeably.
- The comments about disposal of building debris on-site must be clarified. Usually the Division only allows inert materials such as concrete to be disposed of on-site. If the permittee wants to dispose of building debris on-site then they must comply with the requirements of R645-301-528.332. That regulation requires the permittee to design and construct the on-site disposal area so that leachate and drainage from the noncoal mine waste does not degrade surface or underground water. If the permittee does not meet those requirements then the debris must be disposed of at a State-approved solid waste disposal area.
- The permittee must include the disposal costs in the reclamation cost estimate for the following structures:
  - Rock dust storage tanks and fuel tanks (1-F)
  - Substation (1-J)
  - Diesel Shop (1-K)
  - Covered Parking (1-L)
  - Staking Tube (1-P)
  - Overland Conveyor (1-R)
- The permittee did not include the reclamation costs for the following:
  - Removal of the 69 KV power line (1-H)
  - The activities associated with reclaiming the crane pad (1-O)
- The permittee did not include the volumes for some structure scheduled to be demolished. Those structures include but not limited to the following:

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TECHNICAL MEMO

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- All concrete structures that will be left in place during final reclamation.
- Conveyor systems
- Rock dust storage tank and buried fuel tanks
- Power Substation
- Pumphouse water tank

The Division needs that information on the concrete structures scheduled to be left in place because they may have to be broken up in place to insure proper water flows and root growth.

The Division reviewed the demolition costs provided by the permittee. The permittee did not include the equipment operator's cost (wage rates) in reclamation cost estimates. One possible reason that the permittee did not include the operator's cost with the crew costs is how the term crew cost is defined by *Means*. The wording in *Means Heavy Construction Cost Data 14<sup>th</sup> Annual Edition, 2000*, can be confusing. On page 5 the crew cost is defined as follows:

- The figures in the column for Crew Equipment Cost represent the rental rate used in determining the daily cost of equipment in a crew. It is calculated by dividing the weekly rate by 5 days and adding the hourly operating cost time 8 hours.
- The word crew may imply the combination of equipment and operator but the crew only consists of the equipment. To clarify this point the following examples will be used. The weekly rental rate for a 55-ton truck mounted hydraulic crane (*Means* reference number 0159 600 2600) is \$2,675/week, divided by 1 week/ 5days that is equal to \$535/day. The operating cost is \$34.15/hr times 8 hrs/day that is equal to \$273.20/day. The sum of the daily rental and operating cost is \$808.20/day, the same as the crew cost. Note: no operator cost (wage rate) was used in calculating the crew cost.

A second example is found on page 399. Crew No. B-13B (do not confuse equipment crews with activity crews) lists a 55-ton hydraulic crane as part of that activity crew. The bare cost for the hydraulic crane is \$808.20/day and the bare cost for the crane operator is an additional \$239.20/day. Those costs are consistent with the claim that the operator's cost is not included in the equipment crew cost.

The permittee did not include the operator's costs with equipment cost that the Division supplied from *Blue Book*. The equipment costs in *Blue Book* include the ownership costs (rental), the operating costs and profit and overhead. The equipment cost does not include the operator's cost (wage rate).

The permittee did not give the Division references for the productivity of the crews used in the calculation of the demolition work. The Division is unable to verify the productivity rates for the demolition activities. The permittee appears to use a 20-ton/day productivity rate for most steel structures. The published productivity rates that the Division has access to are between 322CY/day and 800 CY/day depending on the crew and equipment. If the permittee cannot provide the productivity references then the Division will use productivity and cost estimates from *Means*.

The permittee must give the Division the pavement dimensions (length, width and thicknesses) for all asphalt surfaces and an asphalt swell factor. This information is needed to verify haulage costs. When calculating the volume of asphalt rubble the permittee should use a swell factor.

On page 4-3 of the MRP the permittee states that all asphalt debris will be disposed of on-site in the lower parking lot. The surface ownership maps show that the U.S.F.S. is the surface owner. The U.S.F.S. has indicated to the Division that asphalt can no longer be disposed of on-site. The permittee needs to show that they have surface owner approval for the on-site asphalt disposal. If they do not have land owner approval for on site disposal of asphalt then the permittee must develop an alternative disposal plan.

The permittee needs to clarify asphalt disposal. On page 4-1 of the MRP the permittee states that all noncoal waste except concrete will be disposed of on-site. That statement implies that asphalt will be disposed off-site. However, on page 4-3 of the MRP the permittee states that asphalt will be disposed of on-site. The permittee needs to be consistent in describing asphalt disposal.

The Division reviewed the earthwork cost estimate and made the following analysis:

#### *Earthwork Calculations*

The volumes for the earthwork calculations are shown on the Final Reclamation Map Stage I, drawing number CM-10500-WB dated May 26, 1983 and Final Reclamation Map Stage II. The volume calculations are based on cross sections listed on the map. When the Division contacted the permittee about getting copies of the cross sections, the permittee stated that they have no cross sections for the site. The Division needs cut and fill cross sections for several reasons including verification of cut and fill quantities.

The Division reviewed the equipment productivity calculations. The permittee needs to clarify the following:

**TECHNICAL MEMO**

- Why the permittee used bank cubic yards instead of loose cubic yards when calculating scrapper productivity. (Why a swell factor was not used when calculating volumes to be hauled.)
- For dozer productivity the permittee should state why they are using a material factor of 0.8, a weight correction factor of 0.9 and a slot dozing factor of 1.2. The slot dozing factor is generally used when the dozer is cutting trenches.
- The permittee must include detailed productivity calculations for the following earthwork:
  - Reclamation of the new waste rock site.
  - Removal of the sediment pond.
  - Drainage works, extending the diversion ditch 230 feet.
  - Culvert removal
- The permittee did not include reclamation costs to prepare the surface for topsoil placement and distribution. Many surfaces have slopes of 1H:1.5V. Such slopes are too steep for equipment to operate on. Therefore, special material handling techniques must be used. The permittee must include those procedures in the bond calculations.
- The permittee, which must include earthwork calculations for the Proposed Cottonwood Fan Portal. Since Phase I bond release has not been granted the permittee must still include earthwork costs in the reclamation cost estimate.

*Vegetation*

The Division reviewed the reclamation cost for revegetation. The permittee did not include the material costs or productivity calculations for those tasks. The material costs and productivity calculation must be included in the reclamation cost estimate.

**Findings:**

Information provided in 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:

**R645-301-830.140 and R645-301.122**, The permittee must show that they have landowner approval for on-site disposal of all noncoal waste including

asphalt. The U.S.F.S. is the surface owner and they have informed the Division that asphalt debris cannot be disposed of on-site. If asphalt debris cannot be disposed of on-site then the permittee must develop an alternative disposal plan.

**R645-301-121.200**, The permittee must be clear and concise when explaining how and where building debris will be disposed. The permittee must be consistent about whether or not building debris will be disposed of on-site. The permittee must also be consistent about describing the off-site disposal facility. The Division does not consider a salvage facility to be the same as a landfill because a salvage facility does not charge for disposal while a landfill does. See the analysis section for details.

**R645-301-830.140**, The permittee must include the disposal costs for the following: (1) Rock dust storage tanks and fuel tanks (1-F), (2) Substation (1-J), (3) Diesel Shop (1-K), (4) Covered Parking (1-L), (5) Staking Tube (1-P) and (6) Overland Conveyor (1-R).

**R645-301-830.140**, the permittee must give the Division detailed reclamation cost estimates for the following: (1) Removal of the 69 KV power line (1-H), (2) Reclamation of the crane pad (1-O), (3) the volume of all concrete structures that will be left in place during final reclamation, (4) the volumes for all structures that are to be demolished and an estimate of the debris volume. The Structures that do not have volumes listed include but not limited to the conveyors, the rock dust storage tank and buried fuel tanks, power substation, pumphouse and water tanks

**R645-301-830.140**, The permittee must include the equipment operator's costs (wage rates) in the demolition costs. See the analysis section for the discussion on why the operator's costs are not included in *Means* crew costs or the quotes given by the Division from *Blue Book*.

**R645-301-830.140 and R645-301.122**, The permittee must give the Division references for the productivity of the crews used in the calculation of the demolition work.

**R645-301-830.140**, The permittee must give the Division the pavement dimensions (length, width and thicknesses) and a swell factor for calculating the volume of asphalt rubble.

**R645-301-122**, The permittee must be clear and concise when stating where asphalt debris will be disposed. The information on page 4-1 suggests that

TECHNICAL MEMO

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asphalt will be disposed of off-site while the information on page 4-3 suggests the material will be disposed of on-site.

**R645-301-830.140 and R645-301-542.200**, the permittee must give the Division cross sections that show the cut and fill quantities.

**R645-301-830.140 and R645-301.122**, The permittee must give the Division information on the following: **(1)** Why the permittee used bank cubic yards instead of loose cubic yards when calculating scrapper productivity. (Why a swell factor was not used when calculating volumes to be hauled.) and **(2)** For dozer productivity the permittee should state why they are using a material factor of 0.8, a weight correction factor of 0.9 and a slot dozing factor of 1.2. The slot dozing factor is generally used when the dozer is cutting a trench.

**R645-301-830.140 and R645-301.122**, The permittee must give the Division information and productivity data for the following activities: **(1)** Reclamation of the new waste rock site, **(2)** Removal of the sediment pond, **(3)** Drainage work, extending the diversion ditch 230 feet, **(4)** Culvert removal, **(5)** The permittee did not include reclamation costs preparing the surface for topsoil placement and for topsoil distribution and **(6)** The permittee must include earthwork calculations for the Proposed Cottonwood Fan Portal. The Division has not yet approved Phase I bond release therefore the earthwork calculations must be included.

**R645-301-830.140**, The permittee must give the Division references for material costs involved in vegetation and productivity calculations.