



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

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June 12, 2001

TO: [REDACTED] Internal File

THRU: Peter H. Hess, Team Lead *SM for PHH*

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

RE: Section 5 and Exhibits 13 & 17, Plateau Mining Corp., Willow Creek Mine,
C [REDACTED] AM01B

SUMMARY:

The Division received the amendment AM01B on February 12, 2001. The amendment includes a revised reclamation cost estimate. The Division reviewed the reclamation cost estimate and found several deficiencies that are listed below.

TECHICAL ANYLSIS:

RECLAMATION PLAN

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

Determination of bond amount

The direct reclamation cost are divided into four groups; 1) demolition and disposal, 2) earthwork including placing topsoil, 3) drainage controls and 4) revegetation. The Division analyzed each group submitted by the permittee.

Demolition and Disposal:

The permittee made the following assumptions about demolition:

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- Unit costs were from *Means Heavy Construction Cost Data 2000*.
- A day is assumed to be 8 hours for the demolition section.
- The permit number corresponds to the number of Map 18B (as built)
- In *Means* the cost for the demolition of footings is given in linear feet. However, few of the actual footings fit the few examples given in *Means*. To adjust for this unit cost for the most expensive footing which is a 2' x 3' was converted to a cubic foot basis by dividing the volume per linear foot of this footing. Thus the unit cost was divided by 6 to get the costs used for footings. Also 10% was added for reinforcement.
- All tanks are assumed to be sold prior to reclamation, with the buyer removing the tanks.
- The bond calculations represent the approved reclamation plan with the exception of the Pond 12A and 12B areas which are now accounted for in the Willow Creek Mine bond. Previously separate bond calculations for the Clean Coal Storage pad extension, and culverts CGD -10 and 11 have been incorporated into this calculations.

The Division reviewed the assumption and the bond calculations and came to the following conclusions:

- The Division used unit costs were from *Means Heavy Construction Cost Data 2001* handbook.
- The permit number corresponds to the number of Map 18B (as built)
- Concrete unit costs are based on a hydraulic hammer mounted on a backhoe. The production rate for concrete demolition is based on *Caterpillar* handbook and catalogs. Unit costs for loading, hauling and on site disposal are from *Means*.
- The Division does not allow for salvage including the sale of tanks before demolition.
- The Division needs to have information on disposal costs for debris. While the Division does allow steel to be disposed of at no cost (assume steel will be sent to a recycling center) non-steel debris must be sent to a landfill.

Earthwork and Topsoil Placement Costs:

The original earthwork costs were based on *Means* unit costs. The Division allowed the permittee to use *Means* unit costs to compensate for the lack of detail in the earthwork productivity calculations. *Means* unit costs tend to be more expensive than those calculated by using the *Caterpillar Handbook* and *Bluebook* costs.

The permittee submitted earthwork costs that were based on a combination of *Bluebook* and *Means*. However, the permittee did not include accurate productivity calculations and in many case the productivity calculations are inconsistent. For example in item number 2 in excavation – backfilling and grading the permittee assumes that a D8R dozer will do the work and bases the costs on the following:

- The equipment rental rate is 0.5 months (176 day/month x 0.5 months = **88 hours.**)
- The operating costs is **100 hours**
- The labor costs are based on the *Means* reference number 02315-410-5220 (300 H.P. dozer 150' haul common earth) the daily output is 1,120 cubic yards per day (57,800CY / 800 CY/DAY x 8 hr/day = **578 hrs.**)

The permittee needs to be consistent with the hours needed to complete an earthwork task and provide the Division with detailed earthwork costs, such as those outlined in the OSM's *Handbook for Calculation of Reclamation Bond Amounts*.

In the original bond cost calculations the permittee assumed an average push of 300' for dozer work in backfilling and grading. In the proposed amendment the permittee assumed a 150' push for backfilling and grading. The permittee must either use the distances used in the original bond calculation or provide the Division with detailed productivity calculations.

The Division examined the assumptions that were used by the permittee for earthwork calculations and made the following analysis:

- The permittee assumed a work month consisted of 21 day per month and workdays were 10 hours per day, which amounts to 210 hour per month. The standard number of hours per week used by the Division is 176 hours per month.
- The permittee rounds up the rental rate to the nearest quarter month. The Division uses the hours calculated from the productivity estimates without rounding.
- The permittee states that the operating costs are based on the number of hours needed to move the material and that some double handling of material may be needed. However, the permittee did not provide the Division with detailed cut and fill calculations and equipment productivity estimates.
- The permittee states that dozers, excavators, and front-end-loaders productivity estimates were based on the *Caterpillar Performance Handbook Edition 30*. However, the detailed calculations were not included in the bond calculations. Without detailed earthwork calculations the Division cannot verify the production calculations.
- The permittee did not state how the productivity calculations for the truck were made.

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Drainage Controls:

The drainage controls are based on *Means* unit costs for filter fabric and riprap. The pond removal is based on a lump sum. The Division usually does not like to use lump sum figures and requests that the permittee estimate the ponds removal using standard earthwork calculations.

Revegetation:

The vegetation costs are based on *Means* unit costs for soil preparation, seed, hydroseeding, mulch, fertilizer and seedlings. The Division has revised their methods for calculating revegetation costs. Instead of using *Means* materials costs the Division want to use local costs for seeds because the unit costs in *Means* do not represent the type of seeds and plants that would be used in reclaiming a mine site. Therefore, the permittee should document the cost for seeds that are in the approved seed mixture.

The Division does not use the indirect costs as shown in the OSM's *Handbook for Calculation of Reclamation Bond Amounts*. Instead the Division uses a modified version of OSM's indirect costs, which are as follows:

- Startup costs 10%.
- Contingency 5%.
- Engineering redesign fee 2.5%.
- Main office expense 6.8%.
- Project management fee 2.5%.

A copy of a memo outlining the Division's procedures for calculating indirect cost is available upon request.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-830.100 through R645-301-830.140, The permittee will provide the Division a detailed reclamation cost estimate for the preparation plant are of the Willow Creek mine. Specific details that need to be included in the reclamation plan include the following:

Demolition and Disposal:

- The Division does not allow for salvage including the sale of tanks before demolition. Those costs must be included in the bond calculations
- The Division needs to have information on disposal costs for debris. While the Division does allow steel to be disposed of at no cost (assume steel will be sent to a recycling center) non-steel debris must be sent to a landfill.

Earthwork and Topsoil Placement Costs:

The permittee needs to include accurate productivity calculations in the cost estimate. The proposed productivity calculations are inconsistent. For example in item number 2 in excavation – backfilling and grading the permittee assumes that a D8R dozer will do the work and bases the costs on the following:

- The equipment rental rate is 0.5 months (176 day/month x 0.5 months = **88 hours.**)
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The permittee needs to be consistent with the hours needed to complete an earthwork task and provide the Division with detailed earthwork costs, such as those outlined in the OSM's *Handbook for Calculation of Reclamation Bond Amounts*.

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The Division examined the assumptions that were used by the permittee for earthwork calculations and found the following deficiencies:

- The permittee assumed a work month consisted of 21 day per month and workdays were 10 hours per day, which amounts to 210 hour per month. The standard number of hours per week used by the Division is 176 hours per month.
- The permittee rounds up the rental rate to the nearest quarter month. The Division uses the hours calculated from the productivity estimates without rounding.

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- The permittee states that the operating costs are based on the number of hours needed to move the material and that some double handling of material may be needed. However, the permittee did not provide the Division with detailed cut and fill calculations and equipment productivity estimates.
- The permittee states that dozers, excavators, and front-end-loaders productivity estimates were based on the *Caterpillar Performance Handbook Edition 30*. However, the detailed calculations were not included in the bond calculations. Without detailed earthwork calculations the Division cannot verify the production calculations.
- The permittee did not state how the productivity calculations for the truck were made.

Drainage Controls:

The Division usually does not like to use lump sum figures and requests that the permittee estimate the ponds removal using standard earthwork calculations.

Revegetation:

Instead of using *Means* materials costs the Division want to use local costs for seeds because the unit costs in *Means* do not represent the type of seeds and plants that would be used in reclaiming a mine site. Therefore, the permittee should document the cost for seeds that are in the approved seed mixture.

RECOMMENDATIONS:

The Division should deny the amendment until the permittee has adequately address all of the deficiencies outlined in this memo.