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

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February 1, 1994

Ms. Denise A. Dragoo
Fabian and Clendenin
P. O. Box 510210
Salt Lake City, Utah 84151

Re: Reclamation Cost Estimate, Valley Camp of Utah/White Oak, Belina Mine, ACT/007/001, Folder #3, Carbon County, Utah

Dear Ms. Dragoo:

The Division met with Tim Thompson, of JBR Consultants Group, on December 12, 1993 to discuss the bond cost at the Belina Mine. During that meeting a draft proposal for reducing the Belina reclamation costs was presented and discussed. It was agreed that the Division would analyze the proposal even though it was in draft form and provide a response. This letter will constitute that response.

No decision is being rendered with this response, only a technical appraisal of the approach being proposed. A proposal would need to be submitted formally before an official decision could be made to approve or disapprove it. Bearing this in mind, the draft was found to contain no basis for a reduction of the Belina bond. A reclamation cost estimate must be based on the approved reclamation plan. In order to reduce reclamation costs by altering reclamation methods, the reclamation plan would first need to be amended. For example you could not reduce reclamation costs for the disposal of asphalt by proposing to bury it on site when the plan calls for hauling it to a landfill. The reclamation plan must be followed. This does not mean that the plan could not be changed, but the changes would need to be applied for and approved before any reduction in the bond estimate, that was based on those changes, could be applied for.

I am enclosing a copy of the technical review which was done on the draft proposal for your information. It may help you in determining an approach for handling the bond situation at the Belina Mine.

Please call me or Wayne Western if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock
Permit Supervisor

Enclosure

cc: T. Thompson, JBR Consultants
L. Braxton
W. Western

BONDRESP.BEL



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TO: Daron Haddock, Permit Supervisor
FROM: Wayne H. Western, Reclamation Engineer
DATE: January 14, 1994 *WHW*
RE: Reclamation Cost Estimate 12/21/93 by JBR for the Valley Camp/Belina Complex, Valley Camp of Utah, Inc., Belina Complex, ACT/007/001, Folder #2, Carbon County, Utah

INTRODUCTION

Tim Thompson, of JBR Consultants Group, met with us on December 12, 1993. He presented a proposal to decrease the Valley Camp/Belina reclamation bond by using different reclamation techniques and unit costs. Using the revised calculations the bond went from \$5,891,000 to \$2,360,000. We told Tim that the bond must be based on the approved mining and reclamation plan.

The bond estimate is divided into 4 parts and numbered. The numbering system was used in this review so that comments could be easily cross-referenced.

1.0 Demolition and Disposal of Buildings

Operator's Proposal:

This section consists of dismantling the buildings (structures), hauling the debris to an on-site landfill, and demolishing any concrete that is not conducive to the final grading and reclamation plan. A spreadsheet was prepared (Table 1) to tabulate costs for dismantling the structures and demolishing the concrete. Means Cost Data for small, single buildings was referenced for unit costs for building demolition (pg. 1-1a). Concrete demolition productivity was conservatively estimated by experience with a Cat 235 Excavator (pp 1-1,b). This machine is commonly used in demolition and is scheduled to be on site for all activities except revegetation.

After the structures have been demolished, the construction debris must be disposed of in accordance with R645-301-542.742 which discusses the disposal of wastes in a designated disposal site in the permit area.

The landfill at the Valley Camp loadout will be located along the embankment between the bathhouse (S-4) and shed (S-7). Dimensions of the landfill are approximate 200'



by 80' by 10'. The Belina landfill will be along the embankment behind the bathhouse (S-27).

Therefore, landfill construction costs have been estimated (pg. 1-3, c) as part of the disposal cost. The cost to backfill this refuse pit is considered equal to the excavation costs shown. Haulage to these pits was estimated using Means for a 12-CY dump truck (pg. 1-3, d).

Tim based the floor and foundation demolition costs on his field experience with Northern Nevada Construction Company. Tim's unit costs for floor and foundation demolition are \$0.13 per square foot and \$0.33 per square foot for tunnel wall. The material will be left in place and covered with a minimum of 4 feet of material during regrading.

The calculations for the volumes/areas of the stacker, loadout footings and reclaim tunnel are shown on the work sheets. It appears that the original volumes and areas were in error.

The above ground parts of the footings will be broken up and transported to the on site landfills. The below ground parts of the footings will be left in place and covered during regrading. The unit cost for demolishing the footing is based on Means' price for reinforced concrete demolition.

Costs for on-site landfill and haulage to the facility were calculated by the consultant. References cited for construction of the on-site landfills were Means, The Caterpillar Handbook and Bluebook. Regional cost adjustments were made for the Salt Lake City area. See work sheet for details.

Analysis:

On pages R-10 and R-11 of the MRP the procedure for building demolition is described. The plan says that:

All mining related structures located within disturbed areas will be demolished, salvaged or otherwise removed, all mine portals will be properly sealed, and the area cleaned up regraded and restored to meet reclamation requirements as identified herein. All asphalt will either be hauled to a state approved disposal facility or reprocessed and donated to UDOT for use as a resource for state highways. Reclamation costs have been calculated based upon the assumption that all asphalt will be hauled to an appropriate disposal facility. The concrete will be scarified and crushed with heavy equipment and used to backfill the portals, used as aggregate for lean concrete to backfill the portals or placed as fill against the toe of the back slope in the first placed during reclamation

All surface equipment structures, or other facilities found within the Valcam or

Belina Permit areas not required for continued underground mining activities and monitoring (unless approved by the Division as suitable for post mining land use or environmental monitoring) will be removed and the effect lands reclaimed. Exceptions to the removal of all structures include the roadbed associated with the operation of the railroad which traverse the Valcam Loadout site, or which are associated with the office facilities located west of the Valcam Loadout and Highway 96 as discussed earlier.

The approved MRP requires that all building debris be disposed in a state approved landfill. The disposal charges for placing the material in the East Carbon landfill have been included in the bond estimate. The concrete will be placed in the portals or used as fill material.

The revised bond estimate is based on a modified reclamation plan and different unit costs. The revised plan calls for floors and foundations to be rubblelized and then left in place. The building debris will be disposed of on site.

The Division might approve on-site disposal of inert material should the operator submit an amendment to the MRP. R645-542.742 allows for the final disposal of non-coal mine wastes in designated disposal sites in the permit area or a state approved solid waste disposal facility. Materials such as wood, insulation and iron that deteriorate with time should be disposed of off-site in a state approved landfill. The exclusion is based on professional engineering judgement.

The unit costs to break into rubble the floor, foundations and tunnel walls in the revised bond estimates were based on Tim Thompson's field experience with the Northern Nevada Construction Company. R645-301-122 states "If used in the permit application, referenced materials will either be provided to the Division by the applicant or be readily available to the Division." The Division must reject the unit costs based on field experience because they are not properly referenced.

The unit cost for floor and foundation removal based on the consultant's historic data was \$0.13 per square foot. In contrast the unit cost from Means, which was used in the approved MRP, was \$4.49 per square foot. The consultant's unit cost is a 97% reduction from the amount used by the Division.

The Division is not likely to accept the consultant's unit costs because of this significant difference. The Office of Surface Mining has learned that Means is an accurate reference for government administered reclamation projects. The Division experience also shows that Means unit costs are similar to those encountered during bond forfeiture reclamation projects.

In the revised bond estimate the Means unit costs were adjusted for regional factors. The Division does not make regional price adjustments for prices quoted in Means or The

Bluebook Rental Rates. Regional adjustments fluctuate with market conditions which make them difficult to project.

The consultant pointed out that the volumes/areas for the stacker concrete and loadout footings and reclaim tunnel in the approved plan were in error. The correct amounts should be used when calculating the bond.

The proposed reclamation bond calls for burying the rubble site. Estimates for hauling the material to on-site disposal facilities were included in the bond. The building demolition costs were based on Means, which includes haulage up to 20 miles from the site to the disposal facility. The operator does not have to include haulage costs for building demolition unless the disposal area is greater than 20 miles from the site.

Recommendation:

The Division cannot make any bond adjustments for building demolition and disposal based on the revised bond estimate.

Deficiencies:

1. The revised bond estimates are not based on the approved MRP.
2. The Division must reject unit cost references based on the consultant's historic data and field experience because they are either unpublished or not readily available.
3. The Division must reject unit costs that are less than those anticipated if the state must reclaim the site under bond forfeiture.

Recommendations:

The operator is encouraged to reduce the bond amount by modifying the reclamation plan. Two areas with potential for major cost reduction are on site disposal of building debris and breaking into rubble any concrete and leaving it in place. *Deleterious materials such as wood, insulation and iron should not be place in areas where backfilling and grading will occur since deterioration of such materials will decrease the slope's stability.*

2.0 Facilities Demolition and Disposal

2.01 Portals

Operator's Proposal:

The operator proposes leaving the concrete portal faceup intact and backfilling over them. Other Utah permits did not show faceup removal in the reclamation plan. The unit

cost for constructing the seal was \$4.94 per square foot before being adjusted for the Salt Lake City region. The average area for the portals is 22 feet by 25 feet.

Analysis:

The concrete faceups cannot remain intact. Permits which do not require operators to remove the faceups are deficient.

When the approved plan was reviewed for portal closures, it was discovered that French drains would be placed in each portal. The current bond estimate does not include the placement of French drains. Since the cost of the French drains is minor, no bond adjustment is required at this time. The cost of constructing the French drains must be included in all future bond calculations.

To meet approximate original contour requirements the portals must be backfilled to the stoppings. If no stoppings were used, the portals must be backfilled to at least 25 feet from the opening. No backfill is listed in the permit which is a deficiency. The deficiency will not be addressed at this time, but will be included at the next permit renewal. The reclamation bond will be adjusted to include the backfilling costs.

The portal size in the revised plan is 22' by 25' and is based on the square footage given in the approved plan. The square footage for stoppings in the approved plan is for double wall stopping. The approved plan calls for solid concrete wall 3' 4" thick.

French drains and a 3' seal were designed to control discharge. The revised portal closure plan does not address mine discharge. The operator needs to address these issues before the portal closure plan can be modified. *Should the operator wish to change the seal's design, he must amend the MRP. If the seals will be subjected to hydrostatic pressure, they must be designed to withstand those forces.*

If the seals do not have to withstand hydrostatic forces, they can be designed to Division specifications. The Division allows the stoppings to be made of either solid concrete block or native rock. If concrete blocks are used, the stopping must be 24" thick and consist of two layers of blocks. The blocks should be 8" by 8" by 16". The blocks should be keyed into the roof and sides of the portal. Unless the floor consists of competent rock, a 24" footer is required.

If native stone is used, the stopping must be 24" thick. The stones must be bonded with small stone filler and mortar. The stoppings must be keyed into the roof and sides. A 36" concrete footer must be used if the floor does not consist of competent rock.

In 1993 the Abandoned Mine Lands average unit costs to install mine seals were \$25 per square foot. The unit cost for constructing the approved seals is \$55.88 per square foot. The unit cost of \$4.94 per square foot used in the revised bond calculation is for a single

block hollow wall that would not meet design specifications.

Means was the reference cited for unit cost to construct the seals in the revised bond estimate. Usually the Division accepts Means for construction cost. Based on the Division's prior mine closure work, the unit costs for seal installation should be no less than \$25 per square foot. The unit cost for concrete block walls to form the seal in the revised estimate was \$4.49 per square foot. The reference for the unit cost was Means (042-216-1150). The operator must use unit costs that are consistent with the anticipated reclamation costs that would be incurred by the Division.

The concrete faceups are scheduled to be broken up and used as fill material. In the revised bond estimate the faceups will be left intact. Since the bond must be based on the approved MRP the cost for demolishing the faceups and disposing of them on-site must be included.

Recommendation:

Bond adjustment for portal seals is not warranted at this time.

Deficiencies:

1. The seals must be designed to Division specifications. The operators proposed single block hollow concrete seals cannot be approved.
2. The unit cost must be in line with what the Division is currently spending for portal sealing.
3. The cost of demolishing the portal faceups and disposing of the debris on-site must be included in the bond.

2.02 Railroad

Applicant's Proposal:

The revised reclamation plan calls for the track and ties to be pulled from the ground with a Caterpillar 235 D excavator. Loading is accomplished by a Caterpillar 963 track loader with a multipurpose bucket. Two 12 cubic yard trucks will be used to haul the debris to the on-site landfill. The ballast will be dispersed by the excavator and loader against the highwall after the track and ties are removed.

Tim based the unit costs for rail removal on his field experiences with Northern Nevada Construction Company and conversations with contractors experienced in this activity. The unit cost was determined to be \$4.11 per linear foot. The rails and ties were assumed to have no salvage value.

Analysis:

The consultant used unit costs for railroad removal based on his field experience and contractor's estimates. The Division has two major concerns with the consultant's unit cost. The first is the use of an unpublished reference. The consultant cited historical data from Northern Nevada Construction Company. Those records cannot be accepted because they are not included in the MRP or readily available. R645-301-122 states, "If used in the permit application, referenced materials will either be provided to the Division by the applicant or be readily available to the Division."

The second concern is that unit costs in the revised bond estimate are significantly less than what the Division usually uses. The Division usually uses Means for track removal, which lists the unit cost as \$15.35 per linear foot. The unit cost in the revised bond estimate was \$4.11 per linear foot. The revised unit cost is not likely to be accepted since it is significantly less than those used by the Division.

In the revised bond calculation, the rails and ties will be placed in the on-site landfills. The wood and steel should not be included in the on-site landfill because deteriorate with age and could cause slope stability problems.

Conclusion: No bond adjustments should be made for railroad demolition and disposal at this time.

Deficiencies:

1. The operator's unit costs can not be accepted because they are neither published nor readily available to the Division.
2. The operator's unit costs cannot be accepted because they are insufficient to ensure that reclamation can be accomplished by the Division under bond forfeiture.
3. Track and ties must be disposed of in an off-site State approved landfill. Wood and iron should not be placed in backfill materials because of the potential for creating slope instability.

2.03 Underground Tanks

Operator's Proposal:

The operator proposes using the costs in the approved MRP.

Analysis:

The cost for underground tank removal was based on unit costs from Means. The total cost for tank removal is \$7,875.

Deficiencies:

None.

2.04 Power Distribution:

Operator's Proposal:

The operator proposes using the costs in the approved MRP.

Analysis:

The cost for power distribution removal was based on unit costs from Means. The total cost for power distribution removal is \$12,018.

Deficiencies:

None.

2.05 Haul Road Concrete Gutter:

Operator's Proposal:

The operator has combined pavement removal in this section. See section 2.07.

The initial activity is for a bulldozer to rip the pavement then use a Caterpillar 235 D excavator to break out pavement and gutter. A 12 cubic yard dump truck will sometimes be necessary when the pavement/gutter is being removed and there is little or no highwall for the asphalt/concrete to be stacked against. When this occurs, the excavator will load directly into the truck, The truck will then take the material up or down the road about 1/8 mile to a more suitable area. Assume the truck is always on site.

The unit cost for the excavator is based on the Caterpillar Handbook and Bluebook Rental Rates. The truck costs are based on Means. The operator estimates 120 hours to complete the project, area to be removed 30,235 square yards, and total cost of \$31,197. The operator's unit cost estimate is \$1.03 per square yard.

In 1993 Utah Department of Transportation's average unit cost excluding overhead and profit for asphalt removal was \$3.54 per square yard. Means' unit cost which includes overhead and profit was \$6.20 per square yard. The operator's unit cost is insufficient to insure reclamation costs.

The operator proposes to bury the asphalt on site. Asphalt has the potential to form leachates that can contaminate ground water. R645-301-542.640 states that roads will be reclaimed by removing or otherwise disposing of road-surfacing materials that are incompatible with the postmining land use and revegetation requirements.

The approved MRP requires the operator to dispose of the asphalt off-site. The bond must be based on the approved MRP. The operator must either dispose of the asphalt off-site or amend the MRP.

Deficiencies:

1. The operator must use unit costs that insure the Division can complete reclamation. The Division considered Means unit cost of \$6.20 per square foot sufficient to insure reclamation.
2. The operator must dispose of the asphalt off site as required by the current MRP.

Recommendations:

The operator is encouraged to modify the MRP in order to reduce the bond. On site disposal of asphalt may be permitted such would result in significant cost savings. There is concern that some asphalt may produce leachates that could contaminate the groundwater.

R2.06 Guard Rail

Operator's Proposal:

The operator proposes removing the guard rail with a 235 D Caterpillar excavator. The guard rail and post will be shipped to a waste disposal facility. The cost for removal and disposal of the guard rail is \$10,505.

Analysis:

The operator did not include overhead and profit into the guard rail cost estimates. The Means' unit cost for guard rail removal is \$5.50 per linear foot while the operator estimate is \$0.85 per linear foot. The unit cost used by the operator may not be sufficient to

insure reclamation in case of bond forfeiture.

Steel and wood are not permitted in the on site landfills because of the potential for slope instability. The guard rail and post must be shipped to an off site facility.

Recommendation: No bond reduction is warranted for guard rail removal at this time.

Deficiencies:

1. The operator must use unit costs that are sufficient to insure reclamation in case of bond forfeiture. The unit costs must include overhead and profit.
2. All wood and steel debris must be shipped to an off site landfill.

3.0 Earthwork

Operator's Proposal:

The operator used different equipment in the bond calculations, such as excavators and trucks to replace scrappers. The new earthwork calculations reduced the reclamation cost estimates from \$983,793 to \$870,000.

The operator adjusted the Blue Book equipment cost for the Utah area. That adjustment is 1.05. As stated in the demolition and removal section the Division does not make regional adjustments. The operator can reduce the equipment cost by not using the regional adjustment factor.

Analysis:

The operator did not include a water truck in the reclamation cost estimate. The earthwork should be completed in 5 months. The hourly cost of the water truck is \$174.89. The project cost for the water truck is \$153,903.

Support personnel such as oilers and laborers were not included in the approved bond calculation. The additional cost of 1 oiler for the earthwork is \$27,192 and each laborer is \$25,608. The support personnel would also require a pickup truck that would cost \$8,668.

Including an oiler, 1 laborer, a pickup and water truck in the bond estimate would increase the amount by \$215,371. The additional costs would increase the direct earthwork cost from \$870,000 to \$1,085,371.

The net increases to the approved bond for the support personnel and equipment is \$61,468. The amount is considered minor and no adjustment is needed to the existing bond at this time.

Recommendation: No bond reduction for earthwork costs is warranted at this time.

Deficiencies:

1. The operator needs to include support equipment and personnel to the earthwork costs. The support equipment included but not is limited to pick-up truck for support personnel and a water truck. The support personnel will include an oiler and laborer.

4.0 Revegetation

Operator's Proposal:

The operator proposes to eliminate the Belina haul road irrigation system. The operator does not believe the irrigation system is necessary for revegetation success.

The operator has changed the unit cost for many revegetation operations. The adjustments were made to allow for the local conditions and markets.

The irrigation system costs \$67,465. Modifying the unit costs decreases revegetation costs by \$794,488 with total savings of \$771,953.

Analysis:

The reclamation plan calls for the installation of the irrigation system on the Balina haul road. Since the bond must be based on the approved MRP, the irrigation system must be included.

The main purpose for the irrigation system was to eliminate the need for reseeding. The Division assumes a 25% of the original area must be reseeded. If the operator removes the irrigation system, he must add the reseeding costs.

The operator modified the revegetation unit costs without citing the new reference sources. R645-301-122 states "If used in the permit application, reference materials will either be provided to the Division by the applicant or be readily available to the Division. If provided, relevant portions of referenced materials will be presented briefly and concisely in the application by photocopying or abstracting and explicit citations." Because the Division was not given the reference materials, it cannot accept the new unit costs.

The unit costs given in the approved MRP are based on special handling procedure. Those procedures should insure successful revegetation without reseeding or replanting. If the unit costs are reduced because of different revegetation techniques then reseeding and replanting costs may need to be included in the bond estimate.

Recommendation: No bond reduction can be made for revegetation costs at this time.

Deficiencies:

1. The bond must be based on the approved MRP. The irrigation system must be included in the bond calculations.
2. Reference material must be published or included in the MRP.

Indirect Cost:

Operator's Proposal:

The operator determined the indirect costs based on a percentage of the direct cost. The items used to determine the indirect costs and percentages by the operator are: maintenance and monitoring 10%, contingency 10%, mobilization/demobilization 2.5%, engineering/management 6.5% and inflation 1.42% for 1.5 years. The inflation factor was based on 1.5 year the revised bond calculations were made in 1993. The operator did not state how the other percentages were determined.

Analysis:

The Division determines indirect costs based on a percentage of the direct costs. The items used to determine the indirect costs and percentages by the Division are: maintenance and monitoring 10%, contingency 10%, engineering redesign 5%, contract management fee 5%, mobilization/demobilization 2.5%, and inflation a 1.42% for 2.5 years.

Both the operator and the Division agree on the maintenance and monitoring, contingency fee and mobilization/demobilization costs and percentages.

Inflation, in current bond, is based on 2.5 years because the bond was calculated in mid-1993 and will remain in effect until the end of 1995. Both parties agree on the inflation rate of 1.42%.

The reclamation plan does not contain sufficient information or detail to be a bid document. In the event of bond forfeiture the Division would have to develop a reclamation plan with sufficient details to be used as a bid document. The 5% of the direct cost would be used to obtain additional information about the site and engineering designs and specifications.

The Division's costs to administer the project must come from the bond. Some projects may become turnkey operations because the Division does not have the expertise or manpower to administer the operation. Turnkeys project are generally expensive to administer.

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The operator did not list his references in determining indirect costs. The operator is required by R645-301-122 to use readily available reference materials or provide them to the Division.

The operator did not provide any information to the Division on why the indirect costs should be reduced.

Recommendation: No reduction in indirect cost is warranted at this time.

Deficiencies:

1. The operator must use readily available references or supply them to the Division. If the operator wants to use different items or percentages for determining indirect cost, they must be available to the Division. The Division needs to examine the references to determine if a bond modification is justified.

VALBOND.WHW