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April 14, 1988

HAND DELIVERED

Ms. Pamela Grubaugh-Littig
Utah Division of Oil, Gas & Mining
III Triad, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203

Dear Pam:

Enclosed is a draft reclamation bond estimate for Sunnyside Fuel Corporation.

Very truly yours,

Denise

Denise A. Dragoo

DAD:jmc

Enclosure

cc: Dr. Dianne Nielsen
Barbara Roberts, Esq.

take ten years for ground cover and stem densities to achieve approved standards. During this 10-year period, biennial sampling will be conducted on the reclaimed sites and the reference areas, resulting in five sampling seasons. Cost calculations for this sampling are shown in Table III-35.

Reclamation and revegetation are generally inspected and monitored by OSM and DOGM. Revegetation monitoring is discussed in Section 9.8. On federal lands, disturbed acreage and reclaimed areas will be surveyed regularly and reports submitted according to CFR 211.62. Reclaimed site productivity will be determined during the last two years of the 10 year responsibility period prior to bond release.

3.5.7 Cost Estimate for Reclamation

The reclamation bond has been computed for post-law disturbances and pre-law disturbed areas which have been used since 1977. No bond is calculated for areas disturbed and revegetated prior to 1977, (Plates III-20-23).

Interim and other minor revegetation work, such as on topsoil stockpiles, is not computed in these figures. No additional final revegetation or reclamation is planned for this permit term, outside of the ongoing regrading during refuse pile construction.

At this time, the remaining 169.20 acres designated in Table III-24, will be final reclaimed at the end of the life of the mine. Certain roads and bridges, providing access to the canyons and high country will not be reclaimed. These roads are considered to be necessary and appropriate for the post-mine land uses and include Water Canyon. These are not included in the reclaimable disturbed acreage figures.

There will be additional revegetation of unbonded pre-law areas in the future. These areas have been mapped (Plates III-20 through III-23) illustrating the current condition of the pre-law disturbances. In Appendix III-10 these areas are described and the acreages are listed in Table 2. About 50% of these pre-law disturbances were revegetated in the 1960's and about 33% remains in a completely disturbed condition.

Cost estimates for each task in the bond were taken from the Means Site Work Cost Data (1985) when available. For those pieces of equipment not in the Means Site Work Cost Data Book,

actual cost experience, depreciation, repair frequency, and cost of operating similar size pieces of equipment were used to estimate ownership and operating costs.

As the disturbed areas of the underground mine within any wooded area are very small relative to the surrounding woodlands, natural regeneration of trees will be depended on rather than transplanting. The exception being the coarse refuse area which will be reseeded to pinyon-juniper/grass. Successful methods for transplants are pending the results of transplanting on experimental refuse plots, therefore, costs will not be included in the bond at this time. Table III-45 outlines the various separate steps considered in reclamation cost development. Each step is considered separately on the following pages. Every step of reclamation will not always be necessary at each site. For example, some areas will require little regrading. The refuse pile is generally graded to shape during construction. In other cases, minor regrading may be accomplished by finishing. Derivation of these costs are found in the following pages.

3.5.7.1 Cost Estimate of Each Step of Reclamation

The cost estimate is divided into three sections: Structure Demolitions, Earth Work, and Revegetation and Soil Testing.

Removal of Buildings, Facilities and Foundations

The cost of facilities removal was derived from the Means Site Work Cost Data (1985). These costs include facility dismantling and removal from the site. Table III-28 is the breakdown and cost estimate for facility removal.

Power lines

Assumptions:

1) Poles will be cut off at ground level
2) 1000 ft/hr cable winding ($5.00/hr)
3) 4 poles per hour can be cut down (2 men)
4) Poles are 300 feet apart
5) 2 Hours per pole to strip and load poles
6) 3,400 ft power line (10,200 ft cable)

	Labor Cost	Equipment Cost
Cutting Poles	2 men 2.75 hours ($22.40/hr) $123.20	2 chain saws $300.00 each Maintenance $2/hr $ 5.50 each
Pole Striping and Removal	2 men 2 hr/pole 11 poles $985.60	
Cable Winding	2 men 1000 ft/hr/10.2 hrs $456.96	$ 51.00
Subtotal	$1,565.76	$662.00

Total Cost $2,228.00

Mine Sealing Cost

Not applicable.

Pond Reclamation Costs

There are five ponds on the Sunnyside Fuel permit that will require filling and leveling during abandonment. These ponds range in size from a 53,000 gallon capacity Pasture Sediment Pond, to an 11.8 million gallon Coal Slurry Sediment Pond system. The total combined capacity of the five ponds is over 13 million gallons.

The ponds will be filled in and leveled to blend with the surrounding topography. A D9L Cat dozer will rip and push the pond embankments to achieve this. In flat areas, the dozer will maintain a minimum 1% grade to prevent ponding.

The volume of material required to fill these ponds is calculated in Table III-38. The total volume to be pushed is 61,295 bank cubic yards (BCY). This compacted embankment material has a density of 2400 lb/yd^3. Therefore, the estimated loose cubic yards (LCY) of material is (61,295) x (2400/2200) = 66,867 LCY.

Assumptions:

1) Average push distance ... 150 feet

2) Volume ... 66,867 LCY

3) Unit Cost Rate ... $0.76/cy, 300 H.P. (Means Site Work Cost Data, 1985, 2.3-163-5220).

4) Total Cost
66,867 LCY x $0.76 = $50,819

Regrading Costs

Mode of Operation

For the purposes of this estimate, the following mode of operation is generally assumed. After final facility removal, a 300 H.P. dozer will regrade the areas to blend with the typical surrounding contours. Holes from foundation removal (removal assumed to extend about two feet below ground surface) will be filled. Berms and railroad track beds will be graded to match surrounding topography. Refuse piles are assumed to be previously constructed to their final grade. It is assumed that the remaining acreage may require at least some regrading, resulting in a maximum estimate of regrading costs. A scraper will be used to redistribute and level berms and soil stockpiles.

Soil Ripping

Ripping will be required on the sites. There are 169.20 acres which require ripping and disking to reduce compaction and prepare a seedbed. There are 47.04 acres of refuse and 122.26 of slurry that will be covered by 4'and 1', respectively of borrow material unless test plot results indicate that reclamation success will be achieved using less material, or an alternative method. A D-9 dozer will be used to rip the ground. In canyon areas where the scraper becomes immobile, the D-9 dozer will regrade the area by ripping and pushing.

Material to be Moved - Regrading and Ripping Costs

The volume of material to be moved was determined using the cross-sections from the respective areas. These cross-sections are found on Plates III-32 (1 & 2). The Means Site Work Cost Data (1985) was used for cost estimations. These costs include

overhead and profit. Portal sealing and covering costs are addressed in the Mine Portal Sealing section. Below is the computed volumes and grading costs by area.

AREA 7A

Acreage Plate III-23	169.20 ac
Total	169.20 ac

A. Haulage of Borrow Material, Coarse Refuse

Borrow Material Required 4' x 47.04 x 43,560 / 27 =	303,565 yd^3
Distance of Haul	3,000'
Equipment Rate(11)	Scraper, 21 cy $1.01/$yd^3$
Cost 303,565 yd^3 x $1.01 =	$306,601

B. Regrade - Coarse Refuse Borrow Material

Material	303,565 yd^3
Unit Rate 50' haul, 300 H.P.(3) Dozer with ripper(4) Rate	$ 0.35 0.24 $ 0.59
Cost 303,565 yd^3 x $0.59 =	$179,103

C. Haulage of Slurry Borrow Material

Borrow Material Required 1' x 71.49 ac x 43,560 / 27 =	115,337 yd^3
Distance of Haul	1,900' use 3,000'
Equipment Rate(11)	Scraper, 21 cy $1.01/$yd^3$
Cost 115,337 yd^3 x $1.01 =	$116,490

D. Regrade - Slurry Borrow Material

Material	115,337 yd^3	
Unit Rate		
50' haul, 300 H.P.[3]	$ 0.35	
Dozer with ripper[4]	0.24	
Rate	$ 0.59	
Cost		
115,337 yd^3 x $0.59 =		$68,049

F. Regrade - Areas Not Covered by Borrow Material

Material		
1' x 56.89 ac x 43,560 / 27 =	91,783 yd	
Unit Rate		
50' haul, 300 H.P.[3]	$ 0.35	
Dozer with ripper[4]	0.24	
Rate	$ 0.59	
Cost		
91,783 yd^3 x $0.59 =		$54,152

G. Total Cost Area 7 = $724,395

Soil testing

The soil testing will be done following the removal of facilities and after ripping and regrading. For bond purposes it was assumed that soil tests would be needed for all areas. It was estimated that an average of three samples per acre would be needed to determine soil quality and fertility. Each of the three samples would be from a different depth to obtain soil profile information. The number of samples is an estimate and could vary from site to site depending on severity of the disturbance. The bonding costs are based on three soil samples per acre (169.20 acres) multiplied by the average cost per sample at the Bookcliffs/ACZ Laboratory ($45.00 per sample). The cost of soil sampling and testing is summarized by area shown in Table III-45.

CHAPTER III

Soil Testing and Fertilizer Cost

The soil testing will be done following the removal of the facilities, placement of borrow material, ripping and regrading. An average of three samples per acre will be taken on all disturbed areas to determine soil quality and fertility. Each of the sample sets will be from different depths to obtain soil profile information. The number of samples is an estimate and could vary from site to site depending on the severity of the disturbance.

Cost

3 samples/acre x $45.00/sample = $135.00/acre

Phosphorus (P_2O_5) will be applied to the entire area at the rate of 30 lb/acre (recommendation from Colorado State University Soils Laboratory). Nitrogen (ammonium nitrate) will be applied where necessary at rates indicated by the soils tests. Assuming the worst case, the current soil tests indicate that 40 lbs/ac should be applied. All areas will be disked after fertilization.

Fertilizer

Material
P_2O_5 at 30 lb/ac x $175/ton = $2.63/ac
Ammonium nitrate at 40 lb/ac x $200/ton = $4.00/ac

Labor
1.0 man hours/ac (Table III-26)
1 hour/ac x $13.85/hr = $13.85/ac
(Means Construction Cost Data 1985 Equip. Oper. Crew B-10)

Equipment
Tractor with fertilizer spreader $14/hr (Table III-25)
1 hour/ac x $14.00/ac = $14.00/ac

Total = $27.85/ac

Seed Bed Preparation

Equipment
Tractor and disk, 1.0 man hours/acre (Table III-25)
1.0 hr/ac x $14.00 = $14.00/ac

Labor
1.0 hr/ac x $13.85/hr = $13.85/ac

Total = $27.85

Total Testing, Fertilizer, and Seed Bed Preparation

Rate of $197.33/ac
Cost
$197.33/ac x 169.20 reclaimable acres = $33,388

CHAPTER III

Revegetation

Total costs for revegetation have been calculated separately (Table III-29). Equipment costs were obtained from Table III-25. Table III-30 sets forth a breakdown of estimated costs for soil supplements for each vegetation type. The equipment and soil supplement costs are based on the assumption that most level slopes will be drilled and all steep slopes hydroseeded. All areas will have hay mulch and tackifier applied. The cost of the seed mix for each vegetation type is presented in Tables III-31-34. The estimated weighted average cost of revegetation is found in Table III-29.

3.5.7.2 Statistical Methodology

Any sampling on reclaimed areas or reference areas will be sampled to statistically adequate levels. To determine the number of samples that will be required to obtain an adequate sample, a two-tailed t-test (Snedecor and Cochran, 1976) $(t^2s^2)/(d_x)^2$ will be used at the 80% confidence level with a 10% (d=1.05) change in the mean. The 80% confidence level is used because all vegetation types at Sunnyside are either shrublands or woodlands (shrub cover greater than 20% of total cover).

Once adequate samples are obtained for cover and stem density, these parameters will be compared between reference areas and the corresponding reclaimed sites. These paramenters will be compared using a one tailed t-test (Larsen, 1980). Since the primary land use is wildlife, under Section UMC 817.116 the revegetation will be considered successful when ground cover of a reclaimed site is 70% of the ground cover in the reference area within 90% statistical confidence. The stem densities on the reclaimed areas must be within 90% of densities on the reference areas with an 80% statistical confidence.

Sampling Methodology

Ground cover will be estimated using the point line method, where a pin is dropped through a frame every 1/2 meter on a 25 meter transect. The first object encountered by the pin will be recorded as cover for that point. However, only understory cover will be estimated and this will not include canopy cover provided by trees or tall shurbs (shrubs over five feet tall). It would not be reasonable to expect after only ten years' growth in the reclaimed sites to achieve tree and shrub canopy cover found in the reference area.

The success of tree and shrub establishment will be determined by comparing stem densities of the reclaimed sites with the reference areas. In accordance with UMC 817.117, only shrubs or trees over one foot in height, over two years old, and with at least one-third of its length in the live crown will be counted. Densities will be estimated by counting the number of stems in a known unit area. In the pinyon-juniper types an elbow shaped plot illustrated in Figure IX-5 of the MRP will be used to estimate densities. This plot is two retangular shaped plots each, 6 x 30 meters, with one parallel to the slope and the other perpendicular. In the mountain brush and sagebrush vegetation types, a plot 13.2 ft x 33 ft (0.01 acre) will be used to estimate shrub density. This size plot was developed because of the size and density of shrubs in this type.

Responsibility Period Timetable

Once the approved densities [UMC 817.11(c)(2)] and ground cover [UMC 817.116(b)(1)] have been achieved, the 10-year responsibility period can begin. Statistically adequate samples and statistical comparisons between the reclaimed sites and the reference areas will be conducted at least four (4) years during the 10-year period. The first two sampling periods will be in the third and sixth years to assure the revegetated areas are progressing and maintaining sufficient cover and density. During the last two years, the areas will be adequately sampled and statistically compared (one tailed t-test) for ground cover and stem density to prove reclamation success and allow for bond release.

Monitoring of the Reclaimed Areas

Qualitative inspections and monitoring of the final reclamation will be done on an annual basis throughout the bonding period. All sites will be inspected at least once a year for seeding or soil stability failure or problem areas (actual or potential); any damaged areas will be repaired.

Vegetation sampling will commence on the reclaimed sites and the reference areas the second year after reseeding. This sampling will continue on a biannual basis until groundcover and stem density reaches the approved standards needed for the ten year responsibility period to begin. For bond purposes, we have assumed the reclaimed sites will require ten years to reach these standards. Therefore, five seasons of sampling will be conducted prior to the start of the responsibility period.

During the ten year responsibility period, sampling will be conducted for four seasons. During the first, third, and fifth seasons, sampling will be conducted to monitor the success of

revegetation. The final two years of sampling will be done to demonstrate reclamation success and allow for release of the bond. Labor costs for sampling are estimated an $100.00 per man per day.

Water monitoring during the period between final reseeding and bond release will consist of sampling eight sediment ponds. These eight ponds are limited discharge ponds and need to be sampled only when a discharge occurs. These ponds are designed to discharge only after a ten year, twenty-four hour storm event. For bonding purposes it was assumed these ponds will require sampling only three times each over the ten year period. The labor cost for sampling was estimated at $100.00 per man per day and labor costs at $200.00 per sample.

The monitoring costs are calculated and listed on Table III-35.

3.5.7.3 Forecast of Performance Bond Liability During Permit Term and Forecast of Liability for the Life of the Mine.

There is no difference between bond for the permit term and bond for the life of the mine. There are no additional disturbances planned for the Sunnyside Mine during the 5-year permit term.

Table III-35 gives the estimated costs for facility removal, entry sealing and reclamation costs for the reclaimed areas delineated and identified in Table III-24. In addition to the total contract and reclamation costs, there are a number of add-on costs including supervision, overhead and monitoring costs. Equipment set-up and demobilization cost includes the cost of transporting necessary reclamation equipment. The total bond was estimated to be $1,196,936.00 with the pro-rated per acre bond being $7,074.00.

The type and amount of bond will be negotiated with DOGM per UMC 805.14.

Table III-45 (cont.)

Total Performance Bond Forecast

Total Reclamation Cost	$ 866,055
Add pond reclamation (5ponds) (f)	50,819
Add field supervisor (3 months)	10,500
Add project manager (6 months)	30,770
Add monitoring (prorate $\frac{169.2 \text{ acres}}{287.36 \text{ acres}} = .589$)	100,000
Subtotal	1,058,144
Add contingency at 5%	52,907
Total Bond for Sunnyside ~~Mines~~ Fuel	1,111,051
Cost per acre (169.20 acres)	6,566.50
Adjusted Total Bond for 5-year term $(F/P, 1.5\%, 5) = (1 + i)^n = 1.0773$	1,196,936
Adjusted Cost per acre (169.20 acres)	7,074.09

(a) Costs for structure removal are found in Table III-28.
(b) Mine sealing costs are found in 3.5.7.1. These costs include portal seal construction, shaft sealing, and drill hole sealing.
(c) Ripping, pushing, and regrading costs are found in 3.5.7.1.
(d) Soil testing, fertilizing and seed bed preparation costs at $197.33/acre, are computed in 3.5.7.1.
(e) Revegetation costs are summarized in Table III-29.
(f) Pond reclamation costs are calculated in 3.5.7.1.